Georgia Department of Transportation
Design-Build Contract

MMIP Projects
P.I. Nos. 0012757, 0012758

I-16 at I-95 Interchange Reconstruction and I-16 Widening from I-95 to I-516

Chatham County

Dated Advertisement: January 19, 2018

Amendment 1: March 2, 2018
Amendment 2: March 16, 2018
Amendment 3: May 11, 2018
Let Date: June 22, 2018

DESIGN-BUILD AGREEMENT
FOR
I-16 AT I-95 INTERCHANGE RECONSTRUCTION AND
I-16 WIDENING FROM I-95 TO I-516 PROJECT
PI Nos. 0012757 and 0012758

Between

State Road and Tollway Authority,

a body corporate and politic and an instrumentality and

public corporation of the State of Georgia

and

Savannah Mobility Contractors JV,
a Joint Venture

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DESIGN-BUILD AGREEMENT
I-16 AT I-95 INTERCHANGE AND I-16 WIDENING FROM I-95 TO I-516 PROJECT

This Design and Build Agreement for the I-16 at I-95 Interchange Reconstruction and I-16 Widening from I-95 to I-516 Project (this "Agreement", or "DB Agreement") is entered into and effective as of October 19, 2018 by and between the State Road and Tollway Authority ("SRTA"), a body corporate and politic and an instrumentality and public corporation of the State of Georgia, and Savannah Mobility Contractors JV, a Joint Venture ("DB Team").

RECITALS

A. Pursuant to the Official Code of Georgia Annotated Section 32-10-60, et seq. (the "SRTA Act"), particularly Section 32-10-60(5) of the SRTA Act, SRTA is authorized to undertake certain "project[s]," approved by SRTA and the Georgia Department of Transportation ("GDOT").

B. Pursuant to Section 32-10-63(5) of the SRTA Act, SRTA is permitted to make "contracts, leases, or conveyances as ... legitimate and necessary" to carry out the purpose for which it was created.

C. Pursuant to the SRTA Act, GDOT, as grantor, on even date herewith, has entered into that certain estate for years with SRTA, as grantee, relating to the real estate interests needed to advance the development of the hereinafter referenced Project (the "Estate for Years"), as contemplated in the SRTA Act and the Official Code of Georgia Annotated (the "Code").

D. Pursuant to Section 32-2-81 of the Code, "the term 'design-build procedure'" means a method of contracting under which GDOT "contracts with another party for the party to both design and build the structures, facilities, systems, and other items specified in the contract." GDOT may use the design-build procedure for buildings, bridges and approaches, rail corridors, technology deployments, and limited or controlled access projects or projects that may be constructed within existing rights of way where the scope of work can be clearly defined or when a significant savings in project delivery time can be attained.

E. GDOT, pursuant to Article IX, Section III, Paragraph I (a) of the Constitution of the State and Section 32-2-61 of the Code, is permitted to enter into intergovernmental contracts including with SRTA.

F. GDOT and SRTA are parties to that certain I-16 at I-95 Interchange Reconstruction and I-16 Widening from I-95 to I-516 Project Intergovernmental Agreement (the "Intergovernmental Agreement") setting forth certain terms and conditions pursuant to which, among other things, the parties will assist one another in connection with the design, construction, and maintenance (during construction) of the Project, SRTA has memorialized its acceptance of the Request for Proposals (RFP) selection recommendation made by the State Transportation Board, and SRTA has designated GDOT as the project manager and agent for SRTA in respect of the transactions contemplated herein.

G. The State Transportation Board and SRTA have each passed a joint resolution (the "Joint Resolution") pursuant to which the State Transportation Board will transfer certain moneys owed by SRTA to DB Team under the terms of this Agreement.

H. Pursuant to the provisions of the Code and Chapter 672-18 of the Rules of the State Department of Transportation (the "Rules"), GDOT issued a Request for Qualifications

("RFQ") on November 14, 2017, as amended, requesting submittals of a Statement of Qualifications ("SOQ") from respondents desiring to develop the I-16 at I-95 Interchange Reconstruction and I-16 Widening from I-95 to I-516 Project (the "Project") through a Design-Build Agreement.

I. GDOT received six (6) responsive SOQs by December 21, 2017, and subsequently shortlisted or qualified five (5) responsive Proposers.

J. On January 19, 2018, GDOT issued to the shortlisted Proposers an RFP with respect to the Project.

K. On June 22, 2018, GDOT received responses to the RFP, including the response of Savannah Mobility Contractors JV on behalf of the DB Team (the "Proposal").

L. As part of the RFP, GDOT required that shortlisted Proposers commit to entering into an Agreement with SRTA for the design and construction of the Project.

M. An RFP Technical Review Committee comprised of GDOT staff determined the DB Team was the Proposer which best met the selection criteria contained in the RFP.

N. SRTA has been authorized to enter into this Agreement, and the other DB Documents, each of which forms a part hereof, pursuant to, among others, Section 32-10-63(5) of the SRTA Act, all for the express purpose of facilitating the public-private partnership contemplated under the Code and the Rules, and thereby serving the best interests of the citizens of this State.

NOW, THEREFORE, in consideration of the Work to be performed by DB Team, and DB Team's obligations with respect thereto, the foregoing premises and the covenants and agreements set forth herein, the Parties hereby agree as follows:

Article 1 DEFINITIONS; DB DOCUMENTS; ORDER OF PRECEDENCE; PRINCIPAL PROJECT DOCUMENTS

1.1 Abbreviations and Definitions

Abbreviations and definitions for certain terms used in this Agreement and the other DB Documents are contained in Exhibit 1. Other definitions may be identified within the text of the DB Documents.

1.2 DB Documents; Order of Precedence

Each of the DB Documents is an essential part of the agreement between the Parties. The DB Documents are intended to be complementary and to be read together with this Agreement as a complete agreement. Each of the DB Documents (other than this Agreement) is hereby expressly incorporated herein by reference.

1.2.1 Subject to Article 1.2.2, in the event of any conflict, ambiguity or inconsistency among the DB Documents, the order of precedence, from highest to lowest, shall be as follows:

1.2.1.1 Supplemental Agreements, Agreement amendments, and all exhibits, riders, and attachments thereto;

1.2.1.2 The Agreement (also referred to as Volume 1) and all exhibits thereto (other than Exhibit 2);

1.2.1.3 Volume 2 "Technical Provisions for Design-Build Agreement" amendments, and all exhibits and attachments to such amendments;

1.2.1.4 Volume 2 "Technical Provisions for Design-Build Agreement", and all exhibits and attachments to the Technical Provisions;

1.2.1.5 Volume 3 "Programmatic Technical Provisions for Design-Build Agreement" amendments, and all exhibits and attachments to such amendments (excluding Attachment 3-1);

1.2.1.6 Volume 3 "Programmatic Technical Provisions for Design-Build Agreement", and all exhibits and attachments thereto, excluding Attachment 3-1;

1.2.1.7 Volume 3, Attachment 3-1 "Manuals" (Technical Documents) amendments; provided that GDOT in its sole discretion may designate that such amendments or portions thereof take precedence over the Technical Provisions to the extent provided in Article 7.2.5;

1.2.1.8 Volume 3, Attachment 3-1 "Manuals" (Technical Documents);

1.2.1.9 DB Team's Proposal commitments set forth in Exhibit 2 hereto, including DB Team's Schematic Plan of Project and related Early Portions of the Work; provided that, to the extent specified in Exhibit 2, certain provisions therein shall supersede the specified provisions of the other DB Documents.

1.2.2 If the Proposal, including DB Team's Schematic Plan of Project, includes statements, offers, terms, concepts or designs that can reasonably be interpreted as offers to provide higher quality items than otherwise required by the other DB Documents or to perform services or meet standards in addition to or better than those otherwise required, or otherwise contains terms or designs which are more advantageous to SRTA than the requirements of the other DB Documents, as reasonably determined by SRTA, then DB Team's obligations hereunder shall include compliance with all such statements, offers, terms, concepts and designs, which shall have the priority of Agreement amendments (Article 1.2.1.1) and Technical Provisions amendments (Article 1.2.1.3), as applicable.

1.2.3 If the DB Documents contain differing provisions on the same subject matter, the provisions that establish the higher quality manner or method of performing the Work or use more stringent standards will prevail. Additional details in a lower priority DB Document shall be given effect except to the extent they irreconcilably conflict with requirements, provisions and practices contained in the higher priority DB Document. If the DB Documents contain differing provisions on the same subject matter that cannot be reconciled by applying the foregoing rules, then the provisions (whether setting forth performance or prescriptive requirements) contained in the document of higher order of precedence shall prevail over the provisions (whether setting forth performance or prescriptive requirements) contained in the document of lower order of precedence.

1.2.4 Where there is an irreconcilable conflict among any standards, criteria, requirements, conditions, procedures, specifications or other provisions applicable to the Project set forth in one or more manual(s) or publication(s) referenced within a DB Document or set of DB Documents with the same order of priority (including within documents referenced therein), the standard, criterion, requirement, condition, procedure, specification or other provision offering higher quality or better performance will apply, unless SRTA in its sole discretion approves otherwise in writing. If there is an irreconcilable conflict between manuals or publications referenced in DB Document of differing priorities, the order of precedence set forth in Article 1.2.1 will apply. If either Party becomes aware of any such conflict, it shall promptly notify the other party of the conflict in writing. GDOT, as SRTA's agent, shall issue a written determination respecting which of the conflicting items is to apply promptly after it becomes aware of any such conflict.

1.3 Construction and Interpretation of the DB Documents

1.3.1 The headers or captions of the Articles of this Agreement and Sections in the other DB Documents are for convenience only and shall not be deemed part of this Agreement or the DB Documents or considered in construing this Agreement or the DB Documents.

1.3.2 The language in all parts of the DB Documents shall in all cases be construed simply, as a whole and in accordance with its fair meaning and not strictly for or against any Party. The Parties hereto acknowledge and agree that the DB Documents are the product of an extensive and thorough, arm's length exchange of ideas, questions, answers, information and drafts during the Proposal preparation process, that each Party has been given the opportunity to independently review the DB Documents with legal counsel, and that each Party has the requisite experience and sophistication to negotiate, understand, interpret and agree to the particular language of the provisions of the DB Documents. Accordingly, in the event of an ambiguity in or Dispute regarding the interpretation of the DB Documents, the DB Documents shall not be interpreted or construed against the Party preparing it, and instead other rules of interpretation and construction shall be utilized. SRTA's final answers to the questions posed during the Proposal preparation process for this Agreement shall in no event be deemed part of the DB Documents and shall not be relevant in interpreting the DB Documents except as they may clarify provisions otherwise considered ambiguous.

1.3.3 Reserved.

1.3.4 References in this instrument to this "Agreement" mean, refer to and include this instrument as well as any riders, exhibits, addenda and attachments hereto (which are hereby incorporated herein by reference) or other documents expressly incorporated by reference in this instrument. Any references to any covenant, condition, obligation and/or undertaking "herein," "hereunder" or "pursuant hereto" (or language of like import) mean, refer to and include the covenants, conditions, obligations and undertakings existing pursuant to this instrument and any riders, exhibits, addenda, attachments or other documents affixed to or expressly incorporated by reference in this instrument. All terms defined in this instrument shall be deemed to have the same meanings in all riders, exhibits, addenda, attachments or other documents affixed to or expressly incorporated by reference in this instrument unless the context thereof clearly requires the contrary. Unless expressly provided otherwise, all references to exhibits,

articles and sections refer to same as set forth in this Agreement. Where a specific section is referenced, such reference shall include all subsections thereunder. Unless otherwise stated in this Agreement or the other DB Documents, words that have well-known technical or construction industry meanings are used in this Agreement or the other DB Documents in accordance with such recognized meaning. All references to a subsection or clause "above" or "below" refer to the denoted subsection or clause within the section in which the reference appears. Wherever the word "including," "includes" or "include" is used in the DB Documents, it shall be deemed to be followed by the words "without limitation". Wherever reference is made in the DB Documents to a particular Governmental Entity, it includes any public agency succeeding to the powers and authority of such Governmental Entity.

1.3.5 As used in this Agreement and the other DB Documents and as the context may require, the singular includes the plural and vice versa, and the masculine gender includes the feminine and vice versa.

1.4 Project Administration

1.4.1 Intergovernmental Agreement

1.4.1.1 SRTA and GDOT have entered into the Intergovernmental Agreement pursuant to which GDOT shall serve as the agent, representative and manager for this Project, as set forth in accordance with the terms of this Agreement, subject to the terms and conditions of this Article 1.4. During the Term, SRTA shall provide DB Team with copies of any notice of termination or expiration of the Intergovernmental Agreement.

1.4.1.2 SRTA's and DB Team's rights and obligations under the DB Documents are independent of, and are not conditioned upon, ancillary to or otherwise affected, diminished or altered in any way, by the terms of, effectiveness, enforceability or continuation of the Intergovernmental Agreement.

1.4.1.3 Pursuant to the Intergovernmental Agreement, SRTA has appointed GDOT to act on behalf of SRTA, as its agent, with respect to certain aspects of the Project and, in such capacity, GDOT shall provide Project oversight and administration on behalf of SRTA, including serving as the payment review and approval agent for amounts due to DB Team pursuant to this Agreement, conducting inspections, approving requisitions, and coordinating with and relaying decisions on behalf of SRTA with respect to the Project. Unless and until DB Team is notified in writing by SRTA to the contrary, all notices, consents, directions, decisions, approvals, acceptances, and instructions to be given by, and all notices, reports, analysis, surveys, invoices, studies, plans, and all Submittals to be delivered to SRTA with respect to the Project, shall be taken, given, directed and made through GDOT, subject to copies of such written notices to be delivered to SRTA as required pursuant to Article 24.11. The general administration of the Project by GDOT is for the sole purpose of representing the public's interests, and the interests of GDOT and SRTA, in determining that Work is executed in accordance with the DB Documents and in furtherance of Article 4.8. Notwithstanding the foregoing, SRTA has expressly reserved and retained the obligation to issue payments for amounts due to DB Team pursuant to this Agreement.

1.4.1.4 Unless DB Team receives written direction from SRTA otherwise, DB Team shall be entitled to rely on any such act, notice or statement of GDOT as if it were undertaken or given by SRTA.

1.5 Reference Information Documents

1.5.1 DB Team acknowledges that SRTA has provided and disclosed to DB Team the Reference Information Documents ("RIDs"). The RIDs are not mandatory or binding on DB Team. DB Team is not entitled to rely on the RIDs as presenting design, engineering, operating or maintenance solutions or other direction, means or methods for complying with the requirements of the DB Documents, Governmental Approvals or Law.

1.5.2 Except as expressly set forth herein, DB Team acknowledges that neither SRTA nor GDOT represents nor warrants that the information contained in the RIDs is complete or accurate or that such information is in conformity with the requirements of the DB Documents, Governmental Approvals or Laws, and neither SRTA or GDOT is responsible or liable in any respect for any causes of action, claims or Losses whatsoever suffered by any DB Team-Related Entity by reason of any use of information contained in, or any action or forbearance in reliance on, the RIDs.

1.6 Errata to the GDOT Standard Specifications

1.6.1 In interpreting standards, policies and specifications referenced in the latest edition of the GDOT Standard Specifications, Construction of Transportation Systems, as well as the Manuals listed in Volume 3, Attachment 3-1, the following apply:

(a) References to the "Department" shall mean GDOT.

(b) References to the "Contractor" shall mean the DB Team.

(c) References to "Resident Engineer" or "Engineer" in the context of the provider of compliance judgment may mean the Designer Quality Assurance Manager or Engineer of Record, as applicable, or it may mean a GDOT representative, or any combination thereof, depending on the context, and as determined by GDOT in its sole discretion and without recourse for the DB Team.

(d) References to the "Contract" shall mean the Agreement.

(e) References to the "Inspector" shall mean a representative of the Quality Assurance Firm(s), GDOT, or both.

(f) References to "plan(s)" shall mean the DB Documents.

(g) References to "The Work" shall mean the Work.

(h) Cross-references to measurement and payment provisions contained in the referenced standards, policies and specifications shall be deemed to refer to the measurement and payment provisions contained in the DB Documents.

(i) Any conflicts, ambiguities, or lack of clarity in regard to items included in the provisions, terms, or definitions used will be interpreted and defined by GDOT in its sole discretion.

The DB Team shall not take advantage of any apparent conflict, omission, ambiguity, inconsistency, inaccuracy, deficiency, or inadequacy related to the application of a requirement, action to be taken, or the definition of roles and responsibilities in the execution of the Work. Should it appear that any definition of roles and responsibilities is contrary to the philosophy of those established by the Agreement, it is the responsibility of the DB Team to request a determination by GDOT related to the respective roles and responsibilities of the DB Team, its Quality Assurance Firm(s), and GDOT.

Article 2 GRANT OF AUTHORITY AND RIGHT OF WAY

2.1 Grant of Authority for Undertaking

2.1.1 SRTA hereby grants to DB Team the revocable right, and DB Team accepts the obligation, to design and construct (including any maintenance obligations during such period as required pursuant to the DB Documents) the Project in accordance with the requirements of this Agreement and the other DB Documents.

2.2 Right of Way; Construction Easement; Ownership

2.2.1 The Project shall be constructed on and within the property as identified in the NEPA Approval and any amendment thereto (the "Property"). SRTA shall provide DB Team with access rights to the Property, together with the Existing Right of Way and State Proposed/State Acquired Right of Way as set forth in this Article 2.2.

2.2.1.1 SRTA and DB Team acknowledge and agree that GDOT is and shall remain throughout the Term the sole owner of fee title to the Property, SRTA is and shall remain throughout the Term the sole owner of a lessee's interest in and to the leasehold estate and interests provided under the Estate for Years, and that the Project and all improvements located thereon from time to time shall be and remain the property of SRTA or GDOT, to the extent of their respective interests of record or as they may otherwise agree from time to time, as applicable.

2.2.1.2 SRTA and GDOT have reserved the right to enter upon, possess, control and utilize the Property with or without payment of compensation to DB Team in accordance with this Agreement.

2.2.1.3 SRTA and GDOT have granted, and have further reserved the right to grant, to other parties, utility and other permits and easements and modifications thereto and rights of use to the Property subject to the limitations of the DB Documents.

2.2.2 Existing Right of Way, State Proposed/State Acquired Right of Way

2.2.2.1 Upon the terms and conditions of this Agreement, including as set forth in this Article 2.2, and subject to the terms and conditions of the DB Documents, as of the Effective Date, SRTA shall and does, subject to and upon issuance of NTP 1:

(a) grant to DB Team a non-exclusive right of access, ingress and egress (and the right to grant to DB Team-Related Entities a non-exclusive right of access, ingress and egress) to all real property comprising the Existing Right of Way as more particularly described and designated in Exhibit 4, subject to the exclusions and reservations set forth in this Agreement, in accordance with the terms described in the DB Documents, and

(b) as and to the extent that SRTA, has acquired a right of access or interest in State Proposed/State Acquired Right of Way as described and designated in Exhibit 4, grant to DB Team a non-exclusive right of access, ingress and egress (and the right to grant other DB Team-Related Entities a non-exclusive right of access, ingress and egress) to such State Proposed/State Acquired Right of Way.

2.2.2.2 GDOT shall be responsible for all costs, expenses and delays (including the purchase prices and court awards or judgments) associated with acquiring the State Proposed/State Acquired Right of Way.

2.2.3 State Proposed/DB Team Acquired Right of Way

2.2.3.1 Upon the terms and conditions of this Agreement, including as set forth in this Article 2.2, and subject to the terms and conditions of the DB Documents, as of the Effective Date, DB Team agrees to provide acquisition services set out in Section 5 of the Technical Provisions with respect to the State Proposed/DB Team Acquired Right of Way prior to the State Proposed/DB Team Acquired ROW Acquisition Date.

2.2.3.2 Except as provided in this Article 2.2.3.2 and Article 2.2.3.3, DB Team shall be responsible for its costs, expenses (other than the actual purchase prices and any relocation costs or costs to cure), and delays associated with acquiring State Proposed/DB Team Acquired Right of Way under this Agreement, including (a) the cost of acquisition services and document preparation in connection thereto, (b) the cost of providing a condemnation coordinator for twelve (12) months post filing of the condemnation petition as provided for in Section 5.12.5 of Volume 3 of the DBA, (c) the cost of permanent or temporary acquisition of leases, easement and other interests in real property, including for drainage, temporary work space, lay down areas, material storage areas, earthwork borrow sites, and any other convenience of DB Team, and (d) the processing cost of any required permitting. If SRTA or GDOT incurs any such costs and expenses on DB Team's behalf, SRTA may submit any invoices for such costs and expenses to DB Team, in which case DB Team shall pay the invoices within thirty (30) days of DB Team's receipt of such invoices. The DB Team shall not be entitled to payment or reimbursement for any costs or expenses as set forth in this Article 2.2, nor shall such costs or expenses be included on account of any Compensation Event.

2.2.3.3 GDOT shall be responsible for the purchase prices, relocation costs, costs to cure, court awards or judgments, for all parcels constituting the State Proposed/DB Team Acquired Right of Way.

2.2.3.4 If after reasonable effort the DB Team is unable to acquire the State Proposed/DB Team Acquired Right of Way, the DB Team may request that

SRTA shall consider and if in agreement shall cause GDOT, pursuant to the Intergovernmental Agreement, to undertake and complete the acquisition of State Proposed/DB Team Acquired Right of Way, subject to this Article 2.2.3, Section 5 of the Technical Provisions, and all applicable Laws relating to such acquisition, including the Uniform Act.

2.2.4 DB Team Proposed/DB Team Acquired Right of Way

2.2.4.1 DB Team is responsible for the acquisition of any DB Team Proposed/DB Team Acquired Right of Way. DB Team shall give written notice to SRTA, setting forth with specificity the legal description of any DB Team Proposed/DB Team Acquired Right of Way, within ten (10) days of DB Team's determination of such need, including whether or not DB Team requires assistance from SRTA and GDOT with the acquisition of such DB Team Proposed/DB Team Acquired Right of Way.

2.2.4.2 If after reasonable effort the DB Team is unable to acquire the DB Team Proposed/DB Team Acquired Right of Way, the DB Team may request, SRTA shall consider and if in agreement shall cause GDOT, pursuant to the Intergovernmental Agreement, to undertake and complete the acquisition of DB Team Proposed/DB Team Acquired Right of Way, subject to this Article 2.2.4, Section 7 of the Technical Provisions, and all applicable Laws relating to such acquisition, including the Uniform Act.

2.2.4.3 Except as provided in this Article 2.2.4, DB Team shall be responsible for all costs, expenses, and delays associated with acquiring all DB Team Proposed/DB Team Acquired Right of Way under this Agreement, including (a) the cost of acquisition services and document preparation, (b) the cost of condemnation proceedings required by the Attorney General, through jury trials and appeals, including attorneys' and expert witness fees, and all fees and expenses for exhibits, transcripts, photos and other documents and materials production, (c) the purchase prices, costs to cure, court awards or judgments, for all parcels required for the Project or the Work, (d) the cost of permanent or temporary acquisition of leases, easement and other interests in real property, including for drainage, temporary work space, lay down areas, material storage areas, earthwork borrow sites, and any other convenience of DB Team, (e) the cost of permitting, (f) closing costs associated with parcel purchases, in accordance with the Uniform Act and GDOT policies, and (g) relocation assistance payments and costs, in accordance with the Uniform Act. If SRTA or GDOT incurs any such costs and expenses on DB Team's behalf, SRTA may submit any invoices for such costs and expenses to DB Team, in which case DB Team shall pay the invoices within thirty (30) days of DB Team's receipt of such invoices. As a condition precedent to GDOT exercising its condemnation powers and the Attorney General initiating any condemnation proceedings with respect to a parcel, DB Team shall pay to SRTA the estimated amount of the costs of the condemnation proceedings, including the required monetary court deposit associated with such parcel and estimated attorneys' fees. If SRTA or GDOT pays any such costs and expenses on DB Team's behalf, DB Team shall reimburse SRTA within thirty (30) days of DB Team's receipt of an invoice therefor. Other than excess amounts, if any, remaining after such condemnation proceedings, which shall be returned to DB Team, DB Team shall not be entitled to payment or

reimbursement for any costs or expenses as set forth in this Article 2.2.4, nor shall such costs or expenses be included on account of any Compensation Event.

2.2.5 All State Proposed Right of Way and DB Team Proposed/DB Team Acquired Right of Way other than temporary interests in property for Project Specific Locations, shall be acquired in the name of GDOT.

2.2.6 DB Team represents that it has reviewed the Existing Right of Way and State Proposed Right of Way, together with the scheduled delivery dates for the State Proposed Right of Way and confirmed that the access rights to the property and timing for the grant of such rights as identified therein are sufficient and complete so as to allow DB Team access to all areas of the Property as required for the performance and completion of the Work.

2.2.7 Except as otherwise authorized by Law for temporary Project Specific Locations, neither SRTA nor GDOT (a) shall be obligated to exercise its power of eminent domain in connection with DB Team's acquisition of any such temporary right or interest, nor shall either (b) have any obligations or responsibilities with respect to the acquisition, maintenance or disposition of such temporary rights or interests.

2.2.8 Except for SRTA's failure to deliver such portion of the State Proposed/State Acquired Right of Way, as required pursuant to this Article 2.2, and solely to the extent (a) any such delay in delivery of access to any portion of the State Proposed/State Acquired Right of Way (i) results in a SRTA-Caused Delay which constitutes a Relief Event, (ii) is as a result of a SRTA Change, or (b) this Agreement expressly otherwise provides for a Relief Event and/or Compensation Event on account thereof, DB Team shall be solely responsible for all costs and delay associated therewith. Further, DB Team shall be solely responsible for all costs and delay associated with the acquisition of any DB Team Proposed/DB Team Acquired Right of Way.

Article 3 CONTRACT TIME

3.1 Term of Agreement

3.1.1 This Agreement shall remain in effect until Final Acceptance, subject to the survival of all such obligations as expressly provided herein, including without limitation, any warranty periods (the "Term"); provided that this Agreement shall be subject to earlier termination in accordance with the terms of this Agreement and the DB Documents.

3.2 Project Schedule

3.2.1 As a material consideration for entering into this Agreement, DB Team hereby commits, and SRTA is relying upon DB Team's commitment, to develop, design and fully construct the Project in accordance with the milestones and time periods set forth in this Agreement and the other DB Documents, including without limitation, in the Technical Provisions, the Project Schedule and Completion Deadlines, including Interim Completion Deadlines, subject only to delays caused by Relief Events specifically provided hereunder.

3.2.2 The time limitations set forth for DB Team's performance of its covenants and obligations as required pursuant to the DB Documents, including without limitation performance of the Work as required pursuant to the Completion Deadlines, including Interim Completion Deadlines, and Project Schedule, are of the essence, and except where this Agreement expressly provides for extension of time due to a Relief Event or allows delay subject to payment of Liquidated Damages or other compensation to SRTA, DB Team waives any right at law or in equity to tender or complete performance beyond the applicable time period, or to require SRTA to accept such performance. All references to days shall mean Calendar Days unless otherwise specified.

3.2.3 DB Team shall achieve the Interim Completion Date of each Early Portion of the Work on or before each of the applicable Interim Completion Deadlines, Substantial Completion on or before the Substantial Completion Deadline and Final Acceptance on or before the Final Acceptance deadline, time being of the essence.

3.2.4 DB Team hereby represents and warrants that the Proposal Schedule is in the form described in the Technical Provisions, has been developed in accordance with the Work Breakdown Structure requirements under Section 2.5.3.1 of the Technical Provisions, and is consistent with the Milestone Schedule set forth in Exhibit 9 to this Agreement. DB Team shall use the Proposal Schedule as a foundation to prepare the Preliminary and Project Baseline Schedules for GDOT's review and acceptance, as set forth in Section 2.5 of the Technical Provisions. The Parties shall use the Proposal Schedule or the Preliminary Baseline Schedule, whichever is controlling, for planning, monitoring the progress of the work, and may use the Proposal Schedule or Preliminary Baseline Schedule for payment for the progress of the Work until such time that the Baseline Schedule and accompanying Maximum Payment Curve is accepted by GDOT. All payments prior to GDOT acceptance of the cost-loaded Baseline Schedule and accompanying Maximum Payment Curve shall not exceed the Annual Cumulative Payment Cap and shall be subject to approval by GDOT. The proposed Preliminary Baseline Schedule shall be consistent with the Proposal Schedule and Milestone Schedule except to the extent for adjustments as provided in the DB Documents and as accepted by GDOT.

3.2.5 All Float contained in the Project Baseline Schedule shall be considered a shared resource among GDOT and the DB Team, available to any or all such parties as needed to absorb delay caused to the Critical Path components as set forth in the Project Schedule or Milestone Schedule deadlines, whether on account of Relief Events or other events of delay not constituting Relief Events. All Float shall be shown as such in the Project Schedule on each affected schedule path. GDOT shall have the right to examine the identification of (or failure to identify) Float on the Project Schedule in determining whether to accept the Project Schedule. Once identified, DB Team shall monitor and account for Float in accordance with Critical Path methodology.

3.3 Contract Time, Date of Commencement, and Notice to Proceed

3.3.1 DB Team's time period for completion of the Work is the period from the Effective Date through the Final Acceptance Date, as may be adjusted for any Relief Event as expressly provided in the Agreement (the "Contract Time"). All Work shall be performed in accordance with the Milestone Schedule attached as Exhibit 9.

3.3.1.1 SRTA anticipates issuing NTP 1 promptly following the Effective Date, and shall in any case provide for issuance of NTP 1 within thirty (30) days from DB Team's satisfaction of the conditions for execution of the Agreement. Issuance of NTP 1 authorizes DB Team to commence preliminary design activities. Title 23, Code of Federal Regulations (CFR), Section 636.103 (23 CFR Section 636.103) defines preliminary design to include, but is not limited to, preliminary engineering and other activities and analyses, such as topographic surveys, metes and bounds surveys, geotechnical investigations, hydrologic analysis, hydraulic analysis, utility engineering, traffic studies, financial plans, revenue estimates, hazardous materials assessments, general estimates of the types and quantities of materials, and other Work needed to establish the parameters for the Final Design. Prior to completion of the Environmental Documents review process, any such preliminary engineering and other activities and analyses must not materially affect the objective consideration of alternatives in the Environmental Documents review process. Preliminary design activities shall be completed in accordance with the Management Plans, the Technical Provisions, and other activities anticipated to be performed after NTP 1, including satisfying the conditions to issuance of NTP 3 under Article 3.3.1.3.

3.3.1.2 Issuance of NTP 2 authorizes the DB Team to perform all NTP 1 activities, Final Design activities, and any other activities required for start of the Construction Work. Title 23, CFR, Section 636.103 (23 CFR Section 636.103) defines Final Design as any design activities following preliminary design and expressly includes the preparation of final construction Plans and detailed specifications for the performance of Construction Work. NTP 2 will be issued once the Environmental Documents are approved, or with NTP 1 if the Environmental Documents have been approved by the Agreement execution date.

3.3.1.3 Issuance of NTP 3, also referred to as Released for Construction ("RFC"), authorizes DB Team to perform all other Work and activities pertaining to the Project, subject to conforming RFC Plans as may be related to commencement of any Element of the Construction Work. DB Team may not proceed to commence any construction activity with respect to the Project except as authorized pursuant to an RFC. An RFC may be issued for the entire project or any Construction Phase of the project. SRTA anticipates issuing NTP 3 after GDOT's issuance of Right of Way certification and within five (5) days from DB Team's satisfaction of the following conditions:

(a) Submittal by DB Team to SRTA and acceptance by SRTA of the Project Quality Management Plan and other Quality Management Plans in accordance with Article 9 of this Agreement and Section 2.3 of the Technical Provisions;

(b) Submittal by DB Team to SRTA and acceptance by SRTA of DB Team's Safety Plan under Section 2.4 of the Technical Provisions;

(c) Submittal by DB Team to SRTA and acceptance by SRTA of DB Team's Released for Construction Plans for the phases of the Project under Section 3 of the Technical Provisions;

(d) Submittal by DB Team to SRTA and acceptance by SRTA of DB Team's proposed Schedule of Values under Section 2.5 of the Technical Provisions;

(e) Submittal by DB Team to SRTA and acceptance by SRTA of the DB Team's proposed Project Baseline Schedule under Section 2.5 of the Technical Provisions;

(f) Submittal by DB Team to SRTA and acceptance by SRTA of the DB Team's Maximum Payment Curve under Article 5.3 of the Agreement and Section 2.5.9 of the Technical Provisions;

(g) Submittal by DB Team to SRTA and acceptance by SRTA of DB Team's Traffic Control Plan under Section 18.3 of the Technical Provisions for the approved Project Phase;

(h) Submittal by DB Team to SRTA and acceptance by SRTA of DB Team's Transportation Management Plan under Section 18.2 of the Technical Provisions;

(i) Submittal by DB Team to SRTA and acceptance by SRTA of the Public Information and Communications Plan (PICP) under Section 2.7.2 of the Technical Provisions;

(j) Submittal by DB Team to SRTA and acceptance by SRTA of DB Team's Construction Phasing Plan of Project under Section 2.2.5 of the Technical Provisions;

(k) Submittal by DB Team to SRTA and acceptance by SRTA of DB Team's Construction Maintenance Limits Plan under Section 19.2 of the Technical Provisions;

(l) Submittal by DB Team to SRTA and acceptance by SRTA of DB Team's Comprehensive Environmental Protection Program (CEPP) under Section 4.3 of the Technical Provisions;

(m) Submittal by DB Team to SRTA and acceptance by SRTA of DB Team's Right of Way Acquisition Plan under Section 5.8 of the Technical Provisions;

(n) Submittal by DB Team to SRTA and acceptance by SRTA of DB Team's Demolition and Abandonment Plan under Section 10.2 of the Technical Provisions;

(o) Submittal by DB Team to SRTA and acceptance by SRTA of DB Team's Maintenance Management Plan under Section 19.3 of the Technical Provisions;

(p) Evidence by DB Team of all required Government Approvals as required under Article 6.2 for the approved Project Phase;

(q) Submittal by DB Team to SRTA and acceptance by SRTA of the Post-Construction Stormwater Report under Section 12.3 of the Technical Provisions;

(r) Submittal by DB Team to SRTA and acceptance by SRTA of all Standard Utility Agreements, Utility Encroachment Permits, Utility Relocation Plans, and/or Certification of "No-Conflict" for the approved Project Phase, if required, under Article 7.5 of the Agreement and Section 6 of the Technical Provisions; and

(s) Submittal by DB Team to SRTA of qualified Worksite Utility Control Supervisor (WUCS), Worksite Erosion Control Supervisor (WECS), and Worksite Traffic Control Supervisor (WTCS).

(t) Submittal by DB Team to SRTA and acceptance by SRTA of all other Project Management Plans and other submittals required by the DB Documents to be submitted and/or accepted or approved prior to NTP 3 or start of the Construction Work for that Element of the Project.

3.3.1.4 Notwithstanding any provision to the contrary in this Article 3.3, DB Team shall not perform, nor be obligated to perform, any portion of the Work prior to issuance of approval of the Environmental Documents, except for Work authorized under 23 C.F.R. 636.103, Preliminary Work.

3.3.2 DB Team shall satisfy all conditions prior to issuance of NTP 3. DB Team shall satisfy all conditions to commencement of the Construction Work and commence such Construction Work with diligence and continuity, by the deadlines therefor set forth in Milestone Schedule attached as Exhibit 9, and any adjustments set forth therein, all as the same may be extended pursuant to this Agreement.

3.3.3 Prior to the start of any Construction Work, the DB Team shall satisfy all conditions set forth in Section 2 and Section 3 of the Technical Provisions.

Article 4 CONTROL OF THE WORK

4.1 DB Team Quality Management

The DB Team shall perform the quality management necessary to meet its obligations under the DB Documents and in accordance with GDOT Standard Specification 105.

4.2 Reserved

4.3 Reserved

4.4 Limitations on DB Team's Right to Rely

4.4.1 No review, comment, objection, rejection, acceptance, disapproval, acceptance, certification (including certificates of Substantial Completion and Final Acceptance), concurrence, monitoring, testing, inspection, spot checking, auditing or other oversight by or on behalf of SRTA or GDOT or their representatives or agents, and no lack

thereof by SRTA or GDOT, or their representatives or agents, shall constitute acceptance of materials or Work or waiver of any legal or equitable right under the DB Documents, at Law, or in equity. SRTA shall be entitled to remedies for Nonconforming Work and to identify additional Work which must be done to bring the Work and Project into compliance with requirements of the DB Documents, regardless of whether previous review, comment, objection, rejection, acceptance, disapproval, acceptance, certification, concurrence, monitoring, testing, inspection, spot checking, auditing or other oversight were conducted or given by SRTA or GDOT, or their representatives or agents. Regardless of any such activity or failure to conduct any such activity by SRTA or GDOT, or their representatives or agents, DB Team at all times shall have an independent duty and obligation to fulfill the requirements of the DB Documents. DB Team agrees and acknowledges that any such activity or failure to conduct any such activity by SRTA or GDOT, or their representatives or agents:

(a) is solely for the benefit and protection of SRTA and GDOT;

(b) does not relieve DB Team of its responsibility for the selection and the competent performance of all DB Team-Related Entities;

(c) does not create or impose upon SRTA or GDOT any duty or obligation toward DB Team to cause it to fulfill the requirements of the DB Documents;

(d) shall not be deemed or construed as any kind of warranty, express or implied, by SRTA or GDOT;

(e) may not be relied upon by DB Team or used as evidence in determining whether DB Team has fulfilled the requirements of the DB Documents;

(f) may not be asserted by DB Team against SRTA or GDOT as a defense, legal or equitable, to, or as a waiver of or relief from, DB Team's obligation to fulfill the requirements of the DB Documents; and

(g) shall not be deemed or construed as any assumption of risk by SRTA or GDOT as to the quality of Work or materials.

4.4.2 DB Team shall not be relieved or entitled to reduction of its obligations to perform the Work in accordance with the DB Documents, or any of its other liabilities and obligations, including its indemnity obligations, as the result of any activity identified in Article 4.4.1 or failure to conduct any such activity by SRTA. Such activity by SRTA shall not relieve DB Team from liability for, and responsibility to cure and correct Nonconforming Work or DB Team Defaults.

4.4.3 To the maximum extent permitted by Law, DB Team hereby releases and discharges SRTA and GDOT from any and all duty and obligation to cause DB Team's Work or the Project to satisfy the standards and requirements of the DB Documents. SRTA and GDOT are an intended third-party beneficiary of this Article 4.4.

4.4.4 Notwithstanding the provisions of Articles 4.4.1, 4.4.2 and 4.4.3:

(a) DB Team shall be entitled to rely on written approvals, acceptances, lack of responses from SRTA or GDOT (i) for the limited purpose of establishing that the approval,

acceptance or lack of response occurred or (ii) that are within its sole discretion, but only to the extent that DB Team is prejudiced by a subsequent decision of such party to rescind such approval or acceptance;

(b) DB Team shall be entitled to rely on the certificates of Substantial Completion and Final Acceptance from SRTA for the limited purpose of establishing that Substantial Completion and Final Acceptance, as applicable, have occurred, and the respective dates thereof;

(c) SRTA is not relieved from any liability arising out of a knowing and intentional material misrepresentation under any written statement SRTA delivers to DB Team; and

(d) SRTA is not relieved from performance of its express responsibilities under the DB Documents in accordance with all standards applicable thereto.

4.5 Inspection and Testing; Limitations

4.5.1 At all times during the term of this Agreement, SRTA shall have the right to conduct the monitoring, reviewing, inspection, testing, reporting, auditing and other oversight functions set forth in the DB Documents, including without limitation:

(a) monitoring and auditing DB Team and its processes, books and records, and deliverables to determine compliance with requirements of the DB Documents and the accepted Management Plans, including audit review of Design Documents, Plans, Construction Documents and other Submittals;

(b) conducting field monitoring and inspections on an audit basis as indicated in the DB Documents, including in connection with SRTA's certifications of Substantial Completion and Final Acceptance;

(c) develop quality reports, regular audit reports, reports on Defects, other reports, and findings, opinions, evaluations, comments, objections and recommendations, all as more particularly set forth in the DB Documents;

(d) reviewing and commenting on all Submittals for which SRTA review and comment or acceptance is required under the DB Documents, unless expressly provided otherwise in the DB Documents, or unless waived in writing by the Parties for a specific Submittal or type of Submittal;

(e) attending and witnessing DB Team's tests and inspections;

(f) auditing the books and records of Key Contractors to confirm compliance with the DB Documents and applicable Law;

(g) investigating, analyzing and reporting on Safety Compliance and performance of Safety Compliance Orders; and

(h) reviewing, commenting on and giving recommendations, objections or disapprovals regarding the Project Payment Request and revisions thereto, and processing such Project Payment Request.

4.5.2 SRTA shall have the right to attend and witness any tests and verifications to be conducted pursuant to the Technical Provisions and applicable Management Plans. DB Team shall provide to SRTA all applicable test results and reports (which may be provided in electronic format in accordance with the Technical Provisions) within ten (10) days after DB Team receives them.

4.6 Oversight by GDOT for FHWA and Federal Compliance

4.6.1 In addition to SRTA's rights of oversight, inspection, monitoring and auditing of DB Team's Work, GDOT shall independently have the right at all times to monitor, inspect, sample, measure, attend, observe or conduct tests and investigations, and conduct any other oversight respecting any part or aspect of the Project or the Work, to the extent necessary or advisable (a) to comply with FHWA, U.S. Army Corps of Engineers or other applicable federal agency requirements, and (b) to verify on an audit basis DB Team's compliance with the DB Documents and Management Plans as provided in Article 22.2.

4.6.2 DB Team acknowledges and agrees that SRTA and GDOT will have the right to audit, monitor and inspect DB Team and its Contractors compliance with Good Industry Practice and its responsibilities and obligations under the DB Documents.

4.6.3 GDOT will not conduct formal prior reviews of Design Documents except to the extent necessary or advisable to comply with FHWA, U.S. Army Corps of Engineers or other applicable federal agency requirements, provided that the aforementioned shall not limit SRTA's rights pursuant to this Agreement. FHWA, GDOT and SRTA reserve the right to conduct "over-the-shoulder" reviews of Design Documents or other Submittals as they may deem necessary or appropriate, including pursuant to Article 17.3.8, provided that they shall not have any obligation to conduct such reviews nor assume any responsibility for DB Team's Work, regardless of whether or not electing to perform or performing any such reviews.

4.6.4 Nothing in the DB Documents shall preclude, and DB Team shall not interfere with, any review, audit or oversight of Submittals, Work or books and records that the FHWA may desire to conduct.

4.7 Rights of Cooperation and Access; Increased Oversight

4.7.1 DB Team shall coordinate and cooperate, and require its Contractors to coordinate and cooperate, with SRTA, GDOT, and any such parties as provided in Article 4.5 and Article 4.6 to facilitate the full, efficient, effective and timely performance of all such monitoring, inspection, sampling, measuring, testing, reporting, auditing, and other oversight functions. DB Team shall cause its representatives to be available at all reasonable times for consultation with SRTA and GDOT and such other parties as required.

4.7.2 Without limiting the foregoing and subject to SRTA and GDOT complying with DB Team's reasonable safety requirements, DB Team shall afford SRTA and GDOT (a) safe and unrestricted access to the Project at all times, (b) safe access during normal business hours to DB Team's Project offices and operations buildings, (c) safe access during normal business hours to the Project Specific Locations and (d) unrestricted access to data respecting the Project design, construction, operations and maintenance, and the

Utility Adjustment Work. Without limiting the foregoing, DB Team shall deliver to SRTA and GDOT upon request accurate and complete books, records, data and information regarding Work, the Project and the Utility Adjustment Work, in the format required by the Technical Provisions.

4.7.3 SRTA shall have the right to increase the type and level of their oversight as provided in Article 4.6 and Article 17.3.8.

4.8 Limits of Responsibility for Oversight, Review, Recommendations, Inspection and Acts by GDOT and SRTA

4.8.1 Although SRTA, and its representatives and agents, may consult with DB Team during the course of the Work, no such party shall have control over, charge of, or responsibility for any of the Work, including without limitation, any design or engineering thereof, or means, methods, techniques, sequences or procedures in connection therewith, nor shall any such party be responsible for DB Team's failure to perform the Work in accordance with the requirements of the DB Documents. Any such review is not for the purpose of determining the accuracy and completeness of information or work product, all of which are DB Team's responsibility. Any review, recommendation, acceptance, inspection, response, act or omission with respect to any Submittals, or with respect to the Project, the Work (whether Construction Work or Design Work), or the Construction Documents shall be pursuant to, and solely in furtherance of the inspection powers as set forth in O.C.G.A. § 50-21-24(8).

4.8.2 DB Team shall, at all times and notwithstanding any such acts or omissions by SRTA or GDOT as provided in this Article 4 or elsewhere in this Agreement, be fully responsible for all architectural design and engineering required for the Project. DB Team expressly waives and releases (a) all claims for right of contribution against either SRTA, GDOT, or their respective representatives and agents, other than for such parties' sole negligence, arising from or related to any third-party claims, including without limitation for personal injury, death, or property damage, and (b) all claims and defenses by DB Team against either SRTA, GDOT, or their respective representatives and agents in derogation of the limitations of this Article 4, including this Article 4.8, and/or that any or all of such parties otherwise have, or by their acts or omissions, assumed any responsibility for, or related to, the design or construction of the Project, or any means, methods, or techniques in respect thereof. DB Team hereby further expressly waives any claim or defense the basis of which is to assert that either SRTA or GDOT may not delegate the responsibility for any Element of the design and construction of the Project involving public roadways, signs, or traffic controls to DB Team as provided in this Agreement.

Article 5 CONTRACT SUM, PAYMENTS, AND PUBLIC FUNDS

5.1 Payment of Contract Sum

5.1.1 SRTA shall pay DB Team the Contract Sum for Work properly performed in accordance with the DB Documents and the terms and conditions set forth in GDOT Standard Specifications, Section 109 up to the Annual Cumulative Payment Cap as set forth in Article 5.2. DB Team, in consideration for all Work performed in accordance with the DB Documents, shall be entitled to receive the Contract Sum, which amount is

inclusive of all fees, overhead, profit, insurance and bond premiums, labor and material costs, installations, delivery, warehouse and handling charges, duties, taxes and other assessments.

5.2 Maximum Annual Cumulative Payment Cap

5.2.1 Maximum Annual Cumulative Payment Cap Schedule

All payments, including mobilization but excluding Supplemental Agreements, are limited by an Annual Cumulative Payment Cap as set forth in Table 5-1. At no time in the progression of the Work, shall the DB Team's cumulative sum of the estimated work in progress value or the total progress payments received exceed the cumulative total expenditure permitted by the Annual Cumulative Payment Cap shown in Table 5-1.

TABLE 5-1
ANNUAL CUMULATIVE PAYMENT CAP SCHEDULE

Date Funds Available for Payment Requests	*Annual Funds Available*	*Annual Cumulative Payment Cap Amount*
[Date of NTP 1]	$48,000,000	$48,000,000
August 1, 2019	$96,000,000	$144,000,000
August 1, 2020	$85,000,000	$229,000,000
August 1, 2021	TBD – Annual Funds final amount from Successful Proposer price proposal	TBD – Annual Cumulative Payment Cap final amount from Successful Proposer price proposal

In no event, shall DB Team be entitled to (a) payment for any payment activity in excess of the value of the payment activity times the completion percentage of such activity or (b) aggregate payments hereunder in excess of (i) the overall completion percentage for the Project times the Contract Sum or (ii) the Annual Cumulative Payment Cap Amount for the period in which the Payment Request applies, plus amounts allowed by Supplemental Agreements.

5.2.2 Reporting Cumulative Progress and Payment

The DB Team shall prepare and maintain a cost-loaded schedule in accordance with Section 2.5 of the Technical Provisions to ensure the proposed expenditures remain under the Annual Cumulative Payment Caps (exclusive of payments for Supplemental Agreements). The monthly narrative report will include information regarding the actual accumulated expenditures compared against the planned accumulated expenditures through the then-current reporting period, and project the planned level of expenditures for the remaining Work against the funds available within each of the Annual Cumulative Payment Caps.

GDOT may require additional information from the DB Team that it deems necessary or desirable to better determine the then-current and projected status of the DB Team's actual accumulated and planned annual expenditures. In such case, GDOT has no obligation to

process the DB Team's progress Payment Requests until it has received the requested information and has a reasonable amount of time, but no earlier than five (5) days, to review and respond to the additional information.

5.2.3 GDOT Right to Stop Work

If at any time in the progression of the Work GDOT becomes aware that the DB Team's cumulative sum of the estimated work in progress value or the total progress Payments Requests received will exceed the cumulative total expenditure permitted by the Annual Cumulative Payment Cap within the current or next reporting period, GDOT shall have the right to stop the Work until such time that the annual funds available as shown in Table 5-1 exceed the amounts requested in the most-recent progress Payment Request. Any such stop Work event will not constitute a Relief Event or Compensation Event under the DB Agreement, and in no case shall the DB Team be entitled to compensation, extension of time, or any other form of relief caused by or related to such stoppage of Work. Should any Completion Deadline ultimately be delayed from such Work stoppage, such delay will be subject to the Liquidated Damages provisions in Article 17.4.1 and Exhibit 18 of the Agreement.

5.3 Maximum Payment Curve

Payments, including mobilization, but not including payments for Supplemental Agreements, are limited by a Maximum Payment Curve, which establishes a cumulative cap on amounts available for progress payments. In other words, at no time shall the DB Team's cumulative total progress payments exceed the cumulative total expenditure permitted by the Maximum Payment Curve.

The DB Team shall submit to GDOT for review and approval cost-loaded Project Schedules that establish the Maximum Payment Curve in accordance with Sections 2.5 and 2.6 of the Technical Specifications. Upon approval by GDOT and SRTA, the Maximum Payment Curve shall become a binding term and condition under this Agreement. SRTA may, in its sole discretion, unilaterally increase the Maximum Payment Curve limit for any reporting period(s) and the DB Team may request the Maximum Payment Curve be revised from time to time, subject to GDOT's approval in its sole discretion, through issuance of a no-cost Supplemental Agreement.

5.3.1 The Maximum Payment Curve shall be subject to the requirements set forth in Article 5.2 and in no case may exceed the Annual Cumulative Payment Cap limits identified in Table 5-1.

5.4 SRTA and GDOT Monetary Obligations and Overall Limitation of Liability

5.4.1 Notwithstanding anything to the contrary in the DB Documents, in no event shall SRTA's and GDOT's outstanding liability to DB Team under the DB Documents, including liability related to Compensation Events and Compensation Amounts, exceed the amount of compensation that would be payable to DB Team pursuant to a Termination for Convenience under Article 19.1.

5.4.2 The payment of any moneys owed by SRTA under the DB Documents, including without limitation amounts payable in connection with a termination, upon the occurrence of a SRTA Event of Default, or in any suit for monetary damages alleging

breach of this Agreement by SRTA, shall be limited to funds available to SRTA for such payments, including funds received by SRTA from GDOT for such purpose, and other legally available funds that are not derived from other toll projects, or that have not been budgeted, pledged, or encumbered to pay: (i) revenue bonds or (ii) other SRTA obligations (collectively, the "SRTA Payment Funds").

5.4.3 Without limiting the foregoing and for purposes of clarification, funds, including any interest earned thereon, appropriated for the purposes set forth in O.C.G.A. § 32-10-120 et seq., funds, including any interest earned thereon, derived by SRTA from other toll projects, both present and future, and other funds, including any interest earned thereon, that may now or hereafter be budgeted, pledged or encumbered to the payment of revenue bonds or other obligations of SRTA, including without limitation federal highway funds, shall not, to the extent so budgeted, pledged or encumbered, be available to meet SRTA's obligations under the DB Documents.

5.4.4 As and to the extent required, SRTA shall, on an annual basis during the Term, and more frequently if needed, request that GDOT obtain and make available to SRTA funds sufficient to enable SRTA to make all payments due to DB Team under the DB Documents during the Term (including, without limitation, (a) the Contract Sum, (b) extraordinary and unscheduled payments which may be due to DB Team, from time to time, hereunder, (c) any other amounts then anticipated to be due to DB Team from SRTA under this Agreement during the following Fiscal Year (and any subsequent periods for which such amounts are then anticipated to be due), and (d) amounts due to DB Team under Article 19 in the event this Agreement is terminated prior to the stated expiration of the Term). In addition to the foregoing, SRTA shall take any and all action required to be taken and legally available to SRTA in order to source the funds necessary to discharge its payment obligations under the DB Documents, including, without limitation, seeking the proper appropriation from the legislature (through GDOT) and issuing bonds or other debt as necessary to source such funds. Any such action by SRTA under this Article 5.4.4 shall in no way prejudice DB Team's rights and remedies under this Agreement with respect to SRTA's failure to satisfy its payment obligations under the DB Documents.

Article 6 PROJECT PLANNING AND ACCEPTANCES; PROJECT ADMINISTRATION, REVIEW AND OVERSIGHT; PUBLIC INFORMATION

6.1 Preliminary Planning and Engineering Activities; Site Conditions

6.1.1 DB Team shall perform or cause to be performed all architectural and engineering activities appropriate for design and construction of the Project in accordance with Good Industry Practice and the DB Documents, which may include, subject to the scope of Work set forth in the DB Documents or as required by SRTA by Supplemental Agreement or Directive Letter: (a) Utility Adjustments (b) technical studies and analyses; (c) geotechnical investigations; (d) right of way mapping, surveying and appraisals; (e) Subsurface Utility Engineering (SUE) investigations and mapping; (f) Hazardous Materials investigations; and (g) design and construction surveys.

6.1.2 Except to the extent that DB Team is entitled to a Relief Event and/or a Compensation Event under this Agreement, DB Team shall bear the risk of any incorrect or incomplete review, examination and investigation by it of the Site or the Existing Improvements and surrounding locations, and of any incorrect or incomplete information

resulting from preliminary architectural and engineering activities conducted by DB Team, SRTA, GDOT or any other Person. DB Team acknowledges and agrees that neither SRTA or GDOT make any warranties or representations as to any surveys, data, reports or other information provided by SRTA, GDOT, or other Persons concerning surface conditions and subsurface conditions, including the presence of Utilities, Hazardous Materials, contaminated groundwater, archeological, paleontological and cultural resources, and Threatened or Endangered Species, affecting the Site, the Existing Improvements, or surrounding locations. DB Team acknowledges that such information is for DB Team's reference only and has not been verified.

6.1.3 Except to the extent that DB Team is entitled to a Relief Event and/or a Compensation Event under this Agreement, DB Team shall bear the risk of all conditions occurring on, under or at the Site and the Existing Improvements, including (a) physical conditions of an unusual nature, differing materially from those ordinarily encountered in the area, (b) changes in surface topography, (c) variations in subsurface moisture content, (d) Utility facilities, (e) the discovery at, near or on the Property of any archeological, paleontological or cultural resources, and (f) the discovery at, near or on the Property of any Threatened or Endangered Species.

6.2 Governmental Approvals and Third-Party Agreements

6.2.1 SRTA has caused GDOT to retain responsibility for obtaining all Provided Approvals based on the design schematic contained in the NEPA Approvals. SRTA shall deliver to DB Team true and complete copies of all Provided Approvals. DB Team shall obtain all other Governmental Approvals and, except to the extent the DB Documents expressly provide SRTA or GDOT is responsible therefor, all third-party approvals and agreements required in connection with the Project or the Work, including any modifications, renewals and extensions of the Provided Approvals (including those required in connection with a Compensation Event). DB Team shall deliver to SRTA true and complete copies of all new or amended Governmental Approvals and third-party approvals and agreements. In no event shall SRTA or GDOT be responsible or liable for any delays in obtaining Provided Approvals to the extent such delays are caused by differences between the schematic contained in the NEPA Approvals and DB Team's Final Design, unless such differences are due to a SRTA Change.

6.2.2 Prior to submitting to a Governmental Entity any application for a Governmental Approval (or any proposed modification, renewal, extension or waiver of a Governmental Approval or provision thereof), DB Team shall submit the same, together with any supporting environmental studies and analyses, to SRTA (a) for acceptance or (b) for review and comment, as specified in the Technical Provisions in Table 4-2.

6.2.3 Except as expressly set forth in this Agreement to the contrary, in the event DB Team's design differs from the schematic contained in the approved Environmental Documents upon which the Provided Approvals were based, as among SRTA and DB Team, DB Team shall support necessary actions, and shall bear all risk of delay, resulting from or arising out of any associated change in the Project location and design, including (a) conducting all necessary environmental studies and preparing all necessary Environmental Documents in compliance with applicable Environmental Laws, and (b) obtaining and complying with all necessary new Governmental Approvals (including any modifications, renewals and extensions of the Provided Approvals, and other existing Governmental Approvals). SRTA, GDOT, and FHWA will independently

evaluate all environmental studies and documents and fulfill the other responsibilities assigned to them by 23 CFR Part 771.

6.2.4 Subject to clauses of Article 14.2 for Compensation Event and clauses of Article 14.1 for Relief Event and except to the extent required under the Technical Provisions, in the event DB Team is unable to obtain necessary Governmental Approvals for any design that differs from the schematics contained in the approved Environmental Documents upon which Provided Approvals were based, DB Team shall be obligated to design and construct the Project according to a design in compliance with the requirements of the Provided Approvals, and no such circumstance shall constitute a Relief Event or Compensation Event.

6.2.5 At DB Team's request, SRTA shall, or shall cause GDOT to, reasonably assist and cooperate with DB Team in obtaining from Governmental Entities the Governmental Approvals (including any modifications, renewals and extensions of existing Governmental Approvals from Governmental Entities) required to be obtained by DB Team under the DB Documents.

6.2.5.1 SRTA and DB Team shall work jointly to establish a scope of work and budget for SRTA Recoverable Costs related to the assistance and cooperation SRTA and/or GDOT will provide as contemplated herein, subject to any rights of DB Team in the case of a Compensation Event.

6.2.5.2 Such costs and expenses shall be subject to the limitations for SRTA Recoverable Costs provided however that, notwithstanding the limitations of subpart (a) in the definition of SRTA Recoverable Costs, such reimbursable amounts shall expressly include costs and expenses incurred to conduct further or supplemental environmental studies as a result of (i) any DB Team Proposed Right of Way or (ii) DB Team Release(s) of Hazardous Material.

6.2.6 DB Team shall comply with all conditions imposed by and undertake all actions required by and all actions necessary to maintain in full force and effect all Governmental Approvals, including performance of all environmental mitigation measures required by the DB Documents or Governmental Approvals and including payment of mitigation credits and any other fees required for Governmental Approvals, except to the extent that responsibility for performance of such measures and payment is expressly assigned to SRTA or GDOT in the DB Documents.

6.2.7 In the event that any Governmental Approvals required to be obtained by DB Team must formally be issued in SRTA's or GDOT's name, DB Team shall undertake necessary efforts to obtain such approvals subject to SRTA's or GDOT's reasonable cooperation with DB Team, as the case may be, at DB Team's expense (except in connection with a Compensation Event), in accordance with Article 6.2.5, including execution and delivery of appropriate applications and other documentation in form accepted by SRTA. Refer to Section 4.2 of the Technical Provisions for more specific provisions on applications in GDOT's name for Environmental Approvals.

6.2.8 In the event that SRTA, GDOT or FHWA must act as the lead agency and directly coordinate with a Governmental Entity in connection with obtaining Governmental Approvals which are the responsibility of DB Team, DB Team shall provide all necessary support to facilitate the approval, mitigation or compliance process. Such

support may include conducting necessary field investigations, surveys, and preparation of any required reports, documents and applications.

6.2.9 DB Team shall be responsible for compliance with all applicable Laws in relation to Project Specific Locations and Additional Properties for obtaining any Environmental Approval or other Governmental Approval required in connection with Project Specific Locations.

6.2.10 DB Team shall not enter into any agreement with any Governmental Entity, Utility Owner, railroad, property owner or other third party having regulatory jurisdiction over any aspect of the Project or Work or having any property interest affected by the Project or the Work that in any way purports to obligate SRTA or GDOT, or the State or an agency or department thereof, or states or implies that SRTA or GDOT has an obligation, to the third party to carry out any installation, design, construction, maintenance, repair, operation, control, supervision, regulation or other activity after the end of the Term, unless SRTA otherwise accepts in writing in its sole discretion. DB Team has no power or authority to enter into any such agreement with a third party in the name or on behalf of SRTA or GDOT.

6.3 Review and Oversight

6.3.1 Submittal, Review and Acceptance Terms and Procedures

6.3.1.1 This Article 6.3 sets forth uniform terms and procedures that shall govern all Submittals pursuant to the DB Documents and component plans thereunder. In the event of any irreconcilable conflict between the provisions of this Article 6.3 and any other provisions of the DB Documents and component plans thereunder concerning submission, review and acceptance, rejection, or approval procedures, this Article 6.3 shall exclusively govern and control, except to the extent that the conflicting provision expressly states that it supersedes this Article 6.3.

6.3.2 Time Periods

6.3.2.1 Except as expressly set forth in Section 3 of the Technical Provisions or as provided below, whenever SRTA or GDOT is entitled to review and comment or accept a Submittal, GDOT shall promptly respond within thirty (30) days from the date it receives an accurate and complete Submittal, together with a completed transmittal form, in form to be mutually agreed upon, and all necessary information and documentation concerning the subject matter included. Any period of review by SRTA more than thirty (30) days, except where Section 3 of the Technical Provisions provides for a longer time period, may be deemed a SRTA Caused-Delay and give rise to Relief Event, subject to the provisions and satisfying all DB Document requirements for Relief Events. The time periods set forth in the DB Documents for SRTA's review and acceptance or approval of Submittals, as and to the extent required shall apply to and restart with all re-submittals which DB Team may be required to provide.

6.3.2.2 The time periods set forth herein with respect to SRTA's review and acceptance, rejection, or approval, or comment on Submittals shall be subject

to adjustment as provided in Section 3 of the Technical Provisions for multiple concurrent Submittals.

6.3.2.3 All time periods for SRTA to act upon Submittals shall be extended by the period of any delay caused by any Relief Event impacting same, including as set forth in clauses of Article 14.1 for Relief Event or otherwise as and to the extent of any delay of DB Team or any DB Team-Related Entity.

6.3.2.4 During any time that SRTA is entitled under Article 17.3.8 to increase the level of its auditing, monitoring, inspection, sampling, measuring, testing and oversight of the Project, the Utility Adjustments and DB Team's compliance with its obligations under the DB Documents, the applicable period for SRTA to act on any Submittals received during such time and not related to curing the DB Team Default(s) that instigated the Article 17.3.8 action shall automatically be extended by fourteen (14) days.

6.3.2.5 SRTA shall endeavor to reasonably accommodate a written request from DB Team for expedited action on a specific Submittal, within the practical limitations on availability of personnel appropriate for acting on the types of Submittal in question; provided DB Team sets forth in its request specific, abnormal circumstances demonstrating the need for expedited action. This provision shall not apply, however, during any time described in Articles 6.3.2.3 and Article 6.3.2.4.

6.3.3 SRTA Discretionary Acceptances

If the Submittal is one where the DB Documents indicate approval or acceptance is required from SRTA in its sole discretion, then SRTA's lack of determination, decision, or other action within the applicable time period under Article 6.3.2 shall be deemed non-acceptance.

6.3.4 Other SRTA Acceptances

6.3.4.1 Whenever the DB Documents indicate that a Submittal or other matter is subject to SRTA's approval or acceptance, and no particular standard therefor is stated, then the standard shall be reasonableness.

6.3.4.2 If the reasonableness standard applies to SRTA's or GDOT's right of approval or acceptance of a Submittal, and SRTA delivers no approval or acceptance within the applicable time period under Article 6.3.2, then DB Team may deliver to SRTA a written notice stating the date within which SRTA was to have decided or acted. If SRTA does not respond or act within seven (7) days after receipt of the notice, then a delay may constitute SRTA-Caused Delay under Article 14, subject to the provisions and satisfying all DB Document requirements for Relief Events and Compensation Events. Regardless of the actual days of delay, the start of any SRTA-Caused Delay shall be measured from fourteen (14) days from the end of the last review period for that Submittal. DB Team hereby agrees to plan for and account for such notice periods within the Project Schedule.

6.3.4.3 If SRTA requires an approval of a Submittal, such approval is a formal conditional determination in writing by SRTA that a particular matter,

Submittal, or item is good or satisfactory for the Project. Such determination may be based on requirements or commitments beyond those set forth in the DB Documents and may reflect preferences of SRTA.

6.3.5 SRTA Review and Comment

6.3.5.1 Whenever the DB Documents indicate that a Submittal or other matter is subject to SRTA's or GDOT's review, comment, review and comment, disapproval or similar action not entailing a prior approval or acceptance and SRTA delivers no comments, exceptions, objections, rejections or disapprovals within the applicable time period under Article 6.3.2, then DB Team may proceed thereafter at its election and risk, without prejudice to GDOT's rights to later object, reject, or disapprove.

6.3.5.2 No such failure or delay by SRTA in delivering comments, exceptions, objections, rejections or disapprovals within the applicable time period under Article 6.3.2 shall constitute a SRTA-Caused Delay, SRTA Change, Relief Event or Compensation Event.

6.3.5.3 When used in the DB Documents, the phrase "completion of the review and comment process" or similar terminology means either (a) SRTA has reviewed, provided comments, exceptions, objections, rejections or disapprovals, and all the same have been resolved, or (b) the applicable time period has passed without SRTA providing any comments, exceptions, objections, rejections or disapprovals.

6.3.6 Submittals Not Subject to Prior Review, Comment or Acceptance

Whenever the DB Documents indicate that DB Team is to deliver a Submittal to SRTA but express no requirement for SRTA review, comment, disapproval, prior acceptance or other SRTA action, then DB Team is under no obligation to provide SRTA any period of time to review the Submittal or obtain acceptance of it before proceeding with further Work, and SRTA shall have the right, but is not obligated, to at any time review, comment on, take exception to, object to, reject or disapprove the Submittal. No failure or delay by SRTA in delivering comments, exceptions, objections, rejections or disapprovals with respect to any Submittal as set forth in this Article 6.3 shall constitute a Relief Event or Compensation Event.

6.3.7 Resolution of SRTA Comments and Objections

6.3.7.1 If the Submittal is one not governed by Article 6.3.3 or Article 6.3.6, SRTA's exception, objection, rejection or disapproval shall be deemed reasonable, valid and binding if based on any of the following grounds:

(a) The Submittal or subject provision thereof fails to comply with any applicable covenant, condition, requirement, commitment, term, or provision of the DB Documents or Management Plans thereunder;

(b) The Submittal or subject provision thereof is not to a standard equal to or better than the requirements of Good Industry Practice;

(c) DB Team has not provided all content or information required in respect of the Submittal or subject provisions thereof, provided that SRTA assumes no duty, obligation or liability regarding completeness or correctness of any Submittal, including a Submittal that is to be delivered to a Governmental Entity as a proposed Governmental Approval, or in order to obtain, modify, amend, supplement, renew, extend, waive or carry out a Governmental Approval;

(d) Adoption of the Submittal or subject provision thereof, or of any proposed course of action thereunder, would result in a conflict with or violation of any Law or Governmental Approval; or

(e) In the case of a Submittal that is to be delivered to a Governmental Entity as a proposed Governmental Approval, or in order to obtain, modify, amend, supplement, renew, extend, waive or carry out a Governmental Approval, it proposes commitments, requirements, actions, terms or conditions that are not arrangements that SRTA offers or accepts for addressing similar circumstances affecting its own projects.

6.3.7.2 DB Team shall timely and promptly respond to all of SRTA's comments and objections to a Submittal and, except as provided below, make modifications to the Submittal as necessary to fully reflect and resolve all such comments and objections, in accordance with the review processes set forth in this Article 6.3. DB Team acknowledges that SRTA may provide comments and objections which reflect concerns regarding interpretation or preferences of the commenter or which otherwise do not directly relate to grounds set forth in Article 6.3.7.1. DB Team agrees to undertake reasonable efforts to accommodate or otherwise resolve any such comments or objections through the review processes described in this Article 6.3.

6.3.7.3 If DB Team fails to notify SRTA within such time period, SRTA may deliver to DB Team a written notice stating the date by which DB Team was to have addressed SRTA's comments and that if DB Team does not address those comments within five (5) Business Days after receipt of this notice, then that failure shall constitute DB Team's agreement to make all changes necessary to accommodate and resolve the comment or objection and full acceptance of all responsibility for such changes without right to a Relief Event or Compensation Event.

6.3.7.4 The foregoing shall in no way be deemed to obligate DB Team to incorporate any comments or resolve objections that would render the Submittal erroneous, defective or less than Good Industry Practice, except pursuant to a SRTA Change.

6.3.7.5 After SRTA receives DB Team's explanation as to why the modifications are not required as provided in Article 6.3.7.2, Article 6.3.7.3 and Article 6.3.7.4, the Parties shall attempt in good faith to resolve the Dispute. If they are unable to resolve the Dispute, it shall be resolved according to Article 17.7 except (a) as provided otherwise in Article 6.3.3, and (b) if SRTA elects to issue a Directive Letter pursuant to Article 13.1 with respect to the disputed matter, the DB

Team shall proceed in accordance with SRTA's directive while retaining any claim as to the disputed matter.

6.4 Community Outreach and Public Information

DB Team shall provide on-going information to the public concerning the development of the Project, in accordance with the Public Information and Communications Plan prepared by DB Team pursuant to Section 2.7 of the Technical Provisions, if applicable.

Article 7 DEVELOPMENT OF THE PROJECT

7.1 General Obligations of DB Team

DB Team, in addition to performing all other requirements of the DB Documents, shall:

7.1.1 Furnish all design, engineering and other services, provide construction management and all work, including all materials, equipment, labor, and installations, and undertake all efforts necessary or appropriate (excluding only those materials, services and efforts which the DB Documents expressly specify will be undertaken by SRTA or other Persons) to construct the Project and maintain it during construction, so as to achieve Substantial Completion and Final Acceptance by the applicable Milestone Schedule Deadlines;

7.1.2 At all times provide a Project Manager approved by SRTA who (a) will have full responsibility for the prosecution of the Work, including Design Work and Construction Work, (b) will act as agent and be a single point of contact in all matters on behalf of DB Team, (c) will be present (or his/her designee approved by SRTA will be present) at the Site at all times that Design Work or Construction Work is performed, and (d) will be available to respond to SRTA;

7.1.3 Comply with, and require that all Contractors comply with, all requirements of all applicable Laws;

7.1.4 Cooperate with SRTA, GDOT, and Governmental Entities with jurisdiction in all matters relating to the applicable portions of the Work, including Design Work and Construction Work for the Project, including their review, inspection and oversight of the design and construction; and

7.1.5 Use commercially reasonable efforts to mitigate delay to design and construction of the Project and mitigate damages due to delay in all circumstances, to the extent possible, including by re-sequencing, reallocating, or redeploying DB Team's and its Contractors' forces to other work.

7.2 Performance, Design and Construction Standards

7.2.1 DB Team shall furnish all aspects of the Design Work and all Design Documents, and shall construct the Project and perform the Construction Work as designed, free from Defects, and in accordance with (a) Good Industry Practice, (b) the requirements, terms and conditions set forth in the DB Documents, (c) the Project Schedule, (d) all Laws, (e) the requirements, terms and conditions set forth in all

Governmental Approvals, and (f) the requirements of the accepted Quality Management Plan (QMP) or to be prepared thereunder, in each case taking into account the Existing Right of Way, Required Right of Way, and any Additional Property limits and other constraints affecting the Project and the Property.

7.2.2 Reserved.

7.2.3 DB Team acknowledges that prior to the Effective Date it had the opportunity to identify any provisions of the Technical Provisions or Technical Documents that are erroneous or create a potentially unsafe condition, and the opportunity and duty to notify SRTA in writing of such fact and of the changes to the provision that DB Team believed were the minimum necessary to render it correct and safe. If it is reasonable or necessary to adopt changes to the Technical Provisions or Technical Documents after the Effective Date to make the provisions correct and safe, such changes shall not be grounds for a Relief Event or Compensation Event unless (a) DB Team neither knew nor had reason to know prior to the Effective Date that the provision was erroneous or created a potentially unsafe condition or (b) DB Team knew of and reported to SRTA the erroneous or potentially unsafe provision prior to the Effective Date and SRTA did not adopt reasonable and necessary changes. Except for a circumstance as set forth under (b) herein, if DB Team commences or continues any Design Work or Construction Work affected by such a change after the need for the change was discovered or suspected, or should have been discovered or suspected through the exercise of reasonable care, DB Team shall bear any additional costs associated with redoing the Work already performed. Inconsistent or conflicting provisions of the DB Documents shall not be treated as erroneous provisions under this Article 7.2.3, but instead shall be governed by Article 1.2.

7.2.4 References in the Technical Provisions or Technical Documents to manuals or other publications governing the Design Work or Construction Work prior to the Substantial Completion Date shall mean the most recent editions in effect at the date of the RFP advertisement, unless expressly provided otherwise. Any changes to the Technical Provisions and Technical Documents, including Safety Standards, respecting Design Work or Construction Work prior to the Substantial Completion Date shall be subject to the Supplemental Agreement process for a SRTA Change in accordance with Article 13. Safety Compliance changes shall be in accordance with Article 12.1.

7.2.5 The Parties anticipate that from time to time after the Effective Date, SRTA or GDOT will adopt, through revisions to existing manuals and publications or new manuals and publications, changed, added or replacement standards, criteria, requirements, conditions, procedures, specifications and other provisions, including Safety Standards, relating to Design Work and Construction Work. SRTA shall have the right to add such changed, added or replacement standards, criteria, requirements, conditions, procedures, specifications and other provisions, including Safety Standards, to Volume 3 by notice to DB Team, whereupon they shall constitute amendments, and become part, of the Technical Documents. If such changed, added or replacement Technical Documents or Safety Standards encompass matters that are addressed in the Technical Provisions or Technical Documents as of the Effective Date, they may, upon inclusion in Volume 3, replace and supersede inconsistent provisions of the Technical Provisions and Technical Documents to the extent designated by SRTA in its sole discretion. SRTA will identify the superseded provisions in its notice to DB Team. Notwithstanding the foregoing, in the absence of a SRTA Change and except as provided otherwise in Article 7.5.3 with respect to Adjustment Standards, if SRTA or GDOT adopts

the changed, added or replacement standards, criteria, requirements, conditions, procedures, specifications and other provisions, including changed, added or replacement Safety Standards, prior to the Final Acceptance Date, DB Team shall not be obligated to (but may) incorporate the same into its design and construction of the Project prior to the Final Acceptance Date.

7.3 Design Implementation and Submittals

7.3.1 DB Team, through the appropriately qualified and licensed design professionals identified in DB Team's Key Personnel as identified in Exhibit 2 and in accordance with Section 2 of the Technical Provisions, shall prepare designs, Plans and specifications in accordance with the DB Documents. DB Team shall cause the Engineer of Record for the Project to sign and seal all Released for Construction Documents, any revisions to the Released for Construction Documents, all design changes, all Shop Drawings; and for conformance, the Record Drawings (As-Builts).

7.3.2 DB Team shall deliver to SRTA accurate and complete duplicates of all Interim Design, and Preliminary and Final Plans and Construction Documents within the time and in the form required by the Technical Provisions.

7.3.3 The Engineer of Record shall initiate or sign-off on all requests for information prior to their being submitted to GDOT.

7.4 Reserved

7.5 Utility Adjustments

7.5.1 DB Team's Responsibility

7.5.1.1 DB Team is responsible for causing, in accordance with the Project Schedule, all Utility Adjustments necessary to accommodate construction, operation, maintenance and/or use of the Project. DB Team shall coordinate, monitor, and otherwise undertake the necessary efforts to cause Utility Owners performing Utility Adjustment Work to perform such work timely, in coordination with the Work, and in compliance with the standards of design and construction and other applicable requirements specified in the DB Documents.

7.5.1.2 In addition to GDOT's Project administration, GDOT shall independently have the right at all times to approve Utility Adjustments as provided herein. DB Team shall coordinate and be required to procure GDOT approval as required.

7.5.1.3 Regardless of the arrangements made with the Utility Owners, the DB Team shall continue to be the responsible party to SRTA for timely performance of all Utility Adjustment Work so that upon completion of the Work, all Utilities that might impact the Project or be impacted by it (whether located within or outside the Construction Maintenance Limits) are compatible with the Project. SRTA shall cause GDOT to provide to DB Team the benefit of any provisions in recorded utility or other easements affecting the Project which require the easement holders to relocate at their own expense (unless specified otherwise in the Technical Provisions or a Utility Agreement), subject, however, to any

provisions of applicable Law affecting the easement holder's obligations for Utility Adjustments.

7.5.2 Standard Utility Agreements

The DB Team will be responsible for completion of all required Standard Utility Agreements. The DB Team will work with the State Utilities Preconstruction Manager, or assigned designee, to acquire the appropriate Agreement template and coordinate the completion of all required Standard Utility Agreements with Utility Owners. Upon completion of the Standard Utility Agreement with the Utility Owner, the signed agreement should be forwarded to the District Utilities Manager for review and acceptance. Upon the acceptance by the District, the Standard Utility Agreement shall be forwarded to the State Utilities Preconstruction Manager for processing and final acceptance. As described in the GDOT Utility Accommodation Policy and Standards Manual ("UAM"), Chapter 4.2.F Agreements cover all requirements for Standard Utility Agreements.

7.5.3 Requirements

Each Utility Adjustment (whether performed by DB Team, Sub-Contractor or by the Utility Owner) shall comply with the Adjustment Standards in effect as of the date of advertisement of the contract, together with any subsequent amendments and additions to those standards that (a) are necessary to conform to applicable Law, or (b) are adopted by the Utility Owner and affect the Utility Adjustment pursuant to the applicable Standard Utility Agreement(s). In addition, all Utility Adjustment Work shall comply with all applicable Laws, the applicable Standard Utility Agreement(s), and all other requirements specified in Section 6 of the Technical Provisions.

7.5.4 Failure of Utility Owners to Cooperate/Escalation

DB Team shall use diligent efforts to obtain the cooperation of each Utility Owner as necessary for Utility Adjustments. It shall be the DB Team's responsibility to coordinate and track each utilities progress in relation to the Utility Work Plan or Revised Utility Work Plan previously accepted by SRTA. Once the DB Team has determined that the Utilities work progress is at least 20% behind the accepted Utility Work Plan; the DB Team will notify the Utility Owner, and SRTA of such apparent delay through written correspondence. Such written correspondence shall detail the delay in question and request the Utility to submit a proposal on how the Utility Owner plans to rectify such delay and maintain the project's schedule prescribed by the previously accepted Utility Work Plan. The Utility will respond to this letter within ten (10) Business Days. The response shall include a proposal to cure the delay identified by the DB Team. In some cases, the complexity of the project may require that a utility coordination meeting be held to address the issues identified by the DB Team. If the Utility determines that this is the case, then the Utilities response letter shall include a request to hold a utility coordination meeting with the DB Team, the Office of Innovative Delivery Utility Liaison, the District Utility Manager and the Construction Manager for utility delay resolution. If the utility delay cannot be resolved through the coordination efforts described above after twenty (20) Business Days from the date provided in the DB Team's original written correspondence; the said Dispute shall escalate to the State Construction Engineer for further consideration. If additional escalation is required, DB Team shall follow escalation procedures as outlined in the UAM, Chapter 672-19 of the Rules, and O.C.G.A. § 32-6-171.

7.5.5 Utility Permits (GUPS)

7.5.5.1 It is anticipated that during the design and construction phases of the Work, from time to time Utility Owners will apply for utility permits to install new Utilities that would cross or longitudinally occupy the Property, or to modify, upgrade, repair, relocate or expand existing Utilities within the Property for reasons other than accommodation of the Project.

7.5.5.2 As specified in Article 7.5.5.1, for all such utility permit applications pending as of or submitted after the Effective Date, DB Team shall furnish the most recent Project design information and/or as-built Plans, as applicable, to the applicants, and shall assist each applicant with information regarding the location of other proposed and existing Utilities. DB Team shall keep records of its costs related to new Utilities separate from other Project Costs.

7.5.6 Unexpected Utility Adjustments

Within one hundred twenty (120) days after the initial NTP 2, DB Team shall conduct an investigation for any unidentified Utility. If DB Team finds an unidentified Utility during the one hundred twenty (120) day time frame, DB Team may be entitled to a Compensation Event or a Relief Event. If DB Team finds an unidentified Utility after the one hundred twenty (120) day time frame, DB Team shall not be entitled to a Compensation Event or a Relief Event. If a Utility is shown on the SUE Plans and not to be impacted by DB Team's Final Design, but is later identified by DB Team as needing to be relocated, DB Team shall not be entitled to a Compensation Event or a Relief Event. Notwithstanding the foregoing, DB Team shall not be entitled to a Compensation Event or a Relief Event for any Utility whose location, size and dimensions were reasonably accurate and shown on the SUE Plans.

7.5.7 Early Adjustments

If any Adjustments are designated as Early Adjustments in Section 6 of the Technical Provisions, such Adjustments are anticipated to be completed by the Utility Owner prior to the deadline therefore set forth in the Technical Provisions. DB Team's obligation to provide Protection in Place for Utilities includes any Early Adjustments, whether or not timely completed. DB Team shall coordinate with SRTA, GDOT, and the Utility Owner as may be necessary for orderly completion of any Early Adjustments, and DB Team shall conduct its Work without interfering with or hindering the progress or completion of any Early Adjustments.

7.6 Conditions to Commencement of Construction Work

7.6.1 Construction Work Generally

Except to the extent expressly permitted in writing by SRTA, DB Team shall not commence or permit or suffer commencement of construction of the Project, or applicable portion thereof, until SRTA issues NTP 3 and all of the conditions of Article 3.3.1.3 have been met.

7.6.2 Utility Adjustments

DB Team shall not commence or permit or suffer commencement of construction of a Utility Adjustment included in the Construction Work until SRTA issues NTP 3, and the requirements of Article 7.5 have been met.

7.7 Substantial Completion, Punch List, Final Acceptance; Early Opening of Portions of the Project

7.7.1 Substantial Completion

7.7.1.1 SRTA will issue a written certificate of Substantial Completion at such time as Substantial Completion occurs which shall be subject to the terms and conditions of this Article 7.7.1.

7.7.1.2 Substantial Completion shall occur upon satisfactory completion of the requirements of GDOT Standard Specification 108.07.G.

7.7.1.3 All comments from EPD on the Post-Construction Stormwater Report have been addressed by the DB Team, and the EPD's 90-day Post-Construction Stormwater Report disapproval period has expired.

7.7.1.4 DB Team shall provide SRTA and GDOT with not less than twenty (20) days prior written notification of the date DB Team determines it will achieve Substantial Completion. A written request for Substantial Completion will not be taken into consideration unless the requirements of the DB Documents have been met, and the request has been approved in writing by the Construction Quality Assurance Firm confirming Substantial Completion requirements of Article 7.7 are met. During such notice period, DB Team, SRTA, and GDOT shall meet and confer and exchange information on a regular cooperative basis with the goal being SRTA's orderly, timely inspection and review of the Project and the applicable Final Plans and Construction Documents, and SRTA's issuance of a written certificate of Substantial Completion.

7.7.1.5 During the period specified in Article 7.7.1.4, GDOT shall conduct an inspection of the Project and its components, a review of the applicable Final Plans and Construction Documents and such other investigation as may be necessary to evaluate whether Substantial Completion is achieved. GDOT shall deliver a written report of findings and recommendations to SRTA and the DB Team following such inspection, review and investigation and within five (5) days after the end of the period specified in Article 7.7.1.4. SRTA shall then either (a) issue the written certificate of Substantial Completion or (b) notify DB Team in writing setting forth, as applicable, why the Project has not reached Substantial Completion. If SRTA and DB Team cannot agree that the Substantial Completion has been completed by the Substantial Completion Date defined in Exhibit 9, such Dispute shall be resolved according to Article 17.

7.7.2 Punch List

7.7.2.1 The Construction Quality Assurance Firm (CQAF) shall prepare and provide an accurate preliminary punch list to GDOT and the Owner Verification Firm (OVF) sixty (60) days prior to the Substantial Completion walk through date. The OVF will prepare and maintain the final Punch List with input

from GDOT and SRTA. Each participant shall have the right to add items to the Punch List and none shall remove any item added by any other without such other's express permission. If DB Team objects to the addition of an item by SRTA and GDOT, the item shall be noted as included under protest, and if the Parties thereafter are unable to reconcile the protest, the Dispute shall be resolved according to Article 17. The OVF shall deliver to SRTA, GDOT, and the DB Team a true and complete copy of the final Punch List, and each modification thereto, as soon as it is prepared.

7.7.2.2 DB Team shall immediately commence work on the Punch List items and diligently prosecute such work to completion, consistent with the DB Documents, prior to issuance of Final Acceptance.

7.7.3 Final **Acceptance**

7.7.3.1 Promptly after achieving Substantial Completion, DB Team shall perform all remaining Construction Work for the Project, including completion of all Punch List items, all landscaping other than vegetative ground cover, and aesthetic features. DB Team shall prepare and adhere to a timetable for planting and establishing the vegetative ground cover landscaping, taking into account weather conditions necessary for successful planting and growth, which timetable shall in any event provide for vegetative ground cover landscaping to be planted and established by twelve (12) months after Substantial Completion.

7.7.3.2 SRTA will issue a written certificate of Final Acceptance at such time as all of the following have occurred for the Project:

(a) All requirements for Substantial Completion have been satisfied;

(b) All Punch List items have been completed and delivered to the reasonable satisfaction of SRTA and GDOT;

(c) SRTA and GDOT has received a complete set of the Record Drawings in form and content required by Section 3.9 of the Technical Provisions;

(d) All Utility Adjustment Work and other work that DB Team is obligated to perform for or on behalf of third parties has been accepted by such third parties, and DB Team has paid for all work by third parties that DB Team is obligated to pay for, other than disputed amounts;

(e) DB Team has paid in full all Liquidated Damages that are due to SRTA pursuant to this Agreement and are not in Dispute, and has provided to GDOT reasonable security for the full amount of Liquidated Damages that may then be the subject of an unresolved Dispute;

(f) There exist no uncured DB Team Defaults that are the subject of a Warning Notice, or with the giving of notice or passage of time, or both, could become the subject of a Warning Notice (except any DB Team Default for which Final Acceptance will affect its cure);

(g) DB Team has received, and paid all associated fees for, all applicable Governmental Approvals and other applicable third-party approvals required pursuant to the DB Documents, and there exists no uncured material violation of the terms and conditions of any such Governmental Approval or other third-party approvals;

(h) DB Team has delivered to SRTA and GDOT all warranties, manuals and other Deliverables as required pursuant to the Technical Provisions; and

(i) DB Team has delivered to SRTA and GDOT verification of all required post construction period, including completed operations, Insurance Policies required under the DB Documents.

7.7.3.3 DB Team shall provide SRTA with written notification when DB Team determines it has achieved Final Acceptance. During the fifteen (15) day period following receipt of such notification, DB Team, SRTA, and GDOT shall meet and confer and exchange information on a regular cooperative basis with the goal being GDOT's orderly, timely inspection and review of the Project and the Record Drawings, and SRTA's issuance of a written certificate of Final Acceptance.

7.7.3.4 During such fifteen (15) day period, GDOT shall conduct an inspection of the Punch List items, a review of the Record Drawings and such other investigation as may be necessary to evaluate whether the conditions to Final Acceptance are satisfied. SRTA shall deliver a written report of findings and recommendations to DB Team following such inspection, review and investigation and in any case by the end of such fifteen (15) day period.

7.7.3.5 Within five (5) days after expiration of such fifteen (15) day period and SRTA's receipt of GDOT's report of findings and recommendation, SRTA shall either (a) issue a certificate of Final Acceptance or (b) notify DB Team in writing setting forth, as applicable, why Final Acceptance has not been achieved. If SRTA and DB Team cannot agree as to the date of Final Acceptance, such Dispute shall be resolved according to Article 17.

7.7.4 Early Opening of Portions of the Project

The Proposer may open portions of the Work before Substantial Completion, in which case each will be identified in the Preliminary Baseline Schedule and, with the same duration from NTP 1, the Baseline Schedule when each of those portions will be safe to open.

If the DB Team determines that a portion of the Work identified in the Preliminary Baseline Schedule is safe to open to traffic, that portion must include the following prior to being considered safe to open: all lanes in that direction paved to final pavement surface layer, permanent striping (temporary tape may be used in lane drop tapers), temporary signing, and temporary barrier wall installed. When it determines that that portion of Work is safe to open, the DB Team may notify GDOT thereof through written notice identifying the portion of the Work and asserting that the DB Team believes that it is safe to open. Prior to notifying GDOT, the Engineer of Record shall review the condition of that portion of the Work and make a determination that it is safe to open or will produce a checklist of any remaining Work that must be completed prior to that portion of the Work being considered

safe to open, with required changes to the Work identified, and submit the checklist to GDOT. Upon receipt of such list, GDOT will review the list and accept, revise, or reject the list for completeness or sufficiency of the items identified and proposed resolution. The DB Team may not open any portion of the Work unless GDOT provides written notice to the DB Team that such portion of Work is safe to open.

The DB Team and GDOT together will inspect that portion of the Work asserted to be safe to open. GDOT will respond within five (5) days after the agreed-upon date of the inspection. If GDOT concurs, GDOT will provide written notice to the DB Team that such portion of the Segment is safe to open. If GDOT does not concur, it will provide the DB Team a list of the items that need to be corrected or completed prior to opening that portion of the Work. This process will repeat until GDOT concurs and provides written notice that that portion of the Work is safe to open and will identify the date when GDOT's determination was made. The date so identified is the Interim Completion Date for that portion of the Work.

If the Interim Completion Date is later than the Interim Completion Deadline, as identified in Exhibit 9 to the Agreement, the DB Team is liable for Liquidated Damages per Article 17.4.1.

The DB Team remains responsible for all repair or replacement for portions of the Work released prior to Final Acceptance. Maintenance responsibilities remain with the DB Team until GDOT issues Final Acceptance. Designation of safe to open for any portion of the Project shall not start a warranty period for any portion of the Work or void or alter any terms of the Agreement.

Opening of portions of the Project prior to Substantial Completion or Final Acceptance does not constitute acceptance of the Work or a waiver of any provisions of the DB Documents.

7.8 Hazardous Materials Management

DB Team shall comply with all requirements set forth in GDOT Standard Specification 107.22 and Exhibit 11.

7.9 Environmental Compliance

Throughout the course of the Design Work and Construction Work, DB Team's Work shall take into account, be coordinated to allow for, and be performed in accordance with all environmental mitigation measures required under the Environmental Document approvals, including but not limited to the NEPA/GEPA Approval and any other Governmental Approvals for the Project, or under the DB Documents, and shall comply with all other conditions and requirements of the Environmental Approvals in accordance with Section 4 of the Technical Provisions, provided that the foregoing shall not require nor imply any requirement for DB Team to perform any remediation or disposal of Pre-existing Hazardous Materials or SRTA Release(s) of Hazardous Materials.

7.10 Meetings

7.10.1 DB Team shall conduct regular progress meetings with SRTA and GDOT at least once a week during the course of Design Work and Construction Work. These meetings shall be attended by the DB Team's Lead Contractor's project manager and the

Engineer of Record or Authorized Representatives of each and any other Key Personnel and other personnel as needed for productive use of the meetings.

7.10.2 In addition, SRTA and DB Team, through their respective Authorized Representatives, shall meet from time to time at the other Party's request to discuss and resolve matters relating to the Work or the Project.

7.10.3 DB Team shall schedule all meetings with SRTA and GDOT at a date, time and place reasonably convenient to both Parties and, except in the case of urgency, shall provide SRTA and GDOT with written notice and a meeting agenda at least one (1) Business Day in advance of each meeting.

7.10.4 DB Team shall be responsible to document and maintain the full subject matter of all meetings and shall distribute copies of meeting minutes to SRTA and GDOT not later than the timeframes specified in the Technical Provisions, and in the absence of any specified timeframe, within five (5) days following such meetings.

7.11 Contractor Warranties and Correction of Non-Conforming and Defective Work

7.11.1 DB Team shall obtain customary and reasonable warranties from all Contractors with respect to design, materials, workmanship, installations, equipment, tools, supplies, software or services, all of which DB Team shall cause to be expressly extended and assigned to SRTA, or its designee; provided that the foregoing requirement shall not apply to standard, pre-specified manufacturer warranties of mass-marketed materials, products (including software products), equipment or supplies where the warranty cannot be extended to SRTA using commercially reasonable efforts. To the extent that any Contractor warranty would be voided by reason of DB Team's negligence in incorporating material or equipment into the Work, DB Team shall be responsible for correcting such defect.

7.11.2 Contractor warranties (if any) are in addition to all rights and remedies available under the DB Documents or applicable Law or in equity, and shall not limit DB Team's liability or responsibility imposed by the DB Documents or applicable Law or in equity with respect to the Work, including liability for design defects, latent construction defects, strict liability, breach, negligence, willful misconduct or fraud.

7.11.3 When any act, omission, or other action of DB Team occurs that violates the requirements, conditions, or terms of the DB Documents, or affects the health, safety, or welfare of the public or natural resources, SRTA shall have the right, but not the obligation, to require and direct DB Team to take prompt action to replace, repair, or restore such damage, injury or condition within a time frame established by SRTA, at DB Team's sole cost and expenses and without entitlement to a Relief Event or Compensation Event.

7.12 Maintenance During Construction Work

7.12.1 SRTA shall be responsible for the operation and maintenance of the Existing Right of Way and any acquired right or interest in any Required Right of Way until the Construction Commencement Date. Upon NTP 3, DB Team shall assume full responsibility for maintenance of all Elements within the Construction Maintenance Limits

in accordance with the Construction Maintenance Limits Plan and the requirements of the DB Documents.

7.12.2 Upon Final Acceptance, SRTA will assume, or cause GDOT to assume, responsibility for the operation and maintenance of the entire Project, provided that where GDOT has opened any portion of the Project to the public prior to Final Acceptance, GDOT shall then assume responsibility for the operations and maintenance of such portions of the Project at such earlier time, provided, however that in all cases, DB Team shall remain responsible for all Work until Final Acceptance and nothing contained herein shall otherwise limit any warranty obligations of DB Team with respect to any Defect or non-conforming Work.

7.13 For Best Value Projects Only: Impact of ATCs on the Project

7.13.1 If implementation of an ATC forming part of the Project requires the approval or consent of any Government Entity (other than SRTA or GDOT) or other third party, then (a) DB Team will have full responsibility for, and bear the full risk of, obtaining any such approval or consent, and (b) if such approval or consent is not granted, or there is an unreasonable and unjustified delay in obtaining such approval or consent (subject to Article 13) (i) DB Team shall perform the Work as if such ATC had never formed part of the Project, and shall not be entitled to any additional time or compensation as a result thereof. The foregoing shall not limit DB Team's rights under Article 14.2 (l) for Compensation Events or under Article 14.1 (s) for Relief Event on account of delays or impact costs solely related to the re-evaluation of the NEPA Approval after expiration of the GDOT Re-evaluation Period.

Article 8 SECURITY AND INCIDENT RESPONSE

8.1 Security and Incident Response

8.1.1 DB Team is responsible for the safety and security of the applicable portion of the Project that is under the control of any DB Team-Related Entity and the workers and public thereon during the performance of the Work.

8.1.2 DB Team shall comply with all rules, directives and guidance of the U.S. Department of Homeland Security and comparable State agency, and shall coordinate and cooperate with all Governmental Entities providing security, first responder and other public emergency response services, including, without limiting the foregoing, whenever the National Terrorism Advisory System (NTAS) or successor system issues an "Imminent" or "Elevated" Threat Alert or comparable level of threat or alert for any region in which the Project is located or which the Project serves. Unless directed otherwise by SRTA, DB Team, at its expense, shall assign management personnel with decision-making authority to be personally present at the relevant emergency operations center serving the region, including during a disaster affecting the Project proclaimed by the Governor of Georgia, the President of the United States, or their respective designees. DB Team shall provide such service twenty-four (24) hours a day, seven (7) days a week, until such level or threat or alert has expired, or until the lead agency at the operations center determines such staffing level is no longer necessary.

8.1.3 DB Team shall perform and comply with the provisions of the Technical Provisions concerning Incident Response, safety and security.

Article 9 MANAGEMENT SYSTEMS AND OVERSIGHT

9.1 Project Management

9.1.1 DB Team is responsible for all quality assurance activities necessary to manage the Work, including the Utility Adjustment Work. DB Team shall undertake all required aspects of quality assurance for the Project and Work in accordance with the DB Documents and Good Industry Practice.

9.1.2 DB Team shall develop the necessary plans and documentation in accordance with the Proposal, this Agreement, and Section 2 and Section 3 of the Technical Provisions, and Good Industry Practice.

9.1.3 DB Team shall submit to SRTA for acceptance in its good faith discretion in accordance with the procedures described in Article 6.3 of this Agreement and the Technical Provisions each component part, plan and any proposed changes or additions to or revisions of any such component part, plan or other documentation identified in the DB Documents. Each component part, plan and other documentation of the Management Plans or any submittal identified in this Agreement, Section 3 of the Technical Provisions, including in Table 3-1, and the DB Documents, and each proposed change or addition to or revision of any such component part, plan or other documentation shall constitute a separate Submittal for purposes of Article 6.3. SRTA may propose any change required to comply with Good Industry Practice or to reflect a change in working practice to be implemented by DB Team.

9.1.4 DB Team shall not commence or permit the commencement of any aspect of the design or construction before the relevant component parts, plans and other documentation of the Management Plans applicable to such Work have been submitted to and accepted by SRTA.

9.1.5 Reserved.

9.1.6 DB Team shall carry out internal audits of the Management Plans at the times prescribed in the Management Plans.

9.1.7 DB Team shall cause each of its Contractors at every level to comply with the applicable requirements of the DB Documents.

9.1.8 The DB Team shall designate a Quality Manager who shall, irrespective of their other responsibilities, have defined authority for ensuring the establishment and maintenance of the Management Plans and reporting to SRTA on the performance of the Management Plans.

9.2 Traffic Management

9.2.1 Upon SRTA issuance of NTP 3 and until Final Acceptance of the Project, DB Team shall be responsible for the general management of traffic on the applicable

portion of the Project under the control of any DB Team-Related Entity. DB Team shall manage traffic to preserve and protect safety of traffic on such portions and Related Transportation Facilities and, to the maximum extent practicable, to avoid disruption, interruption or other adverse effects on traffic flow, throughput or level of service on the Related Transportation Facilities. DB Team shall conduct and carry out traffic management in accordance with all applicable Technical Provisions, Technical Documents, Laws and Governmental Approvals, and in accordance with the Transportation Management Plan, as well as any directives as may be required pursuant to Article 8.1.2.

9.2.2 DB Team shall prepare and submit to SRTA, for SRTA acceptance, a Transportation Management Plan by Project Phase for managing traffic on the Project and Related Transportation Facilities, during the period of construction (from the period from NTP 3 to Final Acceptance), addressing (a) orderly and safe movement and diversion of traffic on the Project and Related Transportation Facilities, and (b) orderly and safe diversion of traffic on the Related Transportation Facilities necessary in connection with field maintenance and repair work in response to Incidents, Emergencies and lane closures. The Transportation Management Plan shall promote safe and efficient operation of the Project and Related Transportation Facilities at all times during construction of the Project, including during Utility Adjustment Work. DB Team shall prepare the Transportation Management Plan according to the schedule set forth in Section 18 of the Technical Provisions. The Transportation Management Plan shall comply with the Technical Provisions and Technical Documents concerning traffic management and traffic operations.

9.2.3 SRTA shall have at all times, without obligation or liability to DB Team, the right to:

9.2.3.1 Issue a Directive Letter to DB Team regarding traffic management and control (with which DB Team shall comply), or directly assume traffic management and control, of the Project during any period that (a) SRTA designates the Project or portion of the Project for immediate use as an emergency evacuation route or a route to respond to a disaster proclaimed by the Governor of Georgia, the President of the United States, or by any other federal or State agency, or any of the aforementioned respective designees, including reversing the direction of traffic flow during such period, (b) SRTA designates the Project or a portion of the Project for immediate use as an alternate route for diversion of traffic from any interstate or Highway temporarily closed to all lanes in one or both directions due to Incident or Emergency or (c) the Commissioner determines such action will be in the public interest as a result of an emergency or natural disaster; and

9.2.3.2 Provide on the Project, via message signs or other means consistent with Good Industry Practice, non-discriminatory traveler and driver information, and other public information (e.g. AMBER alerts), provided that the means to disseminate such information does not materially interfere with the Work.

Article 10 CONTRACTING AND LABOR PRACTICES

10.1 Reserved

10.2 Responsibility for Work, Contractors and Employees

10.2.1 DB Team shall retain or cause to be retained only Contractors that are qualified, experienced and capable in the performance of the portion of the Work assigned. DB Team shall assure that each Contractor has at the time of execution of the Contract, and maintains at all times during performance of the assigned Work, all licenses required by applicable Laws. DB Team shall require all Contractors to adhere to the requirements herein with respect to Subcontractors.

10.2.2 The retention of Contractors by DB Team will not relieve DB Team of its responsibilities hereunder or for the quality of the Work or materials or services provided by it.

10.2.3 Each Contract shall include terms and conditions sufficient to ensure compliance by all Contractors and Subcontractors, all parties performing any Work on behalf thereof, with the requirements of the DB Documents, and shall include those terms that are specifically required by the DB Documents to be included therein, including, to the extent applicable, those set forth in Exhibit 8 and any other applicable Federal Requirements.

10.2.4 Nothing in the DB Documents will create any contractual relationship between GDOT and any Subcontractor. No Contract entered into by or under DB Team shall impose any obligation or liability upon SRTA or GDOT to any Subcontractor, or any of their respective employees.

10.2.5 DB Team shall supervise and be fully responsible for the actions, omissions, negligence, willful misconduct, or breach of applicable Law or contract by any Contractor or DB Team-Related Entity, or their respective members, officers, directors, partners, and employees, as though DB Team directly employed all such individuals.

10.3 Reserved

10.4 Key Personnel

10.4.1 DB Team shall retain, employ and utilize the individuals specifically listed in Exhibit 2 to fill the corresponding Key Personnel positions listed therein. DB Team shall not change or substitute any such individuals except due to retirement, death, disability, incapacity, or voluntary or involuntary termination of employment, or as otherwise accepted by SRTA pursuant to Article 10.4.2. In such circumstances, DB Team shall promptly propose a replacement with comparable experience for such position.

10.4.2 DB Team shall notify SRTA in writing of any proposed replacement for any Key Personnel position. Any proposed replacement for a Key Personnel position must be equal or better than the original Key Personnel. SRTA shall have the right to review the qualifications and character of each individual to be appointed to a Key Personnel position (including personnel employed by Contractors to fill any such position) and to accept or disapprove use of such individual in such position prior to the

commencement of any Work by such individual. If DB Team fails to provide a proposed replacement that is sufficiently qualified to SRTA within thirty (30) days after notifying SRTA of a proposed replacement for any Key Personnel position, then such failure shall constitute a DB Team Default pursuant to Article 17.1.1.

10.4.3 DB Team shall cause each individual filling a Key Personnel position to dedicate the full amount of time necessary for the proper prosecution and performance of the Work.

10.4.4 DB Team shall provide to SRTA the phone numbers and email addresses for all Key Personnel. SRTA requires the ability to contact Key Personnel twenty-four (24) hours per day, seven (7) days per week.

10.5 Reserved

10.6 Labor Standards

10.6.1 In the performance of its obligations under the DB Documents, DB Team at all times shall comply, and require by contract that all Contractors and vendors comply, with all applicable federal and State labor, occupational safety and health standards, rules, regulations and federal and State orders.

10.6.2 All individuals performing the Work shall have the skill and experience and any licenses or certifications required to perform the Work assigned to them.

10.6.3 If any individual employed by DB Team or any Contractor is not performing the Work in a proper, safe and skillful manner, then DB Team shall, or shall cause such Contractor to, remove such individual and such individual shall not be re-employed on the Work. If, after notice and reasonable opportunity to cure, such individual is not removed or if DB Team fails to ensure that skilled and experienced personnel are furnished for the proper performance of the Work, then SRTA may suspend the affected portion of the Work by delivering to DB Team written notice of such suspension. Such suspension shall in no way relieve DB Team of any obligation contained in the DB Documents or entitle DB Team to any additional compensation or time extension hereunder.

10.6.4 DB Team and its Contractors shall comply with the Georgia Immigration & Compliance Act ("Immigration Act"), O.C.G.A. § 13-10-90, *et seq*. DB Team must certify compliance with the Immigration Act using the form attached as Exhibit 19. The required certificates and affidavits must be filed with SRTA and copies maintained by DB Team and each Contractor as of the Effective Date, recertified as of July 15 of each year, and again recertified upon final completion of the Work under the applicable Contract. State officials, including officials of the Georgia Department of Labor, SRTA, and GDOT, retain the right to inspect and audit the Project and employment records of DB Team and all Contractors without notice during normal working hours until the Work under the applicable Contract is complete, and as otherwise specified by Law.

10.7 Reserved

10.8 Non-Discrimination; Equal Employment Opportunity

10.8.1 DB Team shall not, and shall cause the Contractors to not, discriminate on the basis of race, color, national origin, sex, age, religion or handicap in the performance of the Work under the DB Documents. DB Team shall carry out, and shall cause the Contractors to carry out, applicable requirements of 49 CFR Part 26. Failure by DB Team to carry out these requirements is a material breach of this Agreement, which may result in a Default Termination Event and the termination of this Agreement or such other remedy permitted hereunder as SRTA deems appropriate (subject to DB Team's rights to notice and opportunity to cure set forth in this Agreement), but is not limited to (1) withholding monthly progress payments; (2) assessing sanctions; (3) liquidated damages; and/or (4) disqualifying the Contractor from future bidding as non-responsible.

10.8.2 DB Team shall include the immediately preceding paragraph in every Contract (including purchase orders and in every Contract of any DB Team-Related Entity for Work), and shall require that they be included in all Contracts at lower tiers, so that such provisions will be binding upon each Contractor.

10.9 Disadvantaged Business Enterprise

10.9.1 General

10.9.1.1 DB Team shall comply with 49 CFR Part 26 and GDOT's Disadvantaged Business Enterprise (DBE) policy and program. The purpose of GDOT's DBE policy and program is to ensure that DBEs shall have an equal opportunity to participate in the performance of contracts financed in whole or in part with federal funds. DB Team shall comply with all applicable requirements set forth in GDOT's DBE policy and program.

10.9.1.2 DB Team shall include provisions to effectuate GDOT's DBE policy and program in every Contract to which it is a party (including purchase orders and task orders for Work), and shall require that they be included in all Contracts at lower tiers (including purchase orders and task orders for Work), so that such provisions will be binding upon each Contractor. The DB Team shall ensure that all contracts and subcontracts (including purchase orders and task orders for Work) with DBEs to supply labor or materials are required to be performed in accordance with 49 CFR Part 26.53.

10.9.1.3 DB Team shall maintain a dedicated DBE manager throughout the Term of the Agreement. The DBE manager must be approved by GDOT and cannot be replaced except by prior GDOT approval. The DBE manager shall meet the requirements set forth in Section 2.1.1.1 of the Technical Provisions.

10.9.2 DBE Participation Goals

10.9.2.1 The DBE Project goal is sixteen percent (16%) of the overall Project cost (including design, construction, professional services, management and administration, and inspection) with respect to the race conscious participation by the DB Team. DB Team's DBE commitments list is attached as Exhibit 14.

10.9.2.2 DB Team shall exercise good faith efforts to achieve such DBE participation goal for the Project.

10.9.2.3 DBE reporting shall meet all FHWA and GDOT's DBE policy and program requirements except that reporting will be done quarterly throughout the Term of the Agreement. Failure to meet the participation goal or any of the commitments made in Exhibit 14 in any two (2) consecutive quarters shall require a recovery plan. The recovery plan shall be submitted within thirty (30) Days from the quarterly reporting describing why the participation goal was not achieved and why commitment(s) are not met. In addition, describe proposed actions to be taken in subsequent quarters to attain the participation goal and meet Exhibit 14 commitments. The recovery plan and proposed actions must be acceptable by GDOT and FHWA.

10.9.3 Compliance with DBE Participation Goals

10.9.3.1 DB Team shall not terminate, and shall not allow a Contractor to terminate, a DBE Subcontractor listed in its Proposal (or an approved substitute DBE firm) without GDOT's prior written consent. This includes, but is not limited to, instances in which a Contractor seeks to perform work originally designated for a DBE Subcontractor with its own forces or those of an affiliate, a non-DBE firm, or with another DBE firm.

10.9.3.2 DB Team shall include a provision in every Contract to which it is a party stating that the Contractor shall utilize the specific DBEs listed to perform the work and supply the materials for which each is listed unless the contractor obtains GDOT's consent as provided in 49 CFR Part 26.3(f) and that unless GDOT's consent is provided under 49 CFR Part 26.3(f), the Contractor shall not be entitled to any payment for work or material unless it is performed or supplied by the listed DBE.

10.9.3.3 DB Team shall make available to GDOT upon request a copy of all DBE subcontracts.

10.9.3.4 Before transmitting to GDOT a request to terminate and/or substitute a DBE Subcontractor, the DB Team or Contractor must give notice in writing to the DBE Subcontractor, with a copy to GDOT, of its intent to request to terminate and/or substitute, and the reason for the request. The DB Team or Contractor must give the DBE five (5) days to respond to the notice and advise GDOT and the DB Team or Contractor of the reasons, if any, why it objects to the proposed termination of its subcontract and why GDOT should not approve the termination and/or substitution.

10.9.3.5 GDOT may only provide written consent allowing the DB Team or a Contractor to terminate a DBE firm listed in the Proposal if GDOT agrees that that the DB Team or Contractor has good cause to terminate the DBE firm. For the purposes of 49 CFR Part 26.3(f), good cause includes the following circumstances:

(a) The listed DBE Subcontractor fails or refuses to execute a written contract;

(b) The listed DBE Subcontractor fails or refuses to perform the work of its subcontract in a way consistent with normal industry standards. Provided, however, that good cause does not exist if the failure or refusal of the DBE Subcontractor to perform its work on the subcontract results from the bad faith or discriminatory action of the DB Team or Contractor;

(c) The listed DBE Subcontractor fails or refuses to meet the DB Team's or Contractor's reasonable, nondiscriminatory bond requirements.

(d) The listed DBE Subcontractor becomes bankrupt, insolvent, or exhibits credit unworthiness;

(e) The listed DBE Subcontractor is ineligible to work on public works projects because of suspension and debarment proceedings pursuant 23 CFR Parts 180, 215 and 1,200 or applicable state law;

(f) The listed DBE Subcontractor voluntarily withdraws from the project and provides written notice of its withdrawal;

(g) GDOT has determined that the listed DBE Subcontractor is not a responsible contractor;

(h) The listed DBE is ineligible to receive DBE credit for the type of work required;

(i) A DBE owner dies or becomes disabled with the result that the listed DBE contractor is unable to complete its work on the contract;

(j) Other documented good cause that GDOT determines compels the termination of the DBE Subcontractor. Provided, that good cause does not exist if the DB Team or Contractor seeks to terminate a DBE it relied upon to obtain the work so that the DB Team or Contractor can self-perform the work for which the DBE contractor was engaged or so that the DB Team or Contractor can substitute another DBE or non-DBE contractor after contract award.

10.9.3.6 When a DBE Subcontractor is terminated as provided above, or fails to complete its work for any reason, DB Team or Contractor is required to make good faith efforts to find another DBE Subcontractor to substitute for the original DBE. These good faith efforts shall be directed at finding another DBE to perform at least the same amount of work under the Contract as the DBE that was terminated, to the extent needed to meet the established DBE participation goal. The good faith efforts shall be documented by the DB Team or Contractor. If GDOT requests documentation of such good faith efforts, the DB Team or Contractor shall submit the documentation within seven (7) days, which may be extended for an additional seven (7) days if necessary at the request of the DB Team or Contractor, and GDOT shall provide a written determination stating whether or not good faith efforts have been demonstrated.

10.10 Job Training Program

10.10.1 DB Team, at its own cost and expense, shall include on-the-job training and shall submit to GDOT for review and acceptance a plan meeting all requirements set forth in GDOT Standard Specification 158. There are 50,000 required training hours for this project.

10.11 Prevailing Wages

10.11.1 DB Team shall pay or cause to be paid to all applicable workers employed by it or its Contractors to perform the Work not less than the prevailing rates of wages, as provided in the statutes and regulations applicable to public work contracts, including the Davis-Bacon Act, and as provided in Exhibit 8. DB Team shall comply and cause its Contractors to comply with all Laws pertaining to prevailing wages. For the purpose of applying such Laws, the Project shall be treated as a public work paid for in whole or in part with public funds (regardless of whether public funds are actually used to pay for the Project). The foregoing shall not apply to Contracts at any tier with Governmental Entities.

10.11.2 It is DB Team's sole responsibility to determine the wage rates required to be paid. In the event rates of wages and benefits change while this Agreement is in effect, DB Team shall bear the cost of such changes and shall have no claim against SRTA or GDOT on account of such changes. Without limiting the foregoing, no claim will be allowed which is based upon DB Team's lack of knowledge or a misunderstanding of any such requirements.

10.11.3 DB Team shall comply and cause its Contractors, other than SRTA, GDOT or Governmental Entities acting as Contractors, to comply with all Laws regarding notice and posting of intent to pay prevailing wages, of prevailing wage requirements and of prevailing wage rates.

10.12 Prompt Payment to Contractors and Pay When Paid Provisions

DB Team shall comply with the Georgia Prompt Payment Act, Code Section 13-11-1 *et seq*. Further, neither DB Team, the Design-Build Contractor or Contractor, nor any Subcontractor shall impose retainage upon any consultant, laborer, subcontractor, vendor, materialman, or supplier with whom any of them have contracted.

10.13 Suspension and Debarment

DB Team shall deliver to SRTA, not later than January 31 of each year through Final Acceptance, and upon Final Acceptance, signed certifications regarding suspension, debarment, ineligibility, voluntary exclusion, convictions and civil judgments from DB Team, from each affiliate of DB Team (as "affiliate" is defined in 29 CFR 98.905 or successor regulation of similar import), and from each Contractor whose Contract amount equals or exceeds $100,000. The annual certification shall be substantially in the form of paragraphs 1.a through 1.d of Attachment 7 to Exhibit 8 (Federal Requirements).

10.14 DB Team Identification

Any uniforms, badges, logos and other identification worn by personnel of DB Team-Related Entities or on vehicles used to access the Project site shall bear colors, lettering, design or other features to assure clear differentiation from those of SRTA, GDOT, and their employees.

Article 11 RELATED AND OTHER FACILITIES

11.1 Integration with Related Transportation Facilities

11.1.1 DB Team shall locate, configure, design, and construct the termini, interchanges, entrances and exits of the Project so that the Project will be compatible and integrated with the location, configuration, design, operation and maintenance of, and provide a smooth, safe transition of traffic to and from, Related Transportation Facilities, as set forth in Section 1 and Section 11 of the Technical Provisions. The design for the Project shall include and provide for such compatibility, integration and transition. The design and construction of the Project, shall satisfy all provisions of the Technical Provisions and Management Plans relating to compatibility, integration and transition with or at Related Transportation Facilities, including those concerning signage, signaling and communications with Users.

11.1.2 Without limiting the foregoing, DB Team shall cooperate and coordinate with SRTA, GDOT, and any third party that owns, constructs, manages, operates or maintains a Related Transportation Facility with regard to the construction, maintenance and repair programs and schedules for such Related Transportation Facilities, in order to minimize disruption to the operation thereof.

11.1.3 To assist DB Team, SRTA shall provide to DB Team during normal working hours, reasonable access to plans, surveys, drawings, as-built drawings, specifications, reports and other documents and information in the possession of SRTA, GDOT, or their contractors and consultants pertaining to Related Transportation Facilities. DB Team, at its expense, shall have the right to make copies of the same. DB Team, at its expense, shall conduct such other inspections, investigations, document searches, surveys and other work as may be necessary to achieve compatibility, integration and transition with those Related Transportation Facilities identified in Section 11 of the Technical Provisions.

11.1.4 SRTA shall provide reasonable assistance to DB Team, upon its request and at its expense, in obtaining cooperation and coordination from third parties that own, manage, operate or maintain Related Transportation Facilities and in enforcing rights, remedies and warranties that DB Team may have against any such third parties. Such assistance may include SRTA's participation in meetings and discussions. In no event shall SRTA be required to bring any legal action or proceeding against any such third party.

11.1.5 SRTA shall have at all times, without obligation or liability to DB Team, the right to conduct traffic management activities on SRTA's Related Transportation Facilities and all other facilities of the State transportation network in the area of the Project in accordance with its standard traffic management practices and procedures in effect from time to time.

Article 12 SAFETY COMPLIANCE

12.1 Safety Compliance

12.1.1 Safety Compliance Orders

12.1.1.1 SRTA shall use good faith efforts to inform DB Team at the earliest practicable time of any circumstance or information relating to the Project which in SRTA's reasonable judgment is likely to result in a Safety Compliance Order. Except in the case of Emergency, SRTA shall consult with DB Team and GDOT prior to issuing a Safety Compliance Order concerning the risk to public or worker safety, alternative compliance measures, cost impacts, and the availability of DB Team resources to fund the Safety Compliance work.

12.1.1.2 GDOT's duties shall include monitoring and inspecting for the purpose of determining whether any circumstances exist that warrant issuance of a Safety Compliance Order with respect to the Design Work and the Construction Work, and giving reports and recommendations to SRTA and DB Team with respect thereto.

12.1.1.3 Subject to conducting such prior consultation, SRTA may issue Safety Compliance Orders to DB Team at any time from and after the Effective Date.

12.1.2 Duty to Comply

12.1.2.1 Subject to Article 12.1.1, DB Team shall implement all Safety Compliance as expeditiously as reasonably possible following issuance of the Safety Compliance Order. DB Team shall diligently prosecute the work necessary to achieve such Safety Compliance until completion, subject to any remedies allowed from the occurrence of a Relief Event.

12.1.2.2 DB Team shall perform all work required to implement Safety Compliance at DB Team's sole cost and expense. Without limiting the foregoing and for the avoidance of doubt, in no event shall DB Team be entitled to (a) issue a Change Request, or (b) except as provided in Article 12.1.3, claim that a Compensation Event or Relief Event has occurred or resulted from the existence of a Safety Compliance Order.

12.1.3 Contesting Safety Compliance Orders

DB Team may contest a Safety Compliance Order by delivering to SRTA written notice setting forth (a) DB Team's claim that no Safety Compliance conditions exist to justify the Safety Compliance Order, (b) DB Team's explanation of its claim in reasonable detail and (c) DB Team's estimate of impacts on costs and schedule attributable to the contested Safety Compliance Order. If SRTA does not receive such written notice prior to issuance of a Safety Compliance Order, or within fifteen (15) days after GDOT issues an emergency Safety Compliance Order, then DB Team thereafter shall have no right to contest. If DB Team timely contests a Safety Compliance Order, DB Team nevertheless shall implement the Safety Compliance Order, but if it is finally determined under the Dispute Resolution

Procedures that Safety Compliance conditions did not exist, then the Safety Compliance Order shall be treated as a Directive Letter for a SRTA Change.

Article 13 SRTA CHANGES; DB TEAM CHANGES; DIRECTIVE LETTERS

This Article 13 sets forth the requirements for obtaining all Supplemental Agreements under this Agreement. DB Team hereby acknowledges and agrees that the Contract Sum is full and adequate compensation for performance of all of the Work, subject only to those exceptions specified in Article 14 and this Article 13.

DB Team unconditionally and irrevocably waives the right to any monetary compensation or other relief in addition to that specifically provided under the terms of this Agreement, except in accordance with Article 14 and this Article 13. The foregoing waiver encompasses all theories of liability, whether in contract, tort (including negligence), equity, quantum meruit or otherwise, and encompasses all theories to extinguish contractual obligations, including impracticability, mutual mistake, and frustration of purpose. Nothing in the Technical Provisions or Technical Documents shall have the intent or effect or shall be construed to create any right of DB Team to any Supplemental Agreement or additional monetary compensation or other relief, any provision in the Technical Provisions or Technical Documents to the contrary notwithstanding.

13.1 Directive Letters

13.1.1 SRTA may at any time issue a Directive Letter to DB Team regarding any matter for which a Supplemental Agreement can be issued or in the event of any Dispute regarding the interpretation of requirements, scope of the Work, or whether DB Team has performed in accordance with the requirements of the DB Documents. The Directive Letter will state that it is issued under this Article 13.1, will describe the Dispute or Work in question, articulate SRTA's position, provide direction, and will state the basis for determining compensation, if any. If applicable and subject to Article 13.2.5, DB Team shall proceed immediately as directed in the letter, pending the execution of a formal Supplemental Agreement (or, if the letter states that the Work is within DB Team's original scope of Work or is necessary to comply with the requirements of the DB Documents, DB Team shall proceed with the Work as directed but shall have the right to assert that a SRTA Change has occurred).

13.1.2 The fact that a Directive Letter was issued by SRTA shall not be considered evidence that in fact that a SRTA Change occurred. The determination whether a SRTA Change in fact occurred shall be based on an analysis of the original requirements of the DB Documents and a determination as to whether the Directive Letter in fact constituted a change in those requirements.

13.1.3 In the event that a Directive Letter is issued, which results in a Force Account, the procedures of Article 14.4 will be followed.

13.2 SRTA Changes

SRTA may, at any time and without notice to any Surety, authorize, cause and/or require, pursuant to a Request for Change Proposal or Directive Letter, changes in the Work, including additions or deletions, or in terms and conditions of the Technical Provisions or Technical Documents (including changes in the standards applicable to the Work).

13.2.1 SRTA's Request for Change Proposal

13.2.1.1 If SRTA desires to initiate a SRTA Change or to evaluate whether to initiate such a change, then SRTA may, at its discretion, issue a Request for Change Proposal. The Request for Change Proposal shall set forth the nature, extent and details of the proposed SRTA Change.

13.2.1.2 Within seven (7) days after DB Team receives a Request for Change Proposal, or such longer period to which the Parties may mutually agree, SRTA and DB Team shall consult to define the proposed scope of the change. Within seven (7) days after the initial consultation, or such longer period to which the Parties may mutually agree, SRTA and DB Team shall consult concerning the estimated financial and schedule impacts.

13.2.2 Within thirty (30) days following SRTA's delivery to DB Team of the Request for Change Proposal, DB Team shall provide SRTA with a written response as to whether, in DB Team's opinion, the proposed change constitutes a SRTA Change, will impact DB Team's costs and/or will cause a delay to a Completion Deadline, and if so, a detailed assessment of the cost and schedule impact of the proposed SRTA Change, including the following:

13.2.2.1 DB Team's detailed estimate of the impacts on costs of carrying out the proposed SRTA Change;

13.2.2.2 The effect of the proposed SRTA Change on the Project Schedule, including achievement of the Milestone Schedule Deadlines, taking into consideration DB Team's duty to mitigate any delay to the extent reasonably practicable; and

13.2.2.3 Any other relevant information related to carrying out the proposed SRTA Change.

13.2.3 SRTA shall be entitled, but not required, to obtain, from a qualified independent consultant of SRTA's choosing, a report prepared in accordance with Good Industry Practice as to the proposed SRTA Change related to the Design Work or the Construction Work, including recommendations and comments concerning DB Team's estimate of the cost impacts and projected impact on the Project Schedule and Milestone Schedule Deadlines. SRTA shall pay for the work of any such consultant.

13.2.4 SRTA and DB Team, giving due consideration to any such report and study as may be commissioned by SRTA, shall exercise good faith efforts to negotiate a mutually acceptable Supplemental Agreement, including adjustment of the Project Schedule and Completion Deadlines, any Compensation Amount to which DB Team is entitled, and the timing and method for payment of any Compensation Amount, in accordance with Article 14.

13.2.5 If SRTA and DB Team are unable to reach agreement on a Supplemental Agreement, SRTA may, in its sole discretion, deliver to DB Team a Directive Letter pursuant to Article 13.1 directing DB Team to proceed with the performance of the Work in question notwithstanding such disagreement under Force Account provisions. Upon receipt of such Directive Letter, (a) DB Team shall implement and perform the Work in

question as directed by SRTA and (b) SRTA will make interim payment(s) to DB Team on a monthly basis for the costs of the Work in question subject to Article 5, to the extent they satisfy Force Account provisions.

13.2.6 SRTA shall be responsible for payment of the Compensation Amount agreed upon, or under Force Account provisions, or determined through the Dispute Resolution Procedures, through one of the payment mechanisms set forth in Articles 13.4 and 13.5 and the Project Schedule and Milestone Deadlines shall be adjusted as agreed upon or determined through the Dispute Resolution Procedures, and in accordance with this Article 13 to reflect the effects of the Supplemental Agreement.

13.3 DB Team Changes

13.3.1 DB Team's Change Requests

13.3.1.1 DB Team may request SRTA to accept modifications to the Technical Provisions or Technical Documents by submittal of a written Change Request using a form approved by SRTA. The Change Request shall set forth DB Team's detailed estimate of impacts on costs and schedule attributable to the requested change.

13.3.1.2 SRTA, in its sole discretion, may accept or reject any Change Request proposed by DB Team, provided that SRTA will accept a Change Request necessary to bring the Technical Provisions or Technical Documents into compliance due to an applicable Change in Law per Article 14.2(a). SRTA may condition its acceptance on new or a modification of compensation for SRTA under this Agreement in order to benefit equally in the estimated net cost savings and revenue benefit, if any, attributable to the proposed change. If SRTA accepts such change, DB Team shall execute a Supplemental Agreement and shall implement such change in accordance with the Supplemental Agreement, applicable Technical Provisions, Technical Documents, the Management Plans, Good Industry Practice, and all applicable Laws.

13.3.1.3 DB Team shall be solely responsible for payment of any increased costs and for any Project Schedule delays or other impacts resulting from a DB Team proposed Change Request. If the Change Request results in a decrease in the costs of designing, constructing or operating the Project, the savings in costs shall be allocated between DB Team and SRTA as set forth in the Supplemental Agreement.

13.3.1.4 DB Team may implement and permit a Utility Owner to implement, without a Change Request or Supplemental Agreement, changes to a Utility Adjustment design that do not vary from the Technical Provisions or Technical Documents, but such changes are subject to SRTA's acceptance as part of a Utility Work Plan as provided in Section 6.3.2.5 of the Technical Provisions.

13.3.1.5 No Change Request shall be required to implement any change to the Work that is not specifically regulated or addressed by the DB Documents or applicable Law.

13.3.1.6 Certain minor changes without significant cost savings or revenue benefits may be accepted in writing by SRTA, and in such event, shall not require a Supplemental Agreement. Any other change in the requirements of the DB Documents shall require a Supplemental Agreement.

13.3.2 DB Team's Notice of Compensation Event and/or Relief Event

Except as otherwise expressly provided in this Agreement, if at any time DB Team determines that a change to the work has occurred or is imminent, and that change creates a Compensation Event or Relief Event, DB Team shall submit a written notice of Compensation Event and/or Relief Event to SRTA per this Article 13 stating that a Relief Event, Compensation Event, or both has occurred or will occur. The first notice shall be labeled "Compensation/Relief Event No. 1" and subsequent notices shall be numbered sequentially.

Time is of the essence in DB Team's delivery of its written notice of Compensation Event or written notice of a Relief Event. Accordingly, if for any reason DB Team fails to deliver a notice of Compensation Event and/or Relief Event in strict accordance with this Article 13.3.2:

(a) Within seven (7) days following the date (herein the "starting date") on which DB Team first became aware (or should have been aware, using all reasonable due diligence) of the Relief Event, DB Team shall be deemed to have irrevocably and forever waived and released the right to relief for adverse effect attributable to the Relief Event accruing after such seven (7) day deadline and until the date DB Team submits the written notice of Compensation Event and/or Relief Event for the Relief Event; and

(b) Within ninety (90) days following the starting date, DB Team shall be deemed to have irrevocably and forever waived and released any and all right to relief (including extension of time for performance of Design Work or Construction Work) for any adverse effect attributable to such Relief Event.

13.3.2.2 Notices for Compensation Events shall include:

(a) a description of the Compensation Event and its date of occurrence in reasonable detail;

(b) the reasons why the DB Team believes additional compensation will or may be due;

(c) a detailed statement of the basis that the work is not required by the Agreement;

(d) identify particular elements of performance for which additional compensation may be sought;

(e) DB Team's current estimate of the anticipated adverse and beneficial effects of the Compensation Event on the Project and on DB Team's ability to perform any of its obligations under the DB Documents;

(f) a written analysis and calculation of DB Team's current estimate of the estimated increase or decrease in costs, (including a separate breakdown of costs that impact design and those that impact construction activities) the extent applicable to the Compensation Event: and

(g) provide an estimate of the time within which a response to the notice is required to minimize cost or delay of performance.

13.3.2.3 If, following issuance of the notice of Compensation event, DB Team receives or becomes aware of any further information relating to the Compensation Event, it shall submit such further information to SRTA not later than seven (7) days of DB Team's receipt or knowledge, as the case may be. SRTA may request from DB Team any further information that SRTA may reasonably require, and DB Team shall supply the same within a reasonable period but not later than seven (7) days after such SRTA request.

13.3.2.4 Notices of Relief Events shall include:

(a) a statement of the Relief Event upon which the delay or inability to perform is based, including its nature, the reasons why the DB Team believes additional time will or may be due, and the date of its occurrence and its actual or, if it has not concluded, its anticipated duration;

(b) the effect of the Relief Event on DB Team's ability to perform any of its obligations under the DB Documents, including details of the relevant obligations,

(c) an impacted delay analysis meeting the requirements of Section 2.5 of the Technical Provisions regarding a Time Impact Analysis and indicating all affected activities on any Critical Path, with activity durations, predecessor and successor activities and resources; and showing Float available pursuant to Article 3.2.5, the likely duration of that effect, and identify any potential impact to the Critical Path affecting a Completion Deadline; and

(d) an explanation of the measures that DB Team proposes to undertake to mitigate the delay and other consequences of the Relief Event.

13.3.2.5 Within seven (7) days of the conclusion of an asserted Relief Event, DB Team shall update its notice of a Relief Event with the date of its actual or estimated conclusion. If, following issuance of a notice of Relief Event, but prior to its conclusion, DB Team receives or becomes aware of any further information relating to the Relief Event and/or any delay in performance or failure to perform, it shall submit such further information to SRTA not later than seven (7) days of DB Team's receipt or knowledge of the additional information. SRTA may request from DB Team any further information that SRTA may reasonably require, and DB Team shall supply the same within a reasonable period but not later than seven (7) days after such SRTA request.

13.3.2.6 If any notice of Compensation or Relief Event concerns any hazardous condition or material described in Article 7.8, the DB Team shall be deemed to have waived the right to collect any and all costs incurred in connection

therewith to the extent that SRTA is not afforded the opportunity to inspect such material or condition before it is disturbed.

13.3.3 Proposed Supplemental Agreement Procedure

13.3.3.1 The DB Team shall deliver a Proposed Supplemental Agreement under this Article 13.3.3 to SRTA within thirty (30) days (or longer time period if acceptable to SRTA) after delivery of the notice of Compensation and/or Relief Event in a form acceptable to SRTA. SRTA may require design and construction costs to be covered by separate Supplemental Agreements. If the DB Team requests a time extension, then SRTA, in its sole discretion, may require the DB Team to provide two alternative Proposed Supplemental Agreements, one of which shall provide for a time extension and any additional costs permitted thereunder, and the other of which shall show all acceleration costs associated with meeting an original Completion Deadline, as well as any additional costs permitted hereunder. If it is not feasible to recover to the original Completion Deadline or if the DB Team believes that the costs associated with such a recovery are prohibitive, then the DB Team shall recommend a date to be shown in the alternative Supplemental Agreement form.

13.3.3.2 DB Team shall prepare a scope of work, cost estimate, Time Impact Analysis, if any, and other information as required by the DB Documents for each Proposed Supplemental Agreement. All Proposed Supplemental Agreements shall satisfy the requirements of Article 14 and shall be sufficient in detail to enable SRTA to ascertain the basis and the amount of each Proposed Supplemental Agreement. The Proposed Supplemental Agreement shall at a minimum include:

(a) A scope of work describing in detail satisfactory to the SRTA all activities associated with the asserted change event.

(b) A cost estimate that sets out the estimated costs in such a way and in sufficient detail that a fair evaluation can be made. It shall be in a form approved by SRTA and shall include as separate items: labor, materials, equipment, overhead (which includes all indirect costs) and profit, as and to the extent allowed under Articles 13 and 14, If the work is to be performed by Subcontractors and if the work is sufficiently defined to obtain Subcontractor quotes, DB Team shall obtain quotes (with breakdowns showing cost of labor, materials, equipment, overhead and profit) on the Subcontractor's stationery and shall include such quotes as back-up for the DB Team estimate.

(c) If the DB Team claims that a Relief Event has occurred affecting the Critical Path and a Completion Deadline, it shall provide or update a prior submitted Time Impact Analysis indicating all activities represented or affected by the asserted change in accordance with this Article 13 and Section 2.5 of the Technical Provisions. The impacted delay analysis shall only modify the Activities that have been impacted by the event that justifies the extension.

(d) The DB Team shall provide such other supporting documentation as may be required by the Department.

(e) All Proposed Supplemental Agreements shall include a narrative justification detailing all causes of the asserted change, making specific reference and cite to the applicable provisions of the Agreement and DB Documents that permit a Supplemental Agreement to be issued, and describing the data and documents that establish the necessity of such asserted change.

13.3.3.3 Each lump sum and force account Proposed Supplemental Agreement shall meet all applicable requirements of Articles 13 and 14. The Proposed Supplemental Agreement submitted by DB Team will address any and all costs and delays and meet all requirements of this Article 13.3.3. SRTA shall review the Proposed Supplemental Agreement, and after negotiation and upon agreement of the terms and verification that all applicable requirements of Articles 13 and 14 are met, The DB Team and SRTA shall execute a Supplemental Agreement.

13.3.3.4 DB Team Representation

Each Proposed Supplemental Agreement shall contain a sworn certification in form acceptable to SRTA by the DB Team (and Subcontractor(s), for any Subcontractor involved in the Work or event contemplated by the Supplemental Agreement) that the Proposed Supplemental Agreement is made is good faith and in accordance with the terms of the DB Documents, the amount of time and/or compensation requested accurately reflects the appropriate adjustments and includes all known and anticipated impacts or amounts whatsoever that may be incurred as a result of the event or matter giving rise to such proposed change and that the DB Team (and Subcontractor(s), as applicable) has no reason to believe and does not believe that the factual basis for the Supplemental Agreement is falsely represented.

13.4 Final Relief Event and Compensation Event Determinations

Any final Relief Event Determination and/or final Compensation Event Determination that has been mutually accepted by SRTA and DB Team shall be set forth in a Supplemental Agreement in accordance with Article 13.3. Such Supplemental Agreement shall provide for modification of the Contract Time and the Project Schedule, including to the extent so established by such Relief Event Determination, the Milestone Schedule Deadlines, and modification of the Contract Sum pursuant to any such Compensation Event Determination, as the case may be. All Supplemental Agreements shall be all-inclusive, comprehensive, and complete, and shall not include any conditions with respect to pricing or schedule or any other matters. The DB Team is not entitled to any additional costs or time whether deriving from or related to a Supplemental Agreement.

13.5 Adjustments to Maximum Annual Cumulative Payment Cap for Changes

13.5.1 Where the amounts to become due on account of any Supplemental Agreement will be in excess of the Maximum Annual Cumulative Payment Cap remaining, then the Maximum Annual Cumulative Payment Cap shall also be adjusted by Supplemental Agreement to provide for payment of the same as and when required.

Article 14 RELIEF EVENTS; COMPENSATION EVENTS

14.1 Relief Events

14.1.1 A Relief Event is one or more of the following events, subject to any limitations, claims, submission requirements, and other conditions set forth in the Agreement, provided that no relief will be available to the extent that (i) the events are within DB Team's control or are due to any wrongful act, wrongful omission, negligence, recklessness, willful misconduct, breach of contract or Law or violation of a Governmental Approval of any of the DB Team-Related Entities; or (ii) the events (or the effects of such events) could have been avoided by the exercise of reasonable caution, due diligence, or other reasonable efforts by Design-Build Team:

(a) Force Majeure Event;

(b) Latent defects in Existing Improvements;

(c) Change in Law;

(d) Discriminatory Action;

(e) SRTA's failure to perform or observe (or failure to cause GDOT to perform or observe) any of the covenants or obligations of SRTA or GDOT under the Agreement or other DB Documents;

(f) SRTA Change;

(g) SRTA-Caused Delay;

(h) Performance of work in the Construction Maintenance Limits or Operations and Maintenance Limits, by Separate Contractors within the ROW, carried out by or on behalf of SRTA, GDOT or a Governmental Entity, excluding any Utility Adjustment Work by a Utility Owner, that directly disrupts DB Team's onsite Work, and delays the Critical Path of the Work;

(i) Discovery at, near or on the Existing Right of Way or Property of (a) any Pre-existing Hazardous Materials or Hazardous Materials not otherwise constituting a DB Team Release of Hazardous Materials, provided that where such condition was identified in the existing Phase 1 Hazardous Materials Investigation in the RIDs, in which case DB Team shall account for same in the Project Schedule and impacts shall be limited to such conditions not identified therein (whether in type or quantity), or (b) any archeological, paleontological or cultural resources not known or which could not have reasonably been known to the DB Team prior to the Proposal Due Date;

(j) Discovery at, near or on the Existing Right of Way or Property of any Threatened or Endangered Species (regardless of whether the species is listed as threatened or endangered as of the Proposal Due Date), excluding any such presence of species known to DB Team prior to the Proposal Due Date or that would become known to DB Team by undertaking reasonable investigation prior to the Proposal Due Date;

(k) Any spill of Hazardous Material by a third party who is not acting in the capacity of a DB Team-Related Entity which (i) occurs after the Proposal Due Date, (ii) is required to be reported to a Governmental Entity and (iii) renders use of the roadway or construction area unsafe or potentially unsafe absent assessment, containment and/or remediation;

(l) Issuance of a temporary restraining order or other form of injunction by a court that prohibits prosecution of any material portion of the Work, unless the injunction is the result of an action or inaction by the Design-Build Team;

(m) Suspension, termination or interruption of an approval of Environmental Documents, except to the extent that such suspension, termination or interruption results from failure by any DB Team-Related Entity to locate or design the Project or carry out the work in accordance with the approval of Environmental Documents or other Governmental Approval (which failure may include (i) modification by or on behalf of Design-Build Team of the design concept included in the Environmental Documents approval, (ii) means or methods used by any Design-Build Team-Related Entity for carrying out the Work, or (iii) decision or action by or on behalf of Design-Build Team to use or acquire Additional Property);

(n) Any change in the design concept of the Project or any portion thereof resulting from judicial or administrative action taken with respect to a legal challenge to any approval of Environmental Documents as compared to the design concept indicated in the alternative that was the subject of the approval of Environmental Documents, except to the extent the change in design concept had already been incorporated into Design-Build Team's design schematics assumed in connection with the DB Contract Sum;

(o) Subject to clause (s) of this Article 14.1, failure to obtain, or unreasonable and unjustified delay in obtaining or otherwise maintaining once issued, a Governmental Approval from any Governmental Entity, except to the extent that such failure or delay results from failure by any Design-Build Team-Related Entity to locate or design the Project or carry out the work in accordance with the approval of Environmental Documents or other Governmental Approval (which failure may include (i) modification by or on behalf of Design-Build Team of the design concept included in the approval of Environmental Documents, (ii) means or methods used by any Design-Build Team-Related Entity for carrying out the Work, or (iii) decision or action by or on behalf of Design-Build Team to use or acquire Additional Property);

(p) GDOT's (i) lack of good and sufficient title to any parcel in the Existing Right of Way or the Property, to the extent it interferes with or adversely affects performance of Work, (ii) inability or failure to obtain an interest (including by easement or other right of access) to real property not identified in the Proposed Right of Way and required for construction of the Project as demonstrated by Design-Build Team, exclusive of any Additional Properties, Project Specific Locations, or parcels that are solely for the convenience of Design-Build Team, to the extent it interferes with or adversely affects performance of Work, or (iii) the existence at any time following issuance of NTP 3 of any title reservation, condition, easement or encumbrance on any parcel in the Existing Right of Way or Property owned by GDOT, of record or not of record, to the extent it interferes with or adversely affects performance of Work, except any title reservations, conditions, easements or encumbrances concerning Utilities or otherwise caused, permitted or suffered by a Design-Build Team-Related Entity;

(q) Unreasonable and unjustified delay by a Utility Owner with whom Design-Build Team has been unable to enter into a Utility Agreement in connection with a Utility Adjustment, or failure or delay of any Utility in obtaining any required easement, right of way, or other property interest as may be required, provided that all of the "conditions to assistance" described in Article 7.5.4 of the Agreement have been satisfied;

(r) Failure to obtain, or unreasonable and unjustified delay in obtaining, an approval from GDOT with respect to a Permitted Design Exception, except to the extent that such failure or delay in obtaining the GDOT approval results from failure by any Design-Build Team-Related Entity to carry out the Work in accordance with the DB Documents;

(s) Failure to obtain, or unreasonable and unjustified delay in obtaining, a Governmental Approval required for a re-evaluation of an approval of Environmental Documents due to an approved ATC; provided that Design-Build Team shall only be entitled to relief for such failure or delay after expiration of the applicable GDOT Re-evaluation Period; or

(t) Material delays as a result of any modification to the approval of Environmental Documents, as a result of the Environmental Documents, and all approved supplements and re-evaluations pertaining to the Project as of the Effective Date provided that any such modifications are not the result of an ATC, Additional Properties, or attributable to Design-Build Team's design.

14.1.2 Extensions of Time for Relief Events

14.1.2.1 If DB Team complies with the notice and information requirements in this Article 14.1, then within sixty (60) days after receiving the Proposed Supplemental Agreement (and, if applicable, any required updates thereto) SRTA, acting reasonably, and with consideration given recommendations made by GDOT, shall issue a Relief Event Determination. SRTA shall specify in the Relief Event Determination (a) the relevant obligations for which relief is given, (b) the period of time that Milestone Schedule Deadlines or periods set forth in the Project Schedule will be extended based on the number of days of delay affecting a Critical Path, after consumption of Float available pursuant to Article 3.2.5, that is directly attributable to the Relief Event and that cannot be avoided through reasonable mitigation measures and (c) if applicable, the period of time, if any, that the Contract Time will be extended. DB Team shall be relieved from the performance of obligations to the extent specified in the Relief Event Determination.

14.1.2.2 DB Team shall not be excused from compliance with applicable Laws, Technical Provisions or Technical Documents due to the occurrence of a Relief Event, except temporary inability to comply as a direct result of a Relief Event.

14.1.2.3 If SRTA is obligated to but does not provide a Relief Event Determination within such thirty (30) day period or if DB Team disagrees with the length of the extension of the Contract Time or other relief set forth in the Relief Event Determination, DB Team shall have the right to assert a claim against SRTA for the relevant Relief Event and have such claim determined according to the Dispute Resolution Procedures. Any Dispute regarding the occurrence of a Relief

Event, the terms of the Relief Event Determination or waiver of DB Team's right to relief shall be resolved according to the Dispute Resolution Procedures.

14.1.2.4 Without limiting DB Team's rights with respect to monetary relief for Compensation Events as set forth in this Agreement, the extensions of time as provided, if any, pursuant to this Article 14.1 are DB Team's sole remedy for a Relief Event.

14.1.3 Limitations on Time Extensions

The DB Team shall be required to demonstrate to SRTA's satisfaction that the change in the Work or other event or situation which is being asserted as a Relief Event will result in or has caused an identifiable and measurable delay of the Work which will impact or has impacted the Critical Path affecting a Completion Deadline.

Any extension of a Completion Deadline allowed hereunder shall exclude any delay to the extent that it did not impact the Critical Path affecting a Completion Deadline or was a concurrent delay with any other delay for which the DB Team is not entitled to an extension.

14.2 Compensation Events

A Compensation Event is any of the following events, subject to any limitations, claims submission requirements, and other conditions set forth in the Agreement, provided that no relief will be available to the extent that (i) the events are within Design-Build Team's control, or are due to any wrongful act, wrongful omission, negligence, recklessness, willful misconduct, breach of contract or Law or violation of a Governmental Approval of any of the Design-Build Team-Related Entities; (ii) the events (or the effects of such events) could have been avoided by the exercise of reasonable caution, due diligence, or other reasonable efforts by Design-Build Team:

(a) Change in Law;

(b) Discriminatory Action;

(c) Material breach by SRTA of its material obligations under the Agreement or other DB Documents, including unreasonable failure to issue a certificate of Substantial Completion or a certificate of satisfaction of conditions precedent to Final Acceptance after Design-Build Team satisfies all applicable conditions and requirements for obtaining such certificates;

(d) SRTA-Caused Delay, other than with respect to SRTA's failure to provide response to Design-Build Team Submittals as provided under clause (d) of the definition of a SRTA-Caused Delay;

(e) SRTA Change;

(f) A SRTA Release of Hazardous Material or remediation of Pre-Existing Hazardous Materials, but excluding the extent of any Design-Build Team Release of Hazardous Materials;

(g) Issuance by a court in a legal proceeding challenging any approval of Environmental Documents or a temporary restraining order or other form of temporary injunction that prohibits prosecution of any material portion of the Work, unless the injunction is the result of an action or inaction by the Design-Build Team;

(h) Any change in the design concept of the Project or any portion thereof resulting from judicial or administrative action taken with respect to a legal challenge to any approval of Environmental Documents as compared to the design concept indicated in the alternative that was the subject of the approval of Environmental Documents, except to the extent the change in design concept had already been incorporated into Design-Build Team's design schematics as approved pursuant to this Agreement;

(i) Subject to clause (n) of this Article 14.2, failure to obtain, or unreasonable and unjustified delay in obtaining or otherwise maintaining once issued, a Governmental Approval from any Governmental Entity, except to the extent that such failure or delay results from failure by any Design-Build Team-Related Entity to locate or design the Project or carry out the work in accordance with the approval of Environmental Documents or other Governmental Approval (which failure may include (i) modification by or on behalf of Design-Build Team of the design concept included in the approval of Environmental Documents, (ii) means or methods used by any Design-Build Team-Related Entity for carrying out the Work, or (iii) decision or action by or on behalf of Design-Build Team to use or acquire Additional Property);

(j) GDOT's (i) lack of good and sufficient title to any parcel in the Existing Right of Way or the State Proposed/State Acquired Right of Way or Property owned by GDOT, to the extent it interferes with or adversely affects performance of Work, (ii) inability or failure to obtain an interest (including by easement or other right of access) to real property not identified in the State Proposed/State Acquired Right of Way and required for construction of the Project as demonstrated by Design-Build Team, exclusive of any Additional Properties, Project Specific Locations, or parcels that are solely for the convenience of Design-Build Team, to the extent it interferes with or adversely affects performance of Work, or (iii) the existence at any time following issuance of NTP 3 of any title reservation, condition, easement or encumbrance on any parcel in the Existing Right of Way or Property owned by GDOT, of record or not of record, to the extent it interferes with or adversely affects performance of Work, except any title reservations, conditions, easements or encumbrances (A) concerning Utilities or (B) caused, permitted or suffered by a Design-Build Team-Related Entity;

(k) Failure to obtain, or unreasonable and unjustified delay in obtaining, an approval from GDOT with respect to a Permitted Design Exception, except to the extent that such failure or delay in obtaining the GDOT approval results from failure by any Design-Build Team-Related Entity to carry out the Work in accordance with the DB Documents;

(l) Failure to obtain, or unreasonable and unjustified delay in obtaining, a Governmental Approval required for a re-evaluation of an approval of Environmental Documents due to an approved ATC; provided that Design-Build Team shall only be entitled to compensation for such failure or delay after expiration of the applicable GDOT Re-evaluation Period;

(m) Performance of work in the Construction Maintenance Limits or Operations and Maintenance Limits, by Separate Contractors within the ROW, carried out by or on behalf of SRTA, GDOT or a Governmental Entity, excluding any Utility Adjustment Work by a Utility Owner, that directly disrupts DB Team's onsite Work; or

(n) Material delays as a result of any modification to the approval of Environmental Documents, as a result of the Environmental Documents, and all approved supplements and re-evaluations pertaining to the Project as of the Effective Date provided that any such modifications are not the result of an ATC, Additional Properties, or attributable to Design-Build Team's design.

14.2.1 Determining Compensable Amounts

The Compensation Amount, if any, for design or construction shall be determined by applying the following provisions.

14.2.1.1 Cost impacts shall:

(a) Exclude (i) third-party entertainment costs, lobbying and political activity costs, costs of alcoholic beverages, costs for first class travel in excess of prevailing economy travel costs, and costs of club memberships, in each case to the extent that such costs would not be reimbursed to an employee of SRTA or GDOT in the regular course of business, and (ii) unallowable costs under the following provisions of the federal Contract Cost Principles, 48 CFR 31.205: 31.205-8 (contributions or donations), 31.205-13 (employee morale, health, welfare, food service, and dormitory costs and credits), 31.205-14 (entertainment costs), 31.205-15 (fines, penalties, and mischarging costs), 31.205-27 (organization costs), 31.205-34 (recruitment costs), 31.205-35 (relocation costs), 31.205-43 (trade, business, technical and professional activity costs), 31.205-44 (training and education costs), and 31.205-47 (costs related to legal and other proceedings);

(b) Exclude amounts paid or to be paid to Affiliates in excess of the pricing DB Team could reasonably obtain in an arms' length, competitive transaction with an unaffiliated Contractor;

(c) Exclude those costs incurred in asserting, pursuing, or enforcing any Compensation Event, Relief Event or Dispute;

(d) Be reduced by any savings in costs resulting from the Compensation Event;

(e) Be subject to DB Team's obligation to mitigate cost increases and augment cost decreases in accordance with this Article 14.2.

(f) Costs caused by the breach of contract or fault or negligence, or act or failure to act of any DB Team-Related Entity.

(g) Costs, which could reasonably, and in accordance with Good Industry Practice, have been avoided by the DB Team, including by resequencing, reallocating, or redeploying its forces to other portions of the Work (including any additional costs reasonably incurred in connection with such reallocation or redeployment) or to other activities unrelated to the Work.

(h) Costs for any rejected Work that failed to meet the requirements of the DB Documents and any necessary remedial Work.

(i) Damages or expenses barred under Section 105.13 of the latest edition of GDOT Standard Specifications: Construction of Transportation Systems.

14.2.1.2 In all cases the Compensation Amount shall be net of all insurance available to DB Team including deductibles, or deemed to be self-insured by DB Team under Article 16, with respect to cost or revenue impacts of the Compensation Event.

14.2.1.3 The Compensation Amount shall not include any amount on account of federal, State, or local income taxes. Further and notwithstanding anything to the contrary herein, the Compensation Amount shall not include, under any circumstances, costs incurred by DB Team or any Contractors on account of charges or expenses due to (a) the business organization existence or maintenance of its business of any DB Team-Related Entity or (b) labor or employment matters as a result of any Change in Law.

14.2.2 If the Compensation Event is under clause (g) of Article 14.2, then the Compensation Amount shall be limited to the incremental increase in costs of initial design and construction due to delay and disruption directly attributable to the court order.

14.2.3 DB Team shall share with SRTA all data, documents, and information pertaining to bids for any work that is the subject of a Compensation Amount, and all of the aforementioned shall be on an Open Book Basis.

14.2.4 Any Dispute between SRTA and the DB Team regarding occurrence of a Compensation Event, determination of the Compensation Amount or waiver of DB Team's right to compensation shall be resolved according to the Dispute Resolution Procedures. The dispute resolution body(ies) shall apply the provisions of this Article 14.2 in determining the Compensation Amount.

14.2.5 Following a determination of the Compensation Amount by mutual agreement or the Dispute Resolution Procedures, SRTA shall pay such Compensation Amount (a) through periodic payments of the Compensation Amount in accordance with the scheduling and payment provisions in Section 2 of the Technical Provisions, (b) in a lump sum, payable as determined by mutual agreement or through the Dispute Resolution Procedures, or (c) in such other manner as agreed upon by the Parties. SRTA, in its sole discretion, shall be entitled to select one or any combination of the foregoing methods of compensation.

14.2.6 Without limiting DB Team's rights with respect to non-monetary relief for Relief Events as set forth in this Agreement, the Compensation Amount shall represent the sole right to compensation and damages for the adverse financial effects of a Compensation Event. As a condition precedent to SRTA's obligation to pay any portion of the Compensation Amount, DB Team shall execute a full, unconditional, irrevocable release, in form reasonably acceptable to SRTA, of any claims, Losses or other rights to compensation or other monetary relief associated with such Compensation Event, except for the right to the subject Compensation Amount, DB Team's right to non-monetary relief for a Relief Event, and the right to terminate this Agreement in accordance with Article 19.4 and to receive any applicable Termination Compensation.

14.2.7 Limitations on Acceleration Costs

Acceleration costs shall be compensable hereunder only with respect to Supplemental Agreements issued by SRTA.

Acceleration costs are those fully documented increased costs reasonably incurred by the DB Team (i.e., costs over and above what the DB Team would otherwise have incurred) which are directly attributable to increasing the performance level of the Work in an attempt to complete necessary activities of the Work earlier than otherwise anticipated, such as for additional equipment, additional crews, overtime and shift premiums, increased supervision, and any unexpected movement of materials, equipment, or crews necessary for resequencing in connection with acceleration efforts. Acceleration costs do not include any costs for disruption damages as described below in Article 14.2.8.

14.2.8 No Disruption Damages

Disruption damages, whether from a single event or continual, multiple or repetitive events, are not allowed or recoverable under the Agreement. Disruption damages include costs of (i) rearranging the DB Team's Work plan not associated with an extension of a Completion Deadline, and (ii) loss of efficiency, momentum or productivity.

14.2.9 Limitations on Delay Damages

14.2.9.1 Delay damages are compensable and are limited to the provisions of Standard Specifications 105.13.B.

14.2.9.2 Before the DB Team may obtain any increase in the Contract Sum to compensate for any delay damages or acceleration costs, the DB Team shall have demonstrated to SRTA's satisfaction that:

(a) The Project Schedule in fact sets forth a reasonable method for completion of the Work;

(b) The change in the Work or other event or situation that is the subject of the requested Supplemental Agreement has caused or will result in an identifiable and measurable delay of the Work and impact the Critical Path affecting milestones listed in Exhibit 9;

(c) The delay damage was not due to any breach of contract or fault or negligence, or act or failure to act of any DB Team-Related Entity, and could not reasonably have been avoided by the DB Team, including by resequencing, reallocating or redeploying its forces to other portions of the Work (subject to reimbursement for additional costs reasonably incurred in connection with such reallocation or redeployment) or other activities unrelated to the Work;

(d) The delay for which compensation is sought is not concurrent with any other delay for which the DB Team is not entitled to delay damages; and

(e) The DB Team has suffered or will suffer actual costs due to such delay, each of which costs shall be justified and documented in a manner satisfactory to SRTA.

14.2.9.3 Delay damages shall only be available for delays to the Completion Deadline for Substantial Completion. For delays to any other Completion Deadline the only relief available is suspension of Liquidated Damages for the duration of the proven delay.

14.3 Lump Sum Compensation

The preferred approach by both parties is that Supplemental Agreements will be paid on a lump sum basis, if the parties can agree on a lump sum amount. Lump sum prices shall be based on the original allocations of the Contract Sum to comparable activities. If reference to price allocations is inappropriate, or when requested by SRTA or the DB Team, negotiation for lump sum Supplemental Agreements shall be on an Open Book Basis and may be based on the pricing contained in the escrowed bid documents as well as Subcontractors' bid prices.

If the parties cannot agree on a lump sum amount for Supplemental Agreements, the Supplemental Agreements will be paid as Force Account Supplemental Agreements described in Article 14.4.

14.4 Force Account Compensation

14.4.1 SRTA may at its discretion issue a Directive Letter or Force Account Supplemental Agreement whenever the Parties cannot agree to a lump sum Supplemental Agreement or SRTA determines that a Force Account Supplemental Agreement is advisable.

14.4.2 The Force Account shall instruct the DB Team to perform the Work, indicating expressly the intention to treat the items as changes in the Work, and setting forth the kind, character, and limits of the Work as far as they can be ascertained, the terms under which changes to the Contract Sum will be determined, and the estimated total change in the Contract Sum anticipated thereunder.

14.4.3 Force Account work is subject to the provisions of 109.05.B of the latest edition of GDOT Standard Specifications: Construction of Transportation Systems. No other direct or indirect compensation will be allowed, including for other miscellaneous costs for which no specific allowance is provided.

14.4.4 Upon final determination of the allowable costs, SRTA shall issue a modified Supplemental Agreement setting forth the final adjustment to the Contract Sum.

14.4.5 Force Account Records

14.4.5.1 Unless and until a lump sum Supplemental Agreement is issued, or in the case that a Directive Letter or Supplemental Agreement is issued directing work be performed under Force Account provisions, the DB Team shall maintain its records in such a manner as to provide a clear distinction between: (i) the direct cost of Work for which it is entitled (or for which it believes it is entitled) to an increase in the Contract Sum; and (ii) the costs of all other operations.

14.4.5.2 The DB Team shall contemporaneously collect, record in writing, segregate, and preserve: (a) all data necessary to determine the costs described in this Article 14.4 with respect to all Work which is the subject of a requested Supplemental Agreement, specifically including costs associated with

Design Work (for which a negotiated Supplemental Agreement has not been issued); and (b) all data necessary to show the actual impact (if any) of any change on the Critical Path affecting a Completion Deadline with respect to all Work which is the subject of a Supplemental Agreement or a Proposed Supplemental Agreement, if the impact on the Critical Path affecting a Completion Deadline is in dispute.

14.4.5.3 Such data shall be provided on forms approved by SRTA. The cost of furnishing such reports is included in the DB Team's predetermined overhead and profit.

14.4.5.4 The DB Team shall furnish daily, on forms approved by SRTA, reports of all Force Account Work. The cost of furnishing such reports shall be included in the DB Team's overhead and profit percentages. The reports shall include:

(a) Name, classification, date, daily hours, total hours, rate, and extension for each laborer, equipment operator, and supervisor, excluding superintendents.

(b) Designation, dates, daily hours, total hours, rental rate, and extension for each unit of machinery and equipment.

(c) Quantities of materials, prices and extensions.

(d) Transportation costs of materials, machinery, and equipment.

(e) Invoices for materials used and for transportation charges.

(f) Cost of property damage, liability, and worker's compensation insurance premiums, unemployment insurance contributions, and Social Security tax.

The reports shall also state the total costs to date for the Force Account Work.

14.4.5.5 Labor costs for Project management and administration, and construction field management above but not including the Superintendent, according to the DB Team's organization and standard work practices, are included in the markup as provided in Standard Specification 109.05.B.1.

14.4.5.6 The cost of labor for non-construction-related Work, whether provided by the DB Team or a Subcontractor, will equal the sum of the following: (i) actual wages (i.e. the base wage paid to the employee exclusive of any fringe benefits); plus (ii) an overhead based on the audited Federal Acquisition Regulations (FAR) field rates. The DB Team will also be paid for profit on non-construction labor of five (5) percent of labor costs plus overhead.

14.4.5.7 If materials used on the Force Account Supplemental Agreement Work are not specifically purchased for the Work but are taken from the DB Team's stock, the DB Team shall furnish an affidavit certifying that such materials were taken from the DB Team's stock, that the quantity claimed was actually used, and that the price and transportation costs claimed represent actual costs to the DB Team.

14.4.5.8 All Force Account Supplemental Agreement reports shall be signed by the Project Manager. SRTA will compare its records with the DB Team's reports, make the necessary adjustments, and compile the costs of Force Account Supplemental Agreement Work. When such reports are agreed upon and signed by both parties, they will become the basis of payment and may be billed in the next Payment Request, but shall not preclude subsequent adjustment based on a later audit.

Article 15 REPRESENTATIONS AND COVENANTS

15.1 DB Team Representations and Covenants

DB Team hereby represents to and covenants with SRTA as follows:

15.1.1 During all periods necessary for the performance of the Work, DB Team and its Contractor(s) will maintain all required authority, license status, professional ability, skills and capacity to perform the Work.

15.1.2 As of the Effective Date, DB Team has evaluated the constraints affecting design and construction of the Project, including the Property, the Existing Right of Way and Required Right of Way limits as well as the conditions of the Environmental Documents, and has reasonable grounds for believing and does believe that the Project can be designed and built within such constraints.

15.1.3 Except as to parcels that SRTA or GDOT lacked title or access to prior to the Effective Date, DB Team, in accordance with Good Industry Practice and the requirements of the DB Documents, shall have examined the Site and surrounding locations, performed appropriate field studies and geotechnical investigations of the Site, investigated and reviewed available public and private records, and undertook other activities sufficient to familiarize itself with surface conditions and subsurface conditions, including the presence of Utilities, Hazardous Materials, contaminated groundwater, archeological, paleontological and cultural resources, and Threatened or Endangered Species, affecting the Site or surrounding locations; and as a result of such review, inspection, examination and other activities DB Team is familiar with and accepts the physical requirements of the Work, subject to SRTA's obligations regarding Hazardous Materials under Article 7.8 and Exhibit 11 and DB Team's rights to seek relief under Article 14 .

15.1.4 DB Team has familiarized itself with the requirements of any and all applicable Laws, including with limitation O.C.G.A. §48-13-30, et. seq., and the conditions of any required Governmental Approvals prior to entering into this Agreement. Except as specifically permitted under Article 13 or Article 14, DB Team shall be responsible for complying with the foregoing at its sole cost and without any additional compensation or time extension on account of such compliance, regardless of whether such compliance would require additional time for performance or additional labor, equipment and/or materials not expressly provided for in the DB Documents. As of the Effective Date, DB Team has no reason to believe that any Governmental Approval required to be obtained by DB Team will not be granted in due course and thereafter remain in effect so as to enable the Work to proceed in accordance with the DB Documents.

15.1.5 All Work furnished by DB Team will be performed by or under the supervision of Persons who hold all necessary, valid licenses to practice in the State, by personnel who are skilled, experienced and competent in their respective trades or professions, who are professionally qualified to perform the Work in accordance with the DB Documents and who shall assume professional responsibility for the accuracy and completeness of the Design Documents, Construction Documents and other documents prepared or checked by them.

15.1.6 As of the Effective Date, Savannah Mobility Contractors JV is a Joint Venture duly organized and validly existing under the laws of the State of Georgia, has the requisite power and all required licenses to carry on its present and proposed activities, and has full power, right and authority to execute and deliver the DB Documents, Principal Project Documents as and to the extent applicable, and to perform each and all of the obligations of DB Team provided for herein and therein. DB Team is duly qualified to do business, and is in good standing, in the State as of the Effective Date, and will remain duly qualified and in good standing throughout the term of this Agreement and for as long thereafter as any obligations remain outstanding under the DB Documents.

15.1.7 The execution, delivery and performance of the DB Documents, and all other Principal Project Documents to which DB Team is (or will be) a party have been (or will be) duly authorized by all necessary corporate action of DB Team; each Person executing the DB Documents and all other such Project related documents, on behalf of DB Team has been (or at the time of execution will be) duly authorized to execute and deliver each such document on behalf of DB Team; and the DB Documents, and all such other Project related documents have been (or will be) duly executed and delivered by DB Team.

15.1.8 Neither the execution and delivery by DB Team of the DB Documents and the Principal Project Documents to which DB Team is (or will be) a party, nor the consummation of the transactions contemplated hereby or thereby, is (or at the time of execution will be) in conflict with or has resulted or will result in a default under or a violation of the governing instruments of DB Team.

15.1.9 As of the Effective Date, each of the DB Documents, the Principal Project Documents to which DB Team is (or will be) a party constitutes (or at the time of execution and delivery will constitute) the legal, valid and binding obligation of DB Team, enforceable against DB Team and, if applicable, each member of DB Team, in accordance with its terms, subject only to applicable bankruptcy, insolvency and similar laws affecting the enforceability of the rights of creditors generally and the general principles of equity.

15.1.10 As of the Effective Date, there is no action, suit, proceeding, investigation or litigation pending and served on DB Team which challenges DB Team's authority to execute, deliver or perform, or the validity or enforceability of, the DB Documents, and all other Project related documents to which DB Team is a party, or which challenges the authority of DB Team official executing the DB Documents, or the Principal Project Documents. DB Team has disclosed to SRTA and GDOT prior to the Effective Date any pending and un-served or threatened action, suit, proceeding, investigation or litigation with respect to such matters of which DB Team is aware.

15.1.11 As of the Proposal Due Date, DB Team disclosed to SRTA in writing all organizational conflicts of interest of DB Team and its Contractors of which DB Team was

actually aware; and between the Proposal Due Date and the Effective Date, DB Team has not obtained knowledge of any additional organizational conflict of interest, and there have been no organizational changes to DB Team or its Contractors identified in its Proposal, which have not been accepted in writing by SRTA. For this purpose, organizational conflict of interest has the meaning set forth in Section 1.6 of the Instructions to Proposers.

15.1.12 To the extent the Design-Build Contractor is not the DB Team, DB Team represents and warrants, as of the effective date of the Design-Build Contract, as follows: (a) the Design-Build Contractor is duly organized, validly existing and in good standing under the laws of the state of its organization; (b) with respect to Persons that individually hold more than ten percent (10%) of the capital stock of the Design-Build Contractor (including options, warrants and other rights to acquire capital stock), such stock is owned by the Persons whom DB Team has set forth in a written certification delivered to SRTA or GDOT prior to the Effective Date; (c) the Design-Build Contractor has the power and authority to do all acts and things and execute and deliver all other documents as are required to be done, observed or performed by it in connection with its engagement by DB Team; (d) the Design-Build Contractor has all necessary expertise, qualifications, experience, competence, skills and know-how to perform the design and construction of the Project in accordance with the DB Documents; and (e) the Design-Build Contractor is not in breach of any applicable Law that would have a material adverse effect on the design and construction of the Project.

15.1.13 The execution and delivery by DB Team of this Agreement and all other Project related documents to which DB Team is a party will not result, at the time of execution, in a default under any other agreement or instrument to which it is a party or by which it is bound.

15.1.14 The execution and delivery by DB Team of the DB Documents and performance by DB Team of its obligations thereunder will not conflict with any Laws applicable to DB Team that are valid and in effect on the Effective Date.

15.1.15 The Design-Build Contractor shall comply in full with the provisions of Code Sections 50-24-1 through 50-24-6 of the Official Code of Georgia Annotated, relating to the "Drug-free Workplace Act".

15.1.16 No event which, with the passage of time or the giving of notice, would constitute a DB Team Default has occurred and has not yet been cured.

15.1.17 Reserved.

15.1.18 DB Team certifies, by entering into this Agreement, that neither it nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from entering into this Agreement by any federal agency or by any department, agency or political subdivision of the State, including GDOT and SRTA. For purposes of this Article 15.1.18, the term "principal" means an officer, director, owner, partner, Key Personnel, employee, or other person with primary management or supervisory responsibilities, or a person who has a critical influence on or substantive control over the operations of DB Team.

15.1.19 DB Team represents, warrants and certifies by entering into this Agreement, that neither it nor its Affiliates is presently in arrears in payment of Taxes,

permit fees or other statutory, regulatory or judicially required payments to SRTA, GDOT or the State.

15.1.20 DB Team acknowledges and agrees, that as a requirement to enter into the DB Documents, the Proposal documents delivered pursuant to the RFP constitute all the information used in the preparation of the Proposal, and that no other Proposal preparation information will be considered in the resolution of Disputes. The DB Team also agrees that nothing in the Proposal documents delivered pursuant to the RFP shall change or modify the terms or conditions of the DB Documents.

15.2 SRTA Representations and Covenants

SRTA hereby represents to and covenants with DB Team as follows:

15.2.1 As of the Effective Date, SRTA has full power, right and authority to execute, deliver and perform the DB Documents and the Principal Project Documents to which SRTA is a party and to perform each and all of the obligations of SRTA provided for herein and therein.

15.2.2 As of the Effective Date, each of the DB Documents and the Principal Project Documents to which SRTA is (or will be) a party constitutes (or at the time of execution and delivery will constitute) the legal, valid and binding obligation of SRTA, enforceable against SRTA in accordance with its terms, subject only to applicable bankruptcy, insolvency and similar laws affecting the enforceability of the rights of creditors generally and the general principles of equity.

15.2.3 The execution and delivery by SRTA of this Agreement and the Principal Project Documents to which SRTA is a party will not result, at the time of execution, in a default under any other agreement or instrument to which it is a party or by which it is bound.

15.2.4 The execution and delivery by SRTA of the DB Documents and performance by SRTA of its obligations thereunder will not conflict with any Laws applicable to SRTA that are valid and in effect on the Effective Date.

15.2.5 SRTA, pursuant and subject to the Intergovernmental Agreement, has authorized and appointed GDOT to act as SRTA's project manager, representative, and agent for the purpose of causing the acquisition, design, building, and financing of the Project.

15.2.6 As of the Effective Date, there is no action, suit, proceeding, investigation or litigation pending and properly served on SRTA, or, to SRTA's knowledge, without obligation to investigate, threatened, which challenges SRTA's authority to execute, deliver or perform, or the validity or enforceability of, the DB Documents, and all other Project related documents to which SRTA is a party.

15.2.7 As of the Effective Date, there has been no amendment, variation, modification or waiver of any terms of the Joint Resolution since its adoption.

15.2.8 As of the Effective Date, there has been no amendment, variation, modification or waiver of any terms of the Intergovernmental Agreement since its execution.

15.2.9 SRTA shall promptly notify DB Team if it becomes aware of any amendment, variation, modification or waiver of any terms of the Joint Resolution or the Intergovernmental Agreement.

15.2.10 SRTA shall at all times seek to enforce its rights under the Joint Resolution and the Intergovernmental Agreement to the extent necessary to fulfill its obligations under this Agreement.

15.3 Survival of Representations and Covenants

The representations and covenants of DB Team and SRTA contained herein shall survive expiration or earlier termination of this Agreement.

15.4 Special Remedies for Mutual Breach of Representations and Covenants

Notwithstanding any other provision of this Agreement, if there exists or occurs any circumstance or event that constitutes or results in a concurrent breach of any of the representations or covenants set forth in this Article 15 by both DB Team and SRTA but does not also constitute or result in any other breach or default by either Party, then such breaches shall not form the basis for a Compensation Event by the DB Team or damage claim by SRTA against DB Team. Instead, the only remedies shall be for the Parties to take action to rectify or mitigate the effects of such circumstance or event, to pursue severance and reformation of the DB Documents and Principal Project Documents as set forth in Article 24.13, or Termination by Court Ruling as set forth in Article 19.11 and Exhibit 20.

Article 16 INSURANCE; PERFORMANCE SECURITY; INDEMNITY

16.1 Insurance Policies and Coverage

16.1.1 Insurance Certificates and Additional Insured Endorsements Requirements

16.1.1.1 Certificates of Insurance. The DB Team shall procure the insurance coverages identified below and in Exhibit 17 at the DB Team's expense and shall furnish SRTA an insurance certificate listing SRTA and GDOT as the certificate holder and as an additional insured. Certificates of Insurance shall be on a form approved for use in the State of Georgia by the Commissioner of Insurance that provides the following:

(a) Name and address of authorized agent

(b) Name and address of insured

(c) Name of insurance company(ies)

(d) Description of policies

(e) Policy number(s)

(f) Policy Period(s)

(g) Limits of liability

(h) Name and address of SRTA and GDOT as certificate holder

(i) Project Name and Number

(j) Signature of authorized agent

(k) Telephone number of authorized agent

(l) Mandatory thirty (30) Day notice of cancellation or non-renewal (except ten (10) Days for non-payment).

16.1.2 Insurer Qualifications, Insurance Requirements. Each of the insurance coverages required below (i) shall be issued by a company licensed by the Insurance Commissioner to transact the business of insurance in the State of Georgia for the applicable line of insurance, and (ii) shall be an insurer (or, for qualified self-insureds or group self-insureds, a specific excess insurer providing statutory limits) with a Best Policyholders Rating of "A-" or better and with a financial size rating of Class V or larger. Each such policy shall contain the following provisions:

16.1.2.1 The insurance company agrees that the policy shall not be canceled, reduced, allowed to lapse or allowed to expire until thirty (30) days, except ten (10) days for non-payment of premium, after SRTA has received written notice thereof, as evidenced by return receipt of certified mail or statutory mail, or until such time as other insurance coverage providing protection equal to protection called for in this Contract shall have been received, accepted and acknowledged by SRTA. Such notice shall be valid only as to the Project as shall have been designated by Project Number and Name in said notice.

16.1.2.2 The policy shall not be subject to invalidation as to any insured by reason of any act or omission of another insured or any of its officers, employees, agents or other representatives ("Separation of Insureds"), except Professional Liability (Errors & Omissions).

16.1.2.3 Each Insurer is hereby notified that the statutory requirement that the Attorney General shall represent and defend the Indemnities remains in full force and effect and is not waived by issuance of any policy of insurance. In the event of litigation, any settlement on behalf of the indemnities must be expressly approved by the Attorney General. The DB Team and its insurance carrier may retain, but are not obligated to retain, counsel to assist with the defense of the Indemnities, in which case there will be mutual cooperation between the Attorney General and such counsel. See O.C.G.A. §45-15-12.

16.1.2.4 All deductibles shall be paid for by the DB Team.

16.1.2.5 The maximum deductible, except for Worker's Compensation qualified self-insurers or group self-insurers, in any policy shall not exceed $250,000.

16.1.3 Required Insurance Coverages. The DB Team also agrees to purchase insurance and have the authorized agent state on the insurance certificate that the DB Team has purchased the following types of insurance coverages, consistent with the policies and requirements of O.C.G.A. §50-21-37. The minimum required coverages and liability limits are as follows:

16.1.3.1 Workers' Compensation Insurance. The DB Team agrees to provide at a minimum Workers' Compensation coverage in accordance with the statutory limits as established by the General Assembly of the State of Georgia. A group insurer must submit a certificate of authority from the Insurance Commissioner approving the group insurance plan. A self-insurer must submit a certificate from the Georgia Board of Workers' Compensation stating the DB Team qualifies to pay its own workers' compensation claims. The DB Team shall require all Subcontractors performing work under this Agreement to obtain an insurance certificate showing proof of Workers' Compensation Coverage and shall submit a certificate on the letterhead of the DB Team in the following language:

This is to certify that all subcontractors performing work on this Project are covered by their own workers' compensation insurance or are covered by the DB Team's workers' compensation insurance.

16.1.3.2 Employers' Liability Insurance. The DB Team shall also maintain Employer's Liability Insurance Coverage with limits of at least:

(a) Bodily Injury by Accident - $1,000,000 each accident; and

(b) Bodily Injury by Disease - $1,000,000 each employee.

The DB Team shall require all Subcontractors performing work under this Contract to obtain an insurance certificate showing proof of Employers Liability Insurance Coverage and shall submit a certificate on the letterhead of the DB Team in the following language:

This is to certify that all subcontractors performing work on this Project are covered by their own Employers Liability Insurance Coverage or are covered by the DB Team's Employers Liability Insurance Coverage.

16.1.3.3 Commercial General Liability (CGL) Insurance. The DB Team shall provide Commercial General Liability Insurance (2004 ISO Occurrence Form or equivalent) that shall include, but need not be limited to, coverage for bodily injury and property damage arising from premises and operations liability, products and completed operations liability, blasting and explosion, collapse of structures, underground damage, personal injury liability and contractual liability. The CGL policy must include separate aggregate limits per Project and shall provide at a minimum the following limits:

Coverage	**Limit**
1. Premises and Operations	$ 1,000,000.00 per Occurrence
2. Products and Completed Operations	$ 1,000,000.00 per Occurrence
3. Personal Injury	$ 1,000,000.00 per Occurrence
4. Contractual	$ 1,000,000.00 per Occurrence
5. General Aggregate	$ 2,000,000.00 per Project

Additional Requirements for Commercial General Liability Insurance are shown below at Article 16.1.3.6.

16.1.3.4 Commercial Business Automobile Liability Insurance. The DB Team shall provide Commercial Business Automobile Liability Insurance that shall include coverage for bodily injury and property damage arising from the operation of any owned, non-owned, or hired automobile. The Commercial Business Automobile Liability Insurance Policy shall provide not less than $1,000,000 Combined Single Limits for each occurrence. Additional Requirements for Commercial Business Automobile Liability Insurance are shown below at Article 16.1.3.6.

16.1.3.5 Commercial Umbrella Liability Insurance. The DB Team shall provide a Commercial Umbrella Liability Insurance to provide excess coverage above the Commercial General Liability, Commercial Business Automobile Liability and the Workers' Compensation and Employers' Liability to satisfy the minimum limits set forth herein. The umbrella coverage shall follow form with the Umbrella limits required as follows:

For Contract Amounts Less Than $5,000,000:	*For Contract Amounts Equal to or Greater than $5,000,000:*
$ 2,000,000 per Occurrence $ 4,000,000 Aggregate	$ 2,000,000 per Occurrence $ 10,000,000 Aggregate

Additional Requirements for Commercial Umbrella Liability Insurance are shown below at Article 16.1.3.6.

16.1.3.6 Additional Requirements for Commercial Policies in Articles 16.1.3.3 through 16.1.3.5

(a) The DB Team shall cause its insurer to issue an Additional Insured Endorsement naming the officers, members, and employees of SRTA and GDOT as additional Insureds.

(b) The policy must be on an "occurrence" basis.

16.1.3.7 Professional Liability (Errors and Omissions) Insurance. Limits shall not be less than the following:

(a) Reserved.

(b) Professional Liability (Errors and Omissions): Insurance in an amount not less than five million dollars ($5,000,000.00) per claim must be maintained during the agreement term with a retroactive date no later than the date that design services commenced, and must include an extended discovery period of at least five (5) years following Substantial Completion. Such policy is to be project-specific and cover all the DB Team's professional liabilities, whether occasioned by the by the DB Team, its employees, subconsultants, subcontractors or other agents arising out of design and engineering services performed under or in accordance with this Agreement.

(c) This form should be submitted to the SRTA along with the Contract at the Post Award meeting.

16.1.3.8 Maximum Deductible. The maximum deductible, except for Worker's Compensation qualified self-insurers or group self-insurers, in any policy shall not exceed $250,000.

16.1.3.9 Disposition of Insurance Documents. Original certificate(s) of insurance with all endorsements attached must be deposited with SRTA evidencing the minimum insurance required.

16.1.4 Termination of Obligation to Insure. Unless otherwise expressly provided to the contrary, the obligation to insure as provided herein shall not terminate until SRTA shall have executed the certificate of Final Acceptance.

16.1.5 Failure of Insurers. The DB Team is responsible for any delay resulting from the failure of his insurance carriers to furnish proof of proper coverage in the prescribed form.

16.1.6 Inadequacy of Required Coverages - SRTA makes no representation that the scope of coverage and limits of liability specified for any Insurance Policy to be carried pursuant to this Agreement or approved variances therefrom are adequate to protect Design-Build Contractor against its undertakings under this Agreement to SRTA, or its liabilities to any third party. It is the responsibility of the DB Team and each Contractor to determine if any changes or additional coverages are required to adequately protect their interests. No such limits of liability or approved variances therefrom shall preclude SRTA from taking any actions as are available to it under the DB Documents, or otherwise at Law.

16.2 Performance and Payment Security

DB Team shall furnish Performance & Payment Bonds ("P&P Bonds") meeting the requirements of this Article 16.2 as performance and payment security for the Work.

16.2.1 P&P Bonds

16.2.1.1 The DB Team shall furnish, or cause the furnishing of, P&P Bonds. DB Team shall obtain and deliver P&P Bonds in such amount as required pursuant to the terms set forth in the Standard Specification Section 103.05, identifying DB Team as the P&P Obligor, securing DB Team's obligations to

perform the Work and to ensure that payments owing to Claimants are made with respect to such Work.

16.2.1.2 The P&P Bonds shall be issued by a properly licensed and U.S. Treasury listed surety(ies) that have not less than "A" or better and Class VIII by A.M. Best and Company's Insurance Reports Key Rating Guide, and listed on Treasury Department Circular 570, and be on the list of companies approved by the State for at least three (3) of the last five (5) years from the date of the proposed bond issuance. If P&P Bonds are issued by more than one surety, such P&P Bonds shall be executed on a joint and several basis.

16.3 Prosecution of Claims

16.3.1 Unless otherwise directed by SRTA in writing with respect to SRTA's insurance claims and subject to the requirements of Articles 16.5 and 16.6 below, DB Team shall be responsible for reporting and processing all potential claims by SRTA or DB Team against the Insurance Policies required hereunder. DB Team agrees to report timely to the insurer(s) under such Insurance Policies any and all matters which may give rise to an insurance claim by DB Team or SRTA or another Indemnified Party and to promptly and diligently pursue such insurance claims in accordance with the claims procedures specified in such Insurance Policies, whether for defense or indemnity or both. DB Team shall enforce all legal rights against the insurer under the applicable Insurance Policies and applicable Laws in order to collect thereon, including pursuing necessary litigation and enforcement of judgments, provided that DB Team shall be deemed to have satisfied this obligation if a judgment is not collectible through the exercise of lawful and diligent means.

16.3.2 SRTA agrees to promptly notify DB Team of SRTA's incidents, potential claims against SRTA, and matters which may give rise to an insurance claim against SRTA, to tender to the insurer SRTA's defense of the claim under such Insurance Policies, and to cooperate with DB Team as necessary for DB Team to fulfill its duties hereunder.

16.3.3 If in any instance DB Team has not performed its obligations respecting insurance coverage set forth in the DB Documents or is unable to enforce and collect any such insurance for failure to assert claims in accordance with the terms of the Insurance Policies or to prosecute claims diligently, then for purposes of determining DB Team's liability and the limits thereon or determining reductions in compensation due from SRTA to DB Team on account of available insurance, DB Team shall be treated as if it has elected to self-insure up to the full amount of insurance coverage which would have been available had DB Team performed such obligations and not committed such failure. Nothing in this Article 16.3.3 or elsewhere in this Article 16.3 shall be construed to treat DB Team as electing to self-insure where DB Team is unable to collect due to the bankruptcy or insolvency of any insurer which at the time the Insurance Policy is written meets the rating qualifications set forth in this Article 16.3.

16.3.4 DB Team shall not settle or accept any settlement of any insurance claim which is in excess of $100,000 or which involves any claim that has been asserted against SRTA, GDOT, the State or any agency or department thereof, without prior written approval of SRTA, provided that DB Team shall not be required to obtain SRTA approval for workers compensation claims.

16.3.5 If in any instance DB Team has not promptly performed its obligation to report to applicable insurers and process any potential insurance claim tendered by SRTA or another Indemnified Party, then SRTA or the other Indemnified Party may, but is not obligated to, (a) notify DB Team in writing of SRTA's intent to report the claim directly with the insurer and thereafter process the claim, and (b) proceed with reporting and processing the claim if SRTA or the other Indemnified Party does not receive from DB Team, within ten (10) days after so notifying DB Team, written proof that DB Team has reported the claim directly to the insurer. SRTA or the other Indemnified Party may dispense with such notice to DB Team if SRTA or the other Indemnified Party has a good faith belief that more rapid reporting is needed to preserve the claim.

16.4 Reserved

16.5 Indemnity by DB Team

16.5.1 Subject to Article 16.5.2, DB Team shall release, protect, defend, indemnify and hold harmless the Indemnified Parties from and against any and all Third-Party Claims and Third-Party Losses arising out of, relating to or resulting from:

16.5.1.1 The breach or alleged breach of the DB Documents by DB Team;

16.5.1.2 The failure or alleged failure by any DB Team-Related Entity to comply with the Governmental Approvals, any applicable Environmental Laws or other Laws (including Laws regarding Hazardous Materials Management);

16.5.1.3 Any alleged patent or copyright infringement or other allegedly improper appropriation or use by any DB Team-Related Entity of trade secrets, patents, proprietary information, know-how, copyright rights or inventions in performance of the Work, or arising out of any use in connection with the Project of methods, processes, designs, information, or other items furnished or communicated to SRTA, GDOT or another Indemnified Party pursuant to the DB Documents; provided that this indemnity shall not apply to any infringement resulting from SRTA's or GDOT's failure to comply with specific written instructions regarding use provided to SRTA or GDOT by DB Team;

16.5.1.4 The actual or alleged culpable act or omission, culpable error or misconduct of any DB Team-Related Entity in or associated with performance of the Work;

16.5.1.5 Any and all claims by any governmental or taxing authority claiming taxes based on gross receipts, purchases or sales, the use of any property or income of any DB Team-Related Entity with respect to any payment for the Work made to or earned by any DB Team-Related Entity;

16.5.1.6 Any and all stop notices, liens and claims filed in connection with the Work, including all expenses and attorneys', accountants' and expert witness fees and costs incurred in discharging any stop notice, lien or claim, and any other liability to Contractors, laborers and Suppliers for failure to pay sums due for their work, services, materials, goods, equipment or supplies, including interest

and attorney's fees, provided that SRTA is not in default in payments owing (if any) to DB Team with respect to such Work;

16.5.1.7 Any actual or threatened DB Team Release of Hazardous Materials;

16.5.1.8 The claim or assertion by any other developer or contractor that any DB Team-Related Entity interfered with or hindered the progress or completion of work being performed by the other contractor or developer, or failed to cooperate reasonably with the other developer or contractor, so as to cause inconvenience, disruption, delay or loss, except where the DB Team-Related Entity was not in any manner engaged in the management, prosecution, protection or performance of the Work;

16.5.1.9 Any dispute or claim by a Utility Owner related to any DB Team-Related Entity's performance of, or failure to perform, the obligations under any Standard Utility Agreement;

16.5.1.10 (a) Any DB Team breach of or failure to perform an obligation that SRTA or GDOT owes to a third Person, including, but not limited to, Governmental Entities, under Law or under any agreement between SRTA and GDOT and a third Person, where SRTA or GDOT has delegated performance of the obligation to DB Team pursuant to the terms of the DB Documents, or (b) the negligent or willful acts or omissions of any DB Team-Related Entities which render SRTA or GDOT unable to perform or abide by an obligation that SRTA or GDOT owes to a third Person, including, but not limited to, Governmental Entities, under any agreement between SRTA or GDOT and a third Person, where the agreement is previously disclosed or known to DB Team;

16.5.1.11 The fraud, bad faith, arbitrary or capricious acts, willful misconduct, negligence or violation of Law or contract by DB Team or Design-Build Contractor or any Affiliate of either in connection with DB Team's performance of real property acquisition services under the DB Documents;

16.5.1.12 Inverse condemnation, trespass, nuisance, interference with use and enjoyment of property or similar taking of or harm to real property by reason of (a) the failure of any DB Team-Related Entity to comply with Good Industry Practice, requirements of the DB Documents, Management Plans or Governmental Approvals, (b) the intentional misconduct or negligence of any DB Team-Related Entity, or (c) the entry onto or encroachment upon another's property by any DB Team-Related Entity;

16.5.1.13 If applicable, any violation of any federal or state securities or similar law by any DB Team-Related Entity;

16.5.1.14 Errors, inconsistencies or other defects in the design or construction of the Project and/or of Utility Adjustments, or the Work, included in the Design Work and/or Construction Work; or

16.5.1.15 Any claim asserted or alleged against SRTA or GDOT in contradiction of Article 4.8.1.

16.5.2 Subject to the releases and disclaimers herein, including all the provisions set forth in Article 4.4, DB Team's indemnity obligation shall not extend to any Third-Party Claims and Third-Party Losses to the extent caused or contributed to by:

16.5.2.1 The sole negligence, recklessness or willful misconduct, bad faith or fraud of the Indemnified Party;

16.5.2.2 SRTA's breach of any of obligations under the DB Documents, subject to Article 4.3.1; or

16.5.2.3 An Indemnified Party's violation of any Laws or Governmental Approvals;

16.5.2.4 Any material defect inherent in a prescriptive design, or construction specification included in the DB Documents that was not drafted or provided by DB Team under this Agreement, but only where prior to occurrence of the Third-Party Loss DB Team complied with such specification and did not actually know, or would not reasonably have known, while exercising reasonable diligence, that it was deficient or, if DB Team actually knew of the deficiency, unsuccessfully sought SRTA's waiver or acceptance of a Change Request from such specification; or

16.5.2.5 Any Compensation Event or Relief Event.

16.5.3 In claims by an employee of DB Team, a Contractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under this Article 16.5 shall not be limited by a limitation on the amount or type of damages, compensation or benefits payable by or for DB Team or a Contractor under workers' compensation, disability benefit or other employee benefits laws.

16.5.4 For purposes of this Article 16.5, "Third-Party Claim" includes a claim, dispute, disagreement, cause of action, demand, suit, action, judgment, investigation, or legal or administrative proceeding which (a) is asserted, initiated or brought by any Indemnified Party's employee, agent or contractor against an Indemnified Party, (b) is within the scope of the indemnities and (c) is not covered by the Indemnified Party's worker's compensation program. For purposes of this Article 16.5, "Third-Party Loss" includes any actual or alleged Loss sustained or incurred by such employee, agent or contractor.

16.6 Defense and Indemnification Procedures

16.6.1 If any of the Indemnified Parties receives notice of a claim that it believes is within the scope of the indemnities under Article 16.5, SRTA shall by writing as soon as practicable after receipt of the claim, (a) inform DB Team of the claim, (b) send to DB Team a copy of all written materials SRTA has received asserting such claim and (c) notify DB Team that should no insurer accept defense of the claim, the Indemnified Party will conduct its own defense unless DB Team accepts the tender of the claim in accordance with Article 16.6.3. As soon as practicable after DB Team receives notice of a claim or otherwise has actual knowledge of a claim, it shall tender the claim in writing to the insurers under all potentially applicable Insurance Policies and comply with all notice requirements

contained in such Insurance Policies. SRTA and other Indemnified Parties also shall have the right to tender such claims to such insurers.

16.6.2 Subject to Article 16.6.4, if the insurer under any applicable Insurance Policy accepts the tender of defense, SRTA and DB Team shall cooperate in the defense as required by the Insurance Policy. If no insurer under potentially applicable Insurance Policies provides defense, then Article 16.6.3 shall apply.

16.6.3 If the defense is tendered to DB Team, then within thirty (30) days after receipt of the tender it shall notify the Indemnified Party whether it has tendered the matter to an insurer and (if not tendered to an insurer or if the insurer has rejected the tender) shall deliver a written notice stating that DB Team:

16.6.3.1 Accepts the tender of defense and confirms that the claim is subject to full indemnification hereunder without any "reservation of rights" to deny or disclaim full indemnification thereafter;

16.6.3.2 Accepts the tender of defense but with a "reservation of rights" in whole or in part, with a detailed statement as to the reasons for the "reservation of rights"; or

16.6.3.3 Rejects the tender of defense based on a determination that it is not required to indemnify against the claim under the terms of this Agreement, with a detailed statement as to the reasons for the denial.

16.6.4 If DB Team accepts the tender of defense under Article 16.6.3.1, DB Team acknowledges and agrees (and has caused the insurer to be so notified of the statutory requirements) that the Attorney General shall represent and defend the State, SRTA, GDOT and any officer, director, commissioner or employee of such Indemnified Parties; but SRTA will request that the Attorney General, without limiting the authority of the Attorney General, consider attorneys recommended by DB Team for appointment as Special Assistant Attorney General to represent and defend the referenced Indemnified Parties. DB Team may, at the option of the Attorney General, have the right to participate in the defense of the Indemnified Parties. In the event of litigation, any settlement on behalf of the Indemnified Parties must be expressly approved by the Attorney General. The foregoing shall not relieve DB Team's obligation to bear the fees and costs of defending and settling such claim. During such defense:

16.6.4.1 DB Team shall fully and regularly inform the Indemnified Party and the Attorney General of the progress of the defense and of any settlement discussions; and

16.6.4.2 Each Indemnified Party shall fully cooperate in said defense, provide to DB Team all materials and access to personnel it requests as necessary for defense, preparation and trial and which or who are under the control of or reasonably available to the Indemnified Party, and maintain the confidentiality of all communications between it and DB Team concerning such defense.

16.6.5 If DB Team responds to the tender of defense as specified in Article 16.6.3.2 or Article 16.6.3.3, such Indemnified Parties shall also be represented by the Attorney General who shall otherwise control the defense of such claim, including

settlement. The foregoing shall not relieve DB Team from its obligations to bear the fees and costs of defending and settling such claim.

16.6.6 Even if the Attorney General has appointed counsel selected by DB Team to represent any of the Indemnified Parties, the Attorney General may assume the defense of the applicable Indemnified Parties by delivering to DB Team written notice of such election and the reasons therefor, if the Indemnified Parties, at the time it gives notice of the claim or at any time thereafter, reasonably determines that:

16.6.6.1 A conflict exists between it and DB Team which prevents or potentially prevents DB Team from presenting a full and effective defense;

16.6.6.2 DB Team is otherwise not providing an effective defense in connection with the claim; or

16.6.6.3 DB Team lacks the financial capacity to satisfy potential liability or to provide an effective defense.

16.6.7 If any of the Indemnified Parties is entitled and elects to conduct its own defense pursuant hereto of a claim for which it is entitled to indemnification, DB Team shall reimburse on a current basis all reasonable costs and expenses any such Indemnified Parties incurs in investigating and defending, including, but not limited to, attorney's fees. In the event the Indemnified Parties are entitled to and elect to conduct their own defense, then:

16.6.7.1 In the case of a defense conducted under Article 16.6.3.1, it shall have the right to settle or compromise the claim with DB Team's prior written consent, which shall not be unreasonably withheld or delayed;

16.6.7.2 In the case of a defense conducted under Article 16.6.3.2, it shall have the right to settle or compromise the claim with DB Team's prior written consent, which shall not be unreasonably withheld or delayed, or with approval of the court following reasonable notice to DB Team and opportunity to be heard and without prejudice to the Indemnified Party's rights to be indemnified by DB Team; and

16.6.7.3 In the case of a defense conducted under Article 16.6.3.3, it shall have the right to settle or compromise the claim without DB Team's prior written consent and without prejudice to its rights to be indemnified by DB Team.

16.6.8 A refusal of, or failure to accept, a tender of defense, as well as any Dispute over whether an Indemnified Party which has assumed control of defense is entitled to do so under Article 16.6.6, shall be submitted in accordance with the Dispute Resolution Procedures. DB Team shall be entitled to contest an indemnification claim and pursue, through the Dispute Resolution Procedures, recovery of defense and indemnity payments it has made to or on behalf of the Indemnified Party.

16.6.9 In determining responsibilities and obligations for defending suits pursuant to this Article 16.6, specific consideration shall be given by the Parties to the following factors: (a) the party performing the activity in question; (b) the location of the

activity and Incident; (c) contractual arrangements then governing the performance of the activity; and (d) allegations of respective fault contained in the claim.

16.6.10 Notwithstanding anything to the contrary set forth in Article 16.5 or this Article 16.6, the Attorney General is the only counsel authorized to represent SRTA, GDOT or any State affiliated agencies or departments. In the event that there is any potential conflict of interest that could reasonably arise in the representation of any Indemnified Party and DB Team in the defense of any action, suit or proceeding pursuant to Article 16.5 above or in the event that state or local law requires the use of specific counsel, (i) such Indemnified Party may elect in its sole and absolute discretion whether to waive such conflict of interest, and (ii) unless such Indemnified Party elects to waive such conflict of interest, or in any event if required by state or local law, then the counsel designated by the Indemnified Party shall solely represent such Indemnified Party and, if applicable, DB Team shall retain its own separate counsel, each at DB Team's sole cost and expense. The Attorney General will consider counsel recommended by DB Team for appointment as a Special Assistant Attorney General.

16.6.11 If a suit or proceeding based on a claimed infringement of a patent or copyright is brought against any of the Indemnified Parties, DB Team shall, at its own expense, defend or settle any such suit or proceeding if authorized to do so in writing by the Attorney General subject to the obligations of indemnification as set forth in Article 16.5.

16.6.12 DB Team, subject to Article 16.6, may settle the claim without the consent or agreement of the Indemnified Parties, unless the settlement (i) would result in injunctive relief or other equitable remedies or otherwise require the Indemnified Parties to comply with restrictions or limitations that adversely affect or materially impair the reputation and standing of the Indemnified Parties, (ii) would require the Indemnified Parties to pay amounts that DB Team or its insurer does not fund in full, (iii) would not result in the Indemnified Parties full and complete release from all liability to the plaintiffs or Claimants who are parties to or otherwise bound by the settlement, or (iv) directly involves any such Indemnified Parties (in which case the Attorney General shall be the only counsel authorized to represent such parties with respect to any such settlement).

Article 17 DEFAULT; REMEDIES; CLAIM FOR ADJUSTMENTS AND DISPUTES

17.1 Default by DB Team; Cure Periods

17.1.1 DB Team Default

Subject to relief from its performance obligations pursuant to Article 14.1.2.1 and Article 13.3.2.2, DB Team shall be in breach under this Agreement upon the occurrence of any one or more of the following events or conditions (each a "DB Team Default"):

17.1.1.1 DB Team (a) fails to begin the applicable Work within thirty (30) days following issuance of NTP 1; (b) fails to satisfy all conditions to issuance of NTP 3 under Article 3.3.1 by the NTP 3 Conditions Deadline; or (c) fails to satisfy all conditions to commencement of the applicable Construction Work, and fails to commence such Construction Work with diligence and continuity, as the same may be extended pursuant to this Agreement;

17.1.1.2 An Abandonment;

17.1.1.3 DB Team fails to achieve Substantial Completion by the Substantial Completion Deadline, as the same may be extended pursuant to this Agreement;

17.1.1.4 DB Team fails to achieve Final Acceptance by the Final Acceptance Deadline, or fails to achieve such required Elements of the Work by any applicable Milestone Deadline, as any such dates may be extended pursuant to this Agreement;

17.1.1.5 Any representation or covenant in the DB Documents made by DB Team, or any certificate, schedule, report, instrument or other document delivered by or on behalf of DB Team to SRTA pursuant to the DB Documents is materially false, materially misleading or materially inaccurate when made or omits material information when made;

17.1.1.6 DB Team fails to obtain, provide and maintain any insurance, bonds, or other performance security as and when required under this Agreement for the benefit of relevant parties, or fails to comply with any requirement of this Agreement pertaining to the amount, terms or coverage of the same;

17.1.1.7 DB Team makes or attempts to make or suffers a voluntary or involuntary assignment or transfer of all or any portion of this Agreement, the Project or DB Team's Interest, or there occurs a Change of Control, in violation of Article 21;

17.1.1.8 DB Team materially fails to timely observe or perform or cause to be observed or performed any other material covenant, agreement, obligation, term or condition required to be observed or performed by DB Team under the DB Documents (including material failure to perform the Design Work, Construction Work, or any material portion thereof in accordance with the DB Documents); provided that this Article 17.1.1.8 shall not apply to DB Team Defaults specifically addressed by other provisions of Article 17.1.1;

17.1.1.9 After exhaustion of all rights of appeal, there occurs any suspension or debarment (distinguished from ineligibility due to lack of financial qualifications), or there goes into effect an agreement for voluntary exclusion, from bidding, proposing or contracting with any federal or State department or agency of (a) DB Team, (b) any member of DB Team with a material financial obligation owing to DB Team for equity or shareholder loan contributions, (c) any Affiliate of DB Team for whom transfer of ownership would constitute a Change of Control, or (d) any Key Contractor whose work is not completed;

17.1.1.10 DB Team fails to (a) deliver to SRTA any remedial plan as may be required pursuant to Article 17.3.5 or (b) otherwise fails to fully comply with the schedule or specific elements of, or actions required under, any such accepted remedial plan;

17.1.1.11 DB Team commences a voluntary case seeking liquidation, reorganization or other relief with respect to itself or its debts under any U.S. or

foreign bankruptcy, insolvency or other similar Law now or hereafter in effect, seeks the appointment of a trustee, receiver, liquidator, custodian or other similar official of it or any substantial part of its assets; becomes insolvent, or generally does not pay its debts as they become due; admits in writing its inability to pay its debts; makes an assignment for the benefit of creditors; or takes any action to authorize any of the foregoing; or

17.1.1.12 An involuntary case is commenced against DB Team seeking liquidation, reorganization, dissolution, winding up, a composition or arrangement with creditors, a readjustment of debts or other relief with respect to DB Team or DB Team's debts under any U.S. or foreign bankruptcy, insolvency or other similar Law now or hereafter in effect; seeking the appointment of a trustee, receiver, liquidator, custodian or other similar official of DB Team or any substantial part of DB Team's assets; seeking the issuance of a writ of attachment, execution, or similar process; or seeking like relief, and such involuntary case shall not be contested by DB Team in good faith or shall remain undismissed and unstayed for a period of sixty (60) days.

17.1.2 Forbearance and Cure Periods

For the purpose of SRTA's exercise of other remedies, subject to Article 17.2.2 and subject to remedies that this Article 17 expressly states may be exercised before lapse of a cure period, DB Team shall have the following cure periods with respect to the following DB Team Defaults:

17.1.2.1 Respecting a DB Team Default under Article 17.1.1.10, a period of five (5) days after SRTA delivers to DB Team written notice of the DB Team Default;

17.1.2.2 Respecting a DB Team Default under Article 17.1.1.6 or Article 17.1.1.7, a period of fifteen (15) days after SRTA delivers to DB Team written notice of the DB Team Default; provided that SRTA shall have the right, but not the obligation, to effect cure, at DB Team's expense, if a DB Team Default under Article 17.1.1.6 continues beyond five (5) days after such notice is delivered;

17.1.2.3 Respecting a DB Team Default under Article 17.1.1.1 or Article 17.1.1.2, a period of thirty (30) days after SRTA delivers to DB Team written notice of the DB Team Default; provided that as to a DB Team Default under Article 17.1.1.1, such cure period shall not preclude or delay SRTA's immediate exercise, without notice or demand, of its right, but not the obligation, to effect cure, at DB Team's expense;

17.1.2.4 Respecting a DB Team Default under Article 17.1.1.5, Article 17.1.1.8 or Article 17.1.1.9, a period of thirty (30) days after SRTA delivers to DB Team written notice of the DB Team Default; provided that (a) if the DB Team Default is of such a nature that the cure cannot with diligence be completed within such time period and DB Team has commenced meaningful steps to cure immediately after receiving the default notice, DB Team shall have such additional period of time, up to a maximum cure period of one hundred and eighty (180) days, as is reasonably necessary to diligently effect cure, (b) as to Article 17.1.1.5, cure will be regarded as complete when the adverse effects of the breach are cured,

and (c) as to Article 17.1.1.9, if the debarred or suspended Person is a managing member, general partner or controlling investor of DB Team, cure will be regarded as complete when DB Team proves it has removed such Person from any position or ability to manage, direct or control the decisions of DB Team or to perform Work;

17.1.2.5 Respecting a DB Team Default under Article 17.1.1.11 or Article 17.1.1.12, no cure period, and there shall be no right to notice of a DB Team Default under Article 17.1.1.11 or Article 17.1.1.12; and

17.1.2.6 Respecting a DB Team Default arising from DB Team's failure to achieve any Milestone Deadline other than the Substantial Completion Deadline or Final Acceptance Deadline, a forbearance period of thirty (30) days from the date of such DB Team Default shall apply, provided that DB Team shall, as a condition to such forbearance period, be required to (a) deliver to SRTA a remedial action plan within ten (10) days after written notice of such DB Team Default, pursuant to Article 17.3.5 (without further demand or notice by SRTA), and (b) with the delivery of such remedial action plan, acknowledge any associated Liquidated Damages that are accruing. Where such remedial action plan has been accepted by GDOT in writing, then such forbearance period as provided herein shall be extended or abbreviated as required by such remedial action plan, subject to DB Team's diligent prosecution of the Work in accordance therewith. Any such DB Team Default shall be deemed cured upon satisfaction of the conditions set forth in such accepted remedial action plan and any Liquidated Damages shall cease to accrue upon the date of such satisfaction. Notwithstanding anything to the contrary herein, Liquidated Damages accruing during such forbearance period, as may be extended, shall not be waived by this Article 17.1.2.6 and shall be payable pursuant to the terms of this Agreement.

17.1.3 Certain Curative Actions; Status Report

17.1.3.1 If the DB Team Default consists of failure to give SRTA a required prior notice and opportunity to complete an applicable review and comment or acceptance procedure under Article 6.3 before action is taken by DB Team, such DB Team Default shall be curable only by reversing or suspending the action until the notice and review and comment or acceptance procedures are followed and completed, unless DB Team finished the action before receiving the notice of DB Team Default or unless waived by SRTA.

17.1.3.2 If the DB Team Default consists of any DB Team activity or failure to act which constitutes a change from DB Team's activities immediately prior to the DB Team Default, such DB Team Default shall be curable only by reinstating the activity as it was being performed immediately prior to the DB Team Default.

17.1.3.3 For any DB Team Default for which a Warning Notice has been delivered by SRTA to DB Team, DB Team may request from SRTA a status report as to DB Team's progress in effecting a cure, by delivering to SRTA a written request accompanied by DB Team's own report as to its progress in effecting a cure. SRTA shall provide its response within ten (10) Business Days after receipt of DB Team's written request and report. The response shall be provided solely for purposes of informing DB Team as to SRTA's view of the progress in effecting

a cure for the DB Team Default, shall not constitute an admission of any fact, shall not be admissible in evidence for any purpose, shall not form the basis for any Dispute, and shall not limit in any way SRTA's right to terminate this Agreement in accordance with Article 19.3 should cure not be effected within the relevant period.

17.2 Warning Notices

17.2.1 Warning Notice Events

Without prejudice to any other right or remedy available to SRTA, SRTA may, but in no case shall be required to, deliver a written notice (a "Warning Notice") to DB Team, stating explicitly that it is a "Warning Notice" and stating in reasonable detail the matter or matters giving rise to the notice and, if applicable, amounts due from DB Team, and reminding DB Team of the implications of such notice, whenever there occurs any of the following:

17.2.1.1 Any DB Team Default under Article 17.1.1.1, 17.1.1.2, 17.1.1.7, 17.1.1.8, or 17.1.1.10;

17.2.1.2 Delay or failure to achieve any Milestone Deadline; or

17.2.1.3 Any other material DB Team Default.

17.2.2 Effect of Warning Notice on DB Team Cure Period

17.2.2.1 Any notice of a DB Team Default issued under Article 17.1 may, if it concerns a matter under Article 17.2.1, also be issued as a Warning Notice. In such case, the cure period available to DB Team, if any, shall be as set forth in Article 17.1.2.

17.2.2.2 If SRTA issues a Warning Notice under Article 17.2.1 for any DB Team Default after it issues a notice of such DB Team Default, then the cure period available to DB Team, if any, for such DB Team Default before SRTA may seek to appoint a receiver for DB Team, remove DB Team or terminate this Agreement on account of such DB Team Default shall be extended by the time period between the date the notice of such DB Team Default was issued and the date the Warning Notice is issued. No later issuance of a Warning Notice shall extend the time when SRTA may exercise any other remedy respecting such DB Team Default.

17.2.3 Other Effects of Warning Notice

17.2.3.1 The issuance of a Warning Notice shall entitle SRTA to increase the level of oversight as provided in Article 17.3.8.

17.2.3.2 The issuance of a Warning Notice may trigger a Default Termination Event as provided in Article 19.3.

17.3 Remedies for DB Team Default

17.3.1 Termination

In the event of any DB Team Default that is or becomes a Default Termination Event set forth in Article 19.3.1, SRTA may terminate this Agreement and SRTA thereupon may take control of the Work, which termination shall, among other things, automatically terminate all of DB Team's rights under Article 2, whereupon DB Team shall take all action required to be taken by DB Team under Article 19.5.

17.3.2 Remedies for Failure to Meet Safety Standards or Perform Safety Compliance

17.3.2.1 Subject to Article 17.3.2.4, if at any time DB Team fails to meet any Safety Standard or timely perform Safety Compliance or SRTA and DB Team cannot reach an agreement regarding the interpretation or application of a Safety Standard or the valid issuance of a Safety Compliance Order within a period of time acceptable to SRTA, acting reasonably, SRTA shall have the absolute right and entitlement to undertake or direct DB Team to undertake any work required to ensure implementation of and compliance with Safety Standards as interpreted or applied by SRTA or with the Safety Compliance Order.

17.3.2.2 To the extent that any work done pursuant to Article 17.3.2.1 is undertaken by SRTA and is reasonably necessary to comply with Safety Standards or perform validly issued Safety Compliance Orders, DB Team shall pay to SRTA on demand SRTA Recoverable Costs in connection with such work, and SRTA (whether it undertakes the work or has directed DB Team to undertake the work) shall have no obligation or liability to compensate DB Team for any Losses DB Team suffers or incurs as a result thereof.

17.3.2.3 To the extent that any work done pursuant to Article 17.3.2.1 is undertaken by SRTA and is not reasonably necessary to comply with Safety Standards or perform validly issued Safety Compliance Orders, SRTA shall compensate DB Team only for Losses DB Team suffers or incurs as a direct result thereof.

17.3.2.4 To the extent that any Safety Compliance Order work pursuant to Article 17.3.2.1 is undertaken by DB Team under written protest delivered prior to starting the work and it is finally determined that the Safety Compliance work was not necessary, the unnecessary work under the Safety Compliance Order shall be treated as a SRTA Change.

17.3.2.5 Notwithstanding anything to the contrary contained in the DB Documents, if in the good faith judgment of SRTA, DB Team has failed to meet any Safety Standards or perform Safety Compliance and the failure results in an Emergency or danger to persons or property, and if DB Team is not then diligently taking all necessary steps to rectify or deal with such Emergency or danger, SRTA may, without notice and without awaiting lapse of the period to cure any breach, and in addition and without prejudice to its other remedies, (but is not obligated to) (a) immediately take such action as may be reasonably necessary to rectify the Emergency or danger, in which event DB Team shall pay to SRTA on demand the cost of such action, including SRTA Recoverable Costs, or (b) suspend Construction Work and/or close or cause to be closed any and all portions of the Project affected by the Emergency or danger. So long as SRTA undertakes such action in good faith, even if under a mistaken belief in the occurrence of such failure

or existence of an Emergency or danger as a result thereof, such action shall not be deemed unlawful or a breach of this Agreement, shall not expose SRTA or GDOT to any liability to DB Team and shall not entitle DB Team to any other remedy, it being acknowledged that SRTA or GDOT has a high priority, paramount public interest in protecting public and worker safety at the Project and adjacent and connecting areas. SRTA's good faith determination of the existence of such a failure, Emergency or danger shall be deemed conclusive in the absence of clear and convincing evidence to the contrary. Immediately following rectification of such Emergency or danger, as determined by SRTA, acting reasonably, SRTA shall allow the Construction Work to continue or such portions of the Project to reopen, as the case may be. The foregoing shall not, however, protect SRTA from DB Team's lawful claims to indemnity or contribution for third-party bodily injury or property damage arising out of any such SRTA action, if and to the extent (i) SRTA was mistaken in believing such a DB Team Default occurred, (ii) the third-party liability is not insured and not required to be insured under the DB Documents, and (iii) such injury or property damage was caused by SRTA's negligence, recklessness or intentional misconduct.

17.3.3 Step-in Rights

Upon the occurrence of a DB Team Default and expiration, without full and complete cure, of the cure period, if any, available to DB Team, without necessity for a Warning Notice, and without waiving or releasing DB Team from any obligations, SRTA shall have the right, but not the obligation, for so long as such DB Team Default remains uncured by SRTA or DB Team, to pay and perform all or any portion of DB Team's obligations and the Work that are the subject of such DB Team Defaults, as well as any other then-existing breaches or failures to perform for which DB Team received prior written notice from SRTA but has not commenced diligent efforts to cure provided, that (i) except with respect to DB Team's lawful claims for third-party bodily injury or property damage arising out of such SRTA action, neither SRTA nor GDOT will incur any liability to DB Team for any act or omission of SRTA and/or GDOT or any other Person in the course of remedying or attempting to remedy any DB Team Default and (ii) SRTA's cure of any DB Team Default will not waive or affect SRTA's rights against DB Team by reason of the DB Team Default.

17.3.3.1 In connection with such action, SRTA may, to the extent and only to the extent reasonably required for or incident to curing the DB Team Default or such other breaches or failures to perform for which DB Team received prior written notice from SRTA but has not commenced and continued diligent efforts to cure:

(a) Employ security guards and other safeguards to protect the Project;

(b) Spend such sums as are reasonably necessary to employ and pay such architects, engineers, consultants and contractors and obtain materials and equipment as may be required, without obligation or liability to DB Team or any Contractors for loss of opportunity to perform the same Work or supply the same materials and equipment;

(c) Draw on and use proceeds from payment and performance bonds and other performance security to the extent available under the terms thereof to pay such sums;

(d) Execute all applications, certificates and other documents as may be required;

(e) Make decisions respecting, assume control over and continue Work as may be reasonably required;

(f) Meet with, coordinate with, direct and instruct contractors and suppliers, process invoices and applications for payment from contractors and suppliers, pay contractors and suppliers, and resolve claims of contractors, subcontractors and suppliers, and for this purpose DB Team irrevocably appoints SRTA as its attorney-in-fact with full power and authority to act for and bind DB Team in its place and stead;

(g) Take any and all other actions as may be reasonably required or incident to curing; and

(h) Prosecute and defend any action or proceeding incident to the Work undertaken.

17.3.3.2 DB Team shall reimburse SRTA on demand SRTA Recoverable Costs in connection with the performance of any act or Work authorized by this Article 17.3.3.

17.3.3.3 SRTA, GDOT, and any of their Authorized Representatives, contractors, subcontractors, vendor and employees shall not be liable to DB Team in any manner for any inconvenience or disturbance arising out of its entry onto the Project or Project Specific Locations in order to perform under this Article 17.3.3, unless caused by the gross negligence, recklessness, willful misconduct or bad faith of such Person. If any Person exercises any right to pay or perform under this Article 17.3.3, it nevertheless shall have no liability to DB Team for the sufficiency or adequacy of any such payment or performance, or for the manner or quality of design, or construction unless caused by the gross negligence, recklessness, willful misconduct or bad faith of such Person.

17.3.3.4 The rights under this Article 17.3.3 are subject to the right of any Surety under payment and performance bonds to assume performance and completion of all bonded work.

17.3.3.5 In the event SRTA takes action described in this Article 17.3.3 and it is later finally determined that SRTA lacked the right to do so because there did not occur a DB Team Default and expiration, without full and complete cure, of the cure period, if any, available to DB Team, then SRTA's action shall be treated as a Directive Letter for a SRTA Change.

17.3.4 Damages; Offset

17.3.4.1 Subject to Article 17.3.10 and Article 17.3.11 and the provisions on Liquidated Damages set forth in Article 17.4, SRTA shall be entitled to recover any and all damages available at Law (subject to the duty at Law to mitigate damages and without duplicate recovery) on account of the occurrence of a DB Team Default, including, to the extent available at Law, (a) loss of any compensation due SRTA under the DB Documents proximately caused by the DB

Team Default, (b) actual and projected costs to remedy any defective part of the Work, (c) actual and projected costs to rectify any breach or failure to perform by DB Team and/or to bring the condition of the Project to the standard it would have been in if DB Team had complied with its obligations to carry out and complete the Work in accordance with the DB Documents, (d) actual and projected costs to SRTA and GDOT to terminate, take over the Project, re-procure and replace DB Team, and (e) actual and projected increases in costs to SRTA and GDOT to complete the Project if not completed, together with interest thereon at the Default Interest Rate commencing from the date any amount becomes due to SRTA until paid. DB Team shall owe any such damages that accrue after the occurrence of the DB Team Default and the delivery of notice thereof, if any, required by this Agreement regardless of whether the DB Team Default is subsequently cured.

17.3.4.2 SRTA may deduct and offset any claim amount owing to it, provided such claim amount has been liquidated through Dispute Resolution Procedures or otherwise, from and against any amounts SRTA may owe to DB Team or any Affiliate pursuant to this Agreement; provided that SRTA shall first draw on all amounts held in respect of the claim in the SRTA Claims Account.

17.3.4.3 If the claim amount is not liquidated, SRTA may elect to exercise its right to direct a payment from DB Team up to the disputed portion of the claim which payment shall be deposited into the SRTA Claims Account. Upon liquidation, the disputed portion of the claim shall be satisfied first from the amounts held in the SRTA Claims Account, and then through SRTA's right of offset with respect to the liquidated claim amounts.

17.3.5 Remedial Action Plan Delivery and Implementation

17.3.5.1 Upon the occurrence of a DB Team Default, SRTA shall have the right, but is not obligated, to demand that DB Team shall, within ten (10) days after written notice of such DB Team Default, be required to prepare and submit a remedial action plan for SRTA approval.

17.3.5.2 The remedial action plan shall set forth a schedule and specific actions to be taken by DB Team to improve its performance and cure the DB Team Default. Such actions may include improvements to DB Team's quality management practices, plans and procedures, revising and restating components of the Management Plans, changes in organizational and management structure, increased monitoring and inspections, changes in Key Personnel and other important personnel, replacement of Contractors, corrective measures necessary to expedite the progress of construction and to demonstrate ability to achieve any Milestone Deadline including, without limitation, (i) working additional shifts or overtime and/or (ii) supplying additional manpower, equipment and facilities, and delivery of security to SRTA.

17.3.5.3 DB Team's failure to diligently prosecute the Work in accordance with any such approved remedial action plan shall be deemed a further DB Team Default.

17.3.6 Performance Security

17.3.6.1 Upon the occurrence of a DB Team Default and expiration, without full and complete cure, of the applicable cure period, if any, under Article 17.1.2, without necessity for a Warning Notice, and without waiving or releasing DB Team from any obligations, and subject to Article 16 as applicable, SRTA shall be entitled to make demand upon and enforce any bond, and make demand upon, draw on and enforce and collect any guaranty or other payment or performance security available to SRTA under this Agreement with respect to the DB Team Default in question in any order in SRTA's sole discretion. Where access to a bond or other payment or performance security is to satisfy damages owing, SRTA shall be entitled to make demand, draw, enforce and collect regardless of whether the DB Team Default is cured subsequent to such draw. SRTA will apply the proceeds of any such action to the satisfaction of DB Team's obligations under the DB Documents, including payment of amounts due SRTA. The foregoing does not limit or affect any other right of SRTA to make demand upon and enforce any bond, and make demand upon, draw on and enforce and collect any guaranty or other payment or performance security, immediately after SRTA are entitled to do so under the bond, guaranty or other payment or performance security.

17.3.7 Suspension of Work

17.3.7.1 Upon SRTA's delivery of notice of DB Team Default for any of the following breaches or failures to perform and DB Team's failure to fully cure and correct, within the applicable cure period, if any, available to DB Team under Article 17.1.2, SRTA shall have the right and authority to suspend any affected portion of the Work by written order to DB Team:

(a) Performance of Nonconforming Work;

(b) Failure to comply with any Law or Governmental Approval (including failure to handle, preserve and protect archeological, paleontological or historic resources, or failure to handle Hazardous Materials, in accordance with applicable Laws and Governmental Approvals);

(c) Certain failures to remove and replace personnel as set forth in Article 10.6.3;

(d) Failure to provide proof of required insurance coverage as set forth in Article 16.1.1.1;

(e) Failure to carry out and comply with Directive Letters;

(f) Failure to satisfy any condition to commencement of construction set forth in Article 7.6; and

(g) Failure to maintain, extend or replace performance and payment security required under the Agreement, including any P&P Bonds, unless a drawing has been made under same in the amount of the required coverage provided for in Article 16.2 and the proceeds of such drawing are held by SRTA.

SRTA will lift the suspension order promptly after DB Team fully cures and corrects the applicable breach or failure to perform.

17.3.7.2 In addition, SRTA shall have the right and authority to suspend any affected portion of the Work by written notice to DB Team for the following reasons:

(a) To comply with any court order or judgment (although it may qualify as a Compensation Event under Article 14.2(g) or a Relief Event under Article 14.1(l));

(b) SRTA's performance of data recovery respecting archeological, paleontological or cultural resources (although it may qualify as a Relief Event under Article 14.1(i));

(c) The existence of conditions unsafe for workers, other Project personnel or the general public, including certain failures to comply with Safety Standards or perform Safety Compliance as set forth in Article 17.3.2.5; or

(d) DB Team has failed to (i) pay in full when due sums owing any Contractor for services, materials or equipment, except only for retainage provided in the relevant Contract and amounts in dispute, or (ii) deliver any certificate, release, certified payroll or affidavit of wages paid required with any Payment Request or required under this Agreement.

17.3.7.3 DB Team shall promptly comply with any such written suspension order, even if DB Team disputes the grounds for suspension. DB Team shall promptly recommence the Work upon receipt of written notice from SRTA directing DB Team to resume Work.

17.3.7.4 In addition to the protections from liability under Article 17.3.2.5, neither SRTA nor GDOT shall have any liability to DB Team, and DB Team shall have no right to a Relief Event or Compensation Event, in connection with any suspension properly founded on any of the other grounds set forth in this Article 17.3.7 (except potential Relief Events or Compensation Events in the case of suspensions under Articles 17.3.7.2(a) and 17.3.7.2(b)). If SRTA orders suspension of Work on one of the foregoing grounds but it is finally determined under the process set forth under Dispute Resolution Procedures that such grounds did not exist, or if SRTA orders suspension of Work for any other reason, it shall be treated as a Directive Letter for a SRTA Change, except as provided in Article 17.3.2.5.

17.3.8 Increased Oversight, Testing, and Inspection

17.3.8.1 Upon SRTA's delivery of notice of DB Team Default for any of the following breaches or failures to perform and DB Team's failure to fully cure and correct, within the applicable cure period, if any, available to DB Team under Article 17.1.2, SRTA shall have the right and authority to suspend any affected portion of the Work by written order to DB Team.

17.3.8.2 If SRTA cannot confirm that: (a) a portion of the Design Work or the Construction Work is in accordance with the requirements of the DB Documents due to a lack of documented inspection or testing by DB Team as required under the DB Documents, or (b) DB Team is implementing, revising, or

updating a testing and inspection plan in accordance with the DB Documents for the Design Work or the Construction Work, SRTA shall have the right but not the obligation to inform DB Team that increased monitoring, inspection, sampling, measuring, testing and oversight should be provided. If the increased monitoring, inspection, sampling, measuring, testing and oversight reveal: (i) a failure to perform such Work in accordance with the Quality Management Plan, (ii) that the Quality Management Plan does not comply with the DB Documents, or (iii) that such Work is not in accordance with the DB Documents, DB Team shall be responsible for the costs of such increased monitoring, inspection, sampling, measuring, testing and oversight as described in this Article 17.3.8. DB Team shall correct such deficiencies and the increased monitoring, inspection, sampling, measuring, testing and oversight will continue until those deficiencies have been corrected. If such Work was performed, inspected and documented by DB Team in accordance with the DB Documents, the costs of the increased monitoring, inspection, sampling, measuring, testing and oversight shall be borne by SRTA.

17.3.8.3 If SRTA increases the level of monitoring, inspection, sampling, measuring, testing, auditing and oversight under Article 17.3.8.2 and Liquidated Damages are not provided for under this Agreement in connection with such action, then DB Team shall pay and reimburse GDOT within thirty (30) days after receipt of written demand and reasonable supporting documentation for all increased costs and fees SRTA incurs in connection with such action, including SRTA Recoverable Costs.

17.3.8.4 The foregoing does not preclude SRTA, at its sole discretion and expense, from increasing its level of monitoring, inspection, sampling, measuring, testing, auditing and oversight at other times.

17.3.9 Other Rights and Remedies

Subject to Article 17.3.11, Article 17.4.5.2 and Article 19.9, SRTA shall also be entitled to exercise any other rights and remedies available under this Agreement or any other DB Documents, or available at law or in equity, and shall be authorized to permit GDOT to exercise any of such remedies on SRTA's behalf.

17.3.10 Cumulative, Non-Exclusive Remedies

Subject to Articles 17.3.11, 17.4.5.2 and 19.9, each right and remedy of SRTA or GDOT hereunder shall be cumulative and shall be in addition to every other right or remedy provided herein or now or hereafter existing at Law or in equity or by statute or otherwise, and the exercise or beginning of the exercise by SRTA or GDOT of any one or more of any of such rights or remedies shall not preclude the simultaneous or later exercise by SRTA or GDOT of any or all other such rights or remedies.

17.3.11 Limitation on Consequential Damages

17.3.11.1 Notwithstanding any other provision of the DB Documents and except as set forth in Article 17.3.11.2, to the extent permitted by applicable Law, DB Team shall not be liable for punitive damages or special, indirect or incidental, or consequential damages, whether arising out of breach of this Agreement, tort (including negligence) or any other theory of liability, and SRTA releases DB Team

from any such liability, other than for Liquidated Damages for delay, as provided pursuant to this Agreement or otherwise to the extent recoverable from insurance.

17.3.11.2 The foregoing limitation on DB Team's liability for consequential damages shall not apply to or limit any right of recovery SRTA may have respecting the following:

(a) Losses (including defense costs) to the extent (i) covered by the proceeds of insurance required to be carried pursuant to Article 16.1, (ii) covered by the proceeds of insurance actually carried by or insuring DB Team under policies solely with respect to the Project and the Work, regardless of whether required to be carried pursuant to Article 16.1, or (iii) DB Team is deemed to have self-insured the Loss pursuant to Article 16.3.3;

(b) Losses arising out of fraud, criminal conduct, intentional misconduct (which does not include any intentional DB Team Default), recklessness, bad faith or gross negligence on the part of DB Team or Contractor or any Affiliate of either;

(c) DB Team's obligation to pay Liquidated Damages in accordance with Article 17.4 or any other provision of the DB Documents;

(d) Losses arising out of DB Team Releases of Hazardous Materials;

(e) Reserved;

(f) Amounts DB Team may be obligated to reimburse to SRTA or that are otherwise due from DB Team to SRTA under the express provisions of the DB Documents, including SRTA Recoverable Costs;

(g) Interest, late charges, fees, transaction fees and charges, penalties and similar charges that the DB Documents expressly state are due from DB Team to SRTA; and

(h) Any credits, deductions or offsets that the DB Documents expressly provide to SRTA against amounts owing DB Team.

17.4 Liquidated Damages and Nonrefundable Deductions

17.4.1 Liquidated Damages for Delayed Interim Completion Deadline(s), Substantial Completion Deadline, or Final Acceptance; Incident Based Liquidated Damages

17.4.1.1 DB Team shall be liable for and pay to SRTA Liquidated Damages with respect to any failure to achieve an Interim Completion(s) by the Interim Completion Deadline(s), Substantial Completion by the Substantial Completion Deadline, or any failure to achieve Final Acceptance by the Final Acceptance Deadline, as the same may be extended pursuant to this Agreement, or for any other breach of the requirements of the DB Documents as set forth pursuant to Section 1.1 of Exhibit 18. Such liability shall apply even though (a) a cure period remains available to DB Team under Article 17.1.2 or (b) cure occurs.

The amounts of such Liquidated Damages are set forth in Exhibit 18. Such Liquidated Damages shall commence on the Substantial Completion Deadline or the Final Acceptance Deadline, as applicable, or upon the date of breach for each such incident based default pursuant to Section 1.2 of Exhibit 18, as the same may be extended pursuant to this Agreement, and shall continue to accrue until the date of Substantial Completion, the date of Final Acceptance, the cure of any such incident based breach, all as applicable, or until termination of this Agreement.

17.4.1.2 Reserved.

17.4.2 Incident Based Nonrefundable Deductions

17.4.2.1 DB Team shall be liable for and pay to SRTA Nonrefundable Deductions with respect to the occurrence of the incidents listed or other breach of the requirements of the DB Documents as set forth pursuant to Section 1.3 of Exhibit 18. Unless otherwise stated in Article 17.4 nonrefundable deductions shall be applied at the time of the incident. The amounts of such Incident Based Nonrefundable Deductions are set forth in Exhibit 18.

17.4.2.2 Within ten (10) days prior to SRTA issuing any nonrefundable deductions as set forth pursuant to Sections 1.3.2 through 1.3.6 of Exhibit 18, GDOT shall execute the following:

(a) Issuance of a warning via email to the DB Team to correct the incident within seven (7) days of receipt of the email; and

(b) Issuance of a formal written warning to the DB Team to correct the incident within three (3) days. If the DB Team has failed to comply with subsection (a) to correct the incident at the end of the third day then DB Team shall be liable for and shall pay SRTA the Nonrefundable Deduction.

17.4.3 Acknowledgements Regarding Liquidated Damages

DB Team further agrees and acknowledges that:

17.4.3.1 In the event that DB Team fails to achieve Substantial Completion by the Substantial Completion Deadline or Final Acceptance by the Final Acceptance Deadline, SRTA and GDOT will incur substantial damages;

17.4.3.2 In the event that DB Team causes occurrence of the incidents listed pursuant to Sections 1.2 and 1.3 of Exhibit 18, SRTA and GDOT will incur substantial damages;

17.4.3.3 Such damages are incapable of accurate measurement and difficult to prove for the reasons stated in this Article 17.4;

17.4.3.4 As of the Effective Date, the amounts of Liquidated Damages under this Article 17.4 represent good faith estimates and evaluations by the Parties as to the actual potential damages that SRTA would incur as a result of late Substantial Completion or late Final Acceptance or should the incidents listed

occur, and do not constitute a penalty or to otherwise operate as a deterrent for the breach of any obligations of DB Team under this Agreement;

17.4.3.5 The Parties have agreed to such Liquidated Damages in order to fix and limit DB Team's costs and to avoid later Disputes over what amounts of damages are properly chargeable to DB Team;

17.4.3.6 Such sums are reasonable in light of the anticipated or actual harm caused by delayed Substantial Completion or delayed Final Acceptance or should the incidents listed occur, the difficulties of the proof of loss, and the inconvenience or infeasibility of otherwise obtaining an adequate remedy;

17.4.3.7 DB Team acknowledges that such Liquidated Damages are reasonable, as determined as of the Effective Date, in light of the respective injuries and damages that may be caused by DB Team's breach and given that such injuries and damages, which include but shall not be limited to, public inconvenience, increased administration and oversight by SRTA, GDOT (and any other related agencies), and other damages to the general public, SRTA, GDOT (and other related agencies); and

17.4.3.8 Such Liquidated Damages are not intended to, and do not, liquidate DB Team's liability under the indemnification provisions of Article 16.5, even though Third-Party Claims against Indemnified Parties may arise out of the same event, breach or failure that gives rise to such Liquidated Damages.

17.4.4 Payment; Satisfaction; Waiver

17.4.4.1 SRTA shall withhold Liquidated Damages owing under this Article 17.4 from the subsequent DB Team pay application. Liquidated damages shall be withheld by SRTA without right of offset, deduction, reduction or other charge, except as provided in Article 17.6.3.

17.4.4.2 SRTA shall have the right to deduct and offset Liquidated Damages from any amounts owing DB Team to the extent provided in Article 17.3.4. SRTA also shall have the right to draw on any bond, certificate of deposit, or other security provided by DB Team pursuant to this Agreement, to satisfy Liquidated Damages not paid when due.

17.4.4.3 Permitting or requiring DB Team to continue and finish the Work or any part thereof after the Substantial Completion Deadline or Final Acceptance Deadline shall not act as a waiver of SRTA's right to receive Liquidated Damages hereunder or any rights or remedies otherwise available to SRTA.

17.4.5 Non-Exclusive Remedy

17.4.5.1 Each item of Liquidated Damages provided under this Article 17.4 is in addition to, and not in substitution for, any other item of Liquidated Damages assessed under this Article 17.4.

17.4.5.2 SRTA's right to, and imposition of, Liquidated Damages are in addition, and without prejudice, to any other rights and remedies available to SRTA

under the DB Documents, at law or in equity respecting the breach, failure to perform or DB Team Default that is the basis for the Liquidated Damages or any other breach, failure to perform or DB Team Default, except for recovery of the monetary damage for delay that the Liquidated Damages are intended to compensate and for which Liquidated Damaged shall be the only amount recoverable on account of delay damages.

17.5 Default by SRTA; Cure Periods

17.5.1 SRTA Default

SRTA shall, subject to any applicable cure period as set forth in Article 17.5.2 below, be in breach under this Agreement upon the occurrence of any one or more of the following events or conditions (each a "SRTA Default"):

17.5.1.1 SRTA fails to make any payment due DB Team under this Agreement within thirty (30) days of the date that any such payment shall be due;

17.5.1.2 Any representation or covenant made by SRTA in this Agreement is false or materially misleading or materially inaccurate when made or omits material information when made;

17.5.1.3 SRTA fails to observe or perform any covenant, agreement, term or condition required to be observed or performed by SRTA under the DB Documents;

17.5.1.4 SRTA makes an assignment other than as permitted pursuant to Article 21.3; or

17.5.1.5 SRTA, GDOT or other State Governmental Entity confiscates or appropriates the Project or any other material part of DB Team's Interest, excluding a Termination for Convenience or any other exercise of a right of termination set forth in this Agreement.

17.5.2 Cure Periods

SRTA shall have the following cure periods with respect to the any of the conditions set forth in Article 17.5.1 above:

17.5.2.1 Respecting a SRTA Default under Article 17.5.1.1, a period of thirty (30) days after DB Team delivers to SRTA written notice of the SRTA Default;

17.5.2.2 Respecting a SRTA Default under Article 17.5.1.2 or Article 17.5.1.3, a period of sixty (60) days after DB Team delivers to SRTA written notice of the SRTA Default; provided that (a) if the SRTA Default is of such a nature that the cure cannot with diligence be completed within such time period and SRTA has commenced meaningful steps to cure immediately after receiving the default notice, SRTA shall have such additional period of time, up to a maximum cure period of one hundred eighty (180) days, as is reasonably necessary to diligently effect cure, and (b) as to Article 17.5.1.2, cure will be regarded as complete when the adverse effects of the breach are cured;

17.5.2.3 Respecting a SRTA Default under Article 17.5.1.4, a period of forty-five (45) days after DB Team delivers to SRTA written notice of the SRTA Default; and

17.5.2.4 Respecting a SRTA Default under Article 17.5.1.5, a period of thirty (30) days after DB Team delivers to SRTA written notice of the SRTA Default; provided that if the SRTA Default is of such a nature that the cure cannot with diligence be completed within such time period and SRTA has commenced meaningful steps to cure immediately after receiving the default notice, SRTA shall have such additional period of time, up to a maximum cure period of one hundred and twenty (120) days, as is reasonably necessary to diligently effect cure.

17.6 DB Team Remedies for SRTA Default

17.6.1 Termination and Suspension

17.6.1.1 Subject to Article 19.9, DB Team will have the right to suspend performance of the Work on account of a SRTA Default subject to any applicable notice and cure periods as set forth in Article 17.5.2.

17.6.1.2 Further, DB Team may upon written notice of not less than fifteen (15) days to SRTA following expiration of such applicable cure period, where such SRTA Default is continuing, exercise the right to terminate this Agreement and recover termination damages as more particularly set forth in, and subject to the terms and conditions of, Article 19.4.

17.6.2 Damages and Other Remedies

DB Team shall have and may exercise the following remedies upon the occurrence of a SRTA Default and expiration, without cure, of the applicable cure period:

17.6.2.1 If DB Team does not terminate this Agreement, then, subject to Article 17.6.4, DB Team may treat the SRTA Default as a Compensation Event on the terms and conditions set forth in Article 14.2 and SRTA shall pay the full Compensation Amount and interest in accordance with Articles 14.2.6 and 14.2.7;

17.6.2.2 If the SRTA Default is a failure to pay when due any undisputed portion of a progress payment owing under a Supplemental Agreement and SRTA fails to cure such SRTA Default within thirty (30) days after receiving from DB Team written notice thereof, DB Team shall be entitled to suspend the Work under the Supplemental Agreement until the default is cured; and

17.6.2.3 Subject to Articles 17.6.4 and 19.9, DB Team also shall be entitled to exercise any other remedies available under this Agreement or at Law or in equity, including offset rights to the extent and only to the extent available under Article 17.6.3. Subject to Articles 17.6.4 and 19.9, each right and remedy of DB Team hereunder shall be cumulative and shall be in addition to every other right or remedy provided herein or now or hereafter existing at Law or in equity or by statute or otherwise, and the exercise or beginning of the exercise by DB Team of any one or more of any of such rights or remedies shall not preclude the

simultaneous or later exercise by DB Team of any or all other such rights or remedies.

17.6.3 Offset Rights

DB Team may deduct and offset any claim amount owing to it, provided such claim amount has been liquidated through the Dispute Resolution Procedures, as provided in Article 17.7 or otherwise, from and against any amounts DB Team may owe to SRTA pursuant hereto.

17.6.4 Limitations on Remedies

17.6.4.1 Notwithstanding any other provision of the DB Documents and except as forth in Article 17.6.4.2, to the extent permitted by applicable Law, neither SRTA nor GDOT shall not be liable for punitive damages or any indirect, incidental or consequential damages, whether arising out of breach of this Agreement or any DB Documents, tort (including negligence) or any other theory of liability, and DB Team releases SRTA and GDOT from any such liability.

17.6.4.2 The foregoing limitation on SRTA's and GDOT's liability for consequential damages shall not apply to or limit any right of recovery DB Team may have respecting the following:

(a) Losses arising out of fraud, criminal conduct, intentional misconduct (which does not include any intentional GDOT Default), recklessness, bad faith or gross negligence on the part of GDOT;

(b) Losses arising out of SRTA Release(s) of Hazardous Materials or Pre-Existing Hazardous Materials;

(c) Any amounts SRTA may owe or be obligated to reimburse under the express provisions of this Agreement for Compensation Events or events of termination;

(d) Any other specified amounts SRTA may owe or be obligated to reimburse to DB Team under the express provisions of the DB Documents;

(e) Interest and charges that the DB Documents expressly state are due from SRTA to DB Team; and

(f) Any credits, deductions or offsets that the DB Documents expressly provide to DB Team against amounts owing SRTA.

17.6.4.3 The measure of compensation available to DB Team as set forth in this Agreement for a Compensation Event or an event of termination shall constitute the sole and exclusive monetary relief and damages available to DB Team from the State, SRTA or GDOT arising out of or relating to such event; and DB Team irrevocably waives and releases any right to any other or additional damages or compensation from the State, SRTA or GDOT. No award of compensation or damages shall be duplicative.

17.6.4.4 Without limiting the effect of Article 17.6.4.3, in the event SRTA wrongfully withholds an acceptance or consent required under this Agreement, or wrongfully issues an objection to or disapproval of a Submittal or other matter under this Agreement, DB Team's sole remedies against SRTA or GDOT shall be extensions of time to the extent provided in Article 14.1 for a Relief Event and damages to the extent provided in Article 14.2 for a Compensation Event.

17.6.5 Procedure for Payment of Judgments

Promptly after any final, non-appealable order or judgment awarding compensation or damages to DB Team, SRTA shall institute payment procedures as set forth in applicable Law.

17.7 Dispute Resolution Procedures

17.7.1 The Parties shall endeavor to resolve any Dispute that may arise between them through good faith negotiations and/or partnering in accordance with Section 2.1.2 of the Technical Provisions. If the Dispute is not resolved to the mutual satisfaction of all Parties within thirty (30) days after written notification of such Dispute, or such longer time as is mutually agreed, the dispute shall next be submitted in accordance with Article 17.7.2.

17.7.2 If, despite good faith negotiations between the Parties, any Disputes are not resolved within thirty (30) days after written notification of such Dispute, then the Dispute shall be submitted administratively to mediation as set forth below.

17.7.2.1 The Parties shall mutually select a private mediator to formally mediate the Disputes. If the Parties cannot mutually select a private mediator, GDOT/SRTA shall select a mediator. Mediation shall normally be scheduled within forty-five (45) calendar days of notification of the decision by either party to submit the Dispute to mediation. SRTA and DB Team shall each pay one-half of the fees and administrative costs charged by the selected mediator. Other parties, such as GDOT and Contractors, may be invited to the mediation as may be appropriate for the mediation.

17.7.2.2 The Parties, to provide economies of scale, may mutually agree in writing to submit one or more Disputes, whether or not factually related, to a single mediation. In such event, time periods may be extended by mutual written agreement to facilitate preparation for the mediation.

17.7.2.3 If the Dispute has not been settled within forty-five (45) calendar days following written notification of the Dispute to mediation or within such other period that the Parties may agree in writing, such Dispute may be submitted to litigation by either party in accordance with Article 17.7.4.

17.7.3 No litigation may be filed by either Party concerning any Dispute prior to using the procedure described in Article 17.7.2. This procedure is a condition precedent for any Party to commence a civil action for resolution of a Dispute.

17.7.4 All litigation between the Parties arising out of or pertaining to this Agreement or its breach shall be filed, heard and decided in the Superior Court of Fulton

County, Georgia, which shall have exclusive jurisdiction and venue pursuant to O.C.G.A. § 50-21-1. Each Party shall bear its own attorney's fees and costs in any dispute or litigation arising out of or pertaining to this Agreement, and no Party shall seek or accept an award of attorney's fees or costs.

Article 18 RESERVED

Article 19 TERMINATION

19.1 Termination for Convenience

19.1.1 SRTA may terminate this Agreement, if SRTA determines, in its sole discretion, that a termination is in SRTA's best interest (a "Termination for Convenience"). Termination of this Agreement shall not relieve SRTA, DB Team or any Guarantor or Surety of its obligation for any claims arising prior to termination.

19.1.2 SRTA may exercise Termination for Convenience by delivering to DB Team a written notice of termination for Convenience specifying the election to terminate. Termination for Convenience shall be effective as and when provided in Exhibit 20.

19.1.3 In the event of a Termination for Convenience, DB Team will be entitled to compensation determined in accordance with Exhibit 20. Payment will be due and payable as and when provided in Exhibit 20.

19.1.4 If SRTA terminates this Agreement on grounds or in circumstances beyond SRTA's termination rights specifically set forth in this Agreement, such termination shall be deemed a Termination for Convenience for the purpose of determining the Termination Compensation due.

19.2 Reserved

19.3 Termination for DB Team Default

19.3.1 DB Team Defaults Triggering SRTA Termination Rights

The following DB Team Defaults (each a "Default Termination Event"), and no other DB Team Defaults, shall entitle SRTA, at its sole election, to terminate this Agreement, effective immediately upon delivery of written notice of termination to DB Team. DB Team agrees and acknowledges and stipulates that any of the following DB Team Defaults would result in material and substantial harm to SRTA's rights and interests under this Agreement and therefore constitute a material DB Team Default justifying termination if not cured within the applicable cure period, if any.

19.3.1.1 The DB Team fails to achieve Substantial Completion by the Substantial Completion Deadline, as the same may be extended pursuant to this Agreement;

19.3.1.2 There occurs any other DB Team Default for which SRTA issues a Warning Notice under Article 17.2 or 17.3, and such DB Team Default is

not fully and completely cured within the applicable cure period, if any, set forth in Article 17.2.2.1 or 17.3;

19.3.1.3 There occurs any DB Team Default under Article 17.1.1.11 or 17.1.1.12; or

19.3.1.4 The DB Team fails to diligently prosecute and adhere to the requirements of any remedial action plan as provided and accepted by SRTA pursuant to Article 17.3.5.

19.3.2 Compensation to DB Team

If SRTA issues notice of termination of this Agreement due to a Default Termination Event, or if DB Team terminates this Agreement on grounds or in circumstances beyond DB Team's termination rights specifically set forth in this Agreement, DB Team will be entitled to compensation to the extent, and only to the extent, provided in Exhibit 20. Payment shall be due and payable as and when provided in Exhibit 20.

19.3.3 Finality

If SRTA issues notice of termination of this Agreement due to a Default Termination Event, termination shall be effective and final immediately upon delivery of written notice as provided in Article 19.3.1 regardless of whether SRTA is correct in determining that SRTA has the right to terminate for DB Team Default. In the event it is determined that SRTA lacked such right, then such termination shall be treated as a Termination for Convenience as provided in Article 19.1.4 for the purpose of determining the Termination Compensation due.

19.4 Termination for SRTA Default, Suspension of Work, Force Majeure Event, or Materially Delayed Notice to Proceed

19.4.1 In the event of a material SRTA Default under Article 17.5.1.1 (failure to pay money due) that remains uncured following notice and expiration of the applicable cure period under Article 17.5.2, DB Team may deliver to SRTA a further written notice setting forth such SRTA Default and warning SRTA that DB Team may elect to terminate this Agreement and if SRTA does not cure such SRTA Default within sixty (60) days after the delivery of such notice with respect to a SRTA Default under Article 17.5.1.1. SRTA may avoid termination by effecting cure within such sixty (60) day period. Failing such cure, DB Team shall have the right to terminate this Agreement, effective immediately upon delivery of written notice of termination to SRTA. In the event of such termination, DB Team will be entitled to compensation determined in accordance with Exhibit 20. Payment shall be due and payable as and when provided in Exhibit 20. Any Dispute arising out of the determination of such compensation shall be resolved according to the Dispute Resolution Procedures.

19.4.2 In the event (i) SRTA orders DB Team to suspend Work on all or any material portion of the Project for a reason other than those set forth in Article 17.3.7.1, or (ii) as a result of a Force Majeure Event, and such suspension of Work continues for a period of one hundred and eighty (180) consecutive days or more, DB Team shall have the right to terminate this Agreement, effective immediately upon delivery of written notice of termination to SRTA. In the event of such termination, DB Team will be entitled to

compensation determined in accordance with Exhibit 20. Payment shall be due and payable as and when provided in Exhibit 20. Any Dispute arising out of the determination of such compensation shall be resolved according to the Dispute Resolution Procedures.

19.4.3 In the event SRTA, due to no fault of a DB Team-Related Entity or other than because the NEPA Finality Date has not occurred, does not issue NTP 1, NTP 2, or NTP 3 within three hundred and sixty-five (365) days after the anticipated issuance date set forth in Article 3.3, DB Team shall have the right to terminate this Agreement, effective immediately upon delivery of written notice of termination to SRTA. In the event of such termination, DB Team will be entitled to compensation determined in accordance with Exhibit 20. Payment shall be due and payable as and when provided in Exhibit 20. Any Dispute arising out of the determination of such compensation shall be resolved according to the Dispute Resolution Procedures.

19.4.4 If DB Team issues notice of termination of this Agreement due to a material SRTA Default under Article 17.5.1.1, termination shall be effective and final immediately upon delivery as provided in Article 19.4.1 regardless of whether DB Team is correct in determining that it has the right to terminate for such SRTA Default. In the event it is determined that DB Team lacked such right, then such termination shall be treated as a termination due to material DB Team Default and Article 19.3.2 shall govern the measure of the Termination Compensation.

19.5 Termination Procedures and Duties

19.5.1 Upon expiration of the Term or any earlier termination of this Agreement for any reason, including due to SRTA Default, the provisions of this Article 19.5 shall apply. DB Team shall timely comply with such provisions independently of, and without regard to, the timing for determining, adjusting, settling and paying any amounts due DB Team or SRTA on account of termination.

19.5.2 In any case where notice of termination precedes the effective Early Termination Date:

19.5.2.1 DB Team shall continue performing the Work in accordance with, and without excuse from, all the standards, requirements and provisions of the DB Documents, and without curtailment of services, quality and performance;

19.5.2.2 Reserved

19.5.2.3 At SRTA's option, it may increase the level of its monitoring, inspection, sampling, measuring, testing, auditing and oversight of the Project and DB Team's compliance with the obligations under the DB Documents, to such level as SRTA reasonably sees fit to protect against curtailment of services, quality and performance; and

19.5.2.4 Within three (3) days after receipt of a notice of termination, DB Team shall meet and confer with SRTA for the purpose of developing an interim transition plan for the orderly transition of Work, demobilization and transfer of the Project control to SRTA. The Parties shall use diligent efforts to complete preparation of the interim transition plan within fifteen (15) days after the date DB Team receives the notice of termination. The Parties shall use diligent efforts to

complete a final transition plan within thirty (30) days after such date. The transition plan shall be in form and substance acceptable to SRTA in its good faith discretion and shall include and be consistent with the other provisions and procedures set forth in this Article 19.5, all of which procedures DB Team shall immediately follow, regardless of any delay in preparation or acceptance of the transition plan.

19.5.3 On the Termination Date, or as soon thereafter as is possible, DB Team shall relinquish and surrender full control and possession of the Project to SRTA, and shall cause all persons and entities claiming under or through DB Team to do likewise, in at least the condition required by the Termination turnover requirements.

19.5.4 On the later of the Termination Date or the date DB Team relinquishes full control and possession, SRTA shall assume responsibility, at its expense, for the Project, subject to any rights to damages that SRTA has against DB Team where the termination is due to a Default Termination Event.

19.5.5 Reserved.

19.5.6 Reserved.

19.5.7 Within thirty (30) days after notice of termination is delivered, DB Team shall provide SRTA with true and complete list of all materials, goods, machinery, equipment, parts, supplies and other property in inventory or storage (whether held by DB Team or any Person or entity on behalf of or for the account of DB Team) for use in or respecting the Work or the Project, or on order or previously completed but not yet delivered from Suppliers for use in or respecting the Work or the Project. In addition, on or about the Termination Date, DB Team shall transfer title and deliver to SRTA or SRTA's Authorized Representative, through bills of sale or other documents of title, as directed by SRTA, all such materials, goods, machinery, equipment, parts, supplies and other property.

19.5.8 DB Team shall take all action that may be necessary, or that SRTA may direct, for the protection and preservation of the Project, the Work and such materials, goods, machinery, equipment, parts, supplies and other property.

19.5.9 On or about the Termination Date, DB Team shall execute and deliver to SRTA the following, together with an executed bill of sale or other written instrument, in form and substance acceptable to SRTA, acting reasonably, assigning and transferring to SRTA all of DB Team's right, title and interest in and to the following:

19.5.9.1 All completed or partially completed drawings (including plans, elevations, sections, details and diagrams), specifications, designs, Design Documents, as-built and record plans, surveys, and other documents and information pertaining to the design or construction of the Project or the Utility Adjustments;

19.5.9.2 All samples, borings, boring logs, geotechnical data and similar data and information relating to the Project;

19.5.9.3 All books, records, reports, test reports, studies and other documents of a similar nature relating to the Work, the Project;

19.5.9.4 All data and information relating to the use of the Project, including all studies, reports, and other information provided that the transfer of any Intellectual Property shall be subject to Article 22.4; and

19.5.9.5 All other work product and Intellectual Property used or owned by DB Team or any Affiliate relating to the Work, the Project, provided that the transfer of any Intellectual Property shall be subject to Article 22.4.

19.5.10 Reserved.

19.5.11 On or about the Termination Date, DB Team shall execute and deliver to SRTA a written assignment, in form and substance acceptable to SRTA, acting reasonably, of all DB Team's right, title and interest in and to all warranties, claims and causes of action held by DB Team against third parties in connection with the Project or the Work.

19.5.12 DB Team shall otherwise assist SRTA in such manner as SRTA may require prior to and for a reasonable period following the Termination Date to ensure the orderly transition of the Project and its management to SRTA.

19.6 Reserved

19.7 Contracts and Agreements

19.7.1 Regardless of SRTA's prior actual or constructive knowledge thereof, no contract or agreement to which DB Team is a party (unless SRTA is also a party thereto) as of the Termination Date shall bind SRTA, unless SRTA elects to assume such contract or agreement in writing. Except in the case of SRTA's express written assumption, no such contract or agreement shall entitle the contracting party to continue performance of work or services respecting the Project following DB Team's relinquishment to SRTA of possession and control of the Project, or to any claim, legal or equitable, against SRTA.

19.8 Liability After Termination; Final Release

19.8.1 No termination of this Agreement shall excuse either Party from any liability arising out of any default as provided in this Agreement that occurred prior to termination. Notwithstanding the foregoing, any termination of this Agreement shall automatically extinguish any claim of DB Team to payment of Compensation Amounts for adverse cost and revenue impacts accruing after the Early Termination Date from Compensation Events that occurred prior to termination.

19.8.2 If this Agreement is terminated under Article 19.1, 19.3.1, 19.4, or 19.11, then SRTA's payment to DB Team of the amounts required thereunder (if any) shall constitute full and final satisfaction of, and upon payment SRTA and GDOT shall be forever released and discharged from, any and all claims, causes of action, suits, demands and Losses, known or unknown, suspected or unsuspected, that DB Team may have against SRTA and GDOT arising out of or relating to this Agreement or termination thereof, or the Project, are unresolved at the time of such payment and are not related to

termination or Termination Compensation. Upon such payment, DB Team shall execute and deliver to SRTA all such releases and discharges as SRTA may reasonably require to confirm the foregoing, but no such written release and discharge shall be necessary to give effect to the foregoing satisfaction and release.

19.9 Exclusive Termination Rights

This Article 19, together with the express provisions on termination set forth in Articles 17.3.1 and 17.6.1, contain the entire and exclusive provisions and rights of SRTA and DB Team regarding termination of this Agreement, and any and all other rights to terminate at law or in equity are hereby waived to the maximum extent permitted by Law.

19.10 Access to Information

DB Team shall conduct all discussions and negotiations to determine any Termination Compensation, and shall share with SRTA all data, documents and information pertaining thereto, on an Open Book Basis.

19.11 Termination by Court Ruling

19.11.1 Except in the circumstances described in Exhibit 20, Termination by Court Ruling means, and becomes effective upon, (a) issuance of a final order by a court of competent jurisdiction to the effect that this Agreement is void and/or unenforceable or impossible to perform in its entirety, (b) issuance of a final order by a court of competent jurisdiction upholding the binding effect on DB Team or SRTA of a Change in Law that causes impossibility of performance of a fundamental obligation by DB Team or SRTA under the DB Documents or impossibility of exercising a fundamental right of DB Team or SRTA under the DB Documents, (c) occurrence of the circumstances described in Article 24.13.2, or (d) issuance of a final order by a court of competent jurisdiction to the effect that a material provision under the Estate for Years, Intergovernmental Agreement or the DB Documents is void and/or unenforceable so as to deprive DB Team of its ability to exercise a fundamental right granted to DB Team under the DB Documents and such inability resulting from such order cannot be otherwise remedied through a Compensation Event, Relief Event or other contractual remedy. The final court order shall be treated as the notice of termination.

19.11.2 Once Termination by Court Ruling becomes effective, SRTA and DB Team shall cooperate to implement Articles 19.5, 19.8, and 19.10.

19.11.3 Notwithstanding Article 19.11.2, if a Termination by Court Ruling occurs, DB Team shall be entitled to compensation to the extent, and only to the extent, provided in Exhibit 20. Payment shall be due and payable as and when provided in Exhibit 20. Any Dispute arising out of the determination of such compensation shall be resolved according to the Dispute Resolution Procedures.

Article 20 RESERVED

Article 21 ASSIGNMENT AND TRANSFER

21.1 Restrictions on Assignment, Subletting and Other Transfers

21.1.1 DB Team shall not voluntarily or involuntarily sell, assign, convey transfer, pledge, mortgage or otherwise encumber the DB Team's Interest or any portion thereof without SRTA's prior written acceptance (including under any Direct Agreement), except:

21.1.1.1 To any entity that is under the same ultimate management control as DB Team.

21.1.2 DB Team shall not grant any other special occupancy or use of the Project to any other Person that is not in the ordinary course of DB Team performing the Work, without SRTA's prior written acceptance.

21.1.3 Any sale, assignment, conveyance, transfer, pledge, mortgage, encumbrance, or grant of other special occupancy or use in violation of this provision shall be null and void *ab initio* and SRTA may, by Warning Notice, declare any such attempted action to be a material DB Team Default.

21.2 Standards and Procedures for SRTA Acceptance

21.2.1 Where SRTA's prior acceptance is required for a proposed sale, assignment, conveyance, transfer, pledge, mortgage, encumbrance, sublease or grant of other special occupancy or use, or for any proposed Change of Control, SRTA may withhold or condition its acceptance in its sole discretion. Any such decision of SRTA to withhold consent shall be final, binding and not subject to the Dispute Resolution Procedures.

21.2.2 Thereafter, SRTA shall not unreasonably withhold its acceptance thereto. Among other reasonable factors and considerations, it shall be reasonable for SRTA to withhold its acceptance if:

21.2.2.1 DB Team fails to demonstrate to SRTA's reasonable satisfaction that the proposed assignee, sublessee, grantee or transferee, or the proposed transferee of rights and/or equity interests that would amount to a Change of Control (for purposes of these Articles 21.2 through 21.5, collectively the "Transferee"), and its proposed contractors (a) have the financial resources, qualifications and experience to timely perform DB Team's obligations under the DB Documents and Principal Project Documents and (b) are in compliance with SRTA's or GDOT's rules, regulations and adopted written policies regarding organizational conflicts of interest;

21.2.2.2 Less than all of DB Team's Interest is proposed to be assigned, conveyed, transferred, pledged, mortgaged, encumbered, or granted; or

21.2.2.3 At the time of the proposed sale, assignment, conveyance, transfer, pledge, mortgage, encumbrance, sublease or grant of other special occupancy or use requiring SRTA's prior acceptance, or of any proposed Change of Control, there exists any uncured DB Team Default or any event or circumstance that with the lapse of time, the giving of notice or both would constitute a DB Team Default, unless SRTA receives from the proposed Transferee assurances of cure and performance acceptable to SRTA in its good faith discretion.

21.2.3 SRTA will accept or disapprove within thirty (30) days after it receives from DB Team a Submittal consisting of a request for acceptance together with (a) a reasonably detailed description of the proposed transaction, (b) such information, evidence and supporting documentation as SRTA may request concerning the identity, financial resources, qualifications, experience and potential conflicts of interest of the proposed Transferee and its proposed contractors and (c) such evidence of organization and authority, and such incumbency certificates, certificates regarding debarment or suspension, and other certificates, representations and warranties as SRTA may reasonably request. SRTA will evaluate the identity, financial resources, qualifications, experience and potential conflicts of interest using the same standards and criteria that it is then currently applying, or if there is no current application, then the same standards and criteria it most recently applied, to the evaluation of Persons responding to SRTA requests for qualifications for concession or similar agreements for comparable projects and facilities.

21.2.4 If for any reason SRTA does not act within such thirty (30) day period, or any extension thereof by mutual agreement of the Parties, then the provisions of Article 6.3.4.2 shall apply.

21.3 Assignment by SRTA

SRTA may assign all or any portion of its rights, title and interests in and to the DB Documents, payment and performance bond(s), guarantees, and other security for payment or performance, (a) without DB Team's consent, to any other Person that succeeds to the governmental powers and authority of SRTA, and (b) to others with the prior written consent of DB Team.

21.4 Notice and Assumption

21.4.1 Assignments and transfers of the DB Team's Interest permitted under this Article 21 (other than pursuant to Article 21.1.1.1) or otherwise accepted in writing by SRTA shall be effective only upon SRTA's receipt of written notice of the assignment or transfer and a written recordable instrument executed by the Transferee, in form and substance acceptable to SRTA, in which the Transferee, without condition or reservation, assumes all of DB Team's obligations, duties and liabilities under the DB Documents and agrees to perform and observe all provisions thereof applicable to DB Team.

21.4.2 Each Transferee, including any Person who acquires the DB Team's Interest pursuant to foreclosure, transfer in lieu of foreclosure or similar proceeding, shall take the DB Team's Interest subject to, and shall be bound by, the Management Plans, the Key Contracts, the Standard Utility Agreements, all agreements between the transferor and railroads, the Governmental Approvals, and all agreements between the transferor and Governmental Entities with jurisdiction over the Project or the Work, except to the extent otherwise accepted by SRTA in writing in its good faith discretion.

21.4.3 Except with respect to assignments and transfers pursuant to foreclosure, transfer in lieu of foreclosure or similar proceeding, the transferor and Transferee shall give SRTA written notice of the assignment not less than thirty (30) days prior to the effective date thereof.

21.5 Change of Organization or Name

21.5.1 DB Team shall not change the legal form of its organization in a manner that adversely affects SRTA's rights, protections and remedies under the DB Documents without the prior written acceptance of SRTA, which consent may be granted or withheld in SRTA's sole discretion.

21.5.2 In the event either Party changes its name, such Party agrees to promptly furnish the other Party with written notice of change of name and appropriate supporting documentation.

Article 22 RECORDS AND AUDITS; INTELLECTUAL PROPERTY

22.1 Maintenance and Inspection of Records

22.1.1 DB Team shall keep and maintain at a single location as approved by SRTA all books, records and documents relating to the Project, Utility Adjustments or Work, including copies of all original documents delivered to SRTA, as set forth in Exhibit 24. DB Team shall keep and maintain such books, records and documents in accordance with applicable provisions of the DB Documents, Section 2 of the Technical Provisions, and of the Management Plans, and in accordance with Good Industry Practice. DB Team shall notify SRTA where such records and documents are kept.

22.1.2 DB Team shall make all its books, records and documents available for inspection by SRTA, it representatives and legal counsel at DB Team's principal offices in Georgia, at all times during normal business hours, without charge. SRTA may conduct any such inspection upon forty-eight (48) hours' prior written notice, or unannounced and without prior notice where there is good faith suspicion of fraud. The right of inspection includes the right to make extracts and take notes. The provisions of this Article 22.1.2 are subject to the following:

22.1.2.1 DB Team reserves the right to assert exemptions from disclosure for information that would be exempt under applicable State Law from discovery or introduction into evidence in legal actions; and

22.1.2.2 Unless otherwise lawfully required by the FHWA, federal Law or the Open Government Laws, DB Team may make available copies of books, records and documents containing trade secrets and confidential proprietary information with such information redacted. Unless otherwise lawfully required by the FHWA, federal Law or the Open Government Laws, SRTA shall have no right to make extracts of such trade secrets and confidential proprietary information except in connection with resolution of Disputes.

22.1.2.3 DB Team shall retain records and documents for a minimum of five (5) years after the date the record or document is generated; provided that if

the DB Documents or applicable Law specify any longer time period for retention of particular records, such time period shall control. With respect to records and documents generated prior to Final Acceptance, the time period for retention shall commence upon Final Acceptance. Notwithstanding the foregoing, all records which relate to any actions brought forth under the Dispute Resolution Procedures shall be retained and made available until any later date that such actions are finally resolved. Refer to Attachment 1 to Exhibit 8 regarding applicable Federal Requirements.

22.2 Audits

22.2.1 SRTA shall have such rights to review and audit DB Team, its Contractors and their respective books and records as and when SRTA deems necessary for purposes of verifying compliance with the DB Documents and applicable Law. Without limiting the foregoing, SRTA shall have the right to audit DB Team's Management Plans and compliance therewith, including the right to inspect Work and/or activities and to verify the accuracy and adequacy of the Management Plans and its component parts, plans and other documentation. SRTA may conduct any such audit of books and records upon forty-eight (48) hours' prior written notice, or unannounced and without prior notice where there is good faith suspicion of fraud.

22.2.2 All claims filed against SRTA shall be subject to audit at any time following the filing of the claim. The audit may be performed by employees of SRTA or by an auditor under contract with SRTA. Notice shall not be required before commencing any audit prior to sixty (60) days after the expiration of the term of this Agreement. Thereafter, SRTA shall provide twenty (20) days notice to DB Team, any Contractors or their respective agents before commencing an audit. DB Team, Contractors or their agents shall provide adequate facilities, acceptable to SRTA, for the audit during normal business hours. DB Team, Contractors or their agents shall cooperate with the auditors. Failure of DB Team, Contractors or their agents to maintain and retain sufficient books and records to allow the auditors to verify all or a portion of the claim or to permit the auditor access to such books and records shall constitute a waiver of the claim and shall bar any recovery thereunder. At a minimum, the auditors shall have available to them the following documents relating to the claim:

22.2.2.1 Daily time sheets and supervisor's daily reports;

22.2.2.2 Union agreements;

22.2.2.3 Insurance, welfare, and benefits records;

22.2.2.4 Payroll registers;

22.2.2.5 Earnings records;

22.2.2.6 Payroll tax forms;

22.2.2.7 Material invoices and requisitions;

22.2.2.8 Material cost distribution work sheet;

22.2.2.9 Equipment records (list of company equipment, rates, etc.);

22.2.2.10 Contractors' (including Suppliers') invoices;

22.2.2.11 Contractors' and agents' payment certificates;

22.2.2.12 Canceled checks (payroll and Suppliers);

22.2.2.13 Job cost report;

22.2.2.14 Job payroll ledger;

22.2.2.15 General ledger;

22.2.2.16 Cash disbursements journal;

22.2.2.17 All documents that relate to each and every claim together with all documents that support the amount of damages as to each claim; and

22.2.2.18 Work sheets used to prepare the claim establishing (a) the cost components of the claim, including labor, benefits and insurance, materials, equipment, Contractors, all documents that establish the time periods, individuals involved, the hours for the individuals, and the rates for the individuals, and (b) the lost revenue components of the claim.

22.2.3 Full compliance by DB Team with the provisions of this Article 22.2 is a contractual condition precedent to DB Team's right to seek relief on a Dispute under Article 17.7.

22.2.4 Any rights of the FHWA to review and audit DB Team, its Contractors and their respective books and records are set forth in Attachment 1 to Exhibit 8.

22.2.5 SRTA's right of audit include the right to observe the business operations of DB Team and its Contractors to confirm the accuracy of books and records.

22.2.6 DB Team shall include in the Quality Management Plans internal procedures to facilitate review and audit by SRTA and, if applicable, FHWA.

22.2.7 DB Team represents and warrants the completeness and accuracy in all material respects of all information it or its agents provides in connection with SRTA audits, and shall cause all Contractors other than Governmental Entities acting as Contractors to warrant the completeness and accuracy in all material respects of all information such Contractors provide in connection with SRTA audits.

22.2.8 DB Team's internal and third-party quality and compliance auditing responsibilities shall be set forth in the Quality Management Plans.

22.2.9 Nothing in the DB Documents shall in any way limit the constitutional and statutory powers, duties and rights of elected State officials, including the independent rights of the State Auditor, in carrying out his or her legal authority. DB Team understands and acknowledges that (a) the State auditor may conduct an audit or investigation of any

entity receiving funds from the State directly under this Agreement or indirectly through a Contract, (b) acceptance of funds directly under this Agreement or indirectly through a Contract acts as acceptance of the authority of the State auditor to conduct an audit or investigation in connection with those funds, and (c) an entity that is the subject of an audit or investigation must provide the State auditor with access to any information the State auditor considers relevant to the investigation or audit.

22.3 Open Government Laws and Freedom of Information Act

22.3.1 DB Team acknowledges and agrees that all Submittals, records, documents, drawings, Plans, specifications and other materials in SRTA's or GDOT's possession, including materials submitted by DB Team to SRTA and GDOT (whether directly or indirectly), are subject to the provisions of the Open Government Laws, subject only to certain exceptions and exemptions contained therein. DB Team also acknowledges that, pursuant to O.C.G.A. § 50-18-70(a), "records received or maintained by a private person, firm, corporation, or other private entity in the performance of a service or function for or on behalf of an agency, a public agency, or a public office shall be subject to disclosure to the same extent that such records would be subject to disclosure if received or maintained by such agency, public agency, or public office." If DB Team believes information or materials submitted or otherwise made available to SRTA or GDOT constitute trade secrets, proprietary information or other information that is not subject to the Open Government Laws or is excepted from disclosure under the Open Government Laws, DB Team shall be solely responsible for specifically and conspicuously designating that information by placing "CONFIDENTIAL" in the center header of each such document or page affected, as it determines to be appropriate. Any specific proprietary information, trade secrets or confidential commercial and financial information shall be clearly identified as such, and shall be accompanied by a concise statement of reasons supporting the claim. Nothing contained in this Article 22.3.1 shall modify or amend requirements and obligations imposed on SRTA or GDOT by the Open Government Laws or other applicable Law, and the provisions of the Open Government Laws or other Laws shall control in the event of a conflict between the procedures described above and the applicable Law. DB Team is advised to contact legal counsel concerning such Law and its application to DB Team.

22.3.2 If SRTA or GDOT receives a request for public disclosure of materials marked "CONFIDENTIAL," SRTA or GDOT (as the case may be) will endeavor to notify DB Team of the request. DB Team may seek a protective order or other appropriate remedy. If SRTA or GDOT determines in good faith that the materials identified as "CONFIDENTIAL" are not exempt from the Open Government Laws, SRTA or GDOT will release the requested information within the applicable statutory time period, unless otherwise directed by an order of a court of competent jurisdiction. SRTA or GDOT shall make the final determination regarding whether the requested information is to be disclosed or withheld.

22.3.3 In the event of any proceeding or litigation concerning the disclosure of any material submitted by DB Team to SRTA or GDOT, DB Team shall be fully responsible for otherwise prosecuting or defending any action concerning the materials at its sole cost and risk; provided, however, that the Attorney General shall represent SRTA and GDOT who will participate in the litigation in such manner as they each may deem necessary or desirable. Except in the case of SRTA's or GDOT's voluntary intervention in litigation, DB Team shall pay and reimburse SRTA or GDOT (as the case may be) within thirty (30) days

after receipt of written demand and reasonable supporting documentation for all costs and fees, including attorneys' fees and costs, SRTA or GDOT incurs in connection with any litigation, proceeding or request for disclosure.

22.3.4 DB Team further acknowledges and agrees that all Submittals, records, documents, drawings, Plans, specifications and other materials in FHWA's possession may also be subject to disclosure under federal Law, including the Freedom of Information Act. DB Team's rights and obligations with respect to such disclosure shall be in accordance with such federal Law.

22.4 Intellectual Property

22.4.1 All Proprietary Intellectual Property, including with respect to Technology Enhancements, Source Code and Source Code Documentation, shall remain exclusively the property of DB Team or its Affiliates or Contractors that supply the same, notwithstanding any delivery of copies thereof to SRTA or GDOT.

22.4.2 SRTA and GDOT shall have and is hereby granted a nonexclusive, transferable, irrevocable, fully paid up right and license to use, reproduce, modify, adapt and disclose, and sublicense others to use, reproduce, modify, adapt and disclose, the Proprietary Intellectual Property of DB Team, including with respect to Technology Enhancements, Source Code and Source Code Documentation, solely in connection with the Project and any Highway, tolled or not tolled, owned and operated by SRTA, GDOT or a State or regional Governmental Entity.

22.4.3 Subject to the license and rights granted to SRTA and GDOT pursuant to Article 22.4.2, SRTA nor GDOT shall not at any time sell any Proprietary Intellectual Property of DB Team or use, reproduce, modify, adapt and disclose, or allow any party to use, reproduce, modify, adapt and disclose, any such Proprietary Intellectual Property for any other purpose not consistent with Article 22.4.2 above.

22.4.4 The right to transfer the license is limited to any Governmental Entity that succeeds to the power and authority of SRTA or GDOT generally or with respect to the Project.

22.4.5 The right to sublicense is limited to State or regional Governmental Entities that own or operate a Highway or other road, tolled or not tolled, and to the concessionaires, contractors, subcontractors, employees, attorneys, consultants and agents that are retained by or on behalf of SRTA, GDOT or any such State or regional Governmental Entity in connection with the Project or another Highway or other road, tolled or untolled. All such sublicenses shall be subject to Article 22.4.6.

22.4.6 Subject to Article 22.3, SRTA and GDOT shall:

22.4.6.1 Not disclose any Proprietary Intellectual Property of DB Team to any Person other than authorized transferees and sublicensees who agree to be bound by any confidentiality obligations of SRTA or GDOT relating thereto;

22.4.6.2 Enter into a commercially reasonable confidentiality agreement if requested by DB Team with respect to the licensed Proprietary Intellectual Property; and

22.4.6.3 Include, or where applicable require such State or regional Governmental Entity to include, in the contract with the sublicensee its covenant to employ sound business practices no less diligent than those used for its own confidential information, and no less diligent than required by commercially reasonable standards of confidentiality, to protect all Proprietary Intellectual Property of DB Team and other materials provided under the sublicense against disclosure to third parties not in receipt of a sublicense, and to use the sublicense only for the permitted purposes.

22.4.7 Notwithstanding any contrary provision of the DB Documents, in no event shall SRTA, GDOT or any of their respective directors, officers, employees, consultants or agents be liable to DB Team, any Affiliate or any Contractor for any damages, including loss of profit, arising out of breach of the duty of confidentiality set forth in Article 22.4.6 if such breach is not the result of gross negligence or intentional misconduct or is required under the provisions of the Open Government Laws or a court order or other legal requirement.

22.4.8 DB Team shall continue to have a full and complete right to use any and all duplicates or other originals of its Proprietary Intellectual Property in any manner it chooses.

22.4.9 With respect to any Proprietary Intellectual Property, including with respect to Technology Enhancements, Source Code and Source Code Documentation, owned by a Person other than DB Team, including any Affiliate, and other than SRTA, GDOT or a Governmental Entity acting as a Contractor, DB Team shall obtain from such owner, concurrently with execution of any contract, subcontract or purchase order with such owner or with the first use or adaptation of the Proprietary Intellectual Property in connection with the Project, for DB Team, SRTA and GDOT, nonexclusive, transferable, irrevocable, fully paid up licenses to use, reproduce, modify, adapt and disclose such Proprietary Intellectual Property solely in connection with the Project and any Highway, tolled or not tolled, owned and operated by SRTA, GDOT or a State or regional Governmental Entity, of at least identical scope, purpose, duration and applicability as the license granted under Article 22.4.1. The foregoing requirement shall not apply, however, to mass-marketed software products (sometimes referred to as “shrink wrap software”) owned by such a Person where such a license cannot be extended to SRTA or GDOT using commercially reasonable efforts. The limitations on sale, transfer, sublicensing and disclosure by SRTA and GDOT set forth in Articles 22.4.3 through 22.4.6 shall also apply to SRTA’s and GDOT’s licenses in such Proprietary Intellectual Property.

22.5 Reserved

Article 23 FEDERAL REQUIREMENTS

23.1 Compliance with Federal Requirements

DB Team shall comply and require its Contractors to comply with all Federal Requirements applicable to transportation projects that receive federal credit or funds, including those set forth in Exhibit 8. In the event of any conflict between any applicable Federal Requirements and the

other requirements of the DB Documents, the Federal Requirements shall prevail, take precedence and be in force over and against any such conflicting provisions.

23.2 Role of and Cooperation with FHWA

DB Team acknowledges and agrees that FHWA will have certain approval rights with respect to the Project, including the right to provide certain oversight and technical services with respect to the Work. DB Team shall cooperate with FHWA in the reasonable exercise of FHWA's duties and responsibilities in connection with the Project and shall provide such assistance and information as may be required by SRTA and/or GDOT to comply with FHWA reporting requirements.

Article 24 MISCELLANEOUS

24.1 Taxes

DB Team shall pay, prior to delinquency, all applicable Taxes. DB Team shall have no right to a Compensation Event or a Relief Event due to its misinterpretation of Laws respecting Taxes or incorrect assumptions regarding applicability of Taxes.

24.2 Amendments

The DB Documents may be amended only by a written instrument duly executed by the Parties or their respective successors or assigns, except to the extent expressly provided otherwise in this Agreement.

24.3 Waiver

24.3.1 No waiver of any term, covenant or condition of this Agreement or the other DB Documents shall be valid unless in writing and signed by the obligee Party.

24.3.2 The exercise by a Party of any right or remedy provided under this Agreement or the other DB Documents shall not waive or preclude any other or further exercise thereof or the exercise of any other right or remedy. No waiver by any Party of any right or remedy under this Agreement or the other DB Documents shall be deemed to be a waiver of any other or subsequent right or remedy under this Agreement or the other DB Documents. The consent by one Party to any act by the other Party requiring such consent shall not be deemed to render unnecessary the obtaining of consent to any subsequent act for which consent is required, regardless of whether similar to the act for which consent is given.

24.3.3 Except as provided otherwise in the DB Documents, no act, delay or omission done, suffered or permitted by one Party or its agents shall be deemed to waive, exhaust or impair any right, remedy or power of such Party hereunder, or to relieve the other Party from the full performance of its obligations under this Agreement or the other DB Documents.

24.3.4 Either Party's waiver of any breach or failure to enforce any of the terms, covenants, conditions or other provisions of the DB Documents at any time shall not in any way limit or waive that Party's right thereafter to enforce or compel strict compliance

with every term, covenant, condition or other provision, any course of dealing or custom of the trade notwithstanding. Furthermore, if the Parties make and implement any interpretation of the DB Documents without documenting such interpretation by an instrument in writing signed by both Parties, such interpretation and implementation thereof will not be binding in the event of any future Disputes.

24.3.5 Subject to Article 14.2.6, the acceptance of any payment or reimbursement by a Party shall not waive any preceding or then-existing breach or default by the other Party of any term, covenant or condition of this Agreement or the other DB Documents, other than the other Party's prior failure to pay the particular amount or part thereof so accepted, regardless of the paid party's knowledge of such preceding or then-existing breach or default at the time of acceptance of such payment or reimbursement. Nor shall such acceptance continue, extend or affect: (a) the service of any notice, any Disputes or final judgment; (b) any time within which the other Party is required to perform any obligation; or (c) any other notice or demand.

24.4 Independent Contractor

24.4.1 DB Team is an independent contractor, and nothing contained in the DB Documents shall be construed as constituting any relationship with SRTA other than that of an independent contractor under this Agreement.

24.4.2 Nothing in the DB Documents is intended or shall be construed to create any partnership, joint venture or similar relationship between SRTA and DB Team; and in no event shall either Party take a position in any tax return or other writing of any kind that a partnership, joint venture or similar relationship exists. While the term "public-private partnership" may be used on occasion to refer to contractual relationships of the type hereby created, the Parties do not thereby express any intention to form or hold themselves out as a *de jure* or *de facto* partnership, joint venture or similar relationship, to share net profits or net losses, or to give SRTA control or joint control over DB Team's financial decisions or discretionary actions concerning the Project and Work.

24.4.3 In no event shall the relationship between SRTA and DB Team be construed as creating any relationship whatsoever between SRTA and DB Team's employees. Neither DB Team nor any of its employees is or shall be deemed to be an employee of SRTA. Except as otherwise specified in the DB Documents, DB Team has sole authority and responsibility to employ, discharge and otherwise control its employees and has complete and sole responsibility as a principal for its agents, for all Contractors and for all other Persons that DB Team or any Contractor hires to perform or assist in performing the Work.

24.5 Successors and Assigns

The DB Documents shall be binding upon and inure to the benefit of SRTA and DB Team and their permitted successors, assigns and legal representatives.

24.6 Designation of Representatives; Cooperation with Representatives

24.6.1 SRTA and DB Team shall each designate an individual or individuals who shall be authorized to make decisions and bind the Parties on matters relating to the DB Documents ("Authorized Representative"). In addition, for purposes of Project

administration and oversight to be performed by GDOT as provided in this Agreement, GDOT shall designate an individual or individuals who shall be authorized to make decisions and bind GDOT and upon such person(s) direction DB Team may rely. Exhibit 22 provides the initial Authorized Representative designations. A Party may change such designations by a subsequent writing delivered to the other Party in accordance with Article 24.11. For purposes of this Agreement, the Parties, except where expressly stated to the contrary, all communications and deliveries, including submittals, shall be through the respective Authorized Representative for each party.

24.6.2 DB Team shall cooperate with SRTA and all representatives of SRTA designated as described above.

24.7 Survival

DB Team's and SRTA's representations, covenants, warranties, the dispute resolution provisions contained in Article 17.7, the express obligations of the Parties following termination, and all other provisions which by their inherent character should survive expiration or earlier termination of this Agreement and/or completion of the Work shall survive the expiration or earlier termination of this Agreement and/or the completion of the Work. The provisions of Article 17.7 shall continue to apply after expiration or earlier termination of this Agreement to all Disputes between the parties arising out of the DB Documents.

24.8 Limitation on Third-Party Beneficiaries

24.8.1 It is not intended by any of the provisions of the DB Documents to create any third-party beneficiary hereunder or to authorize anyone not a Party hereto to maintain a suit for personal injury or property damage pursuant to the terms or provisions hereof, except to the extent provided in Article 24.9.2 and other specific provisions (such as the warranty and indemnity provisions) that identify third parties and state that they are entitled to benefits hereunder. Except as otherwise provided in this Article 24.8, the duties, obligations and responsibilities of the Parties to the DB Documents with respect to third parties shall remain as imposed by Law. The DB Documents shall not be construed to create a contractual relationship of any kind between SRTA and a Contractor or any Person other than DB Team.

24.8.2 GDOT shall be a third-party beneficiary, and entitled to the benefits, with respect to the rights under the DB Documents related to the following:

24.8.2.1 Oversight, review, inspection, testing, monitoring, acceptance, and enforcement of DB Team's obligations to perform the design and construction of the Project in accordance with the DB Documents and applicable Law.

24.8.2.2 Review, audit, inspection and copying of data, information, documents, books and records of DB Team and any other DB Team-Related Entity.

24.8.2.3 Step in rights upon the occurrence of a DB Team Default.

24.9 No Personal Liability of SRTA or GDOT Employees; No Tort Liability

24.9.1 SRTA's and GDOT's officers, employees, representatives are acting solely as agents and representatives of such respective entities, as applicable, when carrying out the provisions of or exercising the power or authority granted to them under this Agreement and the DB Documents. They shall not be liable either personally or as employees of SRTA or GDOT for actions in their ordinary course of employment.

24.9.2 The Parties agree to provide to each other with written notice of any claim which such Party may receive from any third party relating in any way to the matters addressed in this Agreement, and shall otherwise provide notice in such form and within such period as is required by Law.

24.10 Governing Law

The DB Documents shall be governed by and construed in accordance with the laws of the State of Georgia.

24.11 Notices and Communications

24.11.1 Notices under the DB Documents shall be in writing and: (a) delivered personally; (b) sent by certified mail, return receipt requested; (c) sent by a recognized overnight mail or courier service, with delivery receipt requested, or (d) sent by facsimile or email communication followed by a hard copy and with receipt confirmed by telephone, to the following addresses (or to such other address as may from time to time be specified in writing by such Person):

24.11.2 All notices, correspondence and other communications to DB Team shall be delivered to the following address or as otherwise directed by DB Team's Authorized Representative:

_____
_____
_____
Telephone: _____
Facsimile: _____
E-mail: _____

24.11.3 Regardless of whether SRTA, GDOT, or both are identified in the DB Documents, all notices, correspondence, submittals, transmittals and any other communications shall be directed to GDOT's Authorized Representative. All notices, correspondence, submittals, transmittals, and other communications to SRTA or GDOT shall be marked as regarding the "I-16 at I-95 Interchange Reconstruction and I-16 Widening from I-95 to I-516 Project" and shall be delivered to the following addresses or as otherwise directed by GDOT's Authorized Representative:

Christopher Tomlinson
State Road and Tollway Authority
245 Peachtree Center Ave. NE
Suite 2200
Atlanta, GA 30303

Telephone: (404) 893-6100
Facsimile: (404) 893-6144
E-mail: ctomlinson@georgiatolls.com

Darryl D. VanMeter, P.E.
Georgia Department of Transportation
Office of Innovative Delivery
600 West Peachtree Street, Floor 19
Atlanta, Georgia 30308
E-mail: dvanmeter@dot.ga.gov

In addition, copies of all notices regarding Disputes, and termination and default notices shall be delivered to the following person:

State Road and Tollway Authority
245 Peachtree Center Ave. NE
Suite 2200
Atlanta, GA 30303
Attention: General Counsel
Telephone: (404) 893-6100
Facsimile: (404) 893-6144
E-mail: mmandus@georgiatolls.com

Georgia Department of Transportation
Office of General Counsel
600 West Peachtree Street, Suite 2300
Atlanta, Georgia 30308
E-mail: mcline@dot.ga.gov

24.11.4 Notices shall be deemed received when actually received in the office of the addressee (or by the addressee if personally delivered) or when delivery is refused, as shown on the receipt of the U.S. Postal Service, private carrier or other Person making the delivery. Notwithstanding the foregoing, notices sent by facsimile after 12:00 p.m. Eastern Standard or Daylight Time (as applicable) and all other notices received after 12:00 p.m. shall be deemed received on the first Business Day following delivery (that is, in order for a fax to be deemed received on the same day, at least the first page of the fax must have been received before 12:00 p.m.). Any technical or other communications pertaining to the Work shall be conducted by DB Team's Authorized Representative and technical representatives designated by GDOT.

24.12 Integration of DB Documents

SRTA and DB Team agree and expressly intend that, subject to Article 24.13, this Agreement, and other DB Documents constitute a single, non-severable, integrated agreement whose terms are interdependent and non-divisible.

24.13 Severability

24.13.1 If any clause, provision, section or part of this Agreement or the other DB Documents or any other Principal Project Document (other than the Design-Build Contract) is ruled invalid (including invalid due to Change in Law) by a court having proper

jurisdiction, then the Parties shall: (a) promptly meet and negotiate a substitute for such clause, provision, section, or part, which shall, to the greatest extent legally permissible, effect the original intent of the Parties; and (b) if necessary or desirable, apply to the court or other decision maker (as applicable) which declared such invalidity for an interpretation of the invalidated portion to guide the negotiations. The invalidity or unenforceability of any such clause, provision, section, or part shall not affect the validity or enforceability of the balance of the DB Documents or such other Principal Project Documents, which shall be construed and enforced as if the DB Documents or such other Principal Project Documents did not contain such invalid or unenforceable clause, provision, section, or part.

24.13.2 If after the efforts required by Article 24.13.1, the Parties mutually agree that without the section or part of the DB Documents or such other Principal Project Documents that the court ruled to be invalid, there is no interpretation or reformation of the DB Documents or such other Principal Project Documents that can reasonably be adopted which will return the Parties to the benefits of their original bargain, the Parties can mutually agree to treat the court order as a Termination by Court Ruling pursuant to Article 19.11.

24.14 Usury Savings

The DB Documents are subject to the express condition that at no time shall either Party be obligated or required to pay interest on any amount due the other Party at a rate which could subject the other Party to either civil or criminal liability as a result of being in excess of the maximum non-usurious interest rate permitted by Georgia Law (the “maximum legal rate”), if any. If, by the terms of the DB Documents either Party at any time is obligated to pay interest on any amount due in excess of the maximum legal rate, then such interest shall be deemed to be immediately reduced to the maximum legal rate and all previous payments in excess of the maximum legal rate shall be deemed to have been payments in reduction of the principal amount due and not on account of the interest due. All sums paid or agreed to be paid to a Party for the use, forbearance, or detention of the sums due that Party under the DB Documents shall, to the extent permitted by applicable Georgia Law, be amortized, prorated, allocated, and spread throughout the full period over which the interest accrues until payment in full so that the rate or amount of interest on account of the amount due does not exceed the maximum legal rate in effect from time to time during such period. If after the foregoing adjustments a Party still holds interest payments in excess of the maximum legal rate, it shall promptly refund the excess to the other Party.

24.15 Reserved

24.16 Entire Agreement

This Agreement and the other DB Documents contain the entire understanding of the Parties with respect to the subject matter thereof and supersede all prior agreements, understandings, statements, representations and negotiations between the Parties with respect to their subject matter.

24.17 Counterparts

This instrument may be executed in two or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

CONTRACT IDENTIFICATION NUMBER
B1CBA1801537-0

DATE CONTRACT EXECUTED
October 19, 2018

PROJECT NUMBER(S)
0012757 and 0012758

COUNTY(IES)
Chatham County

CONTRACTOR
Savannah Mobility Contractors JV, a Joint Venture

DESCRIPTION OF IMPROVEMENTS AND FACILITY
I-16 at I-95 Interchange Reconstruction and I-16 Widening from I-95 to I-516 Project

CONTRACT SUM
$260,520,016.00

[Signature Page Immediately Follows]

IN WITNESS WHEREOF, the Parties, intending to be legally bound, have executed this Agreement, including the requirements of the DB Documents, as of the date first above written.

SAVANNAH MOBILITY CONTRACTORS JV

By: _____
Name: Fernando Bolinaga
Title: JV Authorized Representative

By: _____
Name: _____
Title: _____

STATE ROAD AND TOLLWAY AUTHORITY

By: _____
Name: Chris Tomlinson
Title: Executive Director

EXHIBIT 1

ABBREVIATIONS AND DEFINITIONS

Unless otherwise specified, wherever the following abbreviations or terms are used in this Agreement and the Technical Provisions, they have the meanings set forth below:

AASHTO	American Association of State Highway and Transportation Officials
ADA	Americans with Disabilities Act
AGC	Associated General Contractors of America
AMRL	AASHTO Materials Reference Laboratory
ANSI	American National Standards Institute
APE	Area of Potential Effects
ARC	Atlanta Regional Commission
AREMA	American Railway Engineering and Maintenance of Way Association
ASTM	American Society of Testing and Materials
ATC	Alternative Technical Concept
AVI	Automatic Vehicle Identification
BFI	Bridge Foundation Investigation
AWS	American Welders Society
BMP	Best Management Practice
CAD	Computer Aided Design
CCTV	Closed Circuit Television
CE	Categorical Exclusion
CEI	Construction Engineering and Inspection
CEPP	Comprehensive Environmental Protection Program
CFR	Code of Federal Regulations
CIA	Contract Item Agreement
CMS	Changeable Message Sign
CPI	Consumer Price Index
CQAF	Construction Quality Assurance Firm
CQAP	Construction Quality Assurance Program
CQAM	Construction Quality Assurance Manager
CQMP	Construction Quality Management Plan
CSC	Customer Service Center
CSJ	Control Section Job
CWA	Clean Water Act
DB	Design-Build
DBA	Design-Build Agreement
DBE	Disadvantaged Business Enterprise, as set forth in 49 CFR Part 26
DEIS	Draft Environmental Impact Statement
DMS	Dynamic Message Signs

DNR	Georgia Department of Natural Resources
DQAM	Design Quality Assurance Manager
DQMP	Design Quality Management Plan
DSS	Decent, Safe and Sanitary
EA	Environmental Assessment
ECM	Environmental Compliance Manager
EDG	GDOT Electronic Data Guidelines
EP	Extraction Procedure (toxicity)
EPA	Environmental Protection Agency
EPD	Georgia Department of Natural Resources, Environmental Protection Division
EPIC	Environmental Permits Issues and Commitments
ESA	Endangered Species Act of 1973, 16 U.S.C. §§ 1531 *et seq.*, as amended from time to time
ETCS	Electronic Toll Collection System
EUC	Emergency Utility Coordinator
FAA	Federal Aviation Administration
FAPG	Federal-Aid Policy Guide
FEMA	Federal Emergency Management Agency
FHWA	U.S. Federal Highway Administration
FEIS	Final Environmental Impact Statement
FONSI	Finding of No Significant Impact
FTP	File Transfer Protocol
FWCA	Fish and Wildlife Coordination Act, 16 U.S.C. §§661 *et seq.*, as amended from time to time
GDOT	Georgia Department of Transportation
GEPA	Georgia Environmental Policy Act, Section 12-16-1, et seq. of the Official Code of Georgia Annotated
GIS	Geographical Information System
GP	General Purpose
HEC-FFA	Hydraulic Engineering Circular – Flood Frequency Analysis
HCR	Highway Conditions Report
HOT	High Occupancy/Toll
HOV	High Occupancy Vehicle
IA	Independent Assurance
ICD	Interface Control Document
ID	Form of Identification
IH	Interstate Highway
IRI	International Roughness Index
ISO	International Organization for Standardization
ITS	Intelligent Transportation System
IVHS	Intelligent Vehicle Highway System

IWP	Investigative Work Plan
LCS	Lane Control System
MARTA	Metropolitan Atlanta Rapid Transit Authority
MDS	Microwave Detection System
MMIP	Major Mobility Investment Program
MOA	Memorandum of Agreement
MOT	Maintenance of Traffic
MOU	Memorandum of Understanding
MPH	Miles Per Hour
MPO	Metropolitan Planning Organization
MS4	Municipal Separate Storm Sewer System
MSDS	Materials Safety Data Sheets
MSE	Mechanically Stabilized Earth
MUTCD	Manual of Traffic Control Devices
NAVD	North American Vertical Datum
NBIS	National Bridge Inspection Standards
NCHRP	National Cooperative Highway Research Program
NCR	Nonconformance Report
NEPA	National Environmental Policy Act, 42 U.S.C. § 4321 *et seq*., as amended from time to time
NFIP	National Flood Insurance Program
NMFS	National Marine Fisheries Service
NOI	Notice of Intent
NOAA	National Oceanic and Atmospheric Administration
NOT	Notice of Termination
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
NTP	Notice to Proceed
NTAS	National Terrorism Advisory System
OCGA	Official Code of Georgia Annotated
OCR	Optical Character Recognition
ORT	Open Road Toll
OSAH	Georgia Office of State Administrative Hearings
OSHA	Occupational Safety and Health Administration
OVF	Owner Verification Firm
OVT	Owner Verification Tests or Owner Verification Testing
PA	Programmatic Agreement
PACES	Pavement Condition Evaluation System
PDP	GDOT Plan Development Process

PIC	Public Information Coordinator
PICP	Public Information and Communications Plan
PLS (or RPLS)	Professional Land Surveyor
PMC	Program Management Consultant
PMCS	Project Management Controls System
PMP	Project Management Plan
PPE	Personal Protection Equipment
PQMP	Project Quality Management Plan
PUA	Possession and Use Agreement
QA	Quality Assurance or Quality Acceptance, depending on context
QC	Quality Control
QMP	Quality Management Plan
RCP	Reinforced Concrete Pipe
RFC	Release for Construction
RFI	Request for Information
RFQ	Request for Qualifications
RFP	Request for Proposals
RLM	Residual Life Methodology
ROD	Record of Decision
ROW	Right of Way
ROW AM	Right of Way Acquisition Manager
ROWIS	Right of Way Information System
RTF	Related Transportation Facilities
SDPP	Special Deposit and Possession Procedure
SDEIS	Supplemental Draft Environmental Impact Statement
SH	State Highway
SHPO	State Historic Preservation Officer
SME	Subject Matter Expert
SOQ	Statement of Qualifications
SOV	Single Occupancy Vehicle or Schedule of Values, depending on context
SSTR	Single Slope Traffic Railing
SRTA	State Road and Tollway Authority
STA	State Transportation Agency
SUA	Standard Utility Agreement
SUE	Subsurface Utility Engineering
TCLP	Toxicity Characteristic Leaching Procedure
TIR	Traffic Interruption Request
TMC	Traffic Management Center
TMP	Transportation Management Plan
TOC	Toll Operations Center
UAM	Utility Accommodation Manual

UAT	Utility Adjustment Team
UCS	User Classification Subsystem
UDC	Utility Design Coordinator
UJUA	Utility Joint Use Acknowledgment or Utility Joint Use Agreement
UM	Utility Manager
US	United States Highway
USACE	United States Army Corps of Engineers
U.S. DOT	United States Department of Transportation
USFWS	United States Fish and Wildlife Service
U.S. GAAP	U.S. Generally Accepted Accounting Principles
USPAP	Uniform Standard of Professional Appraisal Practices
UST	Underground Storage Tank
UTM	Universal Transverse Mercator
VDS	Video Detection System
VES	Video Exception Sub-system
WBS	Work Breakdown Structure
WFI	Wall Foundation Investigation
WECS	Worksite Erosion Control Supervisor
WTCS	Worksite Traffic Control Supervisor
WUCS	Worksite Utility Coordination Supervisor

Abandonment means that Design-Build Team abandons all or a material part of the Project, which abandonment shall have occurred if (a) Design-Build Team demonstrates through acts or omissions an intent not to continue, for any reason other than a Relief Event that materially interferes with ability to continue, to construct or operate all or a material part of the Project and (b) no significant Work (taking into account the Project Baseline Schedule, if applicable, and any Relief Event) on the Project or a material part thereof is performed for a continuous period of more than forty five (45) days.

Addenda/Addendum means supplemental additions, deletions, and modifications to the provisions of the RFP after the release of the draft RFP.

Additional Properties means those parcels or portions of property proposed by Design-Build Team in addition to the ROW, including with respect to an approved ATC or otherwise contiguous to the Property and to be used for Project or in connection with the construction thereof, all as expressly designated as "Additional Properties" within the Right of Way Acquisition Plan. Additional Properties shall not include any Project Specific Locations.

Adjust means to perform a Utility Adjustment.

Adjustment means a Utility Adjustment.

Adjustment Standards means the standard specifications, standards of practice, and construction methods that a Utility Owner customarily applies to facilities (comparable to those being Adjusted on account of the Project) constructed by the Utility Owner (or for the Utility Owner by its contractors), at its own expense. Unless the context requires otherwise, references in the DB Documents to a Utility Owner's "applicable Adjustment Standards" refer to those that are applicable pursuant to Article 7.5.3 of the Agreement.

Administrative Information Submittals means those submittals Proposers are required to submit with their respective Proposal.

Affidavit of Property Interest means the form of documentation of Existing Utility Property Interests described in Section 6.2.2 of the Technical Provisions.

Affiliate means:

(a) any shareholder, member, partner or joint venture member of Design-Build Team,

(b) any Person which directly or indirectly through one or more intermediaries controls, or is controlled by, or is under common control with, Design-Build Team or any of its shareholders, members, partners or joint venture members; and

(c) any Person for which ten percent (10%) or more of the equity interest in such Person is held directly or indirectly, beneficially or of record by (i) Design-Build Team, (ii) any of Design-Build Team's shareholders, members, partners or joint venture members or (iii) any Affiliate of Design-Build Team under clause (b) of this definition.

For purposes of this definition the term "control" means the possession, directly or indirectly, of the power to cause the direction of the management of a Person, whether through voting securities, by contract, family relationship or otherwise.

Age means the elapsed time since an Element was first constructed or installed or, if applicable, last reconstructed, rehabilitated, restored, renewed or replaced.

Agreement, **DBA**, **Design-Build Agreement**, or **DB Agreement** means this certain Design-Build Agreement executed by SRTA and Design-Build Team, including any and all exhibits, attachments, riders, and amendments thereto.

Alternative Technical Concept (ATC) means an alternative technical concept proposed by Design-Build Team pursuant to the terms set forth in the RFP.

Annual Cumulative Payment Cap Schedule has the meaning set forth in Article 5.2 of the Agreement.

Apparent Successful Proposer means the Proposer with the apparent Successful Proposal, taking into consideration the evaluation criteria and procedures.

Area of Potential Effects (APE) means the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of Historic Properties, if such properties exist.

Authorized Representative has the meaning set forth in Article 24.6.1 of the Agreement, and shall be applicable person(s) and/or party(ies) authorized to act on behalf of each of SRTA, GDOT, and the Design-Build Team respectively, as initially set forth pursuant to Exhibit 22 of the Agreement. All notices, deliveries, responses, approvals, and other communications among SRTA, GDOT, and/or the Design-Build Team shall be directed to the respective Authorized Representative for each of the aforementioned, unless expressly provided to the contrary in this Agreement.

Best Management Practices (BMP) has the meaning set forth in *Storm Water Management For Construction Activities: Developing Pollution Prevention Plans and Best Management Practices* (EPA Document 832 R 92-005).

Best Value Proposal means the Proposal meeting the standards set by the RFP that GDOT determines, through the evaluation process and evaluation criteria described in this ITP, to present the best value and to be in the best interest of SRTA, GDOT, and the State.

Betterment has, with respect to a given Utility being Adjusted, the meaning (if any) set forth in the Utility Agreement(s) applicable to the Utility; in all other cases, "Betterment" means any upgrading of the Utility in the course of such Utility Adjustment that is not attributable to the construction of the Project and is made solely for the benefit of and at the election of the Utility Owner, including an increase in the capacity, capability, efficiency or function of an Adjusted Utility over that which was provided by the existing Utility. Notwithstanding the foregoing, the following are not considered Betterments unless otherwise provided in the applicable Utility Agreement(s):

(a) any upgrading which is required for accommodation of the Project;

(b) replacement devices or materials that are of equivalent standards although not identical;

(c) replacement of devices or materials no longer regularly manufactured with an equivalent or next higher grade or size;

(d) any upgrading required by applicable Law;

(e) replacement devices or materials that are used for reasons of economy (e.g., non-stocked items may be uneconomical to purchase); and

(f) any upgrading required by the Utility Owner's applicable Adjustment Standards.

With respect to any Replacement Utility Property Interest, "**Betterment**" has the meaning (if any) set forth in the applicable Utility Agreement(s). In all other cases, a Replacement Utility Property Interest shall be considered a Betterment, except to the extent that reinstallation of a Utility in the Replacement Utility Property Interest (i) is necessary in order to meet the requirements of the DB Documents, or (ii) is called for by Design-Build Team in the interest of overall economy for the Project.

Business Day, work day, or working day means any Calendar Day less Saturday, Sunday and State of Georgia holidays.

Calendar Day means any day shown on the calendar, beginning and ending at midnight.

Change in Law means (a) the adoption of any Law after the date that is ninety (90) days prior to the Proposal Due Date, or (b) any change, amendment to, repeal or revocation of any Law or in the interpretation or application thereof by any Governmental Entity after the date that is ninety (90) days prior to the Proposal Due Date, in each case that is materially inconsistent with Laws in effect ninety (90) days prior to the Proposal Due Date; excluding, however, any such Change in or new Law that also constitutes or causes a change in or new Adjustment Standards, as well as any change in or new Law passed or adopted but not yet effective as of the date that is ninety (90) days prior to the Proposal Due Date.

Change of Control means any assignment, sale, financing, grant of security interest, transfer of interest or other transaction of any type or description, including by or through voting securities, asset transfer, contract, merger, acquisition, succession, dissolution, liquidation or otherwise, that results, directly or indirectly, in a change in possession of the power to direct or control or cause the direction or control of the management of Design-Build Team or a material aspect of its business. A change in the power to direct or control or cause the direction or control of the management of a shareholder, member, partner or joint venture member of Design-Build Team may constitute a Change of Control of Design-Build Team if such shareholder, member, partner or joint venture member possesses the power to direct or control or cause the direction or control of the management of Design-Build Team. Notwithstanding the foregoing, the following shall not constitute a Change of Control:

(a) A change in possession of the power to direct or control the management of Design-Build Team or a material aspect of its business due solely to a bona fide open market transaction(s) in securities effected on a recognized public stock exchange, including such transactions involving an initial public offering;

(b) A change in possession of the power to direct or control the management of Design-Build Team or a material aspect of its business due solely to a bona fide transaction involving beneficial interests in the ultimate parent organization of a shareholder, member, partner or joint venture member of Design-Build Team, (but not if the shareholder, member, partner or joint venture member is the ultimate parent organization), unless the transferee in such transaction is at the time of the transaction suspended or debarred or subject to a proceeding to

suspend or debar from bidding, proposing or contracting with any federal or State department or agency;

(c) An upstream reorganization or transfer of direct or indirect interests in Design-Build Team so long as there occurs no change in the entity with ultimate power to direct or control or cause the direction or control of the management of Design-Build Team;

(d) A transfer of interests between managed funds that are under common ownership or control other than a change in the management or control of a fund that manages or controls Design-Build Team;

(e) The exercise of minority veto or voting rights (whether provided by applicable Law, by Design-Build Team's organizational documents or by related member or shareholder agreements or similar agreements) over major business decisions of Design-Build Team, provided that if such minority veto or voting rights are provided by shareholder or similar agreements, SRTA has received copies of such agreements; or

Change Order means a written approval by SRTA, counter-signed by Design-Build Team, with respect to a SRTA Change or Change Request, which shall set forth any adjustments to the DB Contract Sum and/or the Contract Time, including on account of a Relief Event or Compensation Event, as provided in the Agreement.

Change Request means a written request from Design-Build Team seeking to change the character, quantity, quality, description, scope or location of any part of the Work, to modify the DB Documents.

Chief Executive Officer of the Design-Build Team means the chief executive officer, president or other senior officer of the Design-Build Team, or the governing body of Design-Build Team, in each case having authority to negotiate and resolve a Dispute with the Commissioner and bind Design-Build Team by his or her decision in regard to such Dispute.

Claimant means any Person that would be entitled to protection of payment bond under Code Section 13-10-63, including any P&P Bonds.

Code has the meaning set forth in Recital C of the Agreement.

Commissioner means the Commissioner of GDOT appointed by the State Transportation Board and any successor thereto having substantially similar powers and authority.

Communications Plan has the meaning set forth in Section 2.7 of the Technical Provisions.

Comparable Limited Access Highways means Highways that have full control of access, are divided, have grade separations at intersections and are in other respects substantially similar to the Project and associated facilities, as applicable. For purposes of this definition, determination of what portions of the Limited Access Highway system are substantially similar to the Project shall be based on any one or more of similar age, design, engineering, construction, topographical features, operating systems and features, or other features or situations, and/or based on a geographical area in which Highways have been or are susceptible to being affected by a common event (such as but not limited to hurricane or tornado). The

presence or absence of tolling and tolling facilities shall not be a factor in determining whether a Highway is substantially similar to the Project.

Compensation Amount means the amount of compensation to be paid to Design-Build Team for a Compensation Event as set forth and subject to the limitations of the Agreement, including Article 14.2 therein.

Compensation Event means the written notice submitted by Design-Build Team in accordance with Article 14.2 of the Agreement.

Compensation Event Notice means the written notice submitted by Design-Build Team in accordance with Article 13.3.2 of the Agreement.

Completed Payment Activity means a Payment Activity that Design-Build Team has certified as acceptable and ready for the following activity to begin.

Completion Date means the date the Design-Build Team has satisfied all conditions and requirements of and for a Completion Deadline, including Interim Completion Deadlines, the Substantial Completion Deadline, and Final Acceptance, as may be adjusted pursuant to any Supplemental Agreement, including on account of any Relief Events.

Completion Deadline means the critical milestones for commencement or completion of the Work as set forth in Exhibit 9 to the Agreement, including without limitation Interim Completion Deadlines, the Substantial Completion Deadline, and Final Acceptance Deadline, as may be adjusted upon approval of the Project Baseline Schedule as set forth in Article 3.2 of the Agreement, and as further adjusted pursuant to any Supplemental Agreement, including on account of any Relief Events.

Conceptual Layout Plan means the schematic layout which provides alignment and lane configuration information necessary to verify lane continuity and general scope compliance for the entire Project.

Construction Commencement Date means for the date on which Design-Build Team first commences construction of the Project or such relative phase thereof.

Construction Documents means all shop drawings, working drawings, fabrication plans, material and hardware descriptions, specifications, construction quality control reports, construction quality assurance reports and samples necessary or desirable for construction of the Project and/or the Utility Adjustments included in the Construction Work, in accordance with the DB Documents.

Construction Maintenance Limits Plan means the deliverable to identify the physical boundaries of Design-Build Team's maintenance responsibilities for the Construction Work.

Construction Phase has the meaning set forth in Section 2.2.5 of the Technical Provisions.

Construction Phasing Plan has the meaning set forth in Section 2.2.5 of the Technical Provisions.

Construction Quality Assurance Firm (CQAF) is a firm hired by the Lead Contractor to perform construction inspection, testing and sampling as further defined in Section 2.3.9 and Attachment 2-1 of Volume 3. The CQAF and DB Team shall follow the Construction Quality Assurance Program (CQAP) in Attachment 2-2 of Volume 3.

Construction Quality Assurance Program (CQAP) has the meaning set forth in Attachment 2-2 of Volume 3.

Construction Work means all portions of the all Work necessary to build or construct, make, form, manufacture, furnish, install, supply, deliver or equip the Project and/or the Utility Adjustments. Construction Work includes landscaping.

Contract means any agreement, and any supplement or amendment thereto, by either (a) Design-Build Team with any other Person or Contractor, or (b) any Contractor with any Person or Subcontractor, to perform any part of the Work or provide any materials, equipment or supplies for any part of the Work, or any such agreement, supplement or amendment at a lower tier, between a Subcontractor and its lower tier sub-subcontractor or supplier. The term "Contract" excludes Utility Agreements and any agreement with SRTA or GDOT.

Contract Item Agreement (CIA) means an Agreement used for including Utility work in the Department's project and performed by the Department's Contractor awarded by competitive bid.

Contract Sum means the lump sum amount identified in the Agreement (preceding signatures under Article 24).

Contract Time means the time period provided for Design-Build Team's completion of the Work as provided in Article 3.3.1 of the Agreement.

Contractor means any Person, including any Subcontractor with whom Design-Build Team has entered into any Contract to perform any part of the Work or provide any materials, equipment or supplies for the Project and/or the Utility Adjustments included in the Construction Work, on behalf of Design-Build Team. The term "Contractor" excludes SRTA and GDOT.

Cost to Cure means an appraisal method applied to estimate a proper adjustment for damages to a property that can be physically and economically corrected, as described in further detail in the GDOT ROW Manual.

Critical Path means the sequence of activities that must be completed on schedule for the entire Project to be completed on in accordance with the Milestone Deadlines. This is the longest duration path through the work plan, in terms of time, of logically connected activities on the Project Baseline Schedule ending with the relative Milestone Deadline in respect thereof.

CSC Host means the central computer system of SRTA or its contractor that supports customer service center account management functions for the Project.

Customer Groups means groups, Persons and entities having a perceived stake or interest in the Project, including: the media, elected officials, Governmental Entities, general public residing or working within the general vicinity of the Project or traveling within or across the limits of the Project, business owners within or adjacent to the Project corridor, Utility Owners, railroads, transportation authorities and providers, community groups, local groups (neighborhood

associations, business groups, chambers of commerce, convention and visitors bureaus, contractors, etc.) and other Persons or entities affected by the Project, including those identified in Section 3.2 of the Technical Provisions.

Customer Service Center (CSC) means the facility used to service Users, including a database system that enables registration and maintenance of customer accounts.

Day or **day** means calendar day unless otherwise expressly specified.

DBE Performance Plan means Design-Build Team's plan for meeting the Disadvantaged Business Enterprises (DBE) participation goals set forth in Article 10.9.2 of the Agreement. The DBE Performance Plan is Exhibit 14 to the Agreement.

Decent, Safe and Sanitary (DSS) means the condition of a dwelling such that it meets applicable housing and occupancy codes.

Default Interest Rate means the statutory interest rate applicable to SRTA for contract payment defaults.

Default Termination Event means each of the Design-Build Team Defaults listed in Article 19.3.1 of the Agreement.

Defect means any Work that does not otherwise conform with the DB Documents, or otherwise is a defect, whether by design, construction, installation, affecting the condition, use, functionality or operation of any portion of the Work which, ordinary wear and tear excepted, would cause or have the potential to cause one or more of the following:

(a) a hazard, nuisance or other risk to public or worker health or safety, including the health and safety of Users;

(b) a structural deterioration of the affected Element or any other part of the Project;

(c) damage to a third party's property or equipment;

(d) damage to the Environment;

(e) failure of the affected Element or any other part of the Project to meet a Performance Requirement; or

(f) failure of an Element to meet the Target for a measurement record as set forth in the columns headed "Target" and "Measurement Record" in the Performance and Measurement Table Baseline.

Design-Build Agreement, DB Agreement, DBA - see definition for Agreement.

Design-Build Contract Sum or **DB Contract Sum** means the total Contract Sum to be paid to Design-Build Team on account of the fully and properly performed Work as set forth in the Agreement, as adjusted pursuant to Supplemental Agreements (including to reflect adjustments for Compensation Events or Change Orders as provided in the Agreement), including without limitation all of Design-Build Team's profit, fees, financing costs and interest expense for Design-Build Team Debt, all costs of work and services, materials, equipment, supplies, general

conditions costs, overhead and administrative expenses, professional fees and subconsultant costs, acquisition and other costs associated with acquisition of any Approved Properties, insurance and bond premiums, sales taxes, assessments, tariffs, permit, license and registration fees, and all other related costs and expenses.

Design-Build Documents or **DB Documents** means those documents as set forth in Article 1.2 of the Agreement and all such other agreements entered into by SRTA and Design-Build Team or any Design-Build Team-Related Entity, or otherwise executed by Design-Build Team or a Design-Build Team-Related Entity and delivered to SRTA, with respect to or in connection with this Agreement, including without limitation Supplemental Agreements.

Design-Build Period means the period commencing with NTP 1 and ending when Design-Build Team achieves Final Acceptance.

Design-Build Team or **DB Team** means the party identified as such in the opening paragraph of this Agreement, together with its permitted successors and assigns.

Design-Build Team Default or **DB Team Default** has the meaning set forth in Article 17.1.1 of the Agreement.

Design-Build Team's Interest or **DB Team's Interest** means all right, title, and interest of Design-Build Team in, to, under or derived from the Agreement and the other DB Documents.

Design-Build Team Proposed/ Design-Build Team Acquired Right of Way means Additional Properties, see Section 7 of the Technical Provisions.

Design-Build Team-Related Entities or **DB Team Team-Related Entities** means (a) Design-Build Team, (b) Design-Build Team's shareholders, partners, joint venture members and/or members, (c) the Contractor and all other Subcontractors (including Suppliers), (d) any other Persons performing any of the Work, (e) any other Persons for whom Design-Build Team may be legally or contractually responsible, and (f) the employees, agents, officers, directors, shareholders, representatives, consultants, successors and assign of any of the foregoing; provided, however, that neither SRTA nor GDOT shall be considered Design-Build Team-Related Entities.

Design-Build Team Release(s) of Hazardous Material or **DB Team Release(s) of Hazardous Material** means (a) Release(s) of Hazardous Material, or the exacerbation of any such release(s), attributable to the culpable actions, culpable omissions, negligence, willful misconduct, or breach of applicable Law or contract by any Design-Build Team-Related Entity; (b) Release(s) of Hazardous Materials arranged to be brought onto the Site or elsewhere by any Design-Build Team-Related Entity; regardless of cause, or (c) use, containment, storage, management, handling, transport and disposal of any Hazardous Materials by any Design-Build Team-Related Entity in violation of the requirements of the DB Documents or any applicable Law or Governmental Approval.

Design-Build Team Vehicle or **DB Team Vehicle** means any vehicle authorized by Design-Build Team performing construction, maintenance or operation of the Project, or other related activity.

Design Deviation means any deviation from criteria defined in the GDOT Design Policy Manual as a "guideline". Failure to adhere to the "10 Controlling Criteria" mandated by FHWA

and/or the GDOT Standard Design Criteria mandated by GDOT does not qualify as a Design Deviation.

Design Documents means all drawings (including plans, profiles, cross-sections, notes, elevations, typical sections, details and diagrams), specifications, reports, studies, calculations, electronic files, records and submittals necessary for, or related to, the design of the Project and/or the Utility Adjustments included in the Design Work and/or the Construction Work.

Design Speed means the speed used to determine the various geometric design features of the roadway.

Design Submittal Guide shall have the meaning set forth in Section 2.2.5 of the Technical Provisions.

Design Work means all Work of design, engineering or architecture for the Project or Utility Adjustments.

Deviation means any proposed or actual change, deviation, modification, alteration or exception from this Agreement, the Technical Provisions, Technical Documents or Governmental Approvals.

Directive Letter means the letter described in Article 13.1 of the Agreement.

Disadvantaged Business Enterprise or **DBE** has the meaning set forth 49 CFR 23 and further described in Attachment 6 to Exhibit 8 to the Agreement.

Discipline Groups has the meaning set forth in Section 3.6.10 of the Technical Provisions.

Discriminatory or **Discriminatory Action** means (a) materially more onerous application to Design-Build Team or the Project of changes or additions to Technical Provisions or Technical Documents than the application thereof to other Comparable Limited Access Highways, or (b) selective application of changes or additions to Technical Provisions or Technical Documents to Design-Build Team or the Project and not to other Comparable Limited Access Highways. Notwithstanding the foregoing, the following actions are not Discriminatory or Discriminatory Actions: (i) any such application in response to any act or omission by or on behalf of Design-Build Team in violation of Law or the DB Documents; (ii) Safety Compliance; (iii) any such application in response to a directive by the U.S. Department of Homeland Security or comparable State agency, unless such directive is directed solely at or solely affects the Project and such application requires specific changes in Design-Build Team's normal design, construction, operation or maintenance procedures in order to comply; and (iv) any other actions necessary to address potential safety concerns arising from a specific condition or feature peculiar to the Project.

Dispute means any claim, dispute, disagreement or controversy between SRTA and Design-Build Team concerning their respective rights and obligations under the DB Documents, including concerning any alleged breach or failure to perform and remedies.

Dispute Resolution Procedures means the procedures for resolving Disputes set forth in Article 17.7 of the Agreement.

Early Adjustment means a Utility identified as such in Section 6 of the Volume 2.

Early Portions of the Work means those usable portions of the General Purpose lanes, which should be opened so that they are contiguous; each of which must be completed within the Interim Completion Deadline identified in Exhibit 9 to the Agreement.

Early Termination Date means the effective date of termination of the Agreement for any reason prior to the stated expiration Final Acceptance Deadline, as specified in the relevant provisions of Article 19.

Effective Date means the date of the Agreement or such other date as shall be mutually agreed upon in writing by SRTA and Design-Build Team.

Electronic Toll Collection System or **ETCS** means the electronic toll collection system used for the collection of tolls based on the automatic identification and classification of vehicles using electronic systems, including its components, systems and subsystems, the hardware and physical infrastructure, and the software to be incorporated into the Project.

Element means an individual component, system or subsystem of the Work.

Emergency means an unforeseen event affecting the Project whether directly or indirectly which (a) causes or has the potential to cause disruption to the free flow of traffic on the Project or a threat to the safety of the public; (b) is an immediate or imminent threat to the long term integrity of any part of the infrastructure of the Project, to the Environment, to property adjacent to the Project or to the safety of Users or the traveling public; or (c) is recognized by the Georgia Department of Public Safety as an emergency.

Engineer of Record means a Professional Engineer as defined in this Exhibit 1 on the Design-Build Team who is responsible and liable for the adequacy and safety of the design. This individual will sign and seal the Released for Construction plans, as well as revisions on construction and shop drawings.

Environment means air, soils, surface waters, groundwater, land, stream sediments, surface or subsurface strata, biological resources, including endangered, threatened and sensitive species, natural systems, including ecosystems, and historic, archeological and paleontological resources.

Environmental Approvals (also Environmental Document Approvals) means all Governmental Approvals arising from or required by any Environmental Law in connection with development of the Project, including approvals and permits required under NEPA/GEPA.

Environmental Commitment (also Environmental Permits, Issues and Commitments) means an environmental requirement that must be fulfilled before, during or after construction. Environmental Commitments include commitments to avoid impacts in specified areas, complete environmental investigations before construction impacts, or to perform specified actions after completion of construction.

Environmental Documents means all required documents and submittals pertaining to either federal or state laws and permits which are necessary to complete the Project. This may include but not be limited to NEPA, GEPA, and/or other state and federal environmental laws.

Environmental Law means any Law applicable to the Project or the Work regulating or imposing liability or standards of conduct that pertains to the Environment, Hazardous Materials, contamination of any type whatsoever, or environmental health and safety matters, and any lawful requirements and standards that pertain to the Environment, Hazardous Materials, contamination of any type whatsoever, or environmental health and safety matters, set forth in any permits, licenses, approvals, plans, rules, regulations or ordinances adopted, or other criteria and guidelines promulgated, pursuant to Laws applicable to the Project or the Work, as such have been or are amended, modified, or supplemented from time to time (including any present and future amendments thereto and reauthorizations thereof) including those relating to:

(a) The manufacture, processing, use, distribution, existence, treatment, storage, disposal, generation, and transportation of Hazardous Materials;

(b) Air, soil, surface and subsurface strata, stream sediments, surface water, and groundwater;

(c) Releases of Hazardous Materials;

(d) Protection of wildlife, Threatened or Endangered Species, sensitive species, wetlands, water courses and water bodies, historical, archeological, and paleontological resources, vegetative buffers, and natural resources;

(e) The operation and closure of underground storage tanks;

(f) and safety of employees and other persons; and

(g) Notification, documentation, and record keeping requirements relating to the foregoing.

Without limiting the above, the term “Environmental Laws” shall also include the following:

(i) The National Environmental Policy Act (42 U.S.C. §§ 4321 *et seq.*), as amended;

(ii) The Georgia Environmental Policy Act (Section 12-16-1, et seq. of the Official Code of Georgia Annotated), as amended;

(iii) State species laws, including Georgia Endangered Wildlife Act and/or, Georgia Wildflower Preservation Act;

(iv) The Comprehensive Environmental Response, Compensation, and Liability Act (42 U.S.C. §§ 9601 *et seq.*), as amended;

(v) The Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act (42 U.S.C. §§ 6901 *et seq.*);

(vi) The Emergency Planning and Community Right to Know Act of 1986 (42 U.S.C. §§ 11001 *et seq.*), as amended;

(vii) The Clean Air Act (42 U.S.C. §§ 7401 *et seq.*), as amended;

(viii) The Federal Water Pollution Control Act, as amended by the Clean Water Act (33 U.S.C. §§ 1251 *et seq.*);

(ix) The Resource Conservation and Recovery Act (42 U.S.C. §§ 6901, *et seq.*), as amended;

(x) The Toxic Substances Control Act (15 U.S.C. §§ 2601 *et seq.*), as amended;

(xi) The Hazardous Materials Transportation Act (49 U.S.C. §§ 1801 *et seq.*), as amended;

(xii) The Oil Pollution Act (33 U.S.C. §§ 2701, *et. seq.*), as amended;

(xiii) The Federal Insecticide, Fungicide and Rodenticide Act (7 U.S.C. §§ 136 *et seq.*), as amended;

(xiv) The Federal Safe Drinking Water Act (42 U.S.C. §§ 300 *et seq.*), as amended;

(xv) The Federal Radon and Indoor Air Quality Research Act (42 U.S.C. §§ 7401 *et seq.*), as amended;

(xvi) The Occupational Safety and Health Act (29 U.S.C. §§ 651 *et seq.*);

(xvii) The Endangered Species Act (16 U.S.C. §§ 1531 *et seq.*), as amended;

(xviii) The Fish and Wildlife Coordination Act (16 U.S.C. §§ 661 *et seq.*), as amended;

(xix) The National Historic Preservation Act (16 U.S.C. §§ 470 *et seq.*), as amended;

(xx) The Coastal Zone Management Act (33 U.S.C. §§ 1451 *et seq.*), as amended;

(xxi) Georgia Water Quality Act (O.C.G.A. § 12-5-20);

(xxii) Georgia Erosion and Sedimentation Act (O.C.G.A. § 12-7-1), as amended;

(xxiii) Best Management Practices (O.C.G.A. § 12-7-6(b)(15)); and

(xxiv) Georgia Underground Storage Act (O.C.G.A. § 12-13-1)).

Escrow Agent has the meaning set forth in Exhibit 24 of the Agreement.

Evaluation Score means the numerical score resulting from the adjectival evaluation and numerical conversion of a particular portion of the Proposals.

Exhibits means all exhibits, riders, and other attachments to the DB Documents, including without limitation Volume 1, Volume 2, and Volume 3, as well as, any of the aforementioned, which are incorporated into any DB Documents by reference, and all amendments, modifications, and supplements thereto.

Existing Improvements means the existing highway, bridge, and related improvements as of the date that is ninety (90) days prior to the Proposal Due Date within the Construction Maintenance Limits.

Existing Right of Way or **Existing ROW** means any real property (which term is inclusive of all estates and interests in real property), improvements and fixtures (i) as provided in Article

2.2 of the Agreement and more specifically described and identified as "Existing ROW" within Exhibit 4, in which SRTA has a leasehold estate and interest pursuant to the Estate for Years or other property right or interest, and (ii) any Proposed Right of Way, which SRTA or GDOT at any time after the Effective Date, shall acquire a leasehold estate or other property interest. The term specifically includes all air space, surface rights and subsurface rights within the limits of the Existing Right of Way.

Existing Utility Property Interest means any right, title or interest in real property (e.g., a fee or an easement) claimed by a Utility Owner as the source of its right to maintain an existing Utility in such real property, which is compensable in eminent domain.

Federal Requirements means the provisions required to be part of federal-aid construction contracts, including the provisions set forth in Exhibit 8 to the Agreement.

Final Acceptance means the occurrence of all the events and satisfaction of all the conditions set forth in Article 7.7.3 of the Agreement, as and when confirmed by SRTA's issuance of a certificate in accordance with the procedures and within the timeframe established in Article 7.7.3 of the Agreement.

Final Acceptance Date means the date upon which Design-Build Team has satisfied all conditions of and for Final Acceptance and SRTA has certified same.

Final Acceptance Deadline means the deadline for achieving Final Acceptance, as set forth in the Milestone Schedule, as such deadline may be extended for any Relief Event or Change Order as and to extend provided in the Agreement.

Final Design shall have the meaning set forth in Article 3.3.1.2 of the Agreement.

Final Plans means the Design Documents which provide the complete and final documents necessary for the construction, operations, and maintenance of the Project or any portion thereof including any Utility Adjustments required by the Project.

Final ROW Lines means the final location of all Right of Way within the project limits.

Fiscal Year means the twelve (12) month fiscal year used by SRTA for budgeting purposes.

Float means the amount of time that any given activity or logically connected sequence of activities shown on the Preliminary Baseline Schedule and Project Baseline Schedule, as the case may be, may be delayed before it will affect completion of any Work as required to achieve any Milestone Schedule Deadline, including the Substantial Completion Deadline and Final Acceptance Deadline.

Force Majeure Event means the occurrence of any of the following events that materially and adversely affects performance of Design-Build Team's obligations, provided that such events (or the effects of such events) could not have been avoided by the exercise of caution, due diligence, or reasonable efforts by Design-Build Team: (a) war (including civil war and revolution), invasion, armed conflict, violent act of foreign enemy, military or armed blockade, or military or armed takeover of the Project, in each case occurring within the State; (b) any act of terrorism or sabotage that causes direct physical damage to the Project; (c) nuclear explosion or contamination, in each case occurring within the State; (d) riot and civil commotion on or in the

immediate vicinity of the Project; (e) fire, explosion, flood, earthquake, hurricane, or tornado, in each case that causes direct physical damage to the Project; or (f) national or statewide (i.e. State of Georgia) strike that has a direct adverse impact on Design-Build Team's ability to obtain materials, equipment or labor for the Project.

Formal Consultation means during Section 7 Consultation (Endangered Species Act) that a Federal agency determines, through a biological assessment or other review, that its action is likely to adversely affect a listed species.

GDOT means the Georgia Department of Transportation, as set forth in the recitals of the Agreement, and any entity succeeding to the powers, authorities and responsibilities of GDOT invoked by or under the DB Documents.

GDOT Standard Specifications means the Georgia Department of Transportation Standard Specifications, Construction of Transportation Systems.

General Purpose Lanes means Limited Access Highway lanes within the Existing Right of Way other than the Managed Lanes.

Geotechnical Engineering Reports means the reports which meet the requirements described in Section 8.2 of the Technical Provisions.

GEPA means the Georgia Environmental Policy Act, as amended and as it may be amended from time to time.

GEPA Approval means the (a) GEPA document as approved by Georgia DOT including any studies, reports, Environmental Commitments, and all other procedural requirements and documents required for the Project or a portion of the Project, as (b) may be modified pursuant to all Georgia EPD, USACE, USFWS approvals, and approved supplements and re-evaluations pertaining to the Project.

Good Industry Practice means the exercise of the degree of skill, diligence, prudence and foresight which would reasonably and ordinarily be expected from time to time from a skilled and experienced designer, engineer, or constructor, seeking in good faith to comply with its contractual obligations, complying with the DB Documents, all applicable Laws and Governmental Approvals, and engaged in the same type of undertaking in the United States under similar circumstances and conditions.

Governmental Approval means any permit, license, consent, concession, grant, franchise, authorization, waiver, variance or other approval, guidance, protocol, mitigation agreement, special provision, or memoranda of agreement/understanding, and any amendment or modification of any of them provided by Governmental Entities including State, local, or federal regulatory agencies, agents, or employees, which authorize or pertain to the Project or the Work.

Governmental Entity means any federal, State or local government and any political subdivision or any governmental, quasi-governmental, judicial, public or statutory instrumentality, administrative agency, authority, body or entity other than SRTA and GDOT.

Guarantor means any Person that is the obligor under any guaranty in favor of SRTA or GDOT required under the Agreement, including any Design-Build Guaranty.

Hazardous Materials means any element, chemical, compound, material or substance, whether solid, liquid or gaseous, which at any time is defined, listed, classified or otherwise regulated in any way under any Environmental Laws, or any other such substances or conditions (including mold and other mycotoxins or fungi) which may create any unsafe or hazardous condition or pose any threat to human health and safety. "Hazardous Materials" includes the following:

(a) Hazardous wastes, hazardous material, hazardous substances, hazardous constituents, and toxic substances or related materials, whether solid, liquid, or gas, including substances defined as or included in the definition of "hazardous substance", "hazardous waste", "hazardous material", "extremely hazardous waste", "acutely hazardous waste", "radioactive waste", "radioactive materials", "bio-hazardous waste", "pollutant", "toxic pollutant", "contaminant", "restricted hazardous waste", "infectious waste", "toxic substance", "toxic waste", "toxic material", or any other term or expression intended to define, list or classify substances by reason of properties harmful to health, safety or the indoor or outdoor environment (including harmful properties such as ignitability, corrosivity, reactivity, carcinogenicity, toxicity, reproductive toxicity, "TCLP" toxicity" or "EP toxicity" or words of similar import under any applicable Environmental Laws);

(b) Any petroleum, including crude oil and any fraction thereof, and including any refined petroleum product or any additive thereto or fraction thereof or other petroleum derived substance; and any waste oil or waste petroleum byproduct or fraction thereof or additive thereto;

(c) Any drilling fluids, produced waters and other wastes associated with the exploration, development or production of crude oil, natural gas or geothermal resources;

(d) Any flammable substances or explosives;

(e) Any radioactive materials;

(f) Any asbestos or asbestos-containing materials;

(g) Any lead and lead-based paint;

(h) Any radon or radon gas;

(i) Any methane gas or similar gaseous materials;

(j) Any urea formaldehyde foam insulation;

(k) Electrical equipment which contains any oil or dielectric fluid containing regulated levels of polychlorinated biphenyls;

(l) Pesticides;

(m) Any other chemical, material or substance, exposure to which is prohibited, limited or regulated by any Governmental Entity or which may or could pose a hazard to the health and safety of the owners, operators, Users or any Persons in the vicinity of the Project or to the indoor or outdoor Environment; and

(n) Soil, or surface water or ground water, contaminated with Hazardous Materials as defined above.

Hazardous Materials Management means procedures, practices and activities to address and comply with Environmental Laws and Environmental Approvals with respect to Hazardous Materials encountered, impacted, caused by or occurring in connection with the Project or the Work, as well as investigation and remediation of such Hazardous Materials. Hazardous Materials Management may include sampling, stock-piling, storage, backfilling in place, asphalt batching, recycling, treatment, clean-up, remediation, transportation and/or off-site disposal of Hazardous Materials, whichever approach is effective, most cost-efficient and authorized under applicable Law.

Highway means a travel way for vehicular traffic that is included in the State or federal highway system.

Highway Service Systems means SRTA's, GDOT's or a Governmental Entity's lighting and electrical systems, traffic control systems, communications systems and irrigation systems serving street or highway purposes (including ITS and Intelligent Vehicle Highway System facilities).

Historic Property means any prehistoric or historic district, site, building, structure or object included in, or eligible for inclusion in, either the National Register of Historic Places or the Georgia Register of Historic Places.

High Occupancy Vehicle (HOV) means a passenger vehicle carrying a legally specified minimum number of passengers. HOVs include carpools, vanpools, motorcycles and buses.

Immigration Act means the Georgia Immigration & Compliance Act, O.C.G.A. § 13-10-90, *et seq.* as set forth in Article 10.6.4 of the Agreement.

Incident means any unplanned event during the course of construction.

Incident Management Plan means Design-Build Team's plan for detection and response to Incidents or Emergencies, as part of the PMP.

Indemnified Parties means SRTA, GDOT, the State, the State Transportation Board, and their respective successors, assigns, officeholders, officers, directors, commissioners, agents, representatives, consultants and employees. Indemnified Party shall mean any of the aforementioned.

Informal Consultation means during Section 7 Consultation (Endangered Species Act) that a Federal agency determines that its action may affect a listed species.

Instructions to Proposers (**ITP**) means the document that provides instructions to be followed by Proposers in their responses to the RFP.

Insurance Policies means all of the insurance policies Design-Build Team is required to carry pursuant to Article 16.1 of the Agreement.

Intellectual Property means all current and future legal and/or equitable rights and interests in know-how, patents (including applications), copyrights (including moral rights),

trademarks (registered and unregistered), service marks, trade secrets, designs (registered and unregistered), utility models, circuit layouts, plant varieties, business and domain names, inventions, solutions embodied in technology, and other intellectual activity, and applications of or for any of the foregoing, subsisting in or relating to the Project, Project design data or Project traffic data. Intellectual Property includes toll-setting and traffic management algorithms, and software used in connection with the Project (including but not limited to software used for management of traffic on the Project), and Source Code. Intellectual Property also includes the trade secret information contained in proprietary pricing information. Intellectual Property is distinguished from physical construction and equipment itself and from drawings, plans, specifications, layouts, depictions, manuals and other documentation that disclose Intellectual Property.

Intelligent Transportation System (ITS) has the meaning set forth in Section 17 of the Technical Provisions.

Intelligent Vehicle Highway System (IVHS) means smart vehicle and smart highway technologies to improve the safety, efficiency and environmental impact of highway facilities.

Interim Completion means satisfaction of the criteria for opening an Early Portion of the Work so that it is safe to open to the traveling public.

Interim Completion Date means the date upon which Design-Build Team has satisfied all conditions for opening an Early Portion of the Work so that it is safe to open to the traveling public.

Interim Completion Deadline means the deadline and required date for each of the Early Portions of the Work, which portions are shown in Exhibit 2 to the Agreement, Interim Completion Deadlines are set forth in the Milestone Schedule shown on Exhibit 9 to the Agreement, as such deadline(s) may be extended for Relief Events pursuant to the Agreement.

Interim Design means any submittal of Design Documents after the Preliminary Plans have been accepted but prior to submittal of Final Plans for the entire Project or any approved Project segment. Interim Designs are intended to resolve conflicts and unresolved comments from the Preliminary Plans submittal.

Joint Project Inspection has the meaning set forth in Section 2.1.6 of the Technical Provisions.

Key Contract means any one of the following Contracts for Work that Design-Build Team or Design-Build Team's Contractor's causes to be performed:

(a) All prime construction Contracts;

(b) All project or program management services, architectural design, or engineering Contracts; and

(c) All other Contracts with a single Contractor or Subcontractor which individually or in the aggregate total in excess of $25 million.

Key Contractor means any Contractor or Subcontractor, as the case may be, under any Key Contract.

Key Personnel or **Key Team Members** means those individuals appointed by Design-Build Team and approved by SRTA from time to time to fill the "Key Personnel" positions. The specific individuals appointed by Design-Build Team and approved by SRTA to initially fill certain of the Key Personnel positions are identified in Exhibit 2 to the Agreement.

Landscape Enhancement Plan has the meaning set forth in Section 15.3.1 of the Technical Provisions.

Law or **Laws** means (a) any statute, law, code, regulation, ordinance, rule or common law, (b) any binding judgment (other than regarding a Dispute), (c) any binding judicial or administrative order or decree (other than regarding a Dispute), (d) any written directive, guideline, policy requirement or other governmental restriction (including those resulting from the initiative or referendum process, but excluding those by SRTA and GDOT within the scope of its administration of the DB Documents or in the normal course of its adoption of new or revised technical standards pursuant to Article 7.2.5 of the Agreement) or (e) any similar form of decision of or determination by, or any written interpretation or administration of any of the foregoing by, any Governmental Entity, in each case which is applicable to or has an impact on the Project or the Work, whether taking effect before or after the Effective Date, including Environmental Laws. "Laws", however, excludes Governmental Approvals.

Lead Contractor shall mean the entity designated as a Proposer's "Lead Contractor" in its SOQ. There may only be one Lead Contractor per Proposer team.

Lead Engineering Firm shall mean the entity designated as a Proposer's "Lead Engineering Firm" in its SOQ. There may only be one Lead Engineering Firm per Proposer team.

Line or **line** means, in the context of Utilities or Highway Service Systems, a line, pipeline, conduit or cable used for utility purposes, including underground, surface or overhead facilities.

Liquidated Damages means such liquidated damages as may accrue and be due and payable by Design-Build Team to SRTA as set forth under Article 17.4 of the Agreement and as set forth under Exhibit 18 thereto.

Loss or **Losses** means any loss, damage, injury, liability, obligation, cost, response cost, expense (including attorneys', accountants' and expert witnesses' fees and expenses (including those incurred in connection with the enforcement of any indemnity or other provision of the Agreement)), fee, charge, judgment, penalty or fine. Losses include injury to or death of persons, damage or loss of property, and harm or damage to natural resources.

Major Culvert means a culvert that provides an opening of more than 35 square feet in a single or multiple installations. A Major Culvert may consist of a single round pipe, pipe arch, open or closed-bottom box, bottomless arch, or multiple installations of these structures placed adjacent or contiguous as a unit. Certain Major Culverts are classified as bridges when they provide an opening of more than 20 feet, measured parallel to the roadway; such culverts may be included in the bridge inventory.

Major Non-Participating Member means a Proposer's Lead Contractor and Lead Engineering Firm. If any of these entities qualify as a Participating Member, then that entity shall not be treated as a Major Non-Participating Member. Major Non-Participating Members are not considered Contractors to Proposer regardless of their role in the performance of Project-related services.

Major River Crossing means a crossing with a 100-year storm event flow in excess of 10,000 cubic feet per second (cfs).

Managed Lanes means Limited Access Highway lanes located within the Property that increase traffic efficiency by using various design and operational strategies (including congestion priced tolls), including the Electronic Toll Collection System for such lanes.

Management Plans means all of the management plans identified in Section 2 of the Technical Provisions.

Maximum Payment Curve means a cost-loaded Project Baseline Schedule. Acceptance of the Maximum Payment Curve is a pre-condition to issuance of NTP 3.

Memorandum of Understanding (MOU) means a formal agreement between SRTA and/or GDOT and one or more agencies, organizations or providers.

Milestone Deadline shall have the same meaning as any Milestone Schedule Deadline.

Milestone Schedule means the schedule of deadlines set forth in Exhibit 9 to the Agreement, as may be adjusted upon approval of the Project Baseline Schedule as set forth in Article 3.3 of the Agreement and as may be further adjusted pursuant to any Supplemental Agreement, including on account of any Relief Events.

Minor Culvert means any culvert not classified as a Major Culvert.

Mobilization means Work to establish and remove offices, plants, and facilities; and to move personnel, equipment, and supplies to and from the Project site to begin Work or complete Work.

NaviGAtor Contractor means that certain Separate Contractor engaged by GDOT to provide the NaviGAtor System to be included and integrated into the ITS to be incorporated into the Project, if such system is identified in Section 17 of the Technical Provisions to be incorporated into the Project.

NaviGAtor System means the "NaviGAtor" advanced transportation management system to be included as a part of the ITS as set forth pursuant to Section 17.1.3 of the Technical Provisions.

NaviGAtor Work means the work to be provided by the NaviGAtor Contractor, coordinated with the Work, for completion of the NaviGAtor System for the Project.

NEPA means the National Environmental Policy Act, 42 U.S.C. § 4321 *et seq.*, as amended and as it may be amended from time to time.

NEPA Approval means the (a) NEPA document as approved by FHWA including any studies, reports, Environmental Commitments, and all other procedural requirements and documents required for FHWA approval for the Project or a portion of the Project, as (b) may be modified pursuant to all approved supplements and re-evaluations pertaining to the Project.

NEPA Finality Date means the date NEPA Approval becomes final and non-appealable and the federal statute of limitations for commencing legal action to challenge the validity of any NEPA Approval has expired.

Nonconforming Work means Work that does not conform to the requirements of the DB Documents, the Governmental Approvals, applicable Law or the Design Documents.

Notice of Termination for Convenience means written notice issued by SRTA to Design-Build Team terminating the Agreement in whole or in part for convenience.

NTP means a written notice issued by SRTA to Design-Build Team authorizing Design-Build Team to proceed with the portion or phase of the Work as being designated as subject to such notice to proceed in the Preliminary Baseline Schedule, the Project Baseline Schedule, or otherwise in the Agreement Documents, including without limitation NTP 1, NTP 2, and NTP 3.

NTP 1 means a written notice issued by SRTA to Design-Build Team authorizing Design-Build Team to proceed with the portion of the Work described in Article 3.3.1.1 of the Agreement.

NTP 1 Conditions Deadline means the outside date set forth in the Milestone Schedule (or the Project Baseline Schedule as to the extent such outside date is adjusted thereby) by which Design-Build Team is obligated under the Agreement to satisfy all conditions to issuance of NTP 1, as such deadline may be extended for Relief Events from time to time pursuant to the Agreement.

NTP 2 means a written notice issued by SRTA to Design-Build Team authorizing Design-Build Team to proceed with the portion of the Work described in Article 3.3.1.2 of the Agreement.

NTP 2 Conditions Deadline means the outside date set forth in the Milestone Schedule (or the Project Baseline Schedule as to the extent such outside date is adjusted thereby) by which Design-Build Team is obligated under the Agreement to satisfy all conditions to issuance of NTP 2, as such deadline may be extended for Relief Events from time to time pursuant to the Agreement.

NTP 3 means a written notice issued by SRTA to Design-Build Team pursuant to Article 3.3.1.3 of the Agreement authorizing Design-Build Team to proceed with the remaining Work and other activities pertaining to the Project.

NTP 3 Conditions Deadline means the outside date set forth in the Milestone Schedule (or the Project Baseline Schedule as to the extent such outside date is adjusted thereby) by which Design-Build Team is obligated under the Agreement to satisfy all conditions to issuance of NTP 3, as such deadline may be extended for Relief Events from time to time pursuant to the Agreement.

Open Book Basis means allowing the relevant Party to review all underlying assumptions and data associated with the issue in question, including, but not limited to, assumptions as to costs of the Work, schedule, composition of equipment spreads, equipment rates, labor rates, productivity, estimating factors, design and productivity allowance, contingency and indirect costs, risk pricing, discount rates, interest rates, inflation and deflation rates, and other items reasonably required by the relevant Party.

Open Government Laws mean, collectively, the Georgia Open Records Act, Ga. Code Ann. §§ 50-18-70 *et seq.*, Section 32-2-80(a)(40) of the Code and Section 672-17.06 of the Rules, as amended from time to time.

Open Road Toll (ORT) means toll collection conducted (a) exclusively via vehicle identification with transponders and/or video capture of the license plate and (b) in an open multilane free-flow highway environment with no constraints on speed, vehicle type or vehicle location.

Optical Character Recognition (OCR) means the process of converting an image to text.

Owner Verification Tests (OVT) means the material tests performed in accordance with the applicable GDOT test method to verify the accuracy of the tests performed by Design-Build Team and pursuant to the approved Quality Management Plan to ensure that only materials of specified quality or better are accepted and incorporated into the Project.

P&P Bonds or Performance and Payment Bonds means the bonds meeting the requirements of Article 16.2.1 of the Agreement.

P&P Obligor means the Person identified as the obligor or account party in the P&P Bonds, as applicable.

Participating Agency means a public, quasi-public, or private agency that has agreed to cooperate with and assist Design-Build Team during an Emergency.

Participating Member means (a) if the Proposer is a joint venture, partnership, or limited liability company, each member of the joint venture, partnership or limited liability company; or (b) if the Proposer is a corporation or other corporate entity, the Proposer.

Party means Design-Build Team or SRTA, as the context may require, and "**Parties**" means Design-Build Team and SRTA, collectively.

Payment Activity means completion of an Element of the Work for which payment on account of the DB Contract Sum shall be due, subject to the terms of this Agreement and as follows:

(a) The first Payment Request (after NTP 1) may include the Payment and Performance Bond amounts, and may include up to 25% of the amount for Mobilization set forth in the Proposal;

(b) The first Payment Request (after NTP 3) may include up to 50% of the amount for Mobilization set forth in the Proposal, minus any previous payments;

(c) After 5% of the construction cost set forth in the approved Schedule of Values is incurred, the next Payment Request may include up to 100% of the amount of Mobilization set forth in the Proposal, minus any previous payments;

(d) Design-Build Team's indirect costs such as administration, contingencies, site cleanup and maintenance, access, off site access roads and security costs related to design-build costs shall be prorated through all Payment Activities.

Payment for Work Product means the partial compensation to be paid to Design-Build Team as described in Form N to the ITP.

Payment Request means the request for payment on account of the Work all in accordance with the terms and conditions set forth in GDOT Standard Specification 109.03.

Permanent Works are permanent structures and parts thereof required of the completed DB Documents.

Permitted Design Exceptions means design exceptions identified in Section 11.2 of the Technical Provisions that are allowed to be implemented on the Project.

Person means any individual, corporation, joint venture, limited liability company, company, voluntary association, partnership, trust, unincorporated organization, Governmental Entity, SRTA or GDOT.

Phase 1 Hazardous Materials Investigation means an environmental assessment conducted in accordance with the DB Documents and ASTM E-1527-05, or any future revision or replacement thereof, to identify Recognized Environmental Conditions and potential Recognized Environmental Conditions.

Plans means (only where capitalized) contract drawings, working drawings, supplemental drawings, detail sheets or exact reproductions thereof, which show the location, character, dimensions and details of the Construction Work to be done.

Pre-existing Hazardous Materials means Hazardous Materials that meet all the following criteria:

(a) The Hazardous Materials are in, on or under the Right of Way as of the date SRTA or GDOT makes available to Design-Build Team the affected parcel; or

(b) The Hazardous Materials are not located in, on or under any Project Specific Locations or Additional Properties, except Additional Properties required due to GDOT Changes (including GDOT Changes regarding the initial construction).

For purposes of determining whether Hazardous Materials were in, on or under the Right of Way or any Additional Properties required by SRTA or GDOT to be included in the Property as a result of SRTA Changes, as of the date on which SRTA makes available to Design-Build Team the affected parcel, Design-Build Team shall have the burden of proof to demonstrate it was not a Design-Build Team Release of Hazardous Materials:

(i) As to any Hazardous Materials not identified as being present as of such date in the Phase 1 investigations of the Project conducted by GDOT prior to the Effective Date or any Phase 1 Hazardous Materials Investigation or Phase 2 Hazardous Materials Investigation supplementing the foregoing report prepared prior to the Effective Date; and

(ii) As to any Additional Properties required by SRTA or GDOT to be included in the Property as a result of SRTA Changes, any Phase 1 Hazardous Materials Investigation thereof prepared and delivered prior to the Effective Date.

For the purpose of this definition, "makes available" means:

(x) The Effective Date, except for parcels not yet acquired as of the Effective Date; and

(y) As to parcels not yet acquired as of the Effective Date and as to Additional Properties required by SRTA or GDOT to be included in the Property as a result of SRTA Changes, the date Design-Build Team first receives the right to take and maintain possession of the parcel for all purposes for the remainder of the Term in accordance with the DB Documents, including commencement of construction, as the result of SRTA's or GDOT's having secured title or right of possession by contract or title instrument or by a special commissioners' award through the eminent domain process or otherwise.

Preliminary Baseline Schedule means the high level, logic based, critical path schedule representing Design-Build Team's plan to complete performance of the Work beginning on the date of NTP 1 to Final Acceptance of the Work. The Preliminary Baseline Schedule shall not mean the Project Status Schedule Updates as set forth in Section 2.5 of the Technical Provisions, nor shall such Project Status Schedule Updates constitute revisions or amendments to the Preliminary Baseline Schedule.

Preliminary Plans means the Design Documents which provide the preliminary design necessary for the related to construction, operations, and maintenance of the entire Project including any Utility Adjustments required by the Project.

Presidential Disaster Declaration means a declaration of a major disaster by the President of the United States triggering assistance from FEMA pursuant to the Disaster Relief Act of 1974 (Pub.L. No. 93-288, as amended).

Price Proposal means the price component of the Proposal evaluation as described in the ITP.

Price Proposal Score means the score calculated in accordance with the Price Proposal formula as described in the ITP.

Principal Project Documents means the Security Instruments and the Design-Build Contract.

Professional Engineer means a person who is duly licensed and registered by the Georgia State Board of Registration for Professional Engineers and Land Surveyors to engage in the practice of engineering in the State of Georgia.

Professional Land Surveyor means a person registered by the Georgia State Board of Registration for Professional Engineers and Land Surveyors to practice the profession of land, boundary, or property surveying or other similar professional practices.

Project means the Project as defined in the RFP, that is the subject of this Agreement, and which shall include the transportation facilities and all related structures, and improvements, including integration of the ITS, and communications systems used in connection with operation of such transportation facilities, to be designed and constructed pursuant to the terms of the DB Documents.

Project Baseline Schedule shall have the meaning set forth in Section 2.5 of the Technical Provisions.

Project Extension means a linear addition to the original Project by Design-Build Team, including any at either terminus of the original Project and any linear improvement that interconnects with the original Project.

Project Information Coordinator means the person designated by Design-Build Team to manage Design-Build Team's public information activities as more particularly described in Section 2.7.3 of the Technical Provisions.

Project Manager means the individual designated by Design-Build Team and approved in writing by GDOT in the position to take full responsibility for the prosecution of the Work and will act as a single point of contact on all matters on behalf of Design-Build Team.

Project Schedule shall have the meaning set forth in Section 2.5 of the Technical Provisions.

Project Specific Locations means any additional temporary property interests or rights, other than ROW or Additional Properties, which are not contiguous to the Property, that Design-Build Team may require for performance of the Work, including for temporary activities in connection with the Construction Work, such as construction work sites, temporary work areas, staging areas, storage areas, and earthwork material borrow sites.

Project Status Schedule Update means the logic-based critical path schedule submitted monthly containing progress status and enabling comparison to the Project Baseline Schedule.

Property has the meaning set forth in Article 2.2.1 of the Agreement and shall include only such property as identified in the Environmental Document Approval.

Proposal has the meaning set forth in Recital K of the Agreement.

Proposal Bond means the security that Proposers submit to GDOT with their Proposals

Proposal Revisions has the meaning set forth in Section 5.4 of the ITP.

Proposal Schedule means the high level, logic based, critical path schedule submitted with the Proposal and is consistent with project milestones as shown in the Proposal; shows the general approach to the phasing and overall execution of the Work, and shows the proposed cost loading or proposed annual costs to be within the limits of the Annual Cumulative Payment Cap Schedule identified in Article 5.2, Table 5-1 of Volume 1.

Proposal Due Date means the deadline for submission of the Proposal to GDOT as defined in the ITP Section 1.4.

Proposed Right of Way or **Proposed ROW** means any real property (which term is inclusive of all estates and interests in real property), improvements and fixtures within the lines established in and designated as "Proposed ROW" within Exhibit 4 to the Agreement for which SRTA, GDOT or the Design-Build Team acting on behalf of GDOT, depending on the context, is obligated to provide access to Design-Build Team and/or acquire a leasehold estate or other similar property interest or rights pursuant to Article 2.2 of the Agreement. The term specifically

includes all air space, surface rights and subsurface rights within the limits of the Proposed Right of Way and specifically excludes any Additional Properties. All portions of the Proposed Right of Way, as and to the extent of any property interests in same acquired by SRTA or GDOT or the DB Team acting on behalf of GDOT, shall thereafter and without further amendment to Exhibit 4 be deemed Existing Right of Way.

Proposed Supplemental Agreement has the meaning set forth in Article 13 of the Agreement. means a submittal by the Design-Build Team for consideration for changes in the Work under Article 13 of the Agreement, including on account of any Relief Event Determination and/or Compensation Event Determination as set forth under Article 13.4 of the Agreement.

Proposer or **Proposers** has the meaning set forth in Section 1.1 in the ITP.

Proprietary Intellectual Property means Intellectual Property created, used, applied or reduced to practice in connection with the Project or the Work that derives commercial value from its protection as a trade secret under applicable Law or from its protection under patent law.

Protection in Place means any action taken to avoid damaging a Utility which does not involve removing or relocating that Utility, including staking the location of a Utility, exposing the Utility, avoidance of a Utility's location by construction equipment, installing steel plating or concrete slabs, encasement in concrete, temporarily de-energizing power lines, and installing physical barriers. The term includes both temporary measures and permanent installations meeting the foregoing definition.

Provided Approvals means the Governmental Approvals for the Project obtained or to be obtained by SRTA or GDOT, as specifically listed in Section 4.2 of the Technical Provisions (including any such approvals as may be required from GDOT independent of GDOT's Project administration pursuant to Article 6.2 of the Agreement).

Public Information and Communications Plan (PICP) has the meaning set forth in Section 2.7.2.1 of the Technical Provisions.

Punch List means an itemized list of Construction Work that remains to be completed following Substantial Completion but as a condition to Final Acceptance, provided that the nature of any such incomplete Work, and the correction and completion of same, will have no material or adverse effect on the normal and safe use and operation of the Project.

Punch List Period means the time provided for Design-Build Team's completion of Punch List Work, which shall be the time between Substantial Completion and Final Acceptance as provided in the Project Baseline Schedule.

QA means quality assurance or quality acceptance, depending on the context.

QA/QC means quality assurance and quality control.

Quality Management Plan (QMP) means the set of GDOT-approved plans for quality management and control of the Project and Work, as set forth in Section 2.3 of the Technical Provisions.

Quality Assurance Manager (QAM) means the individual retained by Design-Build Team as the Key Personnel with the authority and responsibility for ensuring establishment and

maintenance of, and compliance with, the Quality Management Plan. The Quality Assurance Manager shall be a Professional Engineer as defined in this Exhibit 1.

Quitclaim Deed means a quitclaim deed to be executed by a Utility Owner relinquishing its rights to maintain a Utility in a particular location, as more particularly described in Section 6.2.2 of the Technical Provisions.

Railroad Right of Entry Agreement has the meaning described in Section 14.3.1.3 of the Technical Provisions.

Recognized Environmental Condition has the meaning set forth in ASTM E-1527-00.

Record Drawings (also known as As-Builts, as-builts, or as-built drawings) means construction drawings and related documentation revised to show as-built changes to the Project at Final Acceptance. Interim marked-in-the-field or red-lined drawings to be provided during the progress of the Work as required pursuant to the Technical Provisions shall not constitute the final Record Drawings.

Reference Information Documents (RIDs) means the collection of information, data, documents and other materials that SRTA or GDOT has provided to Design-Build Team for general or reference information only.

Related Transportation Facility(ies) means all existing and future highways, streets and roads, including upgrades and expansions thereof, that is/are or will be adjacent to, connecting with or crossing under or over the Project, as specifically identified in the Technical Provisions.

Release for Construction or **RFC** means the written authorization by SRTA or GDOT to proceed with any designated phase of the Construction Work based on the accepted Final Plans.

Release of Hazardous Materials means any spill, leak, emission, release, discharge, injection, escape, leaching, dumping or disposal of Hazardous Materials into the soil, air, water, groundwater or environment, including any exacerbation of an existing release or condition of Hazardous Materials contamination.

Relief Event has the meaning set forth in Article 14.1.1 of the Agreement.

Relief Event Determination has the meaning set forth in Article 14.1.1 of the Agreement.

Relief Event Notice means the written notice required to be provided by Design-Build Team under Article 13.3.2 of the Agreement.

Replacement Housing Calculation means the opportunity to provide the displaced person with the financial assistance to purchase or rent and occupy a comparable replacement dwelling without involuntarily incurring additional financial means due to the displacement.

Replacement Utility Property Interest means any permanent right, title or interest in real property outside of the Property (e.g., a fee or an easement) that is acquired for a Utility being reinstalled in a new location as a part of the Utility Adjustment Work. The term specifically excludes any statutory right of occupancy or permit granted by a Governmental Entity for occupancy of its real property by a Utility.

Request for Change Proposal means a written notice issued by GDOT to Design-Build Team setting forth a proposed GDOT Change and requesting Design-Build Team's assessment of cost, and schedule impacts thereof, as set forth in Article 13.2.1 of the Agreement.

Request for Information (RFI) means a written request by the Design-Build Team to GDOT requesting clarification of the DB Document requirements.

Request for Proposals (RFP) means all documents, whether attached or incorporated by reference, utilized for soliciting proposals. The RFP is the only solicitation utilized by the Department in the One Phase Low Bid selection method. The RFP is the second phase utilized by the Department for the Two Phase Low Bid and Best Value selection methods.

Request for Qualifications (RFQ) means all documents, whether attached or incorporated by reference, utilized by the Department for soliciting interested Proposers to apply for prequalification including instruction for submitting a Statement of Qualification (SOQ), evaluation criteria and minimum qualifications required of a Design-Build Team. The RFQ is the first phase of a two phase process utilized by the Department for the Two Phase Low Bid and Best Value selection methods.

Reserved means a section of the DB Documents (Design-Build Agreement, Technical Provisions, or Programmatic Provisions) that is not being utilized for this contract. Sections marked Reserved have no requirements and references to sections marked Reserved shall mean that there are no additional requirements beyond the reference point.

Right of Way (**ROW)** means the Existing Right of Way and Proposed Right of Way.

Right of Way Acquisition Plan or **ROW Acquisition Plan** has the meaning set forth in Section 5 of Volume 3.

Rules have the meaning set forth in Recital H of the Agreement.

Safety Compliance means any and all improvements, repair, reconstruction, rehabilitation, restoration, renewal, replacement and changes in configuration or procedures respecting the Project to correct a specific safety condition or risk of the Project that GDOT has reasonably determined to exist by investigation or analysis and that is in violation of the requirements of the DB Documents.

Safety Compliance Order means a written order or directive from GDOT to Design-Build Team to implement Safety Compliance measures.

Safety Standards means those provisions of the Technical Provisions or Technical Documents that SRTA, GDOT, FHWA, OSHA, or AASHTO considers to be important measures to protect public safety or worker safety. As a matter of clarification, provisions of Technical Provisions or Technical Documents primarily directed at durability of materials or equipment, where the durability is primarily a matter of life cycle cost rather than protecting public or worker safety, are not Safety Standards.

Schedule of Values (SOV) means a detailed line item valuation for all Elements of the Work which lists all Payment Activities in a format that provides a sufficiently detailed breakdown of the Pay Items, in accordance with the requirements in Section 2.5.8 of the Technical Provisions. Include with the Schedule of Values a rational basis for partial payments of the Lump Sum bid

based on the completed portion of the item and definitive activities. Payment will not be made for individual construction activities. No payments will be made until the Schedule of Values is accepted, except as allowed under Article 3.2.4 of the DB Agreement. Mobilization, and Payment and Performance Bonds may be included as separate line items in the Schedule of Values. Any amount for Mobilization set forth in the Schedule of Values shall not exceed 2.5% of the total construction cost.

Schematic Plan of Project means Design-Build Team's Schematic Plan specific to the preliminary roadway plans showing the concept and technical solutions in accordance with the provisions of Exhibit C of the ITP. A Schematic Plan may include but is not limited to standard design plan sheets, roll plots, and conceptual drawings.

Security Document means any mortgage, deed of trust, pledge, lien, indenture, trust agreement, hypothecation, assignment, collateral assignment, financing statement under the Uniform Commercial Code of any jurisdiction, security instrument or other charge or encumbrance of any kind, including any lease in the nature of a security instrument, given to any Person as security for Design-Build Team Debt or Design-Build Team's obligations pertaining to Design-Build Team Debt and encumbering the Design-Build Team's Interest.

Selection Recommendation Committee means the group of individuals authorized by GDOT (if any) to recommend the Best Value Proposer to the Steering Committee.

Separate Contractor(s) means each and any separate contractor or vendor engaged by SRTA, GDOT or any other governmental authority or agency of the State to perform, provide, and/or supply work, services, labor or materials for the Project that is expressly excluded from Design-Build Team's Work pursuant to the DB Documents.

Service Line means a Utility line, the function of which is to directly connect the improvements on an individual property to another Utility line located off such property, which other Utility line connects more than one such individual line to a larger system. However, unless otherwise noted in the Technical Provisions, the term "Service Line" excludes any line that supplies an active feed from a Utility Owner's facilities to supply, activate or energize SRTA's, GDOT's or a Governmental Entity's Highway Service System. Such line, including its actual connection to the Utility facility, shall instead be considered to be part of the applicable Highway Service System.

Site means the Property and any temporary rights or interests that Design-Build Team may acquire in connection with the Project or the Utility Adjustments included in the Construction Work, including Project Specific Locations.

Source Code and **Source Code Documentation** mean software written in programming languages, such as C++ and Fortran, including all comments and procedural code, such as job control language statements, in a form intelligible to trained programmers and capable of being translated into object or machine readable code for operation on computer equipment through assembly or compiling, and accompanied by documentation, including flow charts, schematics, statements of principles of operations, architectural standards, and commentary, explanations and instructions for compiling, describing the data flows, data structures, and control logic of the software in sufficient detail to enable a trained programmer through study of such documentation to maintain and/or modify the software without undue experimentation. Source Code and Source Code Documentation also include all modifications, additions, substitutions, updates, upgrades and corrections made to the foregoing items.

SRTA means the State Road and Tollway Authority.

SRTA-Caused Delay means any of the following events, to the extent they result in a material delay or interruption in performance of any material obligation under the Agreement, and provided such events are beyond Design-Build Team's control and are not due to any act, omission, negligence, recklessness, willful misconduct, breach of contract or Law of any of the Design-Build Team-Related Entities, solely to the extent not concurrent or overlapping with any delay attributable to Design-Build Team, and further provided that such events (or the effects of such events) could not have been avoided by the exercise of caution, due diligence, or reasonable efforts by Design-Build Team, and with respect to any Compensation Event, solely to the extent that the cumulative effect of any such delays as set forth below have or shall result in delays, after taking into account any available Float, in excess of ninety (90) days:

(a) Failure of SRTA to issue NTP 1 as provided pursuant to Article 3.3.1.1 of the Agreement and/or failure to issue NTP 2 or NTP 3 as provided pursuant to Article 3.3.1.2 and Article 3.3.1.3 of the Agreement;

(b) SRTA Changes;

(c) Failure of SRTA or GDOT to provide the GDOT-Provided Approvals within the time periods set forth in Section 4.2.2 of the Technical Provisions, subject to Article 6.2.1 of the Agreement; or

(d) Failure of SRTA or GDOT to provide responses to proposed schedules, plans, Design Documents, condemnation and acquisition packages, and other Submittals and matters submitted to SRTA or GDOT after the Effective Date for which response is required under the DB Documents as an express prerequisite to Design-Build Team's right to proceed or act, within the time periods (if any) indicated in the DB Documents, or if no time period is indicated, within a reasonable time, taking into consideration the nature, importance and complexity of the submittal or matter, following delivery of written notice from Design-Build Team requesting such action in accordance with the terms and requirements of the DB Documents;

(e) Failure of SRTA or GDOT to provide Design-Build Team with access to the Right of Way as required; or

(f) The occurrence of a SRTA Release of Hazardous Materials.

Any proper suspension of Work pursuant to Article 17.3.7 of the Agreement shall not be considered a SRTA-Caused Delay.

SRTA Change means:

(a) Any change in the scope of the Work or terms and conditions of the Technical Provisions or Technical Documents (including changes in the standards applicable to the Work) that SRTA has directed Design-Build Team to perform through a Supplemental Agreement as described in Article 13 of the Agreement or a Directive Letter pursuant to Article 13.1 of the Agreement; and

(b) Any other event that the DB Documents expressly state shall be treated as a SRTA Change.

SRTA Claims Account means the designated account for the benefit of GDOT and Design-Build Team to be administered and maintained by GDOT for payments on account of claims as required by GDOT pursuant to Article 17.3.4 of the Agreement.

SRTA Default has the meaning set forth in Article 17.5.1 of the Agreement.

SRTA Recoverable Costs means:

(a) The costs of any assistance, action, activity or Work undertaken by GDOT which Design-Build Team is liable for or is to reimburse under the terms of the DB Documents, including the charges of third-party contractors, and reasonably allocated wages, salaries, compensation and overhead of GDOT staff and employees, performing such action, activity or Work (exclusive of ordinary and customary administration and review activities by GDOT employees or consultants, except for such consultant fees and expenses as expressly reserved in the Agreement); plus

(b) Third-party costs GDOT incurs to publicly procure any such third-party contractors; plus

(c) Reasonable fees and costs of attorneys (including the reasonably allocable fees and costs of the Georgia Attorney General's Office), financial advisors, engineers, architects, insurance brokers and advisors, investigators, traffic and revenue consultants, risk management consultants, other consultants, and expert witnesses, as well as court costs and other litigation costs, in connection with any such assistance, action, activity or Work, including in connection with defending claims by and resolving disputes with third-party contractors; plus

(d) Any expense or cost for which GDOT is to be reimbursed by Design-Build Team pursuant to the express terms of the Agreement; plus

(e) Interest on all the foregoing sums at the Default Interest Rate from the date due under the applicable terms of the DB Documents and continuing until paid.

SRTA (or GDOT) Re-evaluation Period (Re-evaluation Period) means the specified amount of time set forth as a condition in an approved ATC for SRTA or GDOT to obtain the applicable Governmental Approval required for a re-evaluation of the NEPA/GEPA Approval, prior to Design-Build Team being entitled to a Relief Event or Compensation Event; provided, however, that such time shall commence upon the date that SRTA has received a full and complete document package from Design-Build Team required for SRTA to process such re-evaluation.

SRTA Release(s) of Hazardous Materials means, except as provided below, the introduction in, on or under the Construction Maintenance Limits or Operation and Maintenance Limits of Hazardous Material directly by SRTA or GDOT, and their respective agents and contractors (excluding Design-Build Team). SRTA Release(s) of Hazardous Material excludes, however, (i) any Hazardous Materials so introduced that are in or part of construction materials and equipment incorporated into the Project and (ii) any Hazardous Materials identified in the phase 1 investigation and report described in clause (i) of the definition of Pre-Existing Hazardous Materials.

Staged Design Submittals shall have the meaning set forth in Section 3.6.1 in the Technical Provisions.

Standard Utility Agreement (SUA) means an Agreement providing for relocation or adjustment work to be performed by the Utility and/or its consultant or contractor and modification of easement limited provisions, if applicable. To the extent practical, reimbursement by the Department will be made based upon the Department's specifications, agreements and forms or consultant and construction contract work. The payment method may be actual cost, unit price, or lump sum as appropriate.

State means the State of Georgia.

State and Local Government Series (SLGS) Index means the State and Local Government Series (SLGS) Index published and maintained by the United States Department of the Treasury.

State Highway means a highway designated as part of the state highway system under Code 32-4-21.

Statement of Qualifications or **SOQ** has the meaning set forth in Section 1.1 of the ITP.

State Proposed/Developer Acquired Right of Way or **State Proposed/DB Team Acquired ROW** means any Proposed Right of Way or Proposed ROW for which DB Team is responsible to acquire a leasehold estate or other similar property interest or rights. The term specifically excludes any DB Team Proposed/DB Team Acquired Right of Way or Additional Properties.

State Proposed Right of Way or **State Proposed ROW** means the Proposed Right of Way **or** Proposed ROW.

State Proposed/State Acquired Right of Way or **State Proposed/State Acquired ROW** means any Proposed Right of Way or Proposed ROW for which SRTA or GDOT is obligated to provide access to Developer and/or acquire a leasehold estate or other similar property interest or rights.

Stipulated Fee means the amount GDOT will pay unsuccessful responsive Proposers for their Work Product.

Subcontractor means any other Person, including any Supplier with whom any Contractor has further subcontracted, purchased or procured any part of the Work, at all tiers.

Submittal means any document, work product or other written or electronic end product or item required under the DB Documents to be delivered or submitted to SRTA or GDOT, as applicable.

Substantial Completion means satisfaction of the criteria for completion of Construction Work as set forth in Article 7.7 of the Agreement, as and when confirmed by GDOT's issuance of a certificate in accordance with the procedures and within the time frame established in Article 7.7.1 of the Agreement.

Substantial Completion Date means the date upon which Design-Build Team has satisfied all conditions of and for Substantial Completion.

Substantial Completion Deadline means the deadline and required date for Substantial Completion of the Project as set forth in the Milestone Schedule, as such deadline may be extended for Relief Events from time to time pursuant to the Agreement, time being of the essence.

Substitute has the meaning set forth in the Direct Agreement.

Subsurface Utility Engineering (SUE) means an engineering process for accurately identifying the quality of subsurface utility information needed for highway plans, and for acquiring and managing that level of information during the development of a highway project, as more particularly described at the FHWA website http://www.fhwa.dot.gov/programadmin/sueindex.cfm.

Supplemental Agreement means a mutual agreement between SRTA and Design-Build Team for changes in the Work under Article 13 of the Agreement, including on account of any Relief Event Determination and/or Compensation Event Determination as set forth under Article 13.4 of the Agreement.

Supplier means any Person not performing work at or on the Site that supplies machinery, equipment, materials, hardware, software, systems or any other appurtenance to the Project to Design-Build Team or to any Contractor in connection with the performance of the Work. Persons who merely transport, pick up, deliver or carry materials, personnel, parts or equipment or any other similar items or persons to or from the Site shall not be deemed to be performing Work at the Site.

Surety means each properly licensed surety company, insurance company or other Person approved by SRTA, which has issued any of the P&P Bonds.

Taxes means federal, State, local or foreign income, margin, gross receipts, sales, use, excise, transfer, consumer, license, payroll, employment, severance, stamp, business, occupation, premium, windfall profits, environmental (including taxes under Section 59A of the Internal Revenue Code of 1986, as amended), customs, permit, capital stock, franchise, profits, withholding, social security (or similar), unemployment, disability, real property, personal property, registration, value added, alternative or add-on minimum, estimated or other taxes, levies, imposts, duties, fees or charges imposed, levied, collected, withheld or assessed at any time, whether direct or indirect, relating to, or incurred in connection with, the Project, the performance of the Work, or act, business, status or transaction of Design-Build Team, including any interest, penalty or addition thereto, and including utility rates or rents, in all cases whether disputed or undisputed.

Technical Documents means all the standards, criteria, requirements, conditions, procedures, specifications and other provisions set forth in the manuals and documents identified in the DB Documents, as such provisions may (a) have been generally revised from time to time up the RFP advertisement date, or (b) be changed, added to or replaced pursuant to the Agreement.

Technical Proposal means the technical component of the Proposal evaluation as described ITP.

Technical Provisions means Volume 2 and Volume 3; as such documents may (a) have been generally revised from time to time up to ninety (90) days prior to the Proposal Due Date, or (b) be changed, added to or replaced pursuant to the Agreement.

Technology Enhancements means modifications, additions, refinements, substitutions, revisions, replacements and upgrades made to or in place of electronic toll collection and enforcement systems deployed on or for the Project or to any other computer systems or other technology used for the operation of the Project, or to any related documentation, that accomplish incidental, performance, structural, or functional improvements. The term specifically includes modifications, updates, revisions, replacements and upgrades made to or in place of software or any related documentation that correct errors or safety hazards or support new models of computer hardware with which the software is designed to operate. Technology Enhancements also include such new models of computer hardware.

Temporary Works is any temporary construction work necessary for the construction of the Permanent Works. This includes falsework, formwork, scaffolding, shoring, temporary earthworks, sheeting, cofferdams, special erection equipment, etc.

Term has the meaning set forth in Article 3.1.1 of the Agreement.

Termination by Court Ruling has the meaning set forth in Article 19.11 of the Agreement.

Termination Compensation means each of the measure of compensation owing from SRTA to Design-Build Team upon termination of the Agreement prior to the stated expiration of the Term, pursuant to Article 19, and as set forth in Exhibit 20 to the Agreement.

Termination Date means (a) the date of expiration of the Term or (b) if applicable, the Early Termination Date.

Termination for Convenience has the meaning set forth in Article 19.1.1 of the Agreement.

Third-Party Claims means, subject to Article 16.5.4 of the Agreement, any and all claims, disputes, disagreements, causes of action, demands, suits, actions, investigations, or legal or administrative proceedings asserted, initiated or brought by a Person that is not an Indemnified Party or Design-Build Team with respect to any Third-Party Loss.

Third-Party Loss means, subject to Article 16.5.4 of the Agreement, any actual or alleged Loss sustained or incurred by a Person that is not an Indemnified Party or Design-Build Team.

Threatened or Endangered Species means any species listed by the USFWS as threatened or endangered pursuant to the Endangered Species Act, as amended, 16 U.S.C. §§ 1531, *et seq*.

Tolling Integration Deadline means each certain Milestone Schedule Deadline, as set forth in the Milestone Schedule, as may be adjusted by the Project Baseline Schedule, for completion of such portions of the Work as necessary and required to allow the Tolling Integration Contractor to commence and complete the Tolling Integration Work.

Traffic Management Center is a center for the management and distribution of information to Users on a regional or statewide basis.

Transferee means any party as defined pursuant to Article 21.2.2.1 of the Agreement, solely for purposes of Articles 21.2 through 21.5 of the Agreement.

Transponder means the in-vehicle device that permits Users to communicate, identify, and conduct an electronic toll transaction with Design-Build Team's ETCS.

Transportation Management Plan means Design-Build Team's plan for transportation management throughout the Term, as more particularly described in Article 9.2.2 the Agreement and Section 18.2.1 of the Technical Provisions.

Travel Lane means the portion of roadway for the movement of vehicles, exclusive of shoulders.

Uniform Act means the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act, P.L. 91-646, as amended.

Uninsurable Risk means a risk, or any component of a risk, against which Design-Build Team or a Contractor is required to insure pursuant to the Agreement and for which, at any time after the Effective Date, either:

(a) the insurance coverage required under the Agreement is not available in relation to that risk from insurers that meet the qualifications set forth in Article 16.1.2 of the Agreement; or

(b) the terms and conditions for insuring that risk are such that the risk is not generally being insured against in the insurance market under commercially reasonable terms from insurers that meet the qualifications set forth in Article 16.1.2 of the Agreement.

Utility or **utility** means any of the following:

(a) a public, private, cooperative, municipal and/or government line, facility or system used for the carriage, transmission and/or distribution of cable television, electric power, telephone, telegraph, water, gas, oil, petroleum products, steam, chemicals, hydrocarbons, telecommunications, sewage, and similar commodities, that directly or indirectly serves the public;

(b) a line, facility or system which (i) carries or transmits a commodity referenced in clause (a) above but does not directly or indirectly serve the public, and (ii) is designated in Volume 1 or Volume 2 to be treated, for purposes of the DB Documents only, in the same manner as a line, facility or system that qualifies as a Utility under clause (a) above; and

(c) a radio tower or transmission tower (including cellular) that directly or indirectly serve the public.

Notwithstanding the foregoing, the term "Utility" or "utility" excludes:

(a) all storm water lines, facilities, and systems that are part of the drainage system for the Property or connect to that system; and

(b) SRTA's, GDOT's or a Governmental Entity's Highway Service Systems.

The necessary appurtenances to each Utility facility shall be considered part of such Utility. Any Service Line connecting directly to a Utility shall be considered an appurtenance to that Utility, regardless of the ownership of such Service Line.

Utility Accommodation Manual (UAM) means the Utility Accommodation Manual issued by GDOT, at Ga. Comp. R. & Regs. r. 672-11-.01 through -.04, as the same may be amended, supplemented or replaced by GDOT from time to time.

Utility Adjustment Field Modification means any horizontal or vertical design change to a Utility Adjustment required by Design-Build Team or proposed by a Utility Owner due either to roadway design or to conditions not accurately reflected in the corresponding Utility Work Plan for which the review and comment/approval process has been completed, that alters the design included in the approved Utility Work Plan. An example would be shifting the alignment of an 8" water line to miss a roadway drainage structure. A minor change (e.g., an additional water valve, an added Utility marker at ROW line, a change in vertical bend, etc.) will not be considered a Utility Adjustment Field Modification, but shall be shown in the Record Drawings.

Utility Adjustment means each relocation (temporary or permanent), abandonment, Protection in Place, removal (of previously abandoned Utilities as well as of newly abandoned Utilities), replacement, reinstallation, and/or modification of existing Utilities necessary to accommodate construction, operation, maintenance and/or use of the Project; provided, however, that the term "Utility Adjustment" shall not refer to any of the work associated with facilities owned by any railroad. For any Utility crossing the Property, the Utility Adjustment Work for each crossing of the Property by that Utility shall be considered a separate Utility Adjustment. For any Utility installed longitudinally within the Property, the Utility Adjustment Work for each continuous segment of that Utility located within the Property shall be considered a separate Utility Adjustment.

Utility Adjustment Work means all efforts and costs necessary to accomplish the required Utility Adjustments, including all coordination, design, design review, permitting, construction, inspection, maintenance of records, relinquishment of Existing Utility Property Interests, preparation of Utility Joint Use Acknowledgements, and acquisition of Replacement Utility Property Interests, whether provided by Design-Build Team or by the Utility Owners. The term also includes any reimbursement of Utility Owners which is Design-Build Team's responsibility pursuant to Article 7.5 of the Agreement. Any Utility Adjustment Work furnished or performed by Design-Build Team is part of the Work; any Utility Adjustment Work furnished or performed by a Utility Owner is not part of the Work.

Utility Enhancement means a Betterment or a Utility Owner Project, as referenced in Section 6.1.4.1 of the Technical Provisions.

Utility Joint Use Acknowledgment or **Utility Joint Use Agreement** means an agreement between GDOT and a Utility Owner that establishes the rights and obligations of GDOT and the Utility Owner with respect to occupancy of the Property by such Utility Owner's Utility.

Utility Manager (UM) means the senior staff person designated by Design-Build Team to be responsible for coordination and oversight of Utility Adjustment operations during the planning,

design, and construction phases of the Work, as more particularly described in Section 6.1.3.4 of the Technical Provisions.

Utility Owner means the owner or operator of any Utility (including both privately held and publicly held entities, cooperative utilities, and municipalities and other governmental agencies).

Utility Owner Project means the design and construction by or at the direction of a Utility Owner (or by Design-Build Team) of a new Utility other than (a) as part of a Utility Adjustment or (b) to provide service to the Project. Betterments are not Utility Owner Projects. Utility Owner Projects are entirely the financial obligation of the Utility Owner.

Utility Tracking Report means the report regarding Utilities likely to be impacted by the Project, which Design-Build Team shall maintain on a current basis, as more particularly described in Section 6.5.1 of the Technical Provisions.

Utility Work Plan has the meaning set forth in Section 6.3.2.5 of the Technical Provisions. Depending on the context, the term also refers to Supplemental Utility Work Plans and Utility Work Plan Retention Requests (both also described in Section 6.3.2.5 of the Technical Provisions).

Utility Work Plan Checklist means a checklist listing the required components of a Utility Work Plan, as referenced in Section 6.3.2.5 of the Technical Provisions.

Utility Work Plan Retention Request means the collection of plans and other information and materials which Design-Build Team is required to submit to GDOT in connection with each Utility proposed to remain at its original location within the Existing Right of Way or Property, as more particularly described in Section 6.3.2.5 of the Technical Provisions; a single Utility Work Plan Retention Request may address more than one such Utility.

Volume 1 means the Design-Build Agreement or the Agreement.

Volume 2 means the project-specific technical provisions entitled “Technical Provisions - Volume 2”.

Volume 3 means GDOT’s technical provisions entitled “Programmatic Technical Provisions - Volume 3”.

Warning Notice means a written notice that SRTA delivers to Design-Build Team pursuant to Article 17.2 of the Agreement.

Work means all of the work required to be furnished and provided by Design-Build Team under the DB Documents for the Project, including without limitation, all administrative, management, design, engineering, other professional services, construction, Utility Adjustment, utility accommodation, support services, ETCS and software integration, and coordination, except for those efforts which such DB Documents expressly specify will be performed by Persons other than Design-Build Team-Related Entities, all as required and as may reasonably inferred for full and proper completion of the Project in accordance with this Agreement and the DB Documents.

Work Breakdown Structure (WBS) means a deliverable-oriented hierarchical structure that breaks the Work into elements that have distinct identification and that contain specific scope characteristics. Each descending WBS level represents an increasingly detailed delineation of

elements of the total Project scope. The WBS will contain elements of Design Work and Construction Work. There shall be clearly identifiable linkage between the WBS, the elements of the Work, and Project Schedule. The WBS numbering convention shall be compatible with Project Baseline Schedule coding and may be compatible with document control coding.

Work Code means a code assigned to a contract line item. Example: 400 is asphalt paving, 653 is highway traffic striping. The Work Codes were established and predefined by a GDOT Committee comprised of the Office of EEO, Construction, Bidding Administration, and Prequalification, in 2012. Not every item has a work code, only those items that are predominantly used on Highway construction projects. Contractors and Subcontractors in the GDOT directories are assigned work codes based upon their work description. Work codes are the most refined data available.

Work Product means any design files, concepts, ideas, technology, techniques, methods, processes, drawings, reports, plans and specifications used in the development of the bid and technical proposal including any ATCs being acquired by GDOT.

EXHIBIT 2

DESIGN-BUILD TEAM'S PROPOSAL COMMITMENTS AND KEY PERSONNEL

Technical Proposal

As set forth in DB Team's Proposal dated May 25, 2018, including but not limited to Volume 2, Technical Proposal including Appendices A through E, including preliminary schematic plans showing the interchanges and roadways concepts and technical solutions in accordance with the provisions of the Instructions to Proposers, Exhibit C, and hereby incorporated by reference.

Proposal Commitments

As set forth in the Proposal as defined in the Agreement and hereby incorporated by reference.

Identified Key Personnel

- Form G – Form of Participating Members, Major Non-Participating Members, Contractors and Key Personnel Commitment of the Proposal is attached hereto and incorporated by reference.
- The Proposal Organization Chart in C.1.3 pf the Proposal is attached hereto and incorporated by reference.

Other Proposal Commitments

The following Proposal documents are attached hereto and incorporated by reference:

- Form F – Design-Build Price Proposal
- Form K – Use of Contract Funds for Lobbying Certification
- Form L – Debarment and Suspension Certification
- Approved and included ATCs
- Cost-loaded Proposal Schedule

FORM G

Form of Participating Members, Major Non-Participating Members, Contractors and Key Personnel Commitment

Proposer's Name: SAVANNAH MOBILITY CONTRACTORS JV (the "Proposer")

The Proposer hereby commits that, if awarded the I-16 at I-95 Interchange Reconstruction and I-16 Widening from I-95 to I-516 Widening Project (the "**Project**"), the Proposer will use the entities and individuals listed below for their stated positions and that, to the extent within the Proposer's control, such entities and individuals will be available to fulfill their Project-related responsibilities.

Lead Contractor: Savannah Mobility Contractors JV

Participating Member: Dragados USA, Inc. and Prince Contracting, LLC

Lead Design Consultant: Jacobs Engineering Group Inc.

Design Quality Assurance Firm: Jacobs Engineering Group Inc.

Construction Quality Assurance Firm: AMEC Foster Wheeler Environmental & Infrastructure, Inc.

Key Personnel (Participating Members and Major Non-Participating Members, as appropriate):

- **Lead Contractor Project Manager**: Rafael Molina
- **Lead Design Consultant Project Manager**: David Panlilio, PE
- **Engineer of Record**: Sudhir Muppalla, PE
- **Contractor Superintendent**: Marty Pittman
- **Quality Assurance Manager**: Tomas Almonte, PE
- **Construction Quality Assurance Manager**: Michael Carmichael
- **Design Quality Assurance Manager**: Hatem Aly, PE

Signed: _____

Printed Name: Fernando Bolinaga

Title: Authorized Representative of Savannah Mobility Contractors JV

Date: May 18, 2018

C.1.3 Project Planning/Management and Approach

C.1.3.1 General Project Management Approach

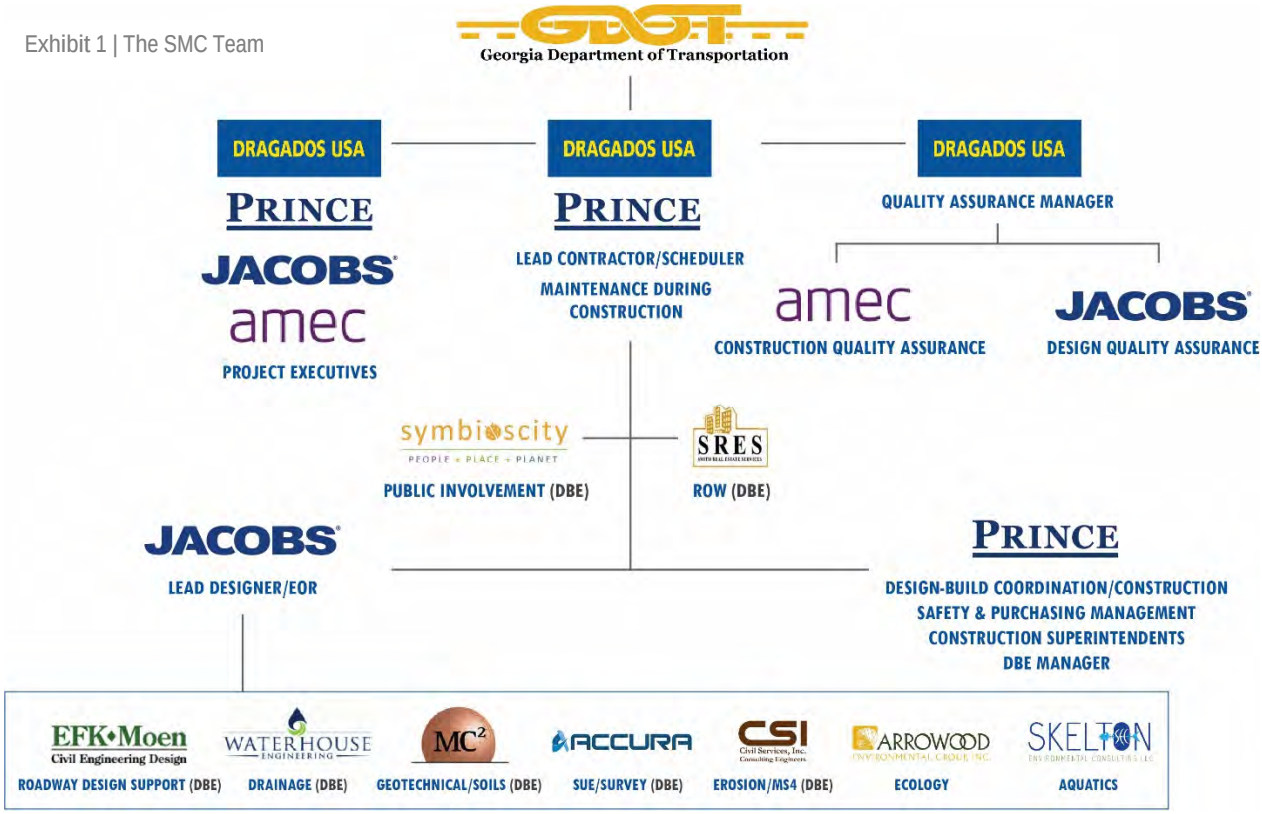
The SMC Team includes three accomplished organizations, Dragados, Prince and Jacobs, whose strength lies in assembling partnerships that successfully deliver projects similar to the I-16 at I-95 Interchange and I-16 Widening Project. Combined, the SMC Team members bring a myriad of relevant transportation experience and have worked on more than 37 domestic transportation projects in the past 12 years resulting in over $8B in design-build projects ($2B of which was contract work for GDOT and FDOT in the past five years). With this partnership, GDOT has access to roughly 200 Georgia-based, transportation-focused personnel through Jacobs' local presence in the Georgia community. Jacobs, our Lead Design Consultant, has an established relationship with GDOT and Georgia Port Authority (GPA) and is located eight blocks away from GDOT's central office, which provides an effortless and accessible line of communication between GDOT and the SMC Team.

Rafael Molina, Lead Contractor Project Manager, will serve as the main point of contact for GDOT and the Project's Program Management Consultant (PMC). He will be supported by David Panlilio, PE, Lead Design Consultant Project Manager; Curt Bender, Construction Manager and Mike Reinke, PE, Design-Build Coordinator/Engineering Manager. These individuals will work together and with the GDOT/PMC to foster a collaborative and effective design-build process.

(a) Project Management Organization

The SMC Team, illustrated in Exhibit 1 below, has come together over the past four months and cultivated a strong foundation that has created a robust design-build approach for this Project with insight from team members who have previously worked for GDOT. We are eager to collaborate with GDOT and the PMC in delivering a safer and more seamless driving experience that brings the best value for the community of Savannah.

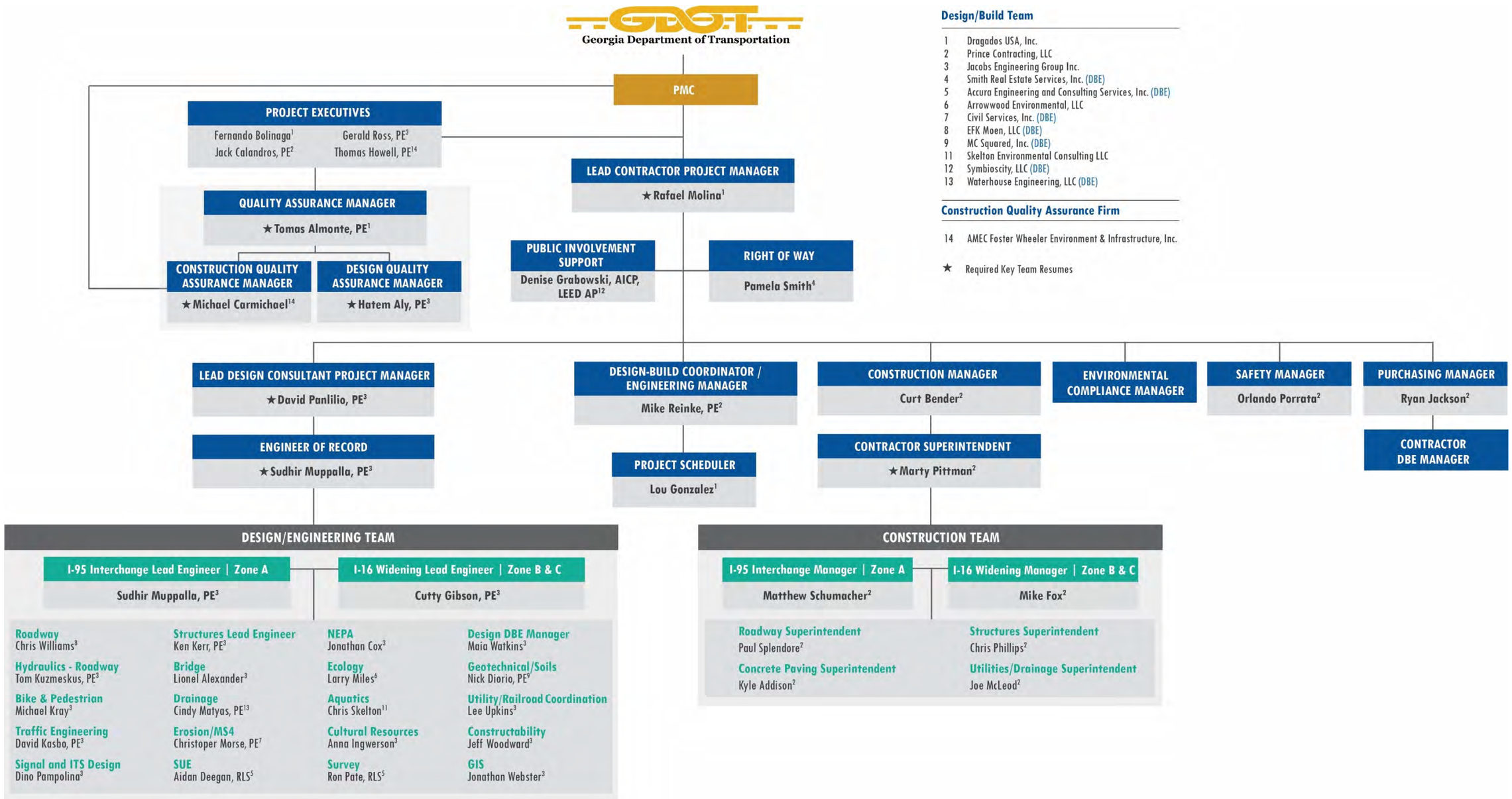
Exhibit 1 | The SMC Team



(b) Key Personnel and Organizational Structure

The Organizational Chart on the following page illustrates the organizational structure of our team and includes all key personnel, task managers and firms.

Exhibit 2 | Organizational Chart



Design/Build Team

1 Dragados USA, Inc.
2 Prince Contracting, LLC
3 Jacobs Engineering Group Inc.
4 Smith Real Estate Services, Inc. (DBE)
5 Accura Engineering and Consulting Services, Inc. (DBE)
6 Arrowwood Environmental, LLC
7 Civil Services, Inc. (DBE)
8 EFK Moen, LLC (DBE)
9 MC Squared, Inc. (DBE)
11 Skelton Environmental Consulting LLC
12 Symbioscity, LLC (DBE)
13 Waterhouse Engineering, LLC (DBE)

Construction Quality Assurance Firm

14 AMEC Foster Wheeler Environment & Infrastructure, Inc.

★ Required Key Team Resumes

The following table identifies Key Personnel, their project role, function/responsibility, and percentage of time they will devote to the design (D) and/or construction (C) phase of the Project.

Key Personnel		
Name/Role	Commitment	Function/Responsibility
Rafael Molina Lead Contractor PM	D – 25% C – 100%	Manage/execute all aspects of project, including design, planning, permitting, safety & project controls.
Tomas Almonte, PE Quality Assurance Manager	D – 50% C – 100%	Ensure establishment, maintenance of & compliance with the Quality Management Plan (QMP), ensuring that all work elements are performed in accordance with DB documents, ensuring adequate staffing & expertise for DB team's QA and QC efforts.
David Panlilio, PE Lead Design Consultant PM	D – 100% C – 35%	Manage design resources; responsible to assign & track tasks, follow schedules & budgets & communicate information in a clear & concise manner.
Sudhir Muppalla, PE EOR/I-95 Interchange Lead Engineer	D – 100% C – 100%	Responsible & liable for the adequacy & safety of the design & to sign & seal all Released for Construction Documents (RFCD), any revision to the RFCDs, all design changes, all Shop Drawings; & for conformance, the Record Drawings.
Marty Pittman Contractor Superintendent	D – 25% C – 100%	Full authority to direct performance of work in accordance with contract requirements; in charge of all construction operations (regardless of who performs the work); oversee scheduling, inspections, quality control & job site safety.
Michael Carmichael Construction QA	D – 10% C – 100%	Overall responsibility for development & implementation of construction portion of QMP including implementing, monitoring & adjusting the processes to ensure acceptable quality; oversee QA testing & inspection; coordinate with GDOT's verification testing, inspection & Independent Assurance requirements.
Hatem Aly, PE Design Quality Assurance	D – 100% C – 10%	Overall responsibility for design portion of QMP; verify & validate that QA & QC procedures required by QMP are administered & followed; certify that all design documents are subjected to all required QC checking procedures; all documentation is completed and filed in acceptable manner; all design packages are subjected to a QC audit prior to submittal to GDOT or prior to release.

(c) Task Managers

The following table identifies Added Value Personnel, their roles and brief qualifications:

Task Managers		
Name/Role	Years Exp.	Qualifications/Experience
Cutty Gibson, PE I-16 Widening Lead Engineer	15	▪ EOR (Area 3 – Ivanhoe), FDOT D5, Orange County I-4 Ultimate PPP - $2.4B ▪ Project Engineer, FDOT D7, I-275 from SR 60 to Hillsborough River DB - $30M ▪ Project Engineer, FDOT D2, I-295/Collins Rd Interchange DB - $63.4M
Ken Kerr, PE Structures Lead Engineer	20	▪ EOR (Area 3 – Interchange), FDOT D5, I-4 Ultimate PPP - $2.4B ▪ Structures Engineer, FDOT D6, Port of Miami Tunnel PPP - $650M ▪ Structures Engineer, FDOT D7, US-19 Cross FL Barge Canal Bridge DB - $37M
Cindy Matyas, PE Drainage Engineer	25	▪ Drainage Engineer, Effingham-Chatham County, GA, Effingham Parkway from SR 30 to Blue Jay Road ▪ Drainage Engineer, Bryan County, GA, SR 144 over Sterling Creek
Ron Pate, RLS Survey	25	▪ Survey Project Manager, GDOT, I-85 at SR 74 Interchange, Fulton County, GA ▪ Survey Project Manager, GDOT, I-75/I-16 Interchange Reconstruction Data Collection Phase
Nick Diorio, PE Geotechnical/Soils	7	▪ Geotechnical Engineer, GDOT, SR 40 Widening 820, Charlton/Camden, GA ▪ Geotechnical Engineer, GDOT, SR 40 Connector 821, Charlton, GA
Denise Grabowski, AICP, LEED AP Public Involvement Support	24	▪ Founder of a prominent local Savannah DBE firm, Symbioscity ▪ Earned numerous awards for work in Georgia including Institute for Georgia Environmental Leadership (2005), and Leadership Savannah (2013) ▪ Local projects include the City of Savannah Downtown Streetscape Initiative, Savannah Greater Downtown Parking and Mobility Study + Strategic Plan

FORM F

Design-Build Price Proposal

Proposer Name: Savannah Mobility Contractors JV

The Proposer shall complete the required fields of Section A, Section B, and Section C below. See Exhibit D for additional explanation and requirements.

A. Design-Build Contract Sum

Design Complete: $ 33,117,222.00

Construction Complete: $ 227,402,794.00

Design-Build Contract Sum: $ 260,520,016.00

The Proposer shall indicate its proposed Design-Build Contract Sum on this Form F, such Design-Build Contract Sum shall include all Design-Build Team cost and expenses.

B. Reserved

C. Design-Build Expenditure

The Proposer shall attach to this Form F a cost-loaded version of the Proposal Schedule as required by the ITP, including Exhibit D.3.6. The cost-loaded Proposal Schedule shall reflect the actual costs the DB Team has estimated for those schedule activities that will be performed by the DB Team. The aggregate amounts for the cost-loaded Proposal Schedule shall equal the Contract Sum. With the cost-loaded Proposal Schedule, the Proposer shall include a Maximum Payment Curve and Maximum Payment Curve Table meeting the requirements of Section 2.5.9 of the Technical Provisions.

D. Design-Build Schedule of Values (SOV)

Activity Description	Unit	Quantity	Unit Price	Total Price
DESIGN COMPLETE	N/A	N/A	N/A	N/A
• Design Cost & Support	LS	1	$25,000,000.00	$25,000,000.00
• Work Zone Law Enforcement	LS	1	$ 350,000.00	$ 350,000.00
• Permits	LS	1	$1,000,000.00	$1,000,000.00
• Insurance & Bonds	LS	1	$5,497,222.00	$5,497,222.00
• ROW – DB Team	LS	1	$ 170,000.00	$ 170,000.00
• Project Management and Administration	LS	1	$1,100,000.00	$1,100,000.00
			Design Complete	$33,117,222.00
CONSTRUCTION COMPLETE	N/A	N/A	N/A	N/A
• Final Acceptance	LS	1	$ 200,000.00	$ 200,000.00

• Developer Quality Management	LS	1	$ 660,000.00	$ 660,000.00
• Construction Quality Assurance Firm	LS	1	$10,233,125.00	$10,233,125.00
• Field Office	LS	1	$ 1,000,000.00	$ 1,000,000.00
• Erosion Control	LS	1	$ 2,000,000.00	$ 2,000,000.00
• Traffic Control	LS	1	$ 5,000,000.00	$ 5,000,000.00
• Earthwork & Roadway Removals	LS	1	$ 9,999,400.00	$ 9,999,400.00
• Drainage	LS	1	$ 7,000,000.00	$ 7,000,000.00
• Barrier & Guardrail	LS	1	$ 6,000,000.00	$ 6,000,000.00
• Base and Paving	LS	1	$54,000,000.00	$54,000,000.00
• Landscaping	LS	1	$ 100,000.00	$ 100,000.00
• ITS, Tolling & Signals	LS	1	$15,000,000.00	$15,000,000.00
• Structural Walls	LS	1	$13,000,000.00	$13,000,000.00
• Bridges	LS	1	$60,500,000.00	$60,500,000.00
• Pavement Markings	LS	1	$ 750,000.00	$ 750,000.00
• Sound Barriers	LS	1	$ 9,000,000.00	$ 9,000,000.00
• Mobilization	LS	1	$ 5,685,069.00	$ 5,685,069.00
• Maintenance During Construction	LS	1	$ 4,000,000.00	$ 4,000,000.00
• Utilities	LS	1	$ 700,000.00	$ 700,000.00
• Signs & Overhead Sign Structures	LS	1	$ 5,000,000.00	$ 5,000,000.00
• Lighting	LS	1	$ 6,500,000.00	$ 6,500,000.00
• Structural Removal\Demo	LS	1	$5,430,000.00	$5,430,000.00
• Hazardous Materials\Environmental Mitigation	LS	1	$3,000,000.00	$3,000,000.00
• Record Drawings (As-Builts)	LS	1	$ 260,520.00	$ 260,520.00
• Completion of punch list	LS	1	$1,302,600.00	$1,302,600.00
• Final close-out	LS	1	$ 521,040.00	$ 521,040.00
• Demobilization	LS	1	$ 521,040.00	$521,040.00
• Training Hours	HR	50,000	$ 0.80	$ 40,000.00
			Construction Complete	$227,402,794.00
			Sum of Schedule of Values	$260,520,016.00

BY SIGNATURE BELOW AND SUBMITTAL OF THIS FORM F WITH THE ATTACHED COST LOADED PROPOSAL SCHEDULE, THE PROPOSER HEREBY CERTIFIES IT HAS REVIEWED ITS PROPOSAL SCHEDULE AND PROPOSAL ESTIMATES FOR THE PROJECT AND THAT ALL WORK, INCLUDING EARLY PORTIONS OF THE WORK, CAN BE COMPLETED WITHIN THE MILESTONE COMPLETION DEADLINES, INCLUDING ALL INTERIM COMPLETION MILESTONES, SUBSTANTIAL COMPLETION, AND FINAL ACCEPTANCE, WITHOUT EXCEEDING THE LIMITS OF THE FUNDS AVAILABLE AS IDENTIFIED IN THE ANNUAL CUMULATIVE PAYMENT CAP SCHEDULE SET FORTH IN ARTICLE 5.2.1 AND TABLE 5-1 OF THE AGREEMENT. THE MOBILIZATION SHALL NOT EXCEED 2.5% OF THE TOTAL CONSTRUCTION COMPLETE. THE CONSTRUCTION QUALITY ASSURANCE FIRM SHALL BE A MINIMUM OF 4.5% OF THE TOTAL CONSTRUCTION COMPLETE.

Date: 5/25/2018

Signature:

FORM K

Use of Contract Funds for Lobbying Certification

The undersigned Proposer certifies on behalf of itself and all contractors (at all tiers) the following:

1. The Proposer certifies, to the best of its knowledge and belief, that:

   a. No federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any federal contract, the making of any federal grant, the making of any federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any federal contract, grant, loan, or cooperative agreement.

   b. If any funds (other than federal appropriated funds) received by the Proposer under the RFP or DBA have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with any federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions, and shall include a copy of said form in its proposal or bid, or submit it with the executed DBA or any or Subcontract.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

3. The Proposer shall require that the language of this certification be included in all lower tier subcontracts which exceed $100,000 and that all such recipients shall certify and disclose accordingly.

4. The undersigned certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the undersigned understands and agrees that the provisions of 31 U.S.C. §3801, et seq., apply to this certification and disclosure, if any.

[Note: Pursuant to 31 U.S.C. §1352(c)(1)-(2)(A), any person who makes a prohibited expenditure or fails to file or amend a required certification or disclosure form shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each expenditure or failure.]

Date: May 18, 2018

Proposer: Savannah Mobility Contractors JV

Signature: _____

Title: Fernando Bolinaga, Authorized Representative of the JV

FORM L

Debarment and Suspension Certification

The undersigned Proposer certifies on behalf of itself, and all Participating Members, Major Non-Participating Members and Contractors identified by such Proposer as of the date hereof, as follows:

The undersigned certifies to the best of its knowledge and belief, that it and its principals:

a. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any federal department or agency;

b. Have not within a 3-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (federal, State or local) transaction or contract under a public transaction; violation of federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

c. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (federal, State or local) with commission of any of the offenses enumerated in paragraph 1b of this certification; and

d. Have not within a 3-year period preceding this application/proposal had one or more public transactions (federal, State or local) terminated for cause or default.

Where the Proposer is unable to certify to any of the statements in this certification, it shall attach a certification to its proposal or bid stating that it is unable to provide the certification and explaining the reasons for such inability.

Date: May 18, 2018

Proposer: Savannah Mobility Contractors JV

Signature: _____

Title: Fernando Bolinaga, Authorized Representative of the JV

FORM L

Debarment and Suspension Certification

The undersigned Proposer certifies on behalf of itself, and all Participating Members, Major Non-Participating Members and Contractors identified by such Proposer as of the date hereof, as follows:

The undersigned certifies to the best of its knowledge and belief, that it and its principals:

a. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any federal department or agency; **See Attachment A**

b. Have not within a 3-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (federal, State or local) transaction or contract under a public transaction; violation of federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property; **See Attachment A**

c. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (federal, State or local) with commission of any of the offenses enumerated in paragraph 1b of this certification; and **See Attachment A**

d. Have not within a 3-year period preceding this application/proposal had one or more public transactions (federal, State or local) terminated for cause or default. **See Attachment A**

Where the Proposer is unable to certify to any of the statements in this certification, it shall attach a certification to its proposal or bid stating that it is unable to provide the certification and explaining the reasons for such inability.

Date: 5/11/18

Proposer: Jacobs Engineering Group Inc.

Signature: _____
Thomas J. Meinhart

Title: Vice President

Attachment A

Item 1 – Question (a):

Although the Major Non-Participating Member, Jacobs Engineering Group Inc., has not been involved in any criminal proceeding for which there was a final adjudication adverse to Major Non-Participating Member, the Major Non-Participating Member and its subsidiaries form an organization that is comprised of approximately 250 operating companies and affiliates, having a total current employment complement of over 74,000 persons and revenues of approximately $15 billion. As such, from time to time and in the ordinary course of its business, the Company is subject to various claims, disputes, terminations, arbitrations, and other legal proceedings. It is the Company's practice to vigorously defend itself in such actions, many of which are generally subject to insurance and none of which are expected to have a materially adverse effect on the Company's consolidated financial statements.

Item 2 – Question (b):

Major Non-Participating Member, Jacobs Engineering Group Inc., and its subsidiaries form an organization that is comprised of approximately 250 operating companies and affiliates, having a total current employment complement of over 74,000 persons. The Company does not maintain records for all 74,000 employees as it relates to criminal investigations, grand jury investigations, civil enforcement or other proceedings. However, based on information and belief, neither the Major Non-Participating Member, Jacobs Engineering Group Inc., nor any of its elected officers has been notified within the past three (3) years that they are the target of a criminal investigation, grand jury investigation, or a civil enforcement proceeding.

Item 3 – Question (c):

Major Non-Participating Member, Jacobs Engineering Group Inc., and its subsidiaries form an organization that is comprised of approximately 250 operating companies and affiliates, having a total current employment complement of over 74,000 persons. The Company does not maintain records for all 74,000 employees as it relates to all criminal indictments or convictions.

Item 4 – Question (d):

Based on information and belief, neither the Major Non-Participating Member nor any member of its team has had any contract terminated by Georgia Department of Transportation or Dragados in the last three (3) years. Although we have no records of any contracts terminated for cause, over the years we have been involved in projects that were terminated for the convenience of our clients. We have not maintained documents reflecting the details of such terminations.

Request for review of an ATCs under ITP for I-16 at I-95 Interchange Reconstruction and I-16 Widening From I-95 to I-516 Project - Confidential ATCs

ATC No. 1A

Partial Turbine Interchange – REV. 1

Goal Achieved: ***Improve Traffic Flow and Safety at I-16/I-95***

COST REDUCTION:	SCHEDULE REDUCTION:
$24,877,000	90-120 Days

Environmental Benefits	Community Benefits	Safety Benefits	Traffic Benefits	Life Cycle Benefits

A. Proposer and ATC Identification

Savannah Mobility Contractors JV respectfully submits ATC No. 1A for GDOT's consideration for the I-16 AT I-95 INTERCHANGE RECONSTRUCTION AND I-16 WIDENING FROM I-95 TO I-516 PROJECT (P.I. Nos. 0012757 and 0012758).

B. Description and Conceptual Drawings

Savannah Mobility Contractors JV proposes to reduce the negative impacts of 4th and 3rd Level flyover ramps by utilizing a partial turbine interchange for the free-flow moving traffic to and from SB I-95. The partial turbine maintains the same exit and entrance locations provided in the RFP plans, but instead of high level bridges and high retaining wall sections to provide a direct connection back to the interchange system, it provides a semi-direct path that combines with adjacent on ramps before connecting to the interchange mainline. This path allows traffic to effectively navigate the interchange at a safe design speed given the high truck volumes from the nearby port, by using ramps closer to the natural grade with simple 2nd level bridges. From a community impact standpoint, the lowered bridges will reduce the visual and noise impacts of the highway to the local residents living adjacent to the interstate, both during construction and for decades to come. See Exhibit A for a layout of this alternative, and Exhibit B for a comparison of this ATC alternative Compared to Concept drawings.

Based on our preliminary evaluation shown in Exhibit C, the Partial Turbine alternative maintains equal or better Level of Service (LOS) as the direct connection ramp. The benefits of this alternative, however; are:

- It reduces the construction cost of critical path items within the I-16/I-95 interchange allowing flexibility to spend early funding from the Annual Cumulative Payment Cap Schedule on areas along I-16 where the traffic bottlenecks occur – and relieve congestion sooner.
- It eliminates many of the worker safety risks both during construction and during maintenance operations due to the 3rd and 4th level structures.
- It reduces driver safety risks by eliminating 2 traffic conflict points as compared to the RFP design.

- It mitigates some of the project risks including schedule delays due to soil conditions and R/W acquisition of parcel 6 (by reducing the R/W requirements from parcel 6,
- It reduces operational risk of inspecting and maintaining high level bridges, and incident management risks of first responders having lifesaving and fire suppression access/capability.
- It allows innovative ground improvements to be utilized to accelerate construction of Ramps DE8 and DE9. Once these are built the weaving, rear-end collision, and sideswipe issues due to the existing four loop ramps should drastically diminish.

List of Exhibits:

- Exhibit A – ATC Plan View
- Exhibit B – Comparison of Preliminary Design and ATC Alignments
- Exhibit C – Traffic Memorandum
- Exhibit D – Form P (draft)
- Exhibit E – Responses to GDOT comments on ATC 1.
- Exhibit F – Artistic Comparison

C. ATC Location and Usage

This ATC applies to ramps from I-95 SB to I-16 EB, and ramps from I-16 WB to I-95 SB.

D. Contract Changes

References to the RFP requirements that are inconsistent with the proposed ATC (including proposed redlined changes), an explanation of the nature of the changes from the requirements and a request for approval of such changes and a completed ATC Checklist (Form P). In doing so, the Proposer shall clearly identify any design exception required to implement the ATC for GDOT's approval;

The Instructions To Proposers (ITP) Section 3.1 defines an ATC as changes conflicting with the technical requirements or requiring modifications to any of the approved NEPA Documents such as Environmental Document Approvals, Concept Report, IMR, and Noise analysis. This proposed modification will be considered as an ATC since it may require modification to the RFP language to allow for lower design speeds at specific locations, and will require modifications to the already approved NEPA documents. We acknowledge and accept the risks, including cost and schedule, associated with the update and final approval of all NEPA documents such as the IMR updates, traffic analysis, and Noise analysis that may be required. These changes, however; will all conform with the provisions in the Design-Build agreement, Volume 1, Article 5, and table 5-1 related to the annual cumulative payment cap schedule. We also acknowledge and accept that the scheduled milestones as stated in the DB agreement will be met.

For this ATC, the main deviation from the RFP requirements involves the design speed along portions of two of the ramps. This ATC requires a minimum design speed of 50 mph along Ramp DE8 (SB I-95 to EB I-16), and 45mph along Ramp DE9 (WB I-16 to SB I-95). These lower design speeds allow the concept to fit within the R/W footprints

designated for this project

Since the Partial Turbine is considered a different interchange type from the RFP concept, the current design criteria for the two ramps affected may no longer apply as originally intended. The recommended design criteria for Partial Turbine is provided in Exhibit E. It is important to note that these new criteria should not be applied to the RFP concept showing the Direct System to System interchange since it will not meet the minimum GDOT requirements or AASHTO recommendations for that interchange type. To accommodate the use of this new interchange type without impacts to the RFP concept, we recommend the following note be added to the design criteria section of the RFP to allow GDOT the opportunity to ensure that all applications of the design criteria not governed by RFP are evaluated through the ATC process or as a direct question to the Owner.

> * *Deviations from the minimum design criteria provided in this section is not permitted without justification and prior approval through the ATC process or through a direct Question. In the event that a deviation to the RFP is needed for a situation not explicated or covered by the provided requirements, an ATC must be submitted and approved.*

Alternatively, to allow the use of 45mph (or 50mph) design speed on the ramps as the minimum criteria under specific pre-approved conditions, the following can be used as a specific note related to the flyover ramp design speed Column.

> * *A Lower design speed may be considered on a case by case basis assuming no additional Design variation is required and approved through the ATC process.*

Based on the recommended modification to the Design criteria and RFP documents provided above, we acknowledge and accept that all design criteria in the contract will be met.

E. Justification

An analysis justifying the Proposer's use of the ATC and why GDOT should allow the Deviation, if any, from the RFP requirements;

The weaving and merging issues created by the existing four loop ramps are eliminated by the direct connect ramps as shown in the original IMR. Similarly, these conditions are eliminated by the ATC Turbine ramps, which is the primary purpose for this interchange modification. The reduced speed proposed as part of this ATC is consistent with all GDOT standards for a Partial Turbine Interchange and will not require a design variation based on the requirements in “Section 3.3.3 Freeway exit and entrance ramps” of the GDOT Design Policy Manual (DPM).

- The higher design speed shown in the RFP (55 mph) relates specifically to direct system to system ramps.
- The Proposed ATC geometry is not a direct system to system ramp, but rather a semi direct connection ramp governed by the general parameters outlined in the GDOT DPM and AASHTO. Design requirements for a

semi direct connection ramp are outlined as follows:

- Minimum design speed of 35mph for Ramps outlined in table 3.1 of the GDOT DPM. Please note, we are proposing a design speed of 50 mph and 45 mph.
- The design of the partial turbine ramps will meet GDOT minimum requirements for horizontal curves including minimum tangent lengths between reverse curves.
- The GDOT DPM also states that generally, the design speed of the first curve of an exit ramp can be assumed to be 10 mph below mainline speeds. With each successive curve on the exit ramp, the design speed of the curve can be reduced based on computed vehicle deceleration. The reverse condition applies to the design speed for all entrance ramps. This ATC follows this basic approach to establish ramp geometry.
- The GDOT DPM references AASHTO to define the proper deceleration and acceleration lengths between mainline and ramps. Based on Exhibit E, the 200' AASHTO minimum acceleration and deceleration distances for transitioning from mainline speed to ramp speed have been met.
- Based on AASHTO Figure 10-68, the modification in this ATC will meet or exceed all the requirements of ramp terminal spacing and weave distances where they may apply.
    - 2000' Weaving area
    - 1000' between Exit/Entrance ramps
    - 800' Between Turning Roadways
    - 500' between Entrance and Exit ramps
- Based on an overlay of the RFP signing plan and the ATC, there is very little change to the signs and these are primarily minor shifts in location to match the new ramp gore locations. All signing criteria can be met and the DB team recognizes this will

F. Impacts

F.1 – Vehicular Traffic

F.1.a – During Construction – No Change – all movements are maintained and initial phasing allows for sequential construction of ramps alongside existing ramps.

F.1.b – Final Condition – No Change anticipated – Exhibit C provides a detailed analysis of the impact of this ATC.

F.2 – Environmental – No change, or improved. Based on the modifications being proposed, Parcel 6, which is one of the critical permitting locations along this project, will have a reduction in impacts as the footprint and R/W requirements will be significantly reduced. This reduced impact to Parcel 2 and 6 also allows us to anticipate the "No net Fill" criteria will be achieved within parcel 6. We anticipate a reduced impact to this parcel, however, we acknowledge and accept that any additional ESA impacts will need to be mitigated, and we accept the risk associated

with an Environmental re-evaluation.

F.3 – Construction Schedule

F.3.a – Overall Schedule –Contingent on additional FHWA Approval for IMR. We acknowledge and accept that the RFP states the project duration is limited to 1400 calendar days from when SRTA issues NTP 1. With the ATC we anticipate a 90-120 day savings in overall schedule.

F.3.b – Milestone Schedule – Improved –This ATC reduces the construction cost of critical path items within the I-16/I-95 interchange allowing flexibility to spend early funding from the Annual Cumulative Payment Cap Schedule on areas along I-16 where the traffic bottlenecks occur – and relieve congestion sooner. Also, since the long lead procurement and erection times for the flyover bridges are removed, we can also improve the milestone schedule for opening DE8 and DE9 by utilizing innovative ground improvement to speed up embankment work. We acknowledge and accept that the schedule milestones as stated in the DB Contract will be met.

F.4 – Community – Improved – The community's direct view of interstate ramps should be markedly decreased and there should be a reduction in noise from the 90' tall ramps. The local community of Southbridge will benefit from lower semi-direct connection ramps by keeping them lower than the tree line and out of sight, maintaining the wooded park-like feel of the neighborhood and golf course. Exhibit G – provides a comparative artistic rendering similar to the rendering that was provided during the public outreach. As illustrated the tall DE8 ramp shown in the RFP design closest to Southbridge is lowered drastically by the ATC.

F.5 – Safety – Improved – reduced height of construction activities by 20-30 feet improves safety during construction. In final condition, lowered ramps improve access for emergency personnel and improve fire suppression capability for ground level forces. Additionally, inspecting lower bridges and roadway is much safer with the ATC alternative.

F.6 – Life-Cycle Costs (See also N. Below) – Bridge Annual Costs, including bi-annual bridge inspections as well as routine and periodic maintenance, historically outweighs Roadway and Wall maintenance costs. Each column, cap, bearing, beam, and deck that is eliminated from construction is also one less column, cap, bearing, beam and deck that needs to be inspected every 2 years and maintained. Savings on these costs can be utilized elsewhere to further improve GDOT's transportation system.

F.7 – Project Costs

F.7.a – Maintenance – The Maintenance Cost impact is reduced by reducing bi-annual inspection and upkeep of costly bridge items such as joints and bearings.

F.7.b – Operational costs – No change

F.7.c - Repair. – Reduced – The cost and time to repair bridges from incidents such as tanker truck fires, over height vehicles, or errant vehicle impacts is a magnitude higher than the cost of repairing roadways. If an impact or tanker fire occurs on a bridge, the minimum time it will be closed is the time it takes to painstakingly assess the damage and if repairs are required, it could take days if not weeks for an emergency repair contract to be enacted and completed before reopened to traffic. If the same impact or fire occurs on a roadway, damage assessment is fairly simple and traffic is flowing after the debris is cleared and/or fire is put out.

G. Cost Savings

G.1 – Infrastructure - $25,000,000 - we Confirm that this work contemplated by this ATC conforms with the provisions in Volume I, Article 5, and Table 5-1.

G.2 – R/W (see also O. Below) –Reduction of parcels 2 & 6

G.3 – Utility – No Change - We acknowledge that all additional risk and cost associated with additional SUE, if required, and/or conflicts with Utilities will be borne by the DB Team.

H. Time Savings

An estimate and detailed breakdown of any savings that would accrue to GDOT as a result of the ATC

This ATC does improve overall project time by up to 120 days, but the major benefit is the flexibility provided by the reduced cost of the interchange to start work on I-16 sooner and complete interim milestones earlier. The Annual Cumulative Payment Cap Schedule somewhat restricts the DB teams from simply adding resources to the project to accelerate construction. The interchange is on the critical path whether you build the RFP flyovers or this ATC, so it has to be started on day 1, and continuously constructed for the project duration. However, with the ATC we are placing dirt instead of purchasing and erecting, piles, beams and concrete decks. So instead of front end loading all of the available funding into the interchange, we are able to add more resources to the project and use that early funding on I-16 toward Savannah, hit interim milestones, and relieve congestion sooner.

I. Risks

A description of added risks to GDOT or third parties associated with implementation of the ATC (including, without limitation, with respect to post-construction, operation, maintenance, and tolling, if applicable, of the Project);

Key risk items were evaluated to ensure this ATC added value to this project by addressing safety and reliability during construction and mitigating concerns about third party approval during the design process.

The safety and reliability during construction was improved by having bridges and roadway lower to the ground. This design enhancement reduced the risk of schedule delays due to soil conditions, operational risk of inspecting and maintaining high level bridges, incident management risks of first responders having lifesaving and firefighting access/capability.

A risk analysis of the requirements for third party approvals centered on the updates to the IMR report based on the new interchange configuration has been performed. Since the proposed interchange modifications for this project are consistent with the requirements of the FHWA policy on “Access to the Interstate System” dated August 27, 2009 (Volume 74, Number 165 of the Federal Register 20679) and the Georgia Department of Transportation (GDOT) “Responsibility and Procedures for Interchange Justification (IJR) and Interchange Modification (IMR) Reports,” Policy No. 3140-1, our professional opinion is this carries a very low risk. The FHWA policy requires the following eight policy points to be addressed:

- Policy #1: Existing system is incapable of accommodating the traffic – This is unchanged by ATC1.
- Policy #2: All reasonable alternatives to a new interchange have been considered- This is unchanged by ATC1.
- Policy #3: Proposal does not adversely impact operational safety of the existing freeway- The change in access is virtually unchanged by this ATC. Limits of operational study are similar to the original IMR. ATC 1 will not adversely impact the operational safety of the existing freeways.
- Policy #4: A full interchange with all traffic movements at a public road is provided - This is unchanged by ATC1.
- Policy #5: The proposal is consistent with local and regional plans - This is unchanged by ATC1.
- Policy #6: Consistency with State Highway Master Plans- This is unchanged by ATC1 and provides for all anticipated future/ultimate improvements.
- Policy #7: Coordinated with the area's development – ATC1 Access points are virtually unchanged from the original IMR and we have reduced the R/W impacts for parcels 2 and 6.
- Policy #8: Request needs to consider planning and environmental constraints – Environmental impacts are reduced by this ATC since the footprint of the facility is reduced.

It is our professional opinion that this ATC will meet the key policy points for a IMR approval. We acknowledge and accept all cost and schedule risk associated with an IMR revision will be borne by the DB team.

J. Quality

A description of how the ATC is equal to or better in quality and performance than the RFP requirements; - Exhibit C demonstrates the equality of performance from an operations standpoint, even with the reduction in ramp speeds consistent with this type of interchange. Other aspects such as drainage, MOT, signing, ITS, and lighting have been reviewed, and it has been determined that equal facilities can easily be accommodated. However, even without taking the immense cost savings associated with this ATC into account, the following aspects of the facility are better.

Reduced Traffic Conflict Points – By creating the semi-direct connection ramps we are able to eliminate two traffic conflict points with mainline interstate traffic as compared to the original IMR. One is eliminated along I-95 SB and the other is along I-16 EB.

Improved Safety – The reduced profile allows emergency responders easier access to GDOT facilities, in cases such as severe crashes and fires, that may have additional implications to traffic operations throughout the corridor. This ATC provides all of the safety improvements envisioned by the original IMR to eliminate sideswipe and rear-end collisions.

Easier Maintenance – With less bridges to maintain as well as reduced profile, this ATC allows easier access for maintenance of bridges, and reduces the cost by shifting most of the maintenance to roadway and MSE wall sections which are less expensive to inspect and maintain.

Community enhancement – As shown in Exhibit G, the lower profile of ATC 1 allows for a more open, visually appealing, community appropriate interchange adjacent to the neighboring community and will reduce noise impacts

and place the ramps below the tree line.

Reduced Risk – By realigning ramps and as much as 100' away from Parcel 6, less R/W will be required for this challenging parcel. Similarly, we are able to reduce impacts to Parcel 2. Additionally, this ATC allows the Annual Cumulative Payment Cap Schedule to have more flexibility without risk of reaching annual ceilings. The resulting safety improvements can also be directly translated into overall risk reduction for the Project.

Earlier Interim Congestion Relief – by allowing more funding to be spent along I-16, as opposed to concentrated spending in the interchange, the bottlenecks can be tackled sooner and opened to traffic between interchanges.

Environment – By realigning ramps toward the inside, we anticipate reduced impacts to the Hardin Canal Floodplain as well as the mixed pine hardwood habitats or parcel 2, jurisdictional wetlands, and non-jurisdictional ditches. As mentioned earlier, Parcel 6, which is one of the critical permitting locations along this project, will have a reduction in impacts as the footprint and R/W requirements will be significantly reduced.

K. Costs

An estimate of the ATC implementation costs to GDOT, the DB Team and third parties This ATC will decrease the first cost of construction that will be recognized by GDOT through the proposal price submitted by Savannah Mobility Contractors JV when implemented. No additional costs will be recognized by third parties. In addition, this reduced cost frees up funding to provide more flexible spending within the Annual Cumulative Payment Cap Schedule and helps GDOT to open early portions of the improvements and reduce congestion within the corridor sooner. And the reduced maintenance and operational costs will free up funding for other projects within the GDOT program.

L. Operations

Any changes in operation requirements associated with the ATC (including, without limitation, with respect to (i) ease of operation and (ii) post-construction tolling of the Project, if applicable); Exhibit C provides the Traffic Memorandum summarizing the operational characteristics of the ATC. As concluded in Section 4 of the Memorandum:

4.1 – Future (2021) and (2041) Build conditions – Travel Speeds Comparison - Evaluation of travel time patterns suggests that in the build alternative, drivers will experience a high increase in travel speeds along the I-16/I-95 corridors, and associated decreases in travel times. In year 2021, noticeable travel speed increases are such that the travel times are reduced by 5-15 minutes in the peak direction. In year 2041, noticeable travel speed increases are such that travel times are expected to be reduced by 15-20 minutes in the peak direction. Differences between the travel speeds and times for the original IMR design and proposed ATC design are negligible (≤ 1.5 mph and < 1 minute).

4.2 – Future (2021) and (2041) Build conditions – Weaving Area Comparison - The no-build conditions, with full cloverleaf configuration of the I-16/I-95 interchange, results in weaving-related congestion, causing travel delays along the I-16/I-95 corridors. The original IMR design reduces the number of exit points at the I-95/I-16 interchange from 8 to 5. The proposed ATC design keeps the same number of reduced exit points and also reduces the number of entrance points from 6 to 4, further reducing the number of conflict areas at the interchange. Access point density along a freeway corridor acts as one of the prime contributors to sideswipe and rear-end crashes. The build alternative proposes to reduce the number of mainline lane access points on the I-16/I-95 corridors, which would help to lower

access point density and, thus, potentially reduce the number of crashes along the corridor.

4.3 – Future (2021) and (2041) Build conditions – LOS Comparison - The average duration of the peak period is defined as the average length of time (typically in hours) a corridor is expected to operate at LOS F over its entire length. Based on simulation of the peak periods (5 hours each for a.m. and p.m.), it is expected that the freeway corridors in the build alternative will operate much more efficiently. The build conditions show a substantial reduction in the severity and average duration of the peak period congestion, when compared to the no-build. The proposed ATC design is anticipated to have the same benefits in reducing congestions, as shown in the heat maps provided in Appendix A through Appendix D.

M. Maintenance

Any changes in the anticipated maintenance requirements (during and post construction) associated with the ATC, including ease of maintenance; As stated above, the maintenance operation shifts activities from bridge maintenance to roadway and wall maintenance, which is historically a lower cost endeavor, and frees up maintenance resources for use on other facilities.

N. Anticipated Life

Any changes in the anticipated life of the item comprising the ATC; There should be no change in the anticipated life of the interchange by utilizing this ATC. With normal programmed maintenance of the roadway and bridges the facility should last until it becomes functionally obsolete. The benefit with our ATC is that the programmed maintenance cost will now be much less with the reduction of bridges.

O. Right-of-way

A description of the additional right-of-way (if any) required to implement the ATC; No Additional R/W is required for this ATC as currently shown. There is also potential that we can decrease the required R/W from Parcel 2 and 6 to further lower GDOTs costs. The reduction in the R/W is primarily from the ability of the Partial Turbine to tie down closer to grade in the infield areas, allowing for more flexibility in the horizontal geometry as the ramps tie back to the Mainline. For Parcels 2 and 6 we are able to realign portions of the ramps up to 100' closer to the mainline than the original design, eliminating the need for acquisition of major portions of those parcels. We note that a smaller portion of ramp DE11, as it turns north, is moved closer the proposed R/W line of parcel 6, however it is well within the R/W line as prescribed by GDOTs RFP.

As we finalize the design and make updates for the final IMR approval, there is a potential for this to change. We acknowledge this risk and cost implications associated with these modifications.

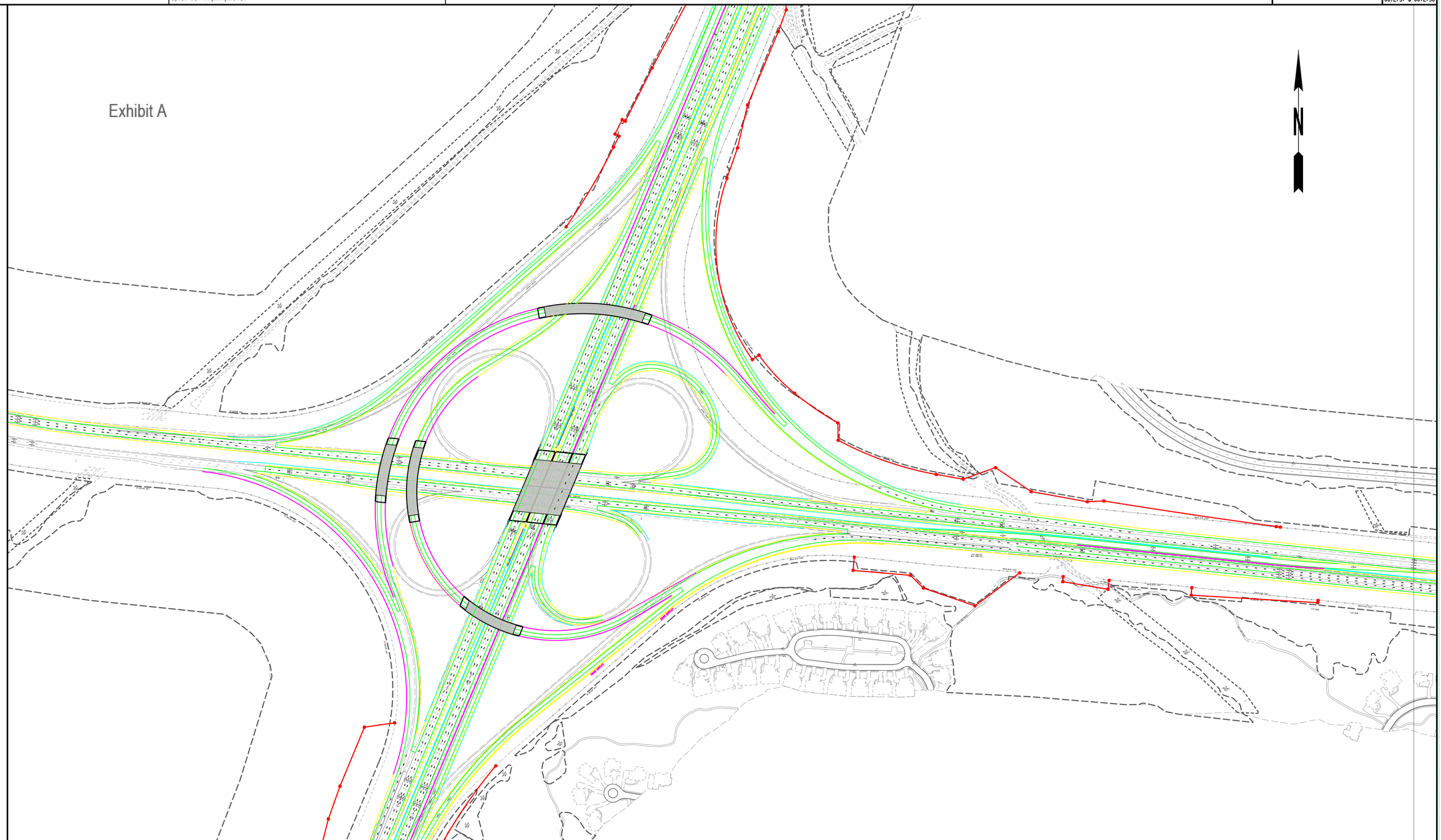
P. Past Use

A description of other projects where the ATC has been used, the success of such usage and names and contact information, including phone numbers and email addresses, for project owner representatives that can confirm such statements; Turbine Interchanges are textbook type interchanges for free flowing system to system movements with adequate land area to provide the sweeping curves. A recent example of its use is the I-85/485 Interchange in

Charlotte, NC (full turbine) a second example would be I-295 at Butler Blvd in Jacksonville, FL (Full Turbine). This ATC does not deviate from industry standard road design or configurations, is compliant with RFP roadway design criteria, and achieves the goals of providing a safer, more cost effective end product both initially and in the long term while providing an equal or better solution than the design originally proposed.

Q. Sale of Work Product

A statement of whether or not the Proposer is prepared to sell its ATCs as part of the Work Product to GDOT in accordance with the terms of Section 3.8 hereof (in the event that such the Proposer is not selected as the Apparent Successful Proposer). The Savannah Mobility Contractors JV is prepared to sell the ATC as part of the work product to GDOT.



PROPERTY AND EXISTING R/W LINE
REQUIRED R/W LINE
CONSTRUCTION LIMITS
EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES
EASEMENT FOR CONSTR OF SLOPES
EASEMENT FOR CONSTR OF DRIVES

BEGIN LIMIT OF ACCESS.....BLA
END LIMIT OF ACCESS.....ELA
LIMIT OF ACCESS
REQ'D R/W & LIMIT OF ACCESS
ORANGE BARRIER FENCE
ESA - ENV. SENSITIVE AREA (SEE ERIT TABLE)

COSTING PLANS
NOT FOR CONSTRUCTION

REVISION DATES

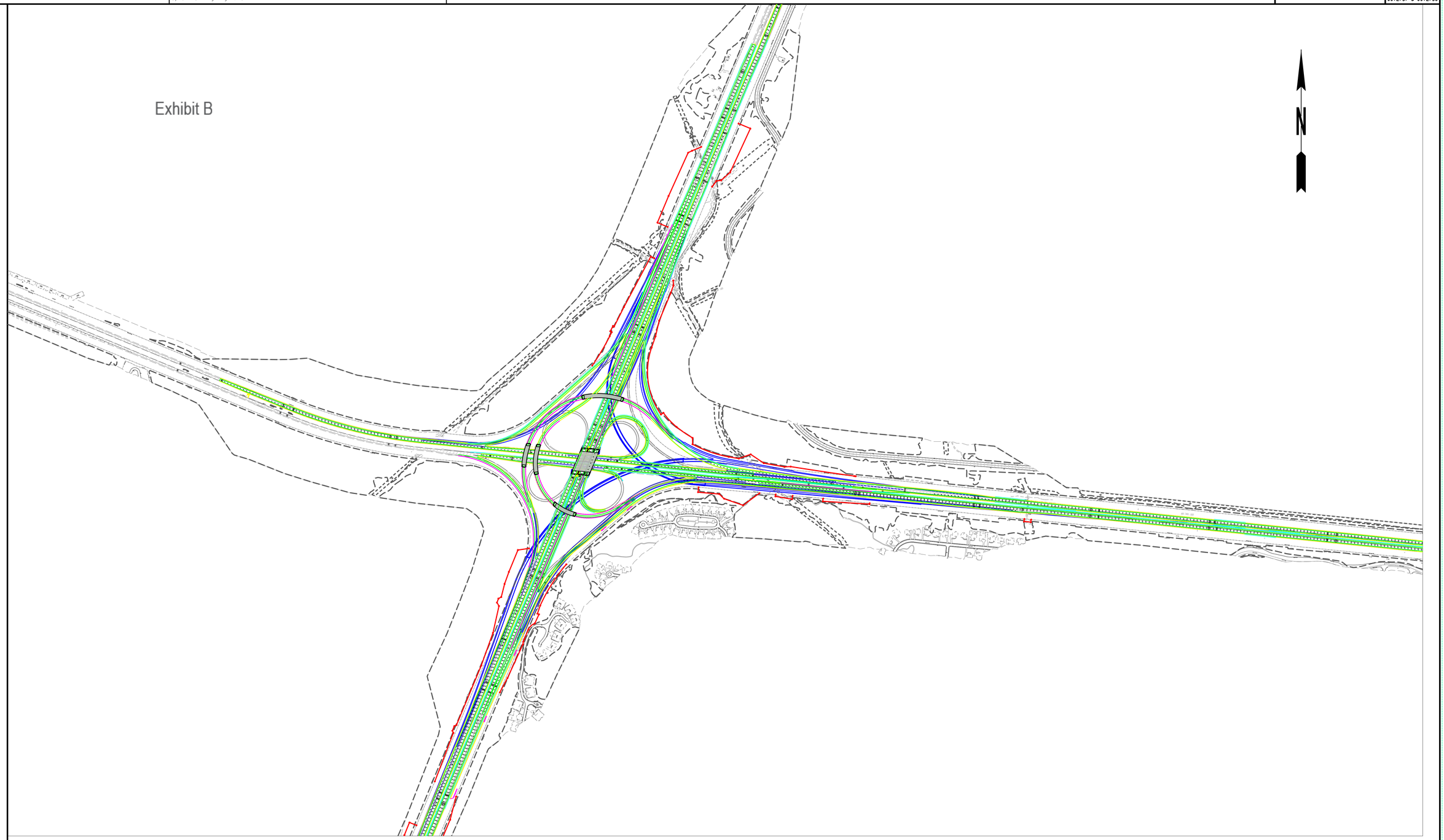
CONSTRUCTION PLAN
I-16 TURBINE

I-16 WIDENING AND I-16 AT I-95 INTERCHANGE IMPROVEMENTS

CHECKED:		DATE:	
BACKCHECKED:		DATE:	
CORRECTED:		DATE:	
VERIFIED:		DATE:	

DRAWING No.
13-0000

Exhibit B



PROPERTY AND EXISTING R/W LINE
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ORANGE BARRIER FENCE
ESA - ENV. SENSITIVE AREA (SEE ERIT TABLE)

REVISION DATES

I-16 TURBINE

I-16 WIDENING AND I-16 AT I-95 INTERCHANGE IMPROVEMENTS

CHECKED: DATE:
BACKCHECKED: DATE:
CORRECTED: DATE:
VERIFIED: DATE:

DRAWING No.

4/28/2016 GPLN

Exhibit C

JACOBS

I-16 Interchange at I-95

ATC 1 Traffic Analysis

April 5, 2018

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1. Introduction

The purpose of this document is to describe the changes to traffic operations for an Alternative Technical Concepts (ATC) at the I-16 / I-95 interchange in Chatham County, Georgia. Amongst other additions, the original design from the Interchange Modification Report (IMR) includes flyover ramps to replace the I-95 Southbound to I-16 Eastbound loop ramp and the I-16 Westbound to I-95 Southbound loop ramp. The ATC proposes to construct semi-directional turbine ramps in replacement of the flyovers. In addition to considerable cost savings, other project benefits include increased safety, shorter schedule, ease/cost of maintenance, improved life-cycle, and reduced community impacts. General layouts of the interchange designs are shown in Figure 1, below.

Figure 1 : No-Build (left), Proposed Build from IMR (center), ATC Design (right)

Project Background

As reported in the IMR for the project, the I-16 eastbound corridor currently operates at Level of Service (LOS) F during the morning peak period, and the I-16 westbound direction operates at LOS F during the evening peak period. These conditions are expected to worsen in the future. As the population in the project area continues to grow, the volume at the interchange ramp junctions (merges and diverges) are expected to exceed their available capacities, resulting in further deterioration of operations and increased safety issues within the project area.

The IMR reported congestion to be attributed to the following:

- Failure of the eastbound and westbound merge points at the I-16/I-95 interchange, causing backups along I-16 eastbound, I-16 westbound and I-95 southbound.
- Failure of northbound to westbound left-side merge point at the I-16/I-516 interchange, causing congestion along I-516 northbound and I-16 westbound.
- Traffic backups from the westbound ramp-terminus at the I-16 and Dean Forest Road interchange causes congestion along the I-16 mainline lanes during the p.m. peak period.

2. Description of Alternatives

This section describes the build alternatives developed to improve traffic operations and address safety issues at the interchanges of I-16/I-95.

2.1 Original Build Conditions in IMR

This build alternative was developed in the Interchange Modification Report (IMR) in March 2017.

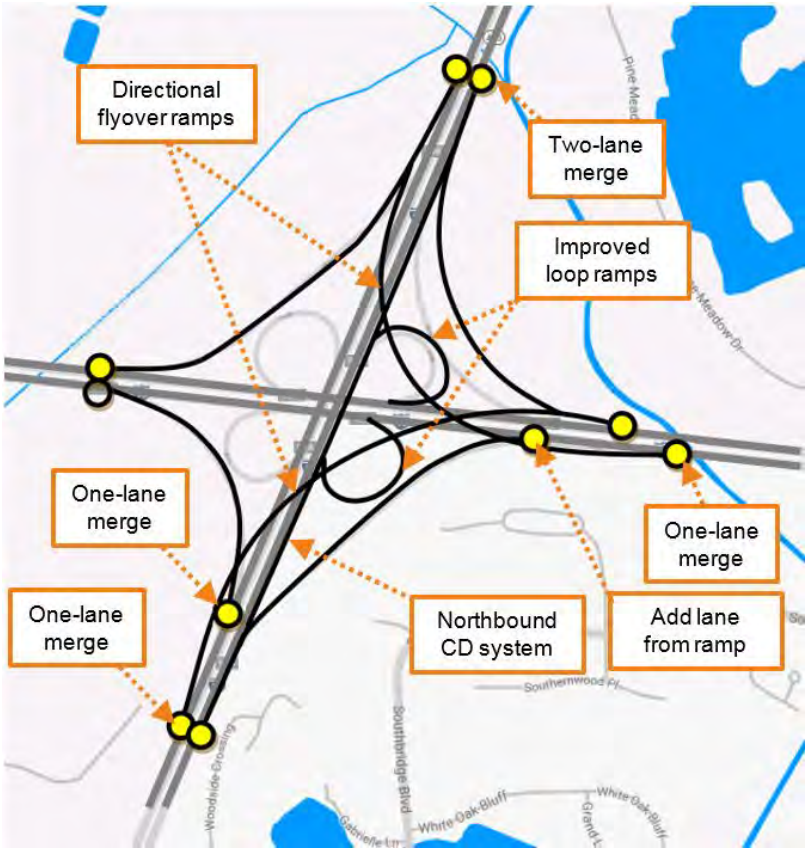


Figure 2 : Proposed Build from IMR

The IMR design proposed the following improvements:

- Conversion of two of the high-speed loop ramps into directional flyover ramps with an increased curve radii and design speed. These are the ramps serving the I-95 southbound to I-16 eastbound movement and I-16 westbound to I-95 southbound. The implementation of flyover ramps will eliminate three of the four weaving segments of the cloverleaf interchange configuration.
- Improved approach and departure design speeds for the loop ramps in the northeast and southeast quadrants of the interchange. The improved design speed at the loops ramps is expected to facilitate vehicle maneuvers through the interchange weaving segments.
- Proposed acceleration lane of approximately 1,650 feet long for the I-95 southbound to I-16 westbound movement.
- Proposed northbound CD system to barrier separate weaving movements from I-95 mainline lanes.

2.2 Proposed Changes in ATC

The ATC design proposes to reduce the negative impacts of a 4th and 3rd Level flyover ramps by utilizing a partial turbine interchange for the free-flow moving traffic to and from SB I-95. The partial turbine maintains the same exit and entrance locations provided in the RFP plans, but instead of high level bridges and high retaining wall sections to provide a direct connection back to the interchange system, it provides a semi-direct path that combines with subsequent ramps before connecting to the interchange mainline.

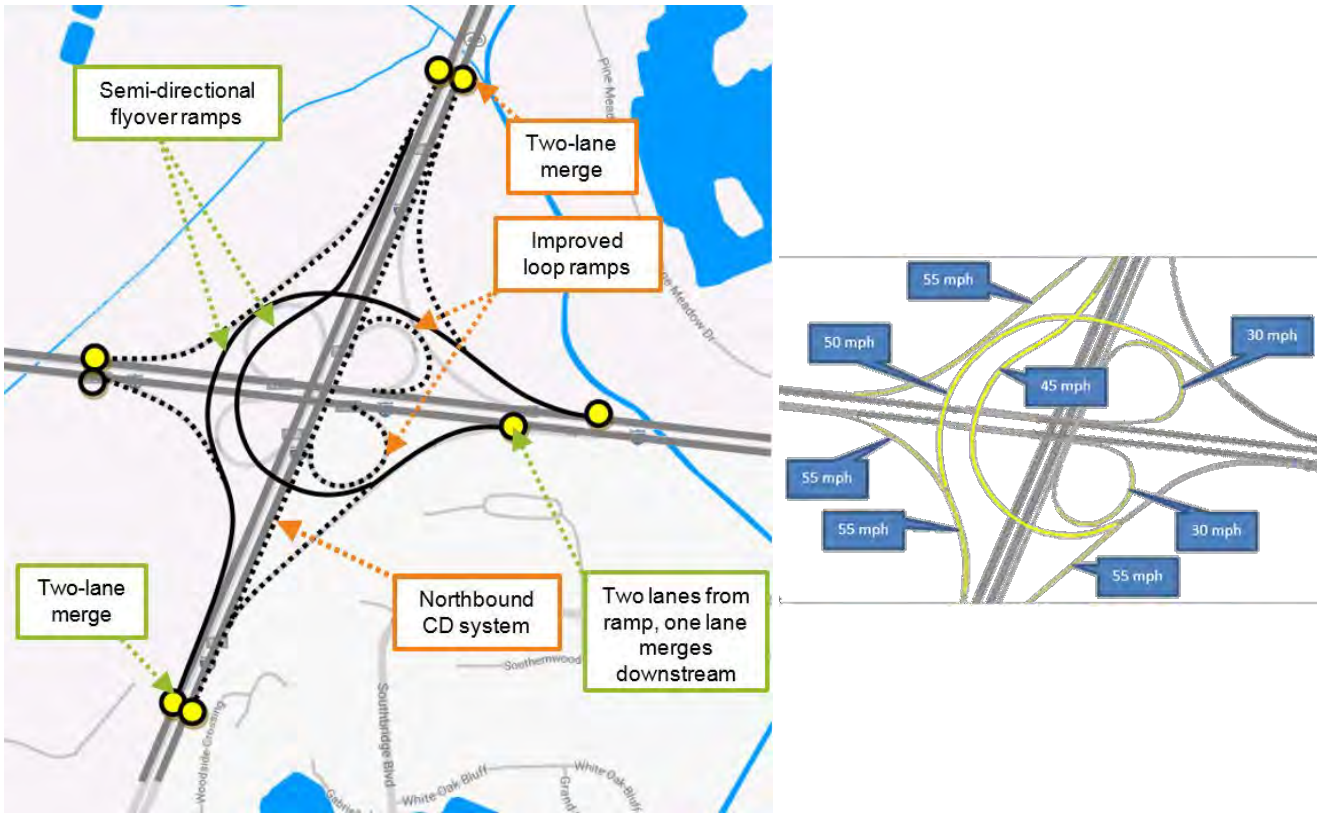


Figure 3 : Proposed ATC Design Changes (left); Reduced Speed Areas in VISSIM model (right)

Direct and semi-direct connections are used for important turning movements to reduce travel distance, increase speed and capacity, eliminate weaving, and to avoid the need for out-of-direction travel in driving on a loop. Good levels of service can be realized on semi-direct ramps because of relatively high speeds and the likelihood of better terminal design.

The ATC design proposes the following changes:

- I-16 WB to I-95 SB and I-95 SB to I-16 EB ramps replaced with semi-direct connections
- I-95 SB merge is designed as a single two-lane merge point, rather than two one-lane merge points
- I-16 EB merge is designed as a single access point, rather than two access points

3. Traffic Analysis

Several performance measures were used to compare operational safety under the no-build and build alternatives. Key measures included freeway densities, freeway corridor peak periods, network throughput, unserved demand, system-level delays, time savings, safety benefits, and benefit-to-cost (B/C) ratios. The benefits stated to be had by the Build conditions in the Interchange Modification Report (IMR) were as follows:

- Increase in Network Throughput
- Decrease in Unserved Demand and Delay
- Reduction in Average Delay per Vehicle
- Reduction in Travel Times
- Reduced Duration of Peak Period

In order to obtain an apples-to-apples comparison of the IMR design and ATC design, the following key metrics were analyzed in both models:

1) Travel Times: Travel times and travel speeds indicate the amount of reduced congestion through the interchange. The purpose of the travel time analysis is to capture the amount of congestion experienced by vehicles traveling eastbound and westbound along I-16 and the potential backup spilling onto I-95 northbound and southbound.
2) Interstate Level-of-Service: Based on vehicle density of the roadway, the interstate level-of-service over the peak can be used to determine the efficiency of the design and duration of congestion during peak periods.
3) Weaving Area Analysis: Also based on vehicle densities, the level-of-service in weaving areas can help analyze the differences between the IMR and ATC ramp configurations.

3.1 Travel Time Analysis

Travel time analyses of both the No-Build and IMR design were taken from the unaltered VISSIM model provided. When evaluating the open year travel time analysis results, the open year no-build geometry incorporates additional improvements from the SR 307 Interchange Improvements Project (P.I. No. 0013727). It should also be noted that, due to differences in versions of VISSIM and the random seeding of the microsimulation model, there are differences in the results reported in the IMR and this report. To ensure a fair comparison, all No-Build, Build, and Proposed ATC models were reran using the same version and seed numbers. Travel times are reported as the average of 10 simulation runs. Locations of the origins and destinations used for the travel time analysis are shown in Figure 4.

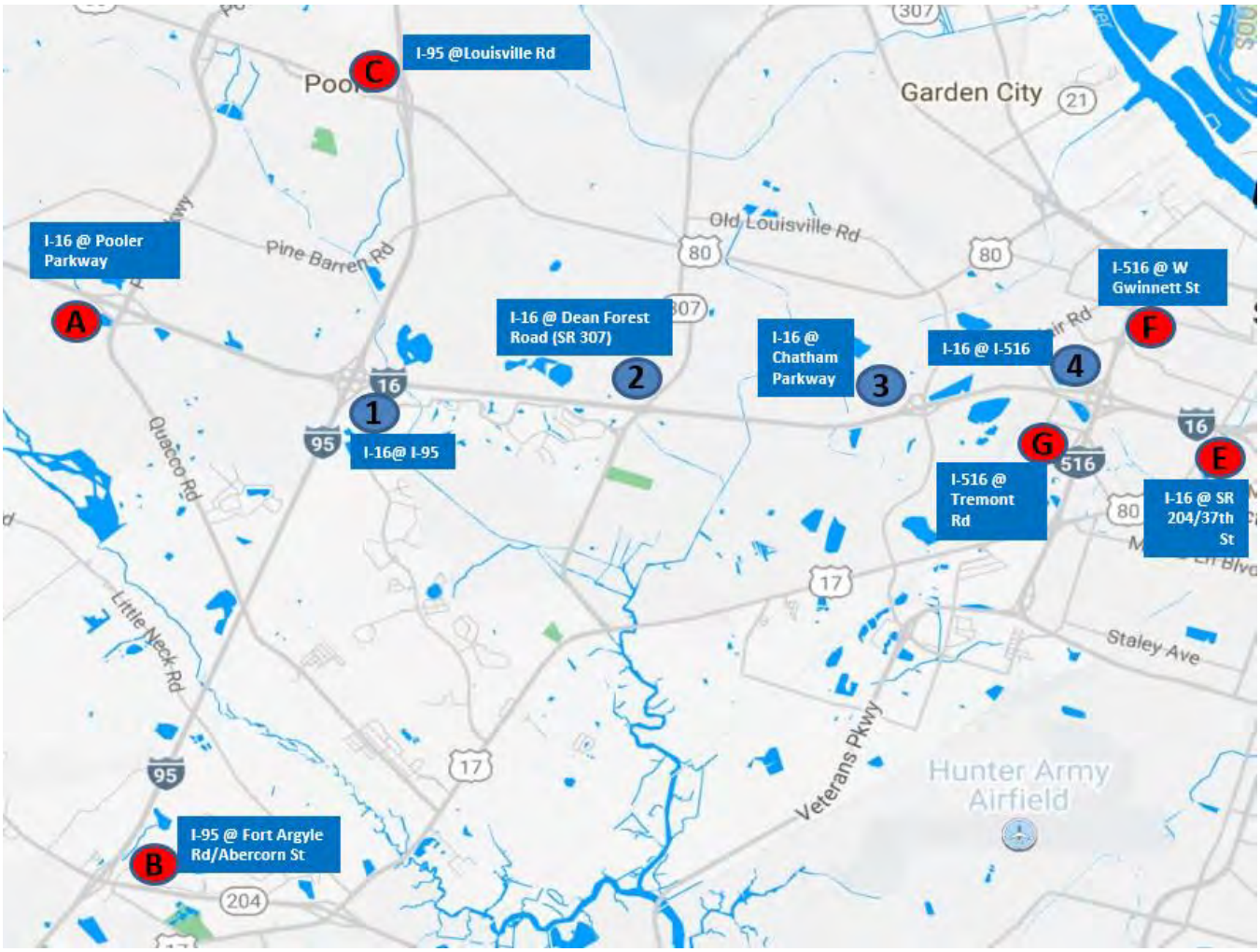


Figure 4 : Travel Time Origin and Destination Locations

3.1.1 No-Build 2021 and 2041 Travel Times

As in the IMR, the results of the 2021 No-Build operations indicate that the largest slowdowns in the morning occur in the eastbound direction on I-16 and southbound direction on I-95. These morning delays are caused by the backups from the I-95/I-16 merge area and SR 307 at I-16. The evening congestion occurs on I-16 westbound. These evening delays are caused by merge failures at the Chatham Parkway and SR 307 and slow-downs from merging traffic traveling from I-516 northbound. As traffic volumes continue to growth, the study area would experience further delays without the project improvements by the 2041 design year. The travel time and travel speed results are shown in Table 1. A graphic summary of all model travel times is provided in Appendix E.

Table 1 : No-Build Travel Times (2021 and 2041)

Direction of Travel	Origin-Dest.	No-Build 2021					No-Build 2041				
		Dist. (mi)	AM Peak		PM Peak		Dist. (mi)	AM Peak		PM Peak	
			Travel Tm (min)	Speed (mph)	Travel Tm (min)	Speed (mph)		Travel Tm (min)	Speed (mph)	Travel Tm (min)	Speed (mph)
I-16 Eastbound	A-E	10.29	27.98	22.06	10.52	58.67	10.29	38.49	16.04	10.82	57.05
	A-F	10.67	30.09	21.28	11.59	55.24	10.67	40.94	15.64	11.90	53.80
	A-G	11.10	29.18	22.83	11.71	56.91	11.10	39.64	16.81	12.13	54.93
I-95 Northbound to I-16 Eastbound	B-E	13.14	17.27	45.67	13.67	57.66	13.14	43.26	18.23	14.29	55.17
I-95 Southbound to I-16 Eastbound	C-E	11.22	31.70	21.23	11.58	58.09	11.22	50.56	13.31	12.91	52.11
I-16 Westbound	E-A	10.29	12.22	50.50	28.61	21.58	10.29	41.04	15.04	33.38	18.50
	E-B	13.58	23.77	34.29	32.26	25.26	13.58	49.32	16.52	37.14	21.94
	E-C	10.71	11.81	54.41	28.90	22.24	10.71	40.91	15.71	33.62	19.12
I-516 Northbound to I-16 Westbound	G-A	11.43	13.64	50.29	35.81	19.15	11.43	48.25	14.21	48.26	14.21
I-516 Southbound to I-16 Westbound	F-A	10.23	12.27	50.05	22.11	27.77	10.23	41.85	14.67	31.77	19.33

≤ 40 miles per hour (mph) is considered undesirable

3.1.2 2021 Build Travel Time Comparisons

As in the IMR the results of the 2021 Build operations indicate travel speeds at or above 55 mph for all routes along the study area. When compared to the proposed ATC design, there is a negligible difference (≤ 1 mph) in the travel time results. The travel time results during peak periods are shown in Table 2. A graphic summary of all model travel times is provided in Appendix E.

Table 2 : 2021 Build Travel Time Comparison

Direction of Travel	Origin-Dest.	Original (IMR) Design 2021					Proposed (ATC) Design 2021				
		Dist. (mi)	AM Peak		PM Peak		Dist. (mi)	AM Peak		PM Peak	
			Travel Tm (min)	Speed (mph)	Travel Tm (min)	Speed (mph)		Travel Tm (min)	Speed (mph)	Travel Tm (min)	Speed (mph)
I-16 Eastbound	A-E	10.29	10.78	57.27	10.43	59.17	10.29	10.78	57.25	10.45	59.10
	A-F	10.68	11.55	55.49	11.18	57.33	10.68	11.54	55.53	11.15	57.48
	A-G	11.11	11.89	56.06	11.52	57.84	11.11	11.89	56.04	11.52	57.83
I-95 Northbound to I-16 Eastbound	B-E	13.14	13.27	59.40	13.02	60.53	13.14	13.28	59.38	13.03	60.49
I-95 Southbound to I-16 Eastbound	C-E	10.78	11.58	55.87	10.79	59.94	**11.14**	12.07	55.39	11.28	59.24
I-16 Westbound	E-A	10.29	10.44	59.15	10.95	56.39	10.29	10.44	59.15	10.95	56.37
	E-B	13.21	13.05	60.73	13.51	58.67	**13.47**	13.36	60.52	13.77	58.72
	E-C	10.66	10.63	60.14	11.04	57.89	10.66	10.83	59.06	11.17	57.29
I-516 Northbound to I-16 Westbound	G-A	11.43	11.97	57.30	12.66	54.19	11.43	11.94	57.43	12.66	54.19
I-516 Southbound to I-16 Westbound	F-A	10.24	10.54	58.27	11.10	55.35	10.24	10.51	58.43	11.10	55.34

≤ 40 miles per hour (mph) is considered undesirable

3.1.3 2041 Build Travel Time Comparisons

As in the IMR the results of the No-Build operations indicate that the build alternative results in substantially reduced average travel times (and increased travel speeds) for the studied travel movements compared to the no-build alternative. The reduction in a.m. peak period travel times is expected to be in the 10-20 minute (45-60%) range. The westbound movements, which primarily experience heavy congestion during the p.m. peak period, are expected to experience a substantial reduction in travel times between 8-20 minutes (30-50%).

Travel times change < 1% on all routes except for the new turbine ramps. The turbine ramps have a less than 1-minute increase travel times over the IMR design due to added length, however there is a negligible difference (≤ 1.5 mph) in the travel speeds. A graphic summary of all model travel times is provided in Appendix E.

Table 3 : 2041 Build Travel Time Comparison

Direction of Travel	Origin-Dest.	Original (IMR) Design 2041					Proposed (ATC) Design 2041				
		Dist. (mi)	AM Peak		PM Peak		Dist. (mi)	AM Peak		PM Peak	
			Travel Tm (min)	Speed (mph)	Travel Tm (min)	Speed (mph)		Travel Tm (min)	Speed (mph)	Travel Tm (min)	Speed (mph)
I-16 Eastbound	A-E	10.29	12.00	51.43	10.56	58.48	10.29	11.75	52.55	10.56	58.45
	A-F	10.68	12.92	49.60	11.29	56.75	10.68	12.62	50.76	11.30	56.69
	A-G	11.11	13.18	50.55	11.68	57.06	11.11	12.92	51.57	11.67	57.11
I-95 Northbound to I-16 Eastbound	B-E	13.14	14.55	54.19	13.96	56.48	13.14	14.48	54.46	14.02	56.24
I-95 Southbound to I-16 Eastbound	C-E	10.78	13.04	49.62	11.71	55.24	**11.14**	13.54	49.37	12.05	55.50
I-16 Westbound	E-A	10.29	10.59	58.28	19.85	31.10	10.29	10.60	58.23	19.78	31.21
	E-B	13.21	13.20	60.04	19.40	40.85	**13.47**	13.51	59.85	19.03	42.48
	E-C	10.66	10.82	59.10	15.95	40.08	10.66	11.03	57.98	15.45	41.41
I-516 Northbound to I-16 Westbound	G-A	11.43	15.24	45.00	26.04	26.34	11.43	15.28	44.90	25.75	26.64
I-516 Southbound to I-16 Westbound	F-A	10.24	10.69	57.45	20.42	30.08	10.24	10.75	57.13	20.24	30.35

≤ 40 miles per hour (mph) is considered undesirable

3.2 Weaving Area Analysis (Density)

According to HCM 2010, the influence area of a weaving segment is equal to the base length of weaving segment + 500 ft. upstream of entry + 500 ft. downstream of exit point of weaving segment. Merge influence areas are equal to the point where edges of travel lanes of merging roadways meet + 1500 ft. downstream of that point. The level-of-service criteria are listed in Table 4.

Table 4 : Level-of-Service Thresholds for Weaving Segments (Source: 2010 Highway Capacity Manual)

Level-of-service (LOS)	A	B	C	D	E	F
Density (pc / mi / lane)	> 0-10	> 10-20	> 20-28	> 28-35	> 35-45	> 45

Due to the direct flyover ramps being replaced by two semi-direct connections, there are changes in the merge areas for vehicles merging onto I-16 Eastbound and I-95 Southbound. These changes are illustrated in the following figures.

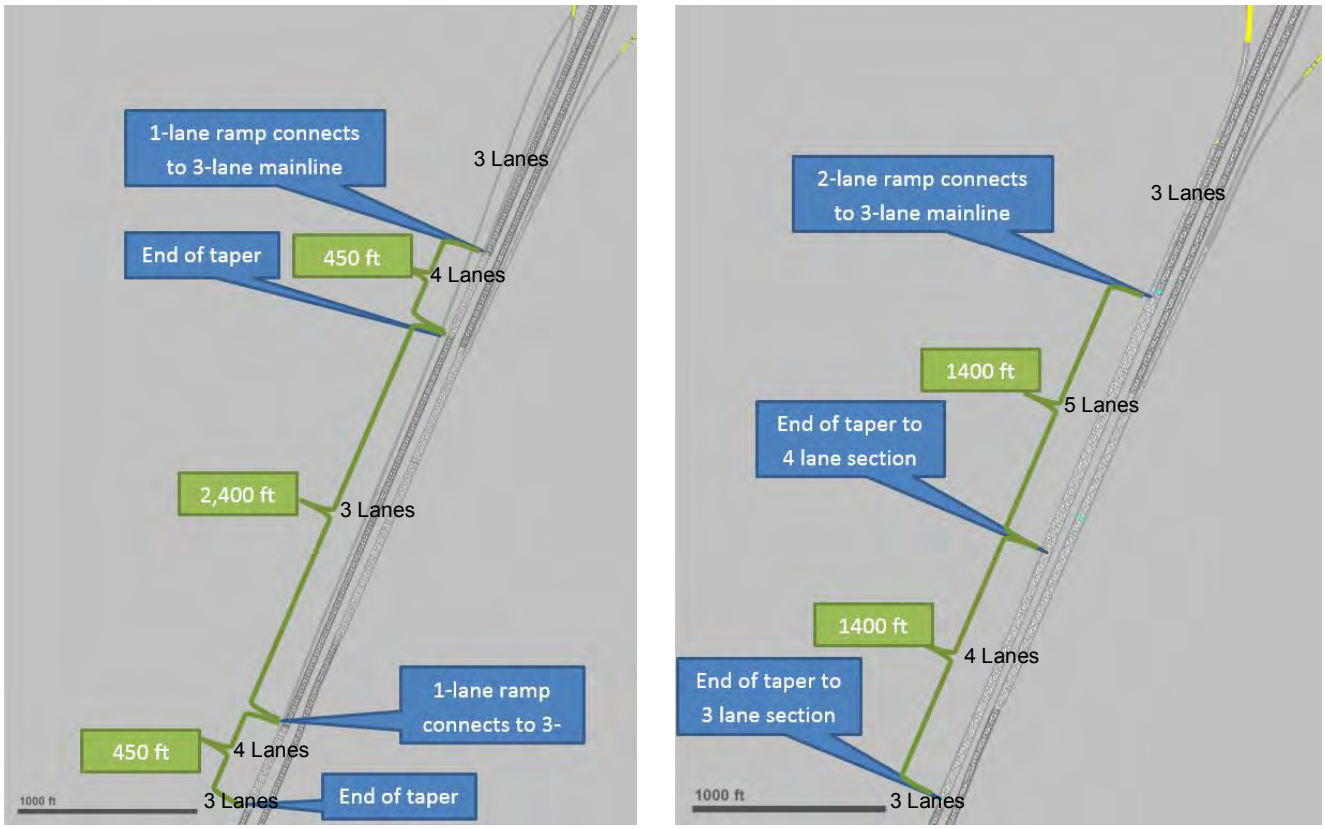


Figure 5 : Planned Merge Area on I-95 SB (left); Proposed Merge Area on I-95 SB (right)

As shown in Figure 5, the merge onto I-95 Southbound was originally planned as two separate single-lane merge points. The first merge is from I-16 Eastbound, with a merge distance of 450 feet, and the second is from I-16 Westbound, with a merge distance of 450 feet. The proposed ATC design replaces these with a single access point with two 1,400-foot lane merges.

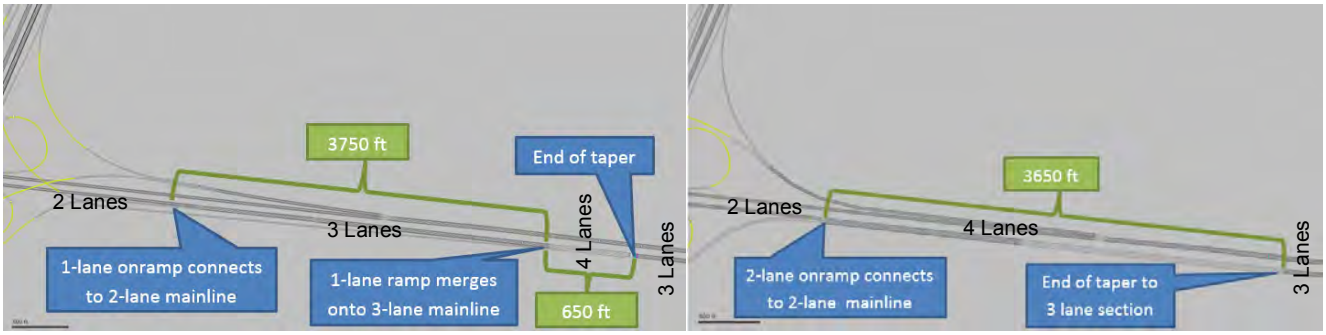


Figure 6 : Planned Merge Area on I-16 EB (left); Proposed Merge Area on I-16 EB (right)

As shown in Figure 5, the merge onto I-16 eastbound was originally planned as two separate acess points. The first access is from I-16 Eastbound, with an added lane, and the second is from I-16 Westbound, with a merge

distance of 650 feet. The proposed ATC design replaces these with a single access point with a 3,650-foot lane merge. A comparison of the vehicle densities from the VISSIM models in these weaving areas is shown in the tables below.

Table 5 : Weaving Area Densities on I-16 Eastbound

Link Description	Link#	Distance (feet)	# Lanes	Original (IMR) Design 2021		Original (IMR) Design 2041	
				AM Peak	PM Peak	AM Peak	PM Peak
				Density (pc/mi/ln)	Density (pc/mi/ln)	Density (pc/mi/ln)	Density (pc/mi/ln)
I-16 Eastbound Add Lane (I95 NB)	1010	1,010	3	C (20.54))	B (10.07)	C (26.92)	B (12.77)
I-16 Eastbound Travel	1011	2,070	3	C (20.63)	B (10.14)	C (27.34)	B (12.87)
I-16 Eastbound Merge (I95 SB)	9	640	4	C (21.53	B (11.64)	D (28.50)	B (14.75)
I-16 Eastbound Travel	789	4,340	3	D (29.22)	B (15.61)	E (36.70)	B (19.78)
Link Description	**Link#**	**Distance (feet)**	**# Lanes**	**Proposed (ATC) Design 2021**		**Proposed (ATC) Design 2041**	
				AM Peak	PM Peak	AM Peak	PM Peak
				Density (pc/mi/ln)	Density (pc/mi/ln)	Density (pc/mi/ln)	Density (pc/mi/ln)
I-16 Eastbound Add Lanes	1010	1610	4	C (20.99)	B (11.48)	C (25.00)	B (14.32)
I-16 Eastbound Merge (I95 NB+SB)	1011	2,015	4	C (21.25)	B (11.60)	C (25.40)	B (14.49)
I-16 Eastbound Travel	9	5,010	3	D (29.28)	B (15.66)	E (35.32)	B (19.67)

*AM Peak (7:45-8:00am); PM Peak (5:30-5:45pm)

As shown in Table 5, the points after the addition of I-95 SB traffic (shaded in grey) have very similar densities in the weave area. The original IMR design has less density between the I-95 NB onramp and I-95 Southbound onramp, but has a far less distance for the base I-95 SB weave area than the proposed ATC design.

Table 6 : Weaving Area Densities on I-95 Southbound

Link Description	Link#	Distance (feet)	# Lanes	Original (IMR) Design 2021		Original (IMR) Design 2041	
				AM Peak	PM Peak	AM Peak	PM Peak
				Density (pc/mi/ln)	Density (pc/mi/ln)	Density (pc/mi/ln)	Density (pc/mi/ln)
I-95 Southbound Merge (I-16 EB)	4011	450	4	A (5.41)	B (10.56)	A (5.04)	B (12.58)
I-95 Southbound Travel	4012	2,370	3	A (7.21)	B (14.23)	A (6.67)	B (16.84)
I-95 Southbound Merge (I-16 WB)	6	450	4	A (7.74)	B (15.86)	A (8.47)	B (17.94)
I-95 Southbound Travel	7	20,340	3	B (10.33)	C (20.66)	B (11.12)	E (35.81)
Link Description	**Link#**	**Distance (feet)**	**# Lanes**	**Proposed (ATC) Design 2021**		**Proposed (ATC) Design 2041**	
				AM Peak	PM Peak	AM Peak	PM Peak
				Density (pc/mi/ln)	Density (pc/mi/ln)	Density (pc/mi/ln)	Density (pc/mi/ln)
I-95 Southbound Add (I16 EB+WB)	4011	1,415	5	A (6.12)	B (12.06)	A (6.52)	B (13.49)
I-95 Southbound Merge	4012	1,405	4	A (7.57)	B (15.01)	A (8.06)	B (16.75)
I-95 Southbound Travel	7	20.810	3	B (10.28)	C (20.64)	B (11.05)	E (38.64)

*AM Peak (7:30-7:45am); PM Peak (5:30-5:45pm)

As shown in Table 6, the points after the addition of I-16 WB traffic (shaded in grey) have very similar densities in the weave area. The original IMR design has less density between the I-16 EB onramp and I-16 WB onramp, but has a far less distance for the base I-16 WB weave area than the proposed ATC design.

The build alternative would eliminate two access points around the I-16/I-95 interchange and increase the distances between the remaining weaving areas. The Highway Safety Manual (Chapter 7 – Interchanges, Section 15A.2.2.6, Increase Length of Weaving Areas between Adjacent Entrance and Exit Ramps) indicates that increases in the short weaving areas between adjacent entrance and exit ramps are associated with decreased crash frequencies.

3.3 Interstate Level-of-Service (Density)

In the IMR, LOS data are presented in the form of heat maps that spatially represent the freeway corridor traffic operations for the analyzed peak period (consisting of five hours). The LOS heat maps show the plot of freeway LOS in 15-minute intervals. The heat maps can be used to easily identify the actual location of congestion along a freeway corridor. In addition, they can be used to identify the time reference of when the congestion may begin or end during the simulation period. It should be noted that, due to differences in versions of VISSIM and the random seeding of the microsimulation model, there are differences in the results reported in the IMR and this report. To ensure a fair comparison, all No-Build, Build, and Proposed ATC models were reran using the same version and seed numbers.

The methodology used for categorizing LOS at the study roadway segments is based on the criteria set forth in the Transportation Research Board's Highway Capacity Manual, 2010 edition (HCM 2010). Level-of-service for freeways is determined by the density thresholds in Table 7.

Table 7 : Level-of-Service Thresholds for Basic Freeway Segments (Source: 2010 Highway Capacity Manual)

Level-of-service (LOS)	A	B	C	D	E	F
Density (pc / mi / lane)	> 0-11	> 11-18	> 18-26	> 26-35	> 35-45	> 45

Heat maps for the all corridors are provided in Appendix A through Appendix D.

4. Conclusions and Recommendations

The future No-Build and Build conditions were analyzed for the I-95 at I-16 interchange. The analysis included the evaluation of two designs “Build” conditions:

1) Original Build Design per the IMR prepared in March 2017
2) Proposed Build Design with changes in the Alternative Technical Concepts (ATC)

Accounting for increases in annual growth of through traffic. The results of these analyses are summarized below with more information on each scenario provided in earlier sections of the report.

4.1 Future (2021) and (2041) Build conditions – Travel Speeds Comparison

Evaluation of travel time patterns suggests that in the build alternative, drivers will experience a high increase in travel speeds along the I-16/I-95 corridors, and associated decreases in travel times. In year 2021, noticeable travel speed increases are such that the travel times are reduced by 5-15 minutes in the peak direction. In year 2041, noticeable travel speed increases are such that travel times are expected to be reduced by 15-20 minutes in the peak direction. Differences between the travel speeds and times for the original IMR design and proposed ATC design are negligible (≤ 1.5 mph and < 1 minute).

4.2 Future (2021) and (2041) Build conditions – Weaving Area Comparison

The no-build conditions, with full cloverleaf configuration of the I-16/I-95 interchange, results in weaving-related congestion, causing travel delays along the I-16/I-95 corridors. The original IMR design reduces the number of exit points at the I-95/I-16 interchange from 8 to 5. The proposed ATC design keeps the same number of reduced exit points and also reduces the number of entrance points from 6 to 4, further reducing the number of conflict areas at the interchange. Access point density along a freeway corridor acts as one of the prime contributors to sideswipe and rear-end crashes. The build alternative proposes to reduce the number of mainline lane access points on the I-16/I-95 corridors, which would help to lower access point density and, thus, potentially reduce the number of crashes along the corridor.

4.3 Future (2021) and (2041) Build conditions – LOS Comparison

The average duration of the peak period is defined as the average length of time (typically in hours) a corridor is expected to operate at LOS F over its entire length. Based on simulation of the peak periods (5 hours each for a.m. and p.m.), it is expected that the freeway corridors in the build alternative will operate much more efficiently. The build conditions show a substantial reduction in the severity and average duration of the peak period congestion, when compared to the no-build. The proposed ATC design is anticipated to have the same benefits in reducing congestions, as shown in the heat maps provided in Appendix A through Appendix D.

Appendix A. LOS Heat Maps – 2021 AM

I-16 Eastbound (AM)

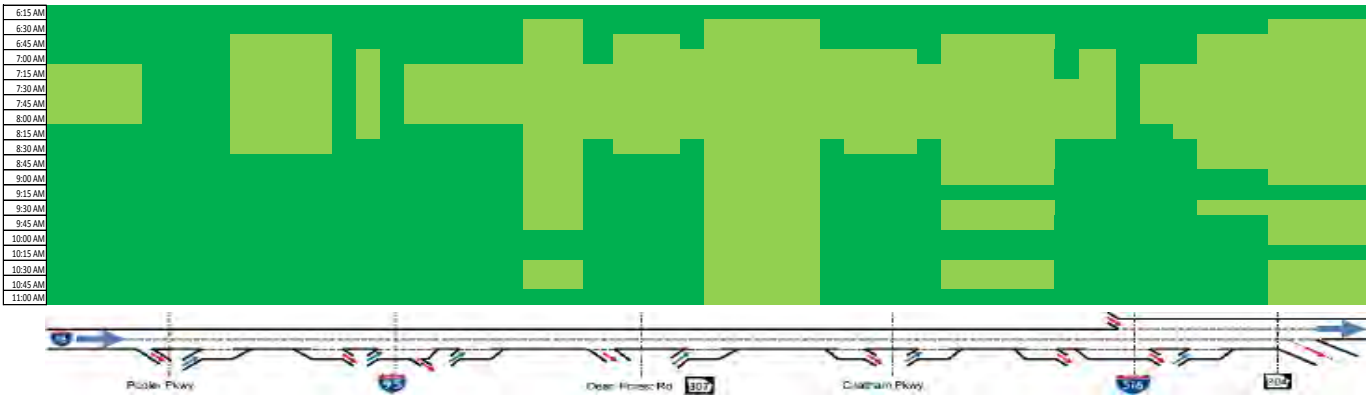


Figure 1: JACOBS Model: I-16 Eastbound (AM) - 2021

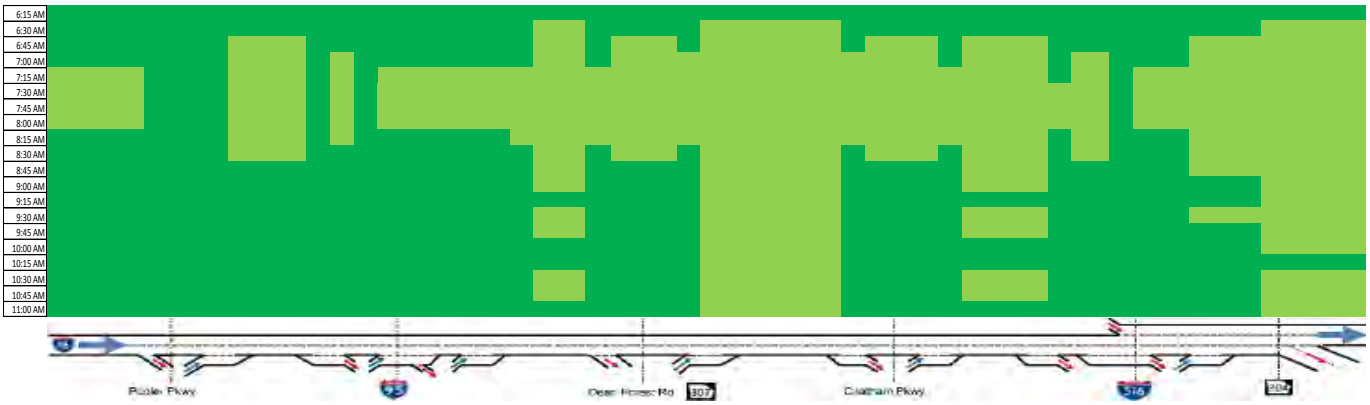


Figure 2: GDOT Model: I-16 Eastbound (AM) - 2021

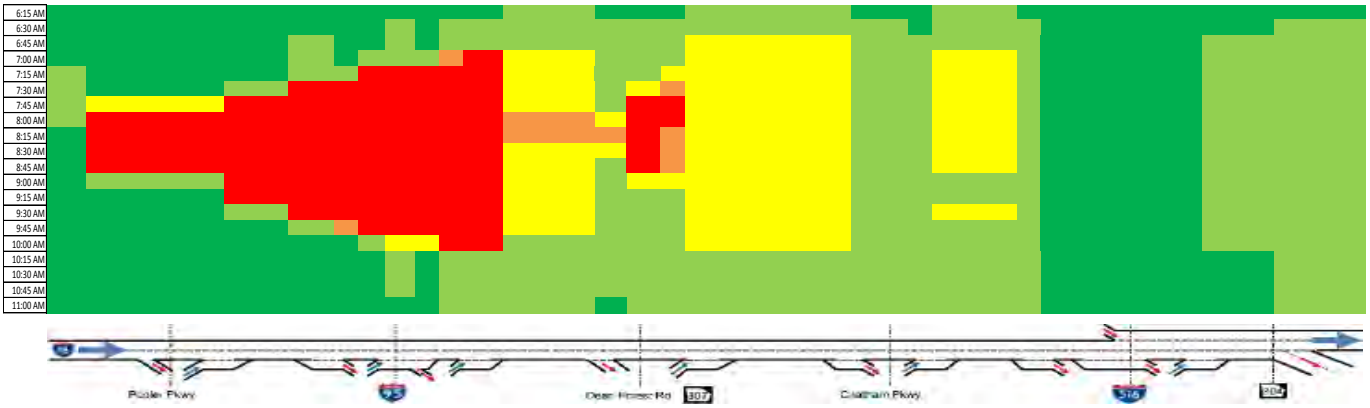


Figure 3: No Build Model: I-16 Eastbound (AM) - 2021

Legend					
	LOS A &B (Density <=18)	LOS C &D (18<Density<=35)	LOS E (35<Density<=45)	LOS F (Low) (45<Density<=55)	LOS F (High) (55<Density)

I-16 Westbound (AM)

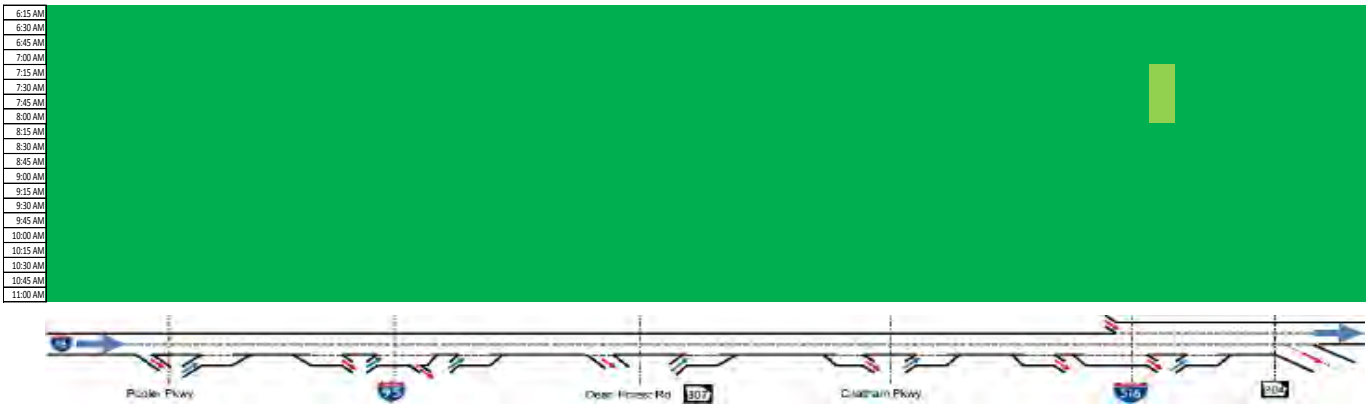


Figure 4: JACOBS Model: I-16 Westbound (AM) - 2021

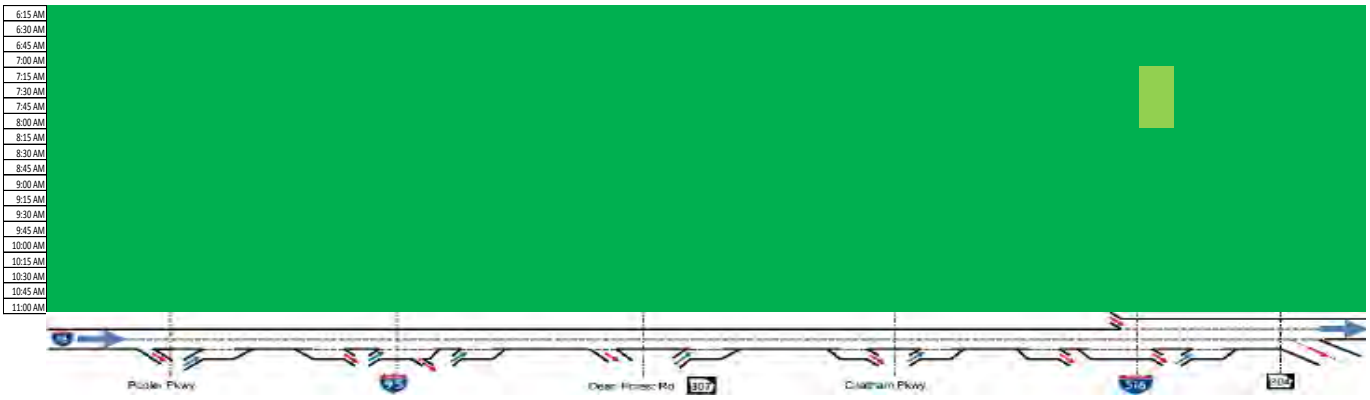


Figure 5: GDOT Model: I-16 Westbound (AM) - 2021

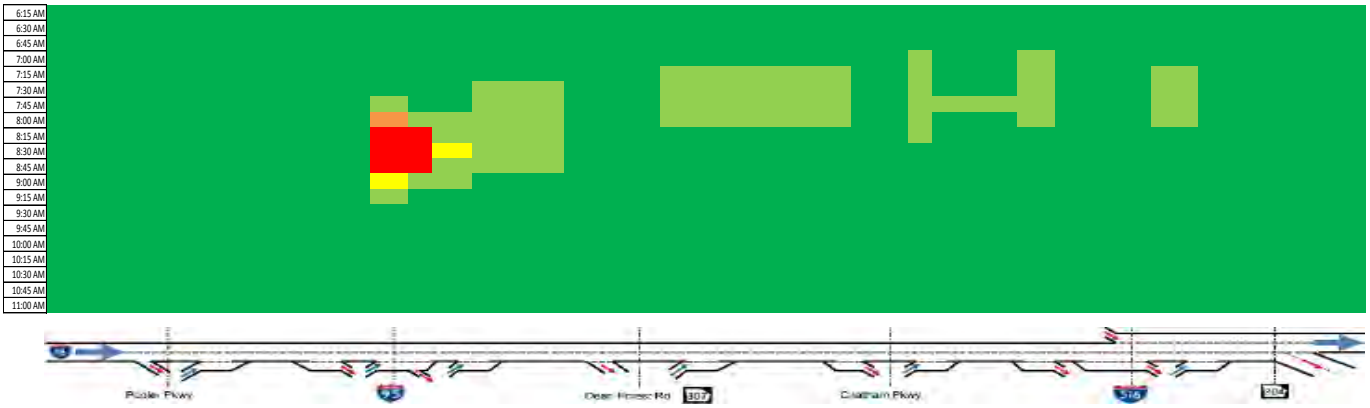


Figure 6: No Build Model: I-16 Westbound (AM) - 2021

Legend					
	LOS A &B (Density <=18)	LOS C &D (18<Density<=35)	LOS E (35<Density<=45)	LOS F (Low) (45<Density<=55)	LOS F (High) (55<Density)

I-95 Northbound (AM)

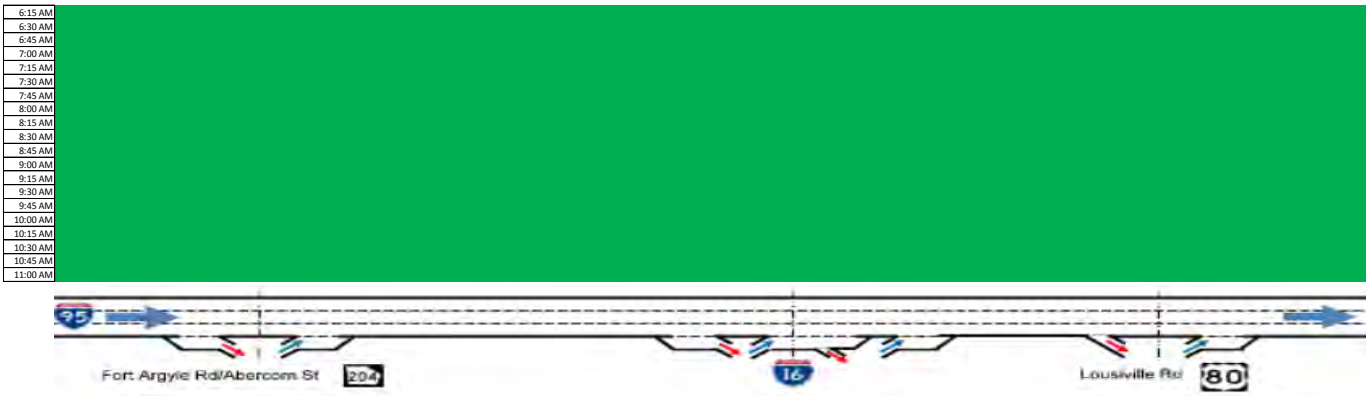


Figure 7: JACOBS Model: I-95 Northbound (AM) - 2021

Figure 8: GDOT Model: I-95 Northbound (AM) - 2021

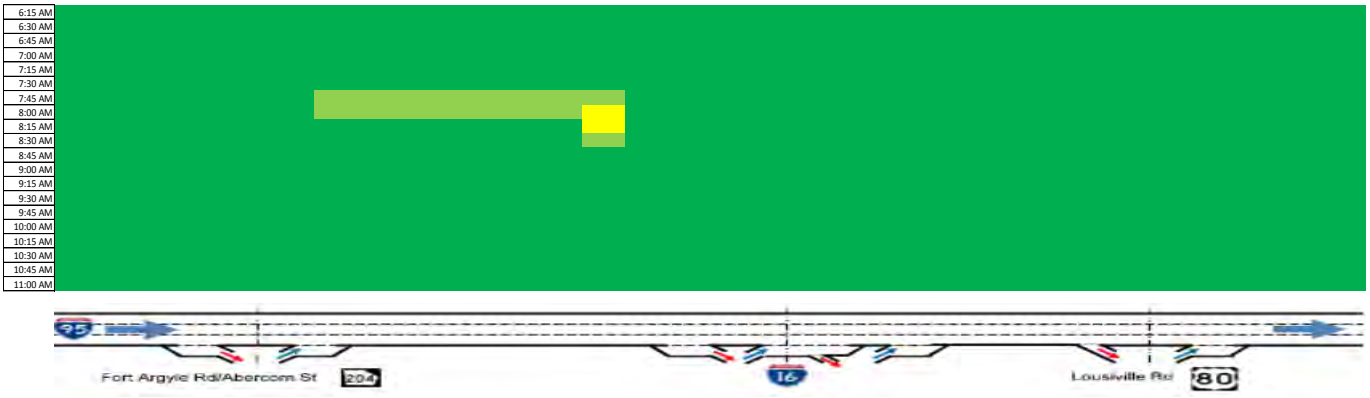


Figure 9: No Build Model: I-95 Northbound (AM) - 2021

Legend					
	LOS A &B (Density <=18)	LOS C &D (18<Density<=35)	LOS E (35<Density<=45)	LOS F (Low) (45<Density<=55)	LOS F (High) (55<Density)

I-95 Southbound (AM)

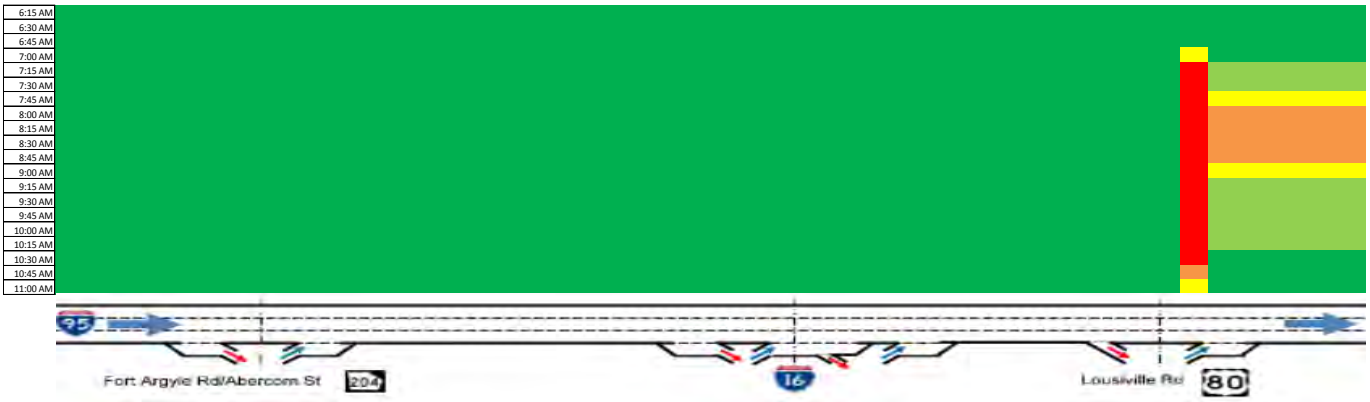


Figure 10: JACOBS Model: I-95 Southbound (AM) - 2021

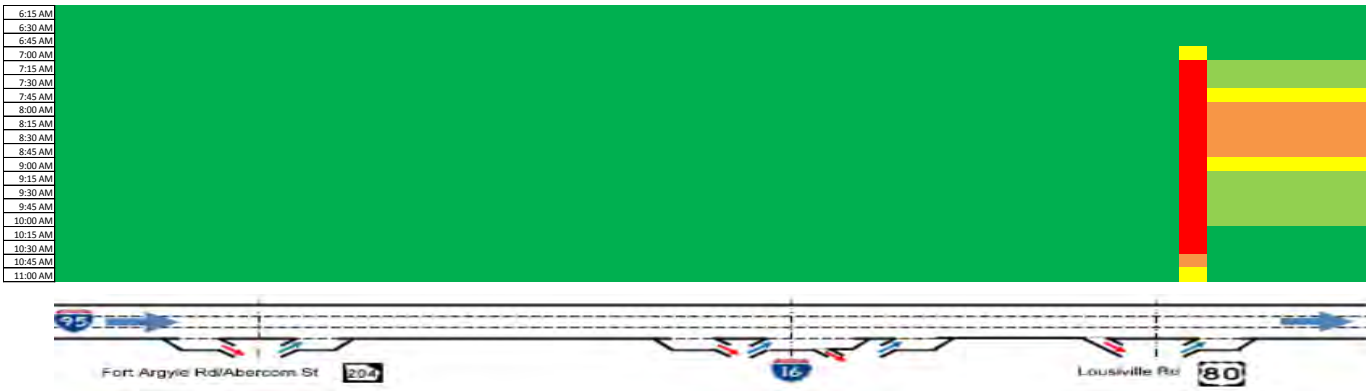


Figure 11: GDOT Model : I-95 Southbound (AM) - 2021

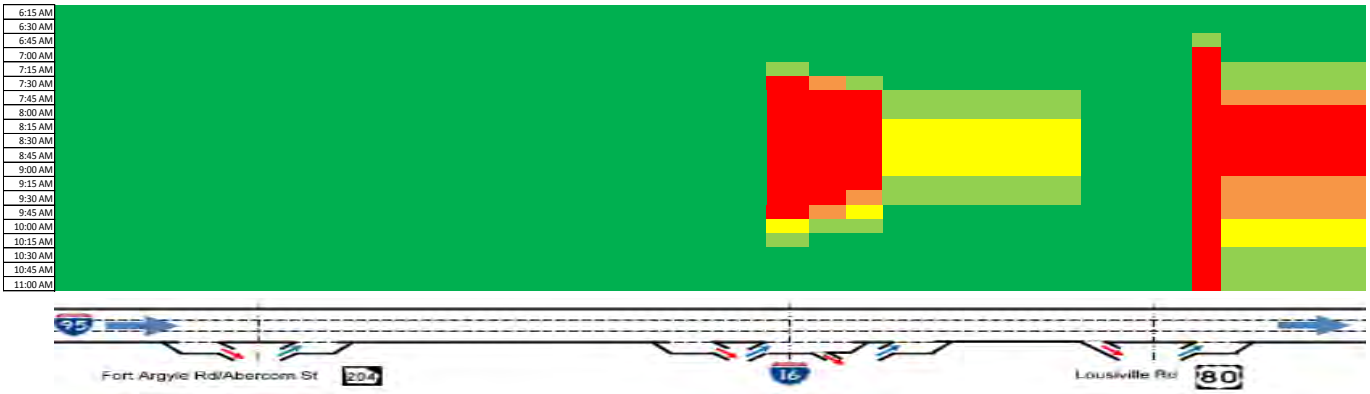


Figure 12: No Build Model: I-95 Southbound (AM) - 2021

Legend					
	LOS A &B (Density <=18)	LOS C &D (18<Density<=35)	LOS E (35<Density<=45)	LOS F (Low) (45<Density<=55)	LOS F (High) (55<Density)

Appendix B. LOS Heat Maps – 2021 PM

I-16 Eastbound (PM)

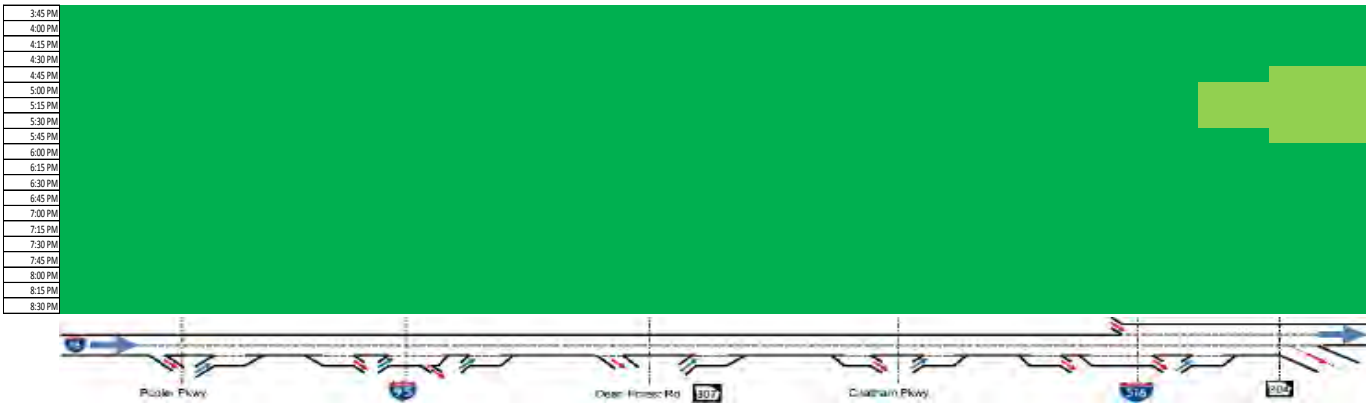


Figure 1: JACOBS Model: I-16 Eastbound (PM) - 2021

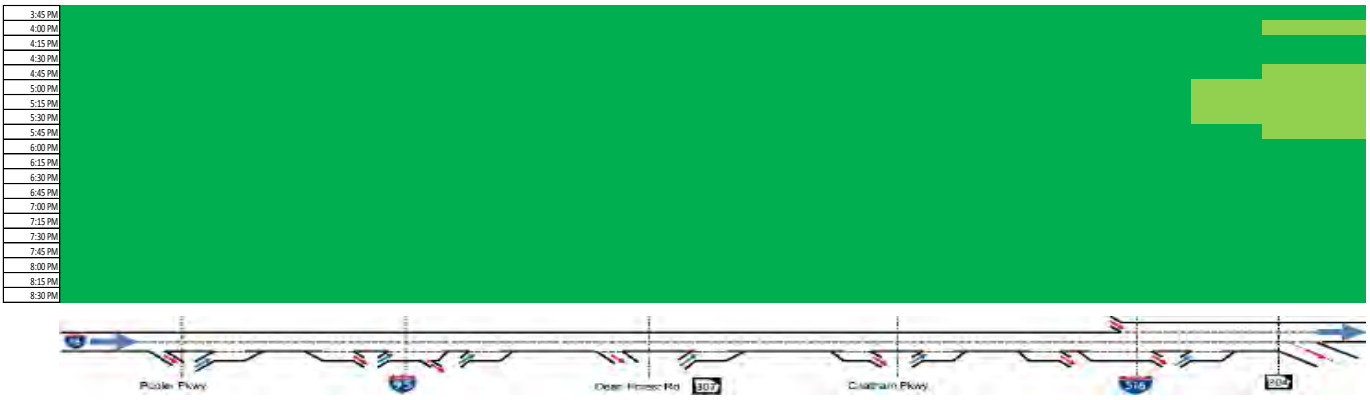


Figure 2: GDOT Model: I-16 Eastbound (PM) - 2021

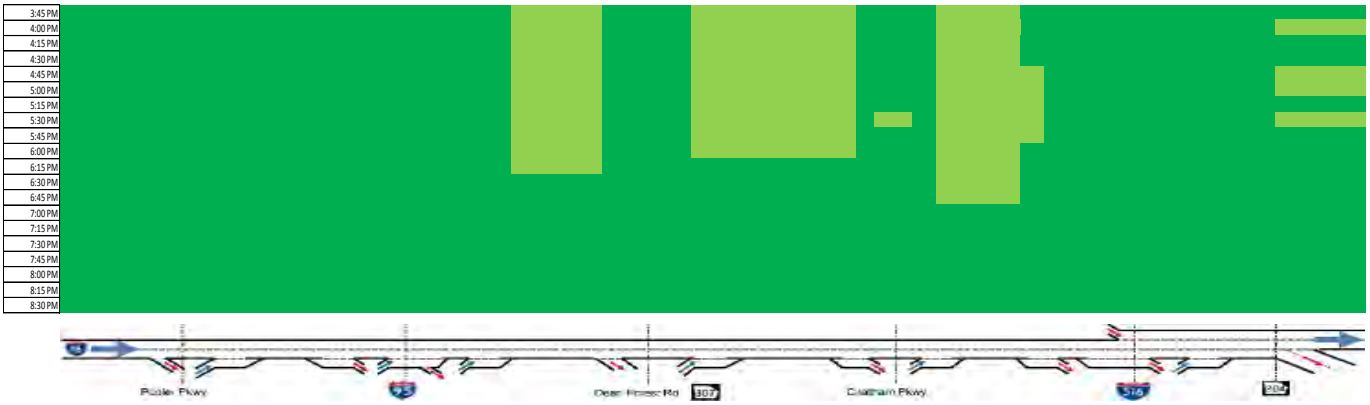


Figure 3: No Build Model: I-16 Eastbound (PM) - 2021

Legend					
	LOS A &B (Density <=18)	LOS C &D (18<Density<=35)	LOS E (35<Density<=45)	LOS F (Low) (45<Density<=55)	LOS F (High) (55<Density)

I-16 Westbound (PM)

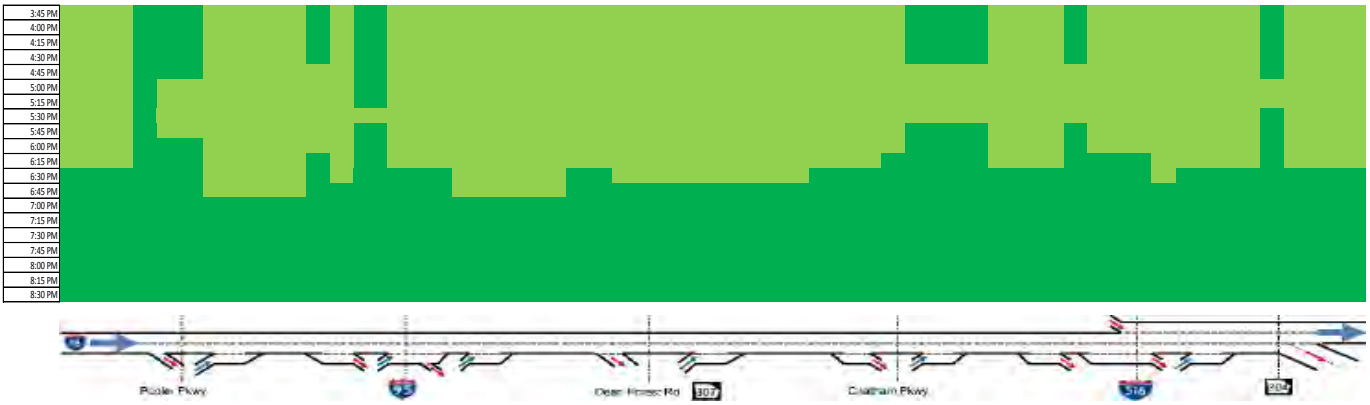


Figure 4: JACOBS Model: I-16 Westbound (PM) - 2021

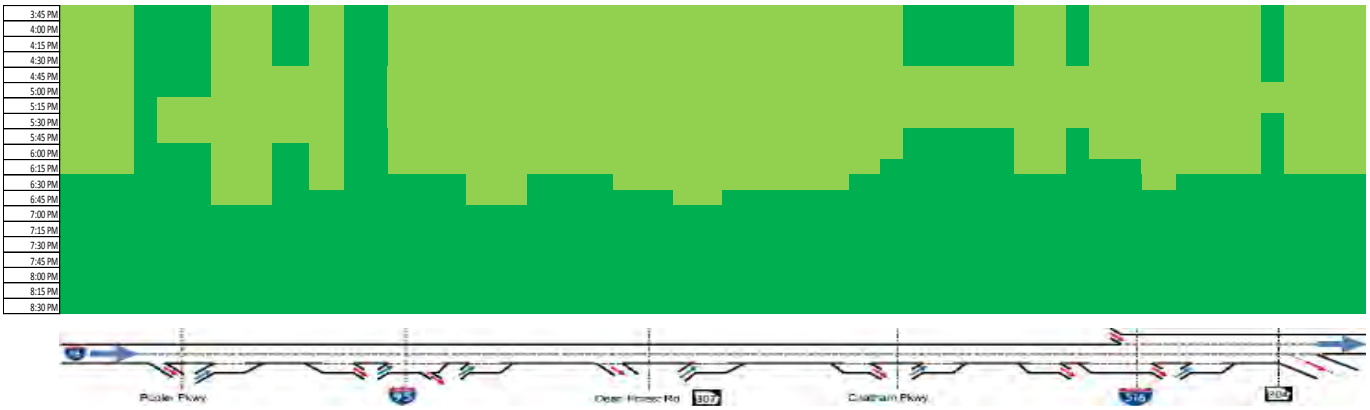


Figure 5: GDOT Model: I-16 Westbound (PM) - 2021

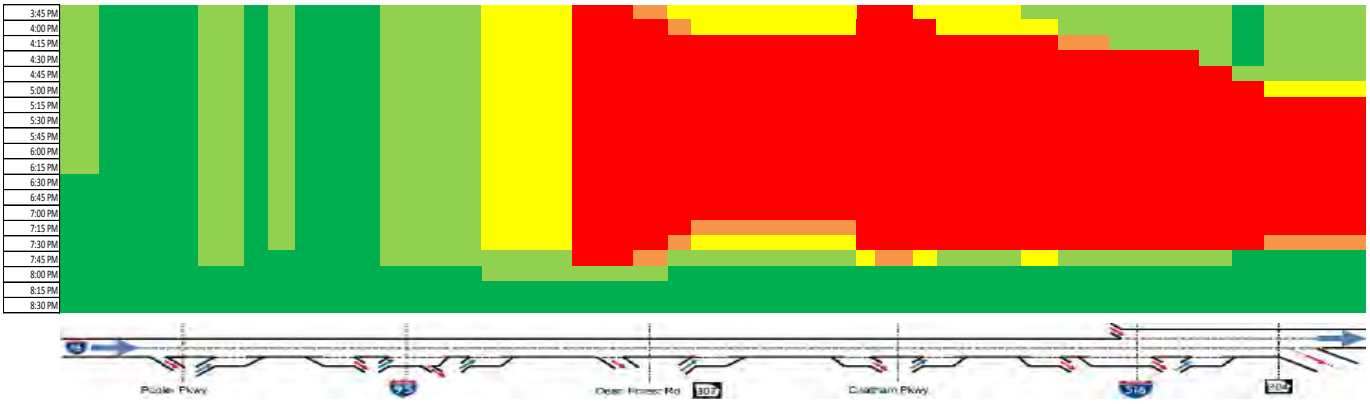


Figure 6: No Build Model: I-16 Westbound (PM) - 2021

Legend					
	LOS A &B (Density <=18)	LOS C &D (18<Density<=35)	LOS E (35<Density<=45)	LOS F (Low) (45<Density<=55)	LOS F (High) (55<Density)

I-95 Northbound (PM)

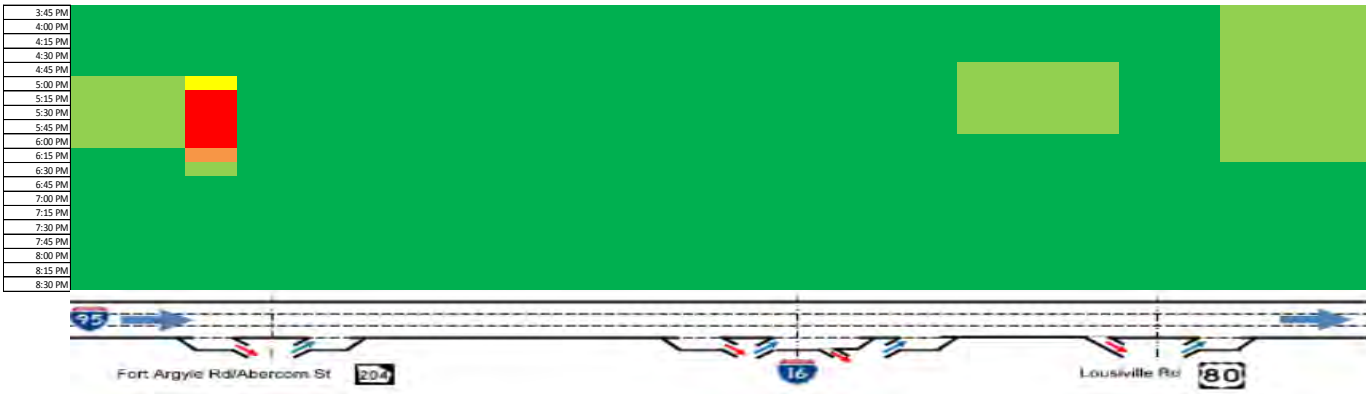


Figure 7: JACOBS Model: I-95 Northbound (PM) - 2021

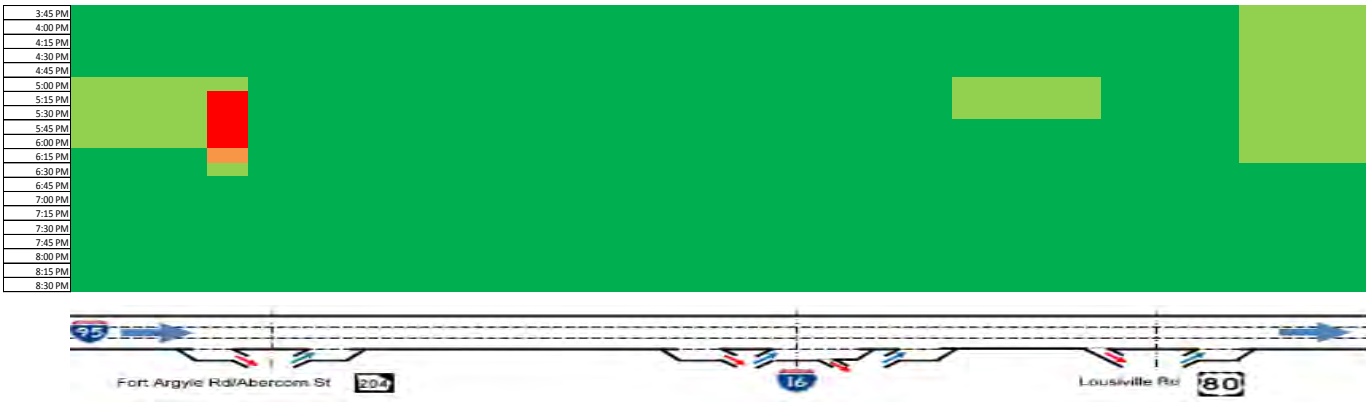


Figure 8: GDOT Model: I-95 Northbound (PM) - 2021

Figure 9: No Build Model: I-95 Northbound (PM) - 2021

Legend					
	LOS A &B (Density <=18)	LOS C &D (18<Density<=35)	LOS E (35<Density<=45)	LOS F (Low) (45<Density<=55)	LOS F (High) (55<Density)

I-95 Southbound (PM)

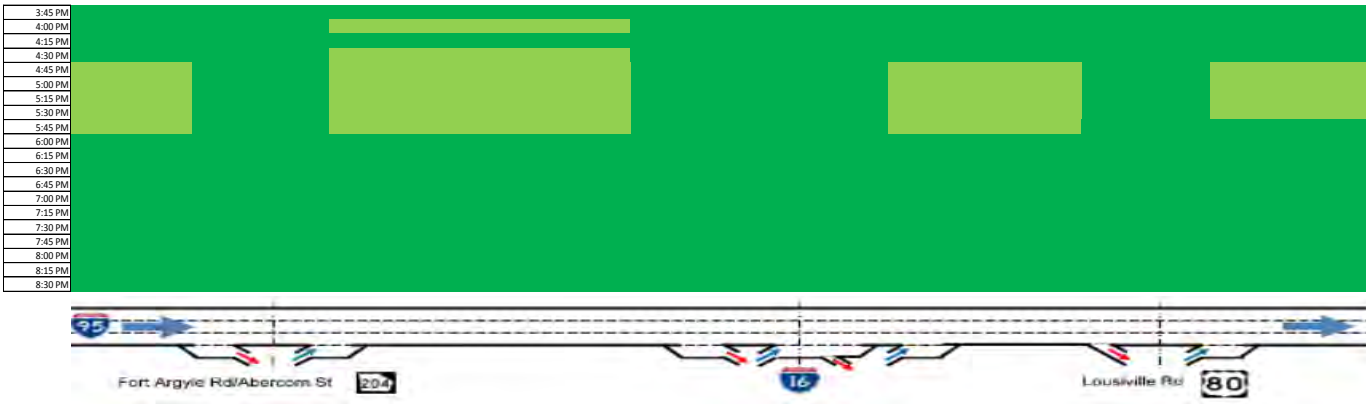


Figure 10: JACOBS Model: I-95 Southbound (PM) - 2021

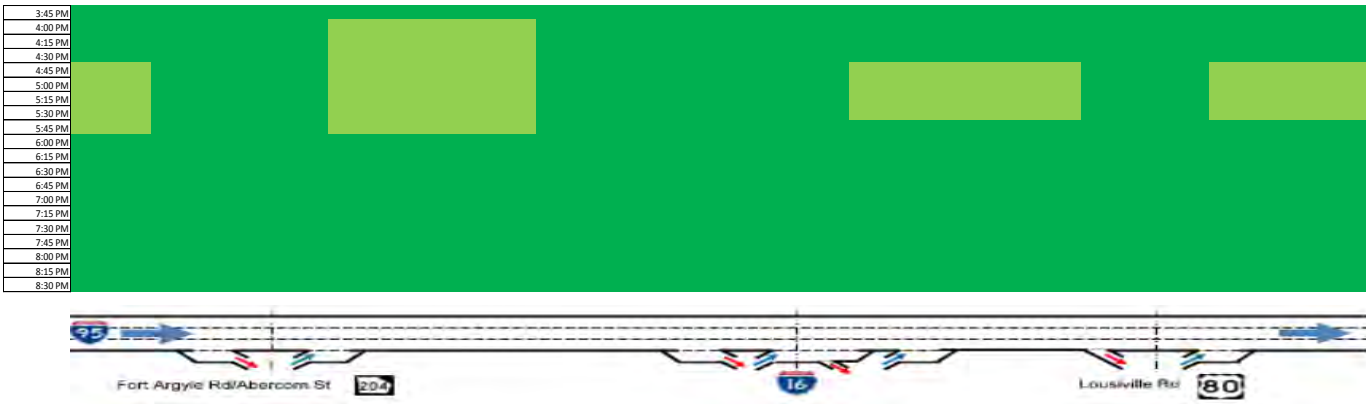


Figure 11: GDOT Model: I-95 Southbound (PM) - 2021

Figure 12: No Build Model: I-95 Southbound (PM) - 2021

Legend					
	LOS A &B (Density <=18)	LOS C &D (18<Density<=35)	LOS E (35<Density<=45)	LOS F (Low) (45<Density<=55)	LOS F (High) (55<Density)

Appendix C. LOS Heat Maps – 2041 AM

I-16 Eastbound (AM)

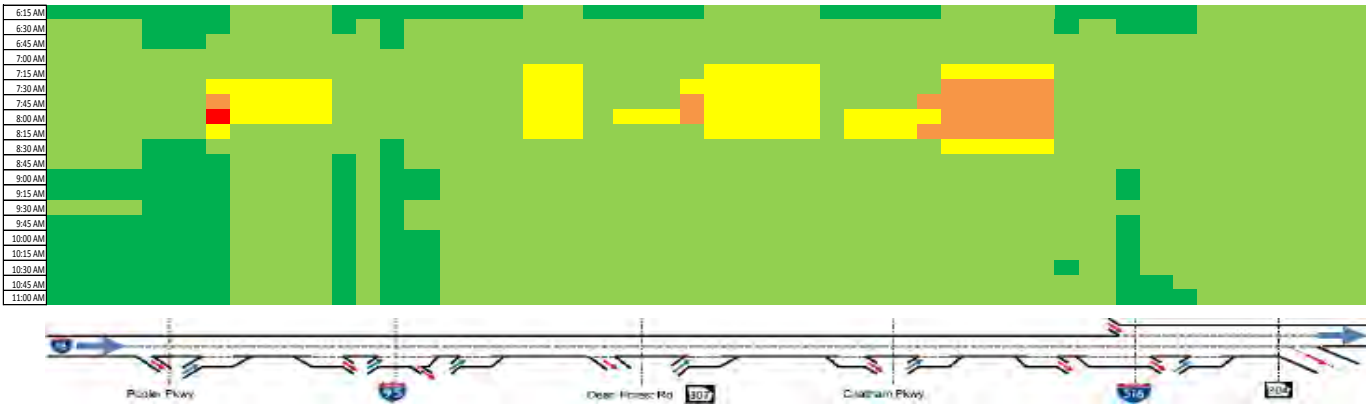


Figure 1: JACOBS Model: I-16 Eastbound (AM) - 2041

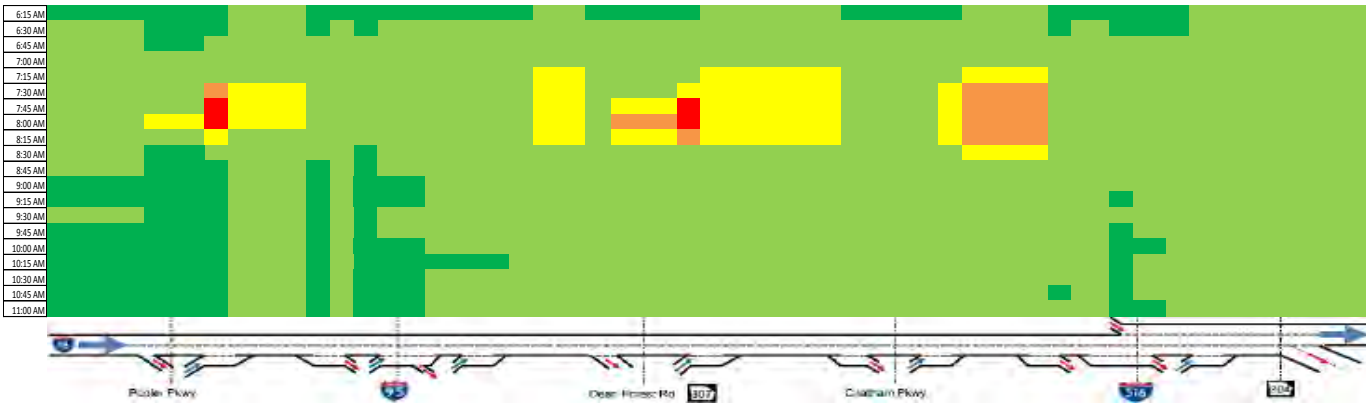


Figure 2: GDOT Model: I-16 Eastbound (AM) - 2041

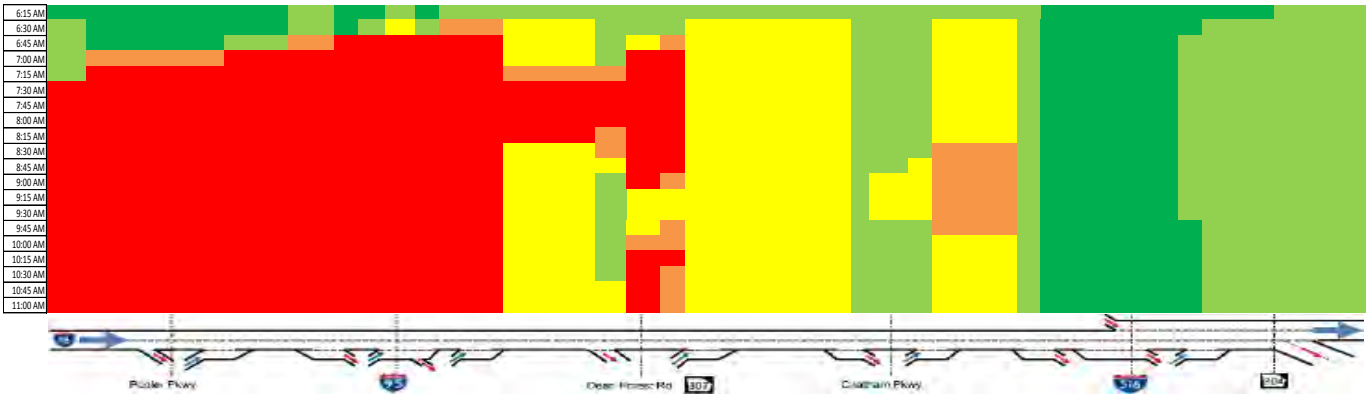


Figure 3: No Build Model: I-16 Eastbound (AM) - 2041

Legend					
	LOS A &B (Density <=18)	LOS C &D (18<Density<=35)	LOS E (35<Density<=45)	LOS F (Low) (45<Density<=55)	LOS F (High) (55<Density)

I-16 Westbound (AM)

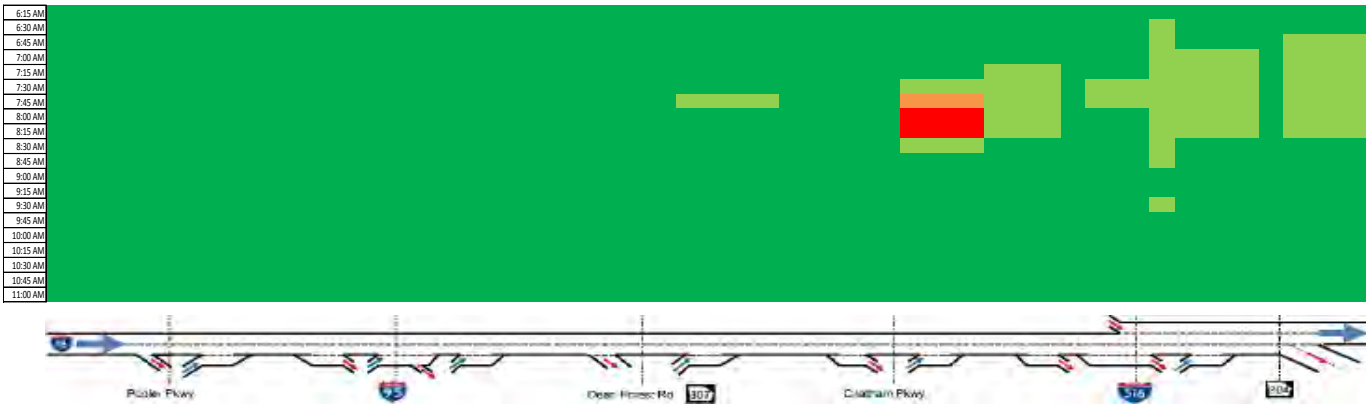


Figure 4: JACOBS Model: I-16 Westbound (AM) - 2041

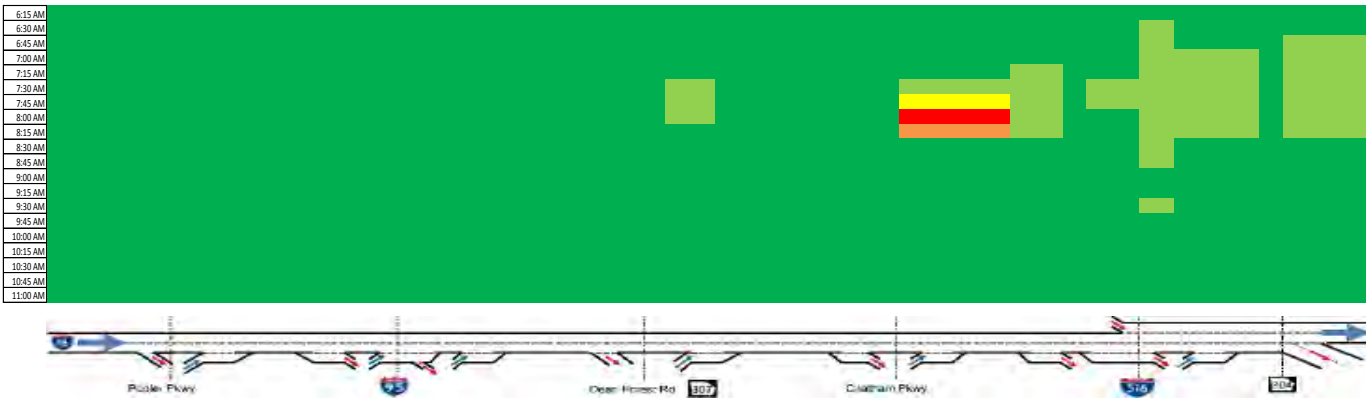


Figure 5: GDOT Model: I-16 Westbound (AM) - 2041

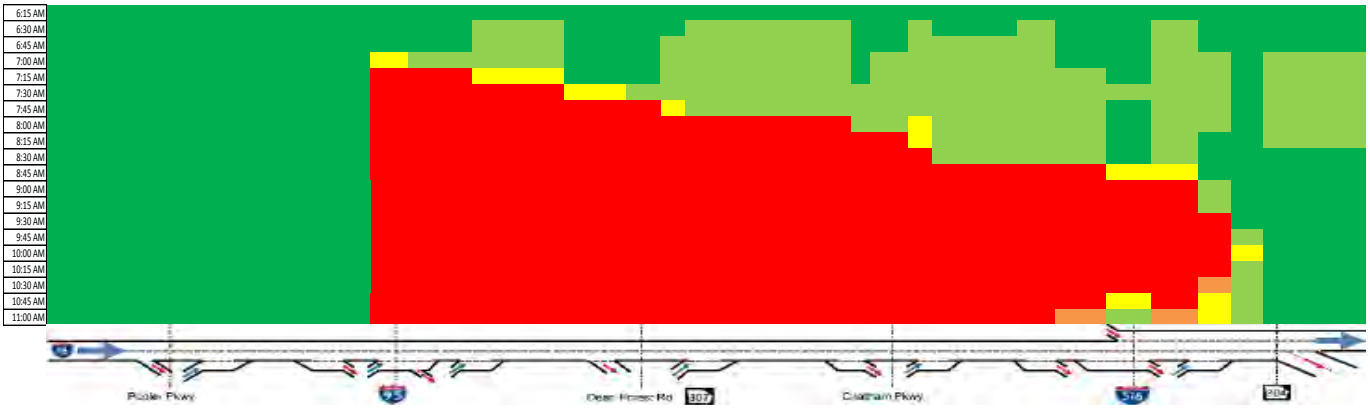


Figure 6: No Build Model: I-16 Westbound (AM) - 2041

Legend					
	LOS A &B (Density <=18)	LOS C &D (18<Density<=35)	LOS E (35<Density<=45)	LOS F (Low) (45<Density<=55)	LOS F (High) (55<Density)

I-95 Northbound (AM)

Figure 7: JACOBS Model: I-95 Northbound (AM) - 2041

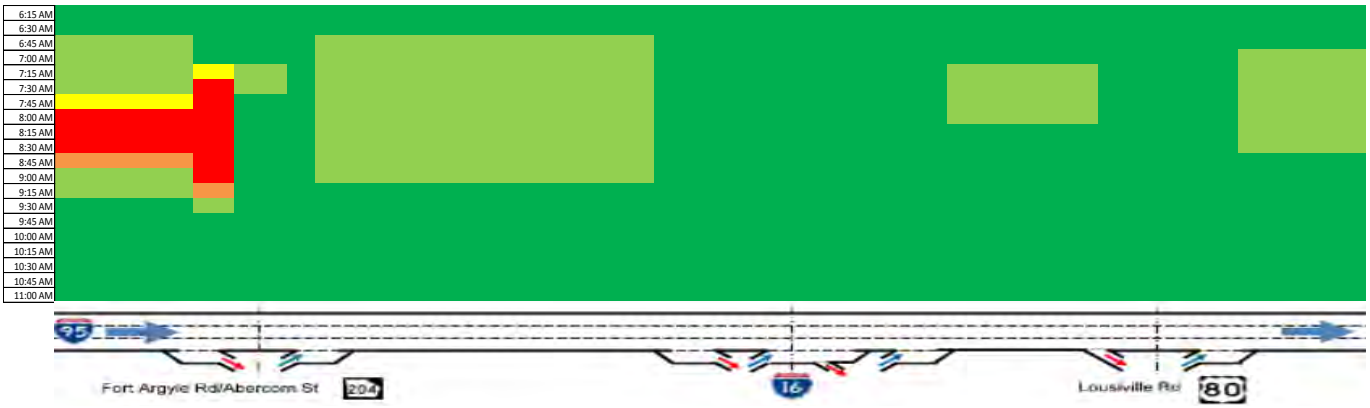


Figure 8: GDOT Model: I-95 Northbound (AM) - 2041

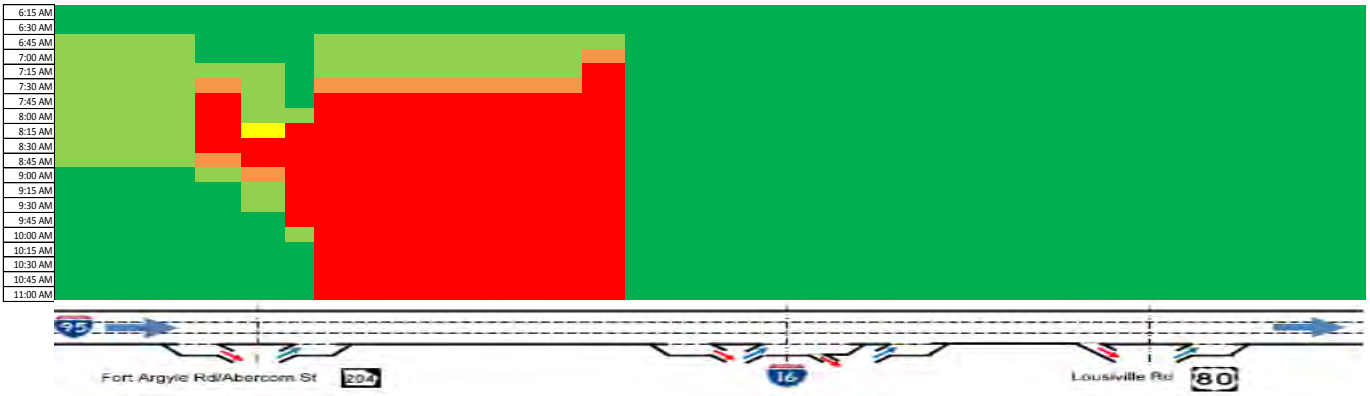


Figure 9: No Build Model: I-95 Northbound (AM) - 2041

Legend					
	LOS A &B (Density <=18)	LOS C &D (18<Density<=35)	LOS E (35<Density<=45)	LOS F (Low) (45<Density<=55)	LOS F (High) (55<Density)

I-95 Southbound (AM)

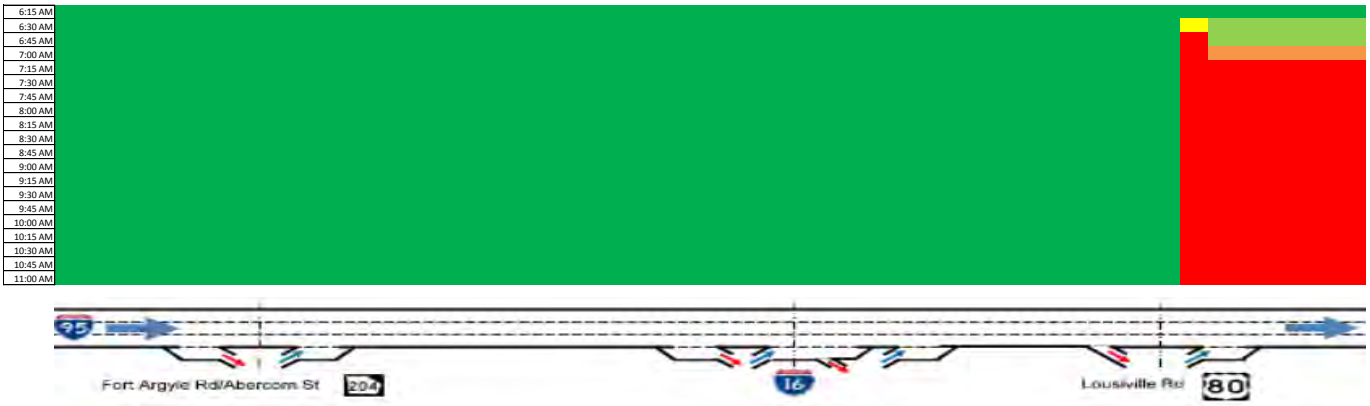


Figure 10: JACOBS Model: I-95 Southbound (AM) - 2041

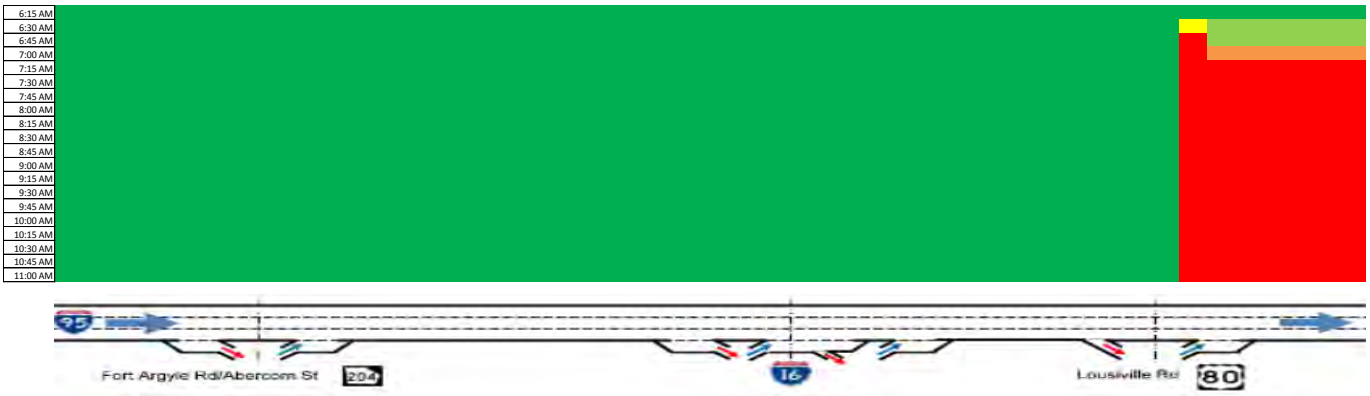


Figure 11: GDOT Model: I-95 Southbound (AM) - 2041

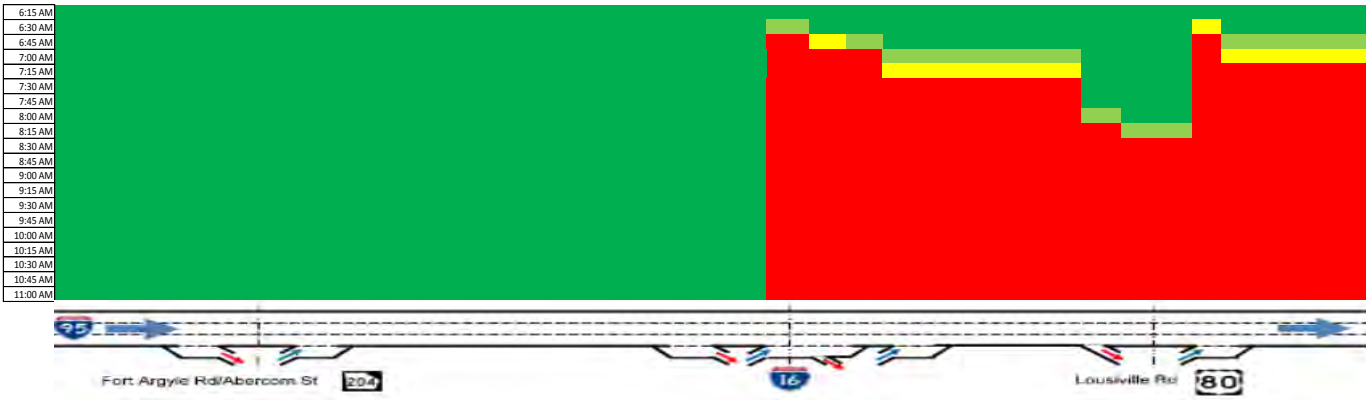


Figure 12: No Build Model: I-95 Southbound (AM) - 2041

Legend					
	LOS A &B (Density <=18)	LOS C &D (18<Density<=35)	LOS E (35<Density<=45)	LOS F (Low) (45<Density<=55)	LOS F (High) (55<Density)

Appendix D. LOS Heat Maps – 2041 PM

I-16 Eastbound (PM)

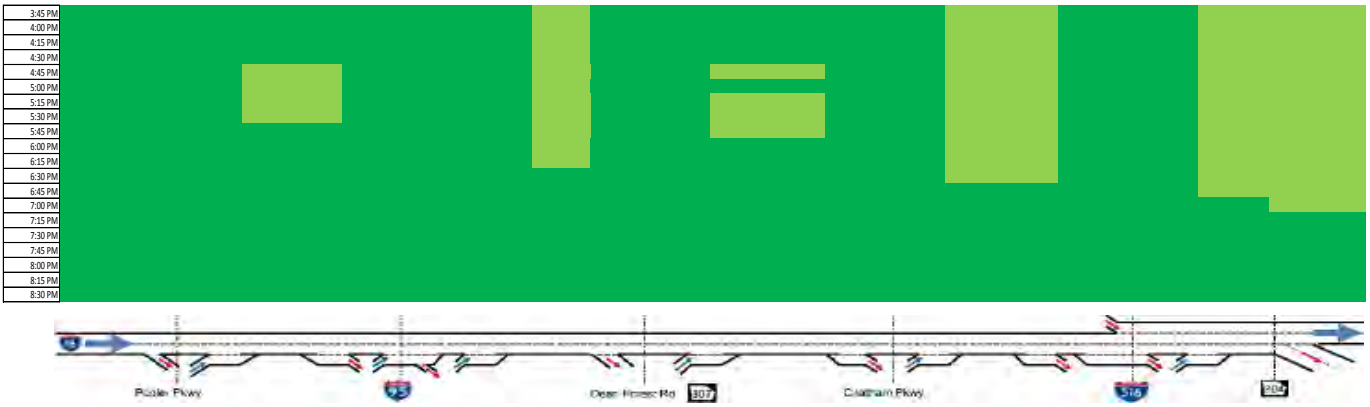


Figure 1: JACOBS Model: I-16 Eastbound (PM) - 2041

Figure 2: GDOT Model: I-16 Eastbound (PM) - 2041

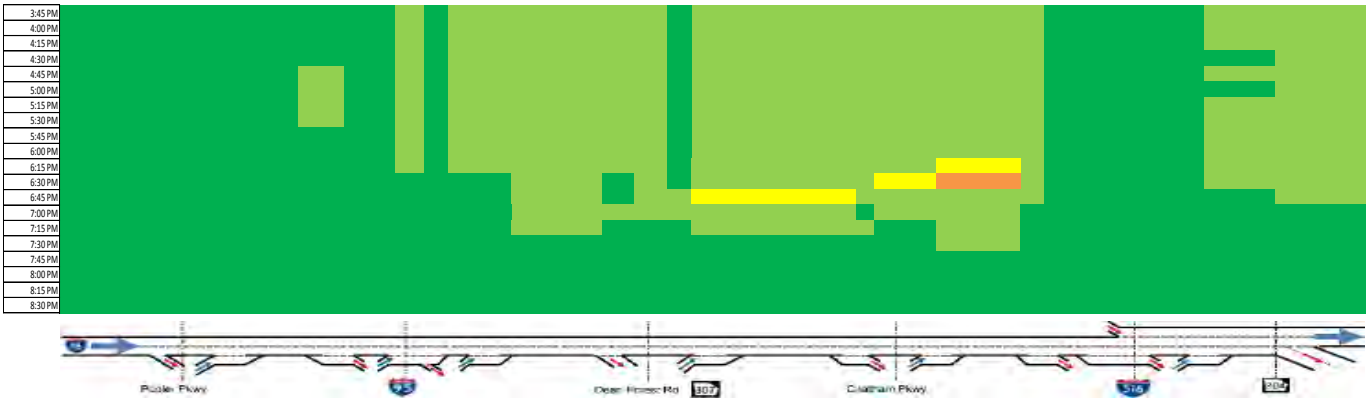


Figure 3: No Build Model: I-16 Eastbound (PM) - 2041

Legend					
	LOS A &B (Density <=18)	LOS C &D (18<Density<=35)	LOS E (35<Density<=45)	LOS F (Low) (45<Density<=55)	LOS F (High) (55<Density)

I-16 Westbound (PM)

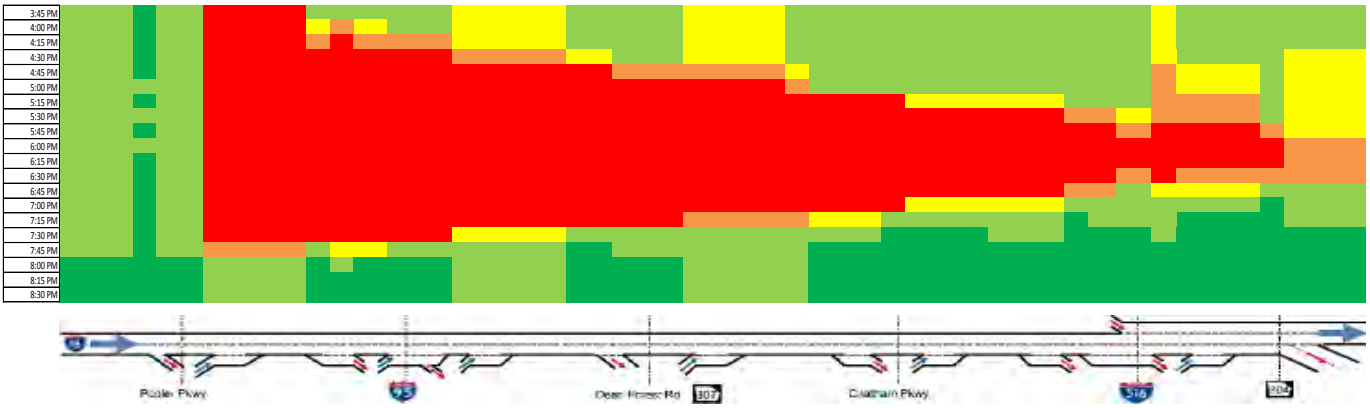


Figure 4: JACOBS Model: I-16 Westbound (PM) - 2041

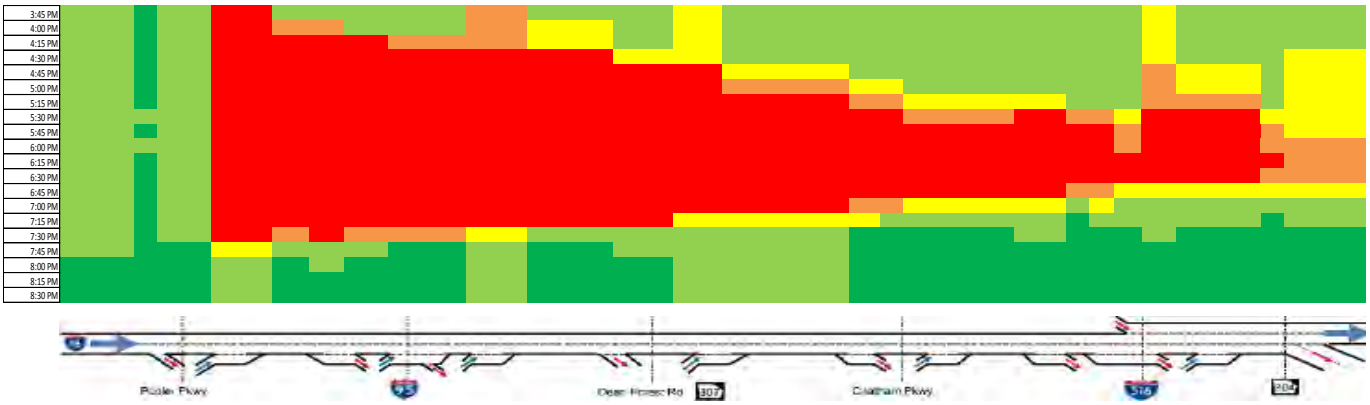


Figure 5: GDOT Model: I-16 Westbound (PM) - 2041

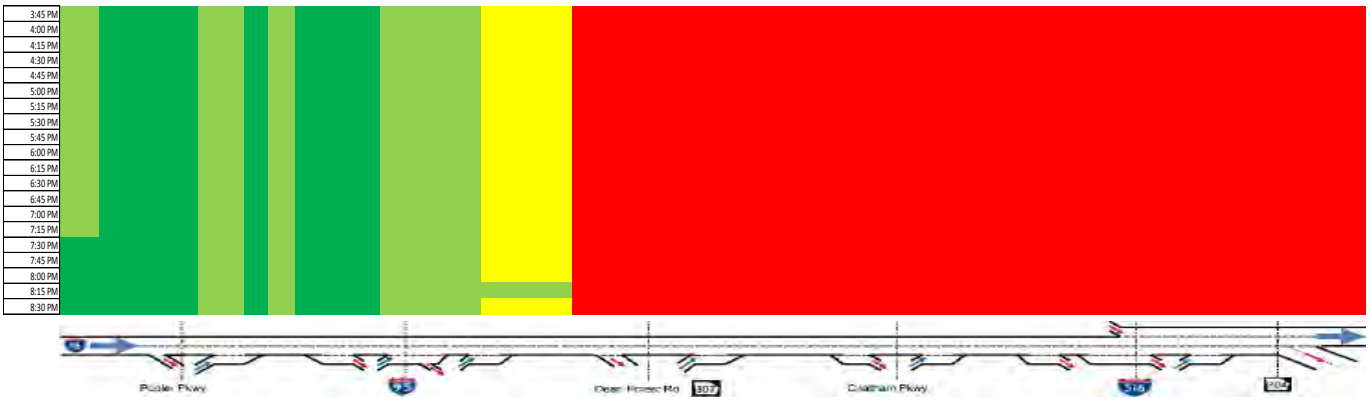


Figure 6: No Build Model: I-16 Westbound (PM) - 2041

Legend					
	LOS A &B (Density <=18)	LOS C &D (18<Density<=35)	LOS E (35<Density<=45)	LOS F (Low) (45<Density<=55)	LOS F (High) (55<Density)

I-95 Northbound (PM)

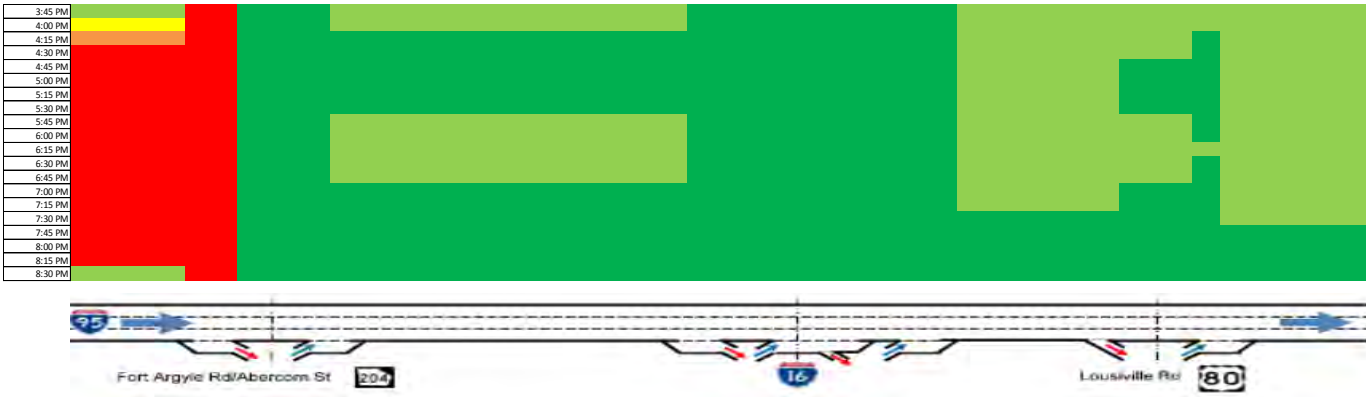


Figure 7: JACOBS Model: I-95 Northbound (PM) - 2041

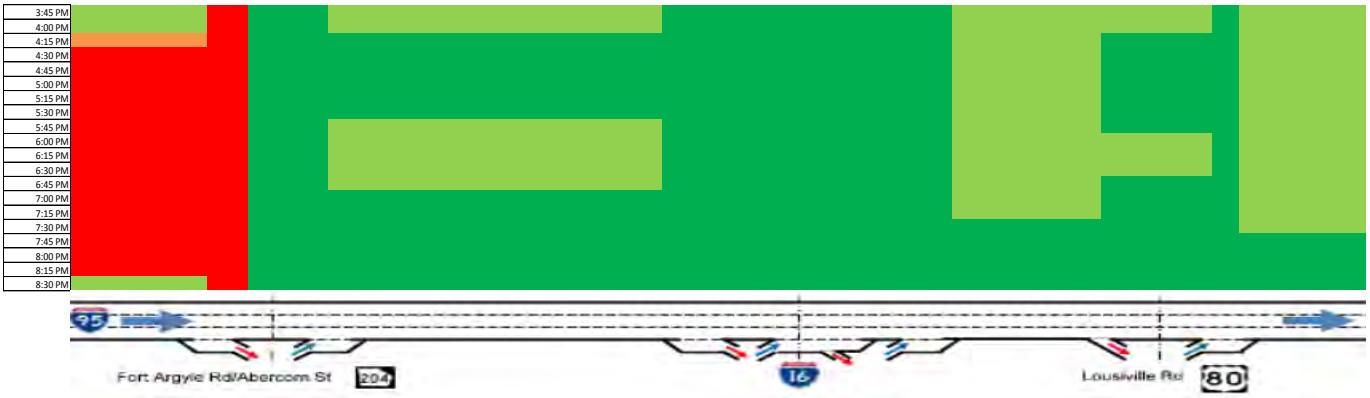


Figure 8: GDOT Model: I-95 Northbound (PM) - 2041

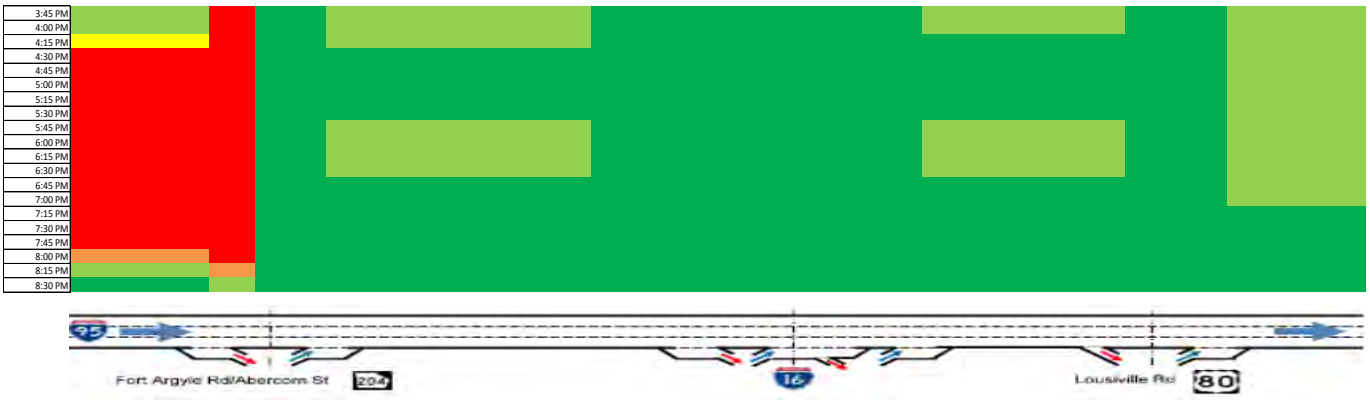


Figure 9: No Build Model: I-95 Northbound (PM) - 2041

Legend					
	LOS A &B (Density <=18)	LOS C &D (18<Density<=35)	LOS E (35<Density<=45)	LOS F (Low) (45<Density<=55)	LOS F (High) (55<Density)

I-95 Southbound (PM)

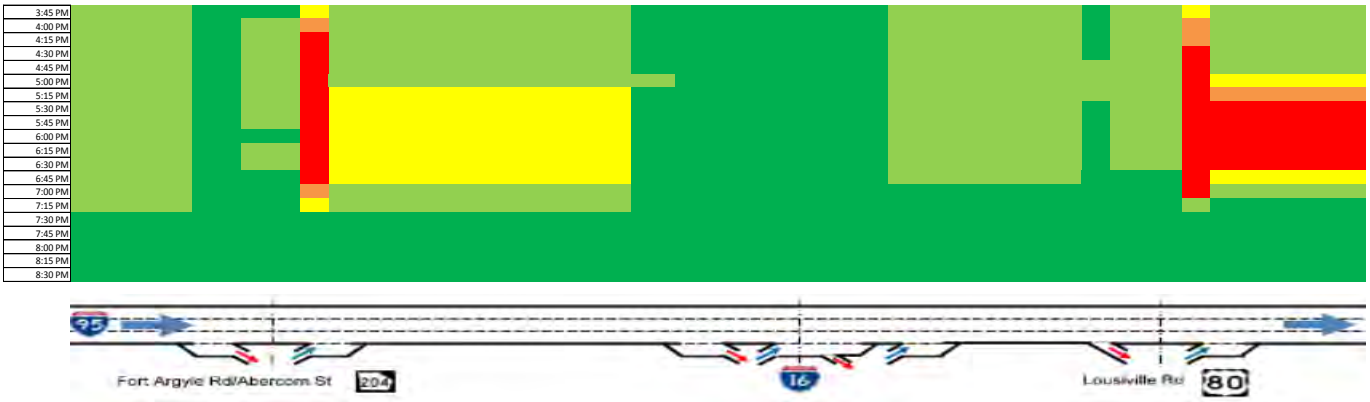


Figure 10: JACOBS Model: I-95 Southbound (PM) - 2041

Figure 11: GDOT Model: I-95 Southbound (PM) - 2041

Figure 12: No Build Model: I-95 Southbound (PM) - 2041

Legend					
	LOS A &B (Density <=18)	LOS C &D (18<Density<=35)	LOS E (35<Density<=45)	LOS F (Low) (45<Density<=55)	LOS F (High) (55<Density)

Appendix E. Summary Flow Speed/Travel Time Graphics

Flow Speed Comparisons for Peak Hour for the Year 2021:

	Jacobs Model - 2021						GDOT Model - 2021						NoBuild Model - 2021					
			A.M. Peak Hour		P.M Peak Hour				A.M. Peak Hour		P.M Peak Hour				A.M. Peak Hour		P.M Peak Hour	
Direction of Travel	Origin-Destination	Distance (Miles)	Travel Time (Minutes)	Speed (mph)	Travel Time (Minutes)	Speed (mph)	Origin-Destination	Distance (Miles)	Travel Time (Minutes)	Speed (mph)	Travel Time (Minutes)	Speed (mph)	Origin-Destination	Distance (Miles)	Travel Time (Minutes)	Speed (mph)	Travel Time (Minutes)	Speed (mph)
I-16 Eastbound	A-E	10.29	10.78	57.25	10.45	59.10	A-E	10.29	10.78	57.27	10.43	59.17	A-E	10.29	17.05	36.20	10.59	58.27
	A-F	10.68	11.54	55.53	11.15	57.48	A-F	10.68	11.55	55.49	11.18	57.33	A-F	10.67	18.27	35.05	11.64	55.03
	A-G	11.11	11.89	56.04	11.52	57.83	A-G	11.11	11.89	56.06	11.52	57.84	A-G	11.10	18.06	36.90	11.77	56.61
I-95 Northbound to I-16 Eastbound	B-E	13.14	13.28	59.38	13.03	60.49	B-E	13.14	13.27	59.40	13.02	60.53	B-E	13.14	15.87	49.68	13.32	59.20
I-95 Southbound to I-16 Eastbound	C-E	11.14	12.07	55.39	11.28	59.24	C-E	10.78	11.58	55.87	10.79	59.94	C-E	11.22	19.04	35.35	11.68	57.63
I-16 Westbound	E-A	10.29	10.44	59.15	10.95	56.37	E-A	10.29	10.44	59.15	10.95	56.39	E-A	10.29	10.71	57.67	24.69	25.00
	E-B	13.47	13.36	60.52	13.77	58.72	E-B	13.21	13.05	60.73	13.51	58.67	E-B	13.58	15.65	52.07	27.71	29.41
	E-C	10.66	10.83	59.06	11.17	57.29	E-C	10.66	10.63	60.14	11.04	57.89	E-C	10.71	11.00	58.44	25.02	25.70
I-516 Northbound to I-16 Westbound	G-A	11.43	11.94	57.43	12.66	54.19	G-A	11.43	11.97	57.30	12.66	54.19	G-A	11.43	12.23	56.09	26.32	26.06
I-516 Southbound to I-16 Westbound	F-A	10.24	10.51	58.43	11.10	55.34	F-A	10.24	10.54	58.27	11.10	55.35	F-A	10.23	10.88	56.43	21.01	29.23

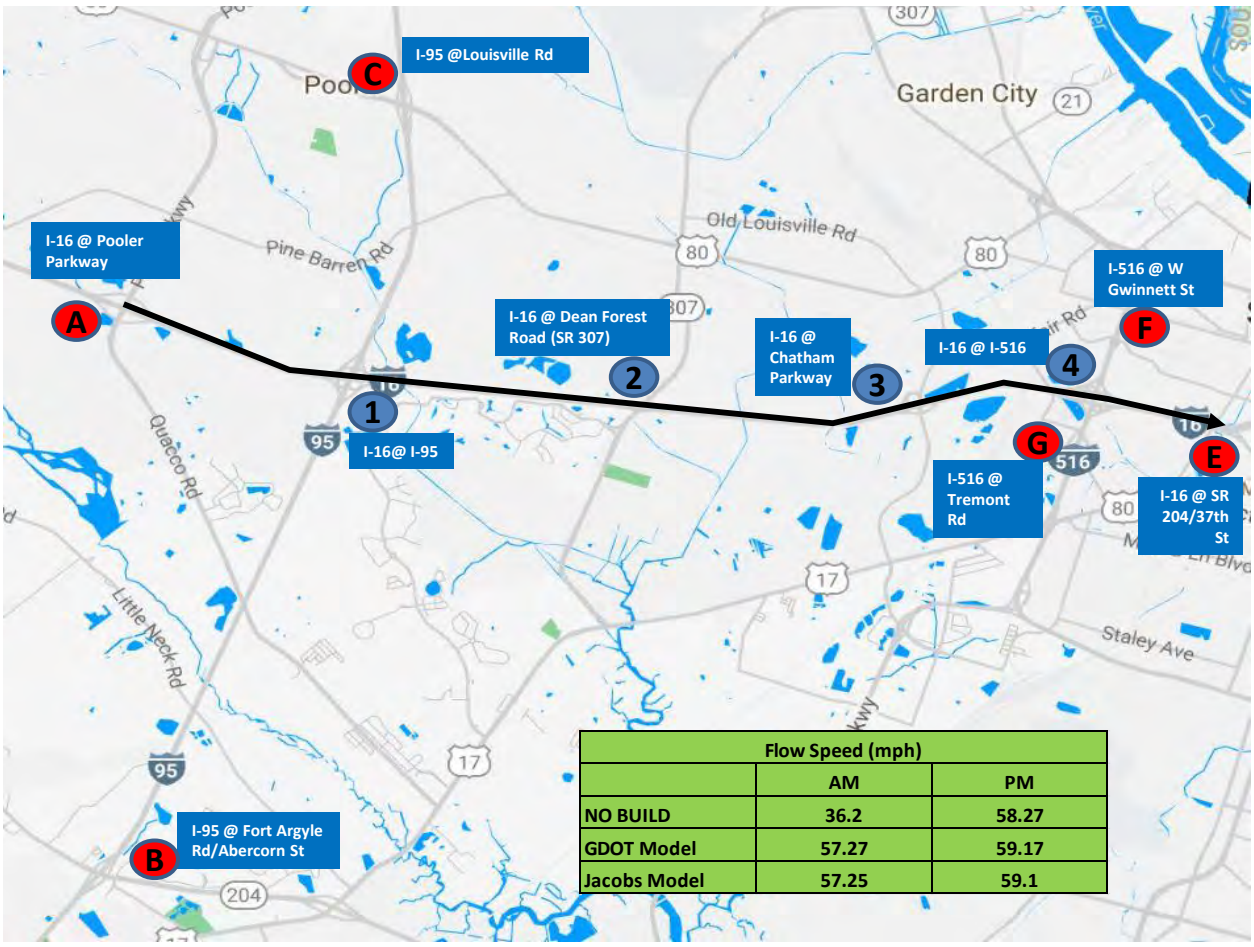
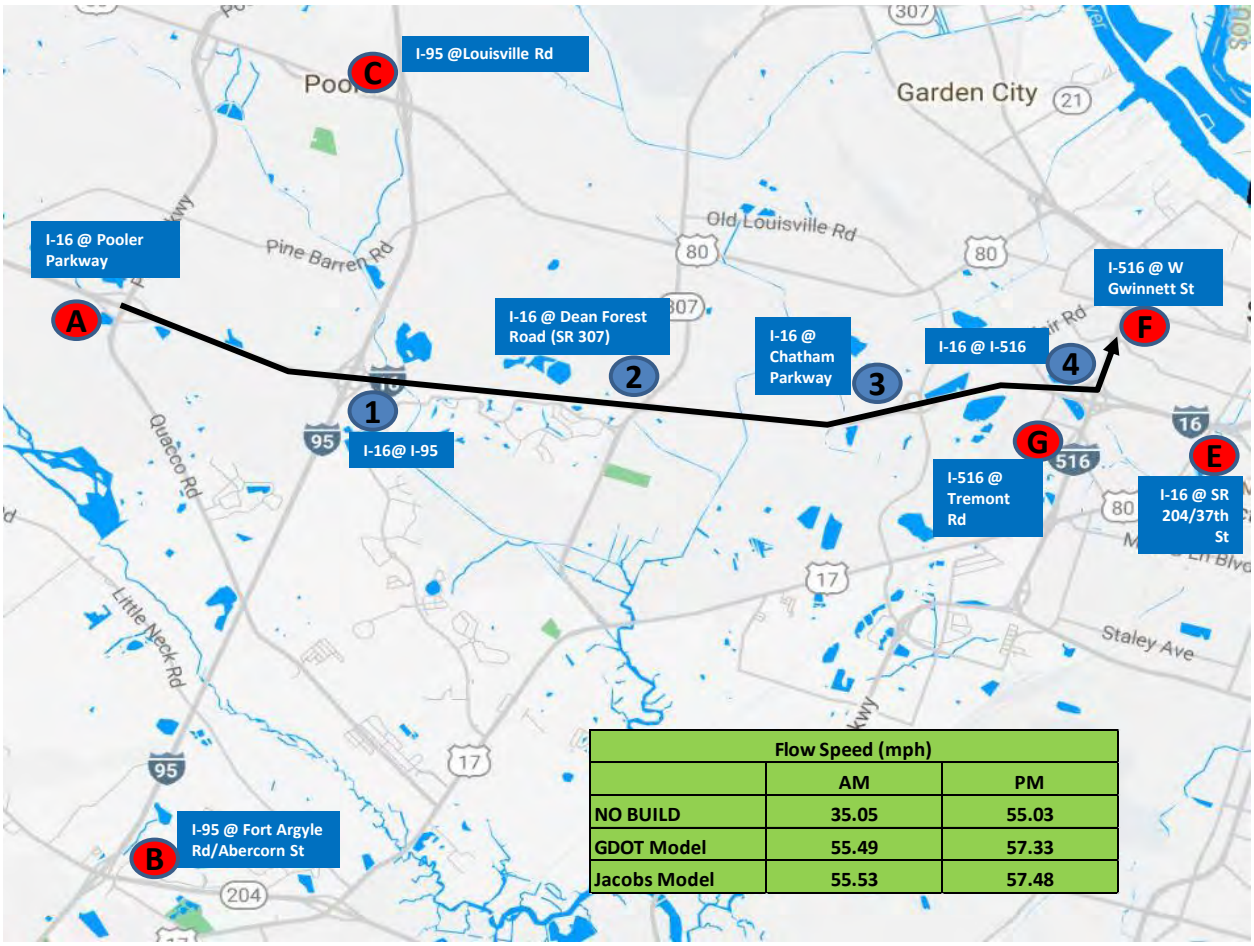


Figure 1: Flow Speed Comparisons for A – E (2021)

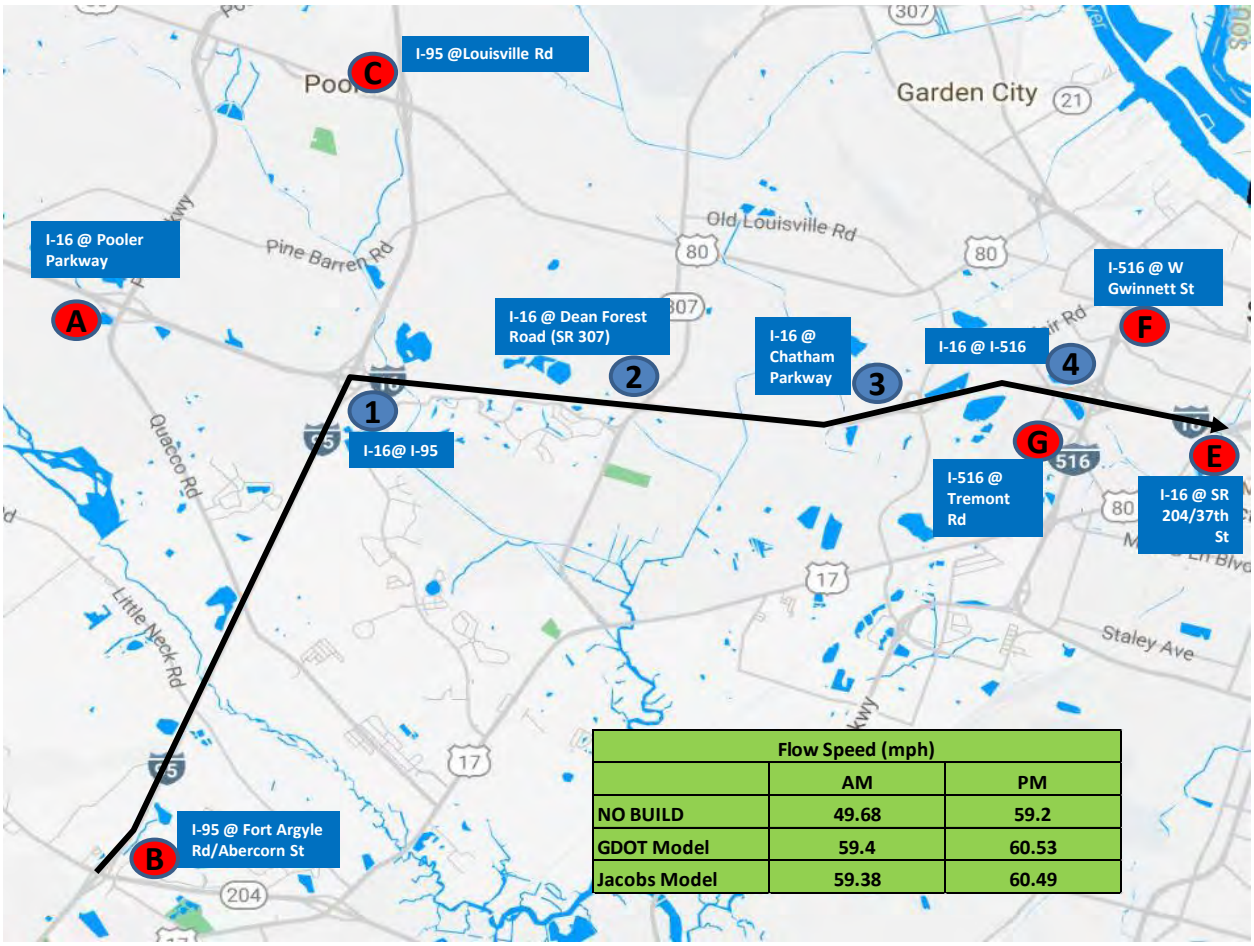


Flow Speed (mph)		
	AM	PM
NO BUILD	35.05	55.03
GDOT Model	55.49	57.33
Jacobs Model	55.53	57.48

Figure 2: Flow Speed Comparisons for A – F (2021)

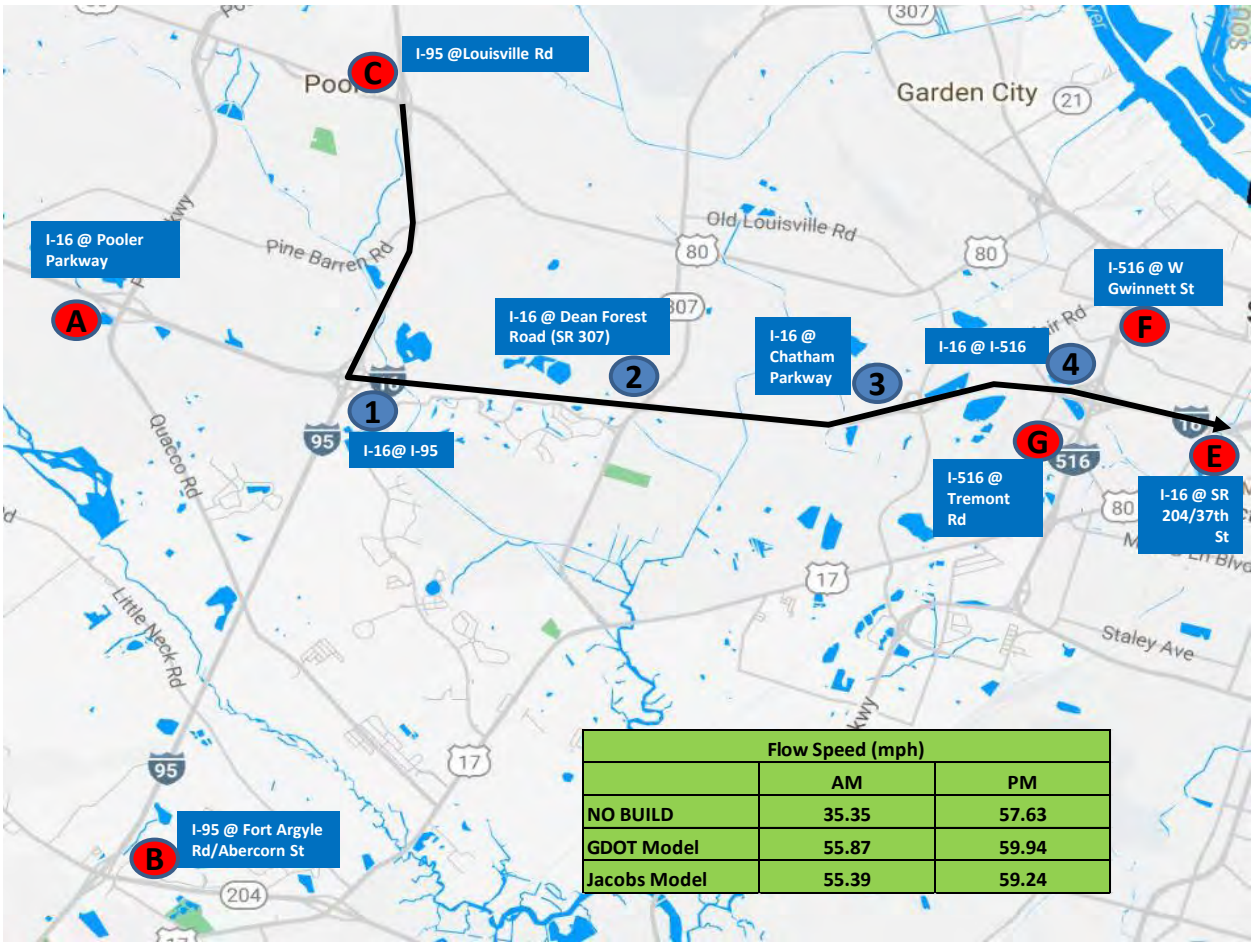
Flow Speed (mph)		
	AM	PM
NO BUILD	36.9	56.61
GDOT Model	56.06	57.84
Jacobs Model	56.04	57.83

Figure 3: Flow Speed Comparisons for A – G (2021)



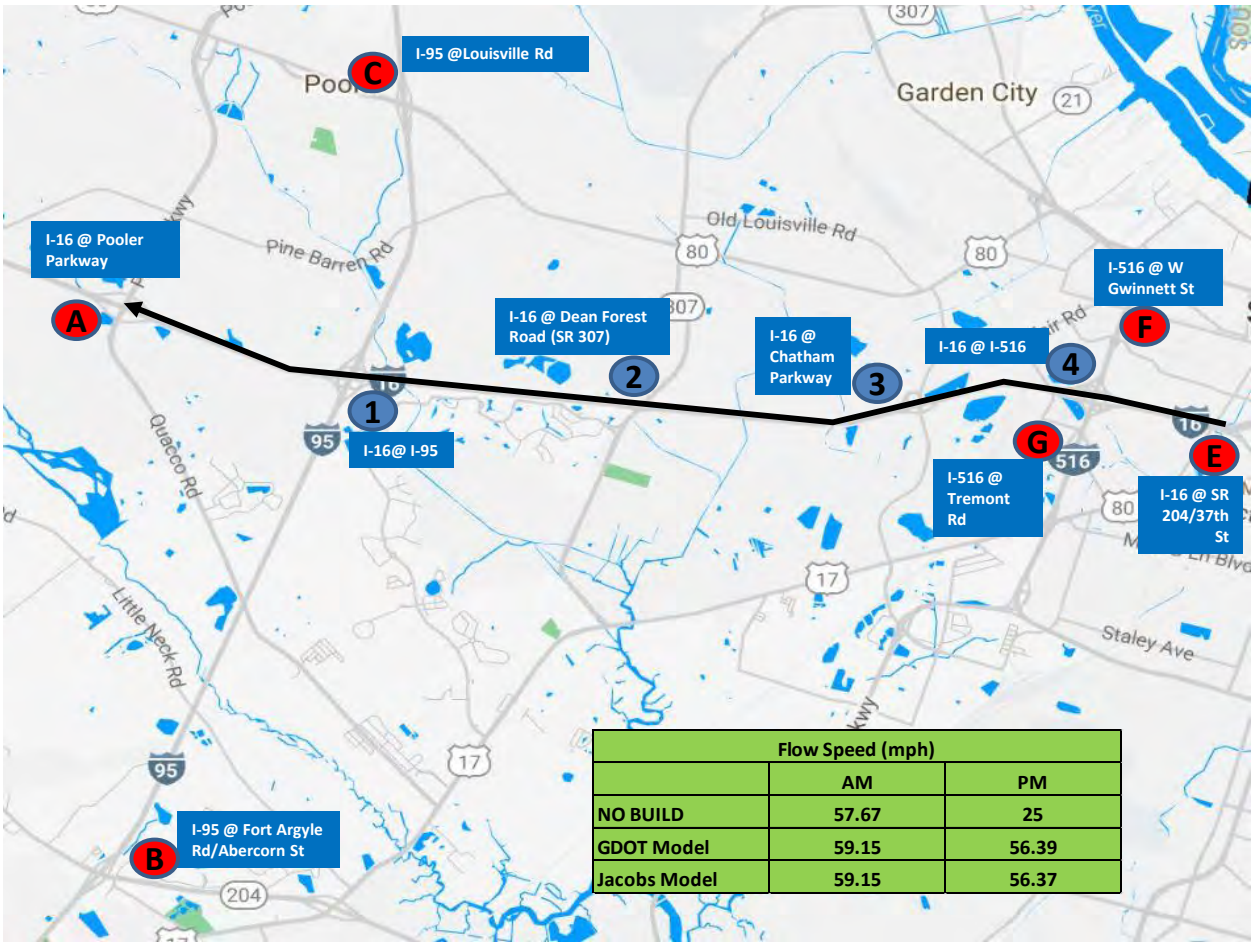
Flow Speed (mph)		
	AM	PM
NO BUILD	49.68	59.2
GDOT Model	59.4	60.53
Jacobs Model	59.38	60.49

Figure 4: Flow Speed Comparisons for B-E (2021)



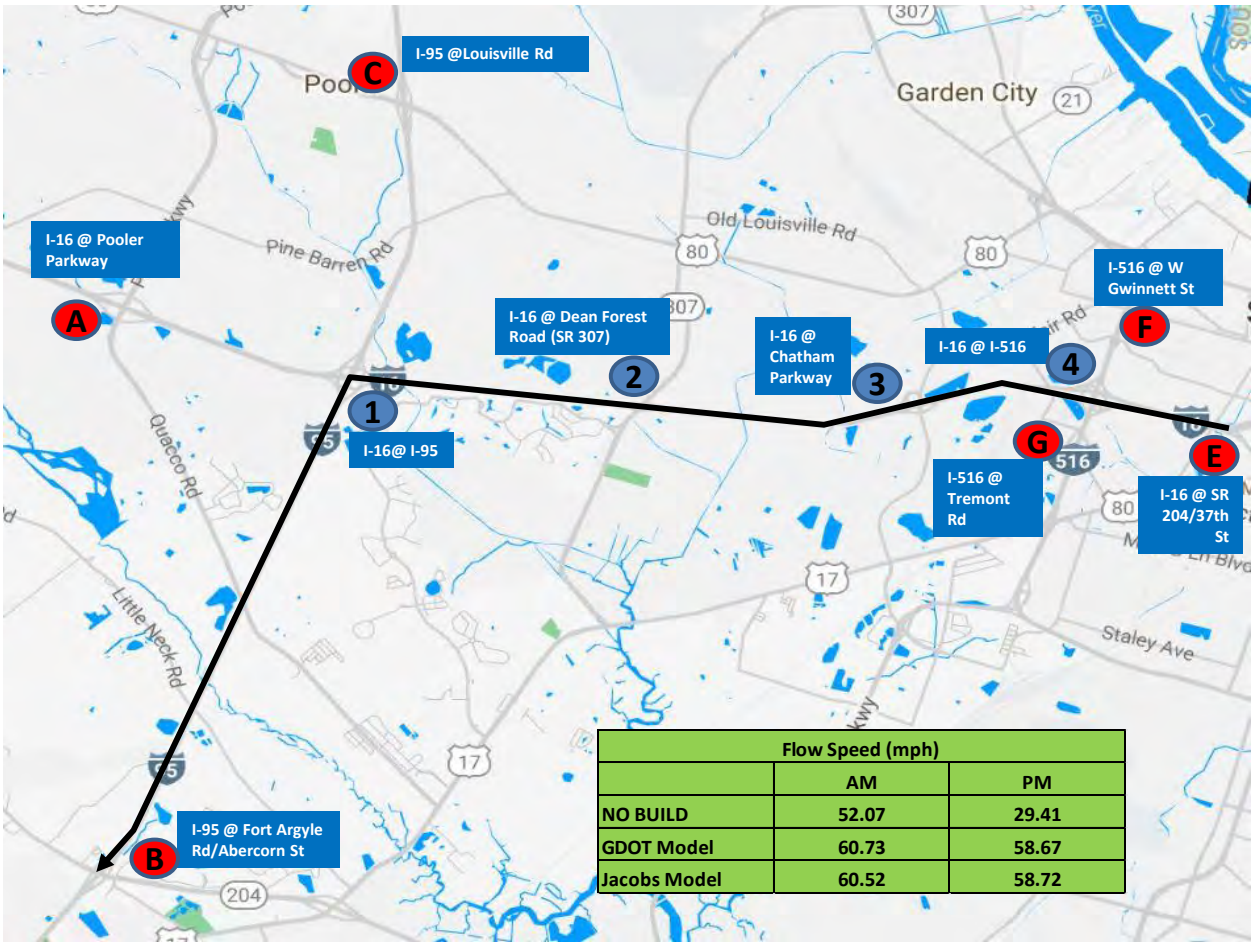
Flow Speed (mph)		
	AM	PM
NO BUILD	35.35	57.63
GDOT Model	55.87	59.94
Jacobs Model	55.39	59.24

Figure 5: Flow Speed Comparisons for C-E (2021)



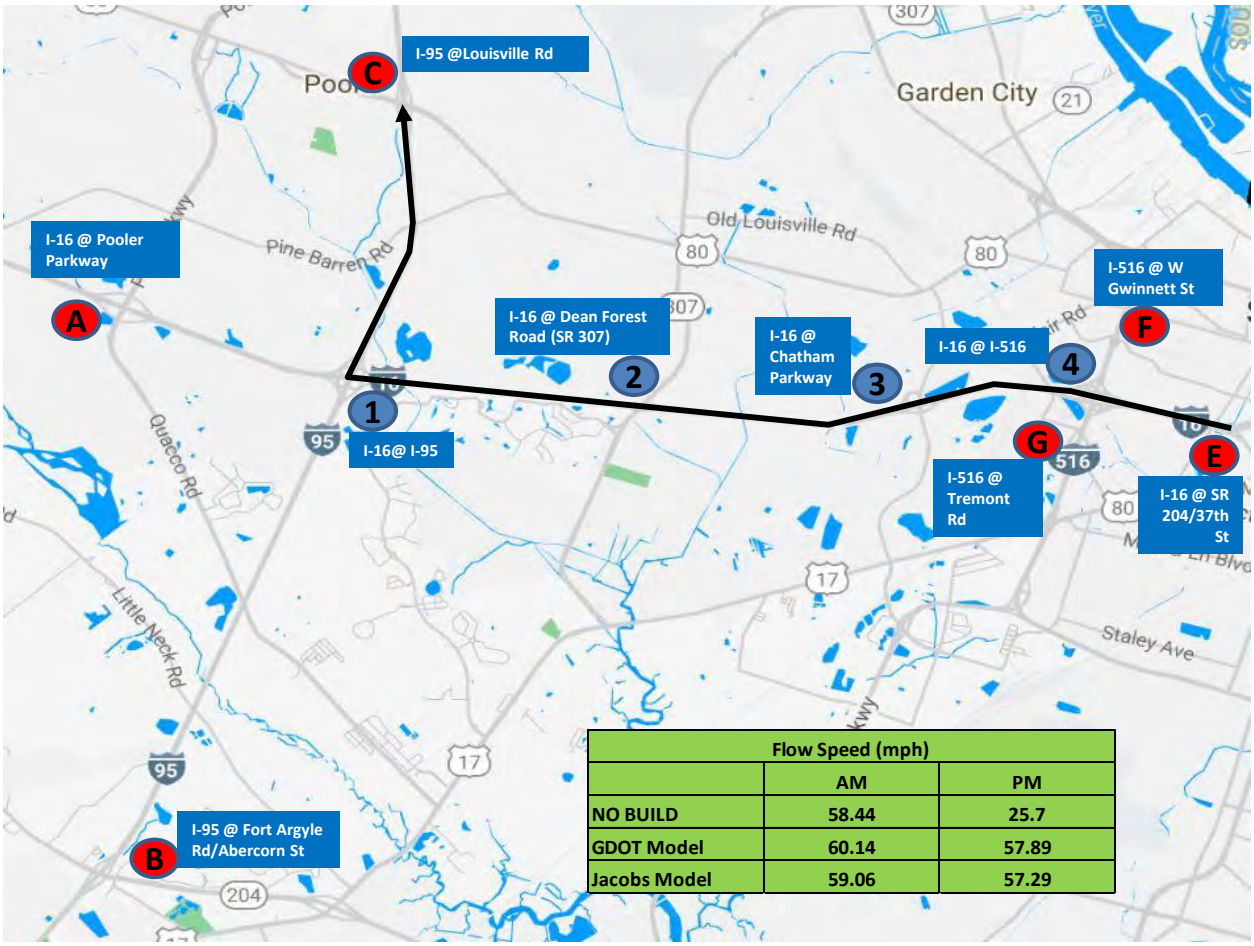
Flow Speed (mph)		
	AM	PM
NO BUILD	57.67	25
GDOT Model	59.15	56.39
Jacobs Model	59.15	56.37

Figure 6: Flow Speed Comparisons for E-A (2021)



Flow Speed (mph)		
	AM	PM
NO BUILD	52.07	29.41
GDOT Model	60.73	58.67
Jacobs Model	60.52	58.72

Figure 7: Flow Speed Comparisons for E-B (2021)



Flow Speed (mph)		
	AM	PM
NO BUILD	58.44	25.7
GDOT Model	60.14	57.89
Jacobs Model	59.06	57.29

Figure 8: Flow Speed Comparisons for E-C (2021)

Flow Speed (mph)		
	AM	PM
NO BUILD	56.09	26.06
GDOT Model	57.3	54.19
Jacobs Model	57.43	54.19

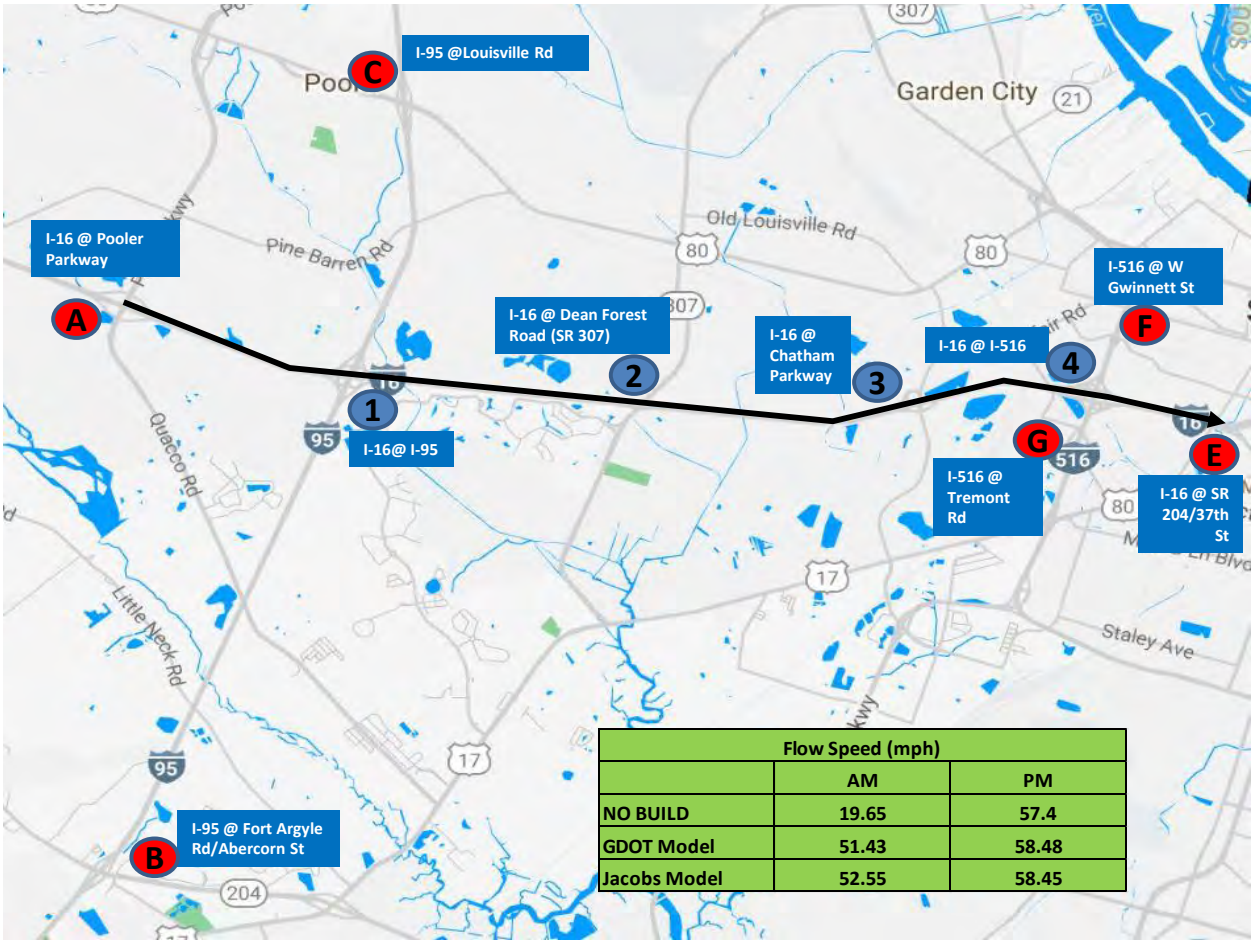
Figure 9: Flow Speed Comparisons for G-A (2021)

Flow Speed (mph)		
	AM	PM
NO BUILD	56.43	29.23
GDOT Model	58.27	55.35
Jacobs Model	58.43	55.34

Figure 10: Flow Speed Comparisons for F-A (2021)

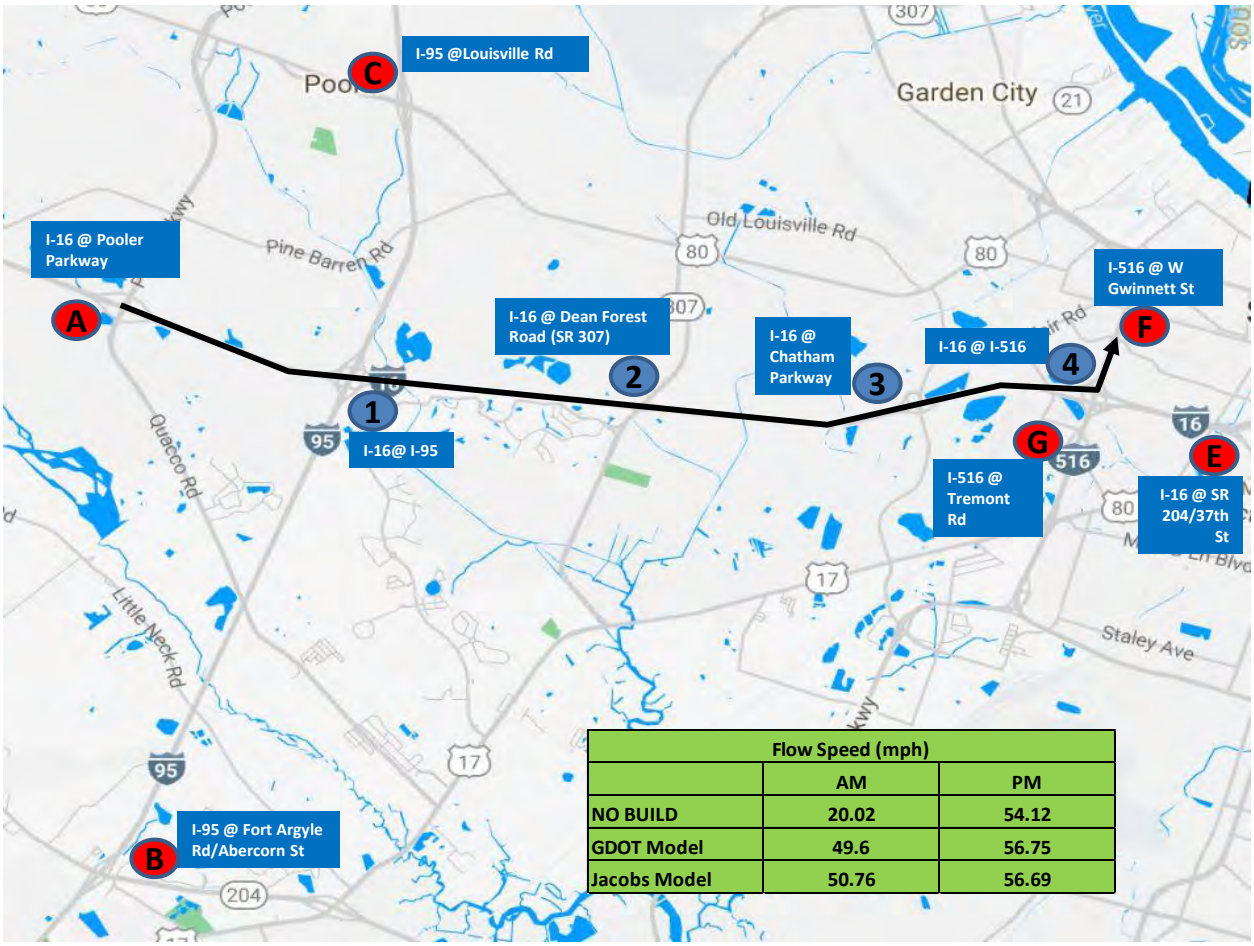
Flow Speed Comparisons for Peak Hour for the Year 2041:

Direction of Travel	Jacobs Model - 2041						GDOT Model - 2041						NoBuild Model - 2041					
			A.M. Peak Hour		P.M Peak Hour				A.M. Peak Hour		P.M Peak Hour				A.M. Peak Hour		P.M Peak Hour	
	Origin-Destination	Distance (Miles)	Travel Time (Minutes)	Speed (mph)	Travel Time (Minutes)	Speed (mph)	Origin-Destination	Distance (Miles)	Travel Time (Minutes)	Speed (mph)	Travel Time (Minutes)	Speed (mph)	Origin-Destination	Distance (Miles)	Travel Time (Minutes)	Speed (mph)	Travel Time (Minutes)	Speed (mph)
I-16 Eastbound	A-E	10.29	11.75	52.55	10.56	58.45	A-E	10.29	12.00	51.43	10.56	58.48	A-E	10.29	31.42	19.65	10.75	57.40
	A-F	10.68	12.62	50.76	11.30	56.69	A-F	10.68	12.92	49.60	11.29	56.75	A-F	10.67	31.99	20.02	11.83	54.12
	A-G	11.11	12.92	51.57	11.67	57.11	A-G	11.11	13.18	50.55	11.68	57.06	A-G	11.10	32.15	20.72	11.93	55.83
I-95 Northbound to I-16 Eastbound	B-E	13.14	14.48	54.46	14.02	56.24	B-E	13.14	14.55	54.19	13.96	56.48	B-E	13.14	26.77	29.45	14.20	55.52
I-95 Southbound to I-16 Eastbound	C-E	11.14	13.54	49.37	12.05	55.50	C-E	10.78	13.04	49.62	11.71	55.24	C-E	11.22	34.19	19.68	12.56	53.56
I-16 Westbound	E-A	10.29	10.60	58.23	19.78	31.21	E-A	10.29	10.59	58.28	19.85	31.10	E-A	10.29	19.75	31.25	33.30	18.54
	E-B	13.47	13.51	59.85	19.03	42.48	E-B	13.21	13.20	60.04	19.40	40.85	E-B	13.58	27.94	29.16	36.99	22.03
	E-C	10.66	11.03	57.98	15.45	41.41	E-C	10.66	10.82	59.10	15.95	40.08	E-C	10.71	19.01	33.80	33.54	19.16
I-516 Northbound to I-16 Westbound	G-A	11.43	15.28	44.90	25.75	26.64	G-A	11.43	15.24	45.00	26.04	26.34	G-A	11.43	22.44	30.57	46.08	14.88
I-516 Southbound to I-16 Westbound	F-A	10.24	10.75	57.13	20.24	30.35	F-A	10.24	10.69	57.45	20.42	30.08	F-A	10.23	19.60	31.32	28.42	21.61



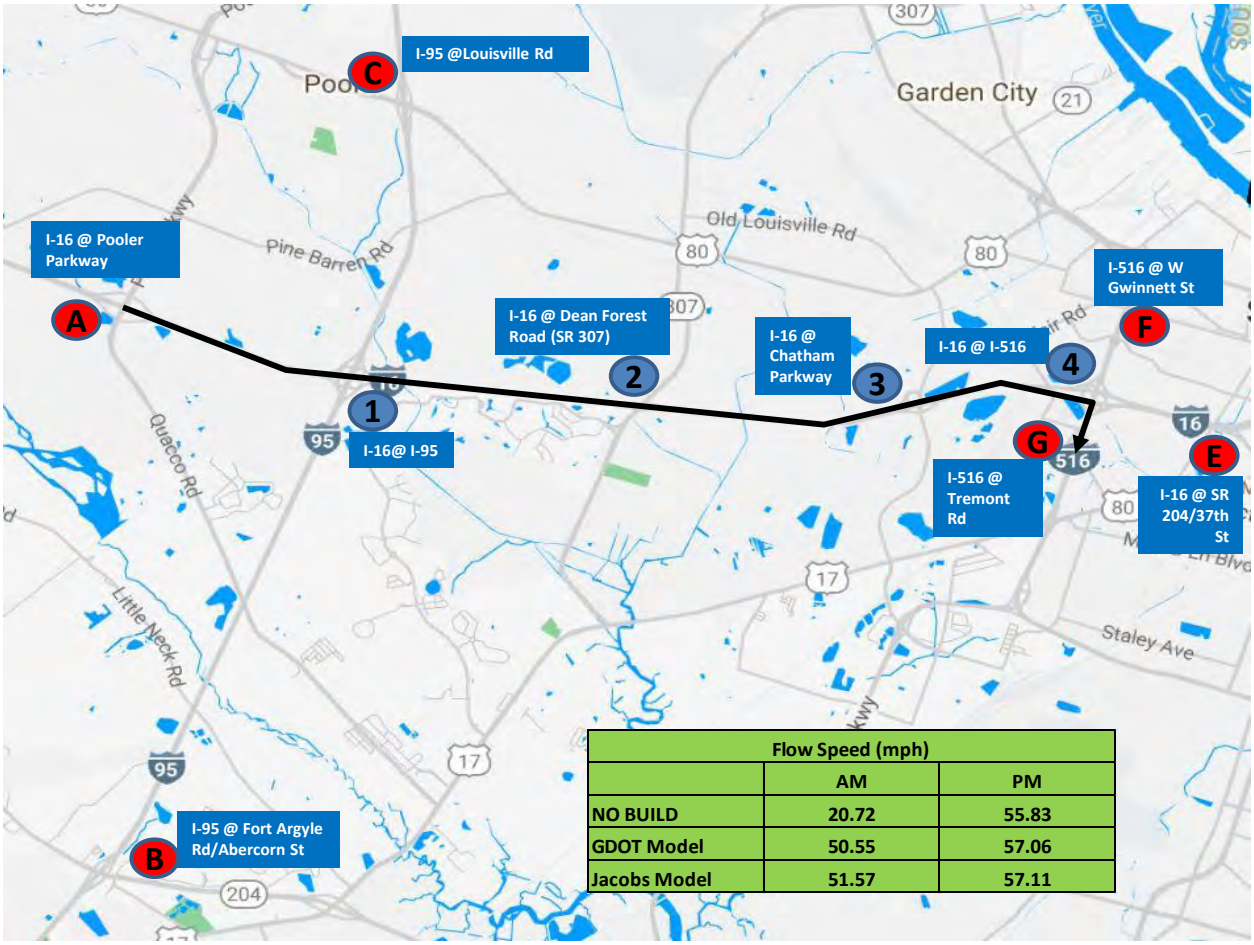
Flow Speed (mph)		
	AM	PM
NO BUILD	19.65	57.4
GDOT Model	51.43	58.48
Jacobs Model	52.55	58.45

Figure 11: Flow Speed Comparisons for A – E (2041)



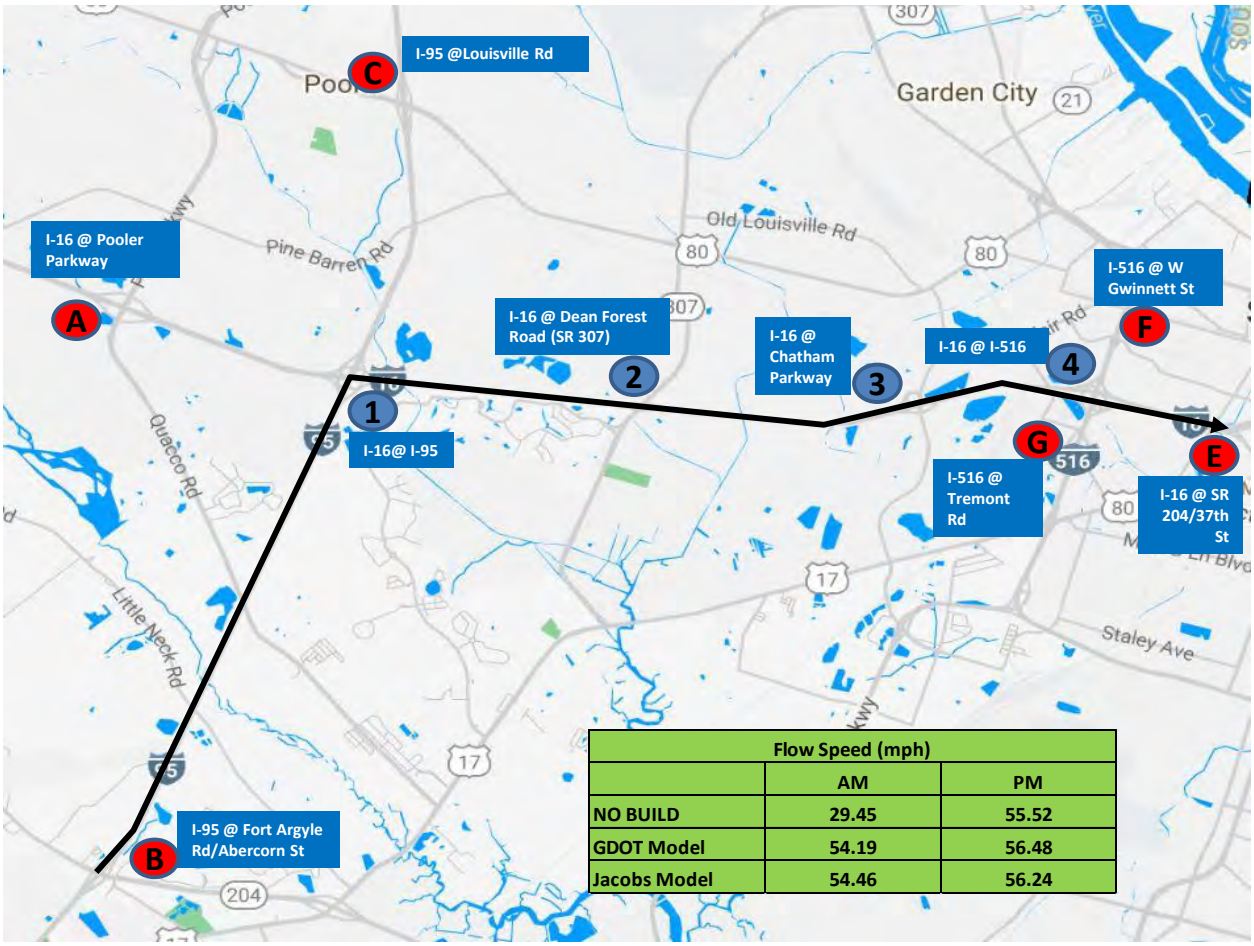
Flow Speed (mph)		
	AM	PM
NO BUILD	20.02	54.12
GDOT Model	49.6	56.75
Jacobs Model	50.76	56.69

Figure 12: Flow Speed Comparisons for A – F (2041)



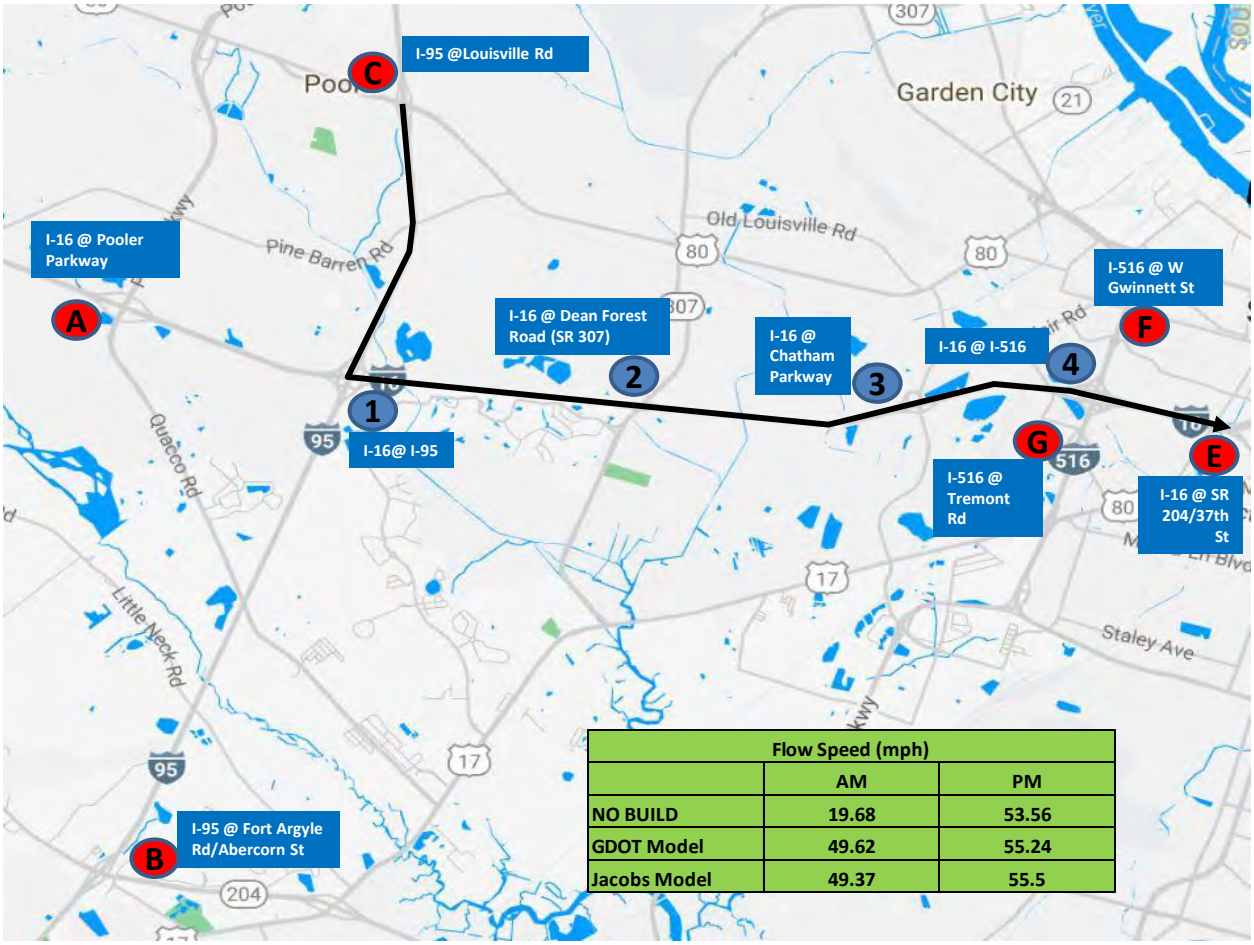
Flow Speed (mph)		
	AM	PM
NO BUILD	20.72	55.83
GDOT Model	50.55	57.06
Jacobs Model	51.57	57.11

Figure 13: Flow Speed Comparisons for A – G (2041)



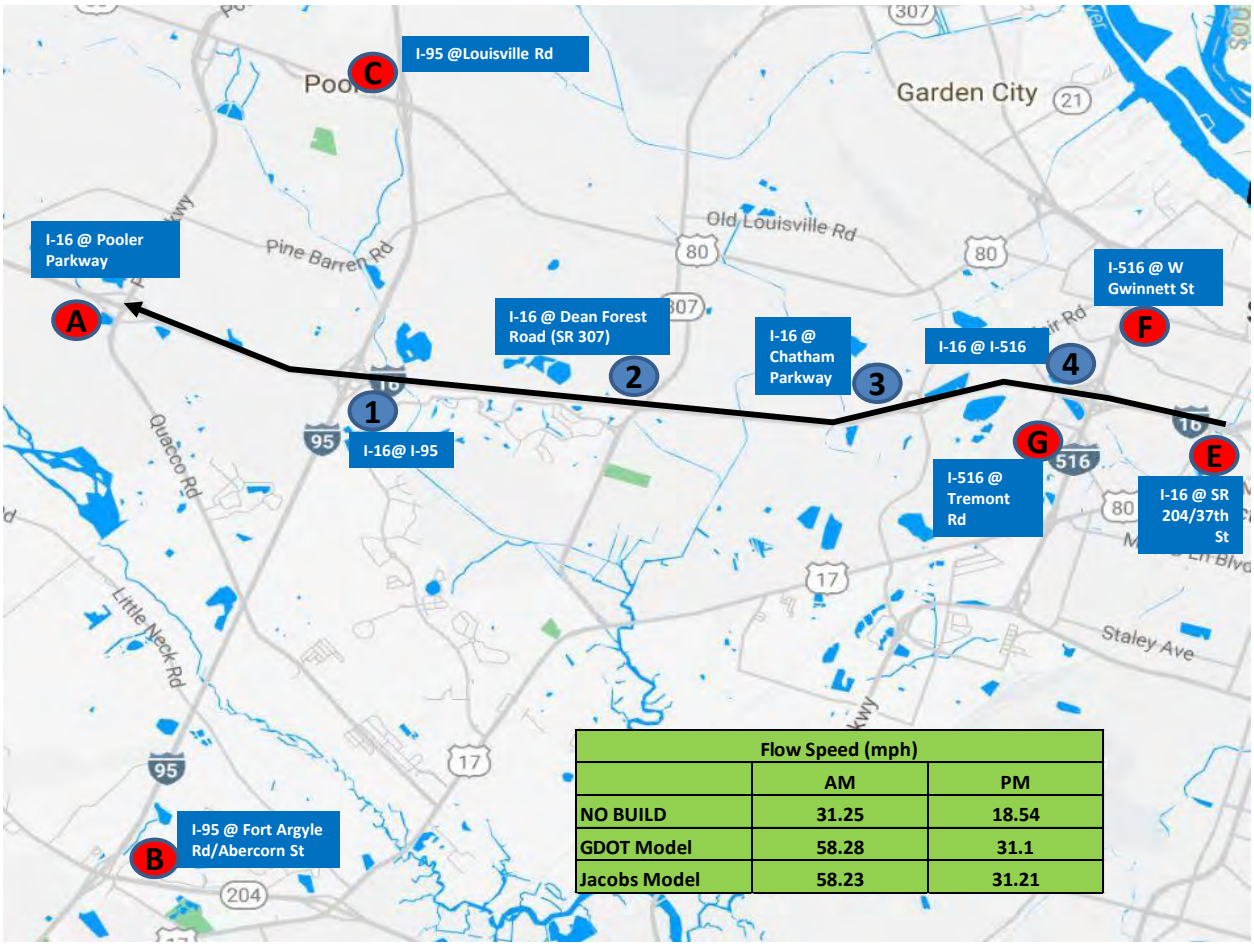
Flow Speed (mph)		
	AM	PM
NO BUILD	29.45	55.52
GDOT Model	54.19	56.48
Jacobs Model	54.46	56.24

Figure 14: Flow Speed Comparisons for B-E (2041)



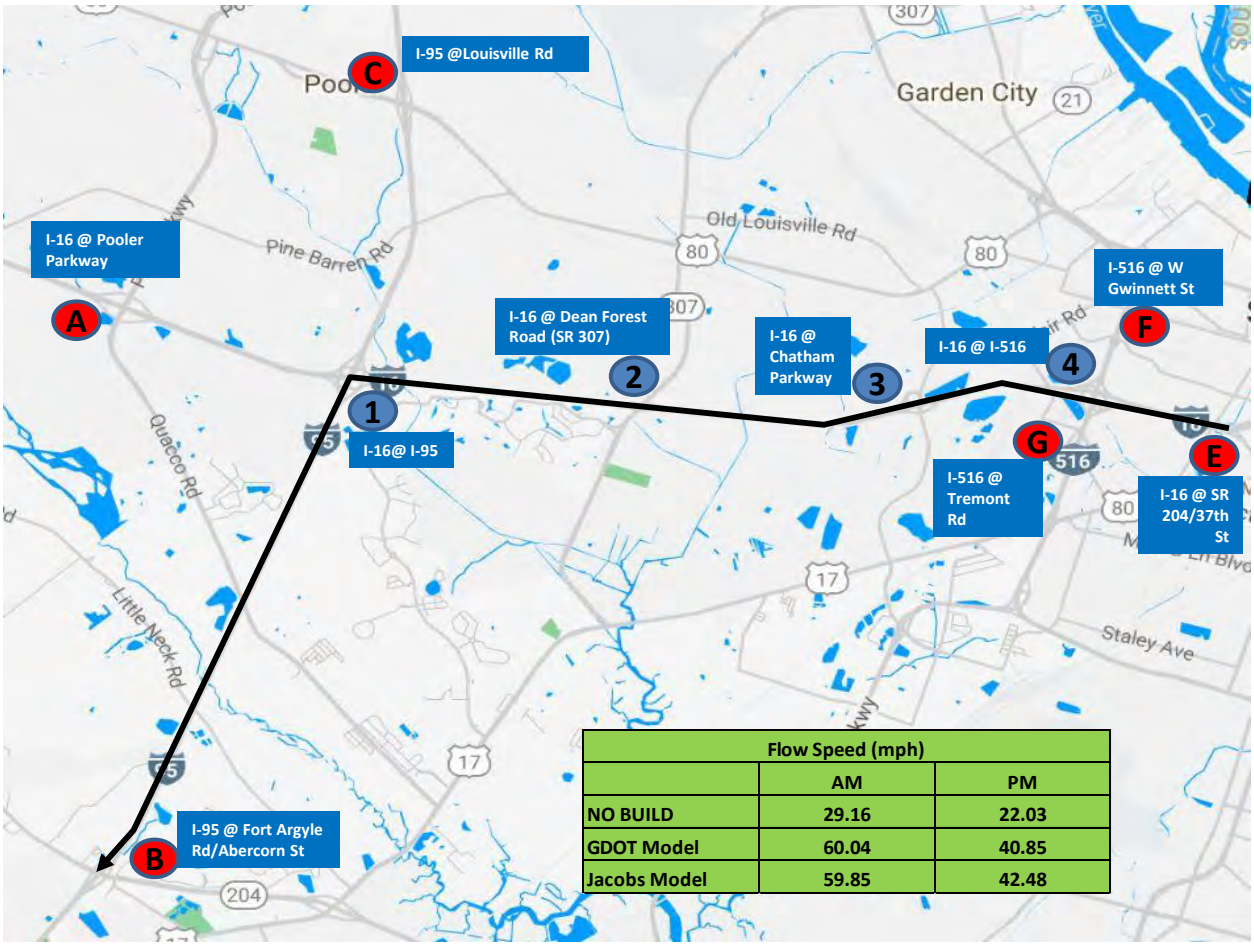
Flow Speed (mph)		
	AM	PM
NO BUILD	19.68	53.56
GDOT Model	49.62	55.24
Jacobs Model	49.37	55.5

Figure 15: Flow Speed Comparisons for C-E (2041)



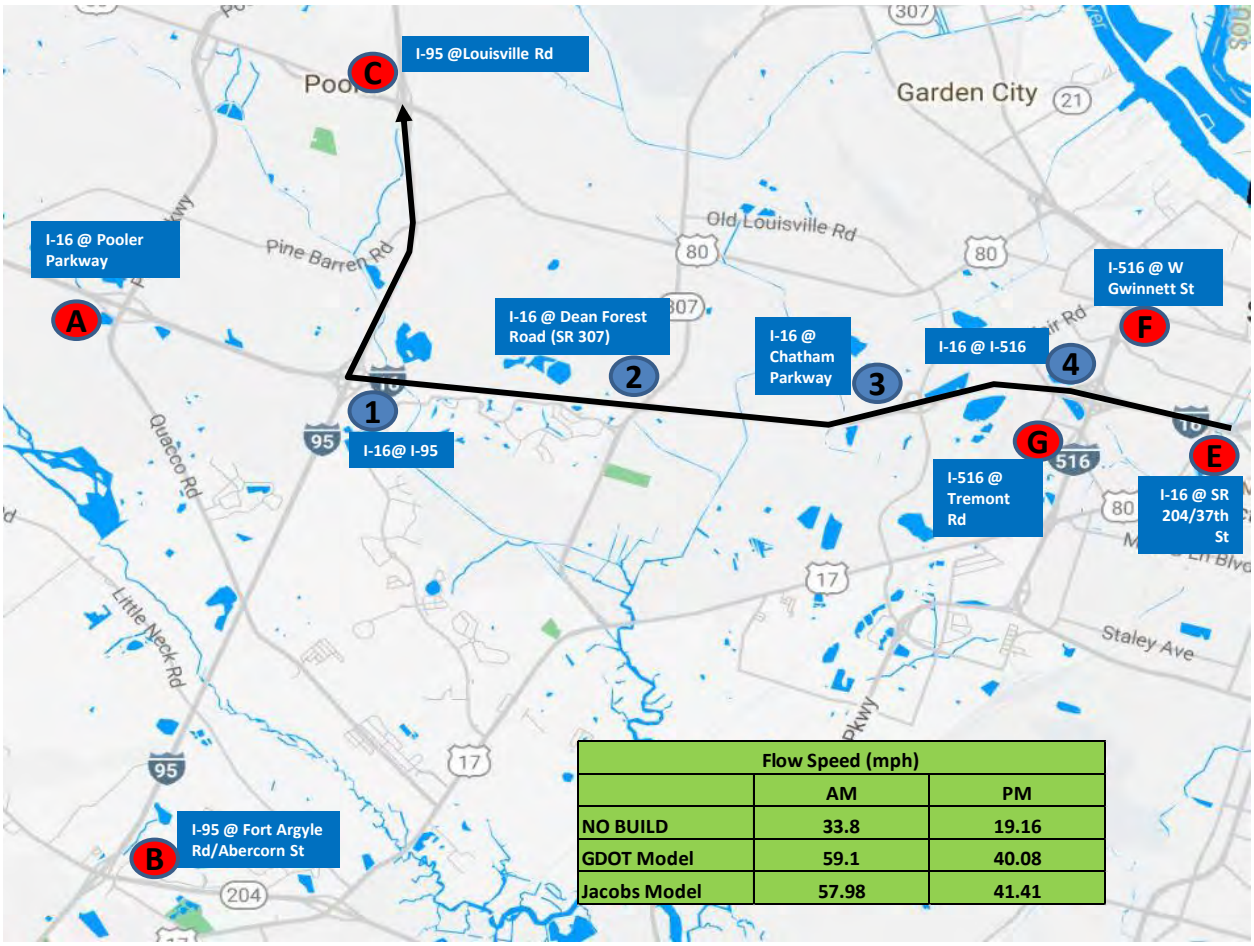
Flow Speed (mph)		
	AM	PM
NO BUILD	31.25	18.54
GDOT Model	58.28	31.1
Jacobs Model	58.23	31.21

Figure 16: Flow Speed Comparisons for E-A (2041)



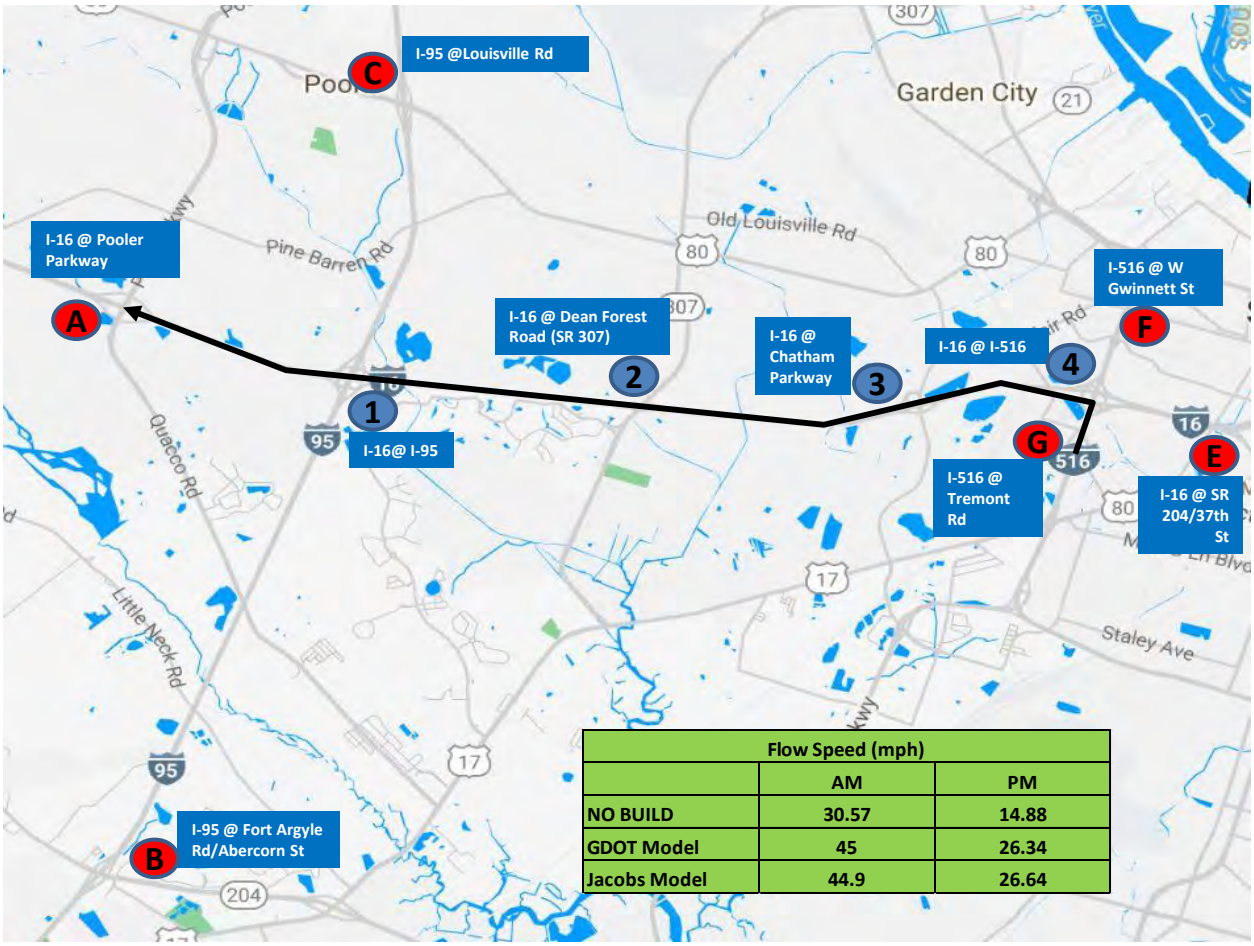
Flow Speed (mph)		
	AM	PM
NO BUILD	29.16	22.03
GDOT Model	60.04	40.85
Jacobs Model	59.85	42.48

Figure 17: Flow Speed Comparisons for E-B (2041)



Flow Speed (mph)		
	AM	PM
NO BUILD	33.8	19.16
GDOT Model	59.1	40.08
Jacobs Model	57.98	41.41

Figure 18: Flow Speed Comparisons for E-C (2041)



Flow Speed (mph)		
	AM	PM
NO BUILD	30.57	14.88
GDOT Model	45	26.34
Jacobs Model	44.9	26.64

Figure 19: Flow Speed Comparisons for G-A (2041)

Flow Speed (mph)		
	AM	PM
NO BUILD	31.32	21.61
GDOT Model	57.45	30.08
Jacobs Model	57.13	30.35

Figure 20: Flow Speed Comparisons for F-A (2041)

FORM P

ATC1A - Partial Turbine Interchange

The DB Team shall check mark in the appropriate box for each item. Any box left incomplete will cause a resubmittal of the ATC. If "Change Required" box is checked the DB Team shall provide a description of the change or deviation from the NEPA Approval, Technical Provisions (Volume 2, Volume 3 and their respective attachments), Technical Documents (Volume 3, Attachment 3-1), and the DBA Volume 1 requirements.

[See following pages]

NEPA Study Impacts				
No.	**Area**	**No Change Required**	**Change Required**	**If change required, provide a brief description of the proposed change.**
1	Purpose and Need	X		
2	Project Termini	X		
3	Property Acquisition	X		
4	Historic and Archeological	X		
5	Parklands and Other 4 (f) Resources	X		
6	Air Quality	X		
7	Noise		X	Analysis to be updated per new Geometry
8	Hazardous Materials	X		
9	Water Resources/Water Quality		X	Analysis to be updated per new Geometry
10	Indirect and Cumulative Impacts	X		
11	Change in Selection of Preferred Alternative			
12	Environmentally Sensitive Areas	X		
13	Environmental Justice	X		
14	Operations	X		
15	Visual-Aesthetics	X		
16	Permits		X	Analysis to be updated per new Geometry
17	Environmental Commitments (Green sheet)		X	Modifications and refinements to the design are anticipated to require modifying impact calculations.
DB Contract – <u>Volumes 2 and/or 3</u>		**No Change Required**	**Change Required**	**If change required, provide a brief description of the proposed change.**
1	Section 1 - General		X	Will require change to IMR and other FHWA Documents
2	Section 2 - Project Management	X		
3	Section 3 - Design and Submittals	X		
4	Section 4 - Environmental	X		
5	Section 5 - Right of Way (ROW) DB Team Acquisitions	X		
6	Section 6 - Utility Adjustments	TBD		

7	Section 7 - Right of Way (ROW) Additional Properties	X		
8	Section 8 - Geotechnical	X		
9	Section 9 - Surveying and Mapping	X		
10	Section 10 - Grading	X		
11	Section 11 - Roadway		X	Will require change (addition) to Table 11-1 Pavt Design
12	Section 12 - Drainage		X	Will require change to ponds and conveyence in Intchg
13	Section 13 - Structures		X	Will require change of bridges shown in RIDs
14	Section 14 - Rail	X		
15	Section 15 - Landscape and Hardscape Enhancements	X		
16	Section 16 - Signing, Pavement Marking, Signalization		X	Will require change layout shown in RIDs
17	Section 17 - Intelligent Transportation Systems		X	Will require change layout shown in RIDs
18	Section 18 - Traffic Control	X		
19	Section 19 - Maintenance During the Design-Build Period	X		
20	Section 20 - Bicycle and Pedestrian Facilities	X		
21	Section 21 - Reserved	X		
22	Section 22 - Noise Barriers		X	Will require Noise Analysis to verify adequacy
23	Section 23 - Reserved	X		
24	Any related Attachments			
Design Exceptions and Variances		**No**	**Yes**	**Description of each Design Exception or Variance**
1	Does the ATC require any Design Exceptions?		X	Design Exceptions in RIDs will be utilized as needed
2	Does the ATC require any Design Variances?		X	Design Variances in RIDs will be utilized as needed
Volume 3, Attachment 3-1 (list any Manuals which require changes including section number)		**No Change Required**	**Change Required**	**If change required, provide a brief description of the proposed change.**
		X		

1. General comments:

   a. The Design Speeds shall meet the Contract requirements.
      Response: Based on recommendations provided in the ATC, this alternative will meet the contract requirements for design speeds.

   b. Confirm that this work contemplated by this ATC conforms with the provisions in Volume I, Article 5, and Table 5-1.
      Response: Work Contemplated by this ATC will conform with the provisions in the Design-Build agreement, Volume 1, Article 5, and table 5-1 related to the annual cumulative payment cap schedule.

   c. Provide additional technical analysis of safety, AASHTO requirements of exit ramps, adequate merge/diverge distances, design speeds of all ramps, and level of service for the interchange upstream and downstream limits as evaluated in the IMR.
      Response: Additional analysis of safety consideration, AASHTO requirement for exit ramps, Merge/diverge distance, and ramps speeds have been addressed in the resubmitted ATC #1. A detail analysis of the Level of Service has also been provided as Exhibit C- Traffic Memorandum.

   d. Provide cost and schedule savings.
      Response: Cost savings are provided within the ATC form at $24,877,000. Overall schedule savings are 90-120 days but the main benefit is this ATC reduces the construction cost of critical path items within the I-16/I-95 interchange allowing flexibility to spend early funding from the Annual Cumulative Payment Cap Schedule on areas along I-16 where the traffic bottlenecks occur – and relieve congestion sooner. Also, since the long lead procurement and erection times for the flyover bridges are removed, we can also improve the milestone schedule for opening DE8 and DE9 by utilizing innovative ground improvement to speed up embankment work.

   e. Acknowledge and accept that the schedule milestones as stated in the DB Contract will be met.
      Response: We acknowledge and accept that the schedule milestones as stated in the DB Contract will be met.

2. Environmental comments:

   a. Provide justification that no permitting will be required of the restricted covenant on Parcel 6.
      Response: Based on the modifications being proposed, Parcel 6, which is one of the critical permitting locations along this project, will have a reduction in impacts as the footprint and ROW requirements will be significantly reduced. This reduced impact to Parcel 2 and 6 also allows us to anticipate the “No Net Fill” criteria will be achieved within parcel 6.

   b. Acknowledge and accept that any additional ESA impacts will be properly mitigated.

Response: we acknowledge and accept that any additional ESA impacts will need to be mitigated.

c. Acknowledge and accept that all risks associated with an Environmental reevaluation will be on the DB Team.
Response: we acknowledge and accept that any additional ESA impacts will need to be mitigated, and we accept the risk associated with an Environmental re-evaluation.

3. Utilities comments:

a. Provide acknowledgement that all additional risk and cost associated with additional SUE, if required, and/or conflicts with Utilities will be borne by the DB Team.
Response: We acknowledge that all additional risk and cost associated with additional SUE, if required, and/or conflicts with Utilities will be borne by the DB Team.

4. Right of Way comments:

a. Provide justification that no additional right of way will be required of Parcel 6.
Response: Based on the modifications being proposed, Parcel 6 will have a reduction in impacts as the footprint and ROW requirements will be significantly reduced. The reduction in the ROW is primarily from the ability of the Partial Turbine to tie down closer to grade in the infield areas, allowing for more flexibility in the horizontal geometry as the ramps tie back to the Mainline.

b. Provide acknowledgement that all additional risk and cost associated with obtaining Additional ROW, including acquisition services and ROW cost will be borne by the DB Team.
Response: As we finalize the design and make updates for the final IMR approval, there is a potential for alignments and ROW requirements to change. We acknowledge this risk and cost implications associated with these modifications.

5. Geotechnical comments:

a. No comments.
Response: Noted.

6. Roadway comments:

a. Provide justification that design variances or exceptions will not be required as part of the proposed ATC.
Response: As outlined in the ATC Form, additional design variations or exceptions will not be required for the proposed alignment. The Proposed ATC geometry is not a direct system to

system ramp, but rather a semi direct connection ramp governed by the general parameters outlined in the GDOT DPM and AASHTO. The reduced speed proposed is consistent with all GDOT standards for a Partial Turbine Interchange and will not require a design variation based on the requirements in "Section 3.3.3 Freeway exit and entrance ramps" of the GDOT Design Policy Manual (DPM).

b. Provide all horizontal and vertical design criteria.
Response: Horizontal and vertical criteria used to govern the design of the Partial Turbine ramp has been provided as an attachment to this Exhibit F – Responses to GDOT Comments on ATC 1.

c. Acknowledge and accept that all design criteria in the Contract will be met.
Response: Based on recommendations provided in the ATC, we acknowledge and accept that all design criteria in the contract will be met.

7. Drainage/Erosion Control comments:

a. Acknowledge and accept that no net fill will be achieved with the design.
Response: We acknowledge and accept that no net fill be achieved on this design.

8. Bridges/Structures comments:

a. No comments.
Response: Noted

9. ITS comments:

a. No comments.
Response: Noted

10. Signing and Marking comments:

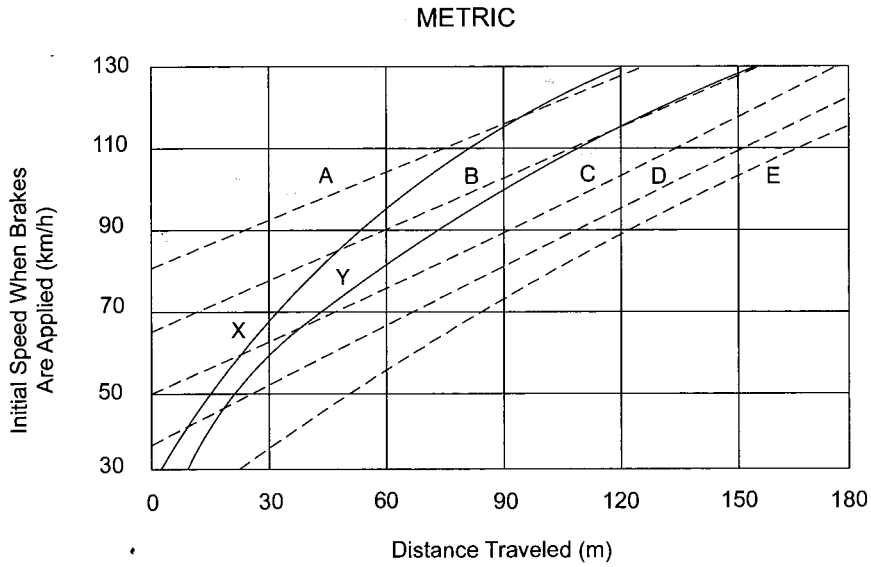
a. No comments.
Response: Noted

11. Other:

a. Acknowledge and accept that all cost and schedule risk associated with an IMR revision will be borne by the DB Team.

Response: We acknowledge and accept that all cost and schedule risk associated with an IMR revision will be borne by the DB Team.

b. All design criteria and submittals are subject to GDOT review and acceptance after award of the project.
   Response: we acknowledge and accept that all design criteria and submittals are subject to GDOT review and acceptance after award of the project.

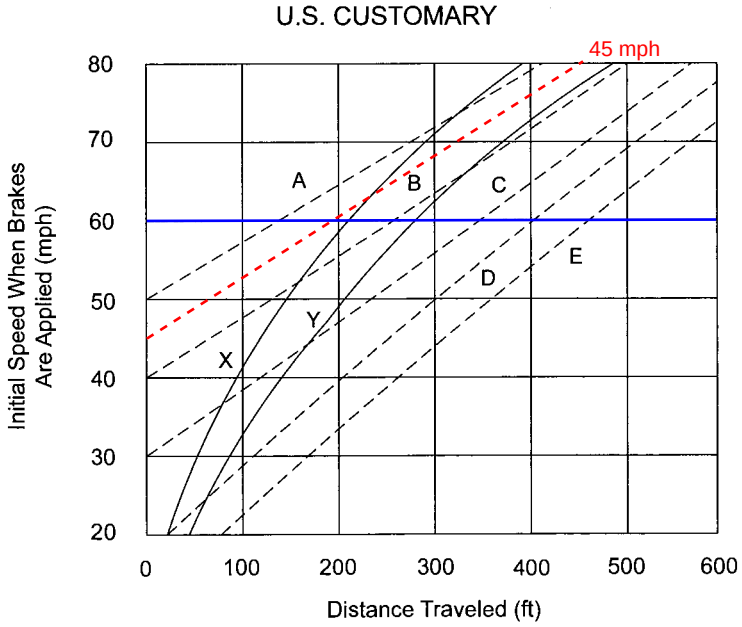


Speed Reached (Comfortable Rate)

A = 80 km/h B = 60 km/h C = 50 km/h D = 30 km/h E = 0 km/h

Minimum Braking Distance

X = Wet Pavement Y = Dry Pavement



Speed Reached (Comfortable Rate)

A = 50 mph B = 40 mph C = 30 mph D = 20 mph E = 0 mph

Minimum Braking Distance

X = Wet Pavement Y = Dry Pavement

Figure 2-25. Deceleration Distances for Passenger Vehicles Approaching Intersections

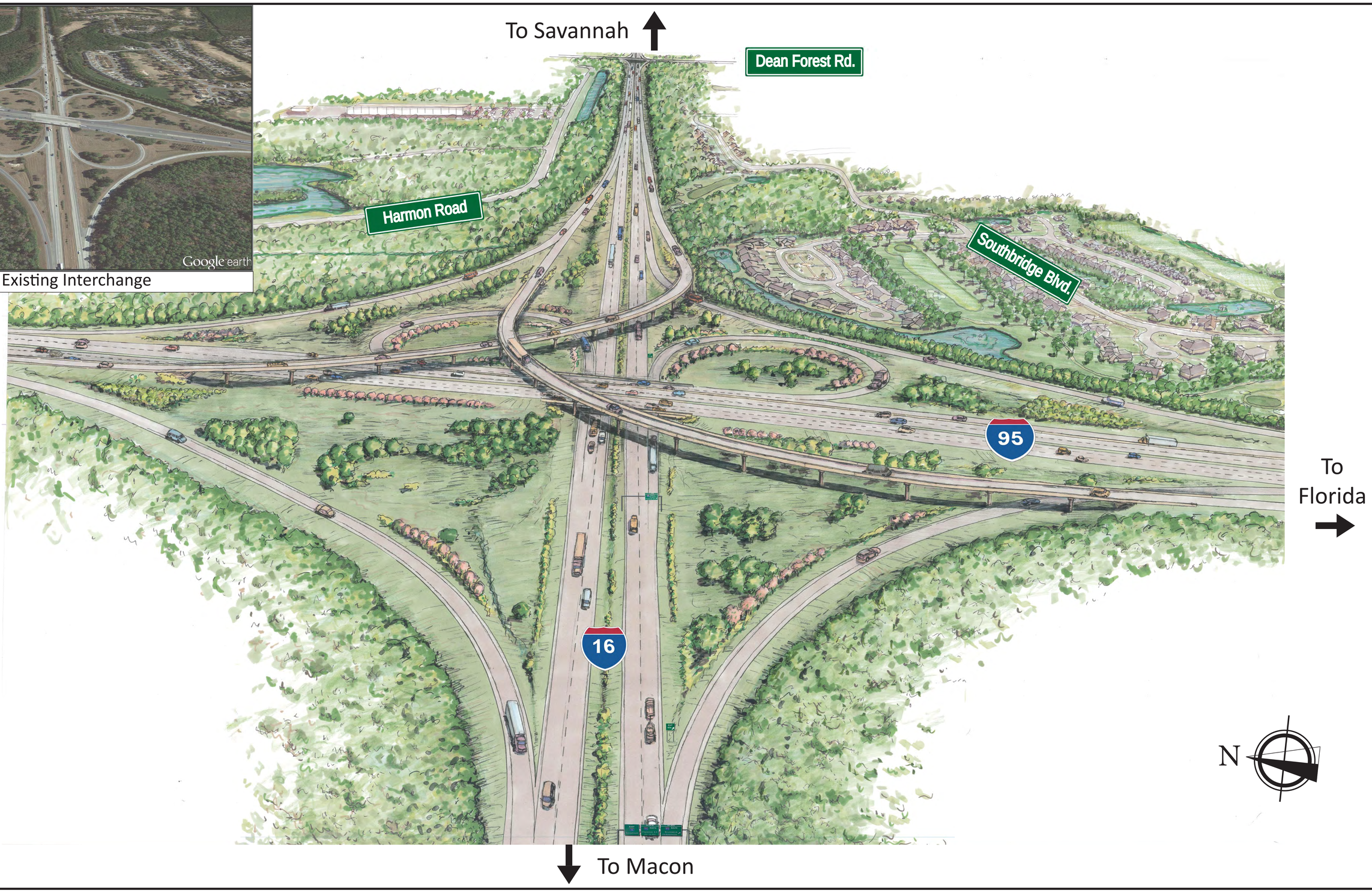
I-16 Widening and I-16 at I-95 Interchange Improvements
PI 0012757 0012758
Roadway Design Criteria

GENERAL - DESIGN ELEMENTS	I-95 SB Ramp to I-16 EB DE8	I-95 SB Ramp to I-16 WB DE7	I-95 NB Ramp to I-16 EB DE3	I-95 NB Ramp to I-16 WB DE5	I-16 WB Ramp to I-95 SB DE9	I-16 EB Ramp to I-95 NB DE6	I-16 EB Ramp to I-95 SB DE10	I-16 WB Ramp to I-95 NB DE11	I-16 EB Ramp to I-516 SB DE29	I-16 EB Ramp to I-516NB DE30	I-516 SB Ramp to I-16 WB DE28	COMMENTS / REMARKS
Roadway Classification	Rural Ramp	Rural Ramp	Rural Ramp	Rural Ramp	Rural Ramp	Rural Ramp	Rural Ramp	Rural Ramp	Urban Ramp	Urban Ramp	Urban Ramp	
Design Vehicle	WB-67	WB-67	WB-67	WB-67	WB-67	WB-67	WB-67	WB-67	WB-67	WB-67	WB-67	
Design Speed	50 mph 50 mph (Horiz. SSD)	55 mph	60 mph	30 mph	45 mph	30 mph	55 mph	55 mph	45 mph	25 mph	45 mph	
Stopping Sight Distance	425-ft 425-ft (Horiz. SSD)	495-ft	570-ft	200-ft	360-ft	200-ft	495-ft	495-ft	360-ft	155-ft	360-ft	On-level roadway
HORIZONTAL ALIGNMENT- DESIGN ELEMENTS												
Max. Super-elevation rate (emax.)	8%	8%	8%	10%	8%	10%	8%	8%	6%	10%	6%	
Min. Radius of Curvature	758-ft	960-ft	1200-ft.	200-ft	587-ft	200-ft	960-ft	960-ft	643	126-ft	643-ft	
VERTICAL ALIGNMENT- DESIGN ELEMENTS												
Maximum Grade	4%	4%	4%	6%	4%	6%	4%	4%	5%	6%	5%	For short sections less than 500-ft that are on one-way downgrades, maximum grade may be 1% steeper
Crest Vertical Curve (min. K value)	84	114	151	19	61	19	114	114	61	12	61	
Sag Vertical Curve (min. K value)	96	115	136	37	79	37	115	115	79	26	79	
Minimum Vertical Clearance Over	17-ft	17-ft	17-ft	17-ft	17-ft	17-ft	17-ft	17-ft	17-ft	17-ft	17-ft	
CROSS-SECTION ELEMENTS												
Number of Lanes	1	1	1	1	1 to 2	1	1	1	1-2	1	1	
Lane-Width	16-ft	16-ft	16-ft	20-ft	16-ft Single Lane 12-ft Multi-lane	20-ft	16-ft	16-ft	16-ft Single Lane 12-ft Multi-lane	16-ft	16-ft	
Median Type	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Inside Shoulder-Width (min.)	16-ft (Additional width may be required to meet horizontal sight distance requirements)	8-ft total	8-ft total	8-ft total	8-ft total	8-ft total	8-ft total	8-ft total	8-ft total	8-ft total	8-ft total	1. Wider shoulder may switch from right to left on the inside of the curved alignment to provide adequate sight distance. Additional shoulder width maybe required.
		4-ft paved	4-ft paved	4-ft paved	4-ft paved	4-ft paved	4-ft paved	4-ft paved	4-ft paved	4-ft paved	4-ft paved	
Outside Shoulder-Width (min.)	8-ft (Additional width may be required to meet horizontal sight distance requirements)	12-ft total	12-ft total	12-ft total	12-ft total	12-ft total	12-ft total	12-ft total	12-ft total	12-ft total	12-ft total	
		10-ft paved	10-ft paved	10-ft paved	10-ft paved	10-ft paved	10-ft paved	10-ft paved	10-ft paved	10-ft paved	10-ft paved	
Normal Cross-Slope:												
up to 2 Lanes in one direction	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	
over 2 Lanes in one direction with same cross-slope	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Inside Shoulders	2%	2%	2%	2%	2%	2%	2%	2%	6%	6%	6%	8% max breakover
Outside Shoulders	2%	2%	2%	2%	2%	2%	2%	2%	6%	6%	6%	8% max breakover
Side Slopes:												
Normal Slope	4:1	4:1	4:1	4:1	4:1	4:1	4:1	4:1	4:1	4:1	4:1	
Maximum Slope	2:1	2:1	2:1	2:1	2:1	2:1	2:1	2:1	2:1	2:1	2:1	


Exhibit F
INTERSTATE
16
INTERSTATE
95
N

Looking East

Existing Interchange



I-16 and I-95 Interchange
Artistic Rendering of Conceptual Improvements

June 2016

Georgia Department of Transportation

ARCADIS

Russell R. McMurry, P.E., Commissioner

GEORGIA DEPARTMENT OF TRANSPORTATION

One Georgia Center, 600 West Peachtree Street, NW
Atlanta, Georgia 30308
Telephone: (404) 631-1000

April 16, 2018

Mr. Fernando Bolinaga
Dragados USA, Inc. – Prince Contracting, LLC Joint Venture
810 7th Avenue, 9th Floor
New York, NY 10019
fbolinaga@dragados-usa.com

RE: ATC DP-001-A
I-16 at I-95 Interchange Reconstruction and I-16 Widening from I-95 to I-516 Design-Build Project

Dear Mr. Bolinaga:

The Georgia Department of Transportation has completed review of the above-referenced ATC and provides the following response:

X The ATC, as submitted, is acceptable for inclusion in the Proposal.

_____ The ATC is not acceptable for inclusion in the Proposal.

_____ The ATC is not acceptable in its present form, but may be acceptable upon the satisfaction, in GDOT's sole discretion, of certain identified conditions which must be met or clarifications or modifications that must be made, including, but not limited to, any required environmental reevaluation related to the ATC, which GDOT may condition upon a GDOT Re-evaluation Period.

_____ The submittal does not qualify as an ATC but may be included in Proposer's Proposal because it appears to be within the requirements of the RFP.

_____ The submittal does not qualify as an ATC and may not be included in the Proposal.

Please see the attached comments that were generated relative to the decision provided above.

If an ATC is resubmitted, the resubmission shall be provided with the same three-digit number with an alpha numeric letter starting with the letter "A" for the first resubmittal and "B" for a second submittal, etc., and the resubmittal shall address all comments for re-review.

The Georgia Department of Transportation appreciates the effort by your team to provide innovation and improve the overall success of the I-16 at I-95 Interchange Reconstruction and I-16 Widening from I-95 to I-516 Design-Build Project.

Sincerely,

Assistant P3 Division Director /
State Innovative Delivery Administrator

Attachment: ATC Review Form

CC: Meg Pirkle, P.E., Chief Engineer
Chip Meeks, Procurement Officer
General Files

CONFIDENTIAL

ATC Review Form

1. **General comments:**
   a. All design criteria and submittals are subject to GDOT review and acceptance after award of the Project.
2. **Environmental comments:**
   a. No comments.
3. **Utilities comments:**
   a. No comments.
4. **Right of Way comments:**
   a. No comments.
5. **Geotechnical comments:**
   a. No comments.
6. **Roadway comments:**
   a. No additional design exceptions, variances, or deviations will be allowed for additional design criteria, e.g. stopping sight distance, shoulder width, and superelevation.
7. **Drainage/ Erosion Control comments:**
   a. No comments.
8. **Bridges/Structures comments:**
   a. No comments.
9. **ITS comments:**
   a. No comments.
10. **Signing and Marking comments:**
    a. No comments.
11. **Other:**
    a. No comments.

Request for review of an ATC under ITP for I-16 at I-95 Interchange Reconstruction and I-16 Widening From I-95 to I-516 Project - Confidential ATCs

ATC No. 4

Permit Use of Florida I-Beams (FIBs) – REV. 0

Project Goal Achieved : *Provide Reduced Cost and Schedule*

COST REDUCTION:	SCHEDULE REDUCTION:
$TBD	TBD -Days

Environmental Benefits	Community Benefits	Safety Benefits	Traffic Benefits	Life Cycle Benefits

A. Proposer and ATC Identification

Savannah Mobility Contractors JV respectfully submits ATC No. 4 for GDOT's consideration for the I-16 AT I-95 INTERCHANGE RECONSTRUCTION AND I-16 WIDENING FROM I-95 TO I-516 PROJECT (P.I. Nos. 0012757 and 0012758).

B. Description and Conceptual Drawings

Savannah Mobility Contractors JV proposes to this ATC to gain approval for the use of Florida I-Beams for bridges in the Project.

When compared to other beams (per beam), the advantages of the Florida I-Beams includes:

- ✓ Increased stiffness
- ✓ Higher load carrying capacity
- ✓ Higher live load rating

With the implementation of this ATC, the following benefits are anticipated:

- ✓ Less traffic impacts, since it minimizes/shortens the duration of lane closures.
- ✓ Reduced schedule, as this solution requires less beams and picks.
- ✓ This ATC provides a higher level of safety to the travelling public and construction workers since Florida I-Beams are more stable during erection and construction.
- ✓ Fewer beams in the bridge section, resulting in fewer beam picks and less number of bearings to be replaced in the future.

C. ATC Location and Usage

This ATC applies to all proposed new bridges or bridge replacements.

D. Contract Changes

To implement this Alternative Technical Concept, a deviation from the following section of the RFP would be required:

- Volume 3 of the ITP – Section 13.1.1

- The DB Team shall provide activities in this section accordance with GDOT's Bridge and Structures Design Manual (GDOT Bridge Manual) as the primary reference, the current AASHTO LRFD Bridge Design Specifications (AASHTO LRFD Specifications), other Attachment 3-1 Manuals, and other provisions of the DB Documents.

Therefore, the requirements of the GDOT Bridge Manual are applicable to the construction of the bridge on the project.

The use of FDOT FIB shapes deviates from the current GDOT - LRFD Bridge and Structures Design Manual, which only refers to AASHTO and Bulb Tee Beam shapes in Section 3.4. We propose to revise Section 3.4 of the GDOT Bridge Manual to allow the use of FDOT FIB shapes.

E. Justification

The proposed ATC will provide design and construction efficiencies by allowing more efficient beam spacing and span configurations to be used therefore providing a reduction in superstructure depth which could substantially reduce the required approach tie-in work. Implementation of this ATC will provide design and construction efficiencies and cost savings. The FIB shape was developed in 2009 through a collaboration of FDOT, academic research, and industry expertise. The FIB shape is designed to have the same top and bottom flange dimensions, with the only variance in the beam types coming from the increased web height. FDOT has standard design drawings for the FIB 36, 45, 54, 63, 72, 78, 84, and 96 beams. A sample of the FIB 36 drawings, and the section properties for all the beams, can be found in Attachment B. The FIB shape was designed for optimum performance. FIBs can span longer and can save superstructure depth when compared to standard AASHTO I and Bulb Tee shapes. FIBs have bigger flanges than AASHTO beams, giving them increased stability and lateral stiffness. The FIBs can be used to eliminate beam lines and to reduce superstructure depth, which can save on roadway approach work by lowering the profile and reducing embankment and/or retaining wall height.

F. Impacts

F.1 – Vehicular Traffic

F.1.a – During Construction – reduces lane closures for setting beams.

F.1.b – Final Condition – no change

F.2 – Environmental – By reducing the number of beams using FIBs, we reduce the impacts on the environment (exhaust emissions, noise, air quality) from trucking materials to the casting yard and trucking finished beams to the site.

F.3 – Construction Schedule

F.3.a – Overall Schedule – will reduce if any of these bridges are on the overall critical path.

F.3.b – Milestone Schedule – will reduce if any of these bridges are on the milestone critical path.

F.4 – Community – Reduced impact to CSXT

F.5 – Safety – improved with less time to set beams and potentially reduce crane requirements

F.6 – Life-Cycle Costs – No change, bridges designed to this criterion have not exhibited any less robustness than

those per the GDOT manual.

F.7 – Project Costs

F.7.a – Maintenance – Reduced. Less beams to inspect and maintain, while providing the same design life and load carrying capability.

F.7.b – Operation – No Change

F.7.c - Repair. – No Change

G. Cost Savings

G.1 – Infrastructure – TBD depending on comparison of RID bridges to modified bridges

G.2 – ROW – No Change

G.3 – Utility – No Change

H. Time Savings

An estimate and detailed breakdown of any savings that would accrue to GDOT as a result of the ATC; TBD

I. Risks

A description of added risks to GDOT or third parties associated with implementation of the ATC (including, without limitation, with respect to post-construction, operation, maintenance, and tolling, if applicable, of the Project); Since the bridges are designed per the latest AASHTO requirements, there should be no risk to GDOT or third parties.

J. Quality

A description of how the ATC is equal to or better in quality and performance than the RFP requirements; The use of this ATC will provide the same quality as that provided in the RFP/RIDs in that the design life and design loading will not change. Additionally with less beams the substructure and foundation loading is reduced and the efficiency of that component is improved

K. Costs

An estimate of the ATC implementation costs to GDOT, the DB Team and third parties; By reducing the number of beams and cost to temporarily brace them and provide deck forms, this ATC will decrease the first cost of construction that will be recognized by GDOT through the proposal price submitted by Savannah Mobility Contractors JV when implemented. No additional costs will be recognized by third parties.

L. Operations

Any changes in operation requirements associated with the ATC (including, without limitation, with respect to (i) ease of operation and (ii) post-construction tolling of the Project, if applicable); - No Change Anticipated

M. Maintenance

Any changes in the anticipated maintenance requirements (during and post construction) associated with the ATC, including ease of maintenance; - Improved - Since there should be less beams, there should be less beam inspection and less maintenance on bearing pads, therefore annual costs are decreased, improving the life-cycle cost.

N. Anticipated Life

Any changes in the anticipated life of the item comprising the ATC; - No Change – Design Life is not changed.

O. Right-of-way

A description of the additional right-of-way (if any) required to implement the ATC; - No Change

P. Past Use

A description of other projects where the ATC has been used, the success of such usage and names and contact information, including phone numbers and email addresses, for project owner representatives that can confirm such statements; This ATC does not deviate from the AASHTO LRFD Bridge Design Specifications and achieves the goals of providing a safer, more cost effective end product both initially and in the long term. FDOT utilizes these beam shapes and the State Structures Engineer is Robert Robertson, P.E. State Structures Design Engineer, 605 Suwannee Street, Tallahassee, FL 32399, Tel: 850-414-4255

Q. Sale of Work Product

A statement of whether or not the Proposer is prepared to sell its ATCs as part of the Work Product to GDOT in accordance with the terms of Section 3.8 hereof (in the event that such the Proposer is not selected as the Apparent Successful Proposer). Savannah Mobility Contractors JV are prepared to sell the ATC as part of the work product to GDOT.

FORM P

ATC4 - Use of FIBs

The DB Team shall check mark in the appropriate box for each item. Any box left incomplete will cause a resubmittal of the ATC. If "Change Required" box is checked the DB Team shall provide a description of the change or deviation from the NEPA Approval, Technical Provisions (Volume 2, Volume 3 and their respective attachments), Technical Documents (Volume 3, Attachment 3-1), and the DBA Volume 1 requirements.

[See following pages]

NEPA Study Impacts				
No.	**Area**	**No Change Required**	**Change Required**	**If change required, provide a brief description of the proposed change.**
1	Purpose and Need	X		
2	Project Termini	X		
3	Property Acquisition	X		
4	Historic and Archeological	X		
5	Parklands and Other 4 (f) Resources	X		
6	Air Quality	X		
7	Noise	X		
8	Hazardous Materials	X		
9	Water Resources/Water Quality	X		
10	Indirect and Cumulative Impacts	X		
11	Change in Selection of Preferred Alternative	X		
12	Environmentally Sensitive Areas	X		
13	Environmental Justice	X		
14	Operations	X		
15	Visual-Aesthetics	X		
16	Permits	X		
17	Environmental Commitments (Green sheet)	X		
DB Contract – <u>Volumes 2 and/or 3</u>		**No Change Required**	**Change Required**	**If change required, provide a brief description of the proposed change.**
1	Section 1 - General	X		
2	Section 2 - Project Management	X		
3	Section 3 - Design and Submittals	X		
4	Section 4 - Environmental	X		
5	Section 5 - Right of Way (ROW) DB Team Acquisitions	X		
6	Section 6 - Utility Adjustments	TBD		

7	Section 7 - Right of Way (ROW) Additional Properties	X		
8	Section 8 - Geotechnical	X		
9	Section 9 - Surveying and Mapping	X		
10	Section 10 - Grading	X		
11	Section 11 - Roadway	X		
12	Section 12 - Drainage	X		
13	Section 13 - Structures		X	Will require change of bridges shown in RIDs
14	Section 14 - Rail	X		
15	Section 15 - Landscape and Hardscape Enhancements	X		
16	Section 16 - Signing, Pavement Marking, Signalization	X		
17	Section 17 - Intelligent Transportation Systems	X		
18	Section 18 - Traffic Control	X		
19	Section 19 - Maintenance During the Design-Build Period	X		
20	Section 20 - Bicycle and Pedestrian Facilities	X		
21	Section 21 - Reserved	X		
22	Section 22 - Noise Barriers	X		
23	Section 23 - Reserved	X		
24	Any related Attachments			
Design Exceptions and Variances		**No**	**Yes**	**Description of each Design Exception or Variance**
1	Does the ATC require any Design Exceptions?	X		
2	Does the ATC require any Design Variances?	X		
Volume 3, Attachment 3-1 (list any Manuals which require changes including section number)		**No Change Required**	**Change Required**	**If change required, provide a brief description of the proposed change.**
			X	GDOT - LRFD Bridge and Structures Design Manual

Russell R. McMurry, P.E., Commissioner

GEORGIA DEPARTMENT OF TRANSPORTATION

One Georgia Center, 600 West Peachtree Street, NW
Atlanta, Georgia 30308
Telephone: (404) 631-1000

April 2, 2018

Mr. Fernando Bolinaga
Dragados USA, Inc. – Prince Contracting, LLC Joint Venture
810 7th Avenue, 9th Floor
New York, NY 10019
fbolinaga@dragados-usa.com

RE: ATC DP-004-0
I-16 at I-95 Interchange Reconstruction and I-16 Widening from I-95 to I-516 Design-Build Project

Dear Mr. Bolinaga:

The Georgia Department of Transportation has completed review of the above-referenced ATC and provides the following response:

X The ATC, as submitted, is acceptable for inclusion in the Proposal.

_____ The ATC is not acceptable for inclusion in the Proposal.

_____ The ATC is not acceptable in its present form, but may be acceptable upon the satisfaction, in GDOT's sole discretion, of certain identified conditions which must be met or clarifications or modifications that must be made, including, but not limited to, any required environmental reevaluation related to the ATC, which GDOT may condition upon a GDOT Re-evaluation Period.

_____ The submittal does not qualify as an ATC but may be included in Proposer's Proposal because it appears to be within the requirements of the RFP.

_____ The submittal does not qualify as an ATC and may not be included in the Proposal.

Please see the attached comments that were generated relative to the decision provided above.

Russell R. McMurry, P.E., Commissioner

GEORGIA DEPARTMENT OF TRANSPORTATION

One Georgia Center, 600 West Peachtree Street, NW
Atlanta, Georgia 30308
Telephone: (404) 631-1000

If an ATC is resubmitted, the resubmission shall be provided with the same three-digit number with an alpha numeric letter starting with the letter "A" for the first resubmittal and "B" for a second submittal, etc., and the resubmittal shall address all comments for re-review.

The Georgia Department of Transportation appreciates the effort by your team to provide innovation and improve the overall success of the I-16 at I-95 Interchange Reconstruction and I-16 Widening from I-95 to I-516 Design-Build Project.

Sincerely,

Assistant P3 Division Director /
State Innovative Delivery Administrator

Attachment: ATC Review Form

CC: Meg Pirkle, P.E., Chief Engineer
Chip Meeks, Procurement Officer
General Files

CONFIDENTIAL

ATC Review Form

1. **General comments:**
   a. All design criteria and submittals are subject to GDOT review and acceptance after award of the Project.
2. **Environmental comments:**
   a. No comments.
3. **Utilities comments:**
   a. No comments.
4. **Right of Way comments:**
   a. No comments.
5. **Geotechnical comments:**
   a. No comments.
6. **Roadway comments:**
   a. No comments.
7. **Drainage/ Erosion Control comments:**
   a. No comments.
8. **Bridges/Structures comments:**
   a. This ATC proposes to utilize Florida I-Beams (FIBs) in the work. The use of FIBs may be acceptable. No specific information was provided such as range of span lengths, beam spacing, or slab design, etc. The Bridge Office recommends following Florida recommendations for the design and detailing of the beams.
9. **ITS comments:**
   a. No comments.
10. **Signing and Marking comments:**
    a. No comments.
11. **Other:**
    a. No comments.

Request for review of an ATC under ITP for I-16 at I-95 Interchange Reconstruction and I-16 Widening From I-95 to I-516 Project - Confidential ATCs

ATC No. 5

Revised Maximum PSC Beam Spacing – REV. 0

Project Goal Achieved: ***Provide Reduced Cost and Schedule***

COST REDUCTION:	SCHEDULE REDUCTION:
$TBD	TBD -Days

Environmental Benefits	Community Benefits	Safety Benefits	Traffic Benefits	Life Cycle Benefits

A. Proposer and ATC Identification

Savannah Mobility Contractors JV respectfully submits ATC No. 5 for GDOT's consideration for the I-16 AT I-95 INTERCHANGE RECONSTRUCTION AND I-16 WIDENING FROM I-95 TO I-516 PROJECT (P.I. Nos. 0012757 and 0012758).

B. Description and Conceptual Drawings

Savannah Mobility Contractors JV proposes this ATC to receive approval for allowing an increase in the beam spacing above the maximum established in Section 3.4.2.7 of the GDOT - LRFD Bridge and Structures Design Manual.

The following benefits are anticipated:

- ✓ Savings in construction schedule
- ✓ Less impacts to traffic:
- ✓ Minimizes/Shortens the duration of lane closures
- ✓ Fewer beams in the bridge section
- ✓ Reduction overall bridge maintenance cost
- ✓ Fewer beam picks

C. ATC Location and Usage

This ATC applies to all proposed new bridges or bridge replacements.

D. Contract Changes

To implement this Alternative Technical Concept, a deviation from the following section of the RFP would be required:

- Volume 3 of the ITP – Section 13.1.1
    - The DB Team shall provide activities in this section accordance with GDOT's Bridge and Structures Design Manual (GDOT Bridge Manual) as the primary reference, the current AASHTO LRFD Bridge Design Specifications (AASHTO LRFD Specifications), other Attachment 3-1 Manuals, and other provisions of the DB Documents.

Therefore, the requirements of the GDOT Bridge Manual are applicable to the construction of the bridge on the project.

The current GDOT Bridge Manual Section 3.4.2.7 states:

- The maximum beam spacing is 9'-0".

We propose to modify GDOT Bridge Manual Section 3.4.2.7 as follows:

- The maximum beam spacing is 10'-6".

E. Justification

The proposed ATC will provide design and construction efficiencies by allowing a larger maximum beam spacing to be used. The increase in beam spacing can be used to optimize superstructure designs by eliminating beam lines while keeping the same level of performance and quality as a bridge with 9'-0" beam spacing. The AASHTO LRFD Bridge Design Specifications has provisions for beam spacing up to 15'-0". However, most State DOTs set a smaller limit of 12'-0" to 13'-0" for PSC beam bridges. The proposed limit of 10'-6" is a modest increase from the current limit and would match the specified limit for plate girder bridges (Technical Provisions Vol. 2 13.2.2). Bridges designed using this ATC will meet the same strength and service requirements as specified by AASHTO LRFD and the GDOT Bridge Manual. Allowing beam spacings up to 10'-6" provides the ability to optimize exterior beam overhangs when beams have excess design capacity, without adding additional beam lines. Minimizing the exterior overhang reduces the stresses on the deck overhang and can balance out the exterior and interior beam design demands, providing a more balanced bridge system. Smaller overhangs also reduces construction bracing and overhang bracket demands, reducing the loads during deck pours.

F. Impacts

F.1 – Vehicular Traffic

F.1.a – During Construction – reduces lane closures for setting beams.

F.1.b – Final Condition – no change

F.2 – Environmental – By reducing the number of beams using FIBs, we reduce the impacts on the environment (exhaust emissions, noise, air quality) from trucking materials to the casting yard and trucking finished beams to the site.

F.3 – Construction Schedule

F.3.a – Overall Schedule – will reduce if any of these bridges are on the overall critical path.

F.3.b – Milestone Schedule – will reduce if any of these bridges are on the milestone critical path.

F.4 – Community – Reduced impact to CSXT

F.5 – Safety – improved with less time to set beams and potentially reduce crane requirements

F.6 – Life-Cycle Costs – No change, bridges designed to this criterion have not exhibited any less robustness than those per the GDOT manual.

F.7 – Project Costs

F.7.a – Maintenance – Reduced. Less beams to inspect and maintain, while providing the same design life and load carrying capability.

F.7.b – Operation – No Change

F.7.c - Repair. – No Change

G. Cost Savings

G.1 – Infrastructure – TBD depending on comparison of RID bridges to modified bridges

G.2 – ROW – No Change

G.3 – Utility – No Change

H. Time Savings

An estimate and detailed breakdown of any savings that would accrue to GDOT as a result of the ATC; TBD

I. Risks

A description of added risks to GDOT or third parties associated with implementation of the ATC (including, without limitation, with respect to post-construction, operation, maintenance, and tolling, if applicable, of the Project); Since the bridges are designed per the latest AASHTO requirements, there should be no risk to GDOT or third parties.

J. Quality

A description of how the ATC is equal to or better in quality and performance than the RFP requirements; The use of this ATC will provide the same quality as that provided in the RFP/RIDs in that the design life and design loading will not change. Additionally with less beams the substructure and foundation loading is reduced and the efficiency of that component is improved.

K. Costs

An estimate of the ATC implementation costs to GDOT, the DB Team and third parties; By reducing the number of beams and cost to temporarily brace them and provide deck forms, this ATC will decrease the first cost of construction that will be recognized by GDOT through the proposal price submitted by Savannah Mobility Contractors JV when

implemented. No additional costs will be recognized by third parties.

L. Operations

Any changes in operation requirements associated with the ATC (including, without limitation, with respect to (i) ease of operation and (ii) post-construction tolling of the Project, if applicable); - No Change Anticipated

M. Maintenance

Any changes in the anticipated maintenance requirements (during and post construction) associated with the ATC, including ease of maintenance; - Improved - Since there should be less beams, there should be less beam inspection and less maintenance on bearing pads, therefore annual costs are decreased, improving the life-cycle cost.

N. Anticipated Life

Any changes in the anticipated life of the item comprising the ATC; - No Change – Design Life is not changed.

O. Right-of-way

A description of the additional right-of-way (if any) required to implement the ATC; - No Change

P. Past Use

A description of other projects where the ATC has been used, the success of such usage and names and contact information, including phone numbers and email addresses, for project owner representatives that can confirm such statements; This ATC does not deviate from the AASHTO LRFD Bridge Design Specifications and achieves the goals of providing a safer, more cost effective end product both initially and in the long term. Many State DOTs including Florida, North Carolina, South Carolina, and Wisconsin. A similar ATC was also approved for use in the I-285 & SR 400 Reconstruction project and the I-85 Widening project.

Q. Sale of Work Product

A statement of whether or not the Proposer is prepared to sell its ATCs as part of the Work Product to GDOT in accordance with the terms of Section 3.8 hereof (in the event that such the Proposer is not selected as the Apparent Successful Proposer). Savannah Mobility Contractors JV are prepared to sell the ATC as part of the work product to GDOT.

FORM P

ATC5 - Beam Spacing Modification

The DB Team shall check mark in the appropriate box for each item. Any box left incomplete will cause a resubmittal of the ATC. If "Change Required" box is checked the DB Team shall provide a description of the change or deviation from the NEPA Approval, Technical Provisions (Volume 2, Volume 3 and their respective attachments), Technical Documents (Volume 3, Attachment 3-1), and the DBA Volume 1 requirements.

[See following pages]

NEPA Study Impacts				
No.	**Area**	**No Change Required**	**Change Required**	**If change required, provide a brief description of the proposed change.**
1	Purpose and Need	X		
2	Project Termini	X		
3	Property Acquisition	X		
4	Historic and Archeological	X		
5	Parklands and Other 4 (f) Resources	X		
6	Air Quality	X		
7	Noise	X		
8	Hazardous Materials	X		
9	Water Resources/Water Quality	X		
10	Indirect and Cumulative Impacts	X		
11	Change in Selection of Preferred Alternative	X		
12	Environmentally Sensitive Areas	X		
13	Environmental Justice	X		
14	Operations	X		
15	Visual-Aesthetics	X		
16	Permits	X		
17	Environmental Commitments (Green sheet)	X		
DB Contract – <u>Volumes 2 and/or 3</u>		**No Change Required**	**Change Required**	**If change required, provide a brief description of the proposed change.**
1	Section 1 - General	X		
2	Section 2 - Project Management	X		
3	Section 3 - Design and Submittals	X		
4	Section 4 - Environmental	X		
5	Section 5 - Right of Way (ROW) DB Team Acquisitions	X		
6	Section 6 - Utility Adjustments	TBD		

7	Section 7 - Right of Way (ROW) Additional Properties	X		
8	Section 8 - Geotechnical	X		
9	Section 9 - Surveying and Mapping	X		
10	Section 10 - Grading	X		
11	Section 11 - Roadway	X		
12	Section 12 - Drainage	X		
13	Section 13 - Structures		X	Will require change of bridges shown in RIDs
14	Section 14 - Rail	X		
15	Section 15 - Landscape and Hardscape Enhancements	X		
16	Section 16 - Signing, Pavement Marking, Signalization	X		
17	Section 17 - Intelligent Transportation Systems	X		
18	Section 18 - Traffic Control	X		
19	Section 19 - Maintenance During the Design-Build Period	X		
20	Section 20 - Bicycle and Pedestrian Facilities	X		
21	Section 21 - Reserved	X		
22	Section 22 - Noise Barriers	X		
23	Section 23 - Reserved	X		
24	Any related Attachments			
Design Exceptions and Variances		**No**	**Yes**	**Description of each Design Exception or Variance**
1	Does the ATC require any Design Exceptions?	X		
2	Does the ATC require any Design Variances?	X		
Volume 3, Attachment 3-1 (list any Manuals which require changes including section number)		**No Change Required**	**Change Required**	**If change required, provide a brief description of the proposed change.**
			X	GDOT - LRFD Bridge and Structures Design Manual

Russell R. McMurry, P.E., Commissioner

GEORGIA DEPARTMENT OF TRANSPORTATION

One Georgia Center, 600 West Peachtree Street, NW
Atlanta, Georgia 30308
Telephone: (404) 631-1000

April 2, 2018

Mr. Fernando Bolinaga
Dragados USA, Inc. – Prince Contracting, LLC Joint Venture
810 7th Avenue, 9th Floor
New York, NY 10019
fbolinaga@dragados-usa.com

RE: ATC DP-005-0
I-16 at I-95 Interchange Reconstruction and I-16 Widening from I-95 to I-516 Design-Build Project

Dear Mr. Bolinaga:

The Georgia Department of Transportation has completed review of the above-referenced ATC and provides the following response:

X The ATC, as submitted, is acceptable for inclusion in the Proposal.

_____ The ATC is not acceptable for inclusion in the Proposal.

_____ The ATC is not acceptable in its present form, but may be acceptable upon the satisfaction, in GDOT's sole discretion, of certain identified conditions which must be met or clarifications or modifications that must be made, including, but not limited to, any required environmental reevaluation related to the ATC, which GDOT may condition upon a GDOT Re-evaluation Period.

_____ The submittal does not qualify as an ATC but may be included in Proposer's Proposal because it appears to be within the requirements of the RFP.

_____ The submittal does not qualify as an ATC and may not be included in the Proposal.

Please see the attached comments that were generated relative to the decision provided above.

Russell R. McMurry, P.E., Commissioner

GEORGIA DEPARTMENT OF TRANSPORTATION

One Georgia Center, 600 West Peachtree Street, NW
Atlanta, Georgia 30308
Telephone: (404) 631-1000

If an ATC is resubmitted, the resubmission shall be provided with the same three-digit number with an alpha numeric letter starting with the letter "A" for the first resubmittal and "B" for a second submittal, etc., and the resubmittal shall address all comments for re-review.

The Georgia Department of Transportation appreciates the effort by your team to provide innovation and improve the overall success of the I-16 at I-95 Interchange Reconstruction and I-16 Widening from I-95 to I-516 Design-Build Project.

Sincerely,

Assistant P3 Division Director /
State Innovative Delivery Administrator

Attachment: ATC Review Form

CC: Meg Pirkle, P.E., Chief Engineer
Chip Meeks, Procurement Officer
General Files

CONFIDENTIAL

ATC Review Form

1. **General comments:**
   a. All design criteria and submittals are subject to GDOT review and acceptance after award of the Project.
2. **Environmental comments:**
   a. No comments.
3. **Utilities comments:**
   a. No comments.
4. **Right of Way comments:**
   a. No comments.
5. **Geotechnical comments:**
   a. No comments.
6. **Roadway comments:**
   a. No comments.
7. **Drainage/ Erosion Control comments:**
   a. No comments.
8. **Bridges/Structures comments:**
   a. This ATC proposes to increase the maximum beam spacing from 9'-0" as limited in the Bridge Design Manual to 10'-6" maximum spacing. The Bridge Office does not object to the proposed maximum girder spacing. Other elements of design, including but not limited to the number of beams per span, deck design, and overhang design should be consistent with the bridge design manual.
9. **ITS comments:**
   a. No comments.
10. **Signing and Marking comments:**
    a. No comments.
11. **Other:**
    a. No comments.

Request for review of an ATC under ITP for I-16 at I-95 Interchange Reconstruction and I-16 Widening From I-95 to I-516 Project - Confidential ATCs

ATC No. 6

Revised Maximum PSC Beam Length – REV. 0

Project Goal Achieved : *Provide Reduced Cost and Schedule*

COST REDUCTION:	SCHEDULE REDUCTION:
$TBD	TBD -Days

Environmental Benefits	Community Benefits	Safety Benefits	Traffic Benefits	Life Cycle Benefits

A. Proposer and ATC Identification

Savannah Mobility Contractors JV respectfully submits ATC No. 6 for GDOT's consideration for the I-16 AT I-95 INTERCHANGE RECONSTRUCTION AND I-16 WIDENING FROM I-95 TO I-516 PROJECT (P.I. Nos. 0012757 and 0012758).

B. Description and Conceptual Drawings

Savannah Mobility Contractors JV proposes this ATC to receive approval for increasing the maximum beam length established in Section 3.4.2.8 of the GDOT - LRFD Bridge and Structures Design Manual.

The following benefits are anticipated:

- ✓ Savings in construction schedule by setting more LF of beam at a time.
- ✓ Potential Reduction in substructure and foundation by eliminating Piers/bents.
- ✓ Reduction in noise and air pollution by delivering more LF of beam at a time.
- ✓ Increase in Safety by reducing number of piles to be delivered, stood, instrumented and driven.
- ✓ Decrease in Life Cycle Cost by reducing number of substructure to be maintained and inspected.

C. ATC Location and Usage

This ATC applies to all proposed new bridges or bridge replacements.

D. Contract Changes

To implement this Alternative Technical Concept, a deviation from the following section of the RFP would be required:

- Volume 3 of the ITP – Section 13.1.1
    - The DB Team shall provide activities in this section accordance with GDOT's Bridge and Structures

Design Manual (GDOT Bridge Manual) as the primary reference, the current AASHTO LRFD Bridge Design Specifications (AASHTO LRFD Specifications), other Attachment 3-1 Manuals, and other provisions of the DB Documents.

Therefore, the requirements of the GDOT Bridge Manual are applicable to the construction of the bridge on the project.

The current GDOT Bridge Manual Section 3.4.2.8 states the maximum beam lengths for the PSC beams are:

- 50 feet for AASHTO Type I Mod. Beams
- 65 feet for AASHTO Type II beams
- 85 feet for AASHTO Type III beams
- 125 feet for 54" Bulb Tee beams
- 135 feet for 63" Bulb Tee beams
- 150 feet for 72" and 74" Bulb Tee beams

We propose to modify GDOT Bridge Manual Section 3.4.2.8 to state that the maximum beam lengths for the PSC beams are:

- 55 feet for AASHTO Type I Mod. beams
- 75 feet for AASHTO Type II beams
- 98 feet for AASHTO Type III beams
- 140 feet for 54" Bulb Tee beams
- 155 feet for 63" Bulb Tee beams
- 170 feet for 72" and 74" Bulb Tee beams

E. Justification

The proposed ATC will provide design and construction efficiencies by allowing longer maximum beam lengths to be used. Beam lengths in excess of the current GDOT Bridge Manual limits have been successfully designed and constructed in accordance with AASHTO LRFD specifications in the past. The current beam length limits are in place due to concerns of lateral stability of long PSC beams during handling, transportation, erection and construction. The release of the Precast/Prestressed Concrete Institute's (PCI) Recommended Practice for Lateral Stability of Precast, Prestressed Concrete Bridge Girders, First Ed. 2016, provides a logical and thorough approach to analyzing long PSC beams for lateral stability and designing to mitigate potential field issues. Any proposed PSC beams over the current GDOT Bridge manual limits will be evaluated for lateral stability by the Savannah Mobility Contractors JV team. If needed, beams will be designed to withstand these out of plane stresses and deflections by use of better materials (higher f'c, f'ci), additional lateral bracing (flange, web, etc.), or other Contractor recommended means and methods.

F. Impacts

F.1 – Vehicular Traffic

F.1.a – During Construction – by reducing the substructure requirements, less piles will need to be shipped to the site, reducing impacts of construction traffic on commuters.

F.1.b – Final Condition – no change

F.2 – Environmental – By reducing the number of piles, we reduce the impacts on the environment (exhaust emissions, noise, air quality) from trucking materials to the casting yard and trucking finished piles to the site.

F.3 – Construction Schedule

F.3.a – Overall Schedule – The use of the proposed ATC will potentially reduce the amount of time required to fabricate and construct each bridge replacement by minimizing substructure locations.

F.3.b – Milestone Schedule – will reduce if any of these bridges are on the milestone critical path.

F.4 – Community – Reduced impact to CSXT if substructure locations can be eliminated

F.5 – Safety – improved with less piles to deliver, stand up, and drive, as well as reduced need to climb leads for PDA equipment, the team will reduce time working in a hazardous environment.

F.6 – Life-Cycle Costs – No change, bridges designed to this criterion have not exhibited any less robustness than those per the GDOT manual.

F.7 – Project Costs

F.7.a – Maintenance – No Change.

F.7.b – Operation – No Change

F.7.c - Repair. – No Change

G. Cost Savings

G.1 – Infrastructure – TBD depending on comparison of RID bridges to modified bridges

G.2 – ROW – No Change

G.3 – Utility – No Change

H. Time Savings

An estimate and detailed breakdown of any savings that would accrue to GDOT as a result of the ATC; TBD

I. Risks

A description of added risks to GDOT or third parties associated with implementation of the ATC (including, without limitation, with respect to post-construction, operation, maintenance, and tolling, if applicable, of the Project); Since the bridges are designed per the latest AASHTO requirements, there should be no risk to GDOT or third parties.

J. Quality

A description of how the ATC is equal to or better in quality and performance than the RFP requirements; The use of this ATC will provide the same quality as that provided in the RFP/RIDs in that the design life and design loading will not change. Additionally with less beams the substructure and foundation loading is reduced and the efficiency of that component is improved

K. Costs

An estimate of the ATC implementation costs to GDOT, the DB Team and third parties; This ATC will increase the first cost of construction that will be recognized by GDOT through the proposal price submitted by Savannah Mobility Contractors JV when implemented. No additional costs will be recognized by third parties.

L. Operations

Any changes in operation requirements associated with the ATC (including, without limitation, with respect to (i) ease of operation and (ii) post-construction tolling of the Project, if applicable); - No Change Anticipated

M. Maintenance

Any changes in the anticipated maintenance requirements (during and post construction) associated with the ATC, including ease of maintenance; - No change.

N. Anticipated Life

Any changes in the anticipated life of the item comprising the ATC; - No Change – Design Life is not changed.

O. Right-of-way

A description of the additional right-of-way (if any) required to implement the ATC; - No Change

P. Past Use

A description of other projects where the ATC has been used, the success of such usage and names and contact information, including phone numbers and email addresses, for project owner representatives that can confirm such statements; This ATC does not deviate from the AASHTO LRFD Bridge Design Specifications and achieves the goals of providing a safer, more cost effective end product both initially and in the long term. The use of the proposed ATC is allowed by AASHTO LRFD specifications and longer beam lengths than currently allowed have been successfully

constructed in Georgia. The bridge carrying Sixes Road over I-575, built in 2010, had spans of 165 feet and 155 feet using PSC BT-74 beams. The I-85 Express Lanes Extension project also used 163 foot long BT-74 PSC beams for the bridge carrying I-85 Southbound over I-985 Northbound. The release of the PCI Recommended Practice for Lateral Stability of Precast, Prestressed Concrete Bridge Girders allows any beam to be analyzed for lateral stability concerns. Using these guidelines, proper design and/or construction methods can be employed to assure a safe and efficient beam design.

Q. Sale of Work Product

A statement of whether or not the Proposer is prepared to sell its ATCs as part of the Work Product to GDOT in accordance with the terms of Section 3.8 hereof (in the event that such the Proposer is not selected as the Apparent Successful Proposer). Savannah Mobility Contractors JV are prepared to sell the ATC as part of the work product to GDOT.

FORM P

ATC6 - Beam Length Modification

The DB Team shall check mark in the appropriate box for each item. Any box left incomplete will cause a resubmittal of the ATC. If "Change Required" box is checked the DB Team shall provide a description of the change or deviation from the NEPA Approval, Technical Provisions (Volume 2, Volume 3 and their respective attachments), Technical Documents (Volume 3, Attachment 3-1), and the DBA Volume 1 requirements.

[See following pages]

NEPA Study Impacts				
No.	**Area**	**No Change Required**	**Change Required**	**If change required, provide a brief description of the proposed change.**
1	Purpose and Need	X		
2	Project Termini	X		
3	Property Acquisition	X		
4	Historic and Archeological	X		
5	Parklands and Other 4 (f) Resources	X		
6	Air Quality	X		
7	Noise	X		
8	Hazardous Materials	X		
9	Water Resources/Water Quality	X		
10	Indirect and Cumulative Impacts	X		
11	Change in Selection of Preferred Alternative	X		
12	Environmentally Sensitive Areas	X		
13	Environmental Justice	X		
14	Operations	X		
15	Visual-Aesthetics	X		
16	Permits	X		
17	Environmental Commitments (Green sheet)	X		
DB Contract – <u>Volumes 2 and/or 3</u>		**No Change Required**	**Change Required**	**If change required, provide a brief description of the proposed change.**
1	Section 1 - General	X		
2	Section 2 - Project Management	X		
3	Section 3 - Design and Submittals	X		
4	Section 4 - Environmental	X		
5	Section 5 - Right of Way (ROW) DB Team Acquisitions	X		
6	Section 6 - Utility Adjustments	TBD		

7	Section 7 - Right of Way (ROW) Additional Properties	X		
8	Section 8 - Geotechnical	X		
9	Section 9 - Surveying and Mapping	X		
10	Section 10 - Grading	X		
11	Section 11 - Roadway	X		
12	Section 12 - Drainage	X		
13	Section 13 - Structures		X	Will require change of bridges shown in RIDs
14	Section 14 - Rail	X		
15	Section 15 - Landscape and Hardscape Enhancements	X		
16	Section 16 - Signing, Pavement Marking, Signalization	X		
17	Section 17 - Intelligent Transportation Systems	X		
18	Section 18 - Traffic Control	X		
19	Section 19 - Maintenance During the Design-Build Period	X		
20	Section 20 - Bicycle and Pedestrian Facilities	X		
21	Section 21 - Reserved	X		
22	Section 22 - Noise Barriers	X		
23	Section 23 - Reserved	X		
24	Any related Attachments			
Design Exceptions and Variances		**No**	**Yes**	**Description of each Design Exception or Variance**
1	Does the ATC require any Design Exceptions?	X		
2	Does the ATC require any Design Variances?	X		
Volume 3, Attachment 3-1 (list any Manuals which require changes including section number)		**No Change Required**	**Change Required**	**If change required, provide a brief description of the proposed change.**
			X	GDOT - LRFD Bridge and Structures Design Manual

Russell R. McMurry, P.E., Commissioner

GEORGIA DEPARTMENT OF TRANSPORTATION

One Georgia Center, 600 West Peachtree Street, NW
Atlanta, Georgia 30308
Telephone: (404) 631-1000

April 2, 2018

Mr. Fernando Bolinaga
Dragados USA, Inc. – Prince Contracting, LLC Joint Venture
810 7th Avenue, 9th Floor
New York, NY 10019
fbolinaga@dragados-usa.com

RE: ATC DP-006-0
I-16 at I-95 Interchange Reconstruction and I-16 Widening from I-95 to I-516 Design-Build Project

Dear Mr. Bolinaga:

The Georgia Department of Transportation has completed review of the above-referenced ATC and provides the following response:

X The ATC, as submitted, is acceptable for inclusion in the Proposal.

_____ The ATC is not acceptable for inclusion in the Proposal.

_____ The ATC is not acceptable in its present form, but may be acceptable upon the satisfaction, in GDOT's sole discretion, of certain identified conditions which must be met or clarifications or modifications that must be made, including, but not limited to, any required environmental reevaluation related to the ATC, which GDOT may condition upon a GDOT Re-evaluation Period.

_____ The submittal does not qualify as an ATC but may be included in Proposer's Proposal because it appears to be within the requirements of the RFP.

_____ The submittal does not qualify as an ATC and may not be included in the Proposal.

Please see the attached comments that were generated relative to the decision provided above.

Russell R. McMurry, P.E., Commissioner

GEORGIA DEPARTMENT OF TRANSPORTATION

One Georgia Center, 600 West Peachtree Street, NW
Atlanta, Georgia 30308
Telephone: (404) 631-1000

If an ATC is resubmitted, the resubmission shall be provided with the same three-digit number with an alpha numeric letter starting with the letter "A" for the first resubmittal and "B" for a second submittal, etc., and the resubmittal shall address all comments for re-review.

The Georgia Department of Transportation appreciates the effort by your team to provide innovation and improve the overall success of the I-16 at I-95 Interchange Reconstruction and I-16 Widening from I-95 to I-516 Design-Build Project.

Sincerely,

Assistant P3 Division Director /
State Innovative Delivery Administrator

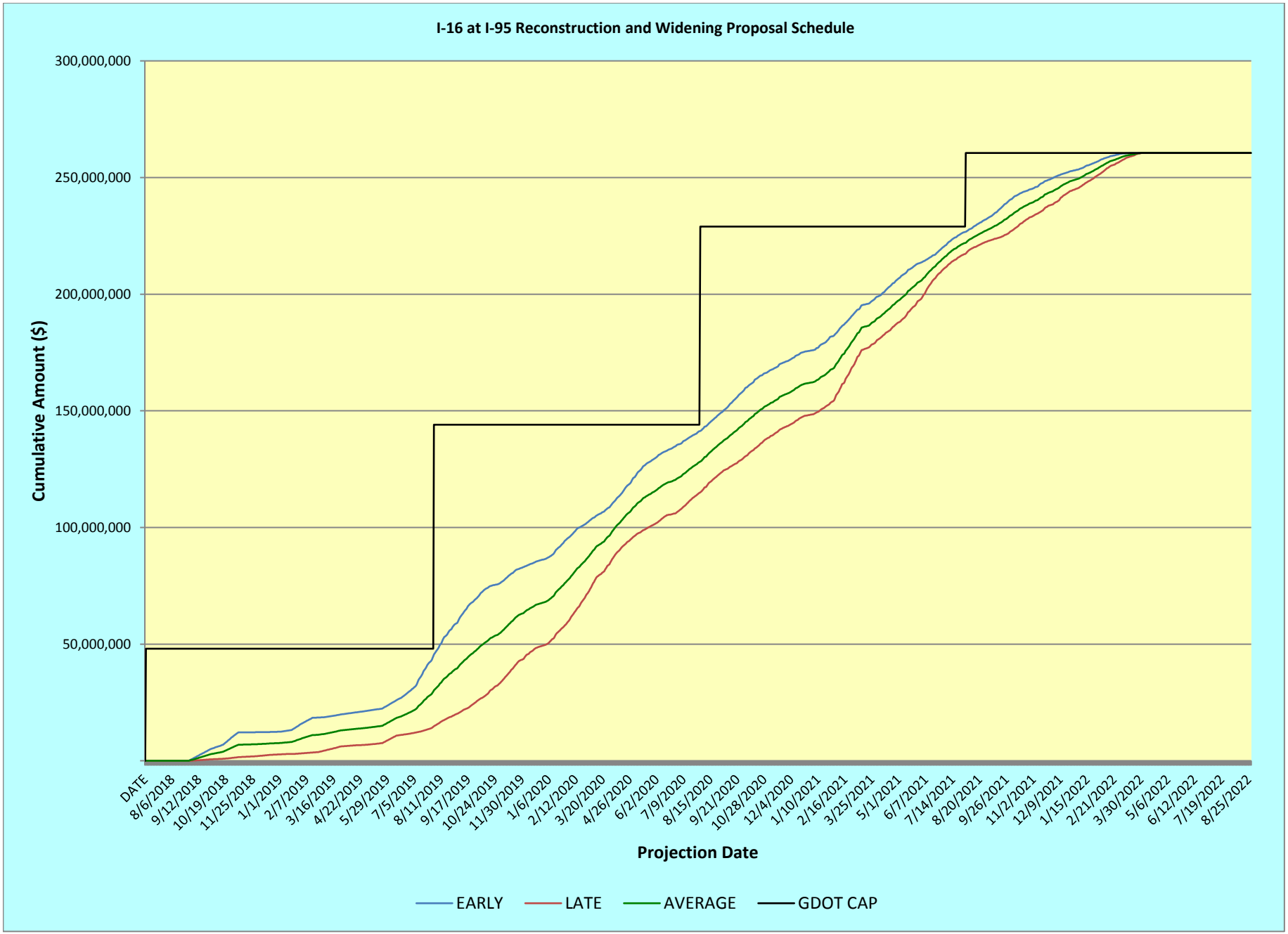
Attachment: ATC Review Form

CC: Meg Pirkle, P.E., Chief Engineer
Chip Meeks, Procurement Officer
General Files

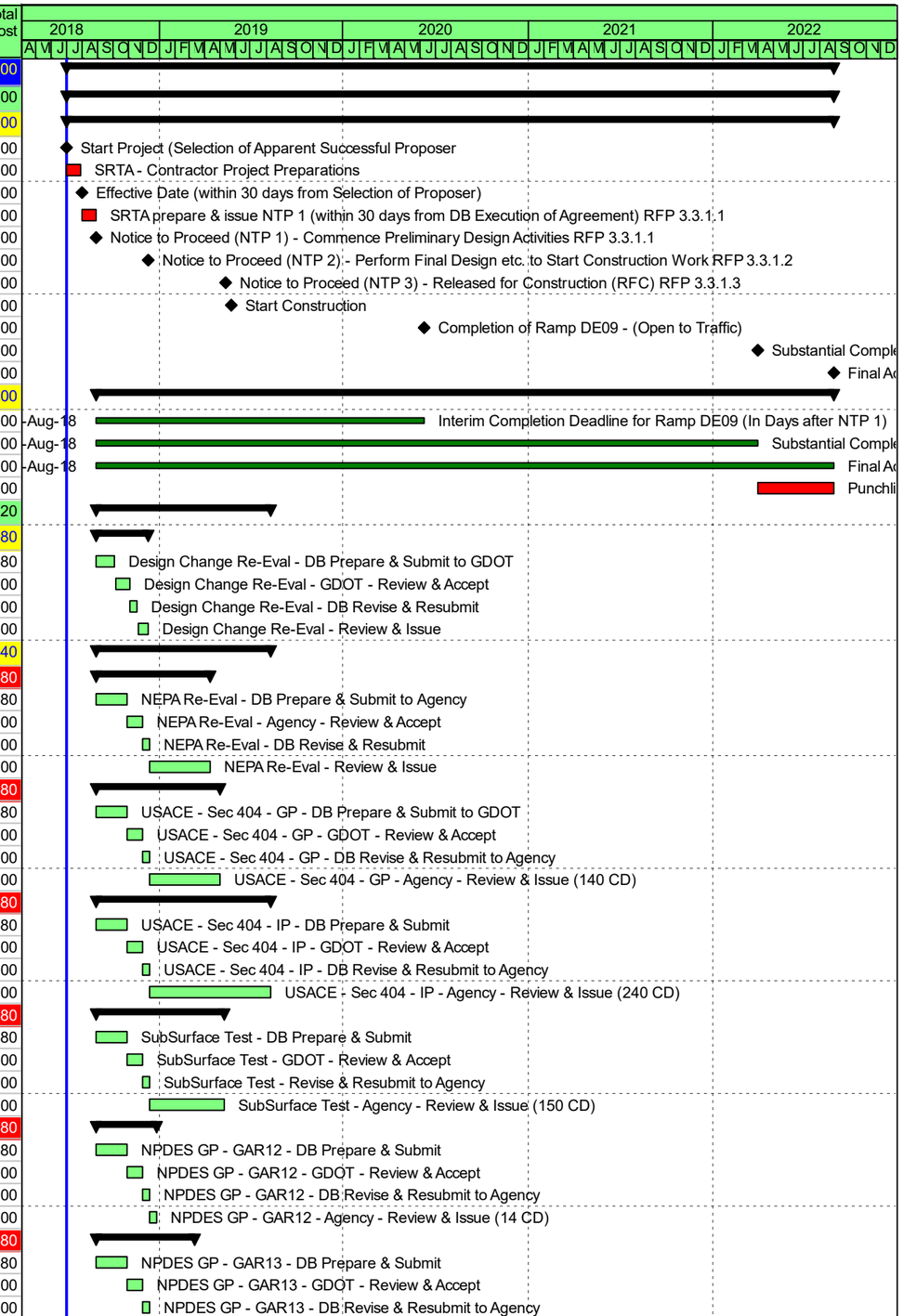
CONFIDENTIAL

ATC Review Form

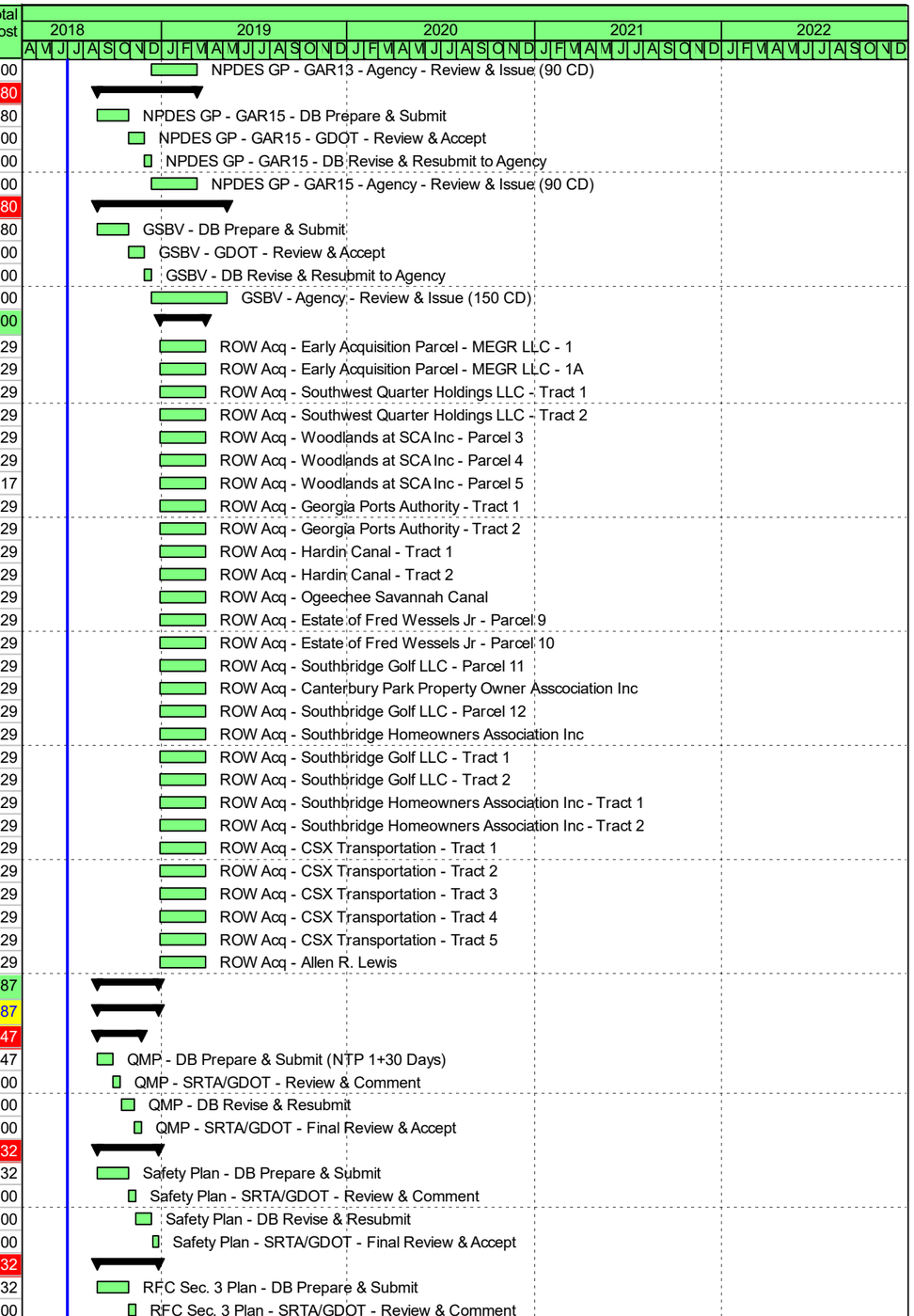
1. **General comments:**
   a. All design criteria and submittals are subject to GDOT review and acceptance after award of the Project.
2. **Environmental comments:**
   a. No comments.
3. **Utilities comments:**
   a. No comments.
4. **Right of Way comments:**
   a. No comments.
5. **Geotechnical comments:**
   a. No comments.
6. **Roadway comments:**
   a. No comments.
7. **Drainage/ Erosion Control comments:**
   a. No comments.
8. **Bridges/Structures comments:**
   a. The DB Team shall be responsible for ensuring the stability of the beams from fabrication until the beams are placed and composite with the concrete deck. Risk increases as beams are beyond the limits provided in the GDOT Bridge Design Manual. The Engineer of Record shall perform beam stability analyses when these limits are exceeded.
9. **ITS comments:**
   a. No comments.
10. **Signing and Marking comments:**
    a. No comments.
11. **Other:**
    a. No comments.


I-16 at I-95 Reconstruction and Widening Proposal Schedule
Cumulative Amount ($)
300,000,000
250,000,000
200,000,000
150,000,000
100,000,000
50,000,000
DATE
8/6/2018
9/12/2018
10/19/2018
11/25/2018
1/1/2019
2/7/2019
3/16/2019
4/22/2019
5/29/2019
7/5/2019
8/11/2019
9/17/2019
10/24/2019
11/30/2019
1/6/2020
2/12/2020
3/20/2020
4/26/2020
6/2/2020
7/9/2020
8/15/2020
9/21/2020
10/28/2020
12/4/2020
1/10/2021
2/16/2021
3/25/2021
5/1/2021
6/7/2021
7/14/2021
8/20/2021
9/26/2021
11/2/2021
12/9/2021
1/15/2022
2/21/2022
3/30/2022
5/6/2022
6/12/2022
7/19/2022
8/25/2022
Projection Date
EARLY
LATE
AVERAGE
GDOT CAP

Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
I-16 at I-95 Reconstruction and Widening Proposal Schedule - Clarification GDOT Ltr 27-Ju		1520	01-Jul-18	28-Aug-22	0	$260,520,016.00
Project Milestones		1520	01-Jul-18	28-Aug-22	0	$0.00
Major Milestones		1520	01-Jul-18	28-Aug-22	0	$0.00
RE00010	Start Project (Selection of Apparent Successful Proposer	0	01-Jul-18		0	$0.00
RE00020	SRTA - Contractor Project Preparations	30	01-Jul-18	30-Jul-18	0	$0.00
RE00030	Effective Date (within 30 days from Selection of Proposer)	0	31-Jul-18		0	$0.00
RE00040	SRTA prepare & issue NTP 1 (within 30 days from DB Execution of Agreement) RFP 3.3.1.1	30	31-Jul-18	29-Aug-18	0	$0.00
RE00050	Notice to Proceed (NTP 1) - Commence Preliminary Design Activities RFP 3.3.1.1	0	30-Aug-18		0	$0.00
RE00060	Notice to Proceed (NTP 2) - Perform Final Design etc. to Start Construction Work RFP 3.3.1.2	0	10-Dec-18		7	$0.00
RE00080	Notice to Proceed (NTP 3) - Released for Construction (RFC) RFP 3.3.1.3	0	12-May-19		11	$0.00
RE00110	Start Construction	0	23-May-19		0	$0.00
RE00120	Completion of Ramp DE09 - (Open to Traffic)	0		10-Jun-20	6	$0.00
RE00090	Substantial Completion	0		31-Mar-22	0	$0.00
RE00100	Final Acceptance	0		28-Aug-22	0	$0.00
Form M - Interim Completion, Substantial Completion and Final Acceptance Proposal		1460	30-Aug-18	28-Aug-22	0	$0.00
RE10030	Interim Completion Deadline for Ramp DE09 (In Days after NTP 1)	651	30-Aug-18	10-Jun-20	6	$0.00
RE10440	Substantial Completion Deadline (In Days after NTP 1)	1310	30-Aug-18	31-Mar-22	0	$0.00
RE10450	Final Acceptance Deadline (In Days after NTP 1)	1460	30-Aug-18	28-Aug-22	0	$0.00
RE48140	Punchlist & Closeout	150	01-Apr-22	28-Aug-22	0	$0.00
Permitting		345	30-Aug-18	09-Aug-19	121	$759,175.20
Design Change Re-Evaluation		102	30-Aug-18	09-Dec-18	7	$84,352.80
RE10490	Design Change Re-Eval - DB Prepare & Submit to GDOT	25	30-Aug-18	05-Oct-18	0	$84,352.80
RE11780	Design Change Re-Eval - GDOT - Review & Accept	30	06-Oct-18	04-Nov-18	1	$0.00
RE12200	Design Change Re-Eval - DB Revise & Resubmit	10	05-Nov-18	19-Nov-18	1	$0.00
RE13200	Design Change Re-Eval - Review & Issue	20	20-Nov-18	09-Dec-18	7	$0.00
Environmental Permits - PTP V3 - Table 4-2		345	30-Aug-18	09-Aug-19	121	$674,822.40
NEPA Re-evaluation / IMR Update		225	30-Aug-18	11-Apr-19	41	$84,352.80
RE54740	NEPA Re-Eval - DB Prepare & Submit to Agency	40	30-Aug-18	29-Oct-18	24	$84,352.80
RE54760	NEPA Re-Eval - Agency - Review & Accept	30	30-Oct-18	28-Nov-18	40	$0.00
RE54770	NEPA Re-Eval - DB Revise & Resubmit	10	29-Nov-18	12-Dec-18	20	$0.00
RE54750	NEPA Re-Eval - Review & Issue	120	13-Dec-18	11-Apr-19	41	$0.00
USACE - Section 404 - General Permit		245	30-Aug-18	01-May-19	21	$84,352.80
RE17950	USACE - Sec 404 - GP - DB Prepare & Submit to GDOT	40	30-Aug-18	29-Oct-18	9	$84,352.80
RE21410	USACE - Sec 404 - GP - GDOT - Review & Accept	30	30-Oct-18	28-Nov-18	11	$0.00
RE23240	USACE - Sec 404 - GP - DB Revise & Resubmit to Agency	10	29-Nov-18	12-Dec-18	7	$0.00
RE24080	USACE - Sec 404 - GP - Agency - Review & Issue (140 CD)	140	13-Dec-18	01-May-19	21	$0.00
USACE - Section 404 - Individual Permit		345	30-Aug-18	09-Aug-19	121	$84,352.80
RE17960	USACE - Sec 404 - IP - DB Prepare & Submit	40	30-Aug-18	29-Oct-18	74	$84,352.80
RE21420	USACE - Sec 404 - IP - GDOT - Review & Accept	30	30-Oct-18	28-Nov-18	123	$0.00
RE23250	USACE - Sec 404 - IP - DB Revise & Resubmit to Agency	10	29-Nov-18	12-Dec-18	74	$0.00
RE24090	USACE - Sec 404 - IP - Agency - Review & Issue (240 CD)	240	13-Dec-18	09-Aug-19	121	$0.00
Subsurface Testing - Storage Tanks & Hazardous Material		255	30-Aug-18	11-May-19	11	$84,352.80
RE25420	SubSurface Test - DB Prepare & Submit	40	30-Aug-18	29-Oct-18	9	$84,352.80
RE27820	SubSurface Test - GDOT - Review & Accept	30	30-Oct-18	28-Nov-18	11	$0.00
RE29040	SubSurface Test - Revise & Resubmit to Agency	10	29-Nov-18	12-Dec-18	7	$0.00
RE29470	SubSurface Test - Agency - Review & Issue (150 CD)	150	13-Dec-18	11-May-19	11	$0.00
NPDES - Construction General Permit - GAR100002		119	30-Aug-18	26-Dec-18	147	$84,352.80
RE25430	NPDES GP - GAR12 - DB Prepare & Submit	40	30-Aug-18	29-Oct-18	87	$84,352.80
RE27830	NPDES GP - GAR12 - GDOT - Review & Accept	30	30-Oct-18	28-Nov-18	147	$0.00
RE29050	NPDES GP - GAR12 - DB Revise & Resubmit to Agency	10	29-Nov-18	12-Dec-18	90	$0.00
RE29480	NPDES GP - GAR12 - Agency - Review & Issue (14 CD)	14	13-Dec-18	26-Dec-18	147	$0.00
NPDES - Construction General Permit - GAR100003		195	30-Aug-18	12-Mar-19	71	$84,352.80
RE25440	NPDES GP - GAR13 - DB Prepare & Submit	40	30-Aug-18	29-Oct-18	37	$84,352.80
RE27840	NPDES GP - GAR13 - GDOT - Review & Accept	30	30-Oct-18	28-Nov-18	70	$0.00
RE29060	NPDES GP - GAR13 - DB Revise & Resubmit to Agency	10	29-Nov-18	12-Dec-18	41	$0.00

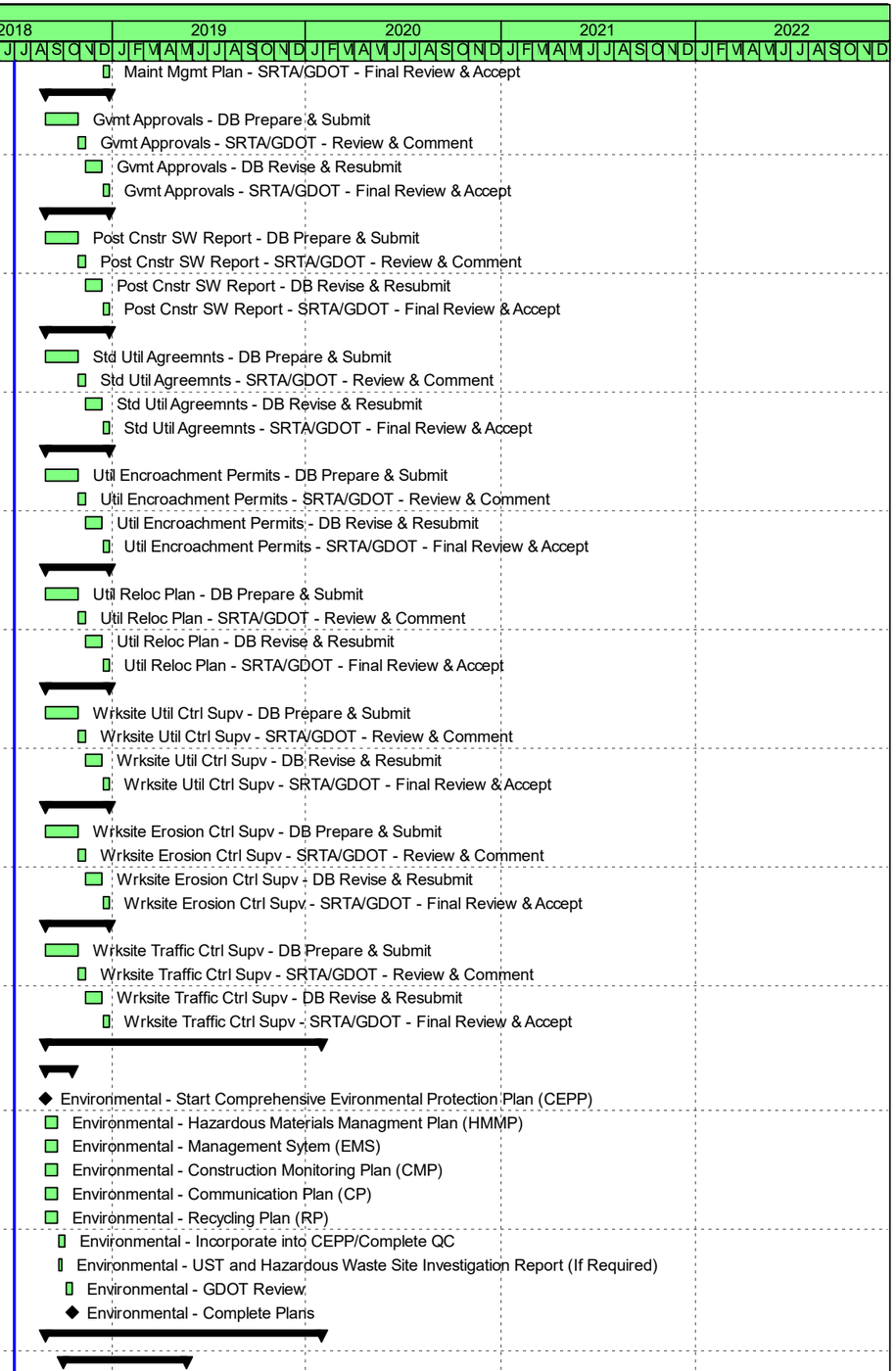


Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE29490	NPDES GP - GAR13 - Agency - Review & Issue (90 CD)	90	13-Dec-18	12-Mar-19	71	$0.00
NPDES - Construction General Permit - GAR150000		195	30-Aug-18	12-Mar-19	71	$84,352.80
RE25450	NPDES GP - GAR15 - DB Prepare & Submit	40	30-Aug-18	29-Oct-18	37	$84,352.80
RE27850	NPDES GP - GAR15 - GDOT - Review & Accept	30	30-Oct-18	28-Nov-18	70	$0.00
RE29070	NPDES GP - GAR15 - DB Revise & Resubmit to Agency	10	29-Nov-18	12-Dec-18	41	$0.00
RE29500	NPDES GP - GAR15 - Agency - Review & Issue (90 CD)	90	13-Dec-18	12-Mar-19	71	$0.00
Georgia Stream Buffer Variance		255	30-Aug-18	11-May-19	11	$84,352.80
RE25460	GSBV - DB Prepare & Submit	40	30-Aug-18	29-Oct-18	9	$84,352.80
RE27860	GSBV - GDOT - Review & Accept	30	30-Oct-18	28-Nov-18	11	$0.00
RE29080	GSBV - DB Revise & Resubmit to Agency	10	29-Nov-18	12-Dec-18	7	$0.00
RE29510	GSBV - Agency - Review & Issue (150 CD)	150	13-Dec-18	11-May-19	11	$0.00
ROW Acquisition		90	29-Dec-18	28-Mar-19	55	$212,500.00
RE10480	ROW Acq - Early Acquisition Parcel - MEGR LLC - 1	90	29-Dec-18	28-Mar-19	55	$7,589.29
RE48700	ROW Acq - Early Acquisition Parcel - MEGR LLC - 1A	90	29-Dec-18	28-Mar-19	55	$7,589.29
RE48710	ROW Acq - Southwest Quarter Holdings LLC - Tract 1	90	29-Dec-18	28-Mar-19	55	$7,589.29
RE54440	ROW Acq - Southwest Quarter Holdings LLC - Tract 2	90	29-Dec-18	28-Mar-19	55	$7,589.29
RE54450	ROW Acq - Woodlands at SCA Inc - Parcel 3	90	29-Dec-18	28-Mar-19	55	$7,589.29
RE54460	ROW Acq - Woodlands at SCA Inc - Parcel 4	90	29-Dec-18	28-Mar-19	55	$7,589.29
RE54470	ROW Acq - Woodlands at SCA Inc - Parcel 5	90	29-Dec-18	28-Mar-19	55	$7,589.17
RE54490	ROW Acq - Georgia Ports Authority - Tract 1	90	29-Dec-18	28-Mar-19	55	$7,589.29
RE54500	ROW Acq - Georgia Ports Authority - Tract 2	90	29-Dec-18	28-Mar-19	55	$7,589.29
RE54510	ROW Acq - Hardin Canal - Tract 1	90	29-Dec-18	28-Mar-19	55	$7,589.29
RE54520	ROW Acq - Hardin Canal - Tract 2	90	29-Dec-18	28-Mar-19	55	$7,589.29
RE54530	ROW Acq - Ogeechee Savannah Canal	90	29-Dec-18	28-Mar-19	55	$7,589.29
RE54540	ROW Acq - Estate of Fred Wessels Jr - Parcel 9	90	29-Dec-18	28-Mar-19	55	$7,589.29
RE54550	ROW Acq - Estate of Fred Wessels Jr - Parcel 10	90	29-Dec-18	28-Mar-19	55	$7,589.29
RE54560	ROW Acq - Southbridge Golf LLC - Parcel 11	90	29-Dec-18	28-Mar-19	55	$7,589.29
RE54570	ROW Acq - Canterbury Park Property Owner Asscociation Inc	90	29-Dec-18	28-Mar-19	55	$7,589.29
RE54580	ROW Acq - Southbridge Golf LLC - Parcel 12	90	29-Dec-18	28-Mar-19	55	$7,589.29
RE54590	ROW Acq - Southbridge Homeowners Association Inc	90	29-Dec-18	28-Mar-19	55	$7,589.29
RE54600	ROW Acq - Southbridge Golf LLC - Tract 1	90	29-Dec-18	28-Mar-19	55	$7,589.29
RE54610	ROW Acq - Southbridge Golf LLC - Tract 2	90	29-Dec-18	28-Mar-19	55	$7,589.29
RE54630	ROW Acq - Southbridge Homeowners Association Inc - Tract 1	90	29-Dec-18	28-Mar-19	55	$7,589.29
RE54640	ROW Acq - Southbridge Homeowners Association Inc - Tract 2	90	29-Dec-18	28-Mar-19	55	$7,589.29
RE54650	ROW Acq - CSX Transportation - Tract 1	90	29-Dec-18	28-Mar-19	55	$7,589.29
RE54660	ROW Acq - CSX Transportation - Tract 2	90	29-Dec-18	28-Mar-19	55	$7,589.29
RE54670	ROW Acq - CSX Transportation - Tract 3	90	29-Dec-18	28-Mar-19	55	$7,589.29
RE54680	ROW Acq - CSX Transportation - Tract 4	90	29-Dec-18	28-Mar-19	55	$7,589.29
RE54690	ROW Acq - CSX Transportation - Tract 5	90	29-Dec-18	28-Mar-19	55	$7,589.29
RE54700	ROW Acq - Allen R. Lewis	90	29-Dec-18	28-Mar-19	55	$7,589.29
Planning		121	30-Aug-18	28-Dec-18	145	$2,694,306.87
Requirements to Achieve NTP3 DBA 3.3.1.3		121	30-Aug-18	28-Dec-18	145	$2,694,306.87
SRTA Acceptance of Quality Management Plan		86	30-Aug-18	23-Nov-18	180	$46,013.47
RE10500	QMP - DB Prepare & Submit (NTP 1+30 Days)	30	30-Aug-18	28-Sep-18	178	$46,013.47
RE11230	QMP - SRTA/GDOT - Review & Comment	14	29-Sep-18	12-Oct-18	178	$0.00
RE11770	QMP - DB Revise & Resubmit	20	15-Oct-18	09-Nov-18	108	$0.00
RE12430	QMP - SRTA/GDOT - Final Review & Accept	14	10-Nov-18	23-Nov-18	180	$0.00
SRTA Acceptance of Safety Plan		121	30-Aug-18	28-Dec-18	145	$61,351.32
RE10510	Safety Plan - DB Prepare & Submit	40	30-Aug-18	29-Oct-18	87	$61,351.32
RE11540	Safety Plan - SRTA/GDOT - Review & Comment	14	30-Oct-18	12-Nov-18	147	$0.00
RE12210	Safety Plan - DB Revise & Resubmit	20	13-Nov-18	14-Dec-18	88	$0.00
RE14260	Safety Plan - SRTA/GDOT - Final Review & Accept	14	15-Dec-18	28-Dec-18	145	$0.00
SRTA Acceptance RFC Plans Under Sec. 3		121	30-Aug-18	28-Dec-18	145	$61,351.32
RE10520	RFC Sec. 3 Plan - DB Prepare & Submit	40	30-Aug-18	29-Oct-18	87	$61,351.32
RE11550	RFC Sec. 3 Plan - SRTA/GDOT - Review & Comment	14	30-Oct-18	12-Nov-18	147	$0.00

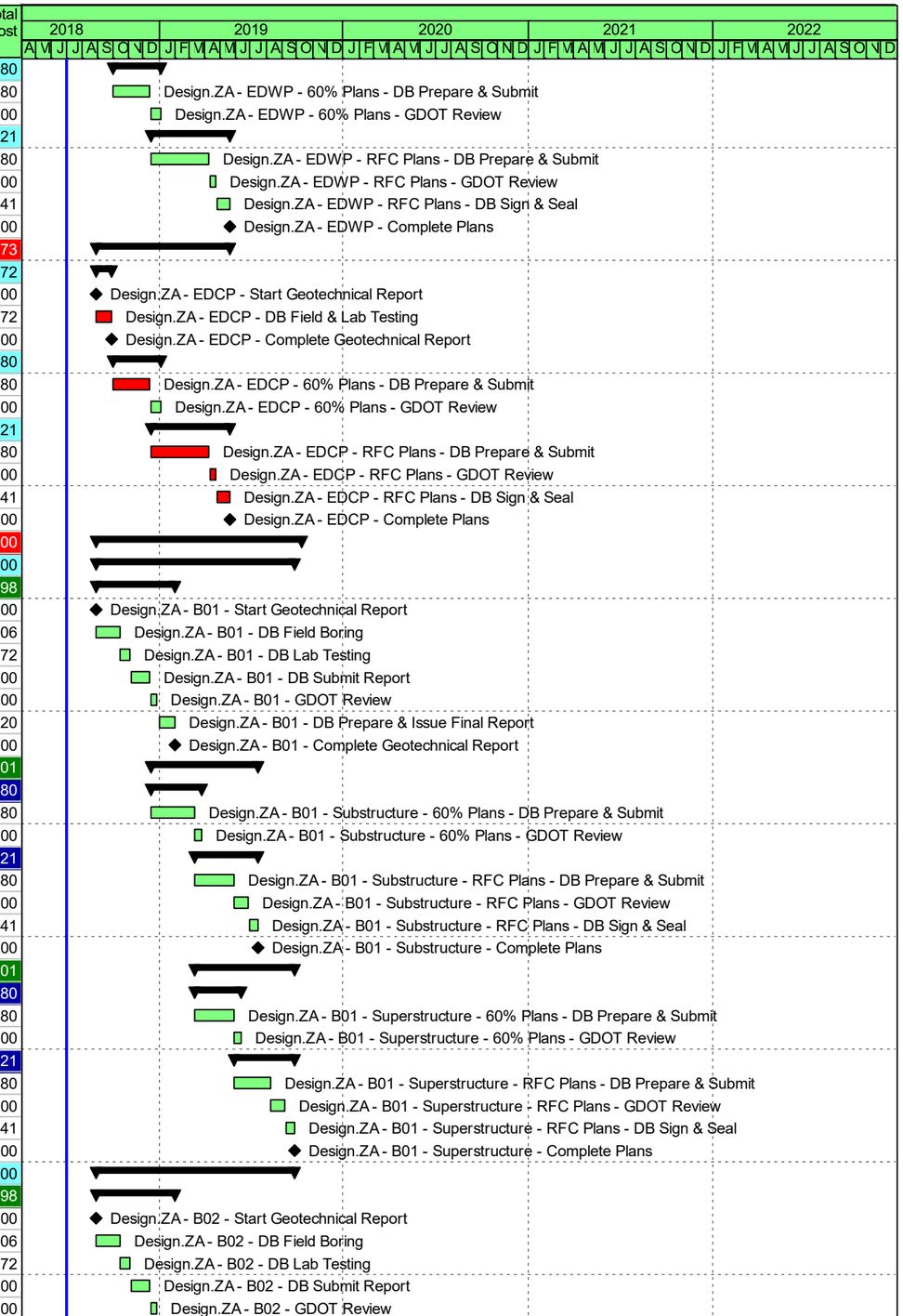


Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE12220	RFC Sec. 3 Plan - DB Revise & Resubmit	20	13-Nov-18	14-Dec-18	88	$0.00
RE14270	RFC Sec. 3 Plan - SRTA/GDOT - Final Review & Accept	14	15-Dec-18	28-Dec-18	145	$0.00
SRTA Acceptance of SOV		**121**	**30-Aug-18**	**28-Dec-18**	**145**	**$61,351.32**
RE10530	Schedule of Values - DB Prepare & Submit	40	30-Aug-18	29-Oct-18	87	$61,351.32
RE11560	Schedule of Values - SRTA/GDOT - Review & Comment	14	30-Oct-18	12-Nov-18	147	$0.00
RE12230	Schedule of Values - DB Revise & Resubmit	20	13-Nov-18	14-Dec-18	88	$0.00
RE14280	Schedule of Values - SRTA/GDOT - Final Review & Accept	14	15-Dec-18	28-Dec-18	145	$0.00
SRTA Acceptance of Baseline Schedule		**121**	**30-Aug-18**	**28-Dec-18**	**145**	**$61,351.32**
RE10540	Baseline Schedule - DB Prepare & Submit	40	30-Aug-18	29-Oct-18	87	$61,351.32
RE11570	Baseline Schedule - SRTA/GDOT - Review & Comment	14	30-Oct-18	12-Nov-18	147	$0.00
RE12240	Baseline Schedule - DB Revise & Resubmit	20	13-Nov-18	14-Dec-18	88	$0.00
RE14290	Baseline Schedule - SRTA/GDOT - Final Review & Accept	14	15-Dec-18	28-Dec-18	145	$0.00
SRTA Acceptance of Maximum Payment Curve		**86**	**30-Aug-18**	**23-Nov-18**	**180**	**$1,421,267.00**
RE10550	Max Pmt Curve - DB Prepare & Submit - Payment Activity (a) - After NTP 1 (25% of Proposal Mot	30	30-Aug-18	28-Sep-18	178	$1,421,267.00
RE11580	Max Pmt Curve - SRTA/GDOT - Review & Comment	14	29-Sep-18	12-Oct-18	178	$0.00
RE12250	Max Pmt Curve - DB Revise & Resubmit	20	15-Oct-18	09-Nov-18	108	$0.00
RE14300	Max Pmt Curve - SRTA/GDOT - Final Review & Accept	14	10-Nov-18	23-Nov-18	180	$0.00
SRTA Acceptance of Traffic Control Plan		**121**	**30-Aug-18**	**28-Dec-18**	**145**	**$61,351.32**
RE10560	Traffic Control Plan - DB Prepare & Submit	40	30-Aug-18	29-Oct-18	87	$61,351.32
RE11590	Traffic Control Plan - SRTA/GDOT - Review & Comment	14	30-Oct-18	12-Nov-18	147	$0.00
RE12260	Traffic Control Plan - DB Revise & Resubmit	20	13-Nov-18	14-Dec-18	88	$0.00
RE14310	Traffic Control Plan - SRTA/GDOT - Final Review & Accept	14	15-Dec-18	28-Dec-18	145	$0.00
SRTA Acceptance of Transportation Management Plan		**121**	**30-Aug-18**	**28-Dec-18**	**145**	**$61,351.32**
RE10570	Transp Mgmt Plan - DB Prepare & Submit	40	30-Aug-18	29-Oct-18	87	$61,351.32
RE11600	Transp Mgmt Plan - SRTA/GDOT - Review & Comment	14	30-Oct-18	12-Nov-18	147	$0.00
RE12270	Transp Mgmt Plan - DB Revise & Resubmit	20	13-Nov-18	14-Dec-18	88	$0.00
RE14320	Transp Mgmt Plan - SRTA/GDOT - Final Review & Accept	14	15-Dec-18	28-Dec-18	145	$0.00
SRTA Acceptance of Public Information and Communication Plan		**121**	**30-Aug-18**	**28-Dec-18**	**145**	**$61,351.32**
RE10580	Public Info & Comm Plan - DB Prepare & Submit	40	30-Aug-18	29-Oct-18	87	$61,351.32
RE11610	Public Info & Comm Plan - SRTA/GDOT - Review & Comment	14	30-Oct-18	12-Nov-18	147	$0.00
RE12280	Public Info & Comm Plan - DB Revise & Resubmit	20	13-Nov-18	14-Dec-18	88	$0.00
RE14330	Public Info & Comm Plan - SRTA/GDOT - Final Review & Accept	14	15-Dec-18	28-Dec-18	145	$0.00
SRTA Acceptance of Construction Phasing Plan		**121**	**30-Aug-18**	**28-Dec-18**	**145**	**$61,351.32**
RE10590	Cnstr Phasing Plan - DB Prepare & Submit	40	30-Aug-18	29-Oct-18	87	$61,351.32
RE11620	Cnstr Phasing Plan - SRTA/GDOT - Review & Comment	14	30-Oct-18	12-Nov-18	147	$0.00
RE12290	Cnstr Phasing Plan - DB Revise & Resubmit	20	13-Nov-18	14-Dec-18	88	$0.00
RE14340	Cnstr Phasing Plan - SRTA/GDOT - Final Review & Accept	14	15-Dec-18	28-Dec-18	145	$0.00
SRTA Acceptance of Construction Mantenance Limits Plan		**121**	**30-Aug-18**	**28-Dec-18**	**145**	**$61,351.32**
RE10600	Cnstr Maint Limits Plan - DB Prepare & Submit	40	30-Aug-18	29-Oct-18	87	$61,351.32
RE11630	Cnstr Maint Limits Plan - SRTA/GDOT - Review & Comment	14	30-Oct-18	12-Nov-18	147	$0.00
RE12300	Cnstr Maint Limits Plan - DB Revise & Resubmit	20	13-Nov-18	14-Dec-18	88	$0.00
RE14350	Cnstr Maint Limits Plan - SRTA/GDOT - Final Review & Accept	14	15-Dec-18	28-Dec-18	145	$0.00
SRTA Acceptance of Comprehensive Environmental Protection Plan		**121**	**30-Aug-18**	**28-Dec-18**	**145**	**$61,351.32**
RE10610	Env Prot Plan - DB Prepare & Submit	40	30-Aug-18	29-Oct-18	87	$61,351.32
RE11640	Env Prot Plan - SRTA/GDOT - Review & Comment	14	30-Oct-18	12-Nov-18	147	$0.00
RE12310	Env Prot Plan - DB Revise & Resubmit	20	13-Nov-18	14-Dec-18	88	$0.00
RE14360	Env Prot Plan - SRTA/GDOT - Final Review & Accept	14	15-Dec-18	28-Dec-18	145	$0.00
SRTA Acceptance of Right of Way Acquisition Plan		**121**	**30-Aug-18**	**28-Dec-18**	**55**	**$61,351.32**
RE10620	ROW Acq Plan - DB Prepare & Submit	40	30-Aug-18	29-Oct-18	34	$61,351.32
RE11650	ROW Acq Plan - SRTA/GDOT - Review & Comment	14	30-Oct-18	12-Nov-18	58	$0.00
RE12320	ROW Acq Plan - DB Revise & Resubmit	20	13-Nov-18	14-Dec-18	30	$0.00
RE14370	ROW Acq Plan - SRTA/GDOT - Final Review & Accept	14	15-Dec-18	28-Dec-18	55	$0.00
SRTA Acceptance of Maintenance Management Plan		**121**	**30-Aug-18**	**28-Dec-18**	**145**	**$61,351.32**
RE10630	Maint Mgmt Plan - DB Prepare & Submit	40	30-Aug-18	29-Oct-18	87	$61,351.32
RE11660	Maint Mgmt Plan - SRTA/GDOT - Review & Comment	14	30-Oct-18	12-Nov-18	147	$0.00
RE12330	Maint Mgmt Plan - DB Revise & Resubmit	20	13-Nov-18	14-Dec-18	88	$0.00

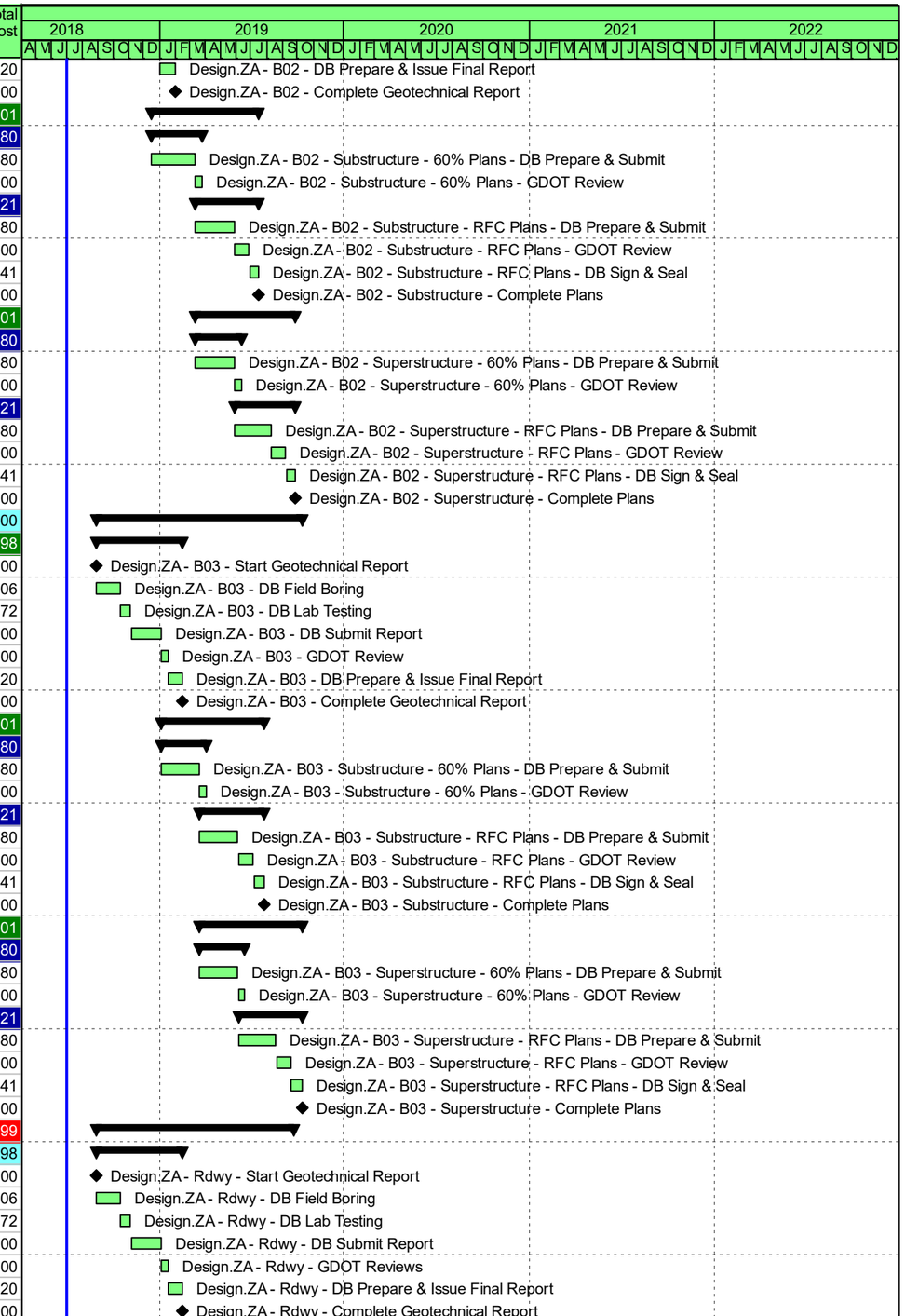
Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE14380	Maint Mgmt Plan - SRTA/GDOT - Final Review & Accept	14	15-Dec-18	28-Dec-18	145	$0.00
Evidence of all Required Government Approvals		121	30-Aug-18	28-Dec-18	145	$61,351.32
RE10640	Gvmt Approvals - DB Prepare & Submit	40	30-Aug-18	29-Oct-18	87	$61,351.32
RE11670	Gvmt Approvals - SRTA/GDOT - Review & Comment	14	30-Oct-18	12-Nov-18	147	$0.00
RE12340	Gvmt Approvals - DB Revise & Resubmit	20	13-Nov-18	14-Dec-18	88	$0.00
RE14390	Gvmt Approvals - SRTA/GDOT - Final Review & Accept	14	15-Dec-18	28-Dec-18	145	$0.00
SRTA Acceptance of Post Construction Stormwater Report		121	30-Aug-18	28-Dec-18	145	$61,351.32
RE10650	Post Cnstr SW Report - DB Prepare & Submit	40	30-Aug-18	29-Oct-18	87	$61,351.32
RE11680	Post Cnstr SW Report - SRTA/GDOT - Review & Comment	14	30-Oct-18	12-Nov-18	147	$0.00
RE12350	Post Cnstr SW Report - DB Revise & Resubmit	20	13-Nov-18	14-Dec-18	88	$0.00
RE14400	Post Cnstr SW Report - SRTA/GDOT - Final Review & Accept	14	15-Dec-18	28-Dec-18	145	$0.00
SRTA Acceptance of Standard Utility Agreements		121	30-Aug-18	28-Dec-18	145	$61,351.32
RE10660	Std Util Agreemnts - DB Prepare & Submit	40	30-Aug-18	29-Oct-18	87	$61,351.32
RE11690	Std Util Agreemnts - SRTA/GDOT - Review & Comment	14	30-Oct-18	12-Nov-18	147	$0.00
RE12360	Std Util Agreemnts - DB Revise & Resubmit	20	13-Nov-18	14-Dec-18	88	$0.00
RE14410	Std Util Agreemnts - SRTA/GDOT - Final Review & Accept	14	15-Dec-18	28-Dec-18	145	$0.00
SRTA Acceptance of Utility Encroachment Permits		121	30-Aug-18	28-Dec-18	145	$61,351.32
RE10670	Util Encroachment Permits - DB Prepare & Submit	40	30-Aug-18	29-Oct-18	87	$61,351.32
RE11700	Util Encroachment Permits - SRTA/GDOT - Review & Comment	14	30-Oct-18	12-Nov-18	147	$0.00
RE12370	Util Encroachment Permits - DB Revise & Resubmit	20	13-Nov-18	14-Dec-18	88	$0.00
RE14420	Util Encroachment Permits - SRTA/GDOT - Final Review & Accept	14	15-Dec-18	28-Dec-18	145	$0.00
SRTA Acceptance of Utility Relocation Plans		121	30-Aug-18	28-Dec-18	145	$61,351.32
RE10680	Util Reloc Plan - DB Prepare & Submit	40	30-Aug-18	29-Oct-18	87	$61,351.32
RE11710	Util Reloc Plan - SRTA/GDOT - Review & Comment	14	30-Oct-18	12-Nov-18	147	$0.00
RE12380	Util Reloc Plan - DB Revise & Resubmit	20	13-Nov-18	14-Dec-18	88	$0.00
RE14430	Util Reloc Plan - SRTA/GDOT - Final Review & Accept	14	15-Dec-18	28-Dec-18	145	$0.00
DB Submittal of Qualified Worksite Utility Control Supervisor		121	30-Aug-18	28-Dec-18	145	$61,351.32
RE10690	Wrksite Util Ctrl Supv - DB Prepare & Submit	40	30-Aug-18	29-Oct-18	87	$61,351.32
RE11720	Wrksite Util Ctrl Supv - SRTA/GDOT - Review & Comment	14	30-Oct-18	12-Nov-18	147	$0.00
RE12390	Wrksite Util Ctrl Supv - DB Revise & Resubmit	20	13-Nov-18	14-Dec-18	88	$0.00
RE14440	Wrksite Util Ctrl Supv - SRTA/GDOT - Final Review & Accept	14	15-Dec-18	28-Dec-18	145	$0.00
DB Submittal of Qualified Worksite Erosion Control Supervisor		121	30-Aug-18	28-Dec-18	145	$61,351.32
RE10700	Wrksite Erosion Ctrl Supv - DB Prepare & Submit	40	30-Aug-18	29-Oct-18	87	$61,351.32
RE11730	Wrksite Erosion Ctrl Supv - SRTA/GDOT - Review & Comment	14	30-Oct-18	12-Nov-18	147	$0.00
RE12400	Wrksite Erosion Ctrl Supv - DB Revise & Resubmit	20	13-Nov-18	14-Dec-18	88	$0.00
RE14450	Wrksite Erosion Ctrl Supv - SRTA/GDOT - Final Review & Accept	14	15-Dec-18	28-Dec-18	145	$0.00
DB Submittal of Qualified Worksite Traffic Control Supervisor		121	30-Aug-18	28-Dec-18	145	$61,351.32
RE10710	Wrksite Traffic Ctrl Supv - DB Prepare & Submit	40	30-Aug-18	29-Oct-18	87	$61,351.32
RE11740	Wrksite Traffic Ctrl Supv - SRTA/GDOT - Review & Comment	14	30-Oct-18	12-Nov-18	147	$0.00
RE12410	Wrksite Traffic Ctrl Supv - DB Revise & Resubmit	20	13-Nov-18	14-Dec-18	88	$0.00
RE14460	Wrksite Traffic Ctrl Supv - SRTA/GDOT - Final Review & Accept	14	15-Dec-18	28-Dec-18	145	$0.00
Design		519	30-Aug-18	30-Jan-20	769	$28,342,540.96
Environmental		51	30-Aug-18	19-Oct-18	56	$0.00
RE10720	Environmental - Start Comprehensive Evironmental Protection Plan (CEPP)	0	30-Aug-18		5	$0.00
RE10730	Environmental - Hazardous Materials Managment Plan (HMMP)	15	30-Aug-18	21-Sep-18	5	$0.00
RE10740	Environmental - Management Sytem (EMS)	15	30-Aug-18	21-Sep-18	5	$0.00
RE10750	Environmental - Construction Monitoring Plan (CMP)	15	30-Aug-18	21-Sep-18	5	$0.00
RE10760	Environmental - Communication Plan (CP)	15	30-Aug-18	21-Sep-18	5	$0.00
RE10770	Environmental - Recycling Plan (RP)	15	30-Aug-18	21-Sep-18	5	$0.00
RE11480	Environmental - Incorporate into CEPP/Complete QC	10	24-Sep-18	05-Oct-18	34	$0.00
RE11490	Environmental - UST and Hazardous Waste Site Investigation Report (If Required)	5	24-Sep-18	28-Sep-18	5	$0.00
RE11790	Environmental - GDOT Review	14	06-Oct-18	19-Oct-18	56	$0.00
RE12420	Environmental - Complete Plans	0		19-Oct-18	35	$0.00
Zone A Design Team		519	30-Aug-18	30-Jan-20	386	$10,203,982.78
Early Design Wall Package		234	01-Oct-18	22-May-19	54	$324,043.01



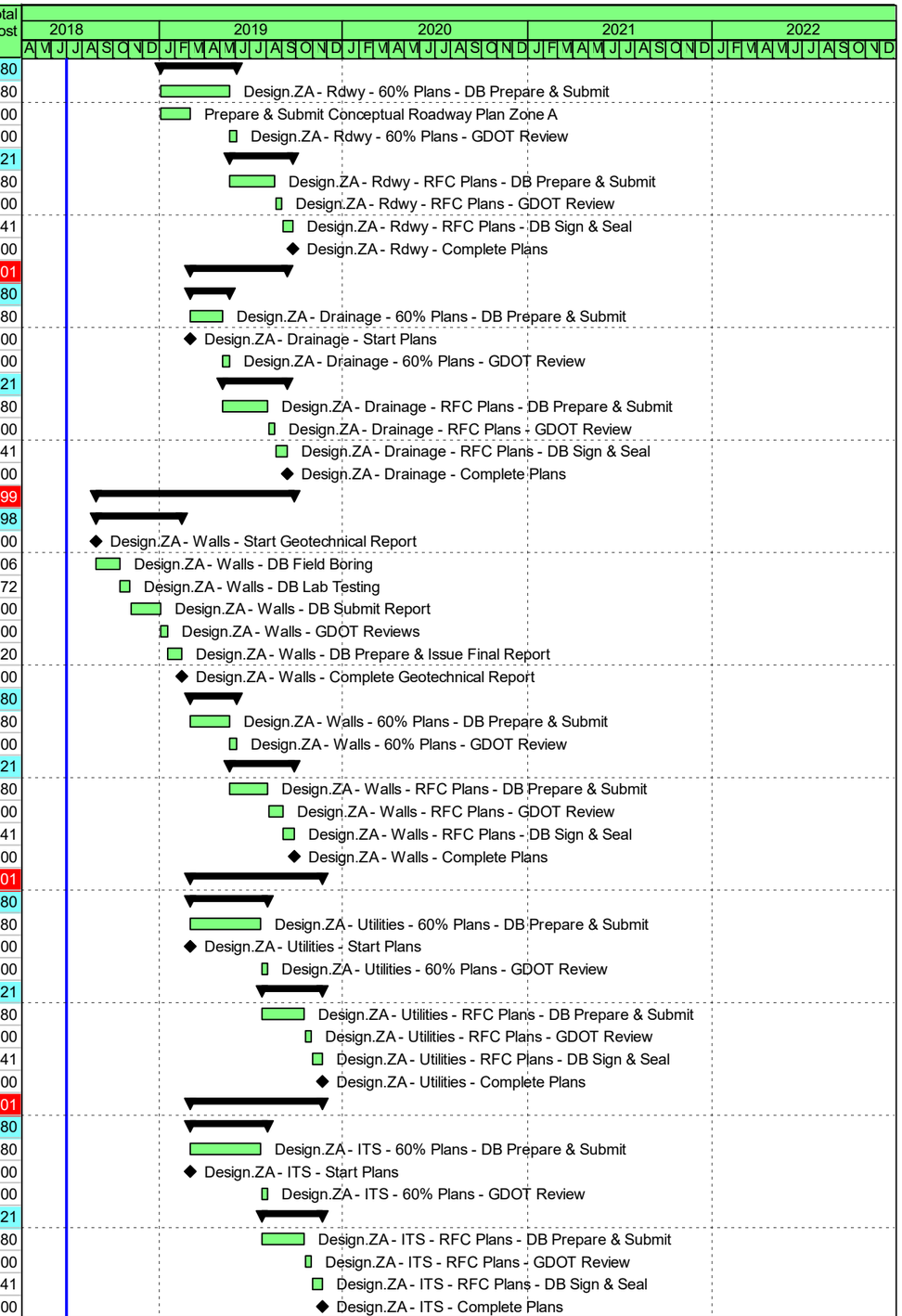
Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
60% Plans		96	01-Oct-18	04-Jan-19	145	$84,352.80
RE48760	Design.ZA - EDWP - 60% Plans - DB Prepare & Submit	49	01-Oct-18	14-Dec-18	31	$84,352.80
RE48770	Design.ZA - EDWP - 60% Plans - GDOT Review	21	15-Dec-18	04-Jan-19	145	$0.00
RFC Plans		157	17-Dec-18	22-May-19	54	$239,690.21
RE48780	Design.ZA - EDWP - RFC Plans - DB Prepare & Submit	70	17-Dec-18	10-Apr-19	31	$84,352.80
RE48800	Design.ZA - EDWP - RFC Plans - GDOT Review	14	11-Apr-19	24-Apr-19	49	$0.00
RE48810	Design.ZA - EDWP - RFC Plans - DB Sign & Seal	20	25-Apr-19	22-May-19	33	$155,337.41
RE48790	Design.ZA - EDWP - Complete Plans	0		22-May-19	33	$0.00
Early Design Construction Pkg (Perimeter Ramps B01 & B02 Foundation Component)		266	30-Aug-18	22-May-19	0	$667,077.73
Geotechnical Report		20	30-Aug-18	28-Sep-18	0	$343,034.72
RE48560	Design.ZA - EDCP - Start Geotechnical Report	0	30-Aug-18		0	$0.00
RE48580	Design.ZA - EDCP - DB Field & Lab Testing	20	30-Aug-18	28-Sep-18	0	$343,034.72
RE48610	Design.ZA - EDCP - Complete Geotechnical Report	0		28-Sep-18	0	$0.00
60% Plans		96	01-Oct-18	04-Jan-19	96	$84,352.80
RE48630	Design.ZA - EDCP - 60% Plans - DB Prepare & Submit	49	01-Oct-18	14-Dec-18	0	$84,352.80
RE48640	Design.ZA - EDCP - 60% Plans - GDOT Review	21	15-Dec-18	04-Jan-19	96	$0.00
RFC Plans		157	17-Dec-18	22-May-19	0	$239,690.21
RE48660	Design.ZA - EDCP - RFC Plans - DB Prepare & Submit	70	17-Dec-18	10-Apr-19	0	$84,352.80
RE48680	Design.ZA - EDCP - RFC Plans - GDOT Review	14	11-Apr-19	24-Apr-19	0	$0.00
RE48690	Design.ZA - EDCP - RFC Plans - DB Sign & Seal	20	25-Apr-19	22-May-19	0	$155,337.41
RE48670	Design.ZA - EDCP - Complete Plans	0		22-May-19	0	$0.00
Structure		407	30-Aug-18	10-Oct-19	250	$4,750,014.00
Bridge 01 - DE8 - I-95 SB Ramp to I-16 EB		394	30-Aug-18	27-Sep-19	263	$1,583,338.00
Geotechnical Report		155	30-Aug-18	31-Jan-19	357	$935,251.98
RE10780	Design.ZA - B01 - Start Geotechnical Report	0	30-Aug-18		160	$0.00
RE10790	Design.ZA - B01 - DB Field Boring	30	30-Aug-18	15-Oct-18	160	$224,680.06
RE11290	Design.ZA - B01 - DB Lab Testing	15	16-Oct-18	05-Nov-18	160	$343,034.72
RE11800	Design.ZA - B01 - DB Submit Report	24	06-Nov-18	14-Dec-18	160	$0.00
RE14160	Design.ZA - B01 - GDOT Review	14	15-Dec-18	28-Dec-18	349	$0.00
RE16270	Design.ZA - B01 - DB Prepare & Issue Final Report	20	03-Jan-19	31-Jan-19	226	$367,537.20
RE17940	Design.ZA - B01 - Complete Geotechnical Report	0		31-Jan-19	226	$0.00
Substructure		212	17-Dec-18	16-Jul-19	315	$324,043.01
60% Plans		100	17-Dec-18	26-Mar-19	381	$84,352.80
RE14180	Design.ZA - B01 - Substructure - 60% Plans - DB Prepare & Submit	50	17-Dec-18	12-Mar-19	160	$84,352.80
RE22710	Design.ZA - B01 - Substructure - 60% Plans - GDOT Review	14	13-Mar-19	26-Mar-19	381	$0.00
RFC Plans		126	13-Mar-19	16-Jul-19	315	$239,690.21
RE22740	Design.ZA - B01 - Substructure - RFC Plans - DB Prepare & Submit	50	13-Mar-19	28-May-19	201	$84,352.80
RE28660	Design.ZA - B01 - Substructure - RFC Plans - GDOT Review	30	29-May-19	27-Jun-19	318	$0.00
RE30000	Design.ZA - B01 - Substructure - RFC Plans - DB Sign & Seal	10	28-Jun-19	16-Jul-19	198	$155,337.41
RE31120	Design.ZA - B01 - Substructure - Complete Plans	0		16-Jul-19	198	$0.00
Superstructure		199	13-Mar-19	27-Sep-19	263	$324,043.01
60% Plans		91	13-Mar-19	11-Jun-19	320	$84,352.80
RE22750	Design.ZA - B01 - Superstructure - 60% Plans - DB Prepare & Submit	50	13-Mar-19	28-May-19	160	$84,352.80
RE28670	Design.ZA - B01 - Superstructure - 60% Plans - GDOT Review	14	29-May-19	11-Jun-19	320	$0.00
RFC Plans		122	29-May-19	27-Sep-19	263	$239,690.21
RE28680	Design.ZA - B01 - Superstructure - RFC Plans - DB Prepare & Submit	50	29-May-19	09-Aug-19	160	$84,352.80
RE34120	Design.ZA - B01 - Superstructure - RFC Plans - GDOT Review	30	10-Aug-19	08-Sep-19	261	$0.00
RE34880	Design.ZA - B01 - Superstructure - RFC Plans - DB Sign & Seal	15	09-Sep-19	27-Sep-19	162	$155,337.41
RE35940	Design.ZA - B01 - Superstructure - Complete Plans	0		27-Sep-19	162	$0.00
Bridge 02 - DE9 - I-16 WB Ramp to I-95 SB		394	30-Aug-18	27-Sep-19	5	$1,583,338.00
Geotechnical Report		155	30-Aug-18	31-Jan-19	74	$935,251.98
RE10800	Design.ZA - B02 - Start Geotechnical Report	0	30-Aug-18		1	$0.00
RE10810	Design.ZA - B02 - DB Field Boring	30	30-Aug-18	15-Oct-18	1	$224,680.06
RE11300	Design.ZA - B02 - DB Lab Testing	15	16-Oct-18	05-Nov-18	1	$343,034.72
RE11810	Design.ZA - B02 - DB Submit Report	24	06-Nov-18	14-Dec-18	1	$0.00
RE13820	Design.ZA - B02 - GDOT Review	14	15-Dec-18	28-Dec-18	80	$0.00



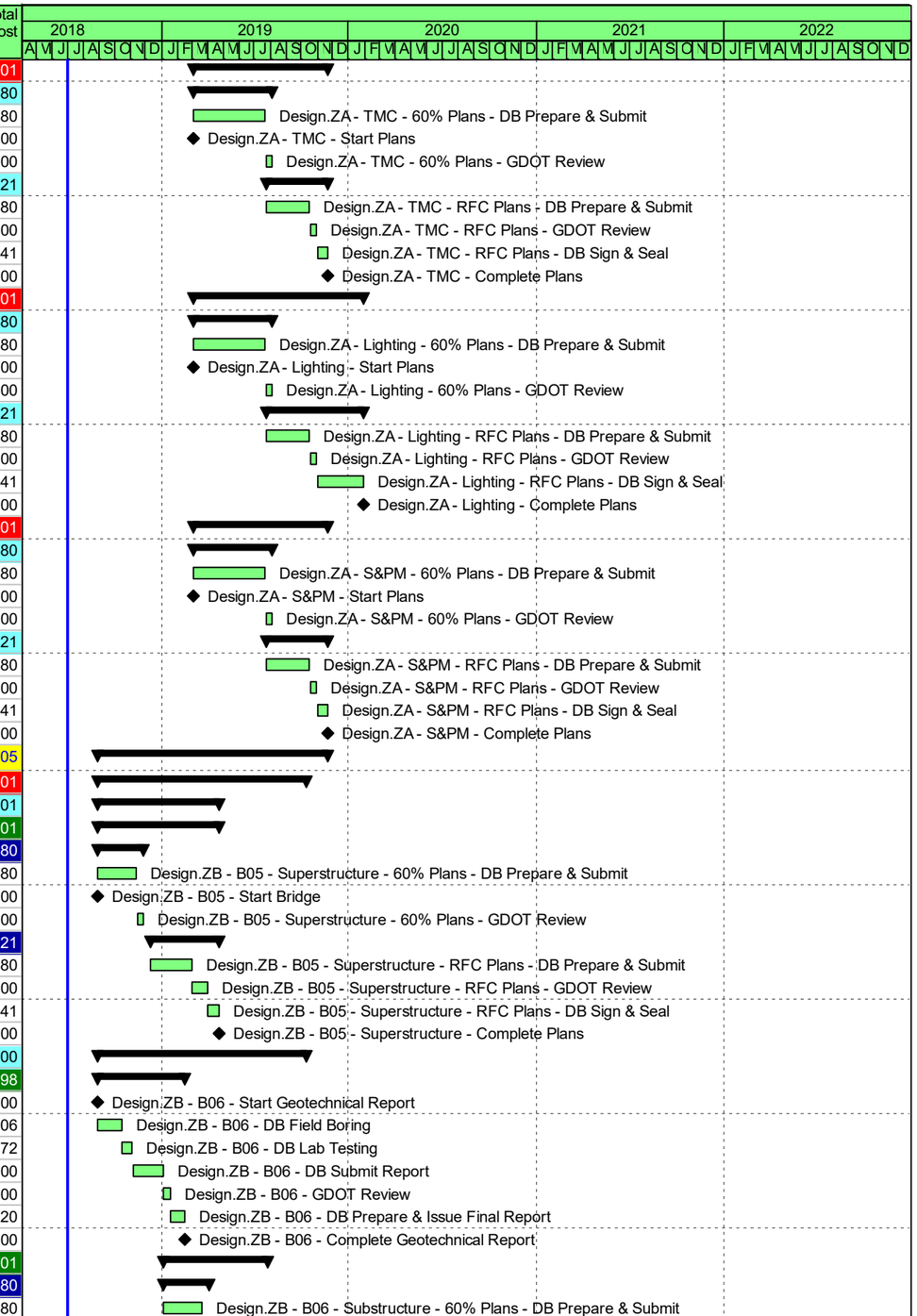
Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE15450	Design.ZA - B02 - DB Prepare & Issue Final Report	20	03-Jan-19	31-Jan-19	48	$367,537.20
RE17330	Design.ZA - B02 - Complete Geotechnical Report	0		31-Jan-19	48	$0.00
Substructure		212	17-Dec-18	16-Jul-19	27	$324,043.01
60% Plans		100	17-Dec-18	26-Mar-19	95	$84,352.80
RE13830	Design.ZA - B02 - Substructure - 60% Plans - DB Prepare & Submit	50	17-Dec-18	12-Mar-19	1	$84,352.80
RE22300	Design.ZA - B02 - Substructure - 60% Plans - GDOT Review	14	13-Mar-19	26-Mar-19	95	$0.00
RFC Plans		126	13-Mar-19	16-Jul-19	27	$239,690.21
RE22310	Design.ZA - B02 - Substructure - RFC Plans - DB Prepare & Submit	50	13-Mar-19	28-May-19	23	$84,352.80
RE28370	Design.ZA - B02 - Substructure - RFC Plans - GDOT Review	30	29-May-19	27-Jun-19	32	$0.00
RE29620	Design.ZA - B02 - Substructure - RFC Plans - DB Sign & Seal	10	28-Jun-19	16-Jul-19	19	$155,337.41
RE30630	Design.ZA - B02 - Substructure - Complete Plans	0		16-Jul-19	19	$0.00
Superstructure		199	13-Mar-19	27-Sep-19	5	$324,043.01
60% Plans		91	13-Mar-19	11-Jun-19	62	$84,352.80
RE22320	Design.ZA - B02 - Superstructure - 60% Plans - DB Prepare & Submit	50	13-Mar-19	28-May-19	1	$84,352.80
RE28380	Design.ZA - B02 - Superstructure - 60% Plans - GDOT Review	14	29-May-19	11-Jun-19	62	$0.00
RFC Plans		122	29-May-19	27-Sep-19	5	$239,690.21
RE28390	Design.ZA - B02 - Superstructure - RFC Plans - DB Prepare & Submit	50	29-May-19	09-Aug-19	1	$84,352.80
RE34010	Design.ZA - B02 - Superstructure - RFC Plans - GDOT Review	30	10-Aug-19	08-Sep-19	3	$0.00
RE34810	Design.ZA - B02 - Superstructure - RFC Plans - DB Sign & Seal	15	09-Sep-19	27-Sep-19	3	$155,337.41
RE35720	Design.ZA - B02 - Superstructure - Complete Plans	0		27-Sep-19	3	$0.00
Bridge 03 - DE2/DE4 - I-95 over I-16 (SR 404)		407	30-Aug-18	10-Oct-19	60	$1,583,338.00
Geotechnical Report		170	30-Aug-18	15-Feb-19	145	$935,251.98
RE10820	Design.ZA - B03 - Start Geotechnical Report	0	30-Aug-18		36	$0.00
RE10830	Design.ZA - B03 - DB Field Boring	30	30-Aug-18	15-Oct-18	36	$224,680.06
RE11310	Design.ZA - B03 - DB Lab Testing	15	16-Oct-18	05-Nov-18	36	$343,034.72
RE11820	Design.ZA - B03 - DB Submit Report	30	06-Nov-18	03-Jan-19	36	$0.00
RE13840	Design.ZA - B03 - GDOT Review	14	04-Jan-19	17-Jan-19	143	$0.00
RE15460	Design.ZA - B03 - DB Prepare & Issue Final Report	20	18-Jan-19	15-Feb-19	92	$367,537.20
RE17340	Design.ZA - B03 - Complete Geotechnical Report	0		15-Feb-19	92	$0.00
Substructure		204	04-Jan-19	26-Jul-19	109	$324,043.01
60% Plans		91	04-Jan-19	04-Apr-19	170	$84,352.80
RE13850	Design.ZA - B03 - Substructure - 60% Plans - DB Prepare & Submit	50	04-Jan-19	21-Mar-19	36	$84,352.80
RE22330	Design.ZA - B03 - Substructure - 60% Plans - GDOT Review	14	22-Mar-19	04-Apr-19	170	$0.00
RFC Plans		127	22-Mar-19	26-Jul-19	109	$239,690.21
RE22340	Design.ZA - B03 - Substructure - RFC Plans - DB Prepare & Submit	50	22-Mar-19	05-Jun-19	72	$84,352.80
RE28400	Design.ZA - B03 - Substructure - RFC Plans - GDOT Review	30	06-Jun-19	05-Jul-19	108	$0.00
RE29630	Design.ZA - B03 - Substructure - RFC Plans - DB Sign & Seal	15	08-Jul-19	26-Jul-19	73	$155,337.41
RE30640	Design.ZA - B03 - Substructure - Complete Plans	0		26-Jul-19	73	$0.00
Superstructure		203	22-Mar-19	10-Oct-19	60	$324,043.01
60% Plans		90	22-Mar-19	19-Jun-19	116	$84,352.80
RE22350	Design.ZA - B03 - Superstructure - 60% Plans - DB Prepare & Submit	50	22-Mar-19	05-Jun-19	36	$84,352.80
RE28410	Design.ZA - B03 - Superstructure - 60% Plans - GDOT Review	14	06-Jun-19	19-Jun-19	116	$0.00
RFC Plans		127	06-Jun-19	10-Oct-19	60	$239,690.21
RE28420	Design.ZA - B03 - Superstructure - RFC Plans - DB Prepare & Submit	50	06-Jun-19	19-Aug-19	36	$84,352.80
RE34020	Design.ZA - B03 - Superstructure - RFC Plans - GDOT Review	30	20-Aug-19	18-Sep-19	55	$0.00
RE34820	Design.ZA - B03 - Superstructure - RFC Plans - DB Sign & Seal	15	19-Sep-19	10-Oct-19	37	$155,337.41
RE35730	Design.ZA - B03 - Superstructure - Complete Plans	0		10-Oct-19	37	$0.00
Roadway		390	30-Aug-18	23-Sep-19	114	$1,259,294.99
Geotechnical Report		170	30-Aug-18	15-Feb-19	194	$935,251.98
RE10840	Design.ZA - Rdwy - Start Geotechnical Report	0	30-Aug-18		27	$0.00
RE10850	Design.ZA - Rdwy - DB Field Boring	30	30-Aug-18	15-Oct-18	27	$224,680.06
RE11320	Design.ZA - Rdwy - DB Lab Testing	15	16-Oct-18	05-Nov-18	27	$343,034.72
RE11830	Design.ZA - Rdwy - DB Submit Report	30	06-Nov-18	03-Jan-19	27	$0.00
RE13860	Design.ZA - Rdwy - GDOT Reviews	14	04-Jan-19	17-Jan-19	195	$0.00
RE15470	Design.ZA - Rdwy - DB Prepare & Issue Final Report	20	18-Jan-19	15-Feb-19	127	$367,537.20
RE17350	Design.ZA - Rdwy - Complete Geotechnical Report	0		15-Feb-19	127	$0.00



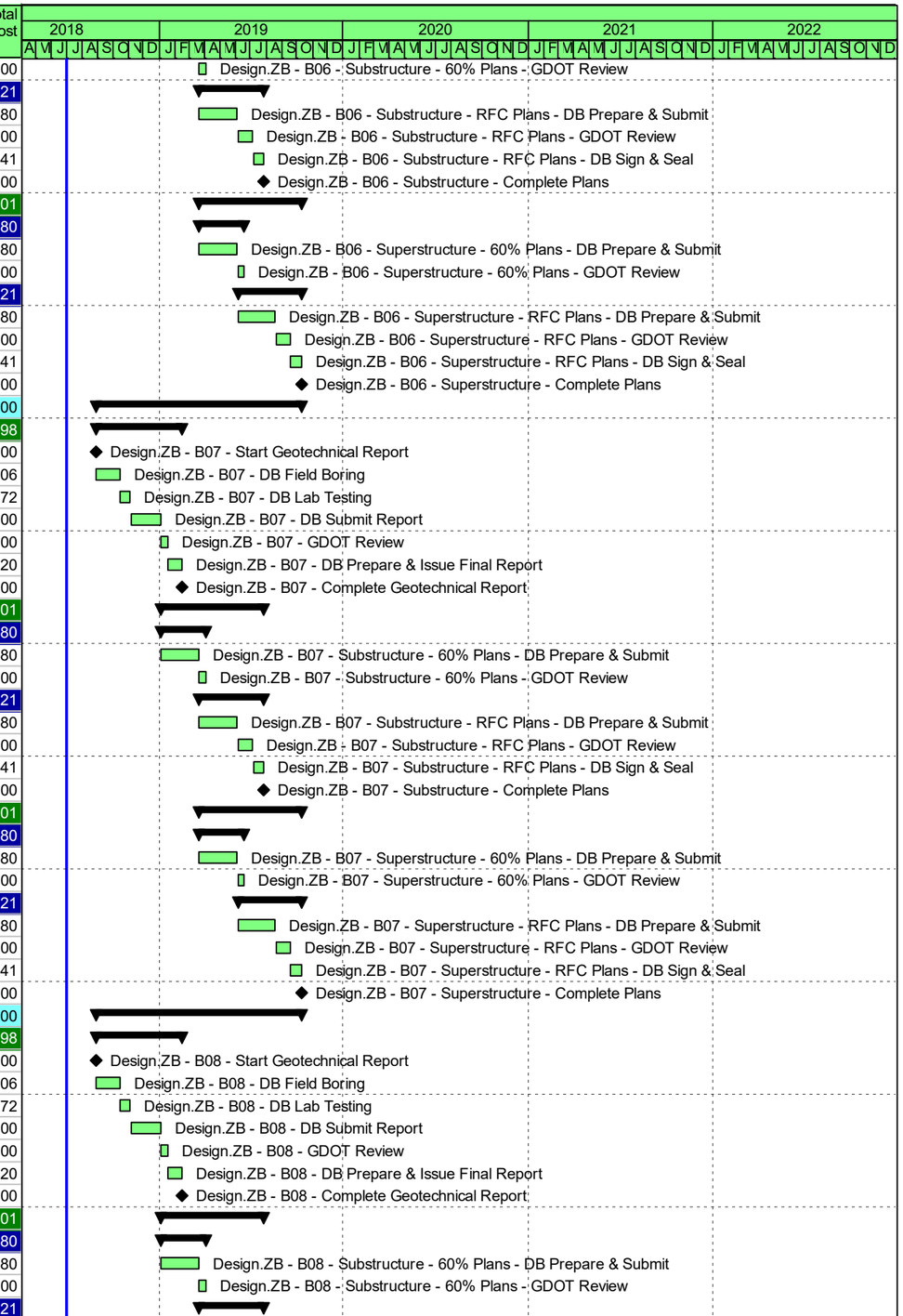
Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
60% Plans		151	04-Jan-19	03-Jun-19	178	$84,352.80
RE13870	Design.ZA - Rdwy - 60% Plans - DB Prepare & Submit	90	04-Jan-19	20-May-19	67	$84,352.80
RE13880	Prepare & Submit Conceptual Roadway Plan Zone A	40	04-Jan-19	04-Mar-19	27	$0.00
RE22360	Design.ZA - Rdwy - 60% Plans - GDOT Review	14	21-May-19	03-Jun-19	178	$0.00
RFC Plans		126	21-May-19	23-Sep-19	114	$239,690.21
RE22370	Design.ZA - Rdwy - RFC Plans - DB Prepare & Submit	60	21-May-19	19-Aug-19	67	$84,352.80
RE28430	Design.ZA - Rdwy - RFC Plans - GDOT Review	14	20-Aug-19	02-Sep-19	101	$0.00
RE29640	Design.ZA - Rdwy - RFC Plans - DB Sign & Seal	15	03-Sep-19	23-Sep-19	67	$155,337.41
RE30650	Design.ZA - Rdwy - Complete Plans	0		23-Sep-19	67	$0.00
Drainage		191	05-Mar-19	11-Sep-19	126	$324,043.01
60% Plans		77	05-Mar-19	20-May-19	192	$84,352.80
RE17970	Design.ZA - Drainage - 60% Plans - DB Prepare & Submit	40	05-Mar-19	06-May-19	77	$84,352.80
RE17980	Design.ZA - Drainage - Start Plans	0	05-Mar-19		77	$0.00
RE25470	Design.ZA - Drainage - 60% Plans - GDOT Review	14	07-May-19	20-May-19	192	$0.00
RFC Plans		128	07-May-19	11-Sep-19	126	$239,690.21
RE25480	Design.ZA - Drainage - RFC Plans - DB Prepare & Submit	60	07-May-19	05-Aug-19	77	$84,352.80
RE30830	Design.ZA - Drainage - RFC Plans - GDOT Review	14	06-Aug-19	19-Aug-19	115	$0.00
RE31770	Design.ZA - Drainage - RFC Plans - DB Sign & Seal	15	20-Aug-19	11-Sep-19	75	$155,337.41
RE33050	Design.ZA - Drainage - Complete Plans	0		11-Sep-19	75	$0.00
Walls		392	30-Aug-18	25-Sep-19	219	$1,259,294.99
Geotechnical Report		170	30-Aug-18	15-Feb-19	301	$935,251.98
RE10860	Design.ZA - Walls - Start Geotechnical Report	0	30-Aug-18		176	$0.00
RE10870	Design.ZA - Walls - DB Field Boring	30	30-Aug-18	15-Oct-18	176	$224,680.06
RE11330	Design.ZA - Walls - DB Lab Testing	15	16-Oct-18	05-Nov-18	176	$343,034.72
RE11840	Design.ZA - Walls - DB Submit Report	30	06-Nov-18	03-Jan-19	176	$0.00
RE13890	Design.ZA - Walls - GDOT Reviews	14	04-Jan-19	17-Jan-19	298	$0.00
RE15480	Design.ZA - Walls - DB Prepare & Issue Final Report	20	18-Jan-19	15-Feb-19	196	$367,537.20
RE17360	Design.ZA - Walls - Complete Geotechnical Report	0		15-Feb-19	196	$0.00
60% Plans		91	05-Mar-19	03-Jun-19	280	$84,352.80
RE17990	Design.ZA - Walls - 60% Plans - DB Prepare & Submit	50	05-Mar-19	20-May-19	136	$84,352.80
RE25490	Design.ZA - Walls - 60% Plans - GDOT Review	14	21-May-19	03-Jun-19	280	$0.00
RFC Plans		128	21-May-19	25-Sep-19	219	$239,690.21
RE25500	Design.ZA - Walls - RFC Plans - DB Prepare & Submit	50	21-May-19	05-Aug-19	136	$84,352.80
RE30840	Design.ZA - Walls - RFC Plans - GDOT Review	30	06-Aug-19	04-Sep-19	217	$0.00
RE31780	Design.ZA - Walls - RFC Plans - DB Sign & Seal	15	05-Sep-19	25-Sep-19	134	$155,337.41
RE33060	Design.ZA - Walls - Complete Plans	0		25-Sep-19	134	$0.00
Utilities		263	05-Mar-19	22-Nov-19	54	$324,043.01
60% Plans		154	05-Mar-19	05-Aug-19	115	$84,352.80
RE18000	Design.ZA - Utilities - 60% Plans - DB Prepare & Submit	90	05-Mar-19	22-Jul-19	27	$84,352.80
RE18010	Design.ZA - Utilities - Start Plans	0	05-Mar-19		27	$0.00
RE25510	Design.ZA - Utilities - 60% Plans - GDOT Review	14	23-Jul-19	05-Aug-19	115	$0.00
RFC Plans		123	23-Jul-19	22-Nov-19	54	$239,690.21
RE25520	Design.ZA - Utilities - RFC Plans - DB Prepare & Submit	60	23-Jul-19	17-Oct-19	27	$84,352.80
RE30850	Design.ZA - Utilities - RFC Plans - GDOT Review	14	18-Oct-19	31-Oct-19	42	$0.00
RE31790	Design.ZA - Utilities - RFC Plans - DB Sign & Seal	15	01-Nov-19	22-Nov-19	25	$155,337.41
RE33070	Design.ZA - Utilities - Complete Plans	0		22-Nov-19	25	$0.00
ITS		263	05-Mar-19	22-Nov-19	455	$324,043.01
60% Plans		154	05-Mar-19	05-Aug-19	528	$84,352.80
RE18020	Design.ZA - ITS - 60% Plans - DB Prepare & Submit	90	05-Mar-19	22-Jul-19	282	$84,352.80
RE18030	Design.ZA - ITS - Start Plans	0	05-Mar-19		282	$0.00
RE25530	Design.ZA - ITS - 60% Plans - GDOT Review	14	23-Jul-19	05-Aug-19	528	$0.00
RFC Plans		123	23-Jul-19	22-Nov-19	455	$239,690.21
RE25540	Design.ZA - ITS - RFC Plans - DB Prepare & Submit	60	23-Jul-19	17-Oct-19	282	$84,352.80
RE30860	Design.ZA - ITS - RFC Plans - GDOT Review	14	18-Oct-19	31-Oct-19	455	$0.00
RE31800	Design.ZA - ITS - RFC Plans - DB Sign & Seal	15	01-Nov-19	22-Nov-19	281	$155,337.41
RE33080	Design.ZA - ITS - Complete Plans	0		22-Nov-19	281	$0.00



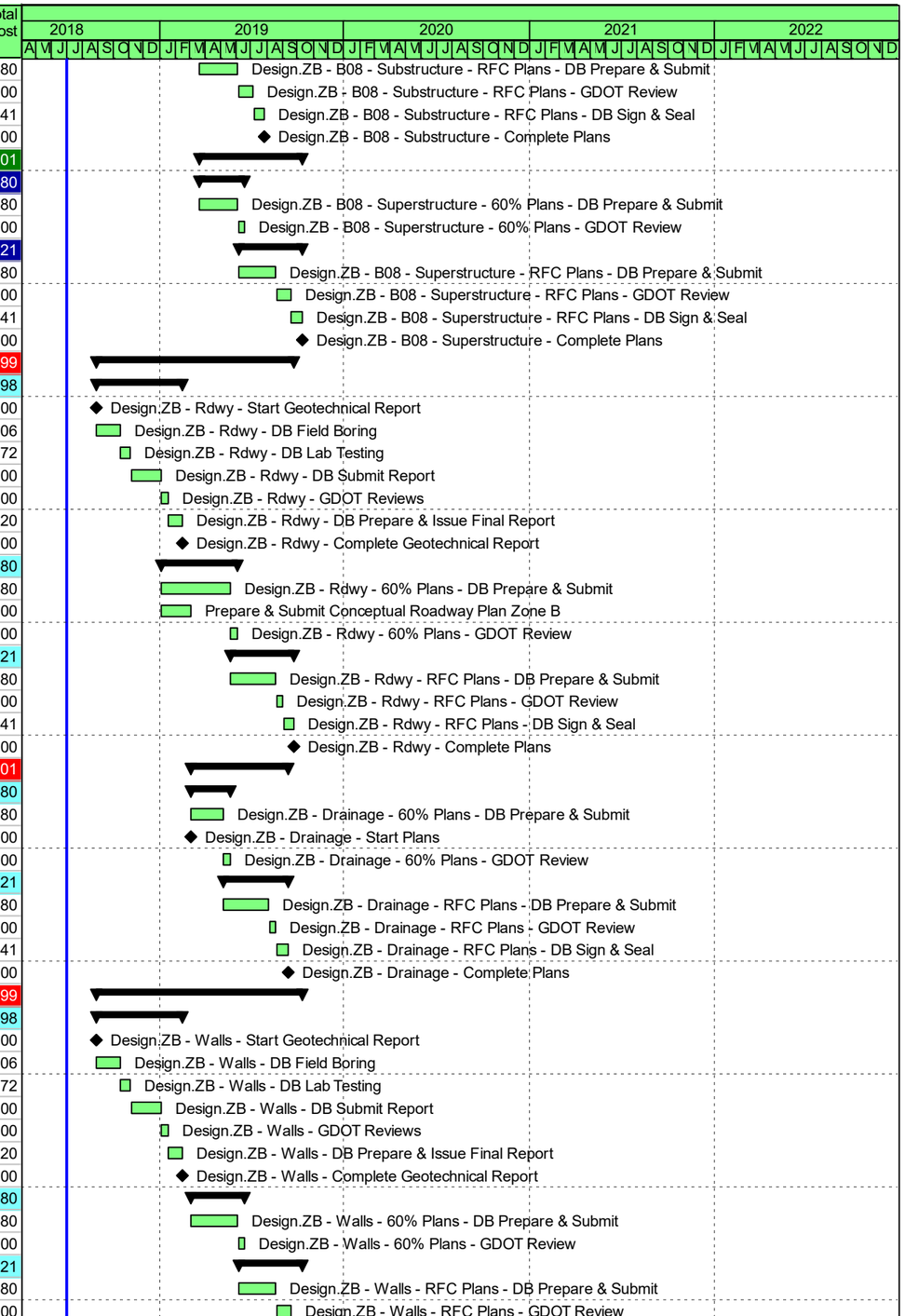
Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
Traffic Management		263	05-Mar-19	22-Nov-19	159	$324,043.01
60% Plans		154	05-Mar-19	05-Aug-19	231	$84,352.80
RE18040	Design.ZA - TMC - 60% Plans - DB Prepare & Submit	90	05-Mar-19	22-Jul-19	92	$84,352.80
RE18050	Design.ZA - TMC - Start Plans	0	05-Mar-19		92	$0.00
RE25550	Design.ZA - TMC - 60% Plans - GDOT Review	14	23-Jul-19	05-Aug-19	231	$0.00
RFC Plans		123	23-Jul-19	22-Nov-19	159	$239,690.21
RE25560	Design.ZA - TMC - RFC Plans - DB Prepare & Submit	60	23-Jul-19	17-Oct-19	92	$84,352.80
RE30870	Design.ZA - TMC - RFC Plans - GDOT Review	14	18-Oct-19	31-Oct-19	158	$0.00
RE31810	Design.ZA - TMC - RFC Plans - DB Sign & Seal	15	01-Nov-19	22-Nov-19	92	$155,337.41
RE33090	Design.ZA - TMC - Complete Plans	0		22-Nov-19	92	$0.00
Lighting		332	05-Mar-19	30-Jan-20	369	$324,043.01
60% Plans		154	05-Mar-19	05-Aug-19	442	$84,352.80
RE18060	Design.ZA - Lighting - 60% Plans - DB Prepare & Submit	90	05-Mar-19	22-Jul-19	235	$84,352.80
RE18070	Design.ZA - Lighting - Start Plans	0	05-Mar-19		235	$0.00
RE25570	Design.ZA - Lighting - 60% Plans - GDOT Review	14	23-Jul-19	05-Aug-19	442	$0.00
RFC Plans		192	23-Jul-19	30-Jan-20	369	$239,690.21
RE25580	Design.ZA - Lighting - RFC Plans - DB Prepare & Submit	60	23-Jul-19	17-Oct-19	235	$84,352.80
RE30880	Design.ZA - Lighting - RFC Plans - GDOT Review	14	18-Oct-19	31-Oct-19	369	$0.00
RE31820	Design.ZA - Lighting - RFC Plans - DB Sign & Seal	50	01-Nov-19	30-Jan-20	234	$155,337.41
RE33100	Design.ZA - Lighting - Complete Plans	0		30-Jan-20	234	$0.00
Signalization		263	05-Mar-19	22-Nov-19	438	$324,043.01
60% Plans		154	05-Mar-19	05-Aug-19	511	$84,352.80
RE18080	Design.ZA - S&PM - 60% Plans - DB Prepare & Submit	90	05-Mar-19	22-Jul-19	274	$84,352.80
RE18090	Design.ZA - S&PM - Start Plans	0	05-Mar-19		274	$0.00
RE25590	Design.ZA - S&PM - 60% Plans - GDOT Review	14	23-Jul-19	05-Aug-19	511	$0.00
RFC Plans		123	23-Jul-19	22-Nov-19	438	$239,690.21
RE25600	Design.ZA - S&PM - RFC Plans - DB Prepare & Submit	60	23-Jul-19	17-Oct-19	274	$84,352.80
RE30890	Design.ZA - S&PM - RFC Plans - GDOT Review	14	18-Oct-19	31-Oct-19	438	$0.00
RE31830	Design.ZA - S&PM - RFC Plans - DB Sign & Seal	15	01-Nov-19	22-Nov-19	269	$155,337.41
RE33110	Design.ZA - S&PM - Complete Plans	0		22-Nov-19	269	$0.00
Zone B Design Team		450	30-Aug-18	22-Nov-19	633	$9,536,905.05
Structure		407	30-Aug-18	10-Oct-19	676	$5,074,057.01
Bridge 05 - DE23 - CR 781 (Chatham Parkway) over I-16		237	30-Aug-18	23-Apr-19	603	$324,043.01
Superstructure		237	30-Aug-18	23-Apr-19	603	$324,043.01
60% Plans		90	30-Aug-18	27-Nov-18	693	$84,352.80
RE10060	Design.ZB - B05 - Superstructure - 60% Plans - DB Prepare & Submit	50	30-Aug-18	13-Nov-18	400	$84,352.80
RE10070	Design.ZB - B05 - Start Bridge	0	30-Aug-18		400	$0.00
RE12020	Design.ZB - B05 - Superstructure - 60% Plans - GDOT Review	14	14-Nov-18	27-Nov-18	693	$0.00
RFC Plans		135	10-Dec-18	23-Apr-19	603	$239,690.21
RE12030	Design.ZB - B05 - Superstructure - RFC Plans - DB Prepare & Submit	50	10-Dec-18	01-Mar-19	386	$84,352.80
RE20220	Design.ZB - B05 - Superstructure - RFC Plans - GDOT Review	30	02-Mar-19	31-Mar-19	599	$0.00
RE21770	Design.ZB - B05 - Superstructure - RFC Plans - DB Sign & Seal	15	01-Apr-19	23-Apr-19	389	$155,337.41
RE23380	Design.ZB - B05 - Superstructure - Complete Plans	0		23-Apr-19	389	$0.00
Bridge 06 - DE1A/DE1B - I-16 over CR 674 (Bunger Pit Rd) and CSXT		407	30-Aug-18	10-Oct-19	676	$1,583,338.00
Geotechnical Report		170	30-Aug-18	15-Feb-19	725	$935,251.98
RE10880	Design.ZB - B06 - Start Geotechnical Report	0	30-Aug-18		427	$0.00
RE10890	Design.ZB - B06 - DB Field Boring	30	30-Aug-18	15-Oct-18	427	$224,680.06
RE11340	Design.ZB - B06 - DB Lab Testing	15	16-Oct-18	05-Nov-18	427	$343,034.72
RE11850	Design.ZB - B06 - DB Submit Report	30	06-Nov-18	03-Jan-19	427	$0.00
RE13900	Design.ZB - B06 - GDOT Review	14	04-Jan-19	17-Jan-19	725	$0.00
RE15490	Design.ZB - B06 - DB Prepare & Issue Final Report	20	18-Jan-19	15-Feb-19	459	$367,537.20
RE17370	Design.ZB - B06 - Complete Geotechnical Report	0		15-Feb-19	459	$0.00
Substructure		204	04-Jan-19	26-Jul-19	696	$324,043.01
60% Plans		91	04-Jan-19	04-Apr-19	758	$84,352.80
RE13910	Design.ZB - B06 - Substructure - 60% Plans - DB Prepare & Submit	50	04-Jan-19	21-Mar-19	427	$84,352.80



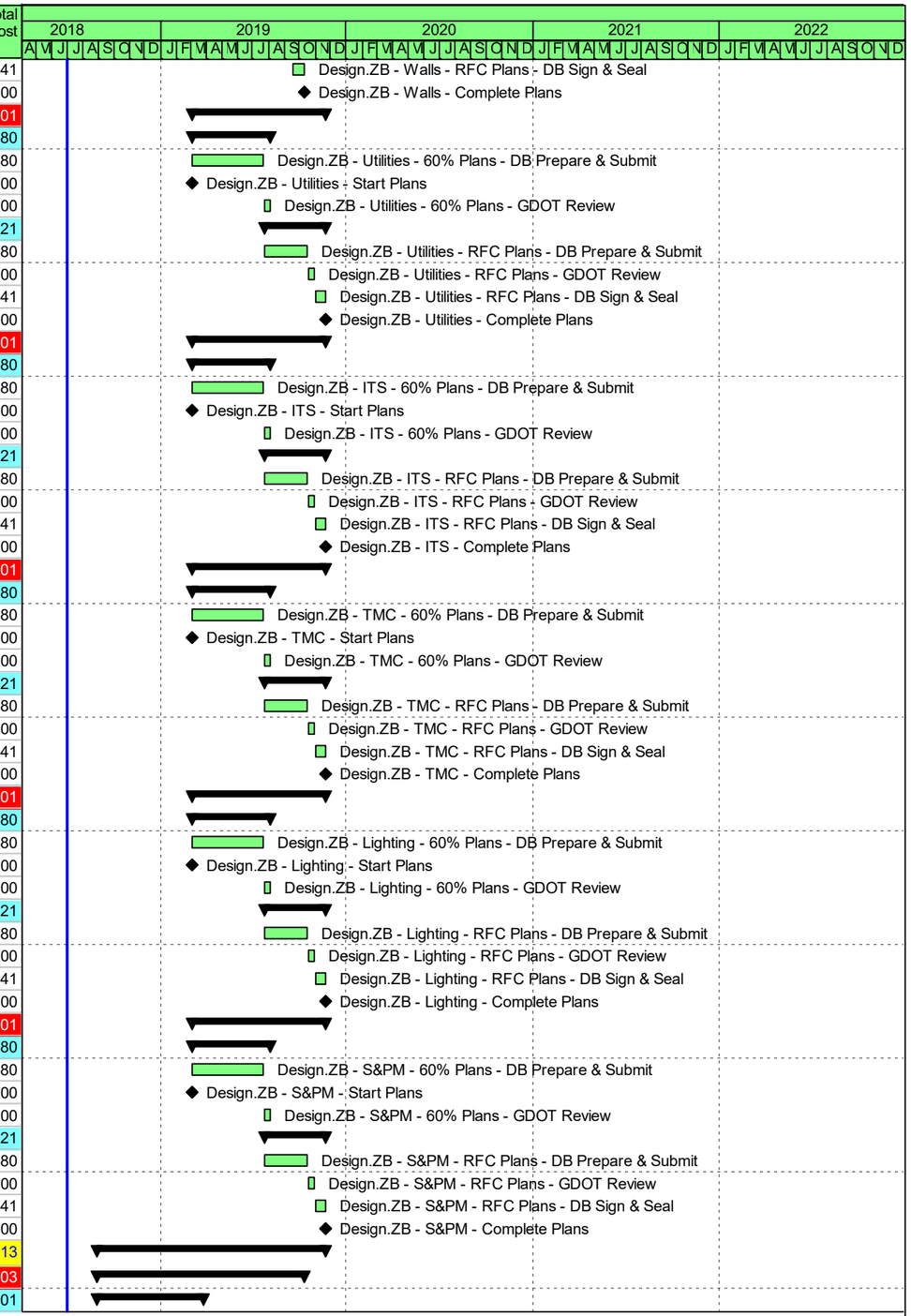
Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE22380	Design.ZB - B06 - Substructure - 60% Plans - GDOT Review	14	22-Mar-19	04-Apr-19	758	$0.00
RFC Plans		127	22-Mar-19	26-Jul-19	696	$239,690.21
RE22390	Design.ZB - B06 - Substructure - RFC Plans - DB Prepare & Submit	50	22-Mar-19	05-Jun-19	439	$84,352.80
RE28440	Design.ZB - B06 - Substructure - RFC Plans - GDOT Review	30	06-Jun-19	05-Jul-19	696	$0.00
RE29650	Design.ZB - B06 - Substructure - RFC Plans - DB Sign & Seal	15	08-Jul-19	26-Jul-19	439	$155,337.41
RE30660	Design.ZB - B06 - Substructure - Complete Plans	0		26-Jul-19	439	$0.00
Superstructure		203	22-Mar-19	10-Oct-19	676	$324,043.01
60% Plans		90	22-Mar-19	19-Jun-19	738	$84,352.80
RE22400	Design.ZB - B06 - Superstructure - 60% Plans - DB Prepare & Submit	50	22-Mar-19	05-Jun-19	427	$84,352.80
RE28450	Design.ZB - B06 - Superstructure - 60% Plans - GDOT Review	14	06-Jun-19	19-Jun-19	738	$0.00
RFC Plans		127	06-Jun-19	10-Oct-19	676	$239,690.21
RE28460	Design.ZB - B06 - Superstructure - RFC Plans - DB Prepare & Submit	50	06-Jun-19	19-Aug-19	427	$84,352.80
RE34030	Design.ZB - B06 - Superstructure - RFC Plans - GDOT Review	30	20-Aug-19	18-Sep-19	677	$0.00
RE34830	Design.ZB - B06 - Superstructure - RFC Plans - DB Sign & Seal	15	19-Sep-19	10-Oct-19	427	$155,337.41
RE35740	Design.ZB - B06 - Superstructure - Complete Plans	0		10-Oct-19	427	$0.00
Bridge 07 - DE1B - I-16 WB over CR 654 (Tremont Ave) and CSXT		407	30-Aug-18	10-Oct-19	489	$1,583,338.00
Geotechnical Report		170	30-Aug-18	15-Feb-19	563	$935,251.98
RE10900	Design.ZB - B07 - Start Geotechnical Report	0	30-Aug-18		313	$0.00
RE10910	Design.ZB - B07 - DB Field Boring	30	30-Aug-18	15-Oct-18	313	$224,680.06
RE11350	Design.ZB - B07 - DB Lab Testing	15	16-Oct-18	05-Nov-18	313	$343,034.72
RE11860	Design.ZB - B07 - DB Submit Report	30	06-Nov-18	03-Jan-19	313	$0.00
RE13920	Design.ZB - B07 - GDOT Review	14	04-Jan-19	17-Jan-19	564	$0.00
RE15500	Design.ZB - B07 - DB Prepare & Issue Final Report	20	18-Jan-19	15-Feb-19	362	$367,537.20
RE17380	Design.ZB - B07 - Complete Geotechnical Report	0		15-Feb-19	362	$0.00
Substructure		204	04-Jan-19	26-Jul-19	544	$324,043.01
60% Plans		91	04-Jan-19	04-Apr-19	592	$84,352.80
RE13930	Design.ZB - B07 - Substructure - 60% Plans - DB Prepare & Submit	50	04-Jan-19	21-Mar-19	313	$84,352.80
RE22410	Design.ZB - B07 - Substructure - 60% Plans - GDOT Review	14	22-Mar-19	04-Apr-19	592	$0.00
RFC Plans		127	22-Mar-19	26-Jul-19	544	$239,690.21
RE22420	Design.ZB - B07 - Substructure - RFC Plans - DB Prepare & Submit	50	22-Mar-19	05-Jun-19	342	$84,352.80
RE28470	Design.ZB - B07 - Substructure - RFC Plans - GDOT Review	30	06-Jun-19	05-Jul-19	530	$0.00
RE29660	Design.ZB - B07 - Substructure - RFC Plans - DB Sign & Seal	15	08-Jul-19	26-Jul-19	341	$155,337.41
RE30670	Design.ZB - B07 - Substructure - Complete Plans	0		26-Jul-19	341	$0.00
Superstructure		203	22-Mar-19	10-Oct-19	489	$324,043.01
60% Plans		90	22-Mar-19	19-Jun-19	551	$84,352.80
RE22430	Design.ZB - B07 - Superstructure - 60% Plans - DB Prepare & Submit	50	22-Mar-19	05-Jun-19	313	$84,352.80
RE28480	Design.ZB - B07 - Superstructure - 60% Plans - GDOT Review	14	06-Jun-19	19-Jun-19	551	$0.00
RFC Plans		127	06-Jun-19	10-Oct-19	489	$239,690.21
RE28490	Design.ZB - B07 - Superstructure - RFC Plans - DB Prepare & Submit	50	06-Jun-19	19-Aug-19	313	$84,352.80
RE34040	Design.ZB - B07 - Superstructure - RFC Plans - GDOT Review	30	20-Aug-19	18-Sep-19	490	$0.00
RE34840	Design.ZB - B07 - Superstructure - RFC Plans - DB Sign & Seal	15	19-Sep-19	10-Oct-19	305	$155,337.41
RE35750	Design.ZB - B07 - Superstructure - Complete Plans	0		10-Oct-19	305	$0.00
Bridge 08 - DE1A/DE30 - I-16 EB over CR 654 (Tremont Ave) and CSXT		407	30-Aug-18	10-Oct-19	454	$1,583,338.00
Geotechnical Report		170	30-Aug-18	15-Feb-19	525	$935,251.98
RE10920	Design.ZB - B08 - Start Geotechnical Report	0	30-Aug-18		284	$0.00
RE10930	Design.ZB - B08 - DB Field Boring	30	30-Aug-18	15-Oct-18	284	$224,680.06
RE11360	Design.ZB - B08 - DB Lab Testing	15	16-Oct-18	05-Nov-18	284	$343,034.72
RE11870	Design.ZB - B08 - DB Submit Report	30	06-Nov-18	03-Jan-19	284	$0.00
RE13940	Design.ZB - B08 - GDOT Review	14	04-Jan-19	17-Jan-19	525	$0.00
RE15510	Design.ZB - B08 - DB Prepare & Issue Final Report	20	18-Jan-19	15-Feb-19	336	$367,537.20
RE17390	Design.ZB - B08 - Complete Geotechnical Report	0		15-Feb-19	336	$0.00
Substructure		204	04-Jan-19	26-Jul-19	496	$324,043.01
60% Plans		91	04-Jan-19	04-Apr-19	551	$84,352.80
RE13950	Design.ZB - B08 - Substructure - 60% Plans - DB Prepare & Submit	50	04-Jan-19	21-Mar-19	284	$84,352.80
RE22440	Design.ZB - B08 - Substructure - 60% Plans - GDOT Review	14	22-Mar-19	04-Apr-19	551	$0.00
RFC Plans		127	22-Mar-19	26-Jul-19	496	$239,690.21



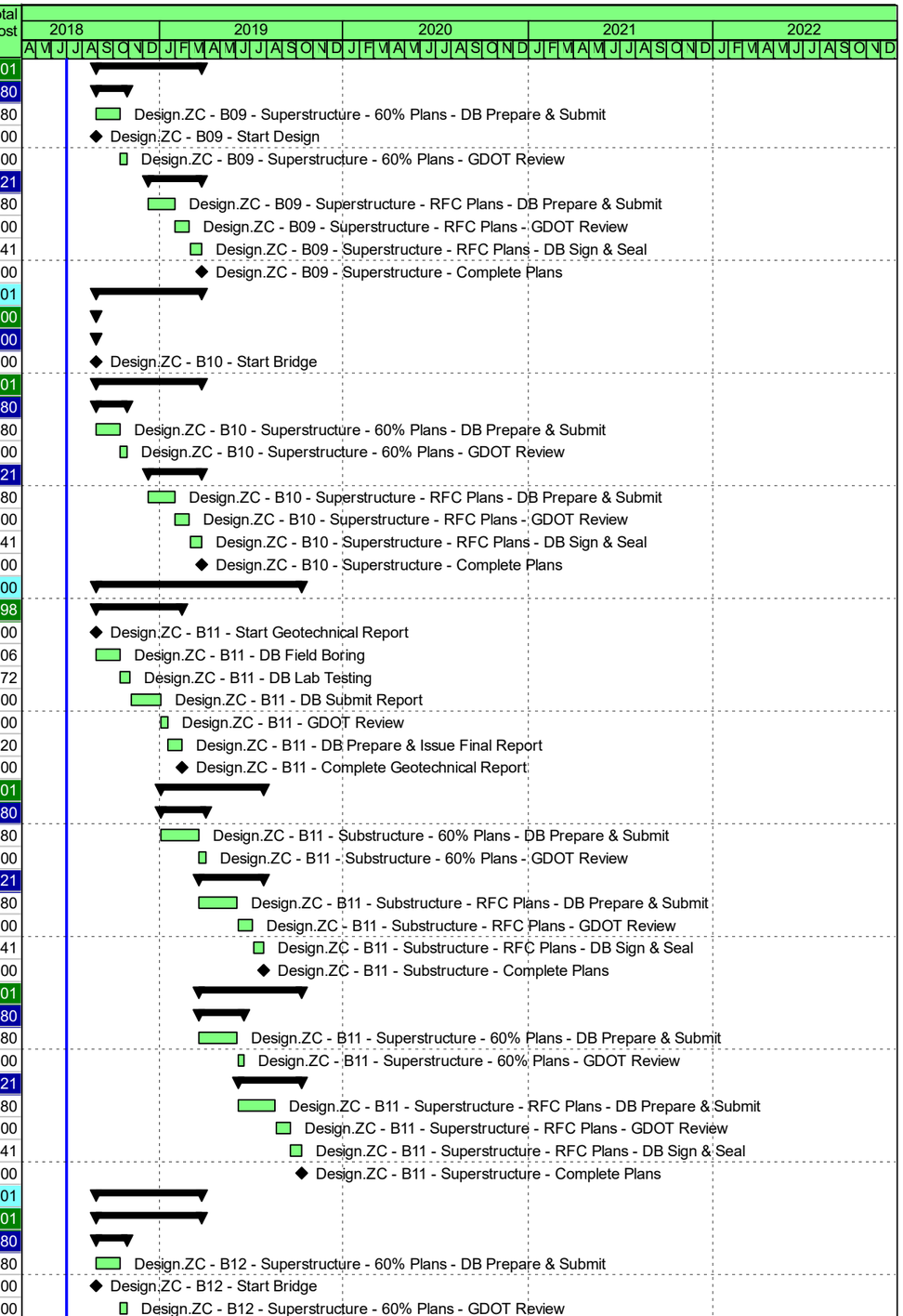
Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE22450	Design.ZB - B08 - Substructure - RFC Plans - DB Prepare & Submit	50	22-Mar-19	05-Jun-19	316	$84,352.80
RE28500	Design.ZB - B08 - Substructure - RFC Plans - GDOT Review	30	06-Jun-19	05-Jul-19	489	$0.00
RE29670	Design.ZB - B08 - Substructure - RFC Plans - DB Sign & Seal	15	08-Jul-19	26-Jul-19	317	$155,337.41
RE30680	Design.ZB - B08 - Substructure - Complete Plans	0		26-Jul-19	317	$0.00
Superstructure		203	22-Mar-19	10-Oct-19	454	$324,043.01
60% Plans		90	22-Mar-19	19-Jun-19	503	$84,352.80
RE22460	Design.ZB - B08 - Superstructure - 60% Plans - DB Prepare & Submit	50	22-Mar-19	05-Jun-19	284	$84,352.80
RE28510	Design.ZB - B08 - Superstructure - 60% Plans - GDOT Review	14	06-Jun-19	19-Jun-19	503	$0.00
RFC Plans		127	06-Jun-19	10-Oct-19	454	$239,690.21
RE28520	Design.ZB - B08 - Superstructure - RFC Plans - DB Prepare & Submit	50	06-Jun-19	19-Aug-19	284	$84,352.80
RE34050	Design.ZB - B08 - Superstructure - RFC Plans - GDOT Review	30	20-Aug-19	18-Sep-19	442	$0.00
RE34850	Design.ZB - B08 - Superstructure - RFC Plans - DB Sign & Seal	15	19-Sep-19	10-Oct-19	281	$155,337.41
RE35760	Design.ZB - B08 - Superstructure - Complete Plans	0		10-Oct-19	281	$0.00
Roadway		390	30-Aug-18	23-Sep-19	317	$1,259,294.99
Geotechnical Report		170	30-Aug-18	15-Feb-19	412	$935,251.98
RE10940	Design.ZB - Rdwy - Start Geotechnical Report	0	30-Aug-18		121	$0.00
RE10950	Design.ZB - Rdwy - DB Field Boring	30	30-Aug-18	15-Oct-18	121	$224,680.06
RE11370	Design.ZB - Rdwy - DB Lab Testing	15	16-Oct-18	05-Nov-18	121	$343,034.72
RE11880	Design.ZB - Rdwy - DB Submit Report	30	06-Nov-18	03-Jan-19	121	$0.00
RE13960	Design.ZB - Rdwy - GDOT Reviews	14	04-Jan-19	17-Jan-19	409	$0.00
RE15520	Design.ZB - Rdwy - DB Prepare & Issue Final Report	20	18-Jan-19	15-Feb-19	260	$367,537.20
RE17400	Design.ZB - Rdwy - Complete Geotechnical Report	0		15-Feb-19	260	$0.00
60% Plans		151	04-Jan-19	03-Jun-19	394	$84,352.80
RE13970	Design.ZB - Rdwy - 60% Plans - DB Prepare & Submit	90	04-Jan-19	20-May-19	200	$84,352.80
RE13980	Prepare & Submit Conceptual Roadway Plan Zone B	40	04-Jan-19	04-Mar-19	121	$0.00
RE22470	Design.ZB - Rdwy - 60% Plans - GDOT Review	14	21-May-19	03-Jun-19	394	$0.00
RFC Plans		126	21-May-19	23-Sep-19	317	$239,690.21
RE22480	Design.ZB - Rdwy - RFC Plans - DB Prepare & Submit	60	21-May-19	19-Aug-19	200	$84,352.80
RE28530	Design.ZB - Rdwy - RFC Plans - GDOT Review	14	20-Aug-19	02-Sep-19	317	$0.00
RE29680	Design.ZB - Rdwy - RFC Plans - DB Sign & Seal	15	03-Sep-19	23-Sep-19	201	$155,337.41
RE30690	Design.ZB - Rdwy - Complete Plans	0		23-Sep-19	201	$0.00
Drainage		191	05-Mar-19	11-Sep-19	329	$324,043.01
60% Plans		77	05-Mar-19	20-May-19	408	$84,352.80
RE18100	Design.ZB - Drainage - 60% Plans - DB Prepare & Submit	40	05-Mar-19	06-May-19	210	$84,352.80
RE18110	Design.ZB - Drainage - Start Plans	0	05-Mar-19		210	$0.00
RE25610	Design.ZB - Drainage - 60% Plans - GDOT Review	14	07-May-19	20-May-19	408	$0.00
RFC Plans		128	07-May-19	11-Sep-19	329	$239,690.21
RE25620	Design.ZB - Drainage - RFC Plans - DB Prepare & Submit	60	07-May-19	05-Aug-19	210	$84,352.80
RE30900	Design.ZB - Drainage - RFC Plans - GDOT Review	14	06-Aug-19	19-Aug-19	331	$0.00
RE31840	Design.ZB - Drainage - RFC Plans - DB Sign & Seal	15	20-Aug-19	11-Sep-19	209	$155,337.41
RE33120	Design.ZB - Drainage - Complete Plans	0		11-Sep-19	209	$0.00
Walls		407	30-Aug-18	10-Oct-19	420	$1,259,294.99
Geotechnical Report		170	30-Aug-18	15-Feb-19	525	$935,251.98
RE10960	Design.ZB - Walls - Start Geotechnical Report	0	30-Aug-18		306	$0.00
RE10970	Design.ZB - Walls - DB Field Boring	30	30-Aug-18	15-Oct-18	306	$224,680.06
RE11380	Design.ZB - Walls - DB Lab Testing	15	16-Oct-18	05-Nov-18	306	$343,034.72
RE11890	Design.ZB - Walls - DB Submit Report	30	06-Nov-18	03-Jan-19	306	$0.00
RE13990	Design.ZB - Walls - GDOT Reviews	14	04-Jan-19	17-Jan-19	525	$0.00
RE15530	Design.ZB - Walls - DB Prepare & Issue Final Report	20	18-Jan-19	15-Feb-19	336	$367,537.20
RE17410	Design.ZB - Walls - Complete Geotechnical Report	0		15-Feb-19	336	$0.00
60% Plans		107	05-Mar-19	19-Jun-19	475	$84,352.80
RE18120	Design.ZB - Walls - 60% Plans - DB Prepare & Submit	60	05-Mar-19	05-Jun-19	266	$84,352.80
RE25630	Design.ZB - Walls - 60% Plans - GDOT Review	14	06-Jun-19	19-Jun-19	475	$0.00
RFC Plans		127	06-Jun-19	10-Oct-19	420	$239,690.21
RE25640	Design.ZB - Walls - RFC Plans - DB Prepare & Submit	50	06-Jun-19	19-Aug-19	266	$84,352.80
RE30910	Design.ZB - Walls - RFC Plans - GDOT Review	30	20-Aug-19	18-Sep-19	414	$0.00



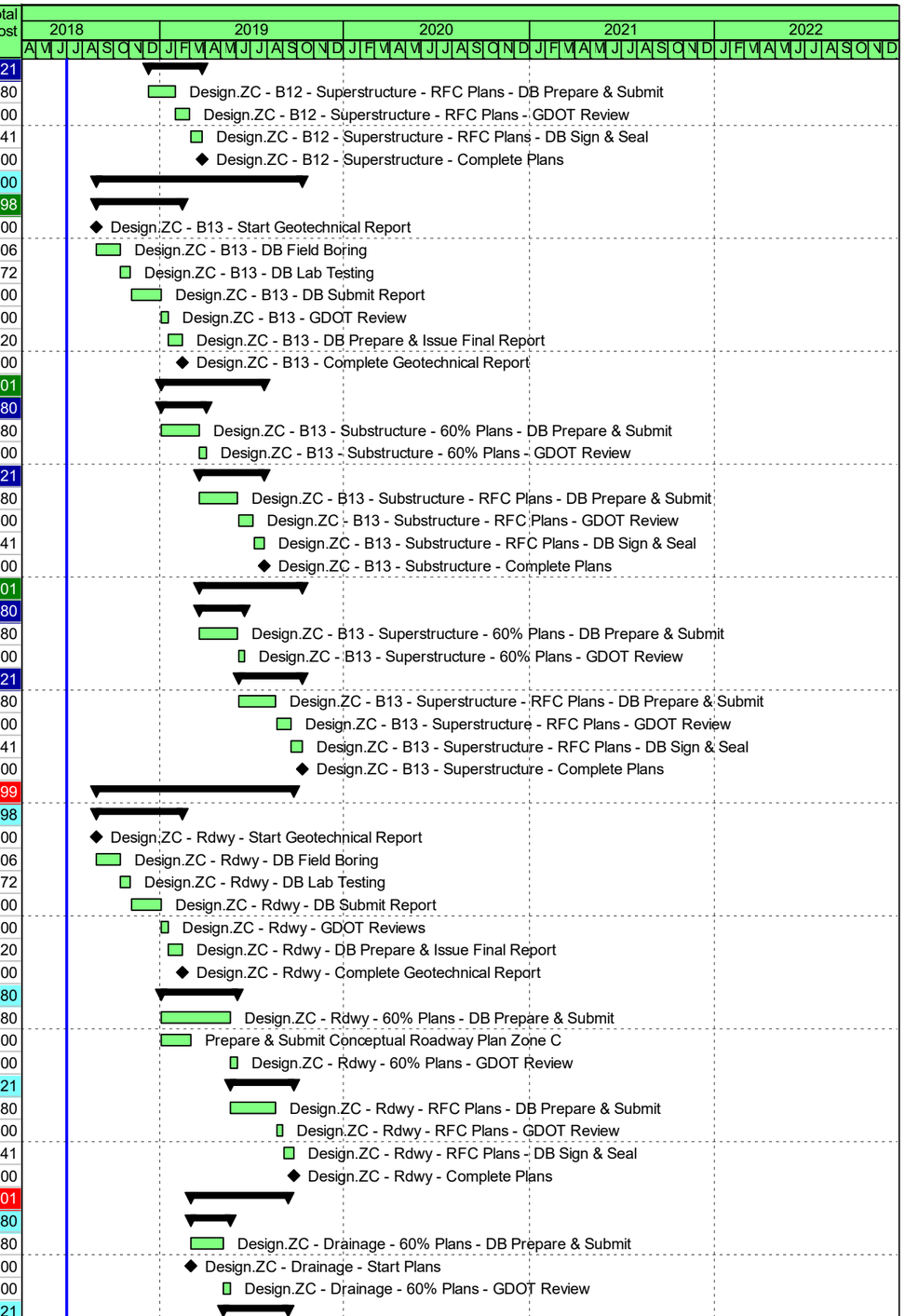
Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE31850	Design.ZB - Walls - RFC Plans - DB Sign & Seal	15	19-Sep-19	10-Oct-19	266	$155,337.41
RE33130	Design.ZB - Walls - Complete Plans	0		10-Oct-19	266	$0.00
Utilities		263	05-Mar-19	22-Nov-19	257	$324,043.01
60% Plans		154	05-Mar-19	05-Aug-19	331	$84,352.80
RE18130	Design.ZB - Utilities - 60% Plans - DB Prepare & Submit	90	05-Mar-19	22-Jul-19	160	$84,352.80
RE18140	Design.ZB - Utilities - Start Plans	0	05-Mar-19		160	$0.00
RE25650	Design.ZB - Utilities - 60% Plans - GDOT Review	14	23-Jul-19	05-Aug-19	331	$0.00
RFC Plans		123	23-Jul-19	22-Nov-19	257	$239,690.21
RE25660	Design.ZB - Utilities - RFC Plans - DB Prepare & Submit	60	23-Jul-19	17-Oct-19	160	$84,352.80
RE30920	Design.ZB - Utilities - RFC Plans - GDOT Review	14	18-Oct-19	31-Oct-19	258	$0.00
RE31860	Design.ZB - Utilities - RFC Plans - DB Sign & Seal	15	01-Nov-19	22-Nov-19	159	$155,337.41
RE33140	Design.ZB - Utilities - Complete Plans	0		22-Nov-19	159	$0.00
ITS		263	05-Mar-19	22-Nov-19	440	$324,043.01
60% Plans		154	05-Mar-19	05-Aug-19	513	$84,352.80
RE18150	Design.ZB - ITS - 60% Plans - DB Prepare & Submit	90	05-Mar-19	22-Jul-19	274	$84,352.80
RE18160	Design.ZB - ITS - Start Plans	0	05-Mar-19		274	$0.00
RE25670	Design.ZB - ITS - 60% Plans - GDOT Review	14	23-Jul-19	05-Aug-19	513	$0.00
RFC Plans		123	23-Jul-19	22-Nov-19	440	$239,690.21
RE25680	Design.ZB - ITS - RFC Plans - DB Prepare & Submit	60	23-Jul-19	17-Oct-19	274	$84,352.80
RE30930	Design.ZB - ITS - RFC Plans - GDOT Review	14	18-Oct-19	31-Oct-19	440	$0.00
RE31870	Design.ZB - ITS - RFC Plans - DB Sign & Seal	15	01-Nov-19	22-Nov-19	271	$155,337.41
RE33150	Design.ZB - ITS - Complete Plans	0		22-Nov-19	271	$0.00
Traffic Management		263	05-Mar-19	22-Nov-19	377	$324,043.01
60% Plans		154	05-Mar-19	05-Aug-19	444	$84,352.80
RE18170	Design.ZB - TMC - 60% Plans - DB Prepare & Submit	90	05-Mar-19	22-Jul-19	237	$84,352.80
RE18180	Design.ZB - TMC - Start Plans	0	05-Mar-19		237	$0.00
RE25690	Design.ZB - TMC - 60% Plans - GDOT Review	14	23-Jul-19	05-Aug-19	444	$0.00
RFC Plans		123	23-Jul-19	22-Nov-19	377	$239,690.21
RE25700	Design.ZB - TMC - RFC Plans - DB Prepare & Submit	60	23-Jul-19	17-Oct-19	237	$84,352.80
RE30940	Design.ZB - TMC - RFC Plans - GDOT Review	14	18-Oct-19	31-Oct-19	371	$0.00
RE31880	Design.ZB - TMC - RFC Plans - DB Sign & Seal	15	01-Nov-19	22-Nov-19	236	$155,337.41
RE33160	Design.ZB - TMC - Complete Plans	0		22-Nov-19	236	$0.00
Lighting		263	05-Mar-19	22-Nov-19	377	$324,043.01
60% Plans		154	05-Mar-19	05-Aug-19	444	$84,352.80
RE18190	Design.ZB - Lighting - 60% Plans - DB Prepare & Submit	90	05-Mar-19	22-Jul-19	237	$84,352.80
RE18200	Design.ZB - Lighting - Start Plans	0	05-Mar-19		237	$0.00
RE25710	Design.ZB - Lighting - 60% Plans - GDOT Review	14	23-Jul-19	05-Aug-19	444	$0.00
RFC Plans		123	23-Jul-19	22-Nov-19	377	$239,690.21
RE25720	Design.ZB - Lighting - RFC Plans - DB Prepare & Submit	60	23-Jul-19	17-Oct-19	237	$84,352.80
RE30950	Design.ZB - Lighting - RFC Plans - GDOT Review	14	18-Oct-19	31-Oct-19	371	$0.00
RE31890	Design.ZB - Lighting - RFC Plans - DB Sign & Seal	15	01-Nov-19	22-Nov-19	236	$155,337.41
RE33170	Design.ZB - Lighting - Complete Plans	0		22-Nov-19	236	$0.00
Signalization		263	05-Mar-19	22-Nov-19	440	$324,043.01
60% Plans		154	05-Mar-19	05-Aug-19	513	$84,352.80
RE18210	Design.ZB - S&PM - 60% Plans - DB Prepare & Submit	90	05-Mar-19	22-Jul-19	274	$84,352.80
RE18220	Design.ZB - S&PM - Start Plans	0	05-Mar-19		274	$0.00
RE25730	Design.ZB - S&PM - 60% Plans - GDOT Review	14	23-Jul-19	05-Aug-19	513	$0.00
RFC Plans		123	23-Jul-19	22-Nov-19	440	$239,690.21
RE25740	Design.ZB - S&PM - RFC Plans - DB Prepare & Submit	60	23-Jul-19	17-Oct-19	274	$84,352.80
RE30960	Design.ZB - S&PM - RFC Plans - GDOT Review	14	18-Oct-19	31-Oct-19	440	$0.00
RE31900	Design.ZB - S&PM - RFC Plans - DB Sign & Seal	15	01-Nov-19	22-Nov-19	271	$155,337.41
RE33180	Design.ZB - S&PM - Complete Plans	0		22-Nov-19	271	$0.00
Zone C Design Team		450	30-Aug-18	22-Nov-19	838	$8,601,653.13
Structure		407	30-Aug-18	10-Oct-19	881	$4,138,805.03
Bridge 09 - DE1B - I-16 WB over I-516 SB to I-16 EB Ramp B-3		210	30-Aug-18	27-Mar-19	1041	$324,043.01



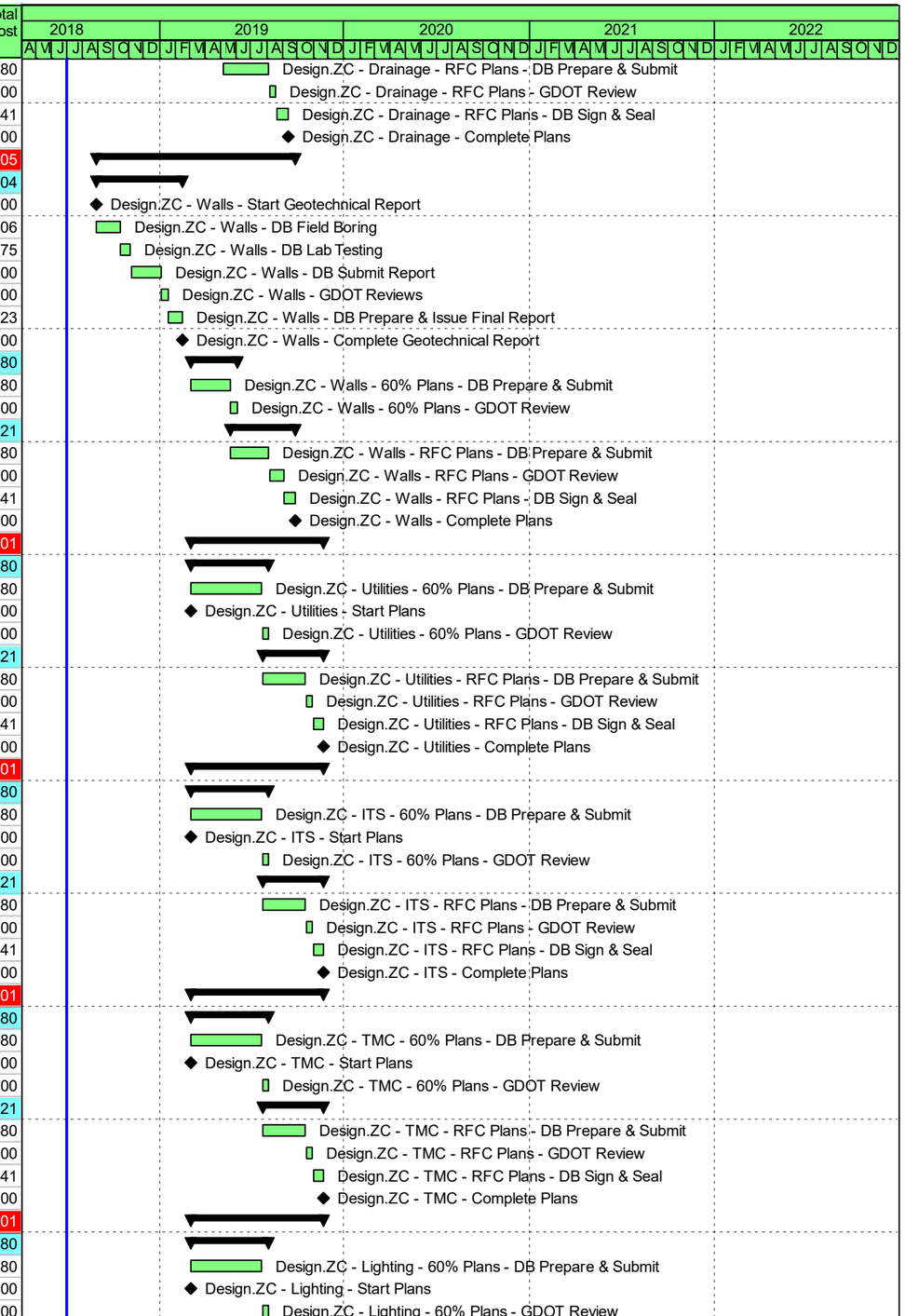
Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
Superstructure		210	30-Aug-18	27-Mar-19	1041	$324,043.01
60% Plans		61	30-Aug-18	29-Oct-18	1138	$84,352.80
RE10080	Design.ZC - B09 - Superstructure - 60% Plans - DB Prepare & Submit	30	30-Aug-18	15-Oct-18	703	$84,352.80
RE10090	Design.ZC - B09 - Start Design	0	30-Aug-18		703	$0.00
RE12040	Design.ZC - B09 - Superstructure - 60% Plans - GDOT Review	14	16-Oct-18	29-Oct-18	1138	$0.00
RFC Plans		108	10-Dec-18	27-Mar-19	1041	$239,690.21
RE12050	Design.ZC - B09 - Superstructure - RFC Plans - DB Prepare & Submit	30	10-Dec-18	31-Jan-19	669	$84,352.80
RE20230	Design.ZC - B09 - Superstructure - RFC Plans - GDOT Review	30	01-Feb-19	02-Mar-19	1044	$0.00
RE21780	Design.ZC - B09 - Superstructure - RFC Plans - DB Sign & Seal	15	04-Mar-19	27-Mar-19	661	$155,337.41
RE23390	Design.ZC - B09 - Superstructure - Complete Plans	0		27-Mar-19	661	$0.00
Bridge 10 - DE1B - I-16 WB over I-516		210	30-Aug-18	27-Mar-19	1056	$324,043.01
Substructure		0	30-Aug-18	30-Aug-18	711	$0.00
60% Plans		0	30-Aug-18	30-Aug-18	711	$0.00
RE10110	Design.ZC - B10 - Start Bridge	0	30-Aug-18		711	$0.00
Superstructure		210	30-Aug-18	27-Mar-19	1056	$324,043.01
60% Plans		61	30-Aug-18	29-Oct-18	1154	$84,352.80
RE12080	Design.ZC - B10 - Superstructure - 60% Plans - DB Prepare & Submit	30	30-Aug-18	15-Oct-18	711	$84,352.80
RE20250	Design.ZC - B10 - Superstructure - 60% Plans - GDOT Review	14	16-Oct-18	29-Oct-18	1154	$0.00
RFC Plans		108	10-Dec-18	27-Mar-19	1056	$239,690.21
RE20260	Design.ZC - B10 - Superstructure - RFC Plans - DB Prepare & Submit	30	10-Dec-18	31-Jan-19	677	$84,352.80
RE27070	Design.ZC - B10 - Superstructure - RFC Plans - GDOT Review	30	01-Feb-19	02-Mar-19	1060	$0.00
RE28030	Design.ZC - B10 - Superstructure - RFC Plans - DB Sign & Seal	15	04-Mar-19	27-Mar-19	672	$155,337.41
RE29280	Design.ZC - B10 - Superstructure - Complete Plans	0		27-Mar-19	672	$0.00
Bridge 11 - DE1A I-16 EB over I-516		407	30-Aug-18	10-Oct-19	483	$1,583,338.00
Geotechnical Report		170	30-Aug-18	15-Feb-19	557	$935,251.98
RE10980	Design.ZC - B11 - Start Geotechnical Report	0	30-Aug-18		308	$0.00
RE10990	Design.ZC - B11 - DB Field Boring	30	30-Aug-18	15-Oct-18	308	$224,680.06
RE11390	Design.ZC - B11 - DB Lab Testing	15	16-Oct-18	05-Nov-18	308	$343,034.72
RE11900	Design.ZC - B11 - DB Submit Report	30	06-Nov-18	03-Jan-19	308	$0.00
RE14000	Design.ZC - B11 - GDOT Review	14	04-Jan-19	17-Jan-19	558	$0.00
RE15540	Design.ZC - B11 - DB Prepare & Issue Final Report	20	18-Jan-19	15-Feb-19	358	$367,537.20
RE17420	Design.ZC - B11 - Complete Geotechnical Report	0		15-Feb-19	358	$0.00
Substructure		204	04-Jan-19	26-Jul-19	537	$324,043.01
60% Plans		91	04-Jan-19	04-Apr-19	586	$84,352.80
RE14010	Design.ZC - B11 - Substructure - 60% Plans - DB Prepare & Submit	50	04-Jan-19	21-Mar-19	308	$84,352.80
RE22490	Design.ZC - B11 - Substructure - 60% Plans - GDOT Review	14	22-Mar-19	04-Apr-19	586	$0.00
RFC Plans		127	22-Mar-19	26-Jul-19	537	$239,690.21
RE22500	Design.ZC - B11 - Substructure - RFC Plans - DB Prepare & Submit	50	22-Mar-19	05-Jun-19	338	$84,352.80
RE28540	Design.ZC - B11 - Substructure - RFC Plans - GDOT Review	30	06-Jun-19	05-Jul-19	524	$0.00
RE29690	Design.ZC - B11 - Substructure - RFC Plans - DB Sign & Seal	15	08-Jul-19	26-Jul-19	337	$155,337.41
RE30700	Design.ZC - B11 - Substructure - Complete Plans	0		26-Jul-19	337	$0.00
Superstructure		203	22-Mar-19	10-Oct-19	483	$324,043.01
60% Plans		90	22-Mar-19	19-Jun-19	544	$84,352.80
RE22510	Design.ZC - B11 - Superstructure - 60% Plans - DB Prepare & Submit	50	22-Mar-19	05-Jun-19	308	$84,352.80
RE28550	Design.ZC - B11 - Superstructure - 60% Plans - GDOT Review	14	06-Jun-19	19-Jun-19	544	$0.00
RFC Plans		127	06-Jun-19	10-Oct-19	483	$239,690.21
RE28560	Design.ZC - B11 - Superstructure - RFC Plans - DB Prepare & Submit	50	06-Jun-19	19-Aug-19	308	$84,352.80
RE34060	Design.ZC - B11 - Superstructure - RFC Plans - GDOT Review	30	20-Aug-19	18-Sep-19	483	$0.00
RE34860	Design.ZC - B11 - Superstructure - RFC Plans - DB Sign & Seal	15	19-Sep-19	10-Oct-19	301	$155,337.41
RE35770	Design.ZC - B11 - Superstructure - Complete Plans	0		10-Oct-19	301	$0.00
Bridge 12 - DE1A I-16 EB over I-516 NB to I-16 WB Ramp D-1		210	30-Aug-18	27-Mar-19	1078	$324,043.01
Superstructure		210	30-Aug-18	27-Mar-19	1078	$324,043.01
60% Plans		61	30-Aug-18	29-Oct-18	1175	$84,352.80
RE10120	Design.ZC - B12 - Superstructure - 60% Plans - DB Prepare & Submit	30	30-Aug-18	15-Oct-18	720	$84,352.80
RE10130	Design.ZC - B12 - Start Bridge	0	30-Aug-18		720	$0.00
RE12090	Design.ZC - B12 - Superstructure - 60% Plans - GDOT Review	14	16-Oct-18	29-Oct-18	1175	$0.00



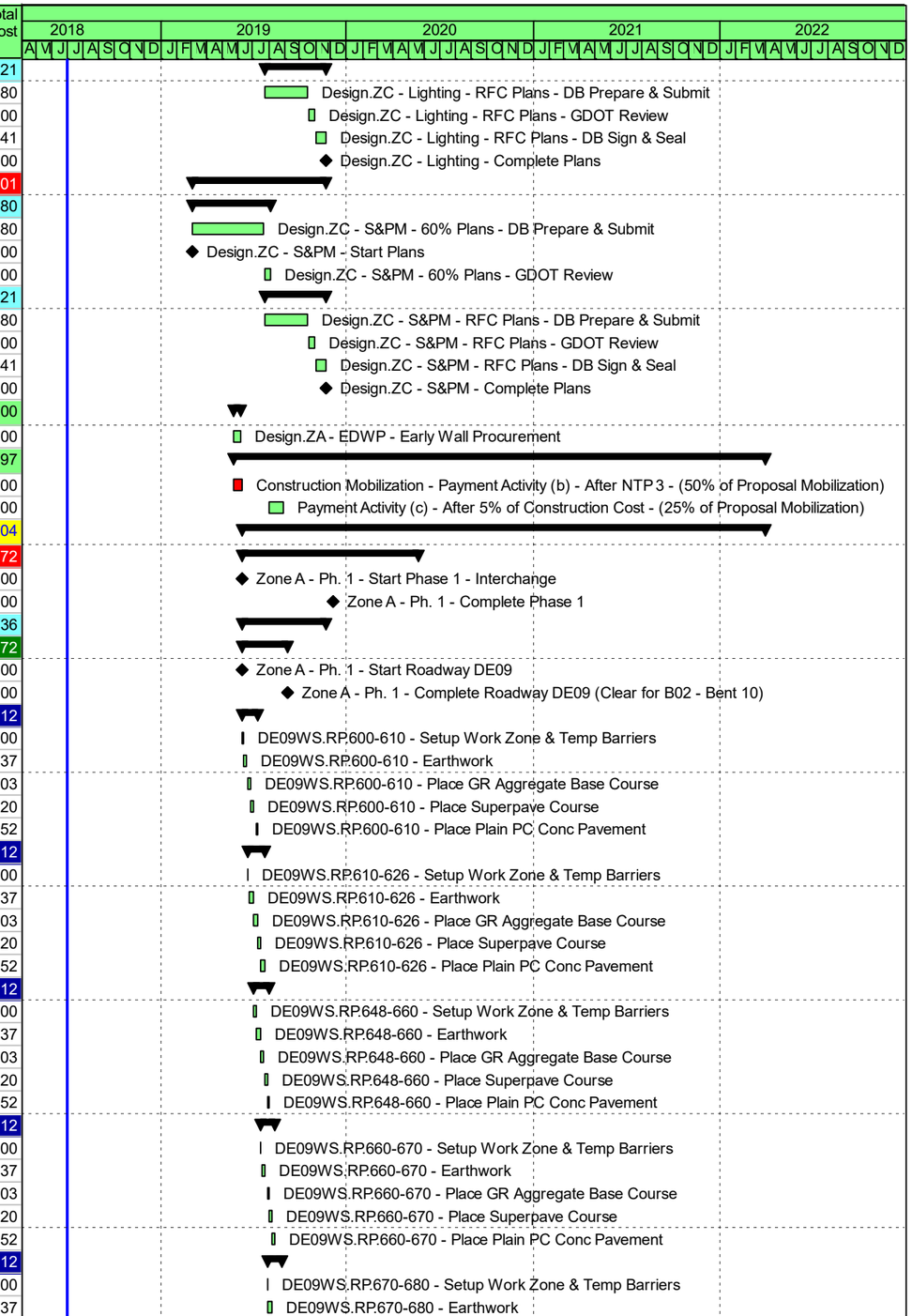
Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RFC Plans		108	10-Dec-18	27-Mar-19	1078	$239,690.21
RE12100	Design.ZC - B12 - Superstructure - RFC Plans - DB Prepare & Submit	30	10-Dec-18	31-Jan-19	686	$84,352.80
RE20270	Design.ZC - B12 - Superstructure - RFC Plans - GDOT Review	30	01-Feb-19	02-Mar-19	1081	$0.00
RE21800	Design.ZC - B12 - Superstructure - RFC Plans - DB Sign & Seal	15	04-Mar-19	27-Mar-19	687	$155,337.41
RE23410	Design.ZC - B12 - Superstructure - Complete Plans	0		27-Mar-19	687	$0.00
Bridge 13 - DE30 - I-16 EB Ramp to I-516 over I-516		407	30-Aug-18	10-Oct-19	712	$1,583,338.00
Geotechnical Report		170	30-Aug-18	15-Feb-19	802	$935,251.98
RE11000	Design.ZC - B13 - Start Geotechnical Report	0	30-Aug-18		451	$0.00
RE11010	Design.ZC - B13 - DB Field Boring	30	30-Aug-18	15-Oct-18	451	$224,680.06
RE11400	Design.ZC - B13 - DB Lab Testing	15	16-Oct-18	05-Nov-18	451	$343,034.72
RE11910	Design.ZC - B13 - DB Submit Report	30	06-Nov-18	03-Jan-19	451	$0.00
RE14020	Design.ZC - B13 - GDOT Review	14	04-Jan-19	17-Jan-19	801	$0.00
RE15550	Design.ZC - B13 - DB Prepare & Issue Final Report	20	18-Jan-19	15-Feb-19	506	$367,537.20
RE17430	Design.ZC - B13 - Complete Geotechnical Report	0		15-Feb-19	506	$0.00
Substructure		204	04-Jan-19	26-Jul-19	763	$324,043.01
60% Plans		91	04-Jan-19	04-Apr-19	827	$84,352.80
RE14030	Design.ZC - B13 - Substructure - 60% Plans - DB Prepare & Submit	50	04-Jan-19	21-Mar-19	451	$84,352.80
RE22520	Design.ZC - B13 - Substructure - 60% Plans - GDOT Review	14	22-Mar-19	04-Apr-19	827	$0.00
RFC Plans		127	22-Mar-19	26-Jul-19	763	$239,690.21
RE22530	Design.ZC - B13 - Substructure - RFC Plans - DB Prepare & Submit	50	22-Mar-19	05-Jun-19	486	$84,352.80
RE28570	Design.ZC - B13 - Substructure - RFC Plans - GDOT Review	30	06-Jun-19	05-Jul-19	765	$0.00
RE29700	Design.ZC - B13 - Substructure - RFC Plans - DB Sign & Seal	15	08-Jul-19	26-Jul-19	487	$155,337.41
RE30710	Design.ZC - B13 - Substructure - Complete Plans	0		26-Jul-19	487	$0.00
Superstructure		203	22-Mar-19	10-Oct-19	712	$324,043.01
60% Plans		90	22-Mar-19	19-Jun-19	772	$84,352.80
RE22540	Design.ZC - B13 - Superstructure - 60% Plans - DB Prepare & Submit	50	22-Mar-19	05-Jun-19	451	$84,352.80
RE28580	Design.ZC - B13 - Superstructure - 60% Plans - GDOT Review	14	06-Jun-19	19-Jun-19	772	$0.00
RFC Plans		127	06-Jun-19	10-Oct-19	712	$239,690.21
RE28590	Design.ZC - B13 - Superstructure - RFC Plans - DB Prepare & Submit	50	06-Jun-19	19-Aug-19	451	$84,352.80
RE34070	Design.ZC - B13 - Superstructure - RFC Plans - GDOT Review	30	20-Aug-19	18-Sep-19	711	$0.00
RE34870	Design.ZC - B13 - Superstructure - RFC Plans - DB Sign & Seal	15	19-Sep-19	10-Oct-19	451	$155,337.41
RE35780	Design.ZC - B13 - Superstructure - Complete Plans	0		10-Oct-19	451	$0.00
Roadway		390	30-Aug-18	23-Sep-19	262	$1,259,294.99
Geotechnical Report		170	30-Aug-18	15-Feb-19	350	$935,251.98
RE11020	Design.ZC - Rdwy - Start Geotechnical Report	0	30-Aug-18		159	$0.00
RE11030	Design.ZC - Rdwy - DB Field Boring	30	30-Aug-18	15-Oct-18	159	$224,680.06
RE11410	Design.ZC - Rdwy - DB Lab Testing	15	16-Oct-18	05-Nov-18	159	$343,034.72
RE11920	Design.ZC - Rdwy - DB Submit Report	30	06-Nov-18	03-Jan-19	159	$0.00
RE14040	Design.ZC - Rdwy - GDOT Reviews	14	04-Jan-19	17-Jan-19	350	$0.00
RE15560	Design.ZC - Rdwy - DB Prepare & Issue Final Report	20	18-Jan-19	15-Feb-19	221	$367,537.20
RE17440	Design.ZC - Rdwy - Complete Geotechnical Report	0		15-Feb-19	221	$0.00
60% Plans		151	04-Jan-19	03-Jun-19	337	$84,352.80
RE14050	Design.ZC - Rdwy - 60% Plans - DB Prepare & Submit	90	04-Jan-19	20-May-19	161	$84,352.80
RE14060	Prepare & Submit Conceptual Roadway Plan Zone C	40	04-Jan-19	04-Mar-19	159	$0.00
RE22550	Design.ZC - Rdwy - 60% Plans - GDOT Review	14	21-May-19	03-Jun-19	337	$0.00
RFC Plans		126	21-May-19	23-Sep-19	262	$239,690.21
RE22560	Design.ZC - Rdwy - RFC Plans - DB Prepare & Submit	60	21-May-19	19-Aug-19	161	$84,352.80
RE28600	Design.ZC - Rdwy - RFC Plans - GDOT Review	14	20-Aug-19	02-Sep-19	260	$0.00
RE29710	Design.ZC - Rdwy - RFC Plans - DB Sign & Seal	15	03-Sep-19	23-Sep-19	163	$155,337.41
RE30720	Design.ZC - Rdwy - Complete Plans	0		23-Sep-19	163	$0.00
Drainage		191	05-Mar-19	11-Sep-19	274	$324,043.01
60% Plans		77	05-Mar-19	20-May-19	351	$84,352.80
RE18230	Design.ZC - Drainage - 60% Plans - DB Prepare & Submit	40	05-Mar-19	06-May-19	171	$84,352.80
RE18240	Design.ZC - Drainage - Start Plans	0	05-Mar-19		171	$0.00
RE25750	Design.ZC - Drainage - 60% Plans - GDOT Review	14	07-May-19	20-May-19	351	$0.00
RFC Plans		128	07-May-19	11-Sep-19	274	$239,690.21



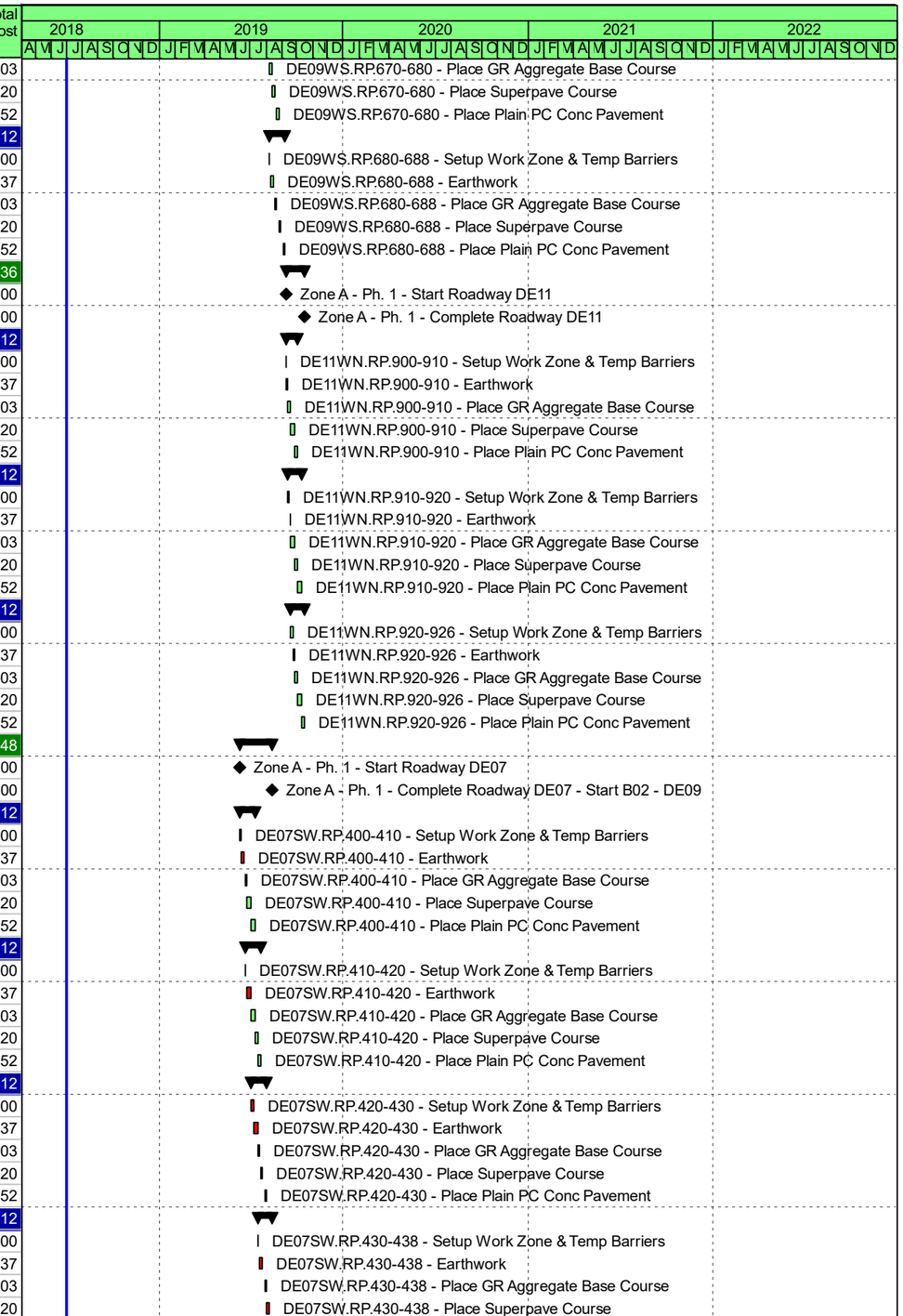
Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE25760	Design.ZC - Drainage - RFC Plans - DB Prepare & Submit	60	07-May-19	05-Aug-19	171	$84,352.80
RE30970	Design.ZC - Drainage - RFC Plans - GDOT Review	14	06-Aug-19	19-Aug-19	274	$0.00
RE31910	Design.ZC - Drainage - RFC Plans - DB Sign & Seal	15	20-Aug-19	11-Sep-19	171	$155,337.41
RE33190	Design.ZC - Drainage - Complete Plans	0		11-Sep-19	171	$0.00
Walls		392	30-Aug-18	25-Sep-19	260	$1,259,295.05
Geotechnical Report		170	30-Aug-18	15-Feb-19	348	$935,252.04
RE11040	Design.ZC - Walls - Start Geotechnical Report	0	30-Aug-18		199	$0.00
RE11050	Design.ZC - Walls - DB Field Boring	30	30-Aug-18	15-Oct-18	199	$224,680.06
RE11420	Design.ZC - Walls - DB Lab Testing	15	16-Oct-18	05-Nov-18	199	$343,034.75
RE11930	Design.ZC - Walls - DB Submit Report	30	06-Nov-18	03-Jan-19	199	$0.00
RE14070	Design.ZC - Walls - GDOT Reviews	14	04-Jan-19	17-Jan-19	335	$0.00
RE15570	Design.ZC - Walls - DB Prepare & Issue Final Report	20	18-Jan-19	15-Feb-19	219	$367,537.23
RE17450	Design.ZC - Walls - Complete Geotechnical Report	0		15-Feb-19	219	$0.00
60% Plans		91	05-Mar-19	03-Jun-19	321	$84,352.80
RE18250	Design.ZC - Walls - 60% Plans - DB Prepare & Submit	50	05-Mar-19	20-May-19	159	$84,352.80
RE25770	Design.ZC - Walls - 60% Plans - GDOT Review	14	21-May-19	03-Jun-19	321	$0.00
RFC Plans		128	21-May-19	25-Sep-19	260	$239,690.21
RE25780	Design.ZC - Walls - RFC Plans - DB Prepare & Submit	50	21-May-19	05-Aug-19	159	$84,352.80
RE30980	Design.ZC - Walls - RFC Plans - GDOT Review	30	06-Aug-19	04-Sep-19	258	$0.00
RE31920	Design.ZC - Walls - RFC Plans - DB Sign & Seal	15	05-Sep-19	25-Sep-19	161	$155,337.41
RE33200	Design.ZC - Walls - Complete Plans	0		25-Sep-19	161	$0.00
Utilities		263	05-Mar-19	22-Nov-19	202	$324,043.01
60% Plans		154	05-Mar-19	05-Aug-19	274	$84,352.80
RE18260	Design.ZC - Utilities - 60% Plans - DB Prepare & Submit	90	05-Mar-19	22-Jul-19	121	$84,352.80
RE18270	Design.ZC - Utilities - Start Plans	0	05-Mar-19		121	$0.00
RE25790	Design.ZC - Utilities - 60% Plans - GDOT Review	14	23-Jul-19	05-Aug-19	274	$0.00
RFC Plans		123	23-Jul-19	22-Nov-19	202	$239,690.21
RE25800	Design.ZC - Utilities - RFC Plans - DB Prepare & Submit	60	23-Jul-19	17-Oct-19	121	$84,352.80
RE30990	Design.ZC - Utilities - RFC Plans - GDOT Review	14	18-Oct-19	31-Oct-19	201	$0.00
RE31930	Design.ZC - Utilities - RFC Plans - DB Sign & Seal	15	01-Nov-19	22-Nov-19	121	$155,337.41
RE33210	Design.ZC - Utilities - Complete Plans	0		22-Nov-19	121	$0.00
ITS		263	05-Mar-19	22-Nov-19	238	$324,043.01
60% Plans		154	05-Mar-19	05-Aug-19	311	$84,352.80
RE18280	Design.ZC - ITS - 60% Plans - DB Prepare & Submit	90	05-Mar-19	22-Jul-19	146	$84,352.80
RE18290	Design.ZC - ITS - Start Plans	0	05-Mar-19		146	$0.00
RE25810	Design.ZC - ITS - 60% Plans - GDOT Review	14	23-Jul-19	05-Aug-19	311	$0.00
RFC Plans		123	23-Jul-19	22-Nov-19	238	$239,690.21
RE25820	Design.ZC - ITS - RFC Plans - DB Prepare & Submit	60	23-Jul-19	17-Oct-19	146	$84,352.80
RE31000	Design.ZC - ITS - RFC Plans - GDOT Review	14	18-Oct-19	31-Oct-19	238	$0.00
RE31940	Design.ZC - ITS - RFC Plans - DB Sign & Seal	15	01-Nov-19	22-Nov-19	146	$155,337.41
RE33220	Design.ZC - ITS - Complete Plans	0		22-Nov-19	146	$0.00
Traffic Management		263	05-Mar-19	22-Nov-19	238	$324,043.01
60% Plans		154	05-Mar-19	05-Aug-19	311	$84,352.80
RE18300	Design.ZC - TMC - 60% Plans - DB Prepare & Submit	90	05-Mar-19	22-Jul-19	146	$84,352.80
RE18310	Design.ZC - TMC - Start Plans	0	05-Mar-19		146	$0.00
RE25830	Design.ZC - TMC - 60% Plans - GDOT Review	14	23-Jul-19	05-Aug-19	311	$0.00
RFC Plans		123	23-Jul-19	22-Nov-19	238	$239,690.21
RE25840	Design.ZC - TMC - RFC Plans - DB Prepare & Submit	60	23-Jul-19	17-Oct-19	146	$84,352.80
RE31010	Design.ZC - TMC - RFC Plans - GDOT Review	14	18-Oct-19	31-Oct-19	238	$0.00
RE31950	Design.ZC - TMC - RFC Plans - DB Sign & Seal	15	01-Nov-19	22-Nov-19	146	$155,337.41
RE33230	Design.ZC - TMC - Complete Plans	0		22-Nov-19	146	$0.00
Lighting		263	05-Mar-19	22-Nov-19	238	$324,043.01
60% Plans		154	05-Mar-19	05-Aug-19	311	$84,352.80
RE18320	Design.ZC - Lighting - 60% Plans - DB Prepare & Submit	90	05-Mar-19	22-Jul-19	146	$84,352.80
RE18330	Design.ZC - Lighting - Start Plans	0	05-Mar-19		146	$0.00
RE25850	Design.ZC - Lighting - 60% Plans - GDOT Review	14	23-Jul-19	05-Aug-19	311	$0.00



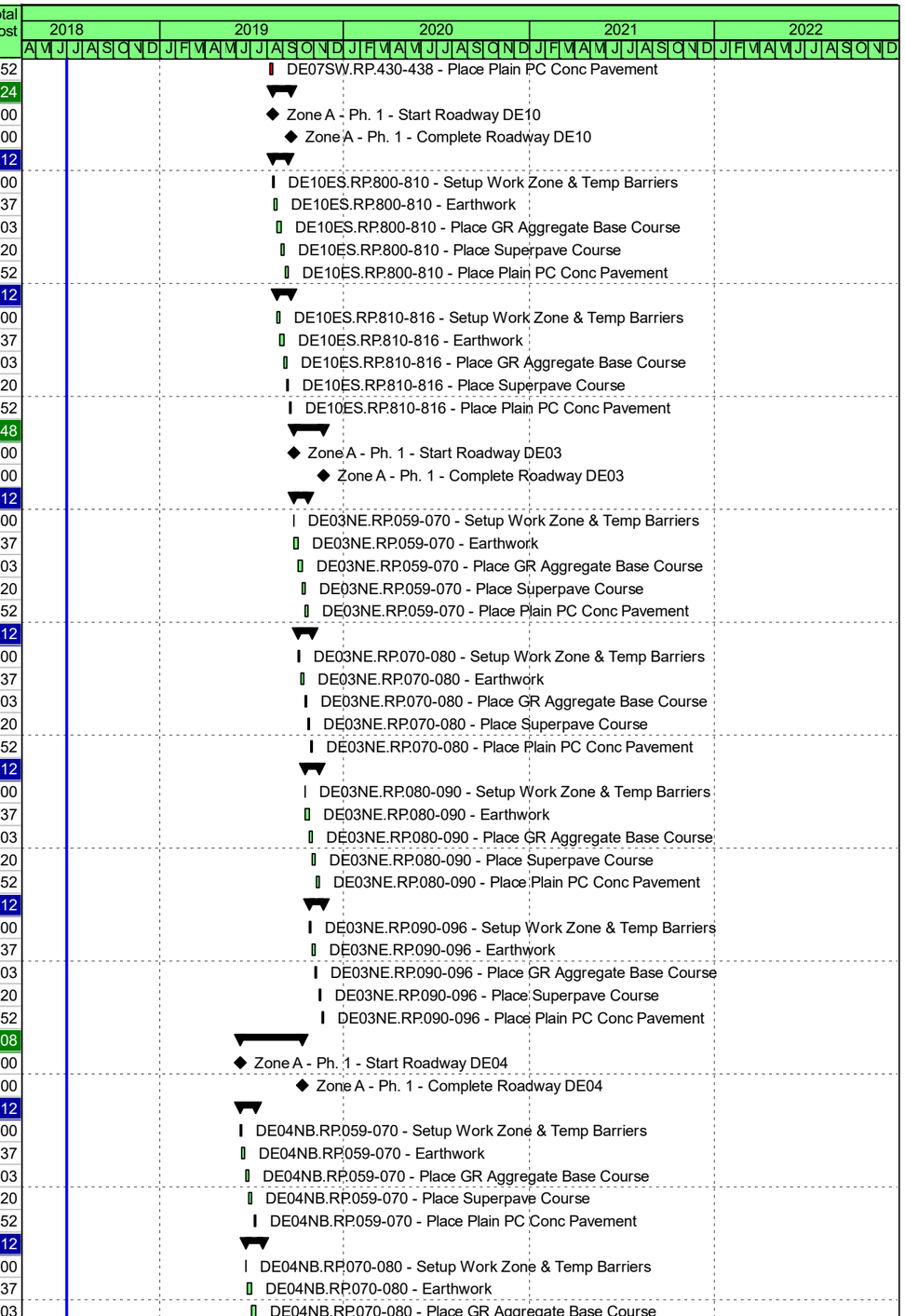
Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RFC Plans		123	23-Jul-19	22-Nov-19	238	$239,690.21
RE25860	Design.ZC - Lighting - RFC Plans - DB Prepare & Submit	60	23-Jul-19	17-Oct-19	146	$84,352.80
RE31020	Design.ZC - Lighting - RFC Plans - GDOT Review	14	18-Oct-19	31-Oct-19	238	$0.00
RE31960	Design.ZC - Lighting - RFC Plans - DB Sign & Seal	15	01-Nov-19	22-Nov-19	146	$155,337.41
RE33240	Design.ZC - Lighting - Complete Plans	0		22-Nov-19	146	$0.00
Signalization		263	05-Mar-19	22-Nov-19	238	$324,043.01
60% Plans		154	05-Mar-19	05-Aug-19	311	$84,352.80
RE18340	Design.ZC - S&PM - 60% Plans - DB Prepare & Submit	90	05-Mar-19	22-Jul-19	146	$84,352.80
RE18350	Design.ZC - S&PM - Start Plans	0	05-Mar-19		146	$0.00
RE25870	Design.ZC - S&PM - 60% Plans - GDOT Review	14	23-Jul-19	05-Aug-19	311	$0.00
RFC Plans		123	23-Jul-19	22-Nov-19	238	$239,690.21
RE25880	Design.ZC - S&PM - RFC Plans - DB Prepare & Submit	60	23-Jul-19	17-Oct-19	146	$84,352.80
RE31030	Design.ZC - S&PM - RFC Plans - GDOT Review	14	18-Oct-19	31-Oct-19	238	$0.00
RE31970	Design.ZC - S&PM - RFC Plans - DB Sign & Seal	15	01-Nov-19	22-Nov-19	146	$155,337.41
RE33250	Design.ZC - S&PM - Complete Plans	0		22-Nov-19	146	$0.00
Procurement		10	23-May-19	07-Jun-19	33	$0.00
RE48820	Design.ZA - EDWP - Early Wall Procurement	10	23-May-19	07-Jun-19	33	$0.00
Construction		1044	23-May-19	31-Mar-22	0	$228,511,492.97
RE00070	Construction Mobilization - Payment Activity (b) - After NTP 3 - (50% of Proposal Mobilization)	10	23-May-19	10-Jun-19	0	$2,842,535.00
RE54790	Payment Activity (c) - After 5% of Construction Cost - (25% of Proposal Mobilization)	28	01-Aug-19	28-Aug-19	5	$1,421,267.00
Zone A - I-95/I-16 Interchange		1025	11-Jun-19	31-Mar-22	0	$103,587,297.04
Zone A - Ph 1 - Perimeter Ramps		346	11-Jun-19	21-May-20	26	$33,814,355.72
RE52820	Zone A - Ph. 1 - Start Phase 1 - Interchange	0	11-Jun-19		0	$0.00
RE28820	Zone A - Ph. 1 - Complete Phase 1	0		06-Dec-19	0	$0.00
Roadway		103	11-Jun-19	21-Nov-19	6	$11,829,975.36
DE09 - I-16WB to I-95SB		54	11-Jun-19	06-Sep-19	31	$2,534,994.72
RE52900	Zone A - Ph. 1 - Start Roadway DE09	0	11-Jun-19		31	$0.00
RE52910	Zone A - Ph. 1 - Complete Roadway DE09 (Clear for B02 - Bent 10)	0		06-Sep-19	31	$0.00
DE09 - WS - Sta. 600-610 - Ramp		19	11-Jun-19	11-Jul-19	46	$422,499.12
RE12570	DE09WS.RP.600-610 - Setup Work Zone & Temp Barriers	2	11-Jun-19	12-Jun-19	31	$32,671.00
RE13310	DE09WS.RP.600-610 - Earthwork	5	13-Jun-19	19-Jun-19	31	$34,921.37
RE14610	DE09WS.RP.600-610 - Place GR Aggregate Base Course	4	20-Jun-19	25-Jun-19	46	$20,106.03
RE15250	DE09WS.RP.600-610 - Place Superpave Course	4	26-Jun-19	02-Jul-19	46	$24,673.20
RE15770	DE09WS.RP.600-610 - Place Plain PC Conc Pavement	4	08-Jul-19	11-Jul-19	46	$310,127.52
DE09 - WS - Sta. 610-626 - Ramp		19	20-Jun-19	23-Jul-19	43	$422,499.12
RE12580	DE09WS.RP.610-626 - Setup Work Zone & Temp Barriers	2	20-Jun-19	21-Jun-19	31	$32,671.00
RE13320	DE09WS.RP.610-626 - Earthwork	5	24-Jun-19	01-Jul-19	31	$34,921.37
RE14620	DE09WS.RP.610-626 - Place GR Aggregate Base Course	4	02-Jul-19	10-Jul-19	43	$20,106.03
RE15260	DE09WS.RP.610-626 - Place Superpave Course	4	11-Jul-19	16-Jul-19	43	$24,673.20
RE15780	DE09WS.RP.610-626 - Place Plain PC Conc Pavement	4	17-Jul-19	23-Jul-19	43	$310,127.52
DE09 - WS - Sta. 648-660 - Ramp		19	02-Jul-19	02-Aug-19	40	$422,499.12
RE12590	DE09WS.RP.648-660 - Setup Work Zone & Temp Barriers	2	02-Jul-19	08-Jul-19	31	$32,671.00
RE13330	DE09WS.RP.648-660 - Earthwork	5	09-Jul-19	15-Jul-19	31	$34,921.37
RE14630	DE09WS.RP.648-660 - Place GR Aggregate Base Course	4	16-Jul-19	22-Jul-19	40	$20,106.03
RE15270	DE09WS.RP.648-660 - Place Superpave Course	4	23-Jul-19	29-Jul-19	40	$24,673.20
RE15790	DE09WS.RP.648-660 - Place Plain PC Conc Pavement	4	30-Jul-19	02-Aug-19	40	$310,127.52
DE09 - WS - Sta. 660-670 - Ramp		19	16-Jul-19	13-Aug-19	37	$422,499.12
RE12600	DE09WS.RP.660-670 - Setup Work Zone & Temp Barriers	2	16-Jul-19	17-Jul-19	31	$32,671.00
RE13340	DE09WS.RP.660-670 - Earthwork	5	18-Jul-19	25-Jul-19	31	$34,921.37
RE14640	DE09WS.RP.660-670 - Place GR Aggregate Base Course	4	29-Jul-19	01-Aug-19	37	$20,106.03
RE15280	DE09WS.RP.660-670 - Place Superpave Course	4	02-Aug-19	07-Aug-19	37	$24,673.20
RE15800	DE09WS.RP.660-670 - Place Plain PC Conc Pavement	4	08-Aug-19	13-Aug-19	37	$310,127.52
DE09 - WS - Sta. 670-680 - Ramp		19	29-Jul-19	26-Aug-19	34	$422,499.12
RE12610	DE09WS.RP.670-680 - Setup Work Zone & Temp Barriers	2	29-Jul-19	30-Jul-19	31	$32,671.00
RE13350	DE09WS.RP.670-680 - Earthwork	5	31-Jul-19	06-Aug-19	31	$34,921.37



Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE14650	DE09WS.RP.670-680 - Place GR Aggregate Base Course	4	07-Aug-19	12-Aug-19	34	$20,106.03
RE15290	DE09WS.RP.670-680 - Place Superpave Course	4	13-Aug-19	19-Aug-19	34	$24,673.20
RE15810	DE09WS.RP.670-680 - Place Plain PC Conc Pavement	4	20-Aug-19	26-Aug-19	34	$310,127.52
DE09 - WS - Sta. 680-688 - Ramp		**19**	**07-Aug-19**	**06-Sep-19**	**31**	**$422,499.12**
RE12620	DE09WS.RP.680-688 - Setup Work Zone & Temp Barriers	2	07-Aug-19	08-Aug-19	31	$32,671.00
RE13360	DE09WS.RP.680-688 - Earthwork	5	09-Aug-19	15-Aug-19	31	$34,921.37
RE14660	DE09WS.RP.680-688 - Place GR Aggregate Base Course	4	19-Aug-19	22-Aug-19	31	$20,106.03
RE15300	DE09WS.RP.680-688 - Place Superpave Course	4	26-Aug-19	29-Aug-19	31	$24,673.20
RE15820	DE09WS.RP.680-688 - Place Plain PC Conc Pavement	4	03-Sep-19	06-Sep-19	31	$310,127.52
DE11 - W-N - I-16WB to I-95NB		**24**	**09-Sep-19**	**15-Oct-19**	**31**	**$1,267,497.36**
RE53360	Zone A - Ph. 1 - Start Roadway DE11	0	09-Sep-19		31	$0.00
RE53370	Zone A - Ph. 1 - Complete Roadway DE11	0		15-Oct-19	31	$0.00
DE11 - WN - Sta. 900-910 - Ramp		**16**	**09-Sep-19**	**02-Oct-19**	**31**	**$422,499.12**
RE12870	DE11WN.RP.900-910 - Setup Work Zone & Temp Barriers	2	09-Sep-19	10-Sep-19	31	$32,671.00
RE13500	DE11WN.RP.900-910 - Earthwork	2	11-Sep-19	12-Sep-19	31	$34,921.37
RE14820	DE11WN.RP.900-910 - Place GR Aggregate Base Course	4	13-Sep-19	18-Sep-19	31	$20,106.03
RE15380	DE11WN.RP.900-910 - Place Superpave Course	4	19-Sep-19	25-Sep-19	31	$24,673.20
RE15920	DE11WN.RP.900-910 - Place Plain PC Conc Pavement	4	26-Sep-19	02-Oct-19	31	$310,127.52
DE11 - WN - Sta. 910-920 - Ramp		**16**	**13-Sep-19**	**09-Oct-19**	**31**	**$422,499.12**
RE14830	DE11WN.RP.910-920 - Setup Work Zone & Temp Barriers	2	13-Sep-19	16-Sep-19	31	$32,671.00
RE15030	DE11WN.RP.910-920 - Earthwork	2	17-Sep-19	18-Sep-19	31	$34,921.37
RE16140	DE11WN.RP.910-920 - Place GR Aggregate Base Course	4	19-Sep-19	25-Sep-19	31	$20,106.03
RE16690	DE11WN.RP.910-920 - Place Superpave Course	4	26-Sep-19	02-Oct-19	31	$24,673.20
RE16980	DE11WN.RP.910-920 - Place Plain PC Conc Pavement	4	03-Oct-19	09-Oct-19	31	$310,127.52
DE11 - WN - Sta. 920-926 - Ramp		**16**	**19-Sep-19**	**15-Oct-19**	**31**	**$422,499.12**
RE16150	DE11WN.RP.920-926 - Setup Work Zone & Temp Barriers	2	19-Sep-19	23-Sep-19	31	$32,671.00
RE16450	DE11WN.RP.920-926 - Earthwork	2	24-Sep-19	25-Sep-19	31	$34,921.37
RE17220	DE11WN.RP.920-926 - Place GR Aggregate Base Course	4	26-Sep-19	02-Oct-19	31	$20,106.03
RE17880	DE11WN.RP.920-926 - Place Superpave Course	4	03-Oct-19	09-Oct-19	31	$24,673.20
RE18630	DE11WN.RP.920-926 - Place Plain PC Conc Pavement	4	10-Oct-19	15-Oct-19	31	$310,127.52
DE07 - S-W - I-95SB to I-16WB		**39**	**11-Jun-19**	**12-Aug-19**	**0**	**$1,689,996.48**
RE52870	Zone A - Ph. 1 - Start Roadway DE07	0	11-Jun-19		0	$0.00
RE48720	Zone A - Ph. 1 - Complete Roadway DE07 - Start B02 - DE09	0		12-Aug-19	0	$0.00
DE07 - SW - Sta. 400-410 - Ramp		**18**	**11-Jun-19**	**10-Jul-19**	**9**	**$422,499.12**
RE12850	DE07SW.RP.400-410 - Setup Work Zone & Temp Barriers	2	11-Jun-19	12-Jun-19	0	$32,671.00
RE13480	DE07SW.RP.400-410 - Earthwork	5	13-Jun-19	19-Jun-19	0	$34,921.37
RE14780	DE07SW.RP.400-410 - Place GR Aggregate Base Course	3	20-Jun-19	24-Jun-19	9	$20,106.03
RE15360	DE07SW.RP.400-410 - Place Superpave Course	4	25-Jun-19	01-Jul-19	9	$24,673.20
RE15900	DE07SW.RP.400-410 - Place Plain PC Conc Pavement	4	02-Jul-19	10-Jul-19	9	$310,127.52
DE07 - SW - Sta. 410-420 - Ramp		**18**	**20-Jun-19**	**22-Jul-19**	**6**	**$422,499.12**
RE14790	DE07SW.RP.410-420 - Setup Work Zone & Temp Barriers	2	20-Jun-19	21-Jun-19	0	$32,671.00
RE15010	DE07SW.RP.410-420 - Earthwork	5	24-Jun-19	01-Jul-19	0	$34,921.37
RE16110	DE07SW.RP.410-420 - Place GR Aggregate Base Course	3	02-Jul-19	09-Jul-19	6	$20,106.03
RE16670	DE07SW.RP.410-420 - Place Superpave Course	4	10-Jul-19	15-Jul-19	6	$24,673.20
RE16960	DE07SW.RP.410-420 - Place Plain PC Conc Pavement	4	16-Jul-19	22-Jul-19	6	$310,127.52
DE07 - SW - Sta. 420-430 - Ramp		**18**	**02-Jul-19**	**01-Aug-19**	**3**	**$422,499.12**
RE16120	DE07SW.RP.420-430 - Setup Work Zone & Temp Barriers	2	02-Jul-19	08-Jul-19	0	$32,671.00
RE16440	DE07SW.RP.420-430 - Earthwork	5	09-Jul-19	15-Jul-19	0	$34,921.37
RE17200	DE07SW.RP.420-430 - Place GR Aggregate Base Course	3	16-Jul-19	18-Jul-19	3	$20,106.03
RE17870	DE07SW.RP.420-430 - Place Superpave Course	4	22-Jul-19	25-Jul-19	3	$24,673.20
RE18620	DE07SW.RP.420-430 - Place Plain PC Conc Pavement	4	29-Jul-19	01-Aug-19	3	$310,127.52
DE07 - SW - Sta. 430-438 - Ramp		**18**	**16-Jul-19**	**12-Aug-19**	**0**	**$422,499.12**
RE17210	DE07SW.RP.430-438 - Setup Work Zone & Temp Barriers	2	16-Jul-19	17-Jul-19	0	$32,671.00
RE17530	DE07SW.RP.430-438 - Earthwork	5	18-Jul-19	25-Jul-19	0	$34,921.37
RE18790	DE07SW.RP.430-438 - Place GR Aggregate Base Course	3	29-Jul-19	31-Jul-19	0	$20,106.03
RE19320	DE07SW.RP.430-438 - Place Superpave Course	4	01-Aug-19	06-Aug-19	0	$24,673.20

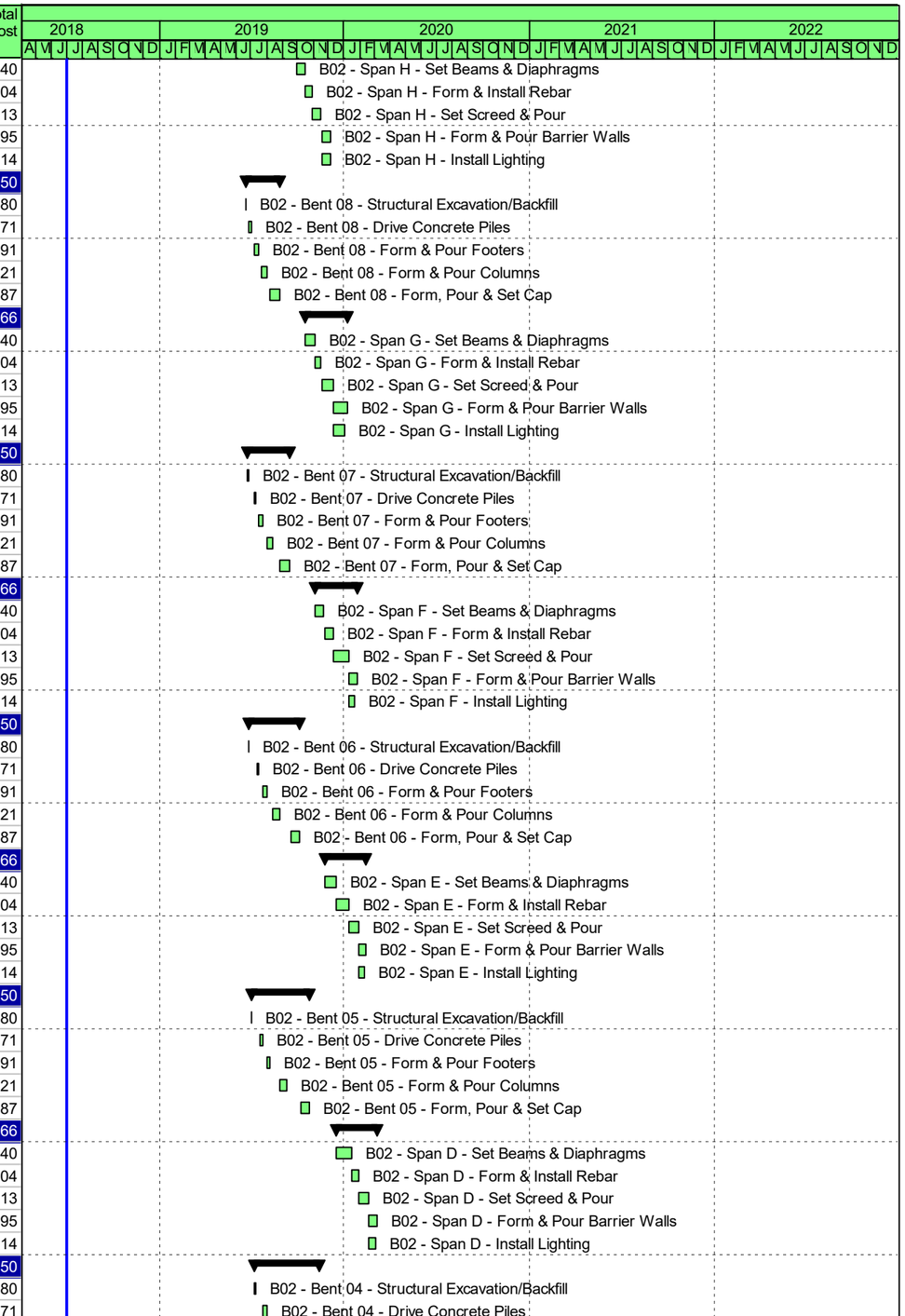


Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE19580	DE07SW.RP.430-438 - Place Plain PC Conc Pavement	4	07-Aug-19	12-Aug-19	0	$310,127.52
DE10 - E-S - I-16EB to I-95SB		**24**	**13-Aug-19**	**19-Sep-19**	**6**	**$844,998.24**
RE52920	Zone A - Ph. 1 - Start Roadway DE10	0	13-Aug-19		6	$0.00
RE52930	Zone A - Ph. 1 - Complete Roadway DE10	0		19-Sep-19	6	$0.00
DE10 - ES - Sta. 800-810 - Ramp		**18**	**13-Aug-19**	**11-Sep-19**	**8**	**$422,499.12**
RE12860	DE10ES.RP.800-810 - Setup Work Zone & Temp Barriers	2	13-Aug-19	14-Aug-19	6	$32,671.00
RE13490	DE10ES.RP.800-810 - Earthwork	4	15-Aug-19	21-Aug-19	6	$34,921.37
RE14800	DE10ES.RP.800-810 - Place GR Aggregate Base Course	4	22-Aug-19	28-Aug-19	8	$20,106.03
RE15370	DE10ES.RP.800-810 - Place Superpave Course	4	29-Aug-19	05-Sep-19	8	$24,673.20
RE15910	DE10ES.RP.800-810 - Place Plain PC Conc Pavement	4	06-Sep-19	11-Sep-19	8	$310,127.52
DE10 - ES - Sta. 810-816 - Ramp		**18**	**22-Aug-19**	**19-Sep-19**	**6**	**$422,499.12**
RE14810	DE10ES.RP.810-816 - Setup Work Zone & Temp Barriers	2	22-Aug-19	26-Aug-19	6	$32,671.00
RE15020	DE10ES.RP.810-816 - Earthwork	4	27-Aug-19	03-Sep-19	6	$34,921.37
RE16130	DE10ES.RP.810-816 - Place GR Aggregate Base Course	4	04-Sep-19	09-Sep-19	6	$20,106.03
RE16680	DE10ES.RP.810-816 - Place Superpave Course	4	10-Sep-19	13-Sep-19	6	$24,673.20
RE16970	DE10ES.RP.810-816 - Place Plain PC Conc Pavement	4	16-Sep-19	19-Sep-19	6	$310,127.52
DE03 - N-E - I-95NB to I-16EB		**40**	**23-Sep-19**	**21-Nov-19**	**6**	**$1,689,996.48**
RE52830	Zone A - Ph. 1 - Start Roadway DE03	0	23-Sep-19		6	$0.00
RE52840	Zone A - Ph. 1 - Complete Roadway DE03	0		21-Nov-19	6	$0.00
DE03 - NE - Sta. 059-070 - Ramp		**19**	**23-Sep-19**	**21-Oct-19**	**15**	**$422,499.12**
RE12820	DE03NE.RP.059-070 - Setup Work Zone & Temp Barriers	2	23-Sep-19	24-Sep-19	6	$32,671.00
RE13450	DE03NE.RP.059-070 - Earthwork	5	25-Sep-19	02-Oct-19	6	$34,921.37
RE14760	DE03NE.RP.059-070 - Place GR Aggregate Base Course	4	03-Oct-19	09-Oct-19	15	$20,106.03
RE15350	DE03NE.RP.059-070 - Place Superpave Course	4	10-Oct-19	15-Oct-19	15	$24,673.20
RE15870	DE03NE.RP.059-070 - Place Plain PC Conc Pavement	4	16-Oct-19	21-Oct-19	15	$310,127.52
DE03 - NE - Sta. 070-080 - Ramp		**19**	**03-Oct-19**	**31-Oct-19**	**12**	**$422,499.12**
RE14770	DE03NE.RP.070-080 - Setup Work Zone & Temp Barriers	2	03-Oct-19	04-Oct-19	6	$32,671.00
RE15000	DE03NE.RP.070-080 - Earthwork	5	08-Oct-19	14-Oct-19	6	$34,921.37
RE16090	DE03NE.RP.070-080 - Place GR Aggregate Base Course	4	15-Oct-19	18-Oct-19	12	$20,106.03
RE16660	DE03NE.RP.070-080 - Place Superpave Course	4	21-Oct-19	24-Oct-19	12	$24,673.20
RE16950	DE03NE.RP.070-080 - Place Plain PC Conc Pavement	4	28-Oct-19	31-Oct-19	12	$310,127.52
DE03 - NE - Sta. 080-090 - Ramp		**19**	**15-Oct-19**	**12-Nov-19**	**9**	**$422,499.12**
RE16100	DE03NE.RP.080-090 - Setup Work Zone & Temp Barriers	2	15-Oct-19	16-Oct-19	6	$32,671.00
RE16430	DE03NE.RP.080-090 - Earthwork	5	17-Oct-19	23-Oct-19	6	$34,921.37
RE17180	DE03NE.RP.080-090 - Place GR Aggregate Base Course	4	24-Oct-19	30-Oct-19	9	$20,106.03
RE17860	DE03NE.RP.080-090 - Place Superpave Course	4	31-Oct-19	05-Nov-19	9	$24,673.20
RE18610	DE03NE.RP.080-090 - Place Plain PC Conc Pavement	4	06-Nov-19	12-Nov-19	9	$310,127.52
DE03 - NE - Sta. 090-096 - Ramp		**19**	**24-Oct-19**	**21-Nov-19**	**6**	**$422,499.12**
RE17190	DE03NE.RP.090-096 - Setup Work Zone & Temp Barriers	2	24-Oct-19	28-Oct-19	6	$32,671.00
RE17520	DE03NE.RP.090-096 - Earthwork	5	29-Oct-19	04-Nov-19	6	$34,921.37
RE18780	DE03NE.RP.090-096 - Place GR Aggregate Base Course	4	05-Nov-19	08-Nov-19	6	$20,106.03
RE19310	DE03NE.RP.090-096 - Place Superpave Course	4	12-Nov-19	15-Nov-19	6	$24,673.20
RE19570	DE03NE.RP.090-096 - Place Plain PC Conc Pavement	4	18-Nov-19	21-Nov-19	6	$310,127.52
DE04 - NB - I-95		**75**	**11-Jun-19**	**10-Oct-19**	**34**	**$3,802,492.08**
RE52850	Zone A - Ph. 1 - Start Roadway DE04	0	11-Jun-19		34	$0.00
RE52860	Zone A - Ph. 1 - Complete Roadway DE04	0		10-Oct-19	34	$0.00
DE04 - NB - Sta. 059-070 - Ramp		**19**	**11-Jun-19**	**11-Jul-19**	**58**	**$422,499.12**
RE12880	DE04NB.RP.059-070 - Setup Work Zone & Temp Barriers	2	11-Jun-19	12-Jun-19	34	$32,671.00
RE13510	DE04NB.RP.059-070 - Earthwork	5	13-Jun-19	19-Jun-19	34	$34,921.37
RE14840	DE04NB.RP.059-070 - Place GR Aggregate Base Course	4	20-Jun-19	25-Jun-19	58	$20,106.03
RE15390	DE04NB.RP.059-070 - Place Superpave Course	4	26-Jun-19	02-Jul-19	58	$24,673.20
RE15930	DE04NB.RP.059-070 - Place Plain PC Conc Pavement	4	08-Jul-19	11-Jul-19	58	$310,127.52
DE04 - NB - Sta. 070-080 - Ramp		**19**	**20-Jun-19**	**23-Jul-19**	**55**	**$422,499.12**
RE14850	DE04NB.RP.070-080 - Setup Work Zone & Temp Barriers	2	20-Jun-19	21-Jun-19	34	$32,671.00
RE15040	DE04NB.RP.070-080 - Earthwork	5	24-Jun-19	01-Jul-19	34	$34,921.37
RE16160	DE04NB.RP.070-080 - Place GR Aggregate Base Course	4	02-Jul-19	10-Jul-19	55	$20,106.03

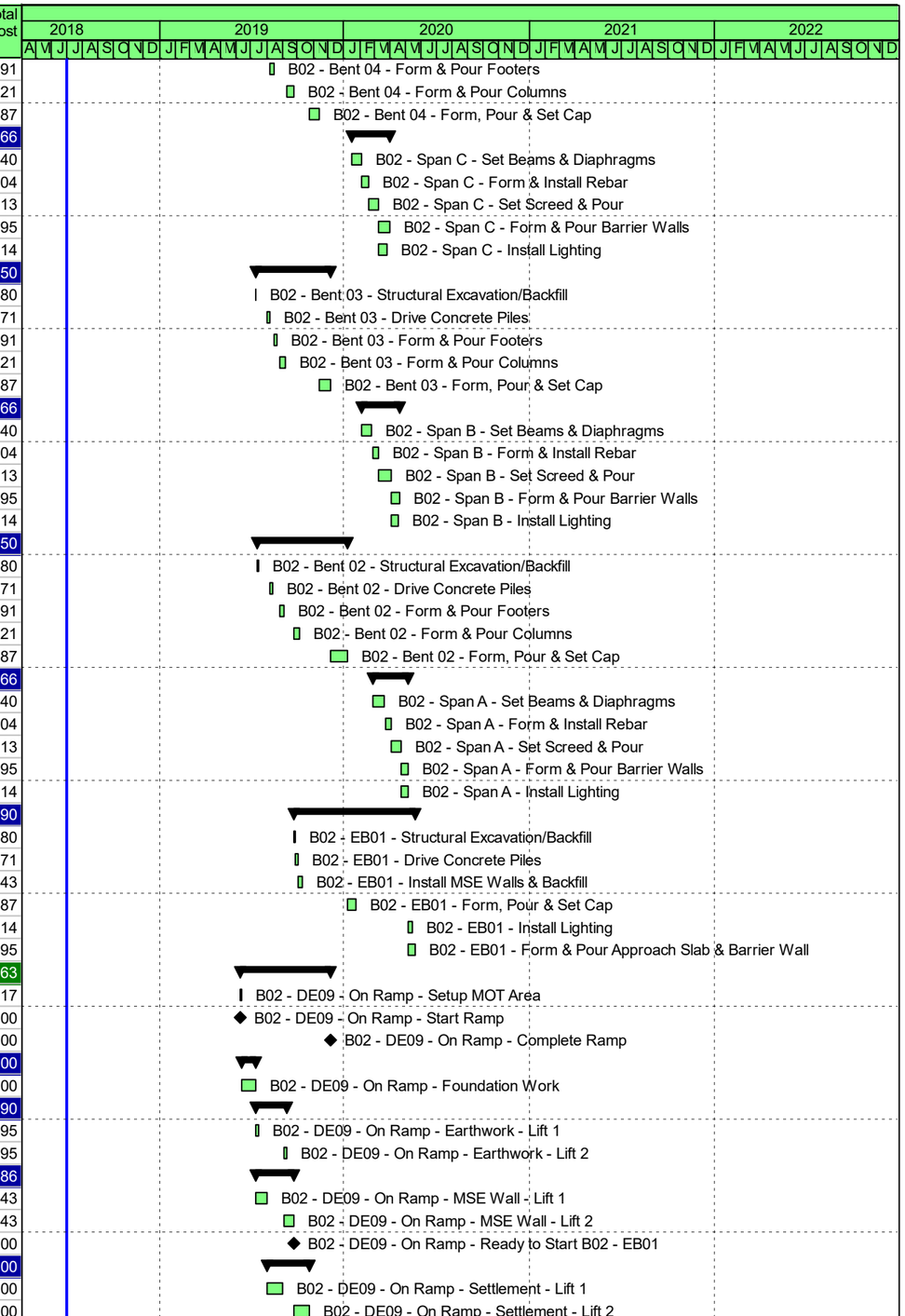


Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE16700	DE04NB.RP.070-080 - Place Superpave Course	4	11-Jul-19	16-Jul-19	55	$24,673.20
RE16990	DE04NB.RP.070-080 - Place Plain PC Conc Pavement	4	17-Jul-19	23-Jul-19	55	$310,127.52
DE04 - NB - Sta. 080-090 - Ramp		**19**	**02-Jul-19**	**02-Aug-19**	**52**	**$422,499.12**
RE16170	DE04NB.RP.080-090 - Setup Work Zone & Temp Barriers	2	02-Jul-19	08-Jul-19	34	$32,671.00
RE16460	DE04NB.RP.080-090 - Earthwork	5	09-Jul-19	15-Jul-19	34	$34,921.37
RE17240	DE04NB.RP.080-090 - Place GR Aggregate Base Course	4	16-Jul-19	22-Jul-19	52	$20,106.03
RE17890	DE04NB.RP.080-090 - Place Superpave Course	4	23-Jul-19	29-Jul-19	52	$24,673.20
RE18640	DE04NB.RP.080-090 - Place Plain PC Conc Pavement	4	30-Jul-19	02-Aug-19	52	$310,127.52
DE04 - NB - Sta. 100-110 - Ramp		**19**	**16-Jul-19**	**13-Aug-19**	**49**	**$422,499.12**
RE17230	DE04NB.RP.100-110 - Setup Work Zone & Temp Barriers	2	16-Jul-19	17-Jul-19	34	$32,671.00
RE17540	DE04NB.RP.100-110 - Earthwork	5	18-Jul-19	25-Jul-19	34	$34,921.37
RE18800	DE04NB.RP.100-110 - Place GR Aggregate Base Course	4	29-Jul-19	01-Aug-19	49	$20,106.03
RE19330	DE04NB.RP.100-110 - Place Superpave Course	4	02-Aug-19	07-Aug-19	49	$24,673.20
RE19590	DE04NB.RP.100-110 - Place Plain PC Conc Pavement	4	08-Aug-19	13-Aug-19	49	$310,127.52
DE04 - NB - Sta. 090-100 - Ramp		**19**	**29-Jul-19**	**26-Aug-19**	**46**	**$422,499.12**
RE18810	DE04NB.RP.090-100 - Setup Work Zone & Temp Barriers	2	29-Jul-19	30-Jul-19	34	$32,671.00
RE19050	DE04NB.RP.090-100 - Earthwork	5	31-Jul-19	06-Aug-19	34	$34,921.37
RE19800	DE04NB.RP.090-100 - Place GR Aggregate Base Course	4	07-Aug-19	12-Aug-19	46	$20,106.03
RE20380	DE04NB.RP.090-100 - Place Superpave Course	4	13-Aug-19	19-Aug-19	46	$24,673.20
RE20660	DE04NB.RP.090-100 - Place Plain PC Conc Pavement	4	20-Aug-19	26-Aug-19	46	$310,127.52
DE04 - NB - Sta. 110-120 - Ramp		**19**	**07-Aug-19**	**06-Sep-19**	**43**	**$422,499.12**
RE19790	DE04NB.RP.110-120 - Setup Work Zone & Temp Barriers	2	07-Aug-19	08-Aug-19	34	$32,671.00
RE20060	DE04NB.RP.110-120 - Earthwork	5	09-Aug-19	15-Aug-19	34	$34,921.37
RE20880	DE04NB.RP.110-120 - Place GR Aggregate Base Course	4	19-Aug-19	22-Aug-19	43	$20,106.03
RE21310	DE04NB.RP.110-120 - Place Superpave Course	4	26-Aug-19	29-Aug-19	43	$24,673.20
RE21640	DE04NB.RP.110-120 - Place Plain PC Conc Pavement	4	03-Sep-19	06-Sep-19	43	$310,127.52
DE04 - NB - Sta. 125-127 - Ramp		**19**	**19-Aug-19**	**17-Sep-19**	**40**	**$422,499.12**
RE20890	DE04NB.RP.125-127 - Setup Work Zone & Temp Barriers	2	19-Aug-19	20-Aug-19	34	$32,671.00
RE21030	DE04NB.RP.125-127 - Earthwork	5	21-Aug-19	28-Aug-19	34	$34,921.37
RE21910	DE04NB.RP.125-127 - Place GR Aggregate Base Course	4	29-Aug-19	05-Sep-19	40	$20,106.03
RE22270	DE04NB.RP.125-127 - Place Superpave Course	4	06-Sep-19	11-Sep-19	40	$24,673.20
RE22800	DE04NB.RP.125-127 - Place Plain PC Conc Pavement	4	12-Sep-19	17-Sep-19	40	$310,127.52
DE04 - NB - Sta. 130-135 - Ramp		**19**	**29-Aug-19**	**30-Sep-19**	**37**	**$422,499.12**
RE21920	DE04NB.RP.130-135 - Setup Work Zone & Temp Barriers	2	29-Aug-19	03-Sep-19	34	$32,671.00
RE22120	DE04NB.RP.130-135 - Earthwork	5	04-Sep-19	10-Sep-19	34	$34,921.37
RE23030	DE04NB.RP.130-135 - Place GR Aggregate Base Course	4	11-Sep-19	16-Sep-19	37	$20,106.03
RE23460	DE04NB.RP.130-135 - Place Superpave Course	4	17-Sep-19	23-Sep-19	37	$24,673.20
RE23880	DE04NB.RP.130-135 - Place Plain PC Conc Pavement	4	24-Sep-19	30-Sep-19	37	$310,127.52
DE04 - NB - Sta. 140-151 - Ramp		**19**	**11-Sep-19**	**10-Oct-19**	**34**	**$422,499.12**
RE23040	DE04NB.RP.140-151 - Setup Work Zone & Temp Barriers	2	11-Sep-19	12-Sep-19	34	$32,671.00
RE23170	DE04NB.RP.140-151 - Earthwork	5	13-Sep-19	19-Sep-19	34	$34,921.37
RE23990	DE04NB.RP.140-151 - Place GR Aggregate Base Course	4	23-Sep-19	26-Sep-19	34	$20,106.03
RE24380	DE04NB.RP.140-151 - Place Superpave Course	4	30-Sep-19	03-Oct-19	34	$24,673.20
RE24690	DE04NB.RP.140-151 - Place Plain PC Conc Pavement	4	04-Oct-19	10-Oct-19	34	$310,127.52
Structure		**346**	**11-Jun-19**	**21-May-20**	**26**	**$21,984,380.36**
B02 - Phase 1 - Bent 09 - EB01		**203**	**11-Jun-19**	**21-May-20**	**15**	**$12,667,560.35**
RE54320	B02 - Phase 1 - Start Bridge	0	11-Jun-19		34	$0.00
RE54330	B02 - Phase 1 - Complete Bridge	0		21-May-20	15	$0.00
B02 - Bent 09		**36**	**11-Jun-19**	**07-Aug-19**	**34**	**$311,554.67**
RE48980	B02 - Phase 1 - Setup MOT Area	5	11-Jun-19	17-Jun-19	34	$16,448.17
RE49410	B02 - Bent 09 - Structural Excavation/Backfill	2	18-Jun-19	19-Jun-19	34	$24,038.80
RE49390	B02 - Bent 09 - Drive Concrete Piles	4	20-Jun-19	25-Jun-19	34	$185,684.71
RE49400	B02 - Bent 09 - Form & Pour Footers	5	26-Jun-19	08-Jul-19	34	$8,847.91
RE49420	B02 - Bent 09 - Form & Pour Columns	8	09-Jul-19	18-Jul-19	34	$54,833.21
RE49430	B02 - Bent 09 - Form, Pour & Set Cap	12	22-Jul-19	07-Aug-19	34	$21,701.87
B02 - Span H - 116 LF		**42**	**30-Sep-19**	**06-Dec-19**	**45**	**$1,186,188.66**

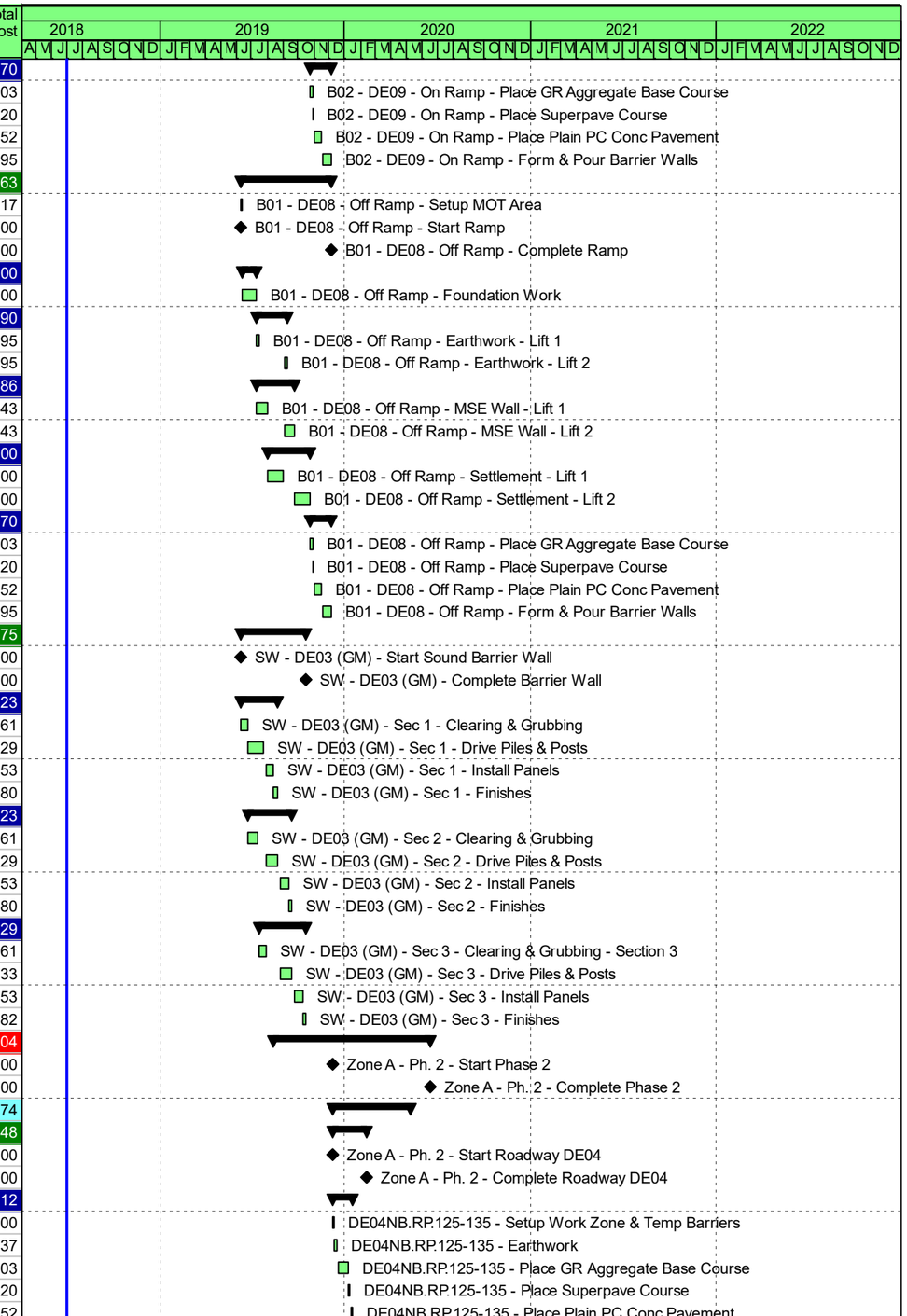
Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE50030	B02 - Span H - Set Beams & Diaphragms	12	30-Sep-19	16-Oct-19	15	$211,878.40
RE50040	B02 - Span H - Form & Install Rebar	8	17-Oct-19	29-Oct-19	15	$59,194.04
RE50050	B02 - Span H - Set Screed & Pour	12	30-Oct-19	15-Nov-19	15	$554,346.13
RE50060	B02 - Span H - Form & Pour Barrier Walls	10	18-Nov-19	06-Dec-19	29	$23,674.95
RE50070	B02 - Span H - Install Lighting	8	18-Nov-19	04-Dec-19	47	$337,095.14
B02 - Bent 08		**41**	**20-Jun-19**	**27-Aug-19**	**34**	**$295,106.50**
RE49360	B02 - Bent 08 - Structural Excavation/Backfill	2	20-Jun-19	21-Jun-19	44	$24,038.80
RE49340	B02 - Bent 08 - Drive Concrete Piles	4	26-Jun-19	02-Jul-19	42	$185,684.71
RE49350	B02 - Bent 08 - Form & Pour Footers	5	09-Jul-19	15-Jul-19	41	$8,847.91
RE49370	B02 - Bent 08 - Form & Pour Columns	8	22-Jul-19	01-Aug-19	38	$54,833.21
RE49380	B02 - Bent 08 - Form, Pour & Set Cap	12	08-Aug-19	27-Aug-19	34	$21,701.87
B02 - Span G - 116 LF		**42**	**17-Oct-19**	**07-Jan-20**	**41**	**$1,186,188.66**
RE49980	B02 - Span G - Set Beams & Diaphragms	12	17-Oct-19	04-Nov-19	15	$211,878.40
RE49990	B02 - Span G - Form & Install Rebar	8	05-Nov-19	15-Nov-19	15	$59,194.04
RE50000	B02 - Span G - Set Screed & Pour	12	18-Nov-19	10-Dec-19	15	$554,346.13
RE50010	B02 - Span G - Form & Pour Barrier Walls	10	11-Dec-19	07-Jan-20	27	$23,674.95
RE50020	B02 - Span G - Install Lighting	8	11-Dec-19	03-Jan-20	43	$337,095.14
B02 - Bent 07		**51**	**24-Jun-19**	**16-Sep-19**	**34**	**$295,106.50**
RE49310	B02 - Bent 07 - Structural Excavation/Backfill	2	24-Jun-19	25-Jun-19	54	$24,038.80
RE49290	B02 - Bent 07 - Drive Concrete Piles	4	08-Jul-19	11-Jul-19	50	$185,684.71
RE49300	B02 - Bent 07 - Form & Pour Footers	5	16-Jul-19	23-Jul-19	48	$8,847.91
RE49320	B02 - Bent 07 - Form & Pour Columns	8	02-Aug-19	13-Aug-19	42	$54,833.21
RE49330	B02 - Bent 07 - Form, Pour & Set Cap	12	28-Aug-19	16-Sep-19	34	$21,701.87
B02 - Span F - 95 LF		**42**	**05-Nov-19**	**27-Jan-20**	**37**	**$1,186,188.66**
RE49930	B02 - Span F - Set Beams & Diaphragms	12	05-Nov-19	21-Nov-19	15	$211,878.40
RE49940	B02 - Span F - Form & Install Rebar	8	25-Nov-19	10-Dec-19	15	$59,194.04
RE49950	B02 - Span F - Set Screed & Pour	12	11-Dec-19	09-Jan-20	15	$554,346.13
RE49960	B02 - Span F - Form & Pour Barrier Walls	10	10-Jan-20	27-Jan-20	25	$23,674.95
RE49970	B02 - Span F - Install Lighting	8	10-Jan-20	22-Jan-20	39	$337,095.14
B02 - Bent 06		**61**	**26-Jun-19**	**04-Oct-19**	**34**	**$295,106.50**
RE49260	B02 - Bent 06 - Structural Excavation/Backfill	2	26-Jun-19	27-Jun-19	64	$24,038.80
RE49240	B02 - Bent 06 - Drive Concrete Piles	4	12-Jul-19	17-Jul-19	58	$185,684.71
RE49250	B02 - Bent 06 - Form & Pour Footers	5	24-Jul-19	31-Jul-19	55	$8,847.91
RE49270	B02 - Bent 06 - Form & Pour Columns	8	14-Aug-19	27-Aug-19	46	$54,833.21
RE49280	B02 - Bent 06 - Form, Pour & Set Cap	12	17-Sep-19	04-Oct-19	34	$21,701.87
B02 - Span E - 82 LF		**42**	**25-Nov-19**	**13-Feb-20**	**33**	**$1,186,188.66**
RE49880	B02 - Span E - Set Beams & Diaphragms	12	25-Nov-19	16-Dec-19	15	$211,878.40
RE49890	B02 - Span E - Form & Install Rebar	8	17-Dec-19	09-Jan-20	15	$59,194.04
RE49900	B02 - Span E - Set Screed & Pour	12	10-Jan-20	29-Jan-20	15	$554,346.13
RE49910	B02 - Span E - Form & Pour Barrier Walls	10	30-Jan-20	13-Feb-20	23	$23,674.95
RE49920	B02 - Span E - Install Lighting	8	30-Jan-20	11-Feb-20	35	$337,095.14
B02 - Bent 05		**71**	**01-Jul-19**	**23-Oct-19**	**34**	**$295,106.50**
RE49220	B02 - Bent 05 - Structural Excavation/Backfill	2	01-Jul-19	02-Jul-19	74	$24,038.80
RE49200	B02 - Bent 05 - Drive Concrete Piles	4	18-Jul-19	24-Jul-19	66	$185,684.71
RE49210	B02 - Bent 05 - Form & Pour Footers	5	01-Aug-19	07-Aug-19	62	$8,847.91
RE49230	B02 - Bent 05 - Form & Pour Columns	8	28-Aug-19	10-Sep-19	50	$54,833.21
RE24900	B02 - Bent 05 - Form, Pour & Set Cap	12	08-Oct-19	23-Oct-19	34	$21,701.87
B02 - Span D - 116 LF		**42**	**17-Dec-19**	**05-Mar-20**	**29**	**$1,186,188.66**
RE49830	B02 - Span D - Set Beams & Diaphragms	12	17-Dec-19	15-Jan-20	15	$211,878.40
RE49840	B02 - Span D - Form & Install Rebar	8	16-Jan-20	29-Jan-20	15	$59,194.04
RE49850	B02 - Span D - Set Screed & Pour	12	30-Jan-20	18-Feb-20	15	$554,346.13
RE49860	B02 - Span D - Form & Pour Barrier Walls	10	19-Feb-20	05-Mar-20	21	$23,674.95
RE49870	B02 - Span D - Install Lighting	8	19-Feb-20	03-Mar-20	31	$337,095.14
B02 - Bent 04		**81**	**08-Jul-19**	**12-Nov-19**	**34**	**$295,106.50**
RE49170	B02 - Bent 04 - Structural Excavation/Backfill	2	08-Jul-19	09-Jul-19	84	$24,038.80
RE49150	B02 - Bent 04 - Drive Concrete Piles	4	25-Jul-19	31-Jul-19	74	$185,684.71



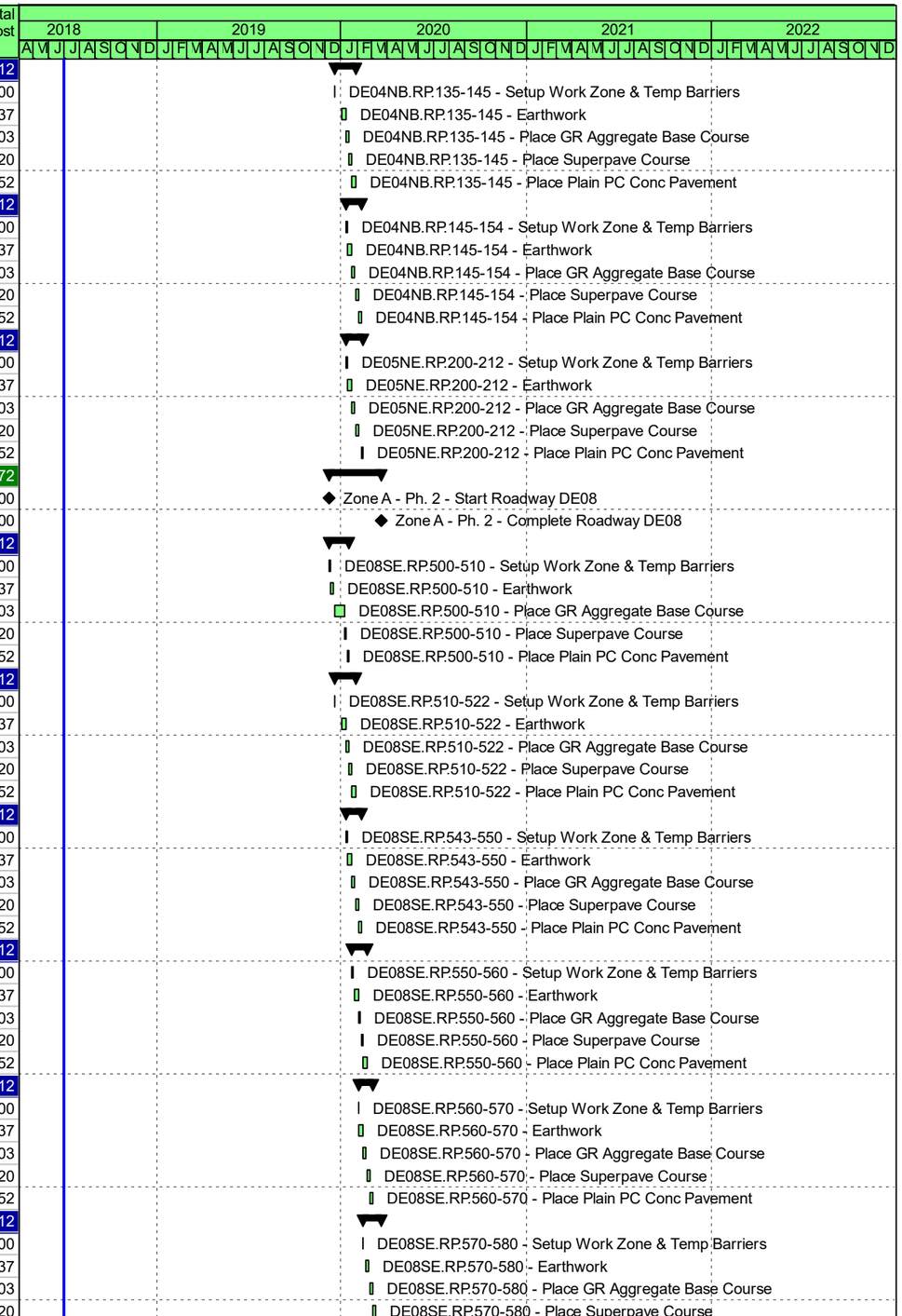
Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE49160	B02 - Bent 04 - Form & Pour Footers	5	08-Aug-19	14-Aug-19	69	$8,847.91
RE49180	B02 - Bent 04 - Form & Pour Columns	8	11-Sep-19	23-Sep-19	54	$54,833.21
RE49190	B02 - Bent 04 - Form, Pour & Set Cap	12	24-Oct-19	12-Nov-19	34	$21,701.87
B02 - Span C - 108 LF		**42**	**16-Jan-20**	**31-Mar-20**	**25**	**$1,186,188.66**
RE49780	B02 - Span C - Set Beams & Diaphragms	12	16-Jan-20	05-Feb-20	15	$211,878.40
RE49790	B02 - Span C - Form & Install Rebar	8	06-Feb-20	18-Feb-20	15	$59,194.04
RE49800	B02 - Span C - Set Screed & Pour	12	19-Feb-20	09-Mar-20	15	$554,346.13
RE49810	B02 - Span C - Form & Pour Barrier Walls	10	10-Mar-20	31-Mar-20	19	$23,674.95
RE49820	B02 - Span C - Install Lighting	8	10-Mar-20	26-Mar-20	27	$337,095.14
B02 - Bent 03		**91**	**10-Jul-19**	**05-Dec-19**	**34**	**$295,106.50**
RE49120	B02 - Bent 03 - Structural Excavation/Backfill	2	10-Jul-19	11-Jul-19	94	$24,038.80
RE49100	B02 - Bent 03 - Drive Concrete Piles	4	01-Aug-19	06-Aug-19	82	$185,684.71
RE49110	B02 - Bent 03 - Form & Pour Footers	5	15-Aug-19	22-Aug-19	76	$8,847.91
RE49130	B02 - Bent 03 - Form & Pour Columns	8	26-Aug-19	06-Sep-19	76	$54,833.21
RE49140	B02 - Bent 03 - Form, Pour & Set Cap	12	13-Nov-19	05-Dec-19	34	$21,701.87
B02 - Span B - 108 LF		**42**	**06-Feb-20**	**20-Apr-20**	**21**	**$1,186,188.66**
RE49740	B02 - Span B - Set Beams & Diaphragms	12	06-Feb-20	25-Feb-20	15	$211,878.40
RE49750	B02 - Span B - Form & Install Rebar	8	26-Feb-20	09-Mar-20	15	$59,194.04
RE49760	B02 - Span B - Set Screed & Pour	12	10-Mar-20	02-Apr-20	15	$554,346.13
RE49770	B02 - Span B - Form & Pour Barrier Walls	10	03-Apr-20	20-Apr-20	17	$23,674.95
RE26670	B02 - Span B - Install Lighting	8	03-Apr-20	16-Apr-20	23	$337,095.14
B02 - Bent 02		**101**	**12-Jul-19**	**06-Jan-20**	**34**	**$295,106.50**
RE49070	B02 - Bent 02 - Structural Excavation/Backfill	2	12-Jul-19	15-Jul-19	104	$24,038.80
RE49050	B02 - Bent 02 - Drive Concrete Piles	4	07-Aug-19	12-Aug-19	90	$185,684.71
RE49060	B02 - Bent 02 - Form & Pour Footers	5	26-Aug-19	03-Sep-19	83	$8,847.91
RE49080	B02 - Bent 02 - Form & Pour Columns	8	24-Sep-19	04-Oct-19	70	$54,833.21
RE49090	B02 - Bent 02 - Form, Pour & Set Cap	12	06-Dec-19	06-Jan-20	34	$21,701.87
B02 - Span A - 108 LF		**42**	**26-Feb-20**	**07-May-20**	**17**	**$1,186,188.66**
RE49690	B02 - Span A - Set Beams & Diaphragms	12	26-Feb-20	19-Mar-20	15	$211,878.40
RE49700	B02 - Span A - Form & Install Rebar	8	23-Mar-20	02-Apr-20	15	$59,194.04
RE49710	B02 - Span A - Set Screed & Pour	12	03-Apr-20	22-Apr-20	15	$554,346.13
RE49720	B02 - Span A - Form & Pour Barrier Walls	10	23-Apr-20	07-May-20	15	$23,674.95
RE49730	B02 - Span A - Install Lighting	8	23-Apr-20	05-May-20	19	$337,095.14
B02 - End Bent 01		**139**	**24-Sep-19**	**21-May-20**	**15**	**$800,750.90**
RE49000	B02 - EB01 - Structural Excavation/Backfill	2	24-Sep-19	25-Sep-19	80	$24,038.80
RE48990	B02 - EB01 - Drive Concrete Piles	3	26-Sep-19	01-Oct-19	80	$185,684.71
RE49020	B02 - EB01 - Install MSE Walls & Backfill	5	02-Oct-19	09-Oct-19	80	$208,555.43
RE49010	B02 - EB01 - Form, Pour & Set Cap	12	07-Jan-20	23-Jan-20	34	$21,701.87
RE49040	B02 - EB01 - Install Lighting	8	06-May-20	15-May-20	19	$337,095.14
RE49030	B02 - EB01 - Form & Pour Approach Slab & Barrier Wall	10	08-May-20	21-May-20	15	$23,674.95
B02 - On Ramp - Earthwork & MSE Walls		**179**	**11-Jun-19**	**06-Dec-19**	**68**	**$1,157,930.63**
RE12930	B02 - DE09 - On Ramp - Setup MOT Area	2	11-Jun-19	12-Jun-19	1	$16,448.17
RE12940	B02 - DE09 - On Ramp - Start Ramp	0	11-Jun-19		1	$0.00
RE35700	B02 - DE09 - On Ramp - Complete Ramp	0		06-Dec-19	0	$0.00
Lift Prep		**16**	**13-Jun-19**	**10-Jul-19**	**1**	**$0.00**
RE48830	B02 - DE09 - On Ramp - Foundation Work	16	13-Jun-19	10-Jul-19	1	$0.00
Earthwork		**37**	**11-Jul-19**	**09-Sep-19**	**9**	**$345,789.90**
RE13670	B02 - DE09 - On Ramp - Earthwork - Lift 1	5	11-Jul-19	17-Jul-19	10	$172,894.95
RE18400	B02 - DE09 - On Ramp - Earthwork - Lift 2	5	03-Sep-19	09-Sep-19	9	$172,894.95
MSE Walls		**46**	**11-Jul-19**	**23-Sep-19**	**80**	**$417,110.86**
RE13680	B02 - DE09 - On Ramp - MSE Wall - Lift 1	14	11-Jul-19	01-Aug-19	1	$208,555.43
RE18410	B02 - DE09 - On Ramp - MSE Wall - Lift 2	14	03-Sep-19	23-Sep-19	0	$208,555.43
RE54310	B02 - DE09 - On Ramp - Ready to Start B02 - EB01	0		23-Sep-19	80	$0.00
Settlement		**83**	**02-Aug-19**	**23-Oct-19**	**0**	**$0.00**
RE16300	B02 - DE09 - On Ramp - Settlement - Lift 1	30	02-Aug-19	31-Aug-19	2	$0.00
RE20170	B02 - DE09 - On Ramp - Settlement - Lift 2	30	24-Sep-19	23-Oct-19	0	$0.00



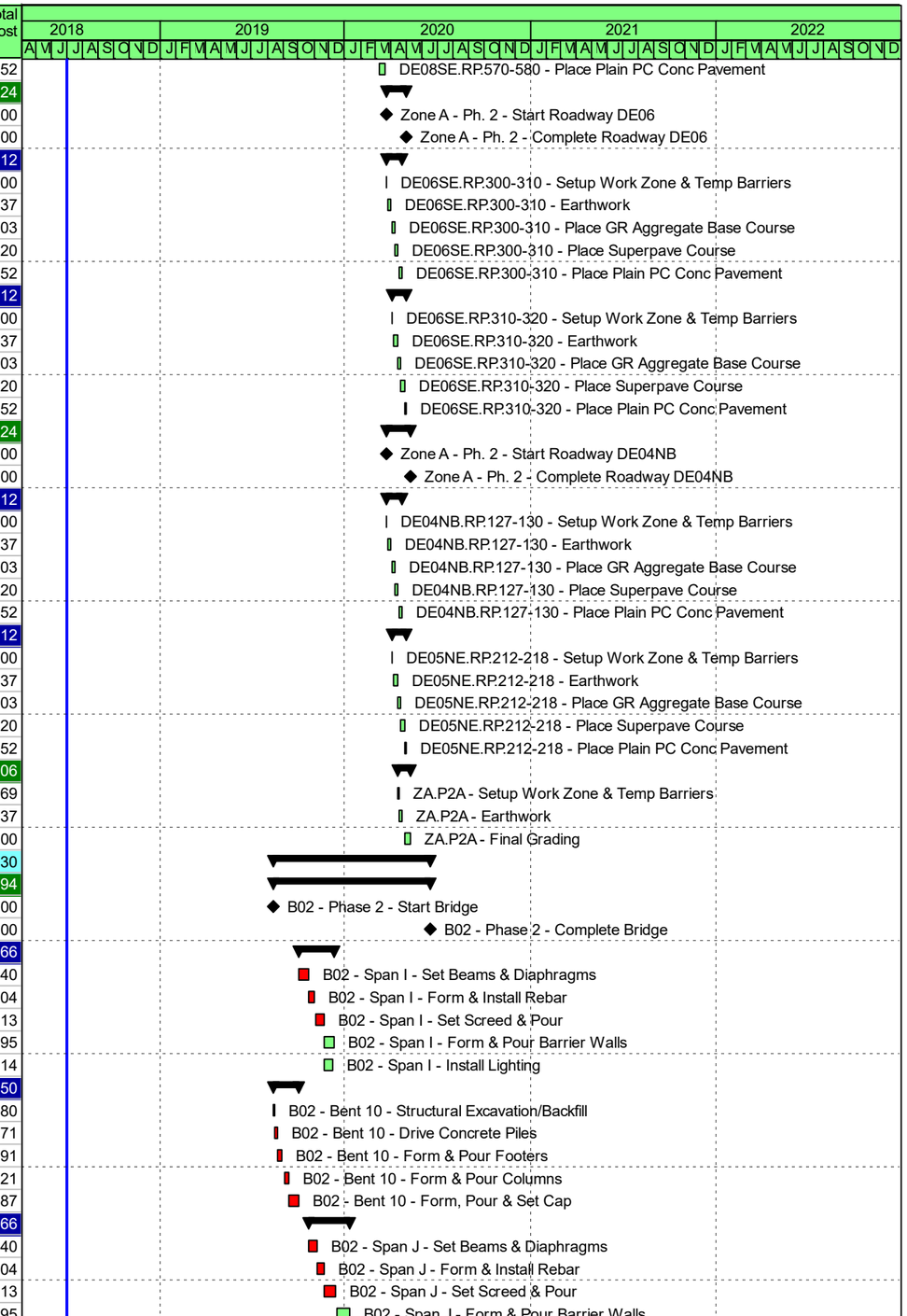
Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
Ramp Paving		25	24-Oct-19	06-Dec-19	0	$378,581.70
RE48840	B02 - DE09 - On Ramp - Place GR Aggregate Base Course	3	24-Oct-19	29-Oct-19	0	$20,106.03
RE48850	B02 - DE09 - On Ramp - Place Superpave Course	2	30-Oct-19	31-Oct-19	0	$24,673.20
RE48860	B02 - DE09 - On Ramp - Place Plain PC Conc Pavement	10	01-Nov-19	15-Nov-19	0	$310,127.52
RE31470	B02 - DE09 - On Ramp - Form & Pour Barrier Walls	10	18-Nov-19	06-Dec-19	0	$23,674.95
B01 - Off Ramp - Earthwork & MSE Walls		179	11-Jun-19	06-Dec-19	0	$1,157,930.63
RE52940	B01 - DE08 - Off Ramp - Setup MOT Area	2	11-Jun-19	12-Jun-19	1	$16,448.17
RE52950	B01 - DE08 - Off Ramp - Start Ramp	0	11-Jun-19		1	$0.00
RE52960	B01 - DE08 - Off Ramp - Complete Ramp	0		06-Dec-19	0	$0.00
Lift Prep		16	13-Jun-19	10-Jul-19	1	$0.00
RE53070	B01 - DE08 - Off Ramp - Foundation Work	16	13-Jun-19	10-Jul-19	1	$0.00
Earthwork		37	11-Jul-19	09-Sep-19	9	$345,789.90
RE52970	B01 - DE08 - Off Ramp - Earthwork - Lift 1	5	11-Jul-19	17-Jul-19	10	$172,894.95
RE52980	B01 - DE08 - Off Ramp - Earthwork - Lift 2	5	03-Sep-19	09-Sep-19	9	$172,894.95
MSE Walls		46	11-Jul-19	23-Sep-19	0	$417,110.86
RE52990	B01 - DE08 - Off Ramp - MSE Wall - Lift 1	14	11-Jul-19	01-Aug-19	1	$208,555.43
RE53000	B01 - DE08 - Off Ramp - MSE Wall - Lift 2	14	03-Sep-19	23-Sep-19	0	$208,555.43
Settlement		83	02-Aug-19	23-Oct-19	0	$0.00
RE53010	B01 - DE08 - Off Ramp - Settlement - Lift 1	30	02-Aug-19	31-Aug-19	2	$0.00
RE53020	B01 - DE08 - Off Ramp - Settlement - Lift 2	30	24-Sep-19	23-Oct-19	0	$0.00
Ramp Paving		25	24-Oct-19	06-Dec-19	0	$378,581.70
RE53040	B01 - DE08 - Off Ramp - Place GR Aggregate Base Course	3	24-Oct-19	29-Oct-19	0	$20,106.03
RE53060	B01 - DE08 - Off Ramp - Place Superpave Course	2	30-Oct-19	31-Oct-19	0	$24,673.20
RE53050	B01 - DE08 - Off Ramp - Place Plain PC Conc Pavement	10	01-Nov-19	15-Nov-19	0	$310,127.52
RE53030	B01 - DE08 - Off Ramp - Form & Pour Barrier Walls	10	18-Nov-19	06-Dec-19	0	$23,674.95
Sound Barrier Wall (DE03)		80	11-Jun-19	17-Oct-19	29	$7,000,958.75
RE54710	SW - DE03 (GM) - Start Sound Barrier Wall	0	11-Jun-19		29	$0.00
RE54720	SW - DE03 (GM) - Complete Barrier Wall	0		17-Oct-19	29	$0.00
Sound Barrier Wall (DE03) - Section 1		45	11-Jun-19	21-Aug-19	54	$2,351,068.23
RE00590	SW - DE03 (GM) - Sec 1 - Clearing & Grubbing	10	11-Jun-19	24-Jun-19	29	$522,459.61
RE00610	SW - DE03 (GM) - Sec 1 - Drive Piles & Posts	18	25-Jun-19	25-Jul-19	29	$940,427.29
RE00630	SW - DE03 (GM) - Sec 1 - Install Panels	12	29-Jul-19	13-Aug-19	47	$626,951.53
RE00640	SW - DE03 (GM) - Sec 1 - Finishes	5	14-Aug-19	21-Aug-19	54	$261,229.80
Sound Barrier Wall (DE03) - Section 2		53	25-Jun-19	19-Sep-19	41	$2,351,068.23
RE54800	SW - DE03 (GM) - Sec 2 - Clearing & Grubbing	10	25-Jun-19	12-Jul-19	37	$522,459.61
RE54810	SW - DE03 (GM) - Sec 2 - Drive Piles & Posts	18	29-Jul-19	22-Aug-19	29	$940,427.29
RE54830	SW - DE03 (GM) - Sec 2 - Install Panels	12	26-Aug-19	12-Sep-19	41	$626,951.53
RE54840	SW - DE03 (GM) - Sec 2 - Finishes	5	13-Sep-19	19-Sep-19	41	$261,229.80
Sound Barrier Wall (DE03) - Section 3		60	15-Jul-19	17-Oct-19	29	$2,298,822.29
RE00600	SW - DE03 (GM) - Sec 3 - Clearing & Grubbing - Section 3	10	15-Jul-19	30-Jul-19	45	$522,459.61
RE54850	SW - DE03 (GM) - Sec 3 - Drive Piles & Posts	17	26-Aug-19	19-Sep-19	29	$888,181.33
RE54870	SW - DE03 (GM) - Sec 3 - Install Panels	12	23-Sep-19	10-Oct-19	29	$626,951.53
RE54880	SW - DE03 (GM) - Sec 3 - Finishes	5	11-Oct-19	17-Oct-19	29	$261,229.82
Zone A- Ph 2 - DE05, DE06, I-95 E, B02, B03 Stage 1		309	13-Aug-19	16-Jun-20	0	$24,761,020.04
RE53380	Zone A - Ph. 2 - Start Phase 2	0	09-Dec-19		0	$0.00
RE53390	Zone A - Ph. 2 - Complete Phase 2	0		16-Jun-20	0	$0.00
Roadway		85	09-Dec-19	08-May-20	24	$5,966,132.74
DE04 - I-95 CD Lanes		37	09-Dec-19	14-Feb-20	46	$1,689,996.48
RE53400	Zone A - Ph. 2 - Start Roadway DE04	0	09-Dec-19		46	$0.00
RE53410	Zone A - Ph. 2 - Complete Roadway DE04	0		14-Feb-20	46	$0.00
DE04 - NB - Sta. 130-135 - Ramp		19	09-Dec-19	16-Jan-20	52	$422,499.12
RE12490	DE04NB.RP.125-135 - Setup Work Zone & Temp Barriers	2	09-Dec-19	10-Dec-19	46	$32,671.00
RE13230	DE04NB.RP.125-135 - Earthwork	5	11-Dec-19	17-Dec-19	46	$34,921.37
RE14530	DE04NB.RP.125-135 - Place GR Aggregate Base Course	4	18-Dec-19	06-Jan-20	52	$20,106.03
RE15170	DE04NB.RP.125-135 - Place Superpave Course	4	07-Jan-20	10-Jan-20	52	$24,673.20
RE15690	DE04NB.RP.125-135 - Place Plain PC Conc Pavement	4	13-Jan-20	16-Jan-20	52	$310,127.52



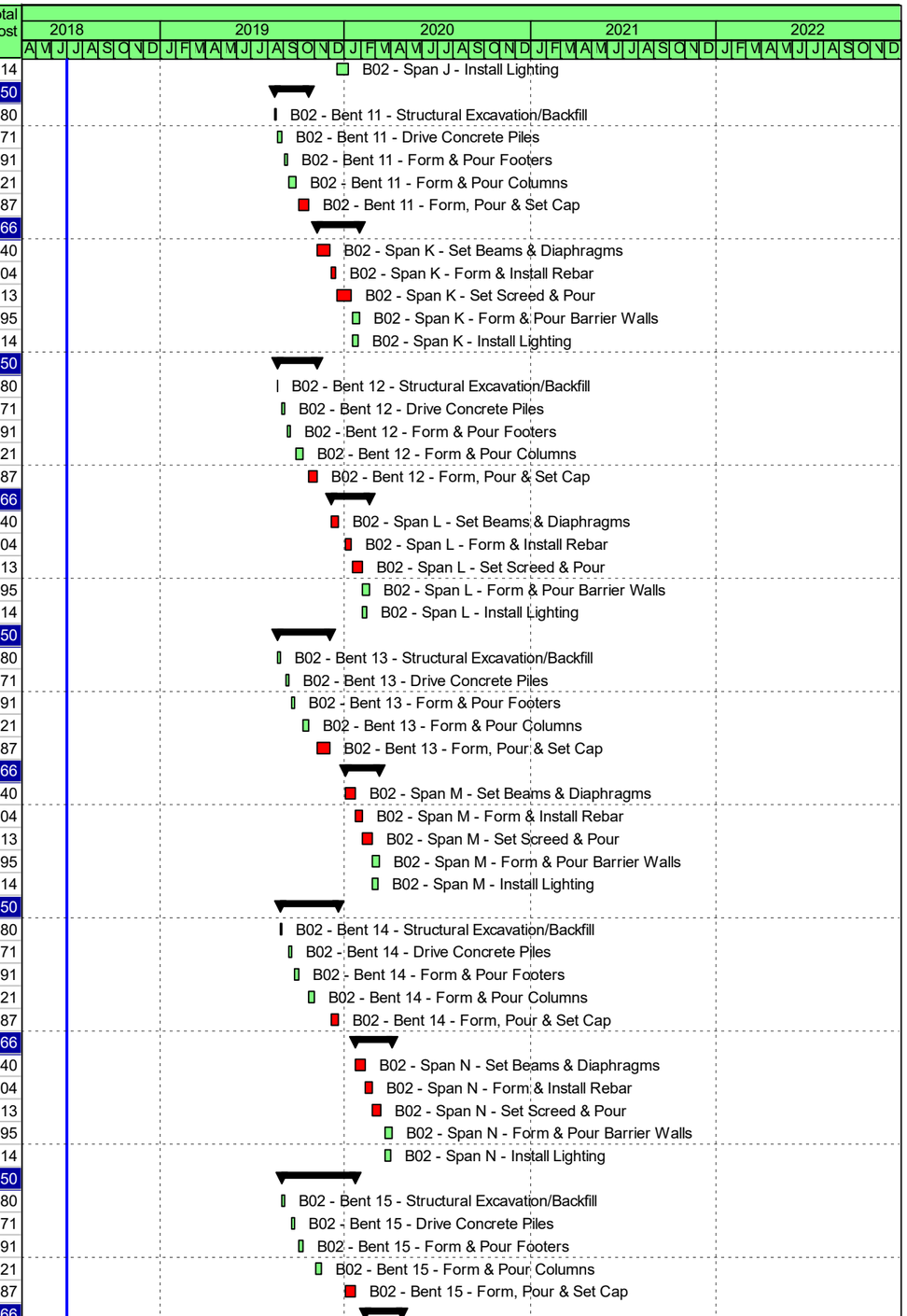
Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
DE04 - NB - Sta. 135-145 - Ramp		**19**	**18-Dec-19**	**29-Jan-20**	**49**	**$422,499.12**
RE12500	DE04NB.RP.135-145 - Setup Work Zone & Temp Barriers	2	18-Dec-19	19-Dec-19	46	$32,671.00
RE13240	DE04NB.RP.135-145 - Earthwork	5	03-Jan-20	09-Jan-20	46	$34,921.37
RE14540	DE04NB.RP.135-145 - Place GR Aggregate Base Course	4	10-Jan-20	15-Jan-20	49	$20,106.03
RE15180	DE04NB.RP.135-145 - Place Superpave Course	4	16-Jan-20	22-Jan-20	49	$24,673.20
RE15700	DE04NB.RP.135-145 - Place Plain PC Conc Pavement	4	23-Jan-20	29-Jan-20	49	$310,127.52
DE04 - NB - Sta. 145-154 - Ramp		**19**	**10-Jan-20**	**10-Feb-20**	**46**	**$422,499.12**
RE12480	DE04NB.RP.145-154 - Setup Work Zone & Temp Barriers	2	10-Jan-20	13-Jan-20	46	$32,671.00
RE13220	DE04NB.RP.145-154 - Earthwork	5	14-Jan-20	21-Jan-20	46	$34,921.37
RE14520	DE04NB.RP.145-154 - Place GR Aggregate Base Course	4	22-Jan-20	28-Jan-20	46	$20,106.03
RE15160	DE04NB.RP.145-154 - Place Superpave Course	4	29-Jan-20	04-Feb-20	46	$24,673.20
RE15680	DE04NB.RP.145-154 - Place Plain PC Conc Pavement	4	05-Feb-20	10-Feb-20	46	$310,127.52
DE05 - NE - Sta. 200-212 - Loop		**23**	**10-Jan-20**	**14-Feb-20**	**46**	**$422,499.12**
RE12910	DE05NE.RP.200-212 - Setup Work Zone & Temp Barriers	2	10-Jan-20	13-Jan-20	50	$32,671.00
RE13520	DE05NE.RP.200-212 - Earthwork	5	14-Jan-20	21-Jan-20	50	$34,921.37
RE15940	DE05NE.RP.200-212 - Place GR Aggregate Base Course	4	22-Jan-20	28-Jan-20	50	$20,106.03
RE16580	DE05NE.RP.200-212 - Place Superpave Course	4	29-Jan-20	04-Feb-20	50	$24,673.20
RE16880	DE05NE.RP.200-212 - Place Plain PC Conc Pavement	4	11-Feb-20	14-Feb-20	46	$310,127.52
DE08 - I-95SB to I-16EB		**54**	**09-Dec-19**	**19-Mar-20**	**24**	**$2,534,994.72**
RE52880	Zone A - Ph. 2 - Start Roadway DE08	0	09-Dec-19		24	$0.00
RE52890	Zone A - Ph. 2 - Complete Roadway DE08	0		19-Mar-20	24	$0.00
DE08 - SE - Sta. 500-510 - Ramp		**19**	**09-Dec-19**	**16-Jan-20**	**39**	**$422,499.12**
RE12510	DE08SE.RP.500-510 - Setup Work Zone & Temp Barriers	2	09-Dec-19	10-Dec-19	24	$32,671.00
RE13250	DE08SE.RP.500-510 - Earthwork	5	11-Dec-19	17-Dec-19	24	$34,921.37
RE14550	DE08SE.RP.500-510 - Place GR Aggregate Base Course	4	18-Dec-19	06-Jan-20	39	$20,106.03
RE15190	DE08SE.RP.500-510 - Place Superpave Course	4	07-Jan-20	10-Jan-20	39	$24,673.20
RE15710	DE08SE.RP.500-510 - Place Plain PC Conc Pavement	4	13-Jan-20	16-Jan-20	39	$310,127.52
DE08 - SE - Sta. 510-522 - Ramp		**19**	**18-Dec-19**	**29-Jan-20**	**36**	**$422,499.12**
RE12520	DE08SE.RP.510-522 - Setup Work Zone & Temp Barriers	2	18-Dec-19	19-Dec-19	24	$32,671.00
RE13260	DE08SE.RP.510-522 - Earthwork	5	03-Jan-20	09-Jan-20	24	$34,921.37
RE14560	DE08SE.RP.510-522 - Place GR Aggregate Base Course	4	10-Jan-20	15-Jan-20	36	$20,106.03
RE15200	DE08SE.RP.510-522 - Place Superpave Course	4	16-Jan-20	22-Jan-20	36	$24,673.20
RE15720	DE08SE.RP.510-522 - Place Plain PC Conc Pavement	4	23-Jan-20	29-Jan-20	36	$310,127.52
DE08 - SE - Sta. 543-550 - Ramp		**19**	**10-Jan-20**	**10-Feb-20**	**33**	**$422,499.12**
RE12530	DE08SE.RP.543-550 - Setup Work Zone & Temp Barriers	2	10-Jan-20	13-Jan-20	24	$32,671.00
RE13270	DE08SE.RP.543-550 - Earthwork	5	14-Jan-20	21-Jan-20	24	$34,921.37
RE14570	DE08SE.RP.543-550 - Place GR Aggregate Base Course	4	22-Jan-20	28-Jan-20	33	$20,106.03
RE15210	DE08SE.RP.543-550 - Place Superpave Course	4	29-Jan-20	04-Feb-20	33	$24,673.20
RE15730	DE08SE.RP.543-550 - Place Plain PC Conc Pavement	4	05-Feb-20	10-Feb-20	33	$310,127.52
DE08 - SE - Sta. 550-560 - Ramp		**19**	**22-Jan-20**	**20-Feb-20**	**30**	**$422,499.12**
RE12540	DE08SE.RP.550-560 - Setup Work Zone & Temp Barriers	2	22-Jan-20	23-Jan-20	24	$32,671.00
RE13280	DE08SE.RP.550-560 - Earthwork	5	27-Jan-20	03-Feb-20	24	$34,921.37
RE14580	DE08SE.RP.550-560 - Place GR Aggregate Base Course	4	04-Feb-20	07-Feb-20	30	$20,106.03
RE15220	DE08SE.RP.550-560 - Place Superpave Course	4	10-Feb-20	13-Feb-20	30	$24,673.20
RE15740	DE08SE.RP.550-560 - Place Plain PC Conc Pavement	4	14-Feb-20	20-Feb-20	30	$310,127.52
DE08 - SE - Sta. 560-570 - Ramp		**19**	**04-Feb-20**	**04-Mar-20**	**27**	**$422,499.12**
RE12550	DE08SE.RP.560-570 - Setup Work Zone & Temp Barriers	2	04-Feb-20	05-Feb-20	24	$32,671.00
RE13290	DE08SE.RP.560-570 - Earthwork	5	06-Feb-20	12-Feb-20	24	$34,921.37
RE14590	DE08SE.RP.560-570 - Place GR Aggregate Base Course	4	13-Feb-20	19-Feb-20	27	$20,106.03
RE15230	DE08SE.RP.560-570 - Place Superpave Course	4	20-Feb-20	26-Feb-20	27	$24,673.20
RE15750	DE08SE.RP.560-570 - Place Plain PC Conc Pavement	4	27-Feb-20	04-Mar-20	27	$310,127.52
DE08 - SE - Sta. 570-580 - Ramp		**19**	**13-Feb-20**	**19-Mar-20**	**24**	**$422,499.12**
RE12560	DE08SE.RP.570-580 - Setup Work Zone & Temp Barriers	2	13-Feb-20	14-Feb-20	24	$32,671.00
RE13300	DE08SE.RP.570-580 - Earthwork	5	18-Feb-20	25-Feb-20	24	$34,921.37
RE14600	DE08SE.RP.570-580 - Place GR Aggregate Base Course	4	26-Feb-20	03-Mar-20	24	$20,106.03
RE15240	DE08SE.RP.570-580 - Place Superpave Course	4	04-Mar-20	09-Mar-20	24	$24,673.20



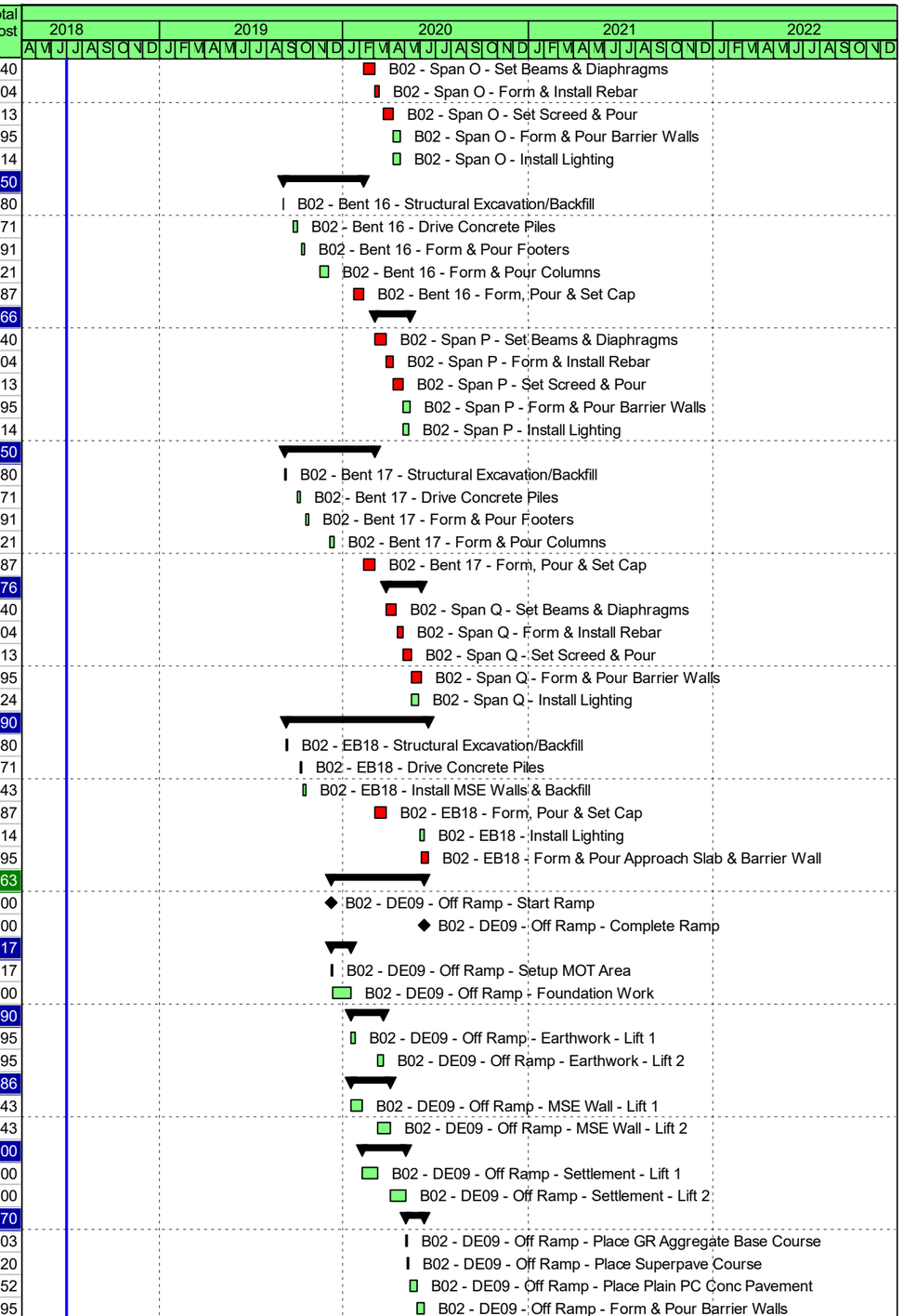
Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE15760	DE08SE.RP.570-580 - Place Plain PC Conc Pavement	4	10-Mar-20	19-Mar-20	24	$310,127.52
DE06 - SE Loop		**26**	**23-Mar-20**	**01-May-20**	**29**	**$844,998.24**
RE53420	Zone A - Ph. 2 - Start Roadway DE06	0	23-Mar-20		29	$0.00
RE53430	Zone A - Ph. 2 - Complete Roadway DE06	0		01-May-20	29	$0.00
DE06 - SE - Sta. 300-310 - Loop		**19**	**23-Mar-20**	**21-Apr-20**	**32**	**$422,499.12**
RE12830	DE06SE.RP.300-310 - Setup Work Zone & Temp Barriers	2	23-Mar-20	24-Mar-20	29	$32,671.00
RE13460	DE06SE.RP.300-310 - Earthwork	5	25-Mar-20	01-Apr-20	29	$34,921.37
RE15880	DE06SE.RP.300-310 - Place GR Aggregate Base Course	4	02-Apr-20	07-Apr-20	32	$20,106.03
RE16560	DE06SE.RP.300-310 - Place Superpave Course	4	08-Apr-20	15-Apr-20	32	$24,673.20
RE16860	DE06SE.RP.300-310 - Place Plain PC Conc Pavement	4	16-Apr-20	21-Apr-20	32	$310,127.52
DE06 - SE - Sta. 310-320 - Loop		**19**	**02-Apr-20**	**01-May-20**	**29**	**$422,499.12**
RE12840	DE06SE.RP.310-320 - Setup Work Zone & Temp Barriers	2	02-Apr-20	03-Apr-20	29	$32,671.00
RE13470	DE06SE.RP.310-320 - Earthwork	5	06-Apr-20	14-Apr-20	29	$34,921.37
RE15890	DE06SE.RP.310-320 - Place GR Aggregate Base Course	4	15-Apr-20	20-Apr-20	29	$20,106.03
RE16570	DE06SE.RP.310-320 - Place Superpave Course	4	21-Apr-20	27-Apr-20	29	$24,673.20
RE16870	DE06SE.RP.310-320 - Place Plain PC Conc Pavement	4	28-Apr-20	01-May-20	29	$310,127.52
Tie-ins N-W Ramps		**31**	**23-Mar-20**	**08-May-20**	**24**	**$844,998.24**
RE53440	Zone A - Ph. 2 - Start Roadway DE04NB	0	23-Mar-20		24	$0.00
RE53450	Zone A - Ph. 2 - Complete Roadway DE04NB	0		08-May-20	24	$0.00
DE04 - NB - Sta. 127-130 - Ramp		**19**	**23-Mar-20**	**21-Apr-20**	**32**	**$422,499.12**
RE48550	DE04NB.RP.127-130 - Setup Work Zone & Temp Barriers	2	23-Mar-20	24-Mar-20	24	$32,671.00
RE10160	DE04NB.RP.127-130 - Earthwork	5	25-Mar-20	01-Apr-20	24	$34,921.37
RE10200	DE04NB.RP.127-130 - Place GR Aggregate Base Course	4	02-Apr-20	07-Apr-20	32	$20,106.03
RE10220	DE04NB.RP.127-130 - Place Superpave Course	4	08-Apr-20	15-Apr-20	32	$24,673.20
RE10290	DE04NB.RP.127-130 - Place Plain PC Conc Pavement	4	16-Apr-20	21-Apr-20	32	$310,127.52
DE05 - NE - Sta. 212-218 - Loop		**19**	**02-Apr-20**	**01-May-20**	**29**	**$422,499.12**
RE12990	DE05NE.RP.212-218 - Setup Work Zone & Temp Barriers	2	02-Apr-20	03-Apr-20	24	$32,671.00
RE13530	DE05NE.RP.212-218 - Earthwork	5	06-Apr-20	14-Apr-20	24	$34,921.37
RE15950	DE05NE.RP.212-218 - Place GR Aggregate Base Course	4	15-Apr-20	20-Apr-20	29	$20,106.03
RE16590	DE05NE.RP.212-218 - Place Superpave Course	4	21-Apr-20	27-Apr-20	29	$24,673.20
RE16890	DE05NE.RP.212-218 - Place Plain PC Conc Pavement	4	28-Apr-20	01-May-20	29	$310,127.52
Demo E-N Ramp		**17**	**15-Apr-20**	**08-May-20**	**24**	**$51,145.06**
RE28910	ZA.P2A - Setup Work Zone & Temp Barriers	2	15-Apr-20	16-Apr-20	24	$16,223.69
RE29150	ZA.P2A - Earthwork	5	17-Apr-20	23-Apr-20	24	$34,921.37
RE30260	ZA.P2A - Final Grading	10	27-Apr-20	08-May-20	24	$0.00
Structure		**309**	**13-Aug-19**	**16-Jun-20**	**0**	**$18,794,887.30**
B02 - Phase 2 - Bent 09 - EB18		**179**	**13-Aug-19**	**16-Jun-20**	**0**	**$13,837,300.94**
RE54340	B02 - Phase 2 - Start Bridge	0	13-Aug-19		0	$0.00
RE54350	B02 - Phase 2 - Complete Bridge	0		16-Jun-20	0	$0.00
B02 - Span I - 116 LF		**42**	**03-Oct-19**	**11-Dec-19**	**34**	**$1,186,188.66**
RE50090	B02 - Span I - Set Beams & Diaphragms	12	03-Oct-19	21-Oct-19	0	$211,878.40
RE50100	B02 - Span I - Form & Install Rebar	8	22-Oct-19	01-Nov-19	0	$59,194.04
RE30140	B02 - Span I - Set Screed & Pour	12	04-Nov-19	20-Nov-19	0	$554,346.13
RE50080	B02 - Span I - Form & Pour Barrier Walls	10	21-Nov-19	11-Dec-19	16	$23,674.95
RE50110	B02 - Span I - Install Lighting	8	21-Nov-19	09-Dec-19	36	$337,095.14
B02 - Bent 10		**31**	**13-Aug-19**	**02-Oct-19**	**0**	**$295,106.50**
RE49460	B02 - Bent 10 - Structural Excavation/Backfill	2	13-Aug-19	14-Aug-19	0	$24,038.80
RE49440	B02 - Bent 10 - Drive Concrete Piles	4	15-Aug-19	21-Aug-19	0	$185,684.71
RE49450	B02 - Bent 10 - Form & Pour Footers	5	22-Aug-19	29-Aug-19	0	$8,847.91
RE49470	B02 - Bent 10 - Form & Pour Columns	8	03-Sep-19	12-Sep-19	0	$54,833.21
RE49480	B02 - Bent 10 - Form, Pour & Set Cap	12	13-Sep-19	02-Oct-19	0	$21,701.87
B02 - Span J - 116 LF		**42**	**22-Oct-19**	**10-Jan-20**	**30**	**$1,186,188.66**
RE50120	B02 - Span J - Set Beams & Diaphragms	12	22-Oct-19	07-Nov-19	0	$211,878.40
RE30150	B02 - Span J - Form & Install Rebar	8	08-Nov-19	20-Nov-19	0	$59,194.04
RE50130	B02 - Span J - Set Screed & Pour	12	21-Nov-19	13-Dec-19	0	$554,346.13
RE50140	B02 - Span J - Form & Pour Barrier Walls	10	16-Dec-19	10-Jan-20	14	$23,674.95



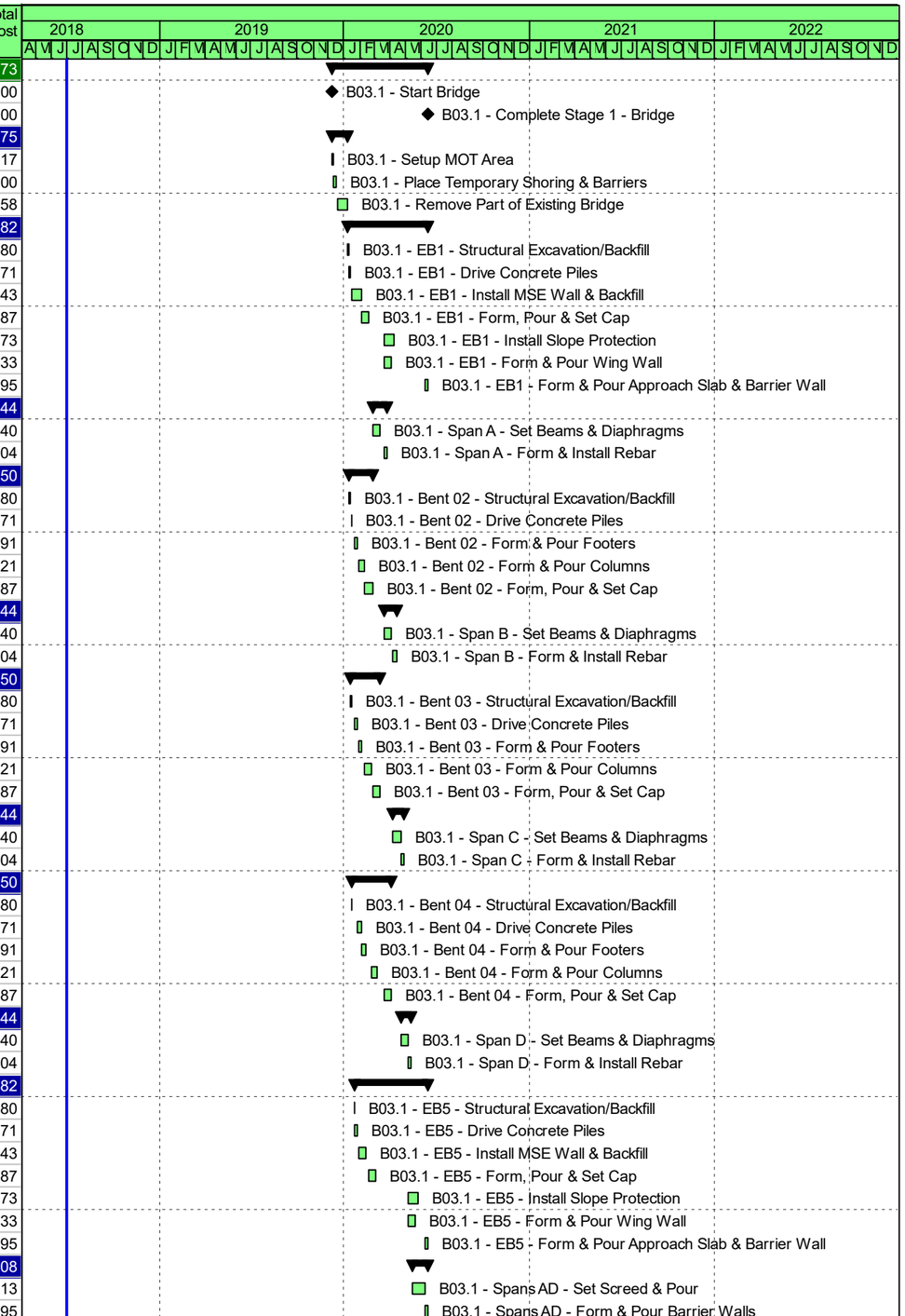
Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE50150	B02 - Span J - Install Lighting	8	16-Dec-19	08-Jan-20	32	$337,095.14
B02 - Bent 11		**41**	**15-Aug-19**	**21-Oct-19**	**0**	**$295,106.50**
RE49510	B02 - Bent 11 - Structural Excavation/Backfill	2	15-Aug-19	19-Aug-19	10	$24,038.80
RE49490	B02 - Bent 11 - Drive Concrete Piles	4	22-Aug-19	28-Aug-19	8	$185,684.71
RE49500	B02 - Bent 11 - Form & Pour Footers	5	03-Sep-19	09-Sep-19	7	$8,847.91
RE49520	B02 - Bent 11 - Form & Pour Columns	8	13-Sep-19	25-Sep-19	4	$54,833.21
RE49530	B02 - Bent 11 - Form, Pour & Set Cap	12	03-Oct-19	21-Oct-19	0	$21,701.87
B02 - Span K - 116 LF		**42**	**08-Nov-19**	**30-Jan-20**	**26**	**$1,186,188.66**
RE50180	B02 - Span K - Set Beams & Diaphragms	12	08-Nov-19	03-Dec-19	0	$211,878.40
RE50190	B02 - Span K - Form & Install Rebar	8	04-Dec-19	13-Dec-19	0	$59,194.04
RE50160	B02 - Span K - Set Screed & Pour	12	16-Dec-19	14-Jan-20	0	$554,346.13
RE50170	B02 - Span K - Form & Pour Barrier Walls	10	15-Jan-20	30-Jan-20	12	$23,674.95
RE50200	B02 - Span K - Install Lighting	8	15-Jan-20	28-Jan-20	28	$337,095.14
B02 - Bent 12		**51**	**20-Aug-19**	**07-Nov-19**	**0**	**$295,106.50**
RE26650	B02 - Bent 12 - Structural Excavation/Backfill	2	20-Aug-19	21-Aug-19	20	$24,038.80
RE49540	B02 - Bent 12 - Drive Concrete Piles	4	29-Aug-19	05-Sep-19	16	$185,684.71
RE49550	B02 - Bent 12 - Form & Pour Footers	5	10-Sep-19	16-Sep-19	14	$8,847.91
RE49560	B02 - Bent 12 - Form & Pour Columns	8	26-Sep-19	09-Oct-19	8	$54,833.21
RE49570	B02 - Bent 12 - Form, Pour & Set Cap	12	22-Oct-19	07-Nov-19	0	$21,701.87
B02 - Span L - 116 LF		**42**	**04-Dec-19**	**19-Feb-20**	**22**	**$1,186,188.66**
RE50230	B02 - Span L - Set Beams & Diaphragms	12	04-Dec-19	19-Dec-19	0	$211,878.40
RE50240	B02 - Span L - Form & Install Rebar	8	03-Jan-20	14-Jan-20	0	$59,194.04
RE50210	B02 - Span L - Set Screed & Pour	12	15-Jan-20	04-Feb-20	0	$554,346.13
RE50220	B02 - Span L - Form & Pour Barrier Walls	10	05-Feb-20	19-Feb-20	10	$23,674.95
RE50250	B02 - Span L - Install Lighting	8	05-Feb-20	14-Feb-20	24	$337,095.14
B02 - Bent 13		**61**	**22-Aug-19**	**03-Dec-19**	**0**	**$295,106.50**
RE49600	B02 - Bent 13 - Structural Excavation/Backfill	2	22-Aug-19	26-Aug-19	30	$24,038.80
RE49580	B02 - Bent 13 - Drive Concrete Piles	4	06-Sep-19	11-Sep-19	24	$185,684.71
RE49590	B02 - Bent 13 - Form & Pour Footers	5	17-Sep-19	24-Sep-19	21	$8,847.91
RE49610	B02 - Bent 13 - Form & Pour Columns	8	10-Oct-19	21-Oct-19	12	$54,833.21
RE49620	B02 - Bent 13 - Form, Pour & Set Cap	12	08-Nov-19	03-Dec-19	0	$21,701.87
B02 - Span M - 116 LF		**42**	**03-Jan-20**	**10-Mar-20**	**18**	**$1,186,188.66**
RE50280	B02 - Span M - Set Beams & Diaphragms	12	03-Jan-20	21-Jan-20	0	$211,878.40
RE50290	B02 - Span M - Form & Install Rebar	8	22-Jan-20	04-Feb-20	0	$59,194.04
RE50260	B02 - Span M - Set Screed & Pour	12	05-Feb-20	24-Feb-20	0	$554,346.13
RE50270	B02 - Span M - Form & Pour Barrier Walls	10	25-Feb-20	10-Mar-20	8	$23,674.95
RE50300	B02 - Span M - Install Lighting	8	25-Feb-20	06-Mar-20	20	$337,095.14
B02 - Bent 14		**71**	**27-Aug-19**	**19-Dec-19**	**0**	**$295,106.50**
RE50330	B02 - Bent 14 - Structural Excavation/Backfill	2	27-Aug-19	28-Aug-19	40	$24,038.80
RE50310	B02 - Bent 14 - Drive Concrete Piles	4	12-Sep-19	17-Sep-19	32	$185,684.71
RE50320	B02 - Bent 14 - Form & Pour Footers	5	25-Sep-19	02-Oct-19	28	$8,847.91
RE50340	B02 - Bent 14 - Form & Pour Columns	8	22-Oct-19	01-Nov-19	16	$54,833.21
RE50350	B02 - Bent 14 - Form, Pour & Set Cap	12	04-Dec-19	19-Dec-19	0	$21,701.87
B02 - Span N - 116 LF		**42**	**22-Jan-20**	**03-Apr-20**	**14**	**$1,186,188.66**
RE50380	B02 - Span N - Set Beams & Diaphragms	12	22-Jan-20	10-Feb-20	0	$211,878.40
RE50390	B02 - Span N - Form & Install Rebar	8	11-Feb-20	24-Feb-20	0	$59,194.04
RE50360	B02 - Span N - Set Screed & Pour	12	25-Feb-20	12-Mar-20	0	$554,346.13
RE50370	B02 - Span N - Form & Pour Barrier Walls	10	19-Mar-20	03-Apr-20	6	$23,674.95
RE50400	B02 - Span N - Install Lighting	8	19-Mar-20	01-Apr-20	16	$337,095.14
B02 - Bent 15		**81**	**29-Aug-19**	**21-Jan-20**	**0**	**$295,106.50**
RE50430	B02 - Bent 15 - Structural Excavation/Backfill	2	29-Aug-19	03-Sep-19	50	$24,038.80
RE50410	B02 - Bent 15 - Drive Concrete Piles	4	18-Sep-19	24-Sep-19	40	$185,684.71
RE50420	B02 - Bent 15 - Form & Pour Footers	5	03-Oct-19	10-Oct-19	35	$8,847.91
RE50440	B02 - Bent 15 - Form & Pour Columns	8	04-Nov-19	14-Nov-19	20	$54,833.21
RE50450	B02 - Bent 15 - Form, Pour & Set Cap	12	03-Jan-20	21-Jan-20	0	$21,701.87
B02 - Span O - 116 LF		**42**	**11-Feb-20**	**23-Apr-20**	**10**	**$1,186,188.66**



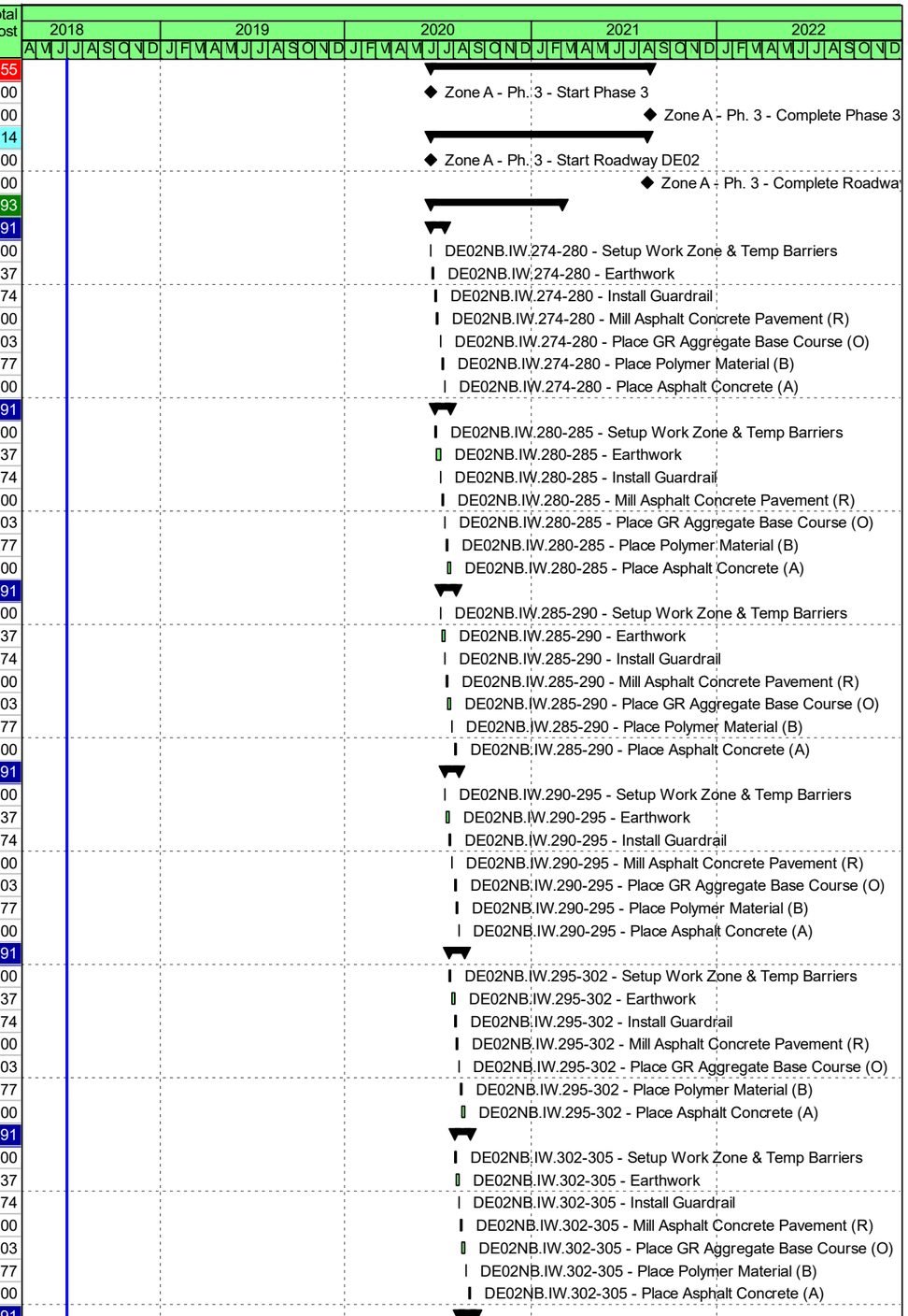
Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE50480	B02 - Span O - Set Beams & Diaphragms	12	11-Feb-20	02-Mar-20	0	$211,878.40
RE50490	B02 - Span O - Form & Install Rebar	8	03-Mar-20	12-Mar-20	0	$59,194.04
RE50460	B02 - Span O - Set Screed & Pour	12	19-Mar-20	07-Apr-20	0	$554,346.13
RE50470	B02 - Span O - Form & Pour Barrier Walls	10	08-Apr-20	23-Apr-20	4	$23,674.95
RE50500	B02 - Span O - Install Lighting	8	08-Apr-20	21-Apr-20	12	$337,095.14
B02 - Bent 16		**91**	**04-Sep-19**	**10-Feb-20**	**0**	**$295,106.50**
RE50530	B02 - Bent 16 - Structural Excavation/Backfill	2	04-Sep-19	05-Sep-19	60	$24,038.80
RE50510	B02 - Bent 16 - Drive Concrete Piles	4	25-Sep-19	01-Oct-19	48	$185,684.71
RE50520	B02 - Bent 16 - Form & Pour Footers	5	11-Oct-19	17-Oct-19	42	$8,847.91
RE50540	B02 - Bent 16 - Form & Pour Columns	8	15-Nov-19	03-Dec-19	24	$54,833.21
RE50550	B02 - Bent 16 - Form, Pour & Set Cap	12	22-Jan-20	10-Feb-20	0	$21,701.87
B02 - Span P - 116 LF		**42**	**03-Mar-20**	**12-May-20**	**6**	**$1,186,188.66**
RE50580	B02 - Span P - Set Beams & Diaphragms	12	03-Mar-20	25-Mar-20	0	$211,878.40
RE50590	B02 - Span P - Form & Install Rebar	8	26-Mar-20	07-Apr-20	0	$59,194.04
RE50560	B02 - Span P - Set Screed & Pour	12	08-Apr-20	28-Apr-20	0	$554,346.13
RE50570	B02 - Span P - Form & Pour Barrier Walls	10	29-Apr-20	12-May-20	2	$23,674.95
RE50600	B02 - Span P - Install Lighting	8	29-Apr-20	08-May-20	8	$337,095.14
B02 - Bent 17		**101**	**06-Sep-19**	**02-Mar-20**	**0**	**$295,106.50**
RE50630	B02 - Bent 17 - Structural Excavation/Backfill	2	06-Sep-19	09-Sep-19	70	$24,038.80
RE50610	B02 - Bent 17 - Drive Concrete Piles	4	02-Oct-19	08-Oct-19	56	$185,684.71
RE50620	B02 - Bent 17 - Form & Pour Footers	5	18-Oct-19	24-Oct-19	49	$8,847.91
RE50640	B02 - Bent 17 - Form & Pour Columns	8	04-Dec-19	13-Dec-19	28	$54,833.21
RE50650	B02 - Bent 17 - Form, Pour & Set Cap	12	11-Feb-20	02-Mar-20	0	$21,701.87
B02 - Span Q - 106 LF		**42**	**26-Mar-20**	**02-Jun-20**	**2**	**$1,186,188.76**
RE50680	B02 - Span Q - Set Beams & Diaphragms	12	26-Mar-20	15-Apr-20	0	$211,878.40
RE50690	B02 - Span Q - Form & Install Rebar	8	16-Apr-20	28-Apr-20	0	$59,194.04
RE50660	B02 - Span Q - Set Screed & Pour	12	29-Apr-20	14-May-20	0	$554,346.13
RE50670	B02 - Span Q - Form & Pour Barrier Walls	10	15-May-20	02-Jun-20	0	$23,674.95
RE50700	B02 - Span Q - Install Lighting	8	15-May-20	28-May-20	4	$337,095.24
B02 - End Bent 18		**163**	**10-Sep-19**	**16-Jun-20**	**0**	**$800,750.90**
RE49640	B02 - EB18 - Structural Excavation/Backfill	2	10-Sep-19	11-Sep-19	89	$24,038.80
RE49630	B02 - EB18 - Drive Concrete Piles	3	09-Oct-19	11-Oct-19	73	$185,684.71
RE49660	B02 - EB18 - Install MSE Walls & Backfill	5	14-Oct-19	18-Oct-19	73	$208,555.43
RE49650	B02 - EB18 - Form, Pour & Set Cap	12	03-Mar-20	25-Mar-20	0	$21,701.87
RE49680	B02 - EB18 - Install Lighting	8	01-Jun-20	10-Jun-20	4	$337,095.14
RE49670	B02 - EB18 - Form & Pour Approach Slab & Barrier Wall	10	03-Jun-20	16-Jun-20	0	$23,674.95
B02 - Off Ramp - Earthwork & MSE Walls		**185**	**09-Dec-19**	**10-Jun-20**	**6**	**$1,157,930.63**
RE53090	B02 - DE09 - Off Ramp - Start Ramp	0	09-Dec-19		0	$0.00
RE53100	B02 - DE09 - Off Ramp - Complete Ramp	0		10-Jun-20	4	$0.00
Lift Prep		**18**	**09-Dec-19**	**15-Jan-20**	**0**	**$16,448.17**
RE53080	B02 - DE09 - Off Ramp - Setup MOT Area	2	09-Dec-19	10-Dec-19	0	$16,448.17
RE53210	B02 - DE09 - Off Ramp - Foundation Work	16	11-Dec-19	15-Jan-20	0	$0.00
Earthwork		**36**	**16-Jan-20**	**19-Mar-20**	**11**	**$345,789.90**
RE53110	B02 - DE09 - Off Ramp - Earthwork - Lift 1	5	16-Jan-20	23-Jan-20	9	$172,894.95
RE53120	B02 - DE09 - Off Ramp - Earthwork - Lift 2	5	09-Mar-20	19-Mar-20	11	$172,894.95
MSE Walls		**45**	**16-Jan-20**	**03-Apr-20**	**2**	**$417,110.86**
RE53130	B02 - DE09 - Off Ramp - MSE Wall - Lift 1	14	16-Jan-20	07-Feb-20	0	$208,555.43
RE53140	B02 - DE09 - Off Ramp - MSE Wall - Lift 2	14	09-Mar-20	03-Apr-20	2	$208,555.43
Settlement		**86**	**08-Feb-20**	**03-May-20**	**4**	**$0.00**
RE53150	B02 - DE09 - Off Ramp - Settlement - Lift 1	30	08-Feb-20	08-Mar-20	2	$0.00
RE53160	B02 - DE09 - Off Ramp - Settlement - Lift 2	30	04-Apr-20	03-May-20	4	$0.00
Ramp Paving		**25**	**04-May-20**	**10-Jun-20**	**4**	**$378,581.70**
RE53180	B02 - DE09 - Off Ramp - Place GR Aggregate Base Course	3	04-May-20	06-May-20	4	$20,106.03
RE53200	B02 - DE09 - Off Ramp - Place Superpave Course	2	07-May-20	08-May-20	4	$24,673.20
RE53190	B02 - DE09 - Off Ramp - Place Plain PC Conc Pavement	10	11-May-20	26-May-20	4	$310,127.52
RE53170	B02 - DE09 - Off Ramp - Form & Pour Barrier Walls	10	27-May-20	10-Jun-20	4	$23,674.95



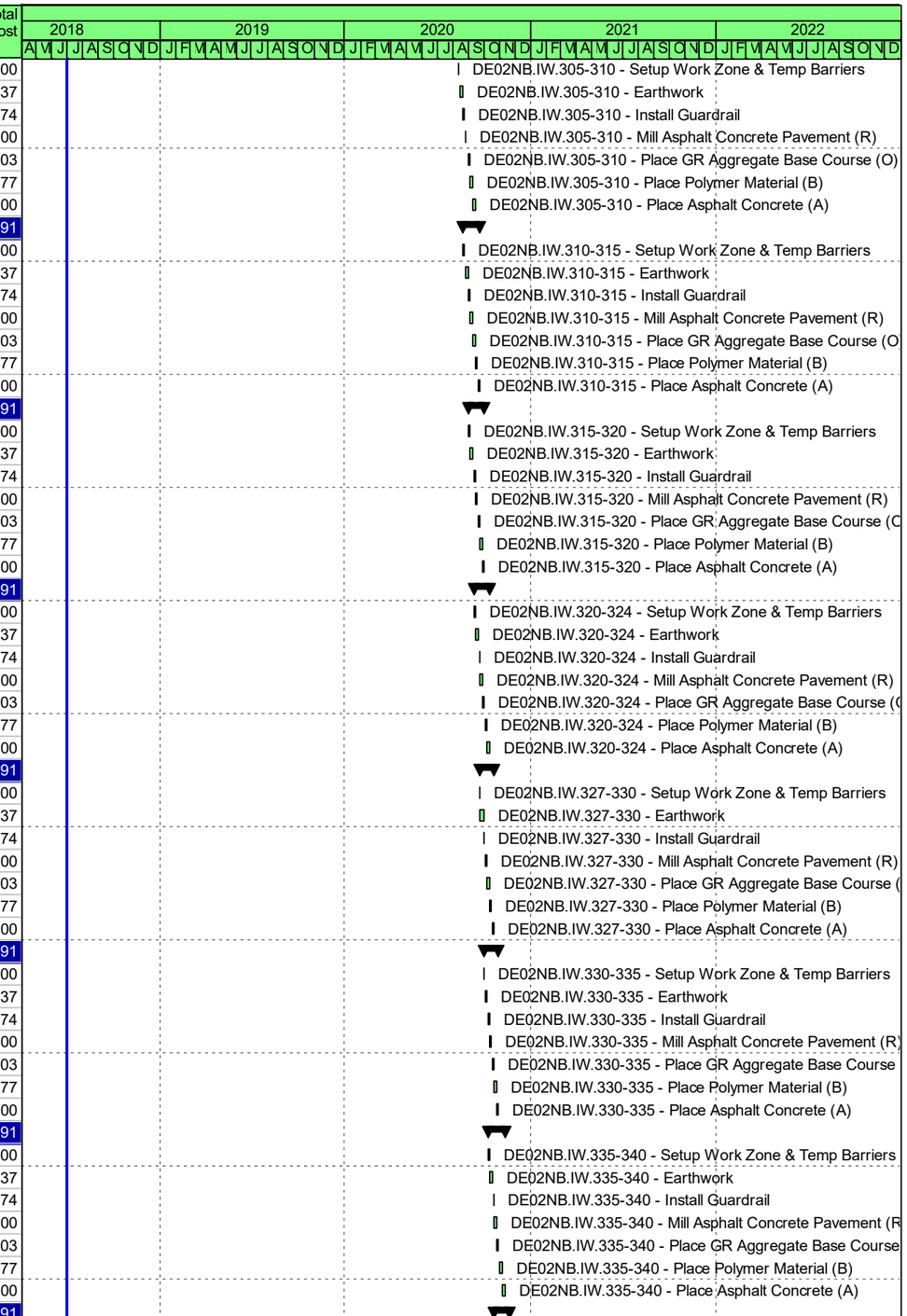
Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
B03.1 - DE2/DE4 - I-95 over I-16 (SR 404) - 4 Spans - Stage 1		**108**	**09-Dec-19**	**15-Jun-20**	**1**	**$3,799,655.73**
RE12890	B03.1 - Start Bridge	0	09-Dec-19		1	$0.00
RE28830	B03.1 - Complete Stage 1 - Bridge	0		15-Jun-20	1	$0.00
B03.1 - Setup		**12**	**09-Dec-19**	**07-Jan-20**	**1**	**$222,825.75**
RE12900	B03.1 - Setup MOT Area	2	09-Dec-19	10-Dec-19	1	$16,448.17
RE13660	B03.1 - Place Temporary Shoring & Barriers	5	11-Dec-19	17-Dec-19	1	$0.00
RE15120	B03.1 - Remove Part of Existing Bridge	5	18-Dec-19	07-Jan-20	1	$206,377.58
B03.1 - End Bent 1		**96**	**08-Jan-20**	**15-Jun-20**	**1**	**$514,599.82**
RE16290	B03.1 - EB1 - Structural Excavation/Backfill	2	08-Jan-20	09-Jan-20	1	$24,038.80
RE17030	B03.1 - EB1 - Drive Concrete Piles	3	10-Jan-20	14-Jan-20	1	$185,684.71
RE18530	B03.1 - EB1 - Install MSE Wall & Backfill	12	15-Jan-20	04-Feb-20	5	$208,555.43
RE19810	B03.1 - EB1 - Form, Pour & Set Cap	10	05-Feb-20	19-Feb-20	5	$21,701.87
RE23330	B03.1 - EB1 - Install Slope Protection	12	19-Mar-20	07-Apr-20	39	$31,511.73
RE23340	B03.1 - EB1 - Form & Pour Wing Wall	10	19-Mar-20	03-Apr-20	41	$19,432.33
RE27640	B03.1 - EB1 - Form & Pour Approach Slab & Barrier Wall	5	09-Jun-20	15-Jun-20	1	$23,674.95
B03.1 - Span A		**15**	**27-Feb-20**	**26-Mar-20**	**16**	**$271,072.44**
RE22610	B03.1 - Span A - Set Beams & Diaphragms	10	27-Feb-20	12-Mar-20	1	$211,878.40
RE23350	B03.1 - Span A - Form & Install Rebar	5	19-Mar-20	26-Mar-20	16	$59,194.04
B03.1 - Bent 2		**29**	**10-Jan-20**	**26-Feb-20**	**1**	**$295,106.50**
RE17040	B03.1 - Bent 02 - Structural Excavation/Backfill	2	10-Jan-20	13-Jan-20	2	$24,038.80
RE18540	B03.1 - Bent 02 - Drive Concrete Piles	3	15-Jan-20	17-Jan-20	1	$185,684.71
RE19410	B03.1 - Bent 02 - Form & Pour Footers	5	21-Jan-20	28-Jan-20	1	$8,847.91
RE20390	B03.1 - Bent 02 - Form & Pour Columns	8	29-Jan-20	10-Feb-20	1	$54,833.21
RE21180	B03.1 - Bent 02 - Form, Pour & Set Cap	10	11-Feb-20	26-Feb-20	1	$21,701.87
B03.1 - Span B		**15**	**19-Mar-20**	**14-Apr-20**	**11**	**$271,072.44**
RE23360	B03.1 - Span B - Set Beams & Diaphragms	10	19-Mar-20	03-Apr-20	1	$211,878.40
RE24210	B03.1 - Span B - Form & Install Rebar	5	06-Apr-20	14-Apr-20	11	$59,194.04
B03.1 - Bent 3		**37**	**14-Jan-20**	**12-Mar-20**	**11**	**$295,106.50**
RE18550	B03.1 - Bent 03 - Structural Excavation/Backfill	2	14-Jan-20	15-Jan-20	19	$24,038.80
RE19420	B03.1 - Bent 03 - Drive Concrete Piles	4	21-Jan-20	27-Jan-20	17	$185,684.71
RE20400	B03.1 - Bent 03 - Form & Pour Footers	5	29-Jan-20	05-Feb-20	16	$8,847.91
RE21190	B03.1 - Bent 03 - Form & Pour Columns	8	11-Feb-20	24-Feb-20	13	$54,833.21
RE22620	B03.1 - Bent 03 - Form, Pour & Set Cap	10	27-Feb-20	12-Mar-20	11	$21,701.87
B03.1 - Span C		**15**	**06-Apr-20**	**29-Apr-20**	**6**	**$271,072.44**
RE24220	B03.1 - Span C - Set Beams & Diaphragms	10	06-Apr-20	21-Apr-20	1	$211,878.40
RE24830	B03.1 - Span C - Form & Install Rebar	5	22-Apr-20	29-Apr-20	6	$59,194.04
B03.1 - Bent 4		**45**	**16-Jan-20**	**03-Apr-20**	**11**	**$295,106.50**
RE19430	B03.1 - Bent 04 - Structural Excavation/Backfill	2	16-Jan-20	17-Jan-20	27	$24,038.80
RE20410	B03.1 - Bent 04 - Drive Concrete Piles	4	28-Jan-20	03-Feb-20	23	$185,684.71
RE21200	B03.1 - Bent 04 - Form & Pour Footers	5	06-Feb-20	12-Feb-20	21	$8,847.91
RE22050	B03.1 - Bent 04 - Form & Pour Columns	8	25-Feb-20	06-Mar-20	15	$54,833.21
RE23710	B03.1 - Bent 04 - Form, Pour & Set Cap	10	19-Mar-20	03-Apr-20	11	$21,701.87
B03.1 - Span D		**15**	**22-Apr-20**	**13-May-20**	**1**	**$271,072.44**
RE24840	B03.1 - Span D - Set Beams & Diaphragms	10	22-Apr-20	06-May-20	1	$211,878.40
RE25970	B03.1 - Span D - Form & Install Rebar	5	07-May-20	13-May-20	1	$59,194.04
B03.1 - End Bent 5		**88**	**21-Jan-20**	**15-Jun-20**	**1**	**$514,599.82**
RE17050	B03.1 - EB5 - Structural Excavation/Backfill	2	21-Jan-20	22-Jan-20	27	$24,038.80
RE18560	B03.1 - EB5 - Drive Concrete Piles	3	23-Jan-20	28-Jan-20	27	$185,684.71
RE19440	B03.1 - EB5 - Install MSE Wall & Backfill	12	29-Jan-20	14-Feb-20	27	$208,555.43
RE20670	B03.1 - EB5 - Form, Pour & Set Cap	10	18-Feb-20	04-Mar-20	27	$21,701.87
RE25980	B03.1 - EB5 - Install Slope Protection	12	07-May-20	26-May-20	9	$31,511.73
RE25990	B03.1 - EB5 - Form & Pour Wing Wall	10	07-May-20	20-May-20	11	$19,432.33
RE27650	B03.1 - EB5 - Form & Pour Approach Slab & Barrier Wall	5	09-Jun-20	15-Jun-20	1	$23,674.95
B03.1 - Finishes		**20**	**14-May-20**	**15-Jun-20**	**1**	**$578,021.08**
RE26640	B03.1 - Spans AD - Set Screed & Pour	15	14-May-20	08-Jun-20	1	$554,346.13
RE27660	B03.1 - Spans AD - Form & Pour Barrier Walls	5	09-Jun-20	15-Jun-20	1	$23,674.95



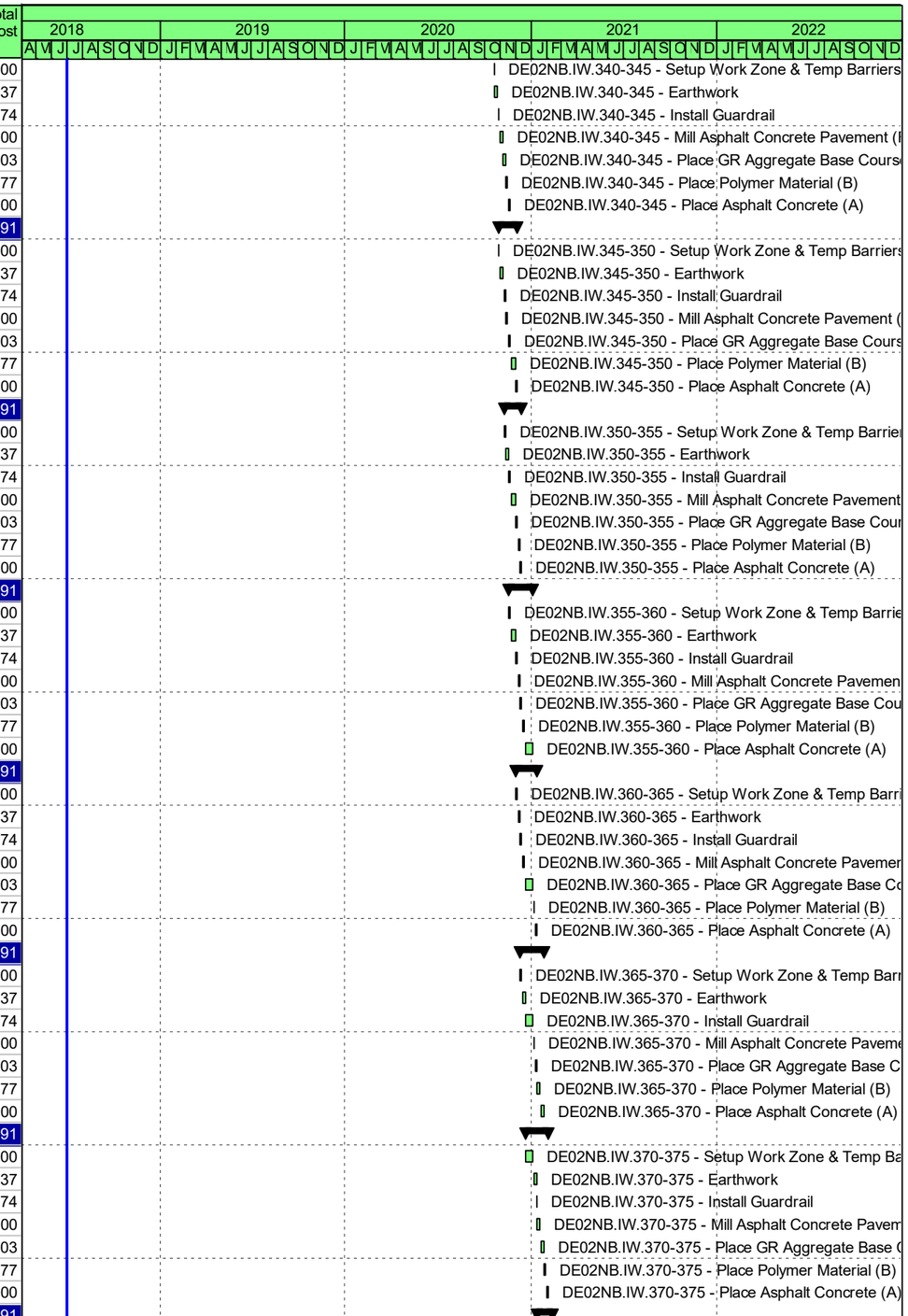
Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
Zone A - Ph 3 - I-95 NB, B01, B03 Stage 2		434	17-Jun-20	24-Aug-21	0	$38,845,511.55
RE53460	Zone A - Ph. 3 - Start Phase 3	0	17-Jun-20		0	$0.00
RE53470	Zone A - Ph. 3 - Complete Phase 3	0		24-Aug-21	0	$0.00
Roadway		253	17-Jun-20	17-Aug-21	4	$11,865,814.14
RE53480	Zone A - Ph. 3 - Start Roadway DE02	0	17-Jun-20		4	$0.00
RE53490	Zone A - Ph. 3 - Complete Roadway DE02	0		17-Aug-21	4	$0.00
DE02 - NB - Inside Widening		152	17-Jun-20	04-Mar-21	4	$4,868,361.93
DE02 - NB - Sta. 274-280 - Inside Widening		20	17-Jun-20	16-Jul-20	70	$211,667.91
RE13000	DE02NB.IW.274-280 - Setup Work Zone & Temp Barriers	2	17-Jun-20	18-Jun-20	4	$32,671.00
RE13540	DE02NB.IW.274-280 - Earthwork	4	19-Jun-20	24-Jun-20	4	$34,921.37
RE14860	DE02NB.IW.274-280 - Install Guardrail	2	25-Jun-20	29-Jun-20	70	$49,794.74
RE15050	DE02NB.IW.274-280 - Mill Asphalt Concrete Pavement (R)	3	30-Jun-20	02-Jul-20	70	$0.00
RE15430	DE02NB.IW.274-280 - Place GR Aggregate Base Course (O)	3	06-Jul-20	08-Jul-20	70	$20,106.03
RE53540	DE02NB.IW.274-280 - Place Polymer Material (B)	3	09-Jul-20	13-Jul-20	70	$74,174.77
RE53550	DE02NB.IW.274-280 - Place Asphalt Concrete (A)	3	14-Jul-20	16-Jul-20	70	$0.00
DE02 - NB - Sta. 280-285 - Inside Widening		20	25-Jun-20	27-Jul-20	67	$211,667.91
RE14870	DE02NB.IW.280-285 - Setup Work Zone & Temp Barriers	2	25-Jun-20	29-Jun-20	4	$32,671.00
RE15060	DE02NB.IW.280-285 - Earthwork	4	30-Jun-20	06-Jul-20	4	$34,921.37
RE16180	DE02NB.IW.280-285 - Install Guardrail	2	07-Jul-20	08-Jul-20	67	$49,794.74
RE16470	DE02NB.IW.280-285 - Mill Asphalt Concrete Pavement (R)	3	09-Jul-20	13-Jul-20	67	$0.00
RE16840	DE02NB.IW.280-285 - Place GR Aggregate Base Course (O)	3	14-Jul-20	16-Jul-20	67	$20,106.03
RE53560	DE02NB.IW.280-285 - Place Polymer Material (B)	3	17-Jul-20	21-Jul-20	67	$74,174.77
RE53570	DE02NB.IW.280-285 - Place Asphalt Concrete (A)	3	22-Jul-20	27-Jul-20	67	$0.00
DE02 - NB - Sta. 285-290 - Inside Widening		20	07-Jul-20	05-Aug-20	64	$211,667.91
RE16190	DE02NB.IW.285-290 - Setup Work Zone & Temp Barriers	2	07-Jul-20	08-Jul-20	4	$32,671.00
RE16480	DE02NB.IW.285-290 - Earthwork	4	09-Jul-20	14-Jul-20	4	$34,921.37
RE17250	DE02NB.IW.285-290 - Install Guardrail	2	15-Jul-20	16-Jul-20	64	$49,794.74
RE17550	DE02NB.IW.285-290 - Mill Asphalt Concrete Pavement (R)	3	17-Jul-20	21-Jul-20	64	$0.00
RE18370	DE02NB.IW.285-290 - Place GR Aggregate Base Course (O)	3	22-Jul-20	27-Jul-20	64	$20,106.03
RE53580	DE02NB.IW.285-290 - Place Polymer Material (B)	3	28-Jul-20	30-Jul-20	64	$74,174.77
RE53590	DE02NB.IW.285-290 - Place Asphalt Concrete (A)	3	03-Aug-20	05-Aug-20	64	$0.00
DE02 - NB - Sta. 290-295 - Inside Widening		20	15-Jul-20	13-Aug-20	61	$211,667.91
RE17260	DE02NB.IW.290-295 - Setup Work Zone & Temp Barriers	2	15-Jul-20	16-Jul-20	4	$32,671.00
RE17560	DE02NB.IW.290-295 - Earthwork	4	17-Jul-20	22-Jul-20	4	$34,921.37
RE18820	DE02NB.IW.290-295 - Install Guardrail	2	23-Jul-20	27-Jul-20	61	$49,794.74
RE19060	DE02NB.IW.290-295 - Mill Asphalt Concrete Pavement (R)	3	28-Jul-20	30-Jul-20	61	$0.00
RE19450	DE02NB.IW.290-295 - Place GR Aggregate Base Course (O)	3	03-Aug-20	05-Aug-20	61	$20,106.03
RE53600	DE02NB.IW.290-295 - Place Polymer Material (B)	3	06-Aug-20	10-Aug-20	61	$74,174.77
RE53610	DE02NB.IW.290-295 - Place Asphalt Concrete (A)	3	11-Aug-20	13-Aug-20	61	$0.00
DE02 - NB - Sta. 295-300 - Inside Widening		20	23-Jul-20	24-Aug-20	58	$211,667.91
RE18830	DE02NB.IW.295-302 - Setup Work Zone & Temp Barriers	2	23-Jul-20	27-Jul-20	4	$32,671.00
RE19070	DE02NB.IW.295-302 - Earthwork	4	28-Jul-20	03-Aug-20	4	$34,921.37
RE19820	DE02NB.IW.295-302 - Install Guardrail	2	04-Aug-20	05-Aug-20	58	$49,794.74
RE20070	DE02NB.IW.295-302 - Mill Asphalt Concrete Pavement (R)	3	06-Aug-20	10-Aug-20	58	$0.00
RE20490	DE02NB.IW.295-302 - Place GR Aggregate Base Course (O)	3	11-Aug-20	13-Aug-20	58	$20,106.03
RE53620	DE02NB.IW.295-302 - Place Polymer Material (B)	3	14-Aug-20	18-Aug-20	58	$74,174.77
RE53630	DE02NB.IW.295-302 - Place Asphalt Concrete (A)	3	19-Aug-20	24-Aug-20	58	$0.00
DE02 - NB - Sta. 300-305 - Inside Widening		20	04-Aug-20	02-Sep-20	55	$211,667.91
RE19830	DE02NB.IW.302-305 - Setup Work Zone & Temp Barriers	2	04-Aug-20	05-Aug-20	4	$32,671.00
RE20080	DE02NB.IW.302-305 - Earthwork	4	06-Aug-20	11-Aug-20	4	$34,921.37
RE20900	DE02NB.IW.302-305 - Install Guardrail	2	12-Aug-20	13-Aug-20	55	$49,794.74
RE21040	DE02NB.IW.302-305 - Mill Asphalt Concrete Pavement (R)	3	14-Aug-20	18-Aug-20	55	$0.00
RE21380	DE02NB.IW.302-305 - Place GR Aggregate Base Course (O)	3	19-Aug-20	24-Aug-20	55	$20,106.03
RE53640	DE02NB.IW.302-305 - Place Polymer Material (B)	3	25-Aug-20	27-Aug-20	55	$74,174.77
RE53650	DE02NB.IW.302-305 - Place Asphalt Concrete (A)	3	31-Aug-20	02-Sep-20	55	$0.00
DE02 - NB - Sta. 305-310 - Inside Widening		20	12-Aug-20	14-Sep-20	52	$211,667.91



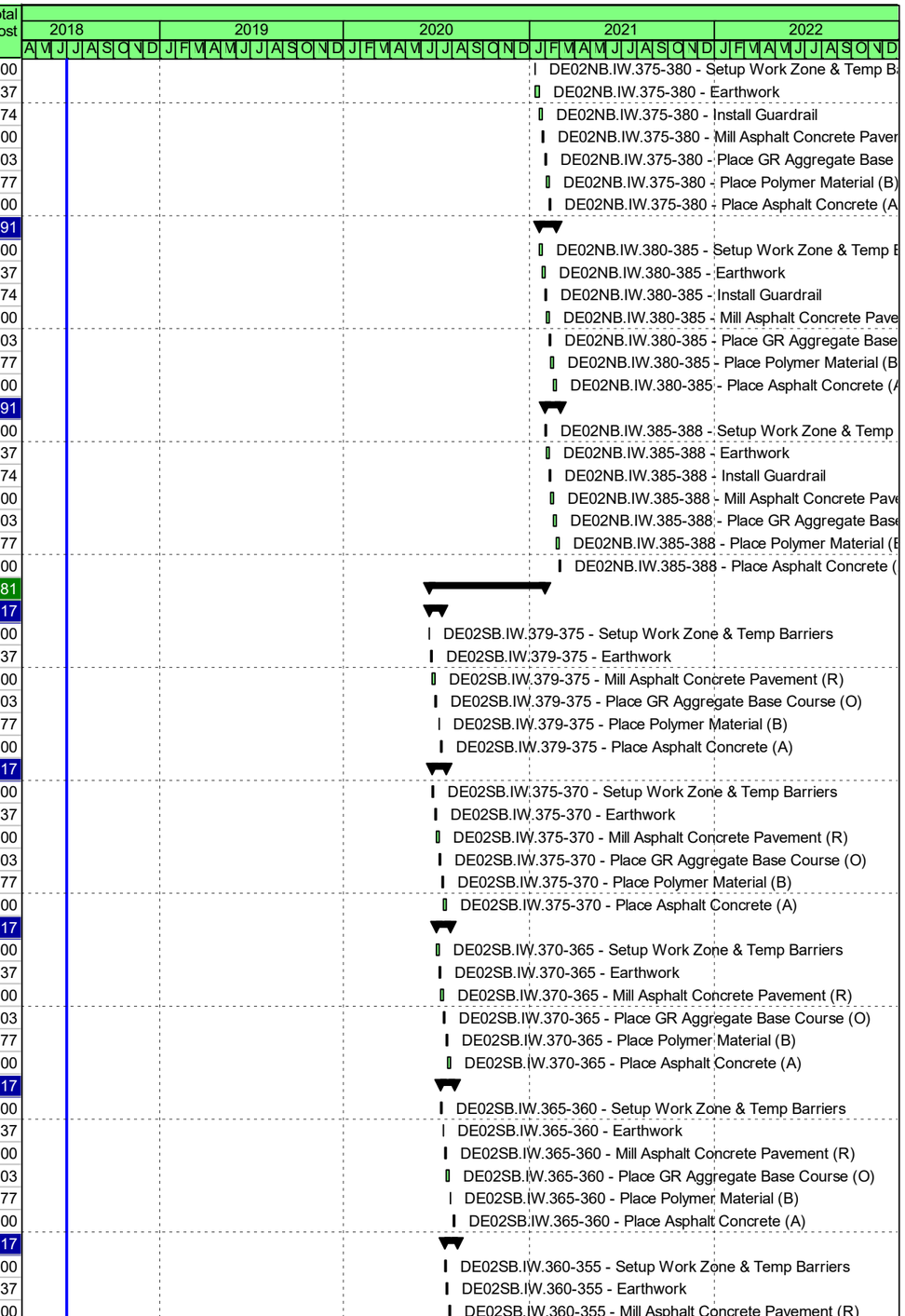
Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE20910	DE02NB.IW.305-310 - Setup Work Zone & Temp Barriers	2	12-Aug-20	13-Aug-20	4	$32,671.00
RE21050	DE02NB.IW.305-310 - Earthwork	4	14-Aug-20	19-Aug-20	4	$34,921.37
RE21930	DE02NB.IW.305-310 - Install Guardrail	2	20-Aug-20	24-Aug-20	52	$49,794.74
RE22130	DE02NB.IW.305-310 - Mill Asphalt Concrete Pavement (R)	3	25-Aug-20	27-Aug-20	52	$0.00
RE22680	DE02NB.IW.305-310 - Place GR Aggregate Base Course (O)	3	31-Aug-20	02-Sep-20	52	$20,106.03
RE53660	DE02NB.IW.305-310 - Place Polymer Material (B)	3	03-Sep-20	09-Sep-20	52	$74,174.77
RE53670	DE02NB.IW.305-310 - Place Asphalt Concrete (A)	3	10-Sep-20	14-Sep-20	52	$0.00
DE02 - NB - Sta. 310-315 - Inside Widening		**20**	**20-Aug-20**	**23-Sep-20**	**49**	**$211,667.91**
RE21940	DE02NB.IW.310-315 - Setup Work Zone & Temp Barriers	2	20-Aug-20	24-Aug-20	4	$32,671.00
RE22140	DE02NB.IW.310-315 - Earthwork	4	25-Aug-20	31-Aug-20	4	$34,921.37
RE23050	DE02NB.IW.310-315 - Install Guardrail	2	01-Sep-20	02-Sep-20	49	$49,794.74
RE23180	DE02NB.IW.310-315 - Mill Asphalt Concrete Pavement (R)	3	03-Sep-20	09-Sep-20	49	$0.00
RE23570	DE02NB.IW.310-315 - Place GR Aggregate Base Course (O)	3	10-Sep-20	14-Sep-20	49	$20,106.03
RE53680	DE02NB.IW.310-315 - Place Polymer Material (B)	3	15-Sep-20	17-Sep-20	49	$74,174.77
RE53690	DE02NB.IW.310-315 - Place Asphalt Concrete (A)	3	21-Sep-20	23-Sep-20	49	$0.00
DE02 - NB - Sta. 315-320 - Inside Widening		**20**	**01-Sep-20**	**02-Oct-20**	**46**	**$211,667.91**
RE23060	DE02NB.IW.315-320 - Setup Work Zone & Temp Barriers	2	01-Sep-20	02-Sep-20	4	$32,671.00
RE23190	DE02NB.IW.315-320 - Earthwork	4	03-Sep-20	10-Sep-20	4	$34,921.37
RE24000	DE02NB.IW.315-320 - Install Guardrail	2	11-Sep-20	14-Sep-20	46	$49,794.74
RE24230	DE02NB.IW.315-320 - Mill Asphalt Concrete Pavement (R)	3	15-Sep-20	17-Sep-20	46	$0.00
RE24500	DE02NB.IW.315-320 - Place GR Aggregate Base Course (O)	3	21-Sep-20	23-Sep-20	46	$20,106.03
RE53700	DE02NB.IW.315-320 - Place Polymer Material (B)	3	24-Sep-20	29-Sep-20	46	$74,174.77
RE53710	DE02NB.IW.315-320 - Place Asphalt Concrete (A)	3	30-Sep-20	02-Oct-20	46	$0.00
DE02 - NB - Sta. 320-324 - Inside Widening		**20**	**11-Sep-20**	**13-Oct-20**	**43**	**$211,667.91**
RE24010	DE02NB.IW.320-324 - Setup Work Zone & Temp Barriers	2	11-Sep-20	14-Sep-20	4	$32,671.00
RE24240	DE02NB.IW.320-324 - Earthwork	4	15-Sep-20	21-Sep-20	4	$34,921.37
RE24910	DE02NB.IW.320-324 - Install Guardrail	2	22-Sep-20	23-Sep-20	43	$49,794.74
RE25100	DE02NB.IW.320-324 - Mill Asphalt Concrete Pavement (R)	3	24-Sep-20	29-Sep-20	43	$0.00
RE25390	DE02NB.IW.320-324 - Place GR Aggregate Base Course (O)	3	30-Sep-20	02-Oct-20	43	$20,106.03
RE53720	DE02NB.IW.320-324 - Place Polymer Material (B)	3	05-Oct-20	07-Oct-20	43	$74,174.77
RE53730	DE02NB.IW.320-324 - Place Asphalt Concrete (A)	3	08-Oct-20	13-Oct-20	43	$0.00
DE02 - NB - Sta. 327-330 - Inside Widening		**20**	**22-Sep-20**	**21-Oct-20**	**40**	**$211,667.91**
RE24920	DE02NB.IW.327-330 - Setup Work Zone & Temp Barriers	2	22-Sep-20	23-Sep-20	4	$32,671.00
RE25110	DE02NB.IW.327-330 - Earthwork	4	24-Sep-20	30-Sep-20	4	$34,921.37
RE26120	DE02NB.IW.327-330 - Install Guardrail	2	01-Oct-20	02-Oct-20	40	$49,794.74
RE26270	DE02NB.IW.327-330 - Mill Asphalt Concrete Pavement (R)	3	05-Oct-20	07-Oct-20	40	$0.00
RE26570	DE02NB.IW.327-330 - Place GR Aggregate Base Course (O)	3	08-Oct-20	13-Oct-20	40	$20,106.03
RE53740	DE02NB.IW.327-330 - Place Polymer Material (B)	3	14-Oct-20	16-Oct-20	40	$74,174.77
RE53750	DE02NB.IW.327-330 - Place Asphalt Concrete (A)	3	19-Oct-20	21-Oct-20	40	$0.00
DE02 - NB - Sta. 330-335 - Inside Widening		**20**	**01-Oct-20**	**29-Oct-20**	**37**	**$211,667.91**
RE26130	DE02NB.IW.330-335 - Setup Work Zone & Temp Barriers	2	01-Oct-20	02-Oct-20	4	$32,671.00
RE26280	DE02NB.IW.330-335 - Earthwork	4	05-Oct-20	08-Oct-20	4	$34,921.37
RE26820	DE02NB.IW.330-335 - Install Guardrail	2	09-Oct-20	13-Oct-20	37	$49,794.74
RE27010	DE02NB.IW.330-335 - Mill Asphalt Concrete Pavement (R)	3	14-Oct-20	16-Oct-20	37	$0.00
RE27170	DE02NB.IW.330-335 - Place GR Aggregate Base Course (O)	3	19-Oct-20	21-Oct-20	37	$20,106.03
RE53760	DE02NB.IW.330-335 - Place Polymer Material (B)	3	22-Oct-20	26-Oct-20	37	$74,174.77
RE53770	DE02NB.IW.330-335 - Place Asphalt Concrete (A)	3	27-Oct-20	29-Oct-20	37	$0.00
DE02 - NB - Sta. 335-340 - Inside Widening		**20**	**09-Oct-20**	**11-Nov-20**	**34**	**$211,667.91**
RE26830	DE02NB.IW.335-340 - Setup Work Zone & Temp Barriers	2	09-Oct-20	13-Oct-20	4	$32,671.00
RE27020	DE02NB.IW.335-340 - Earthwork	4	14-Oct-20	19-Oct-20	4	$34,921.37
RE27300	DE02NB.IW.335-340 - Install Guardrail	2	20-Oct-20	21-Oct-20	34	$49,794.74
RE27520	DE02NB.IW.335-340 - Mill Asphalt Concrete Pavement (R)	3	22-Oct-20	26-Oct-20	34	$0.00
RE27780	DE02NB.IW.335-340 - Place GR Aggregate Base Course (O)	3	27-Oct-20	29-Oct-20	34	$20,106.03
RE53780	DE02NB.IW.335-340 - Place Polymer Material (B)	3	02-Nov-20	05-Nov-20	34	$74,174.77
RE53790	DE02NB.IW.335-340 - Place Asphalt Concrete (A)	3	06-Nov-20	11-Nov-20	34	$0.00
DE02 - NB - Sta. 340-345 - Inside Widening		**20**	**20-Oct-20**	**19-Nov-20**	**31**	**$211,667.91**



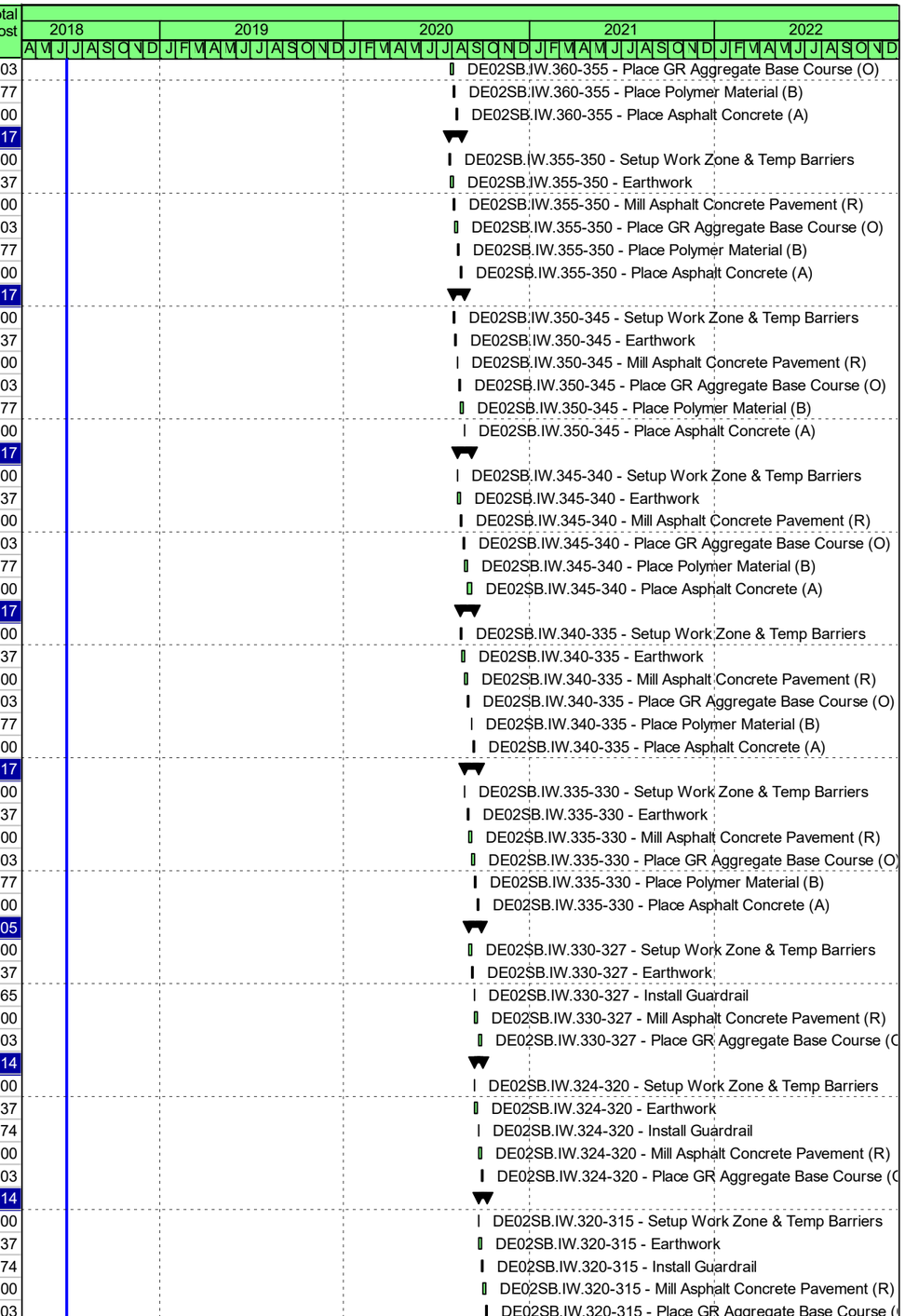
Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE27310	DE02NB.IW.340-345 - Setup Work Zone & Temp Barriers	2	20-Oct-20	21-Oct-20	4	$32,671.00
RE27530	DE02NB.IW.340-345 - Earthwork	4	22-Oct-20	27-Oct-20	4	$34,921.37
RE28110	DE02NB.IW.340-345 - Install Guardrail	2	28-Oct-20	29-Oct-20	31	$49,794.74
RE28280	DE02NB.IW.340-345 - Mill Asphalt Concrete Pavement (R)	3	02-Nov-20	05-Nov-20	31	$0.00
RE28710	DE02NB.IW.340-345 - Place GR Aggregate Base Course (O)	3	06-Nov-20	11-Nov-20	31	$20,106.03
RE53980	DE02NB.IW.340-345 - Place Polymer Material (B)	3	12-Nov-20	16-Nov-20	31	$74,174.77
RE53990	DE02NB.IW.340-345 - Place Asphalt Concrete (A)	3	17-Nov-20	19-Nov-20	31	$0.00
DE02 - NB - Sta. 345-350 - Inside Widening		**20**	**28-Oct-20**	**04-Dec-20**	**28**	**$211,667.91**
RE28120	DE02NB.IW.345-350 - Setup Work Zone & Temp Barriers	2	28-Oct-20	29-Oct-20	4	$32,671.00
RE28290	DE02NB.IW.345-350 - Earthwork	4	02-Nov-20	06-Nov-20	4	$34,921.37
RE28920	DE02NB.IW.345-350 - Install Guardrail	2	10-Nov-20	11-Nov-20	28	$49,794.74
RE29160	DE02NB.IW.345-350 - Mill Asphalt Concrete Pavement (R)	3	12-Nov-20	16-Nov-20	28	$0.00
RE29420	DE02NB.IW.345-350 - Place GR Aggregate Base Course (O)	3	17-Nov-20	19-Nov-20	28	$20,106.03
RE53800	DE02NB.IW.345-350 - Place Polymer Material (B)	3	23-Nov-20	01-Dec-20	28	$74,174.77
RE53810	DE02NB.IW.345-350 - Place Asphalt Concrete (A)	3	02-Dec-20	04-Dec-20	28	$0.00
DE02 - NB - Sta. 350-355 - Inside Widening		**20**	**10-Nov-20**	**14-Dec-20**	**25**	**$211,667.91**
RE28930	DE02NB.IW.350-355 - Setup Work Zone & Temp Barriers	2	10-Nov-20	11-Nov-20	4	$32,671.00
RE29170	DE02NB.IW.350-355 - Earthwork	4	12-Nov-20	17-Nov-20	4	$34,921.37
RE29790	DE02NB.IW.350-355 - Install Guardrail	2	18-Nov-20	19-Nov-20	25	$49,794.74
RE29940	DE02NB.IW.350-355 - Mill Asphalt Concrete Pavement (R)	3	23-Nov-20	01-Dec-20	25	$0.00
RE30160	DE02NB.IW.350-355 - Place GR Aggregate Base Course (O)	3	02-Dec-20	04-Dec-20	25	$20,106.03
RE53820	DE02NB.IW.350-355 - Place Polymer Material (B)	3	07-Dec-20	09-Dec-20	25	$74,174.77
RE53830	DE02NB.IW.350-355 - Place Asphalt Concrete (A)	3	10-Dec-20	14-Dec-20	25	$0.00
DE02 - NB - Sta. 355-360 - Inside Widening		**20**	**18-Nov-20**	**05-Jan-21**	**22**	**$211,667.91**
RE29800	DE02NB.IW.355-360 - Setup Work Zone & Temp Barriers	2	18-Nov-20	19-Nov-20	4	$32,671.00
RE29950	DE02NB.IW.355-360 - Earthwork	4	23-Nov-20	02-Dec-20	4	$34,921.37
RE30410	DE02NB.IW.355-360 - Install Guardrail	2	03-Dec-20	04-Dec-20	22	$49,794.74
RE30570	DE02NB.IW.355-360 - Mill Asphalt Concrete Pavement (R)	3	07-Dec-20	09-Dec-20	22	$0.00
RE31090	DE02NB.IW.355-360 - Place GR Aggregate Base Course (O)	3	10-Dec-20	14-Dec-20	22	$20,106.03
RE53840	DE02NB.IW.355-360 - Place Polymer Material (B)	3	15-Dec-20	17-Dec-20	22	$74,174.77
RE53850	DE02NB.IW.355-360 - Place Asphalt Concrete (A)	3	21-Dec-20	05-Jan-21	22	$0.00
DE02 - NB - Sta. 360-365 - Inside Widening		**20**	**03-Dec-20**	**13-Jan-21**	**19**	**$211,667.91**
RE30420	DE02NB.IW.360-365 - Setup Work Zone & Temp Barriers	2	03-Dec-20	04-Dec-20	4	$32,671.00
RE30580	DE02NB.IW.360-365 - Earthwork	4	07-Dec-20	10-Dec-20	4	$34,921.37
RE31270	DE02NB.IW.360-365 - Install Guardrail	2	11-Dec-20	14-Dec-20	19	$49,794.74
RE31410	DE02NB.IW.360-365 - Mill Asphalt Concrete Pavement (R)	3	15-Dec-20	17-Dec-20	19	$0.00
RE31740	DE02NB.IW.360-365 - Place GR Aggregate Base Course (O)	3	21-Dec-20	05-Jan-21	19	$20,106.03
RE53860	DE02NB.IW.360-365 - Place Polymer Material (B)	3	06-Jan-21	08-Jan-21	19	$74,174.77
RE53870	DE02NB.IW.360-365 - Place Asphalt Concrete (A)	3	11-Jan-21	13-Jan-21	19	$0.00
DE02 - NB - Sta. 365-370 - Inside Widening		**20**	**11-Dec-20**	**25-Jan-21**	**16**	**$211,667.91**
RE31260	DE02NB.IW.365-370 - Setup Work Zone & Temp Barriers	2	11-Dec-20	14-Dec-20	4	$32,671.00
RE31400	DE02NB.IW.365-370 - Earthwork	4	15-Dec-20	21-Dec-20	4	$34,921.37
RE32110	DE02NB.IW.365-370 - Install Guardrail	2	22-Dec-20	05-Jan-21	16	$49,794.74
RE32400	DE02NB.IW.365-370 - Mill Asphalt Concrete Pavement (R)	3	06-Jan-21	08-Jan-21	16	$0.00
RE32630	DE02NB.IW.365-370 - Place GR Aggregate Base Course (O)	3	11-Jan-21	13-Jan-21	16	$20,106.03
RE53880	DE02NB.IW.365-370 - Place Polymer Material (B)	3	14-Jan-21	19-Jan-21	16	$74,174.77
RE53890	DE02NB.IW.365-370 - Place Asphalt Concrete (A)	3	20-Jan-21	25-Jan-21	16	$0.00
DE02 - NB - Sta. 370-375 - Inside Widening		**20**	**22-Dec-20**	**03-Feb-21**	**13**	**$211,667.91**
RE32120	DE02NB.IW.370-375 - Setup Work Zone & Temp Barriers	2	22-Dec-20	05-Jan-21	4	$32,671.00
RE32410	DE02NB.IW.370-375 - Earthwork	4	06-Jan-21	11-Jan-21	4	$34,921.37
RE32900	DE02NB.IW.370-375 - Install Guardrail	2	12-Jan-21	13-Jan-21	13	$49,794.74
RE33300	DE02NB.IW.370-375 - Mill Asphalt Concrete Pavement (R)	3	14-Jan-21	19-Jan-21	13	$0.00
RE33460	DE02NB.IW.370-375 - Place GR Aggregate Base Course (O)	3	20-Jan-21	25-Jan-21	13	$20,106.03
RE53900	DE02NB.IW.370-375 - Place Polymer Material (B)	3	26-Jan-21	28-Jan-21	13	$74,174.77
RE53910	DE02NB.IW.370-375 - Place Asphalt Concrete (A)	3	01-Feb-21	03-Feb-21	13	$0.00
DE02 - NB - Sta. 375-380 - Inside Widening		**20**	**12-Jan-21**	**11-Feb-21**	**10**	**$211,667.91**



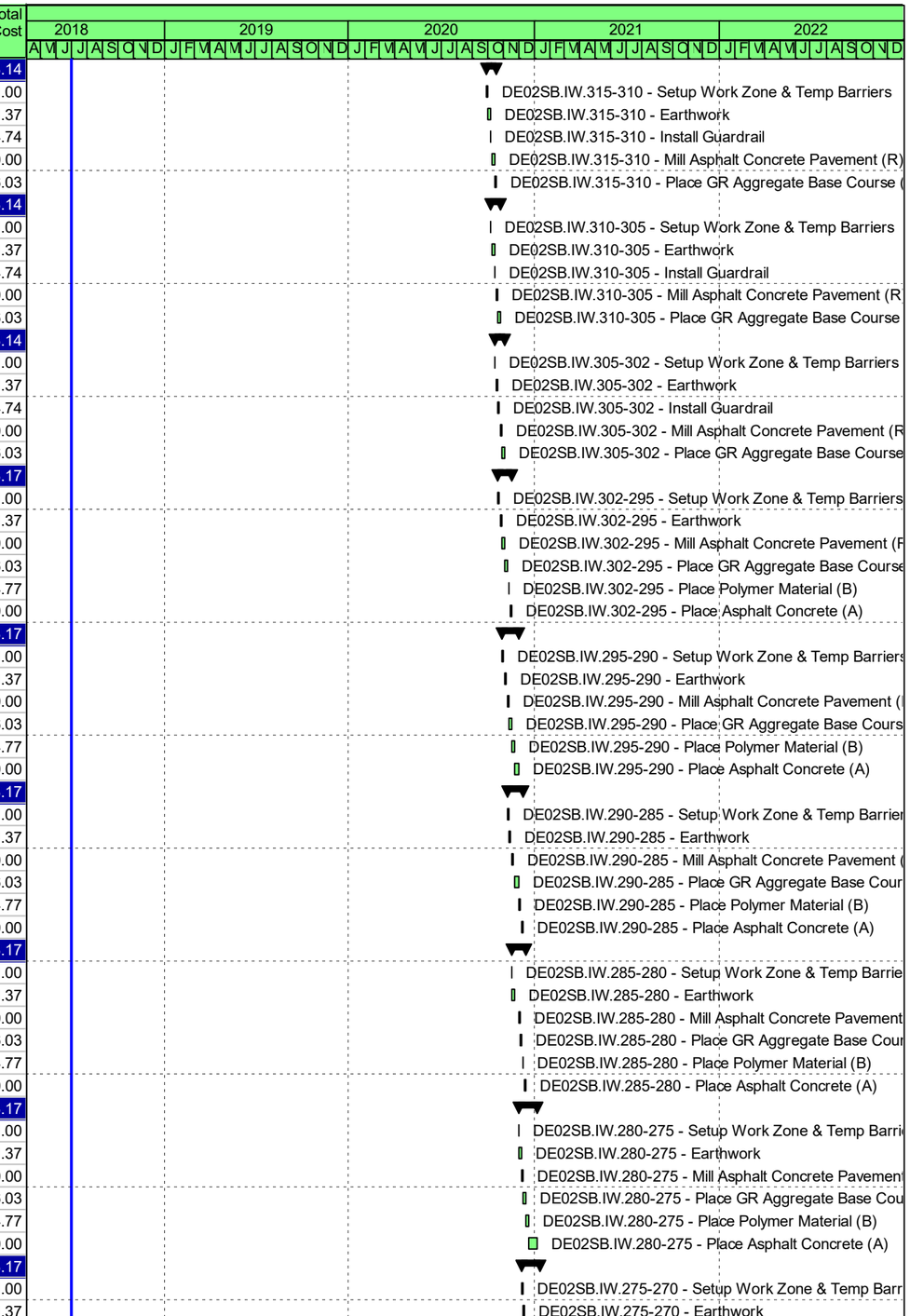
Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE32910	DE02NB.IW.375-380 - Setup Work Zone & Temp Barriers	2	12-Jan-21	13-Jan-21	4	$32,671.00
RE33310	DE02NB.IW.375-380 - Earthwork	4	14-Jan-21	20-Jan-21	4	$34,921.37
RE33780	DE02NB.IW.375-380 - Install Guardrail	2	21-Jan-21	25-Jan-21	10	$49,794.74
RE33900	DE02NB.IW.375-380 - Mill Asphalt Concrete Pavement (R)	3	26-Jan-21	28-Jan-21	10	$0.00
RE34170	DE02NB.IW.375-380 - Place GR Aggregate Base Course (O)	3	01-Feb-21	03-Feb-21	10	$20,106.03
RE53920	DE02NB.IW.375-380 - Place Polymer Material (B)	3	04-Feb-21	08-Feb-21	10	$74,174.77
RE53930	DE02NB.IW.375-380 - Place Asphalt Concrete (A)	3	09-Feb-21	11-Feb-21	10	$0.00
DE02 - NB - Sta. 380-385 - Inside Widening		**20**	**21-Jan-21**	**23-Feb-21**	**7**	**$211,667.91**
RE33790	DE02NB.IW.380-385 - Setup Work Zone & Temp Barriers	2	21-Jan-21	25-Jan-21	4	$32,671.00
RE33910	DE02NB.IW.380-385 - Earthwork	4	26-Jan-21	01-Feb-21	4	$34,921.37
RE34440	DE02NB.IW.380-385 - Install Guardrail	2	02-Feb-21	03-Feb-21	7	$49,794.74
RE34590	DE02NB.IW.380-385 - Mill Asphalt Concrete Pavement (R)	3	04-Feb-21	08-Feb-21	7	$0.00
RE34780	DE02NB.IW.380-385 - Place GR Aggregate Base Course (O)	3	09-Feb-21	11-Feb-21	7	$20,106.03
RE53940	DE02NB.IW.380-385 - Place Polymer Material (B)	3	12-Feb-21	17-Feb-21	7	$74,174.77
RE53950	DE02NB.IW.380-385 - Place Asphalt Concrete (A)	3	18-Feb-21	23-Feb-21	7	$0.00
DE02 - NB - Sta. 385-388 - Inside Widening		**20**	**02-Feb-21**	**04-Mar-21**	**4**	**$211,667.91**
RE34450	DE02NB.IW.385-388 - Setup Work Zone & Temp Barriers	2	02-Feb-21	03-Feb-21	4	$32,671.00
RE34600	DE02NB.IW.385-388 - Earthwork	4	04-Feb-21	09-Feb-21	4	$34,921.37
RE35100	DE02NB.IW.385-388 - Install Guardrail	2	10-Feb-21	11-Feb-21	4	$49,794.74
RE35210	DE02NB.IW.385-388 - Mill Asphalt Concrete Pavement (R)	3	12-Feb-21	17-Feb-21	4	$0.00
RE35390	DE02NB.IW.385-388 - Place GR Aggregate Base Course (O)	3	18-Feb-21	23-Feb-21	4	$20,106.03
RE53960	DE02NB.IW.385-388 - Place Polymer Material (B)	3	24-Feb-21	01-Mar-21	4	$74,174.77
RE53970	DE02NB.IW.385-388 - Place Asphalt Concrete (A)	3	02-Mar-21	04-Mar-21	4	$0.00
DE02 - SB - Inside Widening		**132**	**17-Jun-20**	**01-Feb-21**	**24**	**$3,738,675.81**
DE02 - SB - Sta. 379-375 - Inside Widening		**17**	**17-Jun-20**	**13-Jul-20**	**64**	**$161,873.17**
RE12470	DE02SB.IW.379-375 - Setup Work Zone & Temp Barriers	2	17-Jun-20	18-Jun-20	24	$32,671.00
RE13210	DE02SB.IW.379-375 - Earthwork	3	19-Jun-20	23-Jun-20	24	$34,921.37
RE14510	DE02SB.IW.379-375 - Mill Asphalt Concrete Pavement (R)	3	24-Jun-20	29-Jun-20	64	$0.00
RE15150	DE02SB.IW.379-375 - Place GR Aggregate Base Course (O)	3	30-Jun-20	02-Jul-20	64	$20,106.03
RE15670	DE02SB.IW.379-375 - Place Polymer Material (B)	3	06-Jul-20	08-Jul-20	64	$74,174.77
RE16530	DE02SB.IW.379-375 - Place Asphalt Concrete (A)	3	09-Jul-20	13-Jul-20	64	$0.00
DE02 - SB - Sta. 375-370 - Inside Widening		**17**	**24-Jun-20**	**20-Jul-20**	**62**	**$161,873.17**
RE14500	DE02SB.IW.375-370 - Setup Work Zone & Temp Barriers	2	24-Jun-20	25-Jun-20	24	$32,671.00
RE14940	DE02SB.IW.375-370 - Earthwork	3	29-Jun-20	01-Jul-20	24	$34,921.37
RE15980	DE02SB.IW.375-370 - Mill Asphalt Concrete Pavement (R)	3	02-Jul-20	07-Jul-20	62	$0.00
RE16610	DE02SB.IW.375-370 - Place GR Aggregate Base Course (O)	3	08-Jul-20	10-Jul-20	62	$20,106.03
RE16910	DE02SB.IW.375-370 - Place Polymer Material (B)	3	13-Jul-20	15-Jul-20	62	$74,174.77
RE17600	DE02SB.IW.375-370 - Place Asphalt Concrete (A)	3	16-Jul-20	20-Jul-20	62	$0.00
DE02 - SB - Sta. 370-365 - Inside Widening		**17**	**02-Jul-20**	**28-Jul-20**	**60**	**$161,873.17**
RE15990	DE02SB.IW.370-365 - Setup Work Zone & Temp Barriers	2	02-Jul-20	06-Jul-20	24	$32,671.00
RE16370	DE02SB.IW.370-365 - Earthwork	3	07-Jul-20	09-Jul-20	24	$34,921.37
RE17070	DE02SB.IW.370-365 - Mill Asphalt Concrete Pavement (R)	3	10-Jul-20	14-Jul-20	60	$0.00
RE17810	DE02SB.IW.370-365 - Place GR Aggregate Base Course (O)	3	15-Jul-20	17-Jul-20	60	$20,106.03
RE18570	DE02SB.IW.370-365 - Place Polymer Material (B)	3	20-Jul-20	22-Jul-20	60	$74,174.77
RE19240	DE02SB.IW.370-365 - Place Asphalt Concrete (A)	3	23-Jul-20	28-Jul-20	60	$0.00
DE02 - SB - Sta. 365-360 - Inside Widening		**17**	**10-Jul-20**	**05-Aug-20**	**58**	**$161,873.17**
RE17080	DE02SB.IW.365-360 - Setup Work Zone & Temp Barriers	2	10-Jul-20	13-Jul-20	24	$32,671.00
RE17460	DE02SB.IW.365-360 - Earthwork	3	14-Jul-20	16-Jul-20	24	$34,921.37
RE18680	DE02SB.IW.365-360 - Mill Asphalt Concrete Pavement (R)	3	17-Jul-20	21-Jul-20	58	$0.00
RE19270	DE02SB.IW.365-360 - Place GR Aggregate Base Course (O)	3	22-Jul-20	27-Jul-20	58	$20,106.03
RE19530	DE02SB.IW.365-360 - Place Polymer Material (B)	3	28-Jul-20	30-Jul-20	58	$74,174.77
RE20130	DE02SB.IW.365-360 - Place Asphalt Concrete (A)	3	03-Aug-20	05-Aug-20	58	$0.00
DE02 - SB - Sta. 360-355 - Inside Widening		**17**	**17-Jul-20**	**12-Aug-20**	**56**	**$161,873.17**
RE18690	DE02SB.IW.360-355 - Setup Work Zone & Temp Barriers	2	17-Jul-20	20-Jul-20	24	$32,671.00
RE18920	DE02SB.IW.360-355 - Earthwork	3	21-Jul-20	23-Jul-20	24	$34,921.37
RE19620	DE02SB.IW.360-355 - Mill Asphalt Concrete Pavement (R)	3	27-Jul-20	29-Jul-20	56	$0.00



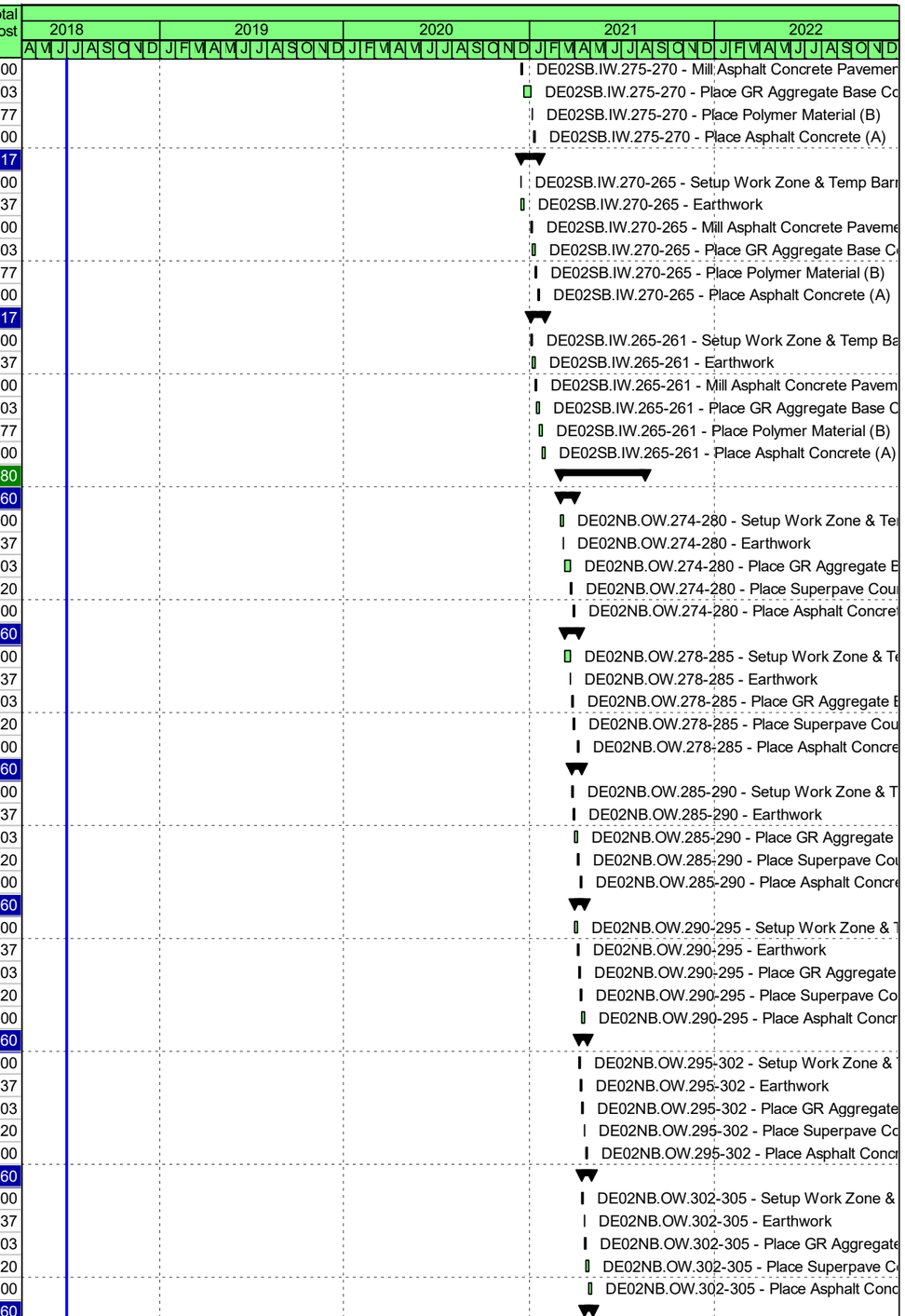
Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE20280	DE02SB.IW.360-355 - Place GR Aggregate Base Course (O)	3	30-Jul-20	04-Aug-20	56	$20,106.03
RE20540	DE02SB.IW.360-355 - Place Polymer Material (B)	3	05-Aug-20	07-Aug-20	56	$74,174.77
RE21100	DE02SB.IW.360-355 - Place Asphalt Concrete (A)	3	10-Aug-20	12-Aug-20	56	$0.00
DE02 - SB - Sta. 355-350 - Inside Widening		**17**	**27-Jul-20**	**19-Aug-20**	**54**	**$161,873.17**
RE19630	DE02SB.IW.355-350 - Setup Work Zone & Temp Barriers	2	27-Jul-20	28-Jul-20	24	$32,671.00
RE20010	DE02SB.IW.355-350 - Earthwork	3	29-Jul-20	03-Aug-20	24	$34,921.37
RE20790	DE02SB.IW.355-350 - Mill Asphalt Concrete Pavement (R)	3	04-Aug-20	06-Aug-20	54	$0.00
RE21260	DE02SB.IW.355-350 - Place GR Aggregate Base Course (O)	3	07-Aug-20	11-Aug-20	54	$20,106.03
RE21600	DE02SB.IW.355-350 - Place Polymer Material (B)	3	12-Aug-20	14-Aug-20	54	$74,174.77
RE22190	DE02SB.IW.355-350 - Place Asphalt Concrete (A)	3	17-Aug-20	19-Aug-20	54	$0.00
DE02 - SB - Sta. 350-345 - Inside Widening		**17**	**04-Aug-20**	**27-Aug-20**	**52**	**$161,873.17**
RE20800	DE02SB.IW.350-345 - Setup Work Zone & Temp Barriers	2	04-Aug-20	05-Aug-20	24	$32,671.00
RE20990	DE02SB.IW.350-345 - Earthwork	3	06-Aug-20	10-Aug-20	24	$34,921.37
RE21830	DE02SB.IW.350-345 - Mill Asphalt Concrete Pavement (R)	3	11-Aug-20	13-Aug-20	52	$0.00
RE22240	DE02SB.IW.350-345 - Place GR Aggregate Base Course (O)	3	14-Aug-20	18-Aug-20	52	$20,106.03
RE22760	DE02SB.IW.350-345 - Place Polymer Material (B)	3	19-Aug-20	24-Aug-20	52	$74,174.77
RE23260	DE02SB.IW.350-345 - Place Asphalt Concrete (A)	3	25-Aug-20	27-Aug-20	52	$0.00
DE02 - SB - Sta. 345-340 - Inside Widening		**17**	**11-Aug-20**	**08-Sep-20**	**50**	**$161,873.17**
RE21820	DE02SB.IW.345-340 - Setup Work Zone & Temp Barriers	2	11-Aug-20	12-Aug-20	24	$32,671.00
RE22070	DE02SB.IW.345-340 - Earthwork	3	13-Aug-20	17-Aug-20	24	$34,921.37
RE22950	DE02SB.IW.345-340 - Mill Asphalt Concrete Pavement (R)	3	18-Aug-20	20-Aug-20	50	$0.00
RE23420	DE02SB.IW.345-340 - Place GR Aggregate Base Course (O)	3	24-Aug-20	26-Aug-20	50	$20,106.03
RE23840	DE02SB.IW.345-340 - Place Polymer Material (B)	3	27-Aug-20	01-Sep-20	50	$74,174.77
RE24310	DE02SB.IW.345-340 - Place Asphalt Concrete (A)	3	02-Sep-20	08-Sep-20	50	$0.00
DE02 - SB - Sta. 340-335 - Inside Widening		**17**	**18-Aug-20**	**15-Sep-20**	**48**	**$161,873.17**
RE22960	DE02SB.IW.340-335 - Setup Work Zone & Temp Barriers	2	18-Aug-20	19-Aug-20	24	$32,671.00
RE23130	DE02SB.IW.340-335 - Earthwork	3	20-Aug-20	25-Aug-20	24	$34,921.37
RE23910	DE02SB.IW.340-335 - Mill Asphalt Concrete Pavement (R)	3	26-Aug-20	31-Aug-20	48	$0.00
RE24340	DE02SB.IW.340-335 - Place GR Aggregate Base Course (O)	3	01-Sep-20	03-Sep-20	48	$20,106.03
RE24660	DE02SB.IW.340-335 - Place Polymer Material (B)	3	08-Sep-20	10-Sep-20	48	$74,174.77
RE25160	DE02SB.IW.340-335 - Place Asphalt Concrete (A)	3	11-Sep-20	15-Sep-20	48	$0.00
DE02 - SB - Sta. 335-330 - Inside Widening		**17**	**26-Aug-20**	**23-Sep-20**	**46**	**$161,873.17**
RE23920	DE02SB.IW.335-330 - Setup Work Zone & Temp Barriers	2	26-Aug-20	27-Aug-20	24	$32,671.00
RE24110	DE02SB.IW.335-330 - Earthwork	3	31-Aug-20	02-Sep-20	24	$34,921.37
RE24720	DE02SB.IW.335-330 - Mill Asphalt Concrete Pavement (R)	3	03-Sep-20	09-Sep-20	46	$0.00
RE25190	DE02SB.IW.335-330 - Place GR Aggregate Base Course (O)	3	10-Sep-20	14-Sep-20	46	$20,106.03
RE25920	DE02SB.IW.335-330 - Place Polymer Material (B)	3	15-Sep-20	17-Sep-20	46	$74,174.77
RE26330	DE02SB.IW.335-330 - Place Asphalt Concrete (A)	3	21-Sep-20	23-Sep-20	46	$0.00
DE02 - SB - Sta. 330-327 - Inside Widening		**15**	**03-Sep-20**	**29-Sep-20**	**46**	**$137,493.05**
RE24730	DE02SB.IW.330-327 - Setup Work Zone & Temp Barriers	2	03-Sep-20	08-Sep-20	24	$32,671.00
RE25050	DE02SB.IW.330-327 - Earthwork	3	09-Sep-20	11-Sep-20	24	$34,921.37
RE26040	DE02SB.IW.330-327 - Install Guardrail	2	14-Sep-20	15-Sep-20	48	$49,794.65
RE26210	DE02SB.IW.330-327 - Mill Asphalt Concrete Pavement (R)	3	16-Sep-20	21-Sep-20	48	$0.00
RE26540	DE02SB.IW.330-327 - Place GR Aggregate Base Course (O)	3	24-Sep-20	29-Sep-20	46	$20,106.03
DE02 - SB - Sta. 324-320 - Inside Widening		**13**	**14-Sep-20**	**02-Oct-20**	**46**	**$137,493.14**
RE26050	DE02SB.IW.324-320 - Setup Work Zone & Temp Barriers	2	14-Sep-20	15-Sep-20	24	$32,671.00
RE26220	DE02SB.IW.324-320 - Earthwork	3	16-Sep-20	21-Sep-20	24	$34,921.37
RE26740	DE02SB.IW.324-320 - Install Guardrail	2	22-Sep-20	23-Sep-20	46	$49,794.74
RE26960	DE02SB.IW.324-320 - Mill Asphalt Concrete Pavement (R)	3	24-Sep-20	29-Sep-20	46	$0.00
RE27150	DE02SB.IW.324-320 - Place GR Aggregate Base Course (O)	3	30-Sep-20	02-Oct-20	46	$20,106.03
DE02 - SB - Sta. 320-315 - Inside Widening		**13**	**22-Sep-20**	**09-Oct-20**	**44**	**$137,493.14**
RE26750	DE02SB.IW.320-315 - Setup Work Zone & Temp Barriers	2	22-Sep-20	23-Sep-20	24	$32,671.00
RE26970	DE02SB.IW.320-315 - Earthwork	3	24-Sep-20	29-Sep-20	24	$34,921.37
RE27230	DE02SB.IW.320-315 - Install Guardrail	2	30-Sep-20	01-Oct-20	44	$49,794.74
RE27400	DE02SB.IW.320-315 - Mill Asphalt Concrete Pavement (R)	3	02-Oct-20	06-Oct-20	44	$0.00
RE27750	DE02SB.IW.320-315 - Place GR Aggregate Base Course (O)	3	07-Oct-20	09-Oct-20	44	$20,106.03



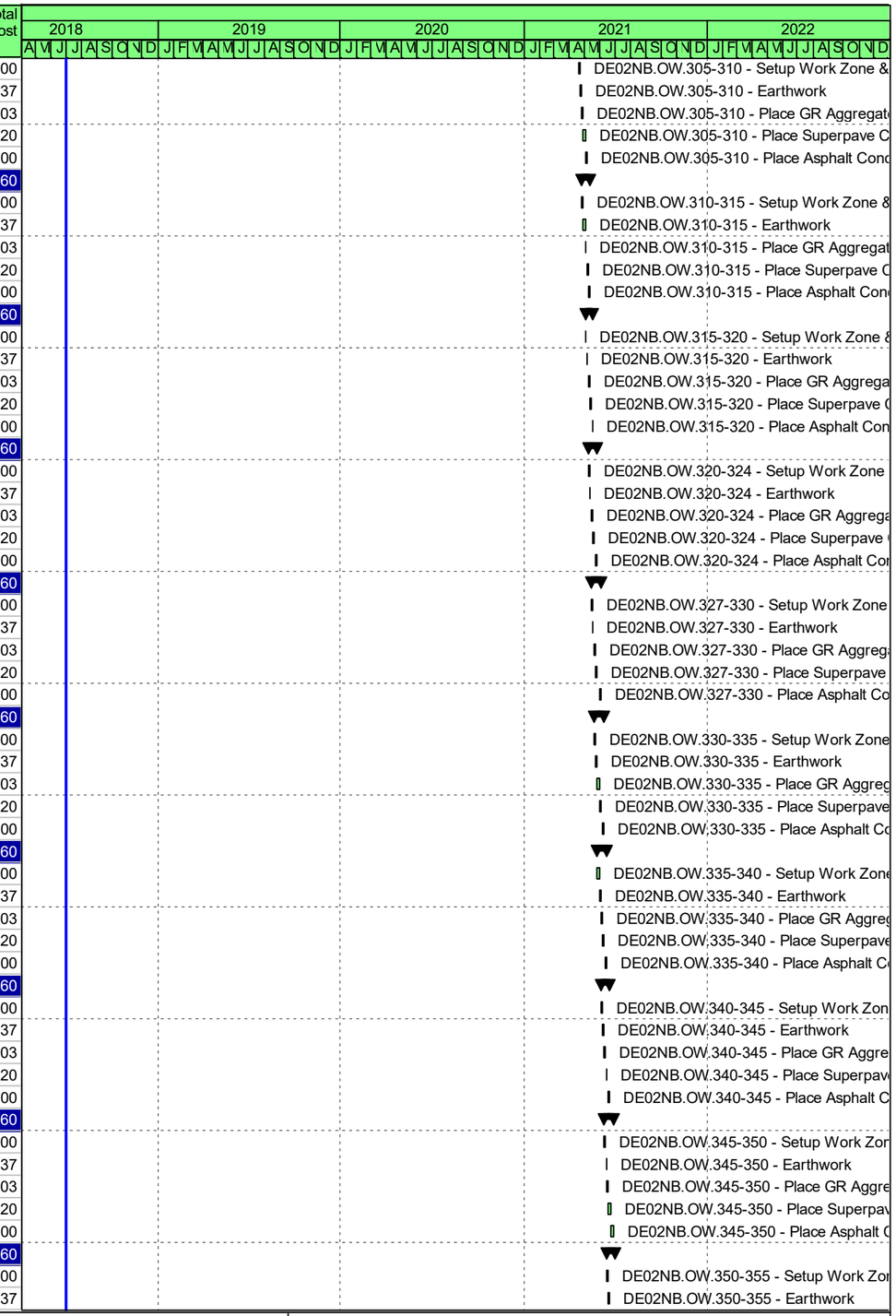
Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
DE02 - SB - Sta. 315-310 - Inside Widening		**13**	**30-Sep-20**	**19-Oct-20**	**42**	**$137,493.14**
RE27240	DE02SB.IW.315-310 - Setup Work Zone & Temp Barriers	2	30-Sep-20	01-Oct-20	24	$32,671.00
RE27410	DE02SB.IW.315-310 - Earthwork	3	02-Oct-20	06-Oct-20	24	$34,921.37
RE28040	DE02SB.IW.315-310 - Install Guardrail	2	07-Oct-20	08-Oct-20	42	$49,794.74
RE28200	DE02SB.IW.315-310 - Mill Asphalt Concrete Pavement (R)	3	09-Oct-20	14-Oct-20	42	$0.00
RE28690	DE02SB.IW.315-310 - Place GR Aggregate Base Course (O)	3	15-Oct-20	19-Oct-20	42	$20,106.03
DE02 - SB - Sta. 310-305 - Inside Widening		**13**	**07-Oct-20**	**26-Oct-20**	**40**	**$137,493.14**
RE28050	DE02SB.IW.310-305 - Setup Work Zone & Temp Barriers	2	07-Oct-20	08-Oct-20	24	$32,671.00
RE28210	DE02SB.IW.310-305 - Earthwork	3	09-Oct-20	14-Oct-20	24	$34,921.37
RE28850	DE02SB.IW.310-305 - Install Guardrail	2	15-Oct-20	16-Oct-20	40	$49,794.74
RE29100	DE02SB.IW.310-305 - Mill Asphalt Concrete Pavement (R)	3	19-Oct-20	21-Oct-20	40	$0.00
RE29400	DE02SB.IW.310-305 - Place GR Aggregate Base Course (O)	3	22-Oct-20	26-Oct-20	40	$20,106.03
DE02 - SB - Sta. 305-302 - Inside Widening		**13**	**15-Oct-20**	**04-Nov-20**	**38**	**$137,493.14**
RE28840	DE02SB.IW.305-302 - Setup Work Zone & Temp Barriers	2	15-Oct-20	16-Oct-20	24	$32,671.00
RE29090	DE02SB.IW.305-302 - Earthwork	3	19-Oct-20	21-Oct-20	24	$34,921.37
RE29730	DE02SB.IW.305-302 - Install Guardrail	2	22-Oct-20	23-Oct-20	38	$49,794.74
RE29890	DE02SB.IW.305-302 - Mill Asphalt Concrete Pavement (R)	3	26-Oct-20	28-Oct-20	38	$0.00
RE30040	DE02SB.IW.305-302 - Place GR Aggregate Base Course (O)	3	29-Oct-20	04-Nov-20	38	$20,106.03
DE02 - SB - Sta. 302-295 - Inside Widening		**17**	**22-Oct-20**	**18-Nov-20**	**38**	**$161,873.17**
RE29720	DE02SB.IW.302-295 - Setup Work Zone & Temp Barriers	2	22-Oct-20	23-Oct-20	24	$32,671.00
RE29880	DE02SB.IW.302-295 - Earthwork	3	26-Oct-20	28-Oct-20	24	$34,921.37
RE30270	DE02SB.IW.302-295 - Mill Asphalt Concrete Pavement (R)	3	29-Oct-20	04-Nov-20	38	$0.00
RE30730	DE02SB.IW.302-295 - Place GR Aggregate Base Course (O)	3	05-Nov-20	10-Nov-20	38	$20,106.03
RE31130	DE02SB.IW.302-295 - Place Polymer Material (B)	3	11-Nov-20	13-Nov-20	38	$74,174.77
RE31460	DE02SB.IW.302-295 - Place Asphalt Concrete (A)	3	16-Nov-20	18-Nov-20	38	$0.00
DE02 - SB - Sta. 295-290 - Inside Widening		**17**	**29-Oct-20**	**02-Dec-20**	**36**	**$161,873.17**
RE30280	DE02SB.IW.295-290 - Setup Work Zone & Temp Barriers	2	29-Oct-20	02-Nov-20	24	$32,671.00
RE30520	DE02SB.IW.295-290 - Earthwork	3	04-Nov-20	06-Nov-20	24	$34,921.37
RE31170	DE02SB.IW.295-290 - Mill Asphalt Concrete Pavement (R)	3	10-Nov-20	12-Nov-20	36	$0.00
RE31680	DE02SB.IW.295-290 - Place GR Aggregate Base Course (O)	3	13-Nov-20	17-Nov-20	36	$20,106.03
RE32020	DE02SB.IW.295-290 - Place Polymer Material (B)	3	18-Nov-20	23-Nov-20	36	$74,174.77
RE32520	DE02SB.IW.295-290 - Place Asphalt Concrete (A)	3	24-Nov-20	02-Dec-20	36	$0.00
DE02 - SB - Sta. 290-285 - Inside Widening		**17**	**10-Nov-20**	**09-Dec-20**	**34**	**$161,873.17**
RE31160	DE02SB.IW.290-285 - Setup Work Zone & Temp Barriers	2	10-Nov-20	11-Nov-20	24	$32,671.00
RE31340	DE02SB.IW.290-285 - Earthwork	3	12-Nov-20	16-Nov-20	24	$34,921.37
RE32030	DE02SB.IW.290-285 - Mill Asphalt Concrete Pavement (R)	3	17-Nov-20	19-Nov-20	34	$0.00
RE32530	DE02SB.IW.290-285 - Place GR Aggregate Base Course (O)	3	23-Nov-20	01-Dec-20	34	$20,106.03
RE32660	DE02SB.IW.290-285 - Place Polymer Material (B)	3	02-Dec-20	04-Dec-20	34	$74,174.77
RE33360	DE02SB.IW.290-285 - Place Asphalt Concrete (A)	3	07-Dec-20	09-Dec-20	34	$0.00
DE02 - SB - Sta. 285-280 - Inside Widening		**17**	**17-Nov-20**	**16-Dec-20**	**32**	**$161,873.17**
RE32040	DE02SB.IW.285-280 - Setup Work Zone & Temp Barriers	2	17-Nov-20	18-Nov-20	24	$32,671.00
RE32270	DE02SB.IW.285-280 - Earthwork	3	19-Nov-20	24-Nov-20	24	$34,921.37
RE32740	DE02SB.IW.285-280 - Mill Asphalt Concrete Pavement (R)	3	01-Dec-20	03-Dec-20	32	$0.00
RE33370	DE02SB.IW.285-280 - Place GR Aggregate Base Course (O)	3	04-Dec-20	08-Dec-20	32	$20,106.03
RE33550	DE02SB.IW.285-280 - Place Polymer Material (B)	3	09-Dec-20	11-Dec-20	32	$74,174.77
RE33960	DE02SB.IW.285-280 - Place Asphalt Concrete (A)	3	14-Dec-20	16-Dec-20	32	$0.00
DE02 - SB - Sta. 280-275 - Inside Widening		**17**	**01-Dec-20**	**06-Jan-21**	**30**	**$161,873.17**
RE32750	DE02SB.IW.280-275 - Setup Work Zone & Temp Barriers	2	01-Dec-20	02-Dec-20	24	$32,671.00
RE33260	DE02SB.IW.280-275 - Earthwork	3	03-Dec-20	07-Dec-20	24	$34,921.37
RE33710	DE02SB.IW.280-275 - Mill Asphalt Concrete Pavement (R)	3	08-Dec-20	10-Dec-20	30	$0.00
RE34080	DE02SB.IW.280-275 - Place GR Aggregate Base Course (O)	3	11-Dec-20	15-Dec-20	30	$20,106.03
RE34330	DE02SB.IW.280-275 - Place Polymer Material (B)	3	16-Dec-20	21-Dec-20	30	$74,174.77
RE34650	DE02SB.IW.280-275 - Place Asphalt Concrete (A)	3	22-Dec-20	06-Jan-21	30	$0.00
DE02 - SB - Sta. 275-270 - Inside Widening		**17**	**08-Dec-20**	**13-Jan-21**	**28**	**$161,873.17**
RE33720	DE02SB.IW.275-270 - Setup Work Zone & Temp Barriers	2	08-Dec-20	09-Dec-20	24	$32,671.00
RE33860	DE02SB.IW.275-270 - Earthwork	3	10-Dec-20	14-Dec-20	24	$34,921.37



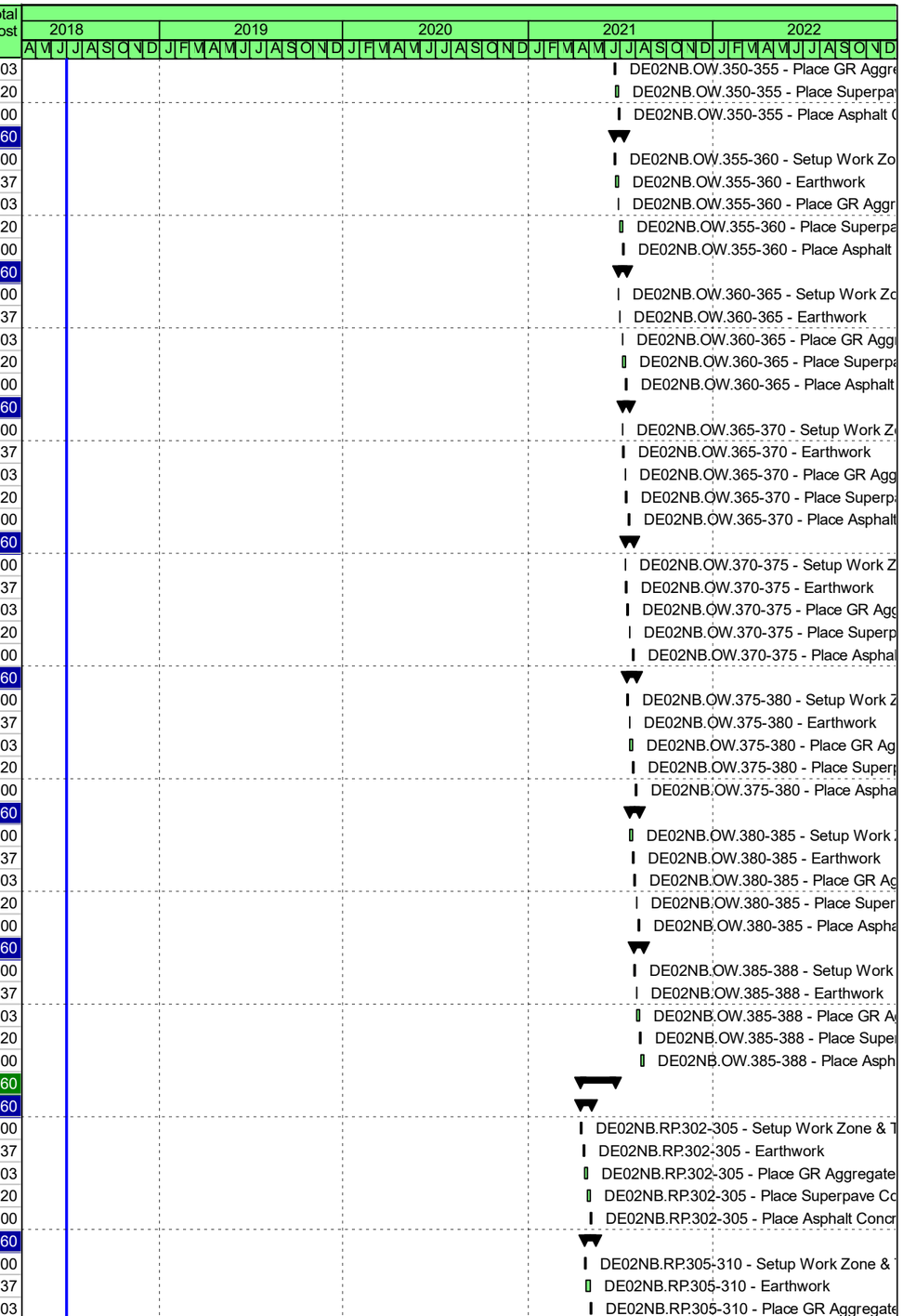
Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE34350	DE02SB.IW.275-270 - Mill Asphalt Concrete Pavement (R)	3	15-Dec-20	17-Dec-20	28	$0.00
RE34660	DE02SB.IW.275-270 - Place GR Aggregate Base Course (O)	3	21-Dec-20	05-Jan-21	28	$20,106.03
RE34890	DE02SB.IW.275-270 - Place Polymer Material (B)	3	06-Jan-21	08-Jan-21	28	$74,174.77
RE35260	DE02SB.IW.275-270 - Place Asphalt Concrete (A)	3	11-Jan-21	13-Jan-21	28	$0.00
DE02 - SB - Sta. 270-265 - Inside Widening		**17**	**15-Dec-20**	**21-Jan-21**	**26**	**$161,873.17**
RE34360	DE02SB.IW.270-265 - Setup Work Zone & Temp Barriers	2	15-Dec-20	16-Dec-20	24	$32,671.00
RE34550	DE02SB.IW.270-265 - Earthwork	3	17-Dec-20	22-Dec-20	24	$34,921.37
RE35040	DE02SB.IW.270-265 - Mill Asphalt Concrete Pavement (R)	3	05-Jan-21	07-Jan-21	26	$0.00
RE35340	DE02SB.IW.270-265 - Place GR Aggregate Base Course (O)	3	08-Jan-21	12-Jan-21	26	$20,106.03
RE35550	DE02SB.IW.270-265 - Place Polymer Material (B)	3	13-Jan-21	15-Jan-21	26	$74,174.77
RE35950	DE02SB.IW.270-265 - Place Asphalt Concrete (A)	3	19-Jan-21	21-Jan-21	26	$0.00
DE02 - SB - Sta. 265-261 - Inside Widening		**17**	**05-Jan-21**	**01-Feb-21**	**24**	**$161,873.17**
RE35030	DE02SB.IW.265-261 - Setup Work Zone & Temp Barriers	2	05-Jan-21	06-Jan-21	24	$32,671.00
RE35170	DE02SB.IW.265-261 - Earthwork	3	07-Jan-21	11-Jan-21	24	$34,921.37
RE35570	DE02SB.IW.265-261 - Mill Asphalt Concrete Pavement (R)	3	12-Jan-21	14-Jan-21	24	$0.00
RE35960	DE02SB.IW.265-261 - Place GR Aggregate Base Course (O)	3	15-Jan-21	20-Jan-21	24	$20,106.03
RE36170	DE02SB.IW.265-261 - Place Polymer Material (B)	3	21-Jan-21	26-Jan-21	24	$74,174.77
RE36390	DE02SB.IW.265-261 - Place Asphalt Concrete (A)	3	27-Jan-21	01-Feb-21	24	$0.00
DE02 - NB - Outside Widening		**101**	**05-Mar-21**	**17-Aug-21**	**4**	**$2,584,546.80**
DE02 - NB - Sta. 274-280 - Outside Widening		**12**	**05-Mar-21**	**31-Mar-21**	**27**	**$112,371.60**
RE35630	DE02NB.OW.274-280 - Setup Work Zone & Temp Barriers	2	05-Mar-21	08-Mar-21	4	$32,671.00
RE35870	DE02NB.OW.274-280 - Earthwork	2	09-Mar-21	10-Mar-21	4	$34,921.37
RE36080	DE02NB.OW.274-280 - Place GR Aggregate Base Course (N)	2	11-Mar-21	22-Mar-21	27	$20,106.03
RE36240	DE02NB.OW.274-280 - Place Superpave Course (L+G+B)	3	23-Mar-21	25-Mar-21	27	$24,673.20
RE36500	DE02NB.OW.274-280 - Place Asphalt Concrete (A)	3	29-Mar-21	31-Mar-21	27	$0.00
DE02 - NB - Sta. 280-285 - Outside Widening		**12**	**11-Mar-21**	**08-Apr-21**	**26**	**$112,371.60**
RE36090	DE02NB.OW.278-285 - Setup Work Zone & Temp Barriers	2	11-Mar-21	22-Mar-21	4	$32,671.00
RE36160	DE02NB.OW.278-285 - Earthwork	2	23-Mar-21	24-Mar-21	4	$34,921.37
RE36330	DE02NB.OW.278-285 - Place GR Aggregate Base Course (N)	2	25-Mar-21	29-Mar-21	26	$20,106.03
RE36580	DE02NB.OW.278-285 - Place Superpave Course (L+G+B)	3	30-Mar-21	01-Apr-21	26	$24,673.20
RE36730	DE02NB.OW.278-285 - Place Asphalt Concrete (A)	3	06-Apr-21	08-Apr-21	26	$0.00
DE02 - NB - Sta. 285-290 - Outside Widening		**12**	**25-Mar-21**	**14-Apr-21**	**25**	**$112,371.60**
RE36340	DE02NB.OW.285-290 - Setup Work Zone & Temp Barriers	2	25-Mar-21	29-Mar-21	4	$32,671.00
RE36420	DE02NB.OW.285-290 - Earthwork	2	30-Mar-21	31-Mar-21	4	$34,921.37
RE36660	DE02NB.OW.285-290 - Place GR Aggregate Base Course (N)	2	01-Apr-21	06-Apr-21	25	$20,106.03
RE36810	DE02NB.OW.285-290 - Place Superpave Course (L+G+B)	3	07-Apr-21	09-Apr-21	25	$24,673.20
RE37130	DE02NB.OW.285-290 - Place Asphalt Concrete (A)	3	12-Apr-21	14-Apr-21	25	$0.00
DE02 - NB - Sta. 290-295 - Outside Widening		**12**	**01-Apr-21**	**20-Apr-21**	**24**	**$112,371.60**
RE36650	DE02NB.OW.290-295 - Setup Work Zone & Temp Barriers	2	01-Apr-21	06-Apr-21	4	$32,671.00
RE36690	DE02NB.OW.290-295 - Earthwork	2	07-Apr-21	08-Apr-21	4	$34,921.37
RE36980	DE02NB.OW.290-295 - Place GR Aggregate Base Course (N)	2	09-Apr-21	12-Apr-21	24	$20,106.03
RE37180	DE02NB.OW.290-295 - Place Superpave Course (L+G+B)	3	13-Apr-21	15-Apr-21	24	$24,673.20
RE37480	DE02NB.OW.290-295 - Place Asphalt Concrete (A)	3	16-Apr-21	20-Apr-21	24	$0.00
DE02 - NB - Sta. 295-300 - Outside Widening		**12**	**09-Apr-21**	**26-Apr-21**	**23**	**$112,371.60**
RE36990	DE02NB.OW.295-302 - Setup Work Zone & Temp Barriers	2	09-Apr-21	12-Apr-21	4	$32,671.00
RE37060	DE02NB.OW.295-302 - Earthwork	2	13-Apr-21	14-Apr-21	4	$34,921.37
RE37220	DE02NB.OW.295-302 - Place GR Aggregate Base Course (N)	2	15-Apr-21	16-Apr-21	23	$20,106.03
RE37540	DE02NB.OW.295-302 - Place Superpave Course (L+G+B)	3	19-Apr-21	21-Apr-21	23	$24,673.20
RE37770	DE02NB.OW.295-302 - Place Asphalt Concrete (A)	3	22-Apr-21	26-Apr-21	23	$0.00
DE02 - NB - Sta. 300-305 - Outside Widening		**12**	**15-Apr-21**	**03-May-21**	**22**	**$112,371.60**
RE37230	DE02NB.OW.302-305 - Setup Work Zone & Temp Barriers	2	15-Apr-21	16-Apr-21	4	$32,671.00
RE37390	DE02NB.OW.302-305 - Earthwork	2	19-Apr-21	20-Apr-21	4	$34,921.37
RE37650	DE02NB.OW.302-305 - Place GR Aggregate Base Course (N)	2	21-Apr-21	22-Apr-21	22	$20,106.03
RE37800	DE02NB.OW.302-305 - Place Superpave Course (L+G+B)	3	23-Apr-21	27-Apr-21	22	$24,673.20
RE38120	DE02NB.OW.302-305 - Place Asphalt Concrete (A)	3	28-Apr-21	03-May-21	22	$0.00
DE02 - NB - Sta. 305-310 - Outside Widening		**12**	**21-Apr-21**	**07-May-21**	**21**	**$112,371.60**



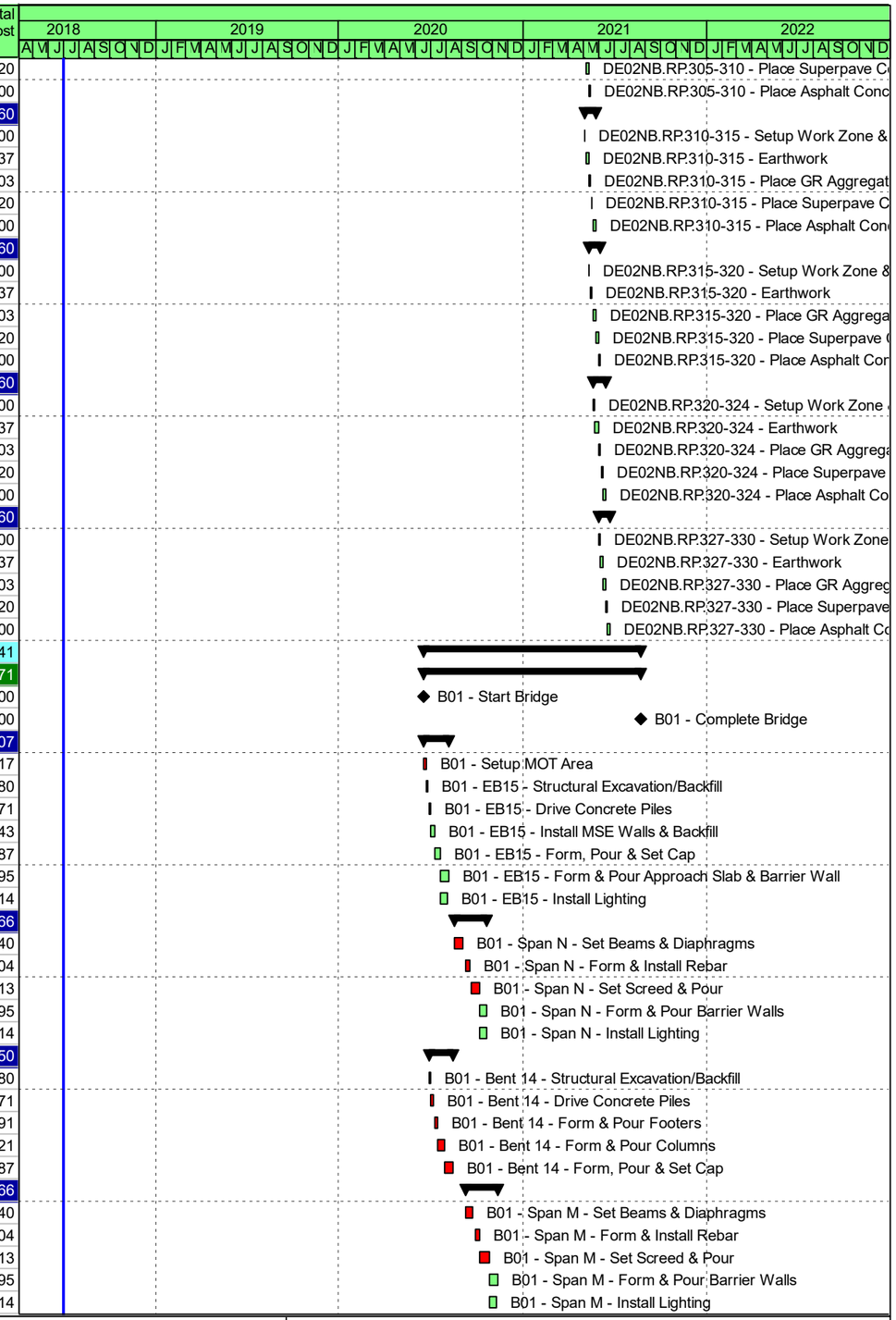
Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE37640	DE02NB.OW.305-310 - Setup Work Zone & Temp Barriers	2	21-Apr-21	22-Apr-21	4	$32,671.00
RE37740	DE02NB.OW.305-310 - Earthwork	2	23-Apr-21	26-Apr-21	4	$34,921.37
RE37940	DE02NB.OW.305-310 - Place GR Aggregate Base Course (N)	2	27-Apr-21	28-Apr-21	21	$20,106.03
RE38180	DE02NB.OW.305-310 - Place Superpave Course (L+G+B)	3	29-Apr-21	04-May-21	21	$24,673.20
RE38490	DE02NB.OW.305-310 - Place Asphalt Concrete (A)	3	05-May-21	07-May-21	21	$0.00
DE02 - NB - Sta. 310-315 - Outside Widening		**12**	**27-Apr-21**	**13-May-21**	**20**	**$112,371.60**
RE37950	DE02NB.OW.310-315 - Setup Work Zone & Temp Barriers	2	27-Apr-21	28-Apr-21	4	$32,671.00
RE38090	DE02NB.OW.310-315 - Earthwork	2	29-Apr-21	03-May-21	4	$34,921.37
RE38250	DE02NB.OW.310-315 - Place GR Aggregate Base Course (N)	2	04-May-21	05-May-21	20	$20,106.03
RE38620	DE02NB.OW.310-315 - Place Superpave Course (L+G+B)	3	06-May-21	10-May-21	20	$24,673.20
RE38860	DE02NB.OW.310-315 - Place Asphalt Concrete (A)	3	11-May-21	13-May-21	20	$0.00
DE02 - NB - Sta. 315-320 - Outside Widening		**12**	**04-May-21**	**19-May-21**	**19**	**$112,371.60**
RE38260	DE02NB.OW.315-320 - Setup Work Zone & Temp Barriers	2	04-May-21	05-May-21	4	$32,671.00
RE38460	DE02NB.OW.315-320 - Earthwork	2	06-May-21	07-May-21	4	$34,921.37
RE38730	DE02NB.OW.315-320 - Place GR Aggregate Base Course (N)	2	10-May-21	11-May-21	19	$20,106.03
RE38940	DE02NB.OW.315-320 - Place Superpave Course (L+G+B)	3	12-May-21	14-May-21	19	$24,673.20
RE39200	DE02NB.OW.315-320 - Place Asphalt Concrete (A)	3	17-May-21	19-May-21	19	$0.00
DE02 - NB - Sta. 320-324 - Outside Widening		**12**	**10-May-21**	**26-May-21**	**18**	**$112,371.60**
RE38720	DE02NB.OW.320-324 - Setup Work Zone & Temp Barriers	2	10-May-21	11-May-21	4	$32,671.00
RE38810	DE02NB.OW.320-324 - Earthwork	2	12-May-21	13-May-21	4	$34,921.37
RE39000	DE02NB.OW.320-324 - Place GR Aggregate Base Course (N)	2	14-May-21	17-May-21	18	$20,106.03
RE39290	DE02NB.OW.320-324 - Place Superpave Course (L+G+B)	3	18-May-21	20-May-21	18	$24,673.20
RE39560	DE02NB.OW.320-324 - Place Asphalt Concrete (A)	3	24-May-21	26-May-21	18	$0.00
DE02 - NB - Sta. 327-330 - Outside Widening		**12**	**14-May-21**	**03-Jun-21**	**17**	**$112,371.60**
RE39010	DE02NB.OW.327-330 - Setup Work Zone & Temp Barriers	2	14-May-21	17-May-21	4	$32,671.00
RE39110	DE02NB.OW.327-330 - Earthwork	2	18-May-21	19-May-21	4	$34,921.37
RE39400	DE02NB.OW.327-330 - Place GR Aggregate Base Course (N)	2	20-May-21	24-May-21	17	$20,106.03
RE39610	DE02NB.OW.327-330 - Place Superpave Course (L+G+B)	3	25-May-21	27-May-21	17	$24,673.20
RE39860	DE02NB.OW.327-330 - Place Asphalt Concrete (A)	3	01-Jun-21	03-Jun-21	17	$0.00
DE02 - NB - Sta. 330-335 - Outside Widening		**12**	**20-May-21**	**09-Jun-21**	**16**	**$112,371.60**
RE39390	DE02NB.OW.330-335 - Setup Work Zone & Temp Barriers	2	20-May-21	24-May-21	4	$32,671.00
RE39520	DE02NB.OW.330-335 - Earthwork	2	25-May-21	26-May-21	4	$34,921.37
RE39680	DE02NB.OW.330-335 - Place GR Aggregate Base Course (N)	2	27-May-21	01-Jun-21	16	$20,106.03
RE39920	DE02NB.OW.330-335 - Place Superpave Course (L+G+B)	3	02-Jun-21	04-Jun-21	16	$24,673.20
RE40100	DE02NB.OW.330-335 - Place Asphalt Concrete (A)	3	07-Jun-21	09-Jun-21	16	$0.00
DE02 - NB - Sta. 335-340 - Outside Widening		**12**	**27-May-21**	**15-Jun-21**	**15**	**$112,371.60**
RE39690	DE02NB.OW.335-340 - Setup Work Zone & Temp Barriers	2	27-May-21	01-Jun-21	4	$32,671.00
RE39800	DE02NB.OW.335-340 - Earthwork	2	02-Jun-21	03-Jun-21	4	$34,921.37
RE39980	DE02NB.OW.335-340 - Place GR Aggregate Base Course (N)	2	04-Jun-21	07-Jun-21	15	$20,106.03
RE40120	DE02NB.OW.335-340 - Place Superpave Course (L+G+B)	3	08-Jun-21	10-Jun-21	15	$24,673.20
RE40340	DE02NB.OW.335-340 - Place Asphalt Concrete (A)	3	11-Jun-21	15-Jun-21	15	$0.00
DE02 - NB - Sta. 340-345 - Outside Widening		**12**	**04-Jun-21**	**21-Jun-21**	**14**	**$112,371.60**
RE39990	DE02NB.OW.340-345 - Setup Work Zone & Temp Barriers	2	04-Jun-21	07-Jun-21	4	$32,671.00
RE40070	DE02NB.OW.340-345 - Earthwork	2	08-Jun-21	09-Jun-21	4	$34,921.37
RE40220	DE02NB.OW.340-345 - Place GR Aggregate Base Course (N)	2	10-Jun-21	11-Jun-21	14	$20,106.03
RE40400	DE02NB.OW.340-345 - Place Superpave Course (L+G+B)	3	14-Jun-21	16-Jun-21	14	$24,673.20
RE40560	DE02NB.OW.340-345 - Place Asphalt Concrete (A)	3	17-Jun-21	21-Jun-21	14	$0.00
DE02 - NB - Sta. 345-350 - Outside Widening		**12**	**10-Jun-21**	**28-Jun-21**	**13**	**$112,371.60**
RE40230	DE02NB.OW.345-350 - Setup Work Zone & Temp Barriers	2	10-Jun-21	11-Jun-21	4	$32,671.00
RE40310	DE02NB.OW.345-350 - Earthwork	2	14-Jun-21	15-Jun-21	4	$34,921.37
RE40460	DE02NB.OW.345-350 - Place GR Aggregate Base Course (N)	2	16-Jun-21	17-Jun-21	13	$20,106.03
RE40630	DE02NB.OW.345-350 - Place Superpave Course (L+G+B)	3	18-Jun-21	22-Jun-21	13	$24,673.20
RE40880	DE02NB.OW.345-350 - Place Asphalt Concrete (A)	3	23-Jun-21	28-Jun-21	13	$0.00
DE02 - NB - Sta. 350-355 - Outside Widening		**12**	**16-Jun-21**	**02-Jul-21**	**12**	**$112,371.60**
RE40450	DE02NB.OW.350-355 - Setup Work Zone & Temp Barriers	2	16-Jun-21	17-Jun-21	4	$32,671.00
RE40530	DE02NB.OW.350-355 - Earthwork	2	18-Jun-21	21-Jun-21	4	$34,921.37



Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE40730	DE02NB.OW.350-355 - Place GR Aggregate Base Course (N)	2	22-Jun-21	23-Jun-21	12	$20,106.03
RE40910	DE02NB.OW.350-355 - Place Superpave Course (L+G+B)	3	24-Jun-21	29-Jun-21	12	$24,673.20
RE41120	DE02NB.OW.350-355 - Place Asphalt Concrete (A)	3	30-Jun-21	02-Jul-21	12	$0.00
DE02 - NB - Sta. 355-360 - Outside Widening		**12**	**22-Jun-21**	**09-Jul-21**	**11**	**$112,371.60**
RE40720	DE02NB.OW.355-360 - Setup Work Zone & Temp Barriers	2	22-Jun-21	23-Jun-21	4	$32,671.00
RE40850	DE02NB.OW.355-360 - Earthwork	2	24-Jun-21	28-Jun-21	4	$34,921.37
RE40970	DE02NB.OW.355-360 - Place GR Aggregate Base Course (N)	2	29-Jun-21	30-Jun-21	11	$20,106.03
RE41210	DE02NB.OW.355-360 - Place Superpave Course (L+G+B)	3	01-Jul-21	06-Jul-21	11	$24,673.20
RE41390	DE02NB.OW.355-360 - Place Asphalt Concrete (A)	3	07-Jul-21	09-Jul-21	11	$0.00
DE02 - NB - Sta. 360-365 - Outside Widening		**12**	**29-Jun-21**	**15-Jul-21**	**10**	**$112,371.60**
RE40980	DE02NB.OW.360-365 - Setup Work Zone & Temp Barriers	2	29-Jun-21	30-Jun-21	4	$32,671.00
RE41090	DE02NB.OW.360-365 - Earthwork	2	01-Jul-21	02-Jul-21	4	$34,921.37
RE41280	DE02NB.OW.360-365 - Place GR Aggregate Base Course (N)	2	06-Jul-21	07-Jul-21	10	$20,106.03
RE41420	DE02NB.OW.360-365 - Place Superpave Course (L+G+B)	3	08-Jul-21	12-Jul-21	10	$24,673.20
RE41670	DE02NB.OW.360-365 - Place Asphalt Concrete (A)	3	13-Jul-21	15-Jul-21	10	$0.00
DE02 - NB - Sta. 365-370 - Outside Widening		**12**	**06-Jul-21**	**21-Jul-21**	**9**	**$112,371.60**
RE41290	DE02NB.OW.365-370 - Setup Work Zone & Temp Barriers	2	06-Jul-21	07-Jul-21	4	$32,671.00
RE41360	DE02NB.OW.365-370 - Earthwork	2	08-Jul-21	09-Jul-21	4	$34,921.37
RE41540	DE02NB.OW.365-370 - Place GR Aggregate Base Course (N)	2	12-Jul-21	13-Jul-21	9	$20,106.03
RE41720	DE02NB.OW.365-370 - Place Superpave Course (L+G+B)	3	14-Jul-21	16-Jul-21	9	$24,673.20
RE41930	DE02NB.OW.365-370 - Place Asphalt Concrete (A)	3	19-Jul-21	21-Jul-21	9	$0.00
DE02 - NB - Sta. 370-375 - Outside Widening		**12**	**12-Jul-21**	**28-Jul-21**	**8**	**$112,371.60**
RE41530	DE02NB.OW.370-375 - Setup Work Zone & Temp Barriers	2	12-Jul-21	13-Jul-21	4	$32,671.00
RE41630	DE02NB.OW.370-375 - Earthwork	2	14-Jul-21	15-Jul-21	4	$34,921.37
RE41780	DE02NB.OW.370-375 - Place GR Aggregate Base Course (N)	2	16-Jul-21	19-Jul-21	8	$20,106.03
RE42000	DE02NB.OW.370-375 - Place Superpave Course (L+G+B)	3	20-Jul-21	22-Jul-21	8	$24,673.20
RE42220	DE02NB.OW.370-375 - Place Asphalt Concrete (A)	3	26-Jul-21	28-Jul-21	8	$0.00
DE02 - NB - Sta. 375-380 - Outside Widening		**12**	**16-Jul-21**	**04-Aug-21**	**7**	**$112,371.60**
RE41790	DE02NB.OW.375-380 - Setup Work Zone & Temp Barriers	2	16-Jul-21	19-Jul-21	4	$32,671.00
RE41860	DE02NB.OW.375-380 - Earthwork	2	20-Jul-21	21-Jul-21	4	$34,921.37
RE42080	DE02NB.OW.375-380 - Place GR Aggregate Base Course (N)	2	22-Jul-21	26-Jul-21	7	$20,106.03
RE42250	DE02NB.OW.375-380 - Place Superpave Course (L+G+B)	3	27-Jul-21	29-Jul-21	7	$24,673.20
RE42480	DE02NB.OW.375-380 - Place Asphalt Concrete (A)	3	02-Aug-21	04-Aug-21	7	$0.00
DE02 - NB - Sta. 380-385 - Outside Widening		**12**	**22-Jul-21**	**10-Aug-21**	**6**	**$112,371.60**
RE42090	DE02NB.OW.380-385 - Setup Work Zone & Temp Barriers	2	22-Jul-21	26-Jul-21	4	$32,671.00
RE42170	DE02NB.OW.380-385 - Earthwork	2	27-Jul-21	28-Jul-21	4	$34,921.37
RE42310	DE02NB.OW.380-385 - Place GR Aggregate Base Course (N)	2	29-Jul-21	02-Aug-21	6	$20,106.03
RE42530	DE02NB.OW.380-385 - Place Superpave Course (L+G+B)	3	03-Aug-21	05-Aug-21	6	$24,673.20
RE42710	DE02NB.OW.380-385 - Place Asphalt Concrete (A)	3	06-Aug-21	10-Aug-21	6	$0.00
DE02 - NB - Sta. 385-388 - Outside Widening		**13**	**29-Jul-21**	**17-Aug-21**	**4**	**$112,371.60**
RE42320	DE02NB.OW.385-388 - Setup Work Zone & Temp Barriers	2	29-Jul-21	02-Aug-21	4	$32,671.00
RE42400	DE02NB.OW.385-388 - Earthwork	2	03-Aug-21	04-Aug-21	4	$34,921.37
RE42590	DE02NB.OW.385-388 - Place GR Aggregate Base Course (N)	3	05-Aug-21	09-Aug-21	4	$20,106.03
RE42730	DE02NB.OW.385-388 - Place Superpave Course (L+G+B)	3	10-Aug-21	12-Aug-21	4	$24,673.20
RE42950	DE02NB.OW.385-388 - Place Asphalt Concrete (A)	3	13-Aug-21	17-Aug-21	4	$0.00
DE02 - Ramps		**45**	**15-Apr-21**	**22-Jun-21**	**40**	**$674,229.60**
DE02 - NB - Sta. 302-305 - Ramp		**15**	**15-Apr-21**	**06-May-21**	**55**	**$112,371.60**
RE37240	DE02NB.RP.302-305 - Setup Work Zone & Temp Barriers	2	15-Apr-21	16-Apr-21	40	$32,671.00
RE37400	DE02NB.RP.302-305 - Earthwork	4	19-Apr-21	22-Apr-21	40	$34,921.37
RE37670	DE02NB.RP.302-305 - Place GR Aggregate Base Course (N)	3	23-Apr-21	27-Apr-21	55	$20,106.03
RE37810	DE02NB.RP.302-305 - Place Superpave Course (L+G+B)	3	28-Apr-21	03-May-21	55	$24,673.20
RE38130	DE02NB.RP.302-305 - Place Asphalt Concrete (A)	3	04-May-21	06-May-21	55	$0.00
DE02 - NB - Sta. 305-310 - Ramp		**15**	**23-Apr-21**	**14-May-21**	**52**	**$112,371.60**
RE37660	DE02NB.RP.305-310 - Setup Work Zone & Temp Barriers	2	23-Apr-21	26-Apr-21	40	$32,671.00
RE37750	DE02NB.RP.305-310 - Earthwork	4	27-Apr-21	03-May-21	40	$34,921.37
RE37960	DE02NB.RP.305-310 - Place GR Aggregate Base Course (N)	3	04-May-21	06-May-21	52	$20,106.03



Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE38190	DE02NB.RP.305-310 - Place Superpave Course (L+G+B)	3	07-May-21	11-May-21	52	$24,673.20
RE38500	DE02NB.RP.305-310 - Place Asphalt Concrete (A)	3	12-May-21	14-May-21	52	$0.00
DE02 - NB - Sta. 310-315 - Ramp		**15**	**04-May-21**	**25-May-21**	**49**	**$112,371.60**
RE37970	DE02NB.RP.310-315 - Setup Work Zone & Temp Barriers	2	04-May-21	05-May-21	40	$32,671.00
RE38100	DE02NB.RP.310-315 - Earthwork	4	06-May-21	11-May-21	40	$34,921.37
RE38270	DE02NB.RP.310-315 - Place GR Aggregate Base Course (N)	3	12-May-21	14-May-21	49	$20,106.03
RE38630	DE02NB.RP.310-315 - Place Superpave Course (L+G+B)	3	17-May-21	19-May-21	49	$24,673.20
RE38870	DE02NB.RP.310-315 - Place Asphalt Concrete (A)	3	20-May-21	25-May-21	49	$0.00
DE02 - NB - Sta. 315-320 - Ramp		**15**	**12-May-21**	**04-Jun-21**	**46**	**$112,371.60**
RE38280	DE02NB.RP.315-320 - Setup Work Zone & Temp Barriers	2	12-May-21	13-May-21	40	$32,671.00
RE38470	DE02NB.RP.315-320 - Earthwork	4	14-May-21	19-May-21	40	$34,921.37
RE38750	DE02NB.RP.315-320 - Place GR Aggregate Base Course (N)	3	20-May-21	25-May-21	46	$20,106.03
RE38950	DE02NB.RP.315-320 - Place Superpave Course (L+G+B)	3	26-May-21	01-Jun-21	46	$24,673.20
RE39210	DE02NB.RP.315-320 - Place Asphalt Concrete (A)	3	02-Jun-21	04-Jun-21	46	$0.00
DE02 - NB - Sta. 320-324 - Ramp		**15**	**20-May-21**	**14-Jun-21**	**43**	**$112,371.60**
RE38740	DE02NB.RP.320-324 - Setup Work Zone & Temp Barriers	2	20-May-21	24-May-21	40	$32,671.00
RE38820	DE02NB.RP.320-324 - Earthwork	4	25-May-21	01-Jun-21	40	$34,921.37
RE39020	DE02NB.RP.320-324 - Place GR Aggregate Base Course (N)	3	02-Jun-21	04-Jun-21	43	$20,106.03
RE39300	DE02NB.RP.320-324 - Place Superpave Course (L+G+B)	3	07-Jun-21	09-Jun-21	43	$24,673.20
RE39570	DE02NB.RP.320-324 - Place Asphalt Concrete (A)	3	10-Jun-21	14-Jun-21	43	$0.00
DE02 - NB - Sta. 327-330 - Ramp		**15**	**02-Jun-21**	**22-Jun-21**	**40**	**$112,371.60**
RE39030	DE02NB.RP.327-330 - Setup Work Zone & Temp Barriers	2	02-Jun-21	03-Jun-21	40	$32,671.00
RE39120	DE02NB.RP.327-330 - Earthwork	4	04-Jun-21	09-Jun-21	40	$34,921.37
RE39410	DE02NB.RP.327-330 - Place GR Aggregate Base Course (N)	3	10-Jun-21	14-Jun-21	40	$20,106.03
RE39620	DE02NB.RP.327-330 - Place Superpave Course (L+G+B)	3	15-Jun-21	17-Jun-21	40	$24,673.20
RE39870	DE02NB.RP.327-330 - Place Asphalt Concrete (A)	3	18-Jun-21	22-Jun-21	40	$0.00
Structure		**434**	**17-Jun-20**	**24-Aug-21**	**0**	**$26,979,697.41**
B01 - DE08 - I-95 SB to I-16WB - 14 Spans		**257**	**17-Jun-20**	**24-Aug-21**	**0**	**$22,060,975.71**
RE50710	B01 - Start Bridge	0	17-Jun-20		0	$0.00
RE50720	B01 - Complete Bridge	0		24-Aug-21	0	$0.00
B01 - End Bent 15		**33**	**17-Jun-20**	**06-Aug-20**	**104**	**$817,199.07**
RE50730	B01 - Setup MOT Area	5	17-Jun-20	23-Jun-20	0	$16,448.17
RE50750	B01 - EB15 - Structural Excavation/Backfill	2	24-Jun-20	25-Jun-20	0	$24,038.80
RE50740	B01 - EB15 - Drive Concrete Piles	3	29-Jun-20	01-Jul-20	0	$185,684.71
RE50770	B01 - EB15 - Install MSE Walls & Backfill	5	02-Jul-20	09-Jul-20	4	$208,555.43
RE50760	B01 - EB15 - Form, Pour & Set Cap	8	10-Jul-20	21-Jul-20	4	$21,701.87
RE50780	B01 - EB15 - Form & Pour Approach Slab & Barrier Wall	10	22-Jul-20	06-Aug-20	44	$23,674.95
RE50790	B01 - EB15 - Install Lighting	8	22-Jul-20	04-Aug-20	106	$337,095.14
B01 - Span N - 106 LF		**42**	**17-Aug-20**	**22-Oct-20**	**64**	**$1,186,188.66**
RE51460	B01 - Span N - Set Beams & Diaphragms	12	17-Aug-20	03-Sep-20	0	$211,878.40
RE51470	B01 - Span N - Form & Install Rebar	8	08-Sep-20	17-Sep-20	0	$59,194.04
RE51480	B01 - Span N - Set Screed & Pour	12	21-Sep-20	07-Oct-20	0	$554,346.13
RE51490	B01 - Span N - Form & Pour Barrier Walls	10	08-Oct-20	22-Oct-20	6	$23,674.95
RE51500	B01 - Span N - Install Lighting	8	08-Oct-20	20-Oct-20	66	$337,095.14
B01 - Bent 14		**32**	**29-Jun-20**	**14-Aug-20**	**0**	**$295,106.50**
RE50820	B01 - Bent 14 - Structural Excavation/Backfill	2	29-Jun-20	30-Jun-20	1	$24,038.80
RE50800	B01 - Bent 14 - Drive Concrete Piles	4	02-Jul-20	08-Jul-20	0	$185,684.71
RE50810	B01 - Bent 14 - Form & Pour Footers	5	09-Jul-20	15-Jul-20	0	$8,847.91
RE50830	B01 - Bent 14 - Form & Pour Columns	8	16-Jul-20	28-Jul-20	0	$54,833.21
RE50840	B01 - Bent 14 - Form, Pour & Set Cap	12	29-Jul-20	14-Aug-20	0	$21,701.87
B01 - Span M - 106 LF		**42**	**08-Sep-20**	**12-Nov-20**	**60**	**$1,186,188.66**
RE51510	B01 - Span M - Set Beams & Diaphragms	12	08-Sep-20	24-Sep-20	0	$211,878.40
RE51520	B01 - Span M - Form & Install Rebar	8	28-Sep-20	07-Oct-20	0	$59,194.04
RE51530	B01 - Span M - Set Screed & Pour	12	08-Oct-20	26-Oct-20	0	$554,346.13
RE51540	B01 - Span M - Form & Pour Barrier Walls	10	27-Oct-20	12-Nov-20	4	$23,674.95
RE51550	B01 - Span M - Install Lighting	8	27-Oct-20	10-Nov-20	62	$337,095.14



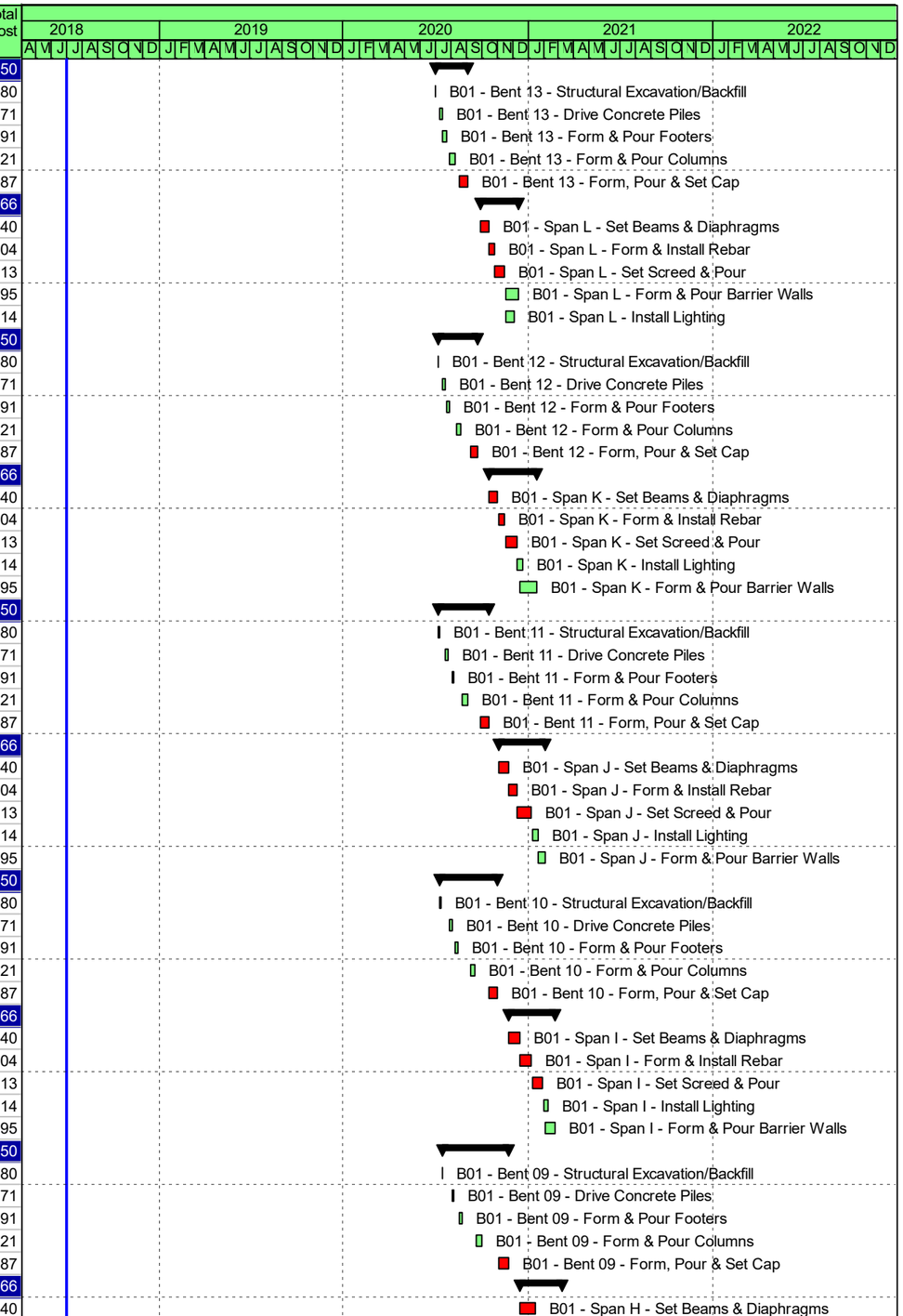
DRAGADOS USA

Project ID: PI-BLS21-R
Data Date: 01-Jul-18
Run Date: 27-Jun-18

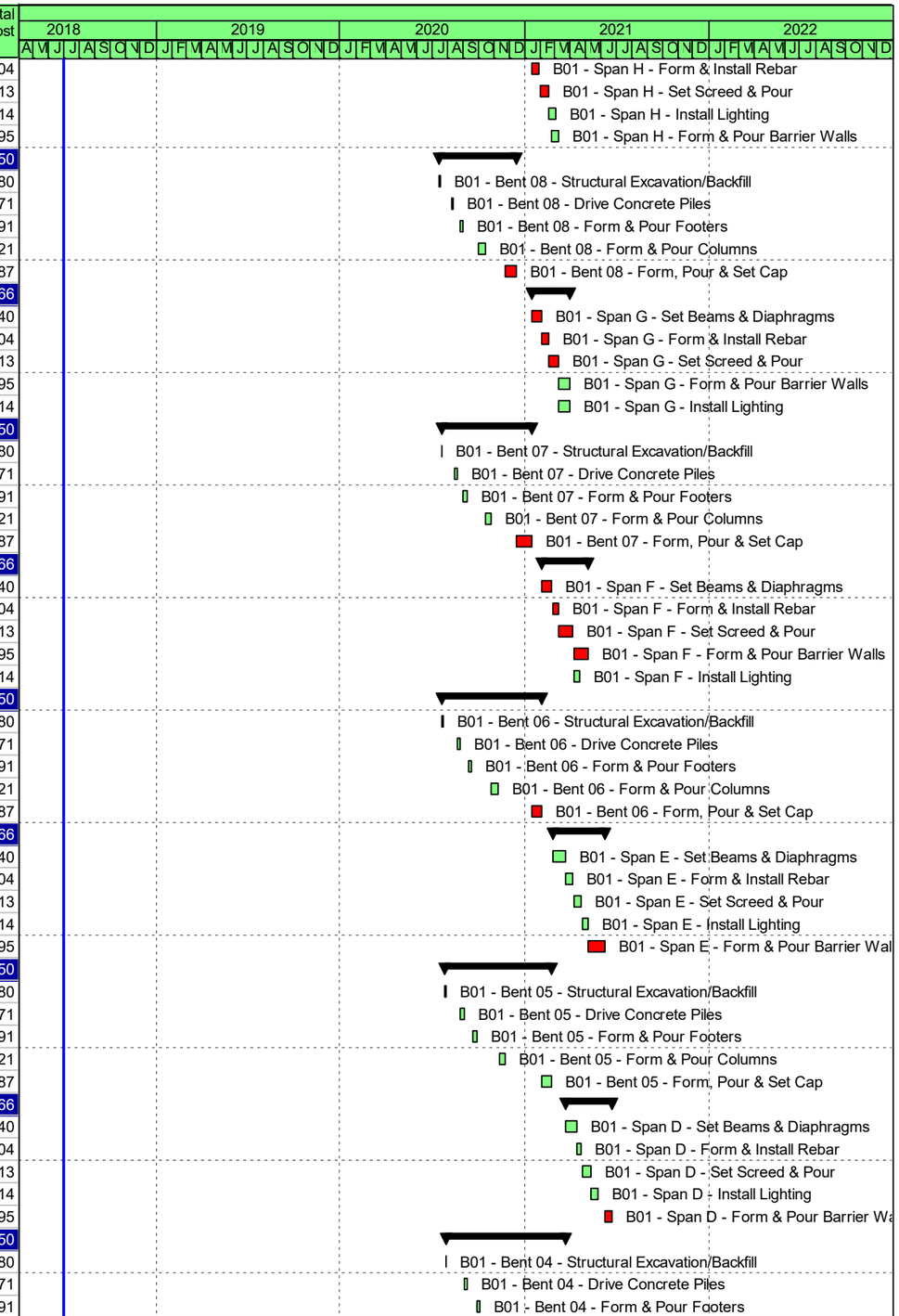
I-16 at I-95 Reconstruction and Widening Proposal Schedule - Clarification GDOT Ltr 27-Jun-18
Detailed Activities

Remaining Level of Effort
Critical Remaining Work
Summary
Milestone
Remaining Work

Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
B01 - Bent 13		42	01-Jul-20	03-Sep-20	0	$295,106.50
RE50870	B01 - Bent 13 - Structural Excavation/Backfill	2	01-Jul-20	02-Jul-20	11	$24,038.80
RE50850	B01 - Bent 13 - Drive Concrete Piles	4	09-Jul-20	14-Jul-20	8	$185,684.71
RE50860	B01 - Bent 13 - Form & Pour Footers	5	16-Jul-20	22-Jul-20	7	$8,847.91
RE50880	B01 - Bent 13 - Form & Pour Columns	8	29-Jul-20	10-Aug-20	4	$54,833.21
RE50890	B01 - Bent 13 - Form, Pour & Set Cap	12	17-Aug-20	03-Sep-20	0	$21,701.87
B01 - Span L - 106 LF		47	28-Sep-20	14-Dec-20	51	$1,186,188.66
RE51560	B01 - Span L - Set Beams & Diaphragms	12	28-Sep-20	14-Oct-20	0	$211,878.40
RE51570	B01 - Span L - Form & Install Rebar	8	15-Oct-20	26-Oct-20	0	$59,194.04
RE51580	B01 - Span L - Set Screed & Pour	12	27-Oct-20	16-Nov-20	0	$554,346.13
RE51590	B01 - Span L - Form & Pour Barrier Walls	15	17-Nov-20	14-Dec-20	2	$23,674.95
RE51600	B01 - Span L - Install Lighting	8	17-Nov-20	03-Dec-20	58	$337,095.14
B01 - Bent 12		52	06-Jul-20	24-Sep-20	0	$295,106.50
RE50920	B01 - Bent 12 - Structural Excavation/Backfill	2	06-Jul-20	07-Jul-20	21	$24,038.80
RE50900	B01 - Bent 12 - Drive Concrete Piles	4	15-Jul-20	20-Jul-20	16	$185,684.71
RE50910	B01 - Bent 12 - Form & Pour Footers	5	23-Jul-20	30-Jul-20	14	$8,847.91
RE50930	B01 - Bent 12 - Form & Pour Columns	8	11-Aug-20	20-Aug-20	8	$54,833.21
RE50940	B01 - Bent 12 - Form, Pour & Set Cap	12	08-Sep-20	24-Sep-20	0	$21,701.87
B01 - Span K - 114 LF		50	15-Oct-20	19-Jan-21	44	$1,186,188.66
RE51610	B01 - Span K - Set Beams & Diaphragms	12	15-Oct-20	02-Nov-20	0	$211,878.40
RE51620	B01 - Span K - Form & Install Rebar	8	04-Nov-20	16-Nov-20	0	$59,194.04
RE51630	B01 - Span K - Set Screed & Pour	12	17-Nov-20	09-Dec-20	0	$554,346.13
RE51650	B01 - Span K - Install Lighting	8	10-Dec-20	22-Dec-20	54	$337,095.14
RE51640	B01 - Span K - Form & Pour Barrier Walls	15	15-Dec-20	19-Jan-21	2	$23,674.95
B01 - Bent 11		62	08-Jul-20	14-Oct-20	0	$295,106.50
RE50970	B01 - Bent 11 - Structural Excavation/Backfill	2	08-Jul-20	09-Jul-20	31	$24,038.80
RE50950	B01 - Bent 11 - Drive Concrete Piles	4	21-Jul-20	27-Jul-20	24	$185,684.71
RE50960	B01 - Bent 11 - Form & Pour Footers	5	03-Aug-20	07-Aug-20	21	$8,847.91
RE50980	B01 - Bent 11 - Form & Pour Columns	8	24-Aug-20	03-Sep-20	12	$54,833.21
RE50990	B01 - Bent 11 - Form, Pour & Set Cap	12	28-Sep-20	14-Oct-20	0	$21,701.87
B01 - Span J - 106 LF		48	04-Nov-20	04-Feb-21	42	$1,186,188.66
RE51660	B01 - Span J - Set Beams & Diaphragms	12	04-Nov-20	23-Nov-20	0	$211,878.40
RE51670	B01 - Span J - Form & Install Rebar	8	24-Nov-20	09-Dec-20	0	$59,194.04
RE51680	B01 - Span J - Set Screed & Pour	12	10-Dec-20	08-Jan-21	0	$554,346.13
RE51700	B01 - Span J - Install Lighting	8	11-Jan-21	21-Jan-21	50	$337,095.14
RE51690	B01 - Span J - Form & Pour Barrier Walls	10	20-Jan-21	04-Feb-21	2	$23,674.95
B01 - Bent 10		72	10-Jul-20	02-Nov-20	0	$295,106.50
RE51020	B01 - Bent 10 - Structural Excavation/Backfill	2	10-Jul-20	13-Jul-20	41	$24,038.80
RE51000	B01 - Bent 10 - Drive Concrete Piles	4	28-Jul-20	03-Aug-20	32	$185,684.71
RE51010	B01 - Bent 10 - Form & Pour Footers	5	10-Aug-20	14-Aug-20	28	$8,847.91
RE51030	B01 - Bent 10 - Form & Pour Columns	8	08-Sep-20	17-Sep-20	16	$54,833.21
RE51040	B01 - Bent 10 - Form, Pour & Set Cap	12	15-Oct-20	02-Nov-20	0	$21,701.87
B01 - Span I - 106 LF		46	24-Nov-20	22-Feb-21	40	$1,186,188.66
RE51710	B01 - Span I - Set Beams & Diaphragms	12	24-Nov-20	15-Dec-20	0	$211,878.40
RE51720	B01 - Span I - Form & Install Rebar	8	16-Dec-20	08-Jan-21	0	$59,194.04
RE51730	B01 - Span I - Set Screed & Pour	12	11-Jan-21	28-Jan-21	0	$554,346.13
RE51750	B01 - Span I - Install Lighting	8	01-Feb-21	10-Feb-21	46	$337,095.14
RE51740	B01 - Span I - Form & Pour Barrier Walls	10	05-Feb-21	22-Feb-21	2	$23,674.95
B01 - Bent 09		82	14-Jul-20	23-Nov-20	0	$295,106.50
RE51070	B01 - Bent 09 - Structural Excavation/Backfill	2	14-Jul-20	15-Jul-20	51	$24,038.80
RE51050	B01 - Bent 09 - Drive Concrete Piles	4	04-Aug-20	07-Aug-20	40	$185,684.71
RE51060	B01 - Bent 09 - Form & Pour Footers	5	17-Aug-20	24-Aug-20	35	$8,847.91
RE51080	B01 - Bent 09 - Form & Pour Columns	8	21-Sep-20	01-Oct-20	20	$54,833.21
RE51090	B01 - Bent 09 - Form, Pour & Set Cap	12	04-Nov-20	23-Nov-20	0	$21,701.87
B01 - Span H - 106 LF		44	16-Dec-20	09-Mar-21	38	$1,186,188.66
RE51760	B01 - Span H - Set Beams & Diaphragms	12	16-Dec-20	14-Jan-21	0	$211,878.40



Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE51770	B01 - Span H - Form & Install Rebar	8	15-Jan-21	28-Jan-21	0	$59,194.04
RE51780	B01 - Span H - Set Screed & Pour	12	01-Feb-21	17-Feb-21	0	$554,346.13
RE51800	B01 - Span H - Install Lighting	8	18-Feb-21	03-Mar-21	42	$337,095.14
RE51790	B01 - Span H - Form & Pour Barrier Walls	10	23-Feb-21	09-Mar-21	2	$23,674.95
B01 - Bent 08		**92**	**16-Jul-20**	**15-Dec-20**	**0**	**$295,106.50**
RE51120	B01 - Bent 08 - Structural Excavation/Backfill	2	16-Jul-20	17-Jul-20	61	$24,038.80
RE51100	B01 - Bent 08 - Drive Concrete Piles	4	10-Aug-20	13-Aug-20	48	$185,684.71
RE51110	B01 - Bent 08 - Form & Pour Footers	5	25-Aug-20	01-Sep-20	42	$8,847.91
RE51130	B01 - Bent 08 - Form & Pour Columns	8	02-Oct-20	14-Oct-20	24	$54,833.21
RE51140	B01 - Bent 08 - Form, Pour & Set Cap	12	24-Nov-20	15-Dec-20	0	$21,701.87
B01 - Span G - 106 LF		**42**	**15-Jan-21**	**01-Apr-21**	**36**	**$1,186,188.66**
RE51810	B01 - Span G - Set Beams & Diaphragms	12	15-Jan-21	04-Feb-21	0	$211,878.40
RE51820	B01 - Span G - Form & Install Rebar	8	05-Feb-21	17-Feb-21	0	$59,194.04
RE51830	B01 - Span G - Set Screed & Pour	12	18-Feb-21	09-Mar-21	0	$554,346.13
RE51840	B01 - Span G - Form & Pour Barrier Walls	10	10-Mar-21	01-Apr-21	2	$23,674.95
RE51850	B01 - Span G - Install Lighting	8	10-Mar-21	30-Mar-21	38	$337,095.14
B01 - Bent 07		**102**	**20-Jul-20**	**14-Jan-21**	**0**	**$295,106.50**
RE51170	B01 - Bent 07 - Structural Excavation/Backfill	2	20-Jul-20	21-Jul-20	71	$24,038.80
RE51150	B01 - Bent 07 - Drive Concrete Piles	4	14-Aug-20	19-Aug-20	56	$185,684.71
RE51160	B01 - Bent 07 - Form & Pour Footers	5	02-Sep-20	10-Sep-20	49	$8,847.91
RE51180	B01 - Bent 07 - Form & Pour Columns	8	15-Oct-20	26-Oct-20	28	$54,833.21
RE51190	B01 - Bent 07 - Form, Pour & Set Cap	12	16-Dec-20	14-Jan-21	0	$21,701.87
B01 - Span F - 106 LF		**52**	**05-Feb-21**	**06-May-21**	**22**	**$1,186,188.66**
RE51880	B01 - Span F - Set Beams & Diaphragms	12	05-Feb-21	24-Feb-21	0	$211,878.40
RE51890	B01 - Span F - Form & Install Rebar	8	25-Feb-21	09-Mar-21	0	$59,194.04
RE51860	B01 - Span F - Set Screed & Pour	12	10-Mar-21	07-Apr-21	0	$554,346.13
RE51870	B01 - Span F - Form & Pour Barrier Walls	20	08-Apr-21	06-May-21	0	$23,674.95
RE51900	B01 - Span F - Install Lighting	8	08-Apr-21	19-Apr-21	34	$337,095.14
B01 - Bent 06		**112**	**22-Jul-20**	**04-Feb-21**	**0**	**$295,106.50**
RE51220	B01 - Bent 06 - Structural Excavation/Backfill	2	22-Jul-20	23-Jul-20	81	$24,038.80
RE51200	B01 - Bent 06 - Drive Concrete Piles	4	20-Aug-20	26-Aug-20	64	$185,684.71
RE51210	B01 - Bent 06 - Form & Pour Footers	5	11-Sep-20	17-Sep-20	56	$8,847.91
RE51230	B01 - Bent 06 - Form & Pour Columns	8	27-Oct-20	10-Nov-20	32	$54,833.21
RE51240	B01 - Bent 06 - Form, Pour & Set Cap	12	15-Jan-21	04-Feb-21	0	$21,701.87
B01 - Span E - 106 LF		**60**	**25-Feb-21**	**08-Jun-21**	**10**	**$1,186,188.66**
RE51910	B01 - Span E - Set Beams & Diaphragms	12	25-Feb-21	23-Mar-21	8	$211,878.40
RE51920	B01 - Span E - Form & Install Rebar	8	24-Mar-21	07-Apr-21	8	$59,194.04
RE51930	B01 - Span E - Set Screed & Pour	12	08-Apr-21	23-Apr-21	8	$554,346.13
RE51950	B01 - Span E - Install Lighting	8	26-Apr-21	06-May-21	30	$337,095.14
RE51940	B01 - Span E - Form & Pour Barrier Walls	20	07-May-21	08-Jun-21	0	$23,674.95
B01 - Bent 05		**122**	**27-Jul-20**	**24-Feb-21**	**8**	**$295,106.50**
RE51270	B01 - Bent 05 - Structural Excavation/Backfill	2	27-Jul-20	28-Jul-20	99	$24,038.80
RE51250	B01 - Bent 05 - Drive Concrete Piles	4	27-Aug-20	02-Sep-20	80	$185,684.71
RE51260	B01 - Bent 05 - Form & Pour Footers	5	21-Sep-20	28-Sep-20	71	$8,847.91
RE51280	B01 - Bent 05 - Form & Pour Columns	8	11-Nov-20	23-Nov-20	44	$54,833.21
RE51290	B01 - Bent 05 - Form, Pour & Set Cap	12	05-Feb-21	24-Feb-21	8	$21,701.87
B01 - Span D - 103 LF		**58**	**24-Mar-21**	**22-Jun-21**	**8**	**$1,186,188.66**
RE51980	B01 - Span D - Set Beams & Diaphragms	12	24-Mar-21	13-Apr-21	10	$211,878.40
RE51990	B01 - Span D - Form & Install Rebar	8	14-Apr-21	23-Apr-21	10	$59,194.04
RE51960	B01 - Span D - Set Screed & Pour	12	26-Apr-21	12-May-21	10	$554,346.13
RE52000	B01 - Span D - Install Lighting	8	13-May-21	25-May-21	26	$337,095.14
RE51970	B01 - Span D - Form & Pour Barrier Walls	10	09-Jun-21	22-Jun-21	0	$23,674.95
B01 - Bent 04		**132**	**29-Jul-20**	**23-Mar-21**	**10**	**$295,106.50**
RE51320	B01 - Bent 04 - Structural Excavation/Backfill	2	29-Jul-20	30-Jul-20	111	$24,038.80
RE51300	B01 - Bent 04 - Drive Concrete Piles	4	03-Sep-20	10-Sep-20	90	$185,684.71
RE51310	B01 - Bent 04 - Form & Pour Footers	5	29-Sep-20	05-Oct-20	80	$8,847.91



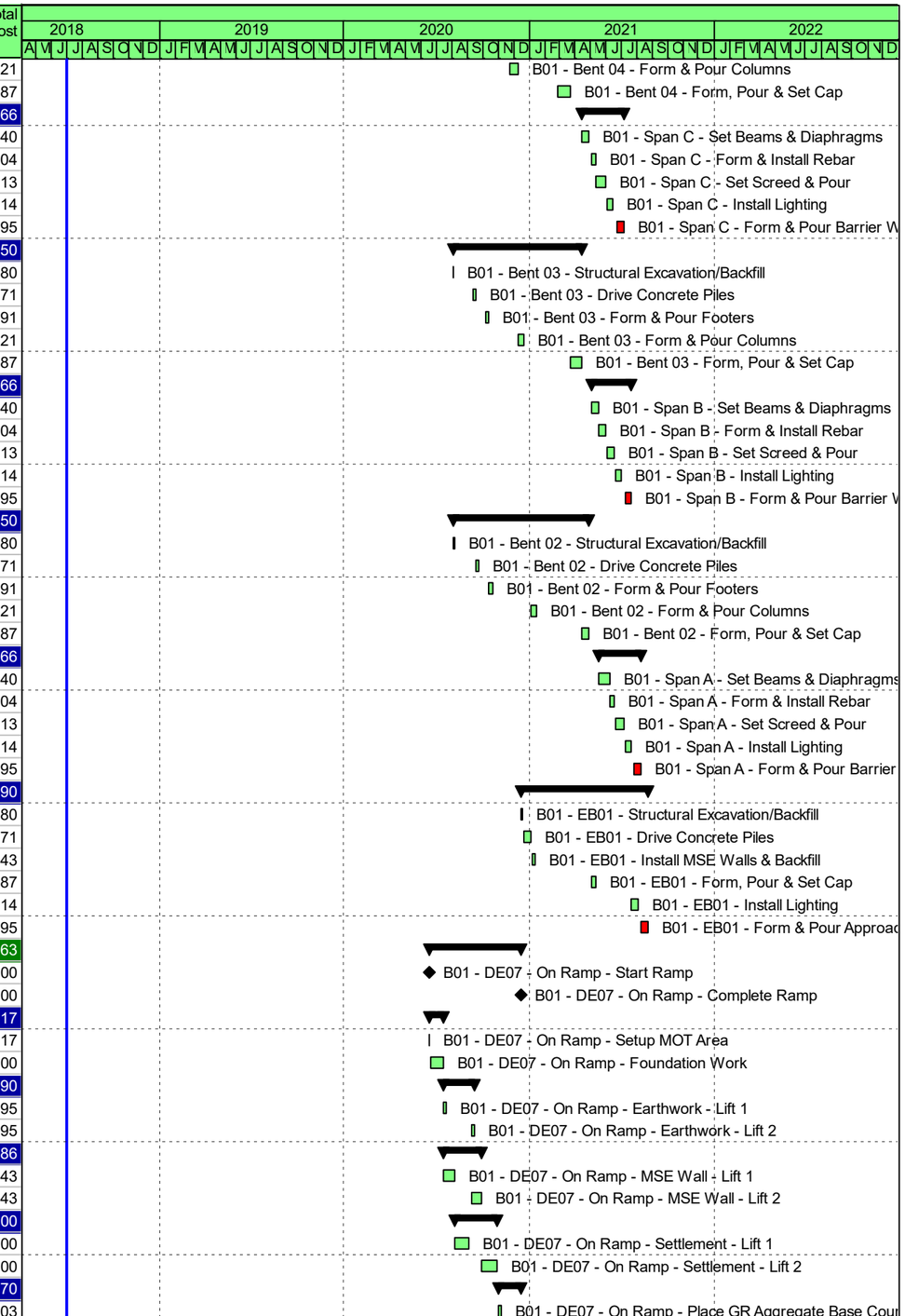
DRAGADOS USA

Project ID: PI-BLS21-R
Data Date: 01-Jul-18
Run Date: 27-Jun-18

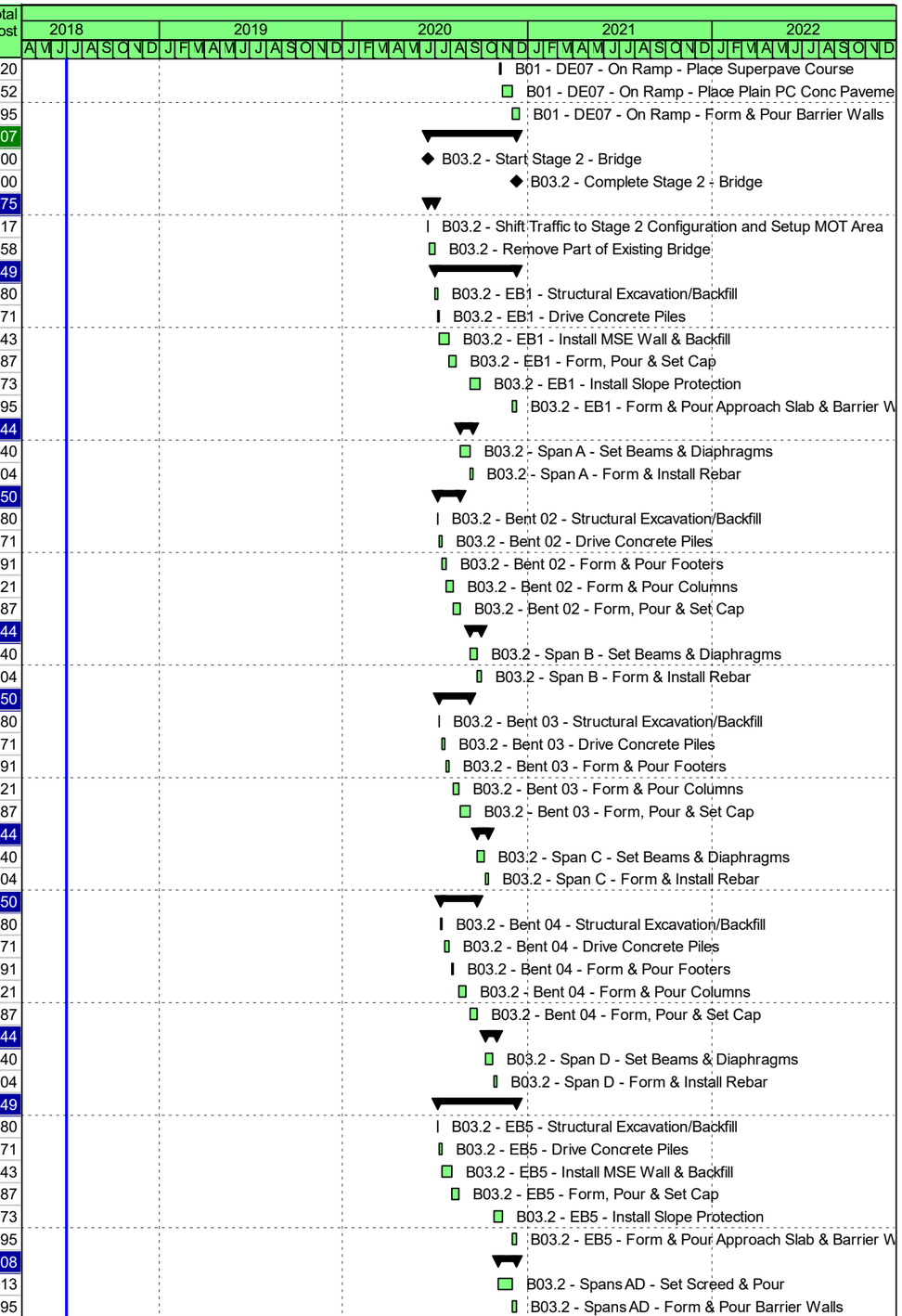
I-16 at I-95 Reconstruction and Widening Proposal Schedule - Clarification GDOT Ltr 27-Jun-18
Detailed Activities

Remaining Level of Effort
Critical Remaining Work
Summary
Milestone
Remaining Work

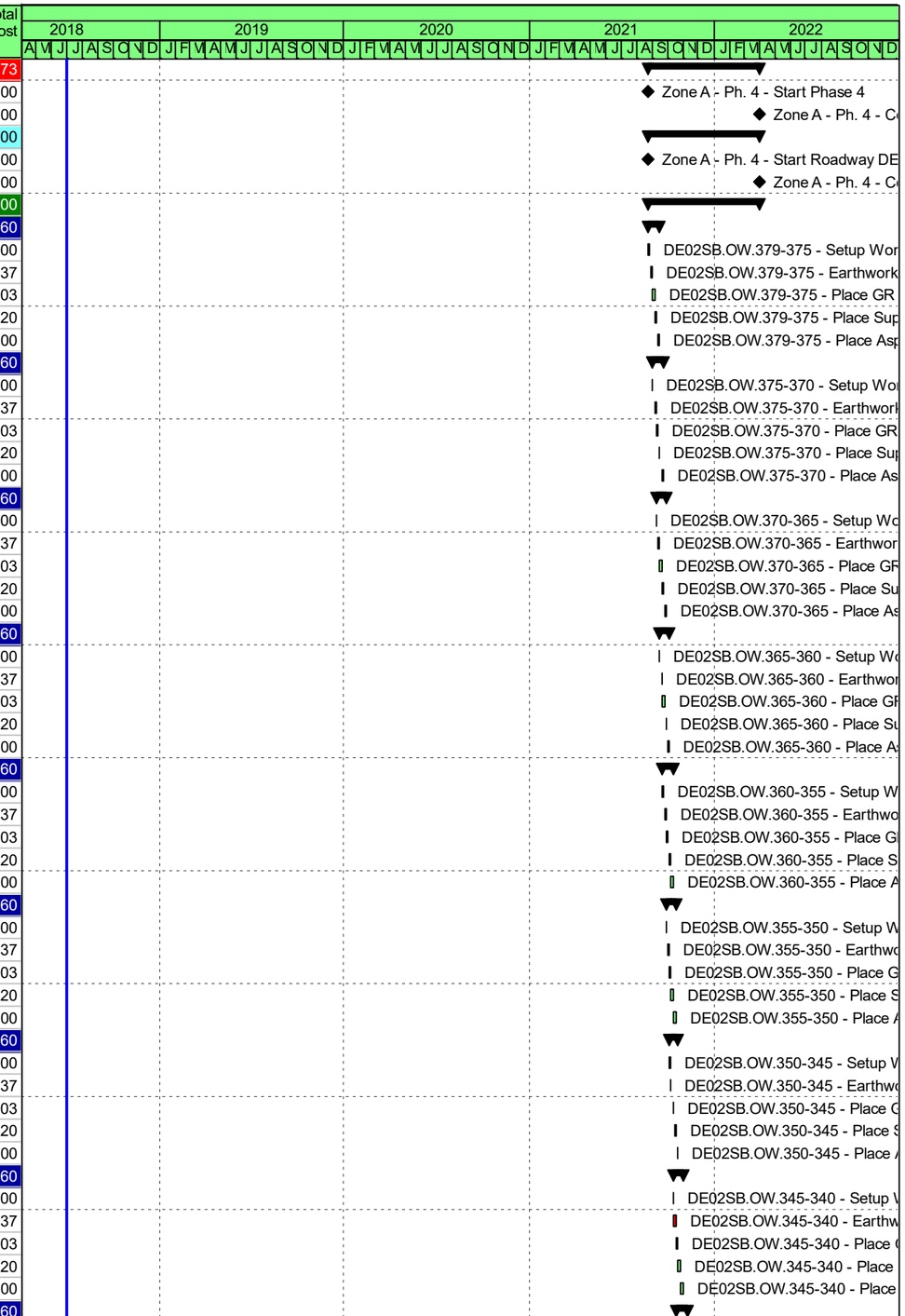
Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE51330	B01 - Bent 04 - Form & Pour Columns	8	24-Nov-20	09-Dec-20	50	$54,833.21
RE51340	B01 - Bent 04 - Form, Pour & Set Cap	12	25-Feb-21	23-Mar-21	10	$21,701.87
B01 - Span C - 114 LF		**56**	**14-Apr-21**	**08-Jul-21**	**6**	**$1,186,188.66**
RE52030	B01 - Span C - Set Beams & Diaphragms	12	14-Apr-21	29-Apr-21	10	$211,878.40
RE52040	B01 - Span C - Form & Install Rebar	8	03-May-21	12-May-21	10	$59,194.04
RE52010	B01 - Span C - Set Screed & Pour	12	13-May-21	02-Jun-21	10	$554,346.13
RE52050	B01 - Span C - Install Lighting	8	03-Jun-21	14-Jun-21	22	$337,095.14
RE52020	B01 - Span C - Form & Pour Barrier Walls	10	23-Jun-21	08-Jul-21	0	$23,674.95
B01 - Bent 03		**142**	**03-Aug-20**	**13-Apr-21**	**10**	**$295,106.50**
RE51370	B01 - Bent 03 - Structural Excavation/Backfill	2	03-Aug-20	04-Aug-20	121	$24,038.80
RE51350	B01 - Bent 03 - Drive Concrete Piles	4	11-Sep-20	16-Sep-20	98	$185,684.71
RE51360	B01 - Bent 03 - Form & Pour Footers	5	06-Oct-20	13-Oct-20	87	$8,847.91
RE51380	B01 - Bent 03 - Form & Pour Columns	8	10-Dec-20	22-Dec-20	54	$54,833.21
RE51390	B01 - Bent 03 - Form, Pour & Set Cap	12	24-Mar-21	13-Apr-21	10	$21,701.87
B01 - Span B - 114 LF		**54**	**03-May-21**	**22-Jul-21**	**4**	**$1,186,188.66**
RE52080	B01 - Span B - Set Beams & Diaphragms	12	03-May-21	18-May-21	10	$211,878.40
RE52090	B01 - Span B - Form & Install Rebar	8	19-May-21	02-Jun-21	10	$59,194.04
RE52060	B01 - Span B - Set Screed & Pour	12	03-Jun-21	18-Jun-21	10	$554,346.13
RE52100	B01 - Span B - Install Lighting	8	21-Jun-21	01-Jul-21	18	$337,095.14
RE52070	B01 - Span B - Form & Pour Barrier Walls	10	09-Jul-21	22-Jul-21	0	$23,674.95
B01 - Bent 02		**152**	**05-Aug-20**	**29-Apr-21**	**10**	**$295,106.50**
RE52130	B01 - Bent 02 - Structural Excavation/Backfill	2	05-Aug-20	06-Aug-20	131	$24,038.80
RE52110	B01 - Bent 02 - Drive Concrete Piles	4	17-Sep-20	23-Sep-20	106	$185,684.71
RE52120	B01 - Bent 02 - Form & Pour Footers	5	14-Oct-20	20-Oct-20	94	$8,847.91
RE52140	B01 - Bent 02 - Form & Pour Columns	8	05-Jan-21	14-Jan-21	58	$54,833.21
RE52150	B01 - Bent 02 - Form, Pour & Set Cap	12	14-Apr-21	29-Apr-21	10	$21,701.87
B01 - Span A - 114 LF		**52**	**19-May-21**	**09-Aug-21**	**2**	**$1,186,188.66**
RE52180	B01 - Span A - Set Beams & Diaphragms	12	19-May-21	08-Jun-21	10	$211,878.40
RE52190	B01 - Span A - Form & Install Rebar	8	09-Jun-21	18-Jun-21	10	$59,194.04
RE52160	B01 - Span A - Set Screed & Pour	12	21-Jun-21	08-Jul-21	10	$554,346.13
RE52200	B01 - Span A - Install Lighting	8	09-Jul-21	20-Jul-21	14	$337,095.14
RE52170	B01 - Span A - Form & Pour Barrier Walls	10	26-Jul-21	09-Aug-21	0	$23,674.95
B01 - End Bent 01		**146**	**16-Dec-20**	**24-Aug-21**	**0**	**$800,750.90**
RE51410	B01 - EB01 - Structural Excavation/Backfill	2	16-Dec-20	17-Dec-20	76	$24,038.80
RE51400	B01 - EB01 - Drive Concrete Piles	3	21-Dec-20	05-Jan-21	76	$185,684.71
RE51430	B01 - EB01 - Install MSE Walls & Backfill	5	06-Jan-21	12-Jan-21	76	$208,555.43
RE51420	B01 - EB01 - Form, Pour & Set Cap	8	03-May-21	12-May-21	14	$21,701.87
RE51450	B01 - EB01 - Install Lighting	8	21-Jul-21	03-Aug-21	14	$337,095.14
RE51440	B01 - EB01 - Form & Pour Approach Slab & Barrier Wall	10	10-Aug-21	24-Aug-21	0	$23,674.95
B01 - On Ramp - Earthwork & MSE Walls		**182**	**17-Jun-20**	**15-Dec-20**	**142**	**$1,157,930.63**
RE53230	B01 - DE07 - On Ramp - Start Ramp	0	17-Jun-20		83	$0.00
RE53240	B01 - DE07 - On Ramp - Complete Ramp	0		15-Dec-20	76	$0.00
Lift Prep		**18**	**17-Jun-20**	**14-Jul-20**	**83**	**$16,448.17**
RE53220	B01 - DE07 - On Ramp - Setup MOT Area	2	17-Jun-20	18-Jun-20	83	$16,448.17
RE53350	B01 - DE07 - On Ramp - Foundation Work	16	19-Jun-20	14-Jul-20	83	$0.00
Earthwork		**38**	**15-Jul-20**	**14-Sep-20**	**92**	**$345,789.90**
RE53250	B01 - DE07 - On Ramp - Earthwork - Lift 1	5	15-Jul-20	21-Jul-20	92	$172,894.95
RE53260	B01 - DE07 - On Ramp - Earthwork - Lift 2	5	08-Sep-20	14-Sep-20	92	$172,894.95
MSE Walls		**47**	**15-Jul-20**	**29-Sep-20**	**83**	**$417,110.86**
RE53270	B01 - DE07 - On Ramp - MSE Wall - Lift 1	14	15-Jul-20	05-Aug-20	83	$208,555.43
RE53280	B01 - DE07 - On Ramp - MSE Wall - Lift 2	14	08-Sep-20	29-Sep-20	83	$208,555.43
Settlement		**85**	**06-Aug-20**	**29-Oct-20**	**151**	**$0.00**
RE53290	B01 - DE07 - On Ramp - Settlement - Lift 1	30	06-Aug-20	04-Sep-20	152	$0.00
RE53300	B01 - DE07 - On Ramp - Settlement - Lift 2	30	30-Sep-20	29-Oct-20	151	$0.00
Ramp Paving		**25**	**02-Nov-20**	**15-Dec-20**	**76**	**$378,581.70**
RE53320	B01 - DE07 - On Ramp - Place GR Aggregate Base Course	3	02-Nov-20	05-Nov-20	76	$20,106.03



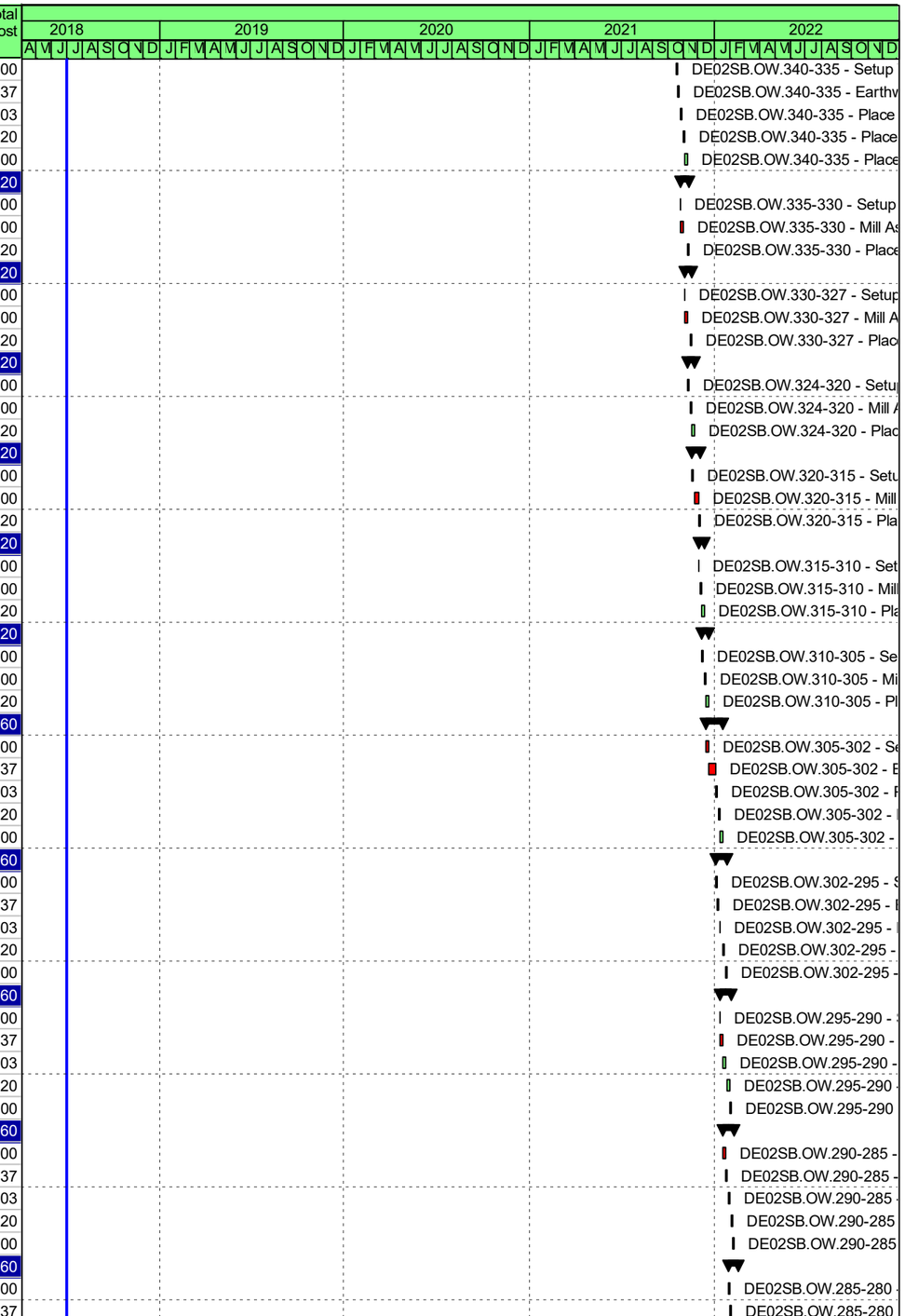
Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE53340	B01 - DE07 - On Ramp - Place Superpave Course	2	06-Nov-20	10-Nov-20	76	$24,673.20
RE53330	B01 - DE07 - On Ramp - Place Plain PC Conc Pavement	10	11-Nov-20	01-Dec-20	76	$310,127.52
RE53310	B01 - DE07 - On Ramp - Form & Pour Barrier Walls	10	02-Dec-20	15-Dec-20	76	$23,674.95
B03.2 - DE2/DE4 - I-95 over I-16 (SR 404) - Stage 2		**107**	**17-Jun-20**	**09-Dec-20**	**5**	**$3,760,791.07**
RE10010	B03.2 - Start Stage 2 - Bridge	0	17-Jun-20		5	$0.00
RE20530	B03.2 - Complete Stage 2 - Bridge	0		09-Dec-20	5	$0.00
B03.2 - Setup		**10**	**17-Jun-20**	**01-Jul-20**	**5**	**$222,825.75**
RE10020	B03.2 - Shift Traffic to Stage 2 Configuration and Setup MOT Area	2	17-Jun-20	18-Jun-20	5	$16,448.17
RE10170	B03.2 - Remove Part of Existing Bridge	8	19-Jun-20	01-Jul-20	5	$206,377.58
B03.2 - End Bent 1		**97**	**02-Jul-20**	**09-Dec-20**	**5**	**$495,167.49**
RE10210	B03.2 - EB1 - Structural Excavation/Backfill	2	02-Jul-20	06-Jul-20	5	$24,038.80
RE10300	B03.2 - EB1 - Drive Concrete Piles	3	07-Jul-20	09-Jul-20	5	$185,684.71
RE10370	B03.2 - EB1 - Install MSE Wall & Backfill	12	10-Jul-20	28-Jul-20	10	$208,555.43
RE11140	B03.2 - EB1 - Form, Pour & Set Cap	10	29-Jul-20	12-Aug-20	10	$21,701.87
RE12120	B03.2 - EB1 - Install Slope Protection	12	09-Sep-20	28-Sep-20	43	$31,511.73
RE19080	B03.2 - EB1 - Form & Pour Approach Slab & Barrier Wall	5	03-Dec-20	09-Dec-20	5	$23,674.95
B03.2 - Span A		**15**	**20-Aug-20**	**15-Sep-20**	**20**	**$271,072.44**
RE11940	B03.2 - Span A - Set Beams & Diaphragms	10	20-Aug-20	08-Sep-20	5	$211,878.40
RE12130	B03.2 - Span A - Form & Install Rebar	5	09-Sep-20	15-Sep-20	20	$59,194.04
B03.2 - Bent 2		**30**	**07-Jul-20**	**19-Aug-20**	**5**	**$295,106.50**
RE10310	B03.2 - Bent 02 - Structural Excavation/Backfill	2	07-Jul-20	08-Jul-20	6	$24,038.80
RE10380	B03.2 - Bent 02 - Drive Concrete Piles	4	10-Jul-20	15-Jul-20	5	$185,684.71
RE11100	B03.2 - Bent 02 - Form & Pour Footers	5	16-Jul-20	22-Jul-20	5	$8,847.91
RE11200	B03.2 - Bent 02 - Form & Pour Columns	8	23-Jul-20	05-Aug-20	5	$54,833.21
RE11430	B03.2 - Bent 02 - Form, Pour & Set Cap	10	06-Aug-20	19-Aug-20	5	$21,701.87
B03.2 - Span B		**15**	**09-Sep-20**	**01-Oct-20**	**15**	**$271,072.44**
RE12140	B03.2 - Span B - Set Beams & Diaphragms	10	09-Sep-20	23-Sep-20	5	$211,878.40
RE13010	B03.2 - Span B - Form & Install Rebar	5	24-Sep-20	01-Oct-20	15	$59,194.04
B03.2 - Bent 3		**38**	**09-Jul-20**	**08-Sep-20**	**15**	**$295,106.50**
RE10390	B03.2 - Bent 03 - Structural Excavation/Backfill	2	09-Jul-20	10-Jul-20	24	$24,038.80
RE11110	B03.2 - Bent 03 - Drive Concrete Piles	4	16-Jul-20	21-Jul-20	21	$185,684.71
RE11210	B03.2 - Bent 03 - Form & Pour Footers	5	23-Jul-20	30-Jul-20	20	$8,847.91
RE11440	B03.2 - Bent 03 - Form & Pour Columns	8	06-Aug-20	17-Aug-20	17	$54,833.21
RE11950	B03.2 - Bent 03 - Form, Pour & Set Cap	10	20-Aug-20	08-Sep-20	15	$21,701.87
B03.2 - Span C		**15**	**24-Sep-20**	**16-Oct-20**	**10**	**$271,072.44**
RE13020	B03.2 - Span C - Set Beams & Diaphragms	10	24-Sep-20	08-Oct-20	5	$211,878.40
RE14220	B03.2 - Span C - Form & Install Rebar	5	09-Oct-20	16-Oct-20	10	$59,194.04
B03.2 - Bent 4		**46**	**13-Jul-20**	**23-Sep-20**	**15**	**$295,106.50**
RE11120	B03.2 - Bent 04 - Structural Excavation/Backfill	2	13-Jul-20	14-Jul-20	32	$24,038.80
RE11220	B03.2 - Bent 04 - Drive Concrete Piles	4	22-Jul-20	28-Jul-20	27	$185,684.71
RE11450	B03.2 - Bent 04 - Form & Pour Footers	5	03-Aug-20	07-Aug-20	25	$8,847.91
RE11750	B03.2 - Bent 04 - Form & Pour Columns	8	18-Aug-20	31-Aug-20	19	$54,833.21
RE12440	B03.2 - Bent 04 - Form, Pour & Set Cap	10	09-Sep-20	23-Sep-20	15	$21,701.87
B03.2 - Span D		**15**	**09-Oct-20**	**02-Nov-20**	**5**	**$271,072.44**
RE14230	B03.2 - Span D - Set Beams & Diaphragms	10	09-Oct-20	23-Oct-20	5	$211,878.40
RE15610	B03.2 - Span D - Form & Install Rebar	5	26-Oct-20	02-Nov-20	5	$59,194.04
B03.2 - End Bent 5		**95**	**07-Jul-20**	**09-Dec-20**	**5**	**$495,167.49**
RE10320	B03.2 - EB5 - Structural Excavation/Backfill	2	07-Jul-20	08-Jul-20	38	$24,038.80
RE10400	B03.2 - EB5 - Drive Concrete Piles	3	10-Jul-20	14-Jul-20	37	$185,684.71
RE11130	B03.2 - EB5 - Install MSE Wall & Backfill	12	15-Jul-20	03-Aug-20	37	$208,555.43
RE11240	B03.2 - EB5 - Form, Pour & Set Cap	10	04-Aug-20	17-Aug-20	37	$21,701.87
RE15620	B03.2 - EB5 - Install Slope Protection	12	26-Oct-20	13-Nov-20	13	$31,511.73
RE19090	B03.2 - EB5 - Form & Pour Approach Slab & Barrier Wall	5	03-Dec-20	09-Dec-20	5	$23,674.95
B03.2 - Finishes		**20**	**04-Nov-20**	**09-Dec-20**	**5**	**$578,021.08**
RE16770	B03.2 - Spans AD - Set Screed & Pour	15	04-Nov-20	02-Dec-20	5	$554,346.13
RE19100	B03.2 - Spans AD - Form & Pour Barrier Walls	5	03-Dec-20	09-Dec-20	5	$23,674.95



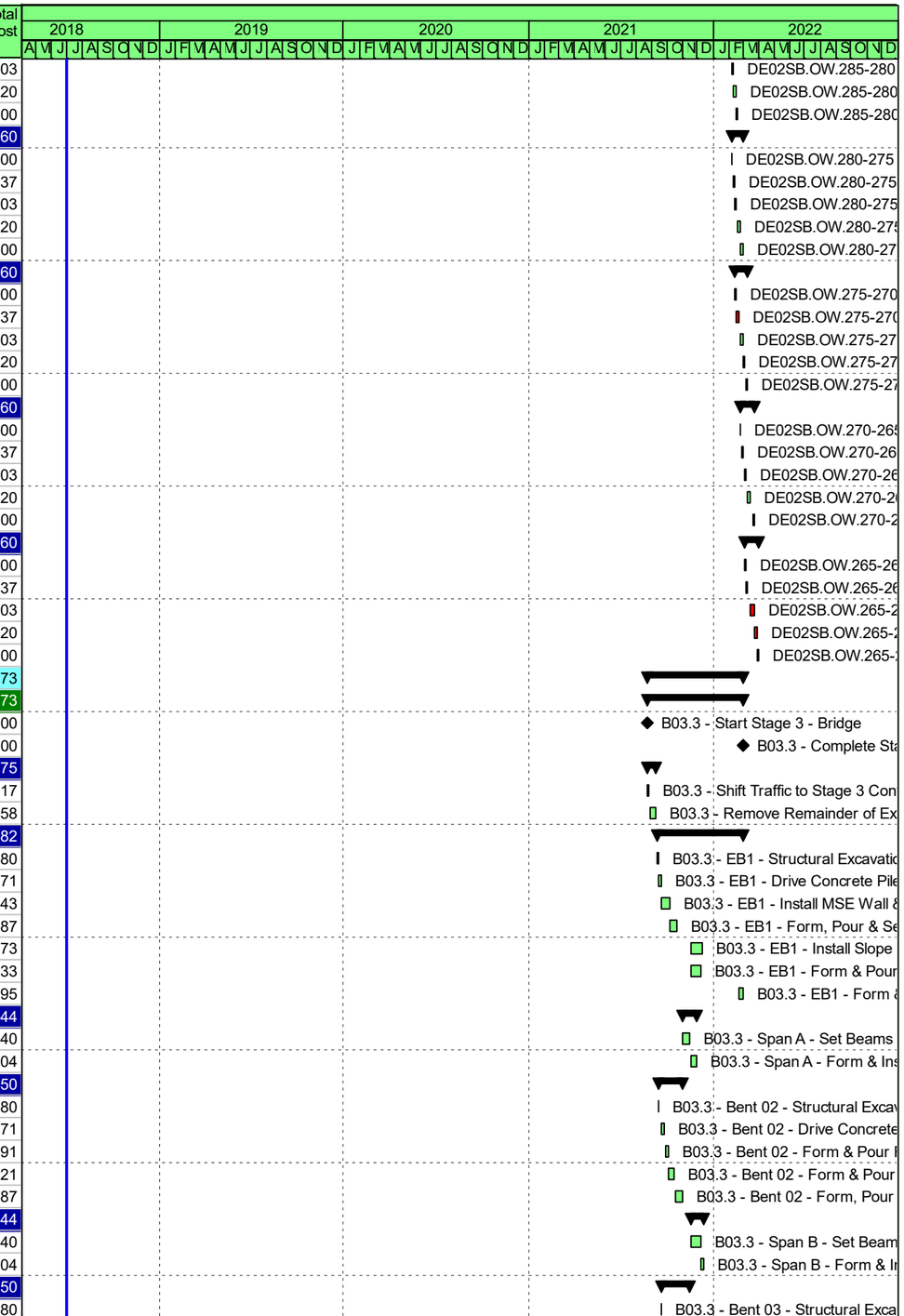
Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
Zone A - Ph 4 - I-95 SB, B03 Stage 3		122	25-Aug-21	31-Mar-22	0	$6,166,409.73
RE53500	Zone A - Ph. 4 - Start Phase 4	0	25-Aug-21		0	$0.00
RE53510	Zone A - Ph. 4 - Complete Phase 4	0		31-Mar-22	0	$0.00
Roadway		122	25-Aug-21	31-Mar-22	0	$2,366,754.00
RE53520	Zone A - Ph. 4 - Start Roadway DE02	0	25-Aug-21		0	$0.00
RE53530	Zone A - Ph. 4 - Complete Roadway DE02	0		31-Mar-22	0	$0.00
DE02 - SB - Outside Widening		122	25-Aug-21	31-Mar-22	0	$2,366,754.00
DE02 - SB - Sta. 379-375 - Outside Widening		13	25-Aug-21	15-Sep-21	37	$112,371.60
RE36610	DE02SB.OW.379-375 - Setup Work Zone & Temp Barriers	2	25-Aug-21	26-Aug-21	0	$32,671.00
RE36670	DE02SB.OW.379-375 - Earthwork	2	30-Aug-21	31-Aug-21	0	$34,921.37
RE36860	DE02SB.OW.379-375 - Place GR Aggregate Base Course (N)	3	01-Sep-21	07-Sep-21	37	$20,106.03
RE37160	DE02SB.OW.379-375 - Place Superpave Course (L+G+B)	3	08-Sep-21	10-Sep-21	37	$24,673.20
RE37360	DE02SB.OW.379-375 - Place Asphalt Concrete (A)	3	13-Sep-21	15-Sep-21	37	$0.00
DE02 - SB - Sta. 375-370 - Outside Widening		13	01-Sep-21	22-Sep-21	36	$112,371.60
RE36870	DE02SB.OW.375-370 - Setup Work Zone & Temp Barriers	2	01-Sep-21	02-Sep-21	0	$32,671.00
RE37000	DE02SB.OW.375-370 - Earthwork	2	07-Sep-21	08-Sep-21	0	$34,921.37
RE37190	DE02SB.OW.375-370 - Place GR Aggregate Base Course (N)	3	09-Sep-21	13-Sep-21	36	$20,106.03
RE37530	DE02SB.OW.375-370 - Place Superpave Course (L+G+B)	3	14-Sep-21	16-Sep-21	36	$24,673.20
RE37730	DE02SB.OW.375-370 - Place Asphalt Concrete (A)	3	20-Sep-21	22-Sep-21	36	$0.00
DE02 - SB - Sta. 370-365 - Outside Widening		13	09-Sep-21	29-Sep-21	35	$112,371.60
RE37200	DE02SB.OW.370-365 - Setup Work Zone & Temp Barriers	2	09-Sep-21	10-Sep-21	0	$32,671.00
RE37250	DE02SB.OW.370-365 - Earthwork	2	13-Sep-21	14-Sep-21	0	$34,921.37
RE37550	DE02SB.OW.370-365 - Place GR Aggregate Base Course (N)	3	15-Sep-21	20-Sep-21	35	$20,106.03
RE37780	DE02SB.OW.370-365 - Place Superpave Course (L+G+B)	3	21-Sep-21	23-Sep-21	35	$24,673.20
RE38060	DE02SB.OW.370-365 - Place Asphalt Concrete (A)	3	27-Sep-21	29-Sep-21	35	$0.00
DE02 - SB - Sta. 365-360 - Outside Widening		13	15-Sep-21	05-Oct-21	34	$112,371.60
RE37560	DE02SB.OW.365-360 - Setup Work Zone & Temp Barriers	2	15-Sep-21	16-Sep-21	0	$32,671.00
RE37680	DE02SB.OW.365-360 - Earthwork	2	20-Sep-21	21-Sep-21	0	$34,921.37
RE37820	DE02SB.OW.365-360 - Place GR Aggregate Base Course (N)	3	22-Sep-21	27-Sep-21	34	$20,106.03
RE38140	DE02SB.OW.365-360 - Place Superpave Course (L+G+B)	3	28-Sep-21	30-Sep-21	34	$24,673.20
RE38420	DE02SB.OW.365-360 - Place Asphalt Concrete (A)	3	01-Oct-21	05-Oct-21	34	$0.00
DE02 - SB - Sta. 360-355 - Outside Widening		13	22-Sep-21	12-Oct-21	33	$112,371.60
RE37830	DE02SB.OW.360-355 - Setup Work Zone & Temp Barriers	2	22-Sep-21	23-Sep-21	0	$32,671.00
RE37980	DE02SB.OW.360-355 - Earthwork	2	27-Sep-21	28-Sep-21	0	$34,921.37
RE38200	DE02SB.OW.360-355 - Place GR Aggregate Base Course (N)	3	29-Sep-21	01-Oct-21	33	$20,106.03
RE38510	DE02SB.OW.360-355 - Place Superpave Course (L+G+B)	3	04-Oct-21	06-Oct-21	33	$24,673.20
RE38790	DE02SB.OW.360-355 - Place Asphalt Concrete (A)	3	07-Oct-21	12-Oct-21	33	$0.00
DE02 - SB - Sta. 355-350 - Outside Widening		13	29-Sep-21	18-Oct-21	32	$112,371.60
RE38210	DE02SB.OW.355-350 - Setup Work Zone & Temp Barriers	2	29-Sep-21	30-Sep-21	0	$32,671.00
RE38290	DE02SB.OW.355-350 - Earthwork	2	01-Oct-21	04-Oct-21	0	$34,921.37
RE38640	DE02SB.OW.355-350 - Place GR Aggregate Base Course (N)	3	05-Oct-21	07-Oct-21	32	$20,106.03
RE38880	DE02SB.OW.355-350 - Place Superpave Course (L+G+B)	3	08-Oct-21	13-Oct-21	32	$24,673.20
RE39080	DE02SB.OW.355-350 - Place Asphalt Concrete (A)	3	14-Oct-21	18-Oct-21	32	$0.00
DE02 - SB - Sta. 350-345 - Outside Widening		13	05-Oct-21	22-Oct-21	31	$112,371.60
RE38650	DE02SB.OW.350-345 - Setup Work Zone & Temp Barriers	2	05-Oct-21	06-Oct-21	0	$32,671.00
RE38760	DE02SB.OW.350-345 - Earthwork	2	07-Oct-21	08-Oct-21	0	$34,921.37
RE38970	DE02SB.OW.350-345 - Place GR Aggregate Base Course (N)	3	12-Oct-21	14-Oct-21	31	$20,106.03
RE39220	DE02SB.OW.350-345 - Place Superpave Course (L+G+B)	3	15-Oct-21	19-Oct-21	31	$24,673.20
RE39510	DE02SB.OW.350-345 - Place Asphalt Concrete (A)	3	20-Oct-21	22-Oct-21	31	$0.00
DE02 - SB - Sta. 345-340 - Outside Widening		14	12-Oct-21	01-Nov-21	29	$112,371.60
RE38960	DE02SB.OW.345-340 - Setup Work Zone & Temp Barriers	2	12-Oct-21	13-Oct-21	0	$32,671.00
RE39040	DE02SB.OW.345-340 - Earthwork	3	14-Oct-21	18-Oct-21	0	$34,921.37
RE39310	DE02SB.OW.345-340 - Place GR Aggregate Base Course (N)	3	19-Oct-21	21-Oct-21	29	$20,106.03
RE39580	DE02SB.OW.345-340 - Place Superpave Course (L+G+B)	3	22-Oct-21	26-Oct-21	29	$24,673.20
RE39790	DE02SB.OW.345-340 - Place Asphalt Concrete (A)	3	27-Oct-21	01-Nov-21	29	$0.00
DE02 - SB - Sta. 340-335 - Outside Widening		14	19-Oct-21	09-Nov-21	27	$112,371.60



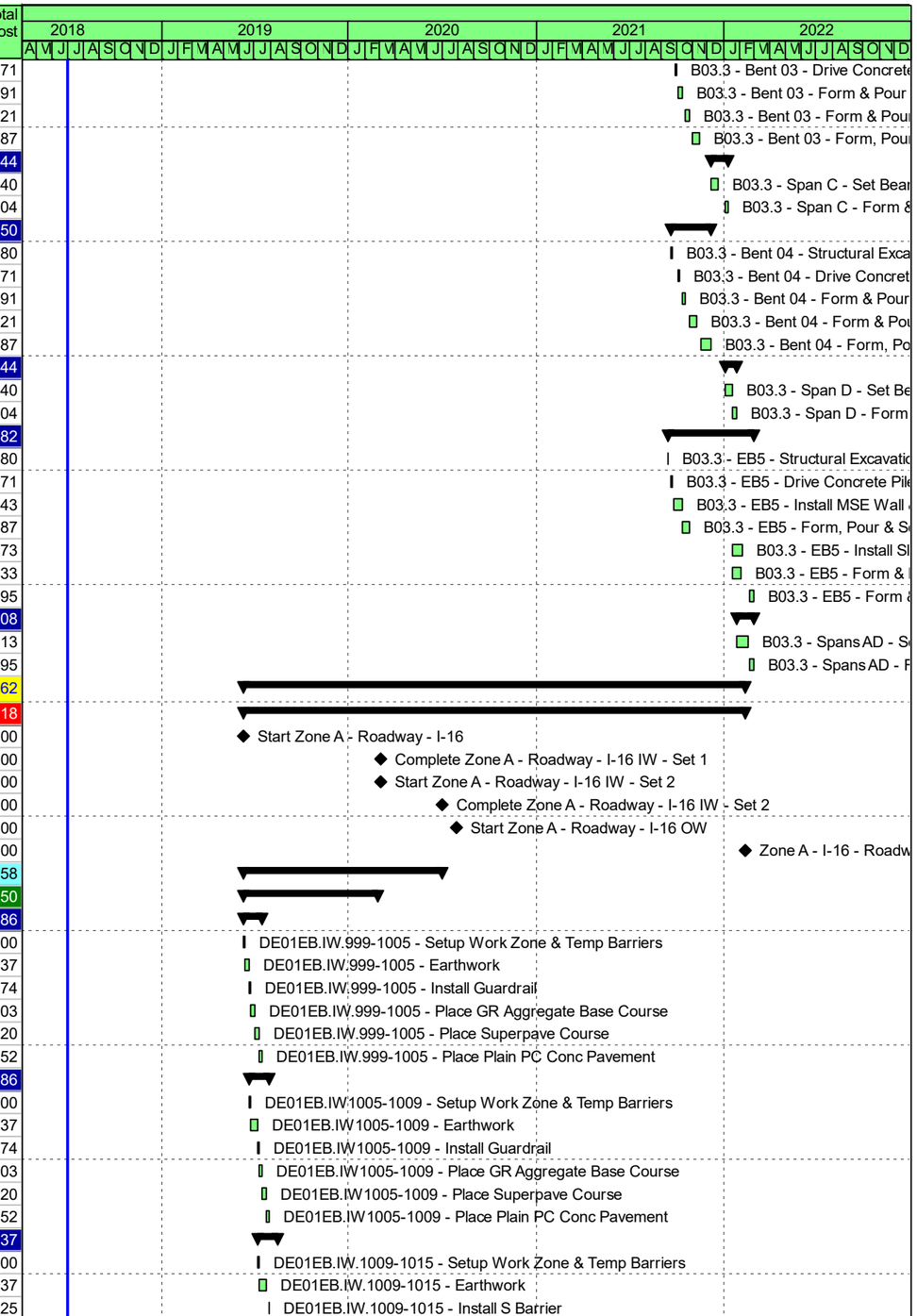
Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE39320	DE02SB.OW.340-335 - Setup Work Zone & Temp Barriers	2	19-Oct-21	20-Oct-21	0	$32,671.00
RE39440	DE02SB.OW.340-335 - Earthwork	3	21-Oct-21	25-Oct-21	0	$34,921.37
RE39630	DE02SB.OW.340-335 - Place GR Aggregate Base Course (N)	3	26-Oct-21	28-Oct-21	27	$20,106.03
RE39880	DE02SB.OW.340-335 - Place Superpave Course (L+G+B)	3	01-Nov-21	03-Nov-21	27	$24,673.20
RE40050	DE02SB.OW.340-335 - Place Asphalt Concrete (A)	3	04-Nov-21	09-Nov-21	27	$0.00
DE02 - SB - Sta. 335-330 - Outside Widening		**12**	**26-Oct-21**	**12-Nov-21**	**27**	**$57,344.20**
RE39640	DE02SB.OW.335-330 - Setup Work Zone & Temp Barriers	2	26-Oct-21	27-Oct-21	0	$32,671.00
RE39760	DE02SB.OW.335-330 - Mill Asphalt Pavement (R)	3	28-Oct-21	02-Nov-21	0	$0.00
RE39950	DE02SB.OW.335-330 - Place Superpave Course (D)	3	10-Nov-21	12-Nov-21	27	$24,673.20
DE02 - SB - Sta. 330-327 - Outside Widening		**10**	**03-Nov-21**	**17-Nov-21**	**27**	**$57,344.20**
RE39960	DE02SB.OW.330-327 - Setup Work Zone & Temp Barriers	2	03-Nov-21	04-Nov-21	0	$32,671.00
RE40020	DE02SB.OW.330-327 - Mill Asphalt Pavement (R)	3	05-Nov-21	10-Nov-21	0	$0.00
RE40190	DE02SB.OW.330-327 - Place Superpave Course (D)	3	15-Nov-21	17-Nov-21	27	$24,673.20
DE02 - SB - Sta. 324-320 - Outside Widening		**8**	**11-Nov-21**	**23-Nov-21**	**27**	**$57,344.20**
RE40200	DE02SB.OW.324-320 - Setup Work Zone & Temp Barriers	2	11-Nov-21	12-Nov-21	0	$32,671.00
RE40270	DE02SB.OW.324-320 - Mill Asphalt Pavement (R)	3	15-Nov-21	17-Nov-21	0	$0.00
RE40420	DE02SB.OW.324-320 - Place Superpave Course (D)	3	18-Nov-21	23-Nov-21	27	$24,673.20
DE02 - SB - Sta. 320-315 - Outside Widening		**8**	**18-Nov-21**	**06-Dec-21**	**25**	**$57,344.20**
RE40430	DE02SB.OW.320-315 - Setup Work Zone & Temp Barriers	2	18-Nov-21	22-Nov-21	0	$32,671.00
RE40470	DE02SB.OW.320-315 - Mill Asphalt Pavement (R)	3	23-Nov-21	01-Dec-21	0	$0.00
RE40670	DE02SB.OW.320-315 - Place Superpave Course (D)	3	02-Dec-21	06-Dec-21	25	$24,673.20
DE02 - SB - Sta. 315-310 - Outside Widening		**8**	**02-Dec-21**	**13-Dec-21**	**23**	**$57,344.20**
RE40680	DE02SB.OW.315-310 - Setup Work Zone & Temp Barriers	2	02-Dec-21	03-Dec-21	0	$32,671.00
RE40740	DE02SB.OW.315-310 - Mill Asphalt Pavement (R)	3	06-Dec-21	08-Dec-21	0	$0.00
RE40930	DE02SB.OW.315-310 - Place Superpave Course (D)	3	09-Dec-21	13-Dec-21	23	$24,673.20
DE02 - SB - Sta. 310-305 - Outside Widening		**8**	**09-Dec-21**	**21-Dec-21**	**21**	**$57,344.20**
RE40920	DE02SB.OW.310-305 - Setup Work Zone & Temp Barriers	2	09-Dec-21	10-Dec-21	0	$32,671.00
RE40990	DE02SB.OW.310-305 - Mill Asphalt Pavement (R)	3	13-Dec-21	15-Dec-21	0	$0.00
RE41230	DE02SB.OW.310-305 - Place Superpave Course (D)	3	16-Dec-21	21-Dec-21	21	$24,673.20
DE02 - SB - Sta. 305-302 - Outside Widening		**14**	**16-Dec-21**	**18-Jan-22**	**16**	**$112,371.60**
RE41220	DE02SB.OW.305-302 - Setup Work Zone & Temp Barriers	2	16-Dec-21	20-Dec-21	0	$32,671.00
RE41300	DE02SB.OW.305-302 - Earthwork	3	21-Dec-21	04-Jan-22	0	$34,921.37
RE41440	DE02SB.OW.305-302 - Place GR Aggregate Base Course (N)	3	05-Jan-22	07-Jan-22	16	$20,106.03
RE41680	DE02SB.OW.305-302 - Place Superpave Course (L+G+B)	3	10-Jan-22	12-Jan-22	16	$24,673.20
RE41850	DE02SB.OW.305-302 - Place Asphalt Concrete (A)	3	13-Jan-22	18-Jan-22	16	$0.00
DE02 - SB - Sta. 302-295 - Outside Widening		**14**	**05-Jan-22**	**26-Jan-22**	**14**	**$112,371.60**
RE41430	DE02SB.OW.302-295 - Setup Work Zone & Temp Barriers	2	05-Jan-22	06-Jan-22	0	$32,671.00
RE41550	DE02SB.OW.302-295 - Earthwork	3	07-Jan-22	11-Jan-22	0	$34,921.37
RE41730	DE02SB.OW.302-295 - Place GR Aggregate Base Course (N)	3	12-Jan-22	14-Jan-22	14	$20,106.03
RE41940	DE02SB.OW.302-295 - Place Superpave Course (L+G+B)	3	18-Jan-22	20-Jan-22	14	$24,673.20
RE42160	DE02SB.OW.302-295 - Place Asphalt Concrete (A)	3	24-Jan-22	26-Jan-22	14	$0.00
DE02 - SB - Sta. 295-290 - Outside Widening		**14**	**12-Jan-22**	**03-Feb-22**	**12**	**$112,371.60**
RE41740	DE02SB.OW.295-290 - Setup Work Zone & Temp Barriers	2	12-Jan-22	13-Jan-22	0	$32,671.00
RE41800	DE02SB.OW.295-290 - Earthwork	3	14-Jan-22	19-Jan-22	0	$34,921.37
RE42010	DE02SB.OW.295-290 - Place GR Aggregate Base Course (N)	3	20-Jan-22	25-Jan-22	12	$20,106.03
RE42230	DE02SB.OW.295-290 - Place Superpave Course (L+G+B)	3	26-Jan-22	31-Jan-22	12	$24,673.20
RE42390	DE02SB.OW.295-290 - Place Asphalt Concrete (A)	3	01-Feb-22	03-Feb-22	12	$0.00
DE02 - SB - Sta. 290-285 - Outside Widening		**14**	**20-Jan-22**	**10-Feb-22**	**10**	**$112,371.60**
RE42020	DE02SB.OW.290-285 - Setup Work Zone & Temp Barriers	2	20-Jan-22	24-Jan-22	0	$32,671.00
RE42110	DE02SB.OW.290-285 - Earthwork	3	25-Jan-22	27-Jan-22	0	$34,921.37
RE42280	DE02SB.OW.290-285 - Place GR Aggregate Base Course (N)	3	31-Jan-22	02-Feb-22	10	$20,106.03
RE42490	DE02SB.OW.290-285 - Place Superpave Course (L+G+B)	3	03-Feb-22	07-Feb-22	10	$24,673.20
RE42670	DE02SB.OW.290-285 - Place Asphalt Concrete (A)	3	08-Feb-22	10-Feb-22	10	$0.00
DE02 - SB - Sta. 285-280 - Outside Widening		**14**	**31-Jan-22**	**17-Feb-22**	**8**	**$112,371.60**
RE42270	DE02SB.OW.285-280 - Setup Work Zone & Temp Barriers	2	31-Jan-22	01-Feb-22	0	$32,671.00
RE42340	DE02SB.OW.285-280 - Earthwork	3	02-Feb-22	04-Feb-22	0	$34,921.37



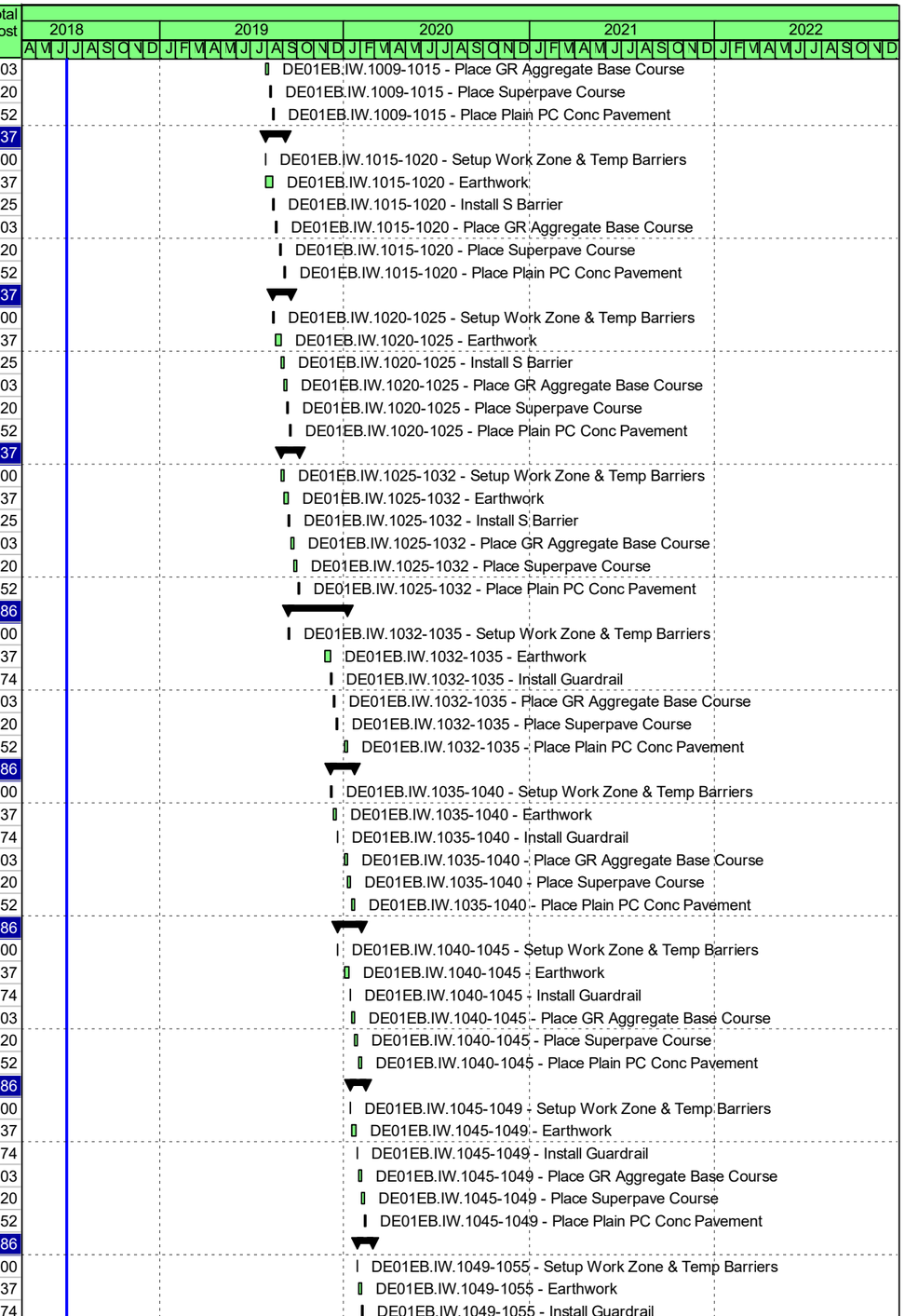
Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE42550	DE02SB.OW.285-280 - Place GR Aggregate Base Course (N)	3	07-Feb-22	09-Feb-22	8	$20,106.03
RE42720	DE02SB.OW.285-280 - Place Superpave Course (L+G+B)	3	10-Feb-22	14-Feb-22	8	$24,673.20
RE42890	DE02SB.OW.285-280 - Place Asphalt Concrete (A)	3	15-Feb-22	17-Feb-22	8	$0.00
DE02 - SB - Sta. 280-275 - Outside Widening		14	07-Feb-22	01-Mar-22	6	$112,371.60
RE42560	DE02SB.OW.280-275 - Setup Work Zone & Temp Barriers	2	07-Feb-22	08-Feb-22	0	$32,671.00
RE42620	DE02SB.OW.280-275 - Earthwork	3	09-Feb-22	11-Feb-22	0	$34,921.37
RE42750	DE02SB.OW.280-275 - Place GR Aggregate Base Course (N)	3	14-Feb-22	16-Feb-22	6	$20,106.03
RE42970	DE02SB.OW.280-275 - Place Superpave Course (L+G+B)	3	17-Feb-22	23-Feb-22	6	$24,673.20
RE43100	DE02SB.OW.280-275 - Place Asphalt Concrete (A)	3	24-Feb-22	01-Mar-22	6	$0.00
DE02 - SB - Sta. 275-270 - Outside Widening		14	14-Feb-22	09-Mar-22	4	$112,371.60
RE42760	DE02SB.OW.275-270 - Setup Work Zone & Temp Barriers	2	14-Feb-22	15-Feb-22	0	$32,671.00
RE42840	DE02SB.OW.275-270 - Earthwork	3	16-Feb-22	22-Feb-22	0	$34,921.37
RE43000	DE02SB.OW.275-270 - Place GR Aggregate Base Course (N)	3	23-Feb-22	28-Feb-22	4	$20,106.03
RE43140	DE02SB.OW.275-270 - Place Superpave Course (L+G+B)	3	01-Mar-22	03-Mar-22	4	$24,673.20
RE43330	DE02SB.OW.275-270 - Place Asphalt Concrete (A)	3	07-Mar-22	09-Mar-22	4	$0.00
DE02 - SB - Sta. 270-265 - Outside Widening		14	23-Feb-22	23-Mar-22	2	$112,371.60
RE43010	DE02SB.OW.270-265 - Setup Work Zone & Temp Barriers	2	23-Feb-22	24-Feb-22	0	$32,671.00
RE43050	DE02SB.OW.270-265 - Earthwork	3	28-Feb-22	02-Mar-22	0	$34,921.37
RE43210	DE02SB.OW.270-265 - Place GR Aggregate Base Course (N)	3	03-Mar-22	08-Mar-22	2	$20,106.03
RE43380	DE02SB.OW.270-265 - Place Superpave Course (L+G+B)	3	09-Mar-22	15-Mar-22	2	$24,673.20
RE43480	DE02SB.OW.270-265 - Place Asphalt Concrete (A)	3	21-Mar-22	23-Mar-22	2	$0.00
DE02 - SB - Sta. 265-261 - Outside Widening		14	03-Mar-22	31-Mar-22	0	$112,371.60
RE43200	DE02SB.OW.265-261 - Setup Work Zone & Temp Barriers	2	03-Mar-22	07-Mar-22	0	$32,671.00
RE43270	DE02SB.OW.265-261 - Earthwork	3	08-Mar-22	10-Mar-22	0	$34,921.37
RE43400	DE02SB.OW.265-261 - Place GR Aggregate Base Course (N)	3	15-Mar-22	22-Mar-22	0	$20,106.03
RE43540	DE02SB.OW.265-261 - Place Superpave Course (L+G+B)	3	23-Mar-22	28-Mar-22	0	$24,673.20
RE43660	DE02SB.OW.265-261 - Place Asphalt Concrete (A)	3	29-Mar-22	31-Mar-22	0	$0.00
Structure		107	25-Aug-21	01-Mar-22	15	$3,799,655.73
B03.3 - DE2/DE4 - I-95 over I-16 (SR 404) - Stage 3		107	25-Aug-21	01-Mar-22	15	$3,799,655.73
RE20680	B03.3 - Start Stage 3 - Bridge	0	25-Aug-21		15	$0.00
RE32730	B03.3 - Complete Stage 3 - Bridge	0		01-Mar-22	15	$0.00
B03.3 - Setup		10	25-Aug-21	10-Sep-21	15	$222,825.75
RE20690	B03.3 - Shift Traffic to Stage 3 Configuration and Setup MOT Area	2	25-Aug-21	26-Aug-21	15	$16,448.17
RE21210	B03.3 - Remove Remainder of Existing Bridge	8	30-Aug-21	10-Sep-21	15	$206,377.58
B03.3 - End Bent 1		97	13-Sep-21	01-Mar-22	15	$514,599.82
RE22060	B03.3 - EB1 - Structural Excavation/Backfill	2	13-Sep-21	14-Sep-21	15	$24,038.80
RE22880	B03.3 - EB1 - Drive Concrete Piles	3	15-Sep-21	20-Sep-21	15	$185,684.71
RE23720	B03.3 - EB1 - Install MSE Wall & Backfill	12	21-Sep-21	07-Oct-21	20	$208,555.43
RE24930	B03.3 - EB1 - Form, Pour & Set Cap	10	08-Oct-21	22-Oct-21	20	$21,701.87
RE27670	B03.3 - EB1 - Install Slope Protection	12	17-Nov-21	09-Dec-21	53	$31,511.73
RE27680	B03.3 - EB1 - Form & Pour Wing Wall	10	17-Nov-21	07-Dec-21	55	$19,432.33
RE31610	B03.3 - EB1 - Form & Pour Approach Slab & Barrier Wall	5	22-Feb-22	01-Mar-22	15	$23,674.95
B03.3 - Span A		15	02-Nov-21	30-Nov-21	30	$271,072.44
RE27120	B03.3 - Span A - Set Beams & Diaphragms	10	02-Nov-21	16-Nov-21	15	$211,878.40
RE27690	B03.3 - Span A - Form & Install Rebar	5	17-Nov-21	30-Nov-21	30	$59,194.04
B03.3 - Bent 1		30	15-Sep-21	01-Nov-21	15	$295,106.50
RE22890	B03.3 - Bent 02 - Structural Excavation/Backfill	2	15-Sep-21	16-Sep-21	16	$24,038.80
RE23730	B03.3 - Bent 02 - Drive Concrete Piles	4	21-Sep-21	27-Sep-21	15	$185,684.71
RE24510	B03.3 - Bent 02 - Form & Pour Footers	5	28-Sep-21	04-Oct-21	15	$8,847.91
RE25260	B03.3 - Bent 02 - Form & Pour Columns	8	05-Oct-21	15-Oct-21	15	$54,833.21
RE26400	B03.3 - Bent 02 - Form, Pour & Set Cap	10	18-Oct-21	01-Nov-21	15	$21,701.87
B03.3 - Span B		15	17-Nov-21	14-Dec-21	25	$271,072.44
RE27700	B03.3 - Span B - Set Beams & Diaphragms	10	17-Nov-21	07-Dec-21	15	$211,878.40
RE28300	B03.3 - Span B - Form & Install Rebar	5	08-Dec-21	14-Dec-21	25	$59,194.04
B03.3 - Bent 2		38	20-Sep-21	16-Nov-21	25	$295,106.50
RE23740	B03.3 - Bent 03 - Structural Excavation/Backfill	2	20-Sep-21	21-Sep-21	34	$24,038.80



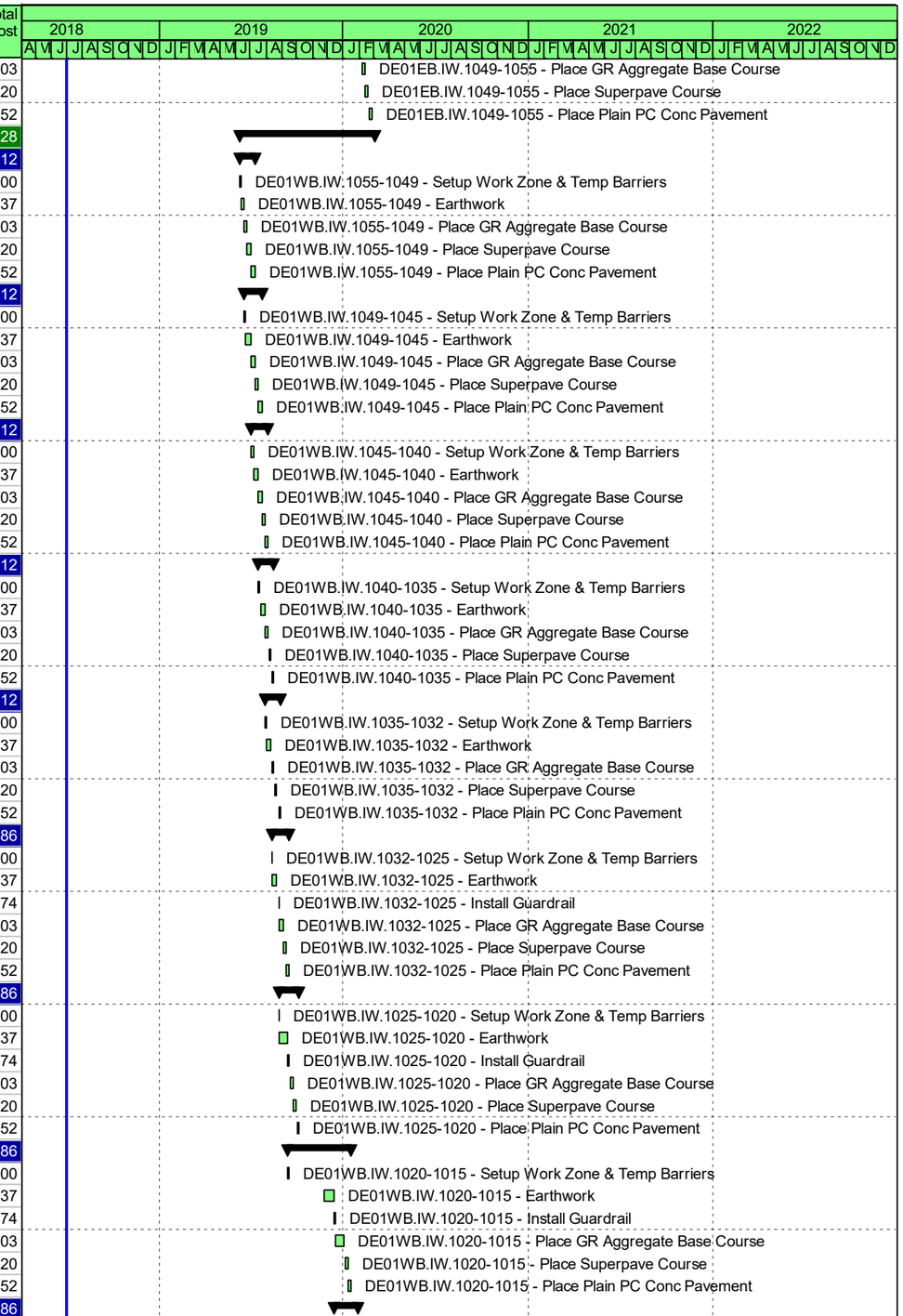
Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE24520	B03.3 - Bent 03 - Drive Concrete Piles	4	28-Sep-21	01-Oct-21	31	$185,684.71
RE25270	B03.3 - Bent 03 - Form & Pour Footers	5	05-Oct-21	12-Oct-21	30	$8,847.91
RE26410	B03.3 - Bent 03 - Form & Pour Columns	8	18-Oct-21	27-Oct-21	27	$54,833.21
RE27130	B03.3 - Bent 03 - Form, Pour & Set Cap	10	02-Nov-21	16-Nov-21	25	$21,701.87
B03.3 - Span C		15	08-Dec-21	10-Jan-22	20	$271,072.44
RE28310	B03.3 - Span C - Set Beams & Diaphragms	10	08-Dec-21	22-Dec-21	15	$211,878.40
RE28940	B03.3 - Span C - Form & Install Rebar	5	04-Jan-22	10-Jan-22	20	$59,194.04
B03.3 - Bent 3		46	22-Sep-21	07-Dec-21	25	$295,106.50
RE24530	B03.3 - Bent 04 - Structural Excavation/Backfill	2	22-Sep-21	23-Sep-21	42	$24,038.80
RE25280	B03.3 - Bent 04 - Drive Concrete Piles	4	04-Oct-21	07-Oct-21	37	$185,684.71
RE26420	B03.3 - Bent 04 - Form & Pour Footers	5	13-Oct-21	19-Oct-21	35	$8,847.91
RE26920	B03.3 - Bent 04 - Form & Pour Columns	8	28-Oct-21	10-Nov-21	29	$54,833.21
RE27940	B03.3 - Bent 04 - Form, Pour & Set Cap	10	17-Nov-21	07-Dec-21	25	$21,701.87
B03.3 - Span D		15	04-Jan-22	26-Jan-22	15	$271,072.44
RE28950	B03.3 - Span D - Set Beams & Diaphragms	10	04-Jan-22	18-Jan-22	15	$211,878.40
RE29570	B03.3 - Span D - Form & Install Rebar	5	19-Jan-22	26-Jan-22	15	$59,194.04
B03.3 - End Bent 2		95	15-Sep-21	01-Mar-22	15	$514,599.82
RE22900	B03.3 - EB5 - Structural Excavation/Backfill	2	15-Sep-21	16-Sep-21	48	$24,038.80
RE23750	B03.3 - EB5 - Drive Concrete Piles	3	21-Sep-21	23-Sep-21	47	$185,684.71
RE24540	B03.3 - EB5 - Install MSE Wall & Backfill	12	27-Sep-21	13-Oct-21	47	$208,555.43
RE26000	B03.3 - EB5 - Form, Pour & Set Cap	10	14-Oct-21	27-Oct-21	47	$21,701.87
RE29580	B03.3 - EB5 - Install Slope Protection	12	19-Jan-22	07-Feb-22	23	$31,511.73
RE29590	B03.3 - EB5 - Form & Pour Wing Wall	10	19-Jan-22	03-Feb-22	25	$19,432.33
RE31620	B03.3 - EB5 - Form & Pour Approach Slab & Barrier Wall	5	22-Feb-22	01-Mar-22	15	$23,674.95
B03.3 - Finishes		20	27-Jan-22	01-Mar-22	15	$578,021.08
RE30230	B03.3 - Spans AD - Set Screed & Pour	15	27-Jan-22	17-Feb-22	15	$554,346.13
RE31630	B03.3 - Spans AD - Form & Pour Barrier Walls	5	22-Feb-22	01-Mar-22	15	$23,674.95
Zone A - I-16 Roadway to Sta. 1105		573	11-Jun-19	11-Feb-22	24	$38,049,302.62
Roadway - (E of I-95)		573	11-Jun-19	11-Feb-22	24	$29,912,447.18
RE12790	Start Zone A - Roadway - I-16	0	11-Jun-19		67	$0.00
RE54260	Complete Zone A - Roadway - I-16 IW - Set 1	0		03-Mar-20	24	$0.00
RE54280	Start Zone A - Roadway - I-16 IW - Set 2	0	04-Mar-20		40	$0.00
RE54230	Complete Zone A - Roadway - I-16 IW - Set 2	0		01-Jul-20	40	$0.00
RE54250	Start Zone A - Roadway - I-16 OW	0	28-Jul-20		24	$0.00
RE54300	Zone A - I-16 - Roadway Complete	0		11-Feb-22	24	$0.00
Inside Widening		228	11-Jun-19	01-Jul-20	40	$18,990,289.58
1E - EB - Sta. 999-1055		152	11-Jun-19	26-Feb-20	27	$5,195,690.50
DE01 - EB - Sta. 999-1005 - Inside Widening		22	11-Jun-19	16-Jul-19	117	$472,293.86
RE18750	DE01EB.IW.999-1005 - Setup Work Zone & Temp Barriers	2	11-Jun-19	12-Jun-19	70	$32,671.00
RE19030	DE01EB.IW.999-1005 - Earthwork	6	13-Jun-19	20-Jun-19	70	$34,921.37
RE19750	DE01EB.IW.999-1005 - Install Guardrail	2	21-Jun-19	24-Jun-19	117	$49,794.74
RE20030	DE01EB.IW.999-1005 - Place GR Aggregate Base Course	4	25-Jun-19	01-Jul-19	117	$20,106.03
RE20480	DE01EB.IW.999-1005 - Place Superpave Course	4	02-Jul-19	10-Jul-19	117	$24,673.20
RE20830	DE01EB.IW.999-1005 - Place Plain PC Conc Pavement	4	11-Jul-19	16-Jul-19	117	$310,127.52
DE01 - EB - Sta. 1005-1009 - Inside Widening		22	21-Jun-19	30-Jul-19	113	$472,293.86
RE19760	DE01EB.IW1005-1009 - Setup Work Zone & Temp Barriers	2	21-Jun-19	24-Jun-19	70	$32,671.00
RE20040	DE01EB.IW1005-1009 - Earthwork	6	25-Jun-19	08-Jul-19	70	$34,921.37
RE20840	DE01EB.IW1005-1009 - Install Guardrail	2	09-Jul-19	10-Jul-19	113	$49,794.74
RE21000	DE01EB.IW1005-1009 - Place GR Aggregate Base Course	4	11-Jul-19	16-Jul-19	113	$20,106.03
RE21370	DE01EB.IW1005-1009 - Place Superpave Course	4	17-Jul-19	23-Jul-19	113	$24,673.20
RE21860	DE01EB.IW1005-1009 - Place Plain PC Conc Pavement	4	24-Jul-19	30-Jul-19	113	$310,127.52
DE01 - EB - Sta. 1009-1015 - Inside Widening		26	09-Jul-19	15-Aug-19	105	$472,408.37
RE20850	DE01EB.IW.1009-1015 - Setup Work Zone & Temp Barriers	2	09-Jul-19	10-Jul-19	70	$32,671.00
RE21010	DE01EB.IW.1009-1015 - Earthwork	10	11-Jul-19	25-Jul-19	70	$34,921.37
RE21880	DE01EB.IW.1009-1015 - Install S Barrier	2	29-Jul-19	30-Jul-19	105	$49,909.25



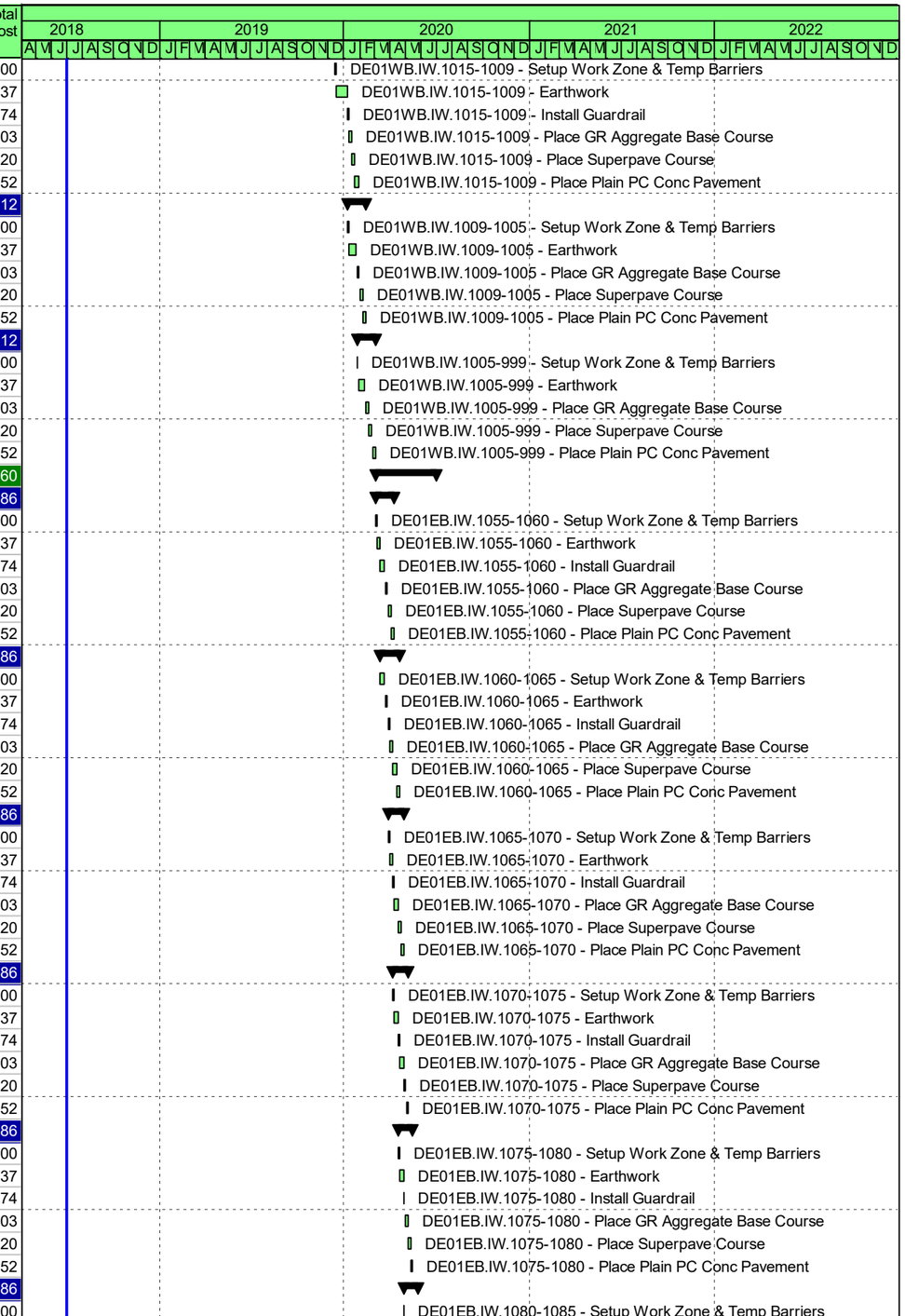
Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE22100	DE01EB.IW.1009-1015 - Place GR Aggregate Base Course	4	31-Jul-19	05-Aug-19	105	$20,106.03
RE22670	DE01EB.IW.1009-1015 - Place Superpave Course	4	06-Aug-19	09-Aug-19	105	$24,673.20
RE22990	DE01EB.IW.1009-1015 - Place Plain PC Conc Pavement	4	12-Aug-19	15-Aug-19	105	$310,127.52
DE01 - EB - Sta. 1015-1020 - Inside Widening		**26**	**29-Jul-19**	**06-Sep-19**	**97**	**$472,408.37**
RE21870	DE01EB.IW.1015-1020 - Setup Work Zone & Temp Barriers	2	29-Jul-19	30-Jul-19	70	$32,671.00
RE22090	DE01EB.IW.1015-1020 - Earthwork	10	31-Jul-19	13-Aug-19	70	$34,921.37
RE22980	DE01EB.IW.1015-1020 - Install S Barrier	2	14-Aug-19	15-Aug-19	97	$49,909.25
RE23140	DE01EB.IW.1015-1020 - Place GR Aggregate Base Course	4	19-Aug-19	22-Aug-19	97	$20,106.03
RE23560	DE01EB.IW.1015-1020 - Place Superpave Course	4	26-Aug-19	29-Aug-19	97	$24,673.20
RE23940	DE01EB.IW.1015-1020 - Place Plain PC Conc Pavement	4	03-Sep-19	06-Sep-19	97	$310,127.52
DE01 - EB - Sta. 1020-1025 - Inside Widening		**23**	**14-Aug-19**	**19-Sep-19**	**92**	**$472,408.37**
RE23000	DE01EB.IW.1020-1025 - Setup Work Zone & Temp Barriers	2	14-Aug-19	15-Aug-19	70	$32,671.00
RE23150	DE01EB.IW.1020-1025 - Earthwork	7	19-Aug-19	28-Aug-19	70	$34,921.37
RE23960	DE01EB.IW.1020-1025 - Install S Barrier	2	29-Aug-19	03-Sep-19	92	$49,909.25
RE24190	DE01EB.IW.1020-1025 - Place GR Aggregate Base Course	4	04-Sep-19	09-Sep-19	92	$20,106.03
RE24490	DE01EB.IW.1020-1025 - Place Superpave Course	4	10-Sep-19	13-Sep-19	92	$24,673.20
RE24790	DE01EB.IW.1020-1025 - Place Plain PC Conc Pavement	4	16-Sep-19	19-Sep-19	92	$310,127.52
DE01 - EB - Sta. 1025-1032 - Inside Widening		**23**	**29-Aug-19**	**04-Oct-19**	**87**	**$472,408.37**
RE23950	DE01EB.IW.1025-1032 - Setup Work Zone & Temp Barriers	2	29-Aug-19	03-Sep-19	70	$32,671.00
RE24180	DE01EB.IW.1025-1032 - Earthwork	7	04-Sep-19	12-Sep-19	70	$34,921.37
RE24780	DE01EB.IW.1025-1032 - Install S Barrier	2	13-Sep-19	16-Sep-19	87	$49,909.25
RE25070	DE01EB.IW.1025-1032 - Place GR Aggregate Base Course	4	17-Sep-19	23-Sep-19	87	$20,106.03
RE25380	DE01EB.IW.1025-1032 - Place Superpave Course	4	24-Sep-19	30-Sep-19	87	$24,673.20
RE26070	DE01EB.IW.1025-1032 - Place Plain PC Conc Pavement	4	01-Oct-19	04-Oct-19	87	$310,127.52
DE01 - EB - Sta. 1032-1035 - Inside Widening		**64**	**13-Sep-19**	**08-Jan-20**	**41**	**$472,293.86**
RE24800	DE01EB.IW.1032-1035 - Setup Work Zone & Temp Barriers	2	13-Sep-19	16-Sep-19	70	$32,671.00
RE25080	DE01EB.IW.1032-1035 - Earthwork	5	25-Nov-19	05-Dec-19	27	$34,921.37
RE26080	DE01EB.IW.1032-1035 - Install Guardrail	2	06-Dec-19	09-Dec-19	41	$49,794.74
RE26240	DE01EB.IW.1032-1035 - Place GR Aggregate Base Course	4	10-Dec-19	13-Dec-19	41	$20,106.03
RE26560	DE01EB.IW.1032-1035 - Place Superpave Course	4	16-Dec-19	19-Dec-19	41	$24,673.20
RE26770	DE01EB.IW.1032-1035 - Place Plain PC Conc Pavement	4	03-Jan-20	08-Jan-20	41	$310,127.52
DE01 - EB - Sta. 1035-1040 - Inside Widening		**22**	**06-Dec-19**	**21-Jan-20**	**37**	**$472,293.86**
RE26090	DE01EB.IW.1035-1040 - Setup Work Zone & Temp Barriers	2	06-Dec-19	09-Dec-19	27	$32,671.00
RE26250	DE01EB.IW.1035-1040 - Earthwork	6	10-Dec-19	17-Dec-19	27	$34,921.37
RE26780	DE01EB.IW.1035-1040 - Install Guardrail	2	18-Dec-19	19-Dec-19	37	$49,794.74
RE26980	DE01EB.IW.1035-1040 - Place GR Aggregate Base Course	4	03-Jan-20	08-Jan-20	37	$20,106.03
RE27160	DE01EB.IW.1035-1040 - Place Superpave Course	4	09-Jan-20	14-Jan-20	37	$24,673.20
RE27250	DE01EB.IW.1035-1040 - Place Plain PC Conc Pavement	4	15-Jan-20	21-Jan-20	37	$310,127.52
DE01 - EB - Sta. 1040-1045 - Inside Widening		**22**	**18-Dec-19**	**04-Feb-20**	**33**	**$472,293.86**
RE26790	DE01EB.IW.1040-1045 - Setup Work Zone & Temp Barriers	2	18-Dec-19	19-Dec-19	27	$32,671.00
RE26990	DE01EB.IW.1040-1045 - Earthwork	6	03-Jan-20	10-Jan-20	27	$34,921.37
RE27260	DE01EB.IW.1040-1045 - Install Guardrail	2	13-Jan-20	14-Jan-20	33	$49,794.74
RE27430	DE01EB.IW.1040-1045 - Place GR Aggregate Base Course	4	15-Jan-20	21-Jan-20	33	$20,106.03
RE27770	DE01EB.IW.1040-1045 - Place Superpave Course	4	22-Jan-20	28-Jan-20	33	$24,673.20
RE28060	DE01EB.IW.1040-1045 - Place Plain PC Conc Pavement	4	29-Jan-20	04-Feb-20	33	$310,127.52
DE01 - EB - Sta. 1045-1049 - Inside Widening		**22**	**13-Jan-20**	**14-Feb-20**	**29**	**$472,293.86**
RE27270	DE01EB.IW.1045-1049 - Setup Work Zone & Temp Barriers	2	13-Jan-20	14-Jan-20	27	$32,671.00
RE27440	DE01EB.IW.1045-1049 - Earthwork	6	15-Jan-20	23-Jan-20	27	$34,921.37
RE28070	DE01EB.IW.1045-1049 - Install Guardrail	2	27-Jan-20	28-Jan-20	29	$49,794.74
RE28250	DE01EB.IW.1045-1049 - Place GR Aggregate Base Course	4	29-Jan-20	04-Feb-20	29	$20,106.03
RE28700	DE01EB.IW.1045-1049 - Place Superpave Course	4	05-Feb-20	10-Feb-20	29	$24,673.20
RE28860	DE01EB.IW.1045-1049 - Place Plain PC Conc Pavement	4	11-Feb-20	14-Feb-20	29	$310,127.52
DE01 - EB - Sta. 1049-1055 - Inside Widening		**20**	**27-Jan-20**	**26-Feb-20**	**27**	**$472,293.86**
RE28080	DE01EB.IW.1049-1055 - Setup Work Zone & Temp Barriers	2	27-Jan-20	28-Jan-20	27	$32,671.00
RE28260	DE01EB.IW.1049-1055 - Earthwork	4	29-Jan-20	04-Feb-20	27	$34,921.37
RE28880	DE01EB.IW.1049-1055 - Install Guardrail	2	05-Feb-20	06-Feb-20	27	$49,794.74



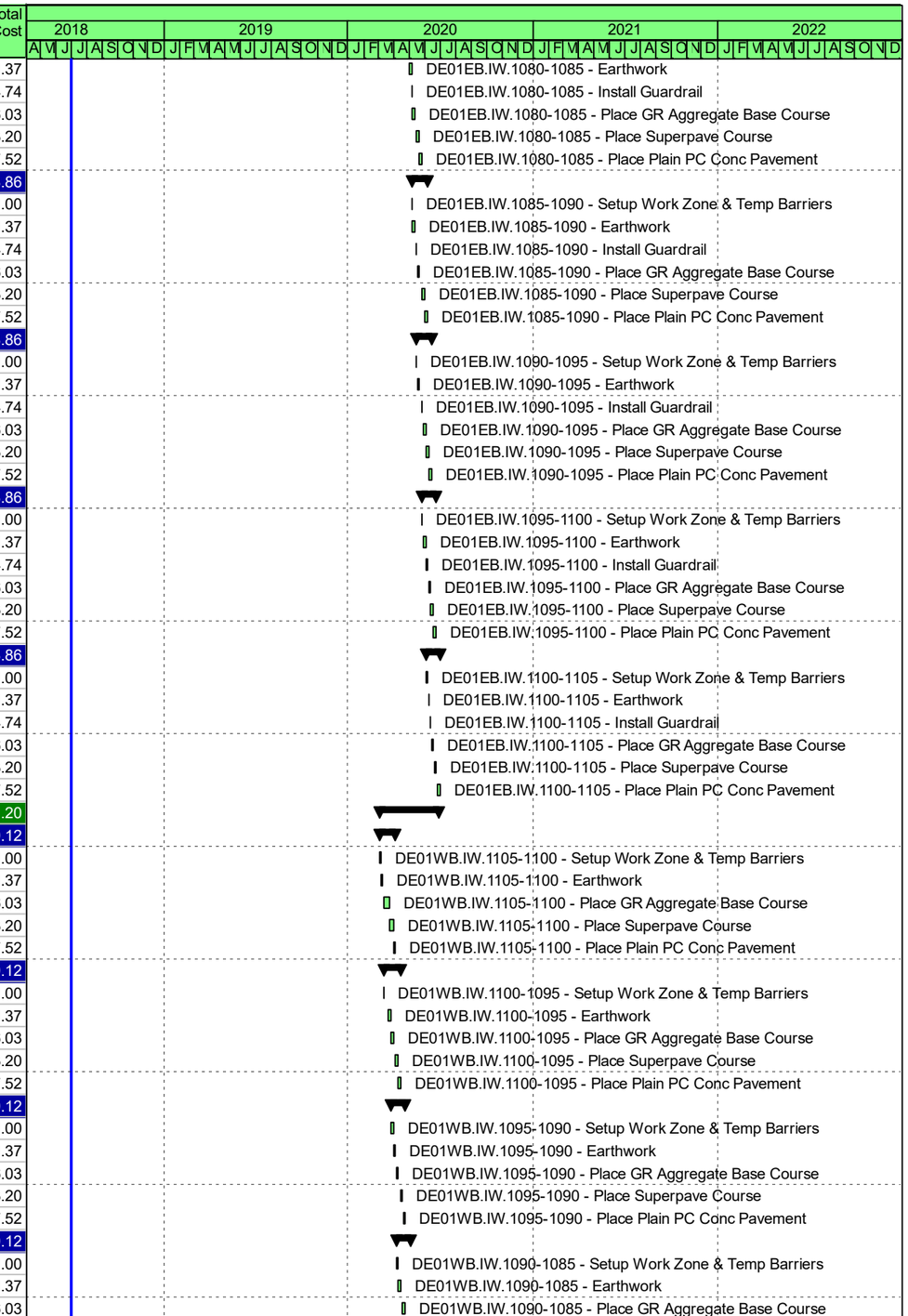
Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE29130	DE01EB.IW.1049-1055 - Place GR Aggregate Base Course	4	07-Feb-20	12-Feb-20	27	$20,106.03
RE29410	DE01EB.IW.1049-1055 - Place Superpave Course	4	13-Feb-20	19-Feb-20	27	$24,673.20
RE29750	DE01EB.IW.1049-1055 - Place Plain PC Conc Pavement	4	20-Feb-20	26-Feb-20	27	$310,127.52
1W - WB - Sta. 1055-999		**155**	**11-Jun-19**	**03-Mar-20**	**24**	**$4,846,669.28**
DE01 - WB - Sta. 1055-1049 - Inside Widening		**18**	**11-Jun-19**	**10-Jul-19**	**121**	**$422,499.12**
RE24810	DE01WB.IW.1055-1049 - Setup Work Zone & Temp Barriers	2	11-Jun-19	12-Jun-19	67	$32,671.00
RE25090	DE01WB.IW.1055-1049 - Earthwork	4	13-Jun-19	18-Jun-19	67	$34,921.37
RE26110	DE01WB.IW.1055-1049 - Place GR Aggregate Base Course	4	19-Jun-19	24-Jun-19	121	$20,106.03
RE26510	DE01WB.IW.1055-1049 - Place Superpave Course	4	25-Jun-19	01-Jul-19	121	$24,673.20
RE26720	DE01WB.IW.1055-1049 - Place Plain PC Conc Pavement	4	02-Jul-19	10-Jul-19	121	$310,127.52
DE01 - WB - Sta. 1049-1045 - Inside Widening		**20**	**19-Jun-19**	**23-Jul-19**	**117**	**$422,499.12**
RE26100	DE01WB.IW.1049-1045 - Setup Work Zone & Temp Barriers	2	19-Jun-19	20-Jun-19	67	$32,671.00
RE26260	DE01WB.IW.1049-1045 - Earthwork	6	21-Jun-19	01-Jul-19	67	$34,921.37
RE26800	DE01WB.IW.1049-1045 - Place GR Aggregate Base Course	4	02-Jul-19	10-Jul-19	117	$20,106.03
RE27080	DE01WB.IW.1049-1045 - Place Superpave Course	4	11-Jul-19	16-Jul-19	117	$24,673.20
RE27220	DE01WB.IW.1049-1045 - Place Plain PC Conc Pavement	4	17-Jul-19	23-Jul-19	117	$310,127.52
DE01 - WB - Sta. 1045-1040 - Inside Widening		**20**	**02-Jul-19**	**05-Aug-19**	**113**	**$422,499.12**
RE26810	DE01WB.IW.1045-1040 - Setup Work Zone & Temp Barriers	2	02-Jul-19	08-Jul-19	67	$32,671.00
RE27000	DE01WB.IW.1045-1040 - Earthwork	6	09-Jul-19	16-Jul-19	67	$34,921.37
RE27280	DE01WB.IW.1045-1040 - Place GR Aggregate Base Course	4	17-Jul-19	23-Jul-19	113	$20,106.03
RE27710	DE01WB.IW.1045-1040 - Place Superpave Course	4	24-Jul-19	30-Jul-19	113	$24,673.20
RE28010	DE01WB.IW.1045-1040 - Place Plain PC Conc Pavement	4	31-Jul-19	05-Aug-19	113	$310,127.52
DE01 - WB - Sta. 1040-1035 - Inside Widening		**20**	**17-Jul-19**	**15-Aug-19**	**109**	**$422,499.12**
RE27290	DE01WB.IW.1040-1035 - Setup Work Zone & Temp Barriers	2	17-Jul-19	18-Jul-19	67	$32,671.00
RE27450	DE01WB.IW.1040-1035 - Earthwork	6	22-Jul-19	30-Jul-19	67	$34,921.37
RE28090	DE01WB.IW.1040-1035 - Place GR Aggregate Base Course	4	31-Jul-19	05-Aug-19	109	$20,106.03
RE28620	DE01WB.IW.1040-1035 - Place Superpave Course	4	06-Aug-19	09-Aug-19	109	$24,673.20
RE28740	DE01WB.IW.1040-1035 - Place Plain PC Conc Pavement	4	12-Aug-19	15-Aug-19	109	$310,127.52
DE01 - WB - Sta. 1035-1032 - Inside Widening		**20**	**31-Jul-19**	**29-Aug-19**	**105**	**$422,499.12**
RE28100	DE01WB.IW.1035-1032 - Setup Work Zone & Temp Barriers	2	31-Jul-19	01-Aug-19	67	$32,671.00
RE28270	DE01WB.IW.1035-1032 - Earthwork	6	02-Aug-19	09-Aug-19	67	$34,921.37
RE28900	DE01WB.IW.1035-1032 - Place GR Aggregate Base Course	4	12-Aug-19	15-Aug-19	105	$20,106.03
RE29330	DE01WB.IW.1035-1032 - Place Superpave Course	4	19-Aug-19	22-Aug-19	105	$24,673.20
RE29560	DE01WB.IW.1035-1032 - Place Plain PC Conc Pavement	4	26-Aug-19	29-Aug-19	105	$310,127.52
DE01 - WB - Sta. 1032-1025 - Inside Widening		**22**	**12-Aug-19**	**16-Sep-19**	**99**	**$472,293.86**
RE28890	DE01WB.IW.1032-1025 - Setup Work Zone & Temp Barriers	2	12-Aug-19	13-Aug-19	67	$32,671.00
RE29140	DE01WB.IW.1032-1025 - Earthwork	6	14-Aug-19	22-Aug-19	67	$34,921.37
RE29780	DE01WB.IW.1032-1025 - Install Guardrail	2	26-Aug-19	27-Aug-19	99	$49,794.74
RE29930	DE01WB.IW.1032-1025 - Place GR Aggregate Base Course	4	28-Aug-19	04-Sep-19	99	$20,106.03
RE30080	DE01WB.IW.1032-1025 - Place Superpave Course	4	05-Sep-19	10-Sep-19	99	$24,673.20
RE30340	DE01WB.IW.1032-1025 - Place Plain PC Conc Pavement	4	11-Sep-19	16-Sep-19	99	$310,127.52
DE01 - WB - Sta. 1025-1020 - Inside Widening		**26**	**26-Aug-19**	**04-Oct-19**	**91**	**$472,293.86**
RE29770	DE01WB.IW.1025-1020 - Setup Work Zone & Temp Barriers	2	26-Aug-19	27-Aug-19	67	$32,671.00
RE29920	DE01WB.IW.1025-1020 - Earthwork	10	28-Aug-19	12-Sep-19	67	$34,921.37
RE30330	DE01WB.IW.1025-1020 - Install Guardrail	2	13-Sep-19	16-Sep-19	91	$49,794.74
RE30550	DE01WB.IW.1025-1020 - Place GR Aggregate Base Course	4	17-Sep-19	23-Sep-19	91	$20,106.03
RE31080	DE01WB.IW.1025-1020 - Place Superpave Course	4	24-Sep-19	30-Sep-19	91	$24,673.20
RE31230	DE01WB.IW.1025-1020 - Place Plain PC Conc Pavement	4	01-Oct-19	04-Oct-19	91	$310,127.52
DE01 - WB - Sta. 1020-1015 - Inside Widening		**69**	**13-Sep-19**	**15-Jan-20**	**40**	**$472,293.86**
RE30350	DE01WB.IW.1020-1015 - Setup Work Zone & Temp Barriers	2	13-Sep-19	16-Sep-19	67	$32,671.00
RE30560	DE01WB.IW.1020-1015 - Earthwork	10	25-Nov-19	12-Dec-19	24	$34,921.37
RE31250	DE01WB.IW.1020-1015 - Install Guardrail	2	13-Dec-19	16-Dec-19	40	$49,794.74
RE31390	DE01WB.IW.1020-1015 - Place GR Aggregate Base Course	4	17-Dec-19	03-Jan-20	40	$20,106.03
RE31730	DE01WB.IW.1020-1015 - Place Superpave Course	4	06-Jan-20	09-Jan-20	40	$24,673.20
RE32100	DE01WB.IW.1020-1015 - Place Plain PC Conc Pavement	4	10-Jan-20	15-Jan-20	40	$310,127.52
DE01 - WB - Sta. 1015-1009 - Inside Widening		**22**	**13-Dec-19**	**29-Jan-20**	**36**	**$472,293.86**



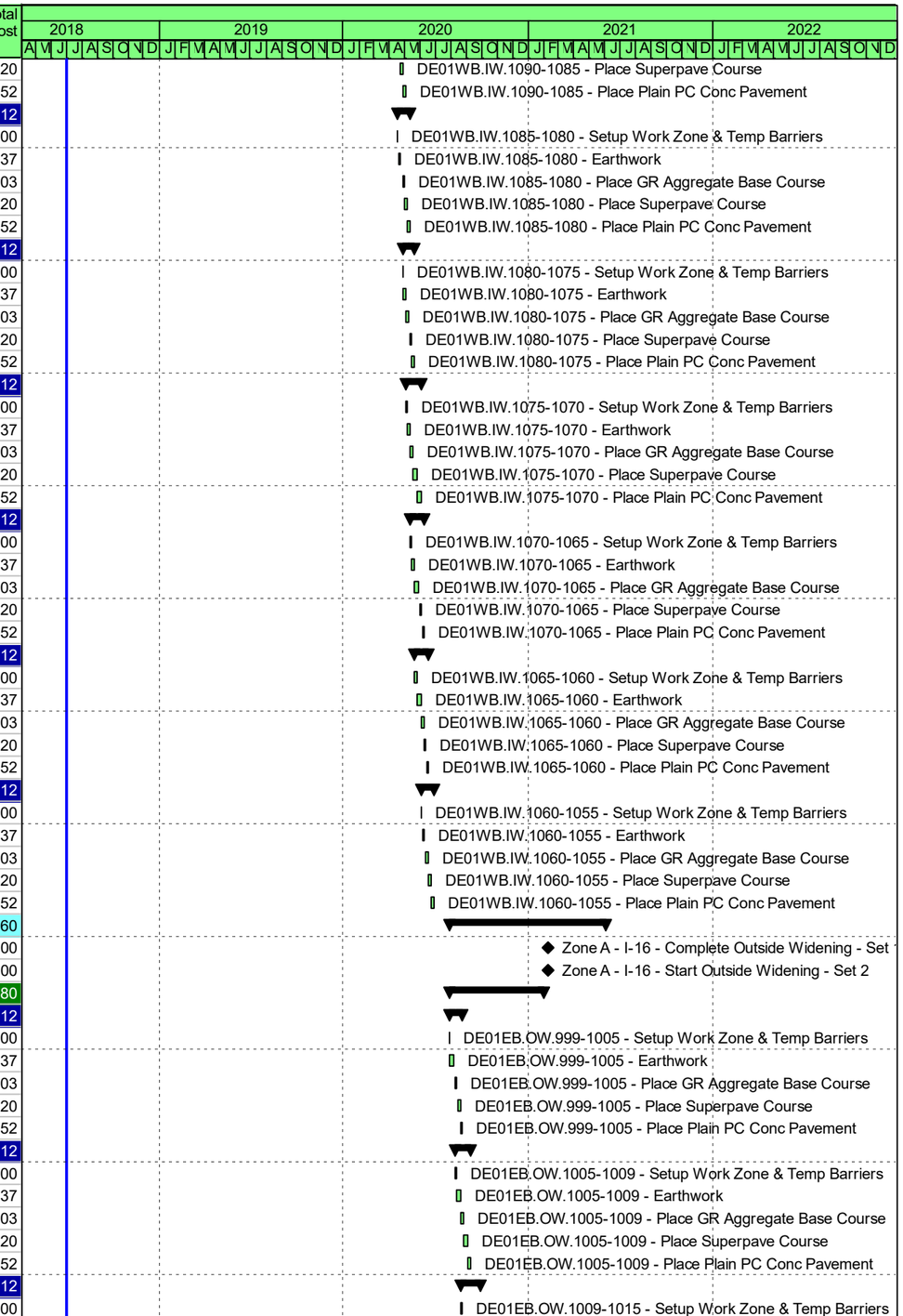
Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE31240	DE01WB.IW.1015-1009 - Setup Work Zone & Temp Barriers	2	13-Dec-19	16-Dec-19	24	$32,671.00
RE31380	DE01WB.IW.1015-1009 - Earthwork	6	17-Dec-19	07-Jan-20	24	$34,921.37
RE32090	DE01WB.IW.1015-1009 - Install Guardrail	2	08-Jan-20	09-Jan-20	36	$49,794.74
RE32390	DE01WB.IW.1015-1009 - Place GR Aggregate Base Course	4	10-Jan-20	15-Jan-20	36	$20,106.03
RE32620	DE01WB.IW.1015-1009 - Place Superpave Course	4	16-Jan-20	22-Jan-20	36	$24,673.20
RE32890	DE01WB.IW.1015-1009 - Place Plain PC Conc Pavement	4	23-Jan-20	29-Jan-20	36	$310,127.52
DE01 - WB - Sta. 1009-1005 - Inside Widening		**23**	**08-Jan-20**	**12-Feb-20**	**31**	**$422,499.12**
RE32080	DE01WB.IW.1009-1005 - Setup Work Zone & Temp Barriers	2	08-Jan-20	09-Jan-20	24	$32,671.00
RE32380	DE01WB.IW.1009-1005 - Earthwork	9	10-Jan-20	23-Jan-20	24	$34,921.37
RE32880	DE01WB.IW.1009-1005 - Place GR Aggregate Base Course	4	27-Jan-20	30-Jan-20	31	$20,106.03
RE33410	DE01WB.IW.1009-1005 - Place Superpave Course	4	03-Feb-20	06-Feb-20	31	$24,673.20
RE33640	DE01WB.IW.1009-1005 - Place Plain PC Conc Pavement	4	07-Feb-20	12-Feb-20	31	$310,127.52
DE01 - WB - Sta. 1005-999 - Inside Widening		**23**	**27-Jan-20**	**03-Mar-20**	**24**	**$422,499.12**
RE32870	DE01WB.IW.1005-999 - Setup Work Zone & Temp Barriers	2	27-Jan-20	28-Jan-20	24	$32,671.00
RE33290	DE01WB.IW.1005-999 - Earthwork	9	29-Jan-20	11-Feb-20	24	$34,921.37
RE33770	DE01WB.IW.1005-999 - Place GR Aggregate Base Course	4	12-Feb-20	18-Feb-20	24	$20,106.03
RE34090	DE01WB.IW.1005-999 - Place Superpave Course	4	19-Feb-20	25-Feb-20	24	$24,673.20
RE34340	DE01WB.IW.1005-999 - Place Plain PC Conc Pavement	4	26-Feb-20	03-Mar-20	24	$310,127.52
2E - EB - Sta. 1055-1105		**73**	**04-Mar-20**	**01-Jul-20**	**40**	**$4,722,938.60**
DE01 - EB - Sta. 1055-1060 - Inside Widening		**20**	**04-Mar-20**	**08-Apr-20**	**57**	**$472,293.86**
RE28870	DE01EB.IW.1055-1060 - Setup Work Zone & Temp Barriers	2	04-Mar-20	05-Mar-20	40	$32,671.00
RE29120	DE01EB.IW.1055-1060 - Earthwork	4	06-Mar-20	11-Mar-20	40	$34,921.37
RE29740	DE01EB.IW.1055-1060 - Install Guardrail	2	12-Mar-20	19-Mar-20	57	$49,794.74
RE29900	DE01EB.IW.1055-1060 - Place GR Aggregate Base Course	4	23-Mar-20	26-Mar-20	57	$20,106.03
RE30070	DE01EB.IW.1055-1060 - Place Superpave Course	4	30-Mar-20	02-Apr-20	57	$24,673.20
RE30310	DE01EB.IW.1055-1060 - Place Plain PC Conc Pavement	4	03-Apr-20	08-Apr-20	57	$310,127.52
DE01 - EB - Sta. 1060-1065 - Inside Widening		**20**	**12-Mar-20**	**20-Apr-20**	**55**	**$472,293.86**
RE29760	DE01EB.IW.1060-1065 - Setup Work Zone & Temp Barriers	2	12-Mar-20	19-Mar-20	40	$32,671.00
RE29910	DE01EB.IW.1060-1065 - Earthwork	4	23-Mar-20	26-Mar-20	40	$34,921.37
RE30320	DE01EB.IW.1060-1065 - Install Guardrail	2	30-Mar-20	31-Mar-20	55	$49,794.74
RE30540	DE01EB.IW.1060-1065 - Place GR Aggregate Base Course	4	01-Apr-20	06-Apr-20	55	$20,106.03
RE31070	DE01EB.IW.1060-1065 - Place Superpave Course	4	07-Apr-20	14-Apr-20	55	$24,673.20
RE31220	DE01EB.IW.1060-1065 - Place Plain PC Conc Pavement	4	15-Apr-20	20-Apr-20	55	$310,127.52
DE01 - EB - Sta. 1065-1070 - Inside Widening		**20**	**30-Mar-20**	**29-Apr-20**	**53**	**$472,293.86**
RE30300	DE01EB.IW.1065-1070 - Setup Work Zone & Temp Barriers	2	30-Mar-20	31-Mar-20	40	$32,671.00
RE30530	DE01EB.IW.1065-1070 - Earthwork	4	01-Apr-20	06-Apr-20	40	$34,921.37
RE31200	DE01EB.IW.1065-1070 - Install Guardrail	2	07-Apr-20	08-Apr-20	53	$49,794.74
RE31360	DE01EB.IW.1065-1070 - Place GR Aggregate Base Course	4	09-Apr-20	16-Apr-20	53	$20,106.03
RE31720	DE01EB.IW.1065-1070 - Place Superpave Course	4	17-Apr-20	22-Apr-20	53	$24,673.20
RE32050	DE01EB.IW.1065-1070 - Place Plain PC Conc Pavement	4	23-Apr-20	29-Apr-20	53	$310,127.52
DE01 - EB - Sta. 1070-1075 - Inside Widening		**20**	**07-Apr-20**	**07-May-20**	**51**	**$472,293.86**
RE31210	DE01EB.IW.1070-1075 - Setup Work Zone & Temp Barriers	2	07-Apr-20	08-Apr-20	40	$32,671.00
RE31370	DE01EB.IW.1070-1075 - Earthwork	4	09-Apr-20	16-Apr-20	40	$34,921.37
RE32060	DE01EB.IW.1070-1075 - Install Guardrail	2	17-Apr-20	20-Apr-20	51	$49,794.74
RE32360	DE01EB.IW.1070-1075 - Place GR Aggregate Base Course	4	21-Apr-20	27-Apr-20	51	$20,106.03
RE32610	DE01EB.IW.1070-1075 - Place Superpave Course	4	28-Apr-20	01-May-20	51	$24,673.20
RE32850	DE01EB.IW.1070-1075 - Place Plain PC Conc Pavement	4	04-May-20	07-May-20	51	$310,127.52
DE01 - EB - Sta. 1075-1080 - Inside Widening		**20**	**17-Apr-20**	**15-May-20**	**49**	**$472,293.86**
RE32070	DE01EB.IW.1075-1080 - Setup Work Zone & Temp Barriers	2	17-Apr-20	20-Apr-20	40	$32,671.00
RE32370	DE01EB.IW.1075-1080 - Earthwork	4	21-Apr-20	27-Apr-20	40	$34,921.37
RE32860	DE01EB.IW.1075-1080 - Install Guardrail	2	28-Apr-20	29-Apr-20	49	$49,794.74
RE33280	DE01EB.IW.1075-1080 - Place GR Aggregate Base Course	4	30-Apr-20	05-May-20	49	$20,106.03
RE33450	DE01EB.IW.1075-1080 - Place Superpave Course	4	06-May-20	11-May-20	49	$24,673.20
RE33750	DE01EB.IW.1075-1080 - Place Plain PC Conc Pavement	4	12-May-20	15-May-20	49	$310,127.52
DE01 - EB - Sta. 1080-1085 - Inside Widening		**20**	**28-Apr-20**	**27-May-20**	**47**	**$472,293.86**
RE32840	DE01EB.IW.1080-1085 - Setup Work Zone & Temp Barriers	2	28-Apr-20	29-Apr-20	40	$32,671.00



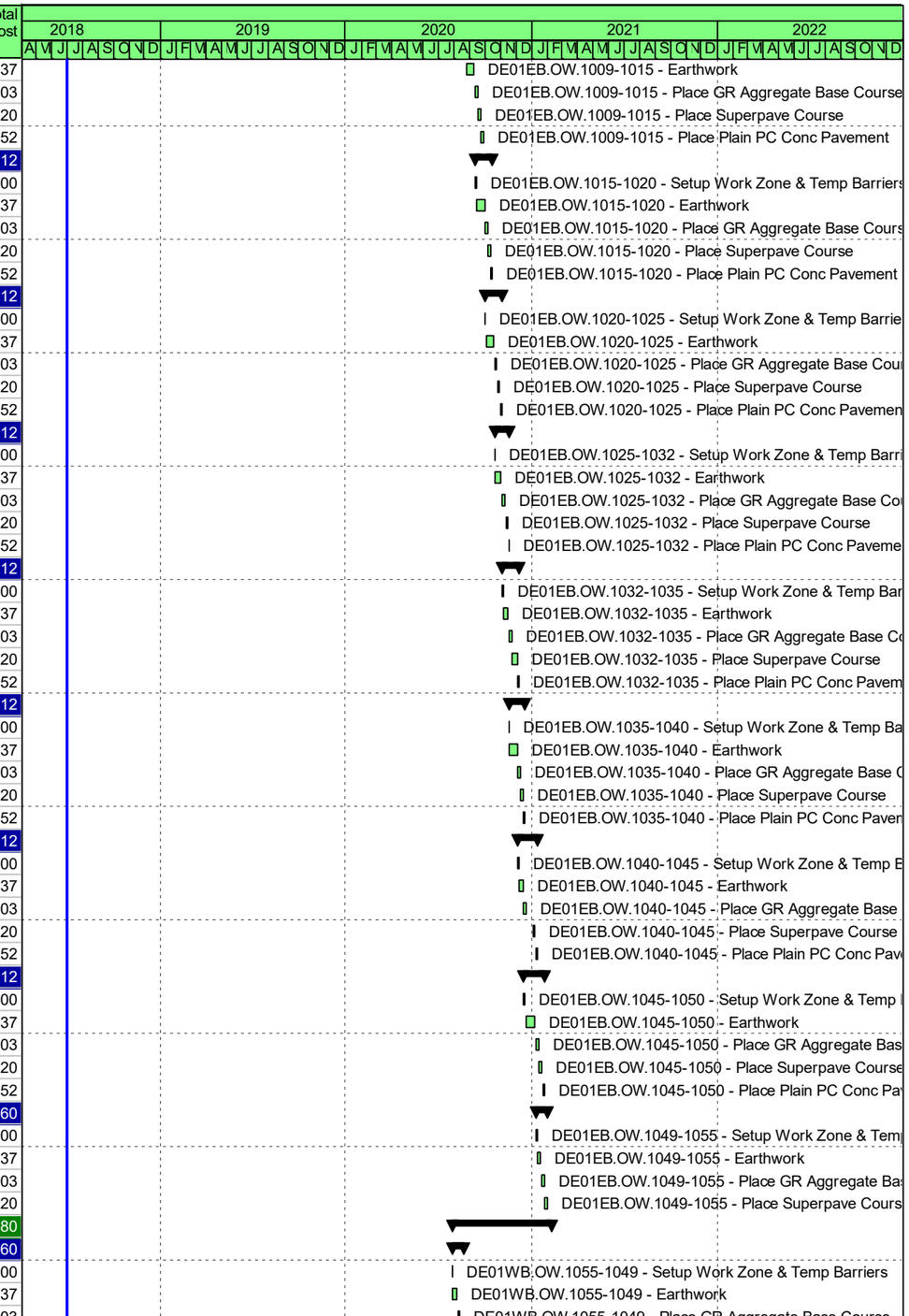
Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE33270	DE01EB.IW.1080-1085 - Earthwork	4	30-Apr-20	05-May-20	40	$34,921.37
RE33730	DE01EB.IW.1080-1085 - Install Guardrail	2	06-May-20	07-May-20	47	$49,794.74
RE33870	DE01EB.IW.1080-1085 - Place GR Aggregate Base Course	4	08-May-20	13-May-20	47	$20,106.03
RE34130	DE01EB.IW.1080-1085 - Place Superpave Course	4	14-May-20	19-May-20	47	$24,673.20
RE34370	DE01EB.IW.1080-1085 - Place Plain PC Conc Pavement	4	20-May-20	27-May-20	47	$310,127.52
DE01 - EB - Sta. 1085-1090 - Inside Widening		**20**	**06-May-20**	**05-Jun-20**	**45**	**$472,293.86**
RE33740	DE01EB.IW.1085-1090 - Setup Work Zone & Temp Barriers	2	06-May-20	07-May-20	40	$32,671.00
RE33880	DE01EB.IW.1085-1090 - Earthwork	4	08-May-20	13-May-20	40	$34,921.37
RE34380	DE01EB.IW.1085-1090 - Install Guardrail	2	14-May-20	15-May-20	45	$49,794.74
RE34560	DE01EB.IW.1085-1090 - Place GR Aggregate Base Course	4	18-May-20	21-May-20	45	$20,106.03
RE34770	DE01EB.IW.1085-1090 - Place Superpave Course	4	26-May-20	01-Jun-20	45	$24,673.20
RE35050	DE01EB.IW.1085-1090 - Place Plain PC Conc Pavement	4	02-Jun-20	05-Jun-20	45	$310,127.52
DE01 - EB - Sta. 1090-1095 - Inside Widening		**20**	**14-May-20**	**15-Jun-20**	**43**	**$472,293.86**
RE34390	DE01EB.IW.1090-1095 - Setup Work Zone & Temp Barriers	2	14-May-20	15-May-20	40	$32,671.00
RE34570	DE01EB.IW.1090-1095 - Earthwork	4	18-May-20	21-May-20	40	$34,921.37
RE35060	DE01EB.IW.1090-1095 - Install Guardrail	2	26-May-20	27-May-20	43	$49,794.74
RE35180	DE01EB.IW.1090-1095 - Place GR Aggregate Base Course	4	28-May-20	03-Jun-20	43	$20,106.03
RE35380	DE01EB.IW.1090-1095 - Place Superpave Course	4	04-Jun-20	09-Jun-20	43	$24,673.20
RE35590	DE01EB.IW.1090-1095 - Place Plain PC Conc Pavement	4	10-Jun-20	15-Jun-20	43	$310,127.52
DE01 - EB - Sta. 1095-1100 - Inside Widening		**20**	**26-May-20**	**23-Jun-20**	**41**	**$472,293.86**
RE35070	DE01EB.IW.1095-1100 - Setup Work Zone & Temp Barriers	2	26-May-20	27-May-20	40	$32,671.00
RE35190	DE01EB.IW.1095-1100 - Earthwork	4	28-May-20	03-Jun-20	40	$34,921.37
RE35600	DE01EB.IW.1095-1100 - Install Guardrail	2	04-Jun-20	05-Jun-20	41	$49,794.74
RE35850	DE01EB.IW.1095-1100 - Place GR Aggregate Base Course	4	08-Jun-20	11-Jun-20	41	$20,106.03
RE36070	DE01EB.IW.1095-1100 - Place Superpave Course	4	12-Jun-20	17-Jun-20	41	$24,673.20
RE36210	DE01EB.IW.1095-1100 - Place Plain PC Conc Pavement	4	18-Jun-20	23-Jun-20	41	$310,127.52
DE01 - EB - Sta. 1100-1105 - Inside Widening		**19**	**04-Jun-20**	**01-Jul-20**	**40**	**$472,293.86**
RE35580	DE01EB.IW.1100-1105 - Setup Work Zone & Temp Barriers	2	04-Jun-20	05-Jun-20	40	$32,671.00
RE35840	DE01EB.IW.1100-1105 - Earthwork	3	08-Jun-20	10-Jun-20	40	$34,921.37
RE36200	DE01EB.IW.1100-1105 - Install Guardrail	2	11-Jun-20	12-Jun-20	40	$49,794.74
RE36310	DE01EB.IW.1100-1105 - Place GR Aggregate Base Course	4	15-Jun-20	18-Jun-20	40	$20,106.03
RE36570	DE01EB.IW.1100-1105 - Place Superpave Course	4	19-Jun-20	24-Jun-20	40	$24,673.20
RE36700	DE01EB.IW.1100-1105 - Place Plain PC Conc Pavement	4	25-Jun-20	01-Jul-20	40	$310,127.52
2W - WB - Sta. 1105-1055		**71**	**04-Mar-20**	**29-Jun-20**	**42**	**$4,224,991.20**
DE01 - WB - Sta. 1105-1100 - Inside Widening		**17**	**04-Mar-20**	**03-Apr-20**	**60**	**$422,499.12**
RE12810	DE01WB.IW.1105-1100 - Setup Work Zone & Temp Barriers	2	04-Mar-20	05-Mar-20	42	$32,671.00
RE13440	DE01WB.IW.1105-1100 - Earthwork	3	06-Mar-20	10-Mar-20	42	$34,921.37
RE14750	DE01WB.IW.1105-1100 - Place GR Aggregate Base Course	4	11-Mar-20	23-Mar-20	60	$20,106.03
RE15340	DE01WB.IW.1105-1100 - Place Superpave Course	4	24-Mar-20	30-Mar-20	60	$24,673.20
RE15860	DE01WB.IW.1105-1100 - Place Plain PC Conc Pavement	4	31-Mar-20	03-Apr-20	60	$310,127.52
DE01 - WB - Sta. 1100-1095 - Inside Widening		**18**	**11-Mar-20**	**15-Apr-20**	**58**	**$422,499.12**
RE14740	DE01WB.IW.1100-1095 - Setup Work Zone & Temp Barriers	2	11-Mar-20	12-Mar-20	42	$32,671.00
RE14990	DE01WB.IW.1100-1095 - Earthwork	4	19-Mar-20	25-Mar-20	42	$34,921.37
RE16070	DE01WB.IW.1100-1095 - Place GR Aggregate Base Course	4	26-Mar-20	01-Apr-20	58	$20,106.03
RE16650	DE01WB.IW.1100-1095 - Place Superpave Course	4	02-Apr-20	07-Apr-20	58	$24,673.20
RE16940	DE01WB.IW.1100-1095 - Place Plain PC Conc Pavement	4	08-Apr-20	15-Apr-20	58	$310,127.52
DE01 - WB - Sta. 1095-1090 - Inside Widening		**18**	**26-Mar-20**	**23-Apr-20**	**56**	**$422,499.12**
RE16080	DE01WB.IW.1095-1090 - Setup Work Zone & Temp Barriers	2	26-Mar-20	30-Mar-20	42	$32,671.00
RE16420	DE01WB.IW.1095-1090 - Earthwork	4	31-Mar-20	03-Apr-20	42	$34,921.37
RE17160	DE01WB.IW.1095-1090 - Place GR Aggregate Base Course	4	06-Apr-20	09-Apr-20	56	$20,106.03
RE17850	DE01WB.IW.1095-1090 - Place Superpave Course	4	14-Apr-20	17-Apr-20	56	$24,673.20
RE18600	DE01WB.IW.1095-1090 - Place Plain PC Conc Pavement	4	20-Apr-20	23-Apr-20	56	$310,127.52
DE01 - WB - Sta. 1090-1085 - Inside Widening		**18**	**06-Apr-20**	**04-May-20**	**54**	**$422,499.12**
RE17170	DE01WB.IW.1090-1085 - Setup Work Zone & Temp Barriers	2	06-Apr-20	07-Apr-20	42	$32,671.00
RE17510	DE01WB.IW.1090-1085 - Earthwork	4	08-Apr-20	15-Apr-20	42	$34,921.37
RE18760	DE01WB.IW.1090-1085 - Place GR Aggregate Base Course	4	16-Apr-20	21-Apr-20	54	$20,106.03



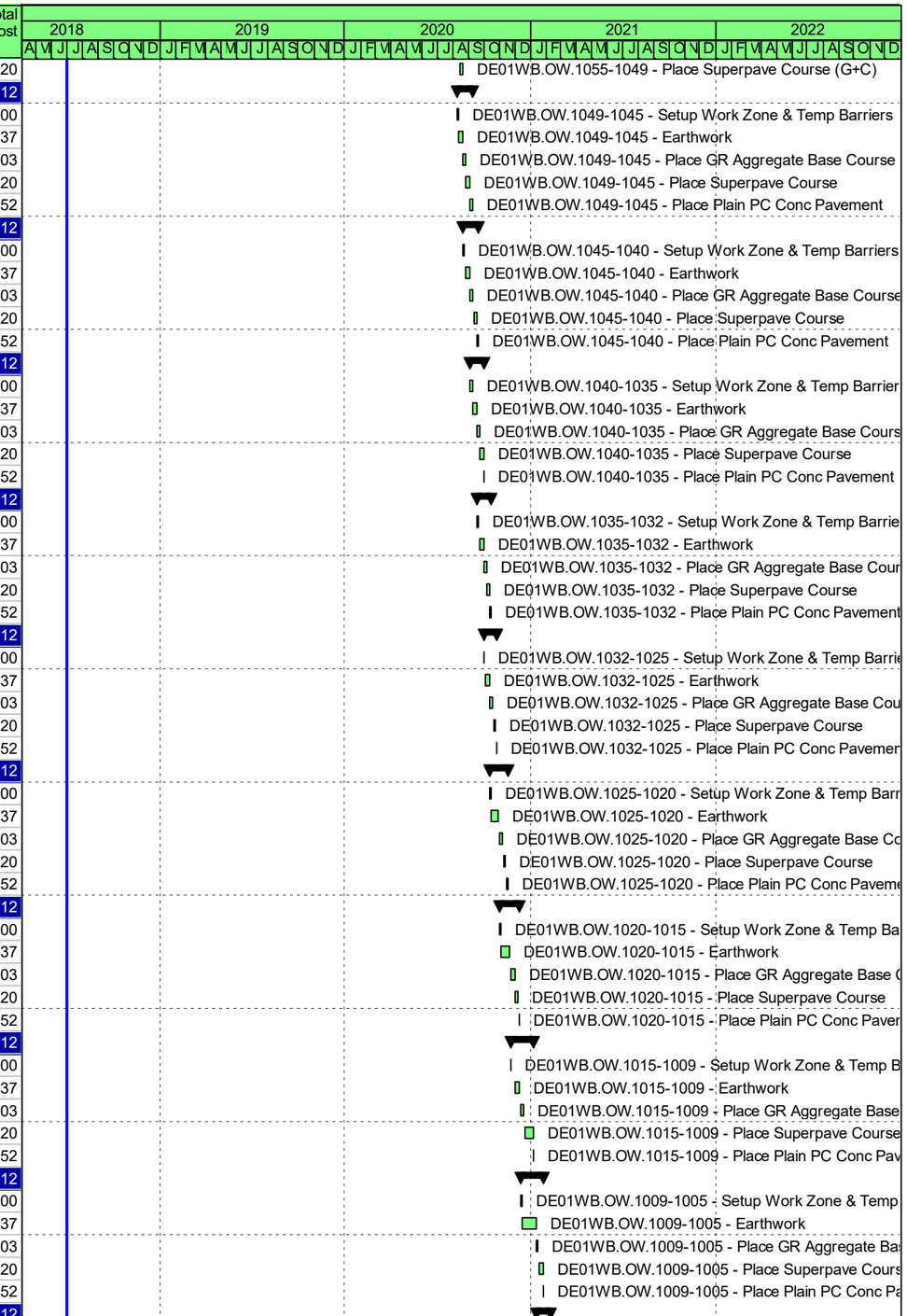
Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE19300	DE01WB.IW.1090-1085 - Place Superpave Course	4	22-Apr-20	28-Apr-20	54	$24,673.20
RE19560	DE01WB.IW.1090-1085 - Place Plain PC Conc Pavement	4	29-Apr-20	04-May-20	54	$310,127.52
DE01 - WB - Sta. 1085-1080 - Inside Widening		**18**	**16-Apr-20**	**12-May-20**	**52**	**$422,499.12**
RE18770	DE01WB.IW.1085-1080 - Setup Work Zone & Temp Barriers	2	16-Apr-20	17-Apr-20	42	$32,671.00
RE19040	DE01WB.IW.1085-1080 - Earthwork	4	20-Apr-20	23-Apr-20	42	$34,921.37
RE19780	DE01WB.IW.1085-1080 - Place GR Aggregate Base Course	4	27-Apr-20	30-Apr-20	52	$20,106.03
RE20370	DE01WB.IW.1085-1080 - Place Superpave Course	4	01-May-20	06-May-20	52	$24,673.20
RE20650	DE01WB.IW.1085-1080 - Place Plain PC Conc Pavement	4	07-May-20	12-May-20	52	$310,127.52
DE01 - WB - Sta. 1080-1075 - Inside Widening		**18**	**27-Apr-20**	**20-May-20**	**50**	**$422,499.12**
RE19770	DE01WB.IW.1080-1075 - Setup Work Zone & Temp Barriers	2	27-Apr-20	28-Apr-20	42	$32,671.00
RE20050	DE01WB.IW.1080-1075 - Earthwork	4	29-Apr-20	04-May-20	42	$34,921.37
RE20860	DE01WB.IW.1080-1075 - Place GR Aggregate Base Course	4	05-May-20	08-May-20	50	$20,106.03
RE21300	DE01WB.IW.1080-1075 - Place Superpave Course	4	11-May-20	14-May-20	50	$24,673.20
RE21630	DE01WB.IW.1080-1075 - Place Plain PC Conc Pavement	4	15-May-20	20-May-20	50	$310,127.52
DE01 - WB - Sta. 1075-1070 - Inside Widening		**18**	**05-May-20**	**02-Jun-20**	**48**	**$422,499.12**
RE20870	DE01WB.IW.1075-1070 - Setup Work Zone & Temp Barriers	2	05-May-20	06-May-20	42	$32,671.00
RE21020	DE01WB.IW.1075-1070 - Earthwork	4	07-May-20	12-May-20	42	$34,921.37
RE21890	DE01WB.IW.1075-1070 - Place GR Aggregate Base Course	4	13-May-20	18-May-20	48	$20,106.03
RE22260	DE01WB.IW.1075-1070 - Place Superpave Course	4	19-May-20	26-May-20	48	$24,673.20
RE22790	DE01WB.IW.1075-1070 - Place Plain PC Conc Pavement	4	27-May-20	02-Jun-20	48	$310,127.52
DE01 - WB - Sta. 1070-1065 - Inside Widening		**18**	**13-May-20**	**10-Jun-20**	**46**	**$422,499.12**
RE21900	DE01WB.IW.1070-1065 - Setup Work Zone & Temp Barriers	2	13-May-20	14-May-20	42	$32,671.00
RE22110	DE01WB.IW.1070-1065 - Earthwork	4	15-May-20	20-May-20	42	$34,921.37
RE23020	DE01WB.IW.1070-1065 - Place GR Aggregate Base Course	4	21-May-20	28-May-20	46	$20,106.03
RE23450	DE01WB.IW.1070-1065 - Place Superpave Course	4	01-Jun-20	04-Jun-20	46	$24,673.20
RE23870	DE01WB.IW.1070-1065 - Place Plain PC Conc Pavement	4	05-Jun-20	10-Jun-20	46	$310,127.52
DE01 - WB - Sta. 1065-1060 - Inside Widening		**18**	**21-May-20**	**18-Jun-20**	**44**	**$422,499.12**
RE23010	DE01WB.IW.1065-1060 - Setup Work Zone & Temp Barriers	2	21-May-20	26-May-20	42	$32,671.00
RE23160	DE01WB.IW.1065-1060 - Earthwork	4	27-May-20	02-Jun-20	42	$34,921.37
RE23970	DE01WB.IW.1065-1060 - Place GR Aggregate Base Course	4	03-Jun-20	08-Jun-20	44	$20,106.03
RE24370	DE01WB.IW.1065-1060 - Place Superpave Course	4	09-Jun-20	12-Jun-20	44	$24,673.20
RE24680	DE01WB.IW.1065-1060 - Place Plain PC Conc Pavement	4	15-Jun-20	18-Jun-20	44	$310,127.52
DE01 - WB - Sta. 1060-1055 - Inside Widening		**18**	**03-Jun-20**	**29-Jun-20**	**42**	**$422,499.12**
RE23980	DE01WB.IW.1060-1055 - Setup Work Zone & Temp Barriers	2	03-Jun-20	04-Jun-20	42	$32,671.00
RE24200	DE01WB.IW.1060-1055 - Earthwork	4	05-Jun-20	10-Jun-20	42	$34,921.37
RE24820	DE01WB.IW.1060-1055 - Place GR Aggregate Base Course	4	11-Jun-20	16-Jun-20	42	$20,106.03
RE25250	DE01WB.IW.1060-1055 - Place Superpave Course	4	17-Jun-20	22-Jun-20	42	$24,673.20
RE25960	DE01WB.IW.1060-1055 - Place Plain PC Conc Pavement	4	23-Jun-20	29-Jun-20	42	$310,127.52
Outside Widening		**179**	**28-Jul-20**	**04-Jun-21**	**174**	**$10,922,157.60**
RE54400	Zone A - I-16 - Complete Outside Widening - Set 1	0		08-Feb-21	24	$0.00
RE54420	Zone A - I-16 - Start Outside Widening - Set 2	0	09-Feb-21		24	$0.00
1E - EB - Sta. 999-1055		**107**	**28-Jul-20**	**02-Feb-21**	**28**	**$4,337,362.80**
DE01 - EB - Sta. 999-1005 - Outside Widening		**18**	**28-Jul-20**	**24-Aug-20**	**95**	**$422,499.12**
RE38370	DE01EB.OW.999-1005 - Setup Work Zone & Temp Barriers	2	28-Jul-20	29-Jul-20	28	$32,671.00
RE38480	DE01EB.OW.999-1005 - Earthwork	6	30-Jul-20	07-Aug-20	28	$34,921.37
RE38780	DE01EB.OW.999-1005 - Place GR Aggregate Base Course	4	10-Aug-20	13-Aug-20	95	$20,106.03
RE38980	DE01EB.OW.999-1005 - Place Superpave Course	4	14-Aug-20	19-Aug-20	95	$24,673.20
RE39230	DE01EB.OW.999-1005 - Place Plain PC Conc Pavement	2	20-Aug-20	24-Aug-20	95	$310,127.52
DE01 - EB - Sta. 1005-1009 - Outside Widening		**18**	**10-Aug-20**	**08-Sep-20**	**89**	**$422,499.12**
RE38770	DE01EB.OW.1005-1009 - Setup Work Zone & Temp Barriers	2	10-Aug-20	11-Aug-20	28	$32,671.00
RE38850	DE01EB.OW.1005-1009 - Earthwork	6	12-Aug-20	19-Aug-20	28	$34,921.37
RE39050	DE01EB.OW.1005-1009 - Place GR Aggregate Base Course	4	20-Aug-20	26-Aug-20	89	$20,106.03
RE39330	DE01EB.OW.1005-1009 - Place Superpave Course	4	27-Aug-20	02-Sep-20	89	$24,673.20
RE39590	DE01EB.OW.1005-1009 - Place Plain PC Conc Pavement	2	03-Sep-20	08-Sep-20	89	$310,127.52
DE01 - EB - Sta. 1009-1015 - Outside Widening		**22**	**20-Aug-20**	**28-Sep-20**	**79**	**$422,499.12**
RE39060	DE01EB.OW.1009-1015 - Setup Work Zone & Temp Barriers	2	20-Aug-20	24-Aug-20	28	$32,671.00



Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE39190	DE01EB.OW.1009-1015 - Earthwork	10	25-Aug-20	10-Sep-20	28	$34,921.37
RE39480	DE01EB.OW.1009-1015 - Place GR Aggregate Base Course	4	11-Sep-20	16-Sep-20	79	$20,106.03
RE39660	DE01EB.OW.1009-1015 - Place Superpave Course	4	17-Sep-20	23-Sep-20	79	$24,673.20
RE39900	DE01EB.OW.1009-1015 - Place Plain PC Conc Pavement	2	24-Sep-20	28-Sep-20	79	$310,127.52
DE01 - EB - Sta. 1015-1020 - Outside Widening		**22**	**11-Sep-20**	**15-Oct-20**	**69**	**$422,499.12**
RE39470	DE01EB.OW.1015-1020 - Setup Work Zone & Temp Barriers	2	11-Sep-20	14-Sep-20	28	$32,671.00
RE39550	DE01EB.OW.1015-1020 - Earthwork	10	15-Sep-20	30-Sep-20	28	$34,921.37
RE39770	DE01EB.OW.1015-1020 - Place GR Aggregate Base Course	4	01-Oct-20	06-Oct-20	69	$20,106.03
RE39970	DE01EB.OW.1015-1020 - Place Superpave Course	4	07-Oct-20	13-Oct-20	69	$24,673.20
RE40110	DE01EB.OW.1015-1020 - Place Plain PC Conc Pavement	2	14-Oct-20	15-Oct-20	69	$310,127.52
DE01 - EB - Sta. 1020-1025 - Outside Widening		**22**	**01-Oct-20**	**04-Nov-20**	**59**	**$422,499.12**
RE39780	DE01EB.OW.1020-1025 - Setup Work Zone & Temp Barriers	2	01-Oct-20	02-Oct-20	28	$32,671.00
RE39850	DE01EB.OW.1020-1025 - Earthwork	10	05-Oct-20	19-Oct-20	28	$34,921.37
RE40040	DE01EB.OW.1020-1025 - Place GR Aggregate Base Course	4	20-Oct-20	23-Oct-20	59	$20,106.03
RE40210	DE01EB.OW.1020-1025 - Place Superpave Course	4	26-Oct-20	29-Oct-20	59	$24,673.20
RE40380	DE01EB.OW.1020-1025 - Place Plain PC Conc Pavement	2	02-Nov-20	04-Nov-20	59	$310,127.52
DE01 - EB - Sta. 1025-1032 - Outside Widening		**19**	**20-Oct-20**	**18-Nov-20**	**52**	**$422,499.12**
RE40030	DE01EB.OW.1025-1032 - Setup Work Zone & Temp Barriers	2	20-Oct-20	21-Oct-20	28	$32,671.00
RE40080	DE01EB.OW.1025-1032 - Earthwork	7	22-Oct-20	02-Nov-20	28	$34,921.37
RE40280	DE01EB.OW.1025-1032 - Place GR Aggregate Base Course	4	04-Nov-20	10-Nov-20	52	$20,106.03
RE40440	DE01EB.OW.1025-1032 - Place Superpave Course	4	11-Nov-20	16-Nov-20	52	$24,673.20
RE40620	DE01EB.OW.1025-1032 - Place Plain PC Conc Pavement	2	17-Nov-20	18-Nov-20	52	$310,127.52
DE01 - EB - Sta. 1032-1035 - Outside Widening		**18**	**04-Nov-20**	**07-Dec-20**	**46**	**$422,499.12**
RE40290	DE01EB.OW.1032-1035 - Setup Work Zone & Temp Barriers	2	04-Nov-20	05-Nov-20	28	$32,671.00
RE40320	DE01EB.OW.1032-1035 - Earthwork	6	06-Nov-20	16-Nov-20	28	$34,921.37
RE40480	DE01EB.OW.1032-1035 - Place GR Aggregate Base Course	4	17-Nov-20	23-Nov-20	46	$20,106.03
RE40690	DE01EB.OW.1032-1035 - Place Superpave Course	4	24-Nov-20	03-Dec-20	46	$24,673.20
RE40900	DE01EB.OW.1032-1035 - Place Plain PC Conc Pavement	2	04-Dec-20	07-Dec-20	46	$310,127.52
DE01 - EB - Sta. 1035-1040 - Outside Widening		**18**	**17-Nov-20**	**17-Dec-20**	**40**	**$422,499.12**
RE40490	DE01EB.OW.1035-1040 - Setup Work Zone & Temp Barriers	2	17-Nov-20	18-Nov-20	28	$32,671.00
RE40540	DE01EB.OW.1035-1040 - Earthwork	6	19-Nov-20	03-Dec-20	28	$34,921.37
RE40790	DE01EB.OW.1035-1040 - Place GR Aggregate Base Course	4	04-Dec-20	09-Dec-20	40	$20,106.03
RE40940	DE01EB.OW.1035-1040 - Place Superpave Course	4	10-Dec-20	15-Dec-20	40	$24,673.20
RE41190	DE01EB.OW.1035-1040 - Place Plain PC Conc Pavement	2	16-Dec-20	17-Dec-20	40	$310,127.52
DE01 - EB - Sta. 1040-1045 - Outside Widening		**18**	**04-Dec-20**	**12-Jan-21**	**34**	**$422,499.12**
RE40800	DE01EB.OW.1040-1045 - Setup Work Zone & Temp Barriers	2	04-Dec-20	07-Dec-20	28	$32,671.00
RE40860	DE01EB.OW.1040-1045 - Earthwork	6	08-Dec-20	15-Dec-20	28	$34,921.37
RE41000	DE01EB.OW.1040-1045 - Place GR Aggregate Base Course	4	16-Dec-20	22-Dec-20	34	$20,106.03
RE41240	DE01EB.OW.1040-1045 - Place Superpave Course	4	05-Jan-21	08-Jan-21	34	$24,673.20
RE41400	DE01EB.OW.1040-1045 - Place Plain PC Conc Pavement	2	11-Jan-21	12-Jan-21	34	$310,127.52
DE01 - EB - Sta. 1045-1050 - Outside Widening		**18**	**16-Dec-20**	**26-Jan-21**	**28**	**$422,499.12**
RE41010	DE01EB.OW.1045-1050 - Setup Work Zone & Temp Barriers	2	16-Dec-20	17-Dec-20	28	$32,671.00
RE41100	DE01EB.OW.1045-1050 - Earthwork	6	21-Dec-20	08-Jan-21	28	$34,921.37
RE41310	DE01EB.OW.1045-1050 - Place GR Aggregate Base Course	4	11-Jan-21	14-Jan-21	28	$20,106.03
RE41450	DE01EB.OW.1045-1050 - Place Superpave Course	4	15-Jan-21	21-Jan-21	28	$24,673.20
RE41690	DE01EB.OW.1045-1050 - Place Plain PC Conc Pavement	2	25-Jan-21	26-Jan-21	28	$310,127.52
DE01 - EB - Sta. 1049-1055 - Outside Widening		**14**	**11-Jan-21**	**02-Feb-21**	**28**	**$112,371.60**
RE41320	DE01EB.OW.1049-1055 - Setup Work Zone & Temp Barriers	2	11-Jan-21	12-Jan-21	28	$32,671.00
RE41370	DE01EB.OW.1049-1055 - Earthwork	4	13-Jan-21	19-Jan-21	28	$34,921.37
RE41560	DE01EB.OW.1049-1055 - Place GR Aggregate Base Course	4	20-Jan-21	26-Jan-21	28	$20,106.03
RE41750	DE01EB.OW.1049-1055 - Place Superpave Course (G+C)	4	27-Jan-21	02-Feb-21	28	$24,673.20
1W - WB - Sta. 1055-999		**111**	**28-Jul-20**	**08-Feb-21**	**24**	**$4,337,362.80**
DE01 - WB - Sta. 1055-1049 - Outside Widening		**16**	**28-Jul-20**	**19-Aug-20**	**95**	**$112,371.60**
RE42870	DE01WB.OW.1055-1049 - Setup Work Zone & Temp Barriers	2	28-Jul-20	29-Jul-20	24	$32,671.00
RE42940	DE01WB.OW.1055-1049 - Earthwork	6	30-Jul-20	07-Aug-20	24	$34,921.37
RE43090	DE01WB.OW.1055-1049 - Place GR Aggregate Base Course	4	10-Aug-20	13-Aug-20	95	$20,106.03



Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE43230	DE01WB.OW.1055-1049 - Place Superpave Course (G+C)	4	14-Aug-20	19-Aug-20	95	$24,673.20
DE01 - WB - Sta. 1049-1045 - Outside Widening		**18**	**10-Aug-20**	**08-Sep-20**	**91**	**$422,499.12**
RE43080	DE01WB.OW.1049-1045 - Setup Work Zone & Temp Barriers	2	10-Aug-20	11-Aug-20	24	$32,671.00
RE43120	DE01WB.OW.1049-1045 - Earthwork	6	12-Aug-20	19-Aug-20	24	$34,921.37
RE43300	DE01WB.OW.1049-1045 - Place GR Aggregate Base Course	4	20-Aug-20	26-Aug-20	91	$20,106.03
RE43420	DE01WB.OW.1049-1045 - Place Superpave Course	4	27-Aug-20	02-Sep-20	91	$24,673.20
RE43550	DE01WB.OW.1049-1045 - Place Plain PC Conc Pavement	2	03-Sep-20	08-Sep-20	91	$310,127.52
DE01 - WB - Sta. 1045-1040 - Outside Widening		**18**	**20-Aug-20**	**21-Sep-20**	**85**	**$422,499.12**
RE43310	DE01WB.OW.1045-1040 - Setup Work Zone & Temp Barriers	2	20-Aug-20	24-Aug-20	24	$32,671.00
RE43350	DE01WB.OW.1045-1040 - Earthwork	6	25-Aug-20	02-Sep-20	24	$34,921.37
RE43450	DE01WB.OW.1045-1040 - Place GR Aggregate Base Course	4	03-Sep-20	10-Sep-20	85	$20,106.03
RE43580	DE01WB.OW.1045-1040 - Place Superpave Course	4	11-Sep-20	16-Sep-20	85	$24,673.20
RE43700	DE01WB.OW.1045-1040 - Place Plain PC Conc Pavement	2	17-Sep-20	21-Sep-20	85	$310,127.52
DE01 - WB - Sta. 1040-1035 - Outside Widening		**18**	**03-Sep-20**	**02-Oct-20**	**79**	**$422,499.12**
RE43460	DE01WB.OW.1040-1035 - Setup Work Zone & Temp Barriers	2	03-Sep-20	08-Sep-20	24	$32,671.00
RE43500	DE01WB.OW.1040-1035 - Earthwork	6	09-Sep-20	16-Sep-20	24	$34,921.37
RE43620	DE01WB.OW.1040-1035 - Place GR Aggregate Base Course	4	17-Sep-20	23-Sep-20	79	$20,106.03
RE43720	DE01WB.OW.1040-1035 - Place Superpave Course	4	24-Sep-20	30-Sep-20	79	$24,673.20
RE43790	DE01WB.OW.1040-1035 - Place Plain PC Conc Pavement	2	01-Oct-20	02-Oct-20	79	$310,127.52
DE01 - WB - Sta. 1035-1032 - Outside Widening		**18**	**17-Sep-20**	**15-Oct-20**	**73**	**$422,499.12**
RE43630	DE01WB.OW.1035-1032 - Setup Work Zone & Temp Barriers	2	17-Sep-20	21-Sep-20	24	$32,671.00
RE43680	DE01WB.OW.1035-1032 - Earthwork	6	22-Sep-20	30-Sep-20	24	$34,921.37
RE43760	DE01WB.OW.1035-1032 - Place GR Aggregate Base Course	4	01-Oct-20	06-Oct-20	73	$20,106.03
RE43820	DE01WB.OW.1035-1032 - Place Superpave Course	4	07-Oct-20	13-Oct-20	73	$24,673.20
RE43890	DE01WB.OW.1035-1032 - Place Plain PC Conc Pavement	2	14-Oct-20	15-Oct-20	73	$310,127.52
DE01 - WB - Sta. 1032-1025 - Outside Widening		**18**	**01-Oct-20**	**27-Oct-20**	**67**	**$422,499.12**
RE43750	DE01WB.OW.1032-1025 - Setup Work Zone & Temp Barriers	2	01-Oct-20	02-Oct-20	24	$32,671.00
RE43780	DE01WB.OW.1032-1025 - Earthwork	6	05-Oct-20	13-Oct-20	24	$34,921.37
RE43850	DE01WB.OW.1032-1025 - Place GR Aggregate Base Course	4	14-Oct-20	19-Oct-20	67	$20,106.03
RE43910	DE01WB.OW.1032-1025 - Place Superpave Course	4	20-Oct-20	23-Oct-20	67	$24,673.20
RE44000	DE01WB.OW.1032-1025 - Place Plain PC Conc Pavement	2	26-Oct-20	27-Oct-20	67	$310,127.52
DE01 - WB - Sta. 1025-1020 - Outside Widening		**22**	**14-Oct-20**	**17-Nov-20**	**57**	**$422,499.12**
RE43840	DE01WB.OW.1025-1020 - Setup Work Zone & Temp Barriers	2	14-Oct-20	15-Oct-20	24	$32,671.00
RE43880	DE01WB.OW.1025-1020 - Earthwork	10	16-Oct-20	29-Oct-20	24	$34,921.37
RE43940	DE01WB.OW.1025-1020 - Place GR Aggregate Base Course	4	02-Nov-20	06-Nov-20	57	$20,106.03
RE44030	DE01WB.OW.1025-1020 - Place Superpave Course	4	10-Nov-20	13-Nov-20	57	$24,673.20
RE44140	DE01WB.OW.1025-1020 - Place Plain PC Conc Pavement	2	16-Nov-20	17-Nov-20	57	$310,127.52
DE01 - WB - Sta. 1020-1015 - Outside Widening		**22**	**02-Nov-20**	**10-Dec-20**	**47**	**$422,499.12**
RE43950	DE01WB.OW.1020-1015 - Setup Work Zone & Temp Barriers	2	02-Nov-20	04-Nov-20	24	$32,671.00
RE43990	DE01WB.OW.1020-1015 - Earthwork	10	05-Nov-20	19-Nov-20	24	$34,921.37
RE44080	DE01WB.OW.1020-1015 - Place GR Aggregate Base Course	4	23-Nov-20	02-Dec-20	47	$20,106.03
RE44180	DE01WB.OW.1020-1015 - Place Superpave Course	4	03-Dec-20	08-Dec-20	47	$24,673.20
RE44290	DE01WB.OW.1020-1015 - Place Plain PC Conc Pavement	2	09-Dec-20	10-Dec-20	47	$310,127.52
DE01 - WB - Sta. 1015-1009 - Outside Widening		**21**	**23-Nov-20**	**08-Jan-21**	**38**	**$422,499.12**
RE44070	DE01WB.OW.1015-1009 - Setup Work Zone & Temp Barriers	2	23-Nov-20	24-Nov-20	24	$32,671.00
RE44130	DE01WB.OW.1015-1009 - Earthwork	9	01-Dec-20	11-Dec-20	24	$34,921.37
RE44230	DE01WB.OW.1015-1009 - Place GR Aggregate Base Course	4	14-Dec-20	17-Dec-20	38	$20,106.03
RE44330	DE01WB.OW.1015-1009 - Place Superpave Course	4	21-Dec-20	06-Jan-21	38	$24,673.20
RE44440	DE01WB.OW.1015-1009 - Place Plain PC Conc Pavement	2	07-Jan-21	08-Jan-21	38	$310,127.52
DE01 - WB - Sta. 1009-1005 - Outside Widening		**21**	**14-Dec-20**	**27-Jan-21**	**29**	**$422,499.12**
RE44220	DE01WB.OW.1009-1005 - Setup Work Zone & Temp Barriers	2	14-Dec-20	15-Dec-20	24	$32,671.00
RE44280	DE01WB.OW.1009-1005 - Earthwork	9	16-Dec-20	11-Jan-21	24	$34,921.37
RE44380	DE01WB.OW.1009-1005 - Place GR Aggregate Base Course	4	12-Jan-21	15-Jan-21	29	$20,106.03
RE44480	DE01WB.OW.1009-1005 - Place Superpave Course	4	19-Jan-21	25-Jan-21	29	$24,673.20
RE44590	DE01WB.OW.1009-1005 - Place Plain PC Conc Pavement	2	26-Jan-21	27-Jan-21	29	$310,127.52
DE01 - WB - Sta. 1005-999 - Outside Widening		**17**	**12-Jan-21**	**08-Feb-21**	**24**	**$422,499.12**



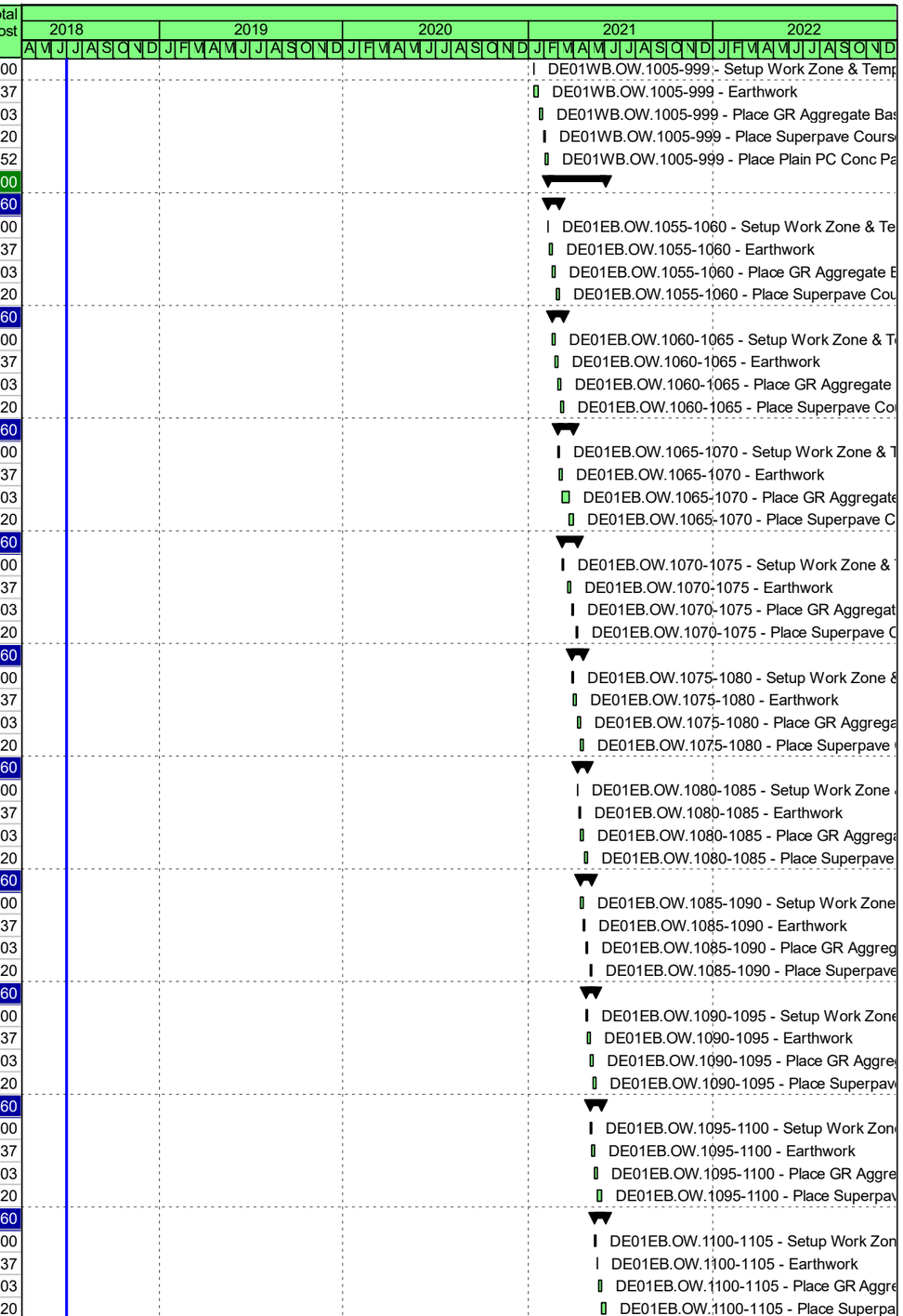
DRAGADOS USA

Project ID: PI-BLS21-R
Data Date: 01-Jul-18
Run Date: 27-Jun-18

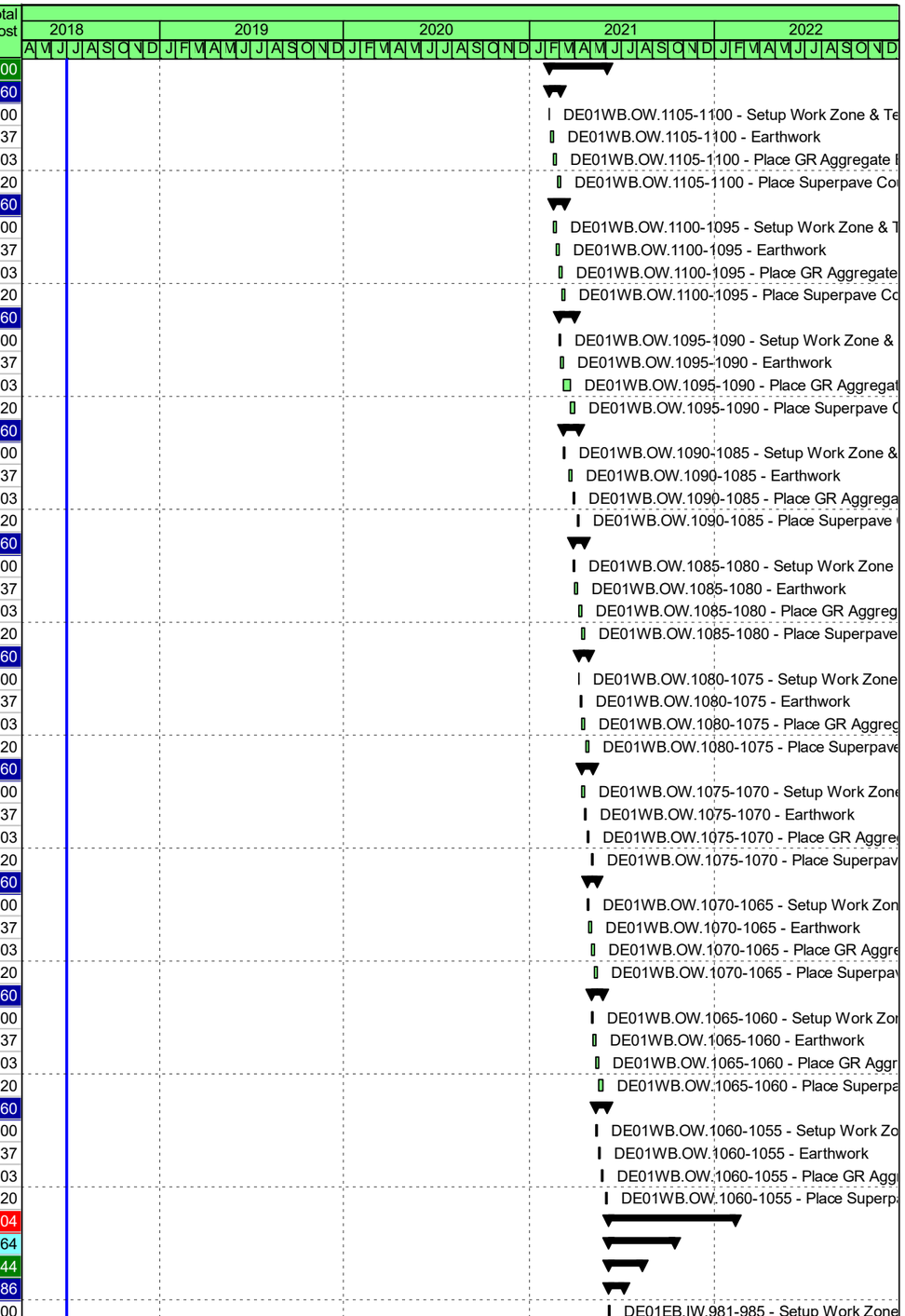
I-16 at I-95 Reconstruction and Widening Proposal Schedule - Clarification GDOT Ltr 27-Jun-18
Detailed Activities

Remaining Level of Effort
Critical Remaining Work
Summary
Milestone
Remaining Work

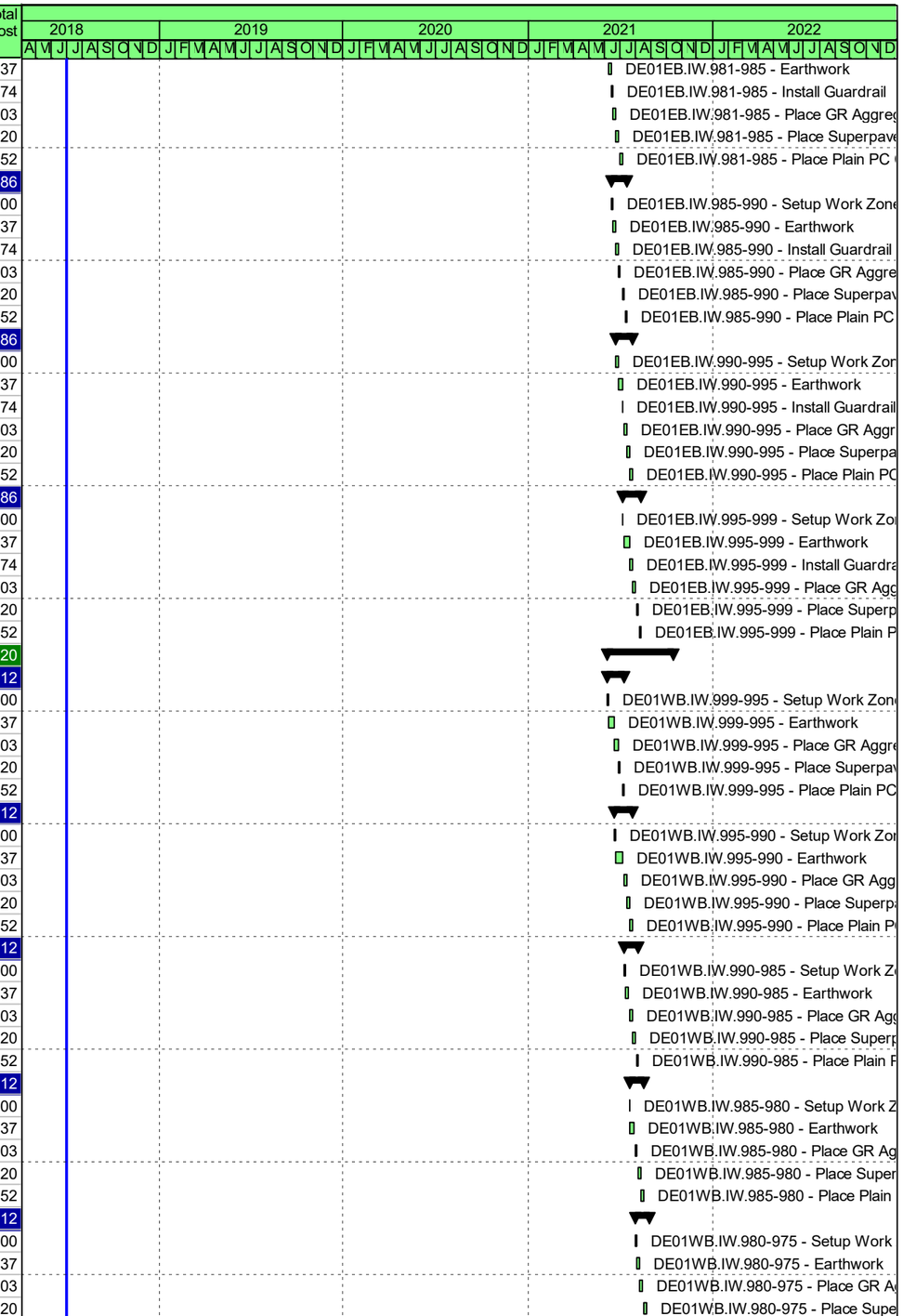
Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE44370	DE01WB.OW.1005-999 - Setup Work Zone & Temp Barriers	2	12-Jan-21	13-Jan-21	24	$32,671.00
RE44430	DE01WB.OW.1005-999 - Earthwork	5	14-Jan-21	21-Jan-21	24	$34,921.37
RE44530	DE01WB.OW.1005-999 - Place GR Aggregate Base Course	4	25-Jan-21	28-Jan-21	24	$20,106.03
RE44630	DE01WB.OW.1005-999 - Place Superpave Course	4	01-Feb-21	04-Feb-21	24	$24,673.20
RE44740	DE01WB.OW.1005-999 - Place Plain PC Conc Pavement	2	05-Feb-21	08-Feb-21	24	$310,127.52
2E - EB - Sta. 1055-1105		**67**	**09-Feb-21**	**03-Jun-21**	**175**	**$1,123,716.00**
DE01 - EB - Sta. 1055-1060 - Outside Widening		**14**	**09-Feb-21**	**03-Mar-21**	**192**	**$112,371.60**
RE41570	DE01EB.OW.1055-1060 - Setup Work Zone & Temp Barriers	2	09-Feb-21	10-Feb-21	175	$32,671.00
RE41650	DE01EB.OW.1055-1060 - Earthwork	4	11-Feb-21	17-Feb-21	175	$34,921.37
RE41810	DE01EB.OW.1055-1060 - Place GR Aggregate Base Course	4	18-Feb-21	24-Feb-21	192	$20,106.03
RE42030	DE01EB.OW.1055-1060 - Place Superpave Course (G+C)	4	25-Feb-21	03-Mar-21	192	$24,673.20
DE01 - EB - Sta. 1060-1065 - Outside Widening		**14**	**18-Feb-21**	**11-Mar-21**	**190**	**$112,371.60**
RE41820	DE01EB.OW.1060-1065 - Setup Work Zone & Temp Barriers	2	18-Feb-21	22-Feb-21	175	$32,671.00
RE41910	DE01EB.OW.1060-1065 - Earthwork	4	23-Feb-21	01-Mar-21	175	$34,921.37
RE42120	DE01EB.OW.1060-1065 - Place GR Aggregate Base Course	4	02-Mar-21	05-Mar-21	190	$20,106.03
RE42290	DE01EB.OW.1060-1065 - Place Superpave Course (G+C)	4	08-Mar-21	11-Mar-21	190	$24,673.20
DE01 - EB - Sta. 1065-1070 - Outside Widening		**14**	**02-Mar-21**	**30-Mar-21**	**188**	**$112,371.60**
RE42130	DE01EB.OW.1065-1070 - Setup Work Zone & Temp Barriers	2	02-Mar-21	03-Mar-21	175	$32,671.00
RE42200	DE01EB.OW.1065-1070 - Earthwork	4	04-Mar-21	09-Mar-21	175	$34,921.37
RE42350	DE01EB.OW.1065-1070 - Place GR Aggregate Base Course	4	10-Mar-21	23-Mar-21	188	$20,106.03
RE42570	DE01EB.OW.1065-1070 - Place Superpave Course (G+C)	4	24-Mar-21	30-Mar-21	188	$24,673.20
DE01 - EB - Sta. 1070-1075 - Outside Widening		**14**	**10-Mar-21**	**09-Apr-21**	**186**	**$112,371.60**
RE42360	DE01EB.OW.1070-1075 - Setup Work Zone & Temp Barriers	2	10-Mar-21	11-Mar-21	175	$32,671.00
RE42460	DE01EB.OW.1070-1075 - Earthwork	4	22-Mar-21	25-Mar-21	175	$34,921.37
RE42630	DE01EB.OW.1070-1075 - Place GR Aggregate Base Course	4	29-Mar-21	01-Apr-21	186	$20,106.03
RE42770	DE01EB.OW.1070-1075 - Place Superpave Course (G+C)	4	06-Apr-21	09-Apr-21	186	$24,673.20
DE01 - EB - Sta. 1075-1080 - Outside Widening		**14**	**29-Mar-21**	**19-Apr-21**	**184**	**$112,371.60**
RE42640	DE01EB.OW.1075-1080 - Setup Work Zone & Temp Barriers	2	29-Mar-21	30-Mar-21	175	$32,671.00
RE42690	DE01EB.OW.1075-1080 - Earthwork	4	31-Mar-21	07-Apr-21	175	$34,921.37
RE42850	DE01EB.OW.1075-1080 - Place GR Aggregate Base Course	4	08-Apr-21	13-Apr-21	184	$20,106.03
RE43020	DE01EB.OW.1075-1080 - Place Superpave Course (G+C)	4	14-Apr-21	19-Apr-21	184	$24,673.20
DE01 - EB - Sta. 1080-1085 - Outside Widening		**14**	**08-Apr-21**	**27-Apr-21**	**182**	**$112,371.60**
RE42860	DE01EB.OW.1080-1085 - Setup Work Zone & Temp Barriers	2	08-Apr-21	09-Apr-21	175	$32,671.00
RE42930	DE01EB.OW.1080-1085 - Earthwork	4	12-Apr-21	15-Apr-21	175	$34,921.37
RE43060	DE01EB.OW.1080-1085 - Place GR Aggregate Base Course	4	16-Apr-21	21-Apr-21	182	$20,106.03
RE43220	DE01EB.OW.1080-1085 - Place Superpave Course (G+C)	4	22-Apr-21	27-Apr-21	182	$24,673.20
DE01 - EB - Sta. 1085-1090 - Outside Widening		**14**	**16-Apr-21**	**06-May-21**	**180**	**$112,371.60**
RE43070	DE01EB.OW.1085-1090 - Setup Work Zone & Temp Barriers	2	16-Apr-21	19-Apr-21	175	$32,671.00
RE43110	DE01EB.OW.1085-1090 - Earthwork	4	20-Apr-21	23-Apr-21	175	$34,921.37
RE43280	DE01EB.OW.1085-1090 - Place GR Aggregate Base Course	4	26-Apr-21	29-Apr-21	180	$20,106.03
RE43410	DE01EB.OW.1085-1090 - Place Superpave Course (G+C)	4	03-May-21	06-May-21	180	$24,673.20
DE01 - EB - Sta. 1090-1095 - Outside Widening		**14**	**26-Apr-21**	**14-May-21**	**178**	**$112,371.60**
RE43290	DE01EB.OW.1090-1095 - Setup Work Zone & Temp Barriers	2	26-Apr-21	27-Apr-21	175	$32,671.00
RE43340	DE01EB.OW.1090-1095 - Earthwork	4	28-Apr-21	04-May-21	175	$34,921.37
RE43430	DE01EB.OW.1090-1095 - Place GR Aggregate Base Course	4	05-May-21	10-May-21	178	$20,106.03
RE43570	DE01EB.OW.1090-1095 - Place Superpave Course (G+C)	4	11-May-21	14-May-21	178	$24,673.20
DE01 - EB - Sta. 1095-1100 - Outside Widening		**14**	**05-May-21**	**25-May-21**	**176**	**$112,371.60**
RE43440	DE01EB.OW.1095-1100 - Setup Work Zone & Temp Barriers	2	05-May-21	06-May-21	175	$32,671.00
RE43490	DE01EB.OW.1095-1100 - Earthwork	4	07-May-21	12-May-21	175	$34,921.37
RE43610	DE01EB.OW.1095-1100 - Place GR Aggregate Base Course	4	13-May-21	18-May-21	176	$20,106.03
RE43710	DE01EB.OW.1095-1100 - Place Superpave Course (G+C)	4	19-May-21	25-May-21	176	$24,673.20
DE01 - EB - Sta. 1100-1105 - Outside Widening		**13**	**13-May-21**	**03-Jun-21**	**175**	**$112,371.60**
RE43600	DE01EB.OW.1100-1105 - Setup Work Zone & Temp Barriers	2	13-May-21	14-May-21	175	$32,671.00
RE43670	DE01EB.OW.1100-1105 - Earthwork	3	17-May-21	19-May-21	175	$34,921.37
RE43740	DE01EB.OW.1100-1105 - Place GR Aggregate Base Course	4	20-May-21	26-May-21	175	$20,106.03
RE43810	DE01EB.OW.1100-1105 - Place Superpave Course (G+C)	4	27-May-21	03-Jun-21	175	$24,673.20



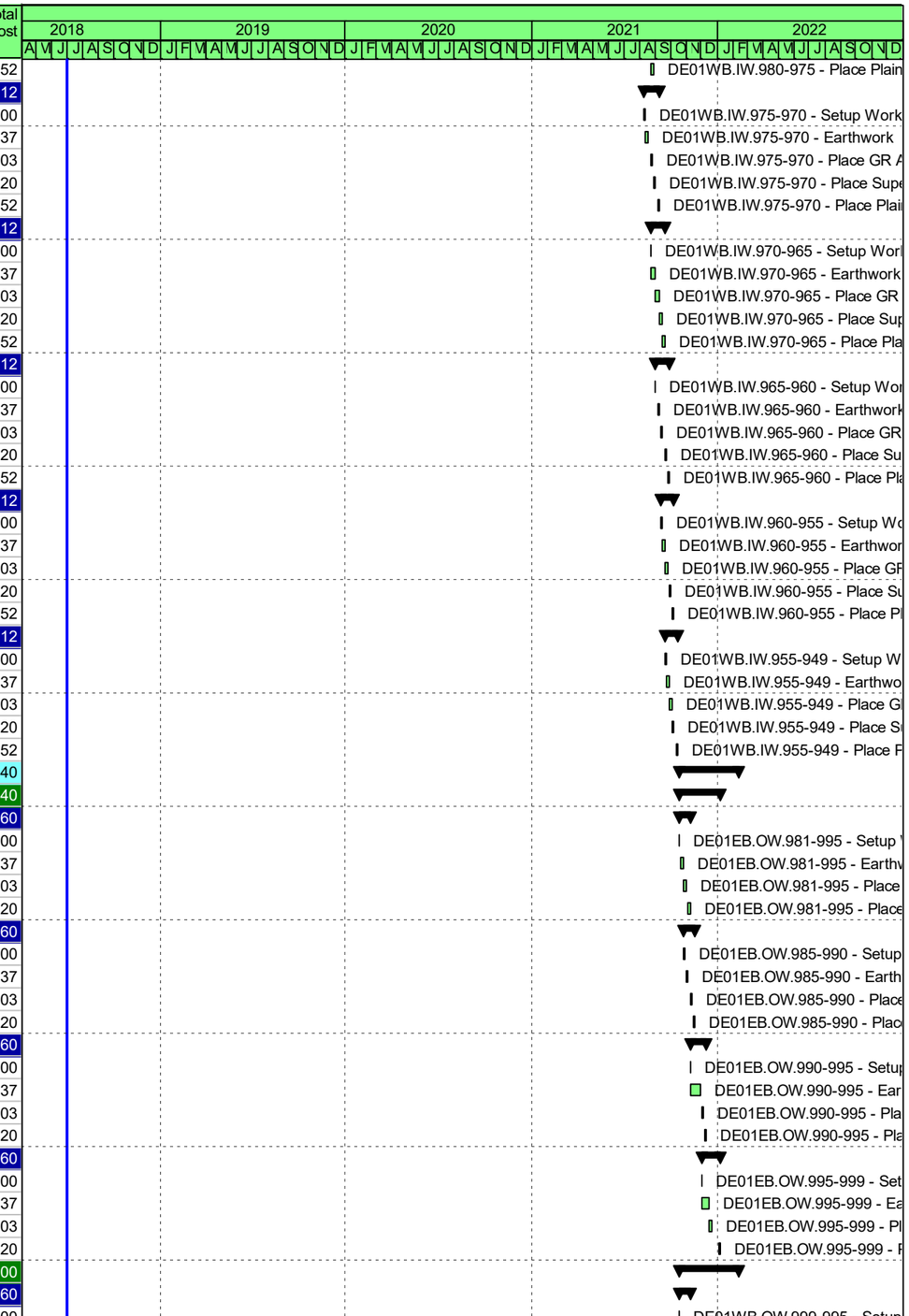
Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
2W - WB - Sta. 1105-1055		**68**	**09-Feb-21**	**04-Jun-21**	**24**	**$1,123,716.00**
DE01 - WB - Sta. 1105-1100 - Outside Widening		**14**	**09-Feb-21**	**03-Mar-21**	**42**	**$112,371.60**
RE40300	DE01WB.OW.1105-1100 - Setup Work Zone & Temp Barriers	2	09-Feb-21	10-Feb-21	24	$32,671.00
RE40330	DE01WB.OW.1105-1100 - Earthwork	4	11-Feb-21	17-Feb-21	24	$34,921.37
RE40510	DE01WB.OW.1105-1100 - Place GR Aggregate Base Course	4	18-Feb-21	24-Feb-21	42	$20,106.03
RE40700	DE01WB.OW.1105-1100 - Place Superpave Course (G+C)	4	25-Feb-21	03-Mar-21	42	$24,673.20
DE01 - WB - Sta. 1100-1095 - Outside Widening		**14**	**18-Feb-21**	**11-Mar-21**	**40**	**$112,371.60**
RE40500	DE01WB.OW.1100-1095 - Setup Work Zone & Temp Barriers	2	18-Feb-21	22-Feb-21	24	$32,671.00
RE40550	DE01WB.OW.1100-1095 - Earthwork	4	23-Feb-21	01-Mar-21	24	$34,921.37
RE40810	DE01WB.OW.1100-1095 - Place GR Aggregate Base Course	4	02-Mar-21	05-Mar-21	40	$20,106.03
RE40950	DE01WB.OW.1100-1095 - Place Superpave Course (G+C)	4	08-Mar-21	11-Mar-21	40	$24,673.20
DE01 - WB - Sta. 1095-1090 - Outside Widening		**14**	**02-Mar-21**	**30-Mar-21**	**38**	**$112,371.60**
RE40820	DE01WB.OW.1095-1090 - Setup Work Zone & Temp Barriers	2	02-Mar-21	03-Mar-21	24	$32,671.00
RE40870	DE01WB.OW.1095-1090 - Earthwork	4	04-Mar-21	09-Mar-21	24	$34,921.37
RE41020	DE01WB.OW.1095-1090 - Place GR Aggregate Base Course	4	10-Mar-21	23-Mar-21	38	$20,106.03
RE41250	DE01WB.OW.1095-1090 - Place Superpave Course (G+C)	4	24-Mar-21	30-Mar-21	38	$24,673.20
DE01 - WB - Sta. 1090-1085 - Outside Widening		**14**	**10-Mar-21**	**09-Apr-21**	**36**	**$112,371.60**
RE41030	DE01WB.OW.1090-1085 - Setup Work Zone & Temp Barriers	2	10-Mar-21	11-Mar-21	24	$32,671.00
RE41110	DE01WB.OW.1090-1085 - Earthwork	4	22-Mar-21	25-Mar-21	24	$34,921.37
RE41330	DE01WB.OW.1090-1085 - Place GR Aggregate Base Course	4	29-Mar-21	01-Apr-21	36	$20,106.03
RE41460	DE01WB.OW.1090-1085 - Place Superpave Course (G+C)	4	06-Apr-21	09-Apr-21	36	$24,673.20
DE01 - WB - Sta. 1085-1080 - Outside Widening		**14**	**29-Mar-21**	**19-Apr-21**	**34**	**$112,371.60**
RE41340	DE01WB.OW.1085-1080 - Setup Work Zone & Temp Barriers	2	29-Mar-21	30-Mar-21	24	$32,671.00
RE41380	DE01WB.OW.1085-1080 - Earthwork	4	31-Mar-21	07-Apr-21	24	$34,921.37
RE41590	DE01WB.OW.1085-1080 - Place GR Aggregate Base Course	4	08-Apr-21	13-Apr-21	34	$20,106.03
RE41760	DE01WB.OW.1085-1080 - Place Superpave Course (G+C)	4	14-Apr-21	19-Apr-21	34	$24,673.20
DE01 - WB - Sta. 1080-1075 - Outside Widening		**14**	**08-Apr-21**	**27-Apr-21**	**32**	**$112,371.60**
RE41580	DE01WB.OW.1080-1075 - Setup Work Zone & Temp Barriers	2	08-Apr-21	09-Apr-21	24	$32,671.00
RE41660	DE01WB.OW.1080-1075 - Earthwork	4	12-Apr-21	15-Apr-21	24	$34,921.37
RE41830	DE01WB.OW.1080-1075 - Place GR Aggregate Base Course	4	16-Apr-21	21-Apr-21	32	$20,106.03
RE42040	DE01WB.OW.1080-1075 - Place Superpave Course (G+C)	4	22-Apr-21	27-Apr-21	32	$24,673.20
DE01 - WB - Sta. 1075-1070 - Outside Widening		**14**	**16-Apr-21**	**06-May-21**	**30**	**$112,371.60**
RE41840	DE01WB.OW.1075-1070 - Setup Work Zone & Temp Barriers	2	16-Apr-21	19-Apr-21	24	$32,671.00
RE41920	DE01WB.OW.1075-1070 - Earthwork	4	20-Apr-21	23-Apr-21	24	$34,921.37
RE42140	DE01WB.OW.1075-1070 - Place GR Aggregate Base Course	4	26-Apr-21	29-Apr-21	30	$20,106.03
RE42300	DE01WB.OW.1075-1070 - Place Superpave Course (G+C)	4	03-May-21	06-May-21	30	$24,673.20
DE01 - WB - Sta. 1070-1065 - Outside Widening		**14**	**26-Apr-21**	**14-May-21**	**28**	**$112,371.60**
RE42150	DE01WB.OW.1070-1065 - Setup Work Zone & Temp Barriers	2	26-Apr-21	27-Apr-21	24	$32,671.00
RE42210	DE01WB.OW.1070-1065 - Earthwork	4	28-Apr-21	04-May-21	24	$34,921.37
RE42380	DE01WB.OW.1070-1065 - Place GR Aggregate Base Course	4	05-May-21	10-May-21	28	$20,106.03
RE42580	DE01WB.OW.1070-1065 - Place Superpave Course (G+C)	4	11-May-21	14-May-21	28	$24,673.20
DE01 - WB - Sta. 1065-1060 - Outside Widening		**14**	**05-May-21**	**25-May-21**	**26**	**$112,371.60**
RE42370	DE01WB.OW.1065-1060 - Setup Work Zone & Temp Barriers	2	05-May-21	06-May-21	24	$32,671.00
RE42470	DE01WB.OW.1065-1060 - Earthwork	4	07-May-21	12-May-21	24	$34,921.37
RE42650	DE01WB.OW.1065-1060 - Place GR Aggregate Base Course	4	13-May-21	18-May-21	26	$20,106.03
RE42780	DE01WB.OW.1065-1060 - Place Superpave Course (G+C)	4	19-May-21	25-May-21	26	$24,673.20
DE01 - WB - Sta. 1060-1055 - Outside Widening		**14**	**13-May-21**	**04-Jun-21**	**24**	**$112,371.60**
RE42660	DE01WB.OW.1060-1055 - Setup Work Zone & Temp Barriers	2	13-May-21	14-May-21	24	$32,671.00
RE42700	DE01WB.OW.1060-1055 - Earthwork	4	17-May-21	20-May-21	24	$34,921.37
RE42880	DE01WB.OW.1060-1055 - Place GR Aggregate Base Course	4	24-May-21	27-May-21	24	$20,106.03
RE43030	DE01WB.OW.1060-1055 - Place Superpave Course (G+C)	4	01-Jun-21	04-Jun-21	24	$24,673.20
Roadway - (W of I-95)		**150**	**07-Jun-21**	**11-Feb-22**	**24**	**$7,687,369.04**
Inside Widening		**84**	**07-Jun-21**	**15-Oct-21**	**46**	**$6,114,166.64**
DE01 - EB - Sta. 981-999 (W of I-95)		**45**	**07-Jun-21**	**12-Aug-21**	**85**	**$1,889,175.44**
DE01 - EB - Sta. 981-985 - Inside Widening		**21**	**07-Jun-21**	**07-Jul-21**	**97**	**$472,293.86**
RE12800	DE01EB.IW.981-985 - Setup Work Zone & Temp Barriers	2	07-Jun-21	08-Jun-21	85	$32,671.00



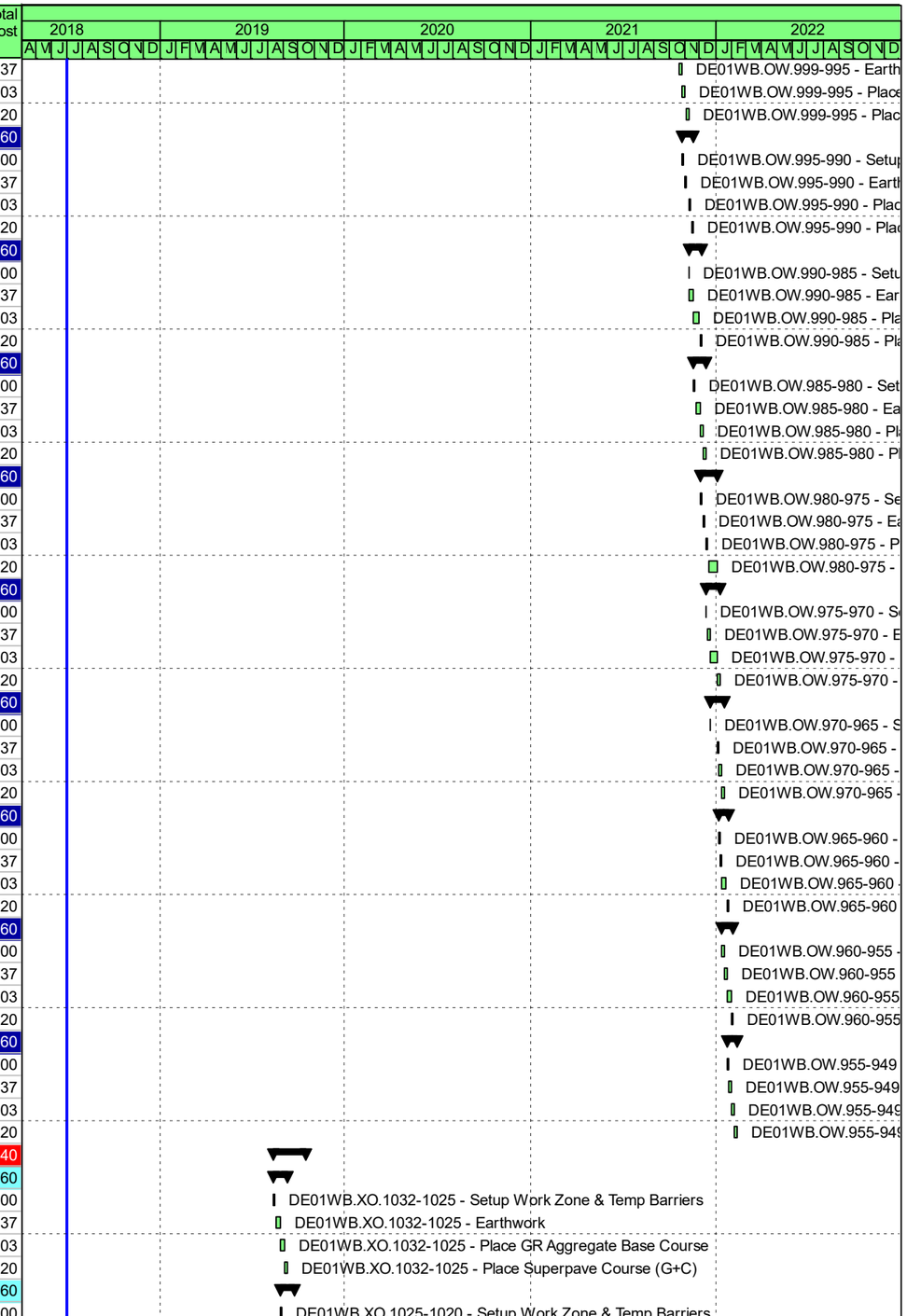
Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE13430	DE01EB.IW.981-985 - Earthwork	5	09-Jun-21	15-Jun-21	85	$34,921.37
RE14720	DE01EB.IW.981-985 - Install Guardrail	2	16-Jun-21	17-Jun-21	97	$49,794.74
RE14970	DE01EB.IW.981-985 - Place GR Aggregate Base Course	4	18-Jun-21	23-Jun-21	97	$20,106.03
RE15420	DE01EB.IW.981-985 - Place Superpave Course	4	24-Jun-21	30-Jun-21	97	$24,673.20
RE16040	DE01EB.IW.981-985 - Place Plain PC Conc Pavement	4	01-Jul-21	07-Jul-21	97	$310,127.52
DE01 - EB - Sta. 985-990 - Inside Widening		**20**	**16-Jun-21**	**15-Jul-21**	**95**	**$472,293.86**
RE14730	DE01EB.IW.985-990 - Setup Work Zone & Temp Barriers	2	16-Jun-21	17-Jun-21	85	$32,671.00
RE14980	DE01EB.IW.985-990 - Earthwork	4	18-Jun-21	23-Jun-21	85	$34,921.37
RE16050	DE01EB.IW.985-990 - Install Guardrail	2	24-Jun-21	28-Jun-21	95	$49,794.74
RE16400	DE01EB.IW.985-990 - Place GR Aggregate Base Course	4	29-Jun-21	02-Jul-21	95	$20,106.03
RE16830	DE01EB.IW.985-990 - Place Superpave Course	4	06-Jul-21	09-Jul-21	95	$24,673.20
RE17140	DE01EB.IW.985-990 - Place Plain PC Conc Pavement	4	12-Jul-21	15-Jul-21	95	$310,127.52
DE01 - EB - Sta. 990-995 - Inside Widening		**21**	**24-Jun-21**	**27-Jul-21**	**92**	**$472,293.86**
RE16060	DE01EB.IW.990-995 - Setup Work Zone & Temp Barriers	2	24-Jun-21	28-Jun-21	85	$32,671.00
RE16410	DE01EB.IW.990-995 - Earthwork	5	29-Jun-21	06-Jul-21	85	$34,921.37
RE17150	DE01EB.IW.990-995 - Install Guardrail	2	07-Jul-21	08-Jul-21	92	$49,794.74
RE17500	DE01EB.IW.990-995 - Place GR Aggregate Base Course	4	09-Jul-21	14-Jul-21	92	$20,106.03
RE18360	DE01EB.IW.990-995 - Place Superpave Course	4	15-Jul-21	20-Jul-21	92	$24,673.20
RE18740	DE01EB.IW.990-995 - Place Plain PC Conc Pavement	4	21-Jul-21	27-Jul-21	92	$310,127.52
DE01 - EB - Sta. 995-999 - Inside Widening		**25**	**07-Jul-21**	**12-Aug-21**	**85**	**$472,293.86**
RE17130	DE01EB.IW.995-999 - Setup Work Zone & Temp Barriers	2	07-Jul-21	08-Jul-21	85	$32,671.00
RE17490	DE01EB.IW.995-999 - Earthwork	9	09-Jul-21	21-Jul-21	85	$34,921.37
RE18730	DE01EB.IW.995-999 - Install Guardrail	2	22-Jul-21	26-Jul-21	85	$49,794.74
RE19020	DE01EB.IW.995-999 - Place GR Aggregate Base Course	4	27-Jul-21	02-Aug-21	85	$20,106.03
RE19400	DE01EB.IW.995-999 - Place Superpave Course	4	03-Aug-21	06-Aug-21	85	$24,673.20
RE19740	DE01EB.IW.995-999 - Place Plain PC Conc Pavement	4	09-Aug-21	12-Aug-21	85	$310,127.52
DE01 - WB - Sta. 949-999 (W of I-95)		**84**	**07-Jun-21**	**15-Oct-21**	**24**	**$4,224,991.20**
DE01 - WB - Sta. 999-995 - Inside Widening		**23**	**07-Jun-21**	**09-Jul-21**	**49**	**$422,499.12**
RE33760	DE01WB.IW.999-995 - Setup Work Zone & Temp Barriers	2	07-Jun-21	08-Jun-21	24	$32,671.00
RE33890	DE01WB.IW.999-995 - Earthwork	9	09-Jun-21	21-Jun-21	24	$34,921.37
RE34400	DE01WB.IW.999-995 - Place GR Aggregate Base Course	4	22-Jun-21	28-Jun-21	49	$20,106.03
RE34670	DE01WB.IW.999-995 - Place Superpave Course	4	29-Jun-21	02-Jul-21	49	$24,673.20
RE34900	DE01WB.IW.999-995 - Place Plain PC Conc Pavement	4	06-Jul-21	09-Jul-21	49	$310,127.52
DE01 - WB - Sta. 995-990 - Inside Widening		**23**	**22-Jun-21**	**27-Jul-21**	**42**	**$422,499.12**
RE34410	DE01WB.IW.995-990 - Setup Work Zone & Temp Barriers	2	22-Jun-21	23-Jun-21	24	$32,671.00
RE34580	DE01WB.IW.995-990 - Earthwork	9	24-Jun-21	08-Jul-21	24	$34,921.37
RE35080	DE01WB.IW.995-990 - Place GR Aggregate Base Course	4	09-Jul-21	14-Jul-21	42	$20,106.03
RE35350	DE01WB.IW.995-990 - Place Superpave Course	4	15-Jul-21	20-Jul-21	42	$24,673.20
RE35560	DE01WB.IW.995-990 - Place Plain PC Conc Pavement	4	21-Jul-21	27-Jul-21	42	$310,127.52
DE01 - WB - Sta. 990-985 - Inside Widening		**19**	**09-Jul-21**	**06-Aug-21**	**39**	**$422,499.12**
RE35090	DE01WB.IW.990-985 - Setup Work Zone & Temp Barriers	2	09-Jul-21	12-Jul-21	24	$32,671.00
RE35200	DE01WB.IW.990-985 - Earthwork	5	13-Jul-21	19-Jul-21	24	$34,921.37
RE35610	DE01WB.IW.990-985 - Place GR Aggregate Base Course	4	20-Jul-21	26-Jul-21	39	$20,106.03
RE35970	DE01WB.IW.990-985 - Place Superpave Course	4	27-Jul-21	02-Aug-21	39	$24,673.20
RE36180	DE01WB.IW.990-985 - Place Plain PC Conc Pavement	4	03-Aug-21	06-Aug-21	39	$310,127.52
DE01 - WB - Sta. 985-980 - Inside Widening		**19**	**20-Jul-21**	**17-Aug-21**	**36**	**$422,499.12**
RE35620	DE01WB.IW.985-980 - Setup Work Zone & Temp Barriers	2	20-Jul-21	21-Jul-21	24	$32,671.00
RE35860	DE01WB.IW.985-980 - Earthwork	5	22-Jul-21	29-Jul-21	24	$34,921.37
RE36220	DE01WB.IW.985-980 - Place GR Aggregate Base Course	4	02-Aug-21	05-Aug-21	36	$20,106.03
RE36490	DE01WB.IW.985-980 - Place Superpave Course	4	06-Aug-21	11-Aug-21	36	$24,673.20
RE36680	DE01WB.IW.985-980 - Place Plain PC Conc Pavement	4	12-Aug-21	17-Aug-21	36	$310,127.52
DE01 - WB - Sta. 980-975 - Inside Widening		**19**	**02-Aug-21**	**30-Aug-21**	**33**	**$422,499.12**
RE36230	DE01WB.IW.980-975 - Setup Work Zone & Temp Barriers	2	02-Aug-21	03-Aug-21	24	$32,671.00
RE36320	DE01WB.IW.980-975 - Earthwork	5	04-Aug-21	10-Aug-21	24	$34,921.37
RE36710	DE01WB.IW.980-975 - Place GR Aggregate Base Course	4	11-Aug-21	16-Aug-21	33	$20,106.03
RE37020	DE01WB.IW.980-975 - Place Superpave Course	4	17-Aug-21	23-Aug-21	33	$24,673.20



Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE37210	DE01WB.IW.980-975 - Place Plain PC Conc Pavement	4	24-Aug-21	30-Aug-21	33	$310,127.52
DE01 - WB - Sta. 975-970 - Inside Widening		19	11-Aug-21	10-Sep-21	30	$422,499.12
RE36720	DE01WB.IW.975-970 - Setup Work Zone & Temp Barriers	2	11-Aug-21	12-Aug-21	24	$32,671.00
RE36800	DE01WB.IW.975-970 - Earthwork	5	13-Aug-21	19-Aug-21	24	$34,921.37
RE37280	DE01WB.IW.975-970 - Place GR Aggregate Base Course	4	23-Aug-21	26-Aug-21	30	$20,106.03
RE37580	DE01WB.IW.975-970 - Place Superpave Course	4	30-Aug-21	02-Sep-21	30	$24,673.20
RE37790	DE01WB.IW.975-970 - Place Plain PC Conc Pavement	4	07-Sep-21	10-Sep-21	30	$310,127.52
DE01 - WB - Sta. 970-965 - Inside Widening		18	23-Aug-21	21-Sep-21	28	$422,499.12
RE37290	DE01WB.IW.970-965 - Setup Work Zone & Temp Barriers	2	23-Aug-21	24-Aug-21	24	$32,671.00
RE37470	DE01WB.IW.970-965 - Earthwork	4	25-Aug-21	31-Aug-21	24	$34,921.37
RE37860	DE01WB.IW.970-965 - Place GR Aggregate Base Course	4	01-Sep-21	08-Sep-21	28	$20,106.03
RE38150	DE01WB.IW.970-965 - Place Superpave Course	4	09-Sep-21	14-Sep-21	28	$24,673.20
RE38450	DE01WB.IW.970-965 - Place Plain PC Conc Pavement	4	15-Sep-21	21-Sep-21	28	$310,127.52
DE01 - WB - Sta. 965-960 - Inside Widening		18	01-Sep-21	30-Sep-21	26	$422,499.12
RE37870	DE01WB.IW.965-960 - Setup Work Zone & Temp Barriers	2	01-Sep-21	02-Sep-21	24	$32,671.00
RE38010	DE01WB.IW.965-960 - Earthwork	4	07-Sep-21	10-Sep-21	24	$34,921.37
RE38520	DE01WB.IW.965-960 - Place GR Aggregate Base Course	4	13-Sep-21	16-Sep-21	26	$20,106.03
RE38800	DE01WB.IW.965-960 - Place Superpave Course	4	20-Sep-21	23-Sep-21	26	$24,673.20
RE38990	DE01WB.IW.965-960 - Place Plain PC Conc Pavement	4	27-Sep-21	30-Sep-21	26	$310,127.52
DE01 - WB - Sta. 960-955 - Inside Widening		17	13-Sep-21	07-Oct-21	25	$422,499.12
RE38530	DE01WB.IW.960-955 - Setup Work Zone & Temp Barriers	2	13-Sep-21	14-Sep-21	24	$32,671.00
RE38670	DE01WB.IW.960-955 - Earthwork	3	15-Sep-21	20-Sep-21	24	$34,921.37
RE39090	DE01WB.IW.960-955 - Place GR Aggregate Base Course	4	21-Sep-21	27-Sep-21	25	$20,106.03
RE39380	DE01WB.IW.960-955 - Place Superpave Course	4	28-Sep-21	01-Oct-21	25	$24,673.20
RE39600	DE01WB.IW.960-955 - Place Plain PC Conc Pavement	4	04-Oct-21	07-Oct-21	25	$310,127.52
DE01 - WB - Sta. 955-949 - Inside Widening		17	21-Sep-21	15-Oct-21	24	$422,499.12
RE39100	DE01WB.IW.955-949 - Setup Work Zone & Temp Barriers	2	21-Sep-21	22-Sep-21	24	$32,671.00
RE39240	DE01WB.IW.955-949 - Earthwork	3	23-Sep-21	28-Sep-21	24	$34,921.37
RE39670	DE01WB.IW.955-949 - Place GR Aggregate Base Course	4	29-Sep-21	04-Oct-21	24	$20,106.03
RE39910	DE01WB.IW.955-949 - Place Superpave Course	4	05-Oct-21	08-Oct-21	24	$24,673.20
RE40090	DE01WB.IW.955-949 - Place Plain PC Conc Pavement	4	12-Oct-21	15-Oct-21	24	$310,127.52
Outside Widening		66	18-Oct-21	11-Feb-22	24	$1,573,202.40
DE01 - EB - Sta. 981-999 (W of I-95)		44	18-Oct-21	07-Jan-22	46	$449,486.40
DE01 - EB - Sta. 981-985 - Outide Widening		15	18-Oct-21	09-Nov-21	63	$112,371.60
RE54000	DE01EB.OW.981-995 - Setup Work Zone & Temp Barriers	2	18-Oct-21	19-Oct-21	46	$32,671.00
RE54030	DE01EB.OW.981-995 - Earthwork	5	20-Oct-21	26-Oct-21	46	$34,921.37
RE54010	DE01EB.OW.981-995 - Place GR Aggregate Base Course	4	27-Oct-21	02-Nov-21	63	$20,106.03
RE54020	DE01EB.OW.981-995 - Place Superpave Course (G+C)	4	03-Nov-21	09-Nov-21	63	$24,673.20
DE01 - EB - Sta. 985-990 - Outide Widening		15	27-Oct-21	18-Nov-21	60	$112,371.60
RE54080	DE01EB.OW.985-990 - Setup Work Zone & Temp Barriers	2	27-Oct-21	28-Oct-21	46	$32,671.00
RE54110	DE01EB.OW.985-990 - Earthwork	5	01-Nov-21	05-Nov-21	46	$34,921.37
RE54090	DE01EB.OW.985-990 - Place GR Aggregate Base Course	4	09-Nov-21	12-Nov-21	60	$20,106.03
RE54100	DE01EB.OW.985-990 - Place Superpave Course (G+C)	4	15-Nov-21	18-Nov-21	60	$24,673.20
DE01 - EB - Sta. 990-995 - Outide Widening		19	09-Nov-21	10-Dec-21	53	$112,371.60
RE54120	DE01EB.OW.990-995 - Setup Work Zone & Temp Barriers	2	09-Nov-21	10-Nov-21	46	$32,671.00
RE54150	DE01EB.OW.990-995 - Earthwork	9	11-Nov-21	30-Nov-21	46	$34,921.37
RE54130	DE01EB.OW.990-995 - Place GR Aggregate Base Course	4	01-Dec-21	06-Dec-21	53	$20,106.03
RE54140	DE01EB.OW.990-995 - Place Superpave Course (G+C)	4	07-Dec-21	10-Dec-21	53	$24,673.20
DE01 - EB - Sta. 995-999 - Outide Widening		19	01-Dec-21	07-Jan-22	46	$112,371.60
RE54040	DE01EB.OW.995-999 - Setup Work Zone & Temp Barriers	2	01-Dec-21	02-Dec-21	46	$32,671.00
RE54070	DE01EB.OW.995-999 - Earthwork	9	03-Dec-21	15-Dec-21	46	$34,921.37
RE54050	DE01EB.OW.995-999 - Place GR Aggregate Base Course	4	16-Dec-21	22-Dec-21	46	$20,106.03
RE54060	DE01EB.OW.995-999 - Place Superpave Course (G+C)	4	04-Jan-22	07-Jan-22	46	$24,673.20
DE01 - WB - Sta. 949-999 (W of I-95)		66	18-Oct-21	11-Feb-22	24	$1,123,716.00
DE01 - WB - Sta. 999-995 - Outside Widening		15	18-Oct-21	09-Nov-21	39	$112,371.60
RE44520	DE01WB.OW.999-995 - Setup Work Zone & Temp Barriers	2	18-Oct-21	19-Oct-21	24	$32,671.00



Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE44580	DE01WB.OW.999-995 - Earthwork	5	20-Oct-21	26-Oct-21	24	$34,921.37
RE44670	DE01WB.OW.999-995 - Place GR Aggregate Base Course	4	27-Oct-21	02-Nov-21	39	$20,106.03
RE44780	DE01WB.OW.999-995 - Place Superpave Course (G+C)	4	03-Nov-21	09-Nov-21	39	$24,673.20
DE01 - WB - Sta. 995-990 - Outside Widening		**15**	**27-Oct-21**	**18-Nov-21**	**36**	**$112,371.60**
RE44680	DE01WB.OW.995-990 - Setup Work Zone & Temp Barriers	2	27-Oct-21	28-Oct-21	24	$32,671.00
RE44730	DE01WB.OW.995-990 - Earthwork	5	01-Nov-21	05-Nov-21	24	$34,921.37
RE44820	DE01WB.OW.995-990 - Place GR Aggregate Base Course	4	09-Nov-21	12-Nov-21	36	$20,106.03
RE44920	DE01WB.OW.995-990 - Place Superpave Course (G+C)	4	15-Nov-21	18-Nov-21	36	$24,673.20
DE01 - WB - Sta. 990-985 - Outside Widening		**15**	**09-Nov-21**	**06-Dec-21**	**33**	**$112,371.60**
RE44830	DE01WB.OW.990-985 - Setup Work Zone & Temp Barriers	2	09-Nov-21	10-Nov-21	24	$32,671.00
RE44880	DE01WB.OW.990-985 - Earthwork	5	11-Nov-21	17-Nov-21	24	$34,921.37
RE44970	DE01WB.OW.990-985 - Place GR Aggregate Base Course	4	18-Nov-21	30-Nov-21	33	$20,106.03
RE45060	DE01WB.OW.990-985 - Place Superpave Course (G+C)	4	01-Dec-21	06-Dec-21	33	$24,673.20
DE01 - WB - Sta. 985-980 - Outside Widening		**14**	**18-Nov-21**	**14-Dec-21**	**31**	**$112,371.60**
RE44960	DE01WB.OW.985-980 - Setup Work Zone & Temp Barriers	2	18-Nov-21	22-Nov-21	24	$32,671.00
RE45020	DE01WB.OW.985-980 - Earthwork	4	23-Nov-21	02-Dec-21	24	$34,921.37
RE45100	DE01WB.OW.985-980 - Place GR Aggregate Base Course	4	03-Dec-21	08-Dec-21	31	$20,106.03
RE45200	DE01WB.OW.985-980 - Place Superpave Course (G+C)	4	09-Dec-21	14-Dec-21	31	$24,673.20
DE01 - WB - Sta. 980-975 - Outside Widening		**14**	**03-Dec-21**	**04-Jan-22**	**29**	**$112,371.60**
RE45110	DE01WB.OW.980-975 - Setup Work Zone & Temp Barriers	2	03-Dec-21	06-Dec-21	24	$32,671.00
RE45160	DE01WB.OW.980-975 - Earthwork	4	07-Dec-21	10-Dec-21	24	$34,921.37
RE45240	DE01WB.OW.980-975 - Place GR Aggregate Base Course	4	13-Dec-21	16-Dec-21	29	$20,106.03
RE45340	DE01WB.OW.980-975 - Place Superpave Course (G+C)	4	20-Dec-21	04-Jan-22	29	$24,673.20
DE01 - WB - Sta. 975-970 - Outside Widening		**13**	**13-Dec-21**	**11-Jan-22**	**28**	**$112,371.60**
RE45250	DE01WB.OW.975-970 - Setup Work Zone & Temp Barriers	2	13-Dec-21	14-Dec-21	24	$32,671.00
RE45300	DE01WB.OW.975-970 - Earthwork	3	15-Dec-21	20-Dec-21	24	$34,921.37
RE45390	DE01WB.OW.975-970 - Place GR Aggregate Base Course	4	21-Dec-21	05-Jan-22	28	$20,106.03
RE45480	DE01WB.OW.975-970 - Place Superpave Course (G+C)	4	06-Jan-22	11-Jan-22	28	$24,673.20
DE01 - WB - Sta. 970-965 - Outside Widening		**13**	**21-Dec-21**	**19-Jan-22**	**27**	**$112,371.60**
RE45380	DE01WB.OW.970-965 - Setup Work Zone & Temp Barriers	2	21-Dec-21	22-Dec-21	24	$32,671.00
RE45440	DE01WB.OW.970-965 - Earthwork	3	04-Jan-22	06-Jan-22	24	$34,921.37
RE45530	DE01WB.OW.970-965 - Place GR Aggregate Base Course	4	07-Jan-22	12-Jan-22	27	$20,106.03
RE45620	DE01WB.OW.970-965 - Place Superpave Course (G+C)	4	13-Jan-22	19-Jan-22	27	$24,673.20
DE01 - WB - Sta. 965-960 - Outside Widening		**13**	**07-Jan-22**	**27-Jan-22**	**26**	**$112,371.60**
RE45520	DE01WB.OW.965-960 - Setup Work Zone & Temp Barriers	2	07-Jan-22	10-Jan-22	24	$32,671.00
RE45580	DE01WB.OW.965-960 - Earthwork	3	11-Jan-22	13-Jan-22	24	$34,921.37
RE45670	DE01WB.OW.965-960 - Place GR Aggregate Base Course	4	14-Jan-22	20-Jan-22	26	$20,106.03
RE45760	DE01WB.OW.965-960 - Place Superpave Course (G+C)	4	24-Jan-22	27-Jan-22	26	$24,673.20
DE01 - WB - Sta. 960-955 - Outside Widening		**13**	**14-Jan-22**	**04-Feb-22**	**25**	**$112,371.60**
RE45660	DE01WB.OW.960-955 - Setup Work Zone & Temp Barriers	2	14-Jan-22	18-Jan-22	24	$32,671.00
RE45720	DE01WB.OW.960-955 - Earthwork	3	19-Jan-22	24-Jan-22	24	$34,921.37
RE45810	DE01WB.OW.960-955 - Place GR Aggregate Base Course	4	25-Jan-22	31-Jan-22	25	$20,106.03
RE45900	DE01WB.OW.960-955 - Place Superpave Course (G+C)	4	01-Feb-22	04-Feb-22	25	$24,673.20
DE01 - WB - Sta. 955-949 - Outside Widening		**13**	**25-Jan-22**	**11-Feb-22**	**24**	**$112,371.60**
RE45800	DE01WB.OW.955-949 - Setup Work Zone & Temp Barriers	2	25-Jan-22	26-Jan-22	24	$32,671.00
RE45860	DE01WB.OW.955-949 - Earthwork	3	27-Jan-22	01-Feb-22	24	$34,921.37
RE45940	DE01WB.OW.955-949 - Place GR Aggregate Base Course	4	02-Feb-22	07-Feb-22	24	$20,106.03
RE46020	DE01WB.OW.955-949 - Place Superpave Course (G+C)	4	08-Feb-22	11-Feb-22	24	$24,673.20
Roadway - CrossOver - Sta. 1032-1009 (WB)		**40**	**14-Aug-19**	**17-Oct-19**	**99**	**$449,486.40**
DE01 - WBXO - Sta. 1032-1025		**16**	**14-Aug-19**	**10-Sep-19**	**111**	**$112,371.60**
RE29110	DE01WB.XO.1032-1025 - Setup Work Zone & Temp Barriers	2	14-Aug-19	15-Aug-19	99	$32,671.00
RE29230	DE01WB.XO.1032-1025 - Earthwork	6	19-Aug-19	27-Aug-19	99	$34,921.37
RE30060	DE01WB.XO.1032-1025 - Place GR Aggregate Base Course	4	28-Aug-19	04-Sep-19	111	$20,106.03
RE30290	DE01WB.XO.1032-1025 - Place Superpave Course (G+C)	4	05-Sep-19	10-Sep-19	111	$24,673.20
DE01 - WBXO - Sta. 1025-1020		**16**	**28-Aug-19**	**23-Sep-19**	**107**	**$112,371.60**
RE30050	DE01WB.XO.1025-1020 - Setup Work Zone & Temp Barriers	2	28-Aug-19	29-Aug-19	99	$32,671.00



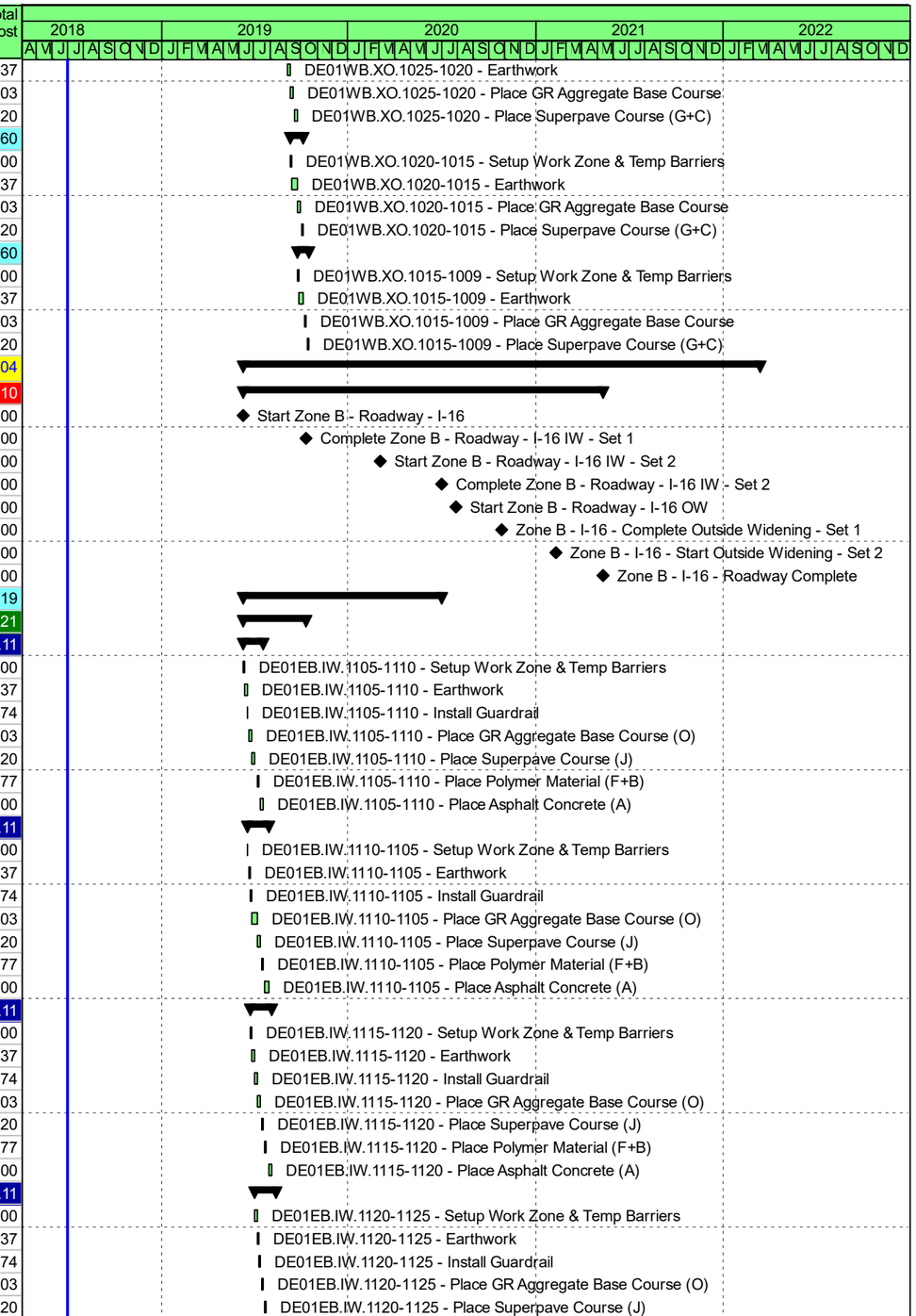
DRAGADOS USA

Project ID: PI-BLS21-R
Data Date: 01-Jul-18
Run Date: 27-Jun-18

I-16 at I-95 Reconstruction and Widening Proposal Schedule - Clarification GDOT Ltr 27-Jun-18
Detailed Activities

Remaining Level of Effort
Critical Remaining Work
Summary
Milestone
Remaining Work

Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE30250	DE01WB.XO.1025-1020 - Earthwork	6	03-Sep-19	10-Sep-19	99	$34,921.37
RE31180	DE01WB.XO.1025-1020 - Place GR Aggregate Base Course	4	11-Sep-19	16-Sep-19	107	$20,106.03
RE31690	DE01WB.XO.1025-1020 - Place Superpave Course (G+C)	4	17-Sep-19	23-Sep-19	107	$24,673.20
DE01 - WBXO - Sta. 1020-1015		16	11-Sep-19	04-Oct-19	103	$112,371.60
RE31190	DE01WB.XO.1020-1015 - Setup Work Zone & Temp Barriers	2	11-Sep-19	12-Sep-19	99	$32,671.00
RE31350	DE01WB.XO.1020-1015 - Earthwork	6	13-Sep-19	23-Sep-19	99	$34,921.37
RE32550	DE01WB.XO.1020-1015 - Place GR Aggregate Base Course	4	24-Sep-19	30-Sep-19	103	$20,106.03
RE32670	DE01WB.XO.1020-1015 - Place Superpave Course (G+C)	4	01-Oct-19	04-Oct-19	103	$24,673.20
DE01 - WBXO - Sta. 1015-1009		16	24-Sep-19	17-Oct-19	99	$112,371.60
RE32540	DE01WB.XO.1015-1009 - Setup Work Zone & Temp Barriers	2	24-Sep-19	25-Sep-19	99	$32,671.00
RE32600	DE01WB.XO.1015-1009 - Earthwork	6	26-Sep-19	04-Oct-19	99	$34,921.37
RE33630	DE01WB.XO.1015-1009 - Place GR Aggregate Base Course	4	08-Oct-19	11-Oct-19	99	$20,106.03
RE33990	DE01WB.XO.1015-1009 - Place Superpave Course (G+C)	4	14-Oct-19	17-Oct-19	99	$24,673.20
Zone B - I-16 Sta. 1105 to Sta. 1428		1009	11-Jun-19	15-Mar-22	16	$51,643,103.04
Roadway		409	11-Jun-19	12-May-21	38	$32,803,768.10
RE13080	Start Zone B - Roadway - I-16	0	11-Jun-19		105	$0.00
RE54160	Complete Zone B - Roadway - I-16 IW - Set 1	0		09-Oct-19	105	$0.00
RE54270	Start Zone B - Roadway - I-16 IW - Set 2	0	04-Mar-20		24	$0.00
RE54170	Complete Zone B - Roadway - I-16 IW - Set 2	0		01-Jul-20	93	$0.00
RE54240	Start Zone B - Roadway - I-16 OW	0	28-Jul-20		77	$0.00
RE54180	Zone B - I-16 - Complete Outside Widening - Set 1	0		27-Oct-20	77	$0.00
RE54430	Zone B - I-16 - Start Outside Widening - Set 2	0	09-Feb-21		26	$0.00
RE54200	Zone B - I-16 - Roadway Complete	0		12-May-21	38	$0.00
Inside Widening		228	11-Jun-19	01-Jul-20	93	$18,164,952.19
1E - EB - Sta. 1105-1160		74	11-Jun-19	09-Oct-19	105	$2,599,752.21
DE01 - EB - Sta. 1105-1110 - Inside Widening		24	11-Jun-19	18-Jul-19	105	$236,341.11
RE13090	DE01EB.IW.1105-1110 - Setup Work Zone & Temp Barriers	2	11-Jun-19	12-Jun-19	105	$32,671.00
RE13550	DE01EB.IW.1105-1110 - Earthwork	3	13-Jun-19	17-Jun-19	105	$34,921.37
RE14890	DE01EB.IW.1105-1110 - Install Guardrail	2	18-Jun-19	19-Jun-19	105	$49,794.74
RE15080	DE01EB.IW.1105-1110 - Place GR Aggregate Base Course (O)	4	20-Jun-19	25-Jun-19	105	$20,106.03
RE15440	DE01EB.IW.1105-1110 - Place Superpave Course (J)	4	26-Jun-19	02-Jul-19	105	$24,673.20
RE16220	DE01EB.IW.1105-1110 - Place Polymer Material (F+B)	4	08-Jul-19	11-Jul-19	105	$74,174.77
RE16710	DE01EB.IW.1105-1110 - Place Asphalt Concrete (A)	5	12-Jul-19	18-Jul-19	105	$0.00
DE01 - EB - Sta. 1110-1115 - Inside Widening		24	18-Jun-19	29-Jul-19	105	$236,341.11
RE14880	DE01EB.IW.1110-1105 - Setup Work Zone & Temp Barriers	2	18-Jun-19	19-Jun-19	105	$32,671.00
RE15070	DE01EB.IW.1110-1105 - Earthwork	3	20-Jun-19	24-Jun-19	105	$34,921.37
RE16200	DE01EB.IW.1110-1105 - Install Guardrail	2	25-Jun-19	26-Jun-19	105	$49,794.74
RE16490	DE01EB.IW.1110-1105 - Place GR Aggregate Base Course (O)	4	27-Jun-19	08-Jul-19	105	$20,106.03
RE16850	DE01EB.IW.1110-1105 - Place Superpave Course (J)	4	09-Jul-19	12-Jul-19	105	$24,673.20
RE17270	DE01EB.IW.1110-1105 - Place Polymer Material (F+B)	4	15-Jul-19	18-Jul-19	105	$74,174.77
RE17900	DE01EB.IW.1110-1105 - Place Asphalt Concrete (A)	5	22-Jul-19	29-Jul-19	105	$0.00
DE01 - EB - Sta. 1115-1120 - Inside Widening		24	25-Jun-19	05-Aug-19	105	$236,341.11
RE16210	DE01EB.IW.1115-1120 - Setup Work Zone & Temp Barriers	2	25-Jun-19	26-Jun-19	106	$32,671.00
RE16500	DE01EB.IW.1115-1120 - Earthwork	2	27-Jun-19	01-Jul-19	106	$34,921.37
RE17280	DE01EB.IW.1115-1120 - Install Guardrail	2	02-Jul-19	08-Jul-19	106	$49,794.74
RE17570	DE01EB.IW.1115-1120 - Place GR Aggregate Base Course (O)	4	09-Jul-19	12-Jul-19	106	$20,106.03
RE18380	DE01EB.IW.1115-1120 - Place Superpave Course (J)	4	15-Jul-19	18-Jul-19	106	$24,673.20
RE18850	DE01EB.IW.1115-1120 - Place Polymer Material (F+B)	4	22-Jul-19	25-Jul-19	106	$74,174.77
RE19340	DE01EB.IW.1115-1120 - Place Asphalt Concrete (A)	5	30-Jul-19	05-Aug-19	105	$0.00
DE01 - EB - Sta. 1120-1125 - Inside Widening		25	02-Jul-19	12-Aug-19	105	$236,341.11
RE17290	DE01EB.IW.1120-1125 - Setup Work Zone & Temp Barriers	2	02-Jul-19	08-Jul-19	107	$32,671.00
RE17580	DE01EB.IW.1120-1125 - Earthwork	2	09-Jul-19	10-Jul-19	107	$34,921.37
RE18860	DE01EB.IW.1120-1125 - Install Guardrail	2	11-Jul-19	12-Jul-19	107	$49,794.74
RE19120	DE01EB.IW.1120-1125 - Place GR Aggregate Base Course (O)	4	15-Jul-19	18-Jul-19	107	$20,106.03
RE19460	DE01EB.IW.1120-1125 - Place Superpave Course (J)	4	22-Jul-19	25-Jul-19	107	$24,673.20



Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE19860	DE01EB.IW.1120-1125 - Place Polymer Material (F+B)	4	29-Jul-19	01-Aug-19	107	$74,174.77
RE20420	DE01EB.IW.1120-1125 - Place Asphalt Concrete (A)	5	06-Aug-19	12-Aug-19	105	$0.00
DE01 - EB - Sta. 1125-1130 - Inside Widening		**26**	**11-Jul-19**	**20-Aug-19**	**105**	**$236,341.11**
RE18840	DE01EB.IW.1125-1130 - Setup Work Zone & Temp Barriers	2	11-Jul-19	12-Jul-19	108	$32,671.00
RE19110	DE01EB.IW.1125-1130 - Earthwork	2	15-Jul-19	16-Jul-19	108	$34,921.37
RE19840	DE01EB.IW.1125-1130 - Install Guardrail	2	17-Jul-19	18-Jul-19	108	$49,794.74
RE20090	DE01EB.IW.1125-1130 - Place GR Aggregate Base Course (O)	4	22-Jul-19	25-Jul-19	108	$20,106.03
RE20500	DE01EB.IW.1125-1130 - Place Superpave Course (J)	4	29-Jul-19	01-Aug-19	108	$24,673.20
RE20920	DE01EB.IW.1125-1130 - Place Polymer Material (F+B)	4	02-Aug-19	07-Aug-19	108	$74,174.77
RE21320	DE01EB.IW.1125-1130 - Place Asphalt Concrete (A)	5	13-Aug-19	20-Aug-19	105	$0.00
DE01 - EB - Sta. 1130-1135 - Inside Widening		**27**	**17-Jul-19**	**28-Aug-19**	**105**	**$236,341.11**
RE19850	DE01EB.IW.1130-1135 - Setup Work Zone & Temp Barriers	2	17-Jul-19	18-Jul-19	109	$32,671.00
RE20100	DE01EB.IW.1130-1135 - Earthwork	2	22-Jul-19	23-Jul-19	109	$34,921.37
RE20930	DE01EB.IW.1130-1135 - Install Guardrail	2	24-Jul-19	25-Jul-19	109	$49,794.74
RE21060	DE01EB.IW.1130-1135 - Place GR Aggregate Base Course (O)	4	29-Jul-19	01-Aug-19	109	$20,106.03
RE21390	DE01EB.IW.1130-1135 - Place Superpave Course (J)	4	02-Aug-19	07-Aug-19	109	$24,673.20
RE21950	DE01EB.IW.1130-1135 - Place Polymer Material (F+B)	4	08-Aug-19	13-Aug-19	109	$74,174.77
RE22280	DE01EB.IW.1130-1135 - Place Asphalt Concrete (A)	5	21-Aug-19	28-Aug-19	105	$0.00
DE01 - EB - Sta. 1135-1140 - Inside Widening		**28**	**24-Jul-19**	**06-Sep-19**	**105**	**$236,341.11**
RE20940	DE01EB.IW.1135-1140 - Setup Work Zone & Temp Barriers	2	24-Jul-19	25-Jul-19	110	$32,671.00
RE21070	DE01EB.IW.1135-1140 - Earthwork	2	29-Jul-19	30-Jul-19	110	$34,921.37
RE21960	DE01EB.IW.1135-1140 - Install Guardrail	2	31-Jul-19	01-Aug-19	110	$49,794.74
RE22150	DE01EB.IW.1135-1140 - Place GR Aggregate Base Course (O)	4	02-Aug-19	07-Aug-19	110	$20,106.03
RE22690	DE01EB.IW.1135-1140 - Place Superpave Course (J)	4	08-Aug-19	13-Aug-19	110	$24,673.20
RE23080	DE01EB.IW.1135-1140 - Place Polymer Material (F+B)	4	14-Aug-19	20-Aug-19	110	$74,174.77
RE23470	DE01EB.IW.1135-1140 - Place Asphalt Concrete (A)	5	29-Aug-19	06-Sep-19	105	$0.00
DE01 - EB - Sta. 1140-1145 - Inside Widening		**29**	**31-Jul-19**	**13-Sep-19**	**105**	**$236,341.11**
RE21970	DE01EB.IW.1140-1145 - Setup Work Zone & Temp Barriers	2	31-Jul-19	01-Aug-19	111	$32,671.00
RE22160	DE01EB.IW.1140-1145 - Earthwork	2	02-Aug-19	05-Aug-19	111	$34,921.37
RE23090	DE01EB.IW.1140-1145 - Install Guardrail	2	06-Aug-19	07-Aug-19	111	$49,794.74
RE23210	DE01EB.IW.1140-1145 - Place GR Aggregate Base Course (O)	4	08-Aug-19	13-Aug-19	111	$20,106.03
RE23580	DE01EB.IW.1140-1145 - Place Superpave Course (J)	4	14-Aug-19	20-Aug-19	111	$24,673.20
RE24030	DE01EB.IW.1140-1145 - Place Polymer Material (F+B)	4	21-Aug-19	27-Aug-19	111	$74,174.77
RE24390	DE01EB.IW.1140-1145 - Place Asphalt Concrete (A)	5	09-Sep-19	13-Sep-19	105	$0.00
DE01 - EB - Sta. 1145-1152 - Inside Widening		**30**	**06-Aug-19**	**23-Sep-19**	**105**	**$236,341.11**
RE23070	DE01EB.IW.1145-1152 - Setup Work Zone & Temp Barriers	2	06-Aug-19	07-Aug-19	112	$32,671.00
RE23200	DE01EB.IW.1145-1152 - Earthwork	2	08-Aug-19	09-Aug-19	112	$34,921.37
RE24020	DE01EB.IW.1145-1152 - Install Guardrail	2	12-Aug-19	13-Aug-19	112	$49,794.74
RE24250	DE01EB.IW.1145-1152 - Place GR Aggregate Base Course (O)	4	14-Aug-19	20-Aug-19	112	$20,106.03
RE24550	DE01EB.IW.1145-1152 - Place Superpave Course (J)	4	21-Aug-19	27-Aug-19	112	$24,673.20
RE24980	DE01EB.IW.1145-1152 - Place Polymer Material (F+B)	4	28-Aug-19	04-Sep-19	112	$74,174.77
RE25290	DE01EB.IW.1145-1152 - Place Asphalt Concrete (A)	5	16-Sep-19	23-Sep-19	105	$0.00
DE01 - EB - Sta. 1152-1155 - Inside Widening		**31**	**12-Aug-19**	**01-Oct-19**	**105**	**$236,341.11**
RE24040	DE01EB.IW.1152-1155 - Setup Work Zone & Temp Barriers	2	12-Aug-19	13-Aug-19	113	$32,671.00
RE24260	DE01EB.IW.1152-1155 - Earthwork	2	14-Aug-19	15-Aug-19	113	$34,921.37
RE25000	DE01EB.IW.1152-1155 - Install Guardrail	2	19-Aug-19	20-Aug-19	113	$49,794.74
RE25130	DE01EB.IW.1152-1155 - Place GR Aggregate Base Course (O)	4	21-Aug-19	27-Aug-19	113	$20,106.03
RE25400	DE01EB.IW.1152-1155 - Place Superpave Course (J)	4	28-Aug-19	04-Sep-19	113	$24,673.20
RE26160	DE01EB.IW.1152-1155 - Place Polymer Material (F+B)	4	05-Sep-19	10-Sep-19	113	$74,174.77
RE26520	DE01EB.IW.1152-1155 - Place Asphalt Concrete (A)	5	24-Sep-19	01-Oct-19	105	$0.00
DE01 - EB - Sta. 1155-1160 - Inside Widening		**32**	**19-Aug-19**	**09-Oct-19**	**105**	**$236,341.11**
RE24990	DE01EB.IW.1155-1160 - Setup Work Zone & Temp Barriers	2	19-Aug-19	20-Aug-19	114	$32,671.00
RE25120	DE01EB.IW.1155-1160 - Earthwork	2	21-Aug-19	22-Aug-19	114	$34,921.37
RE26140	DE01EB.IW.1155-1160 - Install Guardrail	2	26-Aug-19	27-Aug-19	114	$49,794.74
RE26290	DE01EB.IW.1155-1160 - Place GR Aggregate Base Course (O)	4	28-Aug-19	04-Sep-19	114	$20,106.03
RE26580	DE01EB.IW.1155-1160 - Place Superpave Course (J)	4	05-Sep-19	10-Sep-19	114	$24,673.20

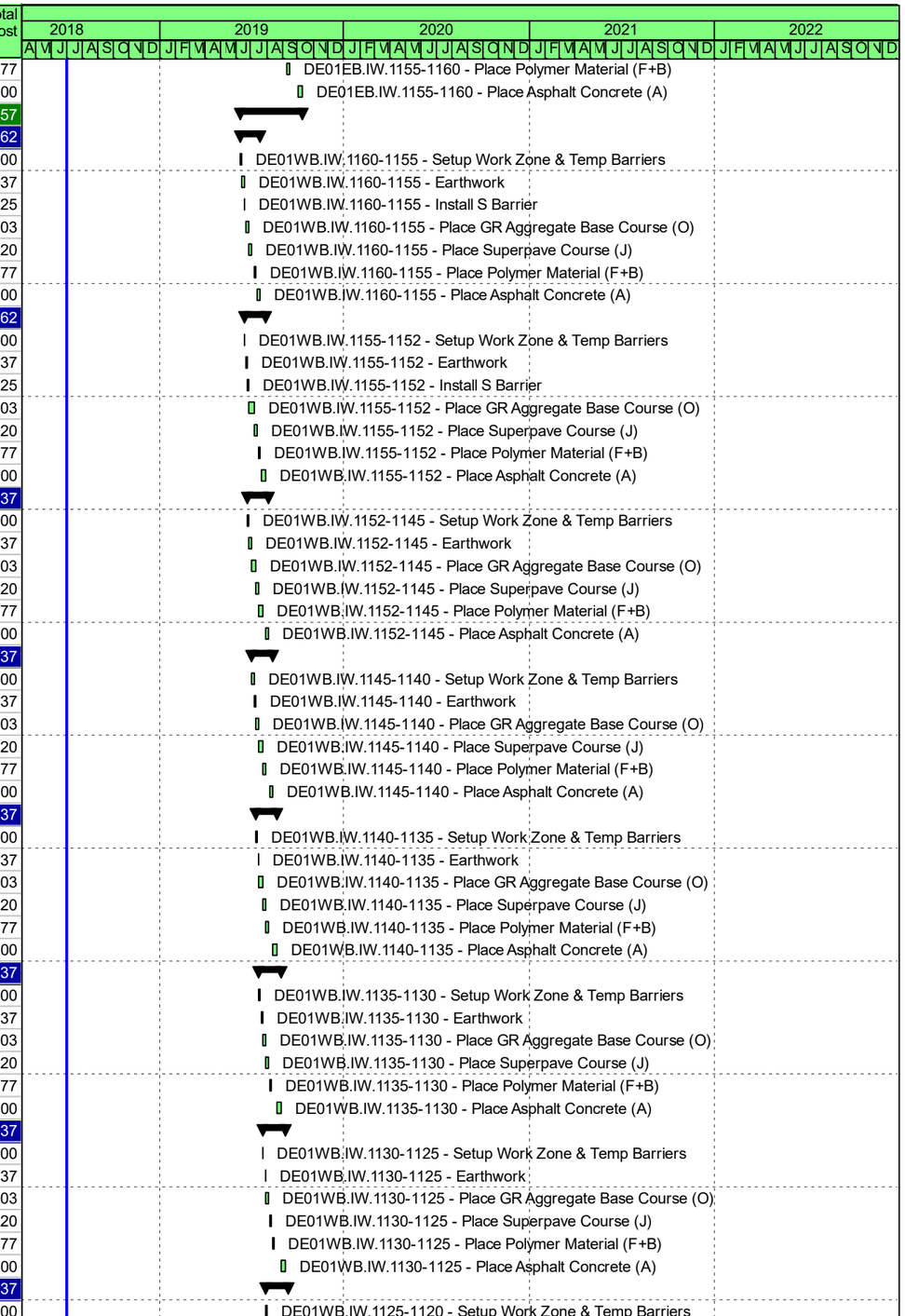
DRAGADOS USA

Project ID: PI-BLS21-R
Data Date: 01-Jul-18
Run Date: 27-Jun-18

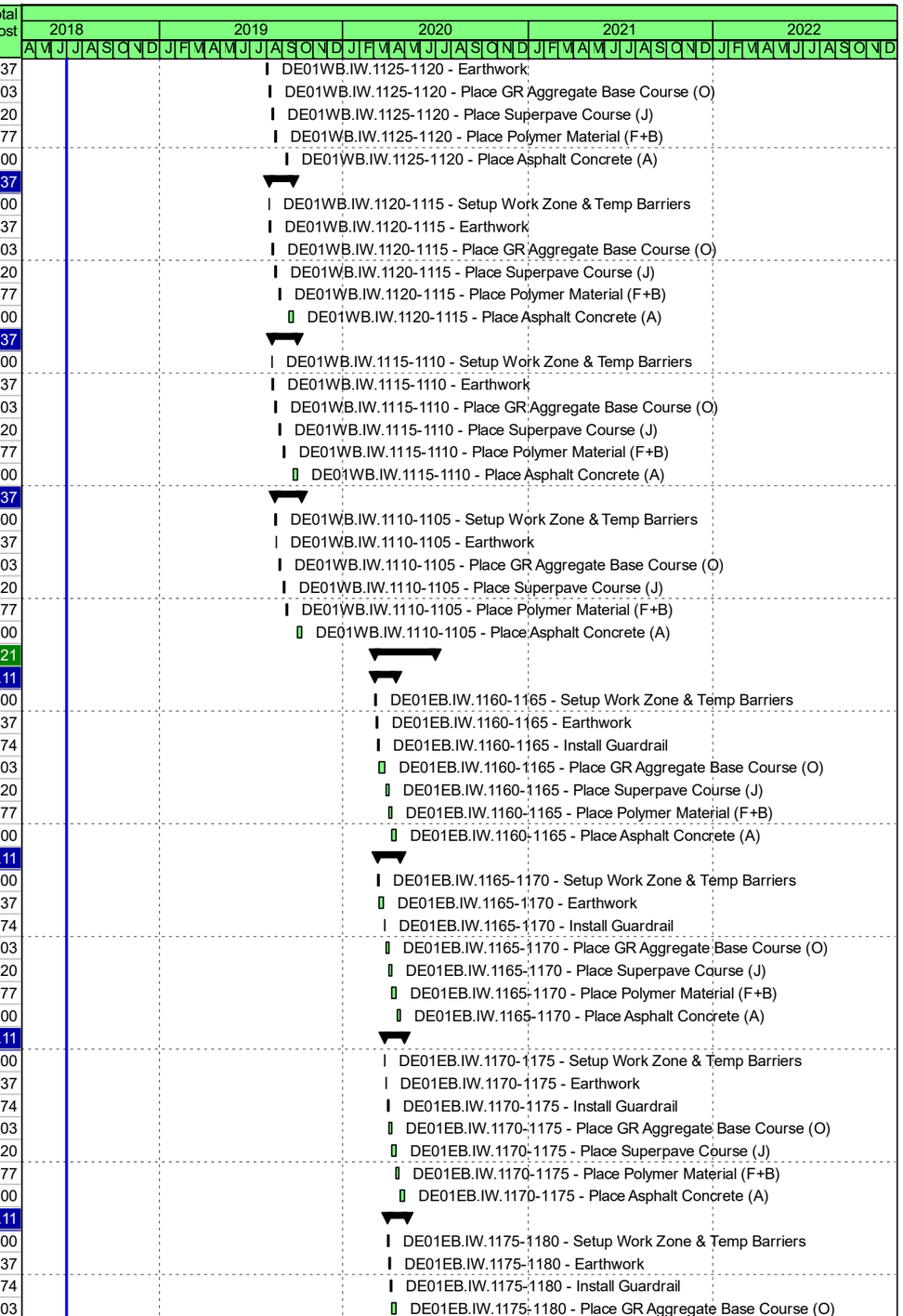
I-16 at I-95 Reconstruction and Widening Proposal Schedule - Clarification GDOT Ltr 27-Jun-18
Detailed Activities

Remaining Level of Effort
Critical Remaining Work
Summary
Milestone
Remaining Work

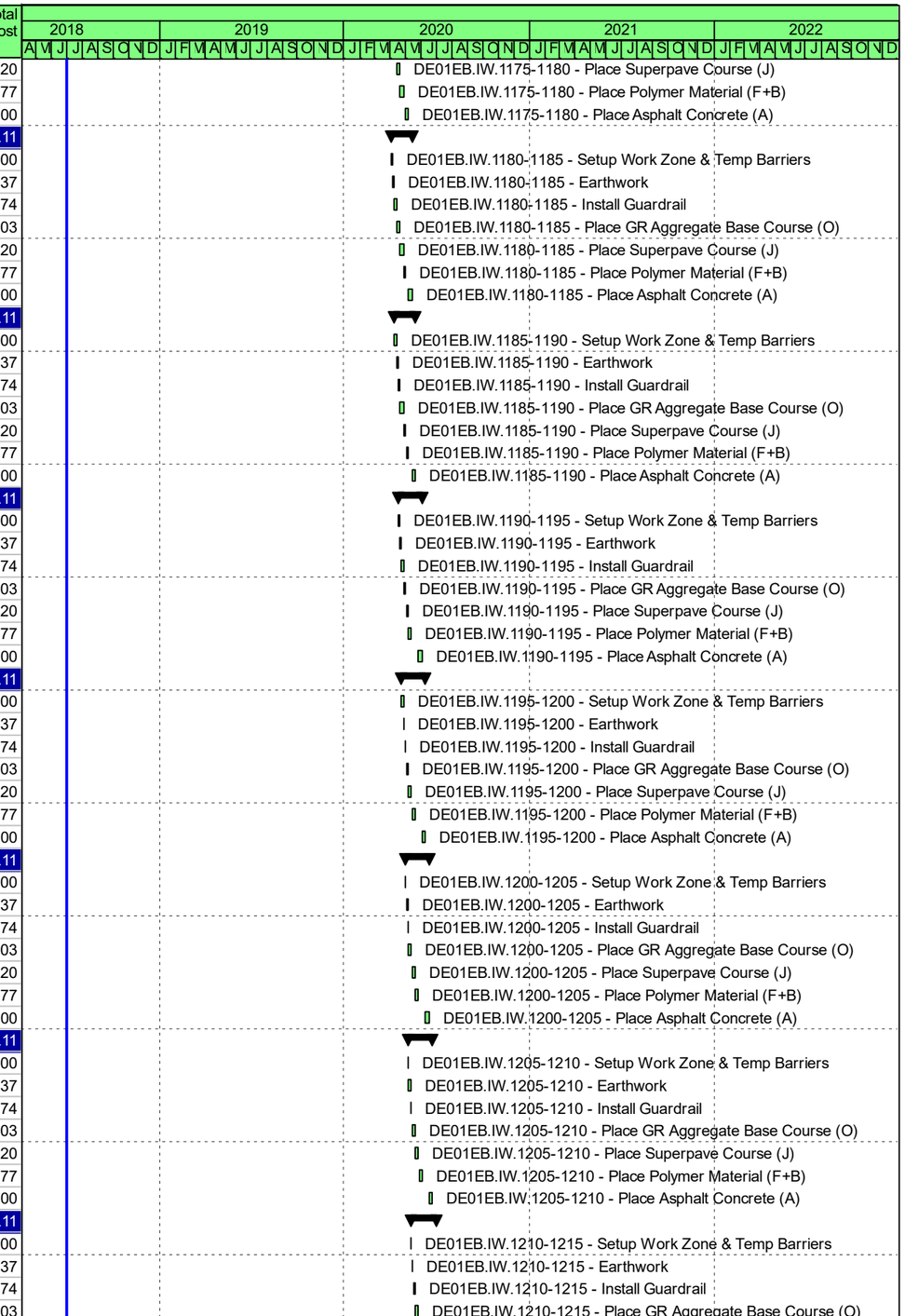
Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE26840	DE01EB.IW.1155-1160 - Place Polymer Material (F+B)	4	11-Sep-19	16-Sep-19	114	$74,174.77
RE27090	DE01EB.IW.1155-1160 - Place Asphalt Concrete (A)	5	02-Oct-19	09-Oct-19	105	$0.00
1W - WB - Sta. 1160-1105		**74**	**11-Jun-19**	**09-Oct-19**	**105**	**$2,151,828.57**
DE01 - WB - Sta. 1160-1155 - Inside Widening		**24**	**11-Jun-19**	**18-Jul-19**	**105**	**$236,455.62**
RE38590	DE01WB.IW.1160-1155 - Setup Work Zone & Temp Barriers	2	11-Jun-19	12-Jun-19	105	$32,671.00
RE38710	DE01WB.IW.1160-1155 - Earthwork	3	13-Jun-19	17-Jun-19	105	$34,921.37
RE39180	DE01WB.IW.1160-1155 - Install S Barrier	2	18-Jun-19	19-Jun-19	105	$49,909.25
RE39280	DE01WB.IW.1160-1155 - Place GR Aggregate Base Course (O)	4	20-Jun-19	25-Jun-19	105	$20,106.03
RE39540	DE01WB.IW.1160-1155 - Place Superpave Course (J)	4	26-Jun-19	02-Jul-19	105	$24,673.20
RE39750	DE01WB.IW.1160-1155 - Place Polymer Material (F+B)	4	08-Jul-19	11-Jul-19	105	$74,174.77
RE39940	DE01WB.IW.1160-1155 - Place Asphalt Concrete (A)	5	12-Jul-19	18-Jul-19	105	$0.00
DE01 - WB - Sta. 1155-1152 - Inside Widening		**24**	**18-Jun-19**	**29-Jul-19**	**105**	**$236,455.62**
RE39160	DE01WB.IW.1155-1152 - Setup Work Zone & Temp Barriers	2	18-Jun-19	19-Jun-19	105	$32,671.00
RE39270	DE01WB.IW.1155-1152 - Earthwork	3	20-Jun-19	24-Jun-19	105	$34,921.37
RE39740	DE01WB.IW.1155-1152 - Install S Barrier	2	25-Jun-19	26-Jun-19	105	$49,909.25
RE39840	DE01WB.IW.1155-1152 - Place GR Aggregate Base Course (O)	4	27-Jun-19	08-Jul-19	105	$20,106.03
RE40010	DE01WB.IW.1155-1152 - Place Superpave Course (J)	4	09-Jul-19	12-Jul-19	105	$24,673.20
RE40180	DE01WB.IW.1155-1152 - Place Polymer Material (F+B)	4	15-Jul-19	18-Jul-19	105	$74,174.77
RE40370	DE01WB.IW.1155-1152 - Place Asphalt Concrete (A)	5	22-Jul-19	29-Jul-19	105	$0.00
DE01 - WB - Sta. 1152-1145 - Inside Widening		**24**	**25-Jun-19**	**05-Aug-19**	**105**	**$186,546.37**
RE39730	DE01WB.IW.1152-1145 - Setup Work Zone & Temp Barriers	2	25-Jun-19	26-Jun-19	108	$32,671.00
RE39830	DE01WB.IW.1152-1145 - Earthwork	2	27-Jun-19	01-Jul-19	108	$34,921.37
RE40170	DE01WB.IW.1152-1145 - Place GR Aggregate Base Course (O)	4	02-Jul-19	10-Jul-19	108	$20,106.03
RE40360	DE01WB.IW.1152-1145 - Place Superpave Course (J)	4	11-Jul-19	16-Jul-19	108	$24,673.20
RE40520	DE01WB.IW.1152-1145 - Place Polymer Material (F+B)	4	17-Jul-19	23-Jul-19	108	$74,174.77
RE40710	DE01WB.IW.1152-1145 - Place Asphalt Concrete (A)	5	30-Jul-19	05-Aug-19	105	$0.00
DE01 - WB - Sta. 1145-1140 - Inside Widening		**25**	**02-Jul-19**	**12-Aug-19**	**105**	**$186,546.37**
RE40160	DE01WB.IW.1145-1140 - Setup Work Zone & Temp Barriers	2	02-Jul-19	08-Jul-19	109	$32,671.00
RE40260	DE01WB.IW.1145-1140 - Earthwork	2	09-Jul-19	10-Jul-19	109	$34,921.37
RE40600	DE01WB.IW.1145-1140 - Place GR Aggregate Base Course (O)	4	11-Jul-19	16-Jul-19	109	$20,106.03
RE40840	DE01WB.IW.1145-1140 - Place Superpave Course (J)	4	17-Jul-19	23-Jul-19	109	$24,673.20
RE40960	DE01WB.IW.1145-1140 - Place Polymer Material (F+B)	4	24-Jul-19	30-Jul-19	109	$74,174.77
RE41200	DE01WB.IW.1145-1140 - Place Asphalt Concrete (A)	5	06-Aug-19	12-Aug-19	105	$0.00
DE01 - WB - Sta. 1140-1135 - Inside Widening		**26**	**11-Jul-19**	**20-Aug-19**	**105**	**$186,546.37**
RE40610	DE01WB.IW.1140-1135 - Setup Work Zone & Temp Barriers	2	11-Jul-19	12-Jul-19	110	$32,671.00
RE40660	DE01WB.IW.1140-1135 - Earthwork	2	15-Jul-19	16-Jul-19	110	$34,921.37
RE41070	DE01WB.IW.1140-1135 - Place GR Aggregate Base Course (O)	4	17-Jul-19	23-Jul-19	110	$20,106.03
RE41270	DE01WB.IW.1140-1135 - Place Superpave Course (J)	4	24-Jul-19	30-Jul-19	110	$24,673.20
RE41410	DE01WB.IW.1140-1135 - Place Polymer Material (F+B)	4	31-Jul-19	05-Aug-19	110	$74,174.77
RE41640	DE01WB.IW.1140-1135 - Place Asphalt Concrete (A)	5	13-Aug-19	20-Aug-19	105	$0.00
DE01 - WB - Sta. 1135-1130 - Inside Widening		**27**	**17-Jul-19**	**28-Aug-19**	**105**	**$186,546.37**
RE41080	DE01WB.IW.1135-1130 - Setup Work Zone & Temp Barriers	2	17-Jul-19	18-Jul-19	111	$32,671.00
RE41150	DE01WB.IW.1135-1130 - Earthwork	2	22-Jul-19	23-Jul-19	111	$34,921.37
RE41510	DE01WB.IW.1135-1130 - Place GR Aggregate Base Course (O)	4	24-Jul-19	30-Jul-19	111	$20,106.03
RE41710	DE01WB.IW.1135-1130 - Place Superpave Course (J)	4	31-Jul-19	05-Aug-19	111	$24,673.20
RE41870	DE01WB.IW.1135-1130 - Place Polymer Material (F+B)	4	06-Aug-19	09-Aug-19	111	$74,174.77
RE42100	DE01WB.IW.1135-1130 - Place Asphalt Concrete (A)	5	21-Aug-19	28-Aug-19	105	$0.00
DE01 - WB - Sta. 1130-1125 - Inside Widening		**28**	**24-Jul-19**	**06-Sep-19**	**105**	**$186,546.37**
RE41500	DE01WB.IW.1130-1125 - Setup Work Zone & Temp Barriers	2	24-Jul-19	25-Jul-19	112	$32,671.00
RE41620	DE01WB.IW.1130-1125 - Earthwork	2	29-Jul-19	30-Jul-19	112	$34,921.37
RE41980	DE01WB.IW.1130-1125 - Place GR Aggregate Base Course (O)	4	31-Jul-19	05-Aug-19	112	$20,106.03
RE42190	DE01WB.IW.1130-1125 - Place Superpave Course (J)	4	06-Aug-19	09-Aug-19	112	$24,673.20
RE42330	DE01WB.IW.1130-1125 - Place Polymer Material (F+B)	4	12-Aug-19	15-Aug-19	112	$74,174.77
RE42540	DE01WB.IW.1130-1125 - Place Asphalt Concrete (A)	5	29-Aug-19	06-Sep-19	105	$0.00
DE01 - WB - Sta. 1125-1120 - Inside Widening		**29**	**31-Jul-19**	**13-Sep-19**	**105**	**$186,546.37**
RE41990	DE01WB.IW.1125-1120 - Setup Work Zone & Temp Barriers	2	31-Jul-19	01-Aug-19	113	$32,671.00



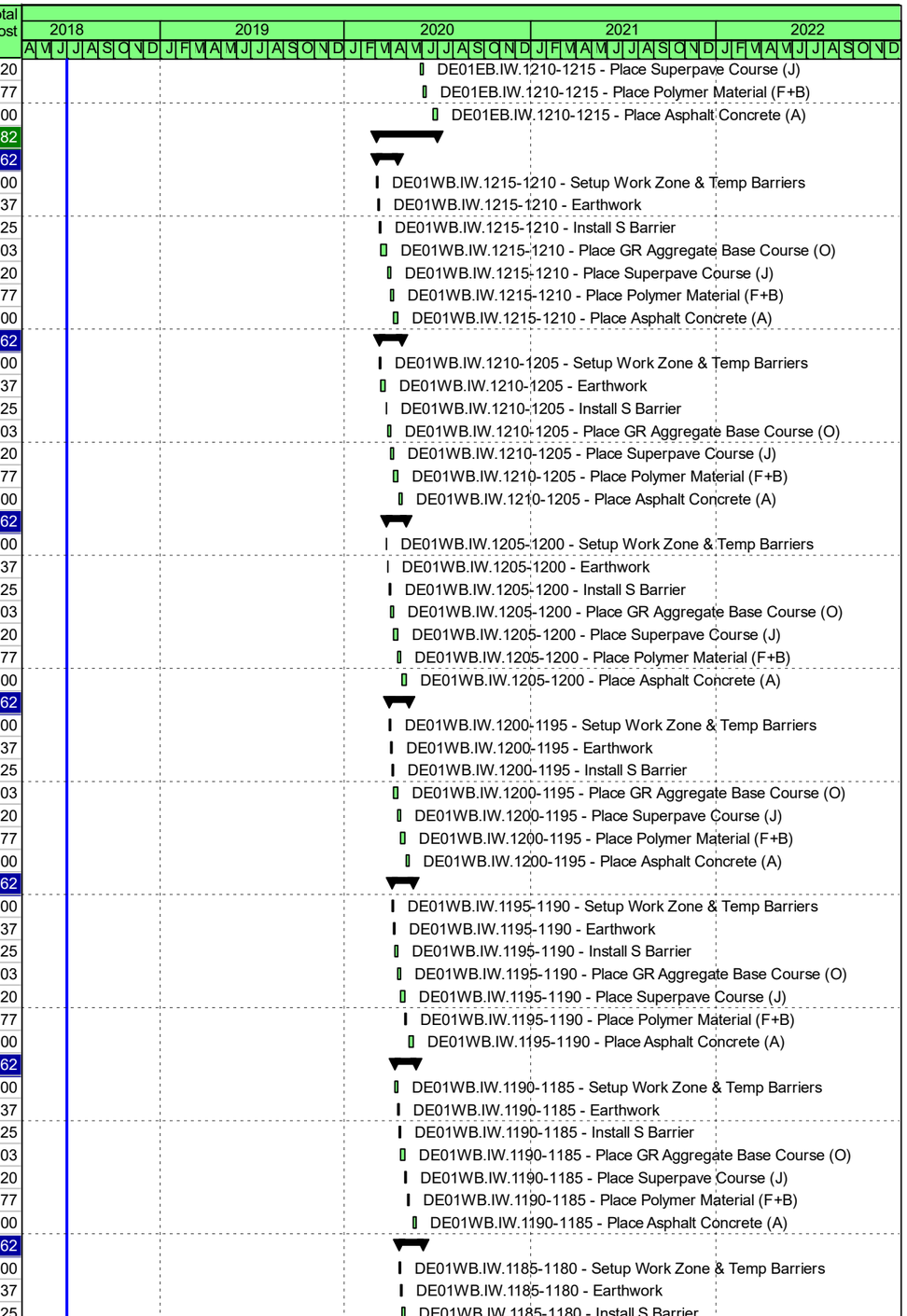
Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE42070	DE01WB.IW.1125-1120 - Earthwork	2	02-Aug-19	05-Aug-19	113	$34,921.37
RE42440	DE01WB.IW.1125-1120 - Place GR Aggregate Base Course (O)	4	06-Aug-19	09-Aug-19	113	$20,106.03
RE42610	DE01WB.IW.1125-1120 - Place Superpave Course (J)	4	12-Aug-19	15-Aug-19	113	$24,673.20
RE42740	DE01WB.IW.1125-1120 - Place Polymer Material (F+B)	4	19-Aug-19	22-Aug-19	113	$74,174.77
RE42960	DE01WB.IW.1125-1120 - Place Asphalt Concrete (A)	5	09-Sep-19	13-Sep-19	105	$0.00
DE01 - WB - Sta. 1120-1115 - Inside Widening		**30**	**06-Aug-19**	**23-Sep-19**	**105**	**$186,546.37**
RE42450	DE01WB.IW.1120-1115 - Setup Work Zone & Temp Barriers	2	06-Aug-19	07-Aug-19	114	$32,671.00
RE42520	DE01WB.IW.1120-1115 - Earthwork	2	08-Aug-19	09-Aug-19	114	$34,921.37
RE42820	DE01WB.IW.1120-1115 - Place GR Aggregate Base Course (O)	4	12-Aug-19	15-Aug-19	114	$20,106.03
RE42990	DE01WB.IW.1120-1115 - Place Superpave Course (J)	4	19-Aug-19	22-Aug-19	114	$24,673.20
RE43130	DE01WB.IW.1120-1115 - Place Polymer Material (F+B)	4	26-Aug-19	29-Aug-19	114	$74,174.77
RE43320	DE01WB.IW.1120-1115 - Place Asphalt Concrete (A)	5	16-Sep-19	23-Sep-19	105	$0.00
DE01 - WB - Sta. 1115-1110 - Inside Widening		**31**	**12-Aug-19**	**01-Oct-19**	**105**	**$186,546.37**
RE42830	DE01WB.IW.1115-1110 - Setup Work Zone & Temp Barriers	2	12-Aug-19	13-Aug-19	115	$32,671.00
RE42920	DE01WB.IW.1115-1110 - Earthwork	2	14-Aug-19	15-Aug-19	115	$34,921.37
RE43190	DE01WB.IW.1115-1110 - Place GR Aggregate Base Course (O)	4	19-Aug-19	22-Aug-19	115	$20,106.03
RE43370	DE01WB.IW.1115-1110 - Place Superpave Course (J)	4	26-Aug-19	29-Aug-19	115	$24,673.20
RE43470	DE01WB.IW.1115-1110 - Place Polymer Material (F+B)	4	03-Sep-19	06-Sep-19	115	$74,174.77
RE43590	DE01WB.IW.1115-1110 - Place Asphalt Concrete (A)	5	24-Sep-19	01-Oct-19	105	$0.00
DE01 - WB - Sta. 1110-1105 - Inside Widening		**32**	**19-Aug-19**	**09-Oct-19**	**105**	**$186,546.37**
RE43180	DE01WB.IW.1110-1105 - Setup Work Zone & Temp Barriers	2	19-Aug-19	20-Aug-19	116	$32,671.00
RE43260	DE01WB.IW.1110-1105 - Earthwork	2	21-Aug-19	22-Aug-19	116	$34,921.37
RE43530	DE01WB.IW.1110-1105 - Place GR Aggregate Base Course (O)	4	26-Aug-19	29-Aug-19	116	$20,106.03
RE43650	DE01WB.IW.1110-1105 - Place Superpave Course (J)	4	03-Sep-19	06-Sep-19	116	$24,673.20
RE43730	DE01WB.IW.1110-1105 - Place Polymer Material (F+B)	4	09-Sep-19	12-Sep-19	116	$74,174.77
RE43800	DE01WB.IW.1110-1105 - Place Asphalt Concrete (A)	5	02-Oct-19	09-Oct-19	105	$0.00
2E - EB - Sta. 1160-1215		**73**	**04-Mar-20**	**01-Jul-20**	**93**	**$2,599,752.21**
DE01 - EB - Sta. 1160-1165 - Inside Widening		**23**	**04-Mar-20**	**15-Apr-20**	**93**	**$236,341.11**
RE26150	DE01EB.IW.1160-1165 - Setup Work Zone & Temp Barriers	2	04-Mar-20	05-Mar-20	93	$32,671.00
RE26300	DE01EB.IW.1160-1165 - Earthwork	2	06-Mar-20	09-Mar-20	93	$34,921.37
RE26850	DE01EB.IW.1160-1165 - Install Guardrail	2	10-Mar-20	11-Mar-20	93	$49,794.74
RE27030	DE01EB.IW.1160-1165 - Place GR Aggregate Base Course (O)	4	12-Mar-20	24-Mar-20	93	$20,106.03
RE27180	DE01EB.IW.1160-1165 - Place Superpave Course (J)	4	25-Mar-20	31-Mar-20	93	$24,673.20
RE27320	DE01EB.IW.1160-1165 - Place Polymer Material (F+B)	4	01-Apr-20	06-Apr-20	93	$74,174.77
RE27720	DE01EB.IW.1160-1165 - Place Asphalt Concrete (A)	5	07-Apr-20	15-Apr-20	93	$0.00
DE01 - EB - Sta. 1165-1170 - Inside Widening		**24**	**10-Mar-20**	**22-Apr-20**	**93**	**$236,341.11**
RE26860	DE01EB.IW.1165-1170 - Setup Work Zone & Temp Barriers	2	10-Mar-20	11-Mar-20	94	$32,671.00
RE27040	DE01EB.IW.1165-1170 - Earthwork	2	12-Mar-20	19-Mar-20	94	$34,921.37
RE27330	DE01EB.IW.1165-1170 - Install Guardrail	2	23-Mar-20	24-Mar-20	94	$49,794.74
RE27580	DE01EB.IW.1165-1170 - Place GR Aggregate Base Course (O)	4	25-Mar-20	31-Mar-20	94	$20,106.03
RE27790	DE01EB.IW.1165-1170 - Place Superpave Course (J)	4	01-Apr-20	06-Apr-20	94	$24,673.20
RE28130	DE01EB.IW.1165-1170 - Place Polymer Material (F+B)	4	07-Apr-20	14-Apr-20	94	$74,174.77
RE28630	DE01EB.IW.1165-1170 - Place Asphalt Concrete (A)	5	16-Apr-20	22-Apr-20	93	$0.00
DE01 - EB - Sta. 1170-1175 - Inside Widening		**25**	**23-Mar-20**	**30-Apr-20**	**93**	**$236,341.11**
RE27340	DE01EB.IW.1170-1175 - Setup Work Zone & Temp Barriers	2	23-Mar-20	24-Mar-20	95	$32,671.00
RE27590	DE01EB.IW.1170-1175 - Earthwork	2	25-Mar-20	26-Mar-20	95	$34,921.37
RE28140	DE01EB.IW.1170-1175 - Install Guardrail	2	30-Mar-20	31-Mar-20	95	$49,794.74
RE28320	DE01EB.IW.1170-1175 - Place GR Aggregate Base Course (O)	4	01-Apr-20	06-Apr-20	95	$20,106.03
RE28720	DE01EB.IW.1170-1175 - Place Superpave Course (J)	4	07-Apr-20	14-Apr-20	95	$24,673.20
RE28970	DE01EB.IW.1170-1175 - Place Polymer Material (F+B)	4	15-Apr-20	20-Apr-20	95	$74,174.77
RE29340	DE01EB.IW.1170-1175 - Place Asphalt Concrete (A)	5	23-Apr-20	30-Apr-20	93	$0.00
DE01 - EB - Sta. 1175-1180 - Inside Widening		**26**	**30-Mar-20**	**07-May-20**	**93**	**$236,341.11**
RE28150	DE01EB.IW.1175-1180 - Setup Work Zone & Temp Barriers	2	30-Mar-20	31-Mar-20	96	$32,671.00
RE28330	DE01EB.IW.1175-1180 - Earthwork	2	01-Apr-20	02-Apr-20	96	$34,921.37
RE28980	DE01EB.IW.1175-1180 - Install Guardrail	2	03-Apr-20	06-Apr-20	96	$49,794.74
RE29190	DE01EB.IW.1175-1180 - Place GR Aggregate Base Course (O)	4	07-Apr-20	14-Apr-20	96	$20,106.03



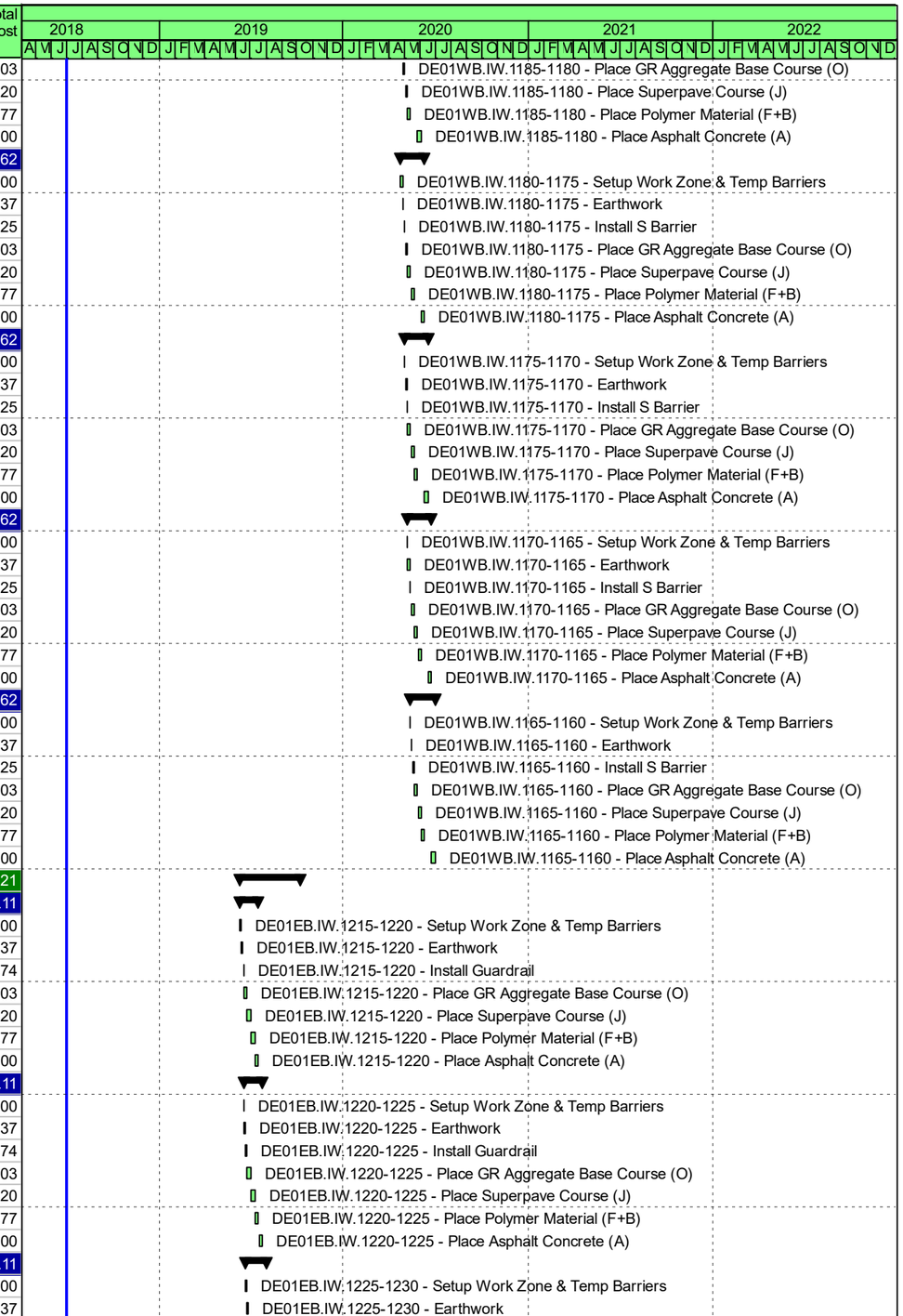
Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE29430	DE01EB.IW.1175-1180 - Place Superpave Course (J)	4	15-Apr-20	20-Apr-20	96	$24,673.20
RE29830	DE01EB.IW.1175-1180 - Place Polymer Material (F+B)	4	21-Apr-20	27-Apr-20	96	$74,174.77
RE30020	DE01EB.IW.1175-1180 - Place Asphalt Concrete (A)	5	01-May-20	07-May-20	93	$0.00
DE01 - EB - Sta. 1180-1185 - Inside Widening		**27**	**03-Apr-20**	**14-May-20**	**93**	**$236,341.11**
RE28960	DE01EB.IW.1180-1185 - Setup Work Zone & Temp Barriers	2	03-Apr-20	06-Apr-20	97	$32,671.00
RE29180	DE01EB.IW.1180-1185 - Earthwork	2	07-Apr-20	08-Apr-20	97	$34,921.37
RE29810	DE01EB.IW.1180-1185 - Install Guardrail	2	09-Apr-20	14-Apr-20	97	$49,794.74
RE29960	DE01EB.IW.1180-1185 - Place GR Aggregate Base Course (O)	4	15-Apr-20	20-Apr-20	97	$20,106.03
RE30190	DE01EB.IW.1180-1185 - Place Superpave Course (J)	4	21-Apr-20	27-Apr-20	97	$24,673.20
RE30450	DE01EB.IW.1180-1185 - Place Polymer Material (F+B)	4	28-Apr-20	01-May-20	97	$74,174.77
RE30810	DE01EB.IW.1180-1185 - Place Asphalt Concrete (A)	5	08-May-20	14-May-20	93	$0.00
DE01 - EB - Sta. 1185-1190 - Inside Widening		**28**	**09-Apr-20**	**21-May-20**	**93**	**$236,341.11**
RE29820	DE01EB.IW.1185-1190 - Setup Work Zone & Temp Barriers	2	09-Apr-20	14-Apr-20	98	$32,671.00
RE29970	DE01EB.IW.1185-1190 - Earthwork	2	15-Apr-20	16-Apr-20	98	$34,921.37
RE30460	DE01EB.IW.1185-1190 - Install Guardrail	2	17-Apr-20	20-Apr-20	98	$49,794.74
RE30590	DE01EB.IW.1185-1190 - Place GR Aggregate Base Course (O)	4	21-Apr-20	27-Apr-20	98	$20,106.03
RE31100	DE01EB.IW.1185-1190 - Place Superpave Course (J)	4	28-Apr-20	01-May-20	98	$24,673.20
RE31280	DE01EB.IW.1185-1190 - Place Polymer Material (F+B)	4	04-May-20	07-May-20	98	$74,174.77
RE31700	DE01EB.IW.1185-1190 - Place Asphalt Concrete (A)	5	15-May-20	21-May-20	93	$0.00
DE01 - EB - Sta. 1190-1195 - Inside Widening		**29**	**17-Apr-20**	**02-Jun-20**	**93**	**$236,341.11**
RE30470	DE01EB.IW.1190-1195 - Setup Work Zone & Temp Barriers	2	17-Apr-20	20-Apr-20	99	$32,671.00
RE30600	DE01EB.IW.1190-1195 - Earthwork	2	21-Apr-20	22-Apr-20	99	$34,921.37
RE31290	DE01EB.IW.1190-1195 - Install Guardrail	2	23-Apr-20	27-Apr-20	99	$49,794.74
RE31420	DE01EB.IW.1190-1195 - Place GR Aggregate Base Course (O)	4	28-Apr-20	01-May-20	99	$20,106.03
RE31750	DE01EB.IW.1190-1195 - Place Superpave Course (J)	4	04-May-20	07-May-20	99	$24,673.20
RE32140	DE01EB.IW.1190-1195 - Place Polymer Material (F+B)	4	08-May-20	13-May-20	99	$74,174.77
RE32560	DE01EB.IW.1190-1195 - Place Asphalt Concrete (A)	5	26-May-20	02-Jun-20	93	$0.00
DE01 - EB - Sta. 1195-1200 - Inside Widening		**30**	**23-Apr-20**	**09-Jun-20**	**93**	**$236,341.11**
RE31300	DE01EB.IW.1195-1200 - Setup Work Zone & Temp Barriers	2	23-Apr-20	27-Apr-20	100	$32,671.00
RE31430	DE01EB.IW.1195-1200 - Earthwork	2	28-Apr-20	29-Apr-20	100	$34,921.37
RE32150	DE01EB.IW.1195-1200 - Install Guardrail	2	30-Apr-20	01-May-20	100	$49,794.74
RE32430	DE01EB.IW.1195-1200 - Place GR Aggregate Base Course (O)	4	04-May-20	07-May-20	100	$20,106.03
RE32640	DE01EB.IW.1195-1200 - Place Superpave Course (J)	4	08-May-20	13-May-20	100	$24,673.20
RE32940	DE01EB.IW.1195-1200 - Place Polymer Material (F+B)	4	14-May-20	19-May-20	100	$74,174.77
RE33420	DE01EB.IW.1195-1200 - Place Asphalt Concrete (A)	5	03-Jun-20	09-Jun-20	93	$0.00
DE01 - EB - Sta. 1200-1205 - Inside Widening		**31**	**30-Apr-20**	**16-Jun-20**	**93**	**$236,341.11**
RE32130	DE01EB.IW.1200-1205 - Setup Work Zone & Temp Barriers	2	30-Apr-20	01-May-20	101	$32,671.00
RE32420	DE01EB.IW.1200-1205 - Earthwork	2	04-May-20	05-May-20	101	$34,921.37
RE32920	DE01EB.IW.1200-1205 - Install Guardrail	2	06-May-20	07-May-20	101	$49,794.74
RE33320	DE01EB.IW.1200-1205 - Place GR Aggregate Base Course (O)	4	08-May-20	13-May-20	101	$20,106.03
RE33470	DE01EB.IW.1200-1205 - Place Superpave Course (J)	4	14-May-20	19-May-20	101	$24,673.20
RE33800	DE01EB.IW.1200-1205 - Place Polymer Material (F+B)	4	20-May-20	27-May-20	101	$74,174.77
RE34100	DE01EB.IW.1200-1205 - Place Asphalt Concrete (A)	5	10-Jun-20	16-Jun-20	93	$0.00
DE01 - EB - Sta. 1205-1210 - Inside Widening		**32**	**06-May-20**	**23-Jun-20**	**93**	**$236,341.11**
RE32930	DE01EB.IW.1205-1210 - Setup Work Zone & Temp Barriers	2	06-May-20	07-May-20	102	$32,671.00
RE33330	DE01EB.IW.1205-1210 - Earthwork	2	08-May-20	11-May-20	102	$34,921.37
RE33810	DE01EB.IW.1205-1210 - Install Guardrail	2	12-May-20	13-May-20	102	$49,794.74
RE33920	DE01EB.IW.1205-1210 - Place GR Aggregate Base Course (O)	4	14-May-20	19-May-20	102	$20,106.03
RE34180	DE01EB.IW.1205-1210 - Place Superpave Course (J)	4	20-May-20	27-May-20	102	$24,673.20
RE34470	DE01EB.IW.1205-1210 - Place Polymer Material (F+B)	4	28-May-20	03-Jun-20	102	$74,174.77
RE34700	DE01EB.IW.1205-1210 - Place Asphalt Concrete (A)	5	17-Jun-20	23-Jun-20	93	$0.00
DE01 - EB - Sta. 1210-1215 - Inside Widening		**33**	**12-May-20**	**01-Jul-20**	**93**	**$236,341.11**
RE33820	DE01EB.IW.1210-1215 - Setup Work Zone & Temp Barriers	2	12-May-20	13-May-20	103	$32,671.00
RE33930	DE01EB.IW.1210-1215 - Earthwork	2	14-May-20	15-May-20	103	$34,921.37
RE34480	DE01EB.IW.1210-1215 - Install Guardrail	2	18-May-20	19-May-20	103	$49,794.74
RE34620	DE01EB.IW.1210-1215 - Place GR Aggregate Base Course (O)	4	20-May-20	27-May-20	103	$20,106.03



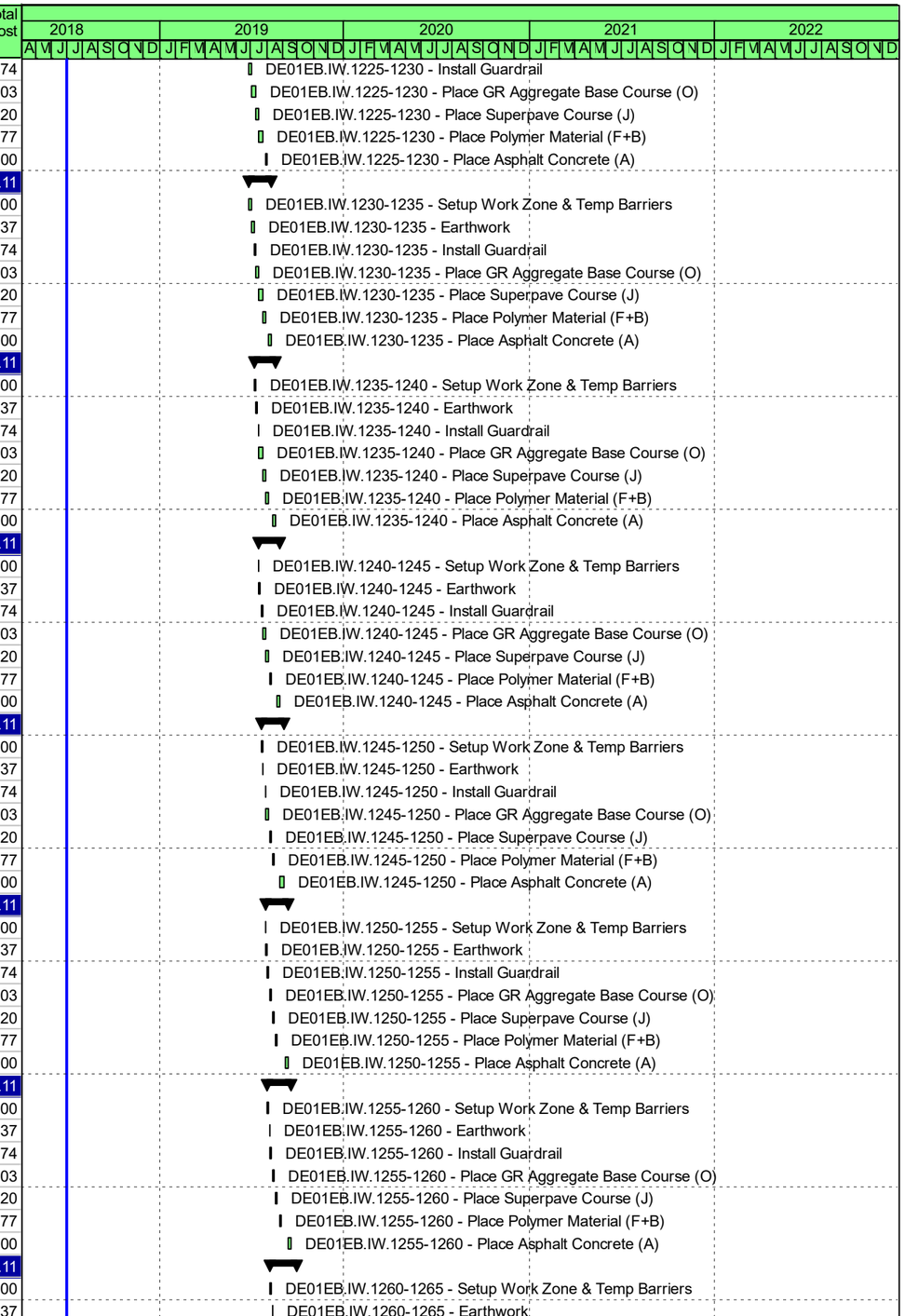
Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE34790	DE01EB.IW.1210-1215 - Place Superpave Course (J)	4	28-May-20	03-Jun-20	103	$24,673.20
RE35130	DE01EB.IW.1210-1215 - Place Polymer Material (F+B)	4	04-Jun-20	09-Jun-20	103	$74,174.77
RE35360	DE01EB.IW.1210-1215 - Place Asphalt Concrete (A)	5	24-Jun-20	01-Jul-20	93	$0.00
2W - EB - Sta. 1270-1160		**73**	**04-Mar-20**	**01-Jul-20**	**93**	**$2,601,011.82**
DE01 - WB - Sta. 1215-1210 - Inside Widening		**23**	**04-Mar-20**	**15-Apr-20**	**93**	**$236,455.62**
RE31330	DE01WB.IW.1215-1210 - Setup Work Zone & Temp Barriers	2	04-Mar-20	05-Mar-20	93	$32,671.00
RE31450	DE01WB.IW.1215-1210 - Earthwork	2	06-Mar-20	09-Mar-20	93	$34,921.37
RE32180	DE01WB.IW.1215-1210 - Install S Barrier	2	10-Mar-20	11-Mar-20	93	$49,909.25
RE32450	DE01WB.IW.1215-1210 - Place GR Aggregate Base Course (O)	4	12-Mar-20	24-Mar-20	93	$20,106.03
RE32650	DE01WB.IW.1215-1210 - Place Superpave Course (J)	4	25-Mar-20	31-Mar-20	93	$24,673.20
RE32970	DE01WB.IW.1215-1210 - Place Polymer Material (F+B)	4	01-Apr-20	06-Apr-20	93	$74,174.77
RE33430	DE01WB.IW.1215-1210 - Place Asphalt Concrete (A)	5	07-Apr-20	15-Apr-20	93	$0.00
DE01 - WB - Sta. 1210-1205 - Inside Widening		**24**	**10-Mar-20**	**22-Apr-20**	**93**	**$236,455.62**
RE32160	DE01WB.IW.1210-1205 - Setup Work Zone & Temp Barriers	2	10-Mar-20	11-Mar-20	94	$32,671.00
RE32440	DE01WB.IW.1210-1205 - Earthwork	2	12-Mar-20	19-Mar-20	94	$34,921.37
RE32950	DE01WB.IW.1210-1205 - Install S Barrier	2	23-Mar-20	24-Mar-20	94	$49,909.25
RE33340	DE01WB.IW.1210-1205 - Place GR Aggregate Base Course (O)	4	25-Mar-20	31-Mar-20	94	$20,106.03
RE33480	DE01WB.IW.1210-1205 - Place Superpave Course (J)	4	01-Apr-20	06-Apr-20	94	$24,673.20
RE33830	DE01WB.IW.1210-1205 - Place Polymer Material (F+B)	4	07-Apr-20	14-Apr-20	94	$74,174.77
RE34110	DE01WB.IW.1210-1205 - Place Asphalt Concrete (A)	5	16-Apr-20	22-Apr-20	93	$0.00
DE01 - WB - Sta. 1205-1200 - Inside Widening		**25**	**23-Mar-20**	**30-Apr-20**	**93**	**$236,455.62**
RE32960	DE01WB.IW.1205-1200 - Setup Work Zone & Temp Barriers	2	23-Mar-20	24-Mar-20	95	$32,671.00
RE33350	DE01WB.IW.1205-1200 - Earthwork	2	25-Mar-20	26-Mar-20	95	$34,921.37
RE33840	DE01WB.IW.1205-1200 - Install S Barrier	2	30-Mar-20	31-Mar-20	95	$49,909.25
RE33940	DE01WB.IW.1205-1200 - Place GR Aggregate Base Course (O)	4	01-Apr-20	06-Apr-20	95	$20,106.03
RE34190	DE01WB.IW.1205-1200 - Place Superpave Course (J)	4	07-Apr-20	14-Apr-20	95	$24,673.20
RE34500	DE01WB.IW.1205-1200 - Place Polymer Material (F+B)	4	15-Apr-20	20-Apr-20	95	$74,174.77
RE34710	DE01WB.IW.1205-1200 - Place Asphalt Concrete (A)	5	23-Apr-20	30-Apr-20	93	$0.00
DE01 - WB - Sta. 1200-1195 - Inside Widening		**26**	**30-Mar-20**	**07-May-20**	**93**	**$236,455.62**
RE33850	DE01WB.IW.1200-1195 - Setup Work Zone & Temp Barriers	2	30-Mar-20	31-Mar-20	96	$32,671.00
RE33950	DE01WB.IW.1200-1195 - Earthwork	2	01-Apr-20	02-Apr-20	96	$34,921.37
RE34510	DE01WB.IW.1200-1195 - Install S Barrier	2	03-Apr-20	06-Apr-20	96	$49,909.25
RE34640	DE01WB.IW.1200-1195 - Place GR Aggregate Base Course (O)	4	07-Apr-20	14-Apr-20	96	$20,106.03
RE34800	DE01WB.IW.1200-1195 - Place Superpave Course (J)	4	15-Apr-20	20-Apr-20	96	$24,673.20
RE35160	DE01WB.IW.1200-1195 - Place Polymer Material (F+B)	4	21-Apr-20	27-Apr-20	96	$74,174.77
RE35370	DE01WB.IW.1200-1195 - Place Asphalt Concrete (A)	5	01-May-20	07-May-20	93	$0.00
DE01 - WB - Sta. 1195-1190 - Inside Widening		**27**	**03-Apr-20**	**14-May-20**	**93**	**$236,455.62**
RE34490	DE01WB.IW.1195-1190 - Setup Work Zone & Temp Barriers	2	03-Apr-20	06-Apr-20	97	$32,671.00
RE34630	DE01WB.IW.1195-1190 - Earthwork	2	07-Apr-20	08-Apr-20	97	$34,921.37
RE35140	DE01WB.IW.1195-1190 - Install S Barrier	2	09-Apr-20	14-Apr-20	97	$49,909.25
RE35240	DE01WB.IW.1195-1190 - Place GR Aggregate Base Course (O)	4	15-Apr-20	20-Apr-20	97	$20,106.03
RE35410	DE01WB.IW.1195-1190 - Place Superpave Course (J)	4	21-Apr-20	27-Apr-20	97	$24,673.20
RE35670	DE01WB.IW.1195-1190 - Place Polymer Material (F+B)	4	28-Apr-20	01-May-20	97	$74,174.77
RE35990	DE01WB.IW.1195-1190 - Place Asphalt Concrete (A)	5	08-May-20	14-May-20	93	$0.00
DE01 - WB - Sta. 1190-1185 - Inside Widening		**28**	**09-Apr-20**	**21-May-20**	**93**	**$236,455.62**
RE35150	DE01WB.IW.1190-1185 - Setup Work Zone & Temp Barriers	2	09-Apr-20	14-Apr-20	98	$32,671.00
RE35250	DE01WB.IW.1190-1185 - Earthwork	2	15-Apr-20	16-Apr-20	98	$34,921.37
RE35680	DE01WB.IW.1190-1185 - Install S Barrier	2	17-Apr-20	20-Apr-20	98	$49,909.25
RE35900	DE01WB.IW.1190-1185 - Place GR Aggregate Base Course (O)	4	21-Apr-20	27-Apr-20	98	$20,106.03
RE36110	DE01WB.IW.1190-1185 - Place Superpave Course (J)	4	28-Apr-20	01-May-20	98	$24,673.20
RE36280	DE01WB.IW.1190-1185 - Place Polymer Material (F+B)	4	04-May-20	07-May-20	98	$74,174.77
RE36520	DE01WB.IW.1190-1185 - Place Asphalt Concrete (A)	5	15-May-20	21-May-20	93	$0.00
DE01 - WB - Sta. 1185-1180 - Inside Widening		**29**	**17-Apr-20**	**02-Jun-20**	**93**	**$236,455.62**
RE35690	DE01WB.IW.1185-1180 - Setup Work Zone & Temp Barriers	2	17-Apr-20	20-Apr-20	99	$32,671.00
RE35910	DE01WB.IW.1185-1180 - Earthwork	2	21-Apr-20	22-Apr-20	99	$34,921.37
RE36300	DE01WB.IW.1185-1180 - Install S Barrier	2	23-Apr-20	27-Apr-20	99	$49,909.25



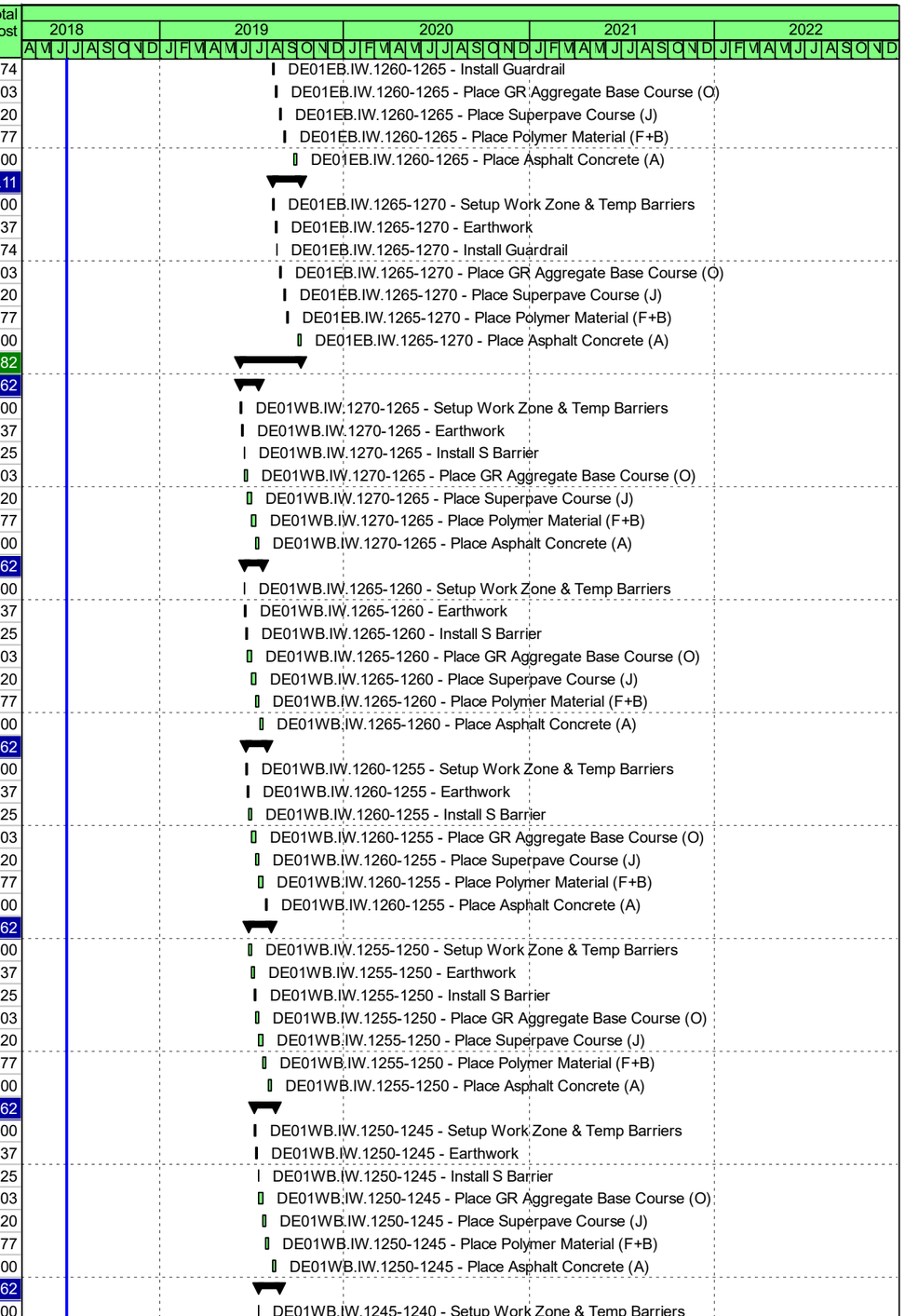
Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE36380	DE01WB.IW.1185-1180 - Place GR Aggregate Base Course (O)	4	28-Apr-20	01-May-20	99	$20,106.03
RE36600	DE01WB.IW.1185-1180 - Place Superpave Course (J)	4	04-May-20	07-May-20	99	$24,673.20
RE36780	DE01WB.IW.1185-1180 - Place Polymer Material (F+B)	4	08-May-20	13-May-20	99	$74,174.77
RE37040	DE01WB.IW.1185-1180 - Place Asphalt Concrete (A)	5	26-May-20	02-Jun-20	93	$0.00
DE01 - WB - Sta. 1180-1175 - Inside Widening		**30**	**23-Apr-20**	**09-Jun-20**	**93**	**$236,455.62**
RE36290	DE01WB.IW.1180-1175 - Setup Work Zone & Temp Barriers	2	23-Apr-20	27-Apr-20	100	$32,671.00
RE36370	DE01WB.IW.1180-1175 - Earthwork	2	28-Apr-20	29-Apr-20	100	$34,921.37
RE36770	DE01WB.IW.1180-1175 - Install S Barrier	2	30-Apr-20	01-May-20	100	$49,909.25
RE36840	DE01WB.IW.1180-1175 - Place GR Aggregate Base Course (O)	4	04-May-20	07-May-20	100	$20,106.03
RE37150	DE01WB.IW.1180-1175 - Place Superpave Course (J)	4	08-May-20	13-May-20	100	$24,673.20
RE37340	DE01WB.IW.1180-1175 - Place Polymer Material (F+B)	4	14-May-20	19-May-20	100	$74,174.77
RE37630	DE01WB.IW.1180-1175 - Place Asphalt Concrete (A)	5	03-Jun-20	09-Jun-20	93	$0.00
DE01 - WB - Sta. 1175-1170 - Inside Widening		**31**	**30-Apr-20**	**16-Jun-20**	**93**	**$236,455.62**
RE36790	DE01WB.IW.1175-1170 - Setup Work Zone & Temp Barriers	2	30-Apr-20	01-May-20	101	$32,671.00
RE36850	DE01WB.IW.1175-1170 - Earthwork	2	04-May-20	05-May-20	101	$34,921.37
RE37350	DE01WB.IW.1175-1170 - Install S Barrier	2	06-May-20	07-May-20	101	$49,909.25
RE37520	DE01WB.IW.1175-1170 - Place GR Aggregate Base Course (O)	4	08-May-20	13-May-20	101	$20,106.03
RE37720	DE01WB.IW.1175-1170 - Place Superpave Course (J)	4	14-May-20	19-May-20	101	$24,673.20
RE37930	DE01WB.IW.1175-1170 - Place Polymer Material (F+B)	4	20-May-20	27-May-20	101	$74,174.77
RE38170	DE01WB.IW.1175-1170 - Place Asphalt Concrete (A)	5	10-Jun-20	16-Jun-20	93	$0.00
DE01 - WB - Sta. 1170-1165 - Inside Widening		**32**	**06-May-20**	**23-Jun-20**	**93**	**$236,455.62**
RE37330	DE01WB.IW.1170-1165 - Setup Work Zone & Temp Barriers	2	06-May-20	07-May-20	102	$32,671.00
RE37510	DE01WB.IW.1170-1165 - Earthwork	2	08-May-20	11-May-20	102	$34,921.37
RE37910	DE01WB.IW.1170-1165 - Install S Barrier	2	12-May-20	13-May-20	102	$49,909.25
RE38040	DE01WB.IW.1170-1165 - Place GR Aggregate Base Course (O)	4	14-May-20	19-May-20	102	$20,106.03
RE38240	DE01WB.IW.1170-1165 - Place Superpave Course (J)	4	20-May-20	27-May-20	102	$24,673.20
RE38570	DE01WB.IW.1170-1165 - Place Polymer Material (F+B)	4	28-May-20	03-Jun-20	102	$74,174.77
RE38840	DE01WB.IW.1170-1165 - Place Asphalt Concrete (A)	5	17-Jun-20	23-Jun-20	93	$0.00
DE01 - WB - Sta. 1165-1160 - Inside Widening		**33**	**12-May-20**	**01-Jul-20**	**93**	**$236,455.62**
RE37920	DE01WB.IW.1165-1160 - Setup Work Zone & Temp Barriers	2	12-May-20	13-May-20	103	$32,671.00
RE38050	DE01WB.IW.1165-1160 - Earthwork	2	14-May-20	15-May-20	103	$34,921.37
RE38580	DE01WB.IW.1165-1160 - Install S Barrier	2	18-May-20	19-May-20	103	$49,909.25
RE38700	DE01WB.IW.1165-1160 - Place GR Aggregate Base Course (O)	4	20-May-20	27-May-20	103	$20,106.03
RE38900	DE01WB.IW.1165-1160 - Place Superpave Course (J)	4	28-May-20	03-Jun-20	103	$24,673.20
RE39170	DE01WB.IW.1165-1160 - Place Polymer Material (F+B)	4	04-Jun-20	09-Jun-20	103	$74,174.77
RE39430	DE01WB.IW.1165-1160 - Place Asphalt Concrete (A)	5	24-Jun-20	01-Jul-20	93	$0.00
3E - EB - Sta. 1215-1270		**73**	**11-Jun-19**	**08-Oct-19**	**106**	**$2,599,752.21**
DE01 - EB - Sta. 1215-1220 - Inside Widening		**23**	**11-Jun-19**	**17-Jul-19**	**106**	**$236,341.11**
RE34460	DE01EB.IW.1215-1220 - Setup Work Zone & Temp Barriers	2	11-Jun-19	12-Jun-19	106	$32,671.00
RE34610	DE01EB.IW.1215-1220 - Earthwork	2	13-Jun-19	14-Jun-19	106	$34,921.37
RE35110	DE01EB.IW.1215-1220 - Install Guardrail	2	17-Jun-19	18-Jun-19	106	$49,794.74
RE35220	DE01EB.IW.1215-1220 - Place GR Aggregate Base Course (O)	4	19-Jun-19	24-Jun-19	106	$20,106.03
RE35400	DE01EB.IW.1215-1220 - Place Superpave Course (J)	4	25-Jun-19	01-Jul-19	106	$24,673.20
RE35640	DE01EB.IW.1215-1220 - Place Polymer Material (F+B)	4	02-Jul-19	10-Jul-19	106	$74,174.77
RE35980	DE01EB.IW.1215-1220 - Place Asphalt Concrete (A)	5	11-Jul-19	17-Jul-19	106	$0.00
DE01 - EB - Sta. 1220-1225 - Inside Widening		**24**	**17-Jun-19**	**25-Jul-19**	**106**	**$236,341.11**
RE35120	DE01EB.IW.1220-1225 - Setup Work Zone & Temp Barriers	2	17-Jun-19	18-Jun-19	107	$32,671.00
RE35230	DE01EB.IW.1220-1225 - Earthwork	2	19-Jun-19	20-Jun-19	107	$34,921.37
RE35650	DE01EB.IW.1220-1225 - Install Guardrail	2	21-Jun-19	24-Jun-19	107	$49,794.74
RE35880	DE01EB.IW.1220-1225 - Place GR Aggregate Base Course (O)	4	25-Jun-19	01-Jul-19	107	$20,106.03
RE36100	DE01EB.IW.1220-1225 - Place Superpave Course (J)	4	02-Jul-19	10-Jul-19	107	$24,673.20
RE36250	DE01EB.IW.1220-1225 - Place Polymer Material (F+B)	4	11-Jul-19	16-Jul-19	107	$74,174.77
RE36510	DE01EB.IW.1220-1225 - Place Asphalt Concrete (A)	5	18-Jul-19	25-Jul-19	106	$0.00
DE01 - EB - Sta. 1225-1230 - Inside Widening		**25**	**21-Jun-19**	**02-Aug-19**	**106**	**$236,341.11**
RE35660	DE01EB.IW.1225-1230 - Setup Work Zone & Temp Barriers	2	21-Jun-19	24-Jun-19	108	$32,671.00
RE35890	DE01EB.IW.1225-1230 - Earthwork	2	25-Jun-19	26-Jun-19	108	$34,921.37



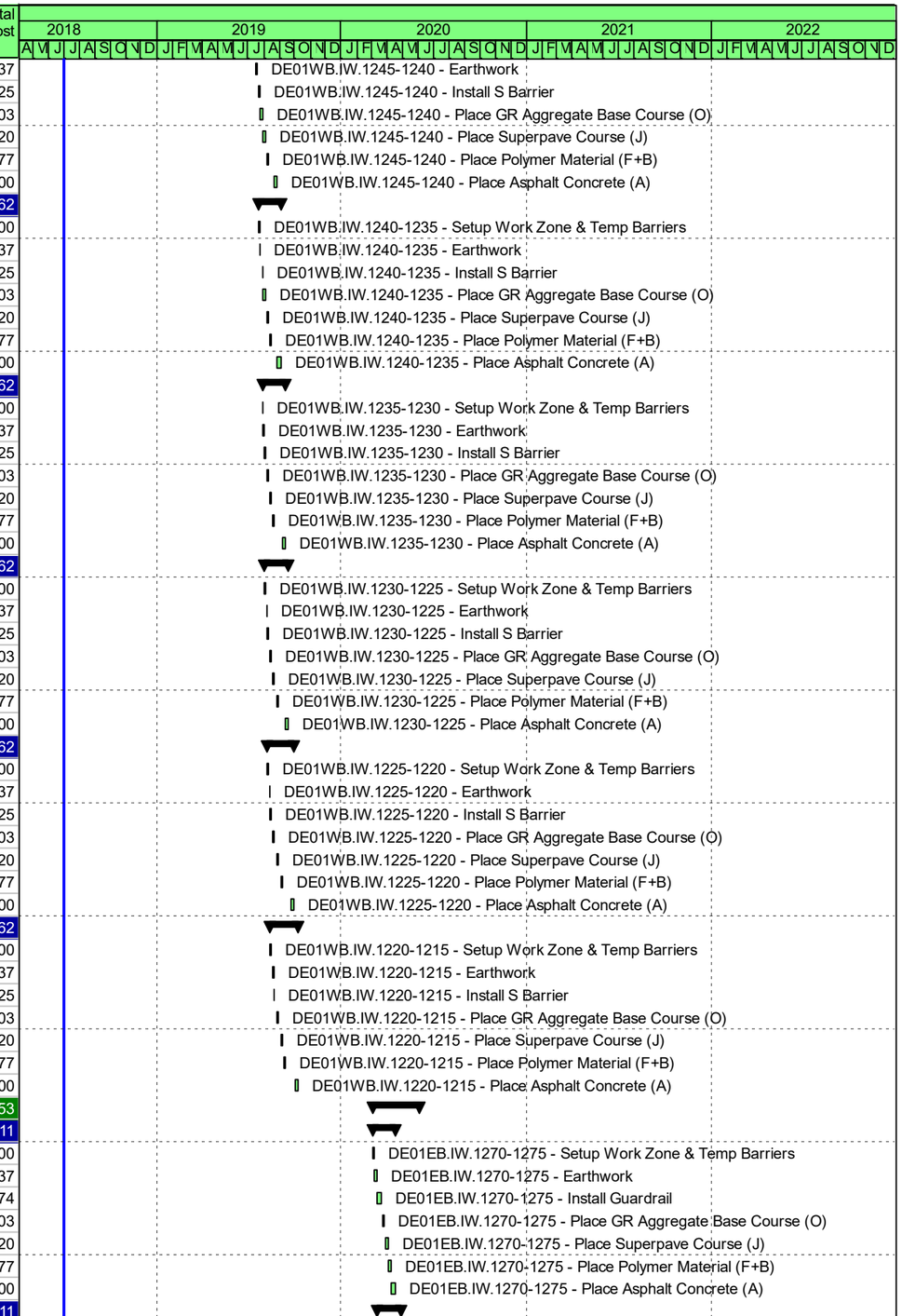
Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE36270	DE01EB.IW.1225-1230 - Install Guardrail	2	27-Jun-19	01-Jul-19	108	$49,794.74
RE36360	DE01EB.IW.1225-1230 - Place GR Aggregate Base Course (O)	4	02-Jul-19	10-Jul-19	108	$20,106.03
RE36590	DE01EB.IW.1225-1230 - Place Superpave Course (J)	4	11-Jul-19	16-Jul-19	108	$24,673.20
RE36750	DE01EB.IW.1225-1230 - Place Polymer Material (F+B)	4	17-Jul-19	23-Jul-19	108	$74,174.77
RE37030	DE01EB.IW.1225-1230 - Place Asphalt Concrete (A)	5	29-Jul-19	02-Aug-19	106	$0.00
DE01 - EB - Sta. 1230-1235 - Inside Widening		**26**	**27-Jun-19**	**09-Aug-19**	**106**	**$236,341.11**
RE36260	DE01EB.IW.1230-1235 - Setup Work Zone & Temp Barriers	2	27-Jun-19	01-Jul-19	109	$32,671.00
RE36350	DE01EB.IW.1230-1235 - Earthwork	2	02-Jul-19	08-Jul-19	109	$34,921.37
RE36740	DE01EB.IW.1230-1235 - Install Guardrail	2	09-Jul-19	10-Jul-19	109	$49,794.74
RE36820	DE01EB.IW.1230-1235 - Place GR Aggregate Base Course (O)	4	11-Jul-19	16-Jul-19	109	$20,106.03
RE37140	DE01EB.IW.1230-1235 - Place Superpave Course (J)	4	17-Jul-19	23-Jul-19	109	$24,673.20
RE37310	DE01EB.IW.1230-1235 - Place Polymer Material (F+B)	4	24-Jul-19	30-Jul-19	109	$74,174.77
RE37620	DE01EB.IW.1230-1235 - Place Asphalt Concrete (A)	5	05-Aug-19	09-Aug-19	106	$0.00
DE01 - EB - Sta. 1235-1240 - Inside Widening		**27**	**09-Jul-19**	**19-Aug-19**	**106**	**$236,341.11**
RE36760	DE01EB.IW.1235-1240 - Setup Work Zone & Temp Barriers	2	09-Jul-19	10-Jul-19	110	$32,671.00
RE36830	DE01EB.IW.1235-1240 - Earthwork	2	11-Jul-19	12-Jul-19	110	$34,921.37
RE37320	DE01EB.IW.1235-1240 - Install Guardrail	2	15-Jul-19	16-Jul-19	110	$49,794.74
RE37500	DE01EB.IW.1235-1240 - Place GR Aggregate Base Course (O)	4	17-Jul-19	23-Jul-19	110	$20,106.03
RE37710	DE01EB.IW.1235-1240 - Place Superpave Course (J)	4	24-Jul-19	30-Jul-19	110	$24,673.20
RE37900	DE01EB.IW.1235-1240 - Place Polymer Material (F+B)	4	31-Jul-19	05-Aug-19	110	$74,174.77
RE38160	DE01EB.IW.1235-1240 - Place Asphalt Concrete (A)	5	12-Aug-19	19-Aug-19	106	$0.00
DE01 - EB - Sta. 1240-1245 - Inside Widening		**28**	**15-Jul-19**	**27-Aug-19**	**106**	**$236,341.11**
RE37300	DE01EB.IW.1240-1245 - Setup Work Zone & Temp Barriers	2	15-Jul-19	16-Jul-19	111	$32,671.00
RE37490	DE01EB.IW.1240-1245 - Earthwork	2	17-Jul-19	18-Jul-19	111	$34,921.37
RE37880	DE01EB.IW.1240-1245 - Install Guardrail	2	22-Jul-19	23-Jul-19	111	$49,794.74
RE38020	DE01EB.IW.1240-1245 - Place GR Aggregate Base Course (O)	4	24-Jul-19	30-Jul-19	111	$20,106.03
RE38230	DE01EB.IW.1240-1245 - Place Superpave Course (J)	4	31-Jul-19	05-Aug-19	111	$24,673.20
RE38540	DE01EB.IW.1240-1245 - Place Polymer Material (F+B)	4	06-Aug-19	09-Aug-19	111	$74,174.77
RE38830	DE01EB.IW.1240-1245 - Place Asphalt Concrete (A)	5	20-Aug-19	27-Aug-19	106	$0.00
DE01 - EB - Sta. 1245-1250 - Inside Widening		**29**	**22-Jul-19**	**05-Sep-19**	**106**	**$236,341.11**
RE37890	DE01EB.IW.1245-1250 - Setup Work Zone & Temp Barriers	2	22-Jul-19	23-Jul-19	112	$32,671.00
RE38030	DE01EB.IW.1245-1250 - Earthwork	2	24-Jul-19	25-Jul-19	112	$34,921.37
RE38550	DE01EB.IW.1245-1250 - Install Guardrail	2	29-Jul-19	30-Jul-19	112	$49,794.74
RE38680	DE01EB.IW.1245-1250 - Place GR Aggregate Base Course (O)	4	31-Jul-19	05-Aug-19	112	$20,106.03
RE38890	DE01EB.IW.1245-1250 - Place Superpave Course (J)	4	06-Aug-19	09-Aug-19	112	$24,673.20
RE39140	DE01EB.IW.1245-1250 - Place Polymer Material (F+B)	4	12-Aug-19	15-Aug-19	112	$74,174.77
RE39420	DE01EB.IW.1245-1250 - Place Asphalt Concrete (A)	5	28-Aug-19	05-Sep-19	106	$0.00
DE01 - EB - Sta. 1250-1255 - Inside Widening		**30**	**29-Jul-19**	**12-Sep-19**	**106**	**$236,341.11**
RE38560	DE01EB.IW.1250-1255 - Setup Work Zone & Temp Barriers	2	29-Jul-19	30-Jul-19	113	$32,671.00
RE38690	DE01EB.IW.1250-1255 - Earthwork	2	31-Jul-19	01-Aug-19	113	$34,921.37
RE39150	DE01EB.IW.1250-1255 - Install Guardrail	2	02-Aug-19	05-Aug-19	113	$49,794.74
RE39260	DE01EB.IW.1250-1255 - Place GR Aggregate Base Course (O)	4	06-Aug-19	09-Aug-19	113	$20,106.03
RE39530	DE01EB.IW.1250-1255 - Place Superpave Course (J)	4	12-Aug-19	15-Aug-19	113	$24,673.20
RE39710	DE01EB.IW.1250-1255 - Place Polymer Material (F+B)	4	19-Aug-19	22-Aug-19	113	$74,174.77
RE39930	DE01EB.IW.1250-1255 - Place Asphalt Concrete (A)	5	06-Sep-19	12-Sep-19	106	$0.00
DE01 - EB - Sta. 1255-1260 - Inside Widening		**31**	**02-Aug-19**	**19-Sep-19**	**106**	**$236,341.11**
RE39130	DE01EB.IW.1255-1260 - Setup Work Zone & Temp Barriers	2	02-Aug-19	05-Aug-19	114	$32,671.00
RE39250	DE01EB.IW.1255-1260 - Earthwork	2	06-Aug-19	07-Aug-19	114	$34,921.37
RE39700	DE01EB.IW.1255-1260 - Install Guardrail	2	08-Aug-19	09-Aug-19	114	$49,794.74
RE39810	DE01EB.IW.1255-1260 - Place GR Aggregate Base Course (O)	4	12-Aug-19	15-Aug-19	114	$20,106.03
RE40000	DE01EB.IW.1255-1260 - Place Superpave Course (J)	4	19-Aug-19	22-Aug-19	114	$24,673.20
RE40130	DE01EB.IW.1255-1260 - Place Polymer Material (F+B)	4	26-Aug-19	29-Aug-19	114	$74,174.77
RE40350	DE01EB.IW.1255-1260 - Place Asphalt Concrete (A)	5	13-Sep-19	19-Sep-19	106	$0.00
DE01 - EB - Sta. 1260-1265 - Inside Widening		**32**	**08-Aug-19**	**30-Sep-19**	**106**	**$236,341.11**
RE39720	DE01EB.IW.1260-1265 - Setup Work Zone & Temp Barriers	2	08-Aug-19	09-Aug-19	115	$32,671.00
RE39820	DE01EB.IW.1260-1265 - Earthwork	2	12-Aug-19	13-Aug-19	115	$34,921.37



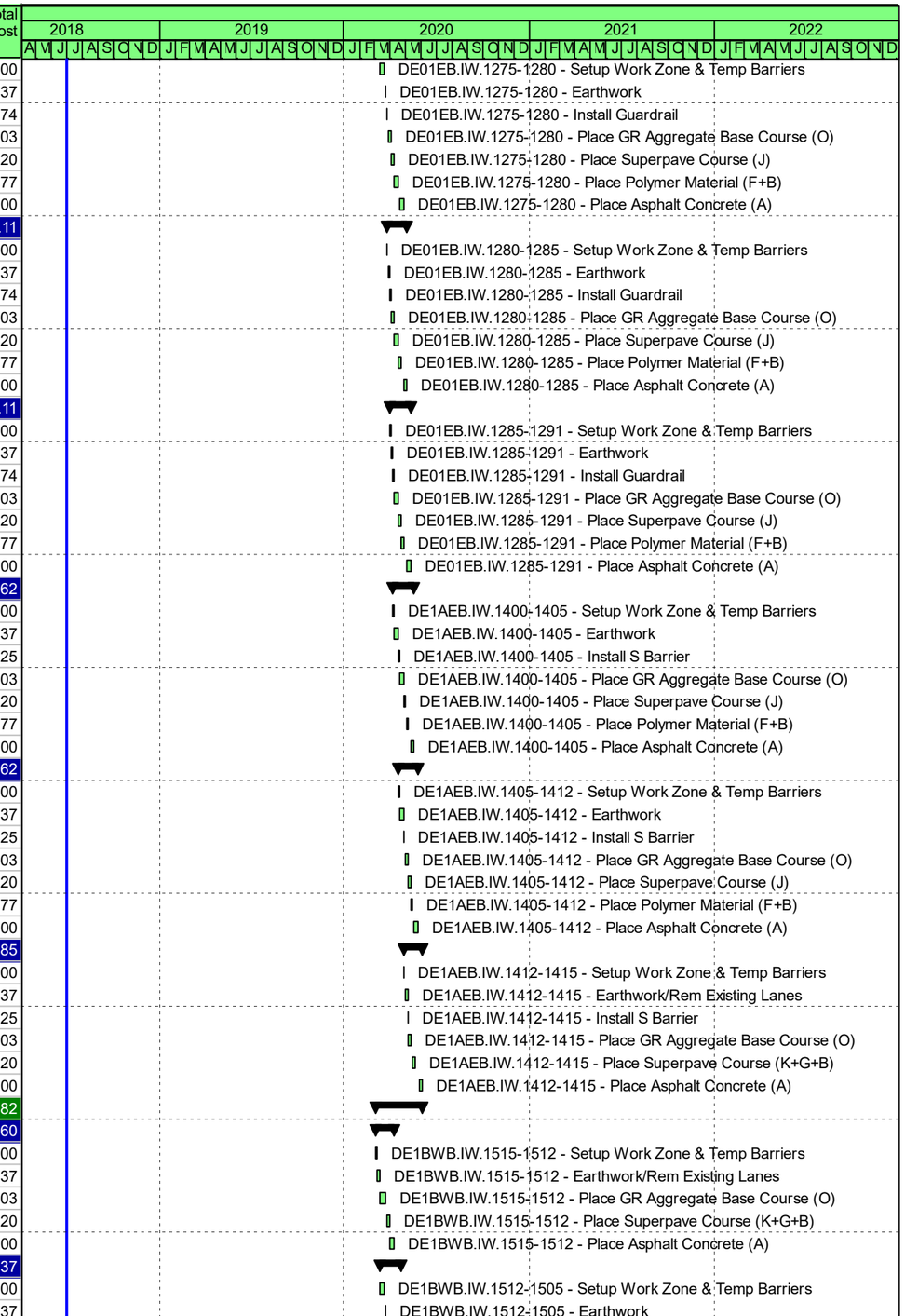
Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE40140	DE01EB.IW.1260-1265 - Install Guardrail	2	14-Aug-19	15-Aug-19	115	$49,794.74
RE40240	DE01EB.IW.1260-1265 - Place GR Aggregate Base Course (O)	4	19-Aug-19	22-Aug-19	115	$20,106.03
RE40410	DE01EB.IW.1260-1265 - Place Superpave Course (J)	4	26-Aug-19	29-Aug-19	115	$24,673.20
RE40570	DE01EB.IW.1260-1265 - Place Polymer Material (F+B)	4	03-Sep-19	06-Sep-19	115	$74,174.77
RE40830	DE01EB.IW.1260-1265 - Place Asphalt Concrete (A)	5	23-Sep-19	30-Sep-19	106	$0.00
DE01 - EB - Sta. 1265-1270 - Inside Widening		**33**	**14-Aug-19**	**08-Oct-19**	**106**	**$236,341.11**
RE40150	DE01EB.IW.1265-1270 - Setup Work Zone & Temp Barriers	2	14-Aug-19	15-Aug-19	116	$32,671.00
RE40250	DE01EB.IW.1265-1270 - Earthwork	2	19-Aug-19	20-Aug-19	116	$34,921.37
RE40580	DE01EB.IW.1265-1270 - Install Guardrail	2	21-Aug-19	22-Aug-19	116	$49,794.74
RE40640	DE01EB.IW.1265-1270 - Place GR Aggregate Base Course (O)	4	26-Aug-19	29-Aug-19	116	$20,106.03
RE40890	DE01EB.IW.1265-1270 - Place Superpave Course (J)	4	03-Sep-19	06-Sep-19	116	$24,673.20
RE41040	DE01EB.IW.1265-1270 - Place Polymer Material (F+B)	4	09-Sep-19	12-Sep-19	116	$74,174.77
RE41260	DE01EB.IW.1265-1270 - Place Asphalt Concrete (A)	5	01-Oct-19	08-Oct-19	106	$0.00
3W - WB - Sta. 1270-1215		**73**	**11-Jun-19**	**08-Oct-19**	**106**	**$2,601,011.82**
DE01 - WB - Sta. 1270-1265 - Inside Widening		**23**	**11-Jun-19**	**17-Jul-19**	**106**	**$236,455.62**
RE22000	DE01WB.IW.1270-1265 - Setup Work Zone & Temp Barriers	2	11-Jun-19	12-Jun-19	106	$32,671.00
RE22180	DE01WB.IW.1270-1265 - Earthwork	2	13-Jun-19	14-Jun-19	106	$34,921.37
RE23110	DE01WB.IW.1270-1265 - Install S Barrier	2	17-Jun-19	18-Jun-19	106	$49,909.25
RE23220	DE01WB.IW.1270-1265 - Place GR Aggregate Base Course (O)	4	19-Jun-19	24-Jun-19	106	$20,106.03
RE23590	DE01WB.IW.1270-1265 - Place Superpave Course (J)	4	25-Jun-19	01-Jul-19	106	$24,673.20
RE24060	DE01WB.IW.1270-1265 - Place Polymer Material (F+B)	4	02-Jul-19	10-Jul-19	106	$74,174.77
RE24400	DE01WB.IW.1270-1265 - Place Asphalt Concrete (A)	5	11-Jul-19	17-Jul-19	106	$0.00
DE01 - WB - Sta. 1265-1260 - Inside Widening		**24**	**17-Jun-19**	**25-Jul-19**	**106**	**$236,455.62**
RE23120	DE01WB.IW.1265-1260 - Setup Work Zone & Temp Barriers	2	17-Jun-19	18-Jun-19	107	$32,671.00
RE23230	DE01WB.IW.1265-1260 - Earthwork	2	19-Jun-19	20-Jun-19	107	$34,921.37
RE24070	DE01WB.IW.1265-1260 - Install S Barrier	2	21-Jun-19	24-Jun-19	107	$49,909.25
RE24280	DE01WB.IW.1265-1260 - Place GR Aggregate Base Course (O)	4	25-Jun-19	01-Jul-19	107	$20,106.03
RE24560	DE01WB.IW.1265-1260 - Place Superpave Course (J)	4	02-Jul-19	10-Jul-19	107	$24,673.20
RE25030	DE01WB.IW.1265-1260 - Place Polymer Material (F+B)	4	11-Jul-19	16-Jul-19	107	$74,174.77
RE25300	DE01WB.IW.1265-1260 - Place Asphalt Concrete (A)	5	18-Jul-19	25-Jul-19	106	$0.00
DE01 - WB - Sta. 1260-1255 - Inside Widening		**25**	**21-Jun-19**	**02-Aug-19**	**106**	**$236,455.62**
RE24050	DE01WB.IW.1260-1255 - Setup Work Zone & Temp Barriers	2	21-Jun-19	24-Jun-19	108	$32,671.00
RE24270	DE01WB.IW.1260-1255 - Earthwork	2	25-Jun-19	26-Jun-19	108	$34,921.37
RE25020	DE01WB.IW.1260-1255 - Install S Barrier	2	27-Jun-19	01-Jul-19	108	$49,909.25
RE25150	DE01WB.IW.1260-1255 - Place GR Aggregate Base Course (O)	4	02-Jul-19	10-Jul-19	108	$20,106.03
RE25410	DE01WB.IW.1260-1255 - Place Superpave Course (J)	4	11-Jul-19	16-Jul-19	108	$24,673.20
RE26190	DE01WB.IW.1260-1255 - Place Polymer Material (F+B)	4	17-Jul-19	23-Jul-19	108	$74,174.77
RE26530	DE01WB.IW.1260-1255 - Place Asphalt Concrete (A)	5	29-Jul-19	02-Aug-19	106	$0.00
DE01 - WB - Sta. 1255-1250 - Inside Widening		**26**	**27-Jun-19**	**09-Aug-19**	**106**	**$236,455.62**
RE25010	DE01WB.IW.1255-1250 - Setup Work Zone & Temp Barriers	2	27-Jun-19	01-Jul-19	109	$32,671.00
RE25140	DE01WB.IW.1255-1250 - Earthwork	2	02-Jul-19	08-Jul-19	109	$34,921.37
RE26170	DE01WB.IW.1255-1250 - Install S Barrier	2	09-Jul-19	10-Jul-19	109	$49,909.25
RE26310	DE01WB.IW.1255-1250 - Place GR Aggregate Base Course (O)	4	11-Jul-19	16-Jul-19	109	$20,106.03
RE26590	DE01WB.IW.1255-1250 - Place Superpave Course (J)	4	17-Jul-19	23-Jul-19	109	$24,673.20
RE26870	DE01WB.IW.1255-1250 - Place Polymer Material (F+B)	4	24-Jul-19	30-Jul-19	109	$74,174.77
RE27100	DE01WB.IW.1255-1250 - Place Asphalt Concrete (A)	5	05-Aug-19	09-Aug-19	106	$0.00
DE01 - WB - Sta. 1250-1245 - Inside Widening		**27**	**09-Jul-19**	**19-Aug-19**	**106**	**$236,455.62**
RE26180	DE01WB.IW.1250-1245 - Setup Work Zone & Temp Barriers	2	09-Jul-19	10-Jul-19	110	$32,671.00
RE26320	DE01WB.IW.1250-1245 - Earthwork	2	11-Jul-19	12-Jul-19	110	$34,921.37
RE26880	DE01WB.IW.1250-1245 - Install S Barrier	2	15-Jul-19	16-Jul-19	110	$49,909.25
RE27050	DE01WB.IW.1250-1245 - Place GR Aggregate Base Course (O)	4	17-Jul-19	23-Jul-19	110	$20,106.03
RE27190	DE01WB.IW.1250-1245 - Place Superpave Course (J)	4	24-Jul-19	30-Jul-19	110	$24,673.20
RE27350	DE01WB.IW.1250-1245 - Place Polymer Material (F+B)	4	31-Jul-19	05-Aug-19	110	$74,174.77
RE27740	DE01WB.IW.1250-1245 - Place Asphalt Concrete (A)	5	12-Aug-19	19-Aug-19	106	$0.00
DE01 - WB - Sta. 1245-1240 - Inside Widening		**28**	**15-Jul-19**	**27-Aug-19**	**106**	**$236,455.62**
RE26890	DE01WB.IW.1245-1240 - Setup Work Zone & Temp Barriers	2	15-Jul-19	16-Jul-19	111	$32,671.00



Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE27060	DE01WB.IW.1245-1240 - Earthwork	2	17-Jul-19	18-Jul-19	111	$34,921.37
RE27360	DE01WB.IW.1245-1240 - Install S Barrier	2	22-Jul-19	23-Jul-19	111	$49,909.25
RE27600	DE01WB.IW.1245-1240 - Place GR Aggregate Base Course (O)	4	24-Jul-19	30-Jul-19	111	$20,106.03
RE27810	DE01WB.IW.1245-1240 - Place Superpave Course (J)	4	31-Jul-19	05-Aug-19	111	$24,673.20
RE28170	DE01WB.IW.1245-1240 - Place Polymer Material (F+B)	4	06-Aug-19	09-Aug-19	111	$74,174.77
RE28640	DE01WB.IW.1245-1240 - Place Asphalt Concrete (A)	5	20-Aug-19	27-Aug-19	106	$0.00
DE01 - WB - Sta. 1240-1235 - Inside Widening		**29**	**22-Jul-19**	**05-Sep-19**	**106**	**$236,455.62**
RE27370	DE01WB.IW.1240-1235 - Setup Work Zone & Temp Barriers	2	22-Jul-19	23-Jul-19	112	$32,671.00
RE27610	DE01WB.IW.1240-1235 - Earthwork	2	24-Jul-19	25-Jul-19	112	$34,921.37
RE28180	DE01WB.IW.1240-1235 - Install S Barrier	2	29-Jul-19	30-Jul-19	112	$49,909.25
RE28350	DE01WB.IW.1240-1235 - Place GR Aggregate Base Course (O)	4	31-Jul-19	05-Aug-19	112	$20,106.03
RE28730	DE01WB.IW.1240-1235 - Place Superpave Course (J)	4	06-Aug-19	09-Aug-19	112	$24,673.20
RE29000	DE01WB.IW.1240-1235 - Place Polymer Material (F+B)	4	12-Aug-19	15-Aug-19	112	$74,174.77
RE29360	DE01WB.IW.1240-1235 - Place Asphalt Concrete (A)	5	28-Aug-19	05-Sep-19	106	$0.00
DE01 - WB - Sta. 1235-1230 - Inside Widening		**30**	**29-Jul-19**	**12-Sep-19**	**106**	**$236,455.62**
RE28190	DE01WB.IW.1235-1230 - Setup Work Zone & Temp Barriers	2	29-Jul-19	30-Jul-19	113	$32,671.00
RE28360	DE01WB.IW.1235-1230 - Earthwork	2	31-Jul-19	01-Aug-19	113	$34,921.37
RE29010	DE01WB.IW.1235-1230 - Install S Barrier	2	02-Aug-19	05-Aug-19	113	$49,909.25
RE29210	DE01WB.IW.1235-1230 - Place GR Aggregate Base Course (O)	4	06-Aug-19	09-Aug-19	113	$20,106.03
RE29440	DE01WB.IW.1235-1230 - Place Superpave Course (J)	4	12-Aug-19	15-Aug-19	113	$24,673.20
RE29870	DE01WB.IW.1235-1230 - Place Polymer Material (F+B)	4	19-Aug-19	22-Aug-19	113	$74,174.77
RE30030	DE01WB.IW.1235-1230 - Place Asphalt Concrete (A)	5	06-Sep-19	12-Sep-19	106	$0.00
DE01 - WB - Sta. 1230-1225 - Inside Widening		**31**	**02-Aug-19**	**19-Sep-19**	**106**	**$236,455.62**
RE28990	DE01WB.IW.1230-1225 - Setup Work Zone & Temp Barriers	2	02-Aug-19	05-Aug-19	114	$32,671.00
RE29200	DE01WB.IW.1230-1225 - Earthwork	2	06-Aug-19	07-Aug-19	114	$34,921.37
RE29850	DE01WB.IW.1230-1225 - Install S Barrier	2	08-Aug-19	09-Aug-19	114	$49,909.25
RE29980	DE01WB.IW.1230-1225 - Place GR Aggregate Base Course (O)	4	12-Aug-19	15-Aug-19	114	$20,106.03
RE30200	DE01WB.IW.1230-1225 - Place Superpave Course (J)	4	19-Aug-19	22-Aug-19	114	$24,673.20
RE30480	DE01WB.IW.1230-1225 - Place Polymer Material (F+B)	4	26-Aug-19	29-Aug-19	114	$74,174.77
RE30820	DE01WB.IW.1230-1225 - Place Asphalt Concrete (A)	5	13-Sep-19	19-Sep-19	106	$0.00
DE01 - WB - Sta. 1225-1220 - Inside Widening		**32**	**08-Aug-19**	**30-Sep-19**	**106**	**$236,455.62**
RE29860	DE01WB.IW.1225-1220 - Setup Work Zone & Temp Barriers	2	08-Aug-19	09-Aug-19	115	$32,671.00
RE29990	DE01WB.IW.1225-1220 - Earthwork	2	12-Aug-19	13-Aug-19	115	$34,921.37
RE30490	DE01WB.IW.1225-1220 - Install S Barrier	2	14-Aug-19	15-Aug-19	115	$49,909.25
RE30610	DE01WB.IW.1225-1220 - Place GR Aggregate Base Course (O)	4	19-Aug-19	22-Aug-19	115	$20,106.03
RE31110	DE01WB.IW.1225-1220 - Place Superpave Course (J)	4	26-Aug-19	29-Aug-19	115	$24,673.20
RE31310	DE01WB.IW.1225-1220 - Place Polymer Material (F+B)	4	03-Sep-19	06-Sep-19	115	$74,174.77
RE31710	DE01WB.IW.1225-1220 - Place Asphalt Concrete (A)	5	23-Sep-19	30-Sep-19	106	$0.00
DE01 - WB - Sta. 1220-1215 - Inside Widening		**33**	**14-Aug-19**	**08-Oct-19**	**106**	**$236,455.62**
RE30500	DE01WB.IW.1220-1215 - Setup Work Zone & Temp Barriers	2	14-Aug-19	15-Aug-19	116	$32,671.00
RE30620	DE01WB.IW.1220-1215 - Earthwork	2	19-Aug-19	20-Aug-19	116	$34,921.37
RE31320	DE01WB.IW.1220-1215 - Install S Barrier	2	21-Aug-19	22-Aug-19	116	$49,909.25
RE31440	DE01WB.IW.1220-1215 - Place GR Aggregate Base Course (O)	4	26-Aug-19	29-Aug-19	116	$20,106.03
RE31760	DE01WB.IW.1220-1215 - Place Superpave Course (J)	4	03-Sep-19	06-Sep-19	116	$24,673.20
RE32170	DE01WB.IW.1220-1215 - Place Polymer Material (F+B)	4	09-Sep-19	12-Sep-19	116	$74,174.77
RE32570	DE01WB.IW.1220-1215 - Place Asphalt Concrete (A)	5	01-Oct-19	08-Oct-19	106	$0.00
4E - EB - Sta. 1270-1415		**55**	**04-Mar-20**	**04-Jun-20**	**111**	**$1,580,556.53**
DE01 - EB - Sta. 1270-1275 - Inside Widening		**25**	**04-Mar-20**	**17-Apr-20**	**111**	**$236,341.11**
RE40590	DE01EB.IW.1270-1275 - Setup Work Zone & Temp Barriers	2	04-Mar-20	05-Mar-20	24	$32,671.00
RE40650	DE01EB.IW.1270-1275 - Earthwork	4	06-Mar-20	11-Mar-20	24	$34,921.37
RE41050	DE01EB.IW.1270-1275 - Install Guardrail	2	12-Mar-20	19-Mar-20	111	$49,794.74
RE41130	DE01EB.IW.1270-1275 - Place GR Aggregate Base Course (O)	4	23-Mar-20	26-Mar-20	111	$20,106.03
RE41350	DE01EB.IW.1270-1275 - Place Superpave Course (J)	4	30-Mar-20	02-Apr-20	111	$24,673.20
RE41470	DE01EB.IW.1270-1275 - Place Polymer Material (F+B)	4	03-Apr-20	08-Apr-20	111	$74,174.77
RE41700	DE01EB.IW.1270-1275 - Place Asphalt Concrete (A)	5	09-Apr-20	17-Apr-20	111	$0.00
DE01 - EB - Sta. 1275-1280 - Inside Widening		**24**	**12-Mar-20**	**27-Apr-20**	**111**	**$236,341.11**



Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE41060	DE01EB.IW.1275-1280 - Setup Work Zone & Temp Barriers	2	12-Mar-20	19-Mar-20	24	$32,671.00
RE41140	DE01EB.IW.1275-1280 - Earthwork	2	23-Mar-20	24-Mar-20	24	$34,921.37
RE41480	DE01EB.IW.1275-1280 - Install Guardrail	2	25-Mar-20	26-Mar-20	112	$49,794.74
RE41600	DE01EB.IW.1275-1280 - Place GR Aggregate Base Course (O)	4	30-Mar-20	02-Apr-20	112	$20,106.03
RE41770	DE01EB.IW.1275-1280 - Place Superpave Course (J)	4	03-Apr-20	08-Apr-20	112	$24,673.20
RE41950	DE01EB.IW.1275-1280 - Place Polymer Material (F+B)	4	09-Apr-20	16-Apr-20	112	$74,174.77
RE42180	DE01EB.IW.1275-1280 - Place Asphalt Concrete (A)	5	20-Apr-20	27-Apr-20	111	$0.00
DE01 - EB - Sta. 1280-1285 - Inside Widening		**25**	**25-Mar-20**	**04-May-20**	**111**	**$236,341.11**
RE41490	DE01EB.IW.1280-1285 - Setup Work Zone & Temp Barriers	2	25-Mar-20	26-Mar-20	24	$32,671.00
RE41610	DE01EB.IW.1280-1285 - Earthwork	2	30-Mar-20	31-Mar-20	24	$34,921.37
RE41960	DE01EB.IW.1280-1285 - Install Guardrail	2	01-Apr-20	02-Apr-20	113	$49,794.74
RE42050	DE01EB.IW.1280-1285 - Place GR Aggregate Base Course (O)	4	03-Apr-20	08-Apr-20	113	$20,106.03
RE42240	DE01EB.IW.1280-1285 - Place Superpave Course (J)	4	09-Apr-20	16-Apr-20	113	$24,673.20
RE42410	DE01EB.IW.1280-1285 - Place Polymer Material (F+B)	4	17-Apr-20	22-Apr-20	113	$74,174.77
RE42600	DE01EB.IW.1280-1285 - Place Asphalt Concrete (A)	5	28-Apr-20	04-May-20	111	$0.00
DE01 - EB - Sta. 1285-1291 - Inside Widening		**26**	**01-Apr-20**	**11-May-20**	**111**	**$236,341.11**
RE41970	DE01EB.IW.1285-1291 - Setup Work Zone & Temp Barriers	2	01-Apr-20	02-Apr-20	24	$32,671.00
RE42060	DE01EB.IW.1285-1291 - Earthwork	2	03-Apr-20	06-Apr-20	24	$34,921.37
RE42420	DE01EB.IW.1285-1291 - Install Guardrail	2	07-Apr-20	08-Apr-20	114	$49,794.74
RE42500	DE01EB.IW.1285-1291 - Place GR Aggregate Base Course (O)	4	09-Apr-20	16-Apr-20	114	$20,106.03
RE42680	DE01EB.IW.1285-1291 - Place Superpave Course (J)	4	17-Apr-20	22-Apr-20	114	$24,673.20
RE42790	DE01EB.IW.1285-1291 - Place Polymer Material (F+B)	4	23-Apr-20	29-Apr-20	114	$74,174.77
RE42980	DE01EB.IW.1285-1291 - Place Asphalt Concrete (A)	5	05-May-20	11-May-20	111	$0.00
DE1A - EB - Sta. 1400-1405 - Inside Widening		**27**	**07-Apr-20**	**18-May-20**	**111**	**$236,455.62**
RE42430	DE1AEB.IW.1400-1405 - Setup Work Zone & Temp Barriers	2	07-Apr-20	08-Apr-20	24	$32,671.00
RE42510	DE1AEB.IW.1400-1405 - Earthwork	4	09-Apr-20	16-Apr-20	24	$34,921.37
RE42800	DE1AEB.IW.1400-1405 - Install S Barrier	2	17-Apr-20	20-Apr-20	113	$49,909.25
RE42900	DE1AEB.IW.1400-1405 - Place GR Aggregate Base Course (O)	4	21-Apr-20	27-Apr-20	113	$20,106.03
RE43040	DE1AEB.IW.1400-1405 - Place Superpave Course (J)	4	28-Apr-20	01-May-20	113	$24,673.20
RE43150	DE1AEB.IW.1400-1405 - Place Polymer Material (F+B)	4	04-May-20	07-May-20	113	$74,174.77
RE43360	DE1AEB.IW.1400-1405 - Place Asphalt Concrete (A)	5	12-May-20	18-May-20	111	$0.00
DE1A - EB - Sta. 1405-1412 - Inside Widening		**26**	**17-Apr-20**	**27-May-20**	**111**	**$236,455.62**
RE42810	DE1AEB.IW.1405-1412 - Setup Work Zone & Temp Barriers	2	17-Apr-20	20-Apr-20	24	$32,671.00
RE42910	DE1AEB.IW.1405-1412 - Earthwork	4	21-Apr-20	27-Apr-20	24	$34,921.37
RE43160	DE1AEB.IW.1405-1412 - Install S Barrier	2	28-Apr-20	29-Apr-20	112	$49,909.25
RE43240	DE1AEB.IW.1405-1412 - Place GR Aggregate Base Course (O)	4	30-Apr-20	05-May-20	112	$20,106.03
RE43390	DE1AEB.IW.1405-1412 - Place Superpave Course (J)	4	06-May-20	11-May-20	112	$24,673.20
RE43510	DE1AEB.IW.1405-1412 - Place Polymer Material (F+B)	4	12-May-20	15-May-20	112	$74,174.77
RE43640	DE1AEB.IW.1405-1412 - Place Asphalt Concrete (A)	5	19-May-20	27-May-20	111	$0.00
DE1A - EB - Sta. 1412-1415 - Inside Widening		**25**	**28-Apr-20**	**04-Jun-20**	**111**	**$162,280.85**
RE43170	DE1AEB.IW.1412-1415 - Setup Work Zone & Temp Barriers	2	28-Apr-20	29-Apr-20	24	$32,671.00
RE43250	DE1AEB.IW.1412-1415 - Earthwork/Rem Existing Lanes	4	30-Apr-20	05-May-20	24	$34,921.37
RE43520	DE1AEB.IW.1412-1415 - Install S Barrier	2	06-May-20	07-May-20	115	$49,909.25
RE43560	DE1AEB.IW.1412-1415 - Place GR Aggregate Base Course (O)	4	08-May-20	13-May-20	115	$20,106.03
RE43690	DE1AEB.IW.1412-1415 - Place Superpave Course (K+G+B)	4	14-May-20	19-May-20	115	$24,673.20
RE43770	DE1AEB.IW.1412-1415 - Place Asphalt Concrete (A)	5	28-May-20	04-Jun-20	111	$0.00
4W - WB - Sta. 1515-1270		**55**	**04-Mar-20**	**04-Jun-20**	**111**	**$1,431,286.82**
DE1B - WB - Sta. 1515-1512 - Inside Widening		**19**	**04-Mar-20**	**07-Apr-20**	**117**	**$112,371.60**
RE13100	DE1BWB.IW.1515-1512 - Setup Work Zone & Temp Barriers	2	04-Mar-20	05-Mar-20	111	$32,671.00
RE13560	DE1BWB.IW.1515-1512 - Earthwork/Rem Existing Lanes	4	06-Mar-20	11-Mar-20	111	$34,921.37
RE14910	DE1BWB.IW.1515-1512 - Place GR Aggregate Base Course (O)	4	12-Mar-20	24-Mar-20	117	$20,106.03
RE15400	DE1BWB.IW.1515-1512 - Place Superpave Course (K+G+B)	4	25-Mar-20	31-Mar-20	117	$24,673.20
RE15960	DE1BWB.IW.1515-1512 - Place Asphalt Concrete (A)	5	01-Apr-20	07-Apr-20	117	$0.00
DE1B - WB - Sta. 1512-1505 - Inside Widening		**21**	**12-Mar-20**	**21-Apr-20**	**114**	**$186,546.37**
RE14900	DE1BWB.IW.1512-1505 - Setup Work Zone & Temp Barriers	2	12-Mar-20	19-Mar-20	111	$32,671.00
RE15090	DE1BWB.IW.1512-1505 - Earthwork	2	23-Mar-20	24-Mar-20	111	$34,921.37



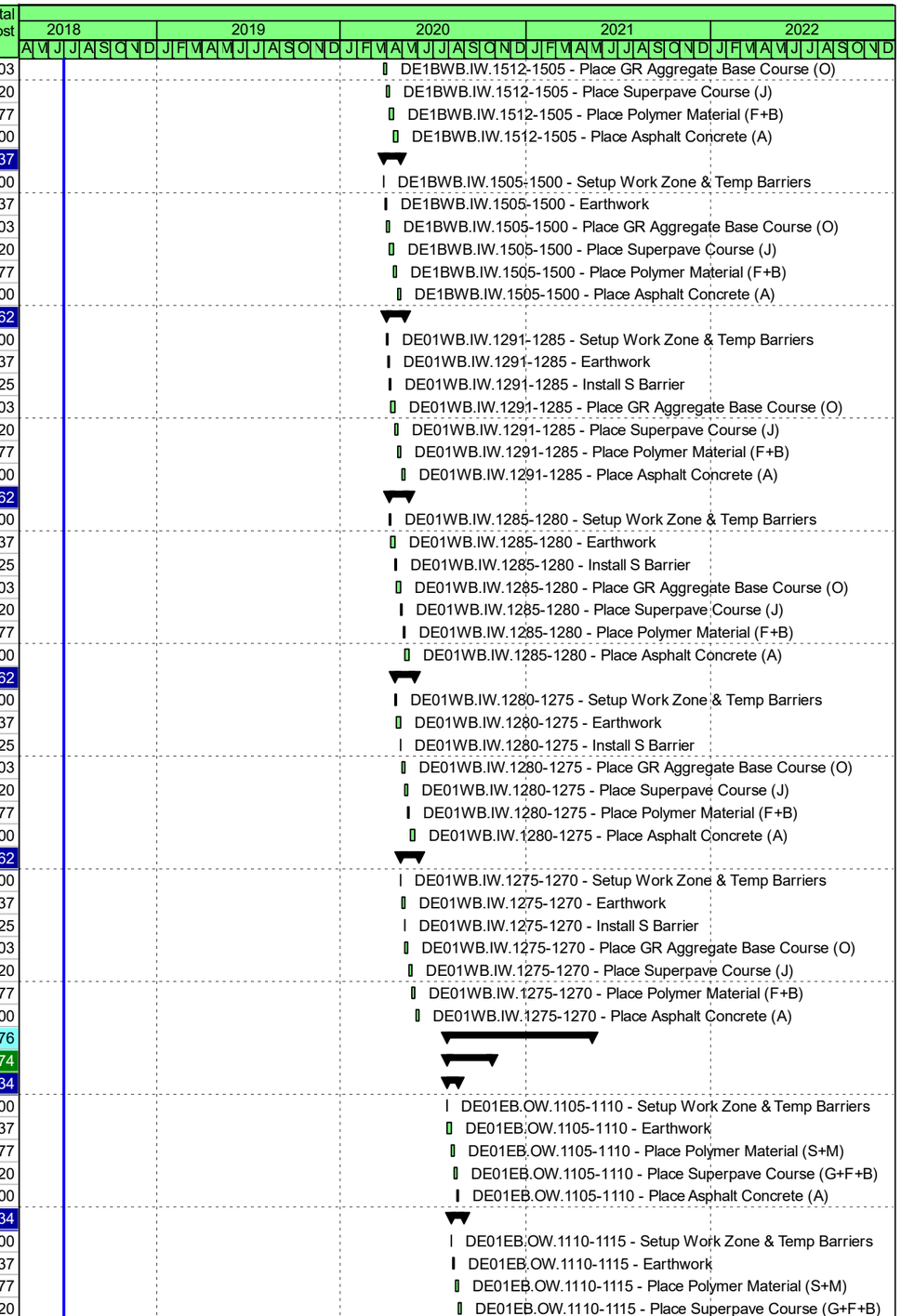
DRAGADOS USA

Project ID: PI-BLS21-R
Data Date: 01-Jul-18
Run Date: 27-Jun-18

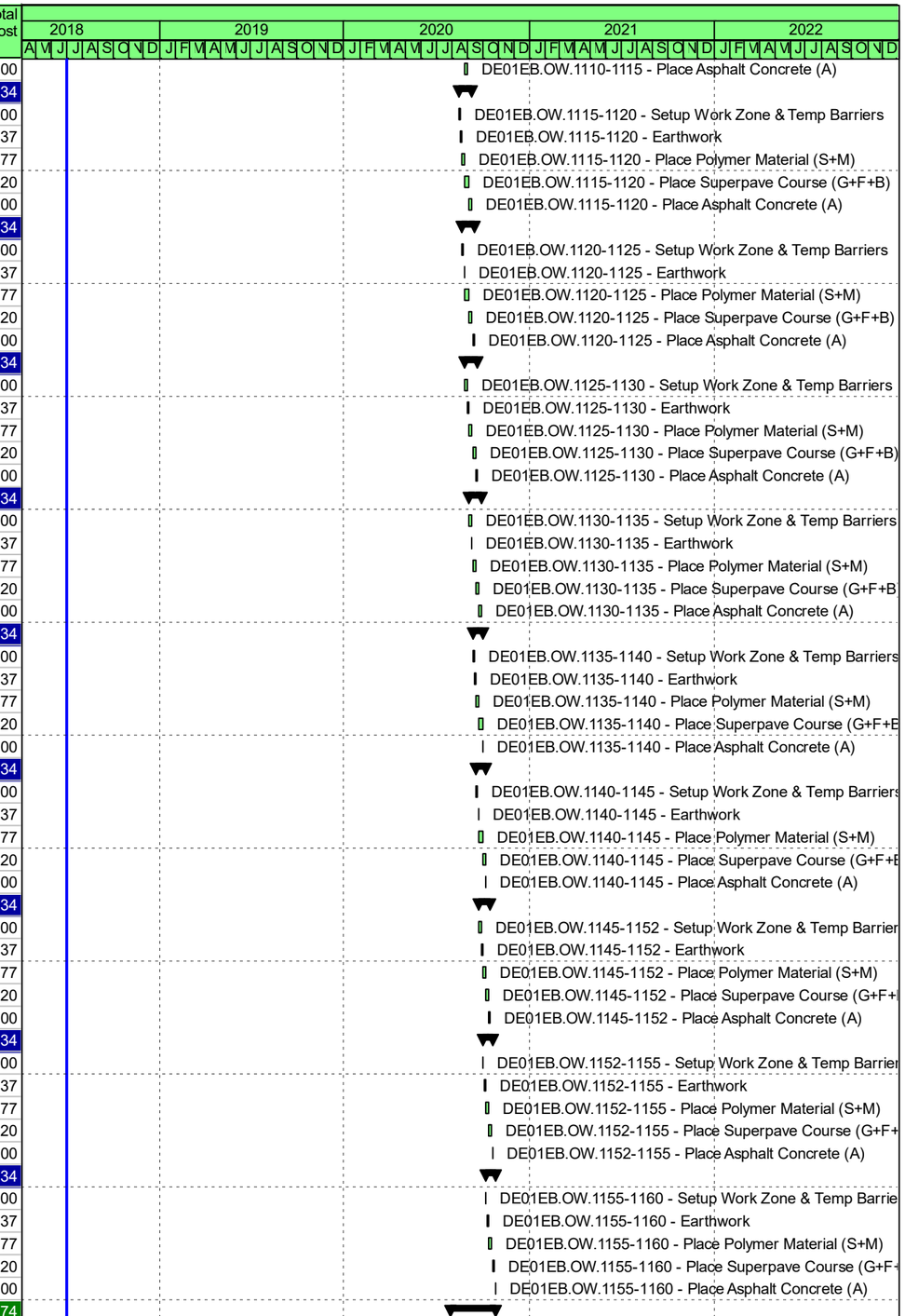
I-16 at I-95 Reconstruction and Widening Proposal Schedule - Clarification GDOT Ltr 27-Jun-18
Detailed Activities

Remaining Level of Effort
Critical Remaining Work
Summary
Milestone
Remaining Work

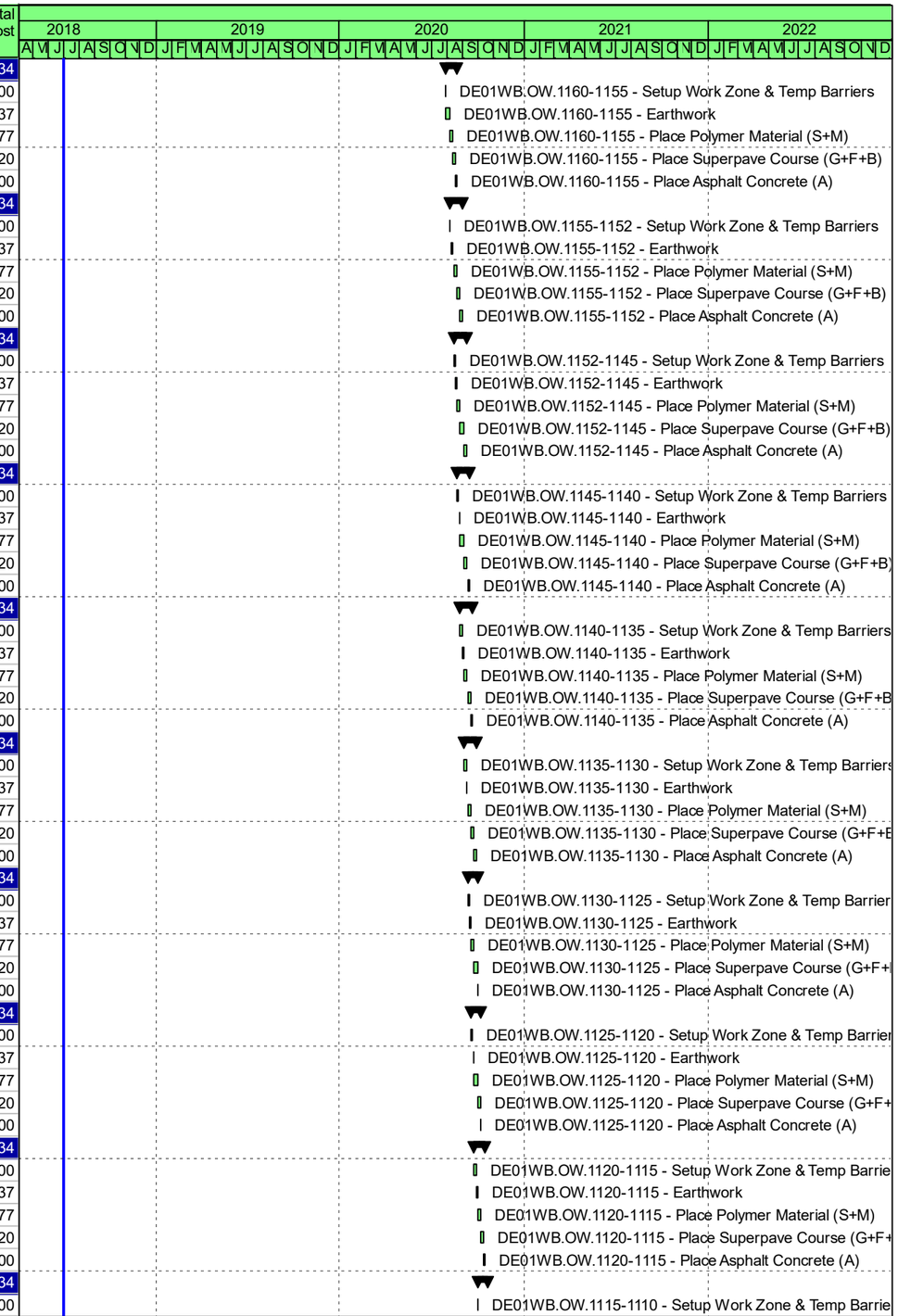
Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE16240	DE1BWB.IW.1512-1505 - Place GR Aggregate Base Course (O)	4	25-Mar-20	31-Mar-20	114	$20,106.03
RE16720	DE1BWB.IW.1512-1505 - Place Superpave Course (J)	4	01-Apr-20	06-Apr-20	114	$24,673.20
RE17000	DE1BWB.IW.1512-1505 - Place Polymer Material (F+B)	4	07-Apr-20	14-Apr-20	114	$74,174.77
RE17640	DE1BWB.IW.1512-1505 - Place Asphalt Concrete (A)	5	15-Apr-20	21-Apr-20	114	$0.00
DE1B - WB - Sta. 1505-1500 - Inside Widening		**22**	**25-Mar-20**	**29-Apr-20**	**114**	**$186,546.37**
RE16230	DE1BWB.IW.1505-1500 - Setup Work Zone & Temp Barriers	2	25-Mar-20	26-Mar-20	111	$32,671.00
RE16510	DE1BWB.IW.1505-1500 - Earthwork	2	30-Mar-20	31-Mar-20	111	$34,921.37
RE17310	DE1BWB.IW.1505-1500 - Place GR Aggregate Base Course (O)	4	01-Apr-20	06-Apr-20	115	$20,106.03
RE17910	DE1BWB.IW.1505-1500 - Place Superpave Course (J)	4	07-Apr-20	14-Apr-20	115	$24,673.20
RE18650	DE1BWB.IW.1505-1500 - Place Polymer Material (F+B)	4	15-Apr-20	20-Apr-20	115	$74,174.77
RE19260	DE1BWB.IW.1505-1500 - Place Asphalt Concrete (A)	5	22-Apr-20	29-Apr-20	114	$0.00
DE01 - WB - Sta. 1291-1285 - Inside Widening		**23**	**01-Apr-20**	**06-May-20**	**114**	**$236,455.62**
RE17300	DE01WB.IW.1291-1285 - Setup Work Zone & Temp Barriers	2	01-Apr-20	02-Apr-20	111	$32,671.00
RE17590	DE01WB.IW.1291-1285 - Earthwork	2	03-Apr-20	06-Apr-20	111	$34,921.37
RE18870	DE01WB.IW.1291-1285 - Install S Barrier	2	07-Apr-20	08-Apr-20	114	$49,909.25
RE19130	DE01WB.IW.1291-1285 - Place GR Aggregate Base Course (O)	4	09-Apr-20	16-Apr-20	114	$20,106.03
RE19470	DE01WB.IW.1291-1285 - Place Superpave Course (J)	4	17-Apr-20	22-Apr-20	114	$24,673.20
RE19870	DE01WB.IW.1291-1285 - Place Polymer Material (F+B)	4	23-Apr-20	29-Apr-20	114	$74,174.77
RE20430	DE01WB.IW.1291-1285 - Place Asphalt Concrete (A)	5	30-Apr-20	06-May-20	114	$0.00
DE01 - WB - Sta. 1285-1280 - Inside Widening		**25**	**07-Apr-20**	**14-May-20**	**113**	**$236,455.62**
RE18880	DE01WB.IW.1285-1280 - Setup Work Zone & Temp Barriers	2	07-Apr-20	08-Apr-20	111	$32,671.00
RE19140	DE01WB.IW.1285-1280 - Earthwork	4	09-Apr-20	16-Apr-20	111	$34,921.37
RE19880	DE01WB.IW.1285-1280 - Install S Barrier	2	17-Apr-20	20-Apr-20	113	$49,909.25
RE20110	DE01WB.IW.1285-1280 - Place GR Aggregate Base Course (O)	4	21-Apr-20	27-Apr-20	113	$20,106.03
RE20510	DE01WB.IW.1285-1280 - Place Superpave Course (J)	4	28-Apr-20	01-May-20	113	$24,673.20
RE20950	DE01WB.IW.1285-1280 - Place Polymer Material (F+B)	4	04-May-20	07-May-20	113	$74,174.77
RE21330	DE01WB.IW.1285-1280 - Place Asphalt Concrete (A)	5	08-May-20	14-May-20	113	$0.00
DE01 - WB - Sta. 1280-1275 - Inside Widening		**25**	**17-Apr-20**	**26-May-20**	**112**	**$236,455.62**
RE19890	DE01WB.IW.1280-1275 - Setup Work Zone & Temp Barriers	2	17-Apr-20	20-Apr-20	111	$32,671.00
RE20120	DE01WB.IW.1280-1275 - Earthwork	4	21-Apr-20	27-Apr-20	111	$34,921.37
RE20960	DE01WB.IW.1280-1275 - Install S Barrier	2	28-Apr-20	29-Apr-20	112	$49,909.25
RE21080	DE01WB.IW.1280-1275 - Place GR Aggregate Base Course (O)	4	30-Apr-20	05-May-20	112	$20,106.03
RE21400	DE01WB.IW.1280-1275 - Place Superpave Course (J)	4	06-May-20	11-May-20	112	$24,673.20
RE21980	DE01WB.IW.1280-1275 - Place Polymer Material (F+B)	4	12-May-20	15-May-20	112	$74,174.77
RE22290	DE01WB.IW.1280-1275 - Place Asphalt Concrete (A)	5	18-May-20	26-May-20	112	$0.00
DE01 - WB - Sta. 1275-1270 - Inside Widening		**25**	**28-Apr-20**	**04-Jun-20**	**111**	**$236,455.62**
RE20970	DE01WB.IW.1275-1270 - Setup Work Zone & Temp Barriers	2	28-Apr-20	29-Apr-20	111	$32,671.00
RE21090	DE01WB.IW.1275-1270 - Earthwork	4	30-Apr-20	05-May-20	111	$34,921.37
RE21990	DE01WB.IW.1275-1270 - Install S Barrier	2	06-May-20	07-May-20	111	$49,909.25
RE22170	DE01WB.IW.1275-1270 - Place GR Aggregate Base Course (O)	4	08-May-20	13-May-20	111	$20,106.03
RE22700	DE01WB.IW.1275-1270 - Place Superpave Course (J)	4	14-May-20	19-May-20	111	$24,673.20
RE23100	DE01WB.IW.1275-1270 - Place Polymer Material (F+B)	4	20-May-20	27-May-20	111	$74,174.77
RE23480	DE01WB.IW.1275-1270 - Place Asphalt Concrete (A)	5	28-May-20	04-Jun-20	111	$0.00
Outside Widening		**165**	**28-Jul-20**	**12-May-21**	**38**	**$12,990,814.76**
1E - EB - Sta. 1105-1160		**58**	**28-Jul-20**	**27-Oct-20**	**77**	**$1,830,843.74**
DE01 - EB - Sta. 1105-1110 - Outside Widening		**16**	**28-Jul-20**	**19-Aug-20**	**99**	**$166,440.34**
RE43830	DE01EB.OW.1105-1110 - Setup Work Zone & Temp Barriers	2	28-Jul-20	29-Jul-20	77	$32,671.00
RE43860	DE01EB.OW.1105-1110 - Earthwork	4	30-Jul-20	05-Aug-20	77	$34,921.37
RE43920	DE01EB.OW.1105-1110 - Place Polymer Material (S+M)	4	06-Aug-20	11-Aug-20	99	$74,174.77
RE44010	DE01EB.OW.1105-1110 - Place Superpave Course (G+F+B)	4	12-Aug-20	17-Aug-20	99	$24,673.20
RE44100	DE01EB.OW.1105-1110 - Place Asphalt Concrete (A)	2	18-Aug-20	19-Aug-20	99	$0.00
DE01 - EB - Sta. 1110-1115 - Outside Widening		**16**	**06-Aug-20**	**31-Aug-20**	**95**	**$166,440.34**
RE43930	DE01EB.OW.1110-1115 - Setup Work Zone & Temp Barriers	2	06-Aug-20	07-Aug-20	77	$32,671.00
RE43960	DE01EB.OW.1110-1115 - Earthwork	4	10-Aug-20	13-Aug-20	77	$34,921.37
RE44040	DE01EB.OW.1110-1115 - Place Polymer Material (S+M)	4	14-Aug-20	19-Aug-20	95	$74,174.77
RE44150	DE01EB.OW.1110-1115 - Place Superpave Course (G+F+B)	4	20-Aug-20	26-Aug-20	95	$24,673.20



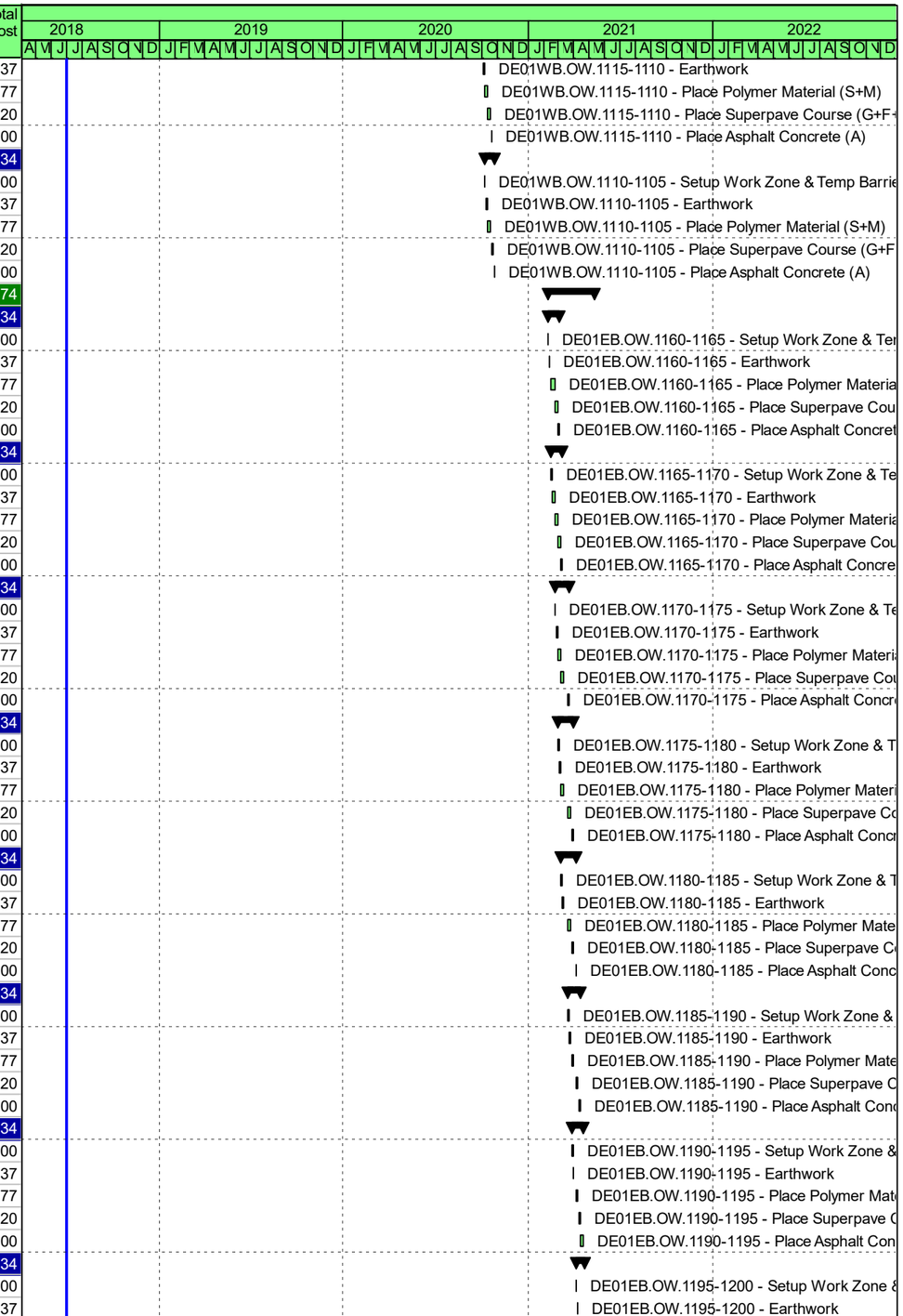
Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE44250	DE01EB.OW.1110-1115 - Place Asphalt Concrete (A)	2	27-Aug-20	31-Aug-20	95	$0.00
DE01 - EB - Sta. 1115-1120 - Outside Widening		**14**	**14-Aug-20**	**08-Sep-20**	**93**	**$166,440.34**
RE44050	DE01EB.OW.1115-1120 - Setup Work Zone & Temp Barriers	2	14-Aug-20	17-Aug-20	77	$32,671.00
RE44090	DE01EB.OW.1115-1120 - Earthwork	2	18-Aug-20	19-Aug-20	77	$34,921.37
RE44190	DE01EB.OW.1115-1120 - Place Polymer Material (S+M)	4	20-Aug-20	26-Aug-20	93	$74,174.77
RE44300	DE01EB.OW.1115-1120 - Place Superpave Course (G+F+B)	4	27-Aug-20	02-Sep-20	93	$24,673.20
RE44400	DE01EB.OW.1115-1120 - Place Asphalt Concrete (A)	2	03-Sep-20	08-Sep-20	93	$0.00
DE01 - EB - Sta. 1120-1125 - Outside Widening		**14**	**20-Aug-20**	**14-Sep-20**	**91**	**$166,440.34**
RE44200	DE01EB.OW.1120-1125 - Setup Work Zone & Temp Barriers	2	20-Aug-20	24-Aug-20	77	$32,671.00
RE44240	DE01EB.OW.1120-1125 - Earthwork	2	25-Aug-20	26-Aug-20	77	$34,921.37
RE44340	DE01EB.OW.1120-1125 - Place Polymer Material (S+M)	4	27-Aug-20	02-Sep-20	91	$74,174.77
RE44450	DE01EB.OW.1120-1125 - Place Superpave Course (G+F+B)	4	03-Sep-20	10-Sep-20	91	$24,673.20
RE44550	DE01EB.OW.1120-1125 - Place Asphalt Concrete (A)	2	11-Sep-20	14-Sep-20	91	$0.00
DE01 - EB - Sta. 1125-1130 - Outside Widening		**14**	**27-Aug-20**	**21-Sep-20**	**89**	**$166,440.34**
RE44350	DE01EB.OW.1125-1130 - Setup Work Zone & Temp Barriers	2	27-Aug-20	31-Aug-20	77	$32,671.00
RE44390	DE01EB.OW.1125-1130 - Earthwork	2	01-Sep-20	02-Sep-20	77	$34,921.37
RE44490	DE01EB.OW.1125-1130 - Place Polymer Material (S+M)	4	03-Sep-20	10-Sep-20	89	$74,174.77
RE44600	DE01EB.OW.1125-1130 - Place Superpave Course (G+F+B)	4	11-Sep-20	16-Sep-20	89	$24,673.20
RE44700	DE01EB.OW.1125-1130 - Place Asphalt Concrete (A)	2	17-Sep-20	21-Sep-20	89	$0.00
DE01 - EB - Sta. 1130-1135 - Outside Widening		**14**	**03-Sep-20**	**28-Sep-20**	**87**	**$166,440.34**
RE44500	DE01EB.OW.1130-1135 - Setup Work Zone & Temp Barriers	2	03-Sep-20	08-Sep-20	77	$32,671.00
RE44540	DE01EB.OW.1130-1135 - Earthwork	2	09-Sep-20	10-Sep-20	77	$34,921.37
RE44640	DE01EB.OW.1130-1135 - Place Polymer Material (S+M)	4	11-Sep-20	16-Sep-20	87	$74,174.77
RE44750	DE01EB.OW.1130-1135 - Place Superpave Course (G+F+B)	4	17-Sep-20	23-Sep-20	87	$24,673.20
RE44850	DE01EB.OW.1130-1135 - Place Asphalt Concrete (A)	2	24-Sep-20	28-Sep-20	87	$0.00
DE01 - EB - Sta. 1135-1140 - Outside Widening		**14**	**11-Sep-20**	**02-Oct-20**	**85**	**$166,440.34**
RE44650	DE01EB.OW.1135-1140 - Setup Work Zone & Temp Barriers	2	11-Sep-20	14-Sep-20	77	$32,671.00
RE44690	DE01EB.OW.1135-1140 - Earthwork	2	15-Sep-20	16-Sep-20	77	$34,921.37
RE44790	DE01EB.OW.1135-1140 - Place Polymer Material (S+M)	4	17-Sep-20	23-Sep-20	85	$74,174.77
RE44890	DE01EB.OW.1135-1140 - Place Superpave Course (G+F+B)	4	24-Sep-20	30-Sep-20	85	$24,673.20
RE44990	DE01EB.OW.1135-1140 - Place Asphalt Concrete (A)	2	01-Oct-20	02-Oct-20	85	$0.00
DE01 - EB - Sta. 1140-1145 - Outside Widening		**14**	**17-Sep-20**	**08-Oct-20**	**83**	**$166,440.34**
RE44800	DE01EB.OW.1140-1145 - Setup Work Zone & Temp Barriers	2	17-Sep-20	21-Sep-20	77	$32,671.00
RE44840	DE01EB.OW.1140-1145 - Earthwork	2	22-Sep-20	23-Sep-20	77	$34,921.37
RE44940	DE01EB.OW.1140-1145 - Place Polymer Material (S+M)	4	24-Sep-20	30-Sep-20	83	$74,174.77
RE45030	DE01EB.OW.1140-1145 - Place Superpave Course (G+F+B)	4	01-Oct-20	06-Oct-20	83	$24,673.20
RE45130	DE01EB.OW.1140-1145 - Place Asphalt Concrete (A)	2	07-Oct-20	08-Oct-20	83	$0.00
DE01 - EB - Sta. 1145-1152 - Outside Widening		**14**	**24-Sep-20**	**15-Oct-20**	**81**	**$166,440.34**
RE44930	DE01EB.OW.1145-1152 - Setup Work Zone & Temp Barriers	2	24-Sep-20	28-Sep-20	77	$32,671.00
RE44980	DE01EB.OW.1145-1152 - Earthwork	2	29-Sep-20	30-Sep-20	77	$34,921.37
RE45070	DE01EB.OW.1145-1152 - Place Polymer Material (S+M)	4	01-Oct-20	06-Oct-20	81	$74,174.77
RE45170	DE01EB.OW.1145-1152 - Place Superpave Course (G+F+B)	4	07-Oct-20	13-Oct-20	81	$24,673.20
RE45270	DE01EB.OW.1145-1152 - Place Asphalt Concrete (A)	2	14-Oct-20	15-Oct-20	81	$0.00
DE01 - EB - Sta. 1152-1155 - Outside Widening		**14**	**01-Oct-20**	**21-Oct-20**	**79**	**$166,440.34**
RE45080	DE01EB.OW.1152-1155 - Setup Work Zone & Temp Barriers	2	01-Oct-20	02-Oct-20	77	$32,671.00
RE45120	DE01EB.OW.1152-1155 - Earthwork	2	05-Oct-20	06-Oct-20	77	$34,921.37
RE45210	DE01EB.OW.1152-1155 - Place Polymer Material (S+M)	4	07-Oct-20	13-Oct-20	79	$74,174.77
RE45310	DE01EB.OW.1152-1155 - Place Superpave Course (G+F+B)	4	14-Oct-20	19-Oct-20	79	$24,673.20
RE45410	DE01EB.OW.1152-1155 - Place Asphalt Concrete (A)	2	20-Oct-20	21-Oct-20	79	$0.00
DE01 - EB - Sta. 1155-1160 - Outside Widening		**14**	**07-Oct-20**	**27-Oct-20**	**77**	**$166,440.34**
RE45220	DE01EB.OW.1155-1160 - Setup Work Zone & Temp Barriers	2	07-Oct-20	08-Oct-20	77	$32,671.00
RE45260	DE01EB.OW.1155-1160 - Earthwork	2	09-Oct-20	13-Oct-20	77	$34,921.37
RE45350	DE01EB.OW.1155-1160 - Place Polymer Material (S+M)	4	14-Oct-20	19-Oct-20	77	$74,174.77
RE45450	DE01EB.OW.1155-1160 - Place Superpave Course (G+F+B)	4	20-Oct-20	23-Oct-20	77	$24,673.20
RE45550	DE01EB.OW.1155-1160 - Place Asphalt Concrete (A)	2	26-Oct-20	27-Oct-20	77	$0.00
1W - WB - Sta. 1160-1105		**58**	**28-Jul-20**	**27-Oct-20**	**77**	**$1,830,843.74**



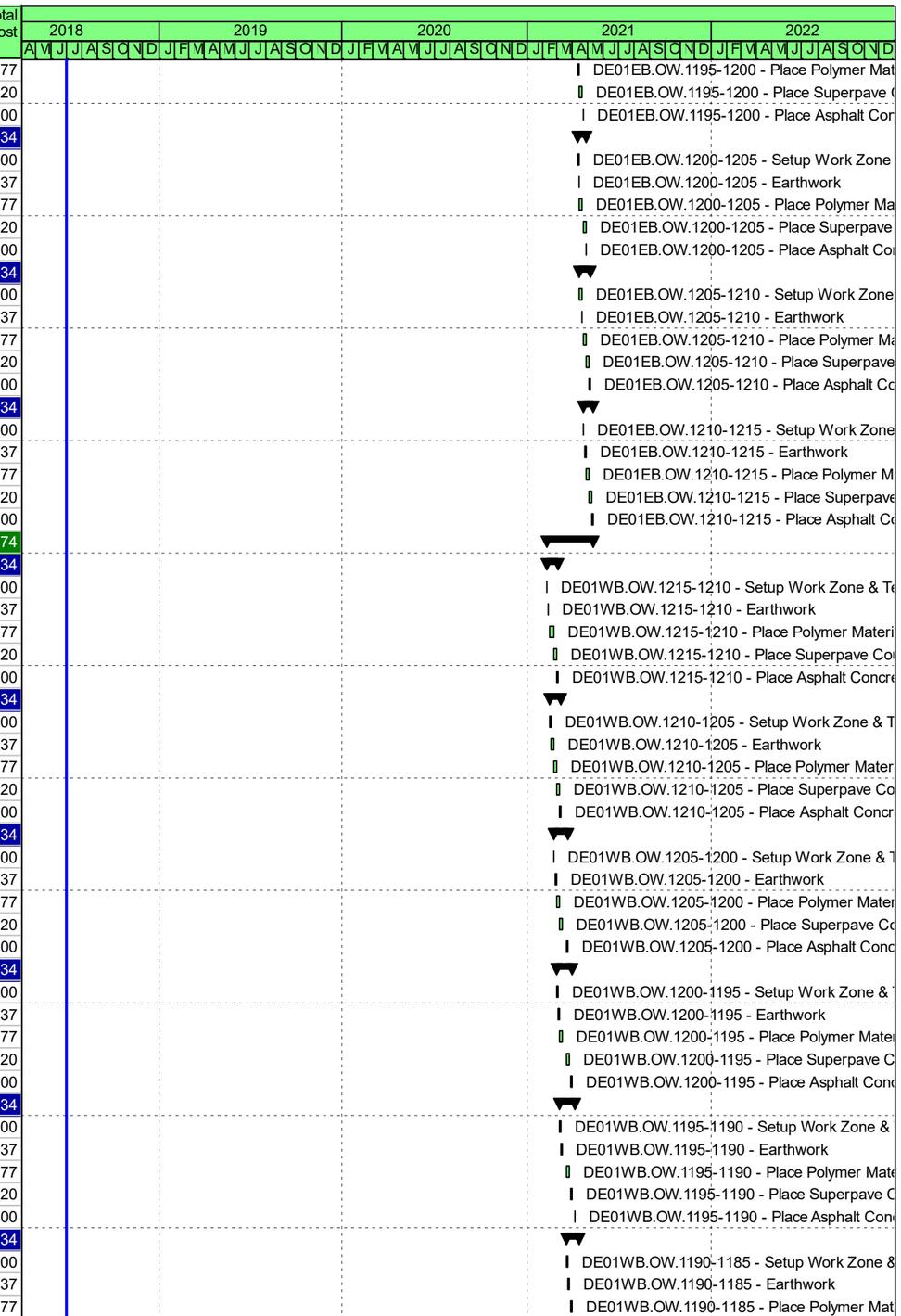
Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
DE01 - WB - Sta. 1160-1155 - Outside Widening		**16**	**28-Jul-20**	**19-Aug-20**	**99**	**$166,440.34**
RE47390	DE01WB.OW.1160-1155 - Setup Work Zone & Temp Barriers	2	28-Jul-20	29-Jul-20	77	$32,671.00
RE47410	DE01WB.OW.1160-1155 - Earthwork	4	30-Jul-20	05-Aug-20	77	$34,921.37
RE47490	DE01WB.OW.1160-1155 - Place Polymer Material (S+M)	4	06-Aug-20	11-Aug-20	99	$74,174.77
RE47550	DE01WB.OW.1160-1155 - Place Superpave Course (G+F+B)	4	12-Aug-20	17-Aug-20	99	$24,673.20
RE47620	DE01WB.OW.1160-1155 - Place Asphalt Concrete (A)	2	18-Aug-20	19-Aug-20	99	$0.00
DE01 - WB - Sta. 1155-1152 - Outside Widening		**16**	**06-Aug-20**	**31-Aug-20**	**95**	**$166,440.34**
RE47480	DE01WB.OW.1155-1152 - Setup Work Zone & Temp Barriers	2	06-Aug-20	07-Aug-20	77	$32,671.00
RE47510	DE01WB.OW.1155-1152 - Earthwork	4	10-Aug-20	13-Aug-20	77	$34,921.37
RE47590	DE01WB.OW.1155-1152 - Place Polymer Material (S+M)	4	14-Aug-20	19-Aug-20	95	$74,174.77
RE47650	DE01WB.OW.1155-1152 - Place Superpave Course (G+F+B)	4	20-Aug-20	26-Aug-20	95	$24,673.20
RE47720	DE01WB.OW.1155-1152 - Place Asphalt Concrete (A)	2	27-Aug-20	31-Aug-20	95	$0.00
DE01 - WB - Sta. 1152-1145 - Outside Widening		**14**	**14-Aug-20**	**08-Sep-20**	**93**	**$166,440.34**
RE47580	DE01WB.OW.1152-1145 - Setup Work Zone & Temp Barriers	2	14-Aug-20	17-Aug-20	77	$32,671.00
RE47610	DE01WB.OW.1152-1145 - Earthwork	2	18-Aug-20	19-Aug-20	77	$34,921.37
RE47690	DE01WB.OW.1152-1145 - Place Polymer Material (S+M)	4	20-Aug-20	26-Aug-20	93	$74,174.77
RE47750	DE01WB.OW.1152-1145 - Place Superpave Course (G+F+B)	4	27-Aug-20	02-Sep-20	93	$24,673.20
RE47820	DE01WB.OW.1152-1145 - Place Asphalt Concrete (A)	2	03-Sep-20	08-Sep-20	93	$0.00
DE01 - WB - Sta. 1145-1140 - Outside Widening		**14**	**20-Aug-20**	**14-Sep-20**	**91**	**$166,440.34**
RE47680	DE01WB.OW.1145-1140 - Setup Work Zone & Temp Barriers	2	20-Aug-20	24-Aug-20	77	$32,671.00
RE47710	DE01WB.OW.1145-1140 - Earthwork	2	25-Aug-20	26-Aug-20	77	$34,921.37
RE47780	DE01WB.OW.1145-1140 - Place Polymer Material (S+M)	4	27-Aug-20	02-Sep-20	91	$74,174.77
RE47850	DE01WB.OW.1145-1140 - Place Superpave Course (G+F+B)	4	03-Sep-20	10-Sep-20	91	$24,673.20
RE47920	DE01WB.OW.1145-1140 - Place Asphalt Concrete (A)	2	11-Sep-20	14-Sep-20	91	$0.00
DE01 - WB - Sta. 1140-1135 - Outside Widening		**14**	**27-Aug-20**	**21-Sep-20**	**89**	**$166,440.34**
RE47790	DE01WB.OW.1140-1135 - Setup Work Zone & Temp Barriers	2	27-Aug-20	31-Aug-20	77	$32,671.00
RE47810	DE01WB.OW.1140-1135 - Earthwork	2	01-Sep-20	02-Sep-20	77	$34,921.37
RE47880	DE01WB.OW.1140-1135 - Place Polymer Material (S+M)	4	03-Sep-20	10-Sep-20	89	$74,174.77
RE47950	DE01WB.OW.1140-1135 - Place Superpave Course (G+F+B)	4	11-Sep-20	16-Sep-20	89	$24,673.20
RE48020	DE01WB.OW.1140-1135 - Place Asphalt Concrete (A)	2	17-Sep-20	21-Sep-20	89	$0.00
DE01 - WB - Sta. 1135-1130 - Outside Widening		**14**	**03-Sep-20**	**28-Sep-20**	**87**	**$166,440.34**
RE47890	DE01WB.OW.1135-1130 - Setup Work Zone & Temp Barriers	2	03-Sep-20	08-Sep-20	77	$32,671.00
RE47910	DE01WB.OW.1135-1130 - Earthwork	2	09-Sep-20	10-Sep-20	77	$34,921.37
RE47990	DE01WB.OW.1135-1130 - Place Polymer Material (S+M)	4	11-Sep-20	16-Sep-20	87	$74,174.77
RE48050	DE01WB.OW.1135-1130 - Place Superpave Course (G+F+B)	4	17-Sep-20	23-Sep-20	87	$24,673.20
RE48120	DE01WB.OW.1135-1130 - Place Asphalt Concrete (A)	2	24-Sep-20	28-Sep-20	87	$0.00
DE01 - WB - Sta. 1130-1125 - Outside Widening		**14**	**11-Sep-20**	**02-Oct-20**	**85**	**$166,440.34**
RE47980	DE01WB.OW.1130-1125 - Setup Work Zone & Temp Barriers	2	11-Sep-20	14-Sep-20	77	$32,671.00
RE48010	DE01WB.OW.1130-1125 - Earthwork	2	15-Sep-20	16-Sep-20	77	$34,921.37
RE48080	DE01WB.OW.1130-1125 - Place Polymer Material (S+M)	4	17-Sep-20	23-Sep-20	85	$74,174.77
RE48170	DE01WB.OW.1130-1125 - Place Superpave Course (G+F+B)	4	24-Sep-20	30-Sep-20	85	$24,673.20
RE48240	DE01WB.OW.1130-1125 - Place Asphalt Concrete (A)	2	01-Oct-20	02-Oct-20	85	$0.00
DE01 - WB - Sta. 1125-1120 - Outside Widening		**14**	**17-Sep-20**	**08-Oct-20**	**83**	**$166,440.34**
RE48090	DE01WB.OW.1125-1120 - Setup Work Zone & Temp Barriers	2	17-Sep-20	21-Sep-20	77	$32,671.00
RE48110	DE01WB.OW.1125-1120 - Earthwork	2	22-Sep-20	23-Sep-20	77	$34,921.37
RE48200	DE01WB.OW.1125-1120 - Place Polymer Material (S+M)	4	24-Sep-20	30-Sep-20	83	$74,174.77
RE48270	DE01WB.OW.1125-1120 - Place Superpave Course (G+F+B)	4	01-Oct-20	06-Oct-20	83	$24,673.20
RE48340	DE01WB.OW.1125-1120 - Place Asphalt Concrete (A)	2	07-Oct-20	08-Oct-20	83	$0.00
DE01 - WB - Sta. 1120-1115 - Outside Widening		**14**	**24-Sep-20**	**15-Oct-20**	**81**	**$166,440.34**
RE48210	DE01WB.OW.1120-1115 - Setup Work Zone & Temp Barriers	2	24-Sep-20	28-Sep-20	77	$32,671.00
RE48230	DE01WB.OW.1120-1115 - Earthwork	2	29-Sep-20	30-Sep-20	77	$34,921.37
RE48300	DE01WB.OW.1120-1115 - Place Polymer Material (S+M)	4	01-Oct-20	06-Oct-20	81	$74,174.77
RE48370	DE01WB.OW.1120-1115 - Place Superpave Course (G+F+B)	4	07-Oct-20	13-Oct-20	81	$24,673.20
RE48440	DE01WB.OW.1120-1115 - Place Asphalt Concrete (A)	2	14-Oct-20	15-Oct-20	81	$0.00
DE01 - WB - Sta. 1115-1110 - Outside Widening		**14**	**01-Oct-20**	**21-Oct-20**	**79**	**$166,440.34**
RE48310	DE01WB.OW.1115-1110 - Setup Work Zone & Temp Barriers	2	01-Oct-20	02-Oct-20	77	$32,671.00



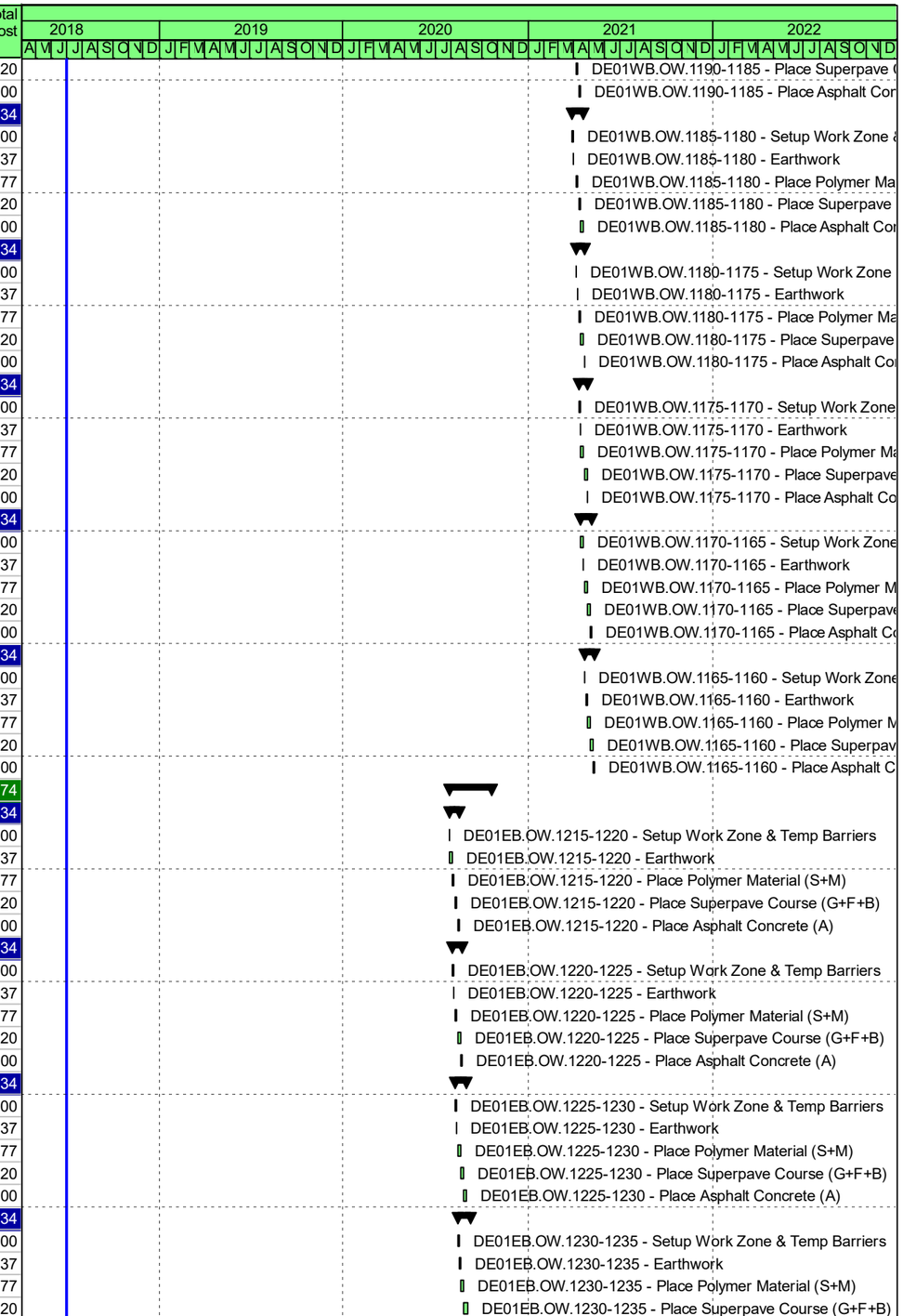
Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE48330	DE01WB.OW.1115-1110 - Earthwork	2	05-Oct-20	06-Oct-20	77	$34,921.37
RE48410	DE01WB.OW.1115-1110 - Place Polymer Material (S+M)	4	07-Oct-20	13-Oct-20	79	$74,174.77
RE48460	DE01WB.OW.1115-1110 - Place Superpave Course (G+F+B)	4	14-Oct-20	19-Oct-20	79	$24,673.20
RE48500	DE01WB.OW.1115-1110 - Place Asphalt Concrete (A)	2	20-Oct-20	21-Oct-20	79	$0.00
DE01 - WB - Sta. 1110-1105 - Outside Widening		**14**	**07-Oct-20**	**27-Oct-20**	**77**	**$166,440.34**
RE48400	DE01WB.OW.1110-1105 - Setup Work Zone & Temp Barriers	2	07-Oct-20	08-Oct-20	77	$32,671.00
RE48430	DE01WB.OW.1110-1105 - Earthwork	2	09-Oct-20	13-Oct-20	77	$34,921.37
RE48480	DE01WB.OW.1110-1105 - Place Polymer Material (S+M)	4	14-Oct-20	19-Oct-20	77	$74,174.77
RE48510	DE01WB.OW.1110-1105 - Place Superpave Course (G+F+B)	4	20-Oct-20	23-Oct-20	77	$24,673.20
RE48530	DE01WB.OW.1110-1105 - Place Asphalt Concrete (A)	2	26-Oct-20	27-Oct-20	77	$0.00
2E - EB - Sta. 1160-1215		**54**	**09-Feb-21**	**12-May-21**	**38**	**$1,830,843.74**
DE01 - EB - Sta. 1160-1165 - Outside Widening		**14**	**09-Feb-21**	**03-Mar-21**	**58**	**$166,440.34**
RE45360	DE01EB.OW.1160-1165 - Setup Work Zone & Temp Barriers	2	09-Feb-21	10-Feb-21	38	$32,671.00
RE45400	DE01EB.OW.1160-1165 - Earthwork	2	11-Feb-21	12-Feb-21	38	$34,921.37
RE45490	DE01EB.OW.1160-1165 - Place Polymer Material (S+M)	4	16-Feb-21	22-Feb-21	58	$74,174.77
RE45590	DE01EB.OW.1160-1165 - Place Superpave Course (G+F+B)	4	23-Feb-21	01-Mar-21	58	$24,673.20
RE45690	DE01EB.OW.1160-1165 - Place Asphalt Concrete (A)	2	02-Mar-21	03-Mar-21	58	$0.00
DE01 - EB - Sta. 1165-1170 - Outside Widening		**14**	**16-Feb-21**	**09-Mar-21**	**56**	**$166,440.34**
RE45500	DE01EB.OW.1165-1170 - Setup Work Zone & Temp Barriers	2	16-Feb-21	17-Feb-21	38	$32,671.00
RE45540	DE01EB.OW.1165-1170 - Earthwork	2	18-Feb-21	22-Feb-21	38	$34,921.37
RE45630	DE01EB.OW.1165-1170 - Place Polymer Material (S+M)	4	23-Feb-21	01-Mar-21	56	$74,174.77
RE45730	DE01EB.OW.1165-1170 - Place Superpave Course (G+F+B)	4	02-Mar-21	05-Mar-21	56	$24,673.20
RE45830	DE01EB.OW.1165-1170 - Place Asphalt Concrete (A)	2	08-Mar-21	09-Mar-21	56	$0.00
DE01 - EB - Sta. 1170-1175 - Outside Widening		**14**	**23-Feb-21**	**23-Mar-21**	**54**	**$166,440.34**
RE45640	DE01EB.OW.1170-1175 - Setup Work Zone & Temp Barriers	2	23-Feb-21	24-Feb-21	38	$32,671.00
RE45680	DE01EB.OW.1170-1175 - Earthwork	2	25-Feb-21	01-Mar-21	38	$34,921.37
RE45770	DE01EB.OW.1170-1175 - Place Polymer Material (S+M)	4	02-Mar-21	05-Mar-21	54	$74,174.77
RE45870	DE01EB.OW.1170-1175 - Place Superpave Course (G+F+B)	4	08-Mar-21	11-Mar-21	54	$24,673.20
RE45960	DE01EB.OW.1170-1175 - Place Asphalt Concrete (A)	2	22-Mar-21	23-Mar-21	54	$0.00
DE01 - EB - Sta. 1175-1180 - Outside Widening		**14**	**02-Mar-21**	**30-Mar-21**	**52**	**$166,440.34**
RE45780	DE01EB.OW.1175-1180 - Setup Work Zone & Temp Barriers	2	02-Mar-21	03-Mar-21	38	$32,671.00
RE45820	DE01EB.OW.1175-1180 - Earthwork	2	04-Mar-21	05-Mar-21	38	$34,921.37
RE45910	DE01EB.OW.1175-1180 - Place Polymer Material (S+M)	4	08-Mar-21	11-Mar-21	52	$74,174.77
RE45990	DE01EB.OW.1175-1180 - Place Superpave Course (G+F+B)	4	22-Mar-21	25-Mar-21	52	$24,673.20
RE46070	DE01EB.OW.1175-1180 - Place Asphalt Concrete (A)	2	29-Mar-21	30-Mar-21	52	$0.00
DE01 - EB - Sta. 1180-1185 - Outside Widening		**14**	**08-Mar-21**	**07-Apr-21**	**50**	**$166,440.34**
RE45920	DE01EB.OW.1180-1185 - Setup Work Zone & Temp Barriers	2	08-Mar-21	09-Mar-21	38	$32,671.00
RE45950	DE01EB.OW.1180-1185 - Earthwork	2	10-Mar-21	11-Mar-21	38	$34,921.37
RE46030	DE01EB.OW.1180-1185 - Place Polymer Material (S+M)	4	22-Mar-21	25-Mar-21	50	$74,174.77
RE46100	DE01EB.OW.1180-1185 - Place Superpave Course (G+F+B)	4	29-Mar-21	01-Apr-21	50	$24,673.20
RE46170	DE01EB.OW.1180-1185 - Place Asphalt Concrete (A)	2	06-Apr-21	07-Apr-21	50	$0.00
DE01 - EB - Sta. 1185-1190 - Outside Widening		**14**	**22-Mar-21**	**13-Apr-21**	**48**	**$166,440.34**
RE46040	DE01EB.OW.1185-1190 - Setup Work Zone & Temp Barriers	2	22-Mar-21	23-Mar-21	38	$32,671.00
RE46060	DE01EB.OW.1185-1190 - Earthwork	2	24-Mar-21	25-Mar-21	38	$34,921.37
RE46130	DE01EB.OW.1185-1190 - Place Polymer Material (S+M)	4	29-Mar-21	01-Apr-21	48	$74,174.77
RE46200	DE01EB.OW.1185-1190 - Place Superpave Course (G+F+B)	4	06-Apr-21	09-Apr-21	48	$24,673.20
RE46270	DE01EB.OW.1185-1190 - Place Asphalt Concrete (A)	2	12-Apr-21	13-Apr-21	48	$0.00
DE01 - EB - Sta. 1190-1195 - Outside Widening		**14**	**29-Mar-21**	**19-Apr-21**	**46**	**$166,440.34**
RE46140	DE01EB.OW.1190-1195 - Setup Work Zone & Temp Barriers	2	29-Mar-21	30-Mar-21	38	$32,671.00
RE46160	DE01EB.OW.1190-1195 - Earthwork	2	31-Mar-21	01-Apr-21	38	$34,921.37
RE46230	DE01EB.OW.1190-1195 - Place Polymer Material (S+M)	4	06-Apr-21	09-Apr-21	46	$74,174.77
RE46300	DE01EB.OW.1190-1195 - Place Superpave Course (G+F+B)	4	12-Apr-21	15-Apr-21	46	$24,673.20
RE46370	DE01EB.OW.1190-1195 - Place Asphalt Concrete (A)	2	16-Apr-21	19-Apr-21	46	$0.00
DE01 - EB - Sta. 1195-1200 - Outside Widening		**14**	**06-Apr-21**	**23-Apr-21**	**44**	**$166,440.34**
RE46240	DE01EB.OW.1195-1200 - Setup Work Zone & Temp Barriers	2	06-Apr-21	07-Apr-21	38	$32,671.00
RE46260	DE01EB.OW.1195-1200 - Earthwork	2	08-Apr-21	09-Apr-21	38	$34,921.37



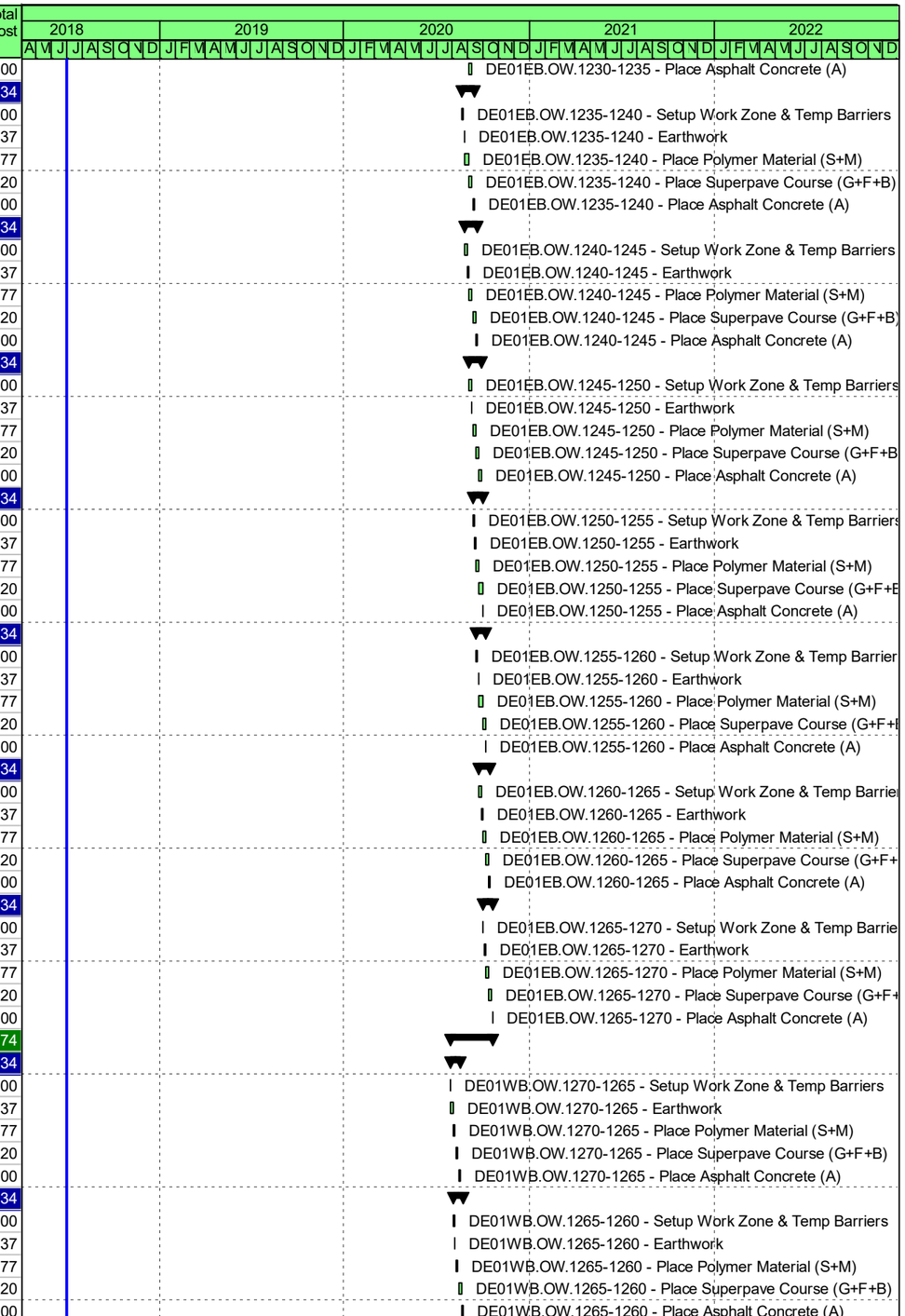
Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE46330	DE01EB.OW.1195-1200 - Place Polymer Material (S+M)	4	12-Apr-21	15-Apr-21	44	$74,174.77
RE46400	DE01EB.OW.1195-1200 - Place Superpave Course (G+F+B)	4	16-Apr-21	21-Apr-21	44	$24,673.20
RE46470	DE01EB.OW.1195-1200 - Place Asphalt Concrete (A)	2	22-Apr-21	23-Apr-21	44	$0.00
DE01 - EB - Sta. 1200-1205 - Outside Widening		**14**	**12-Apr-21**	**29-Apr-21**	**42**	**$166,440.34**
RE46340	DE01EB.OW.1200-1205 - Setup Work Zone & Temp Barriers	2	12-Apr-21	13-Apr-21	38	$32,671.00
RE46360	DE01EB.OW.1200-1205 - Earthwork	2	14-Apr-21	15-Apr-21	38	$34,921.37
RE46430	DE01EB.OW.1200-1205 - Place Polymer Material (S+M)	4	16-Apr-21	21-Apr-21	42	$74,174.77
RE46500	DE01EB.OW.1200-1205 - Place Superpave Course (G+F+B)	4	22-Apr-21	27-Apr-21	42	$24,673.20
RE46570	DE01EB.OW.1200-1205 - Place Asphalt Concrete (A)	2	28-Apr-21	29-Apr-21	42	$0.00
DE01 - EB - Sta. 1205-1210 - Outside Widening		**14**	**16-Apr-21**	**06-May-21**	**40**	**$166,440.34**
RE46440	DE01EB.OW.1205-1210 - Setup Work Zone & Temp Barriers	2	16-Apr-21	19-Apr-21	38	$32,671.00
RE46460	DE01EB.OW.1205-1210 - Earthwork	2	20-Apr-21	21-Apr-21	38	$34,921.37
RE46530	DE01EB.OW.1205-1210 - Place Polymer Material (S+M)	4	22-Apr-21	27-Apr-21	40	$74,174.77
RE46600	DE01EB.OW.1205-1210 - Place Superpave Course (G+F+B)	4	28-Apr-21	04-May-21	40	$24,673.20
RE46670	DE01EB.OW.1205-1210 - Place Asphalt Concrete (A)	2	05-May-21	06-May-21	40	$0.00
DE01 - EB - Sta. 1210-1215 - Outside Widening		**14**	**22-Apr-21**	**12-May-21**	**38**	**$166,440.34**
RE46540	DE01EB.OW.1210-1215 - Setup Work Zone & Temp Barriers	2	22-Apr-21	23-Apr-21	38	$32,671.00
RE46560	DE01EB.OW.1210-1215 - Earthwork	2	26-Apr-21	27-Apr-21	38	$34,921.37
RE46630	DE01EB.OW.1210-1215 - Place Polymer Material (S+M)	4	28-Apr-21	04-May-21	38	$74,174.77
RE46700	DE01EB.OW.1210-1215 - Place Superpave Course (G+F+B)	4	05-May-21	10-May-21	38	$24,673.20
RE46770	DE01EB.OW.1210-1215 - Place Asphalt Concrete (A)	2	11-May-21	12-May-21	38	$0.00
2W - EB - Sta. 1270-1160		**54**	**09-Feb-21**	**12-May-21**	**38**	**$1,830,843.74**
DE01 - WB - Sta. 1215-1210 - Outside Widening		**14**	**09-Feb-21**	**03-Mar-21**	**58**	**$166,440.34**
RE46290	DE01WB.OW.1215-1210 - Setup Work Zone & Temp Barriers	2	09-Feb-21	10-Feb-21	38	$32,671.00
RE46310	DE01WB.OW.1215-1210 - Earthwork	2	11-Feb-21	12-Feb-21	38	$34,921.37
RE46390	DE01WB.OW.1215-1210 - Place Polymer Material (S+M)	4	16-Feb-21	22-Feb-21	58	$74,174.77
RE46450	DE01WB.OW.1215-1210 - Place Superpave Course (G+F+B)	4	23-Feb-21	01-Mar-21	58	$24,673.20
RE46520	DE01WB.OW.1215-1210 - Place Asphalt Concrete (A)	2	02-Mar-21	03-Mar-21	58	$0.00
DE01 - WB - Sta. 1210-1205 - Outside Widening		**14**	**16-Feb-21**	**09-Mar-21**	**56**	**$166,440.34**
RE46380	DE01WB.OW.1210-1205 - Setup Work Zone & Temp Barriers	2	16-Feb-21	17-Feb-21	38	$32,671.00
RE46410	DE01WB.OW.1210-1205 - Earthwork	2	18-Feb-21	22-Feb-21	38	$34,921.37
RE46480	DE01WB.OW.1210-1205 - Place Polymer Material (S+M)	4	23-Feb-21	01-Mar-21	56	$74,174.77
RE46550	DE01WB.OW.1210-1205 - Place Superpave Course (G+F+B)	4	02-Mar-21	05-Mar-21	56	$24,673.20
RE46620	DE01WB.OW.1210-1205 - Place Asphalt Concrete (A)	2	08-Mar-21	09-Mar-21	56	$0.00
DE01 - WB - Sta. 1205-1200 - Outside Widening		**14**	**23-Feb-21**	**23-Mar-21**	**54**	**$166,440.34**
RE46490	DE01WB.OW.1205-1200 - Setup Work Zone & Temp Barriers	2	23-Feb-21	24-Feb-21	38	$32,671.00
RE46510	DE01WB.OW.1205-1200 - Earthwork	2	25-Feb-21	01-Mar-21	38	$34,921.37
RE46580	DE01WB.OW.1205-1200 - Place Polymer Material (S+M)	4	02-Mar-21	05-Mar-21	54	$74,174.77
RE46650	DE01WB.OW.1205-1200 - Place Superpave Course (G+F+B)	4	08-Mar-21	11-Mar-21	54	$24,673.20
RE46720	DE01WB.OW.1205-1200 - Place Asphalt Concrete (A)	2	22-Mar-21	23-Mar-21	54	$0.00
DE01 - WB - Sta. 1200-1195 - Outside Widening		**14**	**02-Mar-21**	**30-Mar-21**	**52**	**$166,440.34**
RE46590	DE01WB.OW.1200-1195 - Setup Work Zone & Temp Barriers	2	02-Mar-21	03-Mar-21	38	$32,671.00
RE46610	DE01WB.OW.1200-1195 - Earthwork	2	04-Mar-21	05-Mar-21	38	$34,921.37
RE46690	DE01WB.OW.1200-1195 - Place Polymer Material (S+M)	4	08-Mar-21	11-Mar-21	52	$74,174.77
RE46750	DE01WB.OW.1200-1195 - Place Superpave Course (G+F+B)	4	22-Mar-21	25-Mar-21	52	$24,673.20
RE46820	DE01WB.OW.1200-1195 - Place Asphalt Concrete (A)	2	29-Mar-21	30-Mar-21	52	$0.00
DE01 - WB - Sta. 1195-1190 - Outside Widening		**14**	**08-Mar-21**	**07-Apr-21**	**50**	**$166,440.34**
RE46680	DE01WB.OW.1195-1190 - Setup Work Zone & Temp Barriers	2	08-Mar-21	09-Mar-21	38	$32,671.00
RE46710	DE01WB.OW.1195-1190 - Earthwork	2	10-Mar-21	11-Mar-21	38	$34,921.37
RE46780	DE01WB.OW.1195-1190 - Place Polymer Material (S+M)	4	22-Mar-21	25-Mar-21	50	$74,174.77
RE46850	DE01WB.OW.1195-1190 - Place Superpave Course (G+F+B)	4	29-Mar-21	01-Apr-21	50	$24,673.20
RE46920	DE01WB.OW.1195-1190 - Place Asphalt Concrete (A)	2	06-Apr-21	07-Apr-21	50	$0.00
DE01 - WB - Sta. 1190-1185 - Outside Widening		**14**	**22-Mar-21**	**13-Apr-21**	**48**	**$166,440.34**
RE46790	DE01WB.OW.1190-1185 - Setup Work Zone & Temp Barriers	2	22-Mar-21	23-Mar-21	38	$32,671.00
RE46810	DE01WB.OW.1190-1185 - Earthwork	2	24-Mar-21	25-Mar-21	38	$34,921.37
RE46880	DE01WB.OW.1190-1185 - Place Polymer Material (S+M)	4	29-Mar-21	01-Apr-21	48	$74,174.77



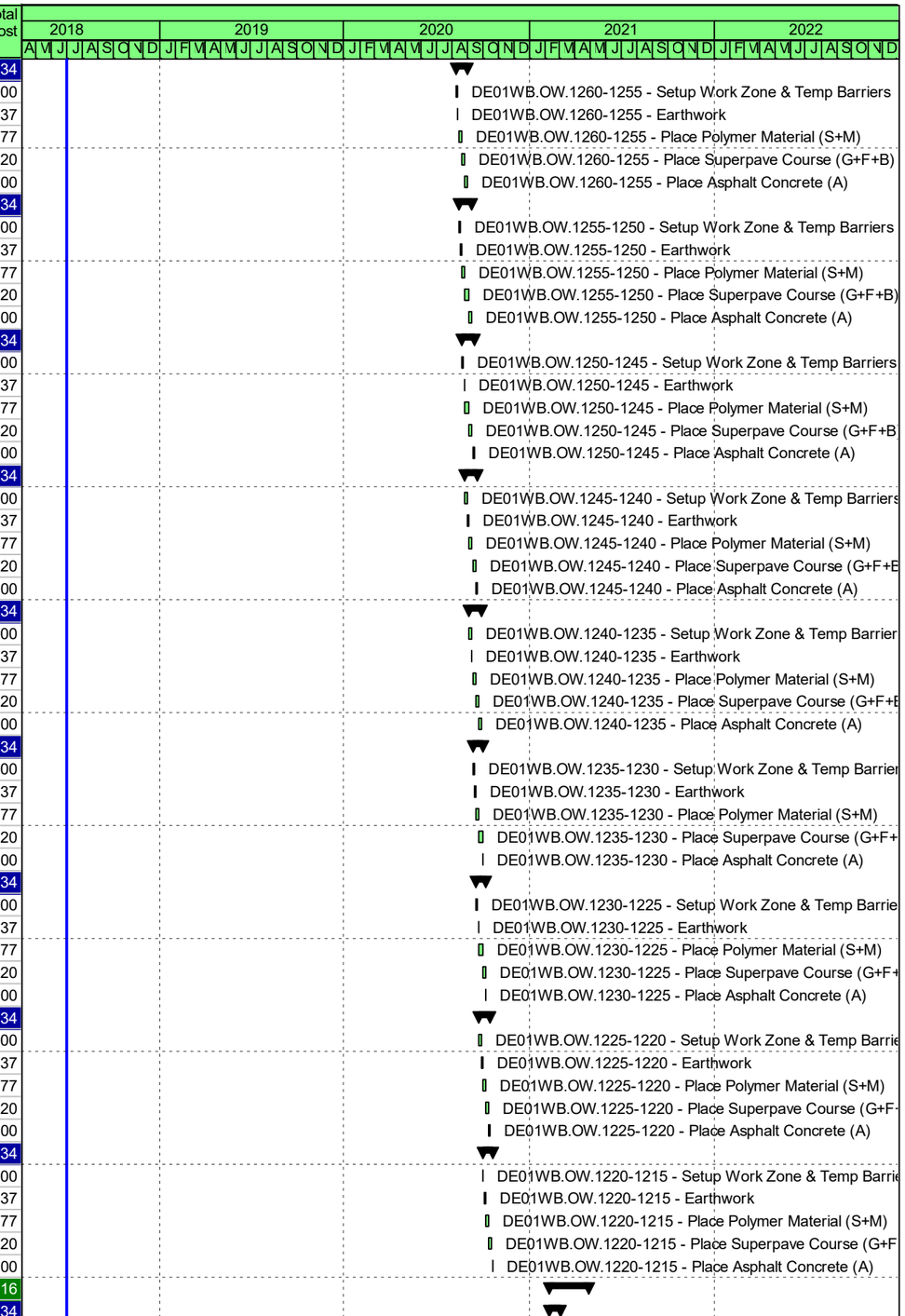
Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE46950	DE01WB.OW.1190-1185 - Place Superpave Course (G+F+B)	4	06-Apr-21	09-Apr-21	48	$24,673.20
RE47020	DE01WB.OW.1190-1185 - Place Asphalt Concrete (A)	2	12-Apr-21	13-Apr-21	48	$0.00
DE01 - WB - Sta. 1185-1180 - Outside Widening		**14**	**29-Mar-21**	**19-Apr-21**	**46**	**$166,440.34**
RE46890	DE01WB.OW.1185-1180 - Setup Work Zone & Temp Barriers	2	29-Mar-21	30-Mar-21	38	$32,671.00
RE46910	DE01WB.OW.1185-1180 - Earthwork	2	31-Mar-21	01-Apr-21	38	$34,921.37
RE46990	DE01WB.OW.1185-1180 - Place Polymer Material (S+M)	4	06-Apr-21	09-Apr-21	46	$74,174.77
RE47050	DE01WB.OW.1185-1180 - Place Superpave Course (G+F+B)	4	12-Apr-21	15-Apr-21	46	$24,673.20
RE47120	DE01WB.OW.1185-1180 - Place Asphalt Concrete (A)	2	16-Apr-21	19-Apr-21	46	$0.00
DE01 - WB - Sta. 1180-1175 - Outside Widening		**14**	**06-Apr-21**	**23-Apr-21**	**44**	**$166,440.34**
RE46980	DE01WB.OW.1180-1175 - Setup Work Zone & Temp Barriers	2	06-Apr-21	07-Apr-21	38	$32,671.00
RE47010	DE01WB.OW.1180-1175 - Earthwork	2	08-Apr-21	09-Apr-21	38	$34,921.37
RE47080	DE01WB.OW.1180-1175 - Place Polymer Material (S+M)	4	12-Apr-21	15-Apr-21	44	$74,174.77
RE47150	DE01WB.OW.1180-1175 - Place Superpave Course (G+F+B)	4	16-Apr-21	21-Apr-21	44	$24,673.20
RE47220	DE01WB.OW.1180-1175 - Place Asphalt Concrete (A)	2	22-Apr-21	23-Apr-21	44	$0.00
DE01 - WB - Sta. 1175-1170 - Outside Widening		**14**	**12-Apr-21**	**29-Apr-21**	**42**	**$166,440.34**
RE47090	DE01WB.OW.1175-1170 - Setup Work Zone & Temp Barriers	2	12-Apr-21	13-Apr-21	38	$32,671.00
RE47110	DE01WB.OW.1175-1170 - Earthwork	2	14-Apr-21	15-Apr-21	38	$34,921.37
RE47190	DE01WB.OW.1175-1170 - Place Polymer Material (S+M)	4	16-Apr-21	21-Apr-21	42	$74,174.77
RE47250	DE01WB.OW.1175-1170 - Place Superpave Course (G+F+B)	4	22-Apr-21	27-Apr-21	42	$24,673.20
RE47320	DE01WB.OW.1175-1170 - Place Asphalt Concrete (A)	2	28-Apr-21	29-Apr-21	42	$0.00
DE01 - WB - Sta. 1170-1165 - Outside Widening		**14**	**16-Apr-21**	**06-May-21**	**40**	**$166,440.34**
RE47180	DE01WB.OW.1170-1165 - Setup Work Zone & Temp Barriers	2	16-Apr-21	19-Apr-21	38	$32,671.00
RE47210	DE01WB.OW.1170-1165 - Earthwork	2	20-Apr-21	21-Apr-21	38	$34,921.37
RE47280	DE01WB.OW.1170-1165 - Place Polymer Material (S+M)	4	22-Apr-21	27-Apr-21	40	$74,174.77
RE47350	DE01WB.OW.1170-1165 - Place Superpave Course (G+F+B)	4	28-Apr-21	04-May-21	40	$24,673.20
RE47420	DE01WB.OW.1170-1165 - Place Asphalt Concrete (A)	2	05-May-21	06-May-21	40	$0.00
DE01 - WB - Sta. 1165-1160 - Outside Widening		**14**	**22-Apr-21**	**12-May-21**	**38**	**$166,440.34**
RE47290	DE01WB.OW.1165-1160 - Setup Work Zone & Temp Barriers	2	22-Apr-21	23-Apr-21	38	$32,671.00
RE47310	DE01WB.OW.1165-1160 - Earthwork	2	26-Apr-21	27-Apr-21	38	$34,921.37
RE47380	DE01WB.OW.1165-1160 - Place Polymer Material (S+M)	4	28-Apr-21	04-May-21	38	$74,174.77
RE47450	DE01WB.OW.1165-1160 - Place Superpave Course (G+F+B)	4	05-May-21	10-May-21	38	$24,673.20
RE47520	DE01WB.OW.1165-1160 - Place Asphalt Concrete (A)	2	11-May-21	12-May-21	38	$0.00
3E - EB - Sta. 1215-1270		**54**	**28-Jul-20**	**21-Oct-20**	**81**	**$1,830,843.74**
DE01 - EB - Sta. 1215-1220 - Outside Widening		**14**	**28-Jul-20**	**17-Aug-20**	**101**	**$166,440.34**
RE46640	DE01EB.OW.1215-1220 - Setup Work Zone & Temp Barriers	2	28-Jul-20	29-Jul-20	81	$32,671.00
RE46660	DE01EB.OW.1215-1220 - Earthwork	2	30-Jul-20	03-Aug-20	81	$34,921.37
RE46730	DE01EB.OW.1215-1220 - Place Polymer Material (S+M)	4	04-Aug-20	07-Aug-20	101	$74,174.77
RE46800	DE01EB.OW.1215-1220 - Place Superpave Course (G+F+B)	4	10-Aug-20	13-Aug-20	101	$24,673.20
RE46870	DE01EB.OW.1215-1220 - Place Asphalt Concrete (A)	2	14-Aug-20	17-Aug-20	101	$0.00
DE01 - EB - Sta. 1220-1225 - Outside Widening		**14**	**04-Aug-20**	**24-Aug-20**	**99**	**$166,440.34**
RE46740	DE01EB.OW.1220-1225 - Setup Work Zone & Temp Barriers	2	04-Aug-20	05-Aug-20	81	$32,671.00
RE46760	DE01EB.OW.1220-1225 - Earthwork	2	06-Aug-20	07-Aug-20	81	$34,921.37
RE46830	DE01EB.OW.1220-1225 - Place Polymer Material (S+M)	4	10-Aug-20	13-Aug-20	99	$74,174.77
RE46900	DE01EB.OW.1220-1225 - Place Superpave Course (G+F+B)	4	14-Aug-20	19-Aug-20	99	$24,673.20
RE46970	DE01EB.OW.1220-1225 - Place Asphalt Concrete (A)	2	20-Aug-20	24-Aug-20	99	$0.00
DE01 - EB - Sta. 1225-1230 - Outside Widening		**14**	**10-Aug-20**	**31-Aug-20**	**97**	**$166,440.34**
RE46840	DE01EB.OW.1225-1230 - Setup Work Zone & Temp Barriers	2	10-Aug-20	11-Aug-20	81	$32,671.00
RE46860	DE01EB.OW.1225-1230 - Earthwork	2	12-Aug-20	13-Aug-20	81	$34,921.37
RE46930	DE01EB.OW.1225-1230 - Place Polymer Material (S+M)	4	14-Aug-20	19-Aug-20	97	$74,174.77
RE47000	DE01EB.OW.1225-1230 - Place Superpave Course (G+F+B)	4	20-Aug-20	26-Aug-20	97	$24,673.20
RE47070	DE01EB.OW.1225-1230 - Place Asphalt Concrete (A)	2	27-Aug-20	31-Aug-20	97	$0.00
DE01 - EB - Sta. 1230-1235 - Outside Widening		**14**	**14-Aug-20**	**08-Sep-20**	**95**	**$166,440.34**
RE46940	DE01EB.OW.1230-1235 - Setup Work Zone & Temp Barriers	2	14-Aug-20	17-Aug-20	81	$32,671.00
RE46960	DE01EB.OW.1230-1235 - Earthwork	2	18-Aug-20	19-Aug-20	81	$34,921.37
RE47030	DE01EB.OW.1230-1235 - Place Polymer Material (S+M)	4	20-Aug-20	26-Aug-20	95	$74,174.77
RE47100	DE01EB.OW.1230-1235 - Place Superpave Course (G+F+B)	4	27-Aug-20	02-Sep-20	95	$24,673.20



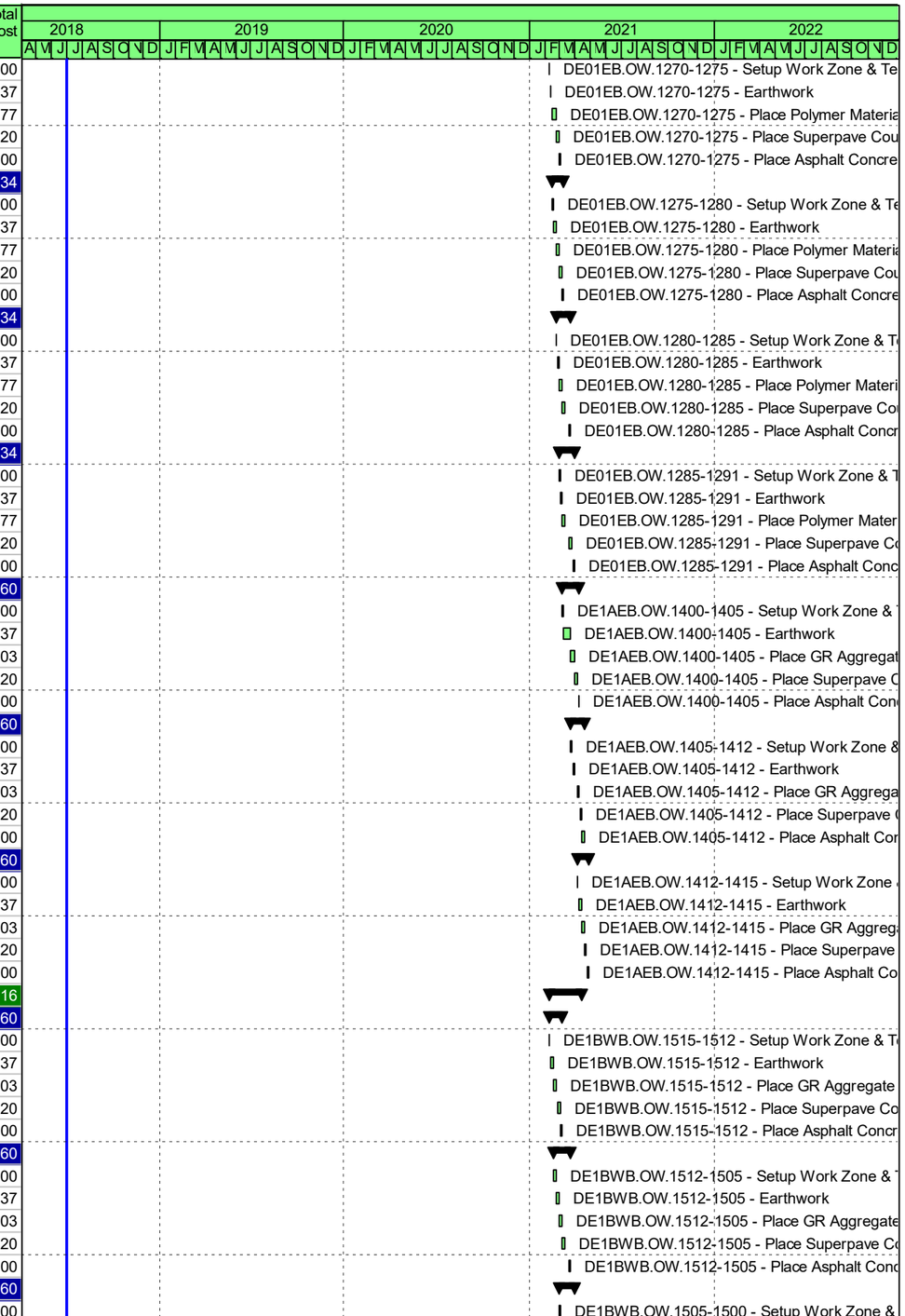
Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE47170	DE01EB.OW.1230-1235 - Place Asphalt Concrete (A)	2	03-Sep-20	08-Sep-20	95	$0.00
DE01 - EB - Sta. 1235-1240 - Outside Widening		**14**	**20-Aug-20**	**14-Sep-20**	**93**	**$166,440.34**
RE47040	DE01EB.OW.1235-1240 - Setup Work Zone & Temp Barriers	2	20-Aug-20	24-Aug-20	81	$32,671.00
RE47060	DE01EB.OW.1235-1240 - Earthwork	2	25-Aug-20	26-Aug-20	81	$34,921.37
RE47130	DE01EB.OW.1235-1240 - Place Polymer Material (S+M)	4	27-Aug-20	02-Sep-20	93	$74,174.77
RE47200	DE01EB.OW.1235-1240 - Place Superpave Course (G+F+B)	4	03-Sep-20	10-Sep-20	93	$24,673.20
RE47270	DE01EB.OW.1235-1240 - Place Asphalt Concrete (A)	2	11-Sep-20	14-Sep-20	93	$0.00
DE01 - EB - Sta. 1240-1245 - Outside Widening		**14**	**27-Aug-20**	**21-Sep-20**	**91**	**$166,440.34**
RE47140	DE01EB.OW.1240-1245 - Setup Work Zone & Temp Barriers	2	27-Aug-20	31-Aug-20	81	$32,671.00
RE47160	DE01EB.OW.1240-1245 - Earthwork	2	01-Sep-20	02-Sep-20	81	$34,921.37
RE47230	DE01EB.OW.1240-1245 - Place Polymer Material (S+M)	4	03-Sep-20	10-Sep-20	91	$74,174.77
RE47300	DE01EB.OW.1240-1245 - Place Superpave Course (G+F+B)	4	11-Sep-20	16-Sep-20	91	$24,673.20
RE47370	DE01EB.OW.1240-1245 - Place Asphalt Concrete (A)	2	17-Sep-20	21-Sep-20	91	$0.00
DE01 - EB - Sta. 1245-1250 - Outside Widening		**14**	**03-Sep-20**	**28-Sep-20**	**89**	**$166,440.34**
RE47240	DE01EB.OW.1245-1250 - Setup Work Zone & Temp Barriers	2	03-Sep-20	08-Sep-20	81	$32,671.00
RE47260	DE01EB.OW.1245-1250 - Earthwork	2	09-Sep-20	10-Sep-20	81	$34,921.37
RE47330	DE01EB.OW.1245-1250 - Place Polymer Material (S+M)	4	11-Sep-20	16-Sep-20	89	$74,174.77
RE47400	DE01EB.OW.1245-1250 - Place Superpave Course (G+F+B)	4	17-Sep-20	23-Sep-20	89	$24,673.20
RE47470	DE01EB.OW.1245-1250 - Place Asphalt Concrete (A)	2	24-Sep-20	28-Sep-20	89	$0.00
DE01 - EB - Sta. 1250-1255 - Outside Widening		**14**	**11-Sep-20**	**02-Oct-20**	**87**	**$166,440.34**
RE47340	DE01EB.OW.1250-1255 - Setup Work Zone & Temp Barriers	2	11-Sep-20	14-Sep-20	81	$32,671.00
RE47360	DE01EB.OW.1250-1255 - Earthwork	2	15-Sep-20	16-Sep-20	81	$34,921.37
RE47440	DE01EB.OW.1250-1255 - Place Polymer Material (S+M)	4	17-Sep-20	23-Sep-20	87	$74,174.77
RE47500	DE01EB.OW.1250-1255 - Place Superpave Course (G+F+B)	4	24-Sep-20	30-Sep-20	87	$24,673.20
RE47570	DE01EB.OW.1250-1255 - Place Asphalt Concrete (A)	2	01-Oct-20	02-Oct-20	87	$0.00
DE01 - EB - Sta. 1255-1260 - Outside Widening		**14**	**17-Sep-20**	**08-Oct-20**	**85**	**$166,440.34**
RE47430	DE01EB.OW.1255-1260 - Setup Work Zone & Temp Barriers	2	17-Sep-20	21-Sep-20	81	$32,671.00
RE47460	DE01EB.OW.1255-1260 - Earthwork	2	22-Sep-20	23-Sep-20	81	$34,921.37
RE47530	DE01EB.OW.1255-1260 - Place Polymer Material (S+M)	4	24-Sep-20	30-Sep-20	85	$74,174.77
RE47600	DE01EB.OW.1255-1260 - Place Superpave Course (G+F+B)	4	01-Oct-20	06-Oct-20	85	$24,673.20
RE47670	DE01EB.OW.1255-1260 - Place Asphalt Concrete (A)	2	07-Oct-20	08-Oct-20	85	$0.00
DE01 - EB - Sta. 1260-1265 - Outside Widening		**14**	**24-Sep-20**	**15-Oct-20**	**83**	**$166,440.34**
RE47540	DE01EB.OW.1260-1265 - Setup Work Zone & Temp Barriers	2	24-Sep-20	28-Sep-20	81	$32,671.00
RE47560	DE01EB.OW.1260-1265 - Earthwork	2	29-Sep-20	30-Sep-20	81	$34,921.37
RE47630	DE01EB.OW.1260-1265 - Place Polymer Material (S+M)	4	01-Oct-20	06-Oct-20	83	$74,174.77
RE47700	DE01EB.OW.1260-1265 - Place Superpave Course (G+F+B)	4	07-Oct-20	13-Oct-20	83	$24,673.20
RE47770	DE01EB.OW.1260-1265 - Place Asphalt Concrete (A)	2	14-Oct-20	15-Oct-20	83	$0.00
DE01 - EB - Sta. 1265-1270 - Outside Widening		**14**	**01-Oct-20**	**21-Oct-20**	**81**	**$166,440.34**
RE47640	DE01EB.OW.1265-1270 - Setup Work Zone & Temp Barriers	2	01-Oct-20	02-Oct-20	81	$32,671.00
RE47660	DE01EB.OW.1265-1270 - Earthwork	2	05-Oct-20	06-Oct-20	81	$34,921.37
RE47730	DE01EB.OW.1265-1270 - Place Polymer Material (S+M)	4	07-Oct-20	13-Oct-20	81	$74,174.77
RE47800	DE01EB.OW.1265-1270 - Place Superpave Course (G+F+B)	4	14-Oct-20	19-Oct-20	81	$24,673.20
RE47870	DE01EB.OW.1265-1270 - Place Asphalt Concrete (A)	2	20-Oct-20	21-Oct-20	81	$0.00
3W - WB - Sta. 1270-1215		**54**	**28-Jul-20**	**21-Oct-20**	**81**	**$1,830,843.74**
DE01 - WB - Sta. 1270-1265 - Outside Widening		**14**	**28-Jul-20**	**17-Aug-20**	**101**	**$166,440.34**
RE44870	DE01WB.OW.1270-1265 - Setup Work Zone & Temp Barriers	2	28-Jul-20	29-Jul-20	81	$32,671.00
RE44900	DE01WB.OW.1270-1265 - Earthwork	2	30-Jul-20	03-Aug-20	81	$34,921.37
RE45000	DE01WB.OW.1270-1265 - Place Polymer Material (S+M)	4	04-Aug-20	07-Aug-20	101	$74,174.77
RE45090	DE01WB.OW.1270-1265 - Place Superpave Course (G+F+B)	4	10-Aug-20	13-Aug-20	101	$24,673.20
RE45190	DE01WB.OW.1270-1265 - Place Asphalt Concrete (A)	2	14-Aug-20	17-Aug-20	101	$0.00
DE01 - WB - Sta. 1265-1260 - Outside Widening		**14**	**04-Aug-20**	**24-Aug-20**	**99**	**$166,440.34**
RE45010	DE01WB.OW.1265-1260 - Setup Work Zone & Temp Barriers	2	04-Aug-20	05-Aug-20	81	$32,671.00
RE45040	DE01WB.OW.1265-1260 - Earthwork	2	06-Aug-20	07-Aug-20	81	$34,921.37
RE45150	DE01WB.OW.1265-1260 - Place Polymer Material (S+M)	4	10-Aug-20	13-Aug-20	99	$74,174.77
RE45230	DE01WB.OW.1265-1260 - Place Superpave Course (G+F+B)	4	14-Aug-20	19-Aug-20	99	$24,673.20
RE45330	DE01WB.OW.1265-1260 - Place Asphalt Concrete (A)	2	20-Aug-20	24-Aug-20	99	$0.00



Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
DE01 - WB - Sta. 1260-1255 - Outside Widening		**14**	**10-Aug-20**	**31-Aug-20**	**97**	**$166,440.34**
RE45140	DE01WB.OW.1260-1255 - Setup Work Zone & Temp Barriers	2	10-Aug-20	11-Aug-20	81	$32,671.00
RE45180	DE01WB.OW.1260-1255 - Earthwork	2	12-Aug-20	13-Aug-20	81	$34,921.37
RE45290	DE01WB.OW.1260-1255 - Place Polymer Material (S+M)	4	14-Aug-20	19-Aug-20	97	$74,174.77
RE45370	DE01WB.OW.1260-1255 - Place Superpave Course (G+F+B)	4	20-Aug-20	26-Aug-20	97	$24,673.20
RE45470	DE01WB.OW.1260-1255 - Place Asphalt Concrete (A)	2	27-Aug-20	31-Aug-20	97	$0.00
DE01 - WB - Sta. 1255-1250 - Outside Widening		**14**	**14-Aug-20**	**08-Sep-20**	**95**	**$166,440.34**
RE45280	DE01WB.OW.1255-1250 - Setup Work Zone & Temp Barriers	2	14-Aug-20	17-Aug-20	81	$32,671.00
RE45320	DE01WB.OW.1255-1250 - Earthwork	2	18-Aug-20	19-Aug-20	81	$34,921.37
RE45420	DE01WB.OW.1255-1250 - Place Polymer Material (S+M)	4	20-Aug-20	26-Aug-20	95	$74,174.77
RE45510	DE01WB.OW.1255-1250 - Place Superpave Course (G+F+B)	4	27-Aug-20	02-Sep-20	95	$24,673.20
RE45610	DE01WB.OW.1255-1250 - Place Asphalt Concrete (A)	2	03-Sep-20	08-Sep-20	95	$0.00
DE01 - WB - Sta. 1250-1245 - Outside Widening		**14**	**20-Aug-20**	**14-Sep-20**	**93**	**$166,440.34**
RE45430	DE01WB.OW.1250-1245 - Setup Work Zone & Temp Barriers	2	20-Aug-20	24-Aug-20	81	$32,671.00
RE45460	DE01WB.OW.1250-1245 - Earthwork	2	25-Aug-20	26-Aug-20	81	$34,921.37
RE45560	DE01WB.OW.1250-1245 - Place Polymer Material (S+M)	4	27-Aug-20	02-Sep-20	93	$74,174.77
RE45650	DE01WB.OW.1250-1245 - Place Superpave Course (G+F+B)	4	03-Sep-20	10-Sep-20	93	$24,673.20
RE45750	DE01WB.OW.1250-1245 - Place Asphalt Concrete (A)	2	11-Sep-20	14-Sep-20	93	$0.00
DE01 - WB - Sta. 1245-1240 - Outside Widening		**14**	**27-Aug-20**	**21-Sep-20**	**91**	**$166,440.34**
RE45570	DE01WB.OW.1245-1240 - Setup Work Zone & Temp Barriers	2	27-Aug-20	31-Aug-20	81	$32,671.00
RE45600	DE01WB.OW.1245-1240 - Earthwork	2	01-Sep-20	02-Sep-20	81	$34,921.37
RE45700	DE01WB.OW.1245-1240 - Place Polymer Material (S+M)	4	03-Sep-20	10-Sep-20	91	$74,174.77
RE45790	DE01WB.OW.1245-1240 - Place Superpave Course (G+F+B)	4	11-Sep-20	16-Sep-20	91	$24,673.20
RE45890	DE01WB.OW.1245-1240 - Place Asphalt Concrete (A)	2	17-Sep-20	21-Sep-20	91	$0.00
DE01 - WB - Sta. 1240-1235 - Outside Widening		**14**	**03-Sep-20**	**28-Sep-20**	**89**	**$166,440.34**
RE45710	DE01WB.OW.1240-1235 - Setup Work Zone & Temp Barriers	2	03-Sep-20	08-Sep-20	81	$32,671.00
RE45740	DE01WB.OW.1240-1235 - Earthwork	2	09-Sep-20	10-Sep-20	81	$34,921.37
RE45840	DE01WB.OW.1240-1235 - Place Polymer Material (S+M)	4	11-Sep-20	16-Sep-20	89	$74,174.77
RE45930	DE01WB.OW.1240-1235 - Place Superpave Course (G+F+B)	4	17-Sep-20	23-Sep-20	89	$24,673.20
RE46010	DE01WB.OW.1240-1235 - Place Asphalt Concrete (A)	2	24-Sep-20	28-Sep-20	89	$0.00
DE01 - WB - Sta. 1235-1230 - Outside Widening		**14**	**11-Sep-20**	**02-Oct-20**	**87**	**$166,440.34**
RE45850	DE01WB.OW.1235-1230 - Setup Work Zone & Temp Barriers	2	11-Sep-20	14-Sep-20	81	$32,671.00
RE45880	DE01WB.OW.1235-1230 - Earthwork	2	15-Sep-20	16-Sep-20	81	$34,921.37
RE45980	DE01WB.OW.1235-1230 - Place Polymer Material (S+M)	4	17-Sep-20	23-Sep-20	87	$74,174.77
RE46050	DE01WB.OW.1235-1230 - Place Superpave Course (G+F+B)	4	24-Sep-20	30-Sep-20	87	$24,673.20
RE46120	DE01WB.OW.1235-1230 - Place Asphalt Concrete (A)	2	01-Oct-20	02-Oct-20	87	$0.00
DE01 - WB - Sta. 1230-1225 - Outside Widening		**14**	**17-Sep-20**	**08-Oct-20**	**85**	**$166,440.34**
RE45970	DE01WB.OW.1230-1225 - Setup Work Zone & Temp Barriers	2	17-Sep-20	21-Sep-20	81	$32,671.00
RE46000	DE01WB.OW.1230-1225 - Earthwork	2	22-Sep-20	23-Sep-20	81	$34,921.37
RE46080	DE01WB.OW.1230-1225 - Place Polymer Material (S+M)	4	24-Sep-20	30-Sep-20	85	$74,174.77
RE46150	DE01WB.OW.1230-1225 - Place Superpave Course (G+F+B)	4	01-Oct-20	06-Oct-20	85	$24,673.20
RE46220	DE01WB.OW.1230-1225 - Place Asphalt Concrete (A)	2	07-Oct-20	08-Oct-20	85	$0.00
DE01 - WB - Sta. 1225-1220 - Outside Widening		**14**	**24-Sep-20**	**15-Oct-20**	**83**	**$166,440.34**
RE46090	DE01WB.OW.1225-1220 - Setup Work Zone & Temp Barriers	2	24-Sep-20	28-Sep-20	81	$32,671.00
RE46110	DE01WB.OW.1225-1220 - Earthwork	2	29-Sep-20	30-Sep-20	81	$34,921.37
RE46180	DE01WB.OW.1225-1220 - Place Polymer Material (S+M)	4	01-Oct-20	06-Oct-20	83	$74,174.77
RE46250	DE01WB.OW.1225-1220 - Place Superpave Course (G+F+B)	4	07-Oct-20	13-Oct-20	83	$24,673.20
RE46320	DE01WB.OW.1225-1220 - Place Asphalt Concrete (A)	2	14-Oct-20	15-Oct-20	83	$0.00
DE01 - WB - Sta. 1220-1215 - Outside Widening		**14**	**01-Oct-20**	**21-Oct-20**	**81**	**$166,440.34**
RE46190	DE01WB.OW.1220-1215 - Setup Work Zone & Temp Barriers	2	01-Oct-20	02-Oct-20	81	$32,671.00
RE46210	DE01WB.OW.1220-1215 - Earthwork	2	05-Oct-20	06-Oct-20	81	$34,921.37
RE46280	DE01WB.OW.1220-1215 - Place Polymer Material (S+M)	4	07-Oct-20	13-Oct-20	81	$74,174.77
RE46350	DE01WB.OW.1220-1215 - Place Superpave Course (G+F+B)	4	14-Oct-20	19-Oct-20	81	$24,673.20
RE46420	DE01WB.OW.1220-1215 - Place Asphalt Concrete (A)	2	20-Oct-20	21-Oct-20	81	$0.00
4E - EB - Sta. 1270-1415		**44**	**09-Feb-21**	**27-Apr-21**	**48**	**$1,002,876.16**
DE01 - EB - Sta. 1270-1275 - Outside Widening		**14**	**09-Feb-21**	**03-Mar-21**	**60**	**$166,440.34**

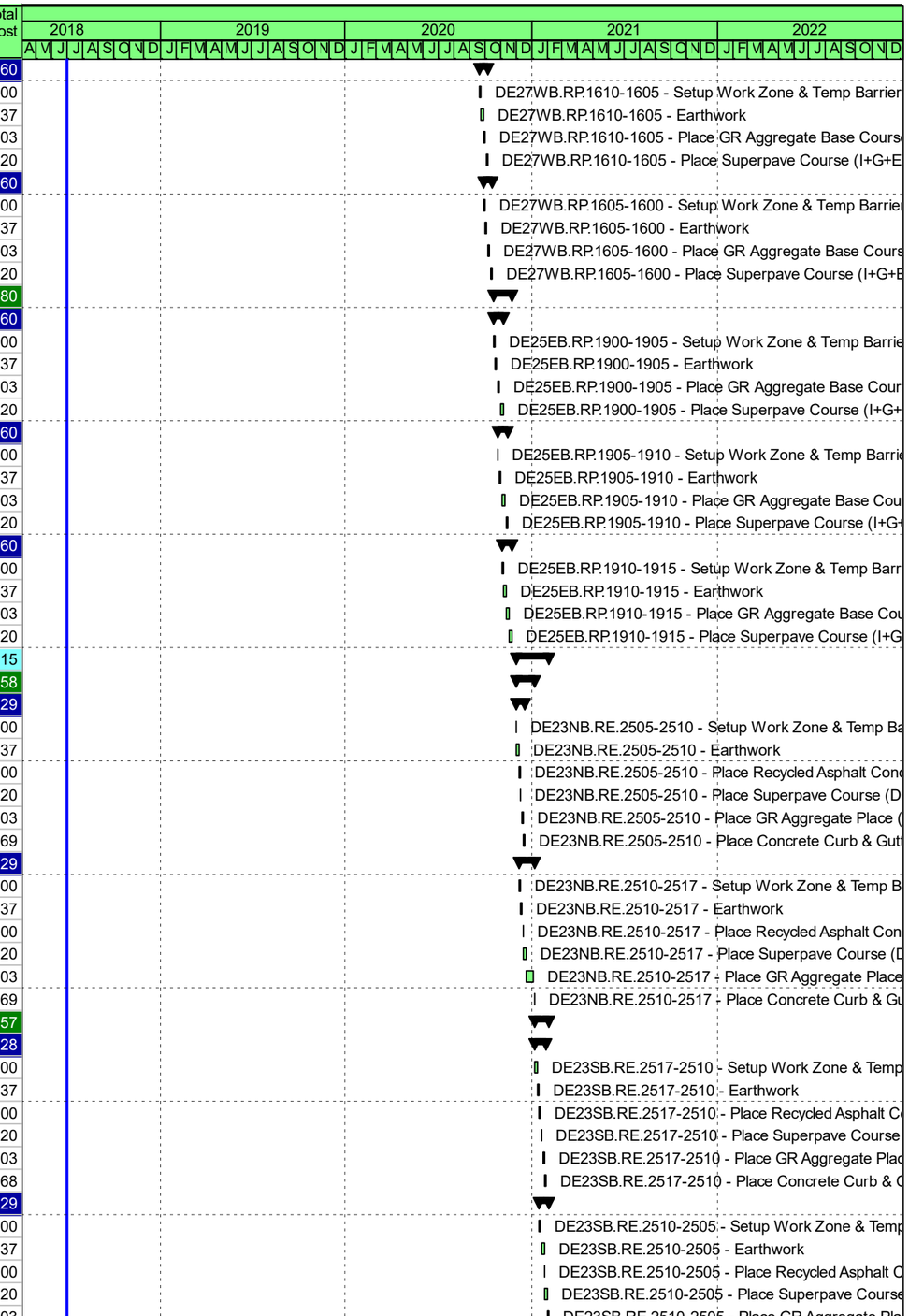


Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE47740	DE01EB.OW.1270-1275 - Setup Work Zone & Temp Barriers	2	09-Feb-21	10-Feb-21	26	$32,671.00
RE47760	DE01EB.OW.1270-1275 - Earthwork	2	11-Feb-21	12-Feb-21	26	$34,921.37
RE47830	DE01EB.OW.1270-1275 - Place Polymer Material (S+M)	4	16-Feb-21	22-Feb-21	60	$74,174.77
RE47900	DE01EB.OW.1270-1275 - Place Superpave Course (G+F+B)	4	23-Feb-21	01-Mar-21	60	$24,673.20
RE47970	DE01EB.OW.1270-1275 - Place Asphalt Concrete (A)	2	02-Mar-21	03-Mar-21	60	$0.00
DE01 - EB - Sta. 1275-1280 - Outside Widening		**14**	**16-Feb-21**	**09-Mar-21**	**58**	**$166,440.34**
RE47840	DE01EB.OW.1275-1280 - Setup Work Zone & Temp Barriers	2	16-Feb-21	17-Feb-21	26	$32,671.00
RE47860	DE01EB.OW.1275-1280 - Earthwork	2	18-Feb-21	22-Feb-21	26	$34,921.37
RE47930	DE01EB.OW.1275-1280 - Place Polymer Material (S+M)	4	23-Feb-21	01-Mar-21	58	$74,174.77
RE48000	DE01EB.OW.1275-1280 - Place Superpave Course (G+F+B)	4	02-Mar-21	05-Mar-21	58	$24,673.20
RE48070	DE01EB.OW.1275-1280 - Place Asphalt Concrete (A)	2	08-Mar-21	09-Mar-21	58	$0.00
DE01 - EB - Sta. 1280-1285 - Outside Widening		**14**	**23-Feb-21**	**23-Mar-21**	**56**	**$166,440.34**
RE47940	DE01EB.OW.1280-1285 - Setup Work Zone & Temp Barriers	2	23-Feb-21	24-Feb-21	26	$32,671.00
RE47960	DE01EB.OW.1280-1285 - Earthwork	2	25-Feb-21	01-Mar-21	26	$34,921.37
RE48030	DE01EB.OW.1280-1285 - Place Polymer Material (S+M)	4	02-Mar-21	05-Mar-21	56	$74,174.77
RE48100	DE01EB.OW.1280-1285 - Place Superpave Course (G+F+B)	4	08-Mar-21	11-Mar-21	56	$24,673.20
RE48190	DE01EB.OW.1280-1285 - Place Asphalt Concrete (A)	2	22-Mar-21	23-Mar-21	56	$0.00
DE01 - EB - Sta. 1285-1291 - Outside Widening		**14**	**02-Mar-21**	**30-Mar-21**	**54**	**$166,440.34**
RE48040	DE01EB.OW.1285-1291 - Setup Work Zone & Temp Barriers	2	02-Mar-21	03-Mar-21	26	$32,671.00
RE48060	DE01EB.OW.1285-1291 - Earthwork	2	04-Mar-21	05-Mar-21	26	$34,921.37
RE48150	DE01EB.OW.1285-1291 - Place Polymer Material (S+M)	4	08-Mar-21	11-Mar-21	54	$74,174.77
RE48220	DE01EB.OW.1285-1291 - Place Superpave Course (G+F+B)	4	22-Mar-21	25-Mar-21	54	$24,673.20
RE48290	DE01EB.OW.1285-1291 - Place Asphalt Concrete (A)	2	29-Mar-21	30-Mar-21	54	$0.00
DE1A - EB - Sta. 1400-1405 - Outside Widening		**16**	**08-Mar-21**	**09-Apr-21**	**56**	**$112,371.60**
RE48160	DE1AEB.OW.1400-1405 - Setup Work Zone & Temp Barriers	2	08-Mar-21	09-Mar-21	48	$32,671.00
RE48180	DE1AEB.OW.1400-1405 - Earthwork	4	10-Mar-21	23-Mar-21	48	$34,921.37
RE48250	DE1AEB.OW.1400-1405 - Place GR Aggregate Base Course (O)	4	24-Mar-21	30-Mar-21	56	$20,106.03
RE48320	DE1AEB.OW.1400-1405 - Place Superpave Course (K+G+B)	4	31-Mar-21	07-Apr-21	56	$24,673.20
RE48390	DE1AEB.OW.1400-1405 - Place Asphalt Concrete (A)	2	08-Apr-21	09-Apr-21	56	$0.00
DE1A - EB - Sta. 1405-1412 - Outside Widening		**16**	**24-Mar-21**	**19-Apr-21**	**52**	**$112,371.60**
RE48260	DE1AEB.OW.1405-1412 - Setup Work Zone & Temp Barriers	2	24-Mar-21	25-Mar-21	48	$32,671.00
RE48280	DE1AEB.OW.1405-1412 - Earthwork	4	29-Mar-21	01-Apr-21	48	$34,921.37
RE48360	DE1AEB.OW.1405-1412 - Place GR Aggregate Base Course (O)	4	06-Apr-21	09-Apr-21	52	$20,106.03
RE48420	DE1AEB.OW.1405-1412 - Place Superpave Course (K+G+B)	4	12-Apr-21	15-Apr-21	52	$24,673.20
RE48470	DE1AEB.OW.1405-1412 - Place Asphalt Concrete (A)	2	16-Apr-21	19-Apr-21	52	$0.00
DE1A - EB - Sta. 1412-1415 - Outside Widening		**16**	**06-Apr-21**	**27-Apr-21**	**48**	**$112,371.60**
RE48350	DE1AEB.OW.1412-1415 - Setup Work Zone & Temp Barriers	2	06-Apr-21	07-Apr-21	48	$32,671.00
RE48380	DE1AEB.OW.1412-1415 - Earthwork	4	08-Apr-21	13-Apr-21	48	$34,921.37
RE48450	DE1AEB.OW.1412-1415 - Place GR Aggregate Base Course (O)	4	14-Apr-21	19-Apr-21	48	$20,106.03
RE48490	DE1AEB.OW.1412-1415 - Place Superpave Course (K+G+B)	4	20-Apr-21	23-Apr-21	48	$24,673.20
RE48520	DE1AEB.OW.1412-1415 - Place Asphalt Concrete (A)	2	26-Apr-21	27-Apr-21	48	$0.00
4W - WB - Sta. 1515-1270		**36**	**09-Feb-21**	**15-Apr-21**	**48**	**$1,002,876.16**
DE1B - WB - Sta. 1515-1512 - Outside Widening		**16**	**09-Feb-21**	**05-Mar-21**	**56**	**$112,371.60**
RE43870	DE1BWB.OW.1515-1512 - Setup Work Zone & Temp Barriers	2	09-Feb-21	10-Feb-21	48	$32,671.00
RE43900	DE1BWB.OW.1515-1512 - Earthwork	4	11-Feb-21	17-Feb-21	48	$34,921.37
RE43980	DE1BWB.OW.1515-1512 - Place GR Aggregate Base Course (O)	4	18-Feb-21	24-Feb-21	56	$20,106.03
RE44060	DE1BWB.OW.1515-1512 - Place Superpave Course (K+G+B)	4	25-Feb-21	03-Mar-21	56	$24,673.20
RE44170	DE1BWB.OW.1515-1512 - Place Asphalt Concrete (A)	2	04-Mar-21	05-Mar-21	56	$0.00
DE1B - WB - Sta. 1512-1505 - Outside Widening		**16**	**18-Feb-21**	**23-Mar-21**	**52**	**$112,371.60**
RE43970	DE1BWB.OW.1512-1505 - Setup Work Zone & Temp Barriers	2	18-Feb-21	22-Feb-21	48	$32,671.00
RE44020	DE1BWB.OW.1512-1505 - Earthwork	4	23-Feb-21	01-Mar-21	48	$34,921.37
RE44120	DE1BWB.OW.1512-1505 - Place GR Aggregate Base Course (O)	4	02-Mar-21	05-Mar-21	52	$20,106.03
RE44210	DE1BWB.OW.1512-1505 - Place Superpave Course (K+G+B)	4	08-Mar-21	11-Mar-21	52	$24,673.20
RE44320	DE1BWB.OW.1512-1505 - Place Asphalt Concrete (A)	2	22-Mar-21	23-Mar-21	52	$0.00
DE1B - WB - Sta. 1505-1500 - Outside Widening		**16**	**02-Mar-21**	**01-Apr-21**	**48**	**$112,371.60**
RE44110	DE1BWB.OW.1505-1500 - Setup Work Zone & Temp Barriers	2	02-Mar-21	03-Mar-21	48	$32,671.00

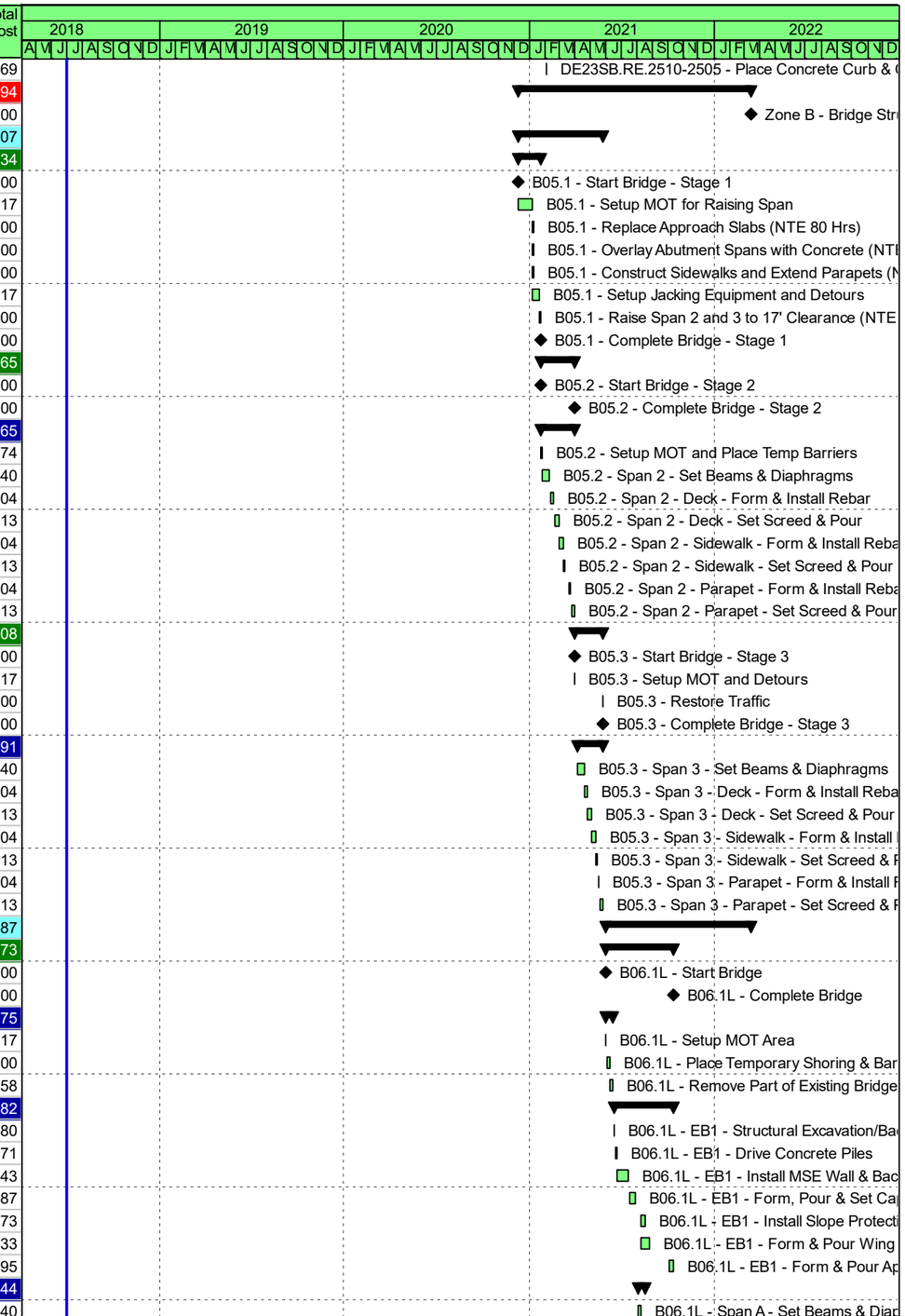


Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE44160	DE1BWB.OW.1505-1500 - Earthwork	4	04-Mar-21	09-Mar-21	48	$34,921.37
RE44270	DE1BWB.OW.1505-1500 - Place GR Aggregate Base Course (O)	4	10-Mar-21	23-Mar-21	48	$20,106.03
RE44360	DE1BWB.OW.1505-1500 - Place Superpave Course (K+G+B)	4	24-Mar-21	30-Mar-21	48	$24,673.20
RE44470	DE1BWB.OW.1505-1500 - Place Asphalt Concrete (A)	2	31-Mar-21	01-Apr-21	48	$0.00
DE01 - WB - Sta. 1291-1285 - Outside Widening		**30**	**09-Feb-21**	**07-Apr-21**	**48**	**$166,440.34**
RE44260	DE01WB.OW.1291-1285 - Setup Work Zone & Temp Barriers	2	09-Feb-21	10-Feb-21	28	$32,671.00
RE44310	DE01WB.OW.1291-1285 - Earthwork	2	11-Feb-21	12-Feb-21	28	$34,921.37
RE44410	DE01WB.OW.1291-1285 - Place Polymer Material (S+M)	4	16-Feb-21	22-Feb-21	64	$74,174.77
RE44510	DE01WB.OW.1291-1285 - Place Superpave Course (G+F+B)	4	23-Feb-21	01-Mar-21	64	$24,673.20
RE44620	DE01WB.OW.1291-1285 - Place Asphalt Concrete (A)	2	06-Apr-21	07-Apr-21	48	$0.00
DE01 - WB - Sta. 1285-1280 - Outside Widening		**28**	**16-Feb-21**	**09-Apr-21**	**48**	**$166,440.34**
RE44420	DE01WB.OW.1285-1280 - Setup Work Zone & Temp Barriers	2	16-Feb-21	17-Feb-21	28	$32,671.00
RE44460	DE01WB.OW.1285-1280 - Earthwork	2	18-Feb-21	22-Feb-21	28	$34,921.37
RE44560	DE01WB.OW.1285-1280 - Place Polymer Material (S+M)	4	23-Feb-21	01-Mar-21	62	$74,174.77
RE44660	DE01WB.OW.1285-1280 - Place Superpave Course (G+F+B)	4	02-Mar-21	05-Mar-21	62	$24,673.20
RE44770	DE01WB.OW.1285-1280 - Place Asphalt Concrete (A)	2	08-Apr-21	09-Apr-21	48	$0.00
DE01 - WB - Sta. 1280-1275 - Outside Widening		**26**	**23-Feb-21**	**13-Apr-21**	**48**	**$166,440.34**
RE44570	DE01WB.OW.1280-1275 - Setup Work Zone & Temp Barriers	2	23-Feb-21	24-Feb-21	28	$32,671.00
RE44610	DE01WB.OW.1280-1275 - Earthwork	2	25-Feb-21	01-Mar-21	28	$34,921.37
RE44710	DE01WB.OW.1280-1275 - Place Polymer Material (S+M)	4	02-Mar-21	05-Mar-21	60	$74,174.77
RE44810	DE01WB.OW.1280-1275 - Place Superpave Course (G+F+B)	4	08-Mar-21	11-Mar-21	60	$24,673.20
RE44910	DE01WB.OW.1280-1275 - Place Asphalt Concrete (A)	2	12-Apr-21	13-Apr-21	48	$0.00
DE01 - WB - Sta. 1275-1270 - Outside Widening		**24**	**02-Mar-21**	**15-Apr-21**	**48**	**$166,440.34**
RE44720	DE01WB.OW.1275-1270 - Setup Work Zone & Temp Barriers	2	02-Mar-21	03-Mar-21	28	$32,671.00
RE44760	DE01WB.OW.1275-1270 - Earthwork	2	04-Mar-21	05-Mar-21	28	$34,921.37
RE44860	DE01WB.OW.1275-1270 - Place Polymer Material (S+M)	4	08-Mar-21	11-Mar-21	58	$74,174.77
RE44950	DE01WB.OW.1275-1270 - Place Superpave Course (G+F+B)	4	22-Mar-21	25-Mar-21	58	$24,673.20
RE45050	DE01WB.OW.1275-1270 - Place Asphalt Concrete (A)	2	14-Apr-21	15-Apr-21	48	$0.00
Ramps		**74**	**28-Jul-20**	**24-Nov-20**	**93**	**$1,123,716.00**
DE24 - Ramp EB - Sta. 1800-1816		**23**	**28-Jul-20**	**01-Sep-20**	**93**	**$337,114.80**
DE24 - EB - Sta. 1800-1805 - Ramp		**13**	**28-Jul-20**	**14-Aug-20**	**95**	**$112,371.60**
RE13110	DE24EB.RP.1800-1805 - Setup Work Zone & Temp Barriers	2	28-Jul-20	29-Jul-20	93	$32,671.00
RE13570	DE24EB.RP.1800-1805 - Earthwork	3	30-Jul-20	04-Aug-20	93	$34,921.37
RE14920	DE24EB.RP.1800-1805 - Place GR Aggregate Base Course	4	05-Aug-20	10-Aug-20	95	$20,106.03
RE15410	DE24EB.RP.1800-1805 - Place Superpave Course (I+G+E)	4	11-Aug-20	14-Aug-20	95	$24,673.20
DE24 - EB - Sta. 1805-1810 - Ramp		**13**	**05-Aug-20**	**24-Aug-20**	**94**	**$112,371.60**
RE14930	DE24EB.RP.1805-1810 - Setup Work Zone & Temp Barriers	2	05-Aug-20	06-Aug-20	93	$32,671.00
RE15100	DE24EB.RP.1805-1810 - Earthwork	3	07-Aug-20	11-Aug-20	93	$34,921.37
RE16250	DE24EB.RP.1805-1810 - Place GR Aggregate Base Course	4	12-Aug-20	17-Aug-20	94	$20,106.03
RE16730	DE24EB.RP.1805-1810 - Place Superpave Course (I+G+E)	4	18-Aug-20	24-Aug-20	94	$24,673.20
DE24 - EB - Sta. 1810-1816 - Ramp		**13**	**12-Aug-20**	**01-Sep-20**	**93**	**$112,371.60**
RE16260	DE24EB.RP.1810-1816 - Setup Work Zone & Temp Barriers	2	12-Aug-20	13-Aug-20	93	$32,671.00
RE16520	DE24EB.RP.1810-1816 - Earthwork	3	14-Aug-20	18-Aug-20	93	$34,921.37
RE17320	DE24EB.RP.1810-1816 - Place GR Aggregate Base Course	4	19-Aug-20	25-Aug-20	93	$20,106.03
RE17920	DE24EB.RP.1810-1816 - Place Superpave Course (I+G+E)	4	26-Aug-20	01-Sep-20	93	$24,673.20
DE27 - Ramp WB - Sta. 1618-1600		**28**	**02-Sep-20**	**16-Oct-20**	**93**	**$449,486.40**
DE27 - WB - Sta. 1618-1615 - Ramp		**13**	**02-Sep-20**	**23-Sep-20**	**96**	**$112,371.60**
RE18660	DE27WB.RP.1618-1615 - Setup Work Zone & Temp Barriers	2	02-Sep-20	03-Sep-20	93	$32,671.00
RE18890	DE27WB.RP.1618-1615 - Earthwork	3	08-Sep-20	10-Sep-20	93	$34,921.37
RE19600	DE27WB.RP.1618-1615 - Place GR Aggregate Base Course	4	11-Sep-20	16-Sep-20	96	$20,106.03
RE20160	DE27WB.RP.1618-1615 - Place Superpave Course (I+G+E)	4	17-Sep-20	23-Sep-20	96	$24,673.20
DE27 - WB - Sta. 1615-1610 - Ramp		**13**	**11-Sep-20**	**01-Oct-20**	**95**	**$112,371.60**
RE19610	DE27WB.RP.1615-1610 - Setup Work Zone & Temp Barriers	2	11-Sep-20	14-Sep-20	93	$32,671.00
RE19900	DE27WB.RP.1615-1610 - Earthwork	3	15-Sep-20	17-Sep-20	93	$34,921.37
RE20700	DE27WB.RP.1615-1610 - Place GR Aggregate Base Course	4	21-Sep-20	24-Sep-20	95	$20,106.03
RE21220	DE27WB.RP.1615-1610 - Place Superpave Course (I+G+E)	4	28-Sep-20	01-Oct-20	95	$24,673.20

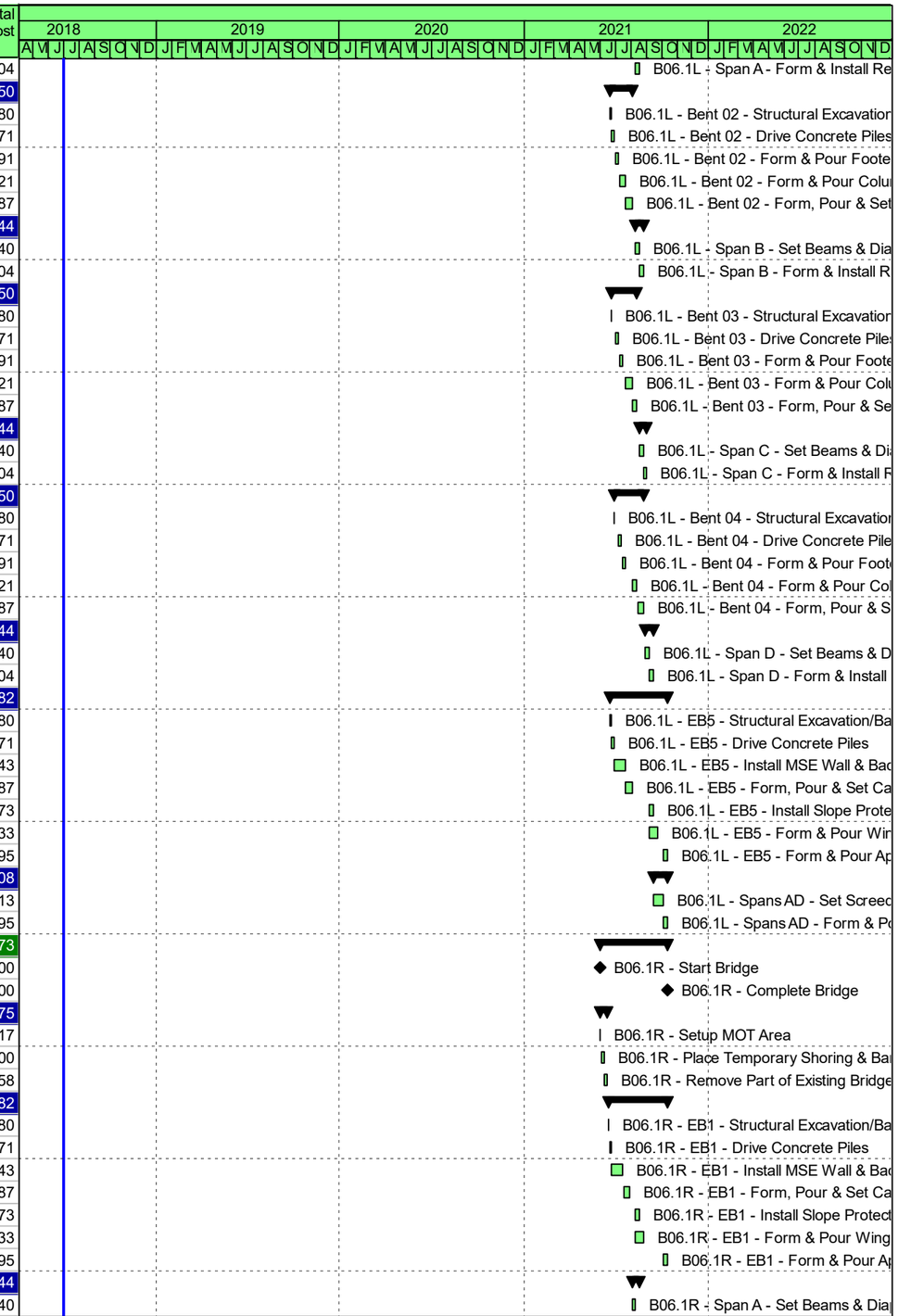
Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
DE27 - WB - Sta. 1610-1605 - Ramp		**13**	**21-Sep-20**	**08-Oct-20**	**94**	**$112,371.60**
RE20710	DE27WB.RP.1610-1605 - Setup Work Zone & Temp Barriers	2	21-Sep-20	22-Sep-20	93	$32,671.00
RE20980	DE27WB.RP.1610-1605 - Earthwork	3	23-Sep-20	28-Sep-20	93	$34,921.37
RE21750	DE27WB.RP.1610-1605 - Place GR Aggregate Base Course	4	29-Sep-20	02-Oct-20	94	$20,106.03
RE22220	DE27WB.RP.1610-1605 - Place Superpave Course (I+G+E)	4	05-Oct-20	08-Oct-20	94	$24,673.20
DE27 - WB - Sta. 1605-1600 - Ramp		**13**	**29-Sep-20**	**16-Oct-20**	**93**	**$112,371.60**
RE21760	DE27WB.RP.1605-1600 - Setup Work Zone & Temp Barriers	2	29-Sep-20	30-Sep-20	93	$32,671.00
RE22010	DE27WB.RP.1605-1600 - Earthwork	3	01-Oct-20	05-Oct-20	93	$34,921.37
RE22810	DE27WB.RP.1605-1600 - Place GR Aggregate Base Course	4	06-Oct-20	09-Oct-20	93	$20,106.03
RE23290	DE27WB.RP.1605-1600 - Place Superpave Course (I+G+E)	4	13-Oct-20	16-Oct-20	93	$24,673.20
DE25 - Ramp EB Sta. 1900-1915		**23**	**19-Oct-20**	**24-Nov-20**	**93**	**$337,114.80**
DE25 - EB - Sta. 1900-1905 - Ramp		**13**	**19-Oct-20**	**06-Nov-20**	**95**	**$112,371.60**
RE23620	DE25EB.RP.1900-1905 - Setup Work Zone & Temp Barriers	2	19-Oct-20	20-Oct-20	93	$32,671.00
RE23890	DE25EB.RP.1900-1905 - Earthwork	3	21-Oct-20	23-Oct-20	93	$34,921.37
RE24640	DE25EB.RP.1900-1905 - Place GR Aggregate Base Course	4	26-Oct-20	29-Oct-20	95	$20,106.03
RE25040	DE25EB.RP.1900-1905 - Place Superpave Course (I+G+E)	4	02-Nov-20	06-Nov-20	95	$24,673.20
DE25 - EB - Sta. 1905-1910 - Ramp		**13**	**26-Oct-20**	**16-Nov-20**	**94**	**$112,371.60**
RE24650	DE25EB.RP.1905-1910 - Setup Work Zone & Temp Barriers	2	26-Oct-20	27-Oct-20	93	$32,671.00
RE24700	DE25EB.RP.1905-1910 - Earthwork	3	28-Oct-20	02-Nov-20	93	$34,921.37
RE25890	DE25EB.RP.1905-1910 - Place GR Aggregate Base Course	4	04-Nov-20	10-Nov-20	94	$20,106.03
RE26200	DE25EB.RP.1905-1910 - Place Superpave Course (I+G+E)	4	11-Nov-20	16-Nov-20	94	$24,673.20
DE25 - EB - Sta. 1910-1915 - Ramp		**13**	**04-Nov-20**	**24-Nov-20**	**93**	**$112,371.60**
RE25900	DE25EB.RP.1910-1915 - Setup Work Zone & Temp Barriers	2	04-Nov-20	05-Nov-20	93	$32,671.00
RE26010	DE25EB.RP.1910-1915 - Earthwork	3	06-Nov-20	11-Nov-20	93	$34,921.37
RE26700	DE25EB.RP.1910-1915 - Place GR Aggregate Base Course	4	12-Nov-20	17-Nov-20	93	$20,106.03
RE26930	DE25EB.RP.1910-1915 - Place Superpave Course (I+G+E)	4	18-Nov-20	24-Nov-20	93	$24,673.20
Chatham Pkwy		**36**	**01-Dec-20**	**05-Feb-21**	**93**	**$524,285.15**
NB - Renov. - Sta. 2505-2517		**18**	**01-Dec-20**	**07-Jan-21**	**93**	**$262,142.58**
DE23 - NB - Sta. 2505-2510		**13**	**01-Dec-20**	**17-Dec-20**	**96**	**$131,071.29**
RE27140	DE23NB.RE.2505-2510 - Setup Work Zone & Temp Barriers	2	01-Dec-20	02-Dec-20	93	$32,671.00
RE27200	DE23NB.RE.2505-2510 - Earthwork	3	03-Dec-20	07-Dec-20	93	$34,921.37
RE27380	DE23NB.RE.2505-2510 - Place Recycled Asphalt Concrete (S)	2	08-Dec-20	09-Dec-20	96	$0.00
RE27620	DE23NB.RE.2505-2510 - Place Superpave Course (D)	2	10-Dec-20	11-Dec-20	96	$24,673.20
RE27730	DE23NB.RE.2505-2510 - Place GR Aggregate Place (N)	2	14-Dec-20	15-Dec-20	96	$20,106.03
RE27800	DE23NB.RE.2505-2510 - Place Concrete Curb & Gutter (U)	2	16-Dec-20	17-Dec-20	96	$18,699.69
DE23 - NB - Sta. 2510-2517		**13**	**08-Dec-20**	**07-Jan-21**	**93**	**$131,071.29**
RE27390	DE23NB.RE.2510-2517 - Setup Work Zone & Temp Barriers	2	08-Dec-20	09-Dec-20	93	$32,671.00
RE27630	DE23NB.RE.2510-2517 - Earthwork	3	10-Dec-20	14-Dec-20	93	$34,921.37
RE27870	DE23NB.RE.2510-2517 - Place Recycled Asphalt Concrete (S)	2	15-Dec-20	16-Dec-20	93	$0.00
RE28020	DE23NB.RE.2510-2517 - Place Superpave Course (D)	2	17-Dec-20	21-Dec-20	93	$24,673.20
RE28160	DE23NB.RE.2510-2517 - Place GR Aggregate Place (N)	2	22-Dec-20	05-Jan-21	93	$20,106.03
RE28340	DE23NB.RE.2510-2517 - Place Concrete Curb & Gutter (U)	2	06-Jan-21	07-Jan-21	93	$18,699.69
SB - Renov. - Sta. 2517-2505		**18**	**08-Jan-21**	**05-Feb-21**	**93**	**$262,142.57**
DE23 - SB - Sta. 2517-2510		**13**	**08-Jan-21**	**28-Jan-21**	**96**	**$131,071.28**
RE28610	DE23SB.RE.2517-2510 - Setup Work Zone & Temp Barriers	2	08-Jan-21	11-Jan-21	93	$32,671.00
RE28650	DE23SB.RE.2517-2510 - Earthwork	3	12-Jan-21	14-Jan-21	93	$34,921.37
RE28800	DE23SB.RE.2517-2510 - Place Recycled Asphalt Concrete (S)	2	15-Jan-21	19-Jan-21	96	$0.00
RE29020	DE23SB.RE.2517-2510 - Place Superpave Course (D)	2	20-Jan-21	21-Jan-21	96	$24,673.20
RE29220	DE23SB.RE.2517-2510 - Place GR Aggregate Place (N)	2	25-Jan-21	26-Jan-21	96	$20,106.03
RE29350	DE23SB.RE.2517-2510 - Place Concrete Curb & Gutter (U)	2	27-Jan-21	28-Jan-21	96	$18,699.68
DE23 - SB - Sta. 2510-2505		**13**	**15-Jan-21**	**05-Feb-21**	**93**	**$131,071.29**
RE28810	DE23SB.RE.2510-2505 - Setup Work Zone & Temp Barriers	2	15-Jan-21	19-Jan-21	93	$32,671.00
RE29030	DE23SB.RE.2510-2505 - Earthwork	3	20-Jan-21	25-Jan-21	93	$34,921.37
RE29390	DE23SB.RE.2510-2505 - Place Recycled Asphalt Concrete (S)	2	26-Jan-21	27-Jan-21	93	$0.00
RE29450	DE23SB.RE.2510-2505 - Place Superpave Course (D)	2	28-Jan-21	01-Feb-21	93	$24,673.20
RE29600	DE23SB.RE.2510-2505 - Place GR Aggregate Place (N)	2	02-Feb-21	03-Feb-21	93	$20,106.03



Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE29840	DE23SB.RE.2510-2505 - Place Concrete Curb & Gutter (U)	2	04-Feb-21	05-Feb-21	93	$18,699.69
Structure		**461**	**10-Dec-20**	**15-Mar-22**	**16**	**$18,839,334.94**
RE54380	Zone B - Bridge Structure Complete	0		15-Mar-22	8	$0.00
B05 - CR781 (chatham Parkway) Over I-16		**169**	**10-Dec-20**	**27-May-21**	**14**	**$4,931,602.07**
B05.1 - CR781 (chatham Parkway) Over I-16 - Stage 1		**46**	**10-Dec-20**	**24-Jan-21**	**11**	**$782,896.34**
RE13160	B05.1 - Start Bridge - Stage 1	0	10-Dec-20		5	$0.00
RE13170	B05.1 - Setup MOT for Raising Span	10	10-Dec-20	06-Jan-21	5	$16,448.17
RE13590	B05.1 - Replace Approach Slabs (NTE 80 Hrs)	3	07-Jan-21	09-Jan-21	26	$0.00
RE13600	B05.1 - Overlay Abutment Spans with Concrete (NTE 80 Hrs)	3	07-Jan-21	09-Jan-21	26	$0.00
RE13610	B05.1 - Construct Sidewalks and Extend Parapets (NTE 80 Hrs)	3	07-Jan-21	09-Jan-21	26	$0.00
RE54780	B05.1 - Setup Jacking Equipment and Detours	10	07-Jan-21	21-Jan-21	5	$16,448.17
RE13580	B05.1 - Raise Span 2 and 3 to 17' Clearance (NTE 80 Hrs)	3	22-Jan-21	24-Jan-21	11	$750,000.00
RE13620	B05.1 - Complete Bridge - Stage 1	0		24-Jan-21	11	$0.00
B05.2 - CR781 (chatham Parkway) Over I-16 - Stage 2		**36**	**25-Jan-21**	**30-Mar-21**	**8**	**$2,079,758.65**
RE13770	B05.2 - Start Bridge - Stage 2	0	25-Jan-21		8	$0.00
RE16740	B05.2 - Complete Bridge - Stage 2	0		30-Mar-21	8	$0.00
B05.2 - Span 2		**36**	**25-Jan-21**	**30-Mar-21**	**8**	**$2,079,758.65**
RE13780	B05.2 - Setup MOT and Place Temp Barriers	2	25-Jan-21	26-Jan-21	8	$27,259.74
RE13810	B05.2 - Span 2 - Set Beams & Diaphragms	10	27-Jan-21	10-Feb-21	8	$211,878.40
RE14170	B05.2 - Span 2 - Deck - Form & Install Rebar	5	11-Feb-21	18-Feb-21	8	$59,194.04
RE15110	B05.2 - Span 2 - Deck - Set Screed & Pour	5	22-Feb-21	01-Mar-21	8	$554,346.13
RE15140	B05.2 - Span 2 - Sidewalk - Form & Install Rebar	5	02-Mar-21	08-Mar-21	8	$59,194.04
RE15660	B05.2 - Span 2 - Sidewalk - Set Screed & Pour	3	09-Mar-21	11-Mar-21	8	$554,346.13
RE15970	B05.2 - Span 2 - Parapet - Form & Install Rebar	3	22-Mar-21	24-Mar-21	8	$59,194.04
RE16600	B05.2 - Span 2 - Parapet - Set Screed & Pour	3	25-Mar-21	30-Mar-21	8	$554,346.13
B05.3 - CR781 (chatham Parkway) Over I-16 - Stage 3		**38**	**31-Mar-21**	**27-May-21**	**8**	**$2,068,947.08**
RE16800	B05.3 - Start Bridge - Stage 3	0	31-Mar-21		8	$0.00
RE16810	B05.3 - Setup MOT and Detours	2	31-Mar-21	01-Apr-21	8	$16,448.17
RE19480	B05.3 - Restore Traffic	2	26-May-21	27-May-21	8	$0.00
RE19520	B05.3 - Complete Bridge - Stage 3	0		27-May-21	8	$0.00
B05.3 - Span 3		**34**	**06-Apr-21**	**25-May-21**	**8**	**$2,052,498.91**
RE16900	B05.3 - Span 3 - Set Beams & Diaphragms	10	06-Apr-21	19-Apr-21	8	$211,878.40
RE17010	B05.3 - Span 3 - Deck - Form & Install Rebar	5	20-Apr-21	26-Apr-21	8	$59,194.04
RE17650	B05.3 - Span 3 - Deck - Set Screed & Pour	5	27-Apr-21	04-May-21	8	$554,346.13
RE17930	B05.3 - Span 3 - Sidewalk - Form & Install Rebar	5	05-May-21	11-May-21	8	$59,194.04
RE18670	B05.3 - Span 3 - Sidewalk - Set Screed & Pour	3	12-May-21	14-May-21	8	$554,346.13
RE18900	B05.3 - Span 3 - Parapet - Form & Install Rebar	3	17-May-21	19-May-21	8	$59,194.04
RE19350	B05.3 - Span 3 - Parapet - Set Screed & Pour	3	20-May-21	25-May-21	8	$554,346.13
B06 - DE1A/1B - I-16 over CR 674 (Buger Pit Rd) and CSXT - 4 Spans		**170**	**01-Jun-21**	**15-Mar-22**	**8**	**$13,907,732.87**
B06.1L - DE1A/1B - I-16 over CR 674 (Buger Pit Rd) and CSXT - Stage 1 - Left		**85**	**01-Jun-21**	**12-Oct-21**	**8**	**$3,799,655.73**
RE13140	B06.1L - Start Bridge	0	01-Jun-21		8	$0.00
RE29270	B06.1L - Complete Bridge	0		12-Oct-21	8	$0.00
B06.1L - Setup		**12**	**01-Jun-21**	**16-Jun-21**	**8**	**$222,825.75**
RE13150	B06.1L - Setup MOT Area	2	01-Jun-21	02-Jun-21	8	$16,448.17
RE14250	B06.1L - Place Temporary Shoring & Barriers	5	03-Jun-21	09-Jun-21	8	$0.00
RE15640	B06.1L - Remove Part of Existing Bridge	5	10-Jun-21	16-Jun-21	8	$206,377.58
B06.1L - End Bent 1		**73**	**17-Jun-21**	**12-Oct-21**	**8**	**$514,599.82**
RE16790	B06.1L - EB1 - Structural Excavation/Backfill	2	17-Jun-21	18-Jun-21	8	$24,038.80
RE17750	B06.1L - EB1 - Drive Concrete Piles	3	21-Jun-21	23-Jun-21	8	$185,684.71
RE19190	B06.1L - EB1 - Install MSE Wall & Backfill	15	24-Jun-21	16-Jul-21	11	$208,555.43
RE20450	B06.1L - EB1 - Form, Pour & Set Cap	8	19-Jul-21	29-Jul-21	11	$21,701.87
RE23800	B06.1L - EB1 - Install Slope Protection	5	11-Aug-21	17-Aug-21	36	$31,511.73
RE23810	B06.1L - EB1 - Form & Pour Wing Wall	10	11-Aug-21	25-Aug-21	31	$19,432.33
RE27980	B06.1L - EB1 - Form & Pour Approach Slab & Barrier Wall	5	05-Oct-21	12-Oct-21	8	$23,674.95
B06.1L - Span A		**10**	**04-Aug-21**	**17-Aug-21**	**9**	**$271,072.44**
RE22930	B06.1L - Span A - Set Beams & Diaphragms	5	04-Aug-21	10-Aug-21	9	$211,878.40



Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE23820	B06.1L - Span A - Form & Install Rebar	5	11-Aug-21	17-Aug-21	9	$59,194.04
B06.1L - Bent 2		**28**	**21-Jun-21**	**03-Aug-21**	**8**	**$295,106.50**
RE17760	B06.1L - Bent 02 - Structural Excavation/Backfill	2	21-Jun-21	22-Jun-21	9	$24,038.80
RE19200	B06.1L - Bent 02 - Drive Concrete Piles	4	24-Jun-21	30-Jun-21	8	$185,684.71
RE19950	B06.1L - Bent 02 - Form & Pour Footers	5	01-Jul-21	08-Jul-21	8	$8,847.91
RE20750	B06.1L - Bent 02 - Form & Pour Columns	8	09-Jul-21	20-Jul-21	8	$54,833.21
RE21550	B06.1L - Bent 02 - Form, Pour & Set Cap	8	21-Jul-21	03-Aug-21	8	$21,701.87
B06.1L - Span B		**10**	**11-Aug-21**	**25-Aug-21**	**9**	**$271,072.44**
RE23830	B06.1L - Span B - Set Beams & Diaphragms	5	11-Aug-21	17-Aug-21	9	$211,878.40
RE24590	B06.1L - Span B - Form & Install Rebar	5	18-Aug-21	25-Aug-21	9	$59,194.04
B06.1L - Bent 3		**34**	**23-Jun-21**	**13-Aug-21**	**8**	**$295,106.50**
RE19210	B06.1L - Bent 03 - Structural Excavation/Backfill	2	23-Jun-21	24-Jun-21	15	$24,038.80
RE19960	B06.1L - Bent 03 - Drive Concrete Piles	4	01-Jul-21	07-Jul-21	12	$185,684.71
RE20760	B06.1L - Bent 03 - Form & Pour Footers	5	09-Jul-21	15-Jul-21	11	$8,847.91
RE21560	B06.1L - Bent 03 - Form & Pour Columns	8	21-Jul-21	03-Aug-21	8	$54,833.21
RE22940	B06.1L - Bent 03 - Form, Pour & Set Cap	8	04-Aug-21	13-Aug-21	8	$21,701.87
B06.1L - Span C		**10**	**18-Aug-21**	**02-Sep-21**	**9**	**$271,072.44**
RE24600	B06.1L - Span C - Set Beams & Diaphragms	5	18-Aug-21	25-Aug-21	9	$211,878.40
RE25330	B06.1L - Span C - Form & Install Rebar	5	26-Aug-21	02-Sep-21	9	$59,194.04
B06.1L - Bent 4		**40**	**28-Jun-21**	**26-Aug-21**	**8**	**$295,106.50**
RE19970	B06.1L - Bent 04 - Structural Excavation/Backfill	2	28-Jun-21	29-Jun-21	21	$24,038.80
RE20770	B06.1L - Bent 04 - Drive Concrete Piles	4	08-Jul-21	13-Jul-21	16	$185,684.71
RE21570	B06.1L - Bent 04 - Form & Pour Footers	5	16-Jul-21	22-Jul-21	14	$8,847.91
RE22640	B06.1L - Bent 04 - Form & Pour Columns	8	04-Aug-21	13-Aug-21	8	$54,833.21
RE24300	B06.1L - Bent 04 - Form, Pour & Set Cap	8	16-Aug-21	26-Aug-21	8	$21,701.87
B06.1L - Span D		**10**	**30-Aug-21**	**14-Sep-21**	**8**	**$271,072.44**
RE25340	B06.1L - Span D - Set Beams & Diaphragms	5	30-Aug-21	07-Sep-21	8	$211,878.40
RE26460	B06.1L - Span D - Form & Install Rebar	5	08-Sep-21	14-Sep-21	8	$59,194.04
B06.1L - End Bent 5		**71**	**21-Jun-21**	**12-Oct-21**	**8**	**$514,599.82**
RE17770	B06.1L - EB5 - Structural Excavation/Backfill	2	21-Jun-21	22-Jun-21	24	$24,038.80
RE19220	B06.1L - EB5 - Drive Concrete Piles	3	24-Jun-21	29-Jun-21	23	$185,684.71
RE19980	B06.1L - EB5 - Install MSE Wall & Backfill	15	30-Jun-21	21-Jul-21	23	$208,555.43
RE21240	B06.1L - EB5 - Form, Pour & Set Cap	8	22-Jul-21	04-Aug-21	23	$21,701.87
RE26470	B06.1L - EB5 - Install Slope Protection	5	08-Sep-21	14-Sep-21	20	$31,511.73
RE26480	B06.1L - EB5 - Form & Pour Wing Wall	10	08-Sep-21	22-Sep-21	15	$19,432.33
RE27990	B06.1L - EB5 - Form & Pour Approach Slab & Barrier Wall	5	05-Oct-21	12-Oct-21	8	$23,674.95
B06.1L - Finishes		**17**	**15-Sep-21**	**12-Oct-21**	**8**	**$578,021.08**
RE26950	B06.1L - Spans AD - Set Screed & Pour	12	15-Sep-21	04-Oct-21	8	$554,346.13
RE28000	B06.1L - Spans AD - Form & Pour Barrier Walls	5	05-Oct-21	12-Oct-21	8	$23,674.95
B06.1R - DE1A/1B - I-16 over CR 674 (Buger Pit Rd) and CSXT - Stage 1 - Right		**85**	**01-Jun-21**	**12-Oct-21**	**8**	**$3,799,655.73**
RE13120	B06.1R - Start Bridge	0	01-Jun-21		8	$0.00
RE29260	B06.1R - Complete Bridge	0		12-Oct-21	8	$0.00
B06.1R - Setup		**12**	**01-Jun-21**	**16-Jun-21**	**8**	**$222,825.75**
RE13130	B06.1R - Setup MOT Area	2	01-Jun-21	02-Jun-21	8	$16,448.17
RE14240	B06.1R - Place Temporary Shoring & Barriers	5	03-Jun-21	09-Jun-21	8	$0.00
RE15630	B06.1R - Remove Part of Existing Bridge	5	10-Jun-21	16-Jun-21	8	$206,377.58
B06.1R - End Bent 1		**73**	**17-Jun-21**	**12-Oct-21**	**8**	**$514,599.82**
RE16780	B06.1R - EB1 - Structural Excavation/Backfill	2	17-Jun-21	18-Jun-21	8	$24,038.80
RE17720	B06.1R - EB1 - Drive Concrete Piles	3	21-Jun-21	23-Jun-21	8	$185,684.71
RE19150	B06.1R - EB1 - Install MSE Wall & Backfill	15	24-Jun-21	16-Jul-21	11	$208,555.43
RE20440	B06.1R - EB1 - Form, Pour & Set Cap	8	19-Jul-21	29-Jul-21	11	$21,701.87
RE23760	B06.1R - EB1 - Install Slope Protection	5	11-Aug-21	17-Aug-21	36	$31,511.73
RE23770	B06.1R - EB1 - Form & Pour Wing Wall	10	11-Aug-21	25-Aug-21	31	$19,432.33
RE27950	B06.1R - EB1 - Form & Pour Approach Slab & Barrier Wall	5	05-Oct-21	12-Oct-21	8	$23,674.95
B06.1R - Span A		**10**	**04-Aug-21**	**17-Aug-21**	**9**	**$271,072.44**
RE22910	B06.1R - Span A - Set Beams & Diaphragms	5	04-Aug-21	10-Aug-21	9	$211,878.40



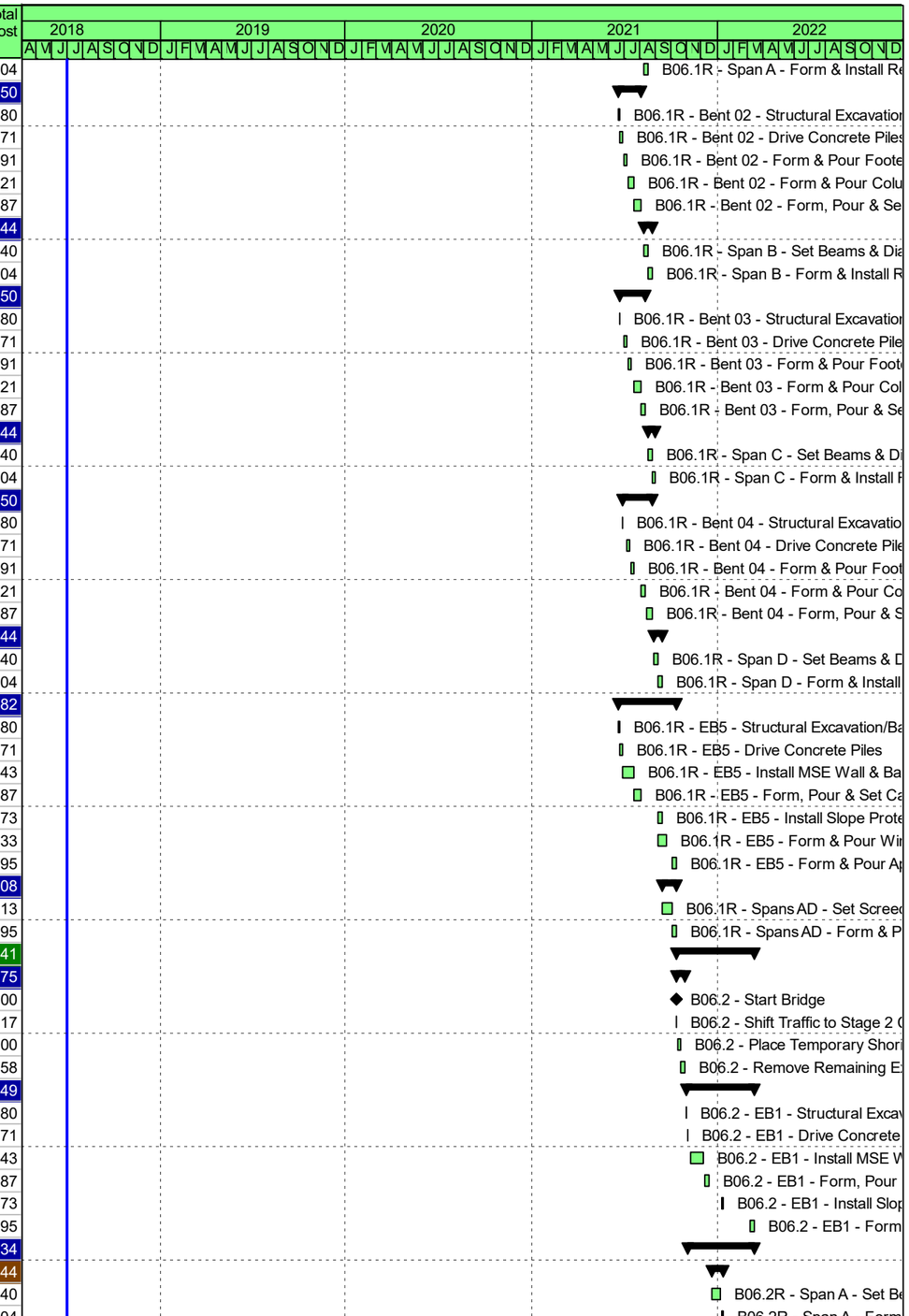
DRAGADOS USA

Project ID: PI-BLS21-R
Data Date: 01-Jul-18
Run Date: 27-Jun-18

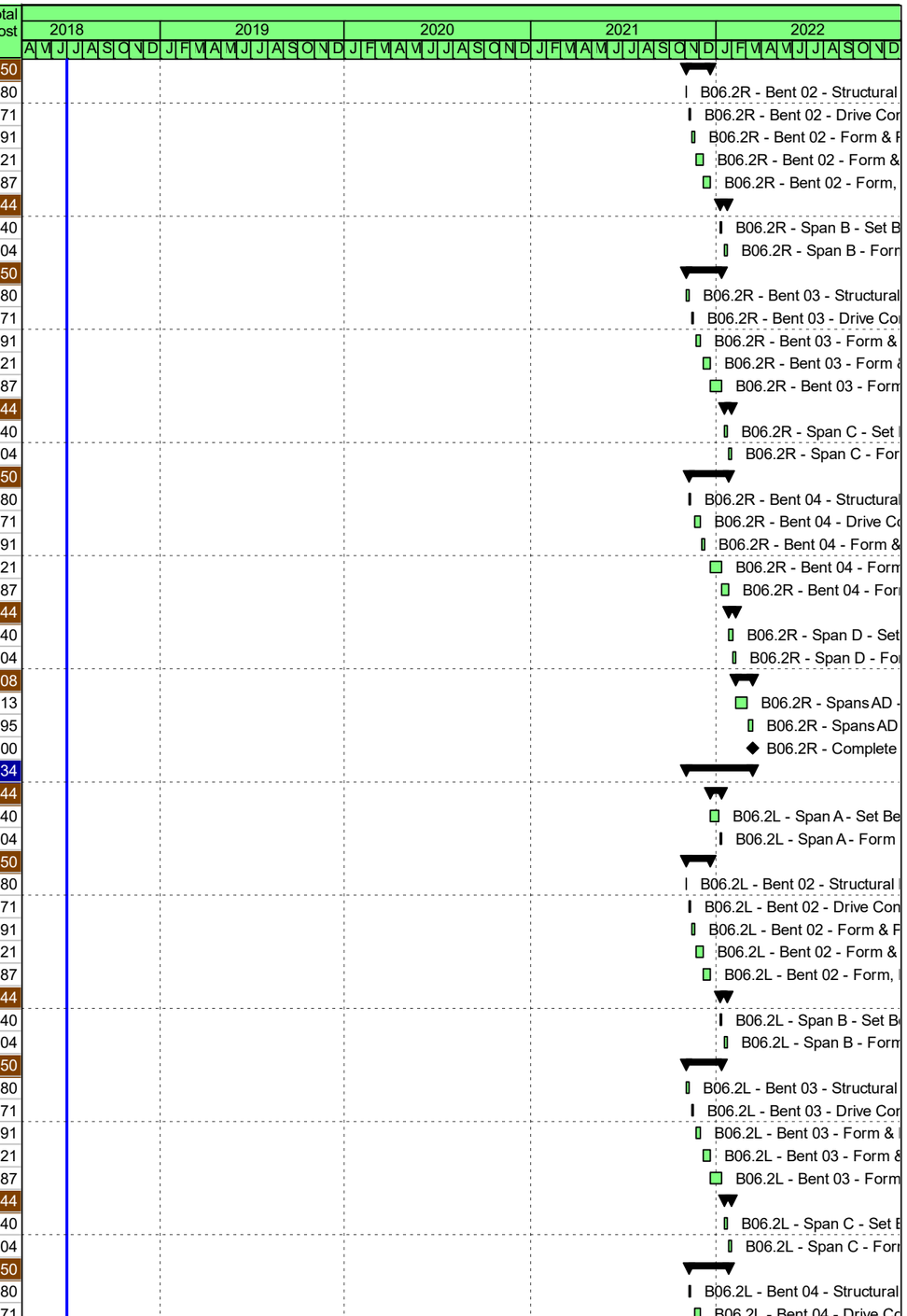
I-16 at I-95 Reconstruction and Widening Proposal Schedule - Clarification GDOT Ltr 27-Jun-18
Detailed Activities

Remaining Level of Effort
Critical Remaining Work
Summary
Milestone
Remaining Work

Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE23780	B06.1R - Span A - Form & Install Rebar	5	11-Aug-21	17-Aug-21	9	$59,194.04
B06.1R - Bent 2		28	21-Jun-21	03-Aug-21	8	$295,106.50
RE17730	B06.1R - Bent 02 - Structural Excavation/Backfill	2	21-Jun-21	22-Jun-21	9	$24,038.80
RE19160	B06.1R - Bent 02 - Drive Concrete Piles	4	24-Jun-21	30-Jun-21	8	$185,684.71
RE19910	B06.1R - Bent 02 - Form & Pour Footers	5	01-Jul-21	08-Jul-21	8	$8,847.91
RE20720	B06.1R - Bent 02 - Form & Pour Columns	8	09-Jul-21	20-Jul-21	8	$54,833.21
RE21520	B06.1R - Bent 02 - Form, Pour & Set Cap	8	21-Jul-21	03-Aug-21	8	$21,701.87
B06.1R - Span B		10	11-Aug-21	25-Aug-21	9	$271,072.44
RE23790	B06.1R - Span B - Set Beams & Diaphragms	5	11-Aug-21	17-Aug-21	9	$211,878.40
RE24570	B06.1R - Span B - Form & Install Rebar	5	18-Aug-21	25-Aug-21	9	$59,194.04
B06.1R - Bent 3		34	23-Jun-21	13-Aug-21	8	$295,106.50
RE19170	B06.1R - Bent 03 - Structural Excavation/Backfill	2	23-Jun-21	24-Jun-21	15	$24,038.80
RE19920	B06.1R - Bent 03 - Drive Concrete Piles	4	01-Jul-21	07-Jul-21	12	$185,684.71
RE20730	B06.1R - Bent 03 - Form & Pour Footers	5	09-Jul-21	15-Jul-21	11	$8,847.91
RE21530	B06.1R - Bent 03 - Form & Pour Columns	8	21-Jul-21	03-Aug-21	8	$54,833.21
RE22920	B06.1R - Bent 03 - Form, Pour & Set Cap	8	04-Aug-21	13-Aug-21	8	$21,701.87
B06.1R - Span C		10	18-Aug-21	02-Sep-21	9	$271,072.44
RE24580	B06.1R - Span C - Set Beams & Diaphragms	5	18-Aug-21	25-Aug-21	9	$211,878.40
RE25310	B06.1R - Span C - Form & Install Rebar	5	26-Aug-21	02-Sep-21	9	$59,194.04
B06.1R - Bent 4		40	28-Jun-21	26-Aug-21	8	$295,106.50
RE19930	B06.1R - Bent 04 - Structural Excavation/Backfill	2	28-Jun-21	29-Jun-21	21	$24,038.80
RE20740	B06.1R - Bent 04 - Drive Concrete Piles	4	08-Jul-21	13-Jul-21	16	$185,684.71
RE21540	B06.1R - Bent 04 - Form & Pour Footers	5	16-Jul-21	22-Jul-21	14	$8,847.91
RE22630	B06.1R - Bent 04 - Form & Pour Columns	8	04-Aug-21	13-Aug-21	8	$54,833.21
RE24290	B06.1R - Bent 04 - Form, Pour & Set Cap	8	16-Aug-21	26-Aug-21	8	$21,701.87
B06.1R - Span D		10	30-Aug-21	14-Sep-21	8	$271,072.44
RE25320	B06.1R - Span D - Set Beams & Diaphragms	5	30-Aug-21	07-Sep-21	8	$211,878.40
RE26430	B06.1R - Span D - Form & Install Rebar	5	08-Sep-21	14-Sep-21	8	$59,194.04
B06.1R - End Bent 5		71	21-Jun-21	12-Oct-21	8	$514,599.82
RE17740	B06.1R - EB5 - Structural Excavation/Backfill	2	21-Jun-21	22-Jun-21	24	$24,038.80
RE19180	B06.1R - EB5 - Drive Concrete Piles	3	24-Jun-21	29-Jun-21	23	$185,684.71
RE19940	B06.1R - EB5 - Install MSE Wall & Backfill	15	30-Jun-21	21-Jul-21	23	$208,555.43
RE21230	B06.1R - EB5 - Form, Pour & Set Cap	8	22-Jul-21	04-Aug-21	23	$21,701.87
RE26440	B06.1R - EB5 - Install Slope Protection	5	08-Sep-21	14-Sep-21	20	$31,511.73
RE26450	B06.1R - EB5 - Form & Pour Wing Wall	10	08-Sep-21	22-Sep-21	15	$19,432.33
RE27960	B06.1R - EB5 - Form & Pour Approach Slab & Barrier Wall	5	05-Oct-21	12-Oct-21	8	$23,674.95
B06.1R - Finishes		17	15-Sep-21	12-Oct-21	8	$578,021.08
RE26940	B06.1R - Spans AD - Set Screed & Pour	12	15-Sep-21	04-Oct-21	8	$554,346.13
RE27970	B06.1R - Spans AD - Form & Pour Barrier Walls	5	05-Oct-21	12-Oct-21	8	$23,674.95
B06.2 - DE1A/1B - I-16 over CR 674 (Buger Pit Rd) and CSXT - Stage 2		85	13-Oct-21	15-Mar-22	8	$6,308,421.41
B06.2 - Setup		12	13-Oct-21	28-Oct-21	8	$222,825.75
RE29370	B06.2 - Start Bridge	0	13-Oct-21		8	$0.00
RE29380	B06.2 - Shift Traffic to Stage 2 Configuration and Setup MOT Area	2	13-Oct-21	14-Oct-21	8	$16,448.17
RE29610	B06.2 - Place Temporary Shoring & Barriers	5	15-Oct-21	21-Oct-21	8	$0.00
RE30240	B06.2 - Remove Remaining Existing Bridge	5	22-Oct-21	28-Oct-21	8	$206,377.58
B06.2 - End Bent 1		73	01-Nov-21	15-Mar-22	8	$495,167.49
RE31060	B06.2 - EB1 - Structural Excavation/Backfill	2	01-Nov-21	02-Nov-21	8	$24,038.80
RE31640	B06.2 - EB1 - Drive Concrete Piles	3	03-Nov-21	05-Nov-21	8	$185,684.71
RE32460	B06.2 - EB1 - Install MSE Wall & Backfill	15	09-Nov-21	06-Dec-21	11	$208,555.43
RE33440	B06.2 - EB1 - Form, Pour & Set Cap	8	07-Dec-21	16-Dec-21	11	$21,701.87
RE35500	B06.2 - EB1 - Install Slope Protection	5	10-Jan-22	14-Jan-22	36	$31,511.73
RE38380	B06.2 - EB1 - Form & Pour Approach Slab & Barrier Wall	5	07-Mar-22	15-Mar-22	8	$23,674.95
B06.2R - Right Span		71	03-Nov-21	15-Mar-22	8	$2,547,630.34
B06.2R - Span A		10	22-Dec-21	14-Jan-22	9	$271,072.44
RE34990	B06.2R - Span A - Set Beams & Diaphragms	5	22-Dec-21	07-Jan-22	9	$211,878.40
RE35510	B06.2R - Span A - Form & Install Rebar	5	10-Jan-22	14-Jan-22	9	$59,194.04



Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
B06.2R - Bent 2		28	03-Nov-21	21-Dec-21	8	$295,106.50
RE31660	B06.2R - Bent 02 - Structural Excavation/Backfill	2	03-Nov-21	04-Nov-21	9	$24,038.80
RE32480	B06.2R - Bent 02 - Drive Concrete Piles	4	09-Nov-21	12-Nov-21	8	$185,684.71
RE32990	B06.2R - Bent 02 - Form & Pour Footers	5	15-Nov-21	22-Nov-21	8	$8,847.91
RE33650	B06.2R - Bent 02 - Form & Pour Columns	8	23-Nov-21	08-Dec-21	8	$54,833.21
RE34270	B06.2R - Bent 02 - Form, Pour & Set Cap	8	09-Dec-21	21-Dec-21	8	$21,701.87
B06.2R - Span B		10	10-Jan-22	25-Jan-22	9	$271,072.44
RE35520	B06.2R - Span B - Set Beams & Diaphragms	5	10-Jan-22	14-Jan-22	9	$211,878.40
RE36120	B06.2R - Span B - Form & Install Rebar	5	18-Jan-22	25-Jan-22	9	$59,194.04
B06.2R - Bent 3		34	05-Nov-21	12-Jan-22	8	$295,106.50
RE32490	B06.2R - Bent 03 - Structural Excavation/Backfill	2	05-Nov-21	09-Nov-21	15	$24,038.80
RE33000	B06.2R - Bent 03 - Drive Concrete Piles	4	15-Nov-21	18-Nov-21	12	$185,684.71
RE33660	B06.2R - Bent 03 - Form & Pour Footers	5	23-Nov-21	03-Dec-21	11	$8,847.91
RE34280	B06.2R - Bent 03 - Form & Pour Columns	8	09-Dec-21	21-Dec-21	8	$54,833.21
RE35000	B06.2R - Bent 03 - Form, Pour & Set Cap	8	22-Dec-21	12-Jan-22	8	$21,701.87
B06.2R - Span C		10	18-Jan-22	02-Feb-22	9	$271,072.44
RE36130	B06.2R - Span C - Set Beams & Diaphragms	5	18-Jan-22	25-Jan-22	9	$211,878.40
RE36530	B06.2R - Span C - Form & Install Rebar	5	26-Jan-22	02-Feb-22	9	$59,194.04
B06.2R - Bent 4		40	10-Nov-21	26-Jan-22	8	$295,106.50
RE33010	B06.2R - Bent 04 - Structural Excavation/Backfill	2	10-Nov-21	11-Nov-21	21	$24,038.80
RE33670	B06.2R - Bent 04 - Drive Concrete Piles	4	22-Nov-21	01-Dec-21	16	$185,684.71
RE34290	B06.2R - Bent 04 - Form & Pour Footers	5	06-Dec-21	10-Dec-21	14	$8,847.91
RE34750	B06.2R - Bent 04 - Form & Pour Columns	8	22-Dec-21	12-Jan-22	8	$54,833.21
RE35920	B06.2R - Bent 04 - Form, Pour & Set Cap	8	13-Jan-22	26-Jan-22	8	$21,701.87
B06.2R - Span D		10	27-Jan-22	10-Feb-22	8	$271,072.44
RE36540	B06.2R - Span D - Set Beams & Diaphragms	5	27-Jan-22	03-Feb-22	8	$211,878.40
RE36960	B06.2R - Span D - Form & Install Rebar	5	04-Feb-22	10-Feb-22	8	$59,194.04
B06.2R - Finishes		17	11-Feb-22	15-Mar-22	8	$578,021.08
RE37410	B06.2R - Spans AD - Set Screed & Pour	12	11-Feb-22	03-Mar-22	8	$554,346.13
RE38400	B06.2R - Spans AD - Form & Pour Barrier Walls	5	07-Mar-22	15-Mar-22	8	$23,674.95
RE39360	B06.2R - Complete Bridge	0		15-Mar-22	8	$0.00
B06.2L - Left Span		71	03-Nov-21	15-Mar-22	8	$2,547,630.34
B06.2L - Span A		10	22-Dec-21	14-Jan-22	9	$271,072.44
RE35010	B06.2L - Span A - Set Beams & Diaphragms	5	22-Dec-21	07-Jan-22	9	$211,878.40
RE35530	B06.2L - Span A - Form & Install Rebar	5	10-Jan-22	14-Jan-22	9	$59,194.04
B06.2L - Bent 2		28	03-Nov-21	21-Dec-21	8	$295,106.50
RE31670	B06.2L - Bent 02 - Structural Excavation/Backfill	2	03-Nov-21	04-Nov-21	9	$24,038.80
RE32500	B06.2L - Bent 02 - Drive Concrete Piles	4	09-Nov-21	12-Nov-21	8	$185,684.71
RE33020	B06.2L - Bent 02 - Form & Pour Footers	5	15-Nov-21	22-Nov-21	8	$8,847.91
RE33680	B06.2L - Bent 02 - Form & Pour Columns	8	23-Nov-21	08-Dec-21	8	$54,833.21
RE34300	B06.2L - Bent 02 - Form, Pour & Set Cap	8	09-Dec-21	21-Dec-21	8	$21,701.87
B06.2L - Span B		10	10-Jan-22	25-Jan-22	9	$271,072.44
RE35540	B06.2L - Span B - Set Beams & Diaphragms	5	10-Jan-22	14-Jan-22	9	$211,878.40
RE36140	B06.2L - Span B - Form & Install Rebar	5	18-Jan-22	25-Jan-22	9	$59,194.04
B06.2L - Bent 3		34	05-Nov-21	12-Jan-22	8	$295,106.50
RE32510	B06.2L - Bent 03 - Structural Excavation/Backfill	2	05-Nov-21	09-Nov-21	15	$24,038.80
RE33030	B06.2L - Bent 03 - Drive Concrete Piles	4	15-Nov-21	18-Nov-21	12	$185,684.71
RE33690	B06.2L - Bent 03 - Form & Pour Footers	5	23-Nov-21	03-Dec-21	11	$8,847.91
RE34310	B06.2L - Bent 03 - Form & Pour Columns	8	09-Dec-21	21-Dec-21	8	$54,833.21
RE35020	B06.2L - Bent 03 - Form, Pour & Set Cap	8	22-Dec-21	12-Jan-22	8	$21,701.87
B06.2L - Span C		10	18-Jan-22	02-Feb-22	9	$271,072.44
RE36150	B06.2L - Span C - Set Beams & Diaphragms	5	18-Jan-22	25-Jan-22	9	$211,878.40
RE36550	B06.2L - Span C - Form & Install Rebar	5	26-Jan-22	02-Feb-22	9	$59,194.04
B06.2L - Bent 4		40	10-Nov-21	26-Jan-22	8	$295,106.50
RE33040	B06.2L - Bent 04 - Structural Excavation/Backfill	2	10-Nov-21	11-Nov-21	21	$24,038.80
RE33700	B06.2L - Bent 04 - Drive Concrete Piles	4	22-Nov-21	01-Dec-21	16	$185,684.71



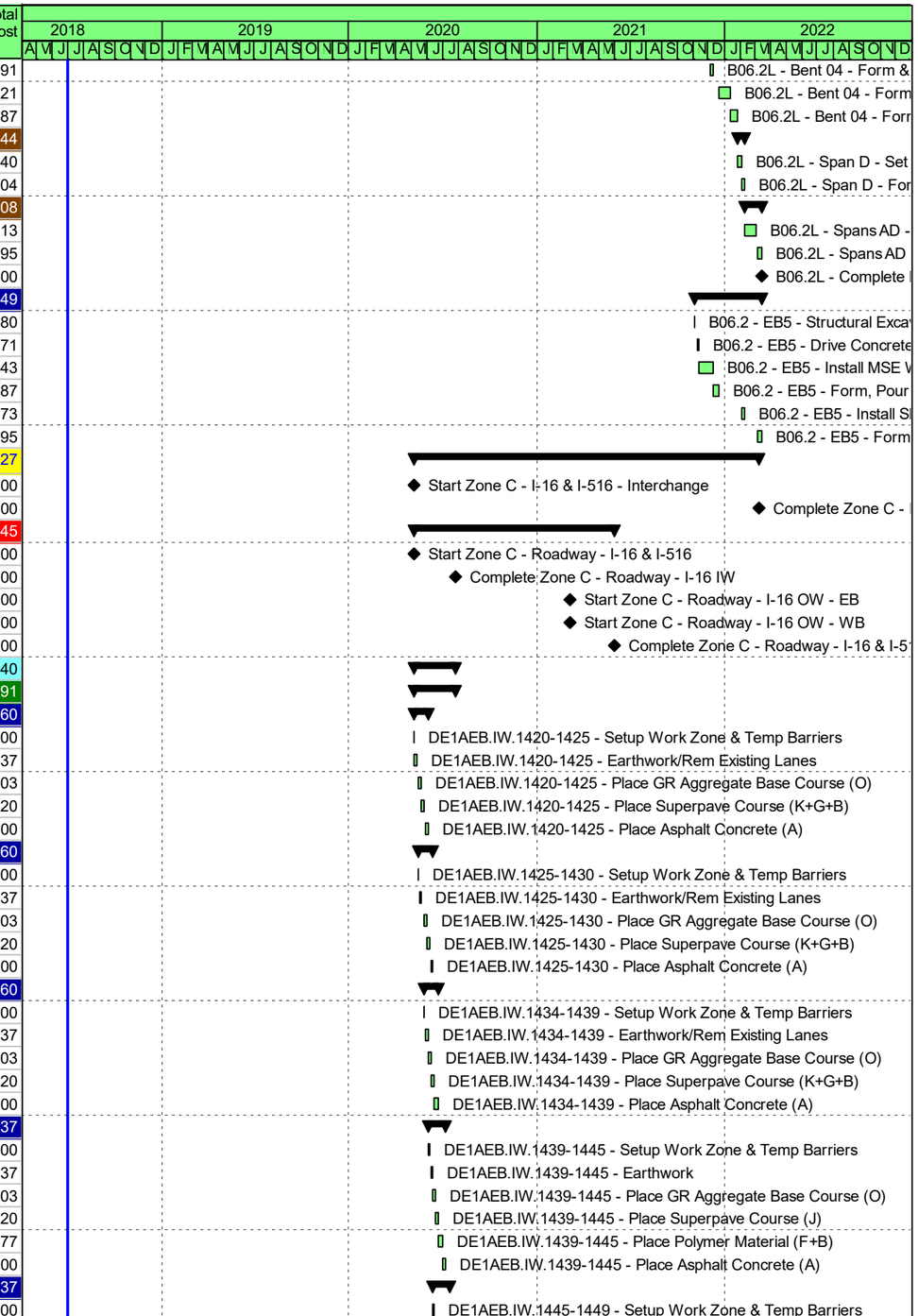
DRAGADOS USA

Project ID: PI-BLS21-R
Data Date: 01-Jul-18
Run Date: 27-Jun-18

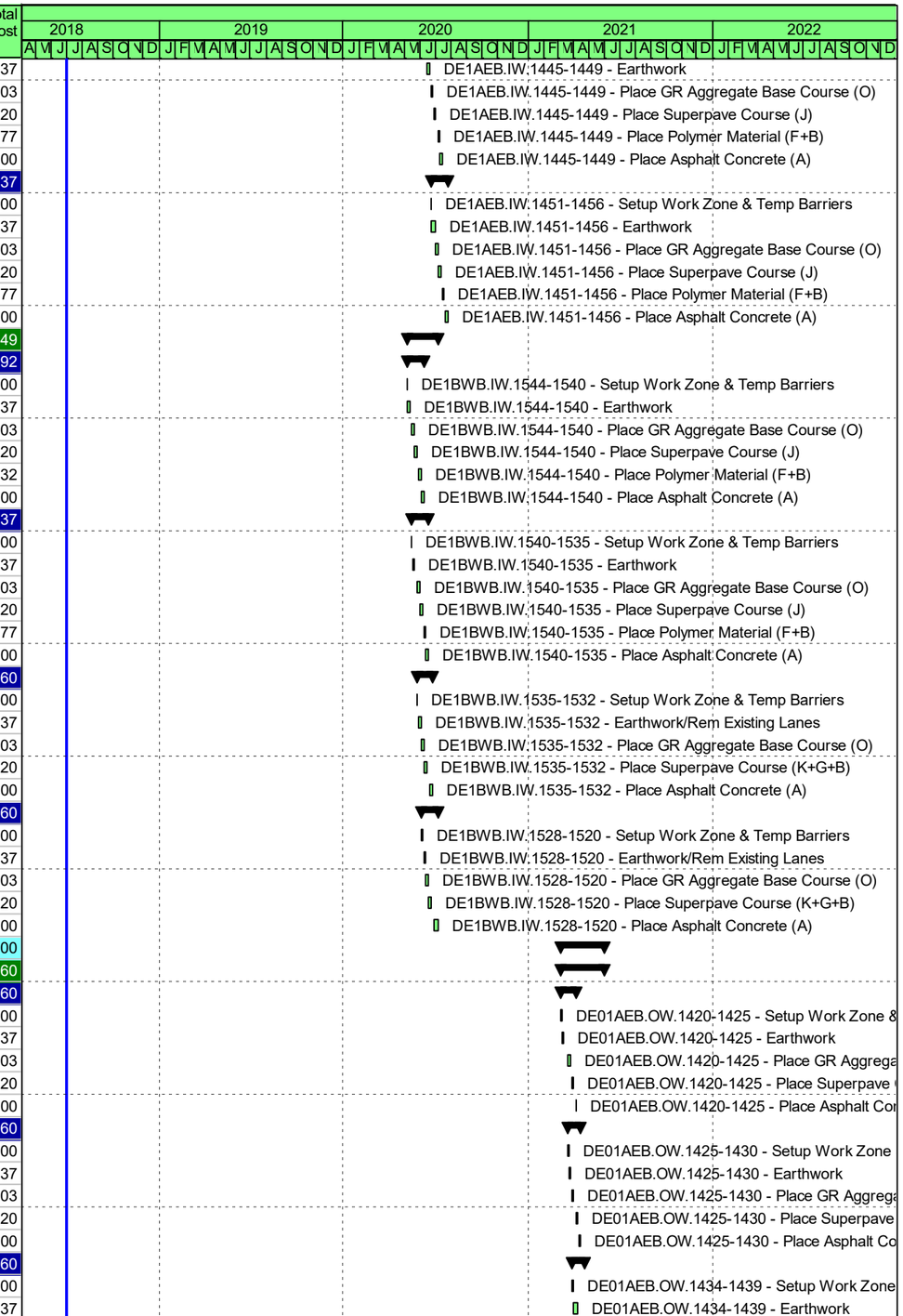
I-16 at I-95 Reconstruction and Widening Proposal Schedule - Clarification GDOT Ltr 27-Jun-18
Detailed Activities

Remaining Level of Effort
Critical Remaining Work
Summary
Milestone
Remaining Work

Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE34320	B06.2L - Bent 04 - Form & Pour Footers	5	06-Dec-21	10-Dec-21	14	$8,847.91
RE34760	B06.2L - Bent 04 - Form & Pour Columns	8	22-Dec-21	12-Jan-22	8	$54,833.21
RE35930	B06.2L - Bent 04 - Form, Pour & Set Cap	8	13-Jan-22	26-Jan-22	8	$21,701.87
B06.2L - Span D		10	27-Jan-22	10-Feb-22	8	$271,072.44
RE36560	B06.2L - Span D - Set Beams & Diaphragms	5	27-Jan-22	03-Feb-22	8	$211,878.40
RE36970	B06.2L - Span D - Form & Install Rebar	5	04-Feb-22	10-Feb-22	8	$59,194.04
B06.2L - Finishes		17	11-Feb-22	15-Mar-22	8	$578,021.08
RE37420	B06.2L - Spans AD - Set Screed & Pour	12	11-Feb-22	03-Mar-22	8	$554,346.13
RE38410	B06.2L - Spans AD - Form & Pour Barrier Walls	5	07-Mar-22	15-Mar-22	8	$23,674.95
RE39370	B06.2L - Complete Bridge	0		15-Mar-22	8	$0.00
B06.2 - End Bent 5		71	03-Nov-21	15-Mar-22	8	$495,167.49
RE31650	B06.2 - EB5 - Structural Excavation/Backfill	2	03-Nov-21	04-Nov-21	24	$24,038.80
RE32470	B06.2 - EB5 - Drive Concrete Piles	3	09-Nov-21	11-Nov-21	23	$185,684.71
RE32980	B06.2 - EB5 - Install MSE Wall & Backfill	15	12-Nov-21	09-Dec-21	23	$208,555.43
RE34000	B06.2 - EB5 - Form, Pour & Set Cap	8	10-Dec-21	22-Dec-21	23	$21,701.87
RE36950	B06.2 - EB5 - Install Slope Protection	5	04-Feb-22	10-Feb-22	20	$31,511.73
RE38390	B06.2 - EB5 - Form & Pour Approach Slab & Barrier Wall	5	07-Mar-22	15-Mar-22	8	$23,674.95
Zone C - I-16 Sta. 1428 to I-516 Interchange		673	06-May-20	09-Mar-22	22	$30,967,988.27
RE54360	Start Zone C - I-16 & I-516 - Interchange	0	06-May-20		24	$0.00
RE54370	Complete Zone C - I-16 & I-516 - Interchange	0		09-Mar-22	10	$0.00
Roadway		230	06-May-20	02-Jun-21	26	$6,420,795.45
RE12750	Start Zone C - Roadway - I-16 & I-516	0	06-May-20		24	$0.00
RE54290	Complete Zone C - Roadway - I-16 IW	0		27-Jul-20	24	$0.00
RE54220	Start Zone C - Roadway - I-16 OW - EB	0	08-Mar-21		26	$0.00
RE54730	Start Zone C - Roadway - I-16 OW - WB	0	08-Mar-21		28	$0.00
RE54210	Complete Zone C - Roadway - I-16 & I-516	0		02-Jun-21	26	$0.00
Inside Widening		53	06-May-20	27-Jul-20	24	$1,494,589.40
1E - EB - Inside Widening		53	06-May-20	27-Jul-20	24	$896,753.91
DE1A - EB - Sta. 1420-1425 - Inside Widening		19	06-May-20	04-Jun-20	33	$112,371.60
RE12760	DE1AEB.IW.1420-1425 - Setup Work Zone & Temp Barriers	2	06-May-20	07-May-20	24	$32,671.00
RE13400	DE1AEB.IW.1420-1425 - Earthwork/Rem Existing Lanes	4	08-May-20	13-May-20	24	$34,921.37
RE14680	DE1AEB.IW.1420-1425 - Place GR Aggregate Base Course (O)	4	14-May-20	19-May-20	33	$20,106.03
RE15310	DE1AEB.IW.1420-1425 - Place Superpave Course (K+G+B)	4	20-May-20	27-May-20	33	$24,673.20
RE15830	DE1AEB.IW.1420-1425 - Place Asphalt Concrete (A)	5	28-May-20	04-Jun-20	33	$0.00
DE1A - EB - Sta. 1425-1430 - Inside Widening		19	14-May-20	12-Jun-20	32	$112,371.60
RE14670	DE1AEB.IW.1425-1430 - Setup Work Zone & Temp Barriers	2	14-May-20	15-May-20	24	$32,671.00
RE14950	DE1AEB.IW.1425-1430 - Earthwork/Rem Existing Lanes	4	18-May-20	21-May-20	24	$34,921.37
RE16000	DE1AEB.IW.1425-1430 - Place GR Aggregate Base Course (O)	4	26-May-20	01-Jun-20	32	$20,106.03
RE16620	DE1AEB.IW.1425-1430 - Place Superpave Course (K+G+B)	4	02-Jun-20	05-Jun-20	32	$24,673.20
RE16920	DE1AEB.IW.1425-1430 - Place Asphalt Concrete (A)	5	08-Jun-20	12-Jun-20	32	$0.00
DE1A - EB - Sta. 1434-1439 - Inside Widening		19	26-May-20	22-Jun-20	31	$112,371.60
RE16010	DE1AEB.IW.1434-1439 - Setup Work Zone & Temp Barriers	2	26-May-20	27-May-20	24	$32,671.00
RE16380	DE1AEB.IW.1434-1439 - Earthwork/Rem Existing Lanes	4	28-May-20	03-Jun-20	24	$34,921.37
RE17100	DE1AEB.IW.1434-1439 - Place GR Aggregate Base Course (O)	4	04-Jun-20	09-Jun-20	31	$20,106.03
RE17820	DE1AEB.IW.1434-1439 - Place Superpave Course (K+G+B)	4	10-Jun-20	15-Jun-20	31	$24,673.20
RE18580	DE1AEB.IW.1434-1439 - Place Asphalt Concrete (A)	5	16-Jun-20	22-Jun-20	31	$0.00
DE1A - EB - Sta. 1439-1445 - Inside Widening		23	04-Jun-20	08-Jul-20	26	$186,546.37
RE17090	DE1AEB.IW.1439-1445 - Setup Work Zone & Temp Barriers	2	04-Jun-20	05-Jun-20	24	$32,671.00
RE17470	DE1AEB.IW.1439-1445 - Earthwork	4	08-Jun-20	11-Jun-20	24	$34,921.37
RE18700	DE1AEB.IW.1439-1445 - Place GR Aggregate Base Course (O)	4	12-Jun-20	17-Jun-20	26	$20,106.03
RE19280	DE1AEB.IW.1439-1445 - Place Superpave Course (J)	4	18-Jun-20	23-Jun-20	26	$24,673.20
RE19540	DE1AEB.IW.1439-1445 - Place Polymer Material (F+B)	4	24-Jun-20	30-Jun-20	26	$74,174.77
RE20140	DE1AEB.IW.1439-1445 - Place Asphalt Concrete (A)	5	01-Jul-20	08-Jul-20	26	$0.00
DE1A - EB - Sta. 1445-1449 - Inside Widening		23	12-Jun-20	16-Jul-20	25	$186,546.37
RE18710	DE1AEB.IW.1445-1449 - Setup Work Zone & Temp Barriers	2	12-Jun-20	15-Jun-20	24	$32,671.00



Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE19010	DE1AEB.IW.1445-1449 - Earthwork	4	16-Jun-20	19-Jun-20	24	$34,921.37
RE19720	DE1AEB.IW.1445-1449 - Place GR Aggregate Base Course (O)	4	22-Jun-20	25-Jun-20	25	$20,106.03
RE20350	DE1AEB.IW.1445-1449 - Place Superpave Course (J)	4	29-Jun-20	02-Jul-20	25	$24,673.20
RE20620	DE1AEB.IW.1445-1449 - Place Polymer Material (F+B)	4	06-Jul-20	09-Jul-20	25	$74,174.77
RE21160	DE1AEB.IW.1445-1449 - Place Asphalt Concrete (A)	5	10-Jul-20	16-Jul-20	25	$0.00
DE1A - EB - Sta. 1451-1456 - Inside Widening		**23**	**22-Jun-20**	**27-Jul-20**	**24**	**$186,546.37**
RE19730	DE1AEB.IW.1451-1456 - Setup Work Zone & Temp Barriers	2	22-Jun-20	23-Jun-20	24	$32,671.00
RE20020	DE1AEB.IW.1451-1456 - Earthwork	4	24-Jun-20	30-Jun-20	24	$34,921.37
RE20810	DE1AEB.IW.1451-1456 - Place GR Aggregate Base Course (O)	4	01-Jul-20	07-Jul-20	24	$20,106.03
RE21270	DE1AEB.IW.1451-1456 - Place Superpave Course (J)	4	08-Jul-20	13-Jul-20	24	$24,673.20
RE21610	DE1AEB.IW.1451-1456 - Place Polymer Material (F+B)	4	14-Jul-20	17-Jul-20	24	$74,174.77
RE22200	DE1AEB.IW.1451-1456 - Place Asphalt Concrete (A)	5	20-Jul-20	27-Jul-20	24	$0.00
1W - WB - Inside Widening		**39**	**06-May-20**	**06-Jul-20**	**38**	**$597,835.49**
DE1B - WB - Sta. 1544-1540 - Inside Widening		**23**	**06-May-20**	**10-Jun-20**	**39**	**$186,545.92**
RE12770	DE1BWB.IW.1544-1540 - Setup Work Zone & Temp Barriers	2	06-May-20	07-May-20	38	$32,671.00
RE13410	DE1BWB.IW.1544-1540 - Earthwork	4	08-May-20	13-May-20	38	$34,921.37
RE14700	DE1BWB.IW.1544-1540 - Place GR Aggregate Base Course (O)	4	14-May-20	19-May-20	39	$20,106.03
RE15320	DE1BWB.IW.1544-1540 - Place Superpave Course (J)	4	20-May-20	27-May-20	39	$24,673.20
RE15840	DE1BWB.IW.1544-1540 - Place Polymer Material (F+B)	4	28-May-20	03-Jun-20	39	$74,174.32
RE16540	DE1BWB.IW.1544-1540 - Place Asphalt Concrete (A)	5	04-Jun-20	10-Jun-20	39	$0.00
DE1B - WB - Sta. 1540-1535 - Inside Widening		**23**	**14-May-20**	**18-Jun-20**	**38**	**$186,546.37**
RE14690	DE1BWB.IW.1540-1535 - Setup Work Zone & Temp Barriers	2	14-May-20	15-May-20	38	$32,671.00
RE14960	DE1BWB.IW.1540-1535 - Earthwork	4	18-May-20	21-May-20	38	$34,921.37
RE16030	DE1BWB.IW.1540-1535 - Place GR Aggregate Base Course (O)	4	26-May-20	01-Jun-20	38	$20,106.03
RE16630	DE1BWB.IW.1540-1535 - Place Superpave Course (J)	4	02-Jun-20	05-Jun-20	38	$24,673.20
RE16930	DE1BWB.IW.1540-1535 - Place Polymer Material (F+B)	4	08-Jun-20	11-Jun-20	38	$74,174.77
RE17610	DE1BWB.IW.1540-1535 - Place Asphalt Concrete (A)	5	12-Jun-20	18-Jun-20	38	$0.00
DE1B - WB - Sta. 1535-1532 - Inside Widening		**22**	**26-May-20**	**25-Jun-20**	**38**	**$112,371.60**
RE16020	DE1BWB.IW.1535-1532 - Setup Work Zone & Temp Barriers	2	26-May-20	27-May-20	40	$32,671.00
RE16390	DE1BWB.IW.1535-1532 - Earthwork/Rem Existing Lanes	4	28-May-20	03-Jun-20	40	$34,921.37
RE17120	DE1BWB.IW.1535-1532 - Place GR Aggregate Base Course (O)	4	04-Jun-20	09-Jun-20	41	$20,106.03
RE17830	DE1BWB.IW.1535-1532 - Place Superpave Course (K+G+B)	4	10-Jun-20	15-Jun-20	41	$24,673.20
RE18590	DE1BWB.IW.1535-1532 - Place Asphalt Concrete (A)	5	19-Jun-20	25-Jun-20	38	$0.00
DE1B - WB - Sta. 1528-1520 - Inside Widening		**21**	**04-Jun-20**	**06-Jul-20**	**38**	**$112,371.60**
RE17110	DE1BWB.IW.1528-1520 - Setup Work Zone & Temp Barriers	2	04-Jun-20	05-Jun-20	40	$32,671.00
RE17480	DE1BWB.IW.1528-1520 - Earthwork/Rem Existing Lanes	4	08-Jun-20	11-Jun-20	40	$34,921.37
RE18720	DE1BWB.IW.1528-1520 - Place GR Aggregate Base Course (O)	4	12-Jun-20	17-Jun-20	40	$20,106.03
RE19290	DE1BWB.IW.1528-1520 - Place Superpave Course (K+G+B)	4	18-Jun-20	23-Jun-20	40	$24,673.20
RE19550	DE1BWB.IW.1528-1520 - Place Asphalt Concrete (A)	5	29-Jun-20	06-Jul-20	38	$0.00
Outside Widening		**50**	**08-Mar-21**	**02-Jun-21**	**26**	**$1,123,716.00**
1E - EB - Outside Widening		**50**	**08-Mar-21**	**02-Jun-21**	**26**	**$674,229.60**
DE1A - EB - Sta. 1420-1425 - Outside Widening		**14**	**08-Mar-21**	**07-Apr-21**	**52**	**$112,371.60**
RE22720	DE01AEB.OW.1420-1425 - Setup Work Zone & Temp Barriers	2	08-Mar-21	09-Mar-21	26	$32,671.00
RE22770	DE01AEB.OW.1420-1425 - Earthwork	2	10-Mar-21	11-Mar-21	26	$34,921.37
RE23280	DE01AEB.OW.1420-1425 - Place GR Aggregate Base Course (O)	4	22-Mar-21	25-Mar-21	52	$20,106.03
RE23600	DE01AEB.OW.1420-1425 - Place Superpave Course (K+G+B)	4	29-Mar-21	01-Apr-21	52	$24,673.20
RE24100	DE01AEB.OW.1420-1425 - Place Asphalt Concrete (A)	2	06-Apr-21	07-Apr-21	52	$0.00
DE1A - EB - Sta. 1425-1430 - Outside Widening		**14**	**22-Mar-21**	**13-Apr-21**	**50**	**$112,371.60**
RE23270	DE01AEB.OW.1425-1430 - Setup Work Zone & Temp Barriers	2	22-Mar-21	23-Mar-21	26	$32,671.00
RE23430	DE01AEB.OW.1425-1430 - Earthwork	2	24-Mar-21	25-Mar-21	26	$34,921.37
RE23850	DE01AEB.OW.1425-1430 - Place GR Aggregate Base Course (O)	4	29-Mar-21	01-Apr-21	50	$20,106.03
RE24320	DE01AEB.OW.1425-1430 - Place Superpave Course (K+G+B)	4	06-Apr-21	09-Apr-21	50	$24,673.20
RE24620	DE01AEB.OW.1425-1430 - Place Asphalt Concrete (A)	2	12-Apr-21	13-Apr-21	50	$0.00
DE1A - EB - Sta. 1434-1439 - Outside Widening		**18**	**29-Mar-21**	**23-Apr-21**	**44**	**$112,371.60**
RE23860	DE01AEB.OW.1434-1439 - Setup Work Zone & Temp Barriers	2	29-Mar-21	30-Mar-21	26	$32,671.00
RE23930	DE01AEB.OW.1434-1439 - Earthwork	6	31-Mar-21	09-Apr-21	26	$34,921.37



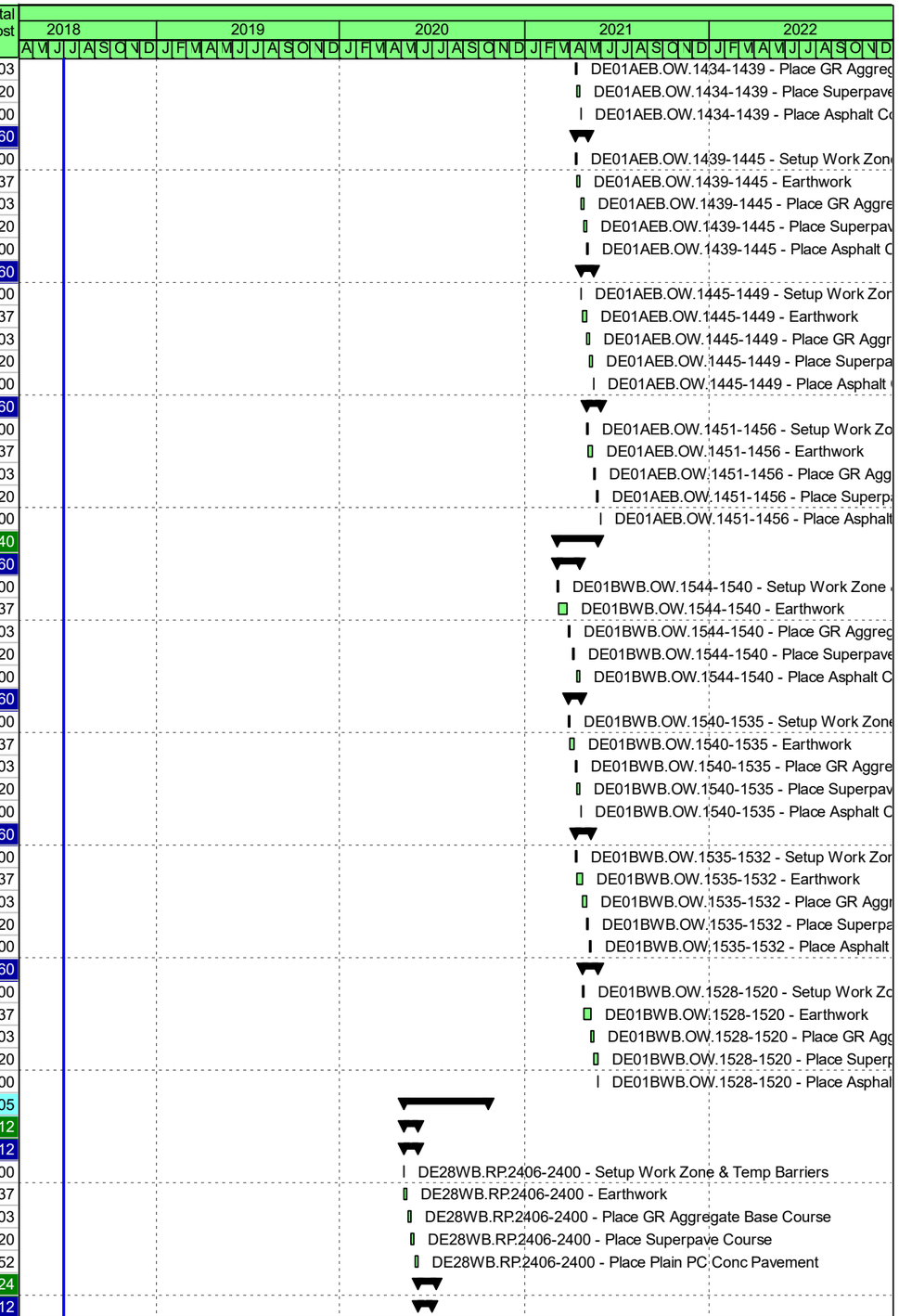
DRAGADOS USA

Project ID: PI-BLS21-R
Data Date: 01-Jul-18
Run Date: 27-Jun-18

I-16 at I-95 Reconstruction and Widening Proposal Schedule - Clarification GDOT Ltr 27-Jun-18
Detailed Activities

Remaining Level of Effort
Critical Remaining Work
Summary
Milestone
Remaining Work

Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE24360	DE01AEB.OW.1434-1439 - Place GR Aggregate Base Course (O)	4	12-Apr-21	15-Apr-21	44	$20,106.03
RE24670	DE01AEB.OW.1434-1439 - Place Superpave Course (K+G+B)	4	16-Apr-21	21-Apr-21	44	$24,673.20
RE25170	DE01AEB.OW.1434-1439 - Place Asphalt Concrete (A)	2	22-Apr-21	23-Apr-21	44	$0.00
DE1A - EB - Sta. 1439-1445 - Outside Widening		**18**	**12-Apr-21**	**06-May-21**	**38**	**$112,371.60**
RE24350	DE01AEB.OW.1439-1445 - Setup Work Zone & Temp Barriers	2	12-Apr-21	13-Apr-21	26	$32,671.00
RE24480	DE01AEB.OW.1439-1445 - Earthwork	6	14-Apr-21	21-Apr-21	26	$34,921.37
RE24760	DE01AEB.OW.1439-1445 - Place GR Aggregate Base Course (O)	4	22-Apr-21	27-Apr-21	38	$20,106.03
RE25240	DE01AEB.OW.1439-1445 - Place Superpave Course (K+G+B)	4	28-Apr-21	04-May-21	38	$24,673.20
RE25950	DE01AEB.OW.1439-1445 - Place Asphalt Concrete (A)	2	05-May-21	06-May-21	38	$0.00
DE1A - EB - Sta. 1445-1449 - Outside Widening		**18**	**22-Apr-21**	**18-May-21**	**32**	**$112,371.60**
RE24770	DE01AEB.OW.1445-1449 - Setup Work Zone & Temp Barriers	2	22-Apr-21	23-Apr-21	26	$32,671.00
RE25060	DE01AEB.OW.1445-1449 - Earthwork	6	26-Apr-21	04-May-21	26	$34,921.37
RE25370	DE01AEB.OW.1445-1449 - Place GR Aggregate Base Course (O)	4	05-May-21	10-May-21	32	$20,106.03
RE26060	DE01AEB.OW.1445-1449 - Place Superpave Course (K+G+B)	4	11-May-21	14-May-21	32	$24,673.20
RE26500	DE01AEB.OW.1445-1449 - Place Asphalt Concrete (A)	2	17-May-21	18-May-21	32	$0.00
DE1A - EB - Sta. 1451-1456 - Outside Widening		**18**	**05-May-21**	**02-Jun-21**	**26**	**$112,371.60**
RE25360	DE01AEB.OW.1451-1456 - Setup Work Zone & Temp Barriers	2	05-May-21	06-May-21	26	$32,671.00
RE25910	DE01AEB.OW.1451-1456 - Earthwork	6	07-May-21	14-May-21	26	$34,921.37
RE26230	DE01AEB.OW.1451-1456 - Place GR Aggregate Base Course (O)	4	17-May-21	20-May-21	26	$20,106.03
RE26550	DE01AEB.OW.1451-1456 - Place Superpave Course (K+G+B)	4	24-May-21	27-May-21	26	$24,673.20
RE26760	DE01AEB.OW.1451-1456 - Place Asphalt Concrete (A)	2	01-Jun-21	02-Jun-21	26	$0.00
1W - WB - Outside Widening		**48**	**08-Mar-21**	**27-May-21**	**28**	**$449,486.40**
DE1B - WB - Sta. 1544-1540 - Outside Widening		**22**	**08-Mar-21**	**19-Apr-21**	**48**	**$112,371.60**
RE20150	DE01BWB.OW.1544-1540 - Setup Work Zone & Temp Barriers	2	08-Mar-21	09-Mar-21	28	$32,671.00
RE20360	DE01BWB.OW.1544-1540 - Earthwork	6	10-Mar-21	25-Mar-21	28	$34,921.37
RE20640	DE01BWB.OW.1544-1540 - Place GR Aggregate Base Course (O)	4	29-Mar-21	01-Apr-21	52	$20,106.03
RE21170	DE01BWB.OW.1544-1540 - Place Superpave Course (K+G+B)	4	06-Apr-21	09-Apr-21	52	$24,673.20
RE21500	DE01BWB.OW.1544-1540 - Place Asphalt Concrete (A)	2	16-Apr-21	19-Apr-21	48	$0.00
DE1B - WB - Sta. 1540-1535 - Outside Widening		**18**	**29-Mar-21**	**23-Apr-21**	**46**	**$112,371.60**
RE20630	DE01BWB.OW.1540-1535 - Setup Work Zone & Temp Barriers	2	29-Mar-21	30-Mar-21	28	$32,671.00
RE20820	DE01BWB.OW.1540-1535 - Earthwork	6	31-Mar-21	09-Apr-21	28	$34,921.37
RE21290	DE01BWB.OW.1540-1535 - Place GR Aggregate Base Course (O)	4	12-Apr-21	15-Apr-21	46	$20,106.03
RE21620	DE01BWB.OW.1540-1535 - Place Superpave Course (K+G+B)	4	16-Apr-21	21-Apr-21	46	$24,673.20
RE22210	DE01BWB.OW.1540-1535 - Place Asphalt Concrete (A)	2	22-Apr-21	23-Apr-21	46	$0.00
DE1B - WB - Sta. 1535-1532 - Outside Widening		**21**	**12-Apr-21**	**11-May-21**	**37**	**$112,371.60**
RE21280	DE01BWB.OW.1535-1532 - Setup Work Zone & Temp Barriers	2	12-Apr-21	13-Apr-21	28	$32,671.00
RE21360	DE01BWB.OW.1535-1532 - Earthwork	9	14-Apr-21	26-Apr-21	28	$34,921.37
RE21840	DE01BWB.OW.1535-1532 - Place GR Aggregate Base Course (O)	4	27-Apr-21	03-May-21	37	$20,106.03
RE22250	DE01BWB.OW.1535-1532 - Place Superpave Course (K+G+B)	4	04-May-21	07-May-21	37	$24,673.20
RE22780	DE01BWB.OW.1535-1532 - Place Asphalt Concrete (A)	2	10-May-21	11-May-21	37	$0.00
DE1B - WB - Sta. 1528-1520 - Outside Widening		**21**	**27-Apr-21**	**27-May-21**	**28**	**$112,371.60**
RE21850	DE01BWB.OW.1528-1520 - Setup Work Zone & Temp Barriers	2	27-Apr-21	28-Apr-21	28	$32,671.00
RE22080	DE01BWB.OW.1528-1520 - Earthwork	9	29-Apr-21	12-May-21	28	$34,921.37
RE22660	DE01BWB.OW.1528-1520 - Place GR Aggregate Base Course (O)	4	13-May-21	18-May-21	28	$20,106.03
RE22970	DE01BWB.OW.1528-1520 - Place Superpave Course (K+G+B)	4	19-May-21	25-May-21	28	$24,673.20
RE23440	DE01BWB.OW.1528-1520 - Place Asphalt Concrete (A)	2	26-May-21	27-May-21	28	$0.00
Ramps		**108**	**06-May-20**	**22-Oct-20**	**148**	**$3,802,490.05**
DE28 - Ramp WB Sta. 2406-2400		**18**	**06-May-20**	**03-Jun-20**	**148**	**$422,499.12**
DE28 - WB Sta. 2406-2400 - Ramp		**18**	**06-May-20**	**03-Jun-20**	**148**	**$422,499.12**
RE12780	DE28WB.RP.2406-2400 - Setup Work Zone & Temp Barriers	2	06-May-20	07-May-20	148	$32,671.00
RE13420	DE28WB.RP.2406-2400 - Earthwork	4	08-May-20	13-May-20	148	$34,921.37
RE14710	DE28WB.RP.2406-2400 - Place GR Aggregate Base Course	4	14-May-20	19-May-20	148	$20,106.03
RE15330	DE28WB.RP.2406-2400 - Place Superpave Course	4	20-May-20	27-May-20	148	$24,673.20
RE15850	DE28WB.RP.2406-2400 - Place Plain PC Conc Pavement	4	28-May-20	03-Jun-20	148	$310,127.52
DE29 - Ramp EB Sta. 2300-2308		**24**	**04-Jun-20**	**09-Jul-20**	**148**	**$844,998.24**
DE29 - EB Sta. 2300-2305 - Ramp		**18**	**04-Jun-20**	**30-Jun-20**	**150**	**$422,499.12**



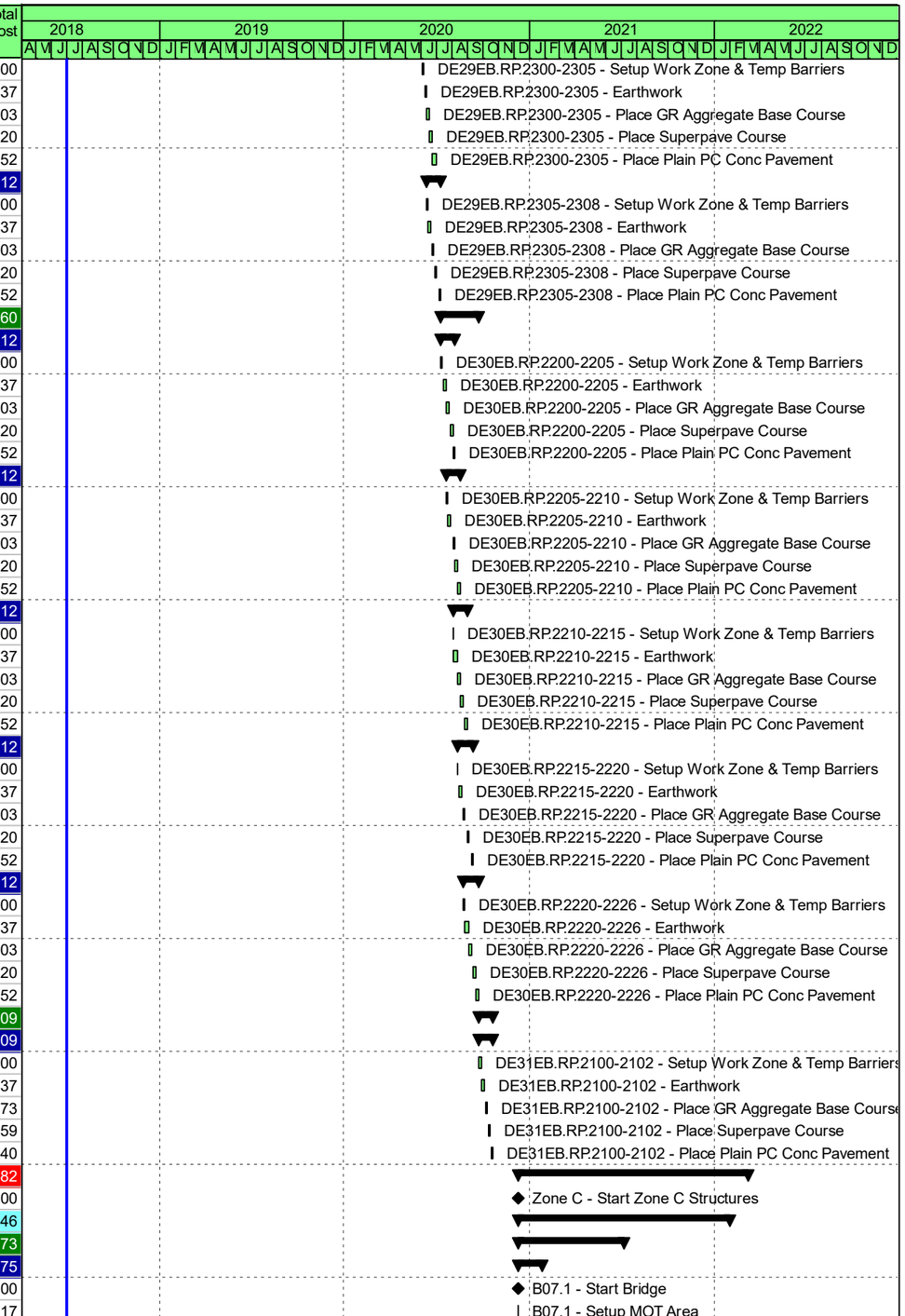
DRAGADOS USA

Project ID: PI-BLS21-R
Data Date: 01-Jul-18
Run Date: 27-Jun-18

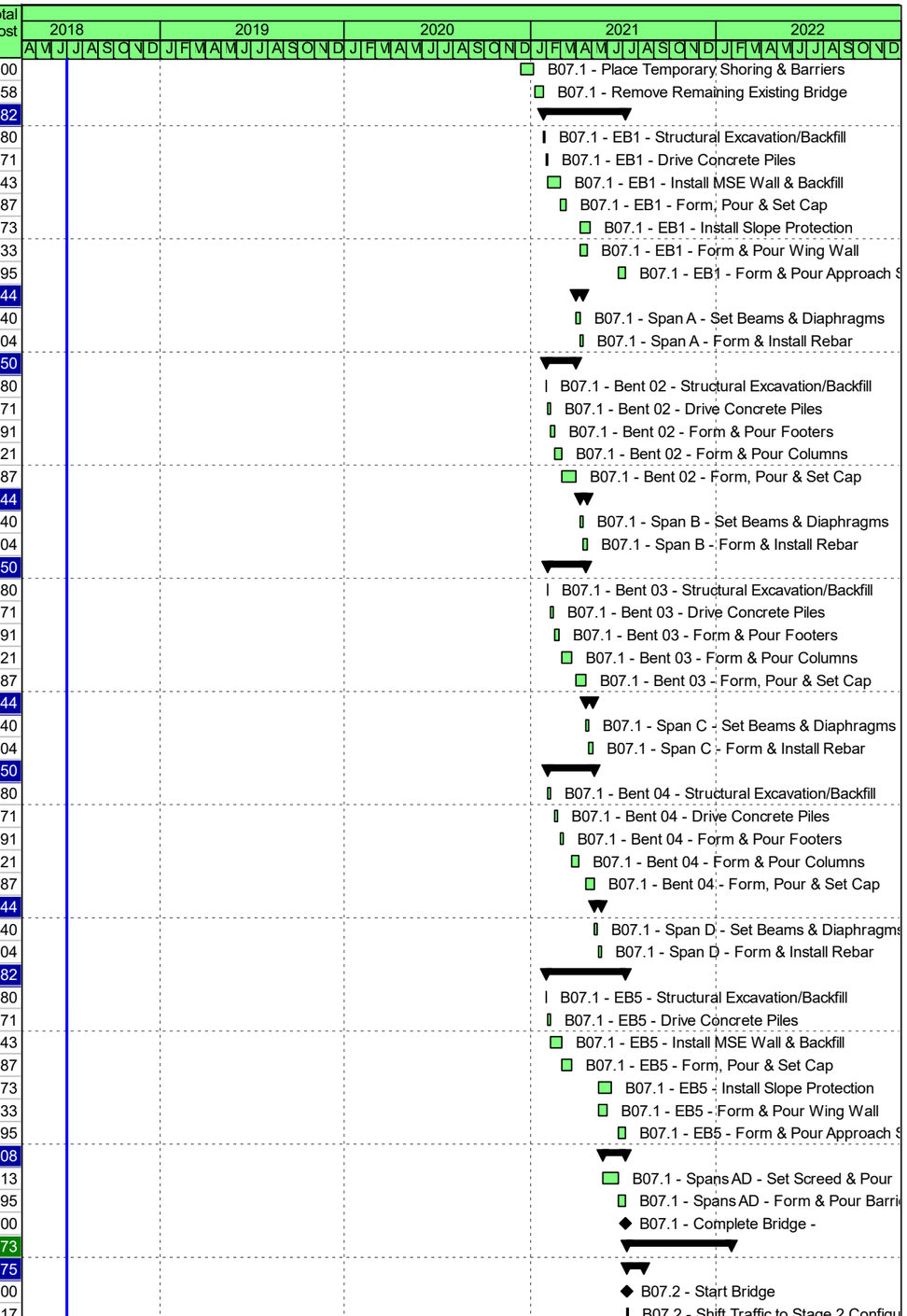
I-16 at I-95 Reconstruction and Widening Proposal Schedule - Clarification GDOT Ltr 27-Jun-18
Detailed Activities

Remaining Level of Effort
Critical Remaining Work
Summary
Milestone
Remaining Work

Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE16550	DE29EB.RP.2300-2305 - Setup Work Zone & Temp Barriers	2	04-Jun-20	05-Jun-20	148	$32,671.00
RE16640	DE29EB.RP.2300-2305 - Earthwork	4	08-Jun-20	11-Jun-20	148	$34,921.37
RE17620	DE29EB.RP.2300-2305 - Place GR Aggregate Base Course	4	12-Jun-20	17-Jun-20	150	$20,106.03
RE18390	DE29EB.RP.2300-2305 - Place Superpave Course	4	18-Jun-20	23-Jun-20	150	$24,673.20
RE18910	DE29EB.RP.2300-2305 - Place Plain PC Conc Pavement	4	24-Jun-20	30-Jun-20	150	$310,127.52
DE29 - EB Sta. 2305-2308 - Ramp		**18**	**12-Jun-20**	**09-Jul-20**	**148**	**$422,499.12**
RE17630	DE29EB.RP.2305-2308 - Setup Work Zone & Temp Barriers	2	12-Jun-20	15-Jun-20	148	$32,671.00
RE17840	DE29EB.RP.2305-2308 - Earthwork	4	16-Jun-20	19-Jun-20	148	$34,921.37
RE19250	DE29EB.RP.2305-2308 - Place GR Aggregate Base Course	4	22-Jun-20	25-Jun-20	148	$20,106.03
RE19510	DE29EB.RP.2305-2308 - Place Superpave Course	4	29-Jun-20	02-Jul-20	148	$24,673.20
RE20000	DE29EB.RP.2305-2308 - Place Plain PC Conc Pavement	4	06-Jul-20	09-Jul-20	148	$310,127.52
DE30 - Ramp EB Sta. 2200-2226		**47**	**10-Jul-20**	**23-Sep-20**	**148**	**$2,112,495.60**
DE30 - EB Sta. 2200-2205 - Ramp		**19**	**10-Jul-20**	**07-Aug-20**	**160**	**$422,499.12**
RE20470	DE30EB.RP.2200-2205 - Setup Work Zone & Temp Barriers	2	10-Jul-20	13-Jul-20	148	$32,671.00
RE20520	DE30EB.RP.2200-2205 - Earthwork	5	14-Jul-20	20-Jul-20	148	$34,921.37
RE21340	DE30EB.RP.2200-2205 - Place GR Aggregate Base Course	4	21-Jul-20	27-Jul-20	160	$20,106.03
RE21810	DE30EB.RP.2200-2205 - Place Superpave Course	4	28-Jul-20	03-Aug-20	160	$24,673.20
RE22230	DE30EB.RP.2200-2205 - Place Plain PC Conc Pavement	4	04-Aug-20	07-Aug-20	160	$310,127.52
DE30 - EB Sta. 2205-2210 - Ramp		**19**	**21-Jul-20**	**18-Aug-20**	**157**	**$422,499.12**
RE21350	DE30EB.RP.2205-2210 - Setup Work Zone & Temp Barriers	2	21-Jul-20	22-Jul-20	148	$32,671.00
RE21510	DE30EB.RP.2205-2210 - Earthwork	5	23-Jul-20	30-Jul-20	148	$34,921.37
RE22590	DE30EB.RP.2205-2210 - Place GR Aggregate Base Course	4	03-Aug-20	06-Aug-20	157	$20,106.03
RE22870	DE30EB.RP.2205-2210 - Place Superpave Course	4	07-Aug-20	12-Aug-20	157	$24,673.20
RE23320	DE30EB.RP.2205-2210 - Place Plain PC Conc Pavement	4	13-Aug-20	18-Aug-20	157	$310,127.52
DE30 - EB Sta. 2210-2215 - Ramp		**19**	**03-Aug-20**	**31-Aug-20**	**154**	**$422,499.12**
RE22600	DE30EB.RP.2210-2215 - Setup Work Zone & Temp Barriers	2	03-Aug-20	04-Aug-20	148	$32,671.00
RE22730	DE30EB.RP.2210-2215 - Earthwork	5	05-Aug-20	11-Aug-20	148	$34,921.37
RE23490	DE30EB.RP.2210-2215 - Place GR Aggregate Base Course	4	12-Aug-20	17-Aug-20	154	$20,106.03
RE23900	DE30EB.RP.2210-2215 - Place Superpave Course	4	18-Aug-20	24-Aug-20	154	$24,673.20
RE24330	DE30EB.RP.2210-2215 - Place Plain PC Conc Pavement	4	25-Aug-20	31-Aug-20	154	$310,127.52
DE30 - EB Sta. 2215-2220 - Ramp		**19**	**12-Aug-20**	**11-Sep-20**	**151**	**$422,499.12**
RE23500	DE30EB.RP.2215-2220 - Setup Work Zone & Temp Barriers	2	12-Aug-20	13-Aug-20	148	$32,671.00
RE23610	DE30EB.RP.2215-2220 - Earthwork	5	14-Aug-20	20-Aug-20	148	$34,921.37
RE24410	DE30EB.RP.2215-2220 - Place GR Aggregate Base Course	4	24-Aug-20	27-Aug-20	151	$20,106.03
RE24710	DE30EB.RP.2215-2220 - Place Superpave Course	4	31-Aug-20	03-Sep-20	151	$24,673.20
RE25180	DE30EB.RP.2215-2220 - Place Plain PC Conc Pavement	4	08-Sep-20	11-Sep-20	151	$310,127.52
DE30 - EB Sta. 2220-2226 - Ramp		**19**	**24-Aug-20**	**23-Sep-20**	**148**	**$422,499.12**
RE24420	DE30EB.RP.2220-2226 - Setup Work Zone & Temp Barriers	2	24-Aug-20	25-Aug-20	148	$32,671.00
RE24630	DE30EB.RP.2220-2226 - Earthwork	5	26-Aug-20	02-Sep-20	148	$34,921.37
RE25350	DE30EB.RP.2220-2226 - Place GR Aggregate Base Course	4	03-Sep-20	10-Sep-20	148	$20,106.03
RE26030	DE30EB.RP.2220-2226 - Place Superpave Course	4	11-Sep-20	16-Sep-20	148	$24,673.20
RE26490	DE30EB.RP.2220-2226 - Place Plain PC Conc Pavement	4	17-Sep-20	23-Sep-20	148	$310,127.52
DE31 - Ramp EB Sta. 2100-2102		**19**	**24-Sep-20**	**22-Oct-20**	**148**	**$422,497.09**
DE31 - EB Sta. 2100-2102 - Ramp		**19**	**24-Sep-20**	**22-Oct-20**	**148**	**$422,497.09**
RE26710	DE31EB.RP.2100-2102 - Setup Work Zone & Temp Barriers	2	24-Sep-20	28-Sep-20	148	$32,671.00
RE26730	DE31EB.RP.2100-2102 - Earthwork	5	29-Sep-20	05-Oct-20	148	$34,921.37
RE27210	DE31EB.RP.2100-2102 - Place GR Aggregate Base Course	4	06-Oct-20	09-Oct-20	148	$20,105.73
RE27420	DE31EB.RP.2100-2102 - Place Superpave Course	4	13-Oct-20	16-Oct-20	148	$24,671.59
RE27760	DE31EB.RP.2100-2102 - Place Plain PC Conc Pavement	4	19-Oct-20	22-Oct-20	148	$310,127.40
Structure		**455**	**10-Dec-20**	**09-Mar-22**	**22**	**$24,547,192.82**
RE54390	Zone C - Start Zone C Structures	0	10-Dec-20		10	$0.00
B07 - DE1B - I-16 WB over CR 654 (Tremont Ave) and CSXT - 4 Spans		**240**	**10-Dec-20**	**01-Feb-22**	**32**	**$7,599,311.46**
B07.1 - DE1B - I-16 WB over CR 654 (Tremont Ave) and CSXT - Stage 1		**120**	**10-Dec-20**	**08-Jul-21**	**32**	**$3,799,655.73**
B07.1 - Setup		**22**	**10-Dec-20**	**26-Jan-21**	**32**	**$222,825.75**
RE12650	B07.1 - Start Bridge	0	10-Dec-20		32	$0.00
RE12660	B07.1 - Setup MOT Area	2	10-Dec-20	11-Dec-20	32	$16,448.17



Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE14200	B07.1 - Place Temporary Shoring & Barriers	10	14-Dec-20	08-Jan-21	32	$0.00
RE15590	B07.1 - Remove Remaining Existing Bridge	10	11-Jan-21	26-Jan-21	32	$206,377.58
B07.1 - End Bent 1		**98**	**27-Jan-21**	**08-Jul-21**	**32**	**$514,599.82**
RE16760	B07.1 - EB1 - Structural Excavation/Backfill	2	27-Jan-21	28-Jan-21	32	$24,038.80
RE17690	B07.1 - EB1 - Drive Concrete Piles	3	01-Feb-21	03-Feb-21	32	$185,684.71
RE18970	B07.1 - EB1 - Install MSE Wall & Backfill	15	04-Feb-21	01-Mar-21	47	$208,555.43
RE20300	B07.1 - EB1 - Form, Pour & Set Cap	8	02-Mar-21	11-Mar-21	47	$21,701.87
RE23670	B07.1 - EB1 - Install Slope Protection	15	09-Apr-21	29-Apr-21	66	$31,511.73
RE23680	B07.1 - EB1 - Form & Pour Wing Wall	10	09-Apr-21	22-Apr-21	71	$19,432.33
RE27910	B07.1 - EB1 - Form & Pour Approach Slab & Barrier Wall	10	23-Jun-21	08-Jul-21	32	$23,674.95
B07.1 - Span A		**10**	**31-Mar-21**	**15-Apr-21**	**41**	**$271,072.44**
RE22840	B07.1 - Span A - Set Beams & Diaphragms	5	31-Mar-21	08-Apr-21	41	$211,878.40
RE23690	B07.1 - Span A - Form & Install Rebar	5	09-Apr-21	15-Apr-21	41	$59,194.04
B07.1 - Bent 2		**32**	**01-Feb-21**	**30-Mar-21**	**32**	**$295,106.50**
RE17700	B07.1 - Bent 02 - Structural Excavation/Backfill	2	01-Feb-21	02-Feb-21	33	$24,038.80
RE18980	B07.1 - Bent 02 - Drive Concrete Piles	4	04-Feb-21	09-Feb-21	32	$185,684.71
RE19680	B07.1 - Bent 02 - Form & Pour Footers	5	10-Feb-21	17-Feb-21	32	$8,847.91
RE20580	B07.1 - Bent 02 - Form & Pour Columns	8	18-Feb-21	03-Mar-21	32	$54,833.21
RE21460	B07.1 - Bent 02 - Form, Pour & Set Cap	12	04-Mar-21	30-Mar-21	32	$21,701.87
B07.1 - Span B		**10**	**09-Apr-21**	**22-Apr-21**	**41**	**$271,072.44**
RE23700	B07.1 - Span B - Set Beams & Diaphragms	5	09-Apr-21	15-Apr-21	41	$211,878.40
RE24450	B07.1 - Span B - Form & Install Rebar	5	16-Apr-21	22-Apr-21	41	$59,194.04
B07.1 - Bent 3		**42**	**03-Feb-21**	**19-Apr-21**	**32**	**$295,106.50**
RE18990	B07.1 - Bent 03 - Structural Excavation/Backfill	2	03-Feb-21	04-Feb-21	43	$24,038.80
RE19690	B07.1 - Bent 03 - Drive Concrete Piles	4	10-Feb-21	16-Feb-21	40	$185,684.71
RE20590	B07.1 - Bent 03 - Form & Pour Footers	5	18-Feb-21	25-Feb-21	39	$8,847.91
RE21470	B07.1 - Bent 03 - Form & Pour Columns	8	04-Mar-21	23-Mar-21	36	$54,833.21
RE22850	B07.1 - Bent 03 - Form, Pour & Set Cap	12	31-Mar-21	19-Apr-21	32	$21,701.87
B07.1 - Span C		**10**	**20-Apr-21**	**04-May-21**	**39**	**$271,072.44**
RE24460	B07.1 - Span C - Set Beams & Diaphragms	5	20-Apr-21	26-Apr-21	39	$211,878.40
RE25220	B07.1 - Span C - Form & Install Rebar	5	27-Apr-21	04-May-21	39	$59,194.04
B07.1 - Bent 4		**52**	**05-Feb-21**	**06-May-21**	**32**	**$295,106.50**
RE19700	B07.1 - Bent 04 - Structural Excavation/Backfill	2	05-Feb-21	08-Feb-21	53	$24,038.80
RE20600	B07.1 - Bent 04 - Drive Concrete Piles	4	17-Feb-21	23-Feb-21	48	$185,684.71
RE21480	B07.1 - Bent 04 - Form & Pour Footers	5	01-Mar-21	05-Mar-21	46	$8,847.91
RE22580	B07.1 - Bent 04 - Form & Pour Columns	8	24-Mar-21	07-Apr-21	40	$54,833.21
RE24130	B07.1 - Bent 04 - Form, Pour & Set Cap	12	20-Apr-21	06-May-21	32	$21,701.87
B07.1 - Span D		**10**	**07-May-21**	**20-May-21**	**32**	**$271,072.44**
RE25230	B07.1 - Span D - Set Beams & Diaphragms	5	07-May-21	13-May-21	32	$211,878.40
RE26370	B07.1 - Span D - Form & Install Rebar	5	14-May-21	20-May-21	32	$59,194.04
B07.1 - End Bent 5		**96**	**01-Feb-21**	**08-Jul-21**	**32**	**$514,599.82**
RE17710	B07.1 - EB5 - Structural Excavation/Backfill	2	01-Feb-21	02-Feb-21	60	$24,038.80
RE19000	B07.1 - EB5 - Drive Concrete Piles	3	04-Feb-21	08-Feb-21	59	$185,684.71
RE19710	B07.1 - EB5 - Install MSE Wall & Backfill	15	09-Feb-21	04-Mar-21	59	$208,555.43
RE21120	B07.1 - EB5 - Form, Pour & Set Cap	8	05-Mar-21	24-Mar-21	59	$21,701.87
RE26380	B07.1 - EB5 - Install Slope Protection	15	14-May-21	08-Jun-21	42	$31,511.73
RE26390	B07.1 - EB5 - Form & Pour Wing Wall	10	14-May-21	01-Jun-21	47	$19,432.33
RE27920	B07.1 - EB5 - Form & Pour Approach Slab & Barrier Wall	10	23-Jun-21	08-Jul-21	32	$23,674.95
B07.1 - Finishes		**30**	**24-May-21**	**08-Jul-21**	**32**	**$578,021.08**
RE26910	B07.1 - Spans AD - Set Screed & Pour	20	24-May-21	22-Jun-21	32	$554,346.13
RE27930	B07.1 - Spans AD - Form & Pour Barrier Walls	10	23-Jun-21	08-Jul-21	32	$23,674.95
RE29250	B07.1 - Complete Bridge -	0		08-Jul-21	32	$0.00
B07.2 - DE1B - I-16 WB over CR 654 (Tremont Ave) and CSXT - Stage 2		**120**	**09-Jul-21**	**01-Feb-22**	**32**	**$3,799,655.73**
B07.2 - Setup		**22**	**09-Jul-21**	**11-Aug-21**	**32**	**$222,825.75**
RE29310	B07.2 - Start Bridge	0	09-Jul-21		32	$0.00
RE29320	B07.2 - Shift Traffic to Stage 2 Configuration and Setup MOT Area	2	09-Jul-21	12-Jul-21	32	$16,448.17



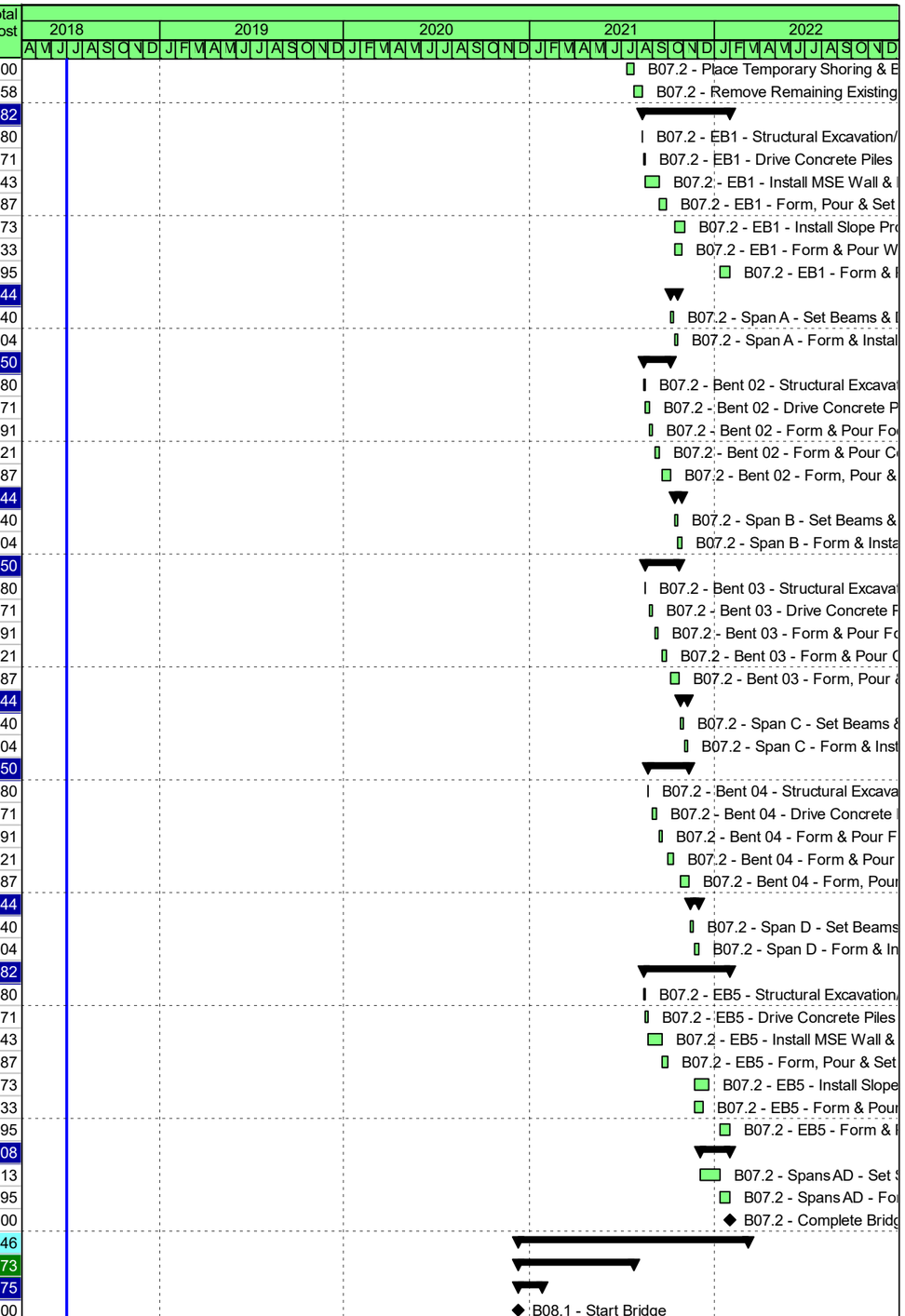
DRAGADOS USA

Project ID: PI-BLS21-R
Data Date: 01-Jul-18
Run Date: 27-Jun-18

I-16 at I-95 Reconstruction and Widening Proposal Schedule - Clarification GDOT Ltr 27-Jun-18
Detailed Activities

Remaining Level of Effort
Critical Remaining Work
Summary
Milestone
Remaining Work

Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE29530	B07.2 - Place Temporary Shoring & Barriers	10	13-Jul-21	27-Jul-21	32	$0.00
RE30220	B07.2 - Remove Remaining Existing Bridge	10	28-Jul-21	11-Aug-21	32	$206,377.58
B07.2 - End Bent 1		**98**	**12-Aug-21**	**01-Feb-22**	**32**	**$514,599.82**
RE31050	B07.2 - EB1 - Structural Excavation/Backfill	2	12-Aug-21	13-Aug-21	32	$24,038.80
RE31580	B07.2 - EB1 - Drive Concrete Piles	3	16-Aug-21	18-Aug-21	32	$185,684.71
RE32320	B07.2 - EB1 - Install MSE Wall & Backfill	15	19-Aug-21	14-Sep-21	47	$208,555.43
RE33390	B07.2 - EB1 - Form, Pour & Set Cap	8	15-Sep-21	28-Sep-21	47	$21,701.87
RE35460	B07.2 - EB1 - Install Slope Protection	15	15-Oct-21	05-Nov-21	66	$31,511.73
RE35470	B07.2 - EB1 - Form & Pour Wing Wall	10	15-Oct-21	28-Oct-21	71	$19,432.33
RE38330	B07.2 - EB1 - Form & Pour Approach Slab & Barrier Wall	10	14-Jan-22	01-Feb-22	32	$23,674.95
B07.2 - Span A		**10**	**07-Oct-21**	**21-Oct-21**	**41**	**$271,072.44**
RE34950	B07.2 - Span A - Set Beams & Diaphragms	5	07-Oct-21	14-Oct-21	41	$211,878.40
RE35480	B07.2 - Span A - Form & Install Rebar	5	15-Oct-21	21-Oct-21	41	$59,194.04
B07.2 - Bent 2		**32**	**16-Aug-21**	**06-Oct-21**	**32**	**$295,106.50**
RE31590	B07.2 - Bent 02 - Structural Excavation/Backfill	2	16-Aug-21	17-Aug-21	33	$24,038.80
RE32330	B07.2 - Bent 02 - Drive Concrete Piles	4	19-Aug-21	25-Aug-21	32	$185,684.71
RE32800	B07.2 - Bent 02 - Form & Pour Footers	5	26-Aug-21	02-Sep-21	32	$8,847.91
RE33590	B07.2 - Bent 02 - Form & Pour Columns	8	07-Sep-21	16-Sep-21	32	$54,833.21
RE34230	B07.2 - Bent 02 - Form, Pour & Set Cap	12	20-Sep-21	06-Oct-21	32	$21,701.87
B07.2 - Span B		**10**	**15-Oct-21**	**28-Oct-21**	**41**	**$271,072.44**
RE35490	B07.2 - Span B - Set Beams & Diaphragms	5	15-Oct-21	21-Oct-21	41	$211,878.40
RE36040	B07.2 - Span B - Form & Install Rebar	5	22-Oct-21	28-Oct-21	41	$59,194.04
B07.2 - Bent 3		**42**	**18-Aug-21**	**25-Oct-21**	**32**	**$295,106.50**
RE32340	B07.2 - Bent 03 - Structural Excavation/Backfill	2	18-Aug-21	19-Aug-21	43	$24,038.80
RE32810	B07.2 - Bent 03 - Drive Concrete Piles	4	26-Aug-21	01-Sep-21	40	$185,684.71
RE33600	B07.2 - Bent 03 - Form & Pour Footers	5	07-Sep-21	13-Sep-21	39	$8,847.91
RE34240	B07.2 - Bent 03 - Form & Pour Columns	8	20-Sep-21	30-Sep-21	36	$54,833.21
RE34960	B07.2 - Bent 03 - Form, Pour & Set Cap	12	07-Oct-21	25-Oct-21	32	$21,701.87
B07.2 - Span C		**10**	**26-Oct-21**	**10-Nov-21**	**39**	**$271,072.44**
RE36050	B07.2 - Span C - Set Beams & Diaphragms	5	26-Oct-21	02-Nov-21	39	$211,878.40
RE36450	B07.2 - Span C - Form & Install Rebar	5	03-Nov-21	10-Nov-21	39	$59,194.04
B07.2 - Bent 4		**52**	**23-Aug-21**	**12-Nov-21**	**32**	**$295,106.50**
RE32820	B07.2 - Bent 04 - Structural Excavation/Backfill	2	23-Aug-21	24-Aug-21	53	$24,038.80
RE33610	B07.2 - Bent 04 - Drive Concrete Piles	4	02-Sep-21	09-Sep-21	48	$185,684.71
RE34250	B07.2 - Bent 04 - Form & Pour Footers	5	14-Sep-21	21-Sep-21	46	$8,847.91
RE34730	B07.2 - Bent 04 - Form & Pour Columns	8	01-Oct-21	13-Oct-21	40	$54,833.21
RE35820	B07.2 - Bent 04 - Form, Pour & Set Cap	12	26-Oct-21	12-Nov-21	32	$21,701.87
B07.2 - Span D		**10**	**15-Nov-21**	**03-Dec-21**	**32**	**$271,072.44**
RE36460	B07.2 - Span D - Set Beams & Diaphragms	5	15-Nov-21	22-Nov-21	32	$211,878.40
RE36910	B07.2 - Span D - Form & Install Rebar	5	23-Nov-21	03-Dec-21	32	$59,194.04
B07.2 - End Bent 5		**96**	**16-Aug-21**	**01-Feb-22**	**32**	**$514,599.82**
RE31600	B07.2 - EB5 - Structural Excavation/Backfill	2	16-Aug-21	17-Aug-21	60	$24,038.80
RE32350	B07.2 - EB5 - Drive Concrete Piles	3	19-Aug-21	24-Aug-21	59	$185,684.71
RE32830	B07.2 - EB5 - Install MSE Wall & Backfill	15	25-Aug-21	20-Sep-21	59	$208,555.43
RE33980	B07.2 - EB5 - Form, Pour & Set Cap	8	21-Sep-21	01-Oct-21	59	$21,701.87
RE36920	B07.2 - EB5 - Install Slope Protection	15	23-Nov-21	20-Dec-21	42	$31,511.73
RE36930	B07.2 - EB5 - Form & Pour Wing Wall	10	23-Nov-21	10-Dec-21	47	$19,432.33
RE38340	B07.2 - EB5 - Form & Pour Approach Slab & Barrier Wall	10	14-Jan-22	01-Feb-22	32	$23,674.95
B07.2 - Finishes		**30**	**06-Dec-21**	**01-Feb-22**	**32**	**$578,021.08**
RE37380	B07.2 - Spans AD - Set Screed & Pour	20	06-Dec-21	13-Jan-22	32	$554,346.13
RE38350	B07.2 - Spans AD - Form & Pour Barrier Walls	10	14-Jan-22	01-Feb-22	32	$23,674.95
RE39350	B07.2 - Complete Bridge	0		01-Feb-22	32	$0.00
B08 - DE1A/30 - I-16 EB over CR 654 (Tremont Ave) and CSXT - 4 Spans		**262**	**10-Dec-20**	**09-Mar-22**	**10**	**$7,599,311.46**
B08.1 - DE1A/30 - I-16 EB over CR 654 (Tremont Ave) and CSXT - Stage 1		**131**	**10-Dec-20**	**26-Jul-21**	**10**	**$3,799,655.73**
B08.1 - Setup		**22**	**10-Dec-20**	**26-Jan-21**	**10**	**$222,825.75**
RE12630	B08.1 - Start Bridge	0	10-Dec-20		10	$0.00



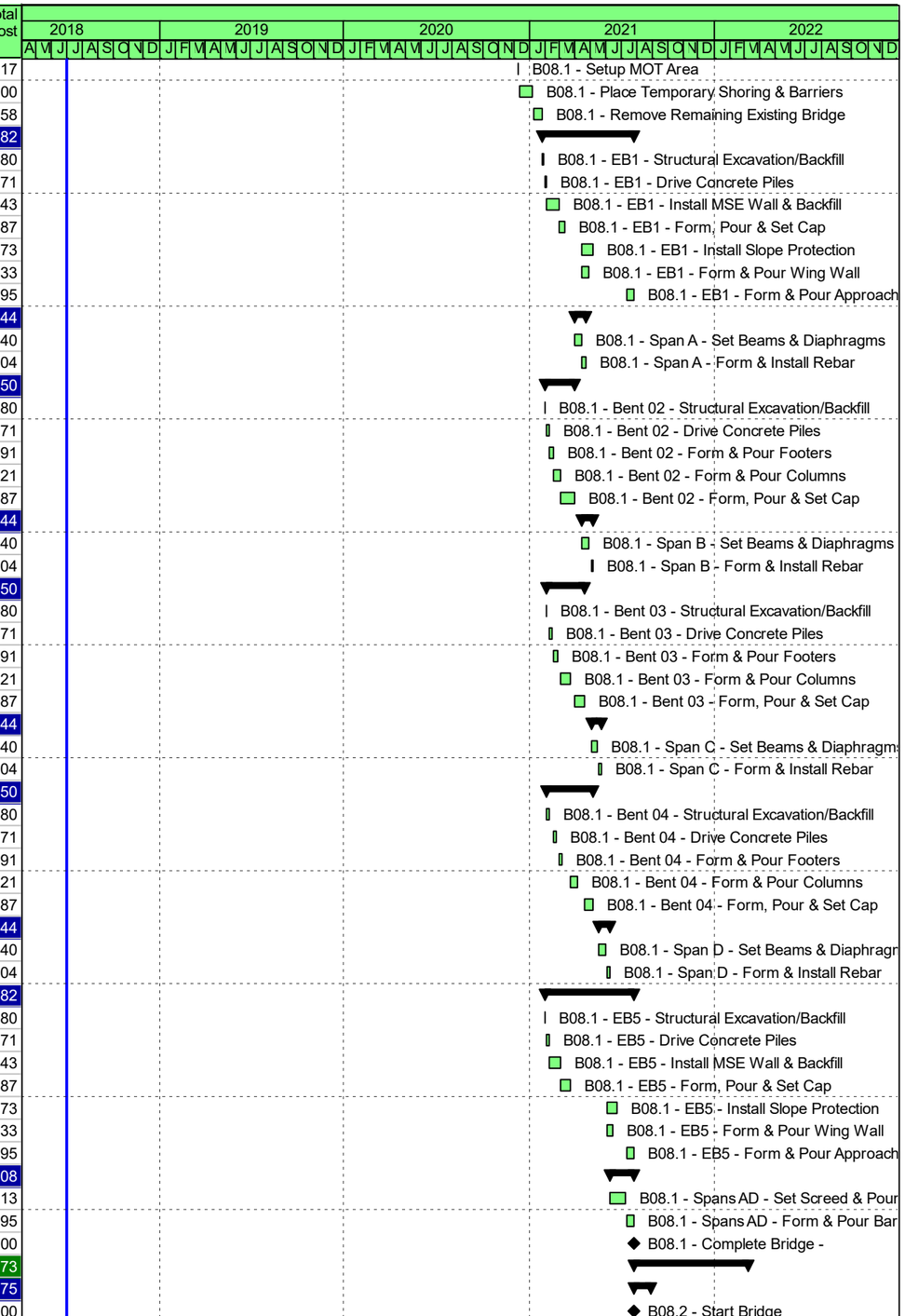
DRAGADOS USA

Project ID: PI-BLS21-R
Data Date: 01-Jul-18
Run Date: 27-Jun-18

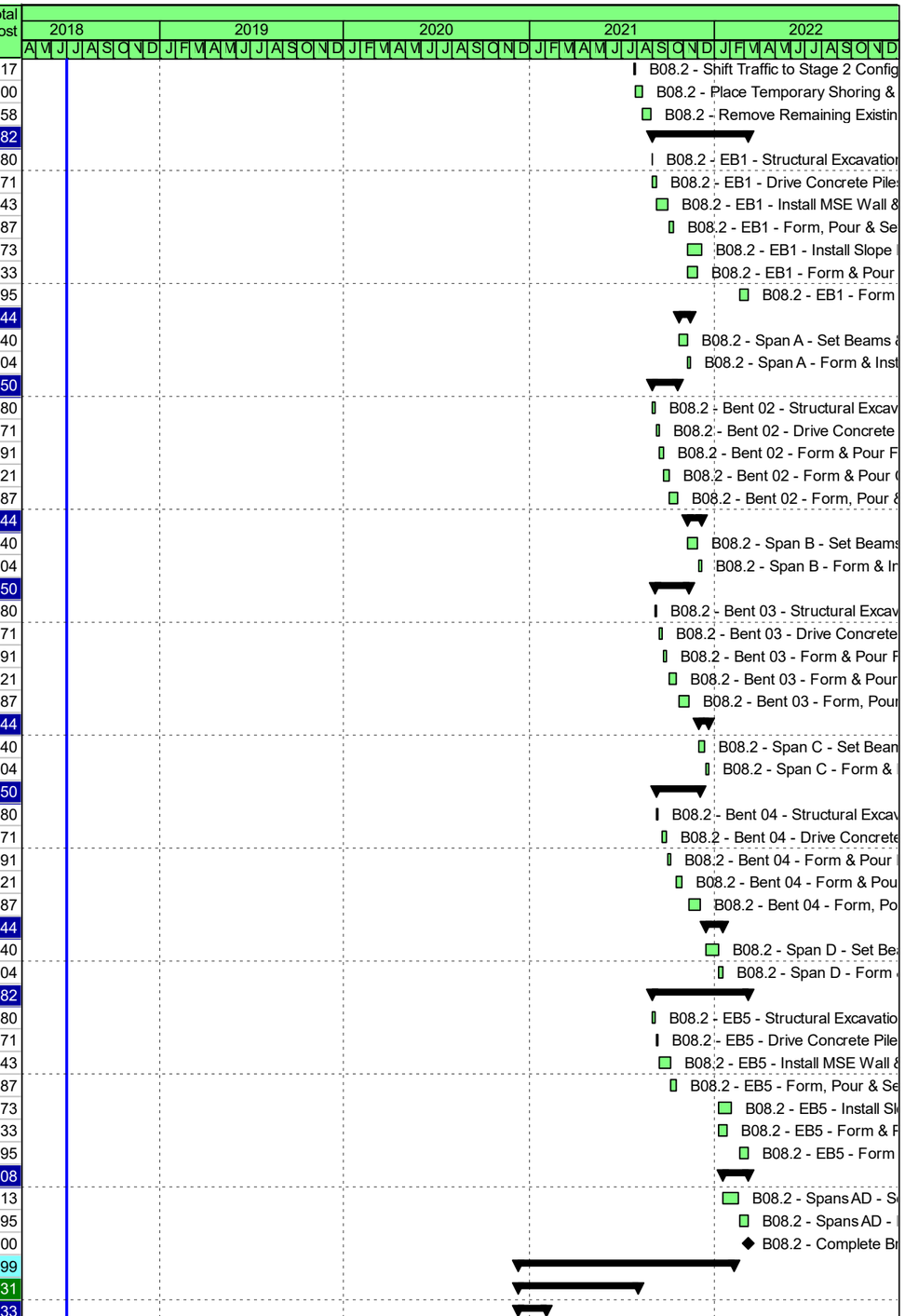
I-16 at I-95 Reconstruction and Widening Proposal Schedule - Clarification GDOT Ltr 27-Jun-18
Detailed Activities

Remaining Level of Effort | Critical Remaining Work | Summary | Milestone | Remaining Work

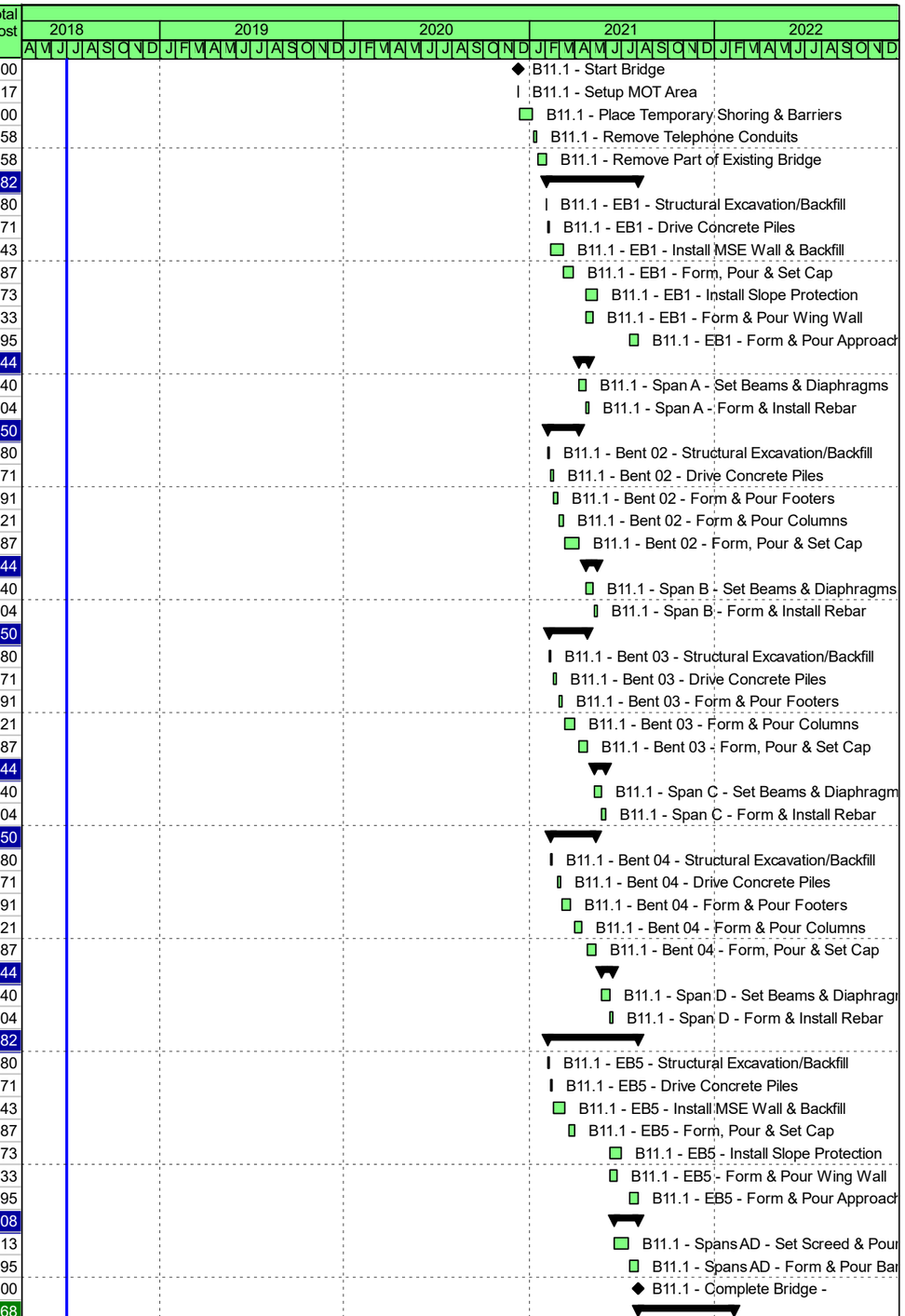
Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE12640	B08.1 - Setup MOT Area	2	10-Dec-20	11-Dec-20	10	$16,448.17
RE14190	B08.1 - Place Temporary Shoring & Barriers	10	14-Dec-20	08-Jan-21	10	$0.00
RE15580	B08.1 - Remove Remaining Existing Bridge	10	11-Jan-21	26-Jan-21	10	$206,377.58
B08.1 - End Bent 1		**109**	**27-Jan-21**	**26-Jul-21**	**10**	**$514,599.82**
RE16750	B08.1 - EB1 - Structural Excavation/Backfill	2	27-Jan-21	28-Jan-21	10	$24,038.80
RE17660	B08.1 - EB1 - Drive Concrete Piles	3	01-Feb-21	03-Feb-21	10	$185,684.71
RE18930	B08.1 - EB1 - Install MSE Wall & Backfill	15	04-Feb-21	01-Mar-21	16	$208,555.43
RE20290	B08.1 - EB1 - Form, Pour & Set Cap	8	02-Mar-21	11-Mar-21	16	$21,701.87
RE23630	B08.1 - EB1 - Install Slope Protection	15	16-Apr-21	07-May-21	50	$31,511.73
RE23640	B08.1 - EB1 - Form & Pour Wing Wall	10	16-Apr-21	29-Apr-21	55	$19,432.33
RE27880	B08.1 - EB1 - Form & Pour Approach Slab & Barrier Wall	10	12-Jul-21	26-Jul-21	10	$23,674.95
B08.1 - Span A		**15**	**31-Mar-21**	**22-Apr-21**	**25**	**$271,072.44**
RE22820	B08.1 - Span A - Set Beams & Diaphragms	10	31-Mar-21	15-Apr-21	10	$211,878.40
RE23650	B08.1 - Span A - Form & Install Rebar	5	16-Apr-21	22-Apr-21	25	$59,194.04
B08.1 - Bent 2		**32**	**01-Feb-21**	**30-Mar-21**	**10**	**$295,106.50**
RE17670	B08.1 - Bent 02 - Structural Excavation/Backfill	2	01-Feb-21	02-Feb-21	11	$24,038.80
RE18940	B08.1 - Bent 02 - Drive Concrete Piles	4	04-Feb-21	09-Feb-21	10	$185,684.71
RE19640	B08.1 - Bent 02 - Form & Pour Footers	5	10-Feb-21	17-Feb-21	10	$8,847.91
RE20550	B08.1 - Bent 02 - Form & Pour Columns	8	18-Feb-21	03-Mar-21	10	$54,833.21
RE21430	B08.1 - Bent 02 - Form, Pour & Set Cap	12	04-Mar-21	30-Mar-21	10	$21,701.87
B08.1 - Span B		**15**	**16-Apr-21**	**07-May-21**	**20**	**$271,072.44**
RE23660	B08.1 - Span B - Set Beams & Diaphragms	10	16-Apr-21	29-Apr-21	10	$211,878.40
RE24430	B08.1 - Span B - Form & Install Rebar	5	03-May-21	07-May-21	20	$59,194.04
B08.1 - Bent 3		**42**	**03-Feb-21**	**19-Apr-21**	**16**	**$295,106.50**
RE18950	B08.1 - Bent 03 - Structural Excavation/Backfill	2	03-Feb-21	04-Feb-21	27	$24,038.80
RE19650	B08.1 - Bent 03 - Drive Concrete Piles	4	10-Feb-21	16-Feb-21	24	$185,684.71
RE20560	B08.1 - Bent 03 - Form & Pour Footers	5	18-Feb-21	25-Feb-21	23	$8,847.91
RE21440	B08.1 - Bent 03 - Form & Pour Columns	8	04-Mar-21	23-Mar-21	20	$54,833.21
RE22830	B08.1 - Bent 03 - Form, Pour & Set Cap	12	31-Mar-21	19-Apr-21	16	$21,701.87
B08.1 - Span C		**15**	**03-May-21**	**24-May-21**	**15**	**$271,072.44**
RE24440	B08.1 - Span C - Set Beams & Diaphragms	10	03-May-21	14-May-21	10	$211,878.40
RE25200	B08.1 - Span C - Form & Install Rebar	5	17-May-21	24-May-21	15	$59,194.04
B08.1 - Bent 4		**52**	**05-Feb-21**	**06-May-21**	**16**	**$295,106.50**
RE19660	B08.1 - Bent 04 - Structural Excavation/Backfill	2	05-Feb-21	08-Feb-21	37	$24,038.80
RE20570	B08.1 - Bent 04 - Drive Concrete Piles	4	17-Feb-21	23-Feb-21	32	$185,684.71
RE21450	B08.1 - Bent 04 - Form & Pour Footers	5	01-Mar-21	05-Mar-21	30	$8,847.91
RE22570	B08.1 - Bent 04 - Form & Pour Columns	8	24-Mar-21	07-Apr-21	24	$54,833.21
RE24120	B08.1 - Bent 04 - Form, Pour & Set Cap	12	20-Apr-21	06-May-21	16	$21,701.87
B08.1 - Span D		**15**	**17-May-21**	**09-Jun-21**	**10**	**$271,072.44**
RE25210	B08.1 - Span D - Set Beams & Diaphragms	10	17-May-21	02-Jun-21	10	$211,878.40
RE26340	B08.1 - Span D - Form & Install Rebar	5	03-Jun-21	09-Jun-21	10	$59,194.04
B08.1 - End Bent 5		**107**	**01-Feb-21**	**26-Jul-21**	**10**	**$514,599.82**
RE17680	B08.1 - EB5 - Structural Excavation/Backfill	2	01-Feb-21	02-Feb-21	44	$24,038.80
RE18960	B08.1 - EB5 - Drive Concrete Piles	3	04-Feb-21	08-Feb-21	43	$185,684.71
RE19670	B08.1 - EB5 - Install MSE Wall & Backfill	15	09-Feb-21	04-Mar-21	43	$208,555.43
RE21110	B08.1 - EB5 - Form, Pour & Set Cap	8	05-Mar-21	24-Mar-21	43	$21,701.87
RE26350	B08.1 - EB5 - Install Slope Protection	15	03-Jun-21	23-Jun-21	20	$31,511.73
RE26360	B08.1 - EB5 - Form & Pour Wing Wall	10	03-Jun-21	16-Jun-21	25	$19,432.33
RE27890	B08.1 - EB5 - Form & Pour Approach Slab & Barrier Wall	10	12-Jul-21	26-Jul-21	10	$23,674.95
B08.1 - Finishes		**30**	**10-Jun-21**	**26-Jul-21**	**10**	**$578,021.08**
RE26900	B08.1 - Spans AD - Set Screed & Pour	20	10-Jun-21	09-Jul-21	10	$554,346.13
RE27900	B08.1 - Spans AD - Form & Pour Barrier Walls	10	12-Jul-21	26-Jul-21	10	$23,674.95
RE29240	B08.1 - Complete Bridge -	0		26-Jul-21	10	$0.00
B08.2 - DE1A/30 - I-16 EB over CR 654 (Tremont Ave) and CSXT - Stage 2		**131**	**27-Jul-21**	**09-Mar-22**	**10**	**$3,799,655.73**
B08.2 - Setup		**22**	**27-Jul-21**	**30-Aug-21**	**10**	**$222,825.75**
RE29290	B08.2 - Start Bridge	0	27-Jul-21		10	$0.00



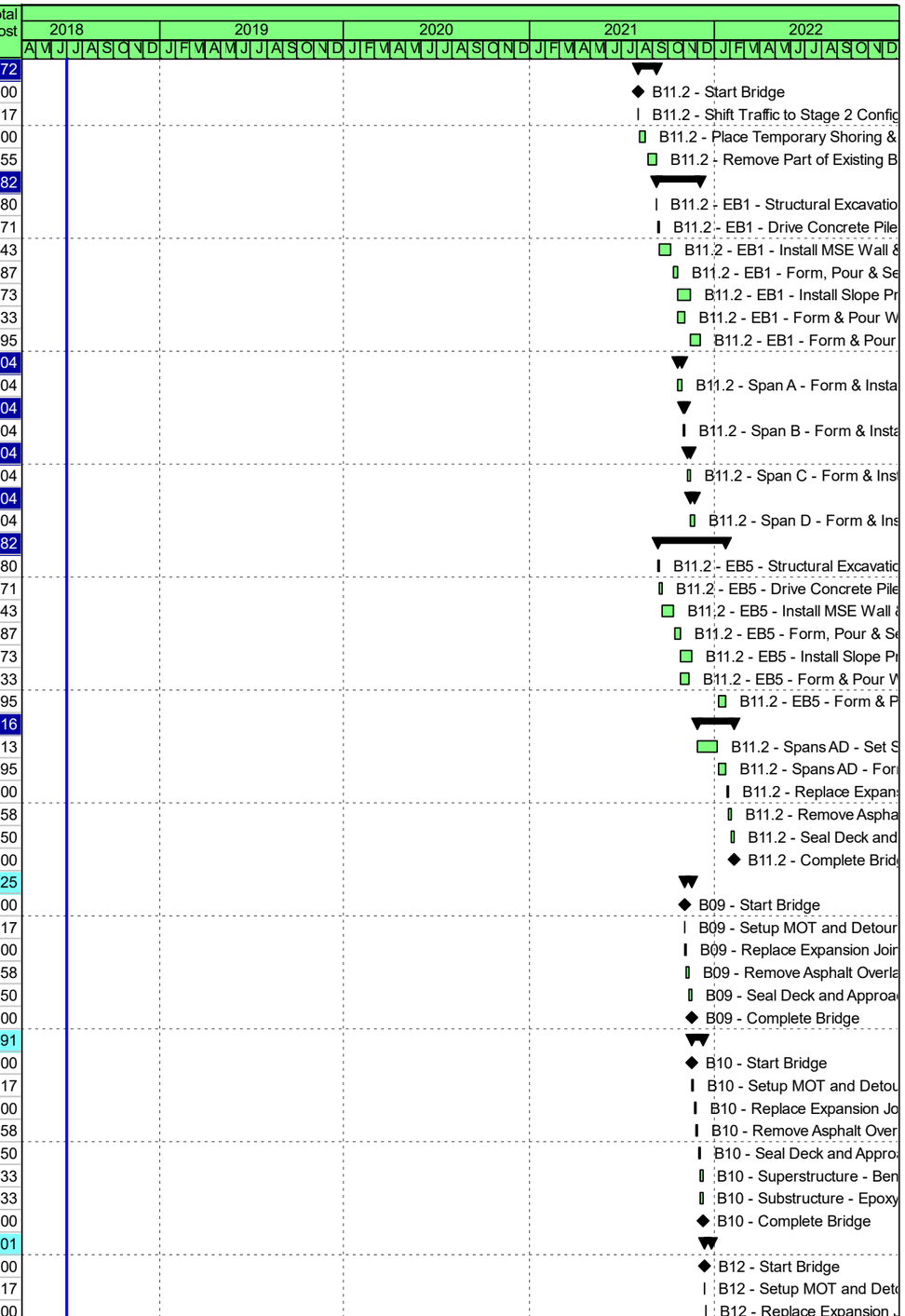
Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE29300	B08.2 - Shift Traffic to Stage 2 Configuration and Setup MOT Area	2	27-Jul-21	28-Jul-21	10	$16,448.17
RE29520	B08.2 - Place Temporary Shoring & Barriers	10	29-Jul-21	12-Aug-21	10	$0.00
RE30210	B08.2 - Remove Remaining Existing Bridge	10	13-Aug-21	30-Aug-21	10	$206,377.58
B08.2 - End Bent 1		**109**	**31-Aug-21**	**09-Mar-22**	**10**	**$514,599.82**
RE31040	B08.2 - EB1 - Structural Excavation/Backfill	2	31-Aug-21	01-Sep-21	10	$24,038.80
RE31550	B08.2 - EB1 - Drive Concrete Piles	3	02-Sep-21	08-Sep-21	10	$185,684.71
RE32280	B08.2 - EB1 - Install MSE Wall & Backfill	15	09-Sep-21	01-Oct-21	16	$208,555.43
RE33380	B08.2 - EB1 - Form, Pour & Set Cap	8	04-Oct-21	14-Oct-21	16	$21,701.87
RE35420	B08.2 - EB1 - Install Slope Protection	15	10-Nov-21	07-Dec-21	50	$31,511.73
RE35430	B08.2 - EB1 - Form & Pour Wing Wall	10	10-Nov-21	30-Nov-21	55	$19,432.33
RE38300	B08.2 - EB1 - Form & Pour Approach Slab & Barrier Wall	10	22-Feb-22	09-Mar-22	10	$23,674.95
B08.2 - Span A		**15**	**25-Oct-21**	**16-Nov-21**	**25**	**$271,072.44**
RE34930	B08.2 - Span A - Set Beams & Diaphragms	10	25-Oct-21	09-Nov-21	10	$211,878.40
RE35440	B08.2 - Span A - Form & Install Rebar	5	10-Nov-21	16-Nov-21	25	$59,194.04
B08.2 - Bent 2		**32**	**02-Sep-21**	**22-Oct-21**	**10**	**$295,106.50**
RE31560	B08.2 - Bent 02 - Structural Excavation/Backfill	2	02-Sep-21	07-Sep-21	11	$24,038.80
RE32290	B08.2 - Bent 02 - Drive Concrete Piles	4	09-Sep-21	14-Sep-21	10	$185,684.71
RE32760	B08.2 - Bent 02 - Form & Pour Footers	5	15-Sep-21	22-Sep-21	10	$8,847.91
RE33560	B08.2 - Bent 02 - Form & Pour Columns	8	23-Sep-21	05-Oct-21	10	$54,833.21
RE34200	B08.2 - Bent 02 - Form, Pour & Set Cap	12	06-Oct-21	22-Oct-21	10	$21,701.87
B08.2 - Span B		**15**	**10-Nov-21**	**07-Dec-21**	**20**	**$271,072.44**
RE35450	B08.2 - Span B - Set Beams & Diaphragms	10	10-Nov-21	30-Nov-21	10	$211,878.40
RE36020	B08.2 - Span B - Form & Install Rebar	5	01-Dec-21	07-Dec-21	20	$59,194.04
B08.2 - Bent 3		**42**	**08-Sep-21**	**11-Nov-21**	**16**	**$295,106.50**
RE32300	B08.2 - Bent 03 - Structural Excavation/Backfill	2	08-Sep-21	09-Sep-21	27	$24,038.80
RE32770	B08.2 - Bent 03 - Drive Concrete Piles	4	15-Sep-21	21-Sep-21	24	$185,684.71
RE33570	B08.2 - Bent 03 - Form & Pour Footers	5	23-Sep-21	30-Sep-21	23	$8,847.91
RE34210	B08.2 - Bent 03 - Form & Pour Columns	8	06-Oct-21	18-Oct-21	20	$54,833.21
RE34940	B08.2 - Bent 03 - Form, Pour & Set Cap	12	25-Oct-21	11-Nov-21	16	$21,701.87
B08.2 - Span C		**15**	**01-Dec-21**	**22-Dec-21**	**15**	**$271,072.44**
RE36030	B08.2 - Span C - Set Beams & Diaphragms	10	01-Dec-21	14-Dec-21	10	$211,878.40
RE36430	B08.2 - Span C - Form & Install Rebar	5	15-Dec-21	22-Dec-21	15	$59,194.04
B08.2 - Bent 4		**52**	**10-Sep-21**	**06-Dec-21**	**16**	**$295,106.50**
RE32780	B08.2 - Bent 04 - Structural Excavation/Backfill	2	10-Sep-21	13-Sep-21	37	$24,038.80
RE33580	B08.2 - Bent 04 - Drive Concrete Piles	4	22-Sep-21	28-Sep-21	32	$185,684.71
RE34220	B08.2 - Bent 04 - Form & Pour Footers	5	01-Oct-21	07-Oct-21	30	$8,847.91
RE34720	B08.2 - Bent 04 - Form & Pour Columns	8	19-Oct-21	28-Oct-21	24	$54,833.21
RE35810	B08.2 - Bent 04 - Form, Pour & Set Cap	12	12-Nov-21	06-Dec-21	16	$21,701.87
B08.2 - Span D		**15**	**15-Dec-21**	**18-Jan-22**	**10**	**$271,072.44**
RE36440	B08.2 - Span D - Set Beams & Diaphragms	10	15-Dec-21	10-Jan-22	10	$211,878.40
RE36880	B08.2 - Span D - Form & Install Rebar	5	11-Jan-22	18-Jan-22	10	$59,194.04
B08.2 - End Bent 5		**107**	**02-Sep-21**	**09-Mar-22**	**10**	**$514,599.82**
RE31570	B08.2 - EB5 - Structural Excavation/Backfill	2	02-Sep-21	07-Sep-21	44	$24,038.80
RE32310	B08.2 - EB5 - Drive Concrete Piles	3	09-Sep-21	13-Sep-21	43	$185,684.71
RE32790	B08.2 - EB5 - Install MSE Wall & Backfill	15	14-Sep-21	06-Oct-21	43	$208,555.43
RE33970	B08.2 - EB5 - Form, Pour & Set Cap	8	07-Oct-21	19-Oct-21	43	$21,701.87
RE36890	B08.2 - EB5 - Install Slope Protection	15	11-Jan-22	03-Feb-22	20	$31,511.73
RE36900	B08.2 - EB5 - Form & Pour Wing Wall	10	11-Jan-22	26-Jan-22	25	$19,432.33
RE38310	B08.2 - EB5 - Form & Pour Approach Slab & Barrier Wall	10	22-Feb-22	09-Mar-22	10	$23,674.95
B08.2 - Finishes		**30**	**19-Jan-22**	**09-Mar-22**	**10**	**$578,021.08**
RE37370	B08.2 - Spans AD - Set Screed & Pour	20	19-Jan-22	17-Feb-22	10	$554,346.13
RE38320	B08.2 - Spans AD - Form & Pour Barrier Walls	10	22-Feb-22	09-Mar-22	10	$23,674.95
RE39340	B08.2 - Complete Bridge	0		09-Mar-22	10	$0.00
B11 - DE1A - I-16 EB over I-516 - Widening - 4 Spans		**427**	**10-Dec-20**	**09-Feb-22**	**50**	**$6,366,680.99**
B11.1 - DE1A - I-16 EB over I-516 - Widening - Stage 1		**136**	**10-Dec-20**	**03-Aug-21**	**28**	**$4,006,033.31**
B11.1 - Setup		**27**	**10-Dec-20**	**03-Feb-21**	**28**	**$429,203.33**



Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE12710	B11.1 - Start Bridge	0	10-Dec-20		28	$0.00
RE12720	B11.1 - Setup MOT Area	2	10-Dec-20	11-Dec-20	28	$16,448.17
RE14210	B11.1 - Place Temporary Shoring & Barriers	10	14-Dec-20	08-Jan-21	28	$0.00
RE15600	B11.1 - Remove Telephone Conduits	5	11-Jan-21	15-Jan-21	28	$206,377.58
RE16280	B11.1 - Remove Part of Existing Bridge	10	19-Jan-21	03-Feb-21	28	$206,377.58
B11.1 - End Bent 1		109	04-Feb-21	03-Aug-21	28	$514,599.82
RE17020	B11.1 - EB1 - Structural Excavation/Backfill	2	04-Feb-21	05-Feb-21	28	$24,038.80
RE18500	B11.1 - EB1 - Drive Concrete Piles	3	08-Feb-21	10-Feb-21	28	$185,684.71
RE19360	B11.1 - EB1 - Install MSE Wall & Backfill	15	11-Feb-21	08-Mar-21	34	$208,555.43
RE20610	B11.1 - EB1 - Form, Pour & Set Cap	8	09-Mar-21	29-Mar-21	34	$21,701.87
RE24140	B11.1 - EB1 - Install Slope Protection	15	23-Apr-21	14-May-21	68	$31,511.73
RE24150	B11.1 - EB1 - Form & Pour Wing Wall	10	23-Apr-21	07-May-21	73	$19,432.33
RE28220	B11.1 - EB1 - Form & Pour Approach Slab & Barrier Wall	10	19-Jul-21	03-Aug-21	28	$23,674.95
B11.1 - Span A		15	09-Apr-21	29-Apr-21	43	$271,072.44
RE23300	B11.1 - Span A - Set Beams & Diaphragms	10	09-Apr-21	22-Apr-21	28	$211,878.40
RE24160	B11.1 - Span A - Form & Install Rebar	5	23-Apr-21	29-Apr-21	43	$59,194.04
B11.1 - Bent 2		32	08-Feb-21	08-Apr-21	28	$295,106.50
RE18510	B11.1 - Bent 02 - Structural Excavation/Backfill	2	08-Feb-21	09-Feb-21	29	$24,038.80
RE19370	B11.1 - Bent 02 - Drive Concrete Piles	4	11-Feb-21	17-Feb-21	28	$185,684.71
RE20310	B11.1 - Bent 02 - Form & Pour Footers	5	18-Feb-21	25-Feb-21	28	$8,847.91
RE21130	B11.1 - Bent 02 - Form & Pour Columns	8	01-Mar-21	10-Mar-21	28	$54,833.21
RE22020	B11.1 - Bent 02 - Form, Pour & Set Cap	12	11-Mar-21	08-Apr-21	28	$21,701.87
B11.1 - Span B		15	23-Apr-21	14-May-21	38	$271,072.44
RE24170	B11.1 - Span B - Set Beams & Diaphragms	10	23-Apr-21	07-May-21	28	$211,878.40
RE24740	B11.1 - Span B - Form & Install Rebar	5	10-May-21	14-May-21	38	$59,194.04
B11.1 - Bent 3		42	10-Feb-21	26-Apr-21	34	$295,106.50
RE19380	B11.1 - Bent 03 - Structural Excavation/Backfill	2	10-Feb-21	11-Feb-21	45	$24,038.80
RE20320	B11.1 - Bent 03 - Drive Concrete Piles	4	18-Feb-21	24-Feb-21	42	$185,684.71
RE21140	B11.1 - Bent 03 - Form & Pour Footers	5	01-Mar-21	05-Mar-21	41	$8,847.91
RE22030	B11.1 - Bent 03 - Form & Pour Columns	8	11-Mar-21	31-Mar-21	38	$54,833.21
RE23310	B11.1 - Bent 03 - Form, Pour & Set Cap	12	09-Apr-21	26-Apr-21	34	$21,701.87
B11.1 - Span C		15	10-May-21	02-Jun-21	33	$271,072.44
RE24750	B11.1 - Span C - Set Beams & Diaphragms	10	10-May-21	24-May-21	28	$211,878.40
RE25930	B11.1 - Span C - Form & Install Rebar	5	25-May-21	02-Jun-21	33	$59,194.04
B11.1 - Bent 4		52	12-Feb-21	13-May-21	34	$295,106.50
RE20330	B11.1 - Bent 04 - Structural Excavation/Backfill	2	12-Feb-21	16-Feb-21	55	$24,038.80
RE21150	B11.1 - Bent 04 - Drive Concrete Piles	4	25-Feb-21	03-Mar-21	50	$185,684.71
RE22040	B11.1 - Bent 04 - Form & Pour Footers	5	08-Mar-21	22-Mar-21	48	$8,847.91
RE22860	B11.1 - Bent 04 - Form & Pour Columns	8	01-Apr-21	14-Apr-21	42	$54,833.21
RE24470	B11.1 - Bent 04 - Form, Pour & Set Cap	12	27-Apr-21	13-May-21	34	$21,701.87
B11.1 - Span D		15	25-May-21	16-Jun-21	28	$271,072.44
RE25940	B11.1 - Span D - Set Beams & Diaphragms	10	25-May-21	09-Jun-21	28	$211,878.40
RE26610	B11.1 - Span D - Form & Install Rebar	5	10-Jun-21	16-Jun-21	28	$59,194.04
B11.1 - End Bent 5		107	08-Feb-21	03-Aug-21	28	$514,599.82
RE18520	B11.1 - EB5 - Structural Excavation/Backfill	2	08-Feb-21	09-Feb-21	62	$24,038.80
RE19390	B11.1 - EB5 - Drive Concrete Piles	3	11-Feb-21	16-Feb-21	61	$185,684.71
RE20340	B11.1 - EB5 - Install MSE Wall & Backfill	15	17-Feb-21	11-Mar-21	61	$208,555.43
RE21490	B11.1 - EB5 - Form, Pour & Set Cap	8	22-Mar-21	01-Apr-21	61	$21,701.87
RE26620	B11.1 - EB5 - Install Slope Protection	15	10-Jun-21	01-Jul-21	38	$31,511.73
RE26630	B11.1 - EB5 - Form & Pour Wing Wall	10	10-Jun-21	23-Jun-21	43	$19,432.33
RE28230	B11.1 - EB5 - Form & Pour Approach Slab & Barrier Wall	10	19-Jul-21	03-Aug-21	28	$23,674.95
B11.1 - Finishes		30	17-Jun-21	03-Aug-21	28	$578,021.08
RE27110	B11.1 - Spans AD - Set Screed & Pour	20	17-Jun-21	16-Jul-21	28	$554,346.13
RE28240	B11.1 - Spans AD - Form & Pour Barrier Walls	10	19-Jul-21	03-Aug-21	28	$23,674.95
RE29460	B11.1 - Complete Bridge -	0		03-Aug-21	28	$0.00
B11.2 - DE1A - I-16 EB over I-516 - Widening - Stage 2		190	04-Aug-21	09-Feb-22	50	$2,360,647.68



Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
B11.2 - Setup		22	04-Aug-21	08-Sep-21	28	$222,825.72
RE29540	B11.2 - Start Bridge	0	04-Aug-21		28	$0.00
RE29550	B11.2 - Shift Traffic to Stage 2 Configuration and Setup MOT Area	2	04-Aug-21	05-Aug-21	28	$16,448.17
RE30010	B11.2 - Place Temporary Shoring & Barriers	10	06-Aug-21	19-Aug-21	28	$0.00
RE30510	B11.2 - Remove Part of Existing Bridge	10	23-Aug-21	08-Sep-21	28	$206,377.55
B11.2 - End Bent 1		53	09-Sep-21	06-Dec-21	43	$514,599.82
RE31150	B11.2 - EB1 - Structural Excavation/Backfill	2	09-Sep-21	10-Sep-21	28	$24,038.80
RE32000	B11.2 - EB1 - Drive Concrete Piles	3	13-Sep-21	15-Sep-21	28	$185,684.71
RE32580	B11.2 - EB1 - Install MSE Wall & Backfill	15	16-Sep-21	08-Oct-21	28	$208,555.43
RE33620	B11.2 - EB1 - Form, Pour & Set Cap	8	12-Oct-21	21-Oct-21	28	$21,701.87
RE34520	B11.2 - EB1 - Install Slope Protection	15	22-Oct-21	15-Nov-21	43	$31,511.73
RE34530	B11.2 - EB1 - Form & Pour Wing Wall	10	22-Oct-21	05-Nov-21	48	$19,432.33
RE35320	B11.2 - EB1 - Form & Pour Approach Slab & Barrier Wall	10	16-Nov-21	06-Dec-21	43	$23,674.95
B11.2 - Span A		5	22-Oct-21	28-Oct-21	28	$59,194.04
RE34540	B11.2 - Span A - Form & Install Rebar	5	22-Oct-21	28-Oct-21	28	$59,194.04
B11.2 - Span B		5	01-Nov-21	05-Nov-21	28	$59,194.04
RE34740	B11.2 - Span B - Form & Install Rebar	5	01-Nov-21	05-Nov-21	28	$59,194.04
B11.2 - Span C		5	09-Nov-21	15-Nov-21	28	$59,194.04
RE35330	B11.2 - Span C - Form & Install Rebar	5	09-Nov-21	15-Nov-21	28	$59,194.04
B11.2 - Span D		5	16-Nov-21	23-Nov-21	28	$59,194.04
RE35830	B11.2 - Span D - Form & Install Rebar	5	16-Nov-21	23-Nov-21	28	$59,194.04
B11.2 - End Bent 5		76	13-Sep-21	25-Jan-22	28	$514,599.82
RE32010	B11.2 - EB5 - Structural Excavation/Backfill	2	13-Sep-21	14-Sep-21	41	$24,038.80
RE32590	B11.2 - EB5 - Drive Concrete Piles	3	16-Sep-21	21-Sep-21	40	$185,684.71
RE33400	B11.2 - EB5 - Install MSE Wall & Backfill	15	22-Sep-21	14-Oct-21	40	$208,555.43
RE34260	B11.2 - EB5 - Form, Pour & Set Cap	8	15-Oct-21	26-Oct-21	40	$21,701.87
RE34970	B11.2 - EB5 - Install Slope Protection	15	27-Oct-21	18-Nov-21	50	$31,511.73
RE34980	B11.2 - EB5 - Form & Pour Wing Wall	10	27-Oct-21	11-Nov-21	55	$19,432.33
RE36470	B11.2 - EB5 - Form & Pour Approach Slab & Barrier Wall	10	10-Jan-22	25-Jan-22	28	$23,674.95
B11.2 - Finishes		72	30-Nov-21	09-Feb-22	50	$871,846.16
RE36060	B11.2 - Spans AD - Set Screed & Pour	20	30-Nov-21	07-Jan-22	28	$554,346.13
RE36480	B11.2 - Spans AD - Form & Pour Barrier Walls	10	10-Jan-22	25-Jan-22	28	$23,674.95
RE36940	B11.2 - Replace Expansion Joints	5	26-Jan-22	30-Jan-22	50	$0.00
RE37050	B11.2 - Remove Asphalt from Approach Slabs	5	31-Jan-22	04-Feb-22	50	$206,377.58
RE37170	B11.2 - Seal Deck and Approach Slabs	5	05-Feb-22	09-Feb-22	50	$87,447.50
RE37430	B11.2 - Complete Bridge	0		09-Feb-22	26	$0.00
B09 - I-16 (WB) over Ramp B-3		15	03-Nov-21	17-Nov-21	90	$310,273.25
RE12670	B09 - Start Bridge	0	03-Nov-21		46	$0.00
RE12680	B09 - Setup MOT and Detours	2	03-Nov-21	04-Nov-21	46	$16,448.17
RE13370	B09 - Replace Expansion Joints at Bent 02 and Bent 03	3	05-Nov-21	07-Nov-21	90	$0.00
RE13630	B09 - Remove Asphalt Overlay from all Spans	5	08-Nov-21	12-Nov-21	90	$206,377.58
RE14080	B09 - Seal Deck and Approach Spans	5	13-Nov-21	17-Nov-21	90	$87,447.50
RE14110	B09 - Complete Bridge	0		17-Nov-21	90	$0.00
B10 - I-16 (WB) over I-516		23	18-Nov-21	10-Dec-21	89	$314,439.91
RE12690	B10 - Start Bridge	0	18-Nov-21		47	$0.00
RE12700	B10 - Setup MOT and Detours	2	18-Nov-21	22-Nov-21	47	$16,448.17
RE13380	B10 - Replace Expansion Joints at Bent 02 and Bent 04	3	23-Nov-21	25-Nov-21	89	$0.00
RE13640	B10 - Remove Asphalt Overlay on Approach Spans	5	26-Nov-21	30-Nov-21	89	$206,377.58
RE14090	B10 - Seal Deck and Approach Spans	5	01-Dec-21	05-Dec-21	89	$87,447.50
RE14130	B10 - Superstructure - Bent 03 - Epoxy Pressure Injection	5	06-Dec-21	10-Dec-21	89	$2,083.33
RE14140	B10 - Substructure - Epoxy Pressure Injection	5	06-Dec-21	10-Dec-21	89	$2,083.33
RE14150	B10 - Complete Bridge	0		10-Dec-21	89	$0.00
B12 - I-16 (EB) over Ramp D-1		15	13-Dec-21	27-Dec-21	94	$105,979.01
RE12730	B12 - Start Bridge	0	13-Dec-21		47	$0.00
RE12740	B12 - Setup MOT and Detours	2	13-Dec-21	14-Dec-21	47	$16,448.17
RE13390	B12 - Replace Expansion Joints at Bent 02 and Bent 03	3	15-Dec-21	17-Dec-21	94	$0.00



Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost
RE13650	B12 - Seal Deck and Approach Spans	5	18-Dec-21	22-Dec-21	94	$87,447.50
RE14100	B12 - Superstructure - Epoxy Pressure Injection	5	23-Dec-21	27-Dec-21	94	$2,083.34
RE14120	B12 - Complete Bridge	0		27-Dec-21	94	$0.00
B13 - DE30 - I-16 EB Ramp to I-516 over I-516		73	09-Jul-21	02-Nov-21	46	$2,251,196.74
B13 - End Bent 1		73	09-Jul-21	02-Nov-21	46	$531,047.99
RE37440	B13 - Start Bridge	0	09-Jul-21		46	$0.00
RE37450	B13 - Setup MOT Area	2	09-Jul-21	12-Jul-21	46	$16,448.17
RE37840	B13 - EB1 - Structural Excavation/Backfill	2	13-Jul-21	14-Jul-21	46	$24,038.80
RE38430	B13 - EB1 - Drive Concrete Piles	3	15-Jul-21	19-Jul-21	46	$185,684.71
RE38910	B13 - EB1 - Install MSE Wall & Backfill	10	20-Jul-21	04-Aug-21	51	$208,555.43
RE39650	B13 - EB1 - Form, Pour & Set Cap	8	05-Aug-21	16-Aug-21	51	$21,701.87
RE40750	B13 - EB1 - Install Slope Protection	5	13-Sep-21	20-Sep-21	66	$31,511.73
RE40760	B13 - EB1 - Form & Pour Wing Wall	10	13-Sep-21	28-Sep-21	61	$19,432.33
RE41880	B13 - EB1 - Form & Pour Approach Slab & Barrier Wall	8	21-Oct-21	02-Nov-21	46	$23,674.95
B13 - Span A		15	25-Aug-21	20-Sep-21	51	$271,072.84
RE40390	B13 - Span A - Set Beams & Diaphragms	10	25-Aug-21	10-Sep-21	46	$211,878.40
RE40770	B13 - Span A - Form & Install Rebar	5	13-Sep-21	20-Sep-21	51	$59,194.44
B13 - Bent 2		23	20-Jul-21	24-Aug-21	46	$85,383.05
RE38920	B13 - Bent 02 - Form & Pour Footers	5	20-Jul-21	27-Jul-21	46	$8,847.76
RE39450	B13 - Bent 02 - Form & Pour Columns	8	28-Jul-21	09-Aug-21	46	$54,833.42
RE39890	B13 - Bent 02 - Form, Pour & Set Cap	10	10-Aug-21	24-Aug-21	46	$21,701.87
B13 - Span B		15	13-Sep-21	05-Oct-21	46	$271,071.79
RE40780	B13 - Span B - Set Beams & Diaphragms	10	13-Sep-21	28-Sep-21	46	$211,878.29
RE41160	B13 - Span B - Form & Install Rebar	5	29-Sep-21	05-Oct-21	46	$59,193.50
B13 - End Bent 3		69	15-Jul-21	02-Nov-21	46	$514,599.92
RE38440	B13 - EB3 - Structural Excavation/Backfill	2	15-Jul-21	16-Jul-21	59	$24,039.05
RE38930	B13 - EB3 - Drive Concrete Piles	3	20-Jul-21	22-Jul-21	58	$185,684.76
RE39460	B13 - EB3 - Install MSE Wall & Backfill	10	26-Jul-21	09-Aug-21	58	$208,555.34
RE40060	B13 - EB3 - Form, Pour & Set Cap	8	10-Aug-21	19-Aug-21	58	$21,701.75
RE41170	B13 - EB3 - Install Slope Protection	5	29-Sep-21	05-Oct-21	56	$31,511.75
RE41180	B13 - EB3 - Form & Pour Wing Wall	10	29-Sep-21	13-Oct-21	51	$19,432.32
RE41890	B13 - EB3 - Form & Pour Approach Slab & Barrier Wall	8	21-Oct-21	02-Nov-21	46	$23,674.95
B13 - Finishes		18	06-Oct-21	02-Nov-21	46	$578,021.15
RE41520	B13 - Spans AB - Set Screed & Pour	10	06-Oct-21	20-Oct-21	46	$554,346.00
RE41900	B13 - Spans AB - Form & Pour Barrier Walls	5	21-Oct-21	27-Oct-21	49	$23,675.15
RE42260	B13 - Complete Bridge	0		02-Nov-21	46	$0.00

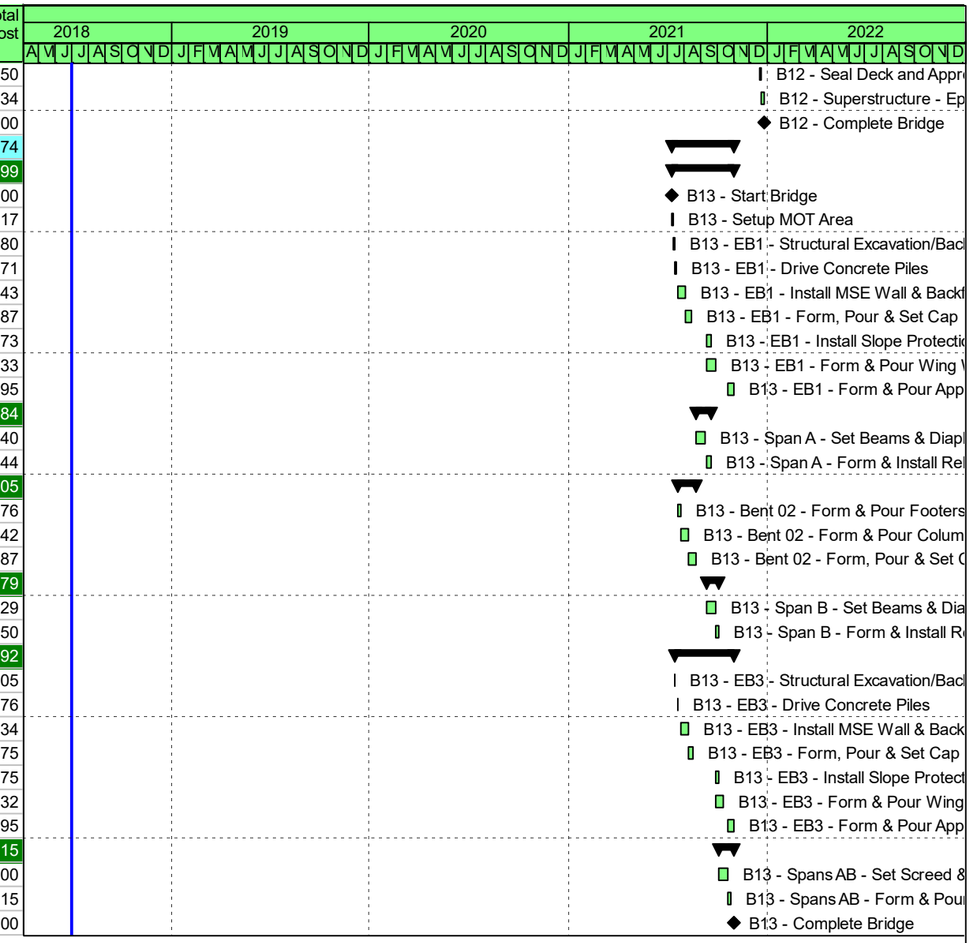


EXHIBIT 3

RESERVED

EXHIBIT 4

RIGHT OF WAY
(Existing Right of Way and Required Right of Way)

The form and content of this Exhibit 4 is set forth in Volume 2 Attachment 5-1

EXHIBIT 5

RESERVED

EXHIBIT 6

RESERVED

EXHIBIT 7

RESERVED

EXHIBIT 8

FEDERAL REQUIREMENTS

Exhibit Description	No. of Pages
Attachment 1 – Federal Requirements for Federal Aid Construction Facilities	2
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ATTACHMENT 1 TO EXHIBIT 8

FEDERAL REQUIREMENTS FOR FEDERAL-AID CONSTRUCTION FACILITIES

GENERAL. — The work herein proposed will be financed in whole or in part with federal funds, and therefore all of the statutes, rules and regulations promulgated by the federal government and applicable to work financed in whole or in part with federal funds will apply to such work. The "Required Contract Provisions, Federal-Aid Construction Contracts, Form FHWA-1273," are included in this Exhibit 8. Whenever in said required contract provisions references are made to:

(a) "SHA contracting officer," "SHA resident engineer," or "authorized representative of the SHA," such references shall be construed to mean GDOT or its Authorized Representative;

(b) "contractor," "prime contractor," "bidder" or "prospective primary participant," such references shall be construed to mean Design-Build Team or its authorized representative and/or the Design-Build Contractor or its authorized representative, as may be appropriate under the circumstances;

(c) "contract" or "prime contract," such references shall be construed to mean the Design-Build Agreement;

(d) "subcontractor," "supplier," "vendor," "prospective lower tier participant" or "lower tier subcontractor," such references shall be construed to mean, as appropriate, Contractors other than the Design-Build Contractor; and

(e) "department," "agency" or "department or agency entering into this transaction," such references shall be construed to mean GDOT, except where a different department or agency is specified.

PERFORMANCE OF PREVIOUS CONTRACT. — In addition to the provisions in Section II, "NONDISCRIMINATION," and Section VI, "SUBLETTING OR ASSIGNING THE CONTRACT," of the Form FHWA-1273 required contract provisions, Design-Build Team shall cause the contractor to comply with the following:

The bidder shall execute the CERTIFICATION WITH REGARD TO THE PERFORMANCE OF PREVIOUS CONTRACTS OR SUBCONTRACTS SUBJECT TO THE EQUAL OPPORTUNITY CLAUSE AND THE FILING OF REQUIRED REPORTS located in the proposal. No request for subletting or assigning any portion of the contract in excess of $10,000 will be considered under the provisions of Section VI of the required contract provisions unless such request is accompanied by the CERTIFICATION referred to above, executed by the proposed subcontractor.

NON-COLLUSION PROVISION. — The provisions in this section are applicable to all contracts except contracts for Federal Aid Secondary Projects. Title 23, United States Code, Section 112, requires as a condition precedent to approval by the Federal Highway Administrator of the contract for this work that each bidder file a sworn statement executed by, or on behalf of, the person, firm, association, or corporation to whom such contract is to be awarded, certifying that such person, firm, association, or corporation has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with the submitted bid. A form to make the non-collusion

affidavit statement required by 23 U.S.C. § 112 as a certification under penalty of perjury rather than as a sworn statement as permitted by 28 U.S.C. § 1746, is included in the Proposal.

PARTICIPATION BY DISADVANTAGED BUSINESS ENTERPRISES IN SUBCONTRACTING. — Part 26, Title 49, Code of Federal Regulations applies to this Project. Pertinent sections of said Code are incorporated within other articles or sections of the Agreement and any other Contract and the GDOT Disadvantaged Business Enterprise Program adopted pursuant to 49 CFR Part 26.

CONVICT PRODUCED MATERIALS

a. FHWA Federal-aid projects are subject to 23 C.F.R. § 635.417, Convict produced materials.

b. Materials produced after July 1, 1991, by convict labor may only be incorporated in a Federal aid highway construction project if such materials have been: (i) produced by convicts who are on parole, supervised release, or probation from a prison, or (ii) produced in a prison project in which convicts, during the 12 month period ending July 1, 1987, produced materials for use in Federal aid highway construction projects, and the cumulative annual production amount of such materials for use in Federal aid highway construction does not exceed the amount of such materials produced in such project for use in Federal aid highway construction during the 12 month period ending July 1, 1987.

ACCESS TO RECORDS

a. As required by 49 C.F.R. 18.36(i)(10), Design-Build Team and its Contractors shall allow FHWA and the Comptroller General of the United States, or their duly authorized representatives, access to all books, documents, papers, and records of Design-Build Team and Contractors which are directly pertinent to any grantee or subgrantee contract, for the purpose of making audit, examination, excerpts, and transcriptions thereof. In addition, as required by 49 C.F.R. 18.36(i)(11), Design-Build Team and its Contractors shall retain all such books, documents, papers, and records for three years after final payment is made pursuant to any such contract and all other pending matters are closed.

b. Design-Build Team agrees to include this section in each Contract at each tier, without modification except as appropriate to identify the Contractor who will be subject to its provisions.

ATTACHMENT 2 TO EXHIBIT 8

FHWA-1273 -- Revised May 1, 2012

REQUIRED CONTRACT PROVISIONS

FEDERAL-AID CONSTRUCTION CONTRACTS

I. General
II. Nondiscrimination
III. Nonsegregated Facilities
IV. Davis-Bacon and Related Act Provisions
V. Contract Work Hours and Safety Standards Act Provisions
VI. Subletting or Assigning the Contract
VII. Safety: Accident Prevention
VIII. False Statements Concerning Highway Projects
IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
X. Compliance with Governmentwide Suspension and Debarment Requirements
XI. Certification Regarding Use of Contract Funds for Lobbying

ATTACHMENTS

A. Employment and Materials Preference for Appalachian Development Highway System or Appalachian Local Access Road Contracts (included in Appalachian contracts only)

I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under Title 23 (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services). The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in bid proposal or request for proposal documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors.

II. NONDISCRIMINATION

The provisions of this section related to 23 CFR Part 230 are applicable to all Federal-aid construction contracts and to all related construction subcontracts of $10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR 60, 29 CFR 1625-1627, Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding $10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR 60, and 29 CFR 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), and Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR 230, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

1. Equal Employment Opportunity: Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630, 29 CFR 1625-1627, 41 CFR 60 and 49 CFR 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract.

b. The contractor will accept as its operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

2. EEO Officer: The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.

3. Dissemination of Policy: All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. Recruitment: When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

5. Personnel Actions: Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the

discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

7. Unions: If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

8. Reasonable Accommodation for Applicants / Employees with Disabilities: The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established there under. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment: The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors and suppliers and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

10. Assurance Required by 49 CFR 26.13(b):

a. The requirements of 49 CFR Part 26 and the State DOT's U.S. DOT-approved DBE program are incorporated by reference.

b. The contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the contracting agency deems appropriate.

11. Records and Reports: The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women;

b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form FHWA-1391. The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of $10,000 or more.

The contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location, under the contractor's control, where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding $2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size). The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. Contracting agencies may elect to apply these requirements to other projects.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 “Contract provisions and related matters” with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

1. Minimum wages

a. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.d. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph 1.b. of this section) and the Davis-Bacon poster (WH–1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b. (1) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(ii) The classification is utilized in the area by the construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(3) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. The Wage and Hour Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(4) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs 1.b.(2) or 1.b.(3) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

c. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

d. If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

2. Withholding

The contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract, or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the contracting agency may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

3. Payrolls and basic records

a. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

b. (1) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the contracting agency. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g. , the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH–347 is available for this purpose from the Wage and Hour Division Web site at http://www.dol.gov/esa/whd/forms/wh347instr.htm or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the contracting agency for transmission to the State DOT, the FHWA or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the contracting agency..

(2) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(i) That the payroll for the payroll period contains the information required to be provided under §5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information

is being maintained under §5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH–347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(2) of this section.

(4) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

c. The contractor or subcontractor shall make the records required under paragraph 3.a. of this section available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the FHWA may, after written notice to the contractor, the contracting agency or the State DOT, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and trainees

a. Apprentices (programs of the USDOL).

Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice.

The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

b. Trainees (programs of the USDOL).

Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration.

The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration.

Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the

Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

d. Apprentices and Trainees (programs of the U.S. DOT).

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

6. Subcontracts. The contractor or subcontractor shall insert Form FHWA-1273 in any subcontracts and also require the subcontractors to include Form FHWA-1273 in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

7. Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

9. Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of eligibility.

a. By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

c. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

The following clauses apply to any Federal-aid construction contract in an amount in excess of $100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

1. Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (1.) of this section, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1.) of this section, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1.) of this section.

3. Withholding for unpaid wages and liquidated damages. The FHWA or the contacting agency shall upon its own action or upon written request of an authorized representative of the

Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2.) of this section.

4. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1.) through (4.) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1.) through (4.) of this section.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).

a. The term “perform work with its own organization” refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions:

(1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;

(2) the prime contractor remains responsible for the quality of the work of the leased employees;

(3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and

(4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract.

2. The contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

5. The 30% self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements.

VII. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards

and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C.3704).

VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 1, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

By submission of this bid/proposal or the execution of this contract, or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any person who is or will be utilized in the performance of this contract is not prohibited from receiving an award due to a violation of Section 508 of the Clean Water Act or Section 306 of the Clean Air Act.
2. That the contractor agrees to include or cause to be included the requirements of paragraph (1) of this Section X in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements.

X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost $25,000 or more – as defined in 2 CFR Parts 180 and 1200.

1**. Instructions for Certification – First Tier Participants:**

a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default.

d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. “First Tier Covered Transactions” refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). “Lower Tier Covered Transactions” refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). “First Tier Participant” refers to the participant who has entered into a

covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (https://www.epls.gov/), which is compiled by the General Services Administration.

i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

* * * * *

2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency;

(2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

2. **Instructions for Certification - Lower Tier Participants:**

(Applicable to all subcontracts, purchase orders and other lower tier transactions requiring prior FHWA approval or estimated to cost $25,000 or more - 2 CFR Parts 180 and 1200)

a. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless

authorized by the department or agency with which this transaction originated.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (https://www.epls.gov/), which is compiled by the General Services Administration.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

* * * * *

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

* * * * *

XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed $100,000 (49 CFR 20).

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed $100,000 and that all such recipients shall certify and disclose accordingly.

ATTACHMENT A - EMPLOYMENT AND MATERIALS PREFERENCE FOR APPALACHIAN DEVELOPMENT HIGHWAY SYSTEM OR APPALACHIAN LOCAL ACCESS ROAD CONTRACTS

This provision is applicable to all Federal-aid projects funded under the Appalachian Regional Development Act of 1965.

1. During the performance of this contract, the contractor undertaking to do work which is, or reasonably may be, done as on-site work, shall give preference to qualified persons who regularly reside in the labor area as designated by the DOL wherein the contract work is situated, or the subregion, or the Appalachian counties of the State wherein the contract work is situated, except:

a. To the extent that qualified persons regularly residing in the area are not available.

b. For the reasonable needs of the contractor to employ supervisory or specially experienced personnel necessary to assure an efficient execution of the contract work.

c. For the obligation of the contractor to offer employment to present or former employees as the result of a lawful collective bargaining contract, provided that the number of nonresident persons employed under this subparagraph (1c) shall not exceed 20 percent of the total number of employees employed by the contractor on the contract work, except as provided in subparagraph (4) below.

2. The contractor shall place a job order with the State Employment Service indicating (a) the classifications of the laborers, mechanics and other employees required to perform the contract work, (b) the number of employees required in each classification, (c) the date on which the participant estimates such employees will be required, and (d) any other pertinent information required by the State Employment Service to complete the job order form. The job order may be placed with the State Employment Service in writing or by telephone. If during the course of the contract work, the information submitted by the contractor in the original job order is substantially modified, the participant shall promptly notify the State Employment Service.

3. The contractor shall give full consideration to all qualified job applicants referred to him by the State Employment Service. The contractor is not required to grant employment to any job applicants who, in his opinion, are not qualified to perform the classification of work required.

4. If, within one week following the placing of a job order by the contractor with the State Employment Service, the State Employment Service is unable to refer any qualified job applicants to the contractor, or less than the number requested, the State Employment Service will forward a certificate to the contractor indicating the unavailability of applicants. Such certificate shall be made a part of the contractor's permanent project records. Upon receipt of this certificate, the contractor may employ persons who do not normally reside in the labor area to fill positions covered by the certificate, notwithstanding the provisions of subparagraph (1c) above.

5. The provisions of 23 CFR 633.207(e) allow the contracting agency to provide a contractual preference for

ATTACHMENT 3 TO EXHIBIT 8

GDOT Special Provision
Modifications to FHWA Form 1273

1. Subsections IV.3(a); Delete the wording referencing “social security number” in the second sentence and substitute “and the last four digits of the social security number”.

ATTACHMENT 4 TO EXHIBIT 8

FEDERAL PREVAILING WAGE RATE

(Subject to change)

DEPARTMENT OF TRANSPORTATION STATE OF GEORGIA
U. S. Department of Labor
General Decision Number: GA180241 01/05/2018 GA241
Superseded General Decision Number: GA20170241

State: Georgia

Construction Type: Highway

County: Chatham County in Georgia.

HIGHWAY CONSTRUCTION PROJECTS

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.35 for calendar year 2018 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.35 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2018. The EO minimum wage rate will be adjusted annually.

Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/05/2018
SUGA2014-063	10/03/2016

	Rates	Fringes
CARPENTER, Includes Form Work	$ 17.46	0.00
CEMENT MASON/CONCRETE FINISHER	$ 17.62	0.00
HIGHWAY/PARKING LOT STRIPING: Operator (Striping Machine)	$ 12.39	1.94
IRONWORKER, REINFORCING	$ 15.46	0.00
IRONWORKER, STRUCTURAL	$ 15.13	0.00
LABORER: Grade Checker	$ 11.45	0.00
LABORER: Mason Tender - Cement/Concrete	$ 11.44	0.00
LABORER: Pipelayer	$ 11.09	0.00
LABORER: Asphalt (Includes Distributor, Raker, Screed, Shoveler, and Spreader)	$ 11.95	0.00
LABORER: Common or General, Includes Erosion Control	$ 10.97	0.00
OPERATOR: Backhoe/Excavator/Trackhoe	$ 17.47	0.00
OPERATOR: Bobcat/Skid Steer/Skid Loader	$ 12.22	0.00
OPERATOR: Broom/Sweeper	$ 14.04	1.43
OPERATOR: Bulldozer	$ 17.03	0.00
OPERATOR: Compactor	$ 14.04	0.00

OPERATOR: Concrete Saw	$ 18.47	0.00
OPERATOR: Crane	$ 24.38	0.00
OPERATOR: Grader/Blade	$ 18.18	0.00
OPERATOR: Hydroseeder	$ 13.93	0.00
OPERATOR: Loader	$ 15.16	0.00
OPERATOR: Mechanic	$ 19.85	0.00
OPERATOR: Milling Machine	$ 16.20	1.64
OPERATOR: Paver (Asphalt, Aggregate, and Concrete)	$ 14.98	0.00
OPERATOR: Piledriver	$ 16.70	0.00
OPERATOR: Roller	$ 14.57	0.00
OPERATOR: Scraper	$ 12.64	0.00
OPERATOR: Screed	$ 17.53	0.00
PAINTER: Spray	$ 23.30	0.00
TRAFFIC CONTROL: Flagger	$ 12.20	0.00
TRAFFIC CONTROL: Laborer-Cones/Barricades/Barrels – Setter/Mover/Sweeper	$ 12.55	0.00
TRAFFIC SIGNALIZATION: Laborer	$ 13.40	0.00
TRAFFIC SIGNALIZATION: Electrician	$ 20.20	0.00
TRUCK DRIVER: Dump Truck	$ 13.72	0.00
TRUCK DRIVER: Flatbed Truck	$ 14.96	1.19
TRUCK DRIVER: Hydroseeder Truck.	$ 14.92	0.00
TRUCK DRIVER: Lowboy Truck.	$ 16.26	0.00
TRUCK DRIVER: Off the Road Truck	$ 12.38	0.00
TRUCK DRIVER: Water Truck.	$ 14.00	0.00
TRUCK DRIVER: Semi/Trailer Truck	$ 16.13	0.00

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

ATTACHMENT 5 TO EXHIBIT 8

STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY CONSTRUCTION CONTRACT SPECIFICATIONS (EXECUTIVE ORDER 11246) (43 FR 14895)

1. As used in these specifications:

a. "Covered area" means the geographical area described in the solicitation from which this contract resulted;

b. "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority;

c. "Employer identification number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941.

d. "Minority" includes:

(i) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);

(ii) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);

(iii) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and

(iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

2. Whenever the Contractor, or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of $10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.

3. If the Contractor is participating (pursuant to 41 CFR 60–4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or Subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or Subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 7a through p of these specifications. The goals set forth in the solicitation from which

this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. Covered Construction contractors performing construction work in geographical areas where they do not have a Federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed. Goals are published periodically in the Federal Register in notice form, and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from Federal procurement contracting officers. The Contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.

5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.

6. In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:

a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minorities and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

c. Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefor, along with whatever additional actions the Contractor may have taken.

d. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a

minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minority and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under 7b above.

f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with onsite supervisory personnel such as Superintendents, General Foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipates doing business.

i. Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the-openings, screening procedures, and tests to be used in the selection process.

j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's work force.

k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.

l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc. such opportunities.

m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel

and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.

n. Ensure that all facilities and company activities are nonsegregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

p. Conduct a review, at least annually of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7a through p). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7a through p of these Specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

9. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).

10. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.

11. The Contractor shall not enter into any Contract or Subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.

12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

13. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal

employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60–4.8.

14. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

ATTACHMENT 6 TO EXHIBIT 8

DISADVANTAGED BUSINESS ENTERPRISE PROGRAM
CRITERIA FOR ACCEPTABILITY

The purpose of this special provision is to establish criteria for acceptability of DBE firms for work performed on this contract. The intent is to ensure all participation counted toward fulfillment of the DBE goals is (1) real and substantial, (2) actually performed by viable, independent DBE owned firms, and (3) in accordance with the spirit of the applicable laws and regulations.

The policy of the Georgia Department of Transportation is to ensure compliance with Title VI of the Civil Rights Act of 1964, 49 Code of Federal Register, Part 26 and related statutes and regulations in all program activities.

To this end the Georgia Department of Transportation shall not discriminate on the basis of race, color, sex or national origin in the award, administration and performance of any Georgia Department of Transportation assisted contract or in the administration of its Disadvantaged Business Enterprise Program. The Georgia Department of Transportation shall take all necessary and reasonable steps to ensure nondiscrimination.

DBE payments and commitments for Federal-aid projects shall be separate and distinct and cannot be transferred or combined in any matter.

The DBE Goal specified in the contract will be a percentage representing the DBE Race Conscious Participation. The Contractor will strive to achieve an additional percentage in his/her contracts for all projects during the course of the current State Fiscal Year, in order to meet the overall Georgia Department of Transportation DBE goal.

DBE DIRECTORY: The Department has available a directory or source list to facilitate identifying DBEs with capabilities relevant to general contracting requirements and to particular solicitations. The Department will make the directory available to bidders and proposers in their efforts to meet the DBE requirements. The directory or listing includes firms which the Department has certified to be eligible DBEs in accordance with 49 CFR Part 26.

GOAL FOR PARTICIPATION: If a percentage goal for DBE participation in this contract is set forth elsewhere in this proposal, the Contractor shall complete the DBE GOALS Form included in the proposal. The Contractor is encouraged to make every effort to achieve the goal set by the Department. However, if the Contractor cannot find sufficient DBE participants to meet the goal established by the Department, the Department will consider for award a proposal with less participation than the established goal if:

(A) The bidder can demonstrate no greater participation could be obtained. This should be well documented by demonstrating the Contractor's actions through good faith efforts. The following is a list of types of actions which the Department will consider as part of the Contractor's good faith efforts to obtain DBE participation. This is not intended to be a mandatory checklist nor intended to be exclusive or exhaustive. Other factors or types of efforts may be relevant in appropriate cases.

(1) Soliciting through all reasonable and available means (e.g. attendance at pre-bid meetings, advertising and/or written notices) the interest of all certified DBEs who have the capability to perform the work of the contract. The Contractor must solicit this interest within

sufficient time to allow the DBEs to respond to the solicitation. The Contractor must determine with certainty if the DBEs are interested by taking appropriate steps to follow up initial solicitations.

(2) Selecting portions of the work to be performed by DBEs in order to increase the likelihood the DBE goals will be achieved. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate DBE participation, even when the Contractor might otherwise prefer to perform these work items with its own forces.

(3) Providing interested DBEs with adequate information about the plans, specifications, and requirements of the contract in a timely manner to assist DBEs participants in responding to a solicitation.

(4) (a) Negotiating in good faith with interested DBEs. Contractor(s) are responsible to make a portion of the work available to DBE subcontractors and suppliers and to select those portions of the work or material needs consistent with the available DBE subcontractors and suppliers, so as to facilitate DBE participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of DBEs that were considered; a description of the information provided regarding the plans and specifications for the work selected for subcontracting; and evidence as to why additional agreements could not be reached for DBEs to perform the work.

(b) Contractor(s) using good business judgment would consider a number of factors in negotiating with subcontractors, including DBE subcontractors, and would take a firm's price and capabilities as well as contract goals into consideration. However, the fact there may be some additional costs involved in finding and using DBEs is not in itself sufficient reason for a bidder's failure to meet the contract DBE goal, as long as such costs are reasonable. Also, the ability or desire of a Contractor to perform the work of a contract with its own organization does not relieve the Contractor of the responsibility to make good faith efforts. Contractors are not, however, required to accept higher quotes from DBEs if the price difference is excessive or unreasonable.

(5) Not rejecting DBEs as being unqualified without sound reasons based on a thorough investigation of their capabilities. The Contractor's standing within its industry, membership in specific groups, organizations, or associations and political or social affiliations (for example union vs. nonunion employee status) are not legitimate causes for the rejection or non solicitation of bids in the Contractor's efforts to meet the project goal.

(6) Making efforts to assist interested DBEs in obtaining bonding, lines of credit, or insurance as required by the contractor.

(7) Making efforts to assist interested DBEs in obtaining necessary equipment, supplies, materials, or related assistance or services.

(8) Effectively using the services of available minority/women community organizations; minority/women Contractors' groups; local, state, and Federal minority/women business assistance offices; and other organizations as allowed on a case-by-case basis to provide assistance in the recruitment and placement of DBE's.

(B) The participation proposed by the low bidder is not substantially less than the participation proposed by the other bidders on the same contract.

If no percentage goal is set forth in the proposal, the contractor may enter a proposed DBE participation. This voluntary DBE participation will count as race neutral DBE participation. Prime Contractor shall report race-neutral participation in accordance with the DBE Monthly Report requirements shown in this document.

To be eligible for award of this contract, All bidders will be required to submit the following information to the Department's Procurement Officer as designated in Article 2.2.1 of the Instructions to Proposers (ITP) by the close of business on the 3rd working day following opening of the bid as a matter of bidder responsibility.

(1) The names and addresses of DBE firms committed to participate in the Contract;

(2) A description of the work each DBE will perform;

(3) The dollar amount of the participation of each DBE firm participating;

(4) Written documentation of the bidder's commitment to use a DBE subcontractor whose participation it submits to meet a contract goal;

(5) Written confirmation from the DBE committed to participating in the contract, as provided in the prime contractor's commitment.

(6) If the contract goal is not met, evidence of good faith efforts must be provided.

Failure by a bidder to furnish the above information may subject the bid to disqualification. Also failure by the bidder to submit satisfactory evidence of good faith efforts may subject the bid to disqualification.

Award of a contract by the Department to a Prime Contractor who has listed DBE participants with the bid may not constitute final approval by the Department of the listed DBE. The Department reserves the right to approve or disapprove a Disadvantaged firm after a review of the Disadvantaged firm's proposal participation. Payment to the Contractor under the contract may be withheld until final approval of the listed DBEs is granted by the Department.

If the Contractor desires to substitute a DBE in lieu of those listed in the proposal, a letter of concurrence shall be required from the listed DBE prior to approval of the substitution, unless this requirement is waived by the Department.

Agreements between bidder and a DBE in which promises not to provide Subcontracting quotations to other bidders are prohibited.

DEFINITION: For the purposes of this provision, the following definitions will apply: Disadvantaged Business Enterprise or DBE means a for-profit small business concern –

(1) Ensuring at least 51 percent owned by one or more individuals who are both socially and economically disadvantaged or, in the case of a corporation, in which 51 percent of the stock is owned by one or more such individuals; and

(2) Whose management and daily business operations are controlled by one or more of the socially and economically disadvantaged individuals who own the business.

Good Faith Efforts means efforts to achieve a DBE goal or other requirement of this part which, by their scope, intensity, and appropriateness to the objective, can reasonably be expected to fulfill the program requirement.

Joint Venture means an association of a DBE firm and one or more other firms to carry out a single, for-profit business enterprise, for which the parties combine their property, capital, efforts, skills and knowledge, and in which the DBE is responsible for a distinct, clearly defined portion of the work of the contract and whose share in the capital contribution, control, management, risks, and profits of the joint venture are commensurate with its ownership interest.

Socially and Economically Disadvantaged Individual means any individual who is a citizen (or lawfully admitted permanent resident) of the United States and who is –

(1) Any individual who the Department finds to be a socially and economically disadvantaged individual on a case-by-case basis.

(2) Any individual in the following groups, members of which are reputably presumed to be socially and economically disadvantaged.

(i) "Black Americans," which includes persons having origins, in any of the Black racial groups of Africa;

(ii) "Hispanic Americans," which includes persons of Mexican, Puerto Rican, Cuban, Dominican, Central or South American, or other Spanish or Portuguese culture or origin, regardless of race;

(iii) "Native Americans," which includes persons who are American Indians, Eskimos, Aleuts, or Native Hawaiians;

(iv) "Asian-Pacific Americans," which includes persons whose origins are from Japan, China, Taiwan, Korea, Burma (Myanmar), Vietnam, Laos, Cambodia (Kampuchea), Thailand, Malaysia, Indonesia, the Philippines, Brunei, Samoa, Guam, the U.S. Trust Territories of the Pacific Islands (Republic of Palau), the Commonwealth of the Northern Marianas Islands, Macao, Fiji, Tonga, Kiribati, Juvalu, Nauru, Federated States of Micronesia, or Hong Kong;

(v) "Subcontinent Asian Americans," which includes persons whose origins are from India, Pakistan, Bangladesh, Bhutan, the Maldives Islands, Nepal or Sri Lanka;

(vi) Women;

(vii) Any additional groups whose members are designated as socially and economically disadvantaged by the SBA, at such time as the SBA designation becomes effective.

(3) GDOT will presume that such persons are socially and economically disadvantaged only to the extent permitted by applicable federal law.

Race-conscious measure is one focused specifically on assisting only DBEs, including women-owned DBEs.

Race-neutral measure is one being, or can be, used to assist all small businesses. For the purposes of this part, race-neutral includes gender-neutrality.

DISCRIMINATION PROHIBITED: No person shall be excluded from participation in, denied the benefits of, or otherwise discriminated against in connection with the award and performance of this contract on the grounds of race, color, sex or national origin.

The following assurance becomes a part of this contract and must be included in and made a part of each subcontract the prime contractor enters into with their subcontractors (49 CFR 26.13):

> "The contractor, and/or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT – assisted contracts. Failure by the contractor to carry out these requirements is (breach) of this contract which may result in the termination of this contract or such other remedy as the Department deems appropriate.

Failure to Achieve Requirements: Periodic reviews shall be made by the Department to determine the extent of compliance with the requirements set forth in this provision. If the Contractor is found to be in noncompliance, further payments for any work performed may be withheld until corrective action is taken. If corrective action is not taken, it may result in termination of this contract.

Participation will be counted toward fulfillment of the DBE goal as follows:

(A) When a DBE participates in a contract, the Contractor counts only the value of the work actually performed by the DBE toward DBE goals.

(1) Count the entire amount of the portion of a constructioncontract (or other contract not covered by paragraph (A) (2) of this section) performed by the DBE's own forces. Include the cost of supplies and materials obtained by the DBE for the work of the contract, including supplies purchased or equipment leased by the DBE (except supplies and equipment the DBE subcontractor purchases or leases from the prime contractor or its affiliate).

(2) Count the entire amount of fees or commissions charged by a DBE firm for providing a bona fide service, such as professional, technical consultant, or managerial services, or for providing bonds or insurance specifically required for the performance of a DOT-assisted contract, toward DBE goals, provided the Department determines the fee is reasonable and not excessive as compared with fees customarily allowed for similar services.

(3) When a DBE subcontracts part of the work of its contract to another firm, the value of the subcontracted work may be counted toward DBE goals only if the DBE's subcontractor is itself a DBE. Work that a DBE subcontracts to a non-DBE firm does not count toward DBE goals.

(B) When a DBE performs as a participant in a joint venture, count a portion of the total dollar value of the contract equal to the distinct, clearly defined portion of the work of the contract the DBE performs with own forces toward DBE goals.

(C) Count expenditures to a DBE contractor toward DBE goals only if the DBE is performing a commercially useful function on that contract.

(1) A DBE performs a commercially useful function when responsible for execution of the work of the contract and carrying out responsibilities by actually performing, managing, and supervising the work involved. To perform a commercially useful function, the DBE must also be

responsible, with respect to materials and supplies used on the contract, for negotiating price, determining quality and quantity, ordering the material, and installing (where applicable) and paying for the material itself.

(2) A DBE does not perform a commercially useful function if their role is limited to being an extra participant in a transaction, contract, or project through which funds are passed in order to obtain the appearance of DBE participation.

(3) If a DBE does not perform or exercise responsibility for at least 30 percent of the total cost of their contract with their own work force, or the DBE subcontracts a greater portion of the work of a contract than would be expected on the basis of normal industry practice for the type of work involved, the Department will presume the DBE is not performing a commercially useful function.

(4) When a DBE is presumed not to be performing a commercially useful function as provided in paragraph (C) (3) of this section, the DBE may present evidence to rebut this presumption.

(5) The Department's decisions on commercially useful function matters are subject to review by the US DOT, but are administratively appealable to the US DOT.

(D) The following factors are to be used in determining whether a DBE trucking company is performing a commercially useful function:

(1) The DBE must be responsible for the management and supervision of the entire trucking operation for which they are responsible on a particular contract, and there cannot be a contrived arrangement for the purpose of meeting DBE goals.

(2) The DBE must itself own and operate at least one fully licensed, insured, and operational truck used on the contract.

(3) The DBE receives credit for the total value of the transportation services it provides on the contract using trucks it owns, insures, and operates using drivers it employs.

(4) The DBE may lease trucks from another DBE firm, including an owner/operator who is certified as a DBE. The DBE who leases trucks from another DBE receives credit for the total value of the transportation services the lessee DBE provided on the contract.

(5) The DBE may also lease trucks from a non-DBE and is entitled to credit only for the fee or commission it receives as a result of the lease arrangement. The DBE does not receive credit for the total value of the transportation services provided by the lessee, since these services are not provided by a DBE.

(6) For purposes of this paragraph (D), a lease must indicate the DBE has exclusive use of and control over the truck. This does not preclude the leased truck from working for others during the term of the lease with the consent of the DBE, so long as the lease gives the DBE absolute priority for use of the leased truck. Leased trucks must display the name and identification number of the DBE.

(E) Count expenditures with DBEs for materials or supplies toward DBE goals as provided in the following:

(1) (i) If the materials or supplies are obtained from a DBE manufacturer, count 100 percent of the cost of the materials or supplies toward DBE goals.

(ii) For purposes of this paragraph, a manufacturer is a firm that operates or maintains a factory or establishment that produces,on the premises, the materials, supplies, articles, or equipment required under the contract and of the general character described by the specifications.

(2) (i) If the materials or supplies are obtained from a DBE regular dealer, count 60 percent of the cost of the materials or supplies toward DBE goals.

(ii) For purposes of this section, a regular dealer is a firm owning, operating, or maintaining a store, warehouse, or other establishment in which the materials, supplies, articles or equipment of the general character described by the specifications and required under the contract are bought, kept in stock, and regularly sold or leased to the public in the usual course of business.

(A) To be a regular dealer, the firm must be an established, regular business engaging, as its principal business and under its own name, in the purchase and sale or lease of the products in question.

(B) A person may be a regular dealer in such bulk items as petroleum products, steel, cement, gravel, stone, or asphalt without owning, operating, or maintaining a place of business as provided in this paragraph (E)(2)(ii) if the person both owns and operates distribution equipment for the products. Any supplementing of regular dealers' own distribution equipment shall be by a long-term lease agreement and not on an ad hoc or contract-by-contract basis.

(C) Packagers, brokers, manufacturers' representatives, or other persons who arrange or expedite transactions are not regular dealers within the meaning of this paragraph (E)(2).

(3) With respect to materials or supplies purchased from a DBE which is neither a manufacturer nor a regular dealer, count the entire amount of fees or commissions charged for assistance in the procurement of the materials and supplies, or fees or transportation charges for the delivery of materials or supplies required on a job site, toward DBE goals, provided you determine the fees to be reasonable and not excessive as compared with fees customarily allowed for similar services. Do not count any portion of the cost of the materials and supplies themselves toward DBE goals, however.

(4) Do not count the participation of a DBE subcontractor toward the prime contractor's DBE achievements until the amount being counted toward the goal has been paid to the DBE.

(5) No participation will be counted not in compliance with Special Provision entitled "Criteria for Acceptability" which is a part of this contract or with any provisions included in 49 CFR Part 26.

(6) If the contract amount overruns, the contractor will not be required to increase the dollar amount of DBE participation. If the contract amount under runs, the contractor will not be allowed to under run the dollar amount of DBE participation except when the DBE subcontracted items themselves under run.

REPORTS

A: The contractor shall submit a "DBE Participation Report" on this contract monthly which shall include the following:

1. The name of each DBE participating in the contract.

2. A description of the work to be performed, materials, supplies, and services provided by each DBE.

3. Whether each DBE is a supplier, subcontractor, owner/operator, or other.

4. The dollar value of each DBE subcontract or supply agreement.

5. The actual payment to date of each DBE participating in the contract.

6. The report shall be updated by the Prime Contractor whenever the approved DBE has performed a portion of the work that has been designated for the contract. Copies of this report should be transmitted promptly to the Engineer. Failure to submit the report within 30 calendar days following the end of the month may cause payment to the contractor to be withheld.

7. The Prime Contractor shall notify the Project Engineer at least 24 hours prior to the time the DBE commences working on the project. The DBE must furnish supervision of the DBE portion of the work, and the person responsible for this supervision must report to the Project Engineer when they begin work on the project. They must also inform the Project Engineer when their forces will be doing work on the project.

B. In order to comply with 49 CFR 26.11, the Prime Contractor shall submit documentation regarding all payments made from the Prime to all DBE subcontractors on federal aid projects in the form of copies of cancelled checks or notarized electronic documentation which validates said payments made on the DBE Monthly Participation Reports. This information shall be required monthly and submitted with the DBE Monthly Participation Report.

C. Failure to respond within the time allowed in the request will be grounds for withholding all payments on all Contracts.

SUBSTITUTION OF DBEs: The Contractor shall make reasonable efforts to replace a DBE Subcontractor unable to perform work for any reason with another DBE. The Department shall approve all substitutions of Subcontractors in order to ensure the substitute firms are eligible DBEs.

CERTIFICATION OF DBEs: To ensure the DBE Program benefits only firms owned and controlled by Disadvantaged Individuals, the Department shall certify the eligibility of DBEs and joint ventures involving DBEs named by bidders.

Questions concerning DBE Certification/Criteria should be directed to the EEO Office at (404) 631-1972.

ATTACHMENT 7 TO EXHIBIT 8

DEBARMENT AND SUSPENSION CERTIFICATION

1. By signing and submitting its proposal or bid, and by executing the Agreement or and Contract, each prospective Design-Build Team member (at all tiers) shall be deemed to have signed and delivered the following certification:

The undersigned certifies to the best of its knowledge and belief, that it and its principals:

a. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any federal department or agency;

b. Have not within a 3-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (federal, state or local) transaction or contract under a public transaction; violation of federal or state antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

c. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (federal, state or local) with commission of any of the offenses enumerated in paragraph 1b of this certification; and

d. Have not within a 3-year period preceding this application/proposal had one or more public transactions (federal, state or local) terminated for cause or default.

2. Where the prospective Design-Build Team member is unable to certify to any of the statements in this certification, such Person shall attach a certification to its proposal or bid, or shall submit it with the executed Agreement or Contract, stating that it is unable to provide the certification and explaining the reasons for such inability.

ATTACHMENT 8 TO EXHIBIT 8

CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

By signing and submitting its proposal or bid, and by executing the Agreement or any Contract, each prospective Design-Build Team and Contractor (at all tiers) shall be deemed to have signed and delivered the following:

1. The prospective Design-Build Team/Contract certifies, to the best of its knowledge and belief, that:

a. No federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of **ANY** federal contract, the making of any federal grant, the making of any federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any federal contract, grant, loan, or cooperative agreement.

b. If any funds other than federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any federal agency, a member of Congress, an officer or employee of Congress, or an employee of a member of Congress in connection with **THIS** Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions, and shall include a copy of said form in its proposal or bid, or submit it with the executed Agreement or Contract.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. § 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

3. Design-Build Team/Contractor shall require that the language of this certification be included in all lower tier Contracts which exceed $100,000 and that all such recipients shall certify and disclose accordingly.

4. The undersigned certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the undersigned understands and agrees that the provisions of 31 U.S.C. §3801, et seq., apply to this certification and disclosure, if any.

[Note: Pursuant to 31 U.S.C. § 1352(c)(1)-(2)(A), any person who makes a prohibited expenditure or fails to file or amend a required certification or disclosure form shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each expenditure or failure.]

NOTE: DESIGN-BUILD TEAM AND EACH CONTRACTOR IS REQUIRED, PURSUANT TO FEDERAL LAW, TO INCLUDE THE ABOVE LANGUAGE IN CONTRACTS OVER $100,000 AND TO OBTAIN THIS LOBBYING CERTIFICATE FROM EACH CONTRACTOR BEING PAID $100,000 OR MORE.

ATTACHMENT 9 TO EXHIBIT 8

RESERVED

ATTACHMENT 10 TO EXHIBIT 8

COMPLIANCE WITH BUY AMERICA REQUIREMENTS

Design-Build Team shall comply with the Federal Highway Administration (FHWA) Buy America Requirement in 23 CFR 635.410, which permits FHWA participation in this Agreement only if domestic steel and iron will be used on the Project. To be considered domestic, all steel and iron used and all products manufactured from steel and iron must be produced in the United States and all manufacturing processes, including application of a coating, for these materials must occur in the United States. Coating includes all processes that protect or enhance the value of the material to which the coating is applied. This requirement does not preclude a minimal use of foreign steel and iron materials, provided the cost of such materials does not exceed 0.1% of the contract price under the Agreement.

Concurrently with execution of the Agreement, Design-Build Team has completed and submitted, or shall complete and submit, to GDOT a Buy America Certificate, in the format below. After submittal, Design-Build Team is bound by its original certification.

A false certification is a criminal act in violation of 18 U.S.C. § 1001. Should this Agreement be investigated, Design-Build Team has the burden of proof to establish that it is in compliance.

At Design-Build Team's request, GDOT may, but is not obligated to, seek a waiver of Buy America requirements if grounds for the waiver exist. However, Design-Build Team certifies that it will comply with the applicable Buy America requirements if a waiver of those requirements is not available or not pursued by GDOT. A request for a waiver shall be treated as a Change Request under Article 13.2 of the Agreement.

BUY AMERICA CERTIFICATE

Form J Attached

FORM J

Buy America Certification

The undersigned Proposer hereby certifies on behalf of itself and all contractors (at all tiers) the following:

a. The Proposer shall comply with the Federal Highway Administration ("FHWA") Buy America Requirements of 23 CFR 635.410, which permits FHWA participation in the DBA only if domestic steel and iron will be used on the Project. To be considered domestic, all steel and iron used and all products manufactured from steel and iron must be produced in the United States and all manufacturing processes, including application of a coating, for these materials must occur in the United States. Coating includes all processes that protect or enhance the value of the material to which the coating is applied. This requirement does not preclude a minimal use of foreign steel and iron materials, provided the cost of such materials does not exceed 0.1% of the design-build contract price.

b. A false certification is a criminal act in violation of 18 U.S.C. 1001. Should this certification be investigated, the Proposer has the burden of proof to establish that it is in compliance.

c. At the Proposer's request, GDOT may, but is not obligated to, seek a waiver of Buy America requirements from FHWA if grounds for the waiver exist. However, the Proposer certifies that it will comply with the applicable Buy America requirements if a waiver of those requirements is not available or not pursued by GDOT.

Date: May 18, 2018

Signature: _____

Title: Fernando Bolinaga, Authorized Representative

Proposer's Name: Savannah Mobility Contractors JV

ATTACHMENT 11 TO EXHIBIT 8

COMPLIANCE WITH THE CARGO PREFERENCE ACT

The Cargo Preference Act (CPA) establishes certain requirements for the use of privately owned United States-flag commercial vessels in transporting equipment, materials, and commodities by ocean vessel. Contractors are required to comply with the CPA requirements and 46 CFR 381 and are required to insert the substance of these provisions into any subcontracts issued pursuant to this contract.

Cargo Preference Act Requirements

All Federal-aid projects shall comply with 46 CFR 381.7 (a)-(b) as follows:

(a) **Agreement Clauses**. Use of United States-flag vessels:

(1) Pursuant to Pub. L. 664 (43 U.S.C. 1241(b)) at least 50 percent of any equipment, materials or commodities procured, contracted for or otherwise obtained with funds granted, guaranteed, loaned, or advanced by the U.S. Government under this agreement, and which may be transported by ocean vessel, shall be transported on privately owned United States-flag commercial vessels, if available.

(2) Within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, 'on-board' commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph (a)(1) of this section shall be furnished to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590.

(b) **Contractor and Subcontractor Clauses**. Use of United States-flag vessels: The contractor agrees:

(1) To utilize privately owned United States-flag commercial vessels to ship at least 50 percent of the Gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to this contract, to the extent such vessels are available at fair and reasonable rates for United States-flag commercial vessels.

(2) To furnish within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, 'on-board' commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph (b)(1) of this section to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590.

(3) To insert the substance of the provisions of this clause in all subcontracts issued pursuant to this contract.

The CPA requirements would be appropriate for oceanic shipments of materials or equipment that is intended for use on a specific Federal-aid project, such as a precast concrete structural members, fabricated structural steel, tunnel boring machines, or large-capacity cranes.

The CPA requirements are not applicable for goods or materials that come into inventories independent of an FHWA funded-contract. For example, the requirements would not apply to shipments of Portland cement, asphalt cement, or aggregates, as industry suppliers and contractors use these materials to replenish existing inventories. In general, most of the materials used for highway construction originate from existing inventories and are not acquired solely for a specific Federal-aid project.

A test for whether CPA requirements apply or do not apply to shipped goods or materials would be if the goods or materials are what one would consider to be common inventory supplies for highway construction contractor, then CPA would **not apply**. If the materials or goods are considered to be supplies one would consider to be not common supplies of a highway construction contractor then CPA would **apply**.

ATTACHMENT 12 TO EXHIBIT 8

GDOT - APPENDIX A

During the performance of this Agreement, the DB Team, for itself, its assignees, and successors in interest (hereinafter referred to as the "DB Team"), agree as follows:

1. **Compliance with Regulations**
The DB Team shall comply with the Regulations relative to nondiscrimination in federally-assisted programs of the Department of Transportation (hereinafter referred to as DOT), Title 49, Code of Federal Regulations, part 21, as they may be amended from time to time, (hereinafter referred to as the Regulations), which are herein incorporated by reference and made a part of this Agreement.

2. **Nondiscrimination**
The DB Team, with regard to the work performed by it during the Agreement, shall not discriminate on the grounds of race, color, sex, or national origin in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The DB Team shall not participate either directly or indirectly in discrimination prohibited by Section 21.5 of the Regulations, including employment practices when the Agreement covers a program set forth in Appendix B of the Regulations.

3. **Solicitations for Subcontracts, including Procurement of Materials and Equipment**
In all solicitations either by competitive bidding or negotiations made by the DB Team for work to be performed under a subcontract, including procurement of materials or leases of equipment, each potential subcontractor or supplier shall be notified by the DB Team of the DB Team's obligations under this Agreement and the Regulations relative to nondiscrimination on the ground of race, color, sex, or national origin.

4. **Information and Reports**
The DB Team shall provide all information and reports required by the Regulations or directives issued pursuant thereto, and shall permit access to its books, records, accounts, other sources of information and its facilities as may be determined by the SRTA or the Federal Highway Administration to be pertinent to ascertain compliance with such Regulations, orders, and instructions. Where any information required of the DB Team is in the exclusive possession of another who fails or refuses to furnish this information, the DB Team shall so certify to the SRTA, or the Federal Highway Administration as appropriate, and shall set forth what efforts it has made to obtain the information.

5. **Sanctions for Noncompliance**
In the event of the DB Team's noncompliance with the nondiscrimination provisions of this Agreement, the SRTA shall impose such contractual sanctions as SRTA or the Federal Highway Administration may determine to be appropriate, including, but not limited to:
    a. Withholding of payments to the DB Team under the Agreement until the DB Team complies; and/or
    b. Cancellation, termination, or suspension of the Agreement, in whole or in part.

6. **Incorporation of Provisions**

The DB Team shall include the provisions of paragraphs (1) through (6) in every subcontract, including procurement of materials and leases of equipment, unless exempt by the Regulations, or directives issued pursuant thereto.

The DB Team shall take such action with respect to any subcontractor or procurement as the SRTA or the Federal Highway Administration may direct as a means of enforcing such provisions including sanctions for noncompliance: Provided, however, that in the event the DB Team becomes involved in, or is threatened with, litigation with a subcontractor or supplier as a result of such direction, the DB Team may request the SRTA enter into such litigation to protect the interests of the state and, in addition, the DB Team may request the United States to enter into such litigation to protect the interests of the United States.

EXHIBIT 9

MILESTONE SCHEDULE

Milestone	Deadline
Substantial Completion Deadline	No later than 1,310 calendar days after the date SRTA issues NTP 1
Final Acceptance Deadline	No later than 150 calendar days after Substantial Completion

See attached Form M – Interim Completion, Substantial Completion, and Final Acceptance Proposal

FORM M

Interim Completion, Substantial Completion, and Final Acceptance Proposal

Proposer Name: Savannah Mobility Contractors JV

The Proposer shall complete the fields below for each portion (segment) of the Work for which the Proposer will commit to an Interim Completion Deadline. A segment layout diagram is included as Attachment 2-1 of the Technical Provisions. At a minimum, Substantial Completion Deadline and Final Acceptance Deadline must be completed..

Interim Completion Deadline for Segment ____ Work (In Days after NTP 1) _____

Interim Completion Deadline for Segment ____ Work (In Days after NTP 1) _____

Interim Completion Deadline for Segment ____ Work (In Days after NTP 1) _____

Interim Completion Deadline for Segment ____ Work (In Days after NTP 1) _____

Interim Completion Deadline for Segment ____ Work (In Days after NTP 1) _____

Interim Completion Deadline for Segment ____ Work (In Days after NTP 1) _____

Substantial Completion Deadline (In Days after NTP 1)* 1310 days

Final Acceptance Deadline (In Days after NTP 1)* 1460 days

*** These are required fields**

Date: May 25, 2018

Proposer: Savannah Mobility Contractors JV

Signature: _____

Title: Fernando Bolinaga, Authorized Representative of the JV

EXHIBIT 10

RESERVED

EXHIBIT 11

HAZARDOUS MATERIALS RISK ALLOCATION TERMS

1. Design-Build Team shall be solely responsible for Hazardous Materials Management, including all required remediation and disposal of Hazardous Materials that constitute Design-Build Team Releases of Hazardous Materials or which are otherwise with respect to any Additional Properties or Project Specific Locations, Design-Build Team shall be responsible for all Hazardous Materials Management for Design-Build Team Release(s) of Hazardous Materials or with respect to Additional Properties, even if the required Hazardous Materials Management extends beyond the end of the Term or Final Acceptance of the Work.

2. Other than a Design-Build Team Releases of Hazardous Materials or with respect to any Additional Properties or Project Specific Locations, GDOT shall, at its own expense shall manage, treat, handle, store, remediate, remove, transport (where applicable), investigate, oversee and dispose of such Hazardous Materials in accordance with applicable Law and Governmental Approvals or otherwise enter into a Supplement Agreement with the Design-Build Team, or order such Work pursuant to Directive Letter (provided that GDOT may not require any long term monitoring of Hazardous Materials under any such Directive Letter), with respect to same.

3. Notwithstanding the aforementioned or anything to the contrary in the Agreement, none of the following costs and expenses shall be chargeable to or reimbursed by SRTA:

(a) Costs and expenses to the extent attributable to Design-Build Team Releases of Hazardous Materials;

(b) Delay and disruption costs and expenses, except to the extent expressly set forth under the Agreement;

(c) Costs and expenses that could be avoided by the exercise of commercially reasonable efforts to mitigate and reduce cost; and

(d) Attorney's fees or other expenses incurred by Design-Build Team in demonstrating or determining the proportionate responsibility between the parties as to Design-Build Team Releases of Hazardous Materials, GDOT Releases of Hazardous Materials, Pre-existing Hazardous Materials, and/or Hazardous Materials due to any third party.

4. Nothing contained herein shall be interpreted to limit Design-Build Team's obligations with respect to Articles 7.8 or 7.9 of the Agreement.

EXHIBIT 12

RESERVED

EXHIBIT 13

RESERVED

EXHIBIT 14

DESIGN-BUILD TEAM'S DBE COMMITMENTS LIST

FORM E

STATE OF GEORGIA DEPARTMENT OF TRANSPORTATIONFORM EEOP
CONSTRUCTION CONTRACTORS PREQUALIFICATION OFFICE
BID OPPORTUNITY LIST Revised 05/16/11

This information shall be submitted in accordance with ITP Section 1.8

Prime Contractor/Consultant: Savannah Mobility Contractors JV
Address/Telephone Number: 810 Seventh Ave. 9th Floor, New York, NY 10019 / (212) 779-0900
Bid/Proposal Number: P.I. Nos. 0012757 & 0012758
Quote Submitted MM/YY: Bid / Proposal Date May 25, 2018

49 CRF Part 26.11 requires the Georgia Department of Transportation to develop and maintain a "bid opportunity list". The list is intended to be a listing of all firms participating or attempting to participate, on DOT assisted contracts. The list must include all firms that bid on prime contracts, or bid or quote subcontracts and materials supplies on DOT-assisted projects, including both DBEs and non-DBEs. For consulting companies, this list must include all subconsultants contacting you and expressing an interest in teaming with you on a specific DOT assisted project. Prime contractors and consultants must provide information for Nos. 1, 2, 3, and 4 and must provide information they have available on Numbers 5, 5.A., 6, 7, 8 and 9 for themselves, and their subcontractors and subconsultants.

1. Federal Tax ID Number: 20-3902316
2. Firm Name: Dragados USA, Inc.
3. Phone: (212) 779-0900
4. Address: 810 Seventh Ave. 9th Floor
New York, NY 10019

6. ☐ DBE
☐ Non-DBE
7. ☐ Subcontractor
8. ☐ Subconsultant
9. ☐ Supplier

5. Contact Fernando Bolinaga
5.A. Company E mail address fbolinaga@dragados-usa.com

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1. Federal Tax ID Number: 59-2318360
2. Firm Name: Prince Contracting LLC
3. Phone: (813) 699-5900
4. Address: 10210 Higland Manor Dr., Suite 110
Tampa, FL 33610

6. ☐ DBE
☐ Non-DBE
7. ☐ Subcontractor
8. ☐ Subconsultant
9. ☐ Supplier

5. Contact Jack B. Calandros
5.A. Company E mail address jcalandros@princecontracting.com

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1. Federal Tax ID Number: 95-4081636
2. Firm Name: Jacobs Engineering Group Inc.
3. Phone: (404) 978-7600
4. Address: 10 NW 10th Street, Suite 1400
Atlanta, GA 30309

6. ☐ DBE
☐ Non-DBE
7. ☐ Subcontractor
8. ☐ Subconsultant
9. ☐ Supplier

5. Contact Tom Meinhart
5.A. Company E mail address tom.meinhart@jacobs.com

FORM E
STATE OF GEORGIA DEPARTMENT OF TRANSPORTATION FORM EEOP

CONSTRUCTION CONTRACTORS
BID OPPORTUNITY LIST

Federal Tax ID Number	Firm Name	Phone	Address	Contact Name	Company Email Adress	DBE	Non-DBE	Subconstractor	Subconsultant	Supplier
	1st Resource Solutions, LLc	(323) 500-3134	1811 N. Dumont Dr., Marion, Indiana 46952	Darryl Sanders	dsanders@1stresourcesolutions.com	x	-			x
	2M Atl, LLC	(678) 799-7214	400 West Peachtree Street NW, Atlanta, Georgia, 30308	William Kelly	vana@2matl.com	x	-	x		
	ABC Cutting Contractors	(404) 768-6832	4864 Clark Howell Hwy, Atlanta, Gerogia 30349	Dennis Storm	dstorm@abccuttinginc.com	-	x	x		
42-1603982	Accura Engineering and Consulting Services, Inc.	(404) 241-8722	3200 Presidential Dr., Atlanta, Georgia 30340	Prashanthi Reddy	preddy@accura.com	x	-		x	
	ADRS Services	(912) 433-6970		Teresa Sherling	office@adrsservices.com	-	x	x		
82-3885038	Aerial Innovations	(770) 986-0333	3703 W. Azeele Street, Tampa, Florida 33609	Chelsea Patterson-Walker	flyga@aerialga.com	-	x	x		
	Aldridge Services, Inc.		2001 Martin Luther King Jr. Drive Sw., Suite 400, Atlanta, Georgia 30310		careeves@aldridgeservicesinc.com	x	-	x		
	All Out Fence	(904) 339-1708	13265 US-301, Starke, Florida 32091		alloutfence@yahoo.com	-	x	x		
	All Painting Contractors, Inc.		6050 Dawson Blvd, Suite L, Norcross, Georgia 30093	Marcelo Ojeda	info@allpaintingcontractors.com	x	-	x		
91-1641772	AMEC Foster Wheeler	(404) 873-4761	2677 Buford Hwy., Atlanta, Georgia 30324	Jeff Baker	jeff.baker@woodplc.com	-	x	x		
	American Lighting & Signalization	(229) 868-8484	3001 US-441, McRae, Georgia 31055	Larry Walker	lwalker7@asplundh.com	-	x	x		
58-2091748	Anasteel & Supply Company Co., LLC	(404) 675-9501	2272 Mabros Industrial Pkwy, Ellenwood, GA 30294	Stephen Snowe	Snowe@anasteel.com	-	x			x
34-1344513	Area Wide Protective	(330) 968-7022	171 Kingston Rd, Parsippany, New Jersey 07054	John Harris	jtharris@awptraffic.com	-	x	x		
	Argos Ready Mix	(706) 401-2465		Tommy Waters	twaters@argos-US.com	-	x			x
16-1704519	Arrowwood Environmental, LLC	(912) 920-2895	PO Box 61237, Savannah, Georgia 31420	J. Larry Miles, Jr.	lmiles@arrowoodenv.com	-	x		x	
	ASI Clearing & Grinding	(706) 401-2465	1699 Sandtown Rd, Washington, Georgia 30673	Shane	shane@asiclearingngrinding.com	-	x	x		
	Astra	(770) 992-9300	300 Churchill Court, Woodstock, Gerogia 30188	Dan Buehler	clong@astragroupinc.com	-	x	x		
	Baker Constructors	(912) 307-9400	70 Shirley B James Drive, Savannah, Gerogia 31408	Stoy Marlow	stoy@bakerconstructors.com	-	x	x		
	Barnett Southern	(706) 678-1507	106 N Alexander Ave, Washington, GA 30673	Matt Durden	matt@barnett southern.com	-	x	x		
38-2524099	Barnsco	(248) 469-2849		Tim McManaman	tcmcmanaman@barnsco.com	-	x			
	Baseline Supply LLC	(732) 835-8113		Doran Meents	info.baselinesupply@gmail.com	x	-			x
	BC Landscaping	(770) 534-4724	812 Cartersville Highway, Rockmart, **Georgia** 30153	Jon Scroggs	jscroggs@bclmulching.com	-	x	x		
59-3093579	Bonn-J	(407) 977-7666	2596 Curryville Rd, Oviedo, Florida 32766	Sandi Dorman	sandi@bonn-jcontracting	x	-	x		
	Bridge Deck Solutions			Frank Dentara	frank@bridgedecksolutions.com	-	x			x
58-2202044	C & G Concrete Construction	(404) 697-4411	1445 Willingham Drive, East Point, Georgia 30344	Curtis Royster	candg@candconcrete.com	x	-			x
	C. Slaughter Construction, Inc.	(616) 877-5100		Cynthia Slagter	zindar@slagter.net	x	-	x		
	CA Murrent and Sons Co	(912) 293-0193	2275 Loganville Highway, Grayson, Georgia 30017	Pitch Powers	cpowers@camurren.com	-	x	x		
	Carolina Traffic Devices	(704) 807-3993	11900 Goodrich Dr., Charlotte, North Carolina 28287	Trisha Curtin	tcurtin@curtinco.com	-	x	x		
58-1608467	Carroll & Carroll, Inc.	(912) 964-7446	18 Foundation Drive, Savannah, Georgia 31408	Shari Carroll Goros	dinah@cacasphlat.com	x	-	x		
58-2012442	Celebrity Fence Company, Inc.	(770) 507-8611	3736 Georgia Washington Drive, Ellenwood, Georgia 30294	N.E. Mainer	cfco@cs.com	x	-	x		

FORM E
STATE OF GEORGIA DEPARTMENT OF TRANSPORTATION FORM EEOP

CONSTRUCTION CONTRACTORS
BID OPPORTUNITY LIST

Federal Tax ID Number	Firm Name	Phone	Address	Contact Name	Company Email Adress	DBE	Non-DBE	Subconstractor	Subconsultant	Supplier
58-2099263	Cherokee Pumping, Inc	(912) 654-4646	831 Steele Dr, Hampton, Georgia 30228	CC Ward	cc.ward@cherokeepumping.com	-	x	x		
59-2975137	Civil Services, Inc.	(904) 641-1834	2394 St. Johns Bluff Road, South, Jacksonville, Florida 32246	Christopher E. Morse	cmorse@civilservicesinc.com	x	-		x	
	Clifton Construciton Inc.	(912) 964-0366	18 Gulfstream Road, Savannah, Georgia 31408	Gina Clifton Mincey	ginamincey@cliftonconstruction.com	x	-	x		x
	CMC Rebar	(678) 481-4540	2050 Center Ave # 250, Fort Lee, New Jersey 07024	Andrea Rogers	andrea.rogers@cmc.com	-	x			x
38-2267917	Concrete Cutting & Breaking	(407) 257-0274		Ed Gushwa	edgushwa@yahoo.com	-	x	x		
45-5396364	Concrete Pipe and Precast	(912) 429-4844	11352 Virginia Precast Road, Ashland, Virginia 23005	James Oakley	joakley@concretepandp.com	-	x			x
27-1145223	Cope Construction	(912) 778-4153		Kelly Cope	ksgcope@gmail.com	x	-	x		
	County Materials Corp	(941) 915-3671	25750 City Rd. 561, Astatula, Florida 34705	Johny Smith	johny.smith@countrymaterials.com	-	x	x		
	Cox Creative Products	(912) 654-0560	47 Walker Cooper Rd. NE, Glennville, Georgia 30427	Jet Arthur Cox	j.cox@coxcreativeproductandconstructioninc.com	x	-	x		
	Curtin Trucking & Drainage	(704) 588-7899	11900 Goodrich Dr, Charlotte, North Carolina 28273	Nick Delaney	ndelaney@curtinco.com	-	x	x		
59-3599951	Dane Construction	(727) 836-0404	280 Mooresville Blvd., Mooresville, North Carolina 28115	Steve Kasper	stevek@dane-construct.com	-	x	x		
41-1639360	Diamond Surface Inc.	(763) 420-5009	21025 Commerce Blvd, Suite 900, Rogers, Minnesota 55374	Al Adamek	al@diamondsurfaceinc.com	x	-	x		
58-1791166	DMAC Industries Inc	(770) 664-7120	1880 D-Mac Dr, Alpharetta, Georgia 30004	Andrew McMorrow	andrew@D-Macindustries.com	-	x			x
	Dragados-USA					-	x			
58-1393445	Eady Construction LLC	(912) 544-1735	595 W. 54th Street, Savannah, Georgia 31405	Rossevelet Eady	R_EADY@EADYCONSTRUCTION.COM	x	-	x		
	EE Reed construction	(571) 340-0078	7505 Waters Ave, Suite B8, Savannah, Georgia 31406	Jacob Rakosi	jrakosi@EEReed.com	-	x	x		
43-1806539	EFK Moen, LLC	(770) 575-0269	1000 Parkland Circle, Suite 325, Atlanta, Gerogia 30339	Chris Williams	ctwilliams@efkmoen.com	x	-		x	
	Elite Concrete	(912) 658-9494	1955 US-80, Bloomingdale, Georgia 31302	Hal Baird	hal.baird@eliteconcrete.bz	-	x	x		
57-1114354	Enterprise Rebar	(843) 846-4082	150 Prescott Road, Yemassee, South Carolina 22945	Ronald Smith	enterpriserebar@aol.com	x	-			x
	Excel 4 LLC	(407) 681-3710	420164, Kissimmee, Florida 34742	Cleo Davis	excel4llc@yahoo.com	-	x	x		
	Federal Rent-A-Fence		127 Haddon Ave, West Berlin, New Jersey 08091			-	x			x
	Gerdau	(912) 964-6391	1 Crossman Rd N, Sayreville, New Jersey 08872	Allan Neal	fred.drosness@gerdau.com	-	x			x
27-3534317	Gosalia Concrete Constructors	(813) 443-0984	4607 N 56th St, Tampa, Florida 33610	Dharmesh Gosalia	jay@gosaliaco.com	x	-	x		
	Griffin Contracting	(912) 965-0111	122 Pipemakers Circle, Unit 207, Pooler, Georgia 31322	Chris Davis	maike@griffincontracting.com	-	x	x		
	GTG Traffic Signals LLC	(404) 446-2784	4191 Jvl Industrial Park Dr, Marietta, Georgia 30066	Tanner Green	tgreen@gtgtraffic.com	x	-	x		
	Guaranteed Fence contractors	(912) 354-0266	1080 E 28th St, Hialeah, Florida 33013	Gary Douglas	Gary@Guaranteedfence.com	-	x	x		
	Gulf Coast Rebar		3102 E 4th Ave, Tampa, Florida 33605	Chad Jones	mike@gulfcoast rebar.com	x	-	x		
	Hancock Seed Company	(813) 469-2257	18724 Hancock Farm Rd, Dade City, Florida 33523	Christopher Galvis	CHRISTOPHER@HANCOCKSEED.COM	-	x	x		
58-0979293	Hanson	(770) 491-2756	2900 Louisville Rd., Savannah, Georgia 31415	Jerry Horton	JERRY.HORTON@LEHIGHHANSON.COM	-	x			x
	Harp & Turner Construction	(229) 472-0289	608 W 3rd St, Tifton, Georgia 31794	Jenna	jenna@harpandturner.com	x	-	x		

FORM E
STATE OF GEORGIA DEPARTMENT OF TRANSPORTATION FORM EEOP

CONSTRUCTION CONTRACTORS
BID OPPORTUNITY LIST

Federal Tax ID Number	Firm Name	Phone	Address	Contact Name	Company Email Adress	DBE	Non-DBE	Subconstractor	Subconsultant	Supplier
	Hayward Baker	(813) 884-3441	3497 Piedmont Rd. NE, Building 11, Suite 403, Atlanta, Georgia 30324	Vince Hull	vehull@haywardbaker.com	-	x	x		
58-1090606	Hendrix Hauling Company Inc	(912) 427-6395	3600 Rayonier Rd, Jesup, Georgia 31545	Sheila Burcham	ltcarter@hendrixhauling.com	x	-	x		
	Hi-Way Paving	(614) 679-3773	4343 Weaver Court, North Hilliard, Ohio 43026	Brad Wilson	ballison@hiwaypaving.com	-	x	x		
	Hoffman Electric Co, Inc	(912) 236-2253	4119 Ogeechee Rd, Savannah, Georgia 31405	Lacey Garrastegui	hoffmanelec@gmail.com	-	x	x		
	Interstate Sealant & Concrete, Inc.		24211 Rockwood Way, Waukesha, Wisconsin 53189	Cheryl A. Sment	sleppert@interstatesealant.com	x	-	x		
	Inventure Civil	(919) 665-8622	11640 Northpark Dr #110, Wake Forest, North Carolina 27587	Matt Byrd	byrdm@inventurecivil.com	-	x	x		x
	J Corbett Enterprises Inc	(912) 675-3201	6203 Abercorn St, Suite 103A, Savannah, Georgia 31405	Jerrod Corbett	jerrodcorbett@jcorbettenterpriseinc.com	x	-	x		
	J Mori Painting Inc.		2561 W 80th St, Hialeah, Florida 33016	Joe Mori	jlmori@jmoripanting.com	x	-	x		
95-4081636	Jacobs Engineering Group Inc.	(404) 987-7600	10 NW 10th Street, Suite 1400, Atlanta, Georgia 30309	Tom Meinhart	tom.meinhart@jacobs.com	-	x		x	
27-1715092	JMD Building Products LLC	(212) 256-1832	15 William St #20e, New York, New York 10005	Julie D'Agostino	julie@jmpbp.com	x	-			x
	Ken Sandlin Welding Contractors	(772) 359-0542	7002 Winter Garden Parkway, Fort Pierce, Florida 34951	Ken Sandlin	sensandlin@hotmail.com	-	x	x		
	Kobo Utility	(508) 888-2255	4 Victory Dr, Sandwich, Massachusetts 02563	Rebecca Curtis	rebecca@koboutility.com	-	x	x		
58-2631188	Land Clearing Service Inc.	(803) 447-7358	1576 Whiting Way, Lugoff, South Carolina 29078	David Perkins	dperkins@clearingandgrinding.com	-	x	x		
51-0583908	Lee-Lane Trucking	(912) 658-3513	2103 US-80, Garden City, Georgia 31408	Tasia Oglesby	tasia@laneleetrucking.com	x	-	x		
58-2412808	Lanyard Development	(912) 330-8351	1000 Towne Center Boulevard, Suite 706, Pooler, Georgia 31322	Robert Lee	rob@lanyarddevelopment.com	-	x			x
	Leon's Fence & Guardrail	(843) 846-6829	41 Browns Island Rd, Seabrook, South Carolina 29940	Betty Chaplin	lfg@leonsfenceandguardrail.net	x	-	x		
56-1848578	Martin Marietta	(706) 833-6111	4140-B Ogeechee Rd, Savannah, Georgia 31405	Christopher Wilson	chris.wilson@martinmarietta.com	-	x			x
26-2005142	Massana, Inc.	(770) 616-4629	115 Howell Place, Tyrone, Gerogia 30290	Jarod Cheney	cheneyj@massanaconstruction.com	-	x	x		
90-0033880	MC Squared, Inc.	(770) 650-0873	1275 Shiloh Rd. NW, Suite 2620, Kennesaw, Georgia 30144	Sameer Moussly	moussly@mc2engineers.com	x	-		x	
	Mid State Construction & Striping	(478) 987-2125	74 Porete Ave, North Arlington, New Jersey 07031	Mark Massey	mmassey@midstatecs.com	-	x	x		
	Middle Georgia Sign Design Effex Inc	(478) 934-1094	296 Westside Rd, Cochran, Georgia 31014	Johnny Norris	jnorris@middlegeorgiasigns.com	x	-	x		
	Morgan Corp	(912) 629-9439	111 Morgan Way, Morgantown, Pennslyvania 19543	Russell Bates	rbates@morgan-copr.com	-	x	x		
58-1239961	Moses Grass Company	(912) 594-6690	503 W Main St, Uvalda, Georgia 30473	Carolyn Moses	pennie@mosesgrass.com	-	x	x		
	Mountain Creek Contractors Inc	(828) 241-2047	205 E Central Ave, Catawba, North Carolina 28609	Russell Rockett	rrockett@mtcreekinc.com	-	x	x		
	Neil Engineering Inc	(404) 840-2884	2828 Heather Row Ridge SW, Lilburn, Georgia 30047	Carol Gould	cr_grould@bellsouth.net	x	-	x		
35-2083989	New Millennium Building Systems	(803) 251-5165		Gerald Arvay	gerald.arvay@newmill.com	-	x			x
45-4829633	Ongrade Contracting	(941) 628-3413	12409 SW Sheri Ave, Lake Suzy, Florida 34269	Debra A. Walker	chris@ongradecontracting.com	x	-	x		
20-0362023	Peek Pavement Markings	(706) 563-5867	4600 Peek Industrial Dr, Columbus, Georgia 31909	Tammy Harbuck	tharbuck@peeksafety.com	-	x	x		
33-0349226	Penhall Company	(410) 679-2612		Erick Yoder	eyoder@penhall.com	-	x	x		
	Piedmont Reconstruction Co, Inc.	(478) 955-3691	416 Plantation Drive, Macon, Georgia 31210	James Douthit	midgainc@yahoo.com	-	x	x		

FORM E
STATE OF GEORGIA DEPARTMENT OF TRANSPORTATION FORM EEOP

CONSTRUCTION CONTRACTORS
BID OPPORTUNITY LIST

Federal Tax ID Number	Firm Name	Phone	Address	Contact Name	Company Email Adress	DBE	Non-DBE	Subconstractor	Subconsultant	Supplier
	Pittman Construction	(770) 922-8660	1487 Farmer Road NW, Conyers, Georgia 30012	Mike Baker	mbaker@pittman-construction.com	-	x	x		
	Prefered Materials, Inc	(912) 210-6398	4140-B Ogeechee Road, Savannah, Georgia 31419	Robert Royal	rroyal@preferedmaterials.com	-	x	x		
	Quality Enterprises	(757) 409-5423	3494 Shearwater Street, Naples, Florida 34117	Wesley Shipp	wshipp@qcusa.com	-	x	x		
58-2211241	Remediation Resources Inc.	(912) 687-5874	207 GA-204, Pembroke, Georgia 31321	Gray Downs	gray@remres.net	-	x	x		
	Road Runner Highway Signs LLC		5310 Counsellor Ln, Knoxville, Tennessee 37914		joe@rrhsi.com	x	-	x		
26-1084418	Roadsafe Traffic Systems	(706) 739-0085	3331 Street Rd #430, Bensalem, Pennslyvania 19020	Chris Meadows	cmeadows@roadsafetraffic.com	-	x	x		x
	SABE Inc	(912) 537-8322	2343 Aimwell Rd, Vidalia, Georgia 30474	Antonio Brown	sabrown1974@bellsouth.net	-	x	x		
	Safety Signal Co, Inc	(770) 964-3181	5077 Sunset Strip, Union City, Georgia 30291	Lisa Menocal	lisa@safetysignal.net	x	-	x		
	Scott and Sons Trucking	(912) 728-7194		Roger Scott	scottandsonstrucking@yahoo.com	x	-	x		
	Shelby Erectors	(954) 275-3123	4575 Oakes Rd, Davie, Florida 33023	Jennifer Nix	jennifernix@shelbyerectors.com	x	-	x		
	Siboney	(561) 795-6550	PO Box 3426, Suwanee, Georgia 30024	Justo Navarro	aguerro@siboneycc.com	-	x			x
	Sice		5726 Stuart Ave., Suite 9, Jacksonville, Florida 32254	Carlos Carnandez-Scola	cfernandez@sice.com	-	x	x		
82-2100128	Skelton Environmental Consulting LLC	(478) 804-1476	510 Saint Barbaras Ln. NW, Marietta, Georgia 30064	Christopher Skelton	skeltonenv@gmail.com	-	x		x	
58-2000886	Smith Real Estate	(404) 315-1512, ext 138	120 Hammond Drive NE., Altanta, Georgia 30328	Tiffany L. Smith	tlsmith@smith-res.com	x	-	x		
	Southeast Grinding and Grooving	(404) 803-5397	115 Villa Rosa Rd, Temple, Georgia 30179	Stefan Frame	sframe@segrinding.com	-	x	x		
	Southeast Ready Mix	(770) 480-4794	PO Box 7057, Savannah, Georgia 31405	Chris Young	chris@sereadymix.com	-	x			x
27-1605833	Southern Advanced Solutions, LLC	(229) 468-0004	397 Petunia Rd, Ocilla, Georgia 31774	Patsy Pate	patsy.pate@southernadvanced.com	x	-	x		
	Southern Site Development	(770) 951-0404	5591 PEACHTREE RD., CHAMBLEE, Georgia 30341	Viviana Del Rio-Webster	kbrown@southernsitedevelopment.com	x	-	x		
	Summers Concrete	(229) 794-1023	5538 Coppage Rd, Hahira, Georgia 31632	Wayne Moore	summersoffice@wingstream.net	-	x			x
25-1584843	Surface Preparation Technologies, LLC	(717) 697-1450	81 Texaco Rd, Mechanicsburg, Pennslyvania 17050	Chandra Roush	chandra@surfpreptech.com	-	x	x		
	Symbioscity	(912) 484-2018	35 Barnard St, Suite 300, Altanta, Georgia 31401	Denise R. Grabowski	dgrabowski@symbioscity.com	x	-			
	Technique Concrete Construction	(404) 304-5967	944 Astor Ave, Forest Park, Georgia 30297	Billy Freeman, Jr.	bfreeman@techniqueconcrete.com	x	-			x
	Tensar International		2500 Northwinds Parkway, Suite 500, Alpharetta, Georgia 30009	David Fuqua	dfuqua@tensarcorp.com	-	x	x		
	The Erosion Company	(678) 859-8926	3207 South Cherokee Lane, Building 400, Suite 410, Woodstock, Georgia 30188	Darrel Sheets	dsheets@tecompanies.com	-	x	x		
	The McGraley Company	(843) 452-0220	955 Indigo Rd., Springfield, Georgia 31329	Robert Hatch	ROBERTHATCH@THEMCGRALEYCO.COM	-	x	x		
	The Reinforced Earth Company	(470) 307-4037	25 Technology Parkway South, Suite 100 Norcross, Georgia 30092	Vince Guyomard	VGUYOMARD@REINFORCEDEARTH.COM	-	x	x		
57-0958620	The Sharon Company	(813) 957-3101		Sharon	SHARON@SHARONCOMPANY.COM	x	-	x		
	Thomas Concrete	(813) 957-3101	1724 Old Dean Forest Rd, Pooler, Georgia 31322	Tim Mahoney	Tim.Mahoney@thomasconcrete.com	-	x			x
	Tolle Roads	(321) 332-1335	3501 Sanford Ave, Sanford, Florida 32773	David Grey	mcrampton@tolleroads.com	-	x	x		
58-1875812	Transafe	(770) 962-2222		Lisa Brown	LISA@TRANSAFEPRODUCTS.COM	x	-			x

FORM E
STATE OF GEORGIA DEPARTMENT OF TRANSPORTATION FORM EEOP

CONSTRUCTION CONTRACTORS
BID OPPORTUNITY LIST

Federal Tax ID Number	Firm Name	Phone	Address	Contact Name	Company Email Adress	DBE	Non-DBE	Subconstractor	Subconsultant	Supplier
	Tricor Construction		1983 Chesnee Hwy, Spartanburg, South Carolina 29303	Kelly Cheek		x	-	x		
Cory Has it	US Wick Drain	(831) 533-3776	3600 Andrew Jackson Hwy, Leland, North Carolina 28451	Maysill Pascal	MPascal@menardgroupusa.com	-	x	x		
	V & M Erectors Inc.	(954) 379-9998	21005 Taft St, Pembroke Pines, Florida 33029	Chris Nix	CHRIS.NIX@VMERECTORS.COM	-	x	x		
63-0366371	Vulcan Materials	(912) 312-6503		Adam Davis	DAVISADAM@VMCMAIL.COM	-	x			x
47-5299021	Waterhouse Engineering, LLC	(678) 928-3916	P.O. Box 388, Dahlonega, Georgia 30533	Cindy Matyas McGrew	cmatyas@waterhouse.engineering	x	-		x	
58-2525185	Wilkes Concrete Co	(229) 324-2377	6832 Old Adel Rd, Moultrie, Georgia 31788	Toby Wilkes		x	-	x		
20-8261621	William Henry Trucking	(912) 596-8406		Asa Henry Nails	WILLIAMHENRYTRUCKING@COMCAST.NET	x	-	x		x
	Zenith Enforcement	(770) 882-5259		Jason McLeod	JMCLEOD@ZENITHENFORCEMENT.COM	x	-	x		

FORM H

Equal Employment Opportunity Certification

[To be executed by the Proposer, Participating Members, Major Non-Participating Members and proposed Contractors]

The undersigned certifies on behalf of Savannah Mobility Contractors JV, that:
(Name of entity making certification)

[check one of the following boxes]

☐ It has developed and has on file at each establishment affirmative action programs pursuant to 41 CFR Part 60-2 (Affirmative Action Programs).

☒ It is not subject to the requirements to develop an affirmative action program under 41 CFR Part 60-2 (Affirmative Action Programs).

[check one of the following boxes]

☒ It has not participated in a previous contract or subcontract subject to the equal opportunity clause described in Executive Orders 10925, 11114 or 11246.

☐ It has participated in a previous contract or subcontract subject to the equal opportunity clause described in Executive Orders 10925, 11114 or 11246 and, where required, it has filed with the Joint Reporting Committee, the Director of the Office of Federal Contract Compliance, a Federal Government contracting or administering agency, or the former President's Committee on Equal Employment Opportunity, all reports due under the applicable filing requirements.

Signature: _____

Title: Fernado Bolinaga, Authorized Representative of the JV

Date: May 18, 2018

If not the Proposer, relationship to the Proposer: _____

Note: The above certification is required by the Equal Employment Opportunity Regulations of the Secretary of Labor (41 CFR 60-1.7(b)(1)), and must be submitted by Proposers only in connection with contracts which are subject to the equal opportunity clause. Contracts that are exempt from the equal opportunity clause are set forth in 41 CFR 60-1.5. (Generally, only contracts of $10,000 or under are exempt.)

Currently, Standard Form 100 (EEO-1) is the only report required by Executive Orders or their implementing regulations.

Proposers, Participating Members, Major Non-Participating Members or proposed Contractors who have participated in a previous contract subject to the Executive Orders and have not filed the required reports shall note that 41 CFR 60-1.7(b)(1) prevents the award of contracts and subcontracts unless such contractor submits a report covering the delinquent period or such other period specified by the Federal Highway Administration or by the Director, Office of Federal Contract Compliance, U.S. Department of Labor.

FORM H

Equal Employment Opportunity Certification

[To be executed by the Proposer, Participating Members, Major Non-Participating Members and proposed Contractors]

The undersigned certifies on behalf of Dragados USA, Inc., that:
(Name of entity making certification)

[check one of the following boxes]

☒ It has developed and has on file at each establishment affirmative action programs pursuant to 41 CFR Part 60-2 (Affirmative Action Programs).

☐ It is not subject to the requirements to develop an affirmative action program under 41 CFR Part 60-2 (Affirmative Action Programs).

[check one of the following boxes]

☐ It has not participated in a previous contract or subcontract subject to the equal opportunity clause described in Executive Orders 10925, 11114 or 11246.

☒ It has participated in a previous contract or subcontract subject to the equal opportunity clause described in Executive Orders 10925, 11114 or 11246 and, where required, it has filed with the Joint Reporting Committee, the Director of the Office of Federal Contract Compliance, a Federal Government contracting or administering agency, or the former President's Committee on Equal Employment Opportunity, all reports due under the applicable filing requirements.

Signature: _____

Title: Fernado Bolinaga, Executive Vice President

Date: May 18, 2018

If not the Proposer, relationship to the Proposer: Participating Member

Note: The above certification is required by the Equal Employment Opportunity Regulations of the Secretary of Labor (41 CFR 60-1.7(b)(1)), and must be submitted by Proposers only in connection with contracts which are subject to the equal opportunity clause. Contracts that are exempt from the equal opportunity clause are set forth in 41 CFR 60-1.5. (Generally, only contracts of $10,000 or under are exempt.)

Currently, Standard Form 100 (EEO-1) is the only report required by Executive Orders or their implementing regulations.

Proposers, Participating Members, Major Non-Participating Members or proposed Contractors who have participated in a previous contract subject to the Executive Orders and have not filed the required reports shall note that 41 CFR 60-1.7(b)(1) prevents the award of contracts and subcontracts unless such contractor submits a report covering the delinquent period or such other period specified by the Federal Highway Administration or by the Director, Office of Federal Contract Compliance, U.S. Department of Labor.

FORM H

Equal Employment Opportunity Certification

[To be executed by the Proposer, Participating Members, Major Non-Participating Members and proposed Contractors]

The undersigned certifies on behalf of Prince Contracting, LLC, that:
(Name of entity making certification)

[check one of the following boxes]

☒ It has developed and has on file at each establishment affirmative action programs pursuant to 41 CFR Part 60-2 (Affirmative Action Programs).

☐ It is not subject to the requirements to develop an affirmative action program under 41 CFR Part 60-2 (Affirmative Action Programs).

[check one of the following boxes]

☐ It has not participated in a previous contract or subcontract subject to the equal opportunity clause described in Executive Orders 10925, 11114 or 11246.

☒ It has participated in a previous contract or subcontract subject to the equal opportunity clause described in Executive Orders 10925, 11114 or 11246 and, where required, it has filed with the Joint Reporting Committee, the Director of the Office of Federal Contract Compliance, a Federal Government contracting or administering agency, or the former President's Committee on Equal Employment Opportunity, all reports due under the applicable filing requirements.

Signature: _____

Title: Jack B. Calandros, Executive Director

Date: May 24, 2018

If not the Proposer, relationship to the Proposer: Participating Member of Savannah Mobility Contractors JV

Note: The above certification is required by the Equal Employment Opportunity Regulations of the Secretary of Labor (41 CFR 60-1.7(b)(1)), and must be submitted by Proposers only in connection with contracts which are subject to the equal opportunity clause. Contracts that are exempt from the equal opportunity clause are set forth in 41 CFR 60-1.5. (Generally, only contracts of $10,000 or under are exempt.)

Currently, Standard Form 100 (EEO-1) is the only report required by Executive Orders or their implementing regulations.

Proposers, Participating Members, Major Non-Participating Members or proposed Contractors who have participated in a previous contract subject to the Executive Orders and have not filed the required reports shall note that 41 CFR 60-1.7(b)(1) prevents the award of contracts and subcontracts unless such contractor submits a report covering the delinquent period or such other period specified by the Federal Highway Administration or by the Director, Office of Federal Contract Compliance, U.S. Department of Labor.

FORM H

Equal Employment Opportunity Certification

[To be executed by the Proposer, Participating Members, Major Non-Participating Members and proposed Contractors]

The undersigned certifies on behalf of Jacobs Engineering Group Inc., that:
(Name of entity making certification)

[check one of the following boxes]

☒ It has developed and has on file at each establishment affirmative action programs pursuant to 41 CFR Part 60-2 (Affirmative Action Programs).

☐ It is not subject to the requirements to develop an affirmative action program under 41 CFR Part 60-2 (Affirmative Action Programs).

[check one of the following boxes]

☐ It has not participated in a previous contract or subcontract subject to the equal opportunity clause described in Executive Orders 10925, 11114 or 11246.

☒ It has participated in a previous contract or subcontract subject to the equal opportunity clause described in Executive Orders 10925, 11114 or 11246 and, where required, it has filed with the Joint Reporting Committee, the Director of the Office of Federal Contract Compliance, a Federal Government contracting or administering agency, or the former President's Committee on Equal Employment Opportunity, all reports due under the applicable filing requirements.

Signature: _____
Thomas J. Meinhart
Title: Vice President
Date: 5/11/18

If not the Proposer, relationship to the Proposer: Lead Design Subconsultant

Note: The above certification is required by the Equal Employment Opportunity Regulations of the Secretary of Labor (41 CFR 60-1.7(b)(1)), and must be submitted by Proposers only in connection with contracts which are subject to the equal opportunity clause. Contracts that are exempt from the equal opportunity clause are set forth in 41 CFR 60-1.5. (Generally, only contracts of $10,000 or under are exempt.)

Currently, Standard Form 100 (EEO-1) is the only report required by Executive Orders or their implementing regulations.

Proposers, Participating Members, Major Non-Participating Members or proposed Contractors who have participated in a previous contract subject to the Executive Orders and have not filed the required reports shall note that 41 CFR 60-1.7(b)(1) prevents the award of contracts and subcontracts unless such contractor submits a report covering the delinquent period or such other period specified by the Federal Highway Administration or by the Director, Office of Federal Contract Compliance, U.S. Department of Labor.

FORM H

Equal Employment Opportunity Certification

[To be executed by the Proposer, Participating Members, Major Non-Participating Members and proposed Contractors]

The undersigned certifies on behalf of Amec Foster Wheeler Environment & Infrastructure, Inc., that:
(Name of entity making certification)

[check one of the following boxes]

☒ It has developed and has on file at each establishment affirmative action programs pursuant to 41 CFR Part 60-2 (Affirmative Action Programs).

☐ It is not subject to the requirements to develop an affirmative action program under 41 CFR Part 60-2 (Affirmative Action Programs).

[check one of the following boxes]

☐ It has not participated in a previous contract or subcontract subject to the equal opportunity clause described in Executive Orders 10925, 11114 or 11246.

☒ It has participated in a previous contract or subcontract subject to the equal opportunity clause described in Executive Orders 10925, 11114 or 11246 and, where required, it has filed with the Joint Reporting Committee, the Director of the Office of Federal Contract Compliance, a Federal Government contracting or administering agency, or the former President's Committee on Equal Employment Opportunity, all reports due under the applicable filing requirements.

Signature: Thomas M Bucci

Title: Thomas M. Bucci, Office Manager/Vice President

Date: May 18, 2018

If not the Proposer, relationship to the Proposer: Construction Quality Assurance Firm (Particiapting Member)

Note: The above certification is required by the Equal Employment Opportunity Regulations of the Secretary of Labor (41 CFR 60-1.7(b)(1)), and must be submitted by Proposers only in connection with contracts which are subject to the equal opportunity clause. Contracts that are exempt from the equal opportunity clause are set forth in 41 CFR 60-1.5. (Generally, only contracts of $10,000 or under are exempt.)

Currently, Standard Form 100 (EEO-1) is the only report required by Executive Orders or their implementing regulations.

Proposers, Participating Members, Major Non-Participating Members or proposed Contractors who have participated in a previous contract subject to the Executive Orders and have not filed the required reports shall note that 41 CFR 60-1.7(b)(1) prevents the award of contracts and subcontracts unless such contractor submits a report covering the delinquent period or such other period specified by the Federal Highway Administration or by the Director, Office of Federal Contract Compliance, U.S. Department of Labor.

FORM H

Equal Employment Opportunity Certification

[To be executed by the Proposer, Participating Members, Major Non-Participating Members and proposed Contractors]

The undersigned certifies on behalf of Symbioscity, that:
(Name of entity making certification)

[check one of the following boxes]

☒ It has developed and has on file at each establishment affirmative action programs pursuant to 41 CFR Part 60-2 (Affirmative Action Programs).

☐ It is not subject to the requirements to develop an affirmative action program under 41 CFR Part 60-2 (Affirmative Action Programs).

[check one of the following boxes]

☐ It has not participated in a previous contract or subcontract subject to the equal opportunity clause described in Executive Orders 10925, 11114 or 11246.

☒ It has participated in a previous contract or subcontract subject to the equal opportunity clause described in Executive Orders 10925, 11114 or 11246 and, where required, it has filed with the Joint Reporting Committee, the Director of the Office of Federal Contract Compliance, a Federal Government contracting or administering agency, or the former President's Committee on Equal Employment Opportunity, all reports due under the applicable filing requirements.

Signature: Denise R Grossman

Title: Principal, Symbioscity

Date: May 18, 2018

If not the Proposer, relationship to the Proposer: Subconsultant

Note: The above certification is required by the Equal Employment Opportunity Regulations of the Secretary of Labor (41 CFR 60-1.7(b)(1)), and must be submitted by Proposers only in connection with contracts which are subject to the equal opportunity clause. Contracts that are exempt from the equal opportunity clause are set forth in 41 CFR 60-1.5. (Generally, only contracts of $10,000 or under are exempt.)

Currently, Standard Form 100 (EEO-1) is the only report required by Executive Orders or their implementing regulations.

Proposers, Participating Members, Major Non-Participating Members or proposed Contractors who have participated in a previous contract subject to the Executive Orders and have not filed the required reports shall note that 41 CFR 60-1.7(b)(1) prevents the award of contracts and subcontracts unless such contractor submits a report covering the delinquent period or such other period specified by the Federal Highway Administration or by the Director, Office of Federal Contract Compliance, U.S. Department of Labor.

FORM H

Equal Employment Opportunity Certification

[To be executed by the Proposer, Participating Members, Major Non-Participating Members and proposed Contractors]

The undersigned certifies on behalf of Smith Real Estate Services, Inc. (Name of entity making certification) that:

[check one of the following boxes]

☐ It has developed and has on file at each establishment affirmative action programs pursuant to 41 CFR Part 60-2 (Affirmative Action Programs).

☑ It is not subject to the requirements to develop an affirmative action program under 41 CFR Part 60-2 (Affirmative Action Programs).

[check one of the following boxes]

☐ It has not participated in a previous contract or subcontract subject to the equal opportunity clause described in Executive Orders 10925, 11114 or 11246.

☑ It has participated in a previous contract or subcontract subject to the equal opportunity clause described in Executive Orders 10925, 11114 or 11246 and, where required, it has filed with the Joint Reporting Committee, the Director of the Office of Federal Contract Compliance, a Federal Government contracting or administering agency, or the former President's Committee on Equal Employment Opportunity, all reports due under the applicable filing requirements.

Signature: _____

Title: President

Date: 8/27/18

If not the Proposer, relationship to the Proposer: Subcontractor

Note: The above certification is required by the Equal Employment Opportunity Regulations of the Secretary of Labor (41 CFR 60-1.7(b)(1)), and must be submitted by Proposers only in connection with contracts which are subject to the equal opportunity clause. Contracts that are exempt from the equal opportunity clause are set forth in 41 CFR 60-1.5. (Generally, only contracts of $10,000 or under are exempt.)

Currently, Standard Form 100 (EEO-1) is the only report required by Executive Orders or their implementing regulations.

Proposers, Participating Members, Major Non-Participating Members or proposed Contractors who have participated in a previous contract subject to the Executive Orders and have not filed the required reports shall note that 41 CFR 60-1.7(b)(1) prevents the award of contracts and subcontracts unless such contractor submits a report covering the delinquent period or such other period specified by the Federal Highway Administration or by the Director, Office of Federal Contract Compliance, U.S. Department of Labor.

FORM H

Equal Employment Opportunity Certification

[To be executed by the Proposer, Participating Members, Major Non-Participating Members and proposed Contractors]

The undersigned certifies on behalf of Accura Engineering and Consulting Services, Inc., that:
(Name of entity making certification)

[check one of the following boxes]

☒ It has developed and has on file at each establishment affirmative action programs pursuant to 41 CFR Part 60-2 (Affirmative Action Programs).

☐ It is not subject to the requirements to develop an affirmative action program under 41 CFR Part 60-2 (Affirmative Action Programs).

[check one of the following boxes]

☐ It has not participated in a previous contract or subcontract subject to the equal opportunity clause described in Executive Orders 10925, 11114 or 11246.

☒ It has participated in a previous contract or subcontract subject to the equal opportunity clause described in Executive Orders 10925, 11114 or 11246 and, where required, it has filed with the Joint Reporting Committee, the Director of the Office of Federal Contract Compliance, a Federal Government contracting or administering agency, or the former President's Committee on Equal Employment Opportunity, all reports due under the applicable filing requirements.

Signature: Prashanthi Reddy

Title: President & CEO

Date: May 1, 2018

If not the Proposer, relationship to the Proposer: Subconsultant to Lead Design Subconsultant

Note: The above certification is required by the Equal Employment Opportunity Regulations of the Secretary of Labor (41 CFR 60-1.7(b)(1)), and must be submitted by Proposers only in connection with contracts which are subject to the equal opportunity clause. Contracts that are exempt from the equal opportunity clause are set forth in 41 CFR 60-1.5. (Generally, only contracts of $10,000 or under are exempt.)

Currently, Standard Form 100 (EEO-1) is the only report required by Executive Orders or their implementing regulations.

Proposers, Participating Members, Major Non-Participating Members or proposed Contractors who have participated in a previous contract subject to the Executive Orders and have not filed the required reports shall note that 41 CFR 60-1.7(b)(1) prevents the award of contracts and subcontracts unless such contractor submits a report covering the delinquent period or such other period specified by the Federal Highway Administration or by the Director, Office of Federal Contract Compliance, U.S. Department of Labor.

FORM H

Equal Employment Opportunity Certification

[To be executed by the Proposer, Participating Members, Major Non-Participating Members and proposed Contractors]

The undersigned certifies on behalf of Arrowood Environmental Group, that:
(Name of entity making certification)

[check one of the following boxes]

☒ It has developed and has on file at each establishment affirmative action programs pursuant to 41 CFR Part 60-2 (Affirmative Action Programs).

☐ It is not subject to the requirements to develop an affirmative action program under 41 CFR Part 60-2 (Affirmative Action Programs).

[check one of the following boxes]

☐ It has not participated in a previous contract or subcontract subject to the equal opportunity clause described in Executive Orders 10925, 11114 or 11246.

☒ It has participated in a previous contract or subcontract subject to the equal opportunity clause described in Executive Orders 10925, 11114 or 11246 and, where required, it has filed with the Joint Reporting Committee, the Director of the Office of Federal Contract Compliance, a Federal Government contracting or administering agency, or the former President's Committee on Equal Employment Opportunity, all reports due under the applicable filing requirements.

Signature: _____

Title: President

Date: April 30, 2018

If not the Proposer, relationship to the Proposer: Subconsultant to Lead Design Subconsultant

Note: The above certification is required by the Equal Employment Opportunity Regulations of the Secretary of Labor (41 CFR 60-1.7(b)(1)), and must be submitted by Proposers only in connection with contracts which are subject to the equal opportunity clause. Contracts that are exempt from the equal opportunity clause are set forth in 41 CFR 60-1.5. (Generally, only contracts of $10,000 or under are exempt.)

Currently, Standard Form 100 (EEO-1) is the only report required by Executive Orders or their implementing regulations.

Proposers, Participating Members, Major Non-Participating Members or proposed Contractors who have participated in a previous contract subject to the Executive Orders and have not filed the required reports shall note that 41 CFR 60-1.7(b)(1) prevents the award of contracts and subcontracts unless such contractor submits a report covering the delinquent period or such other period specified by the Federal Highway Administration or by the Director, Office of Federal Contract Compliance, U.S. Department of Labor.

FORM H

Equal Employment Opportunity Certification

[To be executed by the Proposer, Participating Members, Major Non-Participating Members and proposed Contractors]

The undersigned certifies on behalf of Civil Services, Inc. , that:
(Name of entity making certification)

[check one of the following boxes]

☒ It has developed and has on file at each establishment affirmative action programs pursuant to 41 CFR Part 60-2 (Affirmative Action Programs).

☐ It is not subject to the requirements to develop an affirmative action program under 41 CFR Part 60-2 (Affirmative Action Programs).

[check one of the following boxes]

☒ It has not participated in a previous contract or subcontract subject to the equal opportunity clause described in Executive Orders 10925, 11114 or 11246.

☐ It has participated in a previous contract or subcontract subject to the equal opportunity clause described in Executive Orders 10925, 11114 or 11246 and, where required, it has filed with the Joint Reporting Committee, the Director of the Office of Federal Contract Compliance, a Federal Government contracting or administering agency, or the former President's Committee on Equal Employment Opportunity, all reports due under the applicable filing requirements.

Signature: CLH E.M.

Title: President

Date: 4/27/18

If not the Proposer, relationship to the Proposer: Subconsultant to Lead Design Subconsultant

Note: The above certification is required by the Equal Employment Opportunity Regulations of the Secretary of Labor (41 CFR 60-1.7(b)(1)), and must be submitted by Proposers only in connection with contracts which are subject to the equal opportunity clause. Contracts that are exempt from the equal opportunity clause are set forth in 41 CFR 60-1.5. (Generally, only contracts of $10,000 or under are exempt.)

Currently, Standard Form 100 (EEO-1) is the only report required by Executive Orders or their implementing regulations.

Proposers, Participating Members, Major Non-Participating Members or proposed Contractors who have participated in a previous contract subject to the Executive Orders and have not filed the required reports shall note that 41 CFR 60-1.7(b)(1) prevents the award of contracts and subcontracts unless such contractor submits a report covering the delinquent period or such other period specified by the Federal Highway Administration or by the Director, Office of Federal Contract Compliance, U.S. Department of Labor.

FORM H

Equal Employment Opportunity Certification

[To be executed by the Proposer, Participating Members, Major Non-Participating Members and proposed Contractors]

The undersigned certifies on behalf of EFK Moen, LLC, that:
(Name of entity making certification)

[check one of the following boxes]

☒ It has developed and has on file at each establishment affirmative action programs pursuant to 41 CFR Part 60-2 (Affirmative Action Programs).

☐ It is not subject to the requirements to develop an affirmative action program under 41 CFR Part 60-2 (Affirmative Action Programs).

[check one of the following boxes]

☐ It has not participated in a previous contract or subcontract subject to the equal opportunity clause described in Executive Orders 10925, 11114 or 11246.

☒ It has participated in a previous contract or subcontract subject to the equal opportunity clause described in Executive Orders 10925, 11114 or 11246 and, where required, it has filed with the Joint Reporting Committee, the Director of the Office of Federal Contract Compliance, a Federal Government contracting or administering agency, or the former President's Committee on Equal Employment Opportunity, all reports due under the applicable filing requirements.

Signature: Linda Moen

Title: President, EFK Moen

Date: 4/27/2018

If not the Proposer, relationship to the Proposer: Subconsultant to Lead Design Subconsultant

Note: The above certification is required by the Equal Employment Opportunity Regulations of the Secretary of Labor (41 CFR 60-1.7(b)(1)), and must be submitted by Proposers only in connection with contracts which are subject to the equal opportunity clause. Contracts that are exempt from the equal opportunity clause are set forth in 41 CFR 60-1.5. (Generally, only contracts of $10,000 or under are exempt.)

Currently, Standard Form 100 (EEO-1) is the only report required by Executive Orders or their implementing regulations.

Proposers, Participating Members, Major Non-Participating Members or proposed Contractors who have participated in a previous contract subject to the Executive Orders and have not filed the required reports shall note that 41 CFR 60-1.7(b)(1) prevents the award of contracts and subcontracts unless such contractor submits a report covering the delinquent period or such other period specified by the Federal Highway Administration or by the Director, Office of Federal Contract Compliance, U.S. Department of Labor.

FORM H

Equal Employment Opportunity Certification

[To be executed by the Proposer, Participating Members, Major Non-Participating Members and proposed Contractors]

The undersigned certifies on behalf of Mc Squared, Inc. , that:
(Name of entity making certification)

[check one of the following boxes]

☐ It has developed and has on file at each establishment affirmative action programs pursuant to 41 CFR Part 60-2 (Affirmative Action Programs).

☒ It is not subject to the requirements to develop an affirmative action program under 41 CFR Part 60-2 (Affirmative Action Programs).

[check one of the following boxes]

☒ It has not participated in a previous contract or subcontract subject to the equal opportunity clause described in Executive Orders 10925, 11114 or 11246.

☐ It has participated in a previous contract or subcontract subject to the equal opportunity clause described in Executive Orders 10925, 11114 or 11246 and, where required, it has filed with the Joint Reporting Committee, the Director of the Office of Federal Contract Compliance, a Federal Government contracting or administering agency, or the former President's Committee on Equal Employment Opportunity, all reports due under the applicable filing requirements.

Signature: _____

Title: CEO

Date: 4/26/2018

If not the Proposer, relationship to the Proposer: Subconsultant to Lead Design Subconsultant

Note: The above certification is required by the Equal Employment Opportunity Regulations of the Secretary of Labor (41 CFR 60-1.7(b)(1)), and must be submitted by Proposers only in connection with contracts which are subject to the equal opportunity clause. Contracts that are exempt from the equal opportunity clause are set forth in 41 CFR 60-1.5. (Generally, only contracts of $10,000 or under are exempt.)

Currently, Standard Form 100 (EEO-1) is the only report required by Executive Orders or their implementing regulations.

Proposers, Participating Members, Major Non-Participating Members or proposed Contractors who have participated in a previous contract subject to the Executive Orders and have not filed the required reports shall note that 41 CFR 60-1.7(b)(1) prevents the award of contracts and subcontracts unless such contractor submits a report covering the delinquent period or such other period specified by the Federal Highway Administration or by the Director, Office of Federal Contract Compliance, U.S. Department of Labor.

FORM H

Equal Employment Opportunity Certification

[To be executed by the Proposer, Participating Members, Major Non-Participating Members and proposed Contractors]

The undersigned certifies on behalf of Skelton Environmental Consulting Services, Inc. , that:
(Name of entity making certification)

[check one of the following boxes]

☐ It has developed and has on file at each establishment affirmative action programs pursuant to 41 CFR Part 60-2 (Affirmative Action Programs).

☒ It is not subject to the requirements to develop an affirmative action program under 41 CFR Part 60-2 (Affirmative Action Programs).

[check one of the following boxes]

☒ It has not participated in a previous contract or subcontract subject to the equal opportunity clause described in Executive Orders 10925, 11114 or 11246.

☐ It has participated in a previous contract or subcontract subject to the equal opportunity clause described in Executive Orders 10925, 11114 or 11246 and, where required, it has filed with the Joint Reporting Committee, the Director of the Office of Federal Contract Compliance, a Federal Government contracting or administering agency, or the former President's Committee on Equal Employment Opportunity, all reports due under the applicable filing requirements.

Signature: _____

Title: Vice President

Date: May 3, 2018

If not the Proposer, relationship to the Proposer: Subconsultant to Lead Design Subconsultant

Note: The above certification is required by the Equal Employment Opportunity Regulations of the Secretary of Labor (41 CFR 60-1.7(b)(1)), and must be submitted by Proposers only in connection with contracts which are subject to the equal opportunity clause. Contracts that are exempt from the equal opportunity clause are set forth in 41 CFR 60-1.5. (Generally, only contracts of $10,000 or under are exempt.)

Currently, Standard Form 100 (EEO-1) is the only report required by Executive Orders or their implementing regulations.

Proposers, Participating Members, Major Non-Participating Members or proposed Contractors who have participated in a previous contract subject to the Executive Orders and have not filed the required reports shall note that 41 CFR 60-1.7(b)(1) prevents the award of contracts and subcontracts unless such contractor submits a report covering the delinquent period or such other period specified by the Federal Highway Administration or by the Director, Office of Federal Contract Compliance, U.S. Department of Labor.

FORM H

Equal Employment Opportunity Certification

[To be executed by the Proposer, Participating Members, Major Non-Participating Members and proposed Contractors]

The undersigned certifies on behalf of Waterhouse Engineering LLC, that:
(Name of entity making certification)

[check one of the following boxes]

☒ It has developed and has on file at each establishment affirmative action programs pursuant to 41 CFR Part 60-2 (Affirmative Action Programs).

☐ It is not subject to the requirements to develop an affirmative action program under 41 CFR Part 60-2 (Affirmative Action Programs).

[check one of the following boxes]

☒ It has not participated in a previous contract or subcontract subject to the equal opportunity clause described in Executive Orders 10925, 11114 or 11246.

☐ It has participated in a previous contract or subcontract subject to the equal opportunity clause described in Executive Orders 10925, 11114 or 11246 and, where required, it has filed with the Joint Reporting Committee, the Director of the Office of Federal Contract Compliance, a Federal Government contracting or administering agency, or the former President's Committee on Equal Employment Opportunity, all reports due under the applicable filing requirements.

Signature: Christy Matthews McIlhenny

Title: President

Date: April 30, 2018

If not the Proposer, relationship to the Proposer: Subconsultant to Lead Design Subconsultant

Note: The above certification is required by the Equal Employment Opportunity Regulations of the Secretary of Labor (41 CFR 60-1.7(b)(1)), and must be submitted by Proposers only in connection with contracts which are subject to the equal opportunity clause. Contracts that are exempt from the equal opportunity clause are set forth in 41 CFR 60-1.5. (Generally, only contracts of $10,000 or under are exempt.)

Currently, Standard Form 100 (EEO-1) is the only report required by Executive Orders or their implementing regulations.

Proposers, Participating Members, Major Non-Participating Members or proposed Contractors who have participated in a previous contract subject to the Executive Orders and have not filed the required reports shall note that 41 CFR 60-1.7(b)(1) prevents the award of contracts and subcontracts unless such contractor submits a report covering the delinquent period or such other period specified by the Federal Highway Administration or by the Director, Office of Federal Contract Compliance, U.S. Department of Labor.

FORM I

DBE Certification

DISADVANTAGED BUSINESS ENTERPRISES REQUIREMENTS

The following Project goal for participation by DBEs is established for professional services and construction work:

DBE GOAL

16% of the overall Project design and construction costs, with respect to the race conscious participation by the Design-Build Team.

DBE Certification

By signing below, the Proposer certifies that (1) the Design-Build Team will provide a good faith effort to meet the goal; and (2) the Design-Build Team will direct its efforts toward the utilization of DBE firms in both design and construction components of the Project, (3) the Design-Build Team will submit a DBE Commitments List meeting the requirements set forth in Attachment 6 to Exhibit 8 to the DBA, (4) the Design-Build Team will submit monthly and annual summary reports of the DBE goal attainment on the Project, identifying the components of the Project on which DBE firms are/have been utilized See the following page of this form for the Commitments List requirements.

Failure to submit the DBE Commitments List will be considered a breach of the requirements of the RFP. As a result, the Proposal Bond provided by the Proposer will become property of GDOT and the Proposer will be precluded from participating in any re-procurement of the DBA for the Project.

[name] Fernando Bolinaga

Authorized Representative of Savannah Mobility Contractors JV
[title]

TABLE I-1 DBE COMMITMENTS LIST

Vender Number	Company name and Address (City and State)	Type of Work	Race Neutral	Race Conscious	Amount
2KE515	Kennedy Engineering & Associates	Engineering		X	$ 2,020,000.00
2MC945	MC Squared	Engineering		X	$ 3,063,229.00
2AC476	Accura Engineering	Survey & SUE		X	$ 485,982.00
2CI795	Civil Services Inc	Engineering		X	$ 323,728.00
14064	Waterhouse, Eng LLC	Engineering		X	$ 78,900.00
2SM848	Smith Real Estate Services	ROW		X	$ 168,950.00
2SC515	Scott & Sons Trucking LLC	Trucking		X	$ 1,766,902.00
2WI060	Wilkes Concrete Company Inc	Concrete		X	$ 1,545,896.00
2MO557	J Mori Painting Inc	Painting		X	$ 394,119.00
2LE520	Leon's Fence & Guardrail LLC	Fence & Guardrail		X	$ 2,460,780.00
2TR110	TranSafe Company Inc	MOT Supply		X	Total Value $410,750.00 60% Value $246,450.00
2EN442	Enterprise Rebar	Rebar Lumper		X	$ 1,484,062.00
2TR345	Tricore Construction Inc	Soundwall		X	$ 6,085,469.00

TABLE I-1 DBE COMMITMENTS LIST

Vender Number	Company name and Address (City and State)	Type of Work	Race Neutral	Race Conscious	Amount
14799	Lane Lee Trucking Company LLC	Trucking		X	$ 1,014,245.00
2CE150	Celebrity Fence Company Inc	Fence		X	$ 226,200.00

*The above particpation amounts are preliminary and subject to expand/change based on final design scopes.
*Savannah Mobility Contractors is committed to maximize minority particpation for this project through good faith efforts.

EXHIBIT 15

RESERVED

EXHIBIT 16

RESERVED

EXHIBIT 17

BUILDER'S RISK INSURANCE

At all times during the period from the Construction Commencement Date until the Substantial Completion Date and during any other period in which other Construction Work is in progress, Design-Build Contractor shall procure and keep in force, or cause to be procured and kept in force, a policy of builder's risk insurance as specified below.

(a) The policy shall provide minimum coverage of $50,000,000 per occurrence and $50,000,000 aggregate for "all risks" of direct physical loss or damage to the portions or elements of the Project under construction, including terrorism, the perils of earthquake, earth movement, flood, storm, tempest, windstorm, hurricane, and tornado and subsidence; shall contain extensions of coverage that are typical for a project of the nature of the Project; and shall contain only those exclusions that are typical for a project of the nature of the Project.

(b) The policy shall cover all property, roads, buildings, structures, fixtures, materials, supplies, foundations, pilings, machinery and equipment that are part of or related to the portions or elements of the Project under construction, and the works of improvement, including permanent and temporary works and materials, and including goods intended for incorporation into the works located at the Site, in storage or in the course of inland transit on land to the Site, and existing roadway, structures and improvements that are within the Construction Work zone or are or will be incorporated into the Construction Work.

(c) The policy shall provide coverage sublimits typical for a project of this size and type for professional fees, demolition and debris removal, without risk of co-insurance; provided, however, that the policy may include a sublimit for earth movement and flood of not less than $25,000,000 per occurrence and $25,000,000 aggregate. Lower coverage amounts may be proposed as an alternate if Design-Build Contractor provides a Probable Maximum Loss Study (a "PML Study") prepared by a qualified third party experienced in performing such analysis which indicates that limits less than those called for above would be adequate to insure the Work.

(d) Design-Build Contractor, SRTA, the State, GDOT, and Contractors of every tier shall be the named insureds on the policy as their respective interests appear. The policy shall be written so that no act or omission of any insured shall vitiate coverage of the other named insureds. SRTA will be named as co-Loss Payee under the policy with the Design-Build Contractor.

(e) The policy shall include coverage for (i) foundations, including pilings, but excluding normal settling, shrinkage, or expansion, (ii) physical damage resulting from machinery accidents but excluding normal and natural wear and tear, corrosion, erosion, inherent vice or latent defect in the machinery, (iii) plans, blueprints and specifications, (iv) demolition and debris removal coverage, (v) the increased replacement cost due to any change in applicable codes or other Laws, (vi) expense to reduce loss, (vii) building ordinance compliance, with the building ordinance exclusion deleted, and (viii) "soft cost expense" (including costs of Governmental Approvals, mitigation costs, attorneys' fees, and other fees and costs associated with such damage or loss or replacement thereof).

(f) Subject to commercial market availability, and with a sublimit of $25,000,000 for the defective part or broken part itself, the policy shall be endorsed with LEG3 or DE5 language as provided below:

LEG3 Endorsement:

The Insurer(s) shall not be liable for:

All costs rendered necessary by defects of material workmanship design plan or specification and should damage occur to any portion of the Insured Property containing any of the said defects the cost of replacement or rectification which is hereby excluded is that cost incurred to improve the original material workmanship design plan or specification.

For the purpose of the policy and not merely this exclusion it is understood and agreed that any portion of the Insured Property shall not be regarded as damaged solely by virtue of the existence of any defect of material workmanship design plan or specification.

Design Improvement Exclusion DE5 (1995):

This policy excludes:

(a) The cost necessary to replace repair or rectify any Property Insured which is defective in design plan specification materials or workmanship.

(b) Loss or damage to the Property Insured caused to enable replacement repair or rectification of such defective Property Insured.

But should damage to the Property Insured which is free of such defective condition (other than damage as defined in (b) above) result from such a defect, this exclusion shall be limited to the costs of additional work resulting from and the additional costs of improvement to the original design plan specification materials or workmanship.

(g) The policy shall provide a deductible not exceeding $250,000 per occurrence or such higher deductible or DSU waiting period due to unavailability of the lower deductible called for.

(h) Such policy shall include the following minimum coverage sublimits:

i) $10,000,000 foundations, including pilings, but excluding normal settling, shrinkage, or expansion;

ii) $10,000,000 physical damage resulting from machinery accidents but excluding normal and natural wear and tear, corrosion, erosion, inherent vice or latent defect in the machinery;

iii) $250,000 plans, blueprints and specifications;

iv) $10,000,000 demolition and debris removal coverage;

v) $5,000,000 the increased replacement cost due to any change in applicable codes or other Laws;

vi) $5,000,000 expense to reduce loss;

vii) $10,000,000 building ordinance compliance, with the building ordinance exclusion deleted;

viii) "Soft cost expense" (including costs of Governmental Approvals, mitigation costs, attorneys' fees, and other fees and costs associated with such delay resulting from damage or loss or replacement thereof) such soft cost limit must be disclosed to and approved by the Lenders and SRTA ; and

ix) $10,000,000 damage to adjacent roadway and structures within the Project Site to be incorporated into the Construction Work which are damaged as a result of an insured loss.

EXHIBIT 18

MEASURES OF LIQUIDATED DAMAGES and NONREFUNDABLE DEDUCTIONS

1.1 For Late Interim Completion(s), Late Substantial Completion, and Late Final Acceptance

(a) Liquidated damages for late Interim Completion Deadline(s) shall equal $9,380 per day for each day that the Interim Completion Date(s) is later than the Interim Completion Deadline(s), as the Interim Completion Deadline(s) may be extended pursuant to this Agreement.

(b) Liquidated damages for late Substantial Completion for the Project shall equal $30,910 per day for each day that the Substantial Completion Date is later than the Substantial Completion Deadline, as the Substantial Completion Deadline may be extended pursuant to this Agreement.

(c) Liquidated damages for late Final Acceptance shall equal $15,980 per day for each day that the date of Final Acceptance is later than the Final Acceptance Deadline, as the Final Acceptance Date may be extended pursuant to this Agreement.

(d) Liquidated damages on account of any failure to achieve Final Acceptance by the Final Acceptance Date shall not be in cumulative and addition to liquidated damages under subpart (a) above where Substantial Completion is not achieved by the Substantial Completion Deadline, provided that where any such liquidated damages under subpart (a) cease to then accrue as a result of achieving Substantial Completion, and the Final Acceptance Date, as may thereafter be revised is not met, subpart (b) shall then apply.

1.2 Incident Based Liquidated Damages

Liquidated damages upon the occurrence of the following, which shall not be cumulative, for any single occurrence shall be per the following list. Where there are multiple incidents as set forth below contributing to a single occurrence, the highest applicable incident based liquidated damages relative to such occurrence shall apply.

1	Complete closure of I-95 Northbound as specified in Volume 2 Section 18.3.1.1.2(1)	$10,000 per hour*
2	Complete closure of I-95 Southbound as specified in Volume 2 Section 18.3.1.1.2(1)	$10,000 per hour*
3	Complete closure of I-16 Eastbound as specified in Volume 2 Section 18.3.1.1.2(1)	$10,000 per hour*
4	Complete closure of I-16 Westbound as specified in Volume 2 Section 18.3.1.1.2(1)	$10,000 per hour*
5	Failure to reopen lanes specified in Volume 2 Section 18.3.1.1.2(2)	$2,500 per hour*
6	Failure to reopen lanes specified in Volume 2 Section 18.3.1.1.2(3)	$2,100 per hour*

7	Failure to reopen lanes specified in Volume 2 Section 18.3.1.1.2(4)	$1,700 per hour*
8	Failure to reopen shoulders specified in Volume 2 Section 18.3.1.1.2(5)	$1,300 per hour*
9	Failure to reopen Dean Forest Road specified in Volume 2 Section 18.3.1.1.2(6)	$2,900 per hour*
10	Failure to reopen Chatham Parkway as specified in Volume 2 Section 18.3.1.1.2(7)	$1,300 per hour*
11	Failure to maintain 4 lanes of travel (2 in each direction) on Chatham Parkway during the Work to replace the outer beams as specified in Volume 2 Section 18.3.1.1.2(9)	$1,300 per hour*
12	Failure to respond to GDOT direction regarding changeable message signs as specified in Volume 2 Section 18.3.1	$1,300 per hour*
13	Failure to reopen lanes on Chatham Parkway as specified in Volume 2 Section 18.3.1.1.2(8)	$3,200 per hour*
14	Failure to adhere to Holiday traffic restrictions as required by Section 18 of the Technical Provisions	$2,500 per hour*

*In addition to liquidated damages, DB Team shall be liable for any fines assessed against GDOT as a result of the any noncompliance event as provided herein.

1.3 Incident Based Nonrefundable Deductions

Nonrefundable deductions upon the occurrence of the following, which shall not be cumulative, for any single occurrence shall be per the following list. Where there are multiple incidents as set forth below contributing to a single occurrence, the highest applicable incident based liquidated damages relative to such occurrence shall apply.

1	Replacement of an individual in a Key Personnel position after submission of the Proposal for any reason, except as allowed under Article 10.4.1 of the Agreement.	$5,000 per occurrence
2	Failure to comply with any of its responsibilities per the requirements of Section 2 of the Technical Provisions.	$12,080 per occurrence
3	Failure to follow Comprehensive Environmental Protection Program procedures as required by Section 4 of the Technical Provisions.	$8,020 per occurrence*
4	Causing environmental damage in contravention of Section 4 of the Technical Provisions and approved	$23,940 per occurrence*

	Environmental Documents.	
5	Failure to follow the approved procedures outlined in the Utility Emergency Procedures Plan as required in Section 6 of Technical Provisions.	$12,700 per occurrence*
6	Failure to maintain existing property accesses as required by Section 11 of the Technical Provisions.	$12,080 per occurrence*
7	Damage caused by the DB Team to GDOT ITS fiber optic trunk.	$12,030 per occurrence**
8	Damage caused by the DB Team to GDOT ITS fiber optic drop cable or electrical power service.	$8,130 per occurrence**
9	Damage caused by the DB Team to GDOT ITS device (camera, radar, VSLS, etc.) or enclosure. Or damage caused or loss of use to an exsiting ITS device.	$2,260 per occurrence**
10	Failure to restore the GDOT ITS system (fiber optic trunk, electrical power, ITS device (camera, radar, VSLS, etc.)) back on line within 24 hours after damage or failure caused by the DB Team	$13,700 per occurrence**
11	Failure to adhere to Holiday traffic restrictions as required by Section 18 of the Technical Provisions	$19,800 per occurrence*

*In addition to nonrefundable deductions, the DB Team shall be liable for any fines assessed against GDOT as a result of the any noncompliance event as provided.

**In addition to nonrefundable deductions, the DB Team shall be liable for all costs of repairs of ITS equipment. ITS repairs will be done in accordance with Section 17.4.1.4 of Volume 2.

EXHIBIT 19

GEORGIA SECURITY AND IMMIGRATION COMPLIANCE ACT AFFIDAVIT

FORM R

GEORGIA SECURITY AND IMMIGRATION COMPLIANCE ACT AFFIDAVIT

Contract No. and Name:
Design-Build Agreement for the I-16 at I-95 Interchange Reconstruction and I-16 Widening from I-95 to I-516 Widening Project (the "**Project**")

Name of Contracting Entity: Dragados USA, Inc. (partner of Savannah Mobility Contractors JV)

By executing this affidavit, the undersigned person or entity verifies its compliance with O.C.G.A. § 13-10-91, stating affirmatively that the individual, firm, or corporation which is contracting with the Georgia Department of Transportation and the State Road and Tollway Authority has registered with, is authorized to participate in, and is participating in the federal work authorization program commonly known as E-Verify,[1] in accordance with the applicable provisions and deadlines established in O.C.G.A. § 13-10-91.

The undersigned person or entity further agrees that it will continue to use the federal work authorization program throughout the contract period, and it will contract for the physical performance of services in satisfaction of such contract only with subcontractors who present an affidavit to the undersigned with the information required by O.C.G.A. § 13-10-91(b).

The undersigned person or entity further agrees to maintain records of such compliance and provide a copy of each such verification to the Georgia Department of Transportation or the State Road and Tollway Authority at the time the subcontractor(s) is retained to perform such service.

276473 (User ID# SCAL 2057)
EEV/E-Verify™ User Identification Number

November 11, 2009
Date of Authorization

BY: Authorized Officer or Agent
(Name of Person or Entity)

May 18, 2018
Date

Executive Vice President of Dragados USA, Inc.
Title of Authorized Officer or Agent

Fernando Bolinaga
Printed Name of Authorized Officer or Agent

SUBSCRIBED AND SWORN BEFORE ME ON THIS THE

18th DAY OF May 2018

Tricia Hardy
Notary Public

[NOTARY SEAL]

Notary Public State of Florida
Tricia Hardy
My Commission FF 978332
Expires 05/29/2020

[1] or any subsequent replacement operated by the United States Department of Homeland Security or any equivalent federal work authorization program operated by the United States Department of Homeland Security to verify Information of newly hired employees, pursuant to the Immigration Reform and Control Act of 1986 (IRCA), P.L. 99-603.

My Commission Expires: May 29, 2020

List of states that verify immigration status prior to issuance of a driver's license or I.D. card and only issue to persons lawfully present in the United States, as required by O.C.G.A Section 13-10-91(b)(5).

Compliant

Alabama
Alaska*
Arizona
Arkansas
California*
Colorado
Connecticut
Delaware
District of Columbia
Florida
Georgia
Hawaii
Idaho*
Illinois*
Indiana
Iowa
Kansas
Kentucky*
Louisiana**
Maine*
Maryland
Massachusetts*
Michigan**
Minnesota*
Mississippi
Missouri*
Montana*
Nebraska
Nevada
New Hampshire*
New Jersey*
New Mexico
New York**
North Carolina
North Dakota*
Ohio
Oklahoma*
Oregon*
Pennsylvania*
Rhode Island*
South Carolina*
South Dakota
Tennessee
Texas
Utah
Vermont
Virginia*
West Virginia
Washington*
Wisconsin
Wyoming

US Territories Guam, Puerto Rico and the U.S. Virgin Islands also have an extension through October 10, 2018

US Territories American Samoa and Northern Mariana Islands are currently under review.

*Indicates an extension allowing Federal agencies to accept their driver's licenses through October 10, 2018.

**DHS is currently reviewing extension requests from these states with extensions that expired on October 10th, 2017. States will have a grace period until January 22, 2018, meaning that Federal agencies (including TSA) will continue to accept driver's license and identification cards issued by these states in accordance with each agency's policies.

FORM R

GEORGIA SECURITY AND IMMIGRATION COMPLIANCE ACT AFFIDAVIT

Contract No. and Name:
Design-Build Agreement for the I-16 at I-95 Interchange Reconstruction and I-16 Widening from I-95 to I-516 Widening Project (the "**Project**")

Name of Contracting Entity: Prince Contracting, LLC (partner of Savannah Mobility Contractors JV)

By executing this affidavit, the undersigned person or entity verifies its compliance with O.C.G.A. § 13-10-91, stating affirmatively that the individual, firm, or corporation which is contracting with the Georgia Department of Transportation and the State Road and Tollway Authority has registered with, is authorized to participate in, and is participating in the federal work authorization program commonly known as E-Verify,[1] in accordance with the applicable provisions and deadlines established in O.C.G.A. § 13-10-91.

The undersigned person or entity further agrees that it will continue to use the federal work authorization program throughout the contract period, and it will contract for the physical performance of services in satisfaction of such contract only with subcontractors who present an affidavit to the undersigned with the information required by O.C.G.A. § 13-10-91(b).

The undersigned person or entity further agrees to maintain records of such compliance and provide a copy of each such verification to the Georgia Department of Transportation or the State Road and Tollway Authority at the time the subcontractor(s) is retained to perform such service.

237314 (User ID# SMAR 6687)
EEV/E-Verify™ User Identification Number

August 12, 2009
Date of Authorization

BY: Authorized Officer or Agent
(Name of Person or Entity)

May 24, 2018
Date

Executive Director of Prince Contracting, LLC
Title of Authorized Officer or Agent

Jack B. Calandros
Printed Name of Authorized Officer or Agent

SUBSCRIBED AND SWORN BEFORE ME ON THIS THE

24th DAY OF May 2018

Tricia Hardy
Notary Public

Notary Public State of Florida
Tricia Hardy
My Commission FF 978332
Expires 05/29/2020

[NOTARY SEAL]

[1] or any subsequent replacement operated by the United States Department of Homeland Security or any equivalent federal work authorization program operated by the United States Department of Homeland Security to verify Information of newly hired employees, pursuant to the Immigration Reform and Control Act of 1986 (IRCA), P.L. 99-603.

My Commission Expires: May 29, 2020

List of states that verify immigration status prior to issuance of a driver's license or I.D. card and only issue to persons lawfully present in the United States, as required by O.C.G.A Section 13-10-91(b)(5).

Compliant

Alabama	Kentucky*	North Dakota*
Alaska*	Louisiana**	Ohio
Arizona	Maine*	Oklahoma*
Arkansas	Maryland	Oregon*
California*	Massachusetts*	Pennsylvania*
Colorado	Michigan**	Rhode Island*
Connecticut	Minnesota*	South Carolina*
Delaware	Mississippi	South Dakota
District of Columbia	Missouri*	Tennessee
Florida	Montana*	Texas
Georgia	Nebraska	Utah
Hawaii	Nevada	Vermont
Idaho*	New Hampshire*	Virginia*
Illinois*	New Jersey*	West Virginia
Indiana	New Mexico	Washington*
Iowa	New York**	Wisconsin
Kansas	North Carolina	Wyoming

US Territories Guam, Puerto Rico and the U.S. Virgin Islands also have an extension through October 10, 2018

US Territories American Samoa and Northern Mariana Islands are currently under review.

*Indicates an extension allowing Federal agencies to accept their driver's licenses through October 10, 2018.

**DHS is currently reviewing extension requests from these states with extensions that expired on October 10th, 2017. States will have a grace period until January 22, 2018, meaning that Federal agencies (including TSA) will continue to accept driver's license and identification cards issued by these states in accordance with each agency's policies.

EXHIBIT 20

TERMS FOR TERMINATION COMPENSATION

A. Compensation on Termination for Convenience, for SRTA Default, or for SRTA Suspension of Work

1. In the event of termination of the Agreement under Article 19.1 (Termination for Convenience) or Article 19.4 (Termination for SRTA Default or Suspension of Work), the Termination Compensation shall equal:

(i) That portion of the DB Contract Sum on account of (a) Work performed that has not already been paid; plus

(ii) The amount necessary to reimburse reasonable and documented out-of-pocket costs of third party and Affiliate Contractors to demobilize and terminate under Contracts between Design-Build Team and third parties or Affiliates for performance of Work, excluding Design-Build Team's non-contractual liabilities and indemnity liabilities (contractual or non-contractual) to third parties or Affiliates; plus

(iii) If termination occurs prior to Substantial Completion, Design-Build Team's own reasonable and documented out-of-pocket costs to demobilize (without duplication) and carry out termination obligations as may be directed by SRTA or required pursuant to the Agreement; minus

(iv) The sum of (i) the greater of (A) the proceeds received from insurance (including casualty insurance and business interruption insurance) that is required to be carried pursuant to Article 16.1 of the Agreement and provides coverage to pay, reimburse or provide for any of the costs and losses attributable to any Force Majeure Event, and (B) the proceeds received from insurance that is actually carried by or insuring Design-Build Team under policies solely with respect to the Project and the Work, regardless of whether required to be carried pursuant to Article 16.1 of the Agreement, and that provides coverage to pay, reimburse or provide for any of the costs and losses attributable to any Force Majeure Event (exclusive of payments on account of replacement Work performed and to be reimbursed under the builder's risk insurance coverage), plus (ii) the foregoing costs and losses that Design-Build Team is deemed to have self-insured pursuant to Article 16.3.3 of the Agreement; minus

(v) The portion of any Compensation Amounts previously paid to (or charged against) Design-Build Team that compensated Design-Build Team for Work attributable to the period after the Early Termination Date.

2. In the event of termination of the Agreement under Article 19.1 (Termination for Convenience) or Article 19.4 (Termination for SRTA Default or Suspension of Work), any such Termination Compensation shall be payable by SRTA as follows:

(i) For Termination for Convenience

(a) Termination for Convenience shall be valid and effective on the date set forth in the Notice of Termination for Convenience, which date shall not be more than three (3) months after the date the notice is delivered.

(b) SRTA shall deliver to Design-Build Team, in immediately available funds, within sixty (60) days after the Early Termination Date, the Termination Compensation due, less a holdback amount equal to SRTA's reasonable estimate of the costs Design-Build Team will thereafter incur to perform and complete its post-termination obligations under Article 19.5 of the Agreement, subject to Sections (ii)(b) -(d) below.

(ii) For Termination for SRTA Default or Suspension of Work

(a) If the Agreement is terminated due to Design-Build Team's exercise of its right to terminate under Article 19.4 of the Agreement, termination shall be valid and effective on the date notice of termination is delivered; and, subject to Articles 19.3.2 and 19.4.4, SRTA shall deliver to Design-Build Team, in immediately available funds, within sixty (60) days after the Early Termination Date, the Termination Compensation due, less a holdback amount equal to SRTA's reasonable estimate of the costs Design-Build Team will thereafter incur to perform and complete its post-termination obligations under Article 19.5 of the Agreement. In the event that the Termination Compensation is negative, then the Design-Build Team shall deliver the Compensation Payment due to SRTA within sixty (60) days after the Early Termination Date.

(b) SRTA shall pay the holdback amount to Design-Build Team within ten (10) days after Design-Build Team completes all its post-termination obligations under Article 19.5 of the Agreement.

(c) If as of the date SRTA tenders payment under clause (a) above the Parties have not agreed upon the amount of Termination Compensation due, then:

(i) SRTA shall proceed with such payment to Design-Build Team;

(ii) Within thirty (30) days after receiving such payment Design-Build Team shall deliver to SRTA written notice of the additional amount of Termination Compensation that Design-Build Team in good faith determines is still owing (the "disputed portion");

(iii) SRTA shall pay the disputed portion of the Termination Compensation to Design-Build Team in immediately available funds within thirty (30) days after the disputed portion is determined by settlement, final order or final judgment, and also shall pay interest thereon, at the Default Interest Rate from the Early Termination Date until paid; and

(iv) A failure by SRTA to effect payment by such date shall not entitle Design-Build Team to reinstatement of the Design-Build Team's Interest or to rescission of the termination.

(d) From and after the Early Termination Date until the Termination Compensation is finally determined and paid, the provisions of Article 19.10 of the Agreement shall apply.

(e) If it is determined by settlement or final judgment that the Termination Compensation due from SRTA is less than the payment previously made by SRTA, then within thirty (30) days after the date of settlement or final judgment Design-

Build Team shall reimburse the excess payment, together with interest thereon at the Default Interest Rate from the date of overpayment until the date of reimbursement.

(f) Any amounts to be paid by SRTA pursuant hereto shall be subject to Default Interest Rate from the date that such payment shall be due until paid.

B. Compensation on Termination for Design-Build Team Default

1. Design-Build Team shall not be entitled to receive any compensation where the Agreement is terminated by SRTA pursuant to Article 19.3 as a result of a Design-Build Team Default if it has been determined by SRTA that the damages incurred by SRTA and costs to complete the Work as a result of the Design-Build Team Default exceed the unpaid balance of the DB Contract Sum. In no event shall Design-Build Team be entitled to any direct costs, including demobilization, associated with a termination by SRTA pursuant to Article 19.3. In the event that the Termination Compensation is negative, then the Design-Build Team shall deliver the Compensation Payment due to SRTA within sixty (60) days after the Early Termination Date.

C. Claims

1. Notwithstanding anything to the contrary herein, Termination Compensation shall include and be adjusted on account of any outstanding Compensation Event that is independent of the event of termination and which is not otherwise resolved as of the effective date of such termination. The Parties shall adjust the Termination Compensation by the amount of the unpaid award, if any, on the Compensation Event.

2. At SRTA's sole election, it may hold back from payment of the Termination Compensation for deposit into the SRTA Claims Account the amount of any claim of SRTA against Design-Build Team not resolved prior to payment. SRTA shall provide written notice to Design-Build Team of any such election, the subject claim and the amount deposited or to be deposited, prior to or concurrently with tendering payment of the Termination Compensation.

3. If as of the date SRTA tenders payment under clause (a) above the Parties have not agreed upon the amount of Termination Compensation due, then:

(i) SRTA shall proceed with such payment to Design-Build Team;

(ii) Within thirty (30) days after receiving such payment Design-Build Team shall deliver to SRTA written notice of the additional amount of Termination Compensation that Design-Build Team in good faith determines is still owing (the "disputed portion");

(iii) SRTA shall pay the disputed portion of the Termination Compensation to Design-Build Team in immediately available funds within thirty (30) days after the disputed portion is determined by settlement, final order or final judgment, together with interest thereon at the Default Interest Rate from the later of the two dates set forth in clause (a) above until paid; and

(iv) Failure by SRTA to effect payment by such date shall not entitle Design-Build Team to reinstatement of the Design-Build Team's Interest or to rescission of the termination.

4. If it is determined by settlement or final judgment that the Termination Compensation due from SRTA is less than the payment previously made by SRTA, then within

thirty (30) days after the date of settlement or final judgment Design-Build Team shall reimburse the excess payment, together with interest thereon at the Default Interest Rate from the date of overpayment until the date of reimbursement.

EXHIBIT 21

Non-Collusion Affidavit

FORM B

Non-Collusion Affidavit*

STATE OF Florida)
)SS:
COUNTY OF Hillsborough)

Each of the undersigned, being first duly sworn, deposes and says that:

A. Fernando Bolinaga [name] is the Executive Vice President [title] of Dragados USA, Inc. [firm] and Jack B. Calandros [name] is the Exec. Director [title] of Price Contracting, LLC [firm], which entity(ies) are the Participating Members [relationship to Proposer] of Savannah Mobility Contractors JV, the entity making the foregoing Proposal.

B. The Proposal is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, joint venture, limited liability company or corporation; the Proposal is genuine and not collusive or a sham; the Proposer has not directly or indirectly induced or solicited any other Proposer to put in a false or sham Proposal, and has not directly or indirectly colluded, conspired, connived or agreed with any Proposer or anyone else to put in a sham Proposal or refrained from proposing; the Proposer has not in any manner, directly or indirectly, sought by agreement, communication or conference with anyone to fix the prices of the Proposer or any other Proposer, or to fix any overhead, profit or cost element included in the Proposal, or of that of any other Proposer, or to secure any advantage against GDOT or anyone interested in the proposed DBA; all statements contained in the Proposal are true; and, further, the Proposer has not, directly or indirectly, submitted its prices or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company, association, joint venture, limited liability company, organization, Proposal depository or any member, partner, joint venture member or agent thereof to effectuate a collusive or sham Proposal.

C. The Proposer will not, directly or indirectly, divulge information or data regarding the price or other terms of its Proposal to any other Proposer, or seek to obtain information or data regarding the price or other terms of any other Proposal, until after award of the DBA or rejection of all Proposals and cancellation of the Request for Proposals.

* Initially capitalized terms not otherwise defined herein shall have the meanings ascribed thereto pursuant to the Instructions to Proposers within the Request for Proposals for the Project.

[*signature page follows*]

(Signature)	(Signature)
Fernando Bolinaga	Jack B. Calandros
(Name Printed)	(Name Printed)
Executive Vice President	Executive Director
(Title)	(Title)
(Signature)	(Signature)
(Name Printed)	(Name Printed)
(Title)	(Title)
(Signature)	(Signature)
(Name Printed)	(Name Printed)
(Title)	(Title)

Subscribed and sworn to before me this 18 day of May, 2018.

Notary Public State of Florida
Tricia Hardy
My Commission FF 978332
Expires 05/29/2020

Tricia Hardy
Notary Public in and for
said County and State

[Seal]

My commission expires: May 29, 2020.

[Proposers shall duplicate or modify this form as necessary so that it accurately describes the entity making the Proposal and so that it is signed on behalf of all partners, members, joint venture members, Participating Members and Major Non-Participating Members.]

FORM B

Non-Collusion Affidavit*

STATE OF Georgia)
)SS:
COUNTY OF Fulton)

Each of the undersigned, being first duly sworn, deposes and says that:

A. Thomas J. Meinhart is the Vice President of Jacobs Engineering Group Inc. and which entity(ies) is the Lead Design Subconsultant_[relationship to Proposer] of Savannah Mobility Contractors JV, the entity making the foregoing Proposal.

B. The Proposal is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, joint venture, limited liability company or corporation; the Proposal is genuine and not collusive or a sham; the Proposer has not directly or indirectly induced or solicited any other Proposer to put in a false or sham Proposal, and has not directly or indirectly colluded, conspired, connived or agreed with any Proposer or anyone else to put in a sham Proposal or refrained from proposing; the Proposer has not in any manner, directly or indirectly, sought by agreement, communication or conference with anyone to fix the prices of the Proposer or any other Proposer, or to fix any overhead, profit or cost element included in the Proposal, or of that of any other Proposer, or to secure any advantage against GDOT or anyone interested in the proposed DBA; all statements contained in the Proposal are true; and, further, the Proposer has not, directly or indirectly, submitted its prices or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company, association, joint venture, limited liability company, organization, Proposal depository or any member, partner, joint venture member or agent thereof to effectuate a collusive or sham Proposal.

C. The Proposer will not, directly or indirectly, divulge information or data regarding the price or other terms of its Proposal to any other Proposer, or seek to obtain information or data regarding the price or other terms of any other Proposal, until after award of the DBA or rejection of all Proposals and cancellation of the Request for Proposals.

* Initially capitalized terms not otherwise defined herein shall have the meanings ascribed thereto pursuant to the Instructions to Proposers within the Request for Proposals for the Project.

[*signature page follows*]

(Signature)	(Signature)
(Name Printed)	(Name Printed)
(Title)	(Title)
(Signature)	(Signature)
(Name Printed)	(Name Printed)
(Title)	(Title)
(Signature)	(Signature)
Thomas J. Meinhart	
(Name Printed)	(Name Printed)
Vice President, Jacobs Engineering Group Inc.	
(Title)	(Title)

Subscribed and sworn to before me this 11th day of May, 2018

Notary Public in and for
said County and State

[Seal]

My commission expires March 11, 2022.

[Proposers shall duplicate or modify this form as necessary so that it accurately describes the entity making the Proposal and so that it is signed on behalf of all partners, members, joint venture members, Participating Members and Major Non-Participating Members.]

EXHIBIT 22

INITIAL DESIGNATION OF AUTHORIZED REPRESENTATIVES

SRTA's Authorized Representative:

SRTA hereby designates the persons from time to time serving as the Executive Director of SRTA as its Authorized Representatives and such other persons as the Executive Director may from time to time designate by delivering written notice thereof to Design-Build Team. Any such designations by the Executive Director may be limited in scope and duration and may be revoked at any time by delivery of written notice thereof to Design-Build Team pursuant to Article 24.11 of the Agreement.

GDOT's Authorized Representative:

GDOT hereby designates the persons from time to time serving as the Commissioner of GDOT as its Authorized Representatives and such other persons as the Commissioner may from time to time designate by delivering written notice thereof to Design-Build Team. Any such designations by the Commissioner may be limited in scope and duration and may be revoked at any time by delivery of written notice thereof to Design-Build Team pursuant to Article 24.11 of the Agreement.

Design-Build Team's Authorized Representative:

Design-Build Team hereby designates the persons from time to time serving as the Chief Executive Officer of Design-Build Team as its Authorized Representatives and such other persons as the Chief Executive Officer may from time to time designate by delivering written notice thereof to GDOT. Any such designations by the Chief Executive Officer may be limited in scope and duration and may be revoked at any time by delivery of written notice thereof to GDOT pursuant to Article 24.11 of the Agreement.

EXHIBIT 23

Drug Free Workplace

Insert completed Form T in Executed Version

FORM T

Drug Free Workplace

STATE OF Florida)
)SS:
COUNTY OF Hillsborough)

Each of the undersigned, being first duly sworn, deposes and says that:

Fernando Bolinaga is the Executive Vice President of Dragados USA, Inc. and Jack B. Calandros is the Executive Director of Prince Contracting, LLC, which entity(ies) are the Participating Members of Savannah Mobility Contractors JV, the entity making the foregoing Proposal.

The undersigned certifies that the provisions of Code Sections 50-24-1 through 50-24-6 of the Official Code of Georgia Annotated, relating to the "Drug-free Workplace Act", have been complied with in full.

The undersigned further certifies that:

(1) A drug-free workplace will be provided for the Contractor's employees during the performance of the Contract; and

(2) Each Contractor who hires a Subcontractor to work in a drug-free workplace shall secure from that Subcontractor the following written certification:

"As part of the subcontracting agreement with (Contractor's name)_____,_____ (Subcontractor's name)_____ certifies to the Contractor that a drug free workplace will be provided for the Subcontractor's employees during the performance of this Contract pursuant to paragraph (7) of subsection (b) of Code Section 50-24-3."

Also, the undersigned further certifies that he will not engage in the unlawful manufacture, sale distribution, dispensation, possession, or use of a controlled substance or marijuana during the performance of the Contract.

[*signature page follows*]

(Signature)	(Signature)
Fernando Bolinaga	Jack B. Calandros
(Name Printed)	(Name Printed)
Executive Vice President of Dragados USA, Inc.	Executive Director of Prince Contracting, LLC
(Title)	(Title)

Subscribed and sworn to before me this 18th day of May, 2018.

Tricia Hardy
Notary Public in and for said County and State

Notary Public State of Florida
Tricia Hardy
My Commission FF 978332
Expires 05/29/2020

[Seal]

My commission expires: May 29, 2020.

[Proposers shall duplicate or modify this form as necessary so that it accurately describes the entity making the Proposal and so that it is signed on behalf of all partners, members, joint venture members, Participating Members and Major Non-Participating Members.]

FORM T

Drug Free Workplace

STATE OF Georgia)
)SS:
COUNTY OF Fulton)

Each of the undersigned, being first duly sworn, deposes and says that:

Thomas J. Meinhart is the Vice President of Jacobs Engineering Group Inc. and which entity(ies) is the Lead Design Subconsultant of Savannah Mobility Contractors JV, the entity making the foregoing Proposal.

The undersigned certifies that the provisions of Code Sections 50-24-1 through 50-24-6 of the Official Code of Georgia Annotated, relating to the "Drug-free Workplace Act", have been complied with in full.

The undersigned further certifies that:

(1) A drug-free workplace will be provided for the Contractor's employees during the performance of the Contract; and

(2) Each Contractor who hires a Subcontractor to work in a drug-free workplace shall secure from that Subcontractor the following written certification:

"As part of the subcontracting agreement with (Contractor's name)_____,_____ (Subcontractor's name) Jacobs Engineering Group Inc. certifies to the Contractor that a drug free workplace will be provided for the Subcontractor's employees during the performance of this Contract pursuant to paragraph (7) of subsection (b) of Code Section 50-24-3."

Also, the undersigned further certifies that he will not engage in the unlawful manufacture, sale distribution, dispensation, possession, or use of a controlled substance or marijuana during the performance of the Contract.

[*signature page follows*]

(Signature)	(Signature)
Thomas J. Meinhart	
(Name Printed)	(Name Printed)
Vice President	
(Title)	(Title)

Subscribed and sworn to before me this 11th day of May, 2018.

Notary Public in and for said County and State

[Seal]

My commission expires March 11, 2022.

[Proposers shall duplicate or modify this form as necessary so that it accurately describes the entity making the Proposal and so that it is signed on behalf of all partners, members, joint venture members, Participating Members and Major Non-Participating Members.]

EXHIBIT 24

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SPECIAL PROVISION

ESCROW BID DOCUMENTATION

Scope and Purpose

The purpose of this specification is to preserve the bid documents of the successful proposer (DB Team) for use by the parties in any claims or litigation between SRTA and DB Team arising out of this Design-Build Agreement (the "DB Agreement").

The DB Team shall submit a legible copy of bid documentation used to prepare the bid for this DB Agreement to SRTA or their authorized representative at the Department, the Administrator of the Office of Bidding Administration. Such documentation shall be placed in escrow with a banking institution or other bonded document storage facility and preserved by that institution/facility as specified in the following sections of this specification.

Bid Documentation

The term "bid documentation" as used in this specification means all writings, working papers, computer printouts, charts, and all other data compilations which contain or reflect information, data, and calculations used by the DB Team to determine the bid in bidding for this project. The term "bid documentation" includes, but is not limited to, DB Team equipment rates, DB Team overhead rates, labor rates, efficiency or productivity factors, arithmetic extensions, and quotations from consultants, subconsultants, subcontractors, and material suppliers to the extent that such rates and quotations were used by the DB Team in formulating and determining the amount of the bid. The term "bid documentation" also includes any manuals which are standard to the industry used by the DB Team in determining the bid for this project. Such manuals may be included in the bid documentation by reference. Such reference shall include the name and date of the Publication and the Publisher. The term does not include bid documents provided by the Department for use by the DB Team in bidding on this project.

Submittal of Bid Documentation

The DB Team shall submit the bid documentation to SRTA or their authorized representative at the Department in a container suitable for sealing, no later than ten calendar days following award of the DB Agreement by SRTA. A Notice to Proceed will not be issued until the acceptable documentation has been received. The container shall be clearly marked "Bid Documentation" and shall also show on the face of the container the DB Team's name, the date of submittal, the Project Number, the P.I. Number, the Contract Number, and the County(ies).

Affidavit

In addition to the bid documentation, an affidavit, signed under oath by an individual authorized by the DB Team to execute bidding proposals shall be included, as set forth in Attachment 1. The affidavit shall list each bid document with sufficient specificity so a comparison may be made between the list and the bid documentation to ensure that all of the bid documentation listed in the affidavit has been enclosed. The affidavit shall attest that the affiant has personally examined the bid documentation, that the affidavit lists all of the documents used by the DB Team to determine the bid for this project, and that all such bid documentation has been included.

Verification

Upon receipt of the bid documentation SRTA or their authorized representatives at the Department and the DB Team will verify the accuracy and completeness of the bid documentation compared to the affidavit. Should a discrepancy exist the DB Team shall immediately furnish SRTA or their authorized representative at the Department with any other needed total documentation. SRTA or their authorized representative at the Department, upon determining that the bid documentation is complete, will, in the presence of the DB Team's representative, immediately place the complete documentation and affidavit in the container and seal it. Both parties will deliver the sealed container to a banking institution or other bonded document storage facility selected by SRTA or their authorized representative at the Department for placement in a safety deposit box, vault or other secure accommodation.

Duration and Use

The bid documentation and affidavit shall remain in escrow during the life of the DB Agreement or until such time as the DB Team notifies SRTA of its intention to file a claim or its initiation of litigation against SRTA or GDOT related to the Contract. Notification of the DB Team's intention to file a claim or litigation against SRTA or GDOT shall be sufficient evidence for SRTA or their authorized representative at the Department to obtain the release and custody of the bid documentation. If no such notification is received and the DB Team has signed the final Standard Release Form, SRTA or the Department shall instruct the banking institution or other bonded document storage facility to release the sealed container to the DB Team, as set forth in Attachment 2.

The DB Team agrees that the sealed container placed in escrow contains all of the bid documentation used to determine the bid and that no other bid documentation shall be utilized by the DB Team in litigation over claims brought by the DB Team arising out of this contract.

Refusal or Failure to Provide Bid Documentation

Failure or refusal to provide bid documentation shall be deemed either:

1. Failure to execute the DB Agreement if the DB Agreement has not yet been executed or,
2. Material breach of the DB Agreement if the DB Agreement has been executed.

Should the DB Team fail to execute the DB Agreement as stated in 1 above, SRTA will retain the bid bond. Refusal of the DB Team to provide adequate documentation after execution of the DB Agreement will be considered material breach of the DB Agreement and the DB Team will be declared in default of the Contract. SRTA may, at its option terminate the DB Agreement for default. These remedies are not exclusive and SRTA may take such other action as is available to it under the law.

Confidentiality of Bid Documentation

The bid documentation and affidavit in escrow are, and will remain, the property of the DB Team. SRTA has no interest in, or right to, the bid documentation and affidavit other than to verify the contents and legibility of the bid documentation unless notification of the intention to file claim is received or litigation ensues between SRTA, and/or GDOTand DB Team. In the event of such notification or litigation, the bid documentation and affidavit shall become the property of SRTA.

Cost and Escrow Instructions

The cost of the escrow will be borne by the Department. SRTA or their authorized representative at the Department will provide escrow instructions to the banking institution or other bonded document storage facility consistent with this specification.

Escrow Agreement

A copy of the Escrow Agreement the successful bidder will be required to sign is provided as set forth in Attachment 3. The successful bidder (DB Team) agrees that they will sign the Escrow Agreement. Should the DB Team fail to sign the Escrow Agreement, when presented, SRTA will retain the bid bond. If the DB Agreement has been executed, and the DB Team fails to sign the Escrow Agreement, the DB Team may be declared in default of the Contract.

Payment

There will be no separate payment for compilation of the data, container or cost of verification of the bid documentation. All costs shall be included in the overall DB Agreement bid price.

EXHIBIT 24

Attachment 1

AFFIDAVIT

STATE OF
GEORGIA COUNTY
OF FULTON

COMES NOW Fernando Bolinaga JV Authorozed Representative, of Savannah Mobility Contractors JV who, after having been duly sworn, on oath, state and depose as follows:

1.

This Affidavit is based upon the personal knowledge of the Affiant.

2.

Savannah Mobility Contractors JV submitted a bid on Georgia Department of Transportation Project No. 0012757 and 0012758, Chatham County which bid was the best value bid, and a DB Agreement has been entered into between Savannah Mobility Contractors JV and the Georgia Department of Transportation, known as DB Agreement No. B1CBA1801537-0.

3.

This Affidavit is given in compliance with the special provision entitled "ESCROW BID DOCUMENTATION" forming part of the DB Agreement Documents of DB Agreement No. B1CBA1801537-0.

4.

The Affiant attests that, in his capacity for Savannah Mobility Contractors JV, he is personally aware the "Bid Documentation" which was used by the Company in determining, formulating, and submitting the bid on Project No. 0012757 and 0012758, Chatham County.

5.

The Affiant further states that he has examined the bid documentation which has been placed in a sealed container marked "Bid Documentation", and that all such Bid Documentation utilized by the Company in determining, formulating, and submitting its bid is contained in the sealed container so marked.

6.

Each bid document contained in the sealed container is separately listed on Exhibit A, which is attached hereto and incorporated herein as fully as if included in this Affidavit at this paragraph 6.

Further Affiant sayeth not.

SAVANNAH MOBILITY CONTRACTORS JV

(Company Name)

By: DocuSigned by: Fernando Bolinaga EBD4A1B7D7184B4...

(Signature)

Fernando J. Bolinaga

(Print Name)

Its: J. V. Authorized Representative

(Title)

Sworn to and subscribed before me this _____ day of _____ _____, 20_____.

NOTARY PUBLIC

My Commission expires: _____

EXHIBIT 24

Exhibit A to Attachment 1

(to be provided with executed version)

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EXHIBIT 24

Attachment 2

ESCROW RELEASE OF BID DOCUMENTS

This is to certify that on this _____day of _____, 20__, the sealed container identified as:

"Bid Documentation"

DB TEAM: SAVANNAH MOBILITY CONTRACTORS JV

PROJECT NUMBER: N/A

P.I. NUMBER: 0012757 & 0012758

CONTRACT NUMBER: B1CBA1801537-0

DATE OF SUBMITTAL:

(Evidence by Agreement dated _____).

was released from escrow and personally handed to the below named individual acknowledging receipt, representing the DB TEAM/DEPARTMENT, by the ESCROW AGENT upon the presentation of the required documentation pursuant to Article IV of Attachment 3 to this Exhibit 24, Release from Escrow, of the agreement dated_____, 20___, a copy of such documentation is attached hereto.

Acknowledgment of Receipt:

_____

Acknowledgment of Release:

_____

ESCROW AGENT

ESCROW CONTAINER SEAL NUMBERS:

BS 32
BS 33

EXHIBIT 24

Attachment 3

Escrow Agreement for Bid Documents

THIS AGREEMENT is made and entered into this _____day of_____, 20___, by and among the State Road and Tollway Authority, a body corporate and politic and an instrumentality and public corporation of the State of Georgia, hereinafter called "SRTA"; the Georgia Department of Transportation; an agency of the State of Georgia, hereinafter called the "DEPARTMENT"; and Savannah Mobility Contractors, JV; hereinafter called the "DB TEAM"; and Iron Mountain Intellectual Property Management, hereinafter called the "ESCROW AGENT".

WHEREAS, SRTA awarded a project on July 6, 2018, based on a bid proposal submitted by the DB TEAM, hereinafter called the "PROPOSAL", for the construction of Project Numbers 0012757 and 0012758, Chatham County, Georgia, hereinafter called the "PROJECT", pursuant to which the DB TEAM shall cause the work therein to be designed and constructed; and

WHEREAS, SRTA, the DEPARTMENT, and DB TEAM are desirous of entering into an Escrow Agreement, to provide for specific contingencies governing the escrow and control of the PROPOSAL bid documentation; hereinafter called "BID DOCUMENTS"; and

WHEREAS, SRTA, the DEPARTMENT, and DB TEAM desire the ESCROW AGENT to hold the BID DOCUMENTS of the DB TEAM;

NOW THEREFORE, for and in consideration of the mutual covenants contained herein, it is agreed by and between the parties hereto that:

ARTICLE I
ESCROW BID DOCUMENTATION

The parties hereto agree to the establishment of Escrow of the BID DOCUMENTS for the PROPOSAL. It is the understanding of the parties hereto that the DEPARTMENT shall pay the ESCROW AGENT, as determined by separate agreement, for the escrow of the BID DOCUMENTS submitted to the ESCROW AGENT under the terms of this Agreement.

ARTICLE II
ACKNOWLEDGMENT

By its signature below, the ESCROW AGENT hereby acknowledges receipt from SRTA, the DEPARTMENT, and CONTRACTOR of a sealed container bearing the DB TEAM'S name, address and

Project Number assigned by the DEPARTMENT and containing, as specified by the affidavit of the DB TEAM, the PROPOSAL BID DOCUMENTS for the aforementioned PROJECT.

ARTICLE III
DEPOSIT OF BID DOCUMENTS

The PROPOSAL BID DOCUMENTS shall remain on deposit with the ESCROW AGENT until those conditions of release, as specified in ARTICLE IV, RELEASE FROM ESCROW, are met. As long as the BID DOCUMENTS remain in escrow with the ESCROW AGENT, the ESCROW AGENT shall not allow any person access, to gain possession, or to in any way interfere with the sealed BID DOCUMENT container.

ARTICLE IV
RELEASE FROM ESCROW

Upon being presented, by SRTA or the DEPARTMENT, with a DB TEAM signed final Standard Release Form for the DB Agreement for the PROJECT, the ESCROW AGENT shall deliver to the DB TEAM the sealed container bearing the DB TEAM'S name and address and project number on it. The ESCROW AGENT is also authorized to release the BID DOCUMENT sealed container to SRTA or the DEPARTMENT without the DB TEAM'S signed consent subject to the following conditions:

1. The DB TEAM has provided written notification to SRTA of the DB TEAM'S intention to file a claim related to the DB Agreement for the PROJECT; or

2. The DB TEAM has initiated litigation against SRTA or GDOT relating to the DB Agreement for the PROJECT.

Prior to any release from escrow to SRTA or the DEPARTMENT, the ESCROW AGENT shall verify that either condition of release to SRTA, as stated above, has been met by providing written notice to the DB TEAM of the ESCROW AGENT'S intention to release the PROPOSAL BID DOCUMENTS to SRTA or the DEPARTMENT. Such written notice from the ESCROW AGENT shall be sent by certified mail no less than ten (10) calendar days prior to release to SRTA or the DEPARTMENT. Upon any release from escrow of the PROPOSAL BID DOCUMENT container the ESCROW AGENT shall cause the execution of Attachment 2, Escrow Release for PROPOSAL BID DOCUMENTS, as attached hereto and incorporated herein as if fully contained, by the party receiving the BID DOCUMENT container.

ARTICLE V
INDEMNITY

The DB TEAM agrees to indemnify and hold the ESCROW AGENT harmless against any loss, claim, damage, liability or expenses incurred in connection with any action, suit, proceeding, claim or

alleged liability arising from this Escrow Agreement, provided, however, that the ESCROW AGENT shall not be so indemnified or held harmless for its negligence or acts of bad faith by it or any of its agents or employees.

ARTICLE VI
NOTICES

All notices and other communication shall be in writing and shall be deemed to have been duly given and delivered if mailed by certified mail, return receipt requested, postage prepaid to the addresses stated herein:

SRTA:

Meryl Mandus
State Road and Tollway Authority
ATTN: General Counsel
245 Peachtree Center Ave. NE, Suite 2200
Atlanta, GA 30303
404 893 6138
m mandus@srta.ga.gov

DEPARTMENT:

Georgia Department of Transportation
ATTN: General Counsel
600 West Peachtree Street
Atlanta, Georgia 30308

DB TEAM:

Savannah Mobility Contractors JV
ATTN: Fernando J. Bolinaga
810 Seventh Avenue, 6th Floor
New York
NY 10019
Fbolinaga@Dragados-USA.com

ESCROW AGENT:

Iron Mountain Intellectual Property Management
ATTN: David Jones
6111 Live Oak Parkway
Norcross, Georgia 30093

ARTICLE VII
DUTIES OF ESCROW AGENT

The duties and responsibilities of the ESCROW AGENT shall be limited to those expressly set forth herein and the ESCROW AGENT shall act only in accordance with this ESCROW Agreement.

Notwithstanding specific provisions hereunder, the ESCROW AGENT shall at all times act upon and in accordance with the joint written instructions of SRTA, the DEPARTMENT, and DB TEAM.

ARTICLE VIII
LAWS

This Escrow Agreement shall be deemed to have been executed in Fulton County, Georgia and the laws of the State of Georgia shall apply.

ARTICLE IX
ASSIGNMENT

This Escrow Agreement shall not be assigned without the written consent of all the parties hereto.

ARTICLE X
SURVIVAL OF CONTRACT

Except as may be expressly modified, all terms and conditions of this Escrow Agreement remain in full force and effect. The establishment of this Escrow Agreement is limited solely by the contingency of release of the PROPOSAL BID DOCUMENTS by the DB TEAM to SRTA or the DEPARTMENT, as established by Article IV, Release From Escrow. Nothing contained herein shall alter the rights of the parties hereto.

The covenants herein contained shall, except as otherwise provided, accrue to the benefit of and be binding upon the successors and assigns of the parties hereto.

IN WITNESS WHEREOF, the parties hereunto set their hands and seals the day above first written.

DB TEAM: Fernando Bolinaga

BY: DocuSigned by: Fernando Bolinaga (SEAL)
E8D4A1B7D716484...

TITLE: JV Authorized Representative

Oscar L. Carlera Jr.
WITNESS

ESCROW AGENT:

BY: (SEAL)

TITLE:

Oscar L. Carlera Jr.
WITNESS

SRTA:

BY: (SEAL)

TITLE: State Transportation Office Administrator

Oscar L. Carlera Jr.
WITNESS

DEPARTMENT:

BY: (SEAL)

TITLE: State Transportation Office Administrator

Oscar L. Carlera Jr.
WITNESS

ESCROW CONTAINER SEAL NUMBERS: BS 32
BS 33

Approved as to IPM Operational Content:
Iron Mountain Operations

Name: John Styslinger, Contracts Specialist
Date: August 14, 2018

EXHIBIT 25

Opinion of Counsel

Refer to Form S for appropriate format

Georgia Department of Transportation

VOLUME 2

Technical Provisions
For

Design-Build Agreement

P.I. Nos. 0012757 and 0012758

I-16 AT I-95 INTERCHANGE RECONSTRUCTION
AND
I-16 WIDENING FROM I-95 TO I-516 PROJECT

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1 GENERAL

1.1 Project Design

Supplement the following to Section 1.1 of Volume 3:

The DB Team's Design Documents for the Project shall comply with all requirements set forth in the DB Documents. The DB Team's Design Documents for the Project shall be consistent with the following:

- Environmental Document Approvals
- Concept Report
- Interchange Modification Report
- Reference Information Documents (RIDs)

The DB Team is encouraged to stage construction so that continuous portions of roadway can be opened to traffic prior to Substantial Completion. GDOT may direct the DB Team to open any continuous three (3) mile section of roadway to traffic within thirty (30) days of its completion in accordance with Article 7.7.4 of the DB Agreement. The DB Team will have ten (10) days to comply with GDOT's request. The DB Team shall maintain a total of two (2) emergency hurricane evacuation cross-over lanes available to be open at all times during the Contract duration.

1.2 Project Scope

Supplement the following to Section 1.2 of Volume 3:

The DB Team shall be responsible for the design and construction of the Project as required by the Design-Build Agreement including design, design-related activities, permitting, Utility Adjustments, Right of Way acquisition services, construction, construction engineering, inspection and testing of the Project.

The DB Team shall not rely on the physical description contained herein to identify all Project components. The DB Team shall determine the full scope of the Project through thorough examination of the DB Documents and the Project or as may be reasonably inferred from such examination.

The Work consists of the I-16 at I-95 interchange reconstruction, P.I. No. 0012758, and I-16 widening between I-95 and I-516, P.I. No. 0012757. Along I-16, the Project begins approximately 0.9 mile west of I-95 and ends approximately 0.1 mile east of I-516 for a total distance of approximately 7.5 miles. Along I-95, the Project begins approximately 1.3 miles south of I-16 and ends approximately 1.3 miles north of I-16 for a total distance of approximately 2.6 miles. Roadway improvements shall comply with Interchange Modification Reports and other FHWA-approved documents for the Project.

I-16 improvements include the addition of one General Purpose Lane along both I-16 eastbound (EB) and I-16 westbound (WB) between I-95 and I-516. Widening for the new

lanes is proposed towards the inside grassed median. Eastbound, the new General Purpose Lane begins where the I-95 northbound (NB) ramp merges with I-16 and terminates at the exit for I-516. Westbound, the new General Purpose Lane begins at the end of the acceleration lane for the I-516 northbound to westbound ramp and terminates at the exit for I-95. An acceleration lane, approximately 1,650 feet long, shall be provided at the I-95 southbound merge with I-16 westbound. An acceleration lane, approximately 800 feet long, shall be provided at the I-516 southbound to I-16 westbound merge. A deceleration lane, approximately 450 feet long, shall be provided from I-16 EB to the I-95 NB ramp. The I-16 improvements also consist of correcting the existing cross-slope on I-16 EB and WB for any cross-slope flatter than 1.5% to 2%. (See Section 11.2.6 for additional detail on the cross-slope correction)

I-16 and I-95 interchange improvements shall include reconstruction of two of the high-volume loop ramps: I-95 southbound to I-16 eastbound and I-16 westbound to I-95 southbound. The Work shall convert the loop ramps to directional flyover ramps. Two lower-volume loop ramps serving I-95 northbound to I-16 westbound and I-16 eastbound to I-95 northbound are to remain as loop ramps but shall have improved horizontal and vertical alignments. A new northbound collector-distributor lane shall be constructed to separate weaving between the remaining loop ramps from the I-95 mainline.

The two existing emergency crossovers shall be replaced by a two-lane emergency crossover located just east of the I-16/I-95 interchange. During an emergency, I-16 becomes a one-way freeway in the westbound direction using contraflow lanes. The emergency crossover shall provide access to contraflow lanes for vehicles in the westbound lanes. The emergency crossover shall exit the I-16 westbound lanes where there are still three lanes and merge with the I-16 eastbound lanes (contraflow lanes) west of where the I-95 ramps merge with I-16 eastbound. Hurricane gates, which are utilized during an emergency to help direct traffic, shall be installed at the crossover and at appropriate ramps as dictated by GDOT's hurricane plan described in Section 11.2.10.

Four existing bridges, including I-95 over I-16, I-16 over the CSX Transportation (CSXT) Railroad and Bunger Pit Road, I-16 eastbound over the CSXT Railroad and Tremont Road, and I-16 westbound over CSXT and Tremont Road, shall be replaced as part of this Project. Other bridges within the Project limits shall be rehabilitated. See Section 13, Table 13-1 Bridge Requirements.

1.2.1 Design and Construction Requirements

No additional requirements.

1.3 Transitions to Adjacent Infrastructure, Roadways and Facilities

No additional requirements.

2 PROJECT MANAGEMENT

2.1 General Requirements

No additional requirements.

2.1.1 Management Organization and Personnel

No additional requirements.

2.1.1.1 DBE Manager

Supplement to following to Section 2.1.1.1 of Volume 3:

The DB Team shall assign a DBE manager to the Project beginning no later than NTP 1 and shall commit no less than 50% of their time to DBE management. The DBE manager shall not a designated Key Team Member as listed in Form G of the ITP. Should the DBE manager leave the employment of the DB Team, leave the Project, or GDOT finds the DB Team's DBE manager's performance to be poor or unacceptable, the DB Team shall replace the DBE manager with (an) equal or better replacement(s) meeting all original qualification requirements within fourteen (14) days of written notice from GDOT.

2.1.2 Partnering

Supplement the following to Section 2.1.2 of Volume 3:

Partnering is a process of collaborative teamwork that allows groups to achieve measurable results through agreements, productive working relationships and achievement of the parties' mutual goals. The DB Team shall participate in partnering meetings to commence fifteen (15) days after NTP 1 and occur at approximately ninety (90) days intervals thereafter until Final Acceptance. The DB Team's participation shall include senior leadership of the Lead Contractor and Lead Design Consultant, as well as relevant project manager(s), and/or pertinent subcontractors. GDOT will facilitate such meetings, which may include senior leadership from GDOT and/or other relevant stakeholders including FHWA.

2.1.3 Project Communications

No additional requirements.

2.1.4 Project Management Controls System (PMCS)

Supplement the following to Section 2.1.4 of Volume 3:

The DB Team shall be required to use GDOT's PMCS, e-Builder, for contract administration processes including requests for information, Supplemental Agreements, Payment Requests, and SRTA-DB Team official correspondence. The DB Team shall attend a training session at GDOT's office, or other mutually agreeable location, within thirty (30) days of the execution of the Agreement. The DB Team shall contact GDOT's project manager within fourteen (14) days of the execution of the contract to schedule the

training session. Failure to timely attend the training session may result in delays to the Project.

2.1.5 Document Management

No additional requirements.

2.1.6 Joint Project Inspection

No additional requirements.

2.1.7 Photography

No additional requirements.

2.1.8 Requirements for GDOT Office and Equipment

Supplement the following to Section 2.1.8 of Volume 3:

At a minimum, except where noted elsewhere in the DB Documents, DB Team's Key Personnel and major task managers and GDOT personnel shall co-locate in one building in Chatham County, within five (5) miles of the construction site until Final Acceptance to facilitate Project coordination and daily communication. The definition of "co-locate" for the DB Documents is the shared office building along or adjacent to the Project housing the key Project members of both GDOT and DB Team and meeting the conditions of this Technical Provision.

From NTP 1, the DB Team shall co-locate, at a minimum, the following key Project members: contract management team, Lead Contractor Project Manager, Project Controls Manager, Engineer of Record (EOR), Quality Assurance Manager, Contractor Superintendent, Environmental Compliance Manager, Worksite Utility Control Supervisor, and safety manager for the Term of the Project. The following DB Team design personnel (at a minimum) shall be co-located from NTP 1 through the completion of Final Design: Lead Design Consultant Project Manager and task design managers for roadway, drainage, structural, and traffic. The DB Team shall co-locate the following key Project members no later than fourteen (14) days prior to the initial NTP 3: Construction Quality Assurance Manager, Worksite Erosion Control Supervisor, and the Worksite Traffic Control Supervisor.

DB Team shall provide GDOT office space (available for occupancy) no later than sixty (60) Days after issuance of NTP 1. The location, condition, equipment, and amenities of the office space for GDOT are subject to GDOT's prior written approval.

2.1.8.1 General Office Requirements for Facilities Provided by the DB Team

2.1.8.1.1 DB Team shall, as part of the Project, provide and pay for the following:

1. Reception area with work desk and seating area for five (5) guests. Furniture and equipment shall include:
   a. One (1) desk with at least 24 square feet of surface area with four (4) to six (6) lockable drawers with keys
   b. One (1) office desk chair on wheels for each desk provided
   c. Straight-back (non-rolling) office guest chairs or couch seating or combination thereof for five (5) guests
   d. One (1) garbage can
   e. One (1) filing cabinet with two (2) lockable drawers
2. A minimum of twenty-five (25) staff work spaces with accompanying facilities, equipment, and services necessary for GDOT and/or GDOT representatives to oversee the Work. Ten (10) spaces shall be offices with full wall height and lockable doors. The remaining fifteen (15) staff spaces may be either cubicles or offices.
3. DB Team may reduce the total number of office spaces to fifteen (15) work spaces for the final year of the contract or not less than 180 calendar days from the Final Acceptance Date provided that ten (10) staff work spaces shall be offices with full wall height and lockable doors, and the remaining five (5) staff work spaces may be either cubicles or offices.
4. High-speed internet service as specified below for all offices and meeting spaces.
5. An enclosed inside space for storage of equipment of at least 100 square feet in size.
6. A computer/phone equipment room of at least 100 square feet in size.
7. One (1) gender-specific restroom for each eight (8) male employees and one (1) gender-specific restroom for each eight (8) female employees that includes at minimum a toilet and sink in each restroom.
8. A combination break- and lunch-room area at least 400 square feet in size with refrigerator, two (2) microwaves, sink, storage cabinets, drawers, tables, and chairs for no less than ten (10) people, a dishwasher, and a water cooler. The restrooms and break/lunch rooms may be in shared areas.
9. At least one (1) large conference room for shared use between the DB Team and GDOT with tables and chairs capable of

seating twenty (20) people. The conference room shall be equipped with a 4 feet x 8 feet (minimum) dry erase board and a minimum of 20 feet of display rail (cork strip style, clamp style, or approved other) for hanging roll plots and other display materials.

10. At least two (2) conference rooms for GDOT's exclusive use:
    a. One (1) large conference room with tables and chairs capable of seating 20 people; The large conference room shall be equipped with a 4-foot x 8-foot (minimum) dry erase board and a minimum of 20 feet of display rail (cork strip style, clamp style, or approved other) for hanging roll plots and other display materials.
    b. One (1) smaller conference room with tables and chairs capable of seating eight (8) people. The smaller conference room shall be equipped with a 4-foot x 6-foot (minimum) dry erase board and a minimum of 20 feet of display rail (cork strip style, clamp style, or approved other) for hanging roll plots and other display materials.
11. Three (3) large-screen LED TVs, including VGA and HDMI cables (see Table 2-1), that shall be wall-mounted; one (1) each in the large conference rooms and one in the smaller conference room.
12. Display rail (cork strip style, clamp style, or approved other) for hanging roll plots and other display materials:
    a. In all three conference rooms: see above requirements
    b. In all walled offices: 10 feet minimum in each
    c. In the general work area: 20 feet minimum
13. Dry Erase Boards:
    a. Conference rooms: see above requirements
    b. Walled offices: One 4 feet x 6 feet (minimum) dry erase board in each room
    c. General work area: One 4 feet x 8 feet (minimum) dry erase board
    d. Combination break- and lunch-room: One 4 feet x 8 feet (minimum) dry erase board

14. Maintenance of the Project office space for at least sixty (60) Days after Final Acceptance or until otherwise agreed to by GDOT in writing.

15. Provide disposal or removal of all temporary office facilities and facilitate any site restoration needed when and as agreed to by GDOT in writing.

2.1.8.1.2 The office space and equipment provided by DB Team for GDOT shall be in good and serviceable condition, at least of the same quality as those of DB Team's local Project Office, at all times. DB Team and GDOT shall participate in a facility condition survey prior to and at the completion of occupancy.

Each staff work space, shall be at least 120 square feet in size and shall include:

1. One (1) desk with at least 24 square feet of surface area with four (4) to six (6) lockable drawers with keys
2. One (1) office desk chair on wheels for each desk provided
3. Two (2) straight-back (non-rolling) office guest chairs for each desk provided
4. One (1) garbage can
5. One (1) filing cabinet with two (2) lockable drawers
6. One (1) 36-inch x 72-inch bookcase with minimum four (4) shelves

All space requirements are approximate in nature. Facilities that reasonably comply with these space size requirements will be acceptable.

2.1.8.1.3 DB Team shall provide a minimum of three (3) desktop computers: two (2) desktop computers with CAD software (MicroStation and AutoCAD) and Microsoft Office, Bluebeam, Visio and MS Project installed; and one (1) desktop computer with Microsoft Office installed for the reception area. Minimum requirements for the computers are shown in Table 2-1. All computer, printer, plotter, photocopy, and/or phone equipment shall include the appropriate data and/or voice cabling for a complete installation, and shall include cord protectors for all cables and cords in exposed areas, per safety standards.

DB Team shall provide, install, and maintain the following equipment, in working order, for the GDOT Project office:

1. A full Network system with managed business fiber/cable internet service, start-up training, and maintenance of the system throughout the duration of the contract;
2. Internet Service with Static IP address to allow port forwarding for external access;
3. A full-scale color plotter capable of roll plots of 36-inch width (minimum);
4. A scanner capable of handling 11-inch x 17-inch (tabloid) scans or full size (24 inches by 36 inches) scans and converting to PDF and JPEG formats;
5. At least two (2) high-speed color laser printers capable of handling tabloid (11 inches by 17 inches) prints;
6. At least two (2) high-speed color photocopy machines; and
7. One (1) facsimile transmission machine (facsimile functionality may be incorporated into the photocopy machine/scanner).

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Table 2-1: Minimum Office Equipment Requirements

Item	Processor	Hard Drive	RAM	Video Card	Operating System	Other	Quantity/Units
Desktop Computer CPU	Core i7 or latest E2400/3.1 GHz	500 GB	8GB	Integrated Video, Intel GMA 4500, Display Port/VGA	Latest Windows system	CD/DVD Burner	3
Desktop/Network Server or Equivalent Cloud Network (NAS)	Core i7 or latest E2400/3.1 GHz	1 TB	16GB		Latest Windows system	CD/DVD Burner; Backup; Remote Access	1

	Size	Min Resolution	Hertz	Display	Output	Other	Quantity/Units
Monitor	24-inch	1920x1080	60 >	Anti-glare, LCD	DVI/V GA		Two (2) per each staff work space including the reception area
Monitor for Server	19-inch	1440x900	60	Anti-glare, LCD	DVI/VGA		1
Large Screen/TV LED, including VGA and HDMI cables	65-inch and 60-inch	1080p	120-240	LED TV	HDMI/VGA/ USB		2 @ 65-inch 1 @ 60-inch
Switch Network Box, 48 ports (minimum)						VOIP	1
Wireless Routers capable to cover the entire office area							minimum 2
Conference Call Station/Device							3 (one each conference room)

Item	Processor	Hard Drive	RAM	Video Card	Operating System	Other	Quantity/Units
Refrigerator	min. 24 Cubic ft with icemaker						2
Coffee Maker	20 Cup						3
Microwave	min. 2 Cubic ft, 1250 watts						2

	Max Size	Color/Black and white	DPI	Pages Per Min minimum	Scanning Option	Other	Quantity/Units
Plotters	2 x 500 ft Roll	Color	1200 x 1200	Color: 3.5 min/page (A1) Black and White: 55 sec/page (A1)	No	Memory - 256 MB,	1
Printers	11" x 17" Sheet	Color	1200 x 1200	Color: 31 ppm	Yes	Two-sided Printing	2
Copier/Printer - multi function	11" x 17" Sheet	Color	1200 x 1200	Color: 31 ppm	Yes	Two-sided Printing, multi tray, auto staple, network connectivity	2

2.1.8.1.4 Furniture and equipment for the Project office shall include, but shall not be limited to:

1. Four (4) fire-proof and lockable filing cabinets with keys, two (2) that consist of four (4) drawers each.
2. Plan racks capable of holding two (2) sets of all Project plans with no more than 100 sheets per hanger.
3. At least 200 square feet of tabletop space for review of plans (folding tables are acceptable).
4. One (1) 3-hole heavy duty paper punch.
5. One (1) guillotine style paper trimmer.
6. A separate three-drawer file cabinet, with legal-size width of each drawer.

2.1.8.1.5 Monthly office supplies required shall include but are not limited to: scissors, staplers, pens, notebook pads/paper, binders, highlighters, hanging folders for filing cabinets, tape and tape dispensers, masking tape, dry erase markers, erasers, cleaners, break room supplies (coffee service, napkins, paper towels, disposable plates and utensils, dish soap, garbage can), and any other materials/supplies required to maintain productivity of each employee.

DB Team shall, for the local Project office:

1. Secure a well-graded site that has an access road, a parking area, and building space that meets all local building code requirements.
2. Obtain all site permits.
3. Provide all Utility services.
4. Provide a designated parking area for each facility for the intended number of occupants plus visitor spaces to reasonably accommodate stakeholders who may visit the offices for meetings. The parking area shall be reasonably level and have an all-weather surface and all-weather access.
5. Provide a secured, fenced area with a 6-foot-high chain-link fence with an extension arm and barbed wire as specified in GDOT Specification 643 for overnight storage of GDOT personnel vehicles. Equip the fence with matching gates (meeting the requirements of GDOT Specification 643) consisting of one (1) double 7-foot by 6-foot gate, and one (1)

single 4-foot by 6-foot gate. Include positive-type locking devices, a padlock, and a minimum of two keys for each gate.

6. Provide an outside shed of at least 150 square feet at each facility for storage of small tools and equipment for the exclusive use of GDOT.
7. Provide at least two building entrances/exits for each building − each secured with a door lock plus a dead-bolt lock and electronic security system. GDOT spaces shall be separated by lockable doors from each other and from DB Team's space.
8. Ensure that the site and office space meet all accessibility requirements of the Americans with Disabilities Act (ADA), as amended (42 USC §12101, et seq.).
9. Ensure electricity service and interior overhead lighting that meets OSHA standards and building and electrical code requirements for office space, with minimum electrical circuit capacity of twenty (20) amperes and with at least two (2) duplex electrical receptacles in each personal office area.
10. Ensure heating, ventilation, and cooling systems can maintain temperatures between 65 and 78 degrees Fahrenheit in all spaces within the office throughout the year; GDOT shall maintain control of thermostats.
11. Provide daily janitorial service (except on Saturdays, Sundays, and holidays), including maintenance of trash containers and trash pickup service.
12. Provide maintenance of the exterior areas, including the access to parking areas, that keeps them neat, clean, in good repair, and safe.
13. Ensure there is exterior security lighting that is automatically activated at low-light levels to maintain at least two-foot-candles of lighting within the fenced office site.
14. Provide 24-hour security patrol service or a silent watchman-type security system.
15. Provide hard-wired internet access in each staff work space, and pay for monthly service charges.
16. Provide telephone and telephone service (local and U.S. long-distance) with at least one direct outside line (with voicemail service) for each staff work space and at least one line dedicated to fax service.

17. Provide telephone and telephone service (local and U.S. long-distance) with at least three direct outside lines (with voicemail service) for reception desk.
18. Provide telephone and telephone service (local and U.S. long-distance) with at least 2 direct outside lines (with speaker type teleconferencing capability) for each conference room.
19. Access to mail service at the Project office.
20. Provide potable water and sewer service.

All internet/phone service shall be routed through servers located within the United States (no routing outside of the US). GDOT use shall not be monitored nor restricted by the DB Team.

If any loss or damage has been caused as a direct result of willful misconduct of GDOT personnel, GDOT will reimburse DB Team for the actual, reasonable, and documented costs of the repair, replacement, and/or restoration prior to the Termination Date.

2.1.8.2 Connectivity

The DB Team shall make necessary arrangements for allowing access to the GDOT-provided server, printers and other hardware either through “hardwiring” or remote access. The DB Team shall also make arrangements for all of GDOT’s computers to be linked directly to GDOT’s network.

2.1.8.2.1 *Backup of Electronic Files and Protection of Hardcopy Files*

The DB Team shall provide a secure, fireproof location in which to store electronic and hardcopy backup files.

2.1.8.3 Site Identification Signing

The DB Team shall provide site identification signing at all Project offices and all sites of Work.

2.1.8.4 Communication

The DB Team shall establish and maintain telephone and radio communications, as appropriate, to control the Work and maintain communications with GDOT, third parties, railroads and local and regional emergency response agencies or entities. The DB Team shall not use police or other emergency services’ radio frequencies.

The DB Team shall provide daily courier service between the DB Team’s main Project office, DB Team’s satellite offices, GDOT’s Savannah Area Office, and any GDOT field office on the Project at 10:00 a.m. and 3:00 p.m. each Working Day or as mutually agreed by the DB Team and GDOT.

2.2 Project Management Plans

No additional requirements.

2.2.1 Project Management Plan Requirements

No additional requirements.

2.2.2 Administrative Functions

No additional requirements.

2.2.3 Project Team Communications

No additional requirements.

2.2.4 Safety Plan

No additional requirements.

2.2.5 Construction Phasing Plan and Submittal Schedule

Supplement the following to Section 2.2.5 of Volume 3:

A segment layout diagram is provided in Attachment 2-1 Segment Layout Diagram.

2.2.6 Public Information and Communications Plan

No additional requirements.

2.2.7 Comprehensive Environmental Protection Program

No additional requirements.

2.2.8 Right of Way Acquisition Plan

No additional requirements.

2.2.9 Demolition and Abandonment Plan

No additional requirements.

2.2.10 Transportation Management Plan

No additional requirements.

2.2.11 Construction Maintenance Limits Plan

No additional requirements.

2.2.12 Maintenance Management Plan

No additional requirements.

2.2.13 Hazardous Materials Management Plan

No additional requirements.

2.3 Quality Management Requirements

2.3.1 General

No additional requirements.

2.3.2 Quality Management Plan

No additional requirements.

2.3.3 Quality Management Plan Structure

No additional requirements.

2.3.4 Nonconforming Work and Corrective Action

No additional requirements.

2.3.5 Quality Terminology

No additional requirements.

2.3.6 Quality Organization

No additional requirements.

2.3.7 Responsibility and Authority of DB Team Staff

No additional requirements.

2.3.8 Design Quality Management

No additional requirements.

2.3.9 Construction Quality Management

Supplement the following to Section 2.3.9.13 of Volume 3:

GDOT will provide plant inspection, testing and certification of plant produced materials at existing GDOT approved plant locations such as for precast/pre-stressed concrete, asphalt, and structural steel fabrication.

2.3.10 Final Inspection

No additional requirements.

2.3.11 Quality Documentation

No additional requirements.

2.4 Safety and Security

No additional requirements.

2.4.1 Safety and Security

No additional requirements.

2.4.2 Worksite and Jobsite Analysis

No additional requirements.

2.4.3 Hazard Prevention and Personal Safety

No additional requirements.

2.4.4 Training

No additional requirements.

2.4.5 Incident and Emergency Management

No additional requirements.

2.5 Schedule Requirements

No additional requirements.

2.5.1 General Schedule Requirements

No additional requirements.

2.5.2 Staged Project Schedule Development

No additional requirements.

2.5.3 Schedule Organization

No additional requirements.

2.5.4 Schedule Requirements

No additional requirements.

2.5.5 Software Requirements

No additional requirements.

2.5.6 Scheduler Qualifications

No additional requirements.

2.5.7 Resource Loading a Recovery Schedule

No additional requirements.

2.5.8 Schedule of Values (SOV) and Cost-Loading

No additional requirements.

2.5.9 Maximum Pavement Curve

No additional requirements.

2.5.10 GDOT Review, Approval, and Acceptance

No additional requirements.

2.6 Progress, Payment Requests, and Payment

No additional requirements.

2.6.1 Payment Activities

No additional requirements.

2.6.2 Payment for Final Completion Activities

No additional requirements.

2.6.3 Reporting Progress

No additional requirements.

2.6.4 Payment Request

No additional requirements.

2.6.5 Payment Request Review Meeting

No additional requirements.

2.6.6 Approval of Payment Requests

No additional requirements.

2.6.7 Certification for Progress Payment

No additional requirements.

2.6.8 Documents Required to be Provided with the Payment Requests

No additional requirements.

2.6.9 Limitations on Progress Payments

No additional requirements.

2.6.10 Price Reductions for Nonconforming Work

No additional requirements.

2.6.11 Other Deductions

No additional requirements.

2.6.12 Processing and Payment

No additional requirements.

2.6.13 Prompt Payment to Contractors and Subcontractors

No additional requirements.

2.6.14 Application for Final Payment

No additional requirements.

2.6.15 Final Payment

No additional requirements.

2.6.16 No Waiver

No additional requirements.

2.6.17 Disputes

No additional requirements.

2.7 Public Information and Communications

2.7.1 General Requirements

No additional requirements.

2.7.2 Administrative Requirements

No additional requirements.

2.7.3 Project Information Coordinator (PIC)

No additional requirements.

2.7.4 Monthly Public Information and Communications Reporting

No additional requirements.

2.7.5 Emergency Event Communications

No additional requirements.

2.7.6 Disseminating Public Information

No additional requirements.

2.7.7 Public Involvement Action Items

Supplement the following to Section 2.7.7 of Volume 3:

DB Team shall support GDOT in the planning and implementation of up to ten (10) public meetings, up to twelve (12) stakeholder working group meetings, and up to forty (40) public outreach presentations to inform stakeholders and the public of construction plans and detours. DB Team support shall include attendance of the DB Team PIC and other DB Team SMEs at meetings, upon request.

3 DESIGN AND SUBMITTALS

3.1 General

No additional requirements.

3.1.1 GDOT Standards and Manuals

Supplement the following to Section 3.1.1 of Volume 3:

The DB Team shall meet all requirements of the AASHTO Manual for Assessing Safety Hardware (MASH), 2nd Edition, 2016. The DB Team shall ensure that its designs and installation meet the required MASH implementation dates during the life of the contract.

Special Provision 621 (Concrete Barrier) is required; see Volume 2 Attachment 3-1.

3.1.2 Detailed Estimate of Quantities

No additional requirements.

3.2 Design

3.2.1 Design Workshop

No additional requirements.

3.2.2 Design Reviews

No additional requirements.

3.2.3 Changes Subsequent to Review

No additional requirements.

3.3 Other Agency Approvals

3.3.1 Federal Aviation Administration

No additional requirements.

3.4 Design Data Book

No additional requirements.

3.5 Design Submittals and Progress of Design Work

Supplement the following to Section 3.5 of Volume 3:

The DB Team shall provide Project Submittals detailed in Table 3-1: Master Submittal List below. Each required Submittal shall be delivered to GDOT in conformance of the

review times provided. The times provided are specifically for the review period required for GDOT to comment and GDOT to subsequently accept (if all requirements of the DB Documents are met) or approve, as applicable. Not all Submittals listed in Table 3-1: Master Submittal List may be required for the Project and some Submittals may be combined into a single Submittal such as the Project Management Plans; DB Team shall coordinate with GDOT prior to combining any Submittals and receive GDOT approval prior to omitting any listed Submittals.

ABBREVIATIONS FOR TABLE

ASC	Point File for Survey Data
AR	As Required
DTM	Digital Terrain Model
FS	Full-size paper – meets GDOT Plan Presentation Guide
HC	Hard Copy – 8 ½ x 11 unless otherwise noted
HS	Half-size paper – meets GDOT Plan Presentation Guide
MP	Microsoft Project
MS	MicroStation File – Electronic
NA	Not Applicable
NTP	Notice to Proceed
PAS	Per Approved Schedule
PDF	Adobe PDF – One complete file and individual plan sheet files that meet GDOT Electronic Plans Process requirements

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Table 3-1: Master Submittal List

Section	Volume	Submittal Item	Format	Quantity	Delivery Date	Review Period* (Days)
2	3	Construction Phasing Plan (coordinate with ROW Acquisition Plan)	AR, PDF	1	Within 30 days from NTP 1	14
2	3	Submittal Schedule	AR, P6, PDF	1	Within 30 days from NTP 1	14
2	3	Design Submittal Guide / Index	AR, PDF	1	Prior to first design submittal	14
2	3	Updates to Design Submittal Guide / Index	AR, PDF	1	Updates required with subsequent submittals	14
3	3	Interim (optional) Design Submittal(s)	AR, PDF	1	Per approved Submittal Schedule	14
2, 3	3	Design and Construction Quality Records	AR, PDF	1	Always auditable; Submit at project completion	NA
3	3	Initial Project Design Data Book	AR, HC, PDF	3, 1	Within 30 days from NTP 1	14
3	3	Updates to Project Design Data Book (Preliminary Plan Submittal)	AR, HC, PDF	1, 1	Include with Preliminary Plans Submittal	14
3	3	Updates to Project Design Data Book (Interim Design and other Design Submittals)	AR, HC, PDF	1, 1	Include with Design Submittal	7
3	3	Updates to Project Design Data Book (Final Plans Submittal)	AR, HC, PDF	1, 1	Include with Final Plans Submittal	14
3	3	Updates to Project Design Data Book (Plan Revisions During Construction)	AR, HC, PDF	1, 1	Include with Plan Revisions During Construction	7
3	3	Final Project Design Data Book	AR, HC, PDF	3, 1	Include with Record Drawings (As-Built Plans) Submittal	14
3	3	Design Review meeting minutes	AR, PDF	1	Within 3 days of Design Review meetings	7
Management Plans						
2	***3***	***Project Management Plan and any updates***	***AR, PDF***	**1**	**See Section 2 of Volume 3**	**60**

Section	Volume	Submittal Item	Format	Quantity	Delivery Date	Review Period* (Days)
2	3	Design Quality Management Plan	AR, PDF	1	Within 30 days from NTP 1; prior to the start of design	14
2	3	Construction Quality Management Plan	AR, PDF	1	See Section 2 of Volume 3	14
2	3	Safety Plan	AR, PDF	1	See Section 2 of Volume 3	14
2	3	Quality Management Plan	AR, PDF	1	Within 30 days from NTP 1	14
2	3	Monthly Status Reports (includes cost, schedule, quality, status, etc.)	AR, PDF	1	5th of each Month	NA
2	3	Construction Progress Photos, including aerial and ground-level photos	AR, PDF	12	Monthly and as needed based on construction milestones or events	N/A
2	3	DB Team Internal Quality Audits	AR, PDF	1	As needed	NA
2	3	DB Team Non-Conformance Reports	AR, PDF	1	As needed	NA
2	3	GDOT–DB Team Communications Plan	AR, PDF	1	Within 30 days from NTP 1	14
2	3	Public Information and Communications Plan (PICP)	AR, PDF	1	Within 30 days from NTP 1	14
2,5,7	3	ROW Acquisition Plan	AR, PDF	1	Within 60 days from NTP 1	14
2,10	3	Demolition and Abandonment Plan	AR, PDF	1	Within 90 days from NTP 1	14
2	3	Project Schedule Workplan and narrative report	AR, HC, PDF	1	With Preliminary Baseline Schedule	14
Schedules						
2	3	Proposal Schedule, cost-loaded Proposal Schedule	AR, HS, P6, PDF	1, 3, 1, 1	With Proposal	NA
2	3	Scheduler Qualifications	AR, PDF	1	Within 14 days from NTP 1	14
2	3	Interim SOV based on the cost loaded Proposal Schedule	AR, PDF	1	Within 14 days from NTP 1	7
2	3	Preliminary Baseline Schedule	AR, P6, PDF	1, 1, 1	Within 30 days from NTP 1	30
2	3	Project Baseline Schedule	AR, P6, PDF	1, 1, 1	Within 120 days from NTP 1	30

Section	Volume	Submittal Item	Format	Quantity	Delivery Date	Review Period* (Days)
2	3	Revised Baseline Schedule	AR, P6, PDF	1, 1, 1	Within 30 days of Final Design, once 30% completion of Construction Work is achieved, or within 14 days of written notice, whichever occurs sooner	30
2	3	Recovery Schedule	AR, P6, PDF	1, 1, 1	Within 14 days of written notice	14
2	3	Cost-loaded Baseline Schedule (Project SOV) and accompanying Maximum Payment Curve	AR, P6, PDF	1, 1, 1	Within 14 days from acceptance of applicable Baseline Schedule	14
2	3	Progress Schedules	AR, P6, PDF	1, 1, 1	On or before 5th of each Month after acceptance of applicable Baseline Schedule	14
2	3	Resubmittals of Project Schedule, Project SOV and accompanying Maximum Payment Curve	AR, P6, PDF	1, 1, 1	Within 7 days from being directed	Varies based on submittal type
2	3	As-Built Schedule	AR, P6, PDF	1, 1, 1	At Final Acceptance	14
Existing Infrastructure						
2,19	3	Construction Maintenance Limits Plan	AR, PDF	1	Within 150 days from NTP 1	14
2,19	3	Maintenance Management Plan	AR, PDF	1	Within 150 days from NTP 1	14
2	3	Pre-Construction Photos and Videos	AR, PDF	1	Within 180 days from NTP 1, and Prior to Start of Construction	7
Public Information and Communications						
2	2	Agenda, Meeting Plan, Logistical Information, and Presentation Outlines for Outreach Meetings	AR, PDF	52	30 days in Advance of Meeting	7
2	2	Presentation Materials for Outreach/Stakeholder Meetings	AR, PDF	52	14 days in Advance of Meeting	7
2	2	Public Information Materials	AR, PDF	See Section 2.7,	As needed	7

Section	Volume	Submittal Item	Format	Quantity	Delivery Date	Review Period* (Days)
				Volume 3		
2	2	Public Information and Communication Report	AR, PDF	18	Monthly	7
2	3	DB Team Reviews of Public Information Materials	AR, PDF	1	As needed	7
2	3	Development Assistance for Project -Related Information for Project Website	AR, PDF	1	As needed	NA
2	2, 3	Construction Progress Photos and Video	AR, PDF	12	Monthly or as needed based on construction milestones or events	7
Environmental						
4	3	Information to support GDOT - Led Governmental Approvals	AR, PDF	1	As needed, per the approved Submittal Schedule	Table 4-1
2,4	***3***	***Comprehensive Environmental Protection Program (CEPP)***	***AR, PDF***	***1***	***Within 60 days from NTP 1***	***30***
4	3	Environmental Protection Training Program (EPTP)	AR, PDF	1	Within 60 days from NTP 1	30
4	3	Hazardous Materials Management Plan (HMMP)	AR, PDF	1	Within 60 days from NTP 1	30
4	3	UST and Hazardous Waste Site Investigation Report	AR, PDF	1	Within 180 days from NTP 1 and 30 days Prior to NTP 3	30
4	3	Section 404, CWA, permit	AR, PDF	1	**	Table 4-2
4	3	Water Quality Certification (concurrently with the USACE Nationwide Permit)	AR, PDF	1	**	Table 4-1
4	3	Applications to Regulatory Agencies, Application revisions, supplements	AR, PDF	1	As needed	***
ROW						
5, 7	3	Various ROW submittals	AR, PDF	As needed	See Sections 5 and 7	See Section 5 and 7
Utilities						

Section	Volume	Submittal Item	Format	Quantity	Delivery Date	Review Period* (Days)
6	3	Supplemental verification of Overhead/Subsurface Utility Engineering (SUE) Investigations - QL-B	AR, MS PDF	1	NTP (1) + 45 Calendar days (Or as Determined by State Subsurface Utilities Engineer at the SUE Kick-Off meeting which is concurrent with the first utility coordination meeting)	NA
6	3	SUE Utility Impact Analysis "UIA"	AR, PDF	1	NTP 1 + 120 Calendar days (Or as Determined by State Subsurface Utilities Engineer at the SUE Kick-Off meeting which is concurrent with the first utility coordination meeting)	NA
6	3	Overhead/Subsurface Utility Engineering (SUE) Investigations - QL-A as required	AR, MS, PDF	Plans: 2 for each Utility Owner +3 for Dept. and MS files	UIA + 45 Calendar days	NA
6	3	Overhead/Subsurface Utilities Engineering (SUE) Information to Utilities for Review (URPN Letter 1a - SUE Submit to Utility Companies Revise)	FS, HS, PDF, MS	Plans: 2 for each Utility Owner +3 for Dept. and MS files	NTP 1 + 5 Calendar days (Or as Determined by District Utilities Engineer at SUE Kick-Off meeting)	5 days for Dept. + 30 days for each Utility Owner

Section	Volume	Submittal Item	Format	Quantity	Delivery Date	Review Period* (Days)
6	3	Relocated Utility Plans (URPN Letter 2 - 2nd Submission Letter (Existing and Proposed))	FS, HS, PDF, MS	3, 1	Concurrently with Accepted SUE Verification by Utility Owner	5 days for Dept. + 90 days for each Utility Owner
6	3	Utility Retention Request	AR, PDF	1	As needed	14
6	3	Preliminary Utility Status Report	HC, PDF	Agreements: 3 hard copy, 1 electronic pdf Plans: 2 for each Utility Owner + 3 for Dept. and MS files	NTP 1 + 180 days Concurrently with Accepted Relocated Utility Plans and (URPN Letter 6 - Notice to Proceed with Permit)	10-days + 5 days

Section	Volume	Submittal Item	Format	Quantity	Delivery Date	Review Period* (Days)
6	3	Utility Plans/Agreements (Utility NTP Letter)	Plans/ Agreements HS, PDF, MS	1, 3, 1, 1	See Section 6 of Volume 3	Agreements: 30 days for Dept. + 60 days for each Utility Owner Plans: 30 days
6	3	Utility A/O Claims of Real Property Interests	AR, PDF	1	See Section 6 of Volume 3	14
6	3	Utility Adjustment Field Modification Procedure	AR, PDF	1	Prior to submittal of any Utility Work Plan	14
6	3	Utility Emergency Response Plan	PDF	1	30 days Prior to NTP 3	14
6	3	Utility Record Drawings (As-Built Plans)	FS, HS, PDF, MS	2,3,1,1	Concurrently w/Accepted Construction Record Drawings (As-Built Plans)	30 days for GDOT plus 30 days for Utility Owners
6	3	All Utility Meeting Minutes	AR, PDF	1	Within 7 days of Utility Meeting	7
Geotechnical						
8	3	Geotechnical Reports	AR, PDF	1	See Section 8 of Volume 3	30
8	3	Soil Survey Reports	AR, PDF	1	See Section 8 of Volume 3	30
8	3	WFI (Wall Foundation Investigation)	AR, PDF	1	**	30

Section	Volume	Submittal Item	Format	Quantity	Delivery Date	Review Period* (Days)
8	3	BFI (Bridge Foundation Investigation)	AR, PDF	1	**	30
8	3	Blasting Plan	AR, PDF	1	As needed	30
8	2	High Mast Light Foundation Investigation	AR, PDF	1	**	30
Survey						
9	3	Property Owner Notification Letters	AR, PDF	1	As needed	7
9	3	Survey Control Package	AR, ASC, PDF	1	Prior to Project Completion	N/A
9	3	Bound Field Notes	AR, PDF	1	Prior to Project Completion or upon GDOT request	N/A
9	3	Topographic Mapping	AR, DTM, PDF	1	Prior to Project Completion	N/A
Grading/Roadway						
10, 11	3	Preliminary Grading/Roadway Plans (60%±)	AR, PDF	1	Per the approved Submittal Schedule	14
10, 11	3	Final Grading/Roadway Plans (100%)	AR, PDF	1	Per the approved Submittal Schedule	14
11	3	Vibration Control Plan	AR, PDF	1	Within 120 days from NTP 1 and 30 days prior to NTP 3	14
11	2	Technical Data for Longitudinal Emergency Access Gate System	AR, PDF	1	Per the approved Submittal Schedule	14
11	2	Emergency access configuration/interval	AR, PDF	1	Per the approved Submittal Schedule	14
Lighting/Electric/Power						
11,17	3,2	Electrical Power Calculations	AR, PDF	1	See Section 17 of Volume 2	14
17	2	Electrical System Operations and Maintenance Manuals	AR, PDF	1	See Section 17 of Volume 2	14
17	2	Electrical System Training Plan	AR, PDF	1	See Section 17 of Volume 2	14
17	2	Electrical Design Voltage Drop Calculations	AR, PDF	1	See Section 17 of Volume 2	14
Drainage						

Section	Volume	Submittal Item	Format	Quantity	Delivery Date	Review Period* (Days)
12	3	Drainage Design Report (Phased)	AR, PDF	1	Per the approved Submittal Schedule	14
12	2	Stormwater System Report(s)	AR, PDF	1	Per the approved Submittal Schedule	14
12	3	Annual Outfall Inspection Report	AR, PDF	1	Within 30 days of Annual DB Team Inspection	14
12	3	Post-Construction Stormwater Report	AR, PDF	1	See Section 12 of Volume 3	21
Structures/Bridges						
13	***3***	***Preliminary Bridge Layouts***	***AR, FS, HS, PDF***	***2, 6, 1***	**	***14***
13	***3***	***Preliminary Wall Layouts***	***AR, FS, HS, PDF***	***2, 6, 1***	**	***14***
13	***3***	***Final Bridge Plans***	***AR, FS, HS, PDF***	***2, 6, 1***	**	***30***
13	***3***	***Final Wall Plans***	***AR, FS, HS, PDF***	***2, 6, 1***	**	***30***
Railroad						
14	2	Submittals as required per railroad requirements	AR	AR	** and as required by the railroad	As required by the railroad
Signing, Pavement Marking and Signalization						
16	***3***	***Preliminary Signing and Marking, Signal Plans (per phase)***	***AR, FS, HS, PDF***	***2, 6, 1***	***Per the approved Submittal Schedule***	***14***
16	***3***	***Final Signing and Marking, Signal Plans***	***AR, FS, HS, PDF***	***2, 6, 1***	***Per the approved Submittal Schedule***	***14***
16	3	Preliminary Permanent Signing Unveiling Plan	AR, PDF	1	120 days prior to open to Traffic	7
16	3	Final Permanent Signing Unveiling Plan	AR, PDF	1	60 days prior to open to Traffic	7
16	3	Traffic Signal Permitting /Engineering Study (per phase)	AR, PDF	1	Per the approved Submittal Schedule	14

Section	Volume	Submittal Item	Format	Quantity	Delivery Date	Review Period* (Days)
16	3	New Sign requests	AR, PDF	1	As needed	14
16	3	Overhead Sign Support Structures Concept Plans	AR, PDF	1	Per the approved Submittal Schedule	14
16	3	Overhead Sign Support Structures Final Plans	AR, PDF	1	Per the approved Submittal Schedule	14
16	3	Traffic Signal Timing Plans	AR, PDF	1	Per the approved Submittal Schedule	14
16	3	Traffic Signal O & M Documentation	AR, PDF	1	Per the approved Submittal Schedule	14
ITS and Network						
17	2	Preliminary ITS Plans	AR, FS, HS, PDF	2, 6, 1	Per the approved Submittal Schedule	14
17	2	Final ITS Plans	AR, FS, HS, PDF	2, 6, 1	Per the approved Submittal Schedule	14
17	2	3D Visualization (ITS) Model	AR,	1	Per the approved Submittal Schedule Prior to Preliminary Plans	7
17	2	Inventory of Existing ITS	AR, PDF	1	30 days from NTP 1	7
17	2	ITS Maintenance and Repair Plan	AR, PDF	1	30 days from NTP 1	14
17	2	ITS Responsive and Diagnostic Repair Plan	AR, PDF	1	30 days from NTP 1	14
17	2	Fiber Duct Validation Report	AR, PDF	1	90 days from NTP 1	NA
17	2	Installation and Integration Plan	AR, PDF	1	120 days from NTP 1	30
17	2	Final Record Drawings	AR, FS, HS, PDF	2, 6, 1	30 days After to Substantial Completion	30
17	2	Manufacturer Equipment Documentation/Manufacturer Warranties	AR, PDF	1	120 days prior to Substantial Completion	14
Traffic Control						
2,18	***3***	***Transportation Management Plan***	***AR, PDF***	***1***	***Within 120 days from NTP 1***	***21***
18	3	Traffic Control Plans (each Phase)	AR, PDF	1	Per the approved Submittal Schedule	14

Section	Volume	Submittal Item	Format	Quantity	Delivery Date	Review Period* (Days)
18	3	GP lane closure or reduced widths	AR, PDF	1	Must also meet PICP for pubic coordination timing	14
Maintenance During the Design-Build Period						
2,19	3	Construction Maintenance Limits Plan	AR, FS, HS, PDF	2, 6, 1	150 days from NTP 1, or Prior to given Phase; approval before construction	14
Additional Submittals						
3	3	Conceptual Layout Plan	AR, FS, HS, PDF	6, 10, 1	**	14
3	**3**	**Preliminary Plans (60%) (complete set)**	**AR, FS, HS, PDF**	**6, 10, 1**	**	**21**
3	3	Interim Design	AR, FS, HS, PDF	6, 10, 1	**	14
3	***3***	***Final Plans (100%) per Construction Phase (complete set)***	***AR, FS, HS, PDF***	***3, 10, 1***	**	***21***
3, 4	3	Notice of Intent (NOI) with final/signed Erosion Control Plans	AR, PDF	1	**	14
3	3	Shop Drawings	AR, PDF	1	**	14
3	3	Temporary Works - where public safety may be affected	AR, PDF	1	**	14
3	3	Plan Revisions During Construction	AR, PDF	1	**	14
3	3	Record Drawings (As-Built Plans) per Construction Phase	AR, FS, HS, PDF	6, 10, 1	**	14
3, 12	3	Drainage Plans	AR, FS, HS, PDF	2, 6, 1	**	14
3, 12	3	Hydraulic and Hydrology Report	AR, PDF	1	**	14
3, 11	3	Pavement Joints and Elevations	AR, PDF	1	**	14
12	3	Restoration/Mitigation	AR, PDF	1	**	14
3, 10	3	Grading Plans	AR, FS, HS, PDF	2, 6, 1	**	14

Section	Volume	Submittal Item	Format	Quantity	Delivery Date	Review Period* (Days)
15	3	Landscaping and Permanent Erosion Control Plans	AR, FS, HS, PDF	2, 6, 1	**	14
3, 12	3	Temporary Erosion Control Plans	AR, FS, HS, PDF	2, 6, 1	**	14
16	3	Intersection Design Studies	AR, PDF	1	**	14
3	3	Draft Design Specifications, Reports, Whitepapers, etc.	AR, PDF	1	**	14
3	3	Final Design Specifications, Reports, Whitepapers, etc.	AR, PDF	1	**	14
3	3	Site observation compliance report	AR, PDF	1	See Section 3 of Volume 3	14
All	All	Meeting Minutes	AR, PDF	1		14
N/A	N/A	Subcontracts	AR, PDF	1	In accordance with the Construction Manual	14

*Review period is the period required for the generation of comments or the review time to determine the sufficiency of the document and the state or status of the document. Multiple review periods may be required for any submittal and shall be planned for by the DB Team in securing "accepted" or "approved" status from GDOT.

If a submittal is not listed, the review time shall be 30 days per Article 6.3.2.

** Based upon the accepted Baseline Schedule
*** Time of review will be based upon actual impact to Project
**** See Technical Provisions
BOLDED and *Italicized* = requires FHWA review and approval

ABBREVIATIONS TABLE	
ASC	Point File for Survey Data
AR	As Required
DTM	Digital Terrain Model
FS	Full-size paper – meets GDOT Plan Presentation Guide
HC	Hard Copy – 8 ½ x 11 unless otherwise noted
HS	Half-size paper – meets GDOT Plan Presentation Guide
MP	Microsoft Project
MS	MicroStation File – Electronic
NTP	Notice to Proceed
PAS	Per Approved Schedule
PDF	Adobe PDF – One complete file and individual plan sheet files that meet GDOT Electronic Plans Process requirements

3.6 Additional Submittal Requirements

3.6.1 Staged Design Submittals

No additional requirements.

3.6.2 Changes to Accepted and Released for Construction Submittals

No additional requirements.

3.6.3 Presentation Requirements

No additional requirements.

3.6.4 Construction Plans Organization and Sheet Index

No additional requirements.

3.6.5 Computations

No additional requirements.

3.6.6 Submittal Formats

No additional requirements.

3.6.7 Additional Specifications

No additional requirements.

3.6.8 Submittals Process

No additional requirements.

3.6.9 Required Participants of the Process

No additional requirements.

3.6.10 GDOT Design Review Process

No additional requirements.

3.7 Shop Drawings and Temporary Works Submittals

3.7.1 General

No additional requirements.

3.7.2 Work Items Requiring Shop Drawings

Supplement the following to Section 3.7.2 of Volume 3:

Erection plans shall be submitted for curved steel bridges.

3.7.3 Schedule of Submittals

No additional requirements.

3.7.4 Style, Numbering, and Material of Submittals

3.7.4.1 Drawings

No additional requirements.

3.7.4.2 Other Documents

No additional requirements.

3.7.4.3 Qualified Products

No additional requirements.

3.7.4.4 DB Team-Originated Design

No additional requirements.

3.7.4.5 Temporary Works

No additional requirements.

3.7.4.6 Formwork and Scaffolding

No additional requirements.

3.7.4.7 Other Miscellaneous Design and Structural Details Furnished by the DB Team in Compliance with the Contract

No additional requirements.

3.7.5 Processing of Shop Drawings

3.7.5.1 DB Team Responsibility for Accuracy and Coordination of Shop Drawings

No additional requirements.

3.7.5.2 Scope of Review by the Shop Drawing Checking Engineer

No additional requirements.

3.7.5.3 Special Review by the Shop Drawing Checking Engineer of Shop Drawings for Construction Affecting Public Safety

No additional requirements.

3.7.6 Other Requirements for Shop Drawings for Bridges

3.7.6.1 Shop Drawings for Structural Steel and Miscellaneous Metals

No additional requirements.

3.7.6.2 Shop Drawings for Concrete Structures

No additional requirements.

3.7.6.3 Special Construction Submittals

No additional requirements.

3.7.6.4 Shop Drawings Requiring Railroad Coordination

No additional requirements.

3.7.6.5 Modifications on Construction

No additional requirements.

3.8 Release for Construction Documents

No additional requirements.

3.9 Record Drawings and Project Closeout

No additional requirements.

3.9.1 Final Inspection

No additional requirements.

3.9.2 Required Documents

No additional requirements.

3.9.3 Final Acceptance

No additional requirements.

4 ENVIRONMENTAL

4.1 General

Supplement the following to Section 4.1 of Volume 3:

Additional impacts will not be allowed to canals within the Project limits as shown in the approved Environmental Documents as of the Effective Date. These canals are the Hardin Canal, Raspberry Canal and Horseshoe Canal.

4.1.1 Standards

No additional requirements.

4.2 Environmental Approvals

4.2.1 Responsibilities Regarding Environmental Documents

Supplement the following to Section 4.2.1 of Volume 3:

The DB Team shall implement the commitment(s) per the Environmental Document Environmental Commitments and adhere to the Special Provision 107.23H requirements (Attachment 4-1). The DB Team is responsible for the purchase of all required mitigation credits. GDOT will acquire and pay for the restricted covenant mitigation credits necessary to amend the restricted covenant within Parcel 6 no later than December 31, 2018. The DB Team will be responsible for purchasing credits on Parcel 6, in accordance with the proposed final design, after GDOT amends the restricted covenant.

4.2.2 GDOT Review and Approval of Environmental Documents and Permits

Replace Table 4-2 and the accompanying notes with the following:

Table 4-1: DB Team-Led Environmental Permit Approval

Permit Required	Agency Review and Issuance Time Period (Calendar Days)(4)	Listed Applicant	Preparer of Application
United States Army Corps of Engineers (USACE) Section 404			
Section 404 General Permit (1)	140	GDOT	DB Team
Section 404 Individual Permit (2)	240	GDOT	DB Team
Subsurface testing of all Underground Storage Tanks and Hazardous Materials	150	GDOT	DB Team
National Pollutant Discharge Elimination System (NPDES) Construction General	14	DB Team	DB Team

Permit Required	Agency Review and Issuance Time Period (Calendar Days)(4)	Listed Applicant	Preparer of Application
Permit (GAR100002), Notice of Intent (NOI) (3)			
NPDES Construction General Permit (GAR100003), Notice of Intent (NOI)(3)	90	DB Team	DB Team
NPDES Construction General Permit (GAR150000), Notice of Termination (NOT) (3)	90	DB Team	DB Team
Georgia Stream Buffer Variance	150	GDOT	DB Team

(1) This applies to Section 404 permitting and if additional impacts are incurred after the permit has been approved, a new permit that covers all impacts is required and the original review times apply to the new permit. No work is authorized in the areas of the previous permit until the new permit is approved and construction authorization is received.
(2) This applies to Section 404 permitting impacts which may exceed the cumulative threshold for a General Permit.
(3) The current NPDES General Permit is set to expire July 31, 2018. A new NPDES General Permit is anticipated to go into effect on August 1, 2018. Information on the permit and proposed changes can be found at https://epd.georgia.gov/npdes-construction-storm-water-general-permits .
(4) The review and issuance time periods shall commence once a completed permit package that complies with the requirements of the DB Documents is accepted by GDOT and submitted to the issuing agency and end once the permit is issued by the appropriate Governmental Entity. Therefore, the DB Team shall schedule several review periods to ensure proper planning to accomplish the entire process for each required permit. Each GDOT review period is thirty (30) days. Should the Submittal not be complete or rejected as provided in Section 3, each subsequent review period shall be fifteen (15) days, and is excluded from the timeframe in Table 4-2 above.

4.3 Comprehensive Environmental Protection Program

No additional requirements.

4.4 Hazardous Materials Management Plan

No additional requirements.

5 RIGHT OF WAY (ROW) – DB Team Acquisitions

5.1 General

Supplement the following to Section 5.1 of Volume 3:

It is anticipated that ROW will be required from eighteen (18) parcels, of which four (4) of the parcels have MS4 Storm Water Management facility acquisition areas.

GDOT will provide the DB Team with Right-of-Way Plans identifying the Proposed ROW and Easements. The Proposed Right of Way Plans are included as Attachment 5-1. The DB Team shall develop Final Right of Way Plans and submit for approval prior to initiating any acquisition activities.

The Proposed ROW and Easements identified on Attachment 5-1 are the State Proposed/DB Team Acquired property rights, excluding property identified as Parcel 6 on Attachment 5-1.

No additional property rights can be acquired from Parcels 6, 7, 8, and 17 as identified on Attachment 5-1.

The location of areas shown as required for MS4 Storm Water Management facilities can be flexible within the property limits of the identified parcel shown on Attachment 5-1, but cannot exceed the size as proposed and cannot be relocated outside identified parcel property limits. Any increases above these limits or located outside identified proposed property limits will be classified as DB Team Proposed/DB Team Acquired and will be acquired in accordance with Section 7, unless the DB Team can clearly show with GDOT concurrence that the original area was undersized and because of such under-sizing it is necessary to exceed the size as proposed or relocate outside the identified parcel property limits.

5.1.1 Standards

No additional requirements.

5.2 Administrative Requirements

No additional requirements.

5.3 DB Team's ROW Scope of Services

No additional requirements.

5.4 DB Team Conflict of Interest

No additional requirements.

5.5 Responsibilities of DB Team

No additional requirements.

5.6 Responsibilities of GDOT

Supplement the following to Section 5.6 of Volume 3:

Parcel 6 identified as State Proposed/State Acquired and will be acquired by GDOT no later than December 31, 2018.

Parcels 7 and 8 identified as State Proposed/State Acquired and will be acquired by GDOT no later than July 31, 2019.

Parcel 17 identified as State Proposed/State Acquired and will be acquired by GDOT no later than eight (8) months after CSXT has accepted and/or issued “takes no exception” to the DB Team’s final plans within CSXT property.

5.7 Responsibilities of the Office of the Attorney General

No additional requirements.

5.8 ROW Acquisition Plan

No additional requirements.

5.9 Acquisition Process Summary

No additional requirements.

5.10 Advanced ROW Acquisition

No additional requirements.

5.11 Pre-Acquisition Activities

No additional requirements.

5.11.1 ROW Plans and Engineering

No additional requirements.

5.11.2 Title Services

No additional requirements.

5.11.3 Property Owner’s Meeting

No additional requirements.

5.11.4 Project Inspection Checklist

No additional requirements.

5.11.5 Appraisal Services

No additional requirements

5.12 Acquisition Activities

No additional requirements.

5.12.1 DB Team Responsibilities during ROW Negotiations

No additional requirements.

5.12.2 DB Team Responsibilities during Relocation Assistance

No additional requirements.

5.12.3 DB Team Responsibilities during Closings

No additional requirements.

5.12.4 DB Team Responsibilities during Administrative Appeal

No additional requirements.

5.12.5 DB Team Responsibilities for Condemnation Support

No additional requirements.

5.13 Post-Acquisition Activities

No additional requirements.

5.13.1 Certification and Release

No additional requirements.

5.13.2 DB Team Responsibilities for Clearance of ROW

No additional requirements.

5.13.3 DB Team Responsibilities for Property Fencing

No additional requirements.

5.14 Schedule and Reviews

No additional requirements.

5.14.1 Schedule

No additional requirements.

5.14.2 GDOT and/or FHWA Reviews

No additional requirements.

5.15 Meetings

No additional requirements.

5.16 Correspondence

No additional requirements.

5.17 File Management and Document Control

No additional requirements.

5.18 Project Tracking and Reporting

No additional requirements.

5.19 Quality Assurance, Quality Control, and Audits

No additional requirements.

6 UTILITY ADJUSTMENTS

6.1 General

No additional requirements.

6.1.1 Standards

No additional requirements.

6.1.2 Memorandum of Understanding (MOU)

Supplement the following to Section 6.1.2 of Volume 3:

See Attachment 6-1 through Attachment 6-19: Memorandums of Understanding for requirements related to coordination and relocations for all Utility owners within the Project Limits.

6.1.3 Responsibilities of the DB Team

Supplement the following to Section 6.1.2 of Volume 3:

See RIDs for the shelf special provisions regarding the insurance, coordination, design, construction and relocation of utilities.

6.1.3.1 DB Team Pre-Construction Coordination

No additional requirements.

6.1.3.2 DB Team Design Activities

No additional requirements.

6.1.3.3 DB Team Construction Activities

No additional requirements.

6.1.3.4 Worksite Utility Coordination Supervisor (WUCS)

No additional requirements.

6.1.3.5 General Responsibilities of GDOT

No additional requirements.

6.1.3.6 Utility Adjustment Relocation

No additional requirements.

6.1.3.7 When Utility Adjustment is Required

No additional requirements.

6.1.4 Certain Components of the Utility Adjustment Work

6.1.4.1 Betterments

No additional requirements.

6.1.4.2 Protection in Place

No additional requirements.

6.1.4.3 Early Adjustments

No additional requirements.

6.2 Administrative Requirements

6.2.1 Communications

6.2.1.1 Communication with Utility Owners: Meetings and Correspondence

No additional requirements.

6.2.2 Real Property Matters

No additional requirements.

6.2.2.1 Documentation of Existing Utility Property Interests - Affidavits

No additional requirements.

6.2.2.2 Acquisition of Replacement Utility Property Interests

No additional requirements.

6.2.2.3 Georgia Utility Permitting System (GUPS)

No additional requirements.

6.2.2.4 Documentation Requirements

No additional requirements.

6.2.2.5 Record Keeping

No additional requirements.

6.3 Design

6.3.1 DB Team's Responsibility for Utility Identification

No additional requirements..

6.3.2 Utility Relocation Plans

No additional requirements.

6.3.2.1 Plans Prepared by the DB Team

No additional requirements.

6.3.2.2 Plans Prepared by the Utility Owner

No additional requirements.

6.3.2.3 Design Documents

No additional requirements.

6.3.2.4 Certain Requirements for Underground Utilities

No additional requirements.

6.3.2.5 Utility Work Plan

No additional requirements.

6.3.2.6 Utility Adjustment Schedule (UAS)

No additional requirements.

6.3.2.7 Revised Work Plan Acceptance

No additional requirements.

6.3.2.8 Post-Let Utility Certification

No additional requirements.

6.4 Construction

6.4.1 Reserved

6.4.2 General Construction Criteria

Supplement the following to Section 6.4.2 of Volume 3:

The 6” steel abandoned jet fuel line (located around Sta. 1530+00 per the costing plans) is to be treated as an abandoned utility. If the abandoned jet fuel line is in conflict with the Project, the DB Team shall remove the abandoned jet fuel line under the requirements for clearing and grubbing as outlined in Section 201 of the Standard Specifications.

6.4.3 Inspection of Utility Owner Construction

No additional requirements.

6.4.4 Scheduling Utility Adjustment Work

No additional requirements.

6.4.5 Standard of Care Regarding Utilities

No additional requirements.

6.4.6 Emergency Procedures

No additional requirements.

6.4.7 Switch Over to New Facilities

No additional requirements.

6.4.8 Traffic Control

No additional requirements.

6.5 Deliverables

No additional requirements.

6.5.1 Utility Work Plan Submittals

No additional requirements.

6.5.2 Preliminary Utility Status Report

No additional requirements.

6.5.3 Subsurface Utility Engineering (SUE) Requirements

No additional requirements.

6.5.4 Utility As-Built Standard

6.5.4.1 General As-Built Utility Requirements

No additional requirements.

6.5.4.2 As-Built Utility CADD Files and Plans Preparation

No additional requirements.

6.5.4.3 Utility Record Drawings Review and Submittal Process

No additional requirements.

6.5.4.4 Utility Record Drawings Review and Submittal Process

No additional requirements.

7 RIGHT OF WAY (ROW) – Additional Properties

7.1 General

Supplement the following to Section 7.1 of Volume 3:

No additional property rights can be acquired from Parcel 6, 7, 8, and 17 as identified on Attachment 5-1.

7.1.1 Standards

No additional requirements.

7.2 Administrative Requirements

No additional requirements.

7.3 DB Team's ROW Scope of Services

No additional requirements.

7.4 DB Team Conflict of Interest

No additional requirements.

7.5 Responsibilities of DB Team

No additional requirements.

7.6 Responsibilities of GDOT

No additional requirements.

7.7 Responsibilities of the Office of the Attorney General

No additional requirements.

7.8 ROW Acquisition Plan

No additional requirements.

7.9 Acquisition Process Summary

No additional requirements.

7.10 Reserved

7.11 Pre-Acquisition Activities

7.11.1 ROW Plans and Engineering

No additional requirements.

7.11.2 Title Services

No additional requirements.

7.11.3 Reserved

No additional requirements.

7.11.4 Project Inspection Checklist

No additional requirements.

7.11.5 Appraisal Services

No additional requirements.

7.12 Acquisition Activities

No additional requirements.

7.13 Post-Acquisition Activities

No additional requirements.

7.14 Schedule and Reviews

No additional requirements.

7.15 Meetings

No additional requirements.

7.16 Correspondence

No additional requirements.

7.17 File Management and Document Control

No additional requirements.

7.18 Project Tracking and Reporting

No additional requirements.

7.19 Quality Assurance Quality Control and Audits

No additional requirements.

8 GEOTECHNICAL

8.1 General

No additional requirements.

8.1.1 Standards

No additional requirements.

8.2 Design Requirements

8.2.1 Subsurface Geotechnical Investigation by DB Team

Supplement Section 8.2.1 with the following:

The DB Team shall conduct Bridge Foundation Investigations (BFI) at each bridge location for this project. The DB Team shall conduct Wall Foundation Investigations (WFI) for proposed non-standard walls. The GDOT boring logs are only provided as a RID and GDOT accepts no liability for the accuracy of the boring logs.

8.2.2 Bridge Foundation Investigation (BFI)

No additional requirements.

8.2.3 Dynamic Pile Testing

No additional requirements.

8.2.4 Soil Survey (SS)

Supplement the following to Section 8.2.4 of Volume 3:

DB Team may choose to accept and use the approved soil report for this Project; however, the document is only provided as a RID and GDOT accepts no liability for the accuracy of the soil report. If the DB Team chooses to use the approved soil report, the Engineer of Record (EOR) shall provide GDOT with a letter agreeing to the conditions of this Section 8.2.4.

8.2.5 Pavement Design

No additional requirements.

8.2.6 Wall Foundation Investigation (WFI)

No additional requirements.

8.2.7 High Mast Lighting Foundation

Supplement the following to Section 8.2.7 of Volume 3:

DB Team is required to perform high mast light foundation investigation(s) and provide a Geotechnical Investigation (often referred as HMLFI or HMI) report to determine the foundation type that is to be used at each location wherever there is proposed to be a high mast light tower. This report shall also assess minimum foundation embedment depth(s) required for overturning resistance and the need to address groundwater if it is present at the proposed tower location(s).

The high mast lighting foundation investigation shall be in conformance with the GDOT Geotechnical Engineering Manual, AASHTO LRFD guidelines, and Attachment 3-1 Manuals for all new high mast lighting foundations. The high mast lighting foundation investigation report and all recommendations shall be endorsed by the EOR.

8.3 Construction

No additional requirements.

8.4 Reserved

9 SURVEYING AND MAPPING

9.1 General

No additional requirements.

9.1.1 Standards

No additional requirements.

9.2 Administrative Requirements

9.2.1 Ownership

No additional requirements.

9.2.2 Property Owner Notification

No additional requirements.

9.3 Design Requirements

No additional requirements.

9.3.1 Units

No additional requirements.

9.3.2 Survey Control Requirements

No additional requirements.

9.3.3 Conventional Method (Horizontal & Vertical)

No additional requirements.

9.3.3.1 Horizontal Accuracy Requirements for Conventional Surveys

No additional requirements.

9.3.3.2 Vertical Accuracy Requirements for Conventional Surveys

No additional requirements.

9.3.4 Reserved

No additional requirements.

9.3.5 Right of Way Survey

No additional requirements.

9.3.5.1 Accuracy Standard

No additional requirements.

9.3.6 Survey Records and Reports

No additional requirements.

9.4 Construction Requirements

9.4.1 Units

No additional requirements.

9.4.2 Construction Surveys

No additional requirements.

9.4.3 ROW Monuments

No additional requirements.

9.5 Reserved

10 GRADING

10.1 General

Supplement the following to Section 10.1 of Volume 3:

DB Team shall replace all woven wire fence relocated within the Project limits with new woven wire fence.

10.1.1 Standards

No additional requirements.

10.2 Demolition and Abandonment Plan

Supplement the following to Section 10.2 of Volume 3:

The entire right of way (existing and proposed) shall be cleared and grubbed within the Project limits excluding ESA areas not approved for construction. The DB Team shall only clear ESA areas that have not been approved for construction; no grubbing will be permitted within these areas.

10.3 Slopes and Topsoil

No additional requirements.

10.4 Special Flood Hazard Areas Fill Mitigation

Supplement the following to Section 10.4 of Volume 3:

The Project will require placing fill in Special Flood Hazard Areas. Grading is anticipated along the Project to meet Chatham County compensatory cut requirements.

11 ROADWAYS

11.1 General

No additional requirements.

11.1.1 Standards

No additional requirements.

11.2 Design Requirements

Supplement the following to Section 11.2 of Volume 3:

The design and construction of the Project shall not preclude or otherwise cause additional costs to the Dean Forest Road interchange improvement project from being constructed in the future as currently designed. The currently designed plans for the Dean Forest Road interchange improvement project can be found with the RIDs.

11.2.1 Design Criteria Order of Precedence

No additional requirements.

11.2.2 Vibration Control

No additional requirements.

11.2.3 Blasting

No additional requirements.

11.2.4 Control of Access

No additional requirements.

11.2.5 Typical Section(s) and Pavement Design

Typical Section(s) for Roadway Design: see Attachment 11-1.

Inside median of I-95 shall provide a minimum median width of forty feet (40') to allow for future inside widening of I-95. The DB Team shall remove and upgrade all existing guardrail within the limits of roadway construction that is not otherwise being removed or replaced.

All new pavement for the Project shall at a minimum meet the pavement designs for the as identified in Table 11-1. All outside shoulders within the limits of construction for I-16 shall be replaced at a minimum with the pavement designs as identified in Table 11-1.

Driveway pavement designs are identified in Table 11-3.

Table 11-1: Pavement Designs

I-16 Widening without Overlay (Lanes and Inside Shoulder)	
Material	**Thickness**
Plain PC Conc Pavement, CL 1 Conc	12 inch
Recycled Asph Conc 19 MM Superpave, GP 1 or 2, incl Bitum Matl & H Lime	3 inch
Graded Aggregate Base Course (GAB)	10 inch

I-95/SR 405 Mainline (Lanes and Shoulders) and I-95/SR 405 CD (Lanes and Shoulders)	
Material	**Spread Rate**
Recycled Asph Conc 12.5mm OGFC, GP 2 Only, incl Polymer-modified Bitum Matl & H Lime	90 lb\sy
Recycled Asph Conc 12.5mm SMA, GP 2 Only, incl Polymer-modified Bitum Matl & H Lime	220 lb\sy
Recycled Asph Conc 19mm Superpave, GP 1 or 2, incl Bitum Matl & H Lime	220 lb\sy
Recycled Asph Conc 25mm Superpave, GP 1 or 2, incl Bitum Matl & H Lime	1,100 lb\sy
GAB – 12-inch Depth	N/A

I-95 - Mill and Inlay Ext. Road Surface (Lanes and Shoulders)	
Material	**Spread Rate**
Recycled Asph Conc 12.5mm OGFC, GP 2 Only, incl Polymer-modified Bitum Matl & H Lime	90 lb\sy
Recycled Asph Conc 12.5mm SMA, GP 2 Only, incl Polymer-modified Bitum Matl & H Lime	220 lb\sy

I-16 at I-95 and I-16 at I-516 Ramps (Lanes and Shoulders)	
Material	**Thickness**
Plain PC Conc Pavement, CL 1 Conc	12 inch
Recycled Asph Conc 19mm Superpave, GP 1 or 2, incl Bitum Matl & H Lime	3 inch
GAB – 10-inch Depth	N/A

Chatham Parkway Ramps to I-16 and Emergency Cross-Over	
Material	**Spread Rate**
Recycled Asph Conc 12.5mm Superpave, GP 2 Only, incl Polymer-modified Bitum Matl & H Lime	220 lb\sy
Recycled Asph Conc 19mm Superpave, GP 1 or 2, incl Bitum Matl & H Lime	220 lb\sy
Recycled Asph Conc 25mm Superpave, GP 1 or 2, incl Bitum Matl & H Lime	660 lb\sy
GAB – 10-inch Depth	N/A

I-16 Shoulder Reconstruction (Outside)	
Material	**Spread Rate**
Recycled Asph Conc 12.5mm Superpave, GP 2 Only, incl Bitum Matl & H Lime	165 lb\sy
Recycled Asph Conc 19mm Superpave, GP 1 or 2, incl Bitum Matl & H Lime	220 lb\sy
GAB – 6-inch Depth	N/A

I-16 Widening with Overlay (Outside Lane)	
Material	**Spread Rate**
Recycled Asph Conc 12.5mm OGFC, GP 2 Only, incl Polymer-modified Bitum Matl & H Lime	90 lb\sy
Recycled Asph Conc 12.5mm SMA, GP 2 Only, incl Polymer-modified Bitum Matl & H Lime	220 lb\sy
Recycled Asph Conc 19mm Superpave, GP 1 or 2, incl Bitum Matl & H Lime	220 lb\sy
Recycled Asph Conc 25mm Superpave, GP 1 or 2, incl Bitum Matl & H Lime	990 lb\sy
GAB – 10-inch Depth	N/A

I-16 Widening with Overlay (Inside Lane and Inside Shoulder)	
Material	**Spread Rate**
Recycled Asph Conc 12.5mm OGFC, GP 2 Only, incl Polymer-modified Bitum Matl & H Lime	90 lb\sy
Recycled Asph Conc 12.5mm SMA, GP 2 Only, incl Polymer-modified Bitum Matl & H Lime	220 lb\sy
Asph Conc 19mm SMA, GP 2 Only, incl Polymer-modified Bitum Matl & H Lime	220 lb\sy
8-inch Roller Compacted Concrete Pavement*	N/A
GAB – 10-inch Depth	N/A

* Roller Compacted Concrete to be in accordance with Attachment 11-4.

I-16 Overlay	
Material	**Spread Rate**
Recycled Asph Conc 12.5mm OGFC, GP 2 Only, incl Polymer-modified Bitum Matl & H Lime	90 lb\sy
Recycled Asph Conc 12.5mm SMA, GP 2 Only, incl Polymer-modified Bitum Matl & H Lime	220 lb\sy
Asph Conc 19mm SMA, GP 2 Only, incl Polymer-modified Bitum Matl & H Lime	220 lb\sy
Recycled Asph Conc Leveling, Incl Polymer-Modified Bitum Matl and H Lime	Varies (As Required)

Table 11-2: Reserved

Table 11-3: Driveway Pavement Design(s)

Material	Spread Rate
Residential Asphaltic Concrete Driveways	
Recycled Asph Conc 12.5 mm Superpave, GP 2 Only, incl Bitum Matl and H Lime	165 lb/sy
Graded Aggregate Base Course – 6 Inch Depth incl Matl	N/A
Commercial Asphaltic Concrete Driveways	
Recycled Asph Conc 12.5 mm SMA, GP 2 Only, incl Polymer-Modified Bitum Matl and H Lime	165 lb/sy
Recycled Asph Conc 19 mm Superpave, GP 1 or 2, incl Bitum Matl and H Lime	220 lb/sy
Graded Aggregate Base Course – 6 Inch Depth incl Matl	N/A
Residential Concrete Driveways	
Portland Cement Concrete – 6”	N/A
Graded Aggregate Base – 6-inch Depth	N/A
Commercial Concrete Driveways	
Portland Cement Concrete – 8”	N/A
Graded Aggregate Base – 10-inch Depth	N/A

11.2.6 Additional Roadway Design Requirements

Supplement the following to Section 11.2.6 of Volume 3:

See Attachment 11-1 for additional roadway design requirements.

The DB Team shall correct the cross-slope by providing a minimum cross-slope of 2% on both I-16 Eastbound and Westbound, beginning from 2340’ West of the bisecting centerline of I-16 and the existing Dean Forest Road centerline to the project roadway tie-ins at I-516. The existing cross-slope from the beginning of the project to the beginning of the cross-slope correction can be retained as-is, any new pavement shall be 2% minimum.

The Department at their cost through a separate contract will repair or replace the broken slabs and failed spalls within the project limits prior to December 31, 2018. The DB Team shall coordinate with the Department and its contractor as to not delay the Work of the Project.

The DB Team shall utilize the details shown in Attachment 11-2 at all transitions from a concrete to asphalt or asphalt to concrete pavement section. The DB Team shall utilize the details shown in Attachment 11-2 when transition for the cross-slope correction, and the existing concrete slab shall be replaced within the transition distance.

On I-16 and in areas where there is a concrete median barrier, the DB Team shall extend the shoulder pavement to the concrete median barrier. On I-95, the median shall be paved.

11.2.7 Allowable Design Exception(s)/Variance(s)

Supplement the following to Section 11.2.7 of Volume 3:

The following Design Exception(s)/Variance(s) are allowable on the Project:

1. I-16 outside paved shoulder width (entire length within Project limits): Shoulder width may be 10 feet (12 feet overall) to match the existing condition. See the approved design variance for further details.

2. I-16 outside paved shoulder width under the Dean Forest Road bridge: The proposed outside paved shoulder width may be 10 feet, 6 inches (10 feet, 6 inches overall) for approximately 400 feet (approximately 0.08 miles). See the approved design variance for further details.

3. I-16 inside paved shoulder width on 1-16 along the hurricane crossover located west of the Dean Forest Road interchange. The proposed inside paved shoulder width and overall shoulder width may be eight (8) feet for approximately 1,400 feet (approximately 0.265 mile). See the approved design exception for further details.

4. I-16 inside paved shoulder width east of the Dean Forest Road interchange. The proposed inside paved shoulder width may be a minimum of four (4) feet from just east of Dean Forest Road to east of Chatham Parkway. See the approved design exception for further details.

5. I-16 inside paved shoulder width east of Chatham Parkway. The inside paved shoulder may be reduced to a minimum of four (4) feet on one side of I-16 with a concrete median barrier in order to provide sufficient stopping sight distance for the other side of I-16. See the approved design exception for further details.

6. Interstate ramps:

    a. I-95 SB to 1-16 EB allowable design speed: 55 mph

    b. I-16 EB to 1-516 SB allowable design speed: 45 mph

    c. I-95 SB to I-16 EB horizontal SSD design speed: 50 mph

7. I-95 Inside Shoulder Width for Guardrail along 1-95 for the entire length of the Project: substandard width for inside shoulders where guardrail is required as

follows: a normal 12- foot shoulder plus 3.5 feet for the placement of guardrail (12 feet + 3.5 feet = 15.5 feet overall). See the approved design variance for further details.

8. Bridge Vertical Clearance: to retain less than the GDOT Bridge Design Manual minimum vertical clearance for four I-16 bridges with less than the minimum vertical clearances at the locations listed in the following Table 11-4. See the approved design variance for further details.

Table 11-4: Existing Bridge Vertical Clearances

Bridge Description	Bridge ID	Existing Vertical Clearances
I-16 Westbound (SR 404) over 1-516 (SR 421) Ramp B-3	051-0091-0 Bridge #9	16.50 feet*
I-16 Westbound (SR 404) over 1-516 (SR 421)	051-0093-0 Bridge #10	16.50 feet*
I-16 Eastbound (SR 404) over 1-516 (SR 421)	051-0092-0 Bridge #11	16.77 feet*
I-16 Eastbound (SR 404) over 1-516 (SR 421) Ramp D-1	051-0094-0 Bridge #12	16.75 feet*

* Source: bridge inspection reports

No additional Design Exceptions or Variances proposed by the DB Team shall be allowed. Any existing conditions that do not meet the requirements of the AASHTO "10 Controlling Criteria" and/or the GDOT Standard Design Criteria, as denoted in the GDOT Design Policy Manual, must be presented to GDOT and shall be upgraded to meet the required criteria or mandatory practice with the proposed design of the Project.

DB Team is permitted to retain Design Deviations that are present within the existing conditions. Any existing Design Deviations that are identified within the Project limits and that are intended to be retained in the proposed design must be presented to GDOT.

11.2.8 Visual Quality

No additional requirements.

11.2.9 Permanent Lighting

Supplement the following to Section 11.2.9 of Volume 3:

1. Impacted lighting structures within the roadway construction limits at the I-16 and I-516 interchange shall be removed and replaced in the same perpendicular location to the I-16 centerline. The lighting bases, poles, and fixtures shall be equal

to or better than existing, similar in appearance and dimensions, and utilizing similar materials. The replacement lighting shall be interconnected with the existing lighting and shall be high pressure sodium (HPS).

2. The DB Team shall design and construct lighting of the I-95 and I-16 system-to-system interchange to meet GDOT's design standards. Interchange lighting along I-16 and I-95 and connecting ramps of the interchange shall be provided to the painted gore. The lighting can be a combination of high-mast lighting and conventional type.

11.2.10 Related Transportation Facilities

Supplement the following to Section 11.2.10 of Volume 3:

In addition to the above requirements, the DB Team shall design and construct median barrier gates for the contraflow emergency access cross-over located just east of the I-16 at I-95 interchange. These gates shall be manually operated, with an opening that prevents vehicles from crossing when the gates are in the down position. These gates shall meet the requirements of the National Cooperative Highway Research Program (NCHRP) Report 350 test level 3 or greater. The DB Team shall keep a total of two emergency cross-over lanes available to be open at all times during construction.

All existing gates at interchange ramps within the Project limits shall be replaced in similar location and in-kind.

11.3 Construction

Supplement the following to Section 11.3 of Volume 3:

Subsection 300.3.02.H of the GDOT Standard Specifications is replaced with Attachment 11-3.

The DB Team shall clean and seal existing concrete slab cracks and joints in accordance with Standard Specification 407 on all cracks and joints that will be overlaid. The DB Team shall install high-strength fabric at all longitudinal joints, transverse joints, and cracks where pavement is to be overlaid in accordance with Standard Specifications Section 446.

All leveling material shall be polymer modified.

At the construction limits at the east end of the Project, the DB Team shall remove the existing bridge approach slabs in both the eastbound and westbound directions of I-16. The approach slabs shall be replaced with approach slabs conforming to GDOT Construction Standard 9017R – Reinforced Concrete Approach Slab with Asphalt Inlay to transition from the cross-slope correction asphalt pavement to concrete.

12 DRAINAGE

12.1 General

No additional requirements.

12.1.1 Standards

No additional requirements.

12.2 Administrative Requirements

12.2.1 Data Collection

No additional requirements.

12.2.2 Coordination with Other Agencies

No additional requirements.

12.3 Design Requirements

Supplement the following to Section 12.3 of Volume 3:

Riprap energy dissipators shall be placed at both ends of cross drains.

DB Team shall submit all items for FEMA and/or local community coordination through the Project electronic submittal system for review and approval by GDOT, Chatham County, and FEMA, respectively. Upon acceptance of the submittal, GDOT shall coordinate with Chatham County for all items requiring local coordination/concurrence. Upon receipt of all required data, Chatham County shall have sixty (60) days to review and provide comments or concurrence. Any signatures required by other local communities will be reviewed and obtained by Chatham County.

Mitigation for fill in Special Flood Hazard Areas shall be performed on site, see Section 10.4. Any compensatory cut for this mitigation shall be hydraulically connected to the stream where fill is proposed in the stream's Special Flood Hazard Area.

Delete the following in the Drainage Manual Section 2.5.3:

"4. For a bridge crossing a floodplain that is shown on a FIRM map, but does not have a regulatory floodway, the bridge will be sized to limit the backwater to no more than a 1-foot increase in the existing base flood elevation, unless the local community's ordinances are more stringent. In which case, the local regulation shall apply."

and replace with:

"4. For a bridge crossing a floodplain that is shown on a FIRM map, but does not have a regulatory floodway, the bridge will be sized to limit water surface increases to no more than 1-foot from the existing base flood elevation, unless the local community's ordinances are more stringent. In which case, the local regulation shall apply."

12.3.1 Surface Hydrology

No additional requirements.

12.3.1.1 Design Frequencies

No additional requirements.

12.3.1.2 Hydrologic Analysis

No additional requirements.

12.3.2 Storm Sewer Systems

Supplement the following to Section 12.3.2 of Volume 3

All installed pipes shall be RCP. Where proposed construction impacts existing pipes/culverts or the hydraulic functionality of those pipes/culverts, the structural and hydraulic sufficiency must be demonstrated to GDOT by the EOR for the pipes/culverts to remain in place. Rehabilitation of pipes and box culverts will be allowed as long as hydraulic capacity and structural integrity are achieved.

Type II foundation backfill material is required under all drainage structures.

12.3.2.1 Pipes

Supplement the following to Section 12.3.2.1 of Volume 3

All existing corrugated metal pipe within the paving construction limits of I-16 and I-95 shall be replaced with RCP.

12.3.2.2 Municipal Separate Storm Sewer System (MS4)

Supplement the following to Section 12.3.2.2 of Volume 3

The DB Team may consider runoff reduction in the design of the Post Construction Stormwater BMPs. The curve number adjustment shall follow the procedure in the Georgia Stormwater Management Manual.

12.3.2.3 Gutter Spread/Ponding

Supplement the following to Section 12.3.2.3 of Volume 3

In areas where PEM/OGFC is utilized, ponding shall be confined to the shoulder at the limit of the PEM/OGFC with zero depth at the limit of the PEM/OGFC.

12.3.3 Hydraulic Structures (Culverts/Bridges)

No additional requirements.

12.3.3.1 Method Used to Estimate Flows

No additional requirements.

12.3.3.2 Design Frequency

No additional requirements.

12.3.3.3 Hydraulic Analysis

No additional requirements.

12.3.3.4 Riverine Bridge/Bridge Culvert Design

No additional requirements.

12.3.3.5 Bridge Deck Drainage

No additional requirements.

12.3.3.6 Drainage Report for Hydraulic Structures

Supplement the following to Section 12.3.3.6 of Volume 3:

The H&H Study shall include an impact analysis for any increase in backwater. At a minimum, the analysis shall include a map displaying current aerial photography and county GIS to show any additional impacts caused by the backwater increase.

12.4 Construction Requirements

No additional requirements.

12.5 Deliverables

No additional requirements.

13 STRUCTURES

13.1 General

No additional requirements

13.1.1 Standards

No additional requirements

13.2 Design Requirements

13.2.1 Design Parameters

Supplement the following to Section 13.2.1 of Volume 3:

New bridges shall be constructed and existing bridges shall be repaired and/or rehabilitated in accordance with the recommendations listed in this Section 13.2.1. DB Team shall perform the recommended widening, modification, rehabilitation, replacement, or repairs to each existing bridge as described in the following Table 13-1.

New bridges and replacement bridges, unless noted otherwise in Table 13-1, shall be designed per the following criteria:

1. Design all bridge structures utilizing live load from AASHTO HL 93 and owner-specified design vehicle, including dynamic load allowance provided in LRFD 3.6.2, in accordance with the LRFD Specifications for all applicable limit states.

2. Use lever-rule or refined analysis when designing for owner-specified design vehicle, as distribution factors provided in LRFD do not apply for specified vehicle.

3. Owner-specified vehicle for this Project is the Heavy Equipment Transporter known as (HET) with two (2) fully loaded conditions: “300K ON 9 AXLES” and “300K MODIFIED,” as shown on Figure 13-1 and Figure 13-2.

4. Place single HET on bridge to produce maximum load effects.

5. Indicate in the plans “DESIGN VEHICLE LIVE LOAD ------ HL-93.”

6. Indicate in the plans “OWNER-SPECIFIED SPECIAL DESIGN VEHICLE --- HET 300K AND 300K MODIFIED (ONLY VEHICLE ON BRIDGE)”

7. The multiple presence factor for single lane loading in AASHTO 3.6.1.1.2 shall be applied when evaluating bridges for HET loading.

8. The criteria for live load deflection in AASHTO 2.5.2.6.2 shall be applied when evaluating bridges for HET loading.

9. When evaluating bridge for owner-specified design vehicle (HET loading), only Strength II Limit State shall be utilized.

Figure 13-1: HET Loading - Axle Spacing

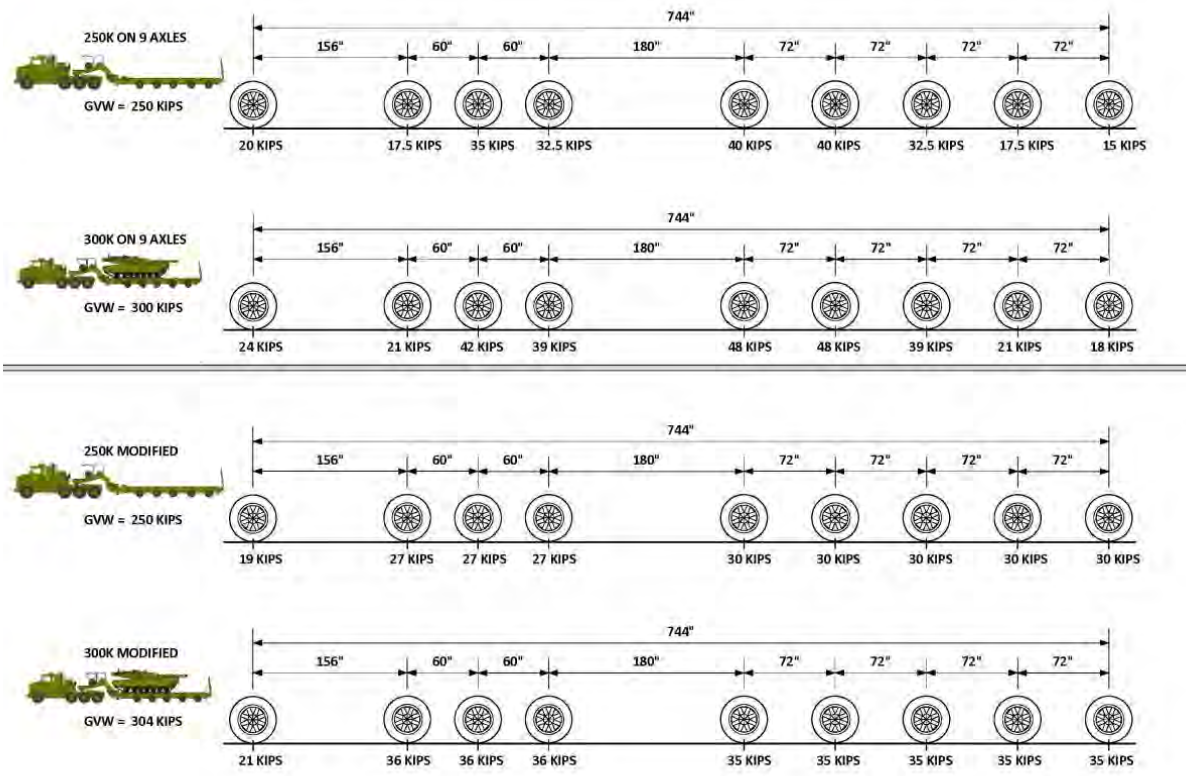

Figure 13-2: HET Loading – Wheel Spacing

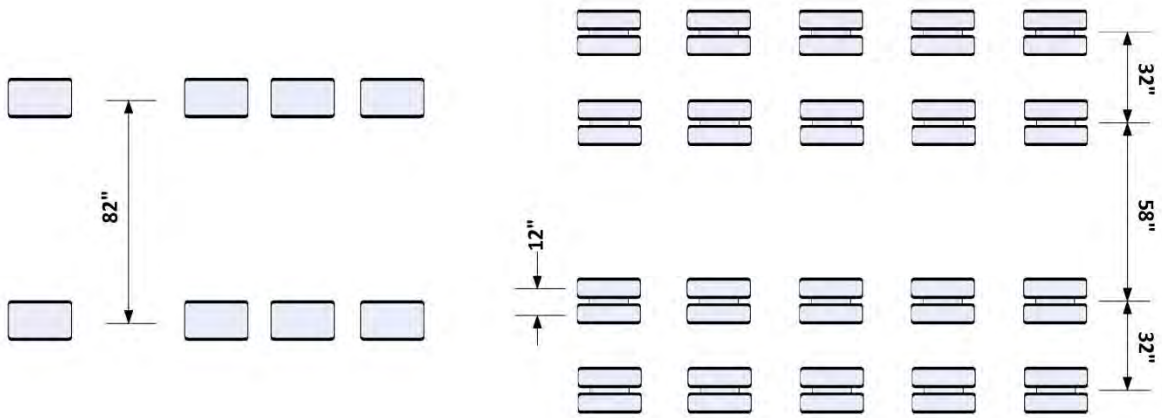

Table 13-1: Bridge Requirements

Bridge	Bridge Location	Description
Bridge 1	DE8 I-95 SB Ramp to I-16 EB over I-95, I-16, and ramps (DE3, DE4, DE5, and DE9)	New bridge shall accommodate roadway typical section(s) as defined in Attachment 11-1. New bridge span arrangement shall accommodate future 12' outside widening of I-16 EB and WB.
Bridge 2	DE9 I-16WB Ramp to I-95 SB over I-16, I-95 and ramps (DE6, DE4, and DE10)	New bridge shall accommodate roadway typical section(s) as defined in Attachment 11-1. New bridge span arrangement shall accommodate future 12' outside widening of I-16 EB and WB.
Bridge 3 **Structure ID 051-0109-0**	DE2 and DE4 I-95 over I-16 (SR 404)	Full replacement requiring new superstructure, substructure, and piers/foundations. The reuse of existing elements shall not be allowed. New bridge shall accommodate roadway typical section(s) as defined in Attachment 11-1, and shall accommodate a forty foot (40') median. New bridge span arrangement shall accommodate future 12' outside widening of I-16 EB and WB.
Bridge 4 **Structure ID 051-0079-0**	SR 307 (Dean Forest Road) over I-16	Superstructure: • Raise the existing spans to provide minimum vertical clearance over lanes and shoulders including overlay of I-16. Approaches: Level the roadway approaches consistent with the bridge approach slab adjustments, and taper roadway approaches so that leveling does not extend past

Bridge	Bridge Location	Description
		the ramp terminals. Raise/achieve signal heads heights at the intersections if impacted by approach leveling. Replace or adjust to grade all of the ground equipment on the shoulder, including adjustments to conduits, pullboxes, loops, and cabinets.
Bridge 5 **Structure ID 051-0156-0**	DE23 CR 781 (Chatham Parkway) over I-16	Bridge shall be repaired according to the following: Deck: • Replace expansion joints at abutments 1 and 2 with a preformed, precompressed, silicone-coated, self-expanding sealant system. See Special Provision 449. • Seal the deck by using a two-part polymer overlay system. See Special Provision 519. Superstructure: • Raise the existing Spans 2 and 3 to provide minimum vertical clearance over lanes and shoulders including overlay of I-16. • Replace existing left exterior beam in Span 2. • Replace existing right exterior beam in Span 3. • For abutment spans, final surface shall be concrete and shall be made composite with existing concrete slab. The replacement beams may be designed using the AASHTO Standard Specifications. Approach slabs shall be replaced. Approaches: Level the roadway approaches consistent with the abutment span adjustments and approach slab replacement, and taper roadway approaches so that leveling does not extend past the ramp terminals. Raise/achieve signal heads heights at the intersections if impacted by approach leveling. Replace or adjust to grade all of the ground equipment on the shoulder, including adjustments to conduits, pullboxes, loops, and cabinets.

Bridge	Bridge Location	Description
Bridge 6 **Structure ID 051-0087-0**	DE1A and DE1B I-16 over CR 674 (Bunger Pit Rd) and CSXT	Full replacement requiring new superstructure, substructure, and piers/foundations. The reuse of existing elements shall not be allowed. New bridge shall accommodate roadway typical section(s) as defined in Attachment 11-1 and CSXT guidelines. Minimum vertical clearance over CR 674 lanes and shoulders shall be 16'-9". Minimum vertical clearance over CSXT tracks and future track shall be 23'-0". Crash walls are required at all intermediate bents located within the CSXT right-of-way. The minimum horizontal clearance shall be 18’-0” west of the centerline of the future track. The Access Road on the east side of the existing track shall be maintained along with a horizontal clearance of 29’-11” east of the centerline of track 3.
Bridge 7 **Structure ID 051-0090-0**	DE1B I-16 WB over CR 654 (Tremont Ave) and CSXT	Full replacement requiring new superstructure, substructure, and piers/foundations. The reuse of existing elements shall not be allowed. New bridge shall accommodate roadway typical section(s) as defined in Attachment 11-1 and CSXT guidelines. Minimum vertical clearance over CR 654 lanes and shoulders shall be 16'-9". Minimum vertical clearance over CSXT tracks and future track shall be 23'-0". Crash walls are required at all intermediate bents located within the CSXT right-of-way. The minimum horizontal clearance shall be 18’-0” east of the centerline of the future track and 42’-0” west of the centerline of track 4.
Bridge 8 **Structure ID 051-0089-0**	DE1A and DE30 I-16 EB over CR 654 (Tremont Ave) and CSXT	Full replacement requiring new superstructure, substructure, and piers/foundations. The reuse of existing elements shall not be allowed. New bridge shall accommodate roadway typical section(s) as defined in Figure 11-1 and CSXT guidelines. Minimum vertical clearance over CR 654 lanes and shoulders shall be 16'-9". Minimum vertical clearance over CSXT tracks and future track shall be 23'-0". Crash walls are required at all intermediate bents located

Bridge	Bridge Location	Description
		within the CSXT right-of-way. The minimum horizontal clearance shall be 25'-0" from centerline of existing and future tracks.
Bridge 9 **Structure ID 051-0091-0**	DE1B I-16 WB over I-516 SB to I-16 EB Ramp B-3	Bridge shall be repaired according to the following: Deck: • Replace expansion joints at Bents 2 and 3 with a preformed, precompressed, silicone-coated, self-expanding sealant system. See Special Provision 449. • Remove the asphalt overlay from all spans and place a Latex Modified Concrete (LMC) overlay on the bridge deck. The LMC shall not exceed two (2) inches. See Special Provision 519.

Bridge	Bridge Location	Description

Bridge 10
 	
Structure ID 051-0093-0
	DE1B
	
	I-16 WB over I-516
		Bridge shall be repaired according to the following:
		
		Deck:
		
		• Replace expansion joints at Bents 2 and 4 with a preformed silicone joint seal. See Special Provision 449.
		
		• Remove asphalt overlay on approach slabs.
		
		• Seal the deck and approach slabs by using a two-part polymer overlay system. See Special Provision 519.
		
		Superstructure:
		
		• Epoxy pressure injection of all cracks greater than or equal to 0.02" at Bent 3 edge beam.
		
		Substructure:
		
		• Epoxy pressure injection of all cracks greater than or equal to 0.02" at abutments.
		
		• Repair concrete spalls at the following locations: See Special Provision 521.
		  o Abutment 1 cap: approximately 1 square foot.
		  o Bent 3, bottom of cap, near column 2: approximately 1 square foot.
		  o Bent 3, north cantilever, west face: approximately 1 square foot.

Bridge	Bridge Location	Description
Bridge 11 **Structure ID 051-0092-0**	DE1A I-16 EB over I-516	Bridge shall be widened to accommodate roadway typical section(s) as defined in Attachment 11-1. Bottom of beam for widening shall not be lower than existing bridge bottom of beam elevation. When widening an existing bridge designed under the AASHTO Standard Specifications, the widened portion may be designed using the AASHTO Standard Specifications. Bridge shall be repaired according to the following: Deck: • Replace all expansion joints with a preformed, pre-compressed, silicone-coated, self-expanding sealant system. See Special Provision 449. • Remove asphalt from approach slabs. • Seal the deck and approach slabs by using a two-part polymer overlay system. See Special Provision 519.
Bridge 12 **Structure ID 051-0094-0**	DE1A I-16 EB over I-516 NB to I-16 WB Ramp D-1	Bridge shall be repaired according to the following: Deck: • Replace expansion joints at Bents 2 and 3 with a preformed, precompressed, silicone-coated, self-expanding sealant system. See Special Provision 449. • Seal the deck and approach slabs by using a two-part polymer overlay system. See Special Provision 519. Superstructure: • Epoxy pressure injection of all cracks greater than or equal to 0.02" at abutments and pier caps.
Bridge 13	DE30 I-16 EB Ramp to I-	New bridge shall accommodate roadway typical section(s) as defined in Attachment 11-1.

Bridge	Bridge Location	Description
	516 over I-516	

With the exception of the flyovers, superelevation transitions shall not be allowed on bridges. If a superelevation transition is unavoidable, transition point(s) shall be at bent locations.

The location of the low-point of a vertical curve on a bridge or approach slab shall not be allowed.

Inside median of I-95 shall provide a minimum median width of 40' to allow for future inside widening of I-95.

Column(s) located in an interstate median shall not preclude future inside widening of the interstate. The center of a column(s) for an overpass located over an interstate median shall be on the interstate centerline, aligned parallel to the centerline of the interstate.

Final Bridge Plan acceptance shall be contingent on the acceptance of the BFI.

Final Wall Plan acceptance shall be contingent on the acceptance of the WFI.

Design culverts in accordance with AASHTO LRFD 7th Edition, 2014. Use LRFD Reinforced Concrete Box Culvert Standards (and associated Wingwalls, Parapets and Aprons), if applicable.

13.2.2 Bridge Decks and Superstructures

Supplement the following to Section 13.2.2 of Volume 3:

Unpainted weathering steel is permitted for use on bridge superstructure with the following conditions:

1. Paint weathering steel superstructure a minimum of one and one-half (1½) times the beam depth away from the centerline (CL) of a joint.
2. Painting scheme shall be aesthetically consistent, i.e., partial painting of beams shall not present to the travelling public a pronounced visual difference when compared with the unpainted portion.

The use of ASTM A709 Grade 50W Steel and Grade HPS 70W Steel is permitted for steel bridge superstructure. Both steel types are considered weathering steel and shall be painted as required by the provisions of these Technical Specifications.

Maximum girder spacing for plate girder bridges shall be ten feet six inches (10'-6").

New steel girders, if they are not weathering steel, shall be a gray finish color. Gray shall be Federal Standard (FS) 595C color number FS36622.

Existing steel bridges that are to be modified or widened shall be painted No. 3B, Green per Table 8 of GDOT's Standard Specifications, Section 870.

Intermediate diaphragms shall be used on all beams for spans greater than forty feet (40') in length.

The paving rest shall be twelve inches (12”) wide.

Pot bearings shall not be used.

Groove the entire length of the bridges transversely as per sub section 500.3.05.T.9.C of the Georgia DOT Specifications.

13.2.3 Bridge/ Retaining Wall Foundations

No additional requirements.

13.2.4 Bridge Railing and Barriers

Supplement the following to Section 13.2.4 of Volume 3:

All new bridge barriers shall be constant slope face type (S-Type) barrier on all new bridges and shall include both sides. A transition barrier from S-Type to Jersey Barrier shall be installed when tying into existing Jersey Barrier.

13.2.5 Retaining Walls

No additional requirements.

13.2.6 Aesthetics

Supplement the following to Section 13.2.6 of Volume 3:

Refer to Section 15.3 for additional aesthetic and hardscape requirements.

13.2.7 Drainage Structures

No additional requirements.

13.2.8 Sign, Illumination, and Traffic Signal Supports

Supplement the following to Section 13.2.8 of Volume 3:

For existing bridges, under-bridge lighting shall not be mounted to any portion of bridge superstructure, including the decks or bridge beams.

13.2.9 Widening/Modification of Existing Structure

Supplement the following to Section 13.2.9 of Volume 3:

See Section 13.2.1 for bridge(s) requiring widening.

13.2.10 Reserved

13.3 Construction Requirements

Supplement the following to Section 13.3 of Volume 3:

Refer to Section 18 for Traffic Control requirements related to bridge construction.

Accelerated bridge construction methods may be utilized to construct new bridges and rehabilitate or replace existing bridges on the Project. The chosen method(s) is subject to review by GDOT to ensure compliance with Project specifications as well as no adverse safety and schedule impacts to the travelling public.

All welding on GDOT projects shall be performed by certified welders that have in their possession a current welding certification card issued by the Office of Materials and Testing. Only use E70XX (excluding E7014 and E7024) low hydrogen electrodes for manual shielded metal arc welding.

See Attachment 13-1 for additional Special Provisions.

13.3.1 Concrete Finishes

No additional requirements.

13.3.2 Structure Metals

No additional requirements

13.4 Final Bridge Inspection Prior to Substantial Completion

No additional requirements.

13.5 Deliverables

No additional requirements.

14 RAIL

14.1 General

No additional requirements.

14.1.1 Standards

Supplement the following to Section 14.1.1 of Volume 3:

All work on, over, under, or adjacent to CSXT right-of-way shall be done in accordance with the *CSXT Public Project Information for Construction and Improvement Projects that May Involve the Railroad* manual.

14.2 Railroad Design Standards

Supplement the following to Section 14.2 of Volume 3:

The DB Team shall comply with the CSXT Construction Submission Criteria when developing construction related submittals for CSXT review. The CSXT Construction Submission Criteria can be found within the *CSXT Public Project Information for Construction and Improvement Projects That May Involve the Railroad* manual.

GDOT and CSXT engaged in discussions regarding vertical and horizontal clearance requirements.

If the DB Team wishes to pursue deviations to the agreed-on clearances, the DB Team shall coordinate with CSXT, provide any and all documentation required, and secure and pay for any agreements, permits and/or approvals required by CSXT, GDOT and SRTA.

14.2.1 Design Railroad Live Load

No additional requirements.

14.2.2 Design Lateral Pressures for Railroad Live Load Surcharge

No additional requirements.

14.2.3 Clearances

No additional requirements.

14.2.3.1 Permanent Clearances

Supplement the following to Section 14.2.3.1 of Volume 3:

At Bridge 6, the future CSXT track is assumed to be located 15’ west of existing track 1. At Bridges 7 and 8, the future CSXT track is assumed to be located 15’ east of existing track 5. All future track locations shall be confirmed during railroad coordination activities with CSXT.

14.2.3.2 Temporary Clearances

Supplement the following to Section 14.2.3.2 of Volume 3:

Minimum temporary vertical clearance over CSXT tracks during construction shall be 23'-0". If the existing bridge vertical clearance is less than 23'-0", that clearance shall not be reduced.

14.2.4 Crashwalls

Supplement the following to Section 14.2.4 of Volume 3:

Crash walls are required at all intermediate bents located within CSXT right-of-way.

14.2.5 Drainage

No additional requirements.

14.2.6 Erosion Control

No additional requirements.

14.2.7 Utilities

Supplement the following to Section 14.2.7 of Volume 3:

"One Call" services do not locate buried railroad signal and communications lines. The DB Team shall contact the railroad's representative two (2) days in advance of those places where excavation, pile driving, or heavy loads may damage railroad underground lines on railroad property. Upon request from the DB Team or agency, railroad signal forces will locate and paint mark or flag railroad underground signal, communication, and power lines in the area to be disturbed for the DB Team. The DB Team shall avoid excavation or other disturbance of these lines which are critical to the safety of the railroad and the public. If disturbance or excavation is required near a buried railroad signal, communication, or power line, the line shall be potholed manually with careful hand excavation by the DB Team and protected by the DB Team during the course of the disturbance under supervision and direction of a railroad signal representative.

14.2.8 Miscellaneous

Supplement the following to Section 14.2.8 of Volume 3:

All bridges over CSXT tracks and CSXT ROW shall be fenced for the entire length of the bridge on both sides. All fencing shall meet CSXT *Criteria for Overhead Bridges, Section V: Protective Fencing* contained in the *CSXT Public Project Information for Construction and Improvement Projects that may involve the Railroad* manual.

14.3 Project Work Affecting Railroad Operations

No additional requirements.

14.3.1 Railroad Agreements

No additional requirements.

14.3.1.1 Permanent ROW Encroachment Agreement(s)

No additional requirements.

14.3.1.2 Reserved

No additional requirements.

14.3.1.3 Railroad Right of Entry Agreement(s)

No additional requirements.

14.3.2 Operation Safety

No additional requirements.

14.3.3 Insurance Requirements

No additional requirements.

14.4 Construction Requirements

No additional requirements.

14.4.1 General

No additional requirements.

14.4.2 Track Clearances

No additional requirements.

14.4.3 Temporary Excavation

No additional requirements.

14.4.4 Excavation for Structures

No additional requirements.

14.4.5 Demolition, Erection, Hoisting

Supplement the following to Section 14.4.5 of Volume 3:

All substructure elements shall be removed a minimum of three (3) feet below the existing ground line.

14.4.6 Blasting

No additional requirements.

14.4.7 Maintenance and Repair of Railroad Facilities

No additional requirements.

14.4.8 Storage of Materials and Equipment

No additional requirements.

14.4.9 Cleanup

No additional requirements.

14.5 Damages

No additional requirements.

14.6 Flagging Services

14.6.1 When Required

No additional requirements.

14.6.2 Scheduling and Notification

No additional requirements.

14.6.3 Payment

No additional requirements.

14.6.4 Verification

No additional requirements.

14.7 Transporting Materials and Equipment Across Tracks

No additional requirements.

14.8 Work for Benefit of DB Team

No additional requirements.

14.9 Cooperation and Delays

No additional requirements.

14.10 Safety Guidelines

14.10.1 Guidelines for Personnel on Railroad ROW

No additional requirements.

14.10.2 Guidelines for Equipment on Railroad ROW

No additional requirements.

14.11 Insurance

14.11.1 Requirements

No additional requirements.

14.11.1.1 DB Team's Liability Insurance

No additional requirements.

14.11.1.2 Railroad Protective Liability Insurance

No additional requirements.

14.11.2 Evidence of Insurance

Supplement the following to Section 14.11.2 of Volume 3:

Evidence of insurance as required in Section 14.11.1 shall be furnished to:

insurancedocuments@csx.com
CSX Transportation, Inc.
500 Water Street, C907
Jacksonville, Florida 32202

With a copy to:
State Utilities Engineer
Georgia Department of Transportation
One Georgia Center 10th Floor
600 West Peachtree Street NW
Atlanta, GA 30308

And a copy to:
Office of Innovative Delivery
Georgia Department of Transportation
One Georgia Center – 19th Floor
600 West Peachtree Street NW
Atlanta, GA 30308
Attn: Darryl VanMeter, PE
dvanmeter@dot.ga.gov

14.11.3 Reserved

14.11.4 Cancellation

Supplement the following to Section 14.11.4 of Volume 3:

Notice of cancellation of insurance as required in Section 14.11.4 shall be furnished to:

insurancedocuments@csx.com
CSX Transportation, Inc.
500 Water Street, C907
Jacksonville, Florida 32202

With a copy to:
State Utilities Engineer
Georgia Department of Transportation
One Georgia Center 10th Floor
600 West Peachtree Street NW
Atlanta, GA 30308

And a copy to:
Office of Innovative Delivery
Georgia Department of Transportation
One Georgia Center – 19th Floor
600 West Peachtree Street NW
Atlanta, GA 30308
Attn: Darryl VanMeter, PE
dvanmeter@dot.ga.gov

14.12 Failure to Comply

No additional requirements.

15 LANDSCAPE AND HARDSCAPE ENHANCEMENTS

15.1 General Requirements

No additional requirements.

15.2 Administrative Requirements

No additional requirements

15.2.1 Reserved

15.2.2 Reserved

15.2.3 Reserved

15.3 Design Requirements

15.3.1 Reserved

15.3.2 Walls

Supplement the following to Section 15.3.2 of Volume 3:

Where retaining walls (including cast in place walls and MSE walls) and noise barrier panels are used, the DB Team shall provide ashlar finish.

Ashlar finish shall only be applied to the side of the noise barrier panel facing the interstate.

Ashlar finish shall be achieved with a concrete form liner approved by GDOT. The ashlar pattern stone sizes shall vary from 6 inches to 32 inches wide and 3 inches to 12 inches high with 3/4 inch deep by 3/4 inch wide joints. Ashlar finish shall be light gull gray in color. Light gull gray shall be Federal Standard (FS) 595C color number FS36440 and/or as approved by GDOT.

All visible walls and noise panels shall have a graffiti-proof coating. Graffiti-proof coating shall meet the requirements of *GDOT Standard Specifications* Section 838.

15.3.3 Bridges and Other Structures

No additional requirements.

15.3.4 Reserved

15.3.5 Reserved

15.3.6 Reserved

15.3.7 Reserved

15.3.8 Reserved

15.4 Construction Requirements

No additional requirements.

16 SIGNING, PAVEMENT MARKING, SIGNALIZATION

16.1 General

Supplement the following to Section 16.1 of Volume 3:

GDOT will provide to the DB Team, two (2) "Your Dollars Building A Better Georgia Logo" signs either 24" X 36" or 36" X 48". The signs shall be installed by the DB Team on each end of the Project, prior to beginning construction. The signs shall be removed by the DB Team when GDOT issues Substantial Completion on the Project. Upon removal, the signs shall be returned to GDOT.

The DB Team shall install truck restriction signs (R554-X) on I-16 in locations of three (3) lanes or more of travel in one direction. Signs shall be mounted on bridges or on an overhead sign structure at interchanges with underpass. Signs shall be designed as per GDOT Detail T-7. For locations on I-16 with (two) 2 lanes of travel in one direction, the R560-3 sign shall be mounted on the shoulder at least once between interchanges; the signs shall be designed as per GDOT Detail T-5A.

16.1.1 Standards

No additional requirements.

16.2 Administrative Requirements

16.2.1 Meetings

No additional requirements.

16.3 Design Requirements

16.3.1 Final Plans

No additional requirements.

16.3.2 Permanent Signing and Delineation

No additional requirements.

16.3.3 Project Signs – Outside the Existing and Proposed ROW

No additional requirements.

16.3.4 Reserved

16.3.5 Specific Service Signs

No additional requirements.

16.3.6 Sign Support Structures

No additional requirements.

16.3.7 Permanent Pavement Marking

No additional requirements.

16.3.8 Permanent Signalization

No additional requirements.

16.3.8.1 Traffic Signal Requirements

Supplement the following to Section 16.3.8.1 of Volume 3:

See Table 13-1 for requirements for signal adjustment requirements on approaches at Dean Forest Road and Chatham Parkway.

The DB Team shall be responsible for maintaining all existing traffic signals until Final Acceptance, which includes:

1. Control system adjustments.
2. Temporary support pole locations required by the Project during the interim period through the installation of the permanent traffic signal location(s).
3. Vertical clearance requirements.
4. Maintenance, repairs, and upkeep.

At no time shall the DB Team cause any part of the signal(s) to be inoperable. The permanent traffic signal location(s) is to be checked and accepted by the District Traffic Signal Engineer and the Chatham County Traffic Engineer prior to Final Acceptance.

16.3.8.2 Traffic Signal Timing Plans

No additional requirements.

16.3.8.3 Traffic Signal Permit

No additional requirements.

16.3.8.4 Traffic Signal Support Structures

No additional requirements.

16.4 Construction Requirements

16.4.1 Permanent Pavement Marking

No additional requirements.

16.4.2 Permanent Signing and Delineation

Supplement the following to Section 16.4.2 of Volume 3:

Three overhead advance guide signs and one overhead Exit Direction sign, meeting current Attachment 3-1 design manuals requirements and guidance, shall be required for all freeway to freeway interchanges within the Project area. Overhead arrow-per-lane guide signs shall be used for freeway splits with an option lane and for multi-lane freeway-to-freeway exits having an option lane.

All Exit Direction signs shall be installed on TP I structures.

16.4.3 Permanent Signalization

No additional requirements.

17 INTELLIGENT TRANSPORTATION SYSTEMS

17.1 General

This Section 17 addresses the requirements for the GDOT General Purpose Lane Intelligent Transportation System (GDOT ITS) including requirements for traffic surveillance, detection, traveler information dissemination, communication, and maintenance during construction.

The improvements, infrastructure, and responsibilities for GDOT ITS are generally described below.

17.1.1 Standards

The DB Team shall provide activities in this Section 17 in accordance with GDOT's ITS Design Manual, GDOT's ITS Strategic Deployment Plan (SDP) for the Level I of ITS deployment, Attachment 3-1 Manuals, and other provisions of the DB Documents.

Refer to Attachment 17-1 and Attachment 17-2 for GDOT Special Provisions and Supplemental Specifications, respectively, for installations to be furnished, installed, integrated, and tested.

17.1.2 General Purpose Lane ITS

This work includes, but is not limited to, GDOT ITS, communication network, power, structures, and other required elements within the Right-of-Way required to accommodate the Project. The GDOT ITS includes, but is not limited to, Changeable Message Signs (CMS), Closed Circuit Television (CCTV) Pan Tilt Zoom (PTZ) cameras, Video Detection System (VDS), Hub Buildings and HVAC systems, and the communication network including duct bank, and the fiber backbone.

17.1.3 Reserved

17.1.4 Transportation Management Center (TMC) Improvements

If required, Transportation Management Center (TMC) improvements shall be managed by GDOT and implemented by the Transportation Management Center System Integrator (TMC SI), and referred to as the NaviGAtor Contractor. The Transportation Management Center improvements include NaviGAtor System and software modifications, integration services, and other related improvements as necessary to connect, communicate with, and operate GDOT ITS.

The DB Team is responsible for assuring that all software it incorporates for any aspect of the Project is compatible with software used by GDOT as provided in the Technical Provisions. Prior to using any software or version of software not then in use by GDOT, the DB Team must obtain written acceptance from GDOT. In addition, DB Team shall provide to GDOT, at the DB Team's cost, any software, licenses and training necessary to assure that GDOT is able to implement compatible usage of all software utilized by The DB Team. Compatible shall mean that the DB Team-provided electronic file(s) may be

loaded or imported and manipulated by GDOT using its software with no modifications, preparation or adjustments. All electronic information submitted to GDOT shall be in native format or, if not available, legible.

The DB Team is responsible for ensuring that the civil infrastructure is in place in accordance with established milestone dates, and for coordination of work as required to allow for the TMC System Integrator (SI) to complete their software development, installation and integration responsibilities with DB Team installed devices.

17.2 Design and Construction Requirements

For GDOT ITS, it is the DB Team's responsibility to determine the number and specific locations of all ITS components to meet the requirements as outlined in GDOT's ITS *Strategic Deployment Plan (SDP)* for the Level I of ITS deployment and the latest *ITS Design Manual* for design requirements unless specified elsewhere in the DB Contract. The DB Team has flexibility to offer alternatives for GDOT to consider; however, the locations identified on the ITS layout shall include devices and infrastructure to meet the traffic management needs of the Project. The DB Team shall review suggested location modifications with GDOT during the ITS design workshop, to be conducted after roadway geometry is established and through the preliminary design process.

DB Team shall prepare a preliminary and a final GDOT ITS layout including network communication schematic diagrams and specification for review and acceptance by GDOT to ensure adequate planning of the ITS implementation and components' consistency and compatibilities with adjacent GDOT Projects. The plan shall provide horizontal and vertical plan location, proposed equipment, proposed structures, and types of materials for the entire ITS. The DB Team shall follow the current version of the GDOT *ITS Design Manual* for its design.

The DB Team shall conduct all work necessary to design, procure, furnish, install, integrate (as defined in this Section 17 and associated specifications), and maintain GDOT ITS on the Project, including gantries, electrical power, fiber-optic communications, ITS cabinets, maintenance access, junction boxes, and conduits, all in accordance with GDOT *Standard Specifications, Construction of Transportation Systems* and Special Provisions contained herein. Each ITS device, regardless of its purpose, provided by the DB Team shall support, at a minimum, *National Transportation Communications for ITS Protocol (NTCIP)*-compliant interface protocols so that integration of each device/controller with NaviGAtor is more efficiently supported.

The DB Team shall survey and locate the existing GDOT ITS equipment including all fiber trunk lines, conduit and duct banks, communication hubs, drop fiber and electrical lines, as well as ITS devices and communication devices. As a result of the survey and location of existing GDOT ITS equipment, the DB Team shall identify and notify GDOT of all ITS devices or communications devices needing repair no later than sixty (60) days prior to NTP 3. GDOT will perform or cause to be performed repairs of those necessary ITS devices or communications devices identified as needing repair. The DB Team is responsible for the ITS system and all communication devices within the Project limits

upon issuance of NTP 3. The DB Team shall perform preventative maintenance, respond to problem notifications from GDOT, make any needed repairs or upgrades as necessary, and repair ITS devices or communications damaged by any party during construction.

For each GDOT ITS system, the DB Team is allowed eight (8) hours GDOT ITS downtime to cutover the new GDOT ITS. The DB Team shall notify GDOT no less than two (2) Business Days before proceeding with any GDOT ITS Work. Any downtime outside of the 24 hours may result a non-refundable deduction as listed in the Volume 1, Exhibit 18.

If the Project impacts a Continuous Count Station (CCS) that collects traffic data for GDOT, the DB Team shall notify GDOT at (404) 347-0701 two weeks prior to beginning of construction activities. GDOT will coordinate with the owner of the count station equipment, who will be responsible for salvaging.

17.2.1 Video Detection Systems (VDS)

VDS shall be designed in accordance with the GDOT ITS Design Manual, latest edition, and shall be furnished, installed, integrated, and tested in accordance with GDOT *Standard Specifications, Construction of Transportation Systems*.

17.2.1.1 VDS Applications

GDOT ITS VDS provides presence detection, vehicle counts, classification, occupancy, and speed information to GDOT's central ITS management software to support:

1. Incident detection by speed.
2. Traffic detection and count attraffic signals and ramp meters.

Dedicated detection systems are used to provide count data, occupancy and speed information to support travel time monitoring along the interstate.

17.2.1.2 VDS Detection Requirements

DB Team shall utilize proposed CCTV pole locations when installing detection devices. The detection devices shall be spaced between 1,760-3,000 feet apart and provide volume, occupancy, and speed for all ramps and mainline general-purpose lanes.

VDS cameras on ramps shall be oriented towards free-flowing traffic segments of a ramp. For an exit ramp, the VDS camera coverage area shall be as close to the gore as possible and not less than 400 feet from the stop bar at the end of the ramp. For an entrance ramp, the VDS camera coverage area shall be no less than 300 feet from the "top," or arterial intersection, of the ramp, and no less than 400 feet from the gore.

No more than four (4) VDS cameras and one (1) CCTV camera shall be placed on a single pole.

Detection devices shall be placed off the right shoulder of the highway. VDS cameras shall not be placed to detect travel lanes across the median/barrier wall (i.e., in the

opposite direction of travel), because shadowing by the median wall, its shadow, tall vehicles, and parallax distortion will degrade the quality of detection.

17.2.1.3 VDS Detailed Technical Requirements / Specifications

GDOT VDS technical requirements including Submittals, materials, construction and testing are described in GDOT *Standard Specifications Section 937 – Detection System* (DS). VDS integration is described in GDOT Standard Specifications, Construction of Transportation Systems Section 940 – NaviGAtor Advanced Transportation Management System Integration.

All GDOT VDS shall be able to provide volume, lane occupancy and average speed meeting requirements described in GDOT Standard Specifications, Construction of Transportation Systems Section 937– Detection System (DS).

17.2.1.4 VDS Implementation Requirements

For detection systems that are replacements for removed/relocated VDS, the DB Team shall furnish, install, integrate, test, and make available for GDOT's use prior to deactivation and removal of the existing VDS. All replacement VDS equipment shall be new. No relocation of existing equipment is permitted as a part of this Project. Replaced and removed devices shall be provided to GDOT.

DB Team shall coordinate return of salvageable equipment with the GDOT State ITS Engineer at (404) 635-2849.

All salvaged equipment shall be placed on pallets, containing a list of materials with the description of each item, their condition, and equipment serial numbers. DB Team shall deliver salvaged equipment to the Traffic Signal Electrical Facility (TSEF) located at 935 East Confederate Avenue, SE, Building 5, Atlanta, GA 30316-2531.

Detection system assemblies shall be installed on new concrete strain poles or existing poles.

The DB Team shall include milestones for replacement VDS and new traffic detection installation in the Critical Path Method (CPM) schedule.

The DB Team shall prepare and implement a VDS integration plan for GDOT's approval. The integration plan shall meet the requirements of GDOT Standard Specifications Section 940 - NaviGAtor Advanced Transportation Management System Integration.

17.2.2 Reserved

17.2.3 Closed Circuit Television (CCTV) Subsystem

17.2.3.1 CCTV General Requirements

CCTV shall be designed in accordance with the GDOT *ITS Design Manual*, latest edition.

CCTV shall be furnished, installed, integrated, and tested in accordance with GDOT *Standard Specifications, Construction of Transportation Systems*.

17.2.3.2 CCTV Applications

GDOT ITS CCTV cameras are used to monitor real-time traffic conditions along the roadway and provide real-time information to support:

1. Incident verification and management.
2. Highway Emergency Response Operator (HERO) dispatching.
3. Traffic surveillance and traffic control, including any traffic signals, ramp meters management.

Dedicated GDOT ITS CCTV cameras are used to monitor GDOT general purpose CMS, i.e. to verify overhead CMS messages and to monitor CMS LED performance to support maintenance management.

17.2.3.3 CCTV Design Requirements

CCTV cameras shall be designed to be digital IP cameras with digital video streaming capability. The camera shall be designed with on-board H.264 encoding in the camera housing to generate the digital video stream. The camera cables shall include ethernet cable for digital video stream.

Early in the preliminary design schedule, the DB Team shall submit CCTV design for GDOT approval showing that the CCTV design provides overlapping, continuous coverage between adjacent cameras of the General Purpose Lanes, interchange ramps, and ramp intersections with each side street. The evidence may be a 3-dimensional (3D) view of the General Purpose Lanes as viewed from the DB Team's proposed camera mounting heights above the roadway. The 3D views shall cover the entire Project limits and include all possible sight obstructions, including vegetation, existing signs, proposed signs, relocated signs, bridges and overpasses, and vertical and horizontal alignments.

CCTV poles shall be of sufficient height to mount all GDOT cameras at nominally fifty (50) feet above the roadway surface. CCTV cameras and VDS units may be mounted on the same poles. The joint use poles shall be designed to meet the CCTV camera's mounting height of fifty (50) feet above the roadway. Cameras shall not be mounted in excess of fifty-four (54) feet above the base of the pole or the area where a bucket truck can park for maintenance of the camera. At no times shall the distance between the bucket truck parking location and the camera require a bucket truck arm length of greater than seventy (70) feet.

If CCTV cameras are connected to overhead sign trusses:

1. The maximum fifteen (15) foot tubular extension shall be connected to the sign structure upright and not to any truss portion of the structure.
2. Tubular extensions shall meet the minimum vibration requirements described herein.

3. Perform and submit for approval analysis verifying that the sign structure can accommodate the additional loading in conformance with the DB Documents.

Any pole or upright with a CCTV camera mounted to it shall be designed to be rigid with minimum vibration due to wind. Total deflection at the CCTV mounting height shall meet the requirements set for strain poles for ATMS applications per *Standard Specifications, Construction of Transportation Systems* Section 639. The DB Team shall include deflection design calculations in the required structure design Submittals.

17.2.3.4 CCTV Detailed Technical Requirements / Specifications

GDOT CCTV technical requirements including Submittals, materials, construction and testing are described in GDOT *Standard Specifications, Construction of Transportation Systems* Section 936 – Closed Circuit Television (CCTV). CCTV integration is described in GDOT *Standard Specifications, Construction of Transportation Systems* Section 940 – NaviGAtor Advanced Transportation Management System Integration.

All GDOT CCTV cameras shall be pan-tilt-zoom pressurized dome cameras meeting requirements described in GDOT *Standard Specifications, Construction of Transportation Systems* Section 936– Closed Circuit Television (CCTV).

17.2.3.5 CCTV Implementation Requirements

For CCTV subsystems that are replacements for removed/relocated CCTV, the DB Team shall furnish, install, integrate, test, and make available for GDOT's use prior to deactivation and removal of the existing CCTV. All replacement CCTV equipment shall be new. No relocation of existing equipment is permitted as a part of this Project. Replaced and removed devices shall be provided to GDOT.

DB Team shall coordinate return of salvageable equipment with the GDOT State ITS Engineer at (404) 635-2849.

All salvaged equipment shall be placed on pallets, containing a list of materials with the description of each item, their condition, and equipment serial numbers. DB Team shall deliver salvaged equipment to the Traffic Signal Electrical Facility (TSEF) located at 935 East Confederate Avenue, SE, Building 5, Atlanta, GA 30316-2531.

Camera system assemblies shall be installed on new concrete strain poles unless installed on existing or other sign structures.

The DB Team shall prepare and implement a CCTV integration plan for GDOT's approval. The integration plan shall meet the requirements of GDOT *Standard Specifications, Construction of Transportation Systems* Section 940 - NaviGAtor Advanced Transportation Management System Integration.

17.2.4 Reserved

17.2.5 Changeable Message Sign (CMS) Subsystems

17.2.5.1 General CMS Requirements

All CMS design shall meet the following requirements, including:

1. CMS shall be designed in accordance with the latest GDOT *ITS Design Manual*.

2. CMS shall be furnished, installed, integrated, and tested in accordance with GDOT *Standard Specifications, Construction of Transportation Systems* Section 631 – Permanent Changeable Message Signs.

17.2.5.2 CMS Applications

The Project includes CMS applications, as described below:

The DB Team shall provide a minimum of five (5) overhead CMS and mounted on structures per GDOT Signing and Marking Guidelines section 4.1. Final locations of CMS will be coordinated and finalized with GDOT TMC during the design phase. CMS signs will be controlled from the GDOT TMC.

17.2.5.3 CMS Design Requirements

General: All CMS shall be full-color, full matrix LED displays. All CMS, along with associated controllers and software, shall be capable of displaying both text and *Manual of Uniform Traffic Control Devices (MUTCD)*, GDOT approved graphical images and shapes. Full-color CMS shall display, at a minimum, the colors prescribed in the *MUTCD*, Section 1A.12. CMS that are required to show graphics or display 18-inch or smaller font sizes shall have a pixel pitch of 20 mm. The CMS locations shall conform to sign spacing specifications in the *MUTCD*.

Each CMS will require a new structure to be designed and constructed by the DB Team.

Overhead CMS: Overhead CMS shall be provided with a front access enclosure and capable of displaying three (3) lines by eighteen (18) inch characters with twenty-one (21) characters per line. The CMS shall be installed toward the roadway as directed by GDOT and the DB Documents to maximize the viewing angle for motorists. The lift face of the front access shall hold open at a minimum angle of 60 degrees (typical) from vertical. It needs to be easily opened from a bucket truck by a single person..

CMS installations are required at the locations:

1. At the very beginning of the Project on I-16, approximately 6,500 feet west of the I-16/I-95 interchange.
2. At the south end of the Project on I-95 NB, approximately 8,500 feet south of the I-16/I-95 interchange.
3. At I-16 EB between Chatham Parkway and I-516, approximately 2,000 feet east of Chatham Parkway.

4. At I-16 WB between Chatham Parkway and I-516, approximately 2,500 feet east of Chatham Parkway.
5. At I-16 WB past the end of the Project, approximately 5,000 feet east of the I-16/I-516 interchange.

Actual locations shall be determined in coordination with GDOT.

17.2.5.4 CMS Technical Requirements / Specifications

GDOT CMS technical requirements are described in GDOT *Standard Specifications, Construction of Transportation Systems* 631 – Permanent Changeable Message Signs.

17.2.5.5 CMS Implementation Requirements

For CMS that are replacements for removed existing CMS, the DB Team shall furnish, install, integrate, test, and turn over replacement CMS to GDOT for use prior to deactivation and removal of the existing CMS. All replacement CMS equipment shall be new. No relocation of existing equipment is permitted as a part of this Project. The DB Team shall coordinate return of salvageable equipment with the GDOT ITS Engineer at (404) 635-2849.

All salvaged equipment shall be placed on pallets, containing a list of materials with the description of each item, their condition, and equipment serial numbers. DB Team shall deliver salvaged equipment to the Traffic Signal Electrical Facility (TSEF) located at 935 East Confederate Avenue, SE, Building 5, Atlanta, GA 30316-2531.

The DB Team shall prepare and implement a GDOT CMS integration plan for GDOT's approval. The integration plan shall meet the requirements of GDOT *Standard Specifications, Construction of Transportation Systems* Section 940 – NaviGAtor Advanced Transportation Management System Integration.

The DB Team shall prepare and implement a CMS testing plan for GDOT's approval. The testing plan shall meet the requirements of GDOT *Standard Specifications, Construction of Transportation Systems Section* 631 – Permanent Changeable Message Signs.

17.2.6 Communications Network

The DB Team shall design, furnish, install, integrate and test a communication network for the GDOT ITS between I-516 and the proposed Hub Building X.

Table 17-1: Hub Buildings lists the existing and proposed hub buildings that may be utilized for this Project. DB Team shall construct the proposed hub buildings in the approximate location and building dimensions detailed below. Hub buildings shall meet the requirements of GDOT *Special Provision 797* – Hub Buildings and the Project specifications.

In addition to providing the proposed Hub Building, the DB Team shall also be required to provide the following:

1. Primary WAN connection up to the proposed Hub Building to complete the communication back to TMC.

2. Coordinate with City of Savannah and have provision in the design to integrate the proposed NaviGAtor system into the City of Savannah TCC system near I-16/I-516 Interchange. Enable the following:

   a. Connection to TMC via TCC will provide the necessary logical and physical redundancy to the proposed ITS system.

   b. Enable TCC and TMC to have access to additional devices.

The approximate location for tying the two systems is identified as adjacent to the school bus depot near the interchange of I-16/I-516; see Table 17-1: Hub Buildings. This is shown on the network concept diagram in Attachment 17-3.

Table 17-1: Hub Buildings

Hub Building	Owner/Occupant	Dimension	Location	Status
X	GDOT	12 ft x 16 ft	I-16 and I-95	Proposed

17.2.6.1 Communication Network General Requirements

The DB Team shall design, furnish, install, integrate and test the fiber-optic backbone and laterals for the ITS. The backbone shall be single-mode fiber optic cable for the GDOT networks. The long haul and distribution networks shall be Internet Protocol (IP) over Ethernet. Communication drops to local GDOT ITS cabinets shall also be single-mode fiber optic cable and IP over Ethernet. Communication between the ITS cabinets and the local devices attached to the cabinet shall be designed, furnished and installed by the DB Team based on the requirements of the device or devices.

The communication and network layout focuses on the existing and proposed hub buildings that will aggregate distribution layer Ethernet network for transmission to GDOT.

The DB Team shall verify that all existing ducts anticipated to be used by the DB Team are open, with no blockages, water or breaks. Damaged conduits shall be replaced or new duct banks installed around the blockage by the DB Team at no additional cost to GDOT.

The DB Team shall not install a duct bank under any paved surface except when crossing ramps or other travel lanes. New conduit duct banks shall be installed approximately ten (10) feet inside the existing or proposed Interstate Right-of-Way where feasible. Where vegetation or other obstructions hinder installation of the duct banks approximately ten (10) feet from the Right of Way line, the DB Team may modify the duct banks location for GDOT review and approval.

17.2.6.2 Communication Network Design Requirements

The communication infrastructure and network shall be designed in accordance with the latest GDOT *ITS Design Manual*.

The DB Team shall conduct a communication network design kick-off meeting with GDOT and City of Savanah prior to beginning design efforts. The DB Team shall utilize the kick-off meeting to confirm GDOT communication network requirements.

When conduit or duct banks are installed under roadways or shoulders for lateral crossings, the conduit and duct banks shall be installed by directional boring as shown in GDOT ITS detail drawings.

GDOT ITS shall be served by a physically and logically separate communication network. All conduit, conduit access (such as electrical communication boxes (ECBs) and pull boxes), fiber and communication cabling, cabinets, patch panels, network switches and terminal servers shall be solely dedicated to GDOT. Dedicated conduit shall be within the same conduit duct bank. Every conduit in each duct back shall have a unique color and/or striping pattern. The coloring shall be consistent through the Project corridor. No fiber optic, other data communication, or composite cable shall be installed in the same conduit as an electrical power service cable.

The communication network for the GDOT ITS shall be designed to be end-to-end: from the field device to the NaviGAtor TMC including the ITS cabinets and existing hub buildings.

Design considerations shall include cabinet dimensions, communication shelf slots, network bandwidth capacity, conduit capacity, backbone fiber availability, and electrical circuit capacity.

The fiber-optic backbone shall be designed along the General Purpose Lanes. All GDOT ITS data shall be aggregated to 1 GB backbone network at designated hub buildings at locations in Table 17-1: Hub Buildings in Section 17.2.6, and within existing hub buildings.

All fibers installed under this Project shall be terminated at communication hubs or termination points as designated for GDOT. This shall include terminating each fiber to a rack mounted fiber distribution center. DB Team shall provide patch cords for each connection between fibers at a termination fiber distribution center.

The DB Team shall determine the link loss budget analysis for all fiber-optic links.

The DB Team shall design a backbone communication system with fiber-optic cables installed along the Project area. Lateral drop cabling shall be used to reach GDOT Sites.

If GDOT provides ITS details during the design phase, the DB Team will adapt the communication network design to accommodate the GDOT communication network requirements.

General design criteria elements for GDOT ITS networks are as follows:

1. Fiber Optic (FO) Cable: Fiber optic trunk cables shall be located on both sides of the corridor within the Project limits. The DB Team shall provide a wireless solution for a CMS and CCTV on the eastern end of the Project.

    a. Conduit shall be placed to the back of the right of way line or as far away from travel as possible.

    b. Pull boxes (PBs) shall be placed no more than 750 feet apart on FO trunk cable sections. Device locations usually dictate the placement of PBs, because a PB is required for a drop cable splice at each device in most cases. Pull boxes are not rated for deliberate traffic and shall only be placed in areas which are not expected to have vehicles routinely present. Electrical Communications Boxes (ECBs) shall be used when the conduit needs to be placed under the paved shoulder, such as near a bridge approach slab.

2. Conduit: Conduit shall be located to the back of the right of way line or as far away from travel as possible, where it will be well protected from future excavation. Boring is required when conduit is installed under the paved or graded shoulders.

    a. When conduit is installed outside the shoulder, either open trench installation, boring or plowing may be used. When conduit is installed under the travel lanes or under ramps, boring is required.

    b. When using open trench installation, the conduit duct bank shall be installed such that the top of the duct bank is at a depth of 48” below grade.

    c. When boring under paved shoulders, travel lanes, or ramps, the DB Team shall compute the appropriate bore diameter needed to accommodate the conduit to be located in the directional bore.

    d. Conduit shall not be attached to a bridge without prior written approval from the GDOT Bridge Office. For bridge crossings, the preferred method of crossing is to bore underneath the bridge or stream. If conduit is attached to the bridge, it is preferred to bore around the approach slab and end wall. The bore shall be terminated in a pull box that is placed in the slope paving. Fiberglass conduits are then run from the pull box up the end wall and then across the bridge according to the detail provided by the Bridge Office. For each ITS project requiring conduit attachment to bridges, the DB Team shall send a letter to the GDOT Bridge Office, requesting approval for each conduit attachment to a bridge.

    e. Conduit duct bank configuration Type 3 four (4) 2” HDPE ducts shall be installed. PVC conduit shall be used between the trunk pull box and device pull box if the distance between the two is less than 20 feet.

3. Pull Boxes and ECBs: The electrical communications boxes (ECBs) and pull boxes (PBs) used on GDOT ITS projects shall be designed to be large enough to accommodate a splice enclosure and the coil of the specified amount of slack fiber optic cable without violating the manufacturer's specified bending radius of the cable.

    a. A PB shall also be located at each end of a directional bore. Additionally, a PB or ECB is required immediately before and after a bridge or any other situation where there is a conduit transition; for example, at a device location or a FO trunk cables junction point.

    b. For freeway installations, a Type 7 PB is required to allow for FO trunk cable maintenance slack, device drops, or reel to reel splices. A Type 4S PB shall be used at the base of ITS device poles. A drop cable, typically 12 fiber, shall connect the Type 4S PB back to the Type 7 PB along the FO trunk cable.

    c. An ECB is required if a box needs to be installed in the shoulder or other paved area. ECBs shall not be installed in an active travel lane.

4. The DB Team shall provide an internet protocol (IP) Ethernet based system with a fully redundant architecture, allowing automatic, self-healing, and cutover of data flow to a secondary path or segment in the case of a primary equipment failure or fiber break. The ITS communication system backbone shall be rated for a Gigabit transfer rate, minimum. ITS field switches shall be rated for a 1-gigabit uplink transfer rate, minimum. Downlink ports at the field switches shall be 10/100BaseT.

5. The DB Team shall provide Network Switch, Layer 3 Gig-E to connect the local ITS system to the GDOT wide area network (WAN) at the existing and proposed communication hub location(s). The Layer 3 network switch shall be designed with adequate 1-gigabit and 10/100BaseT ports to support the network architecture and design.

6. The DB Team shall provide a field network switch, Layer 2 10/100BaseT in each ITS cabinet to support connectivity of the ITS devices connected to the cabinet. Each Layer 2 switch will be designed with adequate ports to support communication with all devices connected to the cabinet. A minimum of four (4) spare ports shall be provided.

7. Each field network switch shall include a primary and secondary fiber path from the field cabinet to the hub building.

8. The fiber layout for GDOT ITS shall provide a daisy-chain. The daisy-chain shall be confirmed with GDOT during the ITS design workshops and preliminary design efforts; The maximum number of Layer 2 field network switches forming a network path between an end device (GDOT ITS) and a communication hub-based data

aggregating Layer 3 network switch shall not exceed eight (8) per fiber pair. The calculated data throughput assigned to any sub-network path shall not exceed one-third of the path's throughput capacity.

9. New devices and existing devices shall not be assigned within the same network path or otherwise daisy-chained to avoid possible inconsistencies in communication protocols.

10. The DB Team shall determine the quantity of fibers required for the backbone communication system and local connectivity. The DB Team shall provide all calculations required to support the design determination. Include capacity for 100 percent (100%) system expansion. The DB Team shall provide 100 percent (100%) spare fibers that shall be continuous along any section of the Project and continuous from end to end of the Project. The number of fibers shall be rounded up to the next larger standard fiber cable size, for example, if the calculation determine forty (40) fibers are needed, eighty (80) shall be provided rounded up to ninety-six (96) which is the nearest standard cable size.

11. All drop fiber shall be 12-fiber single mode cables, and all the 12-fibers of the drop cable shall be spliced to the Trunk cable.

12. The GDOT ITS also includes new hub buildings. The new hub buildings shall be designed to meet all GDOT design guidance and construction specifications and GDOT equipment requirements. The hub building including the building, foundation, conduit cutouts and entrances, air conditioning systems, fencing, grounding, paving, vertical and overhead cable runways and trays, electrical service, electrical conductors, and electrical pull boxes shall be designed to meet all the requirements shown on GDOT ITS Detail ITS-13 Hub Details – Hub except that the dimension of the hub buildings shall be as shown in Table 17-1: Hub Buildings, exterior dimensions and 9'-6" interior building height measured from the finished floor to the finished ceiling.

13. The DB Team shall verify that the door of the building can accommodate GDOT's proposed equipment racks. The hub buildings shall be designed so that the air conditioning units are installed on the roof of the hub building. The layout of the hub buildings shall be designed for the equipment racks to be installed on the long dimension of the hub building. The design will ensure that one (1) row of equipment racks can be installed, powered and cabled. The hub building will be designed to enclose an equipment rack, electrical and fiber cable management, and a service technician work table and two (2) chairs. The hub building shall be designed to include lightning protection, grounding to 5 ohms or less and surge suppression. The hub building shall be enclosed by fencing which meets the requirements of *ITS Design Manual* and GDOT *Standard Specifications., Construction of Transportation Systems*. The DB Team shall coordinate the design of the hub building with approval by GDOT.

14. DB Team shall ensure new hub buildings are able to utilize a mobile emergency generator during power outages. The DB Team shall route the main power to a manual transfer switch located with the mobile emergency generator connection installed on the outside of the building. The emergency generator connection shall allow GDOT personnel to power the site from a portable generator in the event that the commercial power is lost. The DB Team shall route the resulting main power to a 42-circuit distribution panel and through the associated AC surge protective devices. Section 17.2.9.6 provides requirements to allow a mobile generator to power hub buildings.

17.2.6.3 Communication Network Implementation Requirements

The communication network shall be furnished, installed, integrated and tested in accordance with the GDOT *Standard Specifications, Construction of Transportation* Systems, Special Provisions and Supplemental Special Provisions.

All fiber optics used in this Project shall be outside plant (OSP) single-mode fiber. The DB Team shall provide fiber-optic cables for trunk lines and drop lines, fiber distribution centers, patch panels, splice enclosures, and fiber-optic cable splices as required to connect each ITS equipment cabinet, each hub building, and ITS elements to the backbone communication system.

Either field terminated or pre-terminated drop cable assemblies shall be used for all drop fibers from the fiber optic trunk line to the ITS cabinet or device.

Underground splice enclosures shall be furnished and installed at all trunk line splices and at all locations where drop fibers are installed.

Rack mounted fiber distribution centers (FDC) shall be furnished and installed in all field cabinets and hub buildings.

The DB Team shall furnish and install all equipment, cabinets, cabling, and electronic devices needed to connect the backbone fiber to the Layer 2 and Layer 3 Ethernet switches and to connect all GDOT ITS devices to the Layer 2 switch in the local ITS cabinet.

17.2.7 Ramp Meters

The DB Team shall design, furnish, install, integrate and test ramp meters for the GDOT ITS at the interstate on-ramps from Chatham Parkway and from Dean Forest Road.

All ramp meters shall be designed in accordance with the latest GDOT *ITS Design Manual*.

Ramp meters shall be furnished, installed, integrated, and tested in accordance with:

1. GDOT *Standard Specifications, Construction of Transportation Systems* Section 647 – Ramp Meters

2. *MUTCD for Streets and Highways FHWA*, 2009 Edition
3. *Ramp Management and Control Handbook*, FHWA, January 2006
4. Section 940 – NaviGAtor Advanced Transportation Management System Integration

17.2.7.1 Ramp Meter Design Requirements

Ramp meters shall be designed to accommodate a flow rate that is appropriate for a freeway-to-freeway ramp and meet either or both Warrant 1 or 2. The meter will be justified by GDOT if the following factors are considered, such as:

1. Freeway interchange where mainline speeds are consistently less than free-flow speeds
2. Short-duration impacts of ramp vehicles entering the mainline freeway
3. High percentages of truck volumes in the area
4. Safety issues on the mainline freeway, resulting from significant speed differentials
5. Other factors that influence engineering judgment

The ramp meters shall cycle from red to green every 3-5 seconds when in operation. The ramp meter shall have detection for each lane of the of the ramp. The ramp meters shall be installed about two-thirds of the way on the entrance ramps.

17.2.7.2 Ramp Meter Detailed Technical Requirements / Specifications

GDOT ramp meter technical requirements including Submittals, materials, construction and testing are described in GDOT *Standard Specifications, Construction of Transportation Systems* Section 647– Traffic Signal System. Ramp meter integration is described in GDOT *Standard Specifications, Construction of Transportation Systems* Section 940 – NaviGAtor Advanced Transportation Management System Integration.

17.2.7.3 Ramp Meter Implementation Requirements

The DB Team shall furnish, install, integrate, and test ramp meters. The DB Team will install all traffic signal heads, a controller and cabinet, inductive loop detectors, freeway detection units, conduits, electrical cabling, fiber optic cabling, Ethernet switches, and pull boxes. The DB Team shall provide all special signs and additional striping. The DB Team shall provide communication to the meters as it is needed for system coordination.

17.2.8 ITS Electrical Service (Power) Requirements ITS Electrical General Requirements

The DB Team shall coordinate with the electrical power companies and provide electrical power for all ITS included in the Project.

17.2.9 Electrical Design Requirements

17.2.9.1 General Electrical Design Requirements

The DB Team shall ensure electrical power is designed based on the electrical service loads at each location where power is required. Electrical service, wire sizes, transformers, surge suppression, meters, grounding, lightning protection and uninterruptable power supply (UPS) are all considered part of the electrical power systems.

At locations where electrical power service is provided to GDOT, the DB Team shall ensure that the electrical power company installs electrical usage meters for GDOT equipment.

The DB Team shall design electrical loads for all ITS cabinets, hub buildings, and GDOT ITS devices.

The DB Team shall provide electrical power calculations to GDOT for review and approval during the design. Power calculations shall include power loading, transformers, and conductor sizes based on *National Electrical Code (NEC)* standards. In no case shall electrical service provided at a location be less than 120 volt, 20 amps AC. Electrical load at each ITS shall be based on a factor of two (2) times the calculated load based on the equipment being provided for that cabinet to allow for future expansion and use of maintenance tools.

In addition to other requirements referenced herein, electric pull boxes shall be spaced not more than five-hundred (500) feet apart. No fiber optic or other data communication or composite cable shall be installed in the same conduit or pull box as electrical power service cable.

The DB Team shall install mechanical theft deterrent devices in all Project electrical conduits and electrical pull boxes to prevent the removal of electrical wiring and to prevent unauthorized access. The theft deterrent devices shall be rubber stopper mechanical devices that compress against the electrical wiring and prevent the wires from being easily pulled through the conduits, or alternate as acceptable to GDOT. DB Team shall also install electrical pull box lids that contain locking mechanisms that works with the use of cams to prevent unauthorized access.

Voltage design drop calculations shall comply with the suggested limits defined in *NEC Article 210.19 (A) (1) Informational Note 4* and *NEC Article 215.2 (A)(1)(b) Informational Note 2*. These calculations shall define all service points, circuits emanating from those points, details of all loads on all circuits, the nominal voltage on each circuit, the voltage drop for each link of each circuit, the percent voltage drop for each circuit and the wire size selected for each link of each circuit. These calculations shall include sizing and ratings of all circuit breakers, transformers, fused switches and transfer switches planned for installation. These calculations shall be submitted with the preliminary and final design Submittals and with subsequent Submittals with all data appropriately updated. An allowance of 9.0 Amps shall be included at the end of the circuit for a convenience outlet.

Where transformers are used, they shall be provided with ± 2.5% and ± 5% voltage taps. These taps shall not be used to fulfill the voltage drop and wire size requirements of these minimum technical requirements.

The circuits from a power service point shall be separate circuits (running either both north and south or east and west), each with its individual circuit breaker provided. A main disconnect circuit breaker shall be provided at each power service point.

17.2.9.2 Lightning Protection Design Requirements

All CCTV, CMS, and VDS poles (including sign structures with ITS) shall be designed to include lightning protection systems per the requirements of Attachment 17-4: *Surge Protection Systems and Devices* and as described herein. The top of the lightning rod shall be at least two (2) feet above the highest point or top of any and all ITS devices attached near the top of the pole, and shall be mounted within a sixty (60) degree cone of protection measured from the top of the lightning rod or the one that provides the most protection for the ITS device.

Each ITS cabinet, ITS pole and hub building shall have an exterior earth-ground ring consisting of a system of ground rods connected to a ring of a #2 AWG, stranded bare copper ground wire. For ITS cabinets and ITS poles, the earth ring shall include of a minimum of two ground rods. Ground rods shall be placed at least forty (40) feet from adjacent ground rods. When ground rods adjacent installations are within one hundred (100) feet of each other, the rings shall be connected with #2 AWG stranded bare copper ground wire. Each site shall include lightning protection that shall also be connected to the site's earth-ground ring. The ground system shall be measured and documented with a resistance of five (5) ohms or less.

When new GDOT ITS devices are placed on an existing structure, the structure's lightning protection system shall be updated by the DB Team to the lightning protection requirements for new structures.

17.2.9.3 Grounding Design Requirements

In order to facilitate testing and periodic retesting of the grounding array at each ITS pole, ITS cabinet and hub building, etc., the DB Team shall design the grounding system so that the top of all grounding rods is installed in an electrical service Type 2 pull box. The grounding conductor shall be designed to be exothermically connected to the ground rod at an elevation of twelve (12) inches below ground line. All ITS equipment and enclosures located at a communication hub site shall conform to the latest adopted NEC for bonding and grounding. Grounding arrays shall be designed to be interconnected for cabinets, poles, lightning systems, etc., that are within forty (40) feet of each other. The actual locations of buried connections and ground rods shall be accurately shown in the Record Drawings.

When new GDOT devices are placed on an existing structure, the grounding system shall be updated by the DB Team to current specifications.

Grounding shall meet the minimum requirements of NEC.

17.2.9.4 Uninterruptable Power Supply (UPS) Design Requirements

For GDOT ITS locations, the DB Team shall design uninterruptable power supply (UPS) to meet the requirements in GDOT *ITS Design Manual*, GDOT *Standard Specifications, Construction of Transportation Systems* Section 939 and the following:

- UPS shall be designed to support GDOT equipment in all new hub buildings.
- The DB Team shall designate space within the hub buildings for the installation of the GDOT UPS.

17.2.9.5 Electrical Implementation Requirements

The DB Team shall furnish, install and test the electrical systems as required to meet the power and UPS demand of each communication hub location and GDOT ITS cabinet location. The DB Team shall furnish and install and test the electrical services as required by GDOT Specification 682, the approved Plans, and herein.

At locations (except hub buildings) where electrical power service is provided to GDOT ITS cabinets and devices, the DB Team shall ensure that the electrical power company installs an electrical usage meters for GDOT equipment. At each new hub building, the DB Team shall ensure that the electrical power company installs one (1) electrical usage meter for the hub building.

The DB Team shall ensure all voltage being provided to the cabinet is in accordance with the DB Team's approved electrical design calculations. The DB Team shall test the power from the electrical service disconnect, to the transformer, to the meter(s) and into the cabinets.

For GDOT ITS, the DB Team shall furnish and install all components of the electrical power systems to ensure complete and functioning systems, from equipment cabinets to and including devices. The electrical systems shall be furnished and installed to include all required device power supplies, grounding, lightning protection and surge suppression. Surge suppression shall be furnished and installed on both ends of any underground electrical cable or composite cable carrying electrical power to an device to protect against surges induced from a lightning strike on the ground.

Electrical service shall be installed and ready for connection before ITS cabinets and CMS are installed. Electrical services shall be connected and activated for all ITS cabinets, hub buildings, and CMS within twenty-four (24) hours of installation of the cabinet or CMS.

17.2.9.6 Provision for Temporary Generators for Hub Buildings

<u>Generator and auxiliary power connection</u>: The DB Team shall furnish new hub buildings with provisions for the connection of an external power source, such as a portable generator, through a weatherproof, water-resistant, secure interface to back up both GDOT electrical services. This feature shall allow authorized personnel to access, connect, and secure an external power source to the hub buildings in order to restore power within five (5) minutes of arrival time at the hub buildings.

Manual Transfer Switch: The DB Team shall provide at each hub building a manual transfer switch rated equal to or higher than the design load of the hub's main breaker and the generator input twist-lock connector rating. The DB Team shall ensure that:

1. The transfer switch provides a means of switching between normal utility power and auxiliary backup generator power.
2. The switching time between sources is no longer than 250 milliseconds.
3. The transfer switch meets UL 1008.
4. The transfer switch does not allow simultaneous active power from more than one source and does not allow generator backflow into normal utility AC circuits.
5. The manual transfer switch shall be a two-position switch, and the switch positions shall be labeled as "Generator Power" and "Utility Power".
6. The transfer switch shall be equipped with a "Utility-On" indicator, which shall illuminate when normal utility power service is available and the switch is in the "Generator Power" position. The indicator must turn off when the transfer switch is moved to the "Utility Power" position.

Generator access panel: The DB Team shall provide a generator connection panel inside the hub buildings, next to the main electrical services panels. The generator connection panel shall consist of, at a minimum, a manual transfer switch.

A generator hook-up with a four-prong, 30-amp twist-lock connector with recessed male contacts shall be installed on the outside wall, minimum two (2) feet off the ground, of each hub building.

1. The generator hook-up shall be enclosed in a weatherproof and dustproof enclosure. The enclosure shall have a lockable exterior door, and this access door shall be labeled as "Generator Access Door", and equipped with a tamper-resistant hinge.
2. The access door shall be provided with a #2 lock.
3. The access door shall include a weatherproof opening for the generator cable.
4. The generator hookup compartment shall allow closing and locking of the access door when the generator cable is connected.

The DB Team shall connect the wiring from the main electrical service panel to the transfer switch. Connect the alternate power source's wiring on the transfer switch to a receptacle that can accept a 240 VAC generator cord. Install install a power service wire between the transfer switch and the existing power distribution panel inside the hub.

17.3 Testing and Acceptance

The DB Team shall submit test plans to GDOT for review and acceptance for the various components of the ITS including VDS, CCTV, CMS, communications network, ramp meters, and electrical service.

DB Team testing of specific ITS technologies, electrical components, communication network and infrastructure, communication hubs and equipment cabinets shall follow the test requirements sections in the GDOT *Standard Specifications, Construction of Transportation Systems*/Special Provisions.

GDOT ITS, communication hub and communication network testing and final acceptance processes are to be conducted according to the applicable GDOT *Standard Specifications, Construction of Transportation Systems*, Special Provisions, and as described herein.

The DB Team shall submit operational test results for each unit or system to GDOT for approval. The test results shall indicate that the unit or system conforms to the manufacturer's specifications and the Contract Documents. The DB Team shall adjust, relocate, or modify items that do not conform to the manufacturer's specifications and the Contract Documents as necessary in order to meet the requirements. Submit new test results after corrections have been made that bring the units or systems into conformity.

17.4 Warranty

The DB Team shall provide all warranties as set forth in the DBA and specified in the *Standard Specifications, Construction of Transportation Systems*, Special Provisions and contained herein. In the event of conflicting warranty periods between the above, the longest warranty period identified shall be provided by the DB Team. All warranties shall commence upon Final Acceptance. Any additional costs incurred by the DB Team to meet the warranty requirements shall be the sole responsibility of the DB Team.

17.4.1 Protection of Existing ITS Signalization

The DB Team shall ensure the existing GDOT ITS are protected from damage. Damage caused by the DB Team to GDOT ITS, due to failure to locate any existing or installed GDOT ITS within the Project limits, shall be the responsibility of the DB Team to repair and at no cost to GDOT.

If necessary, any disruption to the existing GDOT ITS shall be planned and coordinated with GDOT, no less than two (2) Business Days before proceeding with the Work.

17.4.1.1 Existing System Inventory

The DB Team shall conduct a field survey and provide a complete inventory of all ITS components and infrastructure in the Project limits within thirty (30) Days of NTP 1. The inventory shall include components and infrastructure to be removed and replaced, to be removed and relocated, and to be left in place.

17.4.1.2 ITS Locates

The DB Team shall locate the electrical and fiber optic conduits and cables within the construction limits. The DB Team shall obtain available ITS as-built and location information from GDOT upon NTP 3 and shall be fully responsible for locating all existing, temporary and new ITS infrastructure and facilities until Final Acceptance. The DB Team

shall be responsible for providing ITS locates requested by other consultants, contractors and/or utility companies within forty-eight (48) hours of receiving requests from GDOT or from any other source from NTP 3 to Final Acceptance. The DB Team shall notify GDOT of the date and location of each locate request and the date at which the locate was completed.

The DB Team shall fully cooperate with all Utility Owners during the design, survey and construction activities of the Project. The DB Team shall call Georgia 811 a minimum of forty-eight (48) hours and a maximum of ninety-six (96) hours before any excavation work.

17.4.1.3 ITS Preventative Maintenance

GDOT (and their respective maintenance contractors) will continue to provide routine and on-call maintenance for all ITS equipment within the Project area during the Term. The DB Team shall cooperate with GDOT by accommodating access to the site for GDOT's maintenance contractor to perform routine or on-call maintenance.

17.4.1.4 ITS Repair and Replacement

Throughout the construction period until the Final Acceptance of the Project, the DB Team shall notify GDOT of any damage to the existing ITS field element or infrastructure that is caused by the DB Team, either due to the negligence or direct action of the DB Team as soon as possible. GDOT (or their respective maintenance contractors) will repair or replace the damaged ITS field element or infrastructure. The DB Team shall be responsible for the total repair or replacement cost along with all non-refundable deductions per Volume 1, Exhibit 18.

If an existing ITS element or infrastructure needs to be taken out of service due to construction related relocation or interruption or as required by the Project specifications, the DB Team shall provide GDOT a written notice seventy-two (72) hours in advance before taking control of the device(s). Any impacted devices shall be replaced with an equivalent in new condition or per the Project specifications. All replacement devices are subject to the testing and acceptance requirements specified in the Project specifications.

18 TRAFFIC CONTROL

18.1 General

No additional requirements.

18.1.1 Standards

No additional requirements.

18.2 Administrative Requirements

18.2.1 Transportation Management Plan

Supplement the following to Section 18.2.1 of Volume 3:

A detailed plan for all Project detours, including a narrative of all detour activities, detour schedules and timelines, and detour maps, shall be developed by the DB Team and included within the Transportation Management Plan (TMP). The DB Team shall include descriptions of their approach for communicating this information to the traveling public.

18.2.2 Worksite Traffic Control Supervisor (WTCS)

No additional requirements.

18.3 Design Requirements

18.3.1 Traffic Control Plans

Supplement the following to Section 18.3.1 of Volume 3:

The DB Team shall provide a minimum of eight (8) changeable message signs for use as needed. The DB Team shall be required to place and maintain messages on all message boards 24 hours a day, 7 days a week as directed by GDOT. The changeable message signs shall meet all requirements of Standard Specification Section 632 Changeable Message Sign, Portable Type 3. Failure to respond to the direction of GDOT within 45 minutes shall result in the assessment of non-refundable deductions.

18.3.1.1 Roadway Guidelines

No additional requirements.

18.3.1.1.1 *Design Parameters for Traffic Control*

No additional requirements.

18.3.1.1.2 *Allowable Shoulder/Lane/Roadway Closures and Traffic Stage Changes*

Supplement the "Lane and Shoulder Closure During Design-Build Period" subsection of Section 18.3.1.1.2 of Volume 3 with the following:

Holiday Restrictions

No traffic interruptions shall be performed during the standard holidays as specified in Special Provisions 150 and the following dates due to special holidays:

		Restriction Begins	Restriction Ends
March 15th -17th, 2019 for St. Patrick's Day	(Friday, Saturday, and Sunday)	March 15 at 12:00 noon	March 17 at 10:00 pm
March 14th- 17th, 2020 for St. Patrick's Day	(Saturday, Sunday, Monday and Tuesday)	March 14 at 12:00 noon	March 17 at 10:00 pm
March 16th – 18th, 2021	(Tuesday, Wednesday, and Thursday)	March 16 at 12:00 noon	March 18 at 10:00 pm
March 16th –18th, 2022	(Wednesday, Thursday, and Friday)	March 16 at 12:00 noon	March 18 at 10:00 pm
Georgia Tax Free Weekend/Sales Tax Holiday	(Saturday and Sunday)	Friday at 10:00 pm	Sunday at 10:00 pm
Spring Break (traditionally the 2nd or 3rd week of March)	(Friday before, Saturday through Saturday, Sunday, Monday)	Friday at 12:00 noon	Monday at 12:00 noon

Lane Closures

Closure of a General Purpose Lane or auxiliary lane at any time shall be considered a Single Lane Closure. See Exhibit 18 regarding liquidated damages and nonrefundable deductions.

(1) The DB Team shall not completely close I-16 or I-95 in either direction.

(2) The DB Team shall not install lane closures, pace traffic or move equipment or materials that interferes with traffic on I-16 between the hours of 6:00 a.m. to 9:00 a.m. and 3:00 p.m. to 7:00 p.m.

(3) The DB Team shall not install lane closures, pace traffic or move equipment or materials that interferes with traffic on I-95 between the hours of 6:00 a.m. to 7:00 p.m. daily. No double lane closures shall be allowed between the hours of 5:00 a.m. to 9:00 p.m.

(4) No closures of I-16/I-95 interchange ramps at any time. No work on other ramps between the hours of 6:00 a.m. to 6:00 p.m. daily. If detour is required on other ramps, then a traffic control plan shall be submitted two (2) weeks prior to any ramp closure for review and approval. Other ramps may be closed and traffic

detoured between the hours of 10:00 p.m. and 6:00 a.m. Monday through Thursday. Other ramps may also be closed and detoured between the hours of 8:00 p.m. Friday and 6:00 a.m. Monday. Other ramp closures shall be limited to one interchange at a time. At a minimum, the DB Team shall provide written notification to the Georgia Ports Authority, Chairman of the Chatham County Commissioners, Savannah Police Department, Chatham County Police, Chatham County Emergency Medical Services, and the Chatham County Board of Education at least two (2) weeks prior to any closure or detouring of traffic. All detour signing shall be performed by the DB Team.

(5) Long term roadway inside and outside shoulder closures will be allowed with GDOT's approval. The shoulder opposite of the closed shoulder shall have a minimum usable shoulder width of eight (8) feet. Shoulder closure will be allowed for a maximum of one hundred and eighty (180) days and a maximum distance of one (1) mile. There should be at least one (1) mile between long term shoulder closures. Long term shoulder closure is defined as any shoulder closures longer than three (3) days. Long term bridge shoulder closures may be allowed on both shoulders with GDOT's approval.

(6) One (1) 80-hour bridge jacking work period will be allowed and must take place between the hours of 9:00 p.m. on Friday and 5:00 a.m. on Tuesday over a 3-day holiday weekend or during the summer months. A complete closure of the SR 307\Dean Forest Road bridge over I-16 between the ramps will be allowed during the bridge jacking work period. Ramps leading to the SR 307/Dean Forest Road bridge over I-16 are to remain open during this period. During the bridge jacking work period, the DB Team must complete all bridge jacking and reconstruction of the end spans of the bridge and approach slabs. During the bridge jacking work period, the DB Team must comply with all other traffic control requirements and implement a detour. The DB Team shall furnish a minimum of five (5) changeable message signs thirty (30) days prior to the bridge jacking work period to notify the traveling public on SR 307/Dean Forest Road, CR 781/Chatham Parkway, I-16 and I-95 of the Work. Placement and the message on the changeable message signs must be reviewed and accepted by GDOT prior to installation.

(7) One (1) 80-hour bridge jacking work period will be allowed and must take place between the hours of 9:00 p.m. on Friday and 5:00 a.m. on Tuesday over a 3-day holiday weekend or during the summer months. A complete closure of the CR 781/Chatham Parkway bridge over I-16 between the ramps will be allowed during the bridge jacking work period. Ramps leading to the CR 781/Chatham Parkway bridge over I-16 are to remain open during this period. During the bridge jacking work period, the DB Team must complete all bridge jacking and reconstruction of the end spans of the bridge and approach slabs. During the bridge jacking work period, the DB Team must comply with all other traffic control requirements and implement a detour. The DB Team shall furnish a minimum of five (5) changeable message signs thirty (30) days prior to the bridge jacking work period to notify the traveling public on CR 781/Chatham Parkway, SR 307 Dean Forest Road, I-16

and I-95 of the Work. Placement and the message on the changeable message signs must be reviewed and accepted by GDOT prior to installation.

(8) Chatham Parkway:

a. Will be allowed to be restricted to two (2) lanes of travel (one lane in each direction) between the hours of 9:00 p.m. and 5:00 a.m. only, for the bridge overlay and joint replacement. Any other Work outside these hours will be subject to the restrictions elsewhere in this Section 18.

b. Single lane closures may be permitted to perform construction activities which will be subject to acceptance by GDOT. Single lane closures will be allowed between the hours of 9:00 p.m. and 5:00 a.m. Work outside these hours will be subject to the restrictions elsewhere in this Section 18.

(9) The DB Team shall maintain four (4) lanes of travel (two lanes in each direction) on Chatham Parkway during the Work to replace the outer beams.

(10) In an event where the Governor of Georgia or Georgia Department of Public Safety has issued a state of emergency and the evacuation must occur, the DB Team will release the Project to the State of Georgia until the state of emergency has been lifted. The DB Team shall:

a. Remove all equipment from the clear zone,
b. Remove all lane and road closures,
c. Remove all associated traffic control equipment unless necessary for maintaining an existing traffic condition, and
d. Evacuate the Project within four (4) hours of the state of emergency issuance.

18.4 Construction Requirements

No additional requirements.

18.4.1 DB Team Responsibility

Supplement the following to Section 18.4.1 of Volume 3:

All milled surfaces shall be covered before they are opened to traffic.

Payment for workzone law enforcement shall be covered under the Construction Complete.

18.4.2 Access

Supplement the following to Section 18.4.2 of Volume 3:

The DB Team shall maintain a total of two (2) emergency hurricane evacuation cross-over lanes available to be open at all times during the Contract duration.

18.4.3 Detours

Supplement the following to Section 18.4.3 of Volume 3:

The DB Team shall notify all local first responders and school systems thirty (30) days prior to implementing any detours. Public outreach shall also target the trucking industry due to the high volume of trucks in the corridor. Refer to Section 2.7 for additional information on public outreach.

Detours shall be limited to the requirements of Section 18.3.1.1.2. No other detours will be allowed unless otherwise approved in advance by GDOT.

19 MAINTENANCE DURING THE DESIGN-BUILD PERIOD

No additional requirements.

19.1 General

19.1.1 Standards

No additional requirements.

19.1.2 Reserved

No additional requirements.

19.1.3 GDOT Obligation to Repair

No additional requirements.

19.2 Construction Maintenance Limits Plan

Supplement the following to Section 19.2 of Volume 3:

For avoidance of doubt, DB Team maintenance responsibilities also include maintaining pavement markings including striping.

Maintenance shall constitute continuous and effective work prosecuted day by day or at the direction of GDOT.

DB Team shall restore any local roads utilized for hauling, staging or other construction-related activity to their original condition, whether within or outside of the Project limits. The repair shall be made within a reasonable period of time as determined by GDOT. Multiple repairs may be required if the damage occurs more than once or after an initial repair. All repairs must be in satisfactory condition as determined by GDOT prior to Final Acceptance.

If repaving is required, the pavement sections shall match existing. For repair of any driveways (residential or commercial), the requirements of Table 11-3 shall be met.

19.3 Maintenance Management Plan

No additional requirements.

20 BICYCLE AND PEDESTRIAN FACILITIES

20.1 General

No additional requirements.

20.1.1 Standards

No additional requirements.

20.2 Design Requirements

20.2.1 Bicycle Facilities

No additional requirements.

20.2.2 Pedestrian Facilities

No additional requirements.

20.2.3 Final Plans

No additional requirements.

21 RESERVED

22 NOISE BARRIERS

22.1 General

Supplement the following to Section 22.1 of Volume 3:

All noise barrier panels shall be precast concrete panels with finish as described in Section 15.3.2.

Noise barrier requirements are shown in Table 22-1.

Table 22-1: Noise Barrier Requirements

Barrier No.	General Location	Length	Height (Feet)	Area (Square Feet)	Benefitted Receptors
1	Located on the east side of I-95 approximately 8,300 feet north of Quacco Rd.	5,091	14-30	140,736	85
2	Located on the south side of I-16 approximately 2,500 feet east of I-95.	900	8-16	11,400	6
4	Located on the north side of I-16 approximately 4,600 feet east of Dean Forest Road/SR 307.	2,700	6-18	42,599	77

22.1.1 Standards

No additional requirements.

23 RESERVED

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For

Design-Build Agreement

P.I. Nos. 0012757 and 0012758

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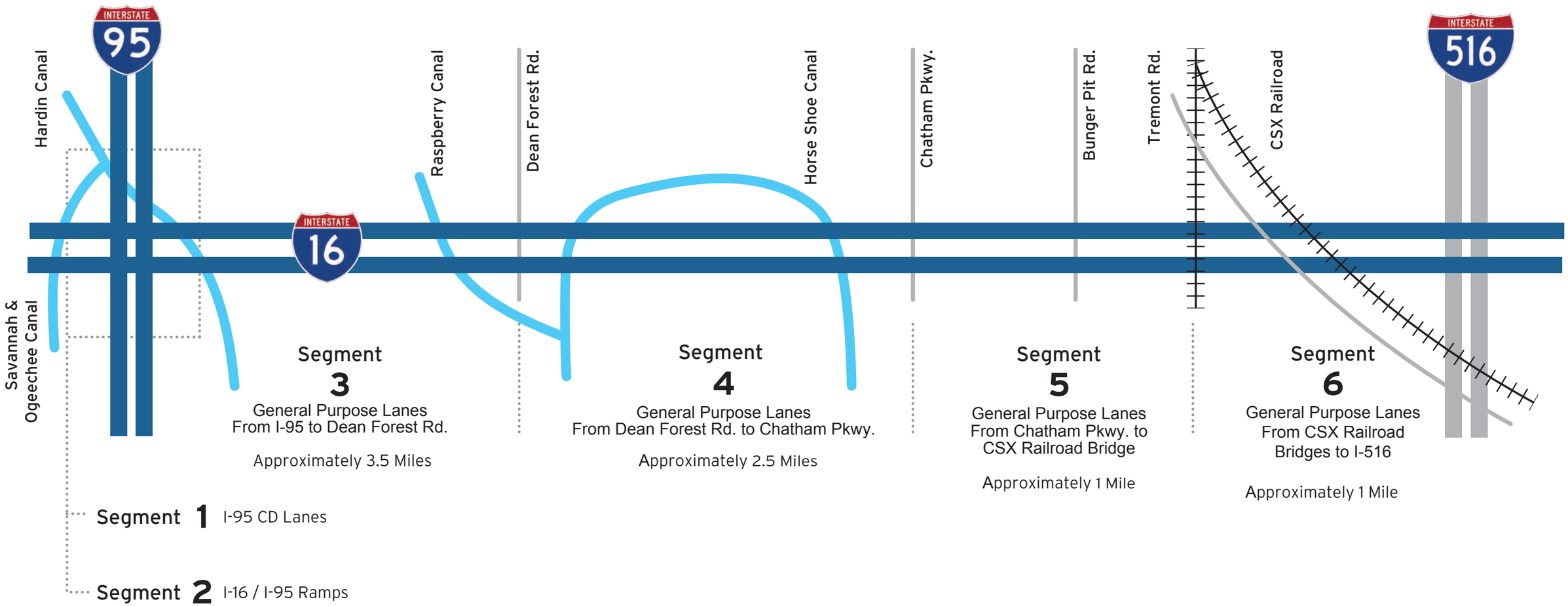
Segment Layout Diagram

Segment Layout Diagram

P.I. Nos. 0012757 & 0012758 - I-16 Widening and I-16 at I-95 Interchange Improvements



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For

Design-Build Agreement

P.I. Nos. 0012757 and 0012758

Attachment 3-1

Special Provision 621 (Concrete Barrier)

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SPECIAL PROVISION

P.I. NOs: 0012757 & 0012758

COUNTY: Chatham

Section 621—Concrete Barrier

Delete Subsection 621.2 and substitute the following:

621.2 Materials

Use materials that meet the requirements of the following Specifications:

Material	Section
Portland Cement Concrete, Class AA	500
Steel Bars for Concrete Reinforcement	853.2.01
Joint Fillers and Sealers	833

Ensure that barrier walls and parapets on bridges are Class "AA" concrete unless otherwise specified on the Plans.

621.2.01 Delivery, Storage, and Handling

General Provisions 101 through 150.

Delete Subsection 621.3.05 A -- and substitute the following:

621.3.05 Construction

A. Formed or Slip Formed Barrier

Ensure that the barriers are Class AA concrete as defined in Section 500 and are constructed according to Plan details.

1. Place the concrete using conventional forms or an approved self-propelled extrusion machine. When using forms, give the barrier a Type III finish, and cured according to Section 500.
2. Construct joints of the type and at the locations specified on the Plans.
   a. When emergencies interrupt placement, the Engineer will decide whether to allow a construction joint and will direct where and how to construct the joint.
   b. Joints may be sawed or formed. If the joint is sawed within 24 hours of placement to at least 3 in (75 mm) deep using a template, immediately remove the following material:
      - Material that may damage the adjacent concrete by blocking the sawed joint
      - Material that may prevent later operation or cleaning after the sawing operation is complete
   c. Saw the joints through the footing.
3. The outside vertical face of the side barrier or parapet may be battered as directed by the Engineer. Radii, as approved by the Engineer, may be used at intersecting surfaces of the barrier.

   Make approved requested changes at no cost to the Department.

Georgia Department of Transportation

Technical Provisions

For

Design-Build Agreement

P.I. Nos. 0012757 and 0012758

Attachment 4-1

SP 107.23H Legal Regulations and Responsibility to the Public - Protection of Environmentally Sensitive Species

Originally Issued: December 19, 2017
Date Revised: April 20, 2018

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SPECIAL PROVISION

Chatham County, P.I. Nos. 0012757 & 0012758

Section 107 – Legal Regulations and Responsibility to the Public

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Add the following to Subsection 107.23:

H. Protection of Environmentally Sensitive Species

The following conditions are intended as a minimum to protect these species and their habitat during any activities that are in close proximity to the known location(s) of this species.

1. The Contractor shall advise all Project personnel employed to work on this Project about the potential presence and appearance of the wood stork (*Mycteria americana*), bald eagle (*Haliaeetus leucocephalus*), spotted turtle (*Clemmys guttata*), and bluebarred pygmy sunfish (*Elassoma okatie*). All personnel shall be advised that there are civil and criminal penalties for harming, harassing, or killing any of these species. The wood stork is protected under the Endangered Species Act of 1973; the bald eagle, spotted turtle, and bluebarred pygmy sunfish are protected under the Georgia Endangered Wildlife Act of 1973. The bald eagle is also protected under the Bald and Golden Eagle Protection Act of 1940. Pictures and habitat information for all of the species mentioned above will be provided to the Contractor at the preconstruction conference and shall be posted in a conspicuous location in the Project field office until such time that Project construction has been completed and time charges have stopped.
2. In the event a bald eagle is encountered by project personnel, it shall not be touched, moved, or harassed.
3. At any time, if a wood stork is observed within the Project area or within 100 yards of the Project area, all activities within a 100-yard radius of the wood stork shall cease, with the exception of traffic control and erosion control. Activities shall not resume until the wood stork has not been observed within 100 yards of the project area for at least 30 minutes. <u>The wood stork must leave the area on its own volition and shall not be touched, moved, or harassed.</u>
4. The Engineer shall be notified immediately in the event of an erosion control failure that allows unpermitted discharge of sediment into state waters. The Engineer, in turn, will notify the State Environmental Administrator, Georgia Department of Transportation, Office of Environmental Services at (404) 631-1101. In addition, all activity within the area that the failure occurred, with the exception of traffic control and erosion control, shall cease pending consultation by the Department.
5. Equipment staging areas and equipment maintenance areas, particularly for oil changes, shall be located outside of the 25-foot state-mandated buffers and at least 200 feet from wetlands to minimize the potential for wash water, petroleum products, or other contaminant from construction equipment entering streams, wetlands, or open waters.
6. All excavation spoil and stockpiled materials shall be placed at least 200 feet away from streams, wetlands, and open waters to minimize the potential for rain runoff into these resources.
7. Pesticides or herbicides shall not be used within 200 feet of streams, wetlands, and open waters. Fertilizer shall only be used while grassing graded areas to achieve site stabilization.
8. The Contractor shall provide a stable work area that does not cause degradation or destabilization of the canal banks.
9. Immediately after grading any areas to completion, graded slopes shall be stabilized by hydroseeding.
10. In the event any incident occurs that causes harm or injury to a bald eagle, wood stork, spotted turtle, or bluebarred pygmy sunfish, the Contractor shall report the incident immediately to the Engineer who in turn will notify the State Environmental Administrator, Georgia Department of Transportation, and Office of Environmental Services at (404) 631-1101.

11. The Contractor shall keep a log (example log will be provided by the Georgia Department of Transportation, Office of Environmental Services) and report detailing any incidents that cause harm or injury to a bald eagle, wood stork, spotted turtle, or bluebarred pygmy sunfish in or adjacent to the Project area until such time that Project construction has been completed and time charges have stopped. Following Project completion, the log and a report summarizing any incidents that caused harm or injury to these species shall be submitted by the Contractor to the Engineer and the State Environmental Administrator, Georgia Department of Transportation, Office of Environmental Services, 600 West Peachtree Street NW, Atlanta, Georgia 30308. GDOT in turn will provide copies of the report to USFWS, GDNR-WRD, and FHWA.

12. All costs pertaining to any requirement contained herein shall be included in the overall bid submitted unless such requirement is designated as a separate Pay Item in the Proposal.

Reporting Form – Injury/Harm to Protected Species (see SP 107.23H)

GDOT Project Identification (PI) Number:

_____

County(ies):

_____

Contractor Name and Address:

_____

Name and Title of Report Preparer:

_____

Phone Number:

_____

Email:

_____

***Additional information and description can be added in the additional comments section below.**

Please submit photos of injury or harm, if possible, as an attachment to this form.

Additional Comments:

_____

_____

_____

_____

_____

***Please submit this form along with the table below and any attachments to ecology_submittals@dot.ga.gov once Project construction has been completed and time charges have stopped.**

Date, Time Incident Occurred	Date, Time GDOT Office of Environmental Services was contacted	Resource Identification (if applicable)	Station Number	Injury/Harm Description	Cause of Injury/Harm	Result of Injury/Harm

FEDERAL PROTECTED SPECIES ON THE PROJECT

Wood Stork

(*Mycteria americana*)

Description:

- White back, abdomen, and interior portion of wings
- Edge of wings and tail are black
- Grayish black, scaly head without feathers
- Total length approximately 3-4 ft., wingspan approximately 5-5.5 ft.

Habitat:

- Freshwater and coastal wetlands
- Nests in trees rooted in standing water or on islands surrounded by water

Protected By: Endangered Species Act of 1973

Harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing or collecting this animal may result in criminal penalties.

See Special Provision 107.23 H.

Updated: [1/5/17]

FEDERAL PROTECTED SPECIES ON THE PROJECT

Bald Eagle

(***Haliaeetus leucocephalus***)

Description:

- Dark brown body with contrasting white head and tail
- Yellow bill, eyes, legs, and feet

Habitat:

- Found near the coast, major rivers, wetlands, reservoirs
- Nest usually in large pine trees near water

Protected By: Bald and Golden Eagle Protection Act of 1940
Georgia Endangered Wildlife Act of 1973 (O.C.G.A § 27-3-130)

Capturing, killing, or selling this animal may result in criminal penalties.

See Special Provision 107.23 H.

Updated:[5/30/17]

STATE PROTECTED SPECIES ON THE PROJECT

Bluebarred Pygmy Sunfish

(*Elassoma okatie*)

Description:

- Males have brightly colored blue-green fins and blue-green flecks on dark body
- Females are light brown color with yellow, green, or blue flecks on body
    - 2nd photo depicts female in top left, two males at bottom
- Reaches approximately 1 to 1.5 inches in length

Habitat:

- Slow moving/stagnant, heavily vegetated waters
- Found in ditches, ponds, creeks, and rivers with aquatic plants
- Often found in tea-colored waters

Protected By: Georgia Endangered Wildlife Act of 1973 (O.C.G.A § 27-3-130)

Capturing, killing or selling this animal may result in criminal penalties.

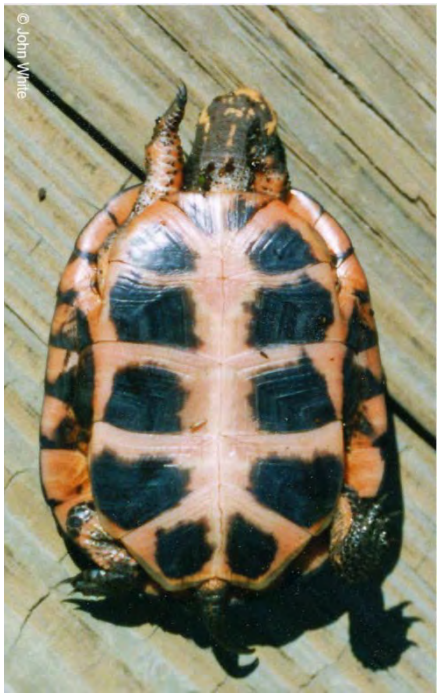
See Special Provision 107.23 H.

Updated: 1/6/2017

STATE PROTECTED SPECIES ON THE PROJECT

Spotted Turtle

(*Clemmys guttata*)



Description:

- Relatively small turtle; adults reach a maximum length of 5 inches
- Distinguishing characteristic is the smooth, black shell with 16 to 100 small randomly arranged yellow spots
- The bottom of the shell is yellowish with large dark blotches lining the edges
- There is no other species to be confused with the spotted turtle

Habitat:

- Typically found in heavily vegetated, shallow wetlands with standing or slowly flowing water, including Carolina bays, bogs, swamps, marshes, wet meadows and tidally-influenced brackish streams

Protected By: Georgia Endangered Wildlife Act of 1973 (O.C.G.A § 27-3-130)

Capturing, killing or selling this animal may result in criminal penalties.

See Special Provision 107.23 H.

Updated: 1/11/2017

Georgia Department of Transportation

Technical Provisions

For

Design-Build Agreement

P.I. Nos. 0012757 and 0012758

Attachment 5-1

Proposed Right of Way Plans

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

RIGHT OF WAY OF PROPOSED
I-16 WIDENING AND
I-16 AT I-95 INTERCHANG IMPROVEMENTS
CHATHAM COUNTY

FEDERAL AID PROJECT

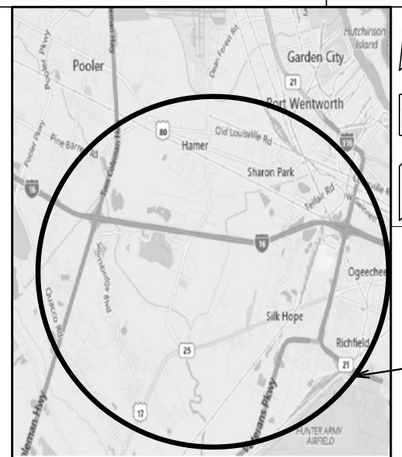
PI 0012757 & 0012758

FEDERAL ROUTE No.: I-16, I-95 & I-516
STATE ROUTE No.: 404, 405, 421 & 307
P.I. No.: 0012757 & 0012758
LIMITED ACCESS

CONVENTIONAL SIGNS

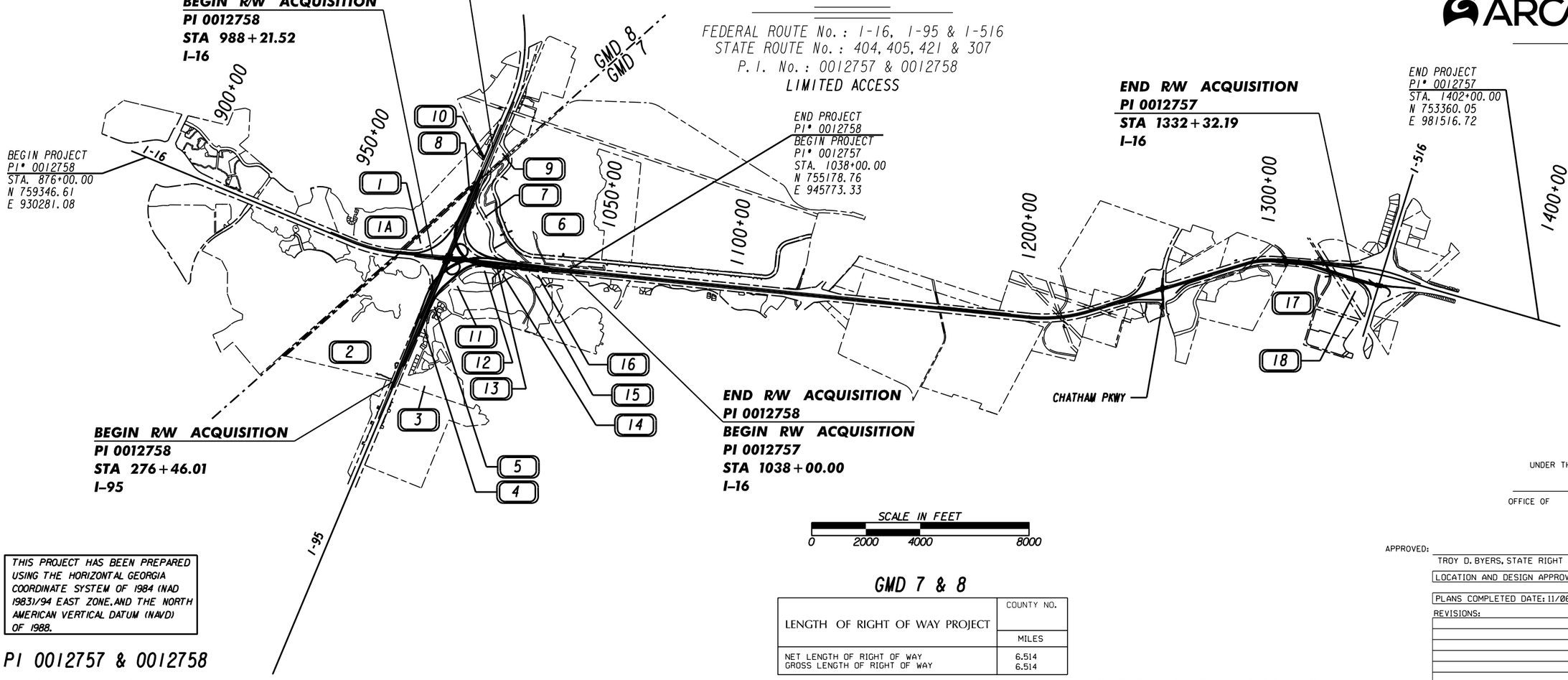
STATE OR COUNTY LINE
CITY LIMIT LINE
LAND LOT LINE
PROPERTY LINE
SURVEY OR BASE LINE
RIGHT OF WAY LINE
- EXISTING
- REQUIRED
- LIMIT OF ACCESS
- REQD R/W & LIMIT OF ACCESS
- R/W MARKERS

FENCE
RAILROAD
POWER LINE
TELEPHONE LINE
POWER POLES
TELEPHONE OR TELEGRAPH POLES



LOCATION SKETCH

PROJECT LOCATION



SCALE IN FEET
0 2000 4000 8000

PLANS PREPARED BY

ARCADIS Design & Consultancy for natural and built assets

UNDER THE SUPERVISION OF

OFFICE OF DESIGN

THIS PROJECT HAS BEEN PREPARED USING THE HORIZONTAL GEORGIA COORDINATE SYSTEM OF 1984 (NAD 1983)/94 EAST ZONE, AND THE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988.

PI 0012757 & 0012758
CHATHAM COUNTY

GMD 7 & 8

LENGTH OF RIGHT OF WAY PROJECT	COUNTY NO.
	MILES
NET LENGTH OF RIGHT OF WAY	6.514
GROSS LENGTH OF RIGHT OF WAY	6.514

THIS PROJECT IS LOCATED 100% IN CHATHAM COUNTY AND CONGRESSIONAL DISTRICT .

APPROVED:
TROY D. BYERS, STATE RIGHT OF WAY ADMINISTRATOR DATE
LOCATION AND DESIGN APPROVAL DATE:
PLANS COMPLETED DATE: 11/06/17
REVISIONS:

DATE	DRAWING NO.	REVISION

DATE	DRAWING NO.	REVISION

PROPERTY AND EXISTING R/W LINE
REQUIRED R/W LINE
CONSTRUCTION LIMITS
EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES
EASEMENT FOR CONSTR OF SLOPES
EASEMENT FOR CONSTR OF DRIVES

BEGIN LIMIT OF ACCESS.....BLA
END LIMIT OF ACCESS.....ELA
LIMIT OF ACCESS
REQ'D R/W & LIMIT OF ACCESS

SCALE IN FEET
0 50 100 200

ARCADIS Design & Consultancy for natural and built assets

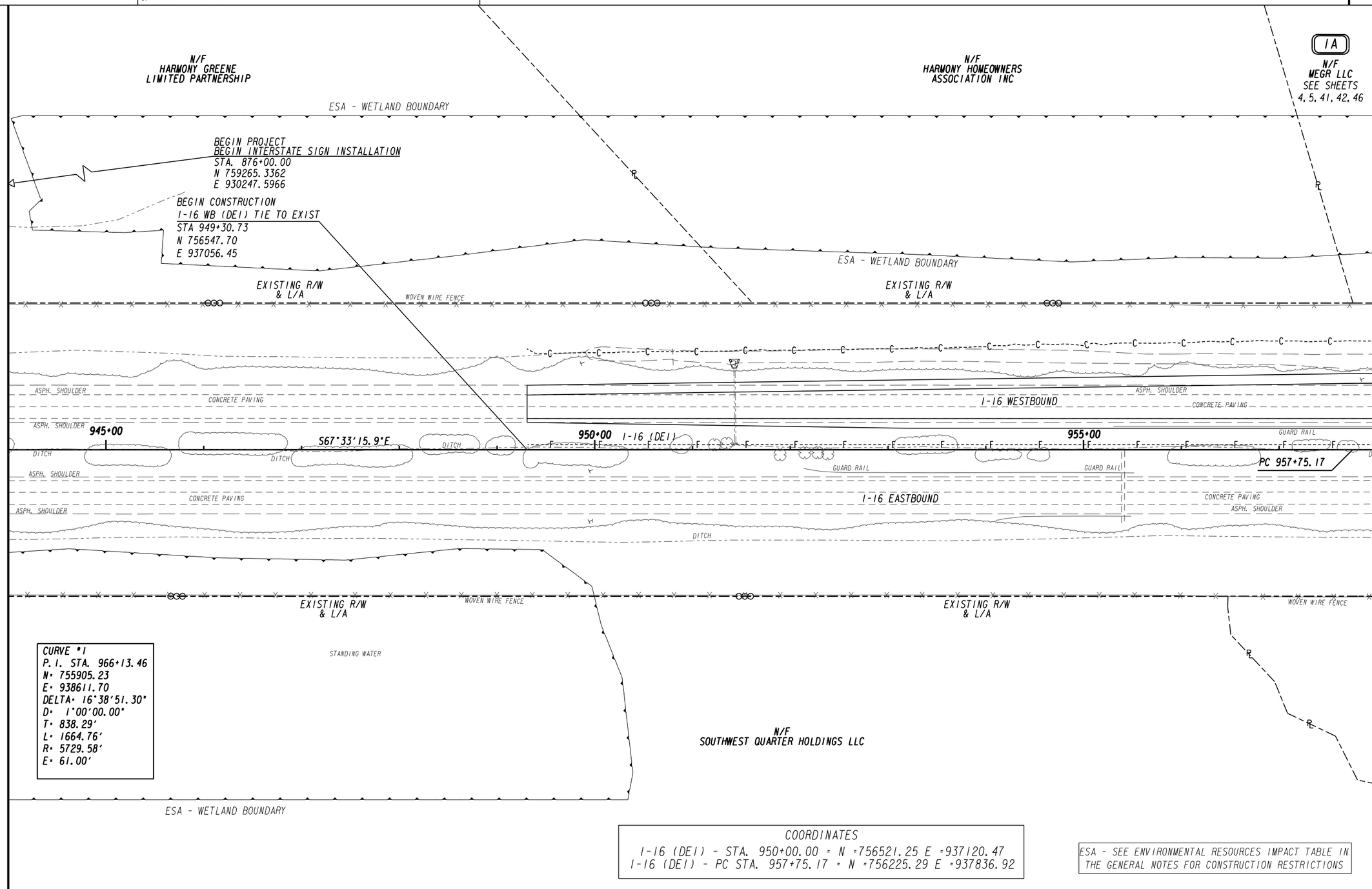
DATE	REVISIONS	DATE	REVISIONS

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

RIGHT OF WAY MAP
I-16 CORRIDOR IMPROVEMENTS

PROJECT NO: 0012757 & 0012758
COUNTY: CHATHAM
GMD: 7.8
DATE: 11/06/17 SH 2 OF 51

DRAWING No.
60-0002



CURVE #1
P.I. STA. 966+13.46
N= 755905.23
E= 938611.70
DELTA= 16°38'51.30"
D= 1°00'00.00"
T= 838.29'
L= 1664.76'
R= 5729.58'
E= 61.00'

COORDINATES
I-16 (DEI) - STA. 950+00.00 = N =756521.25 E =937120.47
I-16 (DEI) - PC STA. 957+75.17 = N =756225.29 E =937836.92

ESA - SEE ENVIRONMENTAL RESOURCES IMPACT TABLE IN THE GENERAL NOTES FOR CONSTRUCTION RESTRICTIONS

PROPERTY AND EXISTING R/W LINE
REQUIRED R/W LINE
CONSTRUCTION LIMITS
EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES
EASEMENT FOR CONSTR OF SLOPES
EASEMENT FOR CONSTR OF DRIVES

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LIMIT OF ACCESS
REQ'D R/W & LIMIT OF ACCESS

SCALE IN FEET
0 50 100 200

ARCADIS Design & Consultancy for natural and built assets

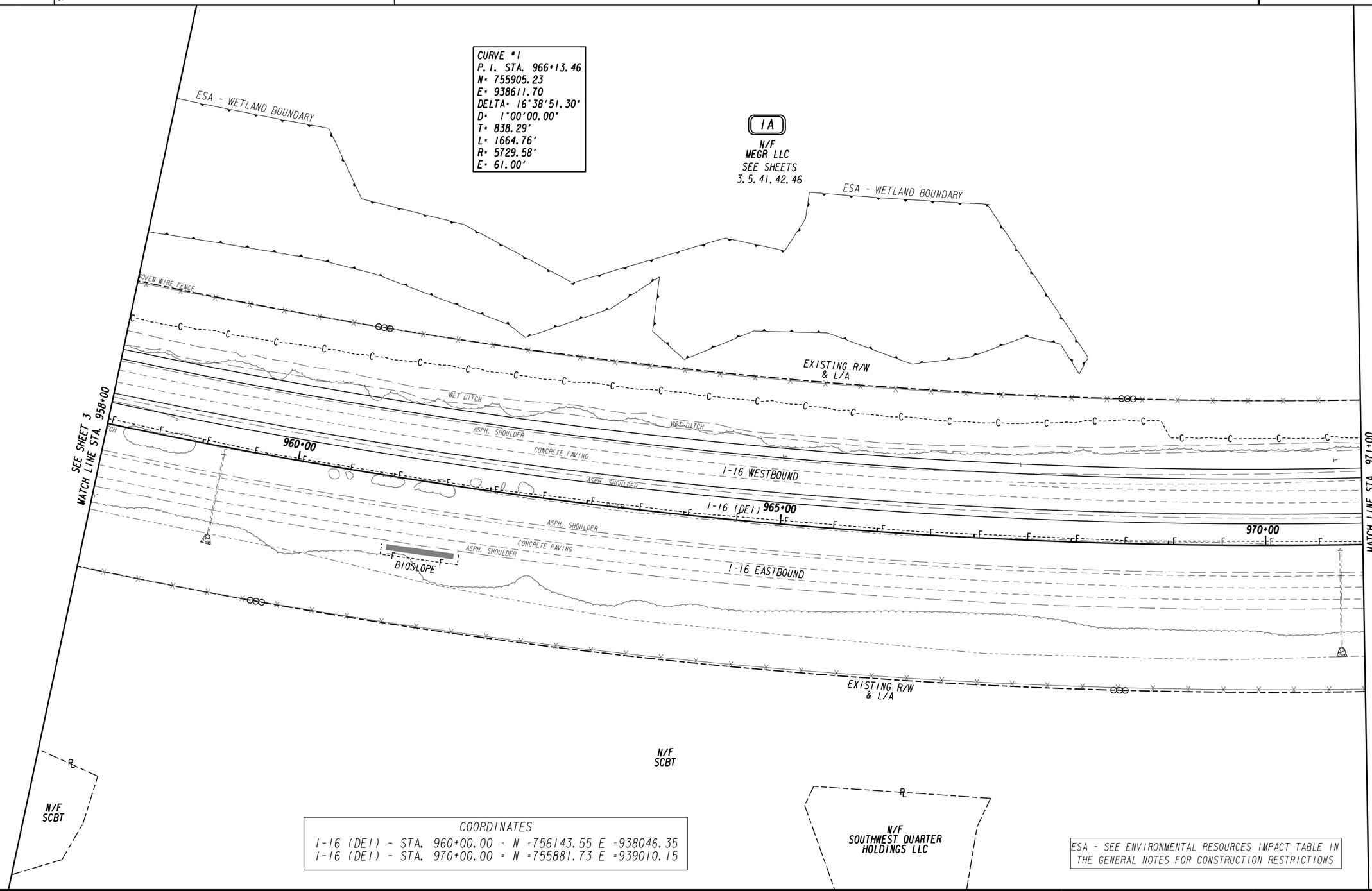
DATE	REVISIONS	DATE	REVISIONS

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

RIGHT OF WAY MAP
I-16 CORRIDOR IMPROVEMENTS

PROJECT NO: 0012757 & 0012758
COUNTY: CHATHAM
GMD: 8
DATE: 11/06/17 SH 3 OF 51

DRAWING No.
60-0003



COORDINATES

I-16 (DEI) - STA. 960+00.00 = N =756143.55 E =938046.35
I-16 (DEI) - STA. 970+00.00 = N =755881.73 E =939010.15

ESA - SEE ENVIRONMENTAL RESOURCES IMPACT TABLE IN THE GENERAL NOTES FOR CONSTRUCTION RESTRICTIONS

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SCALE IN FEET
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ARCADIS Design & Consultancy for natural and built assets

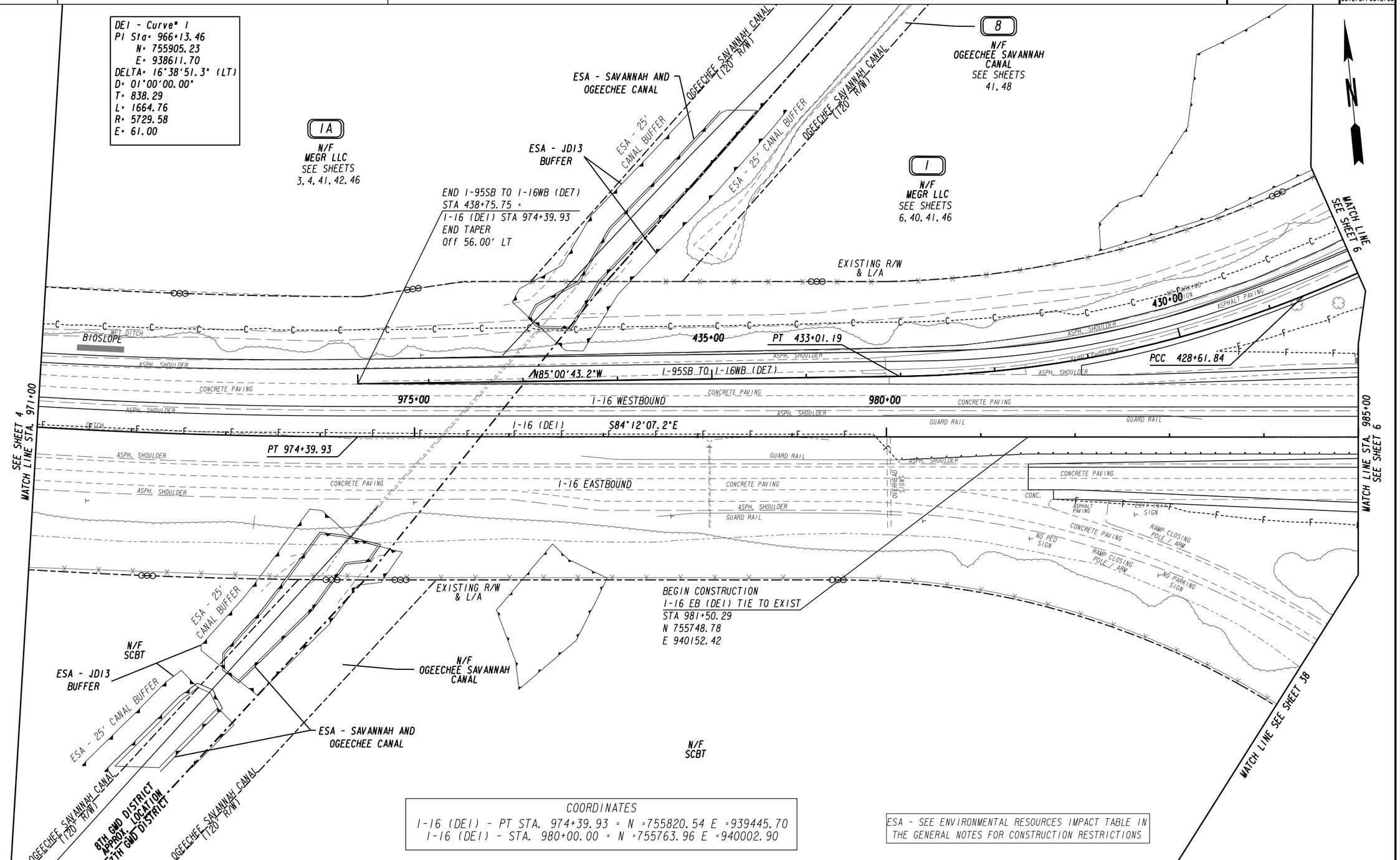
DATE	REVISIONS	DATE	REVISIONS

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

RIGHT OF WAY MAP
I-16 CORRIDOR IMPROVEMENTS

PROJECT NO: 0012757 & 0012758
COUNTY: CHATHAM
GMD: 8
DATE: 11/06/17 SH 4 OF 51

DRAWING No.
60-0004



COORDINATES
I-16 (DE1) - PT STA. 974+39.93 = N =755820.54 E =939445.70
I-16 (DE1) - STA. 980+00.00 = N =755763.96 E =940002.90

ESA - SEE ENVIRONMENTAL RESOURCES IMPACT TABLE IN THE GENERAL NOTES FOR CONSTRUCTION RESTRICTIONS

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ARCADIS Design & Consultancy for natural and built assets

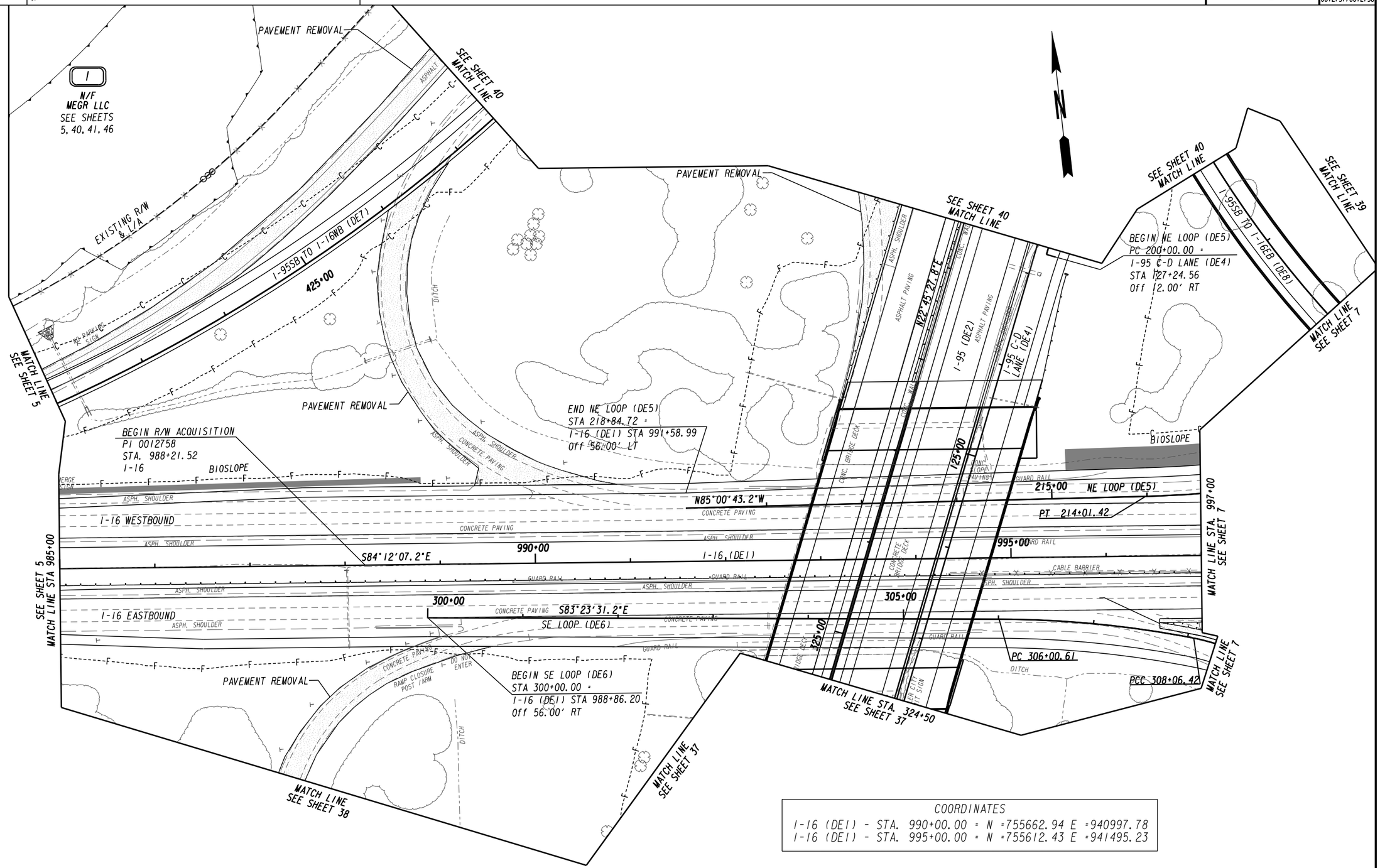
DATE	REVISIONS	DATE	REVISIONS

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

RIGHT OF WAY MAP
I-16 CORRIDOR IMPROVEMENTS

PROJECT NO: 0012757 & 0012758
COUNTY: CHATHAM
GMD: 7,8
DATE: 11/06/17 SH 5 OF 51

DRAWING No. 60-0005



COORDINATES
I-16 (DE1) - STA. 990+00.00 = N =755662.94 E =940997.78
I-16 (DE1) - STA. 995+00.00 = N =755612.43 E =941495.23

PROPERTY AND EXISTING R/W LINE
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EASEMENT FOR CONSTR OF SLOPES
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ARCADIS Design & Consultancy for natural and built assets

DATE	REVISIONS	DATE	REVISIONS

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

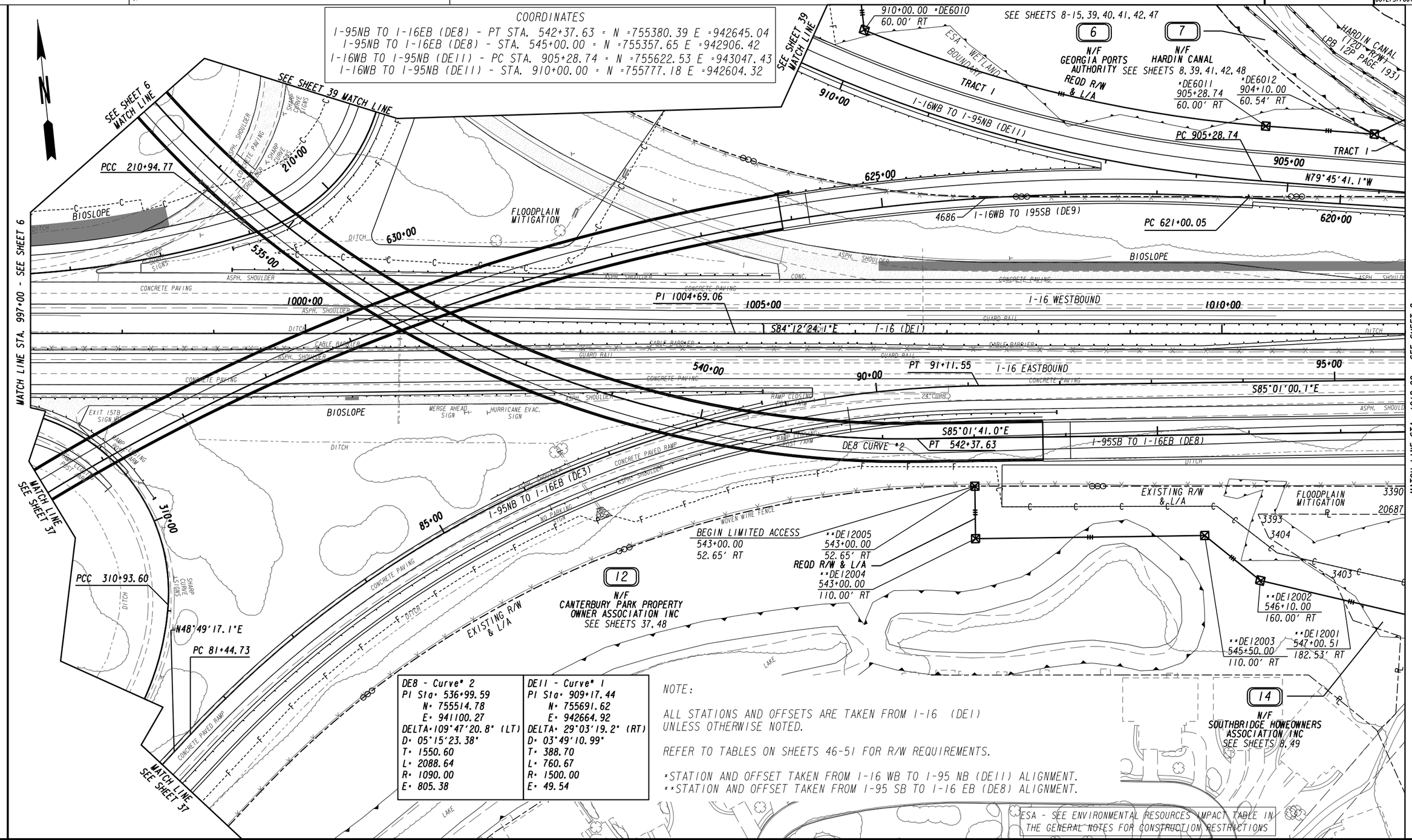
RIGHT OF WAY MAP
I-16 CORRIDOR IMPROVEMENTS

PROJECT NO: 0012757 & 0012758
COUNTY: CHATHAM
GMD: 7
DATE: 11/06/17 SH 6 OF 51

DRAWING No.
60-0006

COORDINATES

I-95NB TO I-16EB (DE8) - PT STA. 542+37.63 = N =755380.39 E =942645.04
I-95NB TO I-16EB (DE8) - STA. 545+00.00 = N =755357.65 E =942906.42
I-16WB TO I-95NB (DE11) - PC STA. 905+28.74 = N =755622.53 E =943047.43
I-16WB TO I-95NB (DE11) - STA. 910+00.00 = N =755777.18 E =942604.32



DE8 - Curve # 2	DE11 - Curve # 1
PI Sta= 536+99.59	PI Sta= 909+17.44
N= 755514.78	N= 755691.62
E= 941100.27	E= 942664.92
DELTA=109°47'20.8" (LT)	DELTA= 29°03'19.2" (RT)
D= 05°15'23.38"	D= 03°49'10.99"
T= 1550.60	T= 388.70
L= 2088.64	L= 760.67
R= 1090.00	R= 1500.00
E= 805.38	E= 49.54

NOTE:

ALL STATIONS AND OFFSETS ARE TAKEN FROM I-16 (DE1) UNLESS OTHERWISE NOTED.

REFER TO TABLES ON SHEETS 46-51 FOR R/W REQUIREMENTS.

*STATION AND OFFSET TAKEN FROM I-16 WB TO I-95 NB (DE11) ALIGNMENT.
**STATION AND OFFSET TAKEN FROM I-95 SB TO I-16 EB (DE8) ALIGNMENT.

PROPERTY AND EXISTING R/W LINE
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SCALE IN FEET
0 50 100 200

ARCADIS Design & Consultancy for natural and built assets

DATE	REVISIONS	DATE	REVISIONS

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

RIGHT OF WAY MAP
I-16 CORRIDOR IMPROVEMENTS

PROJECT NO: 0012757 & 0012758
COUNTY: CHATHAM
GMD: 7
DATE: 11/06/17 SH 7 OF 51

DRAWING No. 60-0007

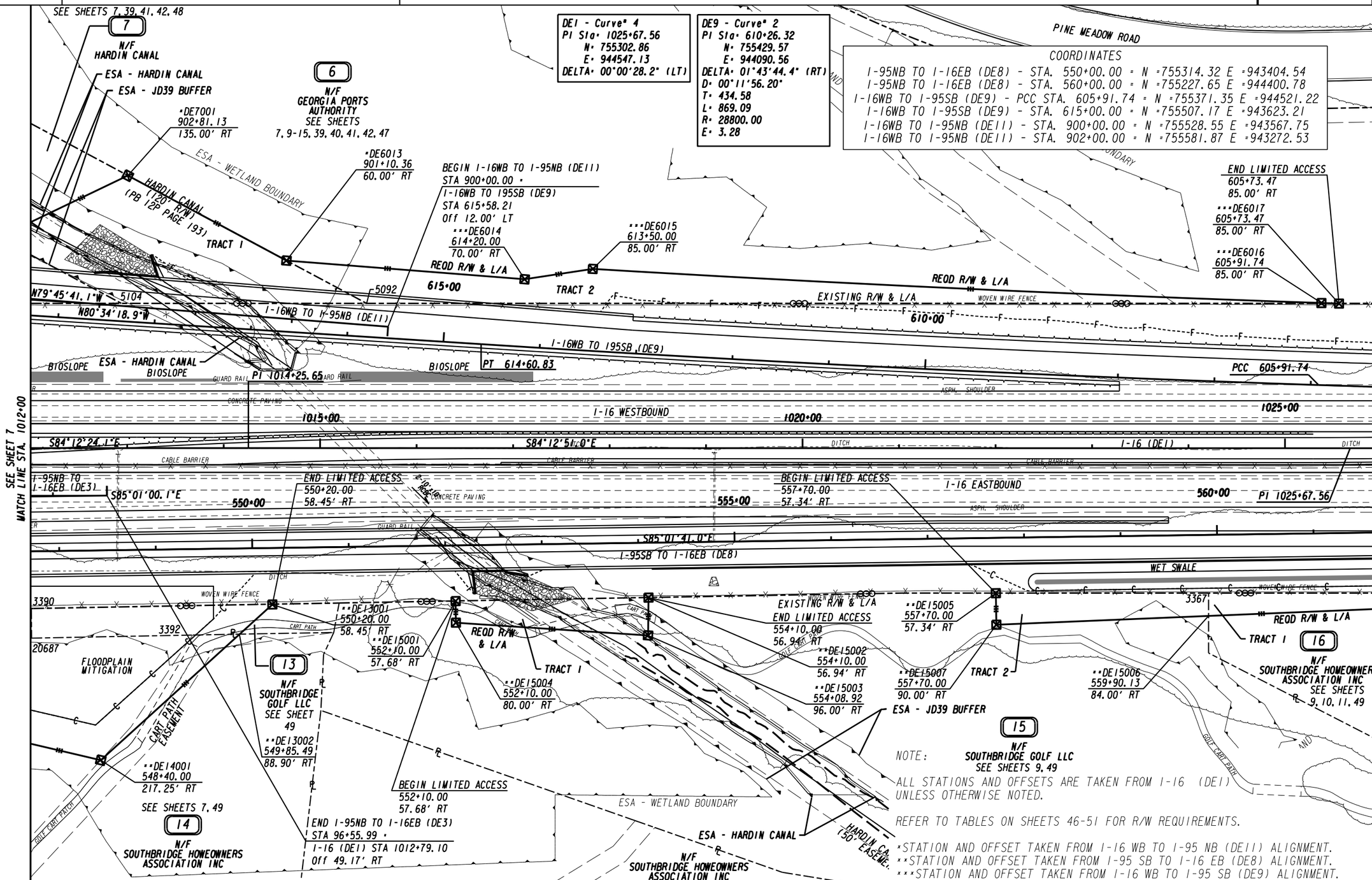
DATE$$$
$USER$

$PRF8$
$$PENTABLE$$

DGN
GRWPLN

GDOT

P.I. No.
0012757/0012758



DE1 - Curve* 4
PI Sta* 1025+67.56
N* 755302.86
E* 944547.13
DELTA* 00°00'28.2" (LT)

DE9 - Curve* 2
PI Sta* 610+26.32
N* 755429.57
E* 944090.56
DELTA* 01°43'44.4" (RT)
D* 00°11'56.20"
T* 434.58
L* 869.09
R* 28800.00
E* 3.28

COORDINATES

I-95NB TO I-16EB (DE8) - STA. 550+00.00 = N =755314.32 E =943404.54
I-95NB TO I-16EB (DE8) - STA. 560+00.00 = N =755227.65 E =944400.78
I-16WB TO I-95SB (DE9) - PCC STA. 605+91.74 = N =755371.35 E =944521.22
I-16WB TO I-95SB (DE9) - STA. 615+00.00 = N =755507.17 E =943623.21
I-16WB TO I-95NB (DE11) - STA. 900+00.00 = N =755528.55 E =943567.75
I-16WB TO I-95NB (DE11) - STA. 902+00.00 = N =755581.87 E =943272.53

NOTE:
ALL STATIONS AND OFFSETS ARE TAKEN FROM I-16 (DE1) UNLESS OTHERWISE NOTED.

REFER TO TABLES ON SHEETS 46-51 FOR R/W REQUIREMENTS.

*STATION AND OFFSET TAKEN FROM I-16 WB TO I-95 NB (DE11) ALIGNMENT.
**STATION AND OFFSET TAKEN FROM I-95 SB TO I-16 EB (DE8) ALIGNMENT.
***STATION AND OFFSET TAKEN FROM I-16 WB TO I-95 SB (DE9) ALIGNMENT.

PROPERTY AND EXISTING R/W LINE
REQUIRED R/W LINE
CONSTRUCTION LIMITS
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EASEMENT FOR CONSTR OF SLOPES
EASEMENT FOR CONSTR OF DRIVES

BEGIN LIMIT OF ACCESS.....BLA
END LIMIT OF ACCESS.....ELA
LIMIT OF ACCESS
REQ'D R/W & LIMIT OF ACCESS

SCALE IN FEET
0 50 100 200

ARCADIS Design & Consultancy for natural and built assets

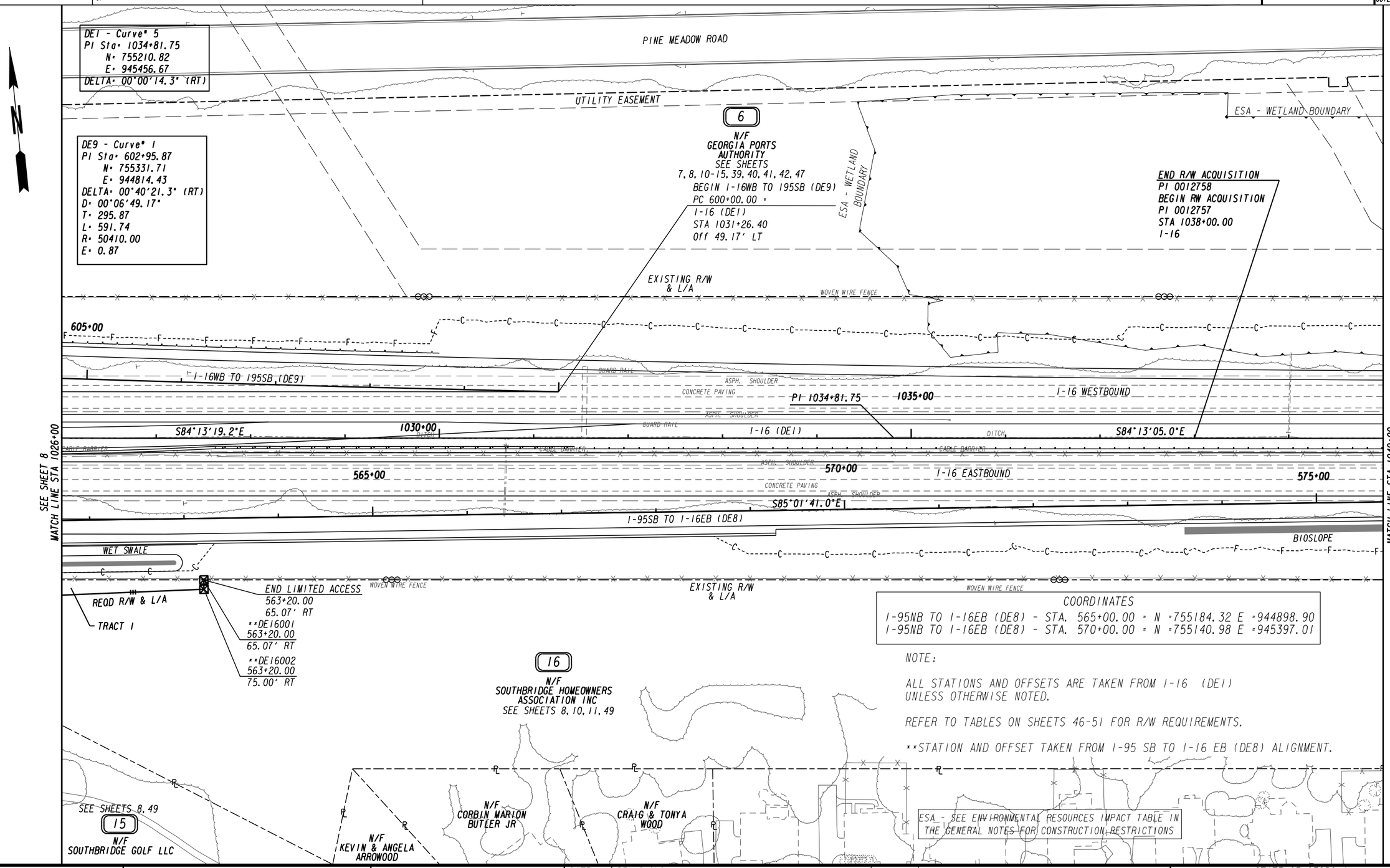
DATE	REVISIONS	DATE	REVISIONS

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

RIGHT OF WAY MAP
I-16 CORRIDOR IMPROVEMENTS

PROJECT NO: 0012757 & 0012758
COUNTY: CHATHAM
GMD: 7
DATE: 11/06/17 SH 8 OF 51

DRAWING No.
60-0008



COORDINATES

I-95NB TO I-16EB (DE8) - STA. 565+00.00 = N =755184.32 E =944898.90
I-95NB TO I-16EB (DE8) - STA. 570+00.00 = N =755140.98 E =945397.01

NOTE:

ALL STATIONS AND OFFSETS ARE TAKEN FROM I-16 (DE1) UNLESS OTHERWISE NOTED.

REFER TO TABLES ON SHEETS 46-51 FOR R/W REQUIREMENTS.

**STATION AND OFFSET TAKEN FROM I-95 SB TO I-16 EB (DE8) ALIGNMENT.

ESA - SEE ENVIRONMENTAL RESOURCES IMPACT TABLE IN THE GENERAL NOTES FOR CONSTRUCTION RESTRICTIONS

PROPERTY AND EXISTING R/W LINE
REQUIRED R/W LINE
CONSTRUCTION LIMITS
EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES
EASEMENT FOR CONSTR OF SLOPES
EASEMENT FOR CONSTR OF DRIVES

BEGIN LIMIT OF ACCESS.....BLA
END LIMIT OF ACCESS.....ELA
LIMIT OF ACCESS
REQ'D R/W & LIMIT OF ACCESS

SCALE IN FEET
0 50 100 200

ARCADIS Design & Consultancy for natural and built assets

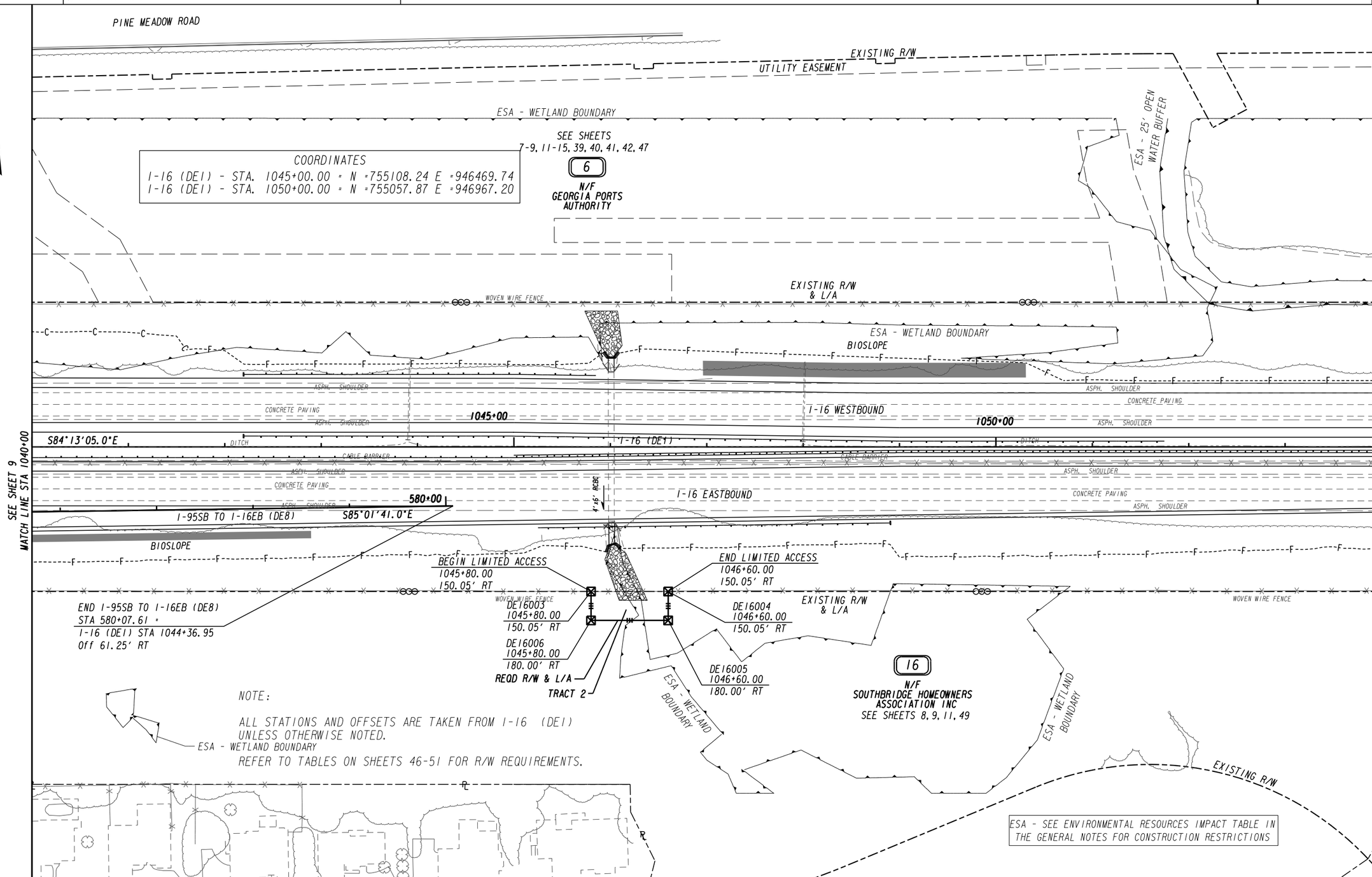
DATE	REVISIONS	DATE	REVISIONS

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

RIGHT OF WAY MAP
I-16 CORRIDOR IMPROVEMENTS

PROJECT NO: 0012757 & 0012758
COUNTY: CHATHAM
GMD: 7
DATE: 11/06/17 SH 9 OF 51

DRAWING No.
60-0009



PROPERTY AND EXISTING R/W LINE
REQUIRED R/W LINE
CONSTRUCTION LIMITS
EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES
EASEMENT FOR CONSTR OF SLOPES
EASEMENT FOR CONSTR OF DRIVES

BEGIN LIMIT OF ACCESS.....BLA
END LIMIT OF ACCESS.....ELA
LIMIT OF ACCESS
REQ'D R/W & LIMIT OF ACCESS

SCALE IN FEET
0 50 100 200

ARCADIS Design & Consultancy for natural and built assets

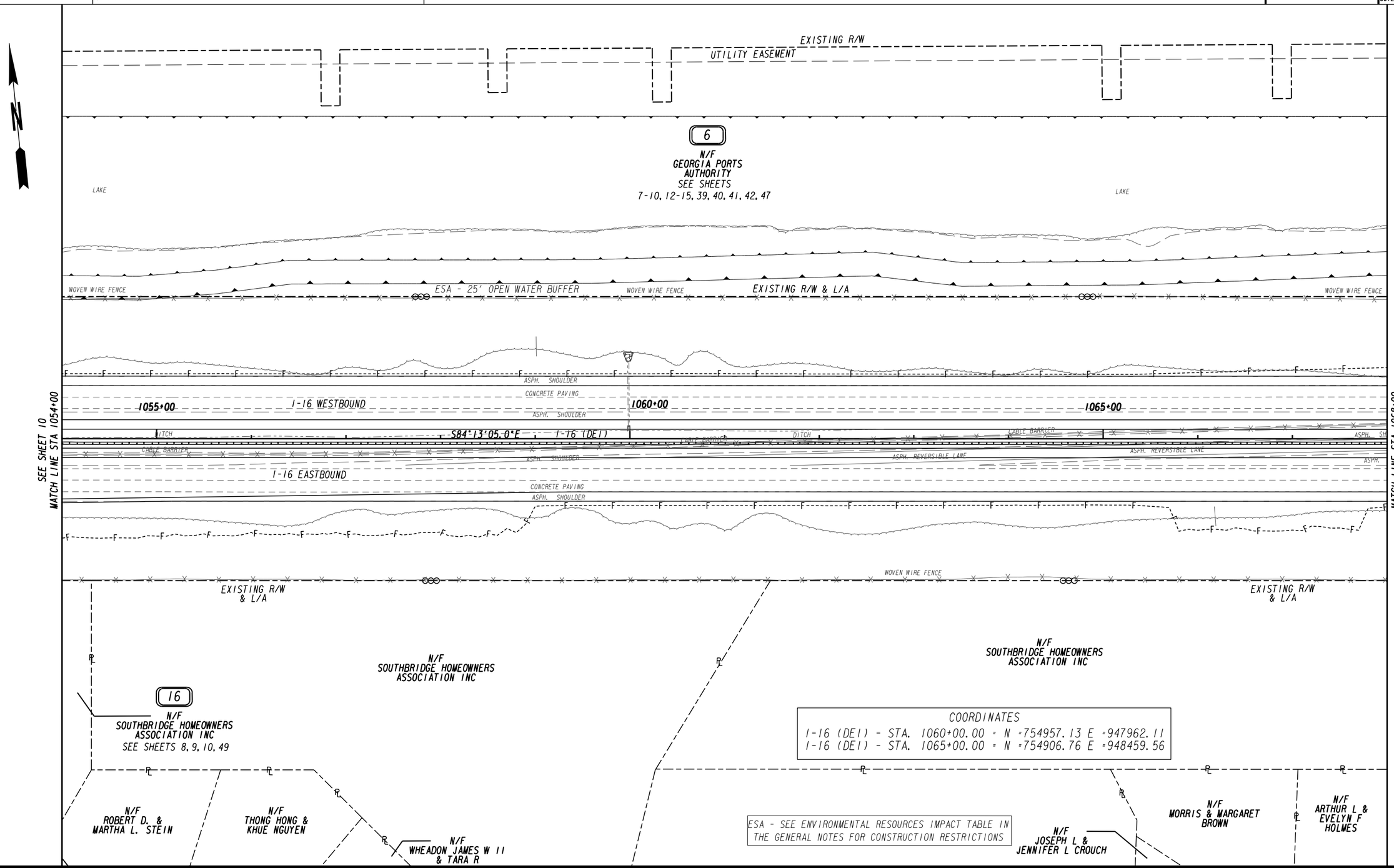
DATE	REVISIONS	DATE	REVISIONS

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

RIGHT OF WAY MAP
I-16 CORRIDOR IMPROVEMENTS

PROJECT NO: 0012757 & 0012758
COUNTY: CHATHAM
GMD: 7
DATE: 11/06/17 SH 10 OF 51

DRAWING No.
60-0010



PROPERTY AND EXISTING R/W LINE
REQUIRED R/W LINE
CONSTRUCTION LIMITS
EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES
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EASEMENT FOR CONSTR OF DRIVES

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REQ'D R/W & LIMIT OF ACCESS

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0 50 100 200

ARCADIS Design & Consultancy for natural and built assets

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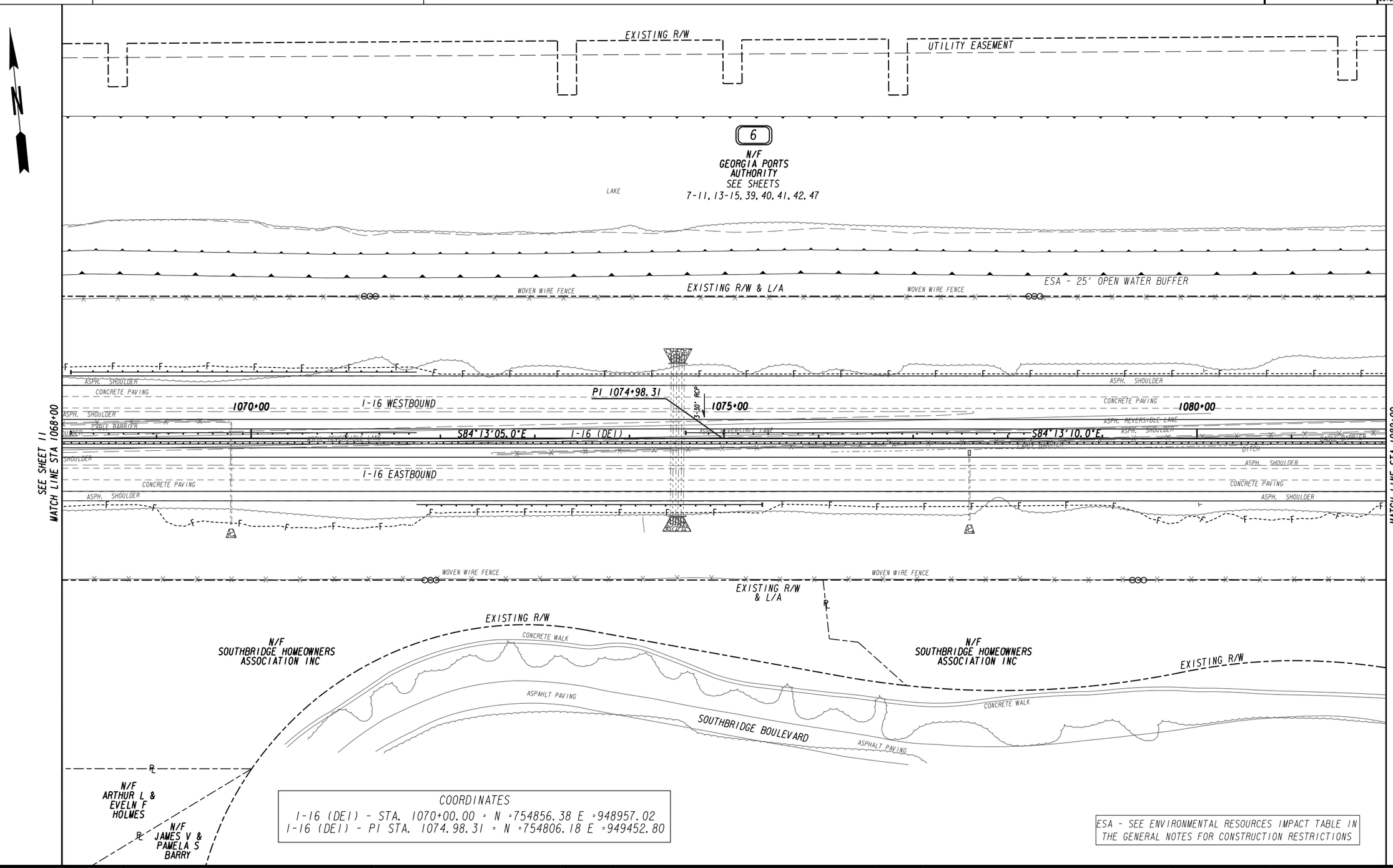
STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

RIGHT OF WAY MAP
I-16 CORRIDOR IMPROVEMENTS

PROJECT NO: 0012757 & 0012758
COUNTY: CHATHAM
GMD: 7
DATE: 11/06/17 SH 11 OF 51

DRAWING No.
60-0011



COORDINATES
I-16 (DEI) - STA. 1070+00.00 = N =754856.38 E =948957.02
I-16 (DEI) - PI STA. 1074.98.31 = N =754806.18 E =949452.80

ESA - SEE ENVIRONMENTAL RESOURCES IMPACT TABLE IN THE GENERAL NOTES FOR CONSTRUCTION RESTRICTIONS

PROPERTY AND EXISTING R/W LINE
REQUIRED R/W LINE
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ARCADIS Design & Consultancy for natural and built assets

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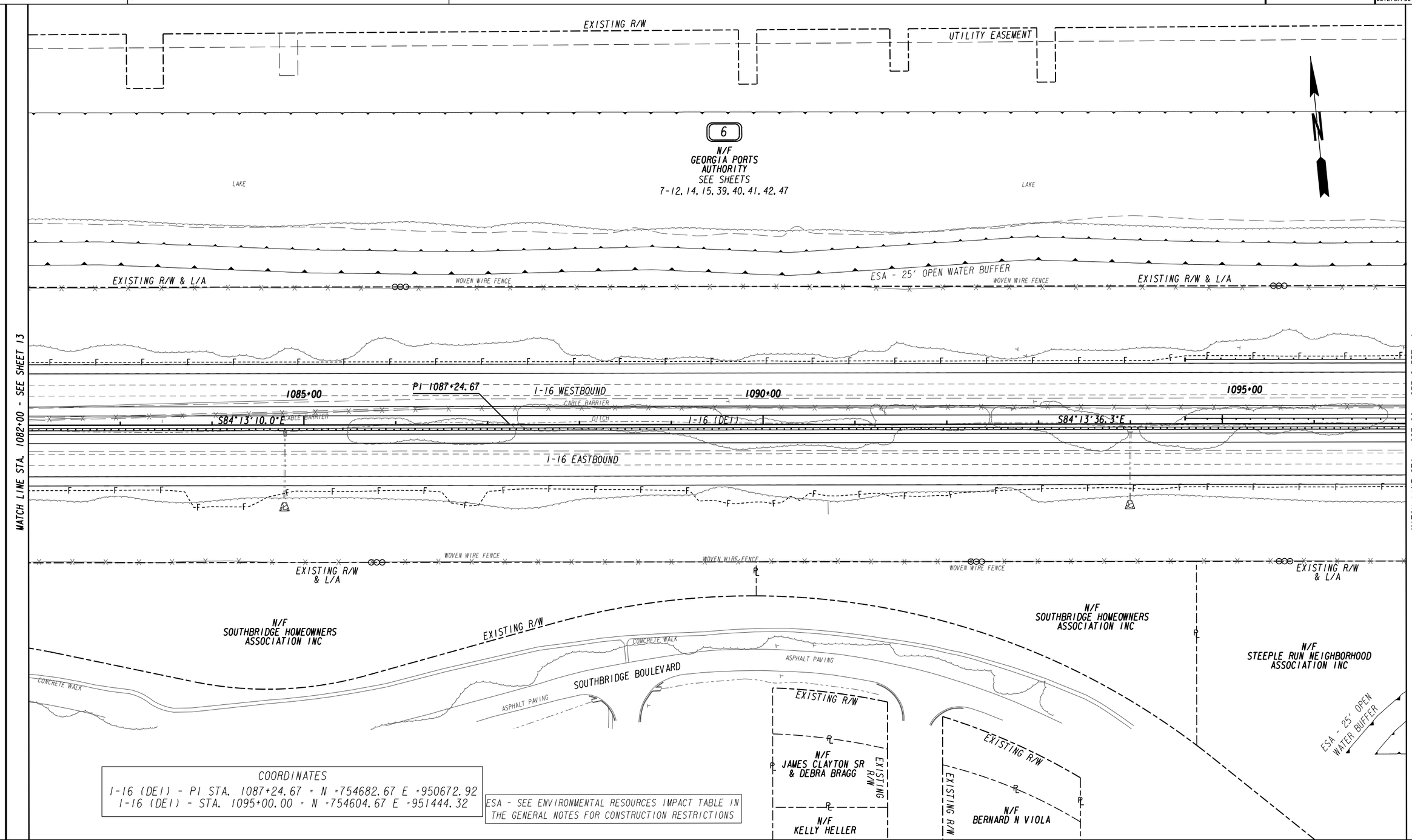
STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

RIGHT OF WAY MAP
I-16 CORRIDOR IMPROVEMENTS

PROJECT NO: 0012757 & 0012758
COUNTY: CHATHAM
GMD: 7
DATE: 11/06/17 SH 12 OF 51

DRAWING No.
60-0012



COORDINATES
I-16 (DEI) - PI STA. 1087+24.67 = N =754682.67 E =950672.92
I-16 (DEI) - STA. 1095+00.00 = N =754604.67 E =951444.32

ESA - SEE ENVIRONMENTAL RESOURCES IMPACT TABLE IN THE GENERAL NOTES FOR CONSTRUCTION RESTRICTIONS

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ARCADIS Design & Consultancy for natural and built assets

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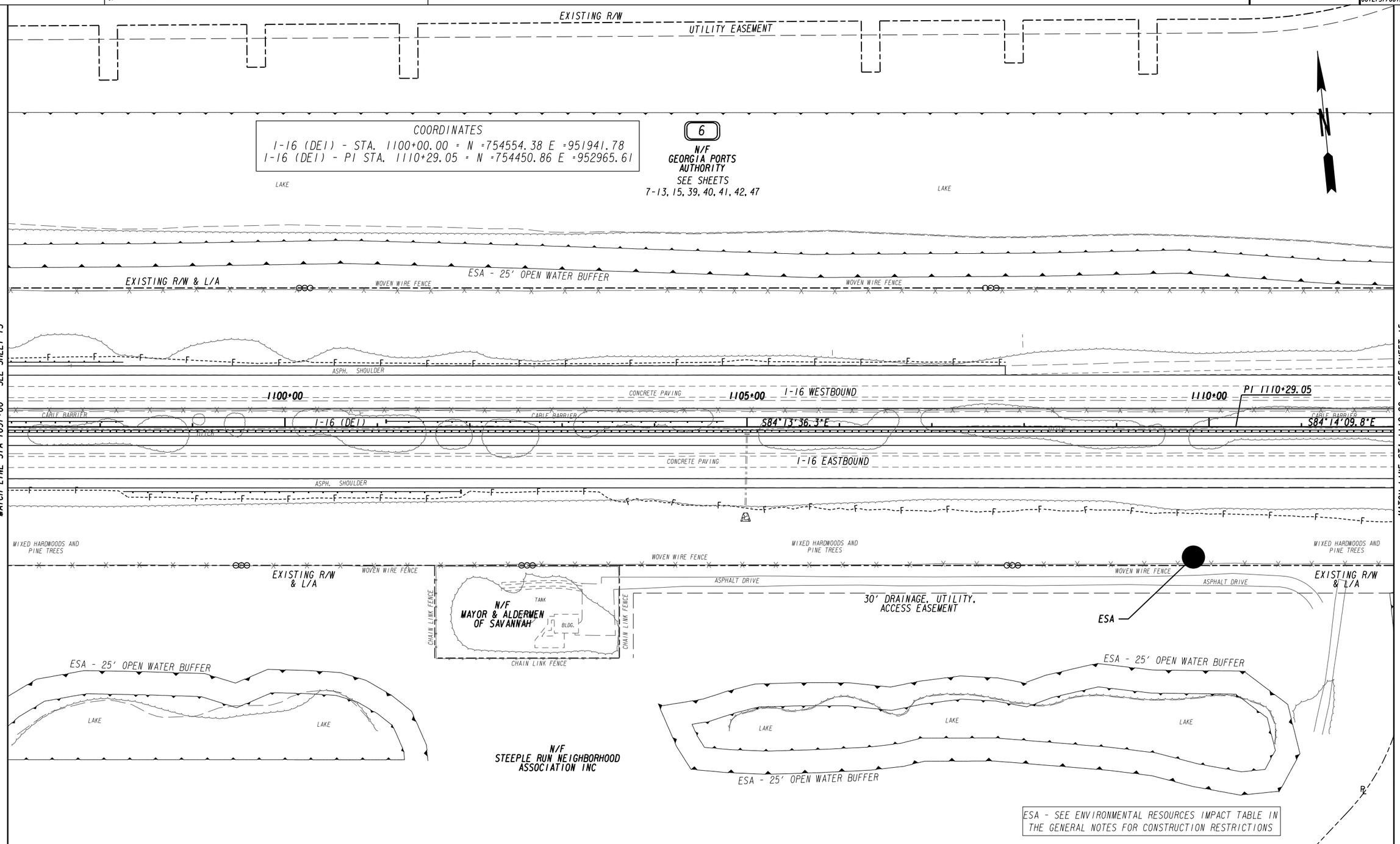
STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

RIGHT OF WAY MAP
I-16 CORRIDOR IMPROVEMENTS

PROJECT NO: 0012757 & 0012758
COUNTY: CHATHAM
GMD: 7
DATE: 11/06/17 SH 13 OF 51

DRAWING No.
60-0013



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ARCADIS Design & Consultancy for natural and built assets

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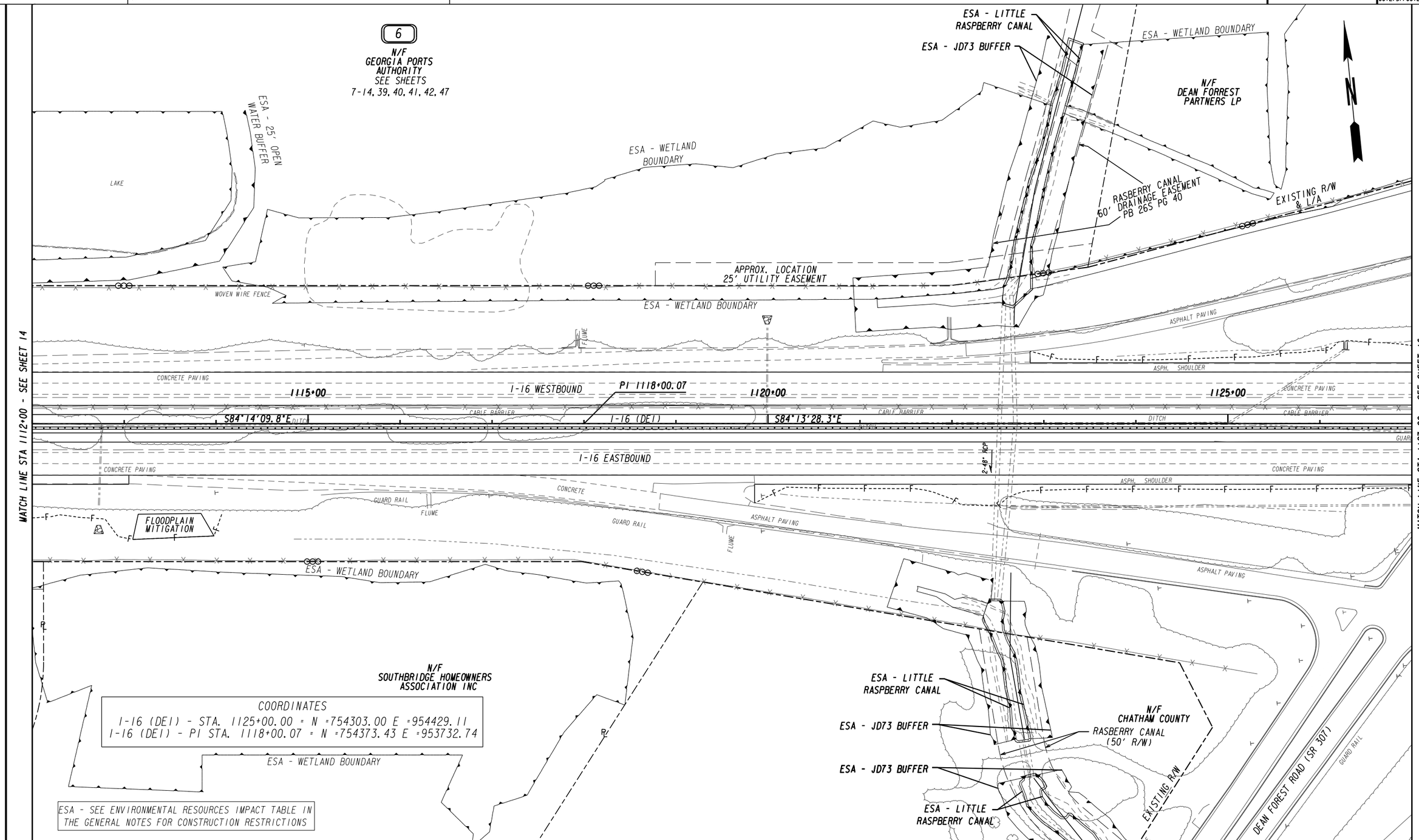
STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

RIGHT OF WAY MAP
I-16 CORRIDOR IMPROVEMENTS

PROJECT NO: 0012757 & 0012758
COUNTY: CHATHAM
GMD: 7
DATE: 11/06/17 SH 14 OF 51

DRAWING No.
60-0014



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ARCADIS Design & Consultancy for natural and built assets

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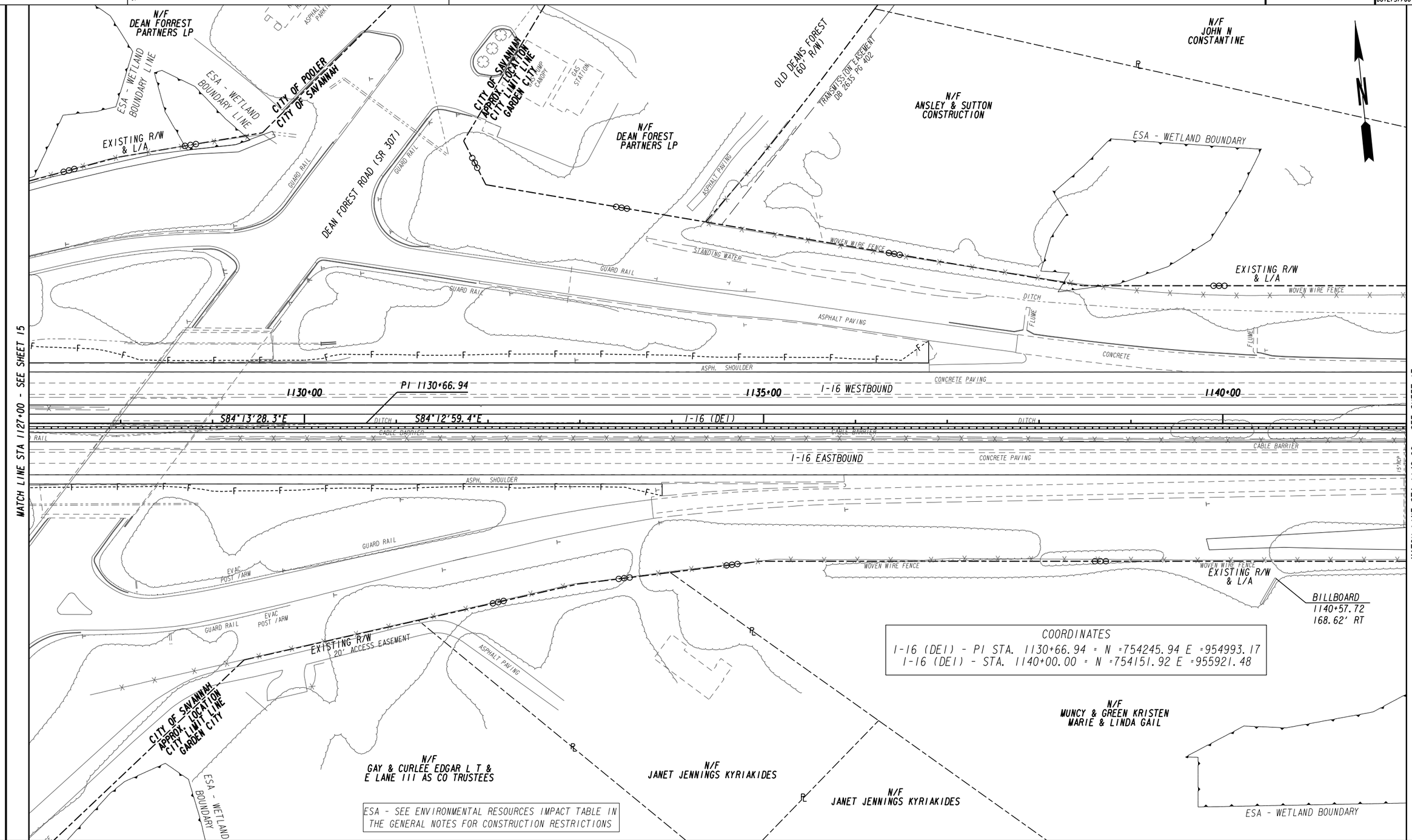
STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

RIGHT OF WAY MAP
I-16 CORRIDOR IMPROVEMENTS

PROJECT NO: 0012757 & 0012758
COUNTY: CHATHAM
GMD: 7
DATE: 11/06/17 SH 15 OF 51

DRAWING No.
60-0015



COORDINATES
I-16 (DEI) - PI STA. 1130+66.94 = N =754245.94 E =954993.17
I-16 (DEI) - STA. 1140+00.00 = N =754151.92 E =955921.48

ESA - SEE ENVIRONMENTAL RESOURCES IMPACT TABLE IN THE GENERAL NOTES FOR CONSTRUCTION RESTRICTIONS

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ARCADIS Design & Consultancy for natural and built assets

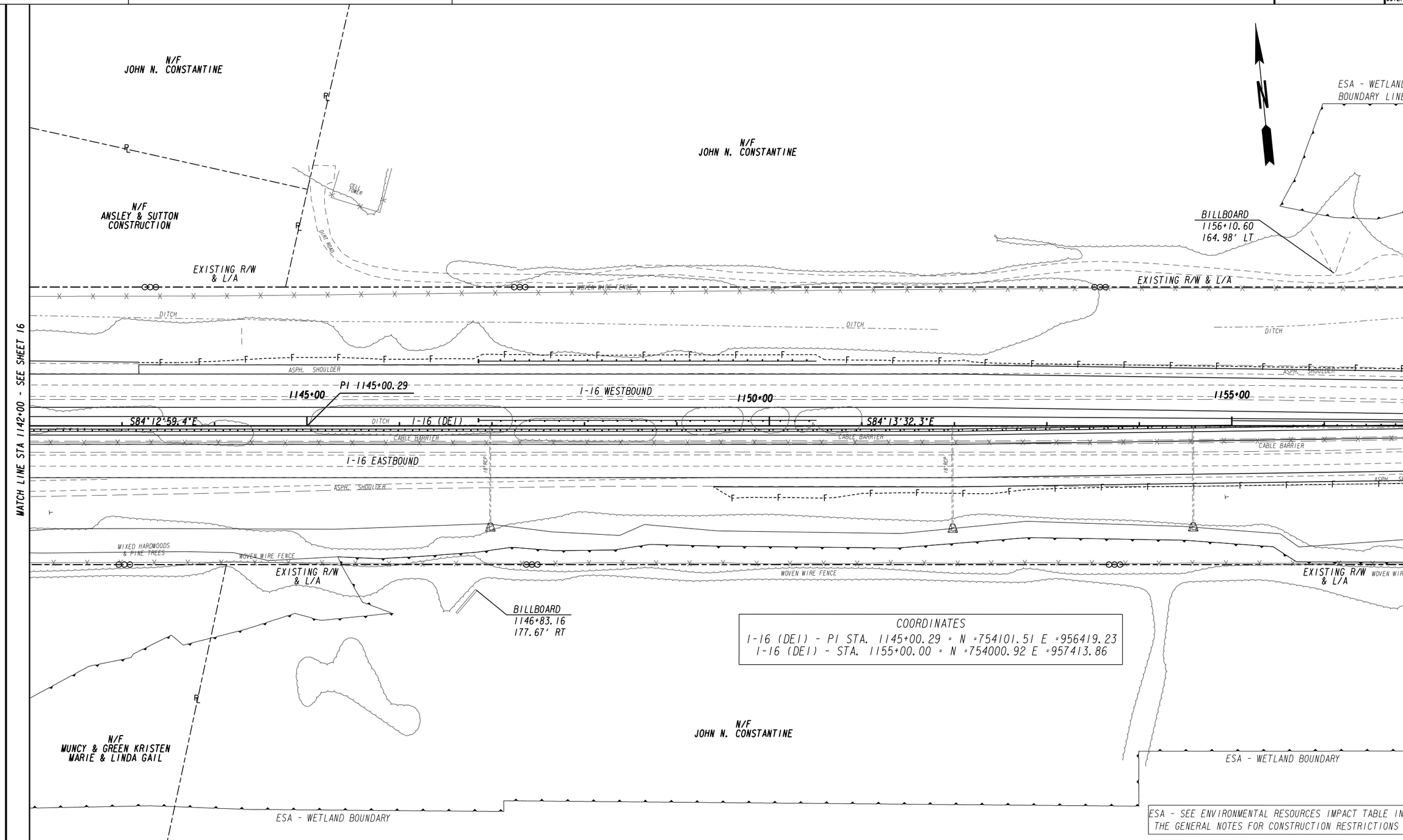
DATE	REVISIONS	DATE	REVISIONS

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

RIGHT OF WAY MAP
I-16 CORRIDOR IMPROVEMENTS

PROJECT NO: 0012757 & 0012758
COUNTY: CHATHAM
GMD: 7
DATE: 11/06/17 SH 16 OF 51

DRAWING No.
60-0016



COORDINATES
I-16 (DEI) - PI STA. 1145+00.29 = N =754101.51 E =956419.23
I-16 (DEI) - STA. 1155+00.00 = N =754000.92 E =957413.86

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LIMIT OF ACCESS
REQ'D R/W & LIMIT OF ACCESS

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ARCADIS Design & Consultancy for natural and built assets

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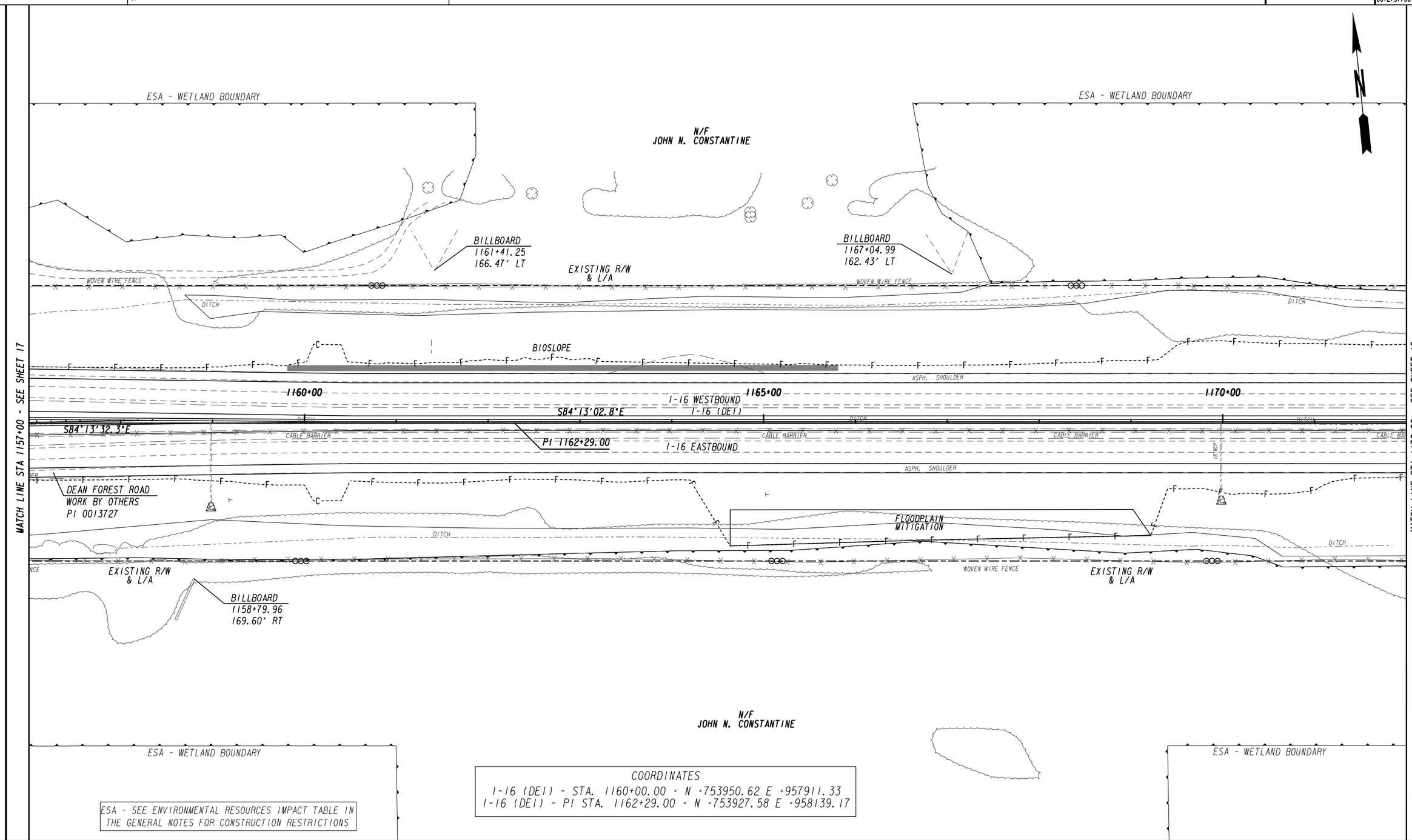
STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

RIGHT OF WAY MAP
I-16 CORRIDOR IMPROVEMENTS

PROJECT NO: 0012757 & 0012758
COUNTY: CHATHAM
GMD: 7
DATE: 11/06/17 SH 17 OF 51

DRAWING No.
60-0017



ESA - SEE ENVIRONMENTAL RESOURCES IMPACT TABLE IN THE GENERAL NOTES FOR CONSTRUCTION RESTRICTIONS

COORDINATES
I-16 (DEI) - STA. 1160+00.00 = N =753950.62 E =957911.33
I-16 (DEI) - PI STA. 1162+29.00 = N =753927.58 E =958139.17

PROPERTY AND EXISTING R/W LINE
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ARCADIS Design & Consultancy for natural and built assets

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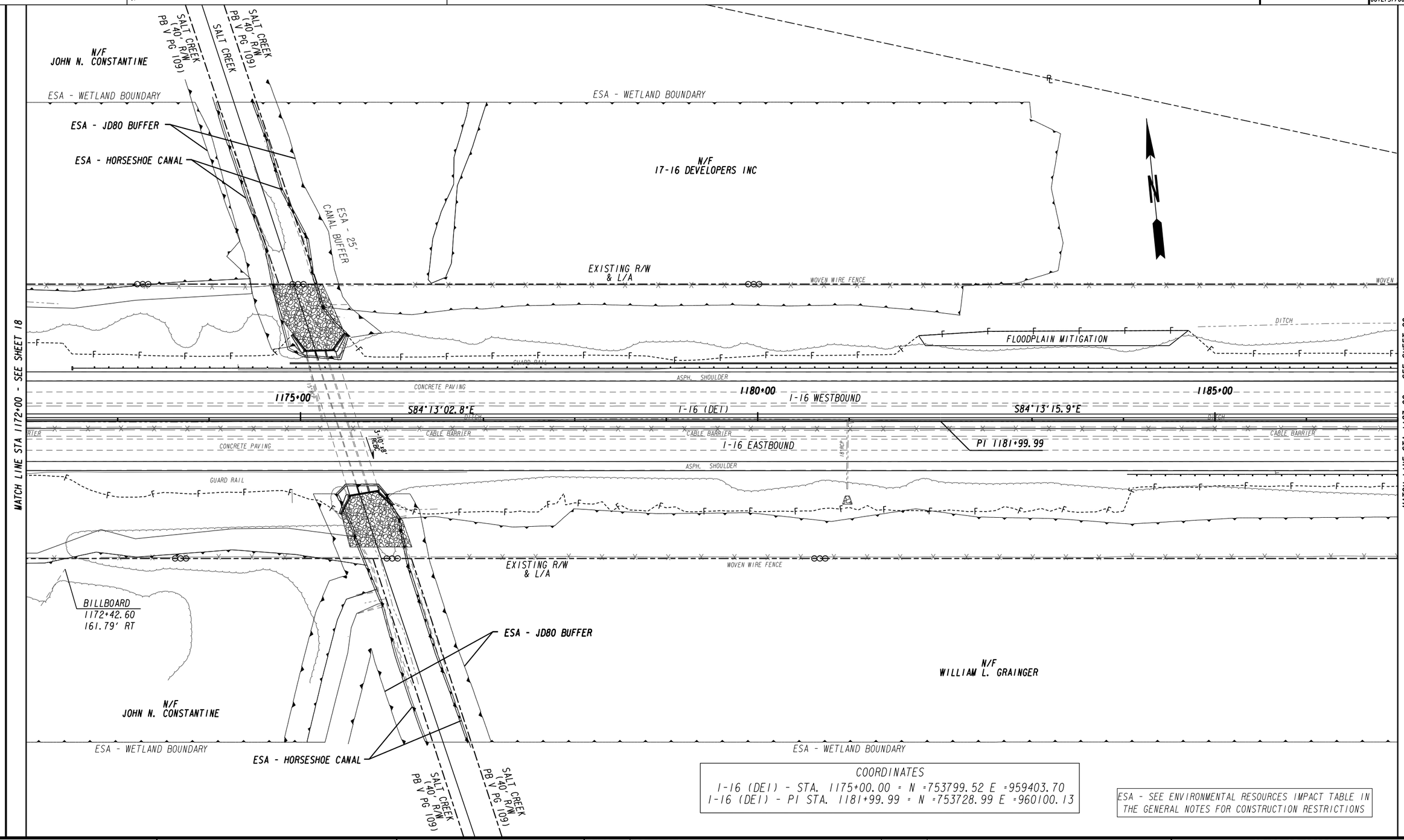
STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

RIGHT OF WAY MAP
I-16 CORRIDOR IMPROVEMENTS

PROJECT NO: 0012757 & 0012758
COUNTY: CHATHAM
GMD: 7
DATE: 11/06/17 SH 18 OF 51

DRAWING No.
60-0018



COORDINATES
I-16 (DET) - STA. 1175+00.00 = N =753799.52 E =959403.70
I-16 (DET) - PI STA. 1181+99.99 = N =753728.99 E =960100.13

ESA - SEE ENVIRONMENTAL RESOURCES IMPACT TABLE IN THE GENERAL NOTES FOR CONSTRUCTION RESTRICTIONS

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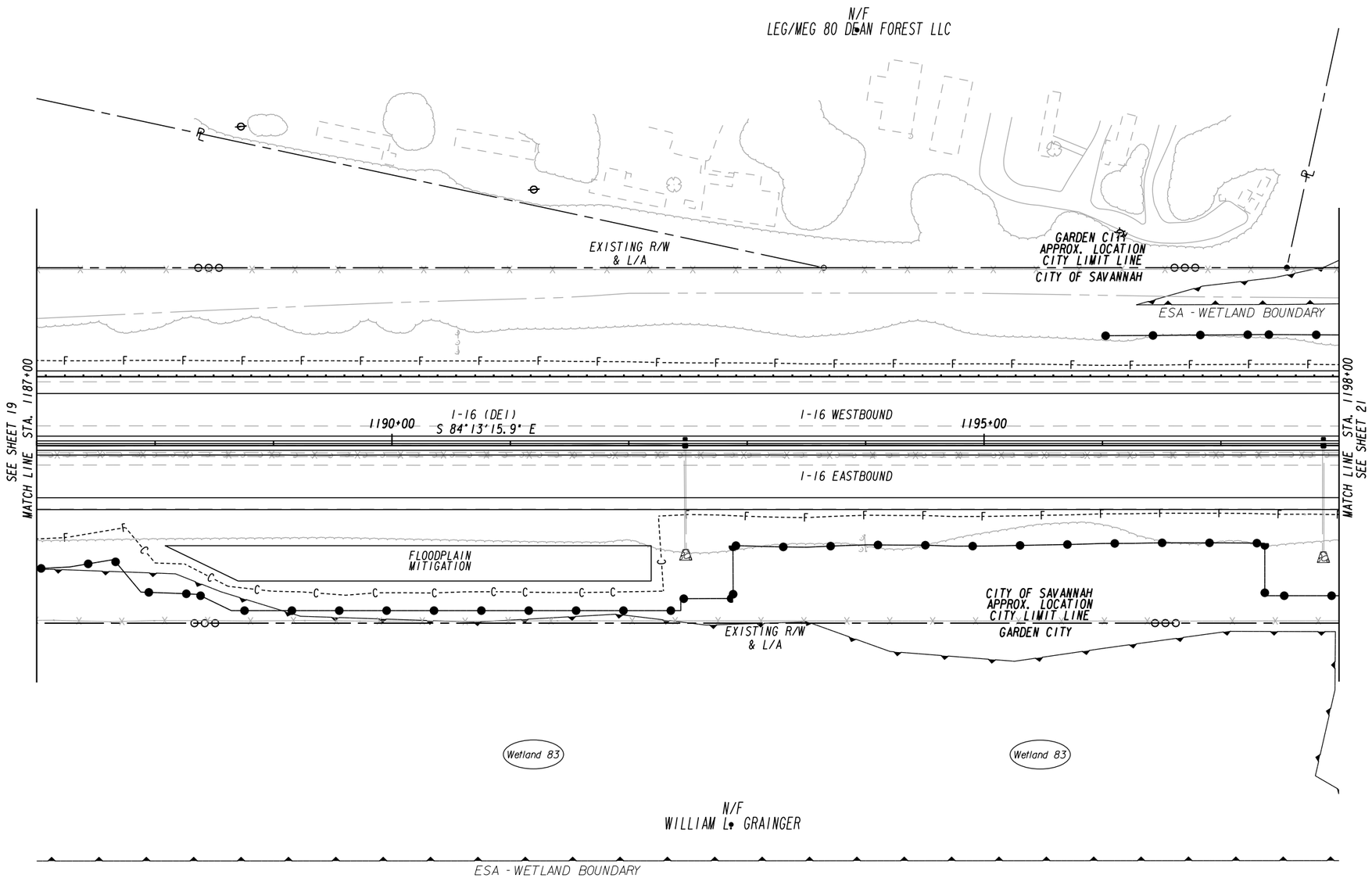
STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

RIGHT OF WAY MAP
I-16 CORRIDOR IMPROVEMENTS

PROJECT NO: 0012757 & 0012758
COUNTY: CHATHAM
GMD: 7
DATE: 11/06/17 SH 19 OF 51

DRAWING No.
60-0019

COORDINATES
STA. 1190+00.00 = N =753648.4428 E =960896.0629
STA. 1195+00.00 = N =753598.0978 E =961393.5218



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PROPERTY AND EXISTING R/W LINE
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BEGIN LIMIT OF ACCESS.....BLA
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LIMIT OF ACCESS
REQ'D R/W & LIMIT OF ACCESS

SCALE IN FEET
0 50 100 200

Michael Baker INTERNATIONAL
420 TECHNOLOGY PARKWAY, STE. 150
NORCROSS, GEORGIA 30092
(770) 263-9118

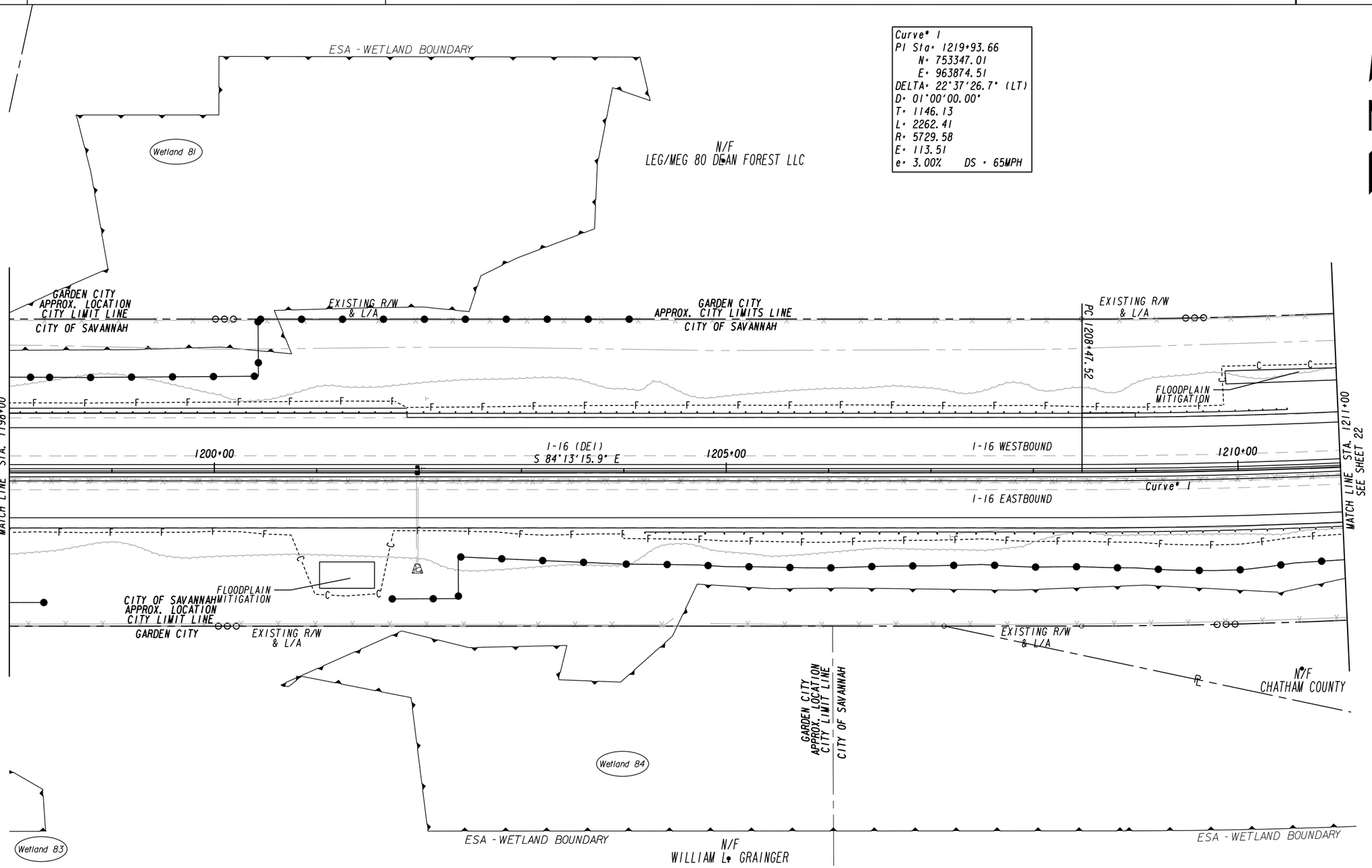
DATE	REVISIONS	DATE	REVISIONS

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

RIGHT OF WAY MAP
I-16 CORRIDOR IMPROVEMENTS

PROJECT NO: 0012757 & 0012758
COUNTY: CHATHAM
GMD: 7
DATE: 11/06/17 SH 20 OF 51

DRAWING No.
60-0020



Curve# 1
PI Sta= 1219+93.66
N= 753347.01
E= 963874.51
DELTA= 22°37'26.7" (LT)
D= 01°00'00.00"
T= 1146.13
L= 2262.41
R= 5729.58
E= 113.51
e= 3.00% DS = 65MPH

COORDINATES
STA. 1200+00.00 = N =753547.7527 E =961890.9807
P.C. STA. 1208+47.52 = N =753462.4154 E =962734.1980

ESA - SEE ENVIRONMENTAL RESOURCES IMPACT TABLE IN THE GENERAL NOTES FOR CONSTRUCTION RESTRICTIONS

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NORCROSS, GEORGIA 30092
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DATE	REVISIONS	DATE	REVISIONS

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

RIGHT OF WAY MAP
I-16 CORRIDOR IMPROVEMENTS

PROJECT NO: 0012757 & 0012758
COUNTY: CHATHAM
GMD: 7
DATE: 11/06/17 SH 21 OF 51

DRAWING No.
60-0021

Curve# 1
PI Sta= 1219+93.66
N= 753347.01
E= 963874.51
DELTA= 22°37'26.7" (LT)
D= 01°00'00.00"
T= 1146.13
L= 2262.41
R= 5729.58
E= 113.51
e= 3.00% DS = 65MPH

COORDINATES
STA. 1215+00.00 = N =753433.7822 E =963385.6921
STA. 1220+00.00 = N =753462.0834 E =963884.7316

N/F
LEG/MEG 80 DEAN FOREST LLC

100' GA POWER TRANSMISSION
PB K PG 39

ESA - WETLAND BOUNDARY

Wetland 81

Wetland 86

ESA - JD88 BUFFER

EXISTING R/W & L/A

GARDEN CITY
APPROX. LOCATION
CITY LIMIT LINE
CITY OF SAVANNAH

FLOODPLAIN MITIGATION

BIOSLOPE

I-16 WESTBOUND

I-16 (DEI)

I-16 EASTBOUND

Curve# 1

1215+00

1220+00

SEE SHEET 21
MATCH LINE STA. 1211+00

MATCH LINE STA. 1224+00
SEE SHEET 23

Wetland 84

JD85

HORSE SHOE CANAL
(50' EASEMENT)

Open Water 87

100' AMERICAN TELEPHONE & SOUTHERN ATLANTIC GAS EASEMENT DB 259 PG 148

N/F
CHATHAM COUNTY

N/F
WILLIAM L. GRAINGER

ESA - SEE ENVIRONMENTAL RESOURCES IMPACT TABLE IN THE GENERAL NOTES FOR CONSTRUCTION RESTRICTIONS

PROPERTY AND EXISTING R/W LINE	
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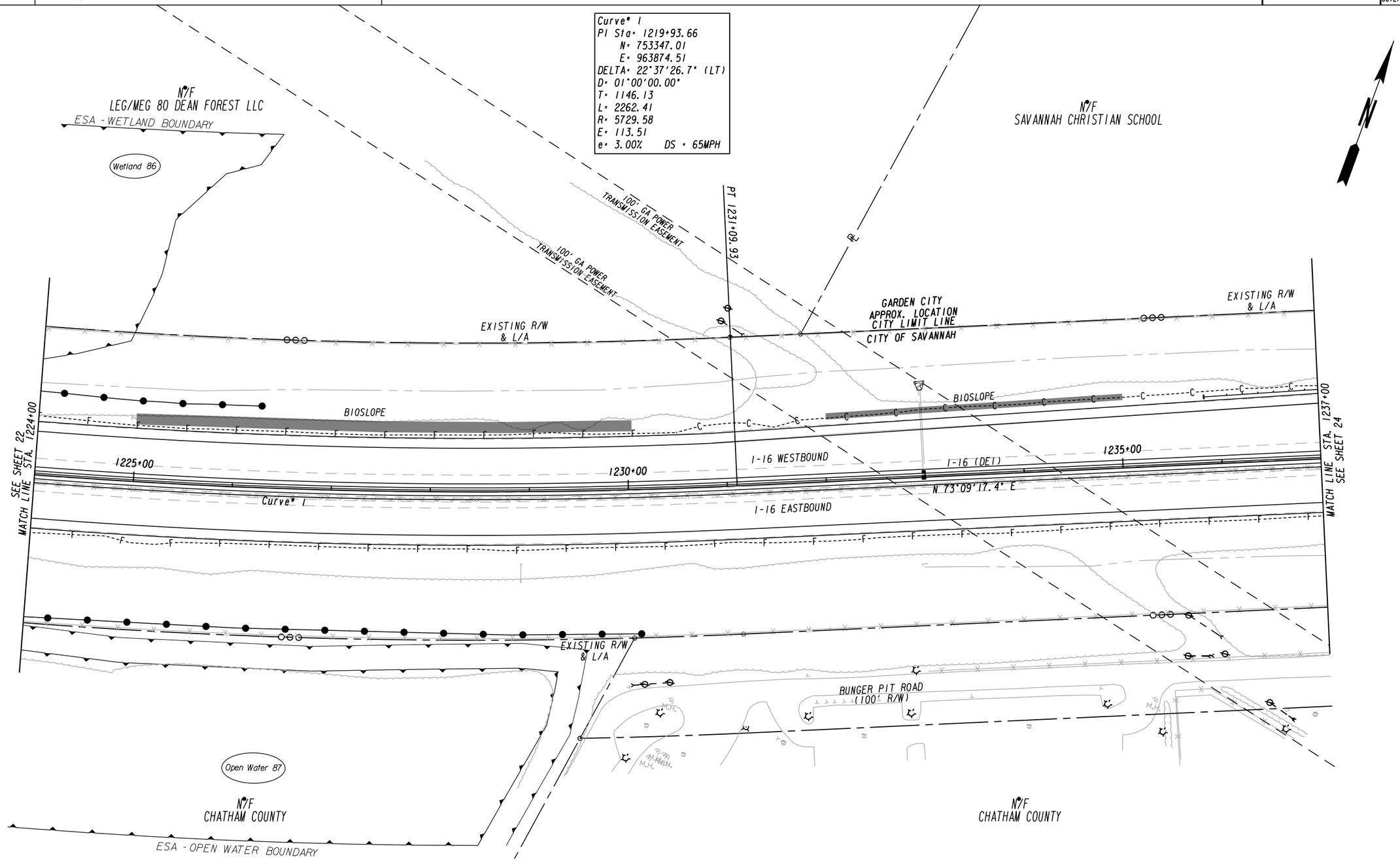
STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

RIGHT OF WAY MAP
I-16 CORRIDOR IMPROVEMENTS

PROJECT NO: 0012757 & 0012758
COUNTY: CHATHAM
GMD: 7
DATE: 11/06/17 SH 22 OF 51

DRAWING No.
60-0022



ESA - SEE ENVIRONMENTAL RESOURCES IMPACT TABLE IN THE GENERAL NOTES FOR CONSTRUCTION RESTRICTIONS

COORDINATES
STA. 1225+00.00 = N =753533.7710 E =964379.4055
PT STA. 1231+09.93 = N =753679.1452 E =964971.4639

PROPERTY AND EXISTING R/W LINE
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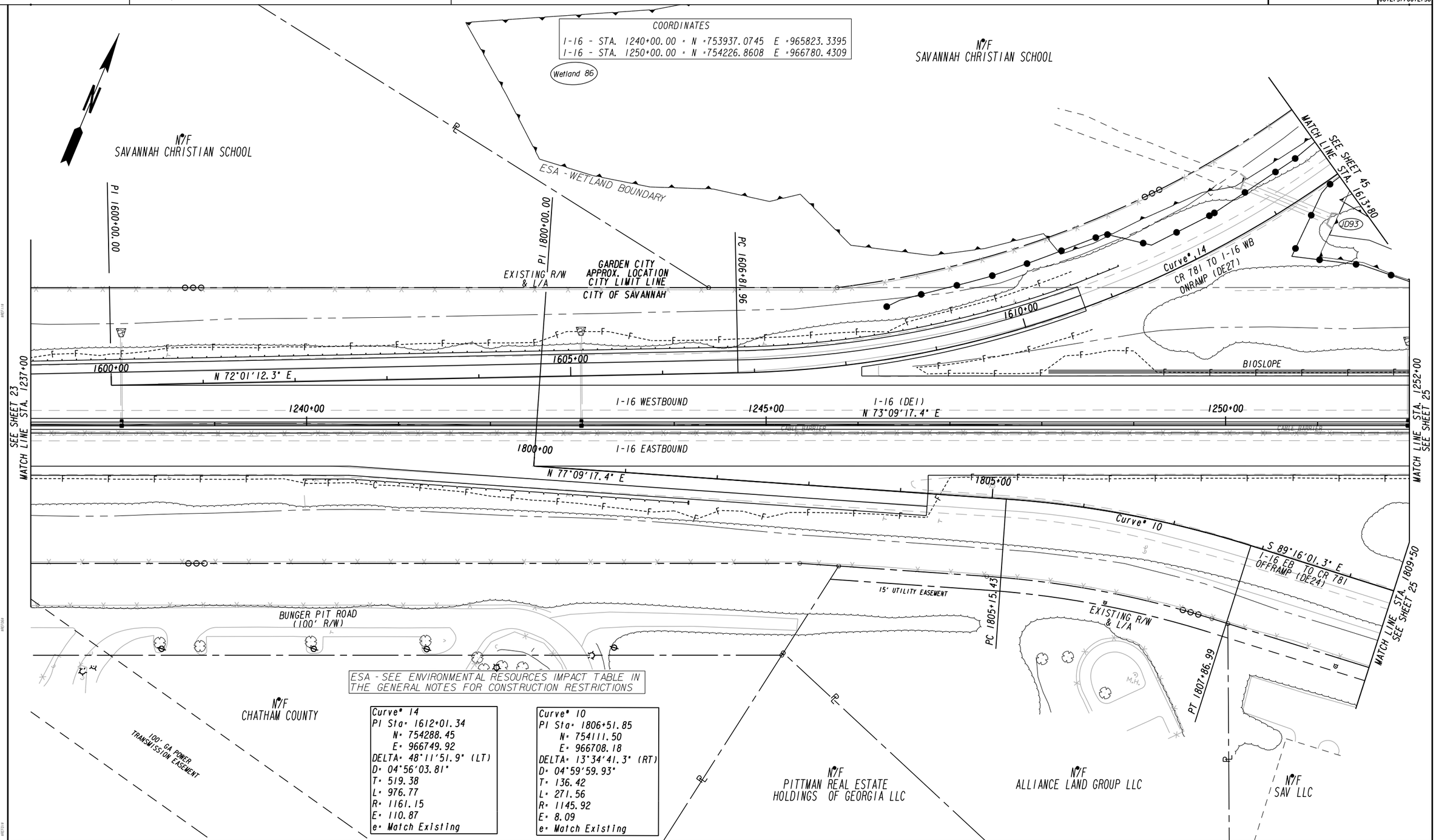
STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

RIGHT OF WAY MAP
I-16 CORRIDOR IMPROVEMENTS

PROJECT NO: 0012757 & 0012758
COUNTY: CHATHAM
GMD: 7
DATE: 11/06/17 SH 23 OF 51

DRAWING No. 60-0023



Curve# 14
PI Sta= 1612+01.34
N= 754288.45
E= 966749.92
DELTA= 48°11'51.9" (LT)
D= 04°56'03.81"
T= 519.38
L= 976.77
R= 1161.15
E= 110.87
e= Match Existing

Curve# 10
PI Sta= 1806+51.85
N= 754111.50
E= 966708.18
DELTA= 13°34'41.3" (RT)
D= 04°59'59.93"
T= 136.42
L= 271.56
R= 1145.92
E= 8.09
e= Match Existing

PROPERTY AND EXISTING R/W LINE
REQUIRED R/W LINE
CONSTRUCTION LIMITS
EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES
EASEMENT FOR CONSTR OF SLOPES
EASEMENT FOR CONSTR OF DRIVES

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LIMIT OF ACCESS
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DEPARTMENT OF TRANSPORTATION

RIGHT OF WAY MAP
I-16 CORRIDOR IMPROVEMENTS

PROJECT NO: 0012757 & 0012758
COUNTY: CHATHAM
GMD: 7
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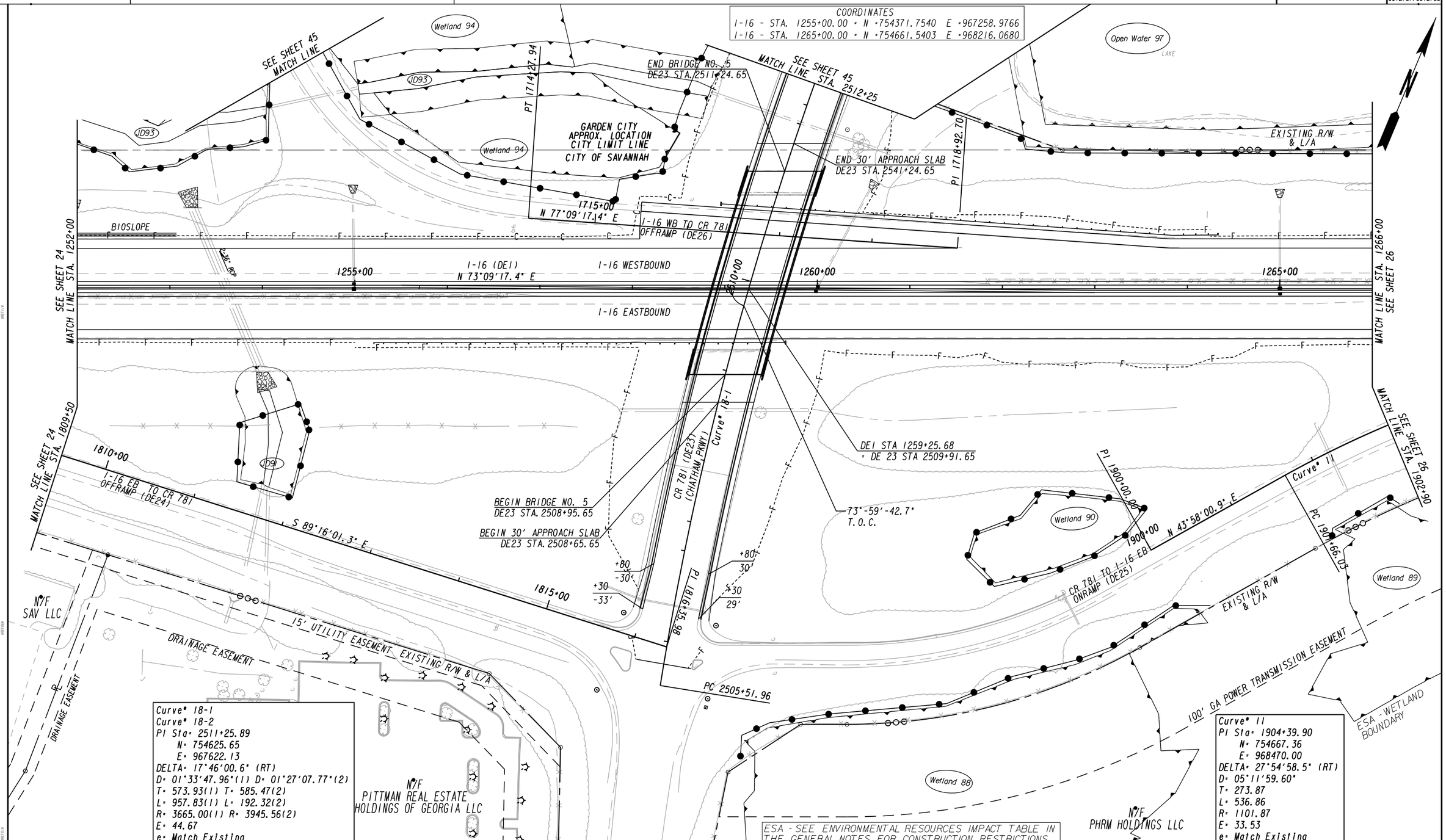
DRAWING No.
60-0024



PROPERTY AND EXISTING R/W LINE
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RIGHT OF WAY MAP
I-16 CORRIDOR IMPROVEMENTS

PROJECT NO: 0012757 & 0012758
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GMD: 7
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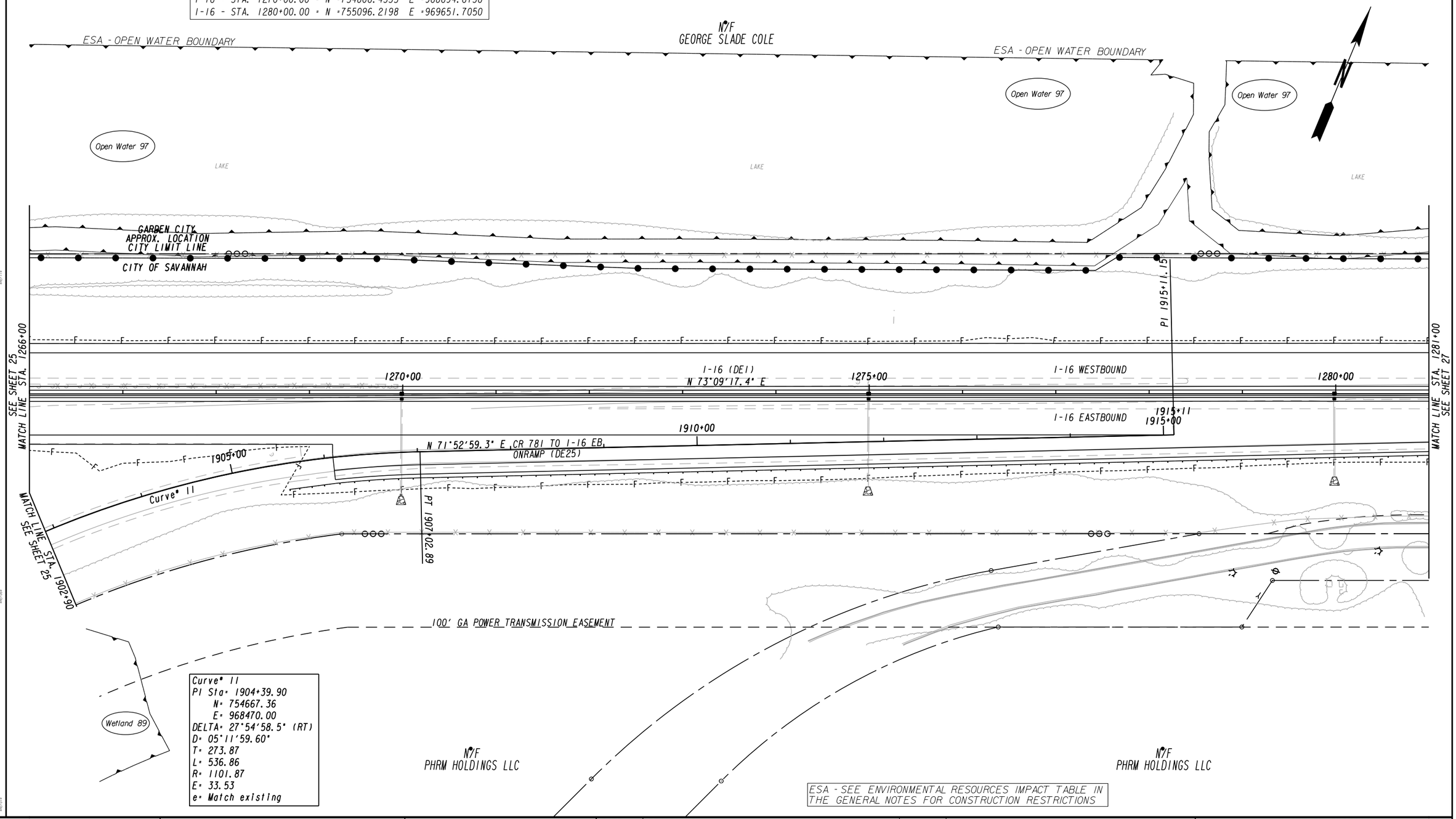
DRAWING No.
60-0025

COORDINATES			
I-16 - STA. 1270+00.00 =	N =754806.4335	E =968694.6136	
I-16 - STA. 1280+00.00 =	N =755096.2198	E =969651.7050	



Curve# 11
PI Sta= 1904+39.90
N= 754667.36
E= 968470.00
DELTA= 27°54'58.5" (RT)
D= 05°11'59.60"
T= 273.87
L= 536.86
R= 1101.87
E= 33.53
e= Match existing

ESA - SEE ENVIRONMENTAL RESOURCES IMPACT TABLE IN THE GENERAL NOTES FOR CONSTRUCTION RESTRICTIONS

PROPERTY AND EXISTING R/W LINE
REQUIRED R/W LINE
CONSTRUCTION LIMITS
EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES
EASEMENT FOR CONSTR OF SLOPES
EASEMENT FOR CONSTR OF DRIVES

BEGIN LIMIT OF ACCESS.....BLA
END LIMIT OF ACCESS.....ELA
LIMIT OF ACCESS
REQ'D R/W & LIMIT OF ACCESS

SCALE IN FEET
0 50 100 200

Michael Baker INTERNATIONAL
420 TECHNOLOGY PARKWAY, STE. 150
NORCROSS, GEORGIA 30092
(770) 263-9118

DATE	REVISIONS	DATE	REVISIONS

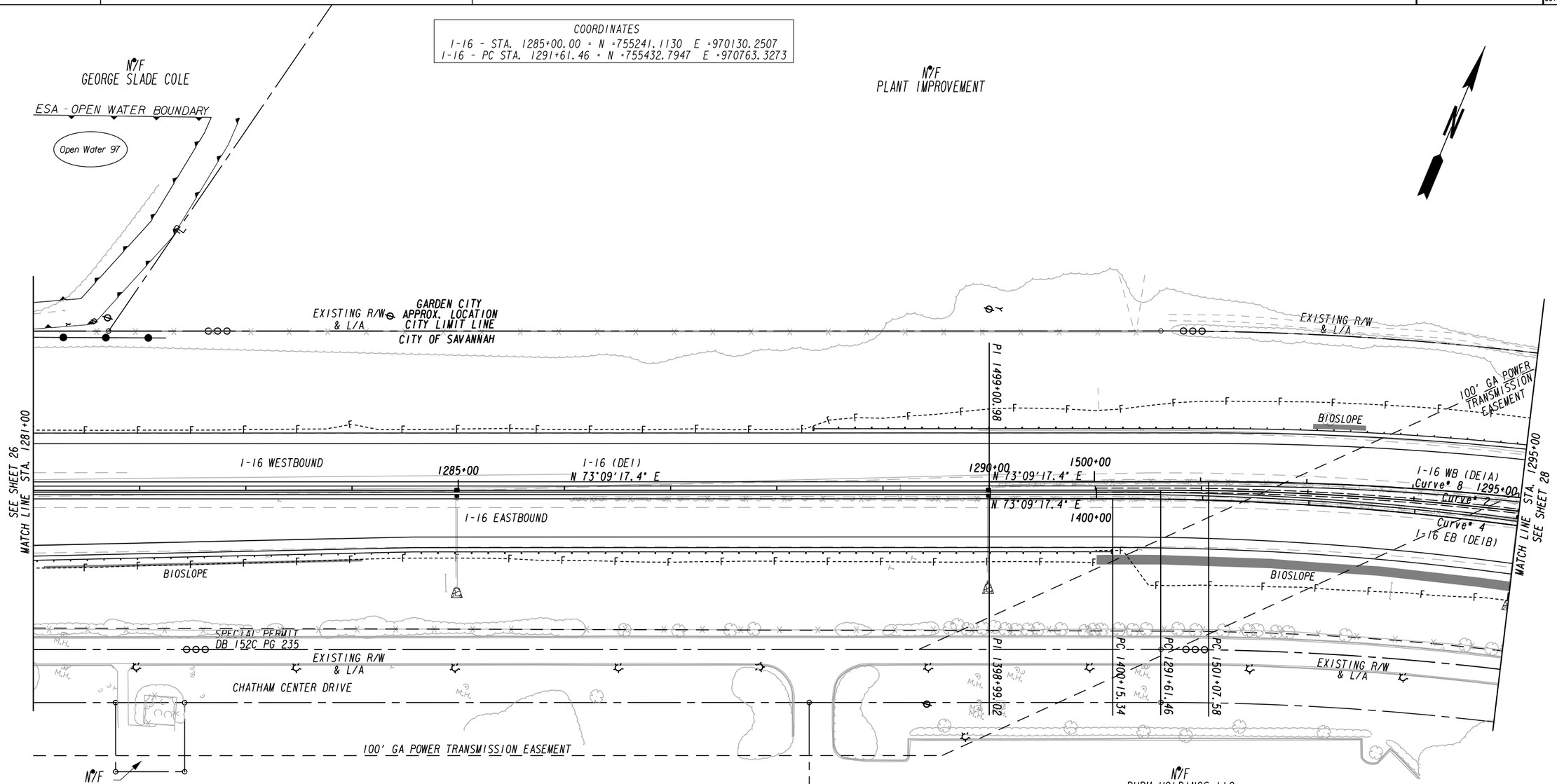
STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

RIGHT OF WAY MAP
I-16 CORRIDOR IMPROVEMENTS

PROJECT NO: 0012757 & 0012758
COUNTY: CHATHAM
GMD: 7
DATE: 11/06/17 SH 26 OF 51

DRAWING No.
60-0026

COORDINATES
I-16 - STA. 1285+00.00 = N =755241.1130 E =970130.2507
I-16 - PC STA. 1291+61.46 = N =755432.7947 E =970763.3273



Curve# 2
PI Sta= 1297+05.85
N= 755590.55
E= 971284.36
DELTA= 21°31'08.7" (RT)
D= 02°00'00.00"
T= 544.39
L= 1075.95
R= 2864.79
E= 51.27

Curve# 4
PI Sta= 1405+59.73
N= 755569.81
E= 971243.48
DELTA= 21°31'08.7" (RT)
D= 02°00'00.00"
T= 544.39
L= 1075.95
R= 2864.79
E= 51.27
e= 5.00% DS = 65MPH

Curve# 8
PI Sta= 1506+51.97
N= 755611.29
E= 971325.24
DELTA= 21°31'08.7" (RT)
D= 02°00'00.00"
T= 544.39
L= 1075.95
R= 2864.79
E= 51.27
e= 5.00% DS = 65MPH

ESA - SEE ENVIRONMENTAL RESOURCES IMPACT TABLE IN THE GENERAL NOTES FOR CONSTRUCTION RESTRICTIONS

PROPERTY AND EXISTING R/W LINE
REQUIRED R/W LINE
CONSTRUCTION LIMITS
EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES
EASEMENT FOR CONSTR OF SLOPES
EASEMENT FOR CONSTR OF DRIVES

BEGIN LIMIT OF ACCESS.....BLA
END LIMIT OF ACCESS.....ELA
LIMIT OF ACCESS
REQ'D R/W & LIMIT OF ACCESS

SCALE IN FEET
0 50 100 200

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NORCROSS, GEORGIA 30092
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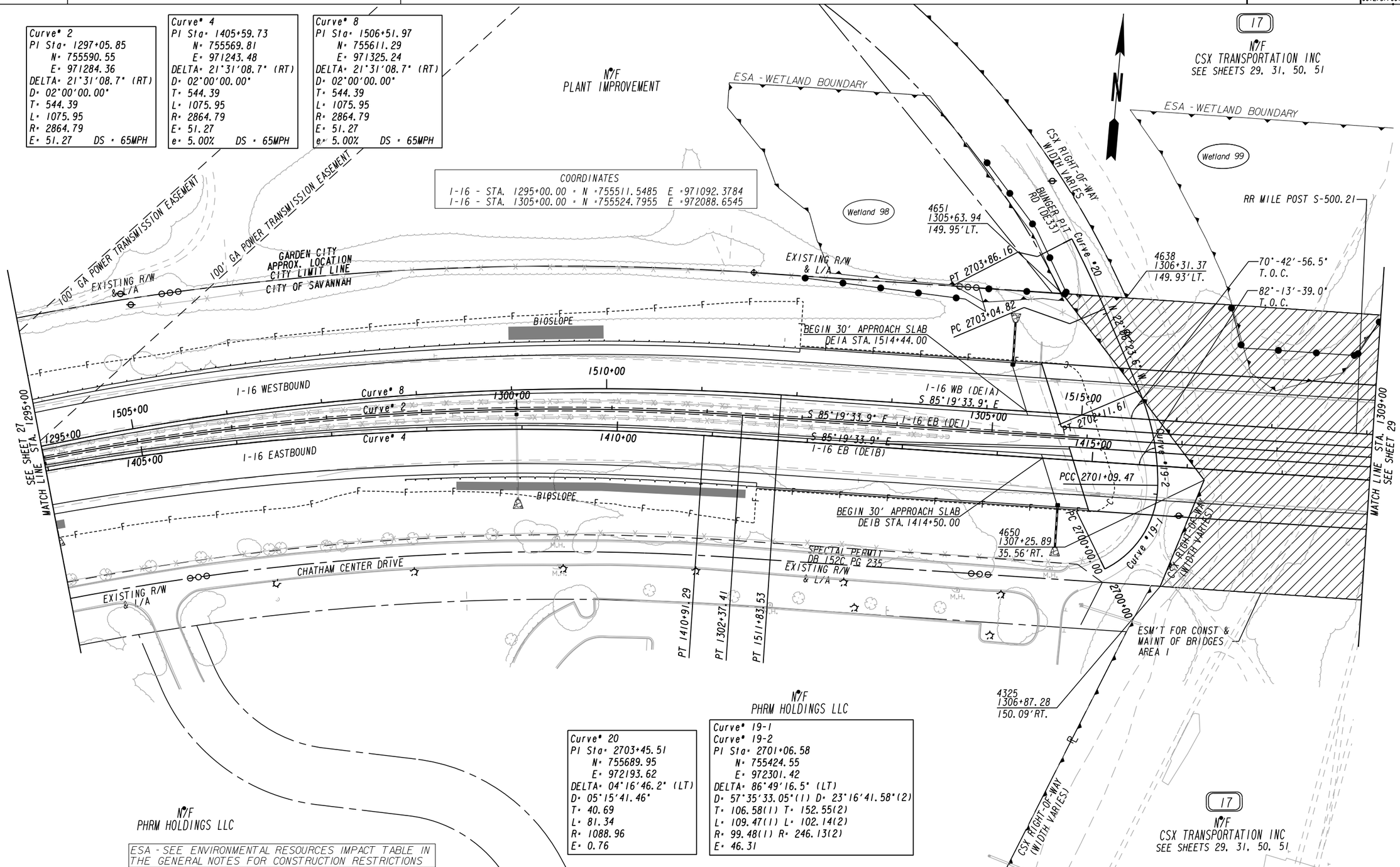
DATE	REVISIONS	DATE	REVISIONS

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

RIGHT OF WAY MAP
I-16 CORRIDOR IMPROVEMENTS

PROJECT NO: 0012757 & 0012758
COUNTY: CHATHAM
GMD: 7
DATE: 11/06/17 SH 27 OF 51

DRAWING No. 60-0027



PROPERTY AND EXISTING R/W LINE
REQUIRED R/W LINE
CONSTRUCTION LIMITS
EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES
EASEMENT FOR CONSTR OF SLOPES
EASEMENT FOR CONSTR OF DRIVES

BEGIN LIMIT OF ACCESS.....BLA
END LIMIT OF ACCESS.....ELA
LIMIT OF ACCESS
REQ'D R/W & LIMIT OF ACCESS

SCALE IN FEET
0 50 100 200

Michael Baker INTERNATIONAL
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NORCROSS, GEORGIA 30092
(770) 263-9118

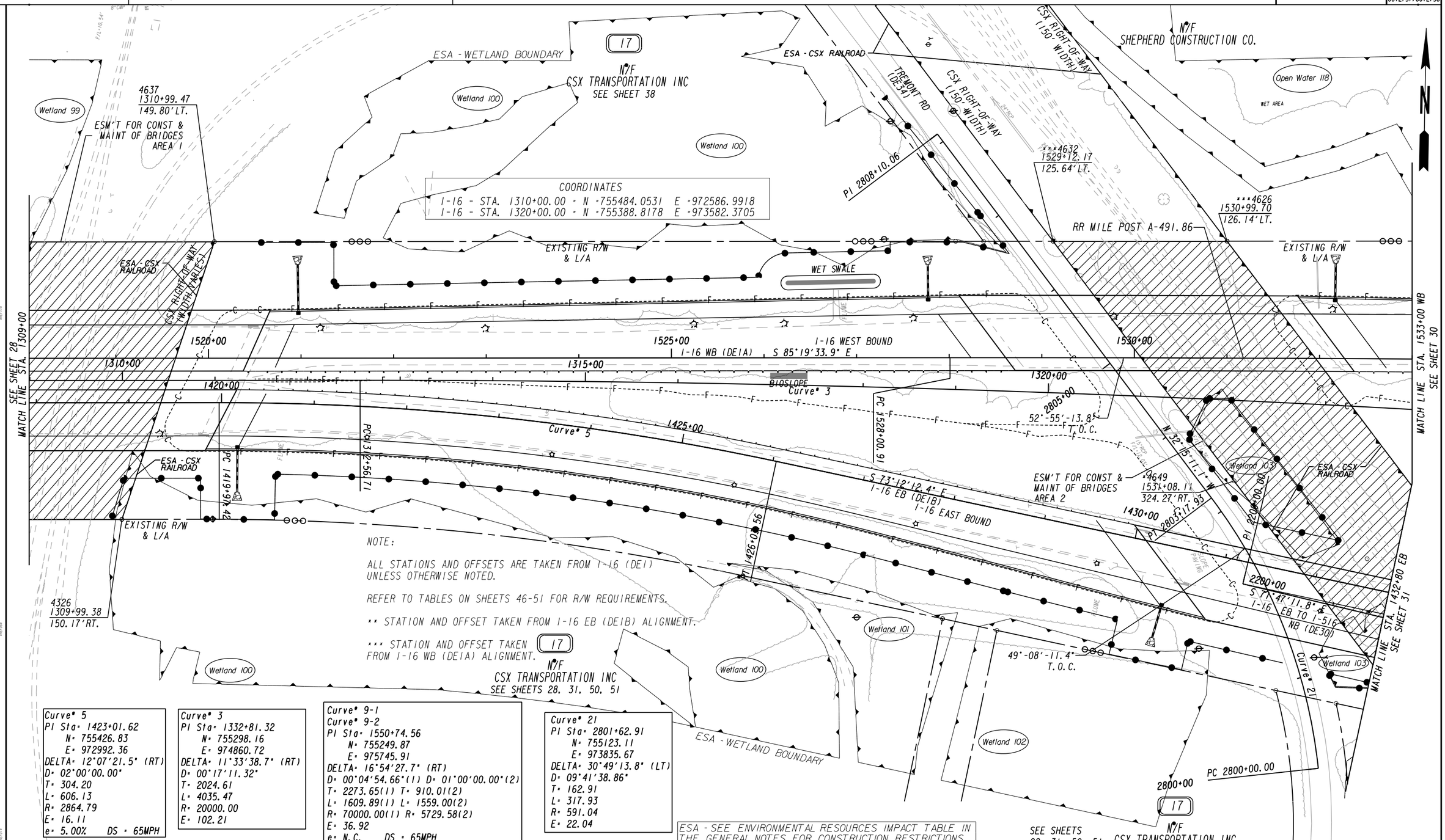
DATE	REVISIONS	DATE	REVISIONS

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

RIGHT OF WAY MAP
I-16 CORRIDOR IMPROVEMENTS

PROJECT NO: 0012757 & 0012758
COUNTY: CHATHAM
GMD: 7
DATE: 11/06/17 SH 28 OF 51

DRAWING No.
60-0028



NOTE:

ALL STATIONS AND OFFSETS ARE TAKEN FROM I-16 (DE1) UNLESS OTHERWISE NOTED.

REFER TO TABLES ON SHEETS 46-51 FOR R/W REQUIREMENTS.

** STATION AND OFFSET TAKEN FROM I-16 EB (DE1B) ALIGNMENT.

*** STATION AND OFFSET TAKEN FROM I-16 WB (DE1A) ALIGNMENT.

Curve# 5	Curve# 3	Curve# 9-1 / Curve# 9-2	Curve# 21
PI Sta= 1423+01.62	PI Sta= 1332+81.32	PI Sta= 1550+74.56	PI Sta= 2801+62.91
N= 755426.83	N= 755298.16	N= 755249.87	N= 755123.11
E= 972992.36	E= 974860.72	E= 975745.91	E= 973835.67
DELTA= 12°07'21.5" (RT)	DELTA= 11°33'38.7" (RT)	DELTA= 16°54'27.7" (RT)	DELTA= 30°49'13.8" (LT)
D= 02°00'00.00"	D= 00°17'11.32"	D= 00°04'54.66"(1) D= 01°00'00.00"(2)	D= 09°41'38.86"
T= 304.20	T= 2024.61	T= 2273.65(1) T= 910.01(2)	T= 162.91
L= 606.13	L= 4035.47	L= 1609.89(1) L= 1559.00(2)	L= 317.93
R= 2864.79	R= 20000.00	R= 70000.00(1) R= 5729.58(2)	R= 591.04
E= 16.11	E= 102.21	E= 36.92	E= 22.04
e= 5.00% DS = 65MPH		e= N.C. DS = 65MPH	

ESA - SEE ENVIRONMENTAL RESOURCES IMPACT TABLE IN THE GENERAL NOTES FOR CONSTRUCTION RESTRICTIONS

PROPERTY AND EXISTING R/W LINE
REQUIRED R/W LINE
CONSTRUCTION LIMITS
EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES
EASEMENT FOR CONSTR OF SLOPES
EASEMENT FOR CONSTR OF DRIVES

BEGIN LIMIT OF ACCESS.....BLA
END LIMIT OF ACCESS.....ELA
LIMIT OF ACCESS
REQ'D R/W & LIMIT OF ACCESS

SCALE IN FEET
0 50 100 200

Michael Baker INTERNATIONAL
420 TECHNOLOGY PARKWAY, STE. 150
NORCROSS, GEORGIA 30092
(770) 263-9118

DATE	REVISIONS	DATE	REVISIONS

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

RIGHT OF WAY MAP
I-16 CORRIDOR IMPROVEMENTS

PROJECT NO: 0012757 & 0012758
COUNTY: CHATHAM
GMD: 7
DATE: 11/06/17 SH 29 OF 51

DRAWING No.
60-0029

ESA - SEE ENVIRONMENTAL RESOURCES IMPACT TABLE IN THE GENERAL NOTES FOR CONSTRUCTION RESTRICTIONS

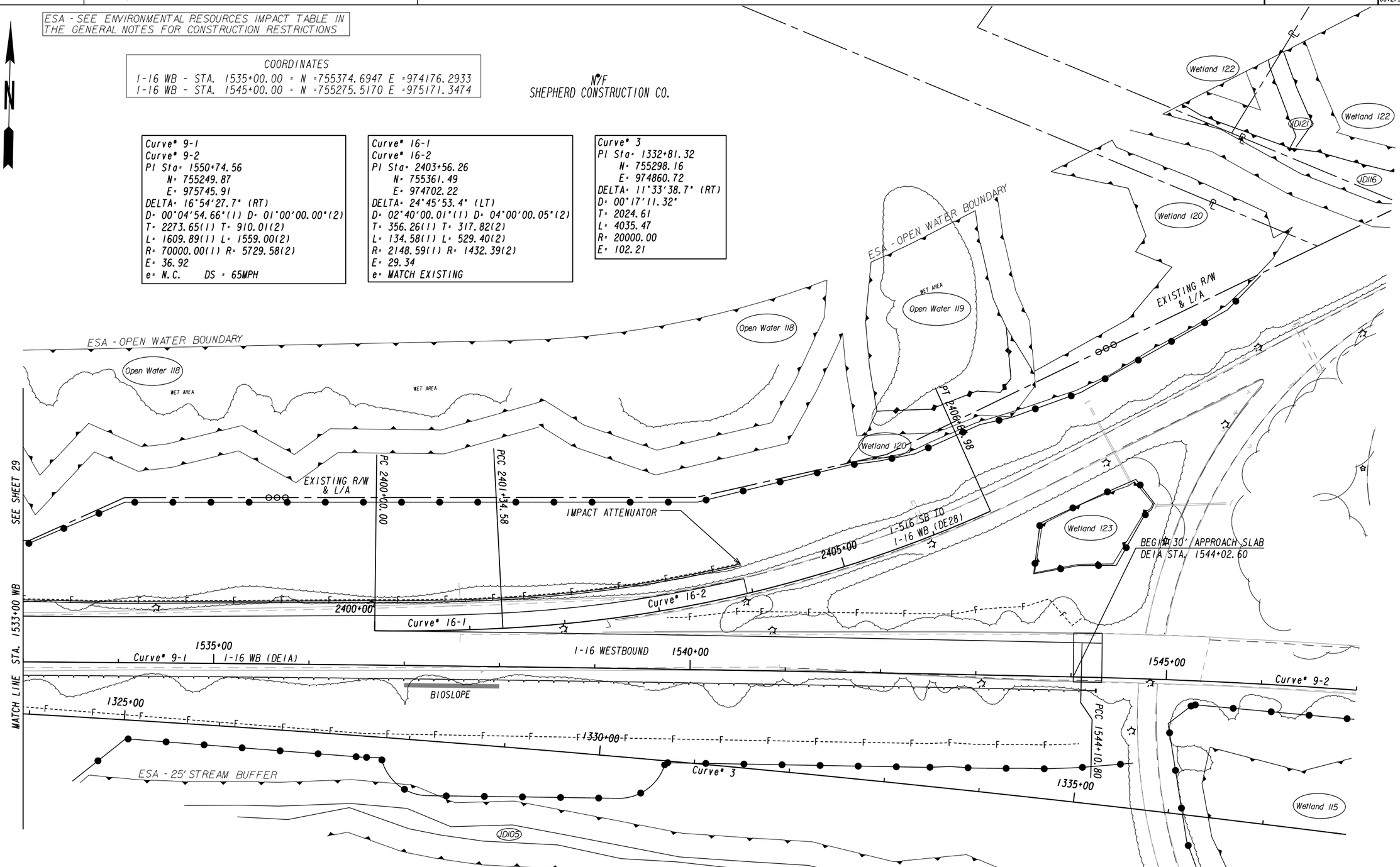
COORDINATES
I-16 WB - STA. 1535+00.00 = N =755374.6947 E =974176.2933
I-16 WB - STA. 1545+00.00 = N =755275.5170 E =975171.3474

N/F
SHEPHERD CONSTRUCTION CO.

Curve# 9-1
Curve# 9-2
PI Sta= 1550+74.56
N= 755249.87
E= 975745.91
DELTA= 16°54'27.7" (RT)
D= 00°04'54.66"(1) D= 01°00'00.00"(2)
T= 2273.65(1) T= 910.01(2)
L= 1609.89(1) L= 1559.00(2)
R= 70000.00(1) R= 5729.58(2)
E= 36.92
e= N.C. DS = 65MPH

Curve# 16-1
Curve# 16-2
PI Sta= 2403+56.26
N= 755361.49
E= 974702.22
DELTA= 24°45'53.4" (LT)
D= 02°40'00.01"(1) D= 04°00'00.05"(2)
T= 356.26(1) T= 317.82(2)
L= 134.58(1) L= 529.40(2)
R= 2148.59(1) R= 1432.39(2)
E= 29.34
e= MATCH EXISTING

Curve# 3
PI Sta= 1332+81.32
N= 755298.16
E= 974860.72
DELTA= 11°33'38.7" (RT)
D= 00°17'11.32"
T= 2024.61
L= 4035.47
R= 20000.00
E= 102.21



PROPERTY AND EXISTING R/W LINE
REQUIRED R/W LINE
CONSTRUCTION LIMITS
EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES
EASEMENT FOR CONSTR OF SLOPES
EASEMENT FOR CONSTR OF DRIVES

BEGIN LIMIT OF ACCESS.....BLA
END LIMIT OF ACCESS.....ELA
LIMIT OF ACCESS
REQ'D R/W & LIMIT OF ACCESS

SCALE IN FEET
0 50 100 200

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NORCROSS, GEORGIA 30092
(770) 263-9118

DATE	REVISIONS	DATE	REVISIONS

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

RIGHT OF WAY MAP
I-16 CORRIDOR IMPROVEMENTS

PROJECT NO: 0012757 & 0012758
COUNTY: CHATHAM
GMD: 7
DATE: 11/06/17 SH 30 OF 51

DRAWING No. 60-0030

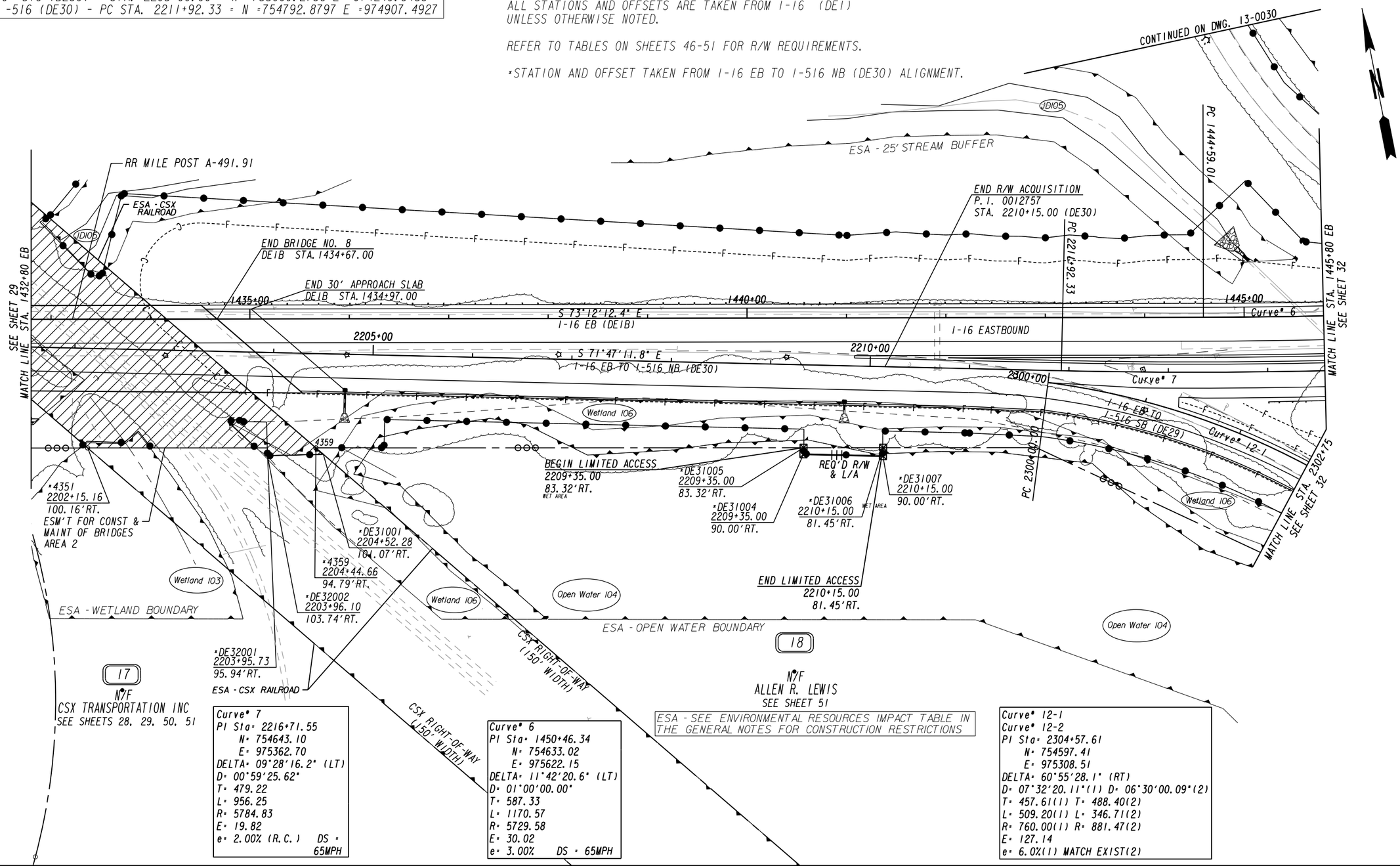
COORDINATES
I-16 EB TO -516 (DE30) - STA. 2205+00.00 = N =755009.2736 E =974249.8453
I-16 EB TO -516 (DE30) - PC STA. 2211+92.33 = N =754792.8797 E =974907.4927

NOTE:

ALL STATIONS AND OFFSETS ARE TAKEN FROM I-16 (DEI) UNLESS OTHERWISE NOTED.

REFER TO TABLES ON SHEETS 46-51 FOR R/W REQUIREMENTS.

*STATION AND OFFSET TAKEN FROM I-16 EB TO I-516 NB (DE30) ALIGNMENT.



Curve° 7
PI Sta= 2216+71.55
N= 754643.10
E= 975362.70
DELTA= 09°28'16.2" (LT)
D= 00°59'25.62"
T= 479.22
L= 956.25
R= 5784.83
E= 19.82
e= 2.00% (R.C.) DS = 65MPH

Curve° 6
PI Sta= 1450+46.34
N= 754633.02
E= 975622.15
DELTA= 11°42'20.6" (LT)
D= 01°00'00.00"
T= 587.33
L= 1170.57
R= 5729.58
E= 30.02
e= 3.00% DS = 65MPH

Curve° 12-1
Curve° 12-2
PI Sta= 2304+57.61
N= 754597.41
E= 975308.51
DELTA= 60°55'28.1" (RT)
D= 07°32'20.11"(1) D= 06°30'00.09"(2)
T= 457.61(1) T= 488.40(2)
L= 509.20(1) L= 346.71(2)
R= 760.00(1) R= 881.47(2)
E= 127.14
e= 6.0%(1) MATCH EXIST(2)

PROPERTY AND EXISTING R/W LINE
REQUIRED R/W LINE
CONSTRUCTION LIMITS
EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES
EASEMENT FOR CONSTR OF SLOPES
EASEMENT FOR CONSTR OF DRIVES

BEGIN LIMIT OF ACCESS.....BLA
END LIMIT OF ACCESS.....ELA
LIMIT OF ACCESS
REQ'D R/W & LIMIT OF ACCESS

SCALE IN FEET
0 50 100 200

Michael Baker INTERNATIONAL
420 TECHNOLOGY PARKWAY, STE. 150
NORCROSS, GEORGIA 30092
(770) 263-9118

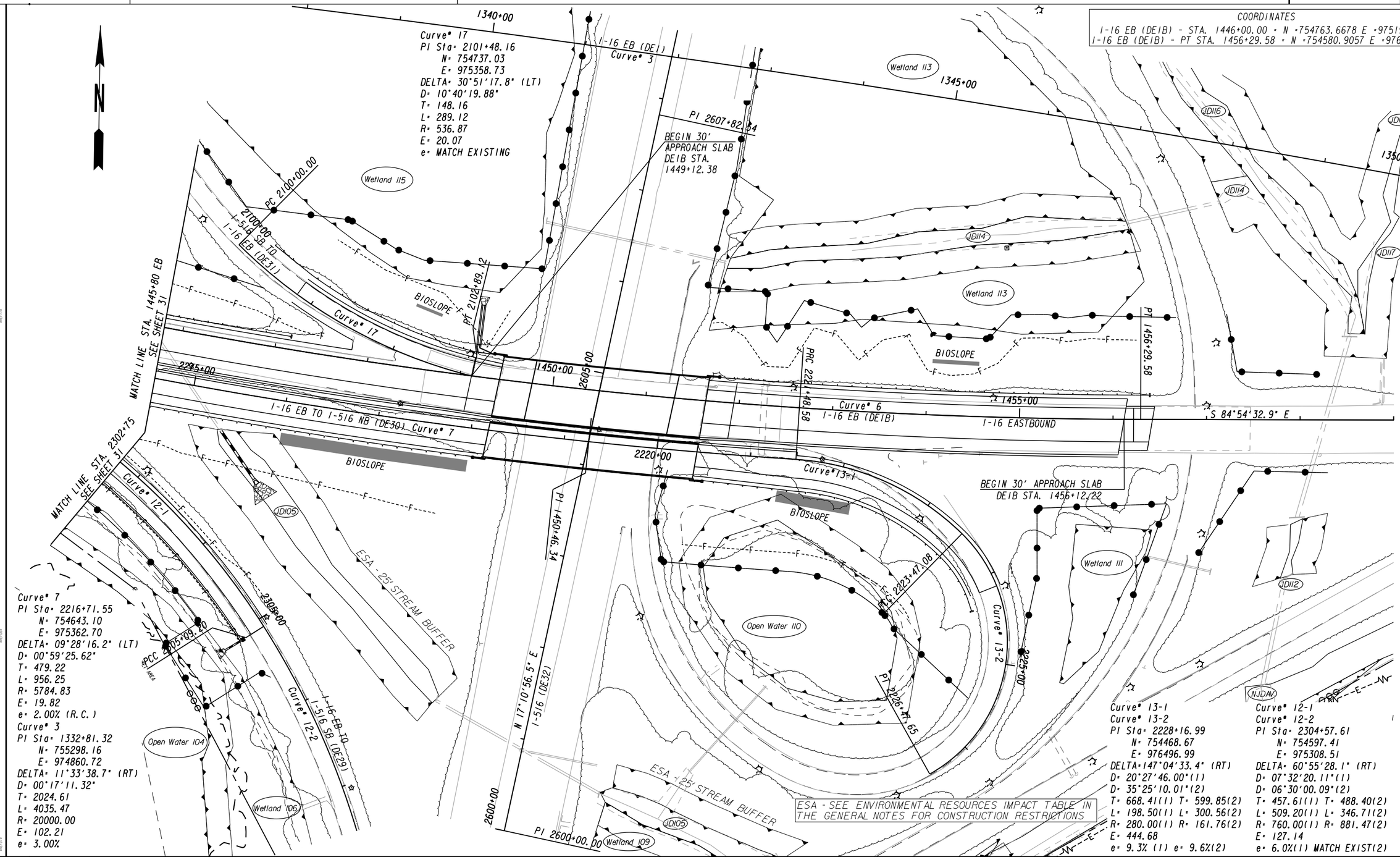
DATE	REVISIONS	DATE	REVISIONS

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

RIGHT OF WAY MAP
I-16 CORRIDOR IMPROVEMENTS

PROJECT NO: 0012757 & 0012758
COUNTY: CHATHAM
GMD: 7
DATE: 11/06/17 SH 31 OF 51

DRAWING No.
60-0031



PROPERTY AND EXISTING R/W LINE
REQUIRED R/W LINE
CONSTRUCTION LIMITS
EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES
EASEMENT FOR CONSTR OF SLOPES
EASEMENT FOR CONSTR OF DRIVES

BEGIN LIMIT OF ACCESS.....BLA
END LIMIT OF ACCESS.....ELA
LIMIT OF ACCESS
REQ'D R/W & LIMIT OF ACCESS

SCALE IN FEET
0 50 100 200

Michael Baker INTERNATIONAL
420 TECHNOLOGY PARKWAY, STE. 150
NORCROSS, GEORGIA 30092
(770) 263-9118

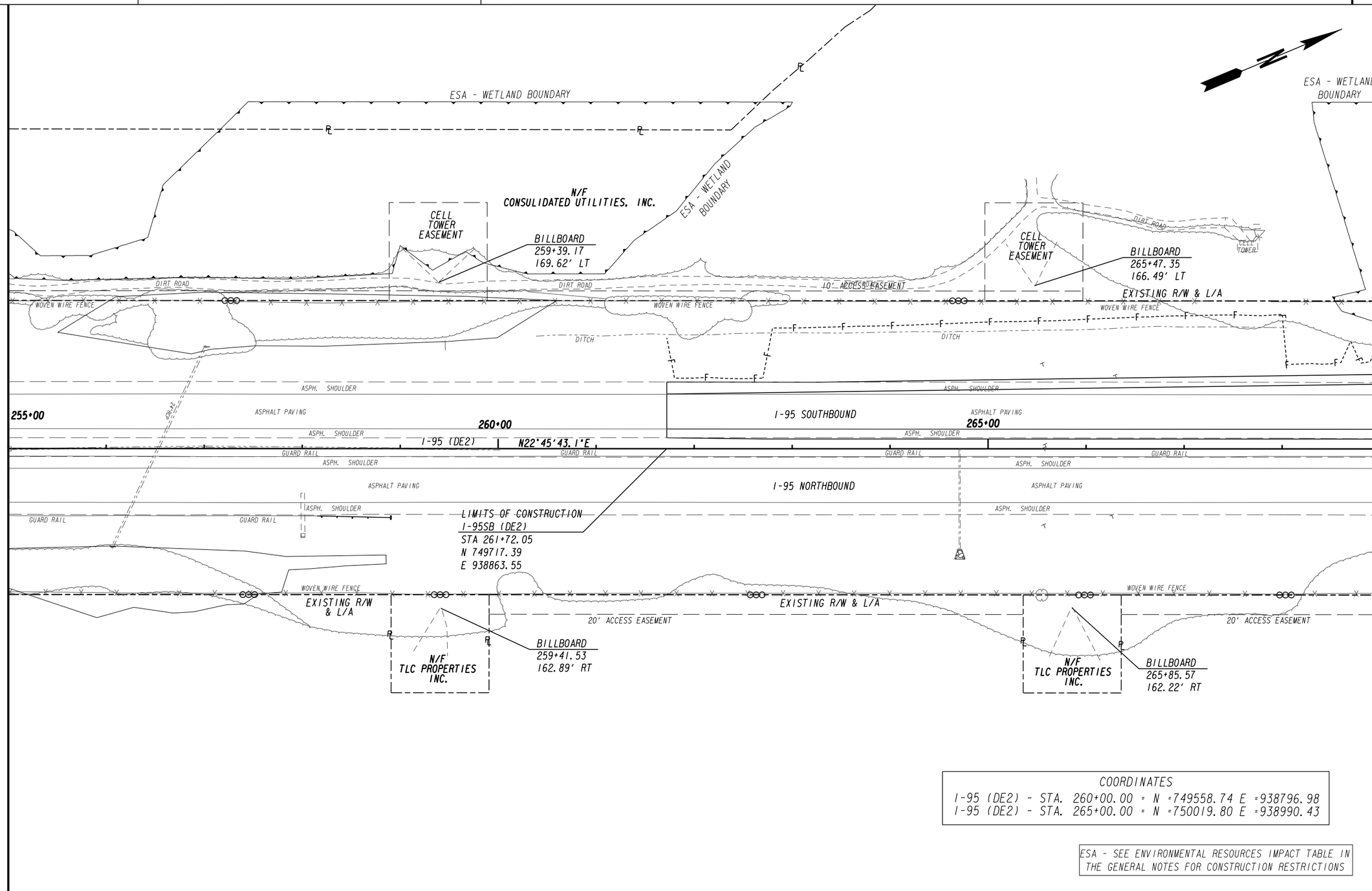
DATE	REVISIONS	DATE	REVISIONS

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

RIGHT OF WAY MAP
I-16 CORRIDOR IMPROVEMENTS

PROJECT NO: 0012757 & 0012758
COUNTY: CHATHAM
GMD: 7
DATE: 11/06/17 SH 32 OF 51

DRAWING No. 60-0032



COORDINATES
I-95 (DE2) - STA. 260+00.00 = N =749558.74 E =938796.98
I-95 (DE2) - STA. 265+00.00 = N =750019.80 E =938990.43

ESA - SEE ENVIRONMENTAL RESOURCES IMPACT TABLE IN THE GENERAL NOTES FOR CONSTRUCTION RESTRICTIONS

PROPERTY AND EXISTING R/W LINE
REQUIRED R/W LINE
CONSTRUCTION LIMITS
EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES
EASEMENT FOR CONSTR OF SLOPES
EASEMENT FOR CONSTR OF DRIVES

BEGIN LIMIT OF ACCESS.....BLA
END LIMIT OF ACCESS.....ELA
LIMIT OF ACCESS
REQ'D R/W & LIMIT OF ACCESS

SCALE IN FEET
0 50 100 200

ARCADIS Design & Consultancy for natural and built assets

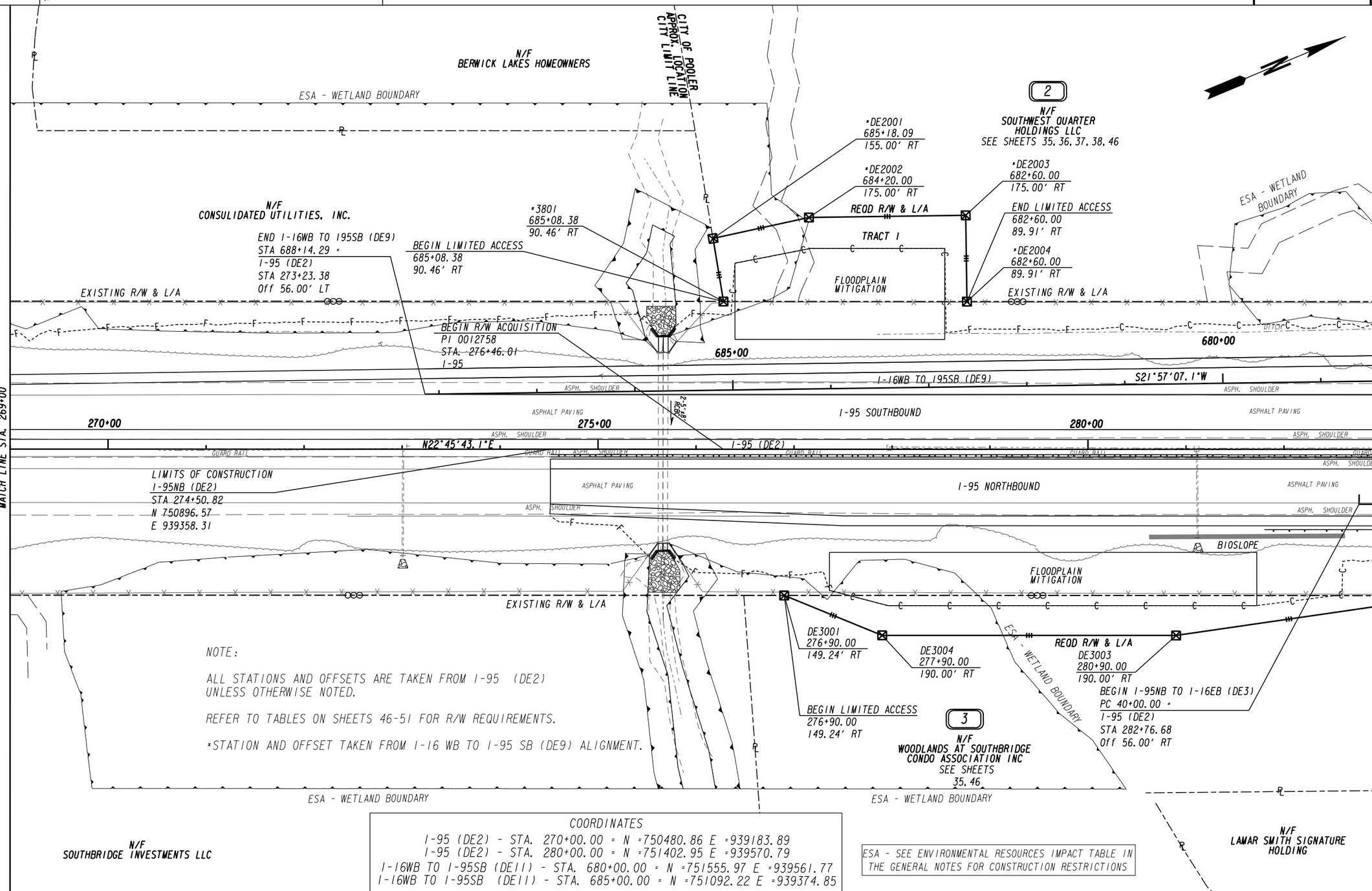
DATE	REVISIONS	DATE	REVISIONS

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

RIGHT OF WAY MAP
I-16 CORRIDOR IMPROVEMENTS

PROJECT NO: 0012757 & 0012758
COUNTY: CHATHAM
GMD: 7
DATE: 11/06/17 SH 33 OF 51

DRAWING No.
60-0033



NOTE:

ALL STATIONS AND OFFSETS ARE TAKEN FROM I-95 (DE2) UNLESS OTHERWISE NOTED.

REFER TO TABLES ON SHEETS 46-51 FOR R/W REQUIREMENTS.

*STATION AND OFFSET TAKEN FROM I-16 WB TO I-95 SB (DE9) ALIGNMENT.

COORDINATES

I-95 (DE2) - STA. 270+00.00 = N =750480.86 E =939183.89
I-95 (DE2) - STA. 280+00.00 = N =751402.95 E =939570.79
I-16WB TO I-95SB (DE11) - STA. 680+00.00 = N =751555.97 E =939561.77
I-16WB TO I-95SB (DE11) - STA. 685+00.00 = N =751092.22 E =939374.85

ESA - SEE ENVIRONMENTAL RESOURCES IMPACT TABLE IN THE GENERAL NOTES FOR CONSTRUCTION RESTRICTIONS

PROPERTY AND EXISTING R/W LINE
REQUIRED R/W LINE
CONSTRUCTION LIMITS
EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES
EASEMENT FOR CONSTR OF SLOPES
EASEMENT FOR CONSTR OF DRIVES

BEGIN LIMIT OF ACCESS.....BLA
END LIMIT OF ACCESS.....ELA
LIMIT OF ACCESS
REQ'D R/W & LIMIT OF ACCESS

SCALE IN FEET
0 50 100 200

ARCADIS Design & Consultancy for natural and built assets

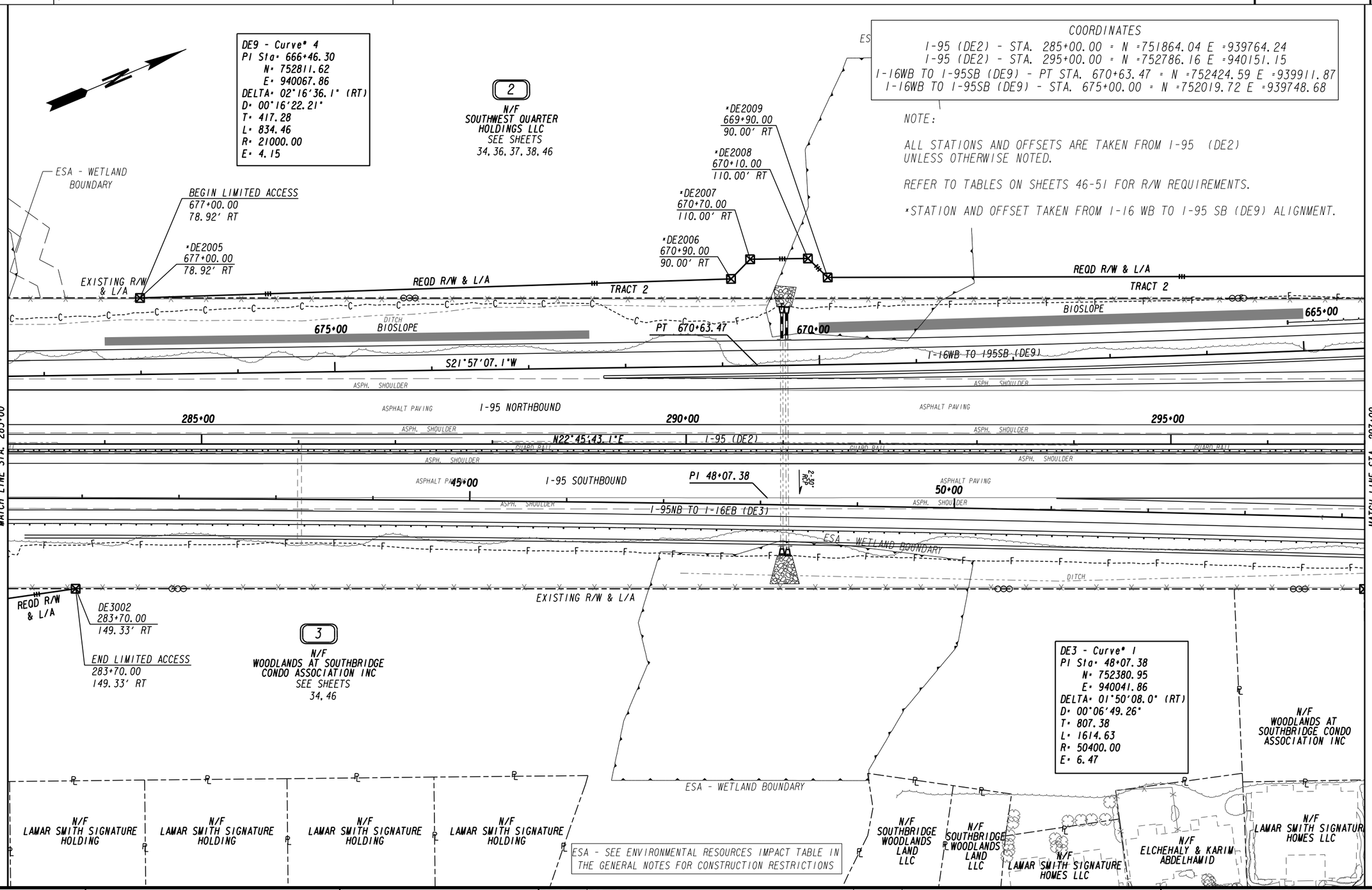
DATE	REVISIONS	DATE	REVISIONS

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

RIGHT OF WAY MAP
I-16 CORRIDOR IMPROVEMENTS

PROJECT NO: 0012757 & 0012758
COUNTY: CHATHAM
GMD: 7
DATE: 11/06/17 SH 34 OF 51

DRAWING No. 60-0034



PROPERTY AND EXISTING R/W LINE
REQUIRED R/W LINE
CONSTRUCTION LIMITS
EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES
EASEMENT FOR CONSTR OF SLOPES
EASEMENT FOR CONSTR OF DRIVES

BEGIN LIMIT OF ACCESS.....BLA
END LIMIT OF ACCESS.....ELA
LIMIT OF ACCESS
REQ'D R/W & LIMIT OF ACCESS

SCALE IN FEET
0 50 100 200

ARCADIS Design & Consultancy for natural and built assets

DATE	REVISIONS	DATE	REVISIONS

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

RIGHT OF WAY MAP
I-16 CORRIDOR IMPROVEMENTS

PROJECT NO: 0012757 & 0012758
COUNTY: CHATHAM
GMD: 7
DATE: 11/06/17 SH 35 OF 51

DRAWING No.
60-0035

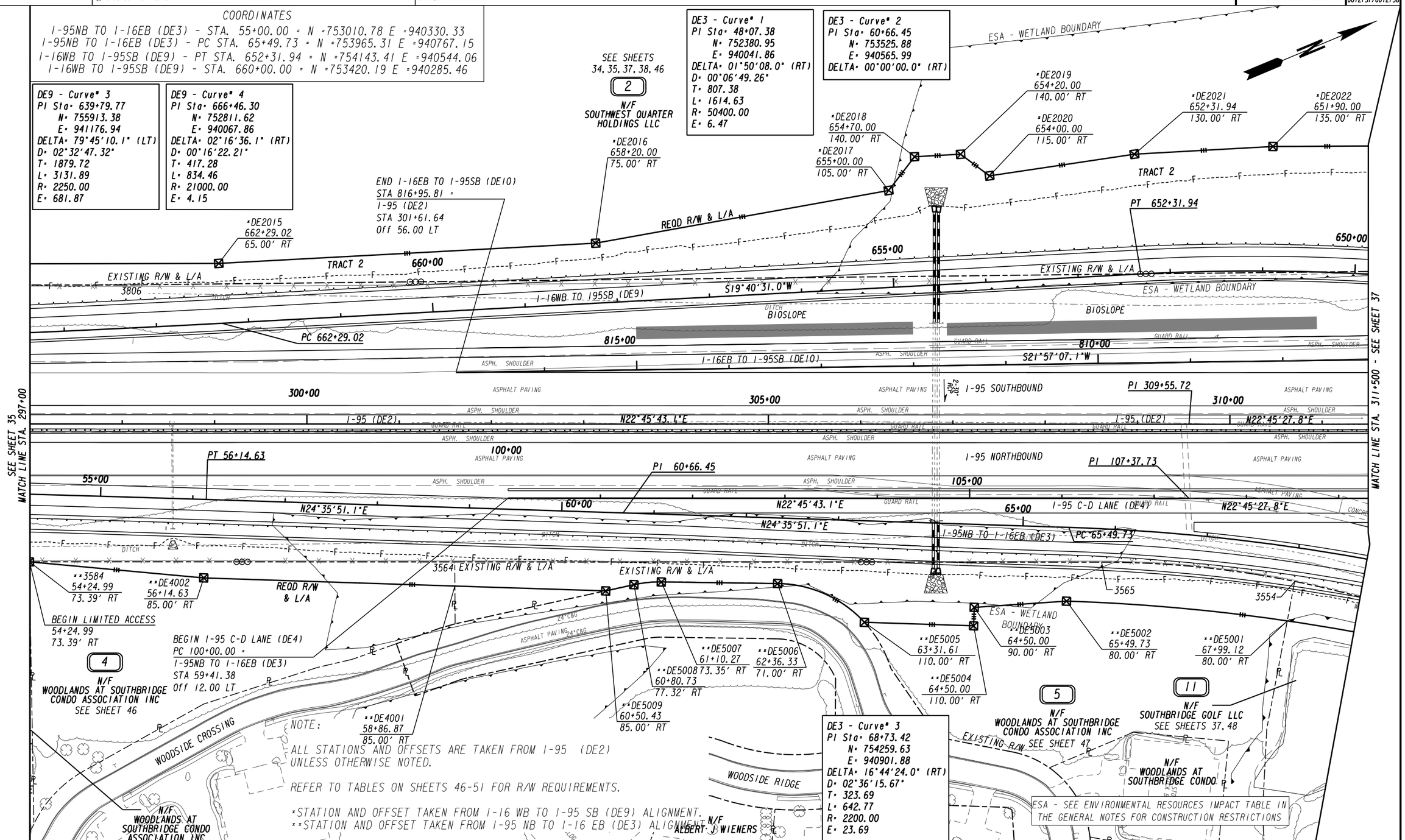
COORDINATES
I-95NB TO I-16EB (DE3) - STA. 55+00.00 = N =753010.78 E =940330.33
I-95NB TO I-16EB (DE3) - PC STA. 65+49.73 = N =753965.31 E =940767.15
I-16WB TO I-95SB (DE9) - PT STA. 652+31.94 = N =754143.41 E =940544.06
I-16WB TO I-95SB (DE9) - STA. 660+00.00 = N =753420.19 E =940285.46

DE9 - Curve# 3
PI Sta= 639+79.77
N= 755913.38
E= 941176.94
DELTA= 79°45'10.1" (LT)
D= 02°32'47.32"
T= 1879.72
L= 3131.89
R= 2250.00
E= 681.87

DE9 - Curve# 4
PI Sta= 666+46.30
N= 752811.62
E= 940067.86
DELTA= 02°16'36.1" (RT)
D= 00°16'22.21"
T= 417.28
L= 834.46
R= 21000.00
E= 4.15

DE3 - Curve# 1
PI Sta= 48+07.38
N= 752380.95
E= 940041.86
DELTA= 01°50'08.0" (RT)
D= 00°06'49.26"
T= 807.38
L= 1614.63
R= 50400.00
E= 6.47

DE3 - Curve# 2
PI Sta= 60+66.45
N= 753525.88
E= 940565.99
DELTA= 00°00'00.0" (RT)



DE3 - Curve# 3
PI Sta= 68+73.42
N= 754259.63
E= 940901.88
DELTA= 16°44'24.0" (RT)
D= 02°36'15.67"
T= 323.69
L= 642.77
R= 2200.00
E= 23.69

NOTE:
ALL STATIONS AND OFFSETS ARE TAKEN FROM I-95 (DE2) UNLESS OTHERWISE NOTED.

REFER TO TABLES ON SHEETS 46-51 FOR R/W REQUIREMENTS.

*STATION AND OFFSET TAKEN FROM I-16 WB TO I-95 SB (DE9) ALIGNMENT.
**STATION AND OFFSET TAKEN FROM I-95 NB TO I-16 EB (DE3) ALIGNMENT.

PROPERTY AND EXISTING R/W LINE
REQUIRED R/W LINE
CONSTRUCTION LIMITS
EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES
EASEMENT FOR CONSTR OF SLOPES
EASEMENT FOR CONSTR OF DRIVES

BEGIN LIMIT OF ACCESS.....BLA
END LIMIT OF ACCESS.....ELA
LIMIT OF ACCESS
REQ'D R/W & LIMIT OF ACCESS

SCALE IN FEET
0 50 100 200

ARCADIS Design & Consultancy for natural and built assets

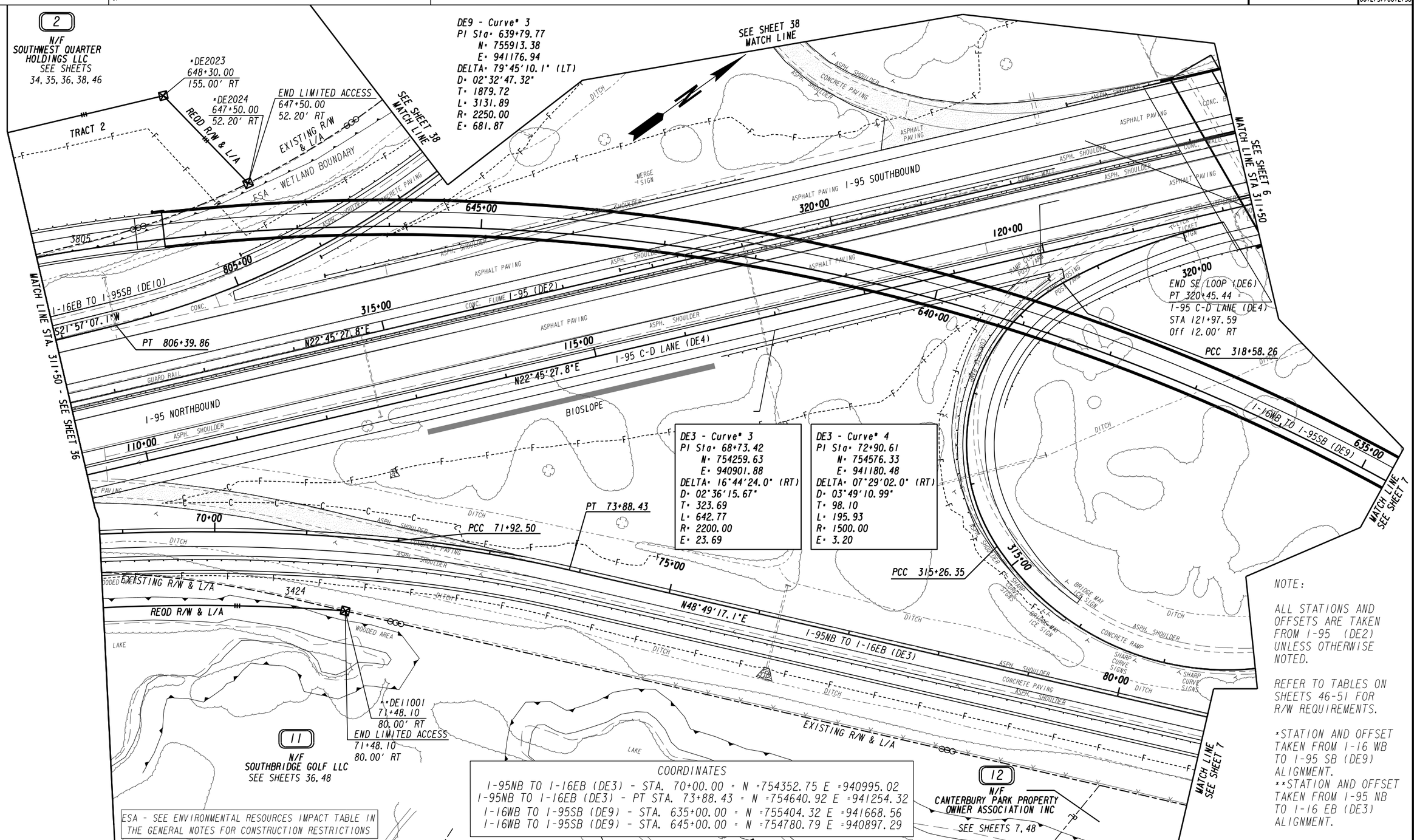
DATE	REVISIONS	DATE	REVISIONS

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

RIGHT OF WAY MAP
I-16 CORRIDOR IMPROVEMENTS

PROJECT NO: 0012757 & 0012758
COUNTY: CHATHAM
GMD: 7
DATE: 11/06/17 SH 36 OF 51

DRAWING No. 60-0036



COORDINATES

I-95NB TO I-16EB (DE3) - STA. 70+00.00 = N =754352.75 E =940995.02
I-95NB TO I-16EB (DE3) - PT STA. 73+88.43 = N =754640.92 E =941254.32
I-16WB TO I-95SB (DE9) - STA. 635+00.00 = N =755404.32 E =941668.56
I-16WB TO I-95SB (DE9) - STA. 645+00.00 = N =754780.79 E =940897.29

NOTE:

ALL STATIONS AND OFFSETS ARE TAKEN FROM I-95 (DE2) UNLESS OTHERWISE NOTED.

REFER TO TABLES ON SHEETS 46-51 FOR R/W REQUIREMENTS.

*STATION AND OFFSET TAKEN FROM I-16 WB TO I-95 SB (DE9) ALIGNMENT.
**STATION AND OFFSET TAKEN FROM I-95 NB TO I-16 EB (DE3) ALIGNMENT.

PROPERTY AND EXISTING R/W LINE
REQUIRED R/W LINE
CONSTRUCTION LIMITS
EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES
EASEMENT FOR CONSTR OF SLOPES
EASEMENT FOR CONSTR OF DRIVES

BEGIN LIMIT OF ACCESS.....BLA
END LIMIT OF ACCESS.....ELA
LIMIT OF ACCESS
REQ'D R/W & LIMIT OF ACCESS

SCALE IN FEET
0 50 100 200

ARCADIS Design & Consultancy for natural and built assets

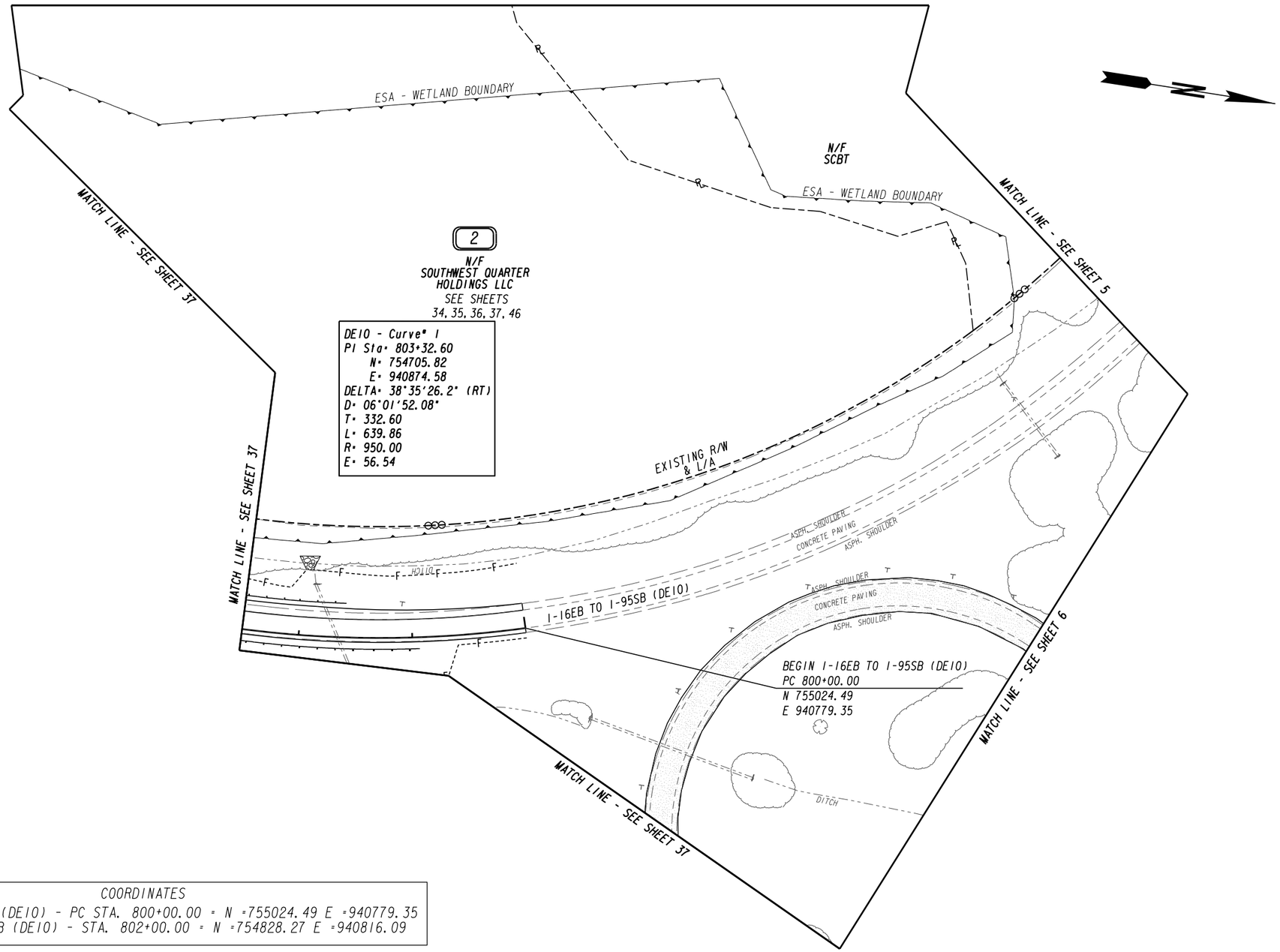
DATE	REVISIONS	DATE	REVISIONS

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

RIGHT OF WAY MAP
I-16 CORRIDOR IMPROVEMENTS

PROJECT NO: 0012757 & 0012758
COUNTY: CHATHAM
GMD: 7
DATE: 11/06/17 SH 37 OF 51

DRAWING No. 60-0037



COORDINATES
I-16EB TO I-95SB (DE10) - PC STA. 800+00.00 = N =755024.49 E =940779.35
I-16EB TO I-95SB (DE10) - STA. 802+00.00 = N =754828.27 E =940816.09

PROPERTY AND EXISTING R/W LINE
REQUIRED R/W LINE
CONSTRUCTION LIMITS
EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES
EASEMENT FOR CONSTR OF SLOPES
EASEMENT FOR CONSTR OF DRIVES

BEGIN LIMIT OF ACCESS.....BLA
END LIMIT OF ACCESS.....ELA
LIMIT OF ACCESS
REQ'D R/W & LIMIT OF ACCESS

SCALE IN FEET
0 50 100 200

ARCADIS Design & Consultancy for natural and built assets

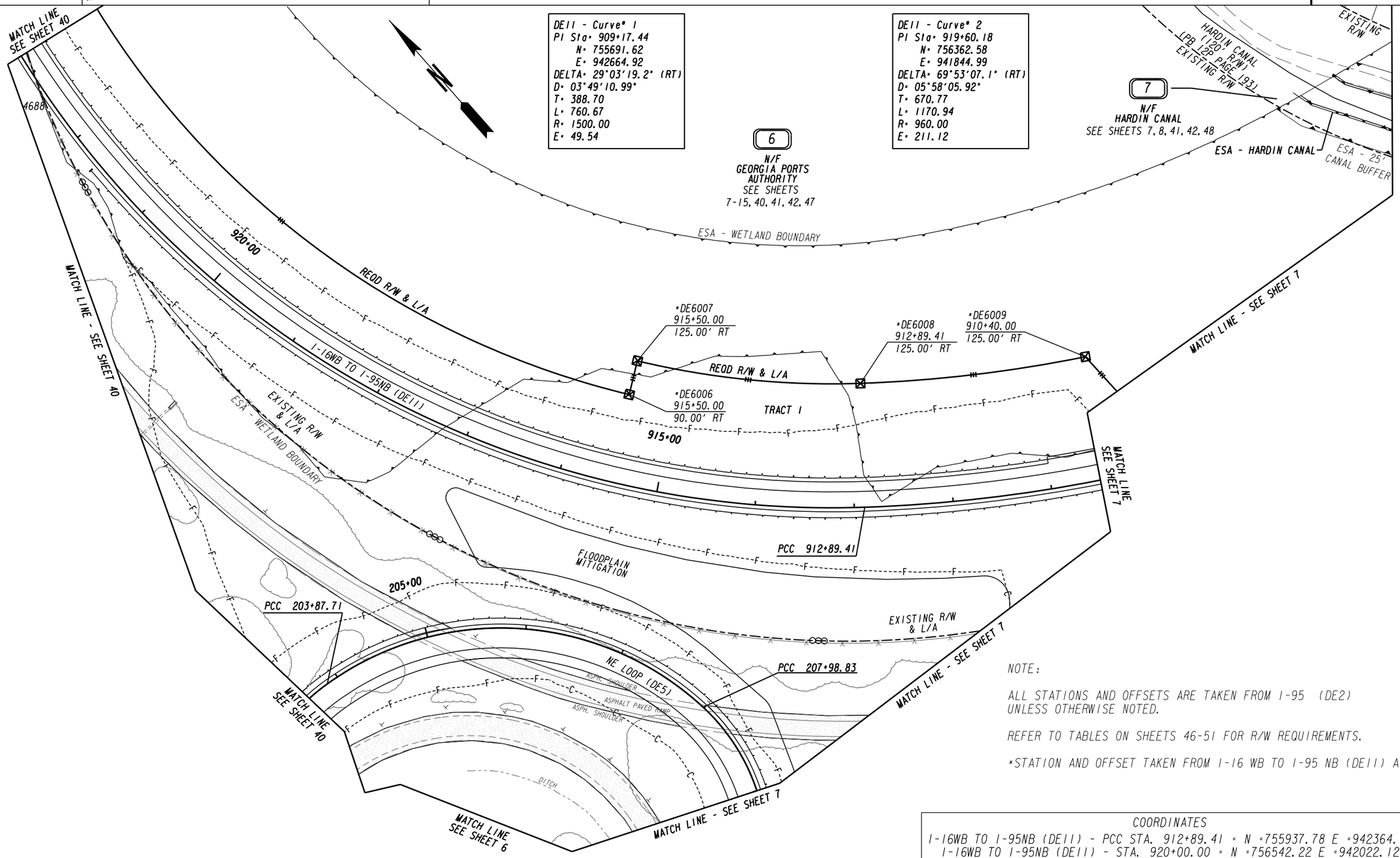
DATE	REVISIONS	DATE	REVISIONS

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

RIGHT OF WAY MAP
I-16 CORRIDOR IMPROVEMENTS

PROJECT NO: 0012757 & 0012758
COUNTY: CHATHAM
GMD: 7
DATE: 11/06/17 SH 38 OF 51

DRAWING No.
60-0038



NOTE:

ALL STATIONS AND OFFSETS ARE TAKEN FROM I-95 (DE2) UNLESS OTHERWISE NOTED.

REFER TO TABLES ON SHEETS 46-51 FOR R/W REQUIREMENTS.

*STATION AND OFFSET TAKEN FROM I-16 WB TO I-95 NB (DE11) ALIGNMENT.

COORDINATES
I-16WB TO I-95NB (DE11) - PCC STA. 912+89.41 = N =755937.78 E =942364.10
I-16WB TO I-95NB (DE11) - STA. 920+00.00 = N =756542.22 E =942022.12

PROPERTY AND EXISTING R/W LINE
REQUIRED R/W LINE
CONSTRUCTION LIMITS
EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES
EASEMENT FOR CONSTR OF SLOPES
EASEMENT FOR CONSTR OF DRIVES

BEGIN LIMIT OF ACCESS.....BLA
END LIMIT OF ACCESS.....ELA
LIMIT OF ACCESS
REQ'D R/W & LIMIT OF ACCESS

SCALE IN FEET
0 50 100 200

ARCADIS Design & Consultancy for natural and built assets

DATE	REVISIONS	DATE	REVISIONS

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

RIGHT OF WAY MAP
I-16 CORRIDOR IMPROVEMENTS

PROJECT NO: 0012757 & 0012758
COUNTY: CHATHAM
GMD: 7
DATE: 11/06/17 SH 39 OF 51

DRAWING No.
60-0039

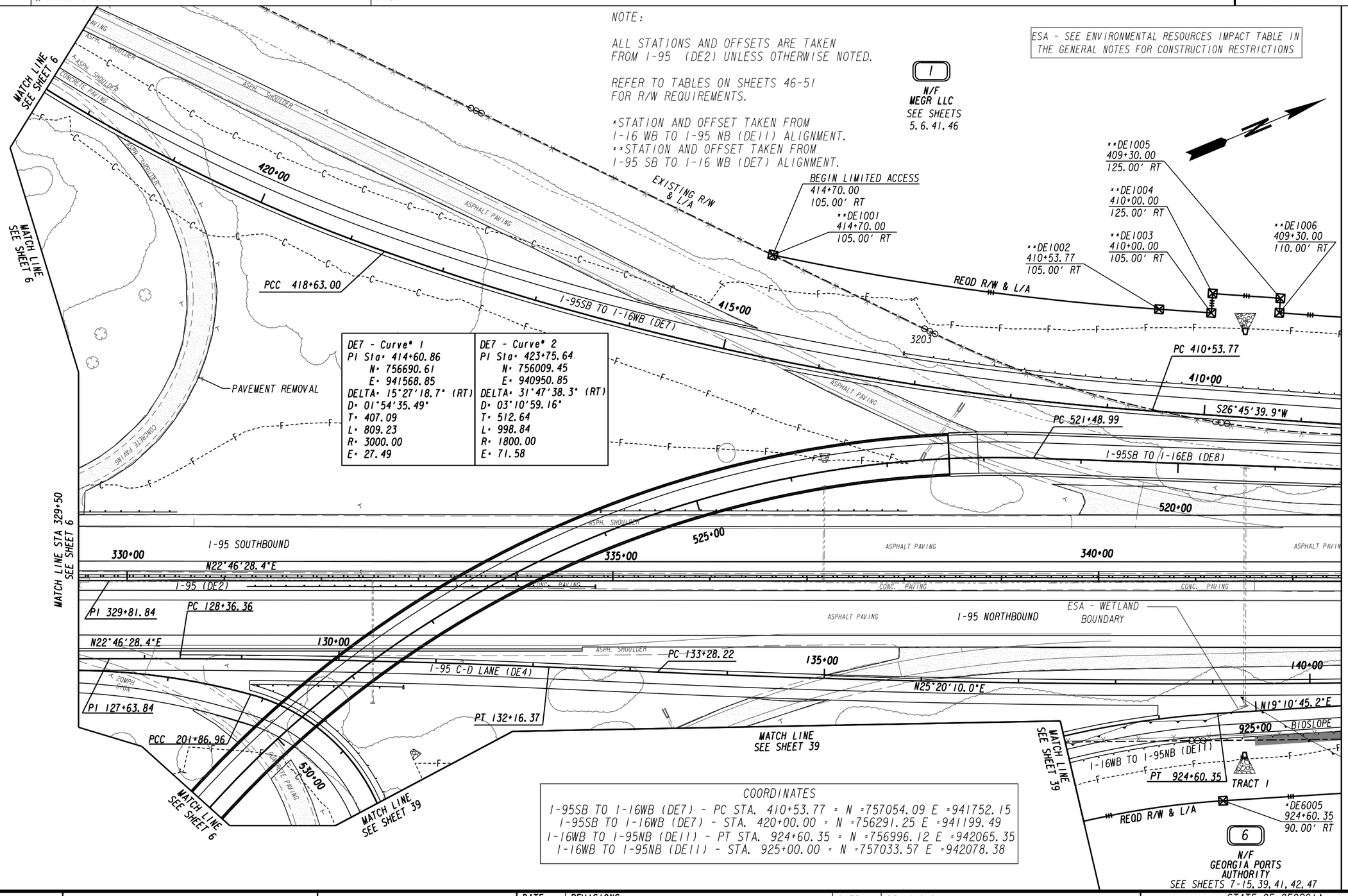
NOTE:

ALL STATIONS AND OFFSETS ARE TAKEN FROM I-95 (DE2) UNLESS OTHERWISE NOTED.

REFER TO TABLES ON SHEETS 46-51 FOR R/W REQUIREMENTS.

*STATION AND OFFSET TAKEN FROM I-16 WB TO I-95 NB (DE11) ALIGNMENT.
**STATION AND OFFSET TAKEN FROM I-95 SB TO I-16 WB (DE7) ALIGNMENT.

ESA - SEE ENVIRONMENTAL RESOURCES IMPACT TABLE IN THE GENERAL NOTES FOR CONSTRUCTION RESTRICTIONS



DE7 - Curve# 1	DE7 - Curve# 2
PI Sta= 414+60.86	PI Sta= 423+75.64
N= 756690.61	N= 756009.45
E= 941568.85	E= 940950.85
DELTA= 15°27'18.7" (RT)	DELTA= 31°47'38.3" (RT)
D= 01°54'35.49"	D= 03°10'59.16"
T= 407.09	T= 512.64
L= 809.23	L= 998.84
R= 3000.00	R= 1800.00
E= 27.49	E= 71.58

COORDINATES

I-95SB TO I-16WB (DE7) - PC STA. 410+53.77 = N =757054.09 E =941752.15
I-95SB TO I-16WB (DE7) - STA. 420+00.00 = N =756291.25 E =941199.49
I-16WB TO I-95NB (DE11) - PT STA. 924+60.35 = N =756996.12 E =942065.35
I-16WB TO I-95NB (DE11) - STA. 925+00.00 = N =757033.57 E =942078.38

PROPERTY AND EXISTING R/W LINE
REQUIRED R/W LINE
CONSTRUCTION LIMITS
EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES
EASEMENT FOR CONSTR OF SLOPES
EASEMENT FOR CONSTR OF DRIVES

BEGIN LIMIT OF ACCESS.....BLA
END LIMIT OF ACCESS.....ELA
LIMIT OF ACCESS
REQ'D R/W & LIMIT OF ACCESS

SCALE IN FEET
0 50 100 200

ARCADIS Design & Consultancy for natural and built assets

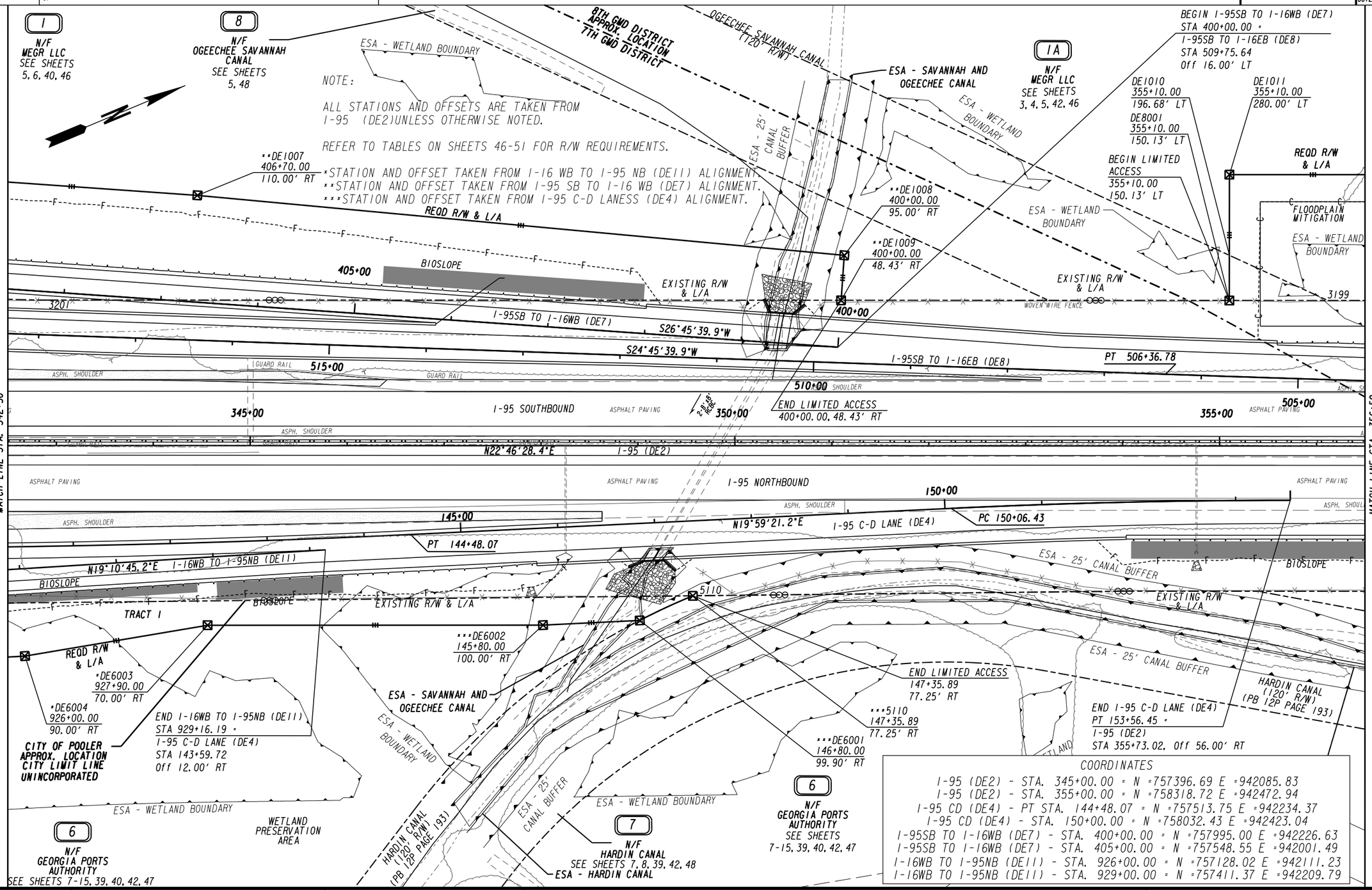
DATE	REVISIONS	DATE	REVISIONS

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

RIGHT OF WAY MAP
I-16 CORRIDOR IMPROVEMENTS

PROJECT NO: 0012757 & 0012758
COUNTY: CHATHAM
GMD: 7
DATE: 11/06/17 SH 40 OF 51

DRAWING No. 60-0040



COORDINATES

I-95 (DE2) - STA. 345+00.00 =	N =757396.69 E =942085.83
I-95 (DE2) - STA. 355+00.00 =	N =758318.72 E =942472.94
I-95 CD (DE4) - PT STA. 144+48.07 =	N =757513.75 E =942234.37
I-95 CD (DE4) - STA. 150+00.00 =	N =758032.43 E =942423.04
I-95SB TO I-16WB (DE7) - STA. 400+00.00 =	N =757995.00 E =942226.63
I-95SB TO I-16WB (DE7) - STA. 405+00.00 =	N =757548.55 E =942001.49
I-16WB TO I-95NB (DE11) - STA. 926+00.00 =	N =757128.02 E =942111.23
I-16WB TO I-95NB (DE11) - STA. 929+00.00 =	N =757411.37 E =942209.79

PROPERTY AND EXISTING R/W LINE
REQUIRED R/W LINE
CONSTRUCTION LIMITS
EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES
EASEMENT FOR CONSTR OF SLOPES
EASEMENT FOR CONSTR OF DRIVES

BEGIN LIMIT OF ACCESS.....BLA
END LIMIT OF ACCESS.....ELA
LIMIT OF ACCESS
REQ'D R/W & LIMIT OF ACCESS

SCALE IN FEET
0 50 100 200

ARCADIS Design & Consultancy for natural and built assets

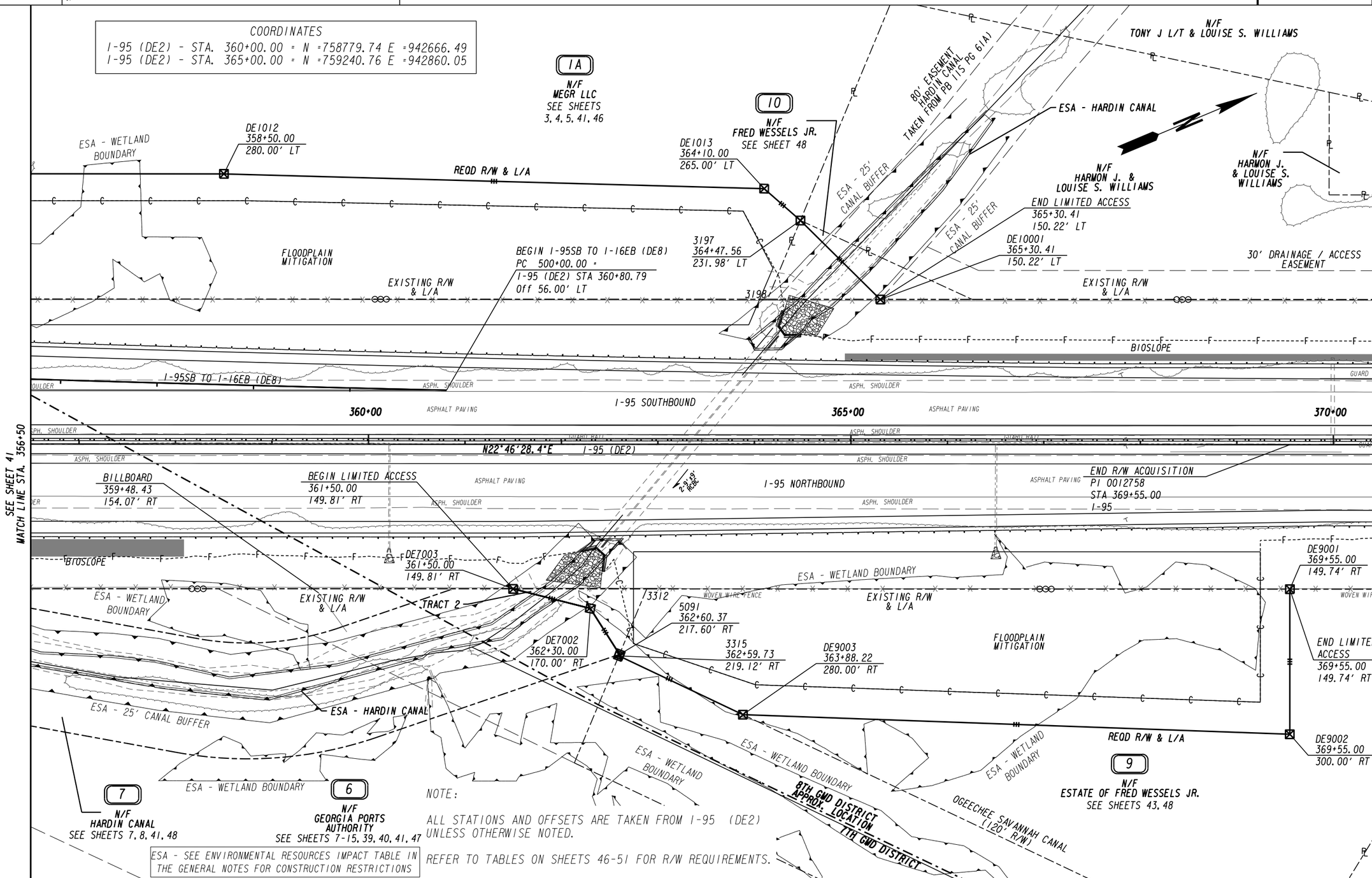
DATE	REVISIONS	DATE	REVISIONS

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

RIGHT OF WAY MAP
I-16 CORRIDOR IMPROVEMENTS

PROJECT NO: 0012757 & 0012758
COUNTY: CHATHAM
GMD: 7,8
DATE: 11/06/17 SH 41 OF 51

DRAWING No.
60-0041



NOTE:

ALL STATIONS AND OFFSETS ARE TAKEN FROM I-95 (DE2) UNLESS OTHERWISE NOTED.

ESA - SEE ENVIRONMENTAL RESOURCES IMPACT TABLE IN THE GENERAL NOTES FOR CONSTRUCTION RESTRICTIONS

REFER TO TABLES ON SHEETS 46-51 FOR R/W REQUIREMENTS.

PROPERTY AND EXISTING R/W LINE
REQUIRED R/W LINE
CONSTRUCTION LIMITS
EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES
EASEMENT FOR CONSTR OF SLOPES
EASEMENT FOR CONSTR OF DRIVES

BEGIN LIMIT OF ACCESS.....BLA
END LIMIT OF ACCESS.....ELA
LIMIT OF ACCESS
REQ'D R/W & LIMIT OF ACCESS

SCALE IN FEET
0 50 100 200

ARCADIS Design & Consultancy for natural and built assets

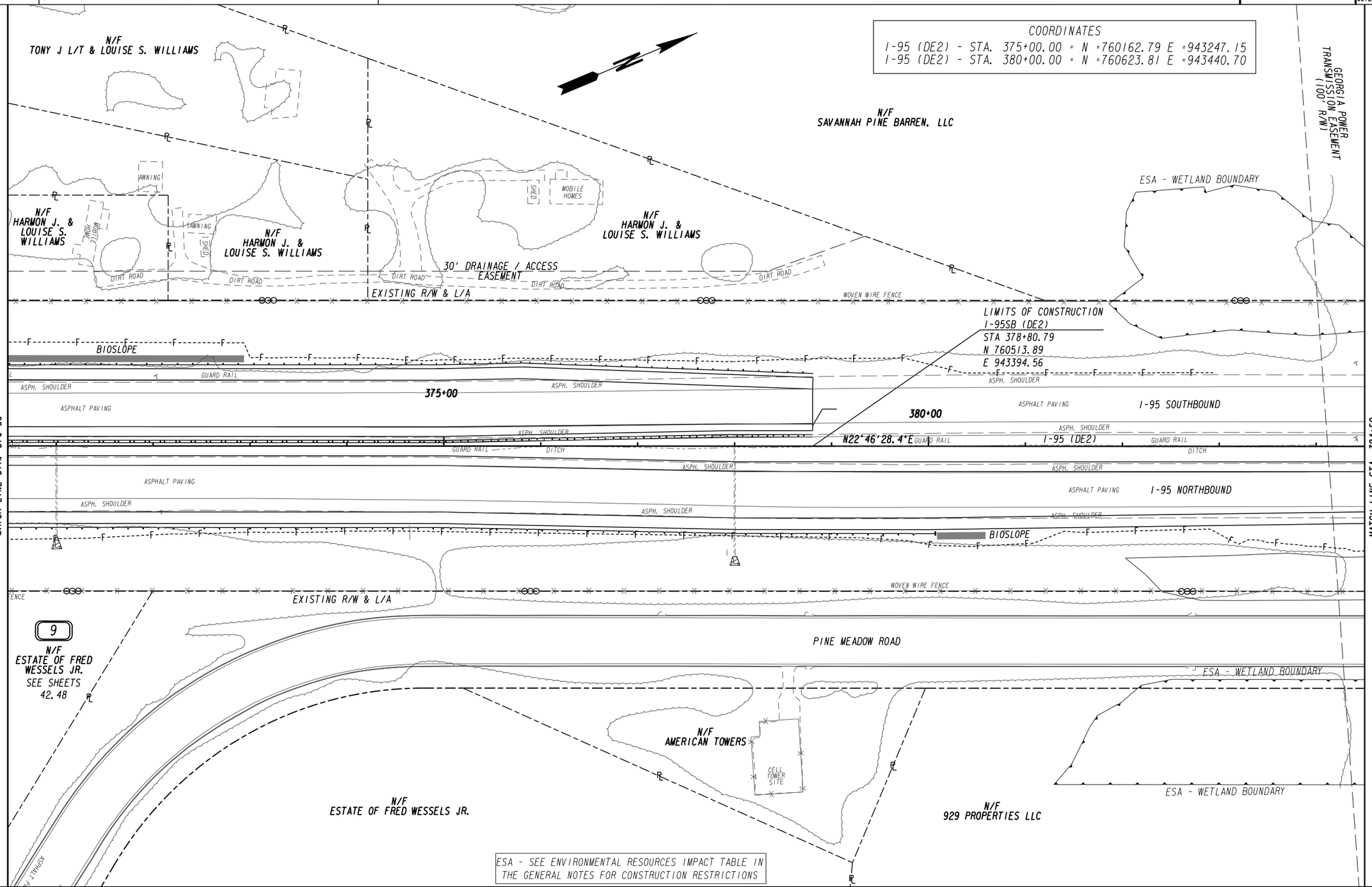
DATE	REVISIONS	DATE	REVISIONS

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

RIGHT OF WAY MAP
I-16 CORRIDOR IMPROVEMENTS

PROJECT NO: 0012757 & 0012758
COUNTY: CHATHAM
GMD: 7, 8
DATE: 11/06/17 SH 42 OF 51

DRAWING No.
60-0042



ESA - SEE ENVIRONMENTAL RESOURCES IMPACT TABLE IN THE GENERAL NOTES FOR CONSTRUCTION RESTRICTIONS

PROPERTY AND EXISTING R/W LINE
REQUIRED R/W LINE
CONSTRUCTION LIMITS
EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES
EASEMENT FOR CONSTR OF SLOPES
EASEMENT FOR CONSTR OF DRIVES

BEGIN LIMIT OF ACCESS.....BLA
END LIMIT OF ACCESS.....ELA
LIMIT OF ACCESS
REQ'D R/W & LIMIT OF ACCESS

SCALE IN FEET
0 50 100 200

ARCADIS Design & Consultancy for natural and built assets

DATE	REVISIONS	DATE	REVISIONS

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

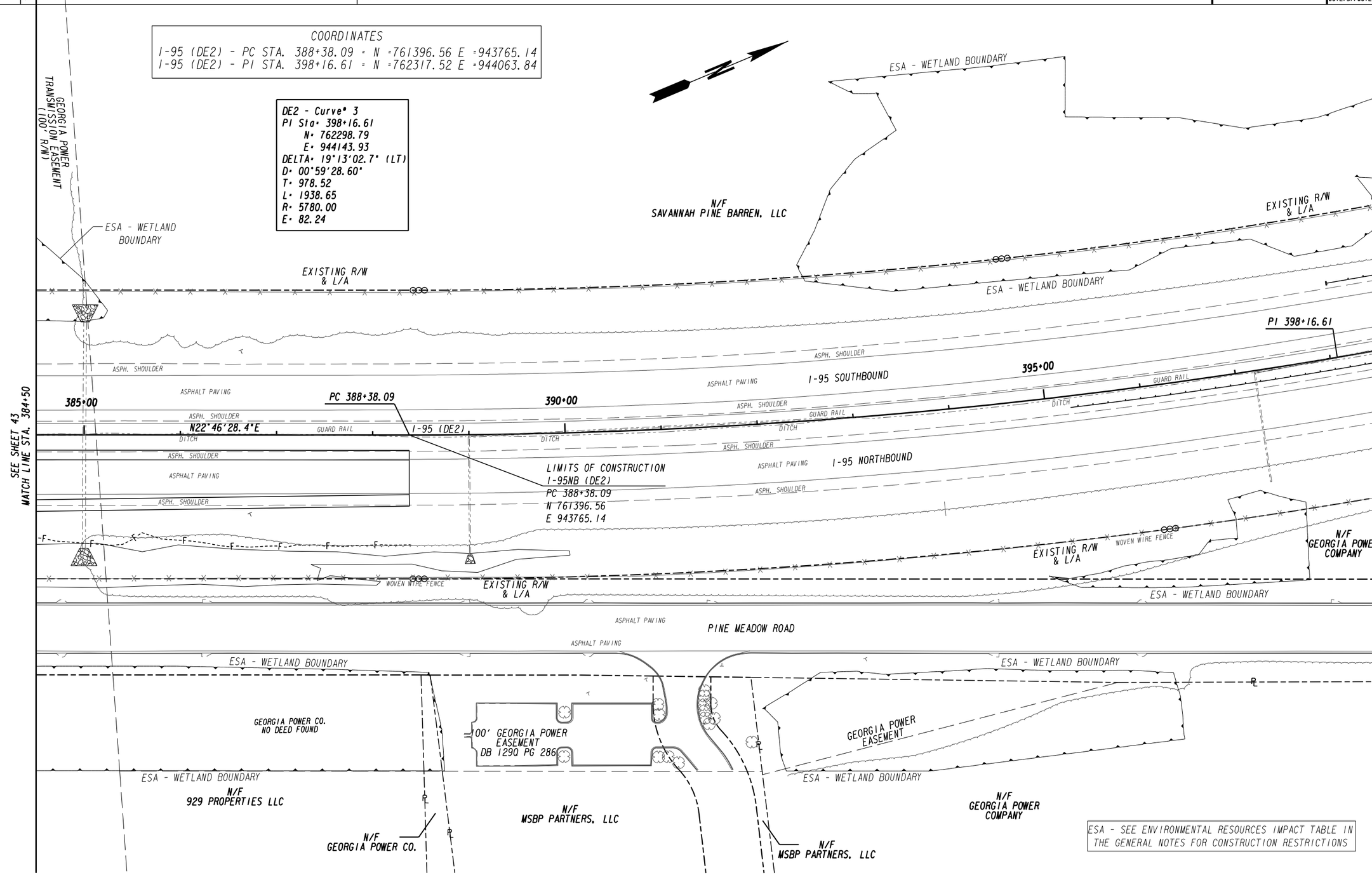
RIGHT OF WAY MAP
I-16 CORRIDOR IMPROVEMENTS

PROJECT NO: 0012757 & 0012758
COUNTY: CHATHAM
GMD: 8
DATE: 11/06/17 SH 43 OF 51

DRAWING No.
60-0043

COORDINATES
I-95 (DE2) - PC STA. 388+38.09 = N =761396.56 E =943765.14
I-95 (DE2) - PI STA. 398+16.61 = N =762317.52 E =944063.84

DE2 - Curve# 3
PI Sta= 398+16.61
N= 762298.79
E= 944143.93
DELTA= 19°13'02.7" (LT)
D= 00°59'28.60"
T= 978.52
L= 1938.65
R= 5780.00
E= 82.24



ESA - SEE ENVIRONMENTAL RESOURCES IMPACT TABLE IN THE GENERAL NOTES FOR CONSTRUCTION RESTRICTIONS

PROPERTY AND EXISTING R/W LINE
REQUIRED R/W LINE
CONSTRUCTION LIMITS
EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES
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EASEMENT FOR CONSTR OF DRIVES

BEGIN LIMIT OF ACCESS.....BLA
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LIMIT OF ACCESS
REQ'D R/W & LIMIT OF ACCESS

SCALE IN FEET
0 50 100 200

ARCADIS Design & Consultancy for natural and built assets

DATE	REVISIONS	DATE	REVISIONS

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

RIGHT OF WAY MAP
I-16 CORRIDOR IMPROVEMENTS

PROJECT NO: 0012757 & 0012758
COUNTY: CHATHAM
GMD: 8
DATE: 11/06/17 SH 44 OF 51

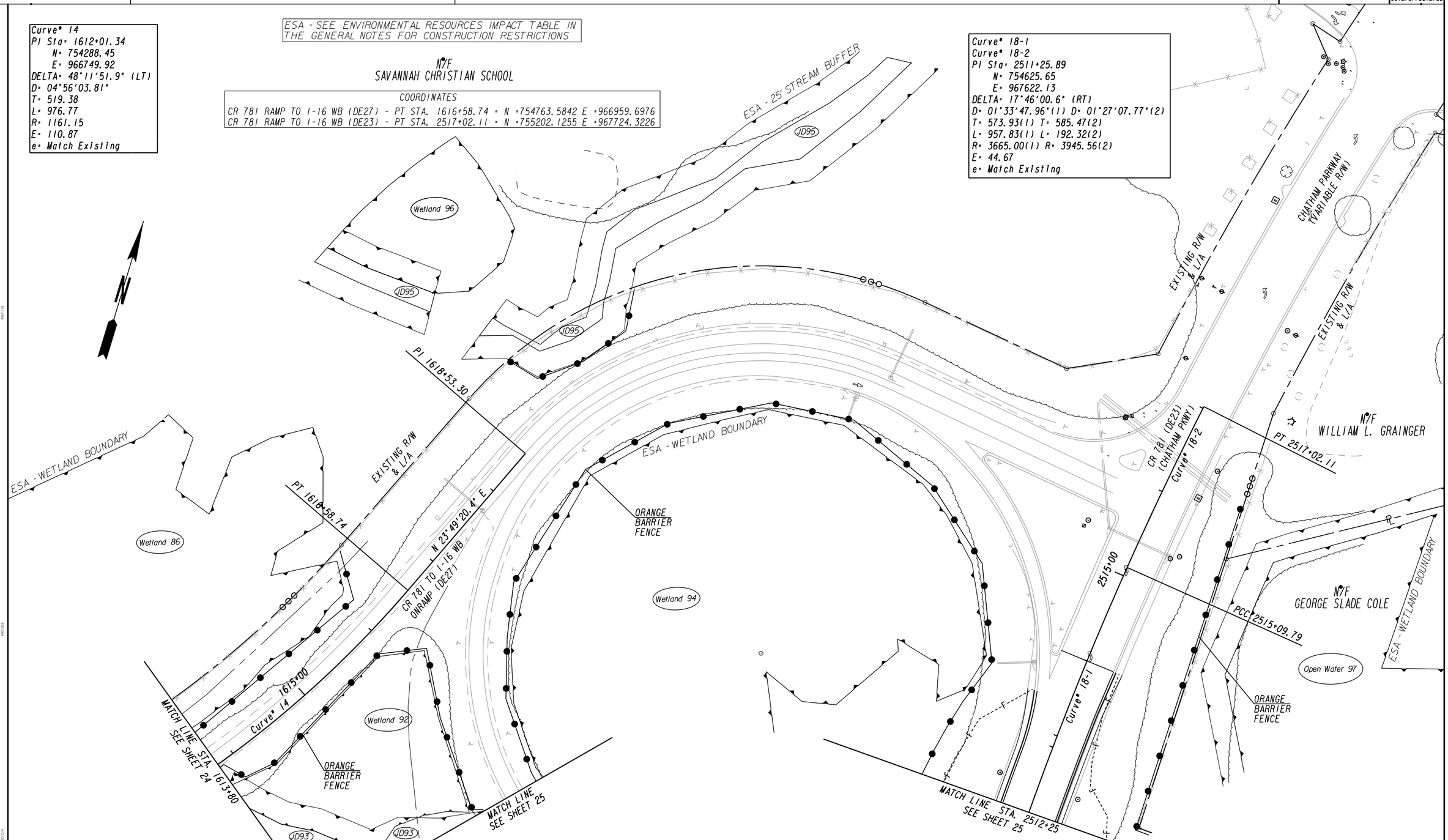
DRAWING No.
60-0044

Curve# 14
PI Sta= 1612+01.34
N= 754288.45
E= 966749.92
DELTA= 48°11'51.9" (LT)
D= 04°56'03.81"
T= 519.38
L= 976.77
R= 1161.15
E= 110.87
e= Match Existing

ESA - SEE ENVIRONMENTAL RESOURCES IMPACT TABLE IN THE GENERAL NOTES FOR CONSTRUCTION RESTRICTIONS

COORDINATES
CR 781 RAMP TO I-16 WB (DE27) - PT STA. 1616+58.74 = N =754763.5842 E =966959.6976
CR 781 RAMP TO I-16 WB (DE23) - PT STA. 2517+02.11 = N =755202.1255 E =967724.3226

Curve# 18-1
Curve# 18-2
PI Sta= 2511+25.89
N= 754625.65
E= 967622.13
DELTA= 17°46'00.6" (RT)
D= 01°33'47.96"(1) D= 01°27'07.77"(2)
T= 573.93(1) T= 585.47(2)
L= 957.83(1) L= 192.32(2)
R= 3665.00(1) R= 3945.56(2)
E= 44.67
e= Match Existing



PROPERTY AND EXISTING R/W LINE	
REQUIRED R/W LINE	
CONSTRUCTION LIMITS	
EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES	
EASEMENT FOR CONSTR OF SLOPES	
EASEMENT FOR CONSTR OF DRIVES	

BEGIN LIMIT OF ACCESS.....BLA
END LIMIT OF ACCESS.....ELA
LIMIT OF ACCESS
REQ'D R/W & LIMIT OF ACCESS

SCALE IN FEET
0 50 100 200

Michael Baker INTERNATIONAL
420 TECHNOLOGY PARKWAY, STE. 150
NORCROSS, GEORGIA 30092
(770) 263-9118

DATE	REVISIONS	DATE	REVISIONS

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

RIGHT OF WAY MAP
I-16 CORRIDOR IMPROVEMENTS

PROJECT NO: 0012757 & 0012758
COUNTY: CHATHAM
GMD: 7
DATE: 11/06/17 SH 45 OF 51

DRAWING No.
60-0045

1

SEE SHEETS 5, 6, 40, 41

MEGR LLC REQ'D R/W R00101

PNT	OFFSET/ DIST	STATION/ BEARING	ALIGNMENT
DE1001	105.00 R	414+70.23	I-95 SB TO I-16 WB
ARC LENGTH = 401.88			
CHORD BEAR = N 30°44'16.6" E			
LNTH CHORD = 401.56			
RADIUS = 2895.00			
DEGREE = 1°58'44.9"			
DE1002	105.00 R	410+53.77	I-95 SB TO I-16 WB
	53.77	N 26°45'39.9" E	
DE1003	105.00 R	410+00.00	I-95 SB TO I-16 WB
	20.00	N 63°14'20.1" W	
DE1004	125.00 R	410+00.00	I-95 SB TO I-16 WB
	70.00	N 26°45'39.9" E	
DE1005	125.00 R	409+30.00	I-95 SB TO I-16 WB
	15.00	S 63°14'20.1" E	
DE1006	110.00 R	409+30.00	I-95 SB TO I-16 WB
	260.00	N 26°45'39.9" E	
DE1007	110.00 R	406+70.00	I-95 SB TO I-16 WB
	670.17	N 28°02'37.0" E	
DE1008	95.00 R	400+00.00	I-95 SB TO I-16 WB
	46.57	S 63°14'20.1" E	
DE1009	48.43 R	400+00.00	I-95 SB TO I-16 WB
	818.41	S 22°46'10.4" W	
3201	8.54 L	408+16.42	I-95 SB TO I-16 WB
ARC LENGTH = 481.00			
CHORD BEAR = S 35°43'16.9" W			
LNTH CHORD = 476.91			
RADIUS = 1063.92			
DEGREE = 5°23'07.3"			
3203	56.44 R	412+92.25	I-95 SB TO I-16 WB
	179.84	S 48°40'23.3" W	
DE1001	105.00 R	414+70.23	I-95 SB TO I-16 WB
REQD R/W = 119752.58 SF			
REQD R/W = 2.749 ACRES			
REMAINDER = +/- 26.621 ACRES			

LIMITED ACCESS = 1537.39 LF

1A

SEE SHEETS 3, 4, 5, 41, 42

MEGR LLC REQ'D R/W R00101A

PNT	OFFSET/ DIST	STATION/ BEARING	ALIGNMENT
DE1010	196.68 L	355+10.00	I-95 CL
	83.32	N 67°13'31.6" W	
DE1011	280.00 L	355+10.00	I-95 CL
	340.00	N 22°46'28.4" E	
DE1012	280.00 L	358+50.00	I-95 CL
	560.20	N 24°18'32.1" E	
DE1013	265.00 L	364+10.00	I-95 CL
	50.01	N 64°05'37.1" E	
3197	231.98 L	364+47.56	I-95 CL
	88.54	S 44°40'11.4" E	
3198	150.21 L	364+13.59	I-95 CL
	802.02	S 22°46'10.4" W	
3199	150.14 L	356+11.57	I-95 CL
	111.72	S 47°23'28.3" W	
DE1010	196.68 L	355+10.00	I-95 CL
REQD R/W = 112583.13 SF			
REQD R/W = 2.585 ACRES			
REMAINDER = +/- 123.447 ACRES			

LIMITED ACCESS = 1033.53 LF

2

SEE SHEETS 34, 35, 36, 38

SOUTHWEST QUARTER HOLDINGS LLC REQ'D R/W TRACT 1 R00201

PNT	OFFSET/ DIST	STATION/ BEARING	ALIGNMENT
3801	90.46 R	685+08.38	I-16 WB TO I-95 SB
	65.29	N 76°41'45.6" W	
DE2001	155.00 R	685+18.20	I-16 WB TO I-95 SB
	100.22	N 10°26'24.6" E	
DE2002	175.00 R	684+20.00	I-16 WB TO I-95 SB
	160.00	N 21°57'07.1" E	
DE2003	175.00 R	682+60.00	I-16 WB TO I-95 SB
	88.09	S 68°02'52.9" E	
DE2004	86.91 R	682+60.00	I-16 WB TO I-95 SB
	248.41	S 22°46'10.4" W	
3801	90.46 R	685+08.38	I-16 WB TO I-95 SB
REQD R/W = 20970.62 SF			
REQD R/W = 0.481 ACRES			

LIMITED ACCESS = 413.60 LF

SOUTHWEST QUARTER HOLDINGS LLC REQ'D R/W TRACT 2 R00202

PNT	OFFSET/ DIST	STATION/ BEARING	ALIGNMENT
DE2005	78.92 R	677+00.00	I-16 WB TO I-95 SB
	610.10	N 20°54'40.9" E	
DE2006	90.00 R	670+90.00	I-16 WB TO I-95 SB
	28.28	N 23°02'58.2" W	
DE2007	110.00 R	670+70.00	I-16 WB TO I-95 SB
	59.67	N 21°53'17.0" E	
DE2008	110.00 R	670+10.05	I-16 WB TO I-95 SB
	28.25	N 66°50'25.0" E	
DE2009	90.00 R	669+90.00	I-16 WB TO I-95 SB
	758.54	N 22°36'06.4" E	
DE2015	65.00 R	662+29.02	I-16 WB TO I-95 SB
	409.02	N 19°40'31.0" E	
DE2016	65.00 R	658+20.00	I-16 WB TO I-95 SB
	322.49	N 12°33'00.9" E	
DE2017	105.00 R	655+00.00	I-16 WB TO I-95 SB
	46.10	N 29°43'24.4" W	
DE2018	140.00 R	654+70.00	I-16 WB TO I-95 SB
	50.00	N 19°40'31.0" E	
DE2019	140.00 R	654+20.00	I-16 WB TO I-95 SB
	39.05	N 59°28'51.0" E	
DE2020	115.00 R	653+90.00	I-16 WB TO I-95 SB
	158.77	N 14°15'15.2" E	
DE2021	130.00 R	652+31.94	I-16 WB TO I-95 SB
	150.35	N 19°34'39.7" E	
DE2022	135.00 R	650+90.00	I-16 WB TO I-95 SB
	277.32	N 22°28'16.7" E	
DE2023	155.00 R	648+30.00	I-16 WB TO I-95 SB
	132.54	N 81°46'42.2" E	
DE2024	52.20 R	647+50.00	I-16 WB TO I-95 SB
ARC LENGTH = 180.58			
CHORD BEAR = S 15°33'09.6" W			
LNTH CHORD = 180.26			
RADIUS = 872.93			
DEGREE = 6°33'49.0"			
3805	7.95 R	649+22.49	I-16 WB TO I-95 SB
	1412.34	S 22°07'37.9" W	
3806	46.79 R	663+33.65	I-16 WB TO I-95 SB
	1364.71	S 22°46'10.4" W	
DE2005	78.92 R	677+00.00	I-16 WB TO I-95 SB
REQD R/W = 154388.20 SF			
REQD R/W = 3.544 ACRES			

LIMITED ACCESS = 3070.48 LF

TOTAL REQD R/W (TRACT 1 + 2) = 4.025 ACRES

REMAINDER = +/- 261.206 ACRES

TOTAL LIMITED ACCESS = 3484.08 LF

3

SEE SHEETS 34, 35

WOODLANDS AT SOUTHBRIDGE CONDO ASSOCIATION INC REQ'D R/W R00301

PNT	OFFSET/ DIST	STATION/ BEARING	ALIGNMENT
DE3001	149.24 R	276+90.00	I-95 CL
	680.00	N 22°46'10.4" E	
DE3002	149.33 R	283+70.00	I-95 CL
	282.94	S 14°29'48.9" W	
DE3003	190.00 R	280+90.00	I-95 CL
	300.00	S 22°45'43.1" W	
DE3004	190.00 R	277+90.00	I-95 CL
	107.99	S 44°56'21.8" W	
DE3001	149.24 R	276+90.00	I-95 CL
REQD R/W = 19956.00 SF			
REQD R/W = 0.458 ACRES			
REMAINDER = +/- 62.153 ACRES			

LIMITED ACCESS = 690.93 LF

4

SEE SHEETS 36

WOODLANDS AT SOUTHBRIDGE CONDO ASSOCATION INC REQ'D R/W R00401

PNT	OFFSET/ DIST	STATION/ BEARING	ALIGNMENT
3584	73.39 R	54+24.99	I-95 NB TO I-16 EB
	460.85	N 22°46'10.4" E	
3564	59.04 R	58+85.88	I-95 NB TO I-16 EB
	25.97	S 67°35'12.5" E	
DE4001	85.00 R	58+86.87	I-95 NB TO I-16 EB
	272.24	S 24°35'51.1" W	
DE4002	85.00 R	56+14.63	I-95 NB TO I-16 EB
	189.70	S 27°59'56.3" W	
3584	73.39 R	54+24.99	I-95 NB TO I-16 EB
REQD R/W = 7517.00 SF			
REQD R/W = 0.173 ACRES			
REMAINDER = +/- 1.415 ACRES			

LIMITED ACCESS = 461.94 LF

PROPERTY AND EXISTING R/W LINE
REQUIRED R/W LINE
CONSTRUCTION LIMITS
EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES
EASEMENT FOR CONSTR OF SLOPES
EASEMENT FOR CONSTR OF DRIVES

BEGIN LIMIT OF ACCESS.....BLA
END LIMIT OF ACCESS.....ELA
LIMIT OF ACCESS
REQ'D R/W & LIMIT OF ACCESS

SCALE IN FEET
0 50 100 200

ARCADIS Design & Consultancy for natural and built assets

DATE	REVISIONS	DATE	REVISIONS

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

RIGHT OF WAY MAP
I-16 CORRIDOR IMPROVEMENTS

PROJECT NO: 0012757 & 0012758
COUNTY: CHATHAM
GMD: 7.8
DATE: 11/06/17 SH 46 OF 51

DRAWING No. 60-0046

5

SEE SHEETS 36

****

WOODLANDS AT SOUTHBRIDGE CONDO ASSOCATION INC REQ'D R/W RQ0501

****

PNT	OFFSET/ DIST		STATION/ BEARING	ALIGNMENT
3564	59.04	R	58+85.88	I-95 NB TO I-16 EB
	700.89		N 22°46'10.4" E	
3565	36.38	R	65+87.03	I-95 NB TO I-16 EB

ARC LENGTH = 210.58
CHORD BEAR = N 28°26'23.0" E
LNTH CHORD = 210.23
RADIUS = 1063.92
DEGREE = 5°23'07.3"

3554	36.69	R	68+00.89	I-95 NB TO I-16 EB
	43.34		S 56°36'06.0" E	
DE5001	80.00	R	67+99.12	I-95 NB TO I-16 EB

ARC LENGTH = 240.32
CHORD BEAR = S 27°50'42.0" W
LNTH CHORD = 240.19
RADIUS = 2120.00
DEGREE = 2°42'09.5"

DE5002	80.00	R	65+49.73	I-95 NB TO I-16 EB
	100.23		S 18°52'18.0" W	
DE5003	90.00	R	64+50.00	I-95 NB TO I-16 EB
	20.00		S 65°24'08.9" E	
DE5004	110.00	R	64+50.00	I-95 NB TO I-16 EB
	118.39		S 24°35'51.1" W	
DE5005	110.00	R	63+31.61	I-95 NB TO I-16 EB

ARC LENGTH = 105.85
CHORD BEAR = S 46°51'26.8" W
LNTH CHORD = 102.95
RADIUS = 130.00
DEGREE = 44°04'25.2"

DE5006	71.00	R	62+36.33	I-95 NB TO I-16 EB
	126.08		S 23°31'50.0" W	
DE5007	73.35	R	61+10.27	I-95 NB TO I-16 EB

ARC LENGTH = 29.87
CHORD BEAR = S 16°56'51.5" W
LNTH CHORD = 29.81
RADIUS = 130.00
DEGREE = 44°04'25.2"

DE5008	77.32	R	60+80.73	I-95 NB TO I-16 EB
	31.25		S 10°21'53.0" W	
DE5009	85.00	R	60+50.43	I-95 NB TO I-16 EB
	163.56		S 24°35'51.1" W	
DE4001	85.00	R	58+86.87	I-95 NB TO I-16 EB
	25.97		N 67°35'12.5" W	
3564	59.04	R	58+85.88	I-95 NB TO I-16 EB

REQD R/W = 35901.81 SF
REQD R/W = 0.824 ACRES
REMAINDER = +/- 4.129 ACRES

LIMITED ACCESS = 935.55 LF

6

SEE SHEETS 7-15, 39, 40, 41, 42

****

GEORGIA PORTS AUTHORITY REQ'D R/W TRACT 1 RQ0601

****

PNT	OFFSET/ DIST		STATION/ BEARING	ALIGNMENT
5110	77.25	R	147+36.10	I-95 NB C-D LANE

ARC LENGTH = 60.33
CHORD BEAR = S 2°04'20.4" E
LNTH CHORD = 60.31
RADIUS = 689.99
DEGREE = 8°18'13.9"

DE6001	99.90	R	146+80.20	I-95 NB C-D LANE
	100.00		S 19°55'56.7" W	
DE6002	100.00	R	145+80.20	I-95 NB C-D LANE
	345.95		S 22°43'51.8" W	
DE6003	70.00	R	927+90.00	I-16 WB TO I-95 NB
	191.05		S 13°10'12.8" W	
DE6004	90.00	R	926+00.00	I-16 WB TO I-95 NB
	139.65		S 19°10'45.2" W	
DE6005	90.00	R	924+60.35	I-16 WB TO I-95 NB

ARC LENGTH = 825.00
CHORD BEAR = S 7°59'13.0" E
LNTH CHORD = 794.44
RADIUS = 870.00
DEGREE = 6°35'08.6"

DE6006	90.00	R	915+50.00	I-16 WB TO I-95 NB
	35.00		N 54°50'48.8" E	
DE6007	125.00	R	915+50.00	I-16 WB TO I-95 NB

ARC LENGTH = 226.61
CHORD BEAR = S 42°55'46.5" E
LNTH CHORD = 225.97
RADIUS = 870.00
DEGREE = 6°35'08.6"

DE6008	125.00	R	912+89.41	I-16 WB TO I-95 NB

ARC LENGTH = 228.62
CHORD BEAR = S 55°28'09.9" E
LNTH CHORD = 228.36
RADIUS = 1375.00
DEGREE = 4°10'01.1"

DE6009	125.00	R	910+40.00	I-16 WB TO I-95 NB
	75.05		S 1°00'06.6" E	
DE6010	60.00	R	910+00.00	I-16 WB TO I-95 NB

ARC LENGTH = 452.41
CHORD BEAR = S 70°45'39.7" E
LNTH CHORD = 450.55
RADIUS = 1440.00
DEGREE = 3°58'43.9"

DE6011	60.00	R	905+28.74	I-16 WB TO I-95 NB
	118.74		S 80°01'14.5" E	
DE6012	60.54	R	904+10.00	I-16 WB TO I-95 NB
	144.68		S 56°02'58.1" E	
5104	2.36	R	902+77.54	I-16 WB TO I-95 NB
	548.18		N 84°13'18.8" W	
4686	68.33	L	908+12.89	I-16 WB TO I-95 NB

ARC LENGTH = 1610.41
CHORD BEAR = N 31°22'17.0" W
LNTH CHORD = 1391.56
RADIUS = 872.93
DEGREE = 6°33'49.0"

4688	2.46	R	922+82.68	I-16 WB TO I-95 NB
	1008.68		N 22°08'19.4" E	
5110	77.25	R	147+36.10	I-95 NB C-D LANE

REQD R/W = 364067.81 SF
REQD R/W = 8.358 ACRES

LIMITED ACCESS = 2798.41 LF

6

SEE SHEETS 7-15, 39, 40, 41, 42

****

GEORGIA PORTS AUTHORITY REQ'D R/W TRACT 2 RQ0602

****

PNT	OFFSET/ DIST		STATION/ BEARING	ALIGNMENT
5092	22.12	R	900+24.14	I-16 WB TO I-95 NB
	94.17		N 56°02'58.1" W	
DE6013	60.00	R	901+10.36	I-16 WB TO I-95 NB
	247.64		S 79°45'24.9" E	
DE6014	70.00	R	614+20.00	I-16 WB TO I-95 SB
	71.40		N 87°09'01.9" E	
DE6015	85.00	R	613+50.00	I-16 WB TO I-95 SB

ARC LENGTH = 756.02
CHORD BEAR = S 81°32'48.0" E
LNTH CHORD = 756.00
RADIUS = 28715.00
DEGREE = 0°11'58.3"

DE6016	85.00	R	605+91.74	I-16 WB TO I-95 SB
	18.24		S 82°18'40.7" E	
DE6017	85.00	R	605+73.47	I-16 WB TO I-95 SB
	1007.88		N 84°13'18.8" W	
5092	22.12	R	900+24.14	I-16 WB TO I-95 NB

REQD R/W = 21442.11 SF
REQD R/W = 0.492 ACRES

LIMITED ACCESS = 1279.82 LF

TOTAL REQD R/W (TRACT 1 +2) = 8.85 ACRES

REMAINDER = +/- 1254.833 ACRES

TOTAL LIMITED ACCESS = 4078.23 LF

PROPERTY AND EXISTING R/W LINE
REQUIRED R/W LINE
CONSTRUCTION LIMITS
EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES
EASEMENT FOR CONSTR OF SLOPES
EASEMENT FOR CONSTR OF DRIVES

BEGIN LIMIT OF ACCESS.....BLA
END LIMIT OF ACCESS.....ELA
LIMIT OF ACCESS
REQ'D R/W & LIMIT OF ACCESS

SCALE IN FEET
0 50 100 200

ARCADIS Design & Consultancy for natural and built assets

DATE	REVISIONS	DATE	REVISIONS

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

RIGHT OF WAY MAP
I-16 CORRIDOR IMPROVEMENTS

PROJECT NO: 0012757 & 0012758
COUNTY: CHATHAM
GMD: 7
DATE: 11/06/17 SH 47 OF 51

DRAWING No.
60-0047

7

SEE SHEETS 7, 8, 39, 41, 42

HARDIN CANAL REQ'D R/W TRACT 1 RQ0701

PNT	OFFSET/ DIST	STATION/ BEARING	ALIGNMENT
5104	2.36 R	902+77.54	I-16 WB TO I-95 NB
	144.68	N 56°02'58.1" W	
DE6012	60.54 R	904+10.00	I-16 WB TO I-95 NB
	148.84	N 70°13'07.4" E	
DE7001	135.00 R	902+81.13	I-16 WB TO I-95 NB
	186.51	S 56°02'58.1" E	
DE6013	65 R	901+10.36	I-16 WB TO I-95 NB
	94.18	S 56°02'58.1" E	
5092	22.12 R	900+24.14	I-16 WB TO I-95 NB
	254.17	N 84°13'18.8" W	
5104	2.36 R	902+77.54	I-16 WB TO I-95 NB

REQD R/W = 25521.89 SF
REQD R/W = 0.586 ACRES

LIMITED ACCESS = 148.84 LF

HARDIN CANAL REQ'D R/W TRACT 2 RQ0702

PNT	OFFSET/ DIST	STATION/ BEARING	ALIGNMENT
3312	149.80 R	362+88.57	I-95 CL
	73.44	S 44°38'11.8" E	
5091	217.60 R	362+60.37	I-95 CL
	56.46	S 80°15'00.8" W	
DE7002	170.00 R	362+30.00	I-95 CL
	82.51	S 36°56'18.0" W	
DE7003	149.81 R	361+50.00	I-95 CL
	138.57	N 22°46'10.4" E	
3312	149.80 R	362+88.57	I-95 CL

REQD R/W = 3099.99 SF
REQD R/W = 0.071 ACRES

LIMITED ACCESS = 138.97 LF

TOTAL REQD R/W (TRACT 1 + 2) = 0.657 ACRES

REMAINDER = +/- 9.382 ACRES

TOTAL LIMITED ACCESS = 287.81 LF

8

SEE SHEETS 5, 41

OGEECHEE SAVANNAH CANAL REQ'D R/W RQ0801

PNT	OFFSET/ DIST	STATION/ BEARING	ALIGNMENT
DE8001	150.13 L	355+10.00	I-95 CL
	46.55	N 67°13'31.6" W	
DE1010	196.68 L	355+10.00	I-95 CL
	111.72	N 47°23'28.3" E	
3199	150.14 L	356+11.57	I-95 CL
	101.57	S 22°46'10.4" W	
DE8001	150.13 L	355+10.00	I-95 CL

REQD R/W = 2363.80 SF
REQD R/W = 0.054 ACRES
REMAINDER = +/- 9.669 ACRES

LIMITED ACCESS = 46.55 LF

9

SEE SHEETS 42, 43

ESTATE OF FRED WESSELS JR REQ'D R/W RQ0901

PNT	OFFSET/ DIST	STATION/ BEARING	ALIGNMENT
3312	149.80 R	362+88.57	I-95 CL
	666.43	N 22°46'10.4" E	
DE9001	149.74 R	369+55.00	I-95 CL
	150.26	S 67°13'31.6" E	
DE9002	300.00 R	369+55.00	I-95 CL
	567.13	S 24°47'43.9" W	
DE9003	280.00 R	363+88.22	I-95 CL
	142.18	S 48°07'31.2" W	
3315	219.12 R	362+59.73	I-95 CL
	1.65	N 44°38'11.8" W	
5091	217.60 R	362+60.37	I-95 CL
	73.43	N 44°38'11.8" W	
3312	149.80 R	362+88.57	I-95 CL

REQD R/W = 91301.98 SF
REQD R/W = 2.096 ACRES
REMAINDER = +/- 2.742 ACRES

LIMITED ACCESS = 861.23 LF

10

SEE SHEETS 42

FRED WESSELS JR REQ'D R/W RQ1001

PNT	OFFSET/ DIST	STATION/ BEARING	ALIGNMENT
3198	150.21 L	364+13.59	I-95 CL
	88.54	N 44°40'11.4" W	
3197	231.98 L	364+47.56	I-95 CL
	116.40	N 67°23'41.7" E	
DE10001	150.22 L	365+30.41	I-95 CL
	116.82	S 22°46'10.4" W	
3198	150.21 L	364+13.59	I-95 CL

REQD R/W = 4775.96 SF
REQD R/W = 0.110 ACRES
REMAINDER = +/- 0.089 ACRES

LIMITED ACCESS = 116.40 LF

11

SEE SHEETS 36, 37

SOUTHBRIDGE GOLF LLC REQ'D R/W RQ1101

PNT	OFFSET/ DIST	STATION/ BEARING	ALIGNMENT
3554	36.69 R	68+00.89	I-95 NB TO I-16 EB

ARC LENGTH = 273.74
CHORD BEAR = N 41°28'50.7" E
LNTH CHORD = 272.98
RADIUS = 1063.92
DEGREE = 5°23'07.3"

3424	68.71 R	70+78.84	I-95 NB TO I-16 EB
	67.86	N 48°51'06.4" E	
DE11001	80.00 R	71+48.10	I-95 NB TO I-16 EB

ARC LENGTH = 336.29
CHORD BEAR = S 35°38'12.4" W
LNTH CHORD = 335.94
RADIUS = 2120.00
DEGREE = 2°42'09.5"

DE5001	80.00 R	67+99.12	I-95 NB TO I-16 EB
	43.34	N 56°36'06.0" W	
3554	36.69 R	68+00.89	I-95 NB TO I-16 EB

REQD R/W = 8571.10 SF
REQD R/W = 0.197 ACRES
REMAINDER = +/- 108.497 ACRES

LIMITED ACCESS = 336.29 LF

12

SEE SHEETS 7, 37

CANTERBURY PARK PROPERTY OWNER ASSOCATION INC REQ'D R/W RQ1201

PNT	OFFSET/ DIST	STATION/ BEARING	ALIGNMENT
DE12005	52.65 R	543+00.00	I-95 SB TO I-16 EB
	470.23	S 84°13'18.8" E	
3390	59.27 R	547+70.19	I-95 SB TO I-16 EB
	30.76	S 5°15'58.2" W	
20687	90.02 R	547+70.03	I-95 SB TO I-16 EB
	161.33	N 84°08'43.8" W	
3393	87.54 R	546+08.72	I-95 SB TO I-16 EB
	28.06	S 18°25'01.8" E	
3404	113.29 R	546+19.86	I-95 SB TO I-16 EB
	84.38	S 51°39'22.8" E	
3403	159.71 R	546+90.33	I-95 SB TO I-16 EB
	24.99	S 19°04'32.8" E	
DE12001	182.53 R	547+00.51	I-95 SB TO I-16 EB
	93.27	N 71°02'58.3" W	
DE12002	160.00 R	546+10.00	I-95 SB TO I-16 EB
	78.10	N 45°13'20.9" W	
DE12003	110.00 R	545+50.00	I-95 SB TO I-16 EB
	250.00	N 85°01'41.0" W	
DE12004	110.00 R	543+00.00	I-95 SB TO I-16 EB
	57.35	N 4°58'19.0" E	
DE12005	52.65 R	543+00.00	I-95 SB TO I-16 EB

REQD R/W = 26642.31 SF
REQD R/W = 0.612 ACRES
REMAINDER = +/- 5.924 ACRES

LIMITED ACCESS = 478.72 LF

PROPERTY AND EXISTING R/W LINE
REQUIRED R/W LINE
CONSTRUCTION LIMITS
EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES
EASEMENT FOR CONSTR OF SLOPES
EASEMENT FOR CONSTR OF DRIVES

BEGIN LIMIT OF ACCESS.....BLA
END LIMIT OF ACCESS.....ELA
LIMIT OF ACCESS
REQ'D R/W & LIMIT OF ACCESS

SCALE IN FEET
0 50 100 200

ARCADIS Design & Consultancy for natural and built assets

DATE	REVISIONS	DATE	REVISIONS

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

RIGHT OF WAY MAP
I-16 CORRIDOR IMPROVEMENTS

PROJECT NO: 0012757 & 0012758
COUNTY: CHATHAM
GMD: 7, 8
DATE: 11/06/17 SH 48 OF 51

DRAWING No. 60-0048

13

SEE SHEET 8

SOUTHBRIDGE GOLF LLC REQ'D R/W RQ1301

PNT	OFFSET/ DIST		STATION/ BEARING	ALIGNMENT
3390	59.27	R	547+70.19	I-95 SB TO I-16 EB
	249.81		S 85°12'52.9" E	
DE13001	58.45	R	550+20.00	I-95 SB TO I-16 EB
	46.02		S 53°33'09.5" W	
DE13002	88.90	R	549+85.49	I-95 SB TO I-16 EB
	215.47		N 85°19'39.2" W	
3392	89.09	R	549+36.97	I-95 SB TO I-16 EB
	215.47		N 85°19'39.2" W	
20687	90.02	R	547+70.03	I-95 SB TO I-16 EB
	30.76		N 5°15'58.2" E	
3390	59.27	R	547+70.19	I-95 SB TO I-16 EB

REQD R/W = 7101.76 SF
REQD R/W = 0.163 ACRES
REMAINDER = +/- 0.058 ACRES

LIMITED ACCESS = 46.02 LF

14

SEE SHEETS 7,8

SOUTHBRIDGE HOMEOWNERS ASSOCIATION INC REQ'D R/W RQ1401

PNT	OFFSET/ DIST		STATION/ BEARING	ALIGNMENT
3393	87.54	R	546+08.72	I-95 SB TO I-16 EB
	161.33		S 84°08'43.8" E	
20687	90.02	R	547+70.03	I-95 SB TO I-16 EB
	167.07		S 85°20'57.8" E	
3392	89.09	R	549+37.10	I-95 SB TO I-16 EB
	48.40		S 85°15'07.8" E	
DE13002	88.90	R	549+85.49	I-95 SB TO I-16 EB
	194.02		S 53°33'09.5" W	
DE14001	217.25	R	548+40.00	I-95 SB TO I-16 EB
	143.75		N 71°02'58.3" W	
DE12001	182.53	R	547+00.51	I-95 SB TO I-16 EB
	24.99		N 19°04'32.8" W	
3403	159.71	R	546+90.33	I-95 SB TO I-16 EB
	84.38		N 51°39'22.8" W	
3404	113.29	R	546+19.86	I-95 SB TO I-16 EB
	28.06		N 18°25'01.8" W	
3393	87.54	R	546+08.72	I-95 SB TO I-16 EB

REQD R/W = 29044.45 SF
REQD R/W = 0.667 ACRES
REMAINDER = +/- 2.844 ACRES

LIMITED ACCESS = 337.77 LF

15

SEE SHEETS 8,9

SOUTHBRIDGE GOLF LLC REQ'D R/W TRACT 1 RQ1501

PNT	OFFSET/ DIST		STATION/ BEARING	ALIGNMENT
DE15001	57.68	R	552+10.00	I-95 SB TO I-16 EB
	200.00		S 85°14'25.4" E	
DE15002	56.94	R	554+10.00	I-95 SB TO I-16 EB
	39.08		S 6°33'08.1" W	
DE15003	96.00	R	554+08.92	I-95 SB TO I-16 EB
	199.56		N 80°25'46.0" W	
DE15004	80.00	R	552+10.00	I-95 SB TO I-16 EB
	22.32		N 4°58'19.0" E	
DE15001	57.68	R	552+10.00	I-95 SB TO I-16 EB

REQD R/W = 6126.41 SF
REQD R/W = 0.141 ACRES

LIMITED ACCESS = 260.96

SOUTHBRIDGE GOLF LLC REQ'D R/W TRACT 2 RQ1502

PNT	OFFSET/ DIST		STATION/ BEARING	ALIGNMENT
DE15005	57.34	R	557+70.00	I-95 SB TO I-16 EB
	220.50		S 84°13'18.8" E	
3367	60.44	R	559+90.48	I-95 SB TO I-16 EB
	23.56		S 5°48'28.9" W	
DE15006	84.00	R	559+90.13	I-95 SB TO I-16 EB
	220.22		N 86°35'25.0" W	
DE15007	90.00	R	557+70.00	I-95 SB TO I-16 EB
	32.66		N 4°58'19.0" E	
DE15005	57.34	R	557+70.00	I-95 SB TO I-16 EB

REQD R/W = 6192.96 SF
REQD R/W = 0.142 ACRES

LIMITED ACCESS = 252.88 LF

TOTAL REQD R/W (TRACT 1 + 2) = 0.283 ACRES

REMAINDER = +/- 10.262 ACRES

TOTAL LIMITED ACCESS = 513.84 LF

16

SEE SHEETS 8,9,10,11

SOUTHBRIDGE HOMEOWNERS ASSOCATION INC REQ'D R/W TRACT 1 RQ1601

PNT	OFFSET/ DIST		STATION/ BEARING	ALIGNMENT
3367	60.44	R	559+90.48	I-95 SB TO I-16 EB
	329.56		S 84°13'18.8" E	
DE16001	65.07	R	563+20.00	I-95 SB TO I-16 EB
	9.93		S 4°58'19.0" W	
DE16002	75.00	R	563+20.00	I-95 SB TO I-16 EB
	329.99		N 86°35'25.0" W	
DE15006	84.00	R	559+90.13	I-95 SB TO I-16 EB
	23.56		N 5°48'28.9" E	
3367	60.44	R	559+90.48	I-95 SB TO I-16 EB

REQD R/W = 5519.54 SF
REQD R/W = 0.127 ACRES

LIMITED ACCESS = 339.92 LF

SOUTHBRIDGE HOMEOWNERS ASSOCATION INC REQ'D R/W TRACT 2 RQ1602

PNT	OFFSET/ DIST		STATION/ BEARING	ALIGNMENT
DE16003	150.05	R	1045+80.00	I-16 CL
	80.00		S 84°13'18.0" E	
DE16004	150.05	R	1046+60.00	I-16 CL
	29.95		S 5°46'55.0" W	
DE16005	180.00	R	1046+60.00	I-16 CL
	80.00		N 84°13'05.0" W	
DE16006	180.00	R	1045+80.00	I-16 CL
	29.95		N 5°46'55.0" E	
DE16003	150.05	R	1045+80.00	I-16 CL

REQD R/W = 2396.07 SF
REQD R/W = 0.055 ACRES

LIMITED ACCESS = 139.90 LF

TOTAL REQD R/W (TRACT 1 + 2) = 0.182 ACRES

REMAINDER = +/- 14.294 ACRES

TOTAL LIMITED ACCESS = 479.82

PROPERTY AND EXISTING R/W LINE
REQUIRED R/W LINE
CONSTRUCTION LIMITS
EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES
EASEMENT FOR CONSTR OF SLOPES
EASEMENT FOR CONSTR OF DRIVES

BEGIN LIMIT OF ACCESS.....BLA
END LIMIT OF ACCESS.....ELA
LIMIT OF ACCESS
REQ'D R/W & LIMIT OF ACCESS

SCALE IN FEET
0 50 100 200

ARCADIS Design & Consultancy for natural and built assets

DATE	REVISIONS	DATE	REVISIONS

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

RIGHT OF WAY MAP
I-16 CORRIDOR IMPROVEMENTS

PROJECT NO: 0012757 & 0012758
COUNTY: CHATHAM
GMD: 7
DATE: 11/06/17 SH 49 OF 51

DRAWING No.
60-0049

17

SEE SHEETS 28, 29 & 31

****

CSX TRANSPORTATION REQ'D PERM. EASM'T. AREA 1 PE3001

****

PNT	OFFSET/ DIST		STATION/ BEARING	ALIGNMENT
4651	149.95	L	1305+63.94	I-16 CL
	67.43		S 85°18'37.3" E	
4638	149.93	L	1306+31.37	I-16 CL
	468.09		S 85°18'37.3" E	
4637	149.80	L	1310+99.47	I-16 CL
	316.23		S 23°07'28.5" W	
4326	150.17	R	1309+99.38	I-16 CL
	312.10		N 85°18'37.3" W	
4325	150.09	R	1306+87.28	I-16 CL
	120.86		N 23°18'04.8" E	
4650	35.56	R	1307+25.89	I-16 CL
	246.25		N 36°26'51.7" W	
4651	149.95	L	1305+63.94	I-16 CL

REQD EASMT = 114289.83 SF

REQD EASMT = 2.624 ACRES

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CSX TRANSPORTATION REQ'D PERM. EASM'T. AREA 2 PE3002

****

PNT	OFFSET/ DIST		STATION/ BEARING	ALIGNMENT
4632	125.64	L	1529+12.17	I-16 WB
	187.86		S 85°18'37.3" E	
4626	126.14	L	1530+99.70	I-16 WB
	709.23		S 32°19'39.1" E	
4359	94.79	R	2204+44.66	I-16 EB TO I-516 NB
	9.88		S 32°19'39.1" E	
DE31001	101.07	R	2204+52.28	I-16 EB TO I-516 NB
	56.25		N 74°30'27.4" W	
DE32002	103.74	R	2203+96.10	I-16 EB TO I-516 NB
	7.81		N 15°29'32.6" E	
DE32001	95.94	R	2203+95.73	I-16 EB TO I-516 NB
	180.62		N 73°07'37.3" W	
4351	100.16	R	2202+15.16	I-16 EB TO I-516 NB
	324.28		N 32°19'39.1" W	
4649	132.74	R	1531+08.11	I-16 WB
	324.27		N 32°19'39.1" W	
4632	125.64	L	1529+12.17	I-16 WB

REQD EASMT = 102211.24 SF

REQD EASMT = 2.346 ACRES

TOTAL REQ'D PERM. EASMT (AREAS 1 AND 2) = 4.970

PROPERTY AND EXISTING R/W LINE
REQUIRED R/W LINE
CONSTRUCTION LIMITS
EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES
EASEMENT FOR CONSTR OF SLOPES
EASEMENT FOR CONSTR OF DRIVES

BEGIN LIMIT OF ACCESS.....BLA
END LIMIT OF ACCESS.....ELA
LIMIT OF ACCESS
REQ'D R/W & LIMIT OF ACCESS

SCALE IN FEET
0 50 100 200

Michael Baker INTERNATIONAL
420 TECHNOLOGY PARKWAY, STE. 150
NORCROSS, GEORGIA 30092
(770) 263-9118

DATE	REVISIONS	DATE	REVISIONS

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

RIGHT OF WAY DATA TABLE
I-16 CORRIDOR IMPROVEMENTS

PROJECT NO: 0012757 & 0012758
COUNTY: CHATHAM
GMD: 7
DATE: 11/06/17 SH 50 OF 51

DRAWING No.
60-0050

18

SEE SHEET 31

****

ALLEN R. LEWIS

REQD R/W - PARCEL 18 REQ'D R/W RQ3102

****

PNT	OFFSET/ DIST		STATION/ BEARING	ALIGNMENT
DE31005	83.32	R	2209+35.00	I-16 EB TO I-516 NB
	80.02		S 73°07'37.3" E	
DE31006	81.45	R	2210+15.00	I-16 EB TO I-516 NB
	8.55		S 18°12'48.2" W	
DE31007	90.00	R	2210+15.00	I-16 EB TO I-516 NB
	80.00		N 71°47'11.8" W	
DE31004	90.00	R	2209+35.00	I-16 EB TO I-516 NB
	6.68		N 18°12'48.2" E	
DE31005	83.32	R	2209+35.00	I-16 EB TO I-516 NB

REQD R/W = 609.43 SF

REQD R/W = 0.014 ACRES

LIMITED ACCESS = 95 LF

REMAINDER = +/- 14 ACRES

PROPERTY AND EXISTING R/W LINE
REQUIRED R/W LINE
CONSTRUCTION LIMITS
EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES
EASEMENT FOR CONSTR OF SLOPES
EASEMENT FOR CONSTR OF DRIVES

BEGIN LIMIT OF ACCESS.....BLA
END LIMIT OF ACCESS.....ELA
LIMIT OF ACCESS
REQ'D R/W & LIMIT OF ACCESS

SCALE IN FEET
0 50 100 200

Michael Baker INTERNATIONAL
420 TECHNOLOGY PARKWAY, STE. 150
NORCROSS, GEORGIA 30092
(770) 263-9118

DATE	REVISIONS	DATE	REVISIONS

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

RIGHT OF WAY DATA TABLE
I-16 CORRIDOR IMPROVEMENTS

PROJECT NO: 0012757 & 0012758
COUNTY: CHATHAM
GMD: 7
DATE: 11/06/17 SH 51 OF 51

DRAWING No.
60-0051

Georgia Department of Transportation

Technical Provisions

For

Design-Build Agreement

P.I. Nos. 0012757 and 0012758

Attachment 6-1

AT&T MOU

Georgia DOT Project: Reconstruct the I-16 at I-95 Interchange and I-16 Widening from I-95 to I-516
GDOT P.I. # 0012757 & 0012758

DESIGN-BUILD
MEMORANDUM OF UNDERSTANDING

between the

Georgia Department of Transportation (hereafter the DEPARTMENT)

and

BellSouth Telecommunications, LLC d/b/a A&T Georgia (hereafter the OWNER)

Whereas GDOT, hereafter referred to as the DEPARTMENT proposes to undertake a design-build project hereafter referred to as a PROJECT to reconstruct the Dean Forest Road Interchange over I-16 in Chatham County, Georgia by contract through competitive bidding procedures; and,

Whereas the DEPARTMENT will accomplish the PROJECT through a Design Consultant, Design Consultant Team and/or Contractor, hereafter referred to as CONTRACTOR; and the utility owner hereafter referred to as the OWNER, and

Whereas, where OWNER has property rights ("Prior Rights") at the location of the PROJECT, OWNER will provide written evidence as to said prior rights within the area and will provide written documentation of prior rights relating to any individual crossing or Utility Facility, at the location of the PROJECT; and

Whereas, OWNER acknowledges that, generally, absent a showing of prior rights, the costs of relocation, protection, removal, or adjustment performed by OWNER shall be borne by OWNER; and

Whereas, pursuant to O.C.G.A. § 32-6-170(b), DEPARTMENT is authorized to pay or participate in the payment of the costs of relocation, protection, or adjustment of OWNER'S facilities where DEPARTMENT has made the determination that (i) such payments are in the best interest of the public and necessary in order to expedite the staging of the design-build project; and (ii) the costs of the removal, relocation, protection, or adjustment of such facilities are included as part of the Contract between the Department and the Department's roadway contractor for the design-build project; and

1. Type of Utility

OWNER has the following utility facilities which may need to be adjusted or relocated as a result of the proposed PROJECT:

Type of facility or facilities of OWNER:

_____Domestic water mains and distribution lines and associated appurtenances
_____Sanitary Sewer facilities and/or Storm Drainage System
_____Electrical Distribution (overhead and underground) wires, poles, etc.
_____Electrical Transmission (overhead and underground) wires, poles, etc.
_____Natural Gas Distribution Facilities (underground)
_____Natural Gas Transmission Facilities (underground)
_____Petroleum Pipeline (underground)
__X___Telecommunications facilities and equipment
_____Cable TV facilities
_____Street Lighting
_____Internet Data Service
_____Other Facilities (Description) _____

2. New Utility Facilities Proposed (Betterment)

OWNER desires the following to be installed as new additional facilities within the PROJECT. Insert here or attach a detailed description of proposed new additional utility installations:

_____

_____

3. Assignment of Responsibilities for Design and Construction

This MEMORANDUM OF UNDERSTANDING and the following shall serve as a *basis* for assignment of responsibilities and costs for the DEPARTMENT, CONTRACTOR and the OWNER to enter into a Standard Utility Agreement (SUA) or Contract Item Agreement (CIA), if necessary, with OWNER once the PROJECT is awarded to the CONTRACTOR. For a PROJECT implementation, GDOT will not have in its possession exact costing plans to be utilized to determine exact locations of the removal, relocation, protection, or adjustment. However, Overhead/Subsurface Utility Engineering (SUE) investigations plans exist providing the best information and signifying the layout of known existing facilities. Please use these plans for developing the final determination of services as indicated below. The CONTRACTOR developed plans will be provided to the OWNER after the design build project is awarded by GDOT which shall be used by the CONTRACTOR as the final basis for the SUA or CIA. **Betterment costs will be the OWNER'S responsibility.**

NOTE: Water and Sewer Design and Construction relocation work put in the contract will automatically be accomplished by the DEPARTMENT'S CONTRACTOR. The UTILITY OWNER will still have design approval authority. (No Pre-Approved Contractor/Consultant List required, leave page 6 blank). If you are a Water & Sewer Utility and choose to put your relocation Design and Construction in the contract, please check Design and Construction under Option 2 under 3B. Owner's electing to perform their own design, at their own cost, please select design under 3C.

OWNER hereby intends to:

3A. OWNER, at the DEPARTMENT'S cost through an Agreement, will provide the following services for the properties for which it has established prior rights (Check to signify):

Design _____
Construction _____

3B. OWNER, at the CONTRACTOR'S cost, for any removal, relocation, protection, adjustment and/or design (Regardless of Prior Rights) will allow their facilities to be placed into the DEPARTMENT'S contract for the following services pursuant to O.C.G.A. § 32-6-170(b). The CONTRACTOR will add the removal, relocation, protection, materials, adjustment and/or design cost, excluding betterment, to the overall PROJECT's cost. (Check to signify):

Option 1: OWNER wants the work to be performed by the OWNER's pre-approved Design Consultants and/or Contractors.

Design __X___
Construction __X___

Option 2: OWNER wants the DEPARTMENT'S CONTRACTOR to perform the design and/or construction. (Check to signify):

Design ____
Construction ____ **If both are checked, please leave page 6 blank.**

As per this section, all work necessary for the removal, relocation, protection, or adjustment of the described utilities in accordance with the plans when approved shall be included in the project contract and accomplished by the CONTRACTOR except as follows (Check none or list any work items to be performed by the OWNER)

None _____

Excluded Items __PLACE AERIAL COPPER OR FIBER CABLES, SPLICING / TIE IN WORK, _OR DO POLE ATTACHMENTS_____

Comments: While the DB Contractor will be able to perform much of the design and construction, only AT&T union personnel can pull cable/fiber, perform splicing/tie-in work, some technical design work and do pole attachments (AT&T will be responsible for these costs). The DB Contractor can install any required ducts, poles and vaults/manholes/handoles, enclosures and bridge attachments and will be responsible for the cost and design and construction (including materials). In the MOU, AT&T has selected design and construction under 3b, option 1. AT&T has also selected 3c design and construction. AT&T will be responsible for some cost as indicated above and the DB contractor will be responsible for the remaining costs._____

3C. OWNER, at OWNER'S cost, will provide the following services (Check to signify):

Design __X___
Construction __X___

The following is hereby mutually agreed to and understood by both parties:

1. The identification of existing facilities including preparation of Overhead/Subsurface Utility Engineering (SUE) investigations plans will be accomplished by the DEPARTMENT prior to award of the PROJECT and thereafter supplemented by the CONTRACTOR.

2. The CONTRACTOR shall coordinate reviews of the utility relocation information and obtain acceptance from the OWNER and DEPARTMENT when required. However; the OWNER shall apply for and obtain any required permits from the DEPARTMENT and perform any final design or proprietary design needed to administer its own relocation work if the work will not be included in the contract If the preliminary plans indicate that no conflict exists, and the OWNER concurs with this information, the OWNER shall provide a letter of "no conflict" to the CONTRACTOR.

3. After award of the PROJECT, the CONTRACTOR will research any claimed compensable property interest for each OWNER claiming prior rights under section 3A and present the findings to the DEPARTMENT and OWNER for approval. The plans and estimate for the utility work shall be subject to approval of both the DEPARTMENT and the OWNER prior to construction. If the OWNER chooses to perform its own relocations and the OWNER holds no property interest as stated above; the OWNER shall confirm in writing that the OWNER will relocate its own facilities at no cost to the DEPARTMENT or the CONTRACTOR.

4. All construction engineering and contract supervision shall be the responsibility of the DEPARTMENT and the CONTRACTOR to ensure that all utility work included in the contract is accomplished in accordance with the PROJECT's plans and specifications. The CONTRACTOR will consult with the OWNER before authorizing any changes or deviations which affect the OWNER's facility.

5. For utility work included in the contract, the CONTRACTOR shall ensure that the design/construction and installation of the OWNER'S facilities is performed by a contractor/design consultant pre-approved/registered with both the DEPARTMENT and the OWNER. For any work included in the contract, excluding water and sewer, the OWNER will provide a list of pre-approved/registered contractors/design consultants on page 6 of the MOU.

6. For Utility work included in the contract, the OWNER or the OWNER's Consultant shall have the right to visit and inspect the work at any time and advise the CONTRACTOR and the DEPARTMENT'S Engineer of any observed discrepancies or potential issues. The DEPARTMENT agrees to notify the OWNER when all utility work is completed and ready for final inspection by the OWNER.

7. Upon Maintenance Acceptance or Final Acceptance of the utility work included in the contract and upon certification by the DEPARTMENT'S Engineer and the OWNER that the work has been completed in accordance with the plans and specifications, the OWNER will accept the adjusted, relocated, and additional facilities and will thereafter operate and maintain said facilities located within the PROJECT right of way subject to the DEPARTMENT'S Utility Accommodations Policy and Standards Manual (UAM), current edition" and any agreements in effect without further cost to the DEPARTMENT or it's CONTRACTOR. Final acceptance of the utility relocation work is accomplished by the execution of the Utility Facility Relocation Acceptance Form. The CONTRACTOR shall provide the OWNER with a complete set of "As-Built Plans" for review and approval reflecting the relocation work performed by the CONTRACTOR. Upon completion of the Utility Facility Relocation Acceptance Form and the exchange of the final OWNER approved "As-Built Plans", the OWNER will operate and maintain the installed facilities going forward based on the date of execution of the Utility Facility Relocation Acceptance Form by the DEPARTMENT.

8. For utility coordination, relocation and reimbursement matters, the OWNER shall cooperate with the CONTRACTOR in the same manner as if coordinating directly with the DEPARTMENT in accordance with the laws of the State of Georgia, the DEPARTMENT'S UAM and any agreements in effect between the DEPARTMENT and OWNER. The OWNER agrees to cooperate in good faith with the CONTRACTOR and to respond to all requests for information or meetings required to reach a resolution of any disputed items.

9. All Utility work included in the PROJECT's contract and Utility work completed by the OWNER that is reimbursed by the DEPARTMENT through an agreement shall be in accordance with the BUY AMERICA requirements of the Federal regulations (23 U.S.C. 313 and 23 CFR 635.410) all manufacturing processes for steel and iron products or predominantly of steel or iron (at least 90% steel or iron content) furnished for permanent incorporation into the work on this project shall occur in the United States. The only exception to this requirement is the production of pig iron and the processing, pelletizing and reduction of iron ore, which may occur in another country. Other than these exceptions, all melting, rolling, extruding, machining, bending, grinding, drilling, coating, etc. must occur in the United States.

    a. Products of steel include, but are not limited to, such products as structural steel piles, reinforcing steel, structural plate, steel culverts, and guardrail steel supports for signs, signals and luminaires. Products of iron include, but are not limited to, such products as cast iron frames and grates and ductile iron pipe. Coatings include, but are not limited to, the applications of epoxy, galvanizing and paint. The coating material is not limited to this clause, only the application process.

    b. A Certificate of Compliance shall be furnished for steel and iron products as part of the backup information with the billing. The form for this certification entitled "Buy America Certificate of Compliance" is attached to this agreement as "Exhibit A." Records to be maintained by the Developer for this certification shall include a signed mill test report and a signed certification by each supplier, distributor, fabricator, and manufacturer that has handled the steel or iron product affirming that every process, including the application of a coating, performed on the steel or iron product has been carried out in the United States of America, except as allowed by this Section. The lack of these certifications will be justification for rejection of the steel and/or iron product or nonpayment of the work.

The requirements of said law and regulations do not prevent the use of miscellaneous steel or iron components, subcomponents and hardware necessary to encase, assemble and construct the above products, manufactured products that are not predominantly steel or iron or a minimal use of foreign steel and iron materials if the cost of such materials used does not exceed one-tenth of one percent (0.1%) of the total contract price or $2,500.00, whichever is greater. The Memorandum of Understanding will be incorporated into the project contract by reference or Exhibit.

APPROVED FOR THE OWNER BY:

(Signature) 11/15/2017 (Date)

Resident Engineer Manager

(Title)

APPROVED FOR THE DEPARTMENT BY:

(Signature) 12/19/17 (Date)

STATE UTILITIES ADMINISTRATOR

Pre-Approved Contractor List

Company Name: ANSCO & ASSOCIATES
Address: P.O. BOX 860785
Phone:
Contact Person: George Summers
E-Mail: gsummers@anscoinc.com

Company Name: Danella Construction Corporation of Fl., Inc.
Address: 581 Washburn Rd, Melbourne, Fl 32934
Phone: 321-259-6124
Contact Person: Joseph W. Hemple
E-Mail: dhowick@danella.com or JHemple@danella.com

Company Name: Edwards Telecommunications Inc.
Address: 777 Old Clemson Rd, Columbia, SC 29229
Phone: 803-750-2472
Contact Person: Buddy Timmons
E-Mail: btimmons@edwardstelecom.com

Please provide a minimum of three.

Pre-Approved Design Consultant List

Company Name: Byers Engineering
Address: 6285 Barfield Rd. Atlanta, GA 30328
Phone: 404-843-1000
Contact Person: Timothy H. Parker
E-Mail: tim.parker@byers.com

Company Name: RTS Associates (Regional Telecom Services Associates, LLC)
Address: 188 Hurricane Shoals Rd NE. Lawerenceville, GA 30046
Phone: 770-270-1212 x 1
Contact Person: Steven Gray
E-Mail: steven@rtsassociates.net

Company Name: SourceOne
Address: 1212 Coggins Place, Marietta GA 30060
Phone: 678-594-5100
Contact Person: BeeJee McGinty
E-Mail: beejee@sourceonecorp.com

Georgia Department of Transportation

Technical Provisions

For

Design-Build Agreement

P.I. Nos. 0012757 and 0012758

Attachment 6-2

CenturyLink National Network MOU

Georgia DOT Project: Reconstruct the I-16 at I-95 Interchange and I-16 Widening from I-95 to I-516
GDOT P.I. # 0012757 & 0012758

DESIGN-BUILD
MEMORANDUM OF UNDERSTANDING

between the

Georgia Department of Transportation (hereafter the DEPARTMENT)

and

CenturyLink Communications, LLC (hereafter the OWNER)

Whereas GDOT, hereafter referred to as the DEPARTMENT proposes to undertake design-build projects hereafter referred to as PROJECTS to reconstruct the I-16 Interchange at I-95 and I-16 Widening from I-95 to I-516 in Chatham County, Georgia by contract through competitive bidding procedures; and,

Whereas the DEPARTMENT will accomplish the PROJECT through a Design Consultant, Design Consultant Team and/or Contractor, hereafter referred to as CONTRACTOR; and the utility owner hereafter referred to as the OWNER, and

Whereas, where OWNER has property rights ("Prior Rights") at the location of the PROJECT, OWNER will provide written evidence as to said prior rights within the area and will provide written documentation of prior rights relating to any individual crossing or Utility Facility, at the location of the PROJECT; and

Whereas, OWNER acknowledges that, generally, absent a showing of prior rights, the costs of relocation, protection, removal, or adjustment performed by OWNER shall be borne by OWNER; and

Whereas, pursuant to O.C.G.A. § 32-6-170(b), DEPARTMENT is authorized to pay or participate in the payment of the costs of relocation, protection, or adjustment of OWNER'S facilities where DEPARTMENT has made the determination that (i) such payments are in the best interest of the public and necessary in order to expedite the staging of the design-build project; and (ii) the costs of the removal, relocation, protection, or adjustment of such facilities are included as part of the Contract between the Department and the Department's roadway contractor for the design-build project; and

1. Type of Utility

OWNER has the following utility facilities which may need to be adjusted or relocated as a result of the proposed PROJECT:

Type of facility or facilities of OWNER:

_____Domestic water mains and distribution lines and associated appurtenances
_____Sanitary Sewer facilities and/or Storm Drainage System
_____Electrical Distribution (overhead and underground) wires, poles, etc.
_____Electrical Transmission (overhead and underground) wires, poles, etc.
_____Natural Gas Distribution Facilities (underground)
_____Natural Gas Transmission Facilities (underground)
_____Petroleum Pipeline (underground)
___X_Telecommunications facilities and equipment
_____Cable TV facilities
_____Street Lighting
_____Internet Data Service
_____Other Facilities (Description) _____

2. New Utility Facilities Proposed (Betterment)

OWNER desires the following to be installed as new additional facilities within the PROJECT. Insert here or attach a detailed description of proposed new additional utility installations:

_____

_____

3. Assignment of Responsibilities for Design and Construction

This MEMORANDUM OF UNDERSTANDING and the following shall serve as a *basis* for assignment of responsibilities and costs for the DEPARTMENT, CONTRACTOR and the OWNER to enter into a Standard Utility Agreement (SUA) or Contract Item Agreement (CIA), if necessary, with OWNER once the PROJECT is awarded to the CONTRACTOR. For a PROJECT implementation, GDOT will not have in its possession exact costing plans to be utilized to determine exact locations of the removal, relocation, protection, or adjustment. However, Overhead/Subsurface Utility Engineering (SUE) investigations plans exist providing the best information and signifying the layout of known existing facilities. Please use these plans for developing the final determination of services as indicated below. The CONTRACTOR developed plans will be provided to the OWNER after the design build project is awarded by GDOT which shall be used by the CONTRACTOR as the final basis for the SUA or CIA. **Betterment costs will be the OWNER'S responsibility.**

NOTE: Water and Sewer Design and Construction relocation work put in the contract will automatically be accomplished by the DEPARTMENT'S CONTRACTOR. The UTILITY OWNER will still have design approval authority. (No Pre-Approved Contractor/Consultant List required, leave page 6 blank). If you are a Water & Sewer Utility and choose to put your relocation Design and Construction in the contract, please check Design and Construction under Option 2 under 3B. Owner's electing to perform their own design, at their own cost, please select design under 3C.

OWNER hereby intends to:

3A. OWNER, at the DEPARTMENT'S cost through an Agreement, will provide the following services for the properties for which it has established prior rights (Check to signify):

Design __X___
Construction __X___

3B. OWNER, at the CONTRACTOR'S cost, for any removal, relocation, protection, adjustment and/or design (Regardless of Prior Rights) will allow their facilities to be placed into the DEPARTMENT'S contract for the following services pursuant to O.C.G.A. § 32-6-170(b). The CONTRACTOR will add the removal, relocation, protection, materials, adjustment and/or design cost, excluding betterment, to the overall PROJECT's cost. (Check to signify):

Option 1: OWNER wants the work to be performed by the OWNER's pre-approved Design Consultants and/or Contractors.

Design _____
Construction _____

Option 2: OWNER wants the DEPARTMENT'S CONTRACTOR to perform the design and/or construction. (Check to signify):

Design ____
Construction ____ **If both are checked, please leave page 6 blank.**

As per this section, all work necessary for the removal, relocation, protection, or adjustment of the described utilities in accordance with the plans when approved shall be included in the project contract and accomplished by the CONTRACTOR except as follows (Check none or list any work items to be performed by the OWNER)

None _____

Excluded Items _____

Comments: _____

3C. OWNER, at OWNER'S cost, will provide the following services (Check to signify):

Design _____
Construction _____

The following is hereby mutually agreed to and understood by both parties:

1. The identification of existing facilities including preparation of Overhead/Subsurface Utility Engineering (SUE) investigations plans will be accomplished by the DEPARTMENT prior to award of the PROJECT and thereafter supplemented by the CONTRACTOR.

2. The CONTRACTOR shall coordinate reviews of the utility relocation information and obtain acceptance from the OWNER and DEPARTMENT when required. However; the OWNER shall apply for and obtain any required permits from the DEPARTMENT and perform any final design or proprietary design needed to administer its own relocation work if the work will not be included in the contract If the preliminary plans indicate that no conflict exists, and the OWNER concurs with this information, the OWNER shall provide a letter of "no conflict" to the CONTRACTOR.

3. After award of the PROJECT, the CONTRACTOR will research any claimed compensable property interest for each OWNER claiming prior rights under section 3A and present the findings to the DEPARTMENT and OWNER for approval. The plans and estimate for the utility work shall be subject to approval of both the DEPARTMENT and the OWNER prior to construction. If the OWNER chooses to perform its own relocations and the OWNER holds no property interest as stated above; the OWNER shall confirm in writing that the OWNER will relocate its own facilities at no cost to the DEPARTMENT or the CONTRACTOR.

4. All construction engineering and contract supervision shall be the responsibility of the DEPARTMENT and the CONTRACTOR to ensure that all utility work included in the contract is accomplished in accordance with the PROJECT's plans and specifications. The CONTRACTOR will consult with the OWNER before authorizing any changes or deviations which affect the OWNER's facility.

5. For utility work included in the contract, the CONTRACTOR shall ensure that the design/construction and installation of the OWNER'S facilities is performed by a contractor/design consultant pre-approved/registered with both the DEPARTMENT and the OWNER. For any work included in the contract, excluding water and sewer, the OWNER will provide a list of pre-approved/registered contractors/design consultants on page 6 of the MOU.

6. For Utility work included in the contract, the OWNER or the OWNER's Consultant shall have the right to visit and inspect the work at any time and advise the CONTRACTOR and the DEPARTMENT'S Engineer of any observed discrepancies or potential issues. The DEPARTMENT agrees to notify the OWNER when all utility work is completed and ready for final inspection by the OWNER.

7. Upon Maintenance Acceptance or Final Acceptance of the utility work included in the contract and upon certification by the DEPARTMENT'S Engineer and the OWNER that the work has been completed in accordance with the plans and specifications, the OWNER will accept the adjusted, relocated, and additional facilities and will thereafter operate and maintain said facilities located within the PROJECT right of way subject to the DEPARTMENT'S Utility Accommodations Policy and Standards Manual (UAM), current edition" and any agreements in effect without further cost to the DEPARTMENT or it's CONTRACTOR. Final acceptance of the utility relocation work is accomplished by the execution of the Utility Facility Relocation Acceptance Form. The CONTRACTOR shall provide the OWNER with a complete set of "As-Built Plans" for review and approval reflecting the relocation work performed by the CONTRACTOR. Upon completion of the Utility Facility Relocation Acceptance Form and the exchange of the final OWNER approved "As-Built Plans", the OWNER will operate and maintain the installed facilities going forward based on the date of execution of the Utility Facility Relocation Acceptance Form by the DEPARTMENT.

8. For utility coordination, relocation and reimbursement matters, the OWNER shall cooperate with the CONTRACTOR in the same manner as if coordinating directly with the DEPARTMENT in accordance with the laws of the State of Georgia, the DEPARTMENT'S UAM and any agreements in effect between the DEPARTMENT and OWNER. The OWNER agrees to cooperate in good faith with the CONTRACTOR and to respond to all requests for information or meetings required to reach a resolution of any disputed items.

9. All Utility work included in the PROJECT's contract and Utility work completed by the OWNER that is reimbursed by the DEPARTMENT through an agreement shall be in accordance with the BUY AMERICA requirements of the Federal regulations (23 U.S.C. 313 and 23 CFR 635.410) all manufacturing processes for steel and iron products or predominantly of steel or iron furnished for permanent incorporation into the work on this project shall occur in the United States. The only exception to this requirement is the production of pig iron and the processing, pelletizing and reduction of iron ore, which may occur in another country. Other than these exceptions, all melting, rolling, extruding, machining, bending, grinding, drilling, coating, etc. must occur in the United States.

    a. Products of steel include, but are not limited to, such products as structural steel piles, reinforcing steel, structural plate, steel culverts, and guardrail steel supports for signs, signals and luminaires. Products of iron include, but are not limited to, such products as cast iron frames and grates and ductile iron pipe. Coatings include, but are not limited to, the applications of epoxy, galvanizing and paint. The coating material is not limited to this clause, only the application process.

    b. A Certificate of Compliance shall be furnished for steel and iron products as part of the backup information with the billing. The form for this certification entitled "Buy America Certificate of Compliance" is attached to this agreement as "Exhibit A." Records to be maintained by the Developer for this certification shall include a signed mill test report and a signed certification by each supplier, distributor, fabricator, and manufacturer that has handled the steel or iron product affirming that every process, including the application of a coating, performed on the steel or iron product has been carried out in the United States of America, except as allowed by this Section. The lack of these certifications will be justification for rejection of the steel and/or iron product or nonpayment of the work.

The requirements of said law and regulations do not prevent the use of miscellaneous steel or iron components, subcomponents and hardware necessary to encase, assemble and construct the above products, manufactured products that are not predominantly steel or iron or a minimal use of foreign steel and iron materials if the cost of such materials used does not exceed one-tenth of one percent (0.1%) of the total contract price or $2,500.00, whichever is greater. The Memorandum of Understanding will be incorporated into the project contract by reference or Exhibit.

APPROVED FOR THE OWNER BY:

Ron Camp 11-14-17

(Signature) Ron Camp (Date)

MGR Network Real Estate

(Title)

APPROVED FOR THE DEPARTMENT BY:

12/19/17

(Signature) (Date)

STATE UTILITIES ADMINISTRATOR

Pre-Approved Contractor List

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

Please provide a minimum of three.

Pre-Approved Design Consultant List

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

Georgia Department of Transportation

Technical Provisions

For

Design-Build Agreement

P.I. Nos. 0012757 and 0012758

Attachment 6-3

AGL Resources MOU

Georgia DOT Project: Reconstruct the I-16 at I-95 Interchange and I-16 Widening from I-95 to I-516
GDOT P.I. # 0012757 & 0012758

DESIGN-BUILD
MEMORANDUM OF UNDERSTANDING

between the
Georgia Department of Transportation (hereafter the DEPARTMENT)
and
Atlanta Gas Light (hereafter the OWNER)

Whereas GDOT, hereafter referred to as the DEPARTMENT proposes to undertake design-build projects hereafter referred to as PROJECTS to reconstruct the I-16 Interchange at I-95 and I-16 Widening from I-95 to I-516 in Chatham County, Georgia by contract through competitive bidding procedures; and,

Whereas the DEPARTMENT will accomplish the PROJECT through a Design Consultant, Design Consultant Team and/or Contractor, hereafter referred to as CONTRACTOR; and the utility owner hereafter referred to as the OWNER, and

Whereas, where OWNER has property rights ("Prior Rights") at the location of the PROJECT, OWNER will provide written evidence as to said prior rights within the area and will provide written documentation of prior rights relating to any individual crossing or Utility Facility, at the location of the PROJECT; and

Whereas, OWNER acknowledges that, generally, absent a showing of prior rights, the costs of relocation, protection, removal, or adjustment performed by OWNER shall be borne by OWNER; and

Whereas, pursuant to O.C.G.A. § 32-6-170(b), DEPARTMENT is authorized to pay or participate in the payment of the costs of relocation, protection, or adjustment of OWNER'S facilities where DEPARTMENT has made the determination that (i) such payments are in the best interest of the public and necessary in order to expedite the staging of the design-build project; and (ii) the costs of the removal, relocation, protection, or adjustment of such facilities are included as part of the Contract between the Department and the Department's roadway contractor for the design-build project; and

1. Type of Utility
OWNER has the following utility facilities which may need to be adjusted or relocated as a result of the proposed PROJECT:

Type of facility or facilities of OWNER:
_____Domestic water mains and distribution lines and associated appurtenances
_____Sanitary Sewer facilities and/or Storm Drainage System
_____Electrical Distribution (overhead and underground) wires, poles, etc.
_____Electrical Transmission (overhead and underground) wires, poles, etc.
__X__Natural Gas Distribution Facilities (underground)
_____Natural Gas Transmission Facilities (underground)
_____Petroleum Pipeline (underground)
_____Telecommunications facilities and equipment
_____Cable TV facilities
_____Street Lighting
_____Internet Data Service
_____Other Facilities (Description) _____

2. New Utility Facilities Proposed (Betterment)

OWNER desires the following to be installed as new additional facilities within the PROJECT. Insert here or attach a detailed description of proposed new additional utility installations:

N/A

3. Assignment of Responsibilities for Design and Construction

This MEMORANDUM OF UNDERSTANDING and the following shall serve as a *basis* for assignment of responsibilities and costs for the DEPARTMENT, CONTRACTOR and the OWNER to enter into a Standard Utility Agreement (SUA) or Contract Item Agreement (CIA), if necessary, with OWNER once the PROJECT is awarded to the CONTRACTOR. For a PROJECT implementation, GDOT will not have in its possession exact costing plans to be utilized to determine exact locations of the removal, relocation, protection, or adjustment. However, Overhead/Subsurface Utility Engineering (SUE) investigations plans exist providing the best information and signifying the layout of known existing facilities. Please use these plans for developing the final determination of services as indicated below. The CONTRACTOR developed plans will be provided to the OWNER after the design build project is awarded by GDOT which shall be used by the CONTRACTOR as the final basis for the SUA or CIA. **Betterment costs will be the OWNER'S responsibility.**

NOTE: Water and Sewer Design and Construction relocation work put in the contract will automatically be accomplished by the DEPARTMENT'S CONTRACTOR. The UTILITY OWNER will still have design approval authority. (No Pre-Approved Contractor/Consultant List required, leave page 6 blank). If you are a Water & Sewer Utility and choose to put your relocation Design and Construction in the contract, please check Design and Construction under Option 2 under 3B. Owner's electing to perform their own design, at their own cost, please select design under 3C.

OWNER hereby intends to:

3A. OWNER, at the DEPARTMENT'S cost through an Agreement, will provide the following services for the properties for which it has established prior rights (Check to signify):

Design _____
Construction _____

3B. OWNER, at the CONTRACTOR'S cost, for any removal, relocation, protection, adjustment and/or design (Regardless of Prior Rights) will allow their facilities to be placed into the DEPARTMENT'S contract for the following services pursuant to O.C.G.A. § 32-6-170(b). The CONTRACTOR will add the removal, relocation, protection, materials, adjustment and/or design cost, excluding betterment, to the overall PROJECT's cost. (Check to signify):

Option 1: OWNER wants the work to be performed by the OWNER's pre-approved Design Consultants and/or Contractors.

Design _____
Construction __X__

Option 2: OWNER wants the DEPARTMENT'S CONTRACTOR to perform the design and/or construction. (Check to signify):

Design ____
Construction ____ **If both are checked, please leave page 6 blank.**

As per this section, all work necessary for the removal, relocation, protection, or adjustment of the described utilities in accordance with the plans when approved shall be included in the project contract and accomplished by the CONTRACTOR except as follows (Check none or list any work items to be performed by the OWNER)

None _X___

Excluded Items _____

Comments: _____

3C. OWNER, at OWNER'S cost, will provide the following services (Check to signify):

Design _X___
Construction _____

The following is hereby mutually agreed to and understood by both parties:

1. The identification of existing facilities including preparation of Overhead/Subsurface Utility Engineering (SUE) investigations plans will be accomplished by the DEPARTMENT prior to award of the PROJECT and thereafter supplemented by the CONTRACTOR.

2. The CONTRACTOR shall coordinate reviews of the utility relocation information and obtain acceptance from the OWNER and DEPARTMENT when required. However; the OWNER shall apply for and obtain any required permits from the DEPARTMENT and perform any final design or proprietary design needed to administer its own relocation work if the work will not be included in the contract If the preliminary plans indicate that no conflict exists, and the OWNER concurs with this information, the OWNER shall provide a letter of "no conflict" to the CONTRACTOR.

3. After award of the PROJECT, the CONTRACTOR will research any claimed compensable property interest for each OWNER claiming prior rights under section 3A and present the findings to the DEPARTMENT and OWNER for approval. The plans and estimate for the utility work shall be subject to approval of both the DEPARTMENT and the OWNER prior to construction. If the OWNER chooses to perform its own relocations and the OWNER holds no property interest as stated above; the OWNER shall confirm in writing that the OWNER will relocate its own facilities at no cost to the DEPARTMENT or the CONTRACTOR.

4. All construction engineering and contract supervision shall be the responsibility of the DEPARTMENT and the CONTRACTOR to ensure that all utility work included in the contract is accomplished in accordance with the PROJECT's plans and specifications. The CONTRACTOR will consult with the OWNER before authorizing any changes or deviations which affect the OWNER's facility.

5. For utility work included in the contract, the CONTRACTOR shall ensure that the design/construction and installation of the OWNER'S facilities is performed by a contractor/design consultant pre-approved/registered with both the DEPARTMENT and the OWNER. For any work included in the contract, excluding water and sewer, the OWNER will provide a list of pre-approved/registered contractors/design consultants on page 6 of the MOU.

6. For Utility work included in the contract, the OWNER or the OWNER's Consultant shall have the right to visit and inspect the work at any time and advise the CONTRACTOR and the DEPARTMENT'S Engineer of any observed discrepancies or potential issues. The DEPARTMENT agrees to notify the OWNER when all utility work is completed and ready for final inspection by the OWNER.

7. Upon Maintenance Acceptance or Final Acceptance of the utility work included in the contract and upon certification by the DEPARTMENT'S Engineer and the OWNER that the work has been completed in accordance with the plans and specifications, the OWNER will accept the adjusted, relocated, and additional facilities and will thereafter operate and maintain said facilities located within the PROJECT right of way subject to the DEPARTMENT'S Utility Accommodations Policy and Standards Manual (UAM), current edition" and any agreements in effect without further cost to the DEPARTMENT or it's CONTRACTOR. Final acceptance of the utility relocation work is accomplished by the execution of the Utility Facility Relocation Acceptance Form. The CONTRACTOR shall provide the OWNER with a complete set of "As-Built Plans" for review and approval reflecting the relocation work performed by the CONTRACTOR. Upon completion of the Utility Facility Relocation Acceptance Form and the exchange of the final OWNER approved "As-Built Plans", the OWNER will operate and maintain the installed facilities going forward based on the date of execution of the Utility Facility Relocation Acceptance Form by the DEPARTMENT.

8. For utility coordination, relocation and reimbursement matters, the OWNER shall cooperate with the CONTRACTOR in the same manner as if coordinating directly with the DEPARTMENT in accordance with the laws of the State of Georgia, the DEPARTMENT'S UAM and any agreements in effect between the DEPARTMENT and OWNER. The OWNER agrees to cooperate in good faith with the CONTRACTOR and to respond to all requests for information or meetings required to reach a resolution of any disputed items.

9. All Utility work included in the PROJECT's contract and Utility work completed by the OWNER that is reimbursed by the DEPARTMENT through an agreement shall be in accordance with the BUY AMERICA requirements of the Federal regulations (23 U.S.C. 313 and 23 CFR 635.410) all manufacturing processes for steel and iron products or predominantly of steel or iron furnished for permanent incorporation into the work on this project shall occur in the United States. The only exception to this requirement is the production of pig iron and the processing, pelletizing and reduction of iron ore, which may occur in another country. Other than these exceptions, all melting, rolling, extruding, machining, bending, grinding, drilling, coating, etc. must occur in the United States.

    a. Products of steel include, but are not limited to, such products as structural steel piles, reinforcing steel, structural plate, steel culverts, and guardrail steel supports for signs, signals and luminaires. Products of iron include, but are not limited to, such products as cast iron frames and grates and ductile iron pipe. Coatings include, but are not limited to, the applications of epoxy, galvanizing and paint. The coating material is not limited to this clause, only the application process.

    b. A Certificate of Compliance shall be furnished for steel and iron products as part of the backup information with the billing. The form for this certification entitled "Buy America Certificate of Compliance" is attached to this agreement as "Exhibit A." Records to be maintained by the Developer for this certification shall include a signed mill test report and a signed certification by each supplier, distributor, fabricator, and manufacturer that has handled the steel or iron product affirming that every process, including the application of a coating, performed on the steel or iron product has been carried out in the United States of America, except as allowed by this Section. The lack of these certifications will be justification for rejection of the steel and/or iron product or nonpayment of the work.

The requirements of said law and regulations do not prevent the use of miscellaneous steel or iron components, subcomponents and hardware necessary to encase, assemble and construct the above products, manufactured products that are not predominantly steel or iron or a minimal use of foreign steel and iron materials if the cost of such materials used does not exceed one-tenth of one percent (0.1%) of the total contract price or $2,500.00, whichever is greater. The Memorandum of Understanding will be incorporated into the project contract by reference or Exhibit.

APPROVED FOR THE OWNER BY:

Gene N. Killings — 11/21/17
(Signature) (Date)

VP OPERATIONS
(Title)

APPROVED FOR THE DEPARTMENT BY:

Patrick D. Ak — 12/19/17
(Signature) (Date)

STATE UTILITIES ADMINISTRATOR

Pre-Approved Contractor List

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

SEE ATTACHED SHEET

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

Please provide a minimum of three.

Pre-Approved Design Consultant List

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

Atlanta Gas Light
Pre-Approved Contractor List
Project: 0013549 Pedestrian Bridge over SR 21 – Chatham County
Date: March 4, 2016

First Name	Last Name	Company Name	City	State	Title	Work Phone	WorkEx	Email Name
Kevin	Adams	Southeast Connections	Conyers	GA	VP Operations	404-659-1422	240	kadams@seconnections.com
Jason	McCanles	Benton-Georgia, LLC	Douglasville	GA	Regional Manager	678-951-7667		jmccanles@benton-georgia.com
Bryan	Boyd	Gunter Construction Company, Inc.	Lawrenceville	GA	President	770-963-7760	201	bboyd@gunterconst.com
Doug	Suddeth	Player & Company	Atlanta	GA	President	404-725-4731		dsuddeth@playerco.com
John	Walker	CEDS Construction	Cumming	GA	VP	770-889-2361	14	jjwalker_ceds@bellsouth.net
Payton	Crawford	Pride Utility	Cumming	GA	Operation Manager	770-532-0085		pcrawford@prideutility.com
Tony	Pittman	Southern Pipeline, Inc.	Winder	GA	Owner	770-589-5184		southernpipeline@aol.com
Lance	Souther	D Lance Souther, Inc.	Macon	GA	President	478-742-2292		lance@dlsi.us
Edmund	Zammit		Macon	GA		478-742-2292		edmund@dlsi.us
Dooley	Eaves	Troy Construction, LLC	Commerce	GA	Regional Manager	706-336-0063	201	deaves@troyconstruction.com
Casey	Colbey		Commerce	GA	Estimating	706-336-0063	203	ccolbey@troyconstruction.com

Georgia Department of Transportation

Technical Provisions

For

Design-Build Agreement

P.I. Nos. 0012757 and 0012758

Attachment 6-4

City of Savannah MOU

Georgia DOT Project: Reconstruct the I-16 at I-95 Interchange and I-16 Widening from I-95 to I-516
GDOT P.I. # 0012757 & 0012758

DESIGN-BUILD
MEMORANDUM OF UNDERSTANDING

between the
Georgia Department of Transportation (hereafter the DEPARTMENT)
and
City of Savannah (hereafter the OWNER)

Whereas GDOT, hereafter referred to as the DEPARTMENT proposes to undertake design-build projects hereafter referred to as PROJECTS to reconstruct the I-16 Interchange at I-95 and I-16 Widening from I-95 to I-516 in Chatham County, Georgia by contract through competitive bidding procedures; and,

Whereas the DEPARTMENT will accomplish the PROJECT through a Design Consultant, Design Consultant Team and/or Contractor, hereafter referred to as CONTRACTOR; and the utility owner hereafter referred to as the OWNER, and

Whereas, where OWNER has property rights ("Prior Rights") at the location of the PROJECT, OWNER will provide written evidence as to said prior rights within the area and will provide written documentation of prior rights relating to any individual crossing or Utility Facility, at the location of the PROJECT; and

Whereas, OWNER acknowledges that, generally, absent a showing of prior rights, the costs of relocation, protection, removal, or adjustment performed by OWNER shall be borne by OWNER; and

Whereas, pursuant to O.C.G.A. § 32-6-170(b), DEPARTMENT is authorized to pay or participate in the payment of the costs of relocation, protection, or adjustment of OWNER'S facilities where DEPARTMENT has made the determination that (i) such payments are in the best interest of the public and necessary in order to expedite the staging of the design-build project; and (ii) the costs of the removal, relocation, protection, or adjustment of such facilities are included as part of the Contract between the Department and the Department's roadway contractor for the design-build project; and

1. Type of Utility
OWNER has the following utility facilities which may need to be adjusted or relocated as a result of the proposed PROJECT:

Type of facility or facilities of OWNER:
X Domestic water mains and distribution lines and associated appurtenances
X Sanitary Sewer facilities and/or Storm Drainage System
_____Electrical Distribution (overhead and underground) wires, poles, etc.
_____Electrical Transmission (overhead and underground) wires, poles, etc.
_____Natural Gas Distribution Facilities (underground)
_____Natural Gas Transmission Facilities (underground)
_____Petroleum Pipeline (underground)
_____Telecommunications facilities and equipment
_____Cable TV facilities
_____Street Lighting
_____Internet Data Service
_____Other Facilities (Description) _____

2. New Utility Facilities Proposed (Betterment)

OWNER desires the following to be installed as new additional facilities within the PROJECT. Insert here or attach a detailed description of proposed new additional utility installations:

N/A_____

_____

3. Assignment of Responsibilities for Design and Construction

This MEMORANDUM OF UNDERSTANDING and the following shall serve as a *basis* for assignment of responsibilities and costs for the DEPARTMENT, CONTRACTOR and the OWNER to enter into a Standard Utility Agreement (SUA) or Contract Item Agreement (CIA), if necessary, with OWNER once the PROJECT is awarded to the CONTRACTOR. For a PROJECT implementation, GDOT will not have in its possession exact costing plans to be utilized to determine exact locations of the removal, relocation, protection, or adjustment. However, Overhead/Subsurface Utility Engineering (SUE) investigations plans exist providing the best information and signifying the layout of known existing facilities. Please use these plans for developing the final determination of services as indicated below. The CONTRACTOR developed plans will be provided to the OWNER after the design build project is awarded by GDOT which shall be used by the CONTRACTOR as the final basis for the SUA or CIA. **Betterment costs will be the OWNER'S responsibility.**

NOTE: Water and Sewer Design and Construction relocation work put in the contract will automatically be accomplished by the DEPARTMENT'S CONTRACTOR. The UTILITY OWNER will still have design approval authority. (No Pre-Approved Contractor/Consultant List required, leave page 6 blank). If you are a Water & Sewer Utility and choose to put your relocation Design and Construction in the contract, please check Design and Construction under Option 2 under 3B. Owner's electing to perform their own design, at their own cost, please select design under 3C.

OWNER hereby intends to:

3A. OWNER, at the DEPARTMENT'S cost through an Agreement, will provide the following services for the properties for which it has established prior rights (Check to signify):

Design _____
Construction _____

3B. OWNER, at the CONTRACTOR'S cost, for any removal, relocation, protection, adjustment and/or design (Regardless of Prior Rights) will allow their facilities to be placed into the DEPARTMENT'S contract for the following services pursuant to O.C.G.A. § 32-6-170(b). The CONTRACTOR will add the removal, relocation, protection, materials, adjustment and/or design cost, excluding betterment, to the overall PROJECT's cost. (Check to signify):

Option 1: OWNER wants the work to be performed by the OWNER's pre-approved Design Consultants and/or Contractors.

Design
Construction

Option 2: OWNER wants the DEPARTMENT'S CONTRACTOR to perform the design and/or construction. (Check to signify):

Design X
Construction X **If both are checked, please leave page 6 blank.**

As per this section, all work necessary for the removal, relocation, protection, or adjustment of the described utilities in accordance with the plans when approved shall be included in the project contract and accomplished by the CONTRACTOR except as follows (Check none or list any work items to be performed by the OWNER)

None _____

Excluded Items _____

Comments: _____

3C. OWNER, at OWNER'S cost, will provide the following services (Check to signify):

Design _____
Construction _____

The following is hereby mutually agreed to and understood by both parties:

1. The identification of existing facilities including preparation of Overhead/Subsurface Utility Engineering (SUE) investigations plans will be accomplished by the DEPARTMENT prior to award of the PROJECT and thereafter supplemented by the CONTRACTOR.

2. The CONTRACTOR shall coordinate reviews of the utility relocation information and obtain acceptance from the OWNER and DEPARTMENT when required. However; the OWNER shall apply for and obtain any required permits from the DEPARTMENT and perform any final design or proprietary design needed to administer its own relocation work if the work will not be included in the contract If the preliminary plans indicate that no conflict exists, and the OWNER concurs with this information, the OWNER shall provide a letter of "no conflict" to the CONTRACTOR.

3. After award of the PROJECT, the CONTRACTOR will research any claimed compensable property interest for each OWNER claiming prior rights under section 3A and present the findings to the DEPARTMENT and OWNER for approval. The plans and estimate for the utility work shall be subject to approval of both the DEPARTMENT and the OWNER prior to construction. If the OWNER chooses to perform its own relocations and the OWNER holds no property interest as stated above; the OWNER shall confirm in writing that the OWNER will relocate its own facilities at no cost to the DEPARTMENT or the CONTRACTOR.

4. All construction engineering and contract supervision shall be the responsibility of the DEPARTMENT and the CONTRACTOR to ensure that all utility work included in the contract is accomplished in accordance with the PROJECT's plans and specifications. The CONTRACTOR will consult with the OWNER before authorizing any changes or deviations which affect the OWNER's facility.

5. For utility work included in the contract, the CONTRACTOR shall ensure that the design/construction and installation of the OWNER'S facilities is performed by a contractor/design consultant pre-approved/registered with both the DEPARTMENT and the OWNER. For any work included in the contract, excluding water and sewer, the OWNER will provide a list of pre-approved/registered contractors/design consultants on page 6 of the MOU.

6. For Utility work included in the contract, the OWNER or the OWNER's Consultant shall have the right to visit and inspect the work at any time and advise the CONTRACTOR and the DEPARTMENT'S Engineer of any observed discrepancies or potential issues. The DEPARTMENT agrees to notify the OWNER when all utility work is completed and ready for final inspection by the OWNER.

7. Upon Maintenance Acceptance or Final Acceptance of the utility work included in the contract and upon certification by the DEPARTMENT'S Engineer and the OWNER that the work has been completed in accordance with the plans and specifications, the OWNER will accept the adjusted, relocated, and additional facilities and will thereafter operate and maintain said facilities located within the PROJECT right of way subject to the DEPARTMENT'S Utility Accommodations Policy and Standards Manual (UAM), current edition" and any agreements in effect without further cost to the DEPARTMENT or it's CONTRACTOR. Final acceptance of the utility relocation work is accomplished by the execution of the Utility Facility Relocation Acceptance Form. The CONTRACTOR shall provide the OWNER with a complete set of "As-Built Plans" for review and approval reflecting the relocation work performed by the CONTRACTOR. Upon completion of the Utility Facility Relocation Acceptance Form and the exchange of the final OWNER approved "As-Built Plans", the OWNER will operate and maintain the installed facilities going forward based on the date of execution of the Utility Facility Relocation Acceptance Form by the DEPARTMENT.

8. For utility coordination, relocation and reimbursement matters, the OWNER shall cooperate with the CONTRACTOR in the same manner as if coordinating directly with the DEPARTMENT in accordance with the laws of the State of Georgia, the DEPARTMENT'S UAM and any agreements in effect between the DEPARTMENT and OWNER. The OWNER agrees to cooperate in good faith with the CONTRACTOR and to respond to all requests for information or meetings required to reach a resolution of any disputed items.

9. All Utility work included in the PROJECT's contract and Utility work completed by the OWNER that is reimbursed by the DEPARTMENT through an agreement shall be in accordance with the BUY AMERICA requirements of the Federal regulations (23 U.S.C. 313 and 23 CFR 635.410) all manufacturing processes for steel and iron products or predominantly of steel or iron furnished for permanent incorporation into the work on this project shall occur in the United States. The only exception to this requirement is the production of pig iron and the processing, pelletizing and reduction of iron ore, which may occur in another country. Other than these exceptions, all melting, rolling, extruding, machining, bending, grinding, drilling, coating, etc. must occur in the United States.

    a. Products of steel include, but are not limited to, such products as structural steel piles, reinforcing steel, structural plate, steel culverts, and guardrail steel supports for signs, signals and luminaires. Products of iron include, but are not limited to, such products as cast iron frames and grates and ductile iron pipe. Coatings include, but are not limited to, the applications of epoxy, galvanizing and paint. The coating material is not limited to this clause, only the application process.

    b. A Certificate of Compliance shall be furnished for steel and iron products as part of the backup information with the billing. The form for this certification entitled "Buy America Certificate of Compliance" is attached to this agreement as "Exhibit A." Records to be maintained by the Developer for this certification shall include a signed mill test report and a signed certification by each supplier, distributor, fabricator, and manufacturer that has handled the steel or iron product affirming that every process, including the application of a coating, performed on the steel or iron product has been carried out in the United States of America, except as allowed by this Section. The lack of these certifications will be justification for rejection of the steel and/or iron product or nonpayment of the work.

The requirements of said law and regulations do not prevent the use of miscellaneous steel or iron components, subcomponents and hardware necessary to encase, assemble and construct the above products, manufactured products that are not predominantly steel or iron or a minimal use of foreign steel and iron materials if the cost of such materials used does not exceed one-tenth of one percent (0.1%) of the total contract price or $2,500.00, whichever is greater. The Memorandum of Understanding will be incorporated into the project contract by reference or Exhibit.

APPROVED FOR THE OWNER BY:

(Signature) 1/11/2018 (Date)

(Title)

APPROVED FOR THE DEPARTMENT BY:

(Signature) 1/16/18 (Date)

STATE UTILITIES ADMINISTRATOR

Pre-Approved Contractor List

Company Name:
Address:
Phone
Contact Person:
E-Mail:

Company Name:
Address
Phone:
Contact Person:
E-Mail:

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

Please provide a minimum of three.

Pre-Approved Design Consultant List

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

Company Name:
Address:
Phone
Contact Person:
E-Mail:

Georgia Department of Transportation

Technical Provisions

For

Design-Build Agreement

P.I. Nos. 0012757 and 0012758

Attachment 6-5

Comcast Cable MOU

Georgia DOT Project: Reconstruct the I-16 at I-95 Interchange and I-16 Widening from I-95 to I-516
GDOT P.I. # 0012757 & 0012758

DESIGN-BUILD
MEMORANDUM OF UNDERSTANDING

between the
Georgia Department of Transportation (hereafter the DEPARTMENT)
and
Comcast (hereafter the OWNER)

Whereas GDOT, hereafter referred to as the DEPARTMENT proposes to undertake design-build projects hereafter referred to as PROJECTS to reconstruct the I-16 Interchange at I-95 and I-16 Widening from I-95 to I-516 in Chatham County, Georgia by contract through competitive bidding procedures; and,

Whereas the DEPARTMENT will accomplish the PROJECT through a Design Consultant, Design Consultant Team and/or Contractor, hereafter referred to as CONTRACTOR; and the utility owner hereafter referred to as the OWNER, and

Whereas, where OWNER has property rights ("Prior Rights") at the location of the PROJECT, OWNER will provide written evidence as to said prior rights within the area and will provide written documentation of prior rights relating to any individual crossing or Utility Facility, at the location of the PROJECT; and

Whereas, OWNER acknowledges that, generally, absent a showing of prior rights, the costs of relocation, protection, removal, or adjustment performed by OWNER shall be borne by OWNER; and

Whereas, pursuant to O.C.G.A. § 32-6-170(b), DEPARTMENT is authorized to pay or participate in the payment of the costs of relocation, protection, or adjustment of OWNER'S facilities where DEPARTMENT has made the determination that (i) such payments are in the best interest of the public and necessary in order to expedite the staging of the design-build project; and (ii) the costs of the removal, relocation, protection, or adjustment of such facilities are included as part of the Contract between the Department and the Department's roadway contractor for the design-build project; and

1. Type of Utility

OWNER has the following utility facilities which may need to be adjusted or relocated as a result of the proposed PROJECT:

Type of facility or facilities of OWNER:

_____Domestic water mains and distribution lines and associated appurtenances
_____Sanitary Sewer facilities and/or Storm Drainage System
_____Electrical Distribution (overhead and underground) wires, poles, etc.
_____Electrical Transmission (overhead and underground) wires, poles, etc.
_____Natural Gas Distribution Facilities (underground)
_____Natural Gas Transmission Facilities (underground)
_____Petroleum Pipeline (underground)
_____Telecommunications facilities and equipment
X Cable TV facilities
_____Street Lighting
_____Internet Data Service
_____Other Facilities (Description) _____

2. New Utility Facilities Proposed (Betterment)

OWNER desires the following to be installed as new additional facilities within the PROJECT. Insert here or attach a detailed description of proposed new additional utility installations:

_____

_____

3. Assignment of Responsibilities for Design and Construction

This MEMORANDUM OF UNDERSTANDING and the following shall serve as a *basis* for assignment of responsibilities and costs for the DEPARTMENT, CONTRACTOR and the OWNER to enter into a Standard Utility Agreement (SUA) or Contract Item Agreement (CIA), if necessary, with OWNER once the PROJECT is awarded to the CONTRACTOR. For a PROJECT implementation, GDOT will not have in its possession exact costing plans to be utilized to determine exact locations of the removal, relocation, protection, or adjustment. However, Overhead/Subsurface Utility Engineering (SUE) investigations plans exist providing the best information and signifying the layout of known existing facilities. Please use these plans for developing the final determination of services as indicated below. The CONTRACTOR developed plans will be provided to the OWNER after the design build project is awarded by GDOT which shall be used by the CONTRACTOR as the final basis for the SUA or CIA. **Betterment costs will be the OWNER'S responsibility.**

NOTE: Water and Sewer Design and Construction relocation work put in the contract will automatically be accomplished by the DEPARTMENT'S CONTRACTOR. The UTILITY OWNER will still have design approval authority. (No Pre-Approved Contractor/Consultant List required, leave page 6 blank). If you are a Water & Sewer Utility and choose to put your relocation Design and Construction in the contract, please check Design and Construction under Option 2 under 3B. Owner's electing to perform their own design, at their own cost, please select design under 3C.

OWNER hereby intends to:

3A. OWNER, at the DEPARTMENT'S cost through an Agreement, will provide the following services for the properties for which it has established prior rights (Check to signify):

Design _____
Construction _____

3B. OWNER, at the CONTRACTOR'S cost, for any removal, relocation, protection, adjustment and/or design (Regardless of Prior Rights) will allow their facilities to be placed into the DEPARTMENT'S contract for the following services pursuant to O.C.G.A. § 32-6-170(b). The CONTRACTOR will add the removal, relocation, protection, materials, adjustment and/or design cost, excluding betterment, to the overall PROJECT's cost. (Check to signify):

Option 1: OWNER wants the work to be performed by the OWNER's pre-approved Design Consultants and/or Contractors.

Design _____
Construction ____

Option 2: OWNER wants the DEPARTMENT'S CONTRACTOR to perform the design and/or construction. (Check to signify):

Design __X_
Construction __X__ **If both are checked, please leave page 6 blank.**

As per this section, all work necessary for the removal, relocation, protection, or adjustment of the described utilities in accordance with the plans when approved shall be included in the project contract and accomplished by the CONTRACTOR except as follows (Check none or list any work items to be performed by the OWNER)

None _____

Excluded Items Actual utility wire.

Comments: Comcast only request that the conduit for the facility gets installed by CONTRACTOR. Comcast will instill its own facility through provided conduit at OWNERS expense.

3C. OWNER, at OWNER'S cost, will provide the following services (Check to signify):

Design _____
Construction _____

The following is hereby mutually agreed to and understood by both parties:

1. The identification of existing facilities including preparation of Overhead/Subsurface Utility Engineering (SUE) investigations plans will be accomplished by the DEPARTMENT prior to award of the PROJECT and thereafter supplemented by the CONTRACTOR.

2. The CONTRACTOR shall coordinate reviews of the utility relocation information and obtain acceptance from the OWNER and DEPARTMENT when required. However; the OWNER shall apply for and obtain any required permits from the DEPARTMENT and perform any final design or proprietary design needed to administer its own relocation work if the work will not be included in the contract If the preliminary plans indicate that no conflict exists, and the OWNER concurs with this information, the OWNER shall provide a letter of "no conflict" to the CONTRACTOR.

3. After award of the PROJECT, the CONTRACTOR will research any claimed compensable property interest for each OWNER claiming prior rights under section 3A and present the findings to the DEPARTMENT and OWNER for approval. The plans and estimate for the utility work shall be subject to approval of both the DEPARTMENT and the OWNER prior to construction. If the OWNER chooses to perform its own relocations and the OWNER holds no property interest as stated above; the OWNER shall confirm in writing that the OWNER will relocate its own facilities at no cost to the DEPARTMENT or the CONTRACTOR.

4. All construction engineering and contract supervision shall be the responsibility of the DEPARTMENT and the CONTRACTOR to ensure that all utility work included in the contract is accomplished in accordance with the PROJECT's plans and specifications. The CONTRACTOR will consult with the OWNER before authorizing any changes or deviations which affect the OWNER's facility.

5. For utility work included in the contract, the CONTRACTOR shall ensure that the design/construction and installation of the OWNER'S facilities is performed by a contractor/design consultant pre-approved/registered with both the DEPARTMENT and the OWNER. For any work included in the contract, excluding water and sewer, the OWNER will provide a list of pre-approved/registered contractors/design consultants on page 6 of the MOU.

6. For Utility work included in the contract, the OWNER or the OWNER's Consultant shall have the right to visit and inspect the work at any time and advise the CONTRACTOR and the DEPARTMENT'S Engineer of any observed discrepancies or potential issues. The DEPARTMENT agrees to notify the OWNER when all utility work is completed and ready for final inspection by the OWNER.

7. Upon Maintenance Acceptance or Final Acceptance of the utility work included in the contract and upon certification by the DEPARTMENT'S Engineer and the OWNER that the work has been completed in accordance with the plans and specifications, the OWNER will accept the adjusted, relocated, and additional facilities and will thereafter operate and maintain said facilities located within the PROJECT right of way subject to the DEPARTMENT'S Utility Accommodations Policy and Standards Manual (UAM), current edition" and any agreements in effect without further cost to the DEPARTMENT or it's CONTRACTOR. Final acceptance of the utility relocation work is accomplished by the execution of the Utility Facility Relocation Acceptance Form. The CONTRACTOR shall provide the OWNER with a complete set of "As-Built Plans" for review and approval reflecting the relocation work performed by the CONTRACTOR. Upon completion of the Utility Facility Relocation Acceptance Form and the exchange of the final OWNER approved "As-Built Plans", the OWNER will operate and maintain the installed facilities going forward based on the date of execution of the Utility Facility Relocation Acceptance Form by the DEPARTMENT.

8. For utility coordination, relocation and reimbursement matters, the OWNER shall cooperate with the CONTRACTOR in the same manner as if coordinating directly with the DEPARTMENT in accordance with the laws of the State of Georgia, the DEPARTMENT'S UAM and any agreements in effect between the DEPARTMENT and OWNER. The OWNER agrees to cooperate in good faith with the CONTRACTOR and to respond to all requests for information or meetings required to reach a resolution of any disputed items.

9. All Utility work included in the PROJECT's contract and Utility work completed by the OWNER that is reimbursed by the DEPARTMENT through an agreement shall be in accordance with the BUY AMERICA requirements of the Federal regulations (23 U.S.C. 313 and 23 CFR 635.410) all manufacturing processes for steel and iron products or predominantly of steel or iron furnished for permanent incorporation into the work on this project shall occur in the United States. The only exception to this requirement is the production of pig iron and the processing, pelletizing and reduction of iron ore, which may occur in another country. Other than these exceptions, all melting, rolling, extruding, machining, bending, grinding, drilling, coating, etc. must occur in the United States.

    a. Products of steel include, but are not limited to, such products as structural steel piles, reinforcing steel, structural plate, steel culverts, and guardrail steel supports for signs, signals and luminaires. Products of iron include, but are not limited to, such products as cast iron frames and grates and ductile iron pipe. Coatings include, but are not limited to, the applications of epoxy, galvanizing and paint. The coating material is not limited to this clause, only the application process.

    b. A Certificate of Compliance shall be furnished for steel and iron products as part of the backup information with the billing. The form for this certification entitled "Buy America Certificate of Compliance" is attached to this agreement as "Exhibit A." Records to be maintained by the Developer for this certification shall include a signed mill test report and a signed certification by each supplier, distributor, fabricator, and manufacturer that has handled the steel or iron product affirming that every process, including the application of a coating, performed on the steel or iron product has been carried out in the United States of America, except as allowed by this Section. The lack of these certifications will be justification for rejection of the steel and/or iron product or nonpayment of the work.

The requirements of said law and regulations do not prevent the use of miscellaneous steel or iron components, subcomponents and hardware necessary to encase, assemble and construct the above products, manufactured products that are not predominantly steel or iron or a minimal use of foreign steel and iron materials if the cost of such materials used does not exceed one-tenth of one percent (0.1%) of the total contract price or $2,500.00, whichever is greater. The Memorandum of Understanding will be incorporated into the project contract by reference or Exhibit.

APPROVED FOR THE OWNER BY:

(Signature) 11/15/17 (Date)

CONSTRUCTION SPEC. II

(Title)

APPROVED FOR THE DEPARTMENT BY:

(Signature) 12/8/17 (Date)

STATE UTILITIES ADMINISTRATOR

Pre-Approved Contractor List

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

Please provide a minimum of three.

Pre-Approved Design Consultant List

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

Georgia Department of Transportation

Technical Provisions

For

Design-Build Agreement

P.I. Nos. 0012757 and 0012758

Attachment 6-6

Georgia Power Distribution MOU

Georgia DOT Project: Reconstruct the I-16 at I-95 Interchange and I-16 Widening from I-95 to I-516
GDOT P.I. # 0012757 & 0012758

DESIGN-BUILD
MEMORANDUM OF UNDERSTANDING

between the
Georgia Department of Transportation (hereafter the DEPARTMENT)
and
Georgia Power Company (hereafter the OWNER)

Whereas GDOT, hereafter referred to as the DEPARTMENT proposes to undertake design-build projects hereafter referred to as PROJECTS to reconstruct the I-16 Interchange at I-95 and I-16 Widening from I-95 to I-516 in Chatham County, Georgia by contract through competitive bidding procedures; and,

Whereas the DEPARTMENT will accomplish the PROJECT through a Design Consultant, Design Consultant Team and/or Contractor, hereafter referred to as CONTRACTOR; and the utility owner hereafter referred to as the OWNER, and

Whereas, where OWNER has property rights ("Prior Rights") at the location of the PROJECT, OWNER will provide written evidence as to said prior rights within the area and will provide written documentation of prior rights relating to any individual crossing or Utility Facility, at the location of the PROJECT; and

Whereas, OWNER acknowledges that, generally, absent a showing of prior rights, the costs of relocation, protection, removal, or adjustment performed by OWNER shall be borne by OWNER; and

Whereas, pursuant to O.C.G.A. § 32-6-170(b), DEPARTMENT is authorized to pay or participate in the payment of the costs of relocation, protection, or adjustment of OWNER'S facilities where DEPARTMENT has made the determination that (i) such payments are in the best interest of the public and necessary in order to expedite the staging of the design-build project; and (ii) the costs of the removal, relocation, protection, or adjustment of such facilities are included as part of the Contract between the Department and the Department's roadway contractor for the design-build project; and

1. Type of Utility

OWNER has the following utility facilities which may need to be adjusted or relocated as a result of the proposed PROJECT:

Type of facility or facilities of OWNER:

_____Domestic water mains and distribution lines and associated appurtenances
_____Sanitary Sewer facilities and/or Storm Drainage System
___X_ Electrical Distribution (overhead and underground) wires, poles, etc.
_____Electrical Transmission (overhead and underground) wires, poles, etc.
_____Natural Gas Distribution Facilities (underground)
_____Natural Gas Transmission Facilities (underground)
_____Petroleum Pipeline (underground)
_____Telecommunications facilities and equipment
_____Cable TV facilities
_____Street Lighting
_____Internet Data Service
_____Other Facilities (Description) _____

2. New Utility Facilities Proposed (Betterment)

OWNER desires the following to be installed as new additional facilities within the PROJECT. Insert here or attach a detailed description of proposed new additional utility installations:

N/A

3. Assignment of Responsibilities for Design and Construction

This MEMORANDUM OF UNDERSTANDING and the following shall serve as a *basis* for assignment of responsibilities and costs for the DEPARTMENT, CONTRACTOR and the OWNER to enter into a Standard Utility Agreement (SUA) or Contract Item Agreement (CIA), if necessary, with OWNER once the PROJECT is awarded to the CONTRACTOR. For a PROJECT implementation, GDOT will not have in its possession exact costing plans to be utilized to determine exact locations of the removal, relocation, protection, or adjustment. However, Overhead/Subsurface Utility Engineering (SUE) investigations plans exist providing the best information and signifying the layout of known existing facilities. Please use these plans for developing the final determination of services as indicated below. The CONTRACTOR developed plans will be provided to the OWNER after the design build project is awarded by GDOT which shall be used by the CONTRACTOR as the final basis for the SUA or CIA. **Betterment costs will be the OWNER'S responsibility.**

NOTE: Water and Sewer Design and Construction relocation work put in the contract will automatically be accomplished by the DEPARTMENT'S CONTRACTOR. The UTILITY OWNER will still have design approval authority. (No Pre-Approved Contractor/Consultant List required, leave page 6 blank). If you are a Water & Sewer Utility and choose to put your relocation Design and Construction in the contract, please check Design and Construction under Option 2 under 3B. Owner's electing to perform their own design, at their own cost, please select design under 3C.

OWNER hereby intends to:

3A. OWNER, at the DEPARTMENT'S cost through an Agreement, will provide the following services for the properties for which it has established prior rights (Check to signify):

Design _____
Construction _____

3B. OWNER, at the CONTRACTOR'S cost, for any removal, relocation, protection, adjustment and/or design (Regardless of Prior Rights) will allow their facilities to be placed into the DEPARTMENT'S contract for the following services pursuant to O.C.G.A. § 32-6-170(b). The CONTRACTOR will add the removal, relocation, protection, materials, adjustment and/or design cost, excluding betterment, to the overall PROJECT's cost. (Check to signify):

Option 1: OWNER wants the work to be performed by the OWNER's pre-approved Design Consultants and/or Contractors.

Design __X___
Construction __X___

Option 2: OWNER wants the DEPARTMENT'S CONTRACTOR to perform the design and/or construction. (Check to signify):

Design ____
Construction ____ **If both are checked, please leave page 6 blank.**

As per this section, all work necessary for the removal, relocation, protection, or adjustment of the described utilities in accordance with the plans when approved shall be included in the project contract and accomplished by the CONTRACTOR except as follows (Check none or list any work items to be performed by the OWNER)

None __X___

Excluded Items _____

Comments: _____

3C. OWNER, at OWNER'S cost, will provide the following services (Check to signify):

Design _____
Construction _____

The following is hereby mutually agreed to and understood by both parties:

1. The identification of existing facilities including preparation of Overhead/Subsurface Utility Engineering (SUE) investigations plans will bc accomplished by the DEPARTMENT prior to award of the PROJECT and thereafter supplemented by the CONTRACTOR.

2. The CONTRACTOR shall coordinate reviews of the utility relocation information and obtain acceptance from the OWNER and DEPARTMENT when required. However; the OWNER shall apply for and obtain any required permits from the DEPARTMENT and perform any final design or proprietary design needed to administer its own relocation work if the work will not be included in the contract If the preliminary plans indicate that no conflict exists, and the OWNER concurs with this information, the OWNER shall provide a letter of "no conflict" to the CONTRACTOR.

3. After award of the PROJECT, the CONTRACTOR will research any claimed compensable property interest for each OWNER claiming prior rights under section 3A and present the findings to the DEPARTMENT and OWNER for approval. The plans and estimate for the utility work shall be subject to approval of both the DEPARTMENT and the OWNER prior to construction. If the OWNER chooses to perform its own relocations and the OWNER holds no property interest as stated above; the OWNER shall confirm in writing that the OWNER will relocate its own facilities at no cost to the DEPARTMENT or the CONTRACTOR.

4. All construction engineering and contract supervision shall be the responsibility of the DEPARTMENT and the CONTRACTOR to ensure that all utility work included in the contract is accomplished in accordance with the PROJECT's plans and specifications. The CONTRACTOR will consult with the OWNER before authorizing any changes or deviations which affect the OWNER's facility.

5. For utility work included in the contract, the CONTRACTOR shall ensure that the design/construction and installation of the OWNER'S facilities is performed by a contractor/design consultant pre-approved/registered with both the DEPARTMENT and the OWNER. For any work included in the contract, excluding water and sewer, the OWNER will provide a list of pre-approved/registered contractors/design consultants on page 6 of the MOU.

6. For Utility work included in the contract, the OWNER or the OWNER's Consultant shall have the right to visit and inspect the work at any time and advise the CONTRACTOR and the DEPARTMENT'S Engineer of any observed discrepancies or potential issues. The DEPARTMENT agrees to notify the OWNER when all utility work is completed and ready for final inspection by the OWNER.

7. Upon Maintenance Acceptance or Final Acceptance of the utility work included in the contract and upon certification by the DEPARTMENT'S Engineer and the OWNER that the work has been completed in accordance with the plans and specifications, the OWNER will accept the adjusted, relocated, and additional facilities and will thereafter operate and maintain said facilities located within the PROJECT right of way subject to the DEPARTMENT'S Utility Accommodations Policy and Standards Manual (UAM), current edition" and any agreements in effect without further cost to the DEPARTMENT or it's CONTRACTOR. Final acceptance of the utility relocation work is accomplished by the execution of the Utility Facility Relocation Acceptance Form. The CONTRACTOR shall provide the OWNER with a complete set of "As-Built Plans" for review and approval reflecting the relocation work performed by the CONTRACTOR. Upon completion of the Utility Facility Relocation Acceptance Form and the exchange of the final OWNER approved "As-Built Plans", the OWNER will operate and maintain the installed facilities going forward based on the date of execution of the Utility Facility Relocation Acceptance Form by the DEPARTMENT.

8. For utility coordination, relocation and reimbursement matters, the OWNER shall cooperate with the CONTRACTOR in the same manner as if coordinating directly with the DEPARTMENT in accordance with the laws of the State of Georgia, the DEPARTMENT'S UAM and any agreements in effect between the DEPARTMENT and OWNER. The OWNER agrees to cooperate in good faith with the CONTRACTOR and to respond to all requests for information or meetings required to reach a resolution of any disputed items.

9. All Utility work included in the PROJECT's contract and Utility work completed by the OWNER that is reimbursed by the DEPARTMENT through an agreement shall be in accordance with the BUY AMERICA requirements of the Federal regulations (23 U.S.C. 313 and 23 CFR 635.410) all manufacturing processes for steel and iron products or predominantly of steel or iron furnished for permanent incorporation into the work on this project shall occur in the United States. The only exception to this requirement is the production of pig iron and the processing, pelletizing and reduction of iron ore, which may occur in another country. Other than these exceptions, all melting, rolling, extruding, machining, bending, grinding, drilling, coating, etc. must occur in the United States.

    a. Products of steel include, but are not limited to, such products as structural steel piles, reinforcing steel, structural plate, steel culverts, and guardrail steel supports for signs, signals and luminaires. Products of iron include, but are not limited to, such products as cast iron frames and grates and ductile iron pipe. Coatings include, but are not limited to, the applications of epoxy, galvanizing and paint. The coating material is not limited to this clause, only the application process.

    b. A Certificate of Compliance shall be furnished for steel and iron products as part of the backup information with the billing. The form for this certification entitled "Buy America Certificate of Compliance" is attached to this agreement as "Exhibit A." Records to be maintained by the Developer for this certification shall include a signed mill test report and a signed certification by each supplier, distributor, fabricator, and manufacturer that has handled the steel or iron product affirming that every process, including the application of a coating, performed on the steel or iron product has been carried out in the United States of America, except as allowed by this Section. The lack of these certifications will be justification for rejection of the steel and/or iron product or nonpayment of the work.

The requirements of said law and regulations do not prevent the use of miscellaneous steel or iron components, subcomponents and hardware necessary to encase, assemble and construct the above products, manufactured products that are not predominantly steel or iron or a minimal use of foreign steel and iron materials if the cost of such materials used does not exceed one-tenth of one percent (0.1%) of the total contract price or $2,500.00, whichever is greater. The Memorandum of Understanding will be incorporated into the project contract by reference or Exhibit.

APPROVED FOR THE OWNER BY:

Mark Tilden
(Signature)

November 3, 2017
(Date)

Project Manager - DOT

(Title)

APPROVED FOR THE DEPARTMENT BY:

(Signature)

12/19/17
(Date)

STATE UTILITIES ADMINISTRATOR

Pre-Approved Contractor List

Company Name: See Attached List
Address:
Phone:
Contact Person:
E-Mail:

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

Please provide a minimum of three.

Pre-Approved Design Consultant List

Company Name: See Attached List
Address:
Phone:
Contact Person:
E-Mail:

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

GEORGIA POWER COMPANY

Design Contractors				
Name	**Contact**	**Phone Number**	**Email**	**Address**
McLean Engineering	Sean Knowles	(404) 520-0288	sean.knowles@mcleanengineering.com	1954 Airport Road, Suite 214, Chamblee GA 30341
Storm Services	David Dent	(678) 726-7551	david@stormsl.com	432 Wateroak Lane, Augusta, GA 30907
UC / Synergetic	Mark Murray	770-835-0319	mmurray@ucsinc.com	1700 Water Place, Suite 100, Atlanta, GA

Construction Contractors				
Name	**Contact**	**Phone Number**	**Email**	**Address**
MasTec	Thomas Jones	218-785-3030	thomas.jones@mastec.com	800 S. Douglas Road, 12th Floor Coral Gables, FL 33134
Pike Electric	Todd Badgett	333-719-4431	tbadgett@pike.com	P.O. Box 868,100 Pike Way Mount Airy, NC 27030
Service Electric	Jody Shea	(423) 265-3161 x102	jshea@serviceelectricco.com	1631 East 25th Street PO Box 3656 Chattanooga, TN 37404
Sumter Utilities	Mikell Murray	843-725-9521	jmmurray@suimail.com	1151 North Pike West Sumter, SC 29151
Utilicon	Jimmy Glover	(478) 348-3233	j.glover@utilicon.net	13275 Highway 231 Davisboro, Ga 31018
Williams Electric	Rick Falls	(704) 484-1882	rick.falls@weco.com	P.O. Box 2367 Shelby, NC 28151

Georgia Department of Transportation

Technical Provisions

For

Design-Build Agreement

P.I. Nos. 0012757 and 0012758

Attachment 6-7

Georgia Power Transmission MOU

Georgia DOT Project: Reconstruct the I-16 at I-95 Interchange and I-16 Widening from I-95 to I-516
GDOT P.I. # 0012757 & 0012758

DESIGN-BUILD
MEMORANDUM OF UNDERSTANDING

between the
Georgia Department of Transportation (hereafter the DEPARTMENT)
and
Georgia Power Company (hereafter the OWNER)

Whereas GDOT, hereafter referred to as the DEPARTMENT proposes to undertake design-build projects hereafter referred to as PROJECTS to reconstruct the I-16 Interchange at I-95 and I-16 Widening from I-95 to I-516 in Chatham County, Georgia by contract through competitive bidding procedures; and,

Whereas the DEPARTMENT will accomplish the PROJECT through a Design Consultant, Design Consultant Team and/or Contractor, hereafter referred to as CONTRACTOR; and the utility owner hereafter referred to as the OWNER, and

Whereas, where OWNER has property rights ("Prior Rights") at the location of the PROJECT, OWNER will provide written evidence as to said prior rights within the area and will provide written documentation of prior rights relating to any individual crossing or Utility Facility, at the location of the PROJECT; and

Whereas, OWNER acknowledges that, generally, absent a showing of prior rights, the costs of relocation, protection, removal, or adjustment performed by OWNER shall be borne by OWNER; and

Whereas, pursuant to O.C.G.A. § 32-6-170(b), DEPARTMENT is authorized to pay or participate in the payment of the costs of relocation, protection, or adjustment of OWNER'S facilities where DEPARTMENT has made the determination that (i) such payments are in the best interest of the public and necessary in order to expedite the staging of the design-build project; and (ii) the costs of the removal, relocation, protection, or adjustment of such facilities are included as part of the Contract between the Department and the Department's roadway contractor for the design-build project; and

1. Type of Utility

OWNER has the following utility facilities which may need to be adjusted or relocated as a result of the proposed PROJECT:

Type of facility or facilities of OWNER:

_____Domestic water mains and distribution lines and associated appurtenances
_____Sanitary Sewer facilities and/or Storm Drainage System
_____ Electrical Distribution (overhead and underground) wires, poles, etc.
__X__ Electrical Transmission (overhead and underground) wires, poles, etc.
_____Natural Gas Distribution Facilities (underground)
_____Natural Gas Transmission Facilities (underground)
_____Petroleum Pipeline (underground)
_____Telecommunications facilities and equipment
_____Cable TV facilities
_____Street Lighting
_____Internet Data Service
_____Other Facilities (Description) _____

2. New Utility Facilities Proposed (Betterment)

OWNER desires the following to be installed as new additional facilities within the PROJECT. Insert here or attach a detailed description of proposed new additional utility installations:

N/A

3. Assignment of Responsibilities for Design and Construction

This MEMORANDUM OF UNDERSTANDING and the following shall serve as a *basis* for assignment of responsibilities and costs for the DEPARTMENT, CONTRACTOR and the OWNER to enter into a Standard Utility Agreement (SUA) or Contract Item Agreement (CIA), if necessary, with OWNER once the PROJECT is awarded to the CONTRACTOR. For a PROJECT implementation, GDOT will not have in its possession exact costing plans to be utilized to determine exact locations of the removal, relocation, protection, or adjustment. However, Overhead/Subsurface Utility Engineering (SUE) investigations plans exist providing the best information and signifying the layout of known existing facilities. Please use these plans for developing the final determination of services as indicated below. The CONTRACTOR developed plans will be provided to the OWNER after the design build project is awarded by GDOT which shall be used by the CONTRACTOR as the final basis for the SUA or CIA. **Betterment costs will be the OWNER'S responsibility.**

NOTE: Water and Sewer Design and Construction relocation work put in the contract will automatically be accomplished by the DEPARTMENT'S CONTRACTOR. The UTILITY OWNER will still have design approval authority. (No Pre-Approved Contractor/Consultant List required, leave page 6 blank). If you are a Water & Sewer Utility and choose to put your relocation Design and Construction in the contract, please check Design and Construction under Option 2 under 3B. Owner's electing to perform their own design, at their own cost, please select design under 3C.

OWNER hereby intends to:

3A. OWNER, at the DEPARTMENT'S cost through an Agreement, will provide the following services for the properties for which it has established prior rights (Check to signify):

Design _____
Construction _____

3B. OWNER, at the CONTRACTOR'S cost, for any removal, relocation, protection, adjustment and/or design (Regardless of Prior Rights) will allow their facilities to be placed into the DEPARTMENT'S contract for the following services pursuant to O.C.G.A. § 32-6-170(b). The CONTRACTOR will add the removal, relocation, protection, materials, adjustment and/or design cost, excluding betterment, to the overall PROJECT's cost. (Check to signify):

Option 1: OWNER wants the work to be performed by the OWNER's pre-approved Design Consultants and/or Contractors.

Design __X__
Construction __X__

Option 2: OWNER wants the DEPARTMENT'S CONTRACTOR to perform the design and/or construction. (Check to signify):

Design ____
Construction ____ **If both are checked, please leave page 6 blank.**

As per this section, all work necessary for the removal, relocation, protection, or adjustment of the described utilities in accordance with the plans when approved shall be included in the project contract and accomplished by the CONTRACTOR except as follows (Check none or list any work items to be performed by the OWNER)

None __X__

Excluded Items _____

Comments: _____

3C. OWNER, at OWNER'S cost, will provide the following services (Check to signify):

Design _____
Construction _____

The following is hereby mutually agreed to and understood by both parties:

1. The identification of existing facilities including preparation of Overhead/Subsurface Utility Engineering (SUE) investigations plans will be accomplished by the DEPARTMENT prior to award of the PROJECT and thereafter supplemented by the CONTRACTOR.

2. The CONTRACTOR shall coordinate reviews of the utility relocation information and obtain acceptance from the OWNER and DEPARTMENT when required. However; the OWNER shall apply for and obtain any required permits from the DEPARTMENT and perform any final design or proprietary design needed to administer its own relocation work if the work will not be included in the contract If the preliminary plans indicate that no conflict exists, and the OWNER concurs with this information, the OWNER shall provide a letter of "no conflict" to the CONTRACTOR.

3. After award of the PROJECT, the CONTRACTOR will research any claimed compensable property interest for each OWNER claiming prior rights under section 3A and present the findings to the DEPARTMENT and OWNER for approval. The plans and estimate for the utility work shall be subject to approval of both the DEPARTMENT and the OWNER prior to construction. If the OWNER chooses to perform its own relocations and the OWNER holds no property interest as stated above; the OWNER shall confirm in writing that the OWNER will relocate its own facilities at no cost to the DEPARTMENT or the CONTRACTOR.

4. All construction engineering and contract supervision shall be the responsibility of the DEPARTMENT and the CONTRACTOR to ensure that all utility work included in the contract is accomplished in accordance with the PROJECT's plans and specifications. The CONTRACTOR will consult with the OWNER before authorizing any changes or deviations which affect the OWNER's facility.

5. For utility work included in the contract, the CONTRACTOR shall ensure that the design/construction and installation of the OWNER'S facilities is performed by a contractor/design consultant pre-approved/registered with both the DEPARTMENT and the OWNER. For any work included in the contract, excluding water and sewer, the OWNER will provide a list of pre-approved/registered contractors/design consultants on page 6 of the MOU.

6. For Utility work included in the contract, the OWNER or the OWNER's Consultant shall have the right to visit and inspect the work at any time and advise the CONTRACTOR and the DEPARTMENT'S Engineer of any observed discrepancies or potential issues. The DEPARTMENT agrees to notify the OWNER when all utility work is completed and ready for final inspection by the OWNER.

7. Upon Maintenance Acceptance or Final Acceptance of the utility work included in the contract and upon certification by the DEPARTMENT'S Engineer and the OWNER that the work has been completed in accordance with the plans and specifications, the OWNER will accept the adjusted, relocated, and additional facilities and will thereafter operate and maintain said facilities located within the PROJECT right of way subject to the DEPARTMENT'S Utility Accommodations Policy and Standards Manual (UAM), current edition" and any agreements in effect without further cost to the DEPARTMENT or it's CONTRACTOR. Final acceptance of the utility relocation work is accomplished by the execution of the Utility Facility Relocation Acceptance Form. The CONTRACTOR shall provide the OWNER with a complete set of "As-Built Plans" for review and approval reflecting the relocation work performed by the CONTRACTOR. Upon completion of the Utility Facility Relocation Acceptance Form and the exchange of the final OWNER approved "As-Built Plans", the OWNER will operate and maintain the installed facilities going forward based on the date of execution of the Utility Facility Relocation Acceptance Form by the DEPARTMENT.

8. For utility coordination, relocation and reimbursement matters, the OWNER shall cooperate with the CONTRACTOR in the same manner as if coordinating directly with the DEPARTMENT in accordance with the laws of the State of Georgia, the DEPARTMENT'S UAM and any agreements in effect between the DEPARTMENT and OWNER. The OWNER agrees to cooperate in good faith with the CONTRACTOR and to respond to all requests for information or meetings required to reach a resolution of any disputed items.

9. All Utility work included in the PROJECT's contract and Utility work completed by the OWNER that is reimbursed by the DEPARTMENT through an agreement shall be in accordance with the BUY AMERICA requirements of the Federal regulations (23 U.S.C. 313 and 23 CFR 635.410) all manufacturing processes for steel and iron products or predominantly of steel or iron furnished for permanent incorporation into the work on this project shall occur in the United States. The only exception to this requirement is the production of pig iron and the processing, pelletizing and reduction of iron ore, which may occur in another country. Other than these exceptions, all melting, rolling, extruding, machining, bending, grinding, drilling, coating, etc. must occur in the United States.

    a. Products of steel include, but are not limited to, such products as structural steel piles, reinforcing steel, structural plate, steel culverts, and guardrail steel supports for signs, signals and luminaires. Products of iron include, but are not limited to, such products as cast iron frames and grates and ductile iron pipe. Coatings include, but are not limited to, the applications of epoxy, galvanizing and paint. The coating material is not limited to this clause, only the application process.

    b. A Certificate of Compliance shall be furnished for steel and iron products as part of the backup information with the billing. The form for this certification entitled "Buy America Certificate of Compliance" is attached to this agreement as "Exhibit A." Records to be maintained by the Developer for this certification shall include a signed mill test report and a signed certification by each supplier, distributor, fabricator, and manufacturer that has handled the steel or iron product affirming that every process, including the application of a coating, performed on the steel or iron product has been carried out in the United States of America, except as allowed by this Section. The lack of these certifications will be justification for rejection of the steel and/or iron product or nonpayment of the work.

The requirements of said law and regulations do not prevent the use of miscellaneous steel or iron components, subcomponents and hardware necessary to encase, assemble and construct the above products, manufactured products that are not predominantly steel or iron or a minimal use of foreign steel and iron materials if the cost of such materials used does not exceed one-tenth of one percent (0.1%) of the total contract price or $2,500.00, whichever is greater. The Memorandum of Understanding will be incorporated into the project contract by reference or Exhibit.

APPROVED FOR THE OWNER BY:

Mark Gilden _____ November 9, 2017
(Signature) (Date)

Project Manager - DOT
(Title)

APPROVED FOR THE DEPARTMENT BY:

_____ 12/19/17
(Signature) (Date)

STATE UTILITIES ADMINISTRATOR

Pre-Approved Contractor List

Company Name: See Attached List
Address:
Phone:
Contact Person:
E-Mail:

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

Please provide a minimum of three.

Pre-Approved Design Consultant List

Company Name: See Attached List
Address:
Phone:
Contact Person:
E-Mail:

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

EXHIBIT A
UTILITY OWNER PRE-APPROVED CONTRACTOR/CONSULTANT LIST

Pre-Approved Design Consultant List

Company: **Apogee Engineers, LLC**
Address: 4856 Anderson Road
Orlando, Florida 32812
Contact Person: David H. Seligson
Phone: 407-658-7590
Email: David.Seligson@ApogeeEngineers.com

Company: **Mesa Associates**
Address: 629 Market Street, Suite 200
Chattanooga,TN 37402
Contact Person: Kazem Shomali
Phone: 423-424-7345
Email: kshomali@mesainc.com

Company Name: **Power Delivery Solutions**
Address: 100 Commerce Drive, Suite 201
Newark, DE 19713
Contact Person: Dean Sevy
Phone: 770-617-6921
Email: Dsevy@powerdsllc.com

Company: **S. Nelson & Associates**
Address: 110 Evans Mill Drive Suite 204
Dallas, GA 30157
Contact Person: Graham Smith
Phone: 770-841-8242
Email: GSMITH@S-NELSON.COM

EXHIBIT A
UTILITY OWNER PRE-APPROVED CONTRACTOR/CONSULTANT LIST

Pre-Approved Contractor List

Company Name: Irby Construction Company
Address: 318 Old Highway 49 South
Richland, MS 39218
Contact Doug Blake, Vice President - Operations
Phone: 601-292-4143
blake@irbyconst.com

Company Name: Service Electric
Address: 1631 East 25th Street, Chatanooga, TN 37404
Phone: 423-265-3161
Contact Person: Jody Shea
E-Mail:jshea@serviceelectricco.com

Company Name: Pike Electric
Address: 100 Pike Way, Mount Airy, NC 27030
Phone: 336-789-2171
Contact Person: James T. Benfield, Region VP
jbenfield@pike.com or
Todd Badgett
E-Mail:tbadgett@pike.com

Company Name: Sumter Utilities
Address: 1151 North Pike West, Sumter, SC 29153
Phone: 803-469-8585
Contact Person: Colin Chalup
E-Mail: cchalupa@suimail.com

Company Name: Utilicon
Address: 13275 Highway 231, Davisboro, GA 31018
Phone: 478-348-3233
Contact Person: Joan Glover
E-Mail:joan.glover@utilicon.net

Company Name: L.E. Myers
Address: 401 Chestnut Street, Suite 120; Chattanooga, TN 37402
Phone: 423-265-4441 x 4133
Contact Person:Danny Gessman
E-Mail:dgessman@myrgroup.com

Georgia Department of Transportation

Technical Provisions

For

Design-Build Agreement

P.I. Nos. 0012757 and 0012758

Attachment 6-8

Georgia Public Web MOU

Georgia DOT Project: Reconstruct the I-16 at I-95 Interchange and I-16 Widening from I-95 to I-516
GDOT P.I. # 0012757 & 0012758

DESIGN-BUILD
MEMORANDUM OF UNDERSTANDING

between the

Georgia Department of Transportation (hereafter the DEPARTMENT)

and

_____Georgia Public Web_____ (hereafter the OWNER)

Whereas GDOT, hereafter referred to as the DEPARTMENT proposes to undertake design-build projects hereafter referred to as PROJECTS to reconstruct the I-16 Interchange at I-95 and I-16 Widening from I-95 to I-516 in Chatham County, Georgia by contract through competitive bidding procedures; and,

Whereas the DEPARTMENT will accomplish the PROJECT through a Design Consultant, Design Consultant Team and/or Contractor, hereafter referred to as CONTRACTOR; and the utility owner hereafter referred to as the OWNER, and

Whereas, where OWNER has property rights ("Prior Rights") at the location of the PROJECT, OWNER will provide written evidence as to said prior rights within the area and will provide written documentation of prior rights relating to any individual crossing or Utility Facility, at the location of the PROJECT; and

Whereas, OWNER acknowledges that, generally, absent a showing of prior rights, the costs of relocation, protection, removal, or adjustment performed by OWNER shall be borne by OWNER; and

Whereas, pursuant to O.C.G.A. § 32-6-170(b), DEPARTMENT is authorized to pay or participate in the payment of the costs of relocation, protection, or adjustment of OWNER'S facilities where DEPARTMENT has made the determination that (i) such payments are in the best interest of the public and necessary in order to expedite the staging of the design-build project; and (ii) the costs of the removal, relocation, protection, or adjustment of such facilities are included as part of the Contract between the Department and the Department's roadway contractor for the design-build project; and

1. Type of Utility

OWNER has the following utility facilities which may need to be adjusted or relocated as a result of the proposed PROJECT:

Type of facility or facilities of OWNER:

_____Domestic water mains and distribution lines and associated appurtenances
_____Sanitary Sewer facilities and/or Storm Drainage System
_____Electrical Distribution (overhead and underground) wires, poles, etc.
_____Electrical Transmission (overhead and underground) wires, poles, etc.
_____Natural Gas Distribution Facilities (underground)
_____Natural Gas Transmission Facilities (underground)
_____Petroleum Pipeline (underground)
___X__Telecommunications facilities and equipment
_____Cable TV facilities
_____Street Lighting
_____Internet Data Service
_____Other Facilities (Description) _____

2. New Utility Facilities Proposed (Betterment)

OWNER desires the following to be installed as new additional facilities within the PROJECT. Insert here or attach a detailed description of proposed new additional utility installations:

__N/A_____
____

_____

3. Assignment of Responsibilities for Design and Construction

This MEMORANDUM OF UNDERSTANDING and the following shall serve as a *basis* for assignment of responsibilities and costs for the DEPARTMENT, CONTRACTOR and the OWNER to enter into a Standard Utility Agreement (SUA) or Contract Item Agreement (CIA), if necessary, with OWNER once the PROJECT is awarded to the CONTRACTOR. For a PROJECT implementation, GDOT will not have in its possession exact costing plans to be utilized to determine exact locations of the removal, relocation, protection, or adjustment. However, Overhead/Subsurface Utility Engineering (SUE) investigations plans exist providing the best information and signifying the layout of known existing facilities. Please use these plans for developing the final determination of services as indicated below. The CONTRACTOR developed plans will be provided to the OWNER after the design build project is awarded by GDOT which shall be used by the CONTRACTOR as the final basis for the SUA or CIA. **Betterment costs will be the OWNER'S responsibility.**

NOTE: Water and Sewer Design and Construction relocation work put in the contract will automatically be accomplished by the DEPARTMENT'S CONTRACTOR. The UTILITY OWNER will still have design approval authority. (No Pre-Approved Contractor/Consultant List required, leave page 6 blank). If you are a Water & Sewer Utility and choose to put your relocation Design and Construction in the contract, please check Design and Construction under Option 2 under 3B. Owner's electing to perform their own design, at their own cost, please select design under 3C.

OWNER hereby intends to:

3A. OWNER, at the DEPARTMENT'S cost through an Agreement, will provide the following services for the properties for which it has established prior rights (Check to signify):

Design _____
Construction _____

3B. OWNER, at the CONTRACTOR'S cost, for any removal, relocation, protection, adjustment and/or design (Regardless of Prior Rights) will allow their facilities to be placed into the DEPARTMENT'S contract for the following services pursuant to O.C.G.A. § 32-6-170(b). The CONTRACTOR will add the removal, relocation, protection, materials, adjustment and/or design cost, excluding betterment, to the overall PROJECT's cost. (Check to signify):

Option 1: OWNER wants the work to be performed by the OWNER's pre-approved Design Consultants and/or Contractors.

Design ___x__
Construction ___x__

Option 2: OWNER wants the DEPARTMENT'S CONTRACTOR to perform the design and/or construction. (Check to signify):

Design ____
Construction ____ **If both are checked, please leave page 6 blank.**

As per this section, all work necessary for the removal, relocation, protection, or adjustment of the described utilities in accordance with the plans when approved shall be included in the project contract and accomplished by the CONTRACTOR except as follows (Check none or list any work items to be performed by the OWNER)

None _____

Excluded Items

_____
____
_____

Comments:_____
_____
_____
_____
_____
_____
_____

3C. OWNER, at OWNER'S cost, will provide the following services (Check to signify):

Design _____
Construction _____

The following is hereby mutually agreed to and understood by both parties:

1. The identification of existing facilities including preparation of Overhead/Subsurface Utility Engineering (SUE) investigations plans will be accomplished by the DEPARTMENT prior to award of the PROJECT and thereafter supplemented by the CONTRACTOR.

2. The CONTRACTOR shall coordinate reviews of the utility relocation information and obtain acceptance from the OWNER and DEPARTMENT when required. However; the OWNER shall apply for and obtain any required permits from the DEPARTMENT and perform any final design or proprietary design needed to administer its own relocation work if the work will not be included in the contract If the preliminary plans indicate that no conflict exists, and the OWNER concurs with this information, the OWNER shall provide a letter of "no conflict" to the CONTRACTOR.

3. After award of the PROJECT, the CONTRACTOR will research any claimed compensable property interest for each OWNER claiming prior rights under section 3A and present the findings to the DEPARTMENT and OWNER for approval. The plans and estimate for the utility work shall be subject to approval of both the DEPARTMENT and the OWNER prior to construction. If the OWNER chooses to perform its own relocations and the OWNER holds no property interest as stated above; the OWNER shall confirm in writing that the OWNER will relocate its own facilities at no cost to the DEPARTMENT or the CONTRACTOR.

4. All construction engineering and contract supervision shall be the responsibility of the DEPARTMENT and the CONTRACTOR to ensure that all utility work included in the contract is accomplished in accordance with the PROJECT's plans and specifications. The CONTRACTOR will consult with the OWNER before authorizing any changes or deviations which affect the OWNER's facility.

5. For utility work included in the contract, the CONTRACTOR shall ensure that the design/construction and installation of the OWNER'S facilities is performed by a contractor/design consultant pre-approved/registered with both the DEPARTMENT and the OWNER. For any work included in the contract, excluding water and sewer, the OWNER will provide a list of pre-approved/registered contractors/design consultants on page 6 of the MOU.

6. For Utility work included in the contract, the OWNER or the OWNER's Consultant shall have the right to visit and inspect the work at any time and advise the CONTRACTOR and the DEPARTMENT'S Engineer of any observed discrepancies or potential issues. The DEPARTMENT agrees to notify the OWNER when all utility work is completed and ready for final inspection by the OWNER.

7. Upon Maintenance Acceptance or Final Acceptance of the utility work included in the contract and upon certification by the DEPARTMENT'S Engineer and the OWNER that the work has been completed in accordance with the plans and specifications, the OWNER will accept the adjusted, relocated, and additional facilities and will thereafter operate and maintain said facilities located within the PROJECT right of way subject to the DEPARTMENT'S Utility Accommodations Policy and Standards Manual (UAM), current edition" and any agreements in effect without further cost to the DEPARTMENT or it's CONTRACTOR. Final acceptance of the utility relocation work is accomplished by the execution of the Utility Facility Relocation Acceptance Form. The CONTRACTOR shall provide the OWNER with a complete set of "As-Built Plans" for review and approval reflecting the relocation work performed by the CONTRACTOR. Upon completion of the Utility Facility Relocation Acceptance Form and the exchange of the final OWNER approved "As-Built Plans", the OWNER will operate and maintain the installed facilities going forward based on the date of execution of the Utility Facility Relocation Acceptance Form by the DEPARTMENT.

8. For utility coordination, relocation and reimbursement matters, the OWNER shall cooperate with the CONTRACTOR in the same manner as if coordinating directly with the DEPARTMENT in accordance with the laws of the State of Georgia, the DEPARTMENT'S UAM and any agreements in effect between the DEPARTMENT and OWNER. The OWNER agrees to cooperate in good faith with the

CONTRACTOR and to respond to all requests for information or meetings required to reach a resolution of any disputed items.

9. All Utility work included in the PROJECT's contract and Utility work completed by the OWNER that is reimbursed by the DEPARTMENT through an agreement shall be in accordance with the BUY AMERICA requirements of the Federal regulations (23 U.S.C. 313 and 23 CFR 635.410) all manufacturing processes for steel and iron products or predominantly of steel or iron furnished for permanent incorporation into the work on this project shall occur in the United States. The only exception to this requirement is the production of pig iron and the processing, pelletizing and reduction of iron ore, which may occur in another country. Other than these exceptions, all melting, rolling, extruding, machining, bending, grinding, drilling, coating, etc. must occur in the United States.

    a. Products of steel include, but are not limited to, such products as structural steel piles, reinforcing steel, structural plate, steel culverts, and guardrail steel supports for signs, signals and luminaires. Products of iron include, but are not limited to, such products as cast iron frames and grates and ductile iron pipe. Coatings include, but are not limited to, the applications of epoxy, galvanizing and paint. The coating material is not limited to this clause, only the application process.

    b. A Certificate of Compliance shall be furnished for steel and iron products as part of the backup information with the billing. The form for this certification entitled "Buy America Certificate of Compliance" is attached to this agreement as "Exhibit A." Records to be maintained by the Developer for this certification shall include a signed mill test report and a signed certification by each supplier, distributor, fabricator, and manufacturer that has handled the steel or iron product affirming that every process, including the application of a coating, performed on the steel or iron product has been carried out in the United States of America, except as allowed by this Section. The lack of these certifications will be justification for rejection of the steel and/or iron product or nonpayment of the work.

The requirements of said law and regulations do not prevent the use of miscellaneous steel or iron components, subcomponents and hardware necessary to encase, assemble and construct the above products, manufactured products that are not predominantly steel or iron or a minimal use of foreign steel and iron materials if the cost of such materials used does not exceed one-tenth of one percent (0.1%) of the total contract price or $2,500.00, whichever is greater. The Memorandum of Understanding will be incorporated into the project contract by reference or Exhibit.

APPROVED FOR THE OWNER BY:

(Signature) 11/21/2017 (Date)

VICE PRESIDENT OF OPERATIONS

(Title)

APPROVED FOR THE DEPARTMENT BY:

(Signature) 12/19/17 (Date)

STATE UTILITIES ADMINISTRATOR

Pre-Approved Contractor List

Company Name: Triple S Communications Inc
Address: 2043 Sylvester Hwy, Moultrie, GA 31768
Phone: (229) 985-3090
Contact Person: Thomas Sumner
E-Mail: triplescomm@windstream.net

Please provide a minimum of three.

Pre-Approved Design Consultant List

Company Name: UC Synergetic
Address: 200 North Cobb Pkwy Suite 428
Phone: (770)984-6830
Contact Person: Greg Deck
E-Mail: gdeck@ucseng.com

Georgia Department of Transportation

Technical Provisions

For

Design-Build Agreement

P.I. Nos. 0012757 and 0012758

Attachment 6-9

Hargray Telephone MOU

Georgia DOT Project: Reconstruct the I-16 at I-95 Interchange and I-16 Widening from I-95 to I-516
GDOT P.I. # 0012757 & 0012758

DESIGN-BUILD
MEMORANDUM OF UNDERSTANDING

between the
Georgia Department of Transportation (hereafter the DEPARTMENT)
and
Hargray of Georgia (hereafter the OWNER)

Whereas GDOT, hereafter referred to as the DEPARTMENT proposes to undertake design-build projects hereafter referred to as PROJECTS to reconstruct the I-16 Interchange at I-95 and I-16 Widening from I-95 to I-516 in Chatham County, Georgia by contract through competitive bidding procedures; and,

Whereas the DEPARTMENT will accomplish the PROJECT through a Design Consultant, Design Consultant Team and/or Contractor, hereafter referred to as CONTRACTOR; and the utility owner hereafter referred to as the OWNER, and

Whereas, where OWNER has property rights ("Prior Rights") at the location of the PROJECT, OWNER will provide written evidence as to said prior rights within the area and will provide written documentation of prior rights relating to any individual crossing or Utility Facility, at the location of the PROJECT; and

Whereas, OWNER acknowledges that, generally, absent a showing of prior rights, the costs of relocation, protection, removal, or adjustment performed by OWNER shall be borne by OWNER; and

Whereas, pursuant to O.C.G.A. § 32-6-170(b), DEPARTMENT is authorized to pay or participate in the payment of the costs of relocation, protection, or adjustment of OWNER'S facilities where DEPARTMENT has made the determination that (i) such payments are in the best interest of the public and necessary in order to expedite the staging of the design-build project; and (ii) the costs of the removal, relocation, protection, or adjustment of such facilities are included as part of the Contract between the Department and the Department's roadway contractor for the design-build project; and

1. Type of Utility

OWNER has the following utility facilities which may need to be adjusted or relocated as a result of the proposed PROJECT:

Type of facility or facilities of OWNER:

_____Domestic water mains and distribution lines and associated appurtenances
_____Sanitary Sewer facilities and/or Storm Drainage System
_____Electrical Distribution (overhead and underground) wires, poles, etc.
_____Electrical Transmission (overhead and underground) wires, poles, etc.
_____Natural Gas Distribution Facilities (underground)
_____Natural Gas Transmission Facilities (underground)
_____Petroleum Pipeline (underground)
___X_Telecommunications facilities and equipment
_____Cable TV facilities
_____Street Lighting
_____Internet Data Service
_____Other Facilities (Description) _____

2. New Utility Facilities Proposed (Betterment)

OWNER desires the following to be installed as new additional facilities within the PROJECT. Insert here or attach a detailed description of proposed new additional utility installations:

N/A

3. Assignment of Responsibilities for Design and Construction

This MEMORANDUM OF UNDERSTANDING and the following shall serve as a *basis* for assignment of responsibilities and costs for the DEPARTMENT, CONTRACTOR and the OWNER to enter into a Standard Utility Agreement (SUA) or Contract Item Agreement (CIA), if necessary, with OWNER once the PROJECT is awarded to the CONTRACTOR. For a PROJECT implementation, GDOT will not have in its possession exact costing plans to be utilized to determine exact locations of the removal, relocation, protection, or adjustment. However, Overhead/Subsurface Utility Engineering (SUE) investigations plans exist providing the best information and signifying the layout of known existing facilities. Please use these plans for developing the final determination of services as indicated below. The CONTRACTOR developed plans will be provided to the OWNER after the design build project is awarded by GDOT which shall be used by the CONTRACTOR as the final basis for the SUA or CIA. **Betterment costs will be the OWNER'S responsibility.**

NOTE: Water and Sewer Design and Construction relocation work put in the contract will automatically be accomplished by the DEPARTMENT'S CONTRACTOR. The UTILITY OWNER will still have design approval authority. (No Pre-Approved Contractor/Consultant List required, leave page 6 blank). If you are a Water & Sewer Utility and choose to put your relocation Design and Construction in the contract, please check Design and Construction under Option 2 under 3B. Owner's electing to perform their own design, at their own cost, please select design under 3C.

OWNER hereby intends to:

3A. OWNER, at the DEPARTMENT'S cost through an Agreement, will provide the following services for the properties for which it has established prior rights (Check to signify):

Design _____
Construction _____

3B. OWNER, at the CONTRACTOR'S cost, for any removal, relocation, protection, adjustment and/or design (Regardless of Prior Rights) will allow their facilities to be placed into the DEPARTMENT'S contract for the following services pursuant to O.C.G.A. § 32-6-170(b). The CONTRACTOR will add the removal, relocation, protection, materials, adjustment and/or design cost, excluding betterment, to the overall PROJECT's cost. (Check to signify):

Option 1: OWNER wants the work to be performed by the OWNER's pre-approved Design Consultants and/or Contractors.

Design ✓
Construction ✓

Option 2: OWNER wants the DEPARTMENT'S CONTRACTOR to perform the design and/or construction. (Check to signify):

Design ____
Construction ____ **If both are checked, please leave page 6 blank.**

As per this section, all work necessary for the removal, relocation, protection, or adjustment of the described utilities in accordance with the plans when approved shall be included in the project contract and accomplished by the CONTRACTOR except as follows (Check none or list any work items to be performed by the OWNER)

None ✓

Excluded Items _____

Comments: _____

3C. OWNER, at OWNER'S cost, will provide the following services (Check to signify):

Design ____
Construction ____

The following is hereby mutually agreed to and understood by both parties:

1. The identification of existing facilities including preparation of Overhead/Subsurface Utility Engineering (SUE) investigations plans will be accomplished by the DEPARTMENT prior to award of the PROJECT and thereafter supplemented by the CONTRACTOR.

2. The CONTRACTOR shall coordinate reviews of the utility relocation information and obtain acceptance from the OWNER and DEPARTMENT when required. However; the OWNER shall apply for and obtain any required permits from the DEPARTMENT and perform any final design or proprietary design needed to administer its own relocation work if the work will not be included in the contract If the preliminary plans indicate that no conflict exists, and the OWNER concurs with this information, the OWNER shall provide a letter of "no conflict" to the CONTRACTOR.

3. After award of the PROJECT, the CONTRACTOR will research any claimed compensable property interest for each OWNER claiming prior rights under section 3A and present the findings to the DEPARTMENT and OWNER for approval. The plans and estimate for the utility work shall be subject to approval of both the DEPARTMENT and the OWNER prior to construction. If the OWNER chooses to perform its own relocations and the OWNER holds no property interest as stated above; the OWNER shall confirm in writing that the OWNER will relocate its own facilities at no cost to the DEPARTMENT or the CONTRACTOR.

4. All construction engineering and contract supervision shall be the responsibility of the DEPARTMENT and the CONTRACTOR to ensure that all utility work included in the contract is accomplished in accordance with the PROJECT's plans and specifications. The CONTRACTOR will consult with the OWNER before authorizing any changes or deviations which affect the OWNER's facility.

5. For utility work included in the contract, the CONTRACTOR shall ensure that the design/construction and installation of the OWNER'S facilities is performed by a contractor/design consultant pre-approved/registered with both the DEPARTMENT and the OWNER. For any work included in the contract, excluding water and sewer, the OWNER will provide a list of pre-approved/registered contractors/design consultants on page 6 of the MOU.

6. For Utility work included in the contract, the OWNER or the OWNER's Consultant shall have the right to visit and inspect the work at any time and advise the CONTRACTOR and the DEPARTMENT'S Engineer of any observed discrepancies or potential issues. The DEPARTMENT agrees to notify the OWNER when all utility work is completed and ready for final inspection by the OWNER.

7. Upon Maintenance Acceptance or Final Acceptance of the utility work included in the contract and upon certification by the DEPARTMENT'S Engineer and the OWNER that the work has been completed in accordance with the plans and specifications, the OWNER will accept the adjusted, relocated, and additional facilities and will thereafter operate and maintain said facilities located within the PROJECT right of way subject to the DEPARTMENT'S Utility Accommodations Policy and Standards Manual (UAM), current edition" and any agreements in effect without further cost to the DEPARTMENT or it's CONTRACTOR. Final acceptance of the utility relocation work is accomplished by the execution of the Utility Facility Relocation Acceptance Form. The CONTRACTOR shall provide the OWNER with a complete set of "As-Built Plans" for review and approval reflecting the relocation work performed by the CONTRACTOR. Upon completion of the Utility Facility Relocation Acceptance Form and the exchange of the final OWNER approved "As-Built Plans", the OWNER will operate and maintain the installed facilities going forward based on the date of execution of the Utility Facility Relocation Acceptance Form by the DEPARTMENT.

8. For utility coordination, relocation and reimbursement matters, the OWNER shall cooperate with the CONTRACTOR in the same manner as if coordinating directly with the DEPARTMENT in accordance with the laws of the State of Georgia, the DEPARTMENT'S UAM and any agreements in effect between the DEPARTMENT and OWNER. The OWNER agrees to cooperate in good faith with the

CONTRACTOR and to respond to all requests for information or meetings required to reach a resolution of any disputed items.

9. All Utility work included in the PROJECT's contract and Utility work completed by the OWNER that is reimbursed by the DEPARTMENT through an agreement shall be in accordance with the BUY AMERICA requirements of the Federal regulations (23 U.S.C. 313 and 23 CFR 635.410) all manufacturing processes for steel and iron products or predominantly of steel or iron furnished for permanent incorporation into the work on this project shall occur in the United States. The only exception to this requirement is the production of pig iron and the processing, pelletizing and reduction of iron ore, which may occur in another country. Other than these exceptions, all melting, rolling, extruding, machining, bending, grinding, drilling, coating, etc. must occur in the United States.

    a. Products of steel include, but are not limited to, such products as structural steel piles, reinforcing steel, structural plate, steel culverts, and guardrail steel supports for signs, signals and luminaires. Products of iron include, but are not limited to, such products as cast iron frames and grates and ductile iron pipe. Coatings include, but are not limited to, the applications of epoxy, galvanizing and paint. The coating material is not limited to this clause, only the application process.

    b. A Certificate of Compliance shall be furnished for steel and iron products as part of the backup information with the billing. The form for this certification entitled "Buy America Certificate of Compliance" is attached to this agreement as "Exhibit A." Records to be maintained by the Developer for this certification shall include a signed mill test report and a signed certification by each supplier, distributor, fabricator, and manufacturer that has handled the steel or iron product affirming that every process, including the application of a coating, performed on the steel or iron product has been carried out in the United States of America, except as allowed by this Section. The lack of these certifications will be justification for rejection of the steel and/or iron product or nonpayment of the work.

The requirements of said law and regulations do not prevent the use of miscellaneous steel or iron components, subcomponents and hardware necessary to encase, assemble and construct the above products, manufactured products that are not predominantly steel or iron or a minimal use of foreign steel and iron materials if the cost of such materials used does not exceed one-tenth of one percent (0.1%) of the total contract price or $2,500.00, whichever is greater. The Memorandum of Understanding will be incorporated into the project contract by reference or Exhibit.

APPROVED FOR THE OWNER BY:

Gary J. DeLong _____ 11/4/2017
(Signature) (Date)

Construction Engineer
(Title)

APPROVED FOR THE DEPARTMENT BY:

_____ 12/19/17
(Signature) (Date)

STATE UTILITIES ADMINISTRATOR

Pre-Approved Contractor List

Company Name: Fiber optic Communications
Address: 2401 Aimwell Rd. Vidalia GA 30476
Phone: 912-288-4300
Contact Person: Wade O'Neal
E-Mail: fibero@accessatc.net

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

Please provide a minimum of three.

Pre-Approved Design Consultant List

Company Name: Fiber optic Communications
Address: 2401 Aimwell Rd. Vidalia GA 30476
Phone: 912-288-4300
Contact Person: Wade O'Neal
E-Mail: fibero@accessatc.net

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

Georgia Department of Transportation

Technical Provisions

For

Design-Build Agreement

P.I. Nos. 0012757 and 0012758

Attachment 6-10

Level 3 Communications MOU

Georgia DOT Project: Reconstruct the I-16 at I-95 Interchange and I-16 Widening from I-95 to I-516
GDOT P.I. # 0012757 & 0012758

DESIGN-BUILD
MEMORANDUM OF UNDERSTANDING
between the
Georgia Department of Transportation (hereafter the DEPARTMENT)
and
Level 3 Communications (hereafter the OWNER)

Whereas GDOT, hereafter referred to as the DEPARTMENT proposes to undertake design-build projects hereafter referred to as PROJECTS to reconstruct the I-16 Interchange at I-95 and I-16 Widening from I-95 to I-516 in Chatham County, Georgia by contract through competitive bidding procedures; and,

Whereas the DEPARTMENT will accomplish the PROJECT through a Design Consultant, Design Consultant Team and/or Contractor, hereafter referred to as CONTRACTOR; and the utility owner hereafter referred to as the OWNER, and

Whereas, where OWNER has property rights ("Prior Rights") at the location of the PROJECT, OWNER will provide written evidence as to said prior rights within the area and will provide written documentation of prior rights relating to any individual crossing or Utility Facility, at the location of the PROJECT; and

Whereas, OWNER acknowledges that, generally, absent a showing of prior rights, the costs of relocation, protection, removal, or adjustment performed by OWNER shall be borne by OWNER; and

Whereas, pursuant to O.C.G.A. § 32-6-170(b), DEPARTMENT is authorized to pay or participate in the payment of the costs of relocation, protection, or adjustment of OWNER'S facilities where DEPARTMENT has made the determination that (i) such payments are in the best interest of the public and necessary in order to expedite the staging of the design-build project; and (ii) the costs of the removal, relocation, protection, or adjustment of such facilities are included as part of the Contract between the Department and the Department's roadway contractor for the design-build project; and

1. Type of Utility
OWNER has the following utility facilities which may need to be adjusted or relocated as a result of the proposed PROJECT:

Type of facility or facilities of OWNER:
_____Domestic water mains and distribution lines and associated appurtenances
_____Sanitary Sewer facilities and/or Storm Drainage System
_____Electrical Distribution (overhead and underground) wires, poles, etc.
_____Electrical Transmission (overhead and underground) wires, poles, etc.
_____Natural Gas Distribution Facilities (underground)
_____Natural Gas Transmission Facilities (underground)
_____Petroleum Pipeline (underground)
__X__Telecommunications facilities and equipment
_____Cable TV facilities
_____Street Lighting
_____Internet Data Service
_____Other Facilities (Description) _____

2. New Utility Facilities Proposed (Betterment)

OWNER desires the following to be installed as new additional facilities within the PROJECT. Insert here or attach a detailed description of proposed new additional utility installations:

NA

3. Assignment of Responsibilities for Design and Construction

This MEMORANDUM OF UNDERSTANDING and the following shall serve as a *basis* for assignment of responsibilities and costs for the DEPARTMENT, CONTRACTOR and the OWNER to enter into a Standard Utility Agreement (SUA) or Contract Item Agreement (CIA), if necessary, with OWNER once the PROJECT is awarded to the CONTRACTOR. For a PROJECT implementation, GDOT will not have in its possession exact costing plans to be utilized to determine exact locations of the removal, relocation, protection, or adjustment. However, Overhead/Subsurface Utility Engineering (SUE) investigations plans exist providing the best information and signifying the layout of known existing facilities. Please use these plans for developing the final determination of services as indicated below. The CONTRACTOR developed plans will be provided to the OWNER after the design build project is awarded by GDOT which shall be used by the CONTRACTOR as the final basis for the SUA or CIA. **Betterment costs will be the OWNER'S responsibility.**

NOTE: Water and Sewer Design and Construction relocation work put in the contract will automatically be accomplished by the DEPARTMENT'S CONTRACTOR. The UTILITY OWNER will still have design approval authority. (No Pre-Approved Contractor/Consultant List required, leave page 6 blank). If you are a Water & Sewer Utility and choose to put your relocation Design and Construction in the contract, please check Design and Construction under Option 2 under 3B. Owner's electing to perform their own design, at their own cost, please select design under 3C.

OWNER hereby intends to:

3A. OWNER, at the DEPARTMENT'S cost through an Agreement, will provide the following services for the properties for which it has established prior rights (Check to signify):

Design ____
Construction ____

3B. OWNER, at the CONTRACTOR'S cost, for any removal, relocation, protection, adjustment and/or design (Regardless of Prior Rights) will allow their facilities to be placed into the DEPARTMENT'S contract for the following services pursuant to O.C.G.A. § 32-6-170(b). The CONTRACTOR will add the removal, relocation, protection, materials, adjustment and/or design cost, excluding betterment, to the overall PROJECT's cost. (Check to signify):

Option 1: OWNER wants the work to be performed by the OWNER's pre-approved Design Consultants and/or Contractors.

Design __X__
Construction _X__

Option 2: OWNER wants the DEPARTMENT'S CONTRACTOR to perform the design and/or construction. (Check to signify):

Design ____
Construction ____ **If both are checked, please leave page 6 blank.**

As per this section, all work necessary for the removal, relocation, protection, or adjustment of the described utilities in accordance with the plans when approved shall be included in the project contract and accomplished by the CONTRACTOR except as follows (Check none or list any work items to be performed by the OWNER)

None _____

Excluded Items _____

Comments: _____

3C. OWNER, at OWNER'S cost, will provide the following services (Check to signify):

Design _____
Construction _____

The following is hereby mutually agreed to and understood by both parties:

1. The identification of existing facilities including preparation of Overhead/Subsurface Utility Engineering (SUE) investigations plans will be accomplished by the DEPARTMENT prior to award of the PROJECT and thereafter supplemented by the CONTRACTOR.

2. The CONTRACTOR shall coordinate reviews of the utility relocation information and obtain acceptance from the OWNER and DEPARTMENT when required. However; the OWNER shall apply for and obtain any required permits from the DEPARTMENT and perform any final design or proprietary design needed to administer its own relocation work if the work will not be included in the contract If the preliminary plans indicate that no conflict exists, and the OWNER concurs with this information, the OWNER shall provide a letter of "no conflict" to the CONTRACTOR.

3. After award of the PROJECT, the CONTRACTOR will research any claimed compensable property interest for each OWNER claiming prior rights under section 3A and present the findings to the DEPARTMENT and OWNER for approval. The plans and estimate for the utility work shall be subject to approval of both the DEPARTMENT and the OWNER prior to construction. If the OWNER chooses to perform its own relocations and the OWNER holds no property interest as stated above; the OWNER shall confirm in writing that the OWNER will relocate its own facilities at no cost to the DEPARTMENT or the CONTRACTOR.

4. All construction engineering and contract supervision shall be the responsibility of the DEPARTMENT and the CONTRACTOR to ensure that all utility work included in the contract is accomplished in accordance with the PROJECT's plans and specifications. The CONTRACTOR will consult with the OWNER before authorizing any changes or deviations which affect the OWNER's facility.

5. For utility work included in the contract, the CONTRACTOR shall ensure that the design/construction and installation of the OWNER'S facilities is performed by a contractor/design consultant pre-approved/registered with both the DEPARTMENT and the OWNER. For any work included in the contract, excluding water and sewer, the OWNER will provide a list of pre-approved/registered contractors/design consultants on page 6 of the MOU.

6. For Utility work included in the contract, the OWNER or the OWNER's Consultant shall have the right to visit and inspect the work at any time and advise the CONTRACTOR and the DEPARTMENT'S Engineer of any observed discrepancies or potential issues. The DEPARTMENT agrees to notify the OWNER when all utility work is completed and ready for final inspection by the OWNER.

7. Upon Maintenance Acceptance or Final Acceptance of the utility work included in the contract and upon certification by the DEPARTMENT'S Engineer and the OWNER that the work has been completed in accordance with the plans and specifications, the OWNER will accept the adjusted, relocated, and additional facilities and will thereafter operate and maintain said facilities located within the PROJECT right of way subject to the DEPARTMENT'S Utility Accommodations Policy and Standards Manual (UAM), current edition" and any agreements in effect without further cost to the DEPARTMENT or it's CONTRACTOR. Final acceptance of the utility relocation work is accomplished by the execution of the Utility Facility Relocation Acceptance Form. The CONTRACTOR shall provide the OWNER with a complete set of "As-Built Plans" for review and approval reflecting the relocation work performed by the CONTRACTOR. Upon completion of the Utility Facility Relocation Acceptance Form and the exchange of the final OWNER approved "As-Built Plans", the OWNER will operate and maintain the installed facilities going forward based on the date of execution of the Utility Facility Relocation Acceptance Form by the DEPARTMENT.

8. For utility coordination, relocation and reimbursement matters, the OWNER shall cooperate with the CONTRACTOR in the same manner as if coordinating directly with the DEPARTMENT in accordance with the laws of the State of Georgia, the DEPARTMENT'S UAM and any agreements in effect between the DEPARTMENT and OWNER. The OWNER agrees to cooperate in good faith with the CONTRACTOR and to respond to all requests for information or meetings required to reach a resolution of any disputed items.

9. All Utility work included in the PROJECT's contract and Utility work completed by the OWNER that is reimbursed by the DEPARTMENT through an agreement shall be in accordance with the BUY AMERICA requirements of the Federal regulations (23 U.S.C. 313 and 23 CFR 635.410) all manufacturing processes for steel and iron products or predominantly of steel or iron furnished for permanent incorporation into the work on this project shall occur in the United States. The only exception to this requirement is the production of pig iron and the processing, pelletizing and reduction of iron ore, which may occur in another country. Other than these exceptions, all melting, rolling, extruding, machining, bending, grinding, drilling, coating, etc. must occur in the United States.

    a. Products of steel include, but are not limited to, such products as structural steel piles, reinforcing steel, structural plate, steel culverts, and guardrail steel supports for signs, signals and luminaires. Products of iron include, but are not limited to, such products as cast iron frames and grates and ductile iron pipe. Coatings include, but are not limited to, the applications of epoxy, galvanizing and paint. The coating material is not limited to this clause, only the application process.

    b. A Certificate of Compliance shall be furnished for steel and iron products as part of the backup information with the billing. The form for this certification entitled "Buy America Certificate of Compliance" is attached to this agreement as "Exhibit A." Records to be maintained by the Developer for this certification shall include a signed mill test report and a signed certification by each supplier, distributor, fabricator, and manufacturer that has handled the steel or iron product affirming that every process, including the application of a coating, performed on the steel or iron product has been carried out in the United States of America, except as allowed by this Section. The lack of these certifications will be justification for rejection of the steel and/or iron product or nonpayment of the work.

The requirements of said law and regulations do not prevent the use of miscellaneous steel or iron components, subcomponents and hardware necessary to encase, assemble and construct the above products, manufactured products that are not predominantly steel or iron or a minimal use of foreign steel and iron materials if the cost of such materials used does not exceed one-tenth of one percent (0.1%) of the total contract price or $2,500.00, whichever is greater. The Memorandum of Understanding will be incorporated into the project contract by reference or Exhibit.

APPROVED FOR THE OWNER BY:

(Signature) 11/13/2017 (Date)

OSP ENGINEER

(Title)

APPROVED FOR THE DEPARTMENT BY:

(Signature) 12/18/17 (Date)

STATE UTILITIES ADMINISTRATOR

Pre-Approved Contractor List

Company Name: Shiflett Enterprises
Address: 56 Pine Road, Newnan, GA., 30263
Phone: 770-502-1565
Contact Person: Robert Shiflett
E-Mail: shifent@bellsouth.net

Company Name: ComTran Group
Address: 5036 B.U. Bowman Drive, Buford, GA., 30518
Phone: 770-904-4444
Contact Person: Bryan Epperson
E-Mail: bryanespperson@comtrangroup.com

Company Name: Fibertech Telecommunications Construction Services
Address: 263 Swanson Drive, Lawrenceville, GA., 30043
Phone: (770)339-3041
Contact Person: Rick Burton
E-Mail: rick@fibertechatlanta.com

Please provide a minimum of three.

Pre-Approved Design Consultant List

Company Name: Byers Engineering Company
Address: 6285 Barfield Road,Atlanta, GA., 30328
Phone: 404-497-1943
Contact Person: Dan Clark
E-Mail: Dan.clark@byers.com

Company Name: Nextier Infrastructure Solutions, Inc.
Address: 2300 Bethelview Road, Suite 110-417, Cummings, GA., 30041
Phone: 770-617-7141
Contact Person: Joey Faircloth
E-Mail: jf@nextieris.com

Company Name: Sourceone Corporation
Address: 800 Kennesaw Ave, Suite 320, Merietta, GA., 30060
Phone: 678-594-5100
Contact Person: Bee Jee McGinty
E-Mail: beejee@sourceonecorp.com

Georgia Department of Transportation

Technical Provisions

For

Design-Build Agreement

P.I. Nos. 0012757 and 0012758

Attachment 6-11

Turnkey Fiber Networks MOU

Georgia DOT Project: Reconstruct the I-16 at I-95 Interchange and I-16 Widening from I-95 to I-516
GDOT P.I. # 0012757 & 0012758

DESIGN-BUILD
MEMORANDUM OF UNDERSTANDING
between the
Georgia Department of Transportation (hereafter the DEPARTMENT)
and
Turnkey Fiber Networks (hereafter the OWNER)

Whereas GDOT, hereafter referred to as the DEPARTMENT proposes to undertake design-build projects hereafter referred to as PROJECTS to reconstruct the I-16 Interchange at I-95 and I-16 Widening from I-95 to I-516 in Chatham County, Georgia by contract through competitive bidding procedures; and,

Whereas the DEPARTMENT will accomplish the PROJECT through a Design Consultant, Design Consultant Team and/or Contractor, hereafter referred to as CONTRACTOR; and the utility owner hereafter referred to as the OWNER, and

Whereas, where OWNER has property rights ("Prior Rights") at the location of the PROJECT, OWNER will provide written evidence as to said prior rights within the area and will provide written documentation of prior rights relating to any individual crossing or Utility Facility, at the location of the PROJECT; and

Whereas, OWNER acknowledges that, generally, absent a showing of prior rights, the costs of relocation, protection, removal, or adjustment performed by OWNER shall be borne by OWNER; and

Whereas, pursuant to O.C.G.A. § 32-6-170(b), DEPARTMENT is authorized to pay or participate in the payment of the costs of relocation, protection, or adjustment of OWNER'S facilities where DEPARTMENT has made the determination that (i) such payments are in the best interest of the public and necessary in order to expedite the staging of the design-build project; and (ii) the costs of the removal, relocation, protection, or adjustment of such facilities are included as part of the Contract between the Department and the Department's roadway contractor for the design-build project; and

1. Type of Utility

OWNER has the following utility facilities which may need to be adjusted or relocated as a result of the proposed PROJECT:

Type of facility or facilities of OWNER:

_____Domestic water mains and distribution lines and associated appurtenances
_____Sanitary Sewer facilities and/or Storm Drainage System
_____Electrical Distribution (overhead and underground) wires, poles, etc.
_____Electrical Transmission (overhead and underground) wires, poles, etc.
_____Natural Gas Distribution Facilities (underground)
_____Natural Gas Transmission Facilities (underground)
_____Petroleum Pipeline (underground)
__X__Telecommunications facilities and equipment
_____Cable TV facilities
_____Street Lighting
__X__Internet Data Service
_____Other Facilities (Description) _____

2. New Utility Facilities Proposed (Betterment)

OWNER desires the following to be installed as new additional facilities within the PROJECT. Insert here or attach a detailed description of proposed new additional utility installations:

None

3. Assignment of Responsibilities for Design and Construction

This MEMORANDUM OF UNDERSTANDING and the following shall serve as a *basis* for assignment of responsibilities and costs for the DEPARTMENT, CONTRACTOR and the OWNER to enter into a Standard Utility Agreement (SUA) or Contract Item Agreement (CIA), if necessary, with OWNER once the PROJECT is awarded to the CONTRACTOR. For a PROJECT implementation, GDOT will not have in its possession exact costing plans to be utilized to determine exact locations of the removal, relocation, protection, or adjustment. However, Overhead/Subsurface Utility Engineering (SUE) investigations plans exist providing the best information and signifying the layout of known existing facilities. Please use these plans for developing the final determination of services as indicated below. The CONTRACTOR developed plans will be provided to the OWNER after the design build project is awarded by GDOT which shall be used by the CONTRACTOR as the final basis for the SUA or CIA. **Betterment costs will be the OWNER'S responsibility.**

NOTE: Water and Sewer Design and Construction relocation work put in the contract will automatically be accomplished by the DEPARTMENT'S CONTRACTOR. The UTILITY OWNER will still have design approval authority. (No Pre-Approved Contractor/Consultant List required, leave page 6 blank). If you are a Water & Sewer Utility and choose to put your relocation Design and Construction in the contract, please check Design and Construction under Option 2 under 3B. Owner's electing to perform their own design, at their own cost, please select design under 3C.

OWNER hereby intends to:

3A. OWNER, at the DEPARTMENT'S cost through an Agreement, will provide the following services for the properties for which it has established prior rights (Check to signify):

Design _____
Construction _____

3B. OWNER, at the CONTRACTOR'S cost, for any removal, relocation, protection, adjustment and/or design (Regardless of Prior Rights) will allow their facilities to be placed into the DEPARTMENT'S contract for the following services pursuant to O.C.G.A. § 32-6-170(b). The CONTRACTOR will add the removal, relocation, protection, materials, adjustment and/or design cost, excluding betterment, to the overall PROJECT's cost. (Check to signify):

Option 1: OWNER wants the work to be performed by the OWNER's pre-approved Design Consultants and/or Contractors.

Design _____
Construction _____

Option 2: OWNER wants the DEPARTMENT'S CONTRACTOR to perform the design and/or construction. (Check to signify):

Design ____
Construction ____ **If both are checked, please leave page 6 blank.**

As per this section, all work necessary for the removal, relocation, protection, or adjustment of the described utilities in accordance with the plans when approved shall be included in the project contract and accomplished by the CONTRACTOR except as follows (Check none or list any work items to be performed by the OWNER)

None _____

Excluded Items _____

Comments: _____

3C. OWNER, at OWNER'S cost, will provide the following services (Check to signify):

Design X
Construction X

The following is hereby mutually agreed to and understood by both parties:

1. The identification of existing facilities including preparation of Overhead/Subsurface Utility Engineering (SUE) investigations plans will be accomplished by the DEPARTMENT prior to award of the PROJECT and thereafter supplemented by the CONTRACTOR.

2. The CONTRACTOR shall coordinate reviews of the utility relocation information and obtain acceptance from the OWNER and DEPARTMENT when required. However; the OWNER shall apply for and obtain any required permits from the DEPARTMENT and perform any final design or proprietary design needed to administer its own relocation work if the work will not be included in the contract If the preliminary plans indicate that no conflict exists, and the OWNER concurs with this information, the OWNER shall provide a letter of "no conflict" to the CONTRACTOR.

3. After award of the PROJECT, the CONTRACTOR will research any claimed compensable property interest for each OWNER claiming prior rights under section 3A and present the findings to the DEPARTMENT and OWNER for approval. The plans and estimate for the utility work shall be subject to approval of both the DEPARTMENT and the OWNER prior to construction. If the OWNER chooses to perform its own relocations and the OWNER holds no property interest as stated above; the OWNER shall confirm in writing that the OWNER will relocate its own facilities at no cost to the DEPARTMENT or the CONTRACTOR.

4. All construction engineering and contract supervision shall be the responsibility of the DEPARTMENT and the CONTRACTOR to ensure that all utility work included in the contract is accomplished in accordance with the PROJECT's plans and specifications. The CONTRACTOR will consult with the OWNER before authorizing any changes or deviations which affect the OWNER's facility.

5. For utility work included in the contract, the CONTRACTOR shall ensure that the design/construction and installation of the OWNER'S facilities is performed by a contractor/design consultant pre-approved/registered with both the DEPARTMENT and the OWNER. For any work included in the contract, excluding water and sewer, the OWNER will provide a list of pre-approved/registered contractors/design consultants on page 6 of the MOU.

6. For Utility work included in the contract, the OWNER or the OWNER's Consultant shall have the right to visit and inspect the work at any time and advise the CONTRACTOR and the DEPARTMENT'S Engineer of any observed discrepancies or potential issues. The DEPARTMENT agrees to notify the OWNER when all utility work is completed and ready for final inspection by the OWNER.

7. Upon Maintenance Acceptance or Final Acceptance of the utility work included in the contract and upon certification by the DEPARTMENT'S Engineer and the OWNER that the work has been completed in accordance with the plans and specifications, the OWNER will accept the adjusted, relocated, and additional facilities and will thereafter operate and maintain said facilities located within the PROJECT right of way subject to the DEPARTMENT'S Utility Accommodations Policy and Standards Manual (UAM), current edition" and any agreements in effect without further cost to the DEPARTMENT or it's CONTRACTOR. Final acceptance of the utility relocation work is accomplished by the execution of the Utility Facility Relocation Acceptance Form. The CONTRACTOR shall provide the OWNER with a complete set of "As-Built Plans" for review and approval reflecting the relocation work performed by the CONTRACTOR. Upon completion of the Utility Facility Relocation Acceptance Form and the exchange of the final OWNER approved "As-Built Plans", the OWNER will operate and maintain the installed facilities going forward based on the date of execution of the Utility Facility Relocation Acceptance Form by the DEPARTMENT.

8. For utility coordination, relocation and reimbursement matters, the OWNER shall cooperate with the CONTRACTOR in the same manner as if coordinating directly with the DEPARTMENT in accordance with the laws of the State of Georgia, the DEPARTMENT'S UAM and any agreements in effect between the DEPARTMENT and OWNER. The OWNER agrees to cooperate in good faith with the CONTRACTOR and to respond to all requests for information or meetings required to reach a resolution of any disputed items.

9. All Utility work included in the PROJECT's contract and Utility work completed by the OWNER that is reimbursed by the DEPARTMENT through an agreement shall be in accordance with the BUY AMERICA requirements of the Federal regulations (23 U.S.C. 313 and 23 CFR 635.410) all manufacturing processes for steel and iron products or predominantly of steel or iron furnished for permanent incorporation into the work on this project shall occur in the United States. The only exception to this requirement is the production of pig iron and the processing, pelletizing and reduction of iron ore, which may occur in another country. Other than these exceptions, all melting, rolling, extruding, machining, bending, grinding, drilling, coating, etc. must occur in the United States.

    a. Products of steel include, but are not limited to, such products as structural steel piles, reinforcing steel, structural plate, steel culverts, and guardrail steel supports for signs, signals and luminaires. Products of iron include, but are not limited to, such products as cast iron frames and grates and ductile iron pipe. Coatings include, but are not limited to, the applications of epoxy, galvanizing and paint. The coating material is not limited to this clause, only the application process.

    b. A Certificate of Compliance shall be furnished for steel and iron products as part of the backup information with the billing. The form for this certification entitled "Buy America Certificate of Compliance" is attached to this agreement as "Exhibit A." Records to be maintained by the Developer for this certification shall include a signed mill test report and a signed certification by each supplier, distributor, fabricator, and manufacturer that has handled the steel or iron product affirming that every process, including the application of a coating, performed on the steel or iron product has been carried out in the United States of America, except as allowed by this Section. The lack of these certifications will be justification for rejection of the steel and/or iron product or nonpayment of the work.

The requirements of said law and regulations do not prevent the use of miscellaneous steel or iron components, subcomponents and hardware necessary to encase, assemble and construct the above products, manufactured products that are not predominantly steel or iron or a minimal use of foreign steel and iron materials if the cost of such materials used does not exceed one-tenth of one percent (0.1%) of the total contract price or $2,500.00, whichever is greater. The Memorandum of Understanding will be incorporated into the project contract by reference or Exhibit.

APPROVED FOR THE OWNER BY:

Cynthia Cook
(Signature)

11/14/2017
(Date)

CFO
(Title)

APPROVED FOR THE DEPARTMENT BY:

(Signature)

12/19/17
(Date)

STATE UTILITIES ADMINISTRATOR

Pre-Approved Contractor List

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

Please provide a minimum of three.

Pre-Approved Design Consultant List

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

Georgia Department of Transportation

Technical Provisions

For

Design-Build Agreement

P.I. Nos. 0012757 and 0012758

Attachment 6-12

Verizon Business MOU

Georgia DOT Project: Reconstruct the I-16 at I-95 Interchange and I-16 Widening from I-95 to I-516
GDOT P.I. # 0012757 & 0012758

DESIGN-BUILD
MEMORANDUM OF UNDERSTANDING

between the

Georgia Department of Transportation (hereafter the DEPARTMENT)

and

MCI Access Transmission Services Corp (Verizon) (hereafter the OWNER)

Whereas GDOT, hereafter referred to as the DEPARTMENT proposes to undertake design-build projects hereafter referred to as PROJECTS to reconstruct the I-16 Interchange at I-95 and I-16 Widening from I-95 to I-516 in Chatham County, Georgia by contract through competitive bidding procedures; and,

Whereas the DEPARTMENT will accomplish the PROJECT through a Design Consultant, Design Consultant Team and/or Contractor, hereafter referred to as CONTRACTOR; and the utility owner hereafter referred to as the OWNER, and

Whereas, where OWNER has property rights ("Prior Rights") at the location of the PROJECT, OWNER will provide written evidence as to said prior rights within the area and will provide written documentation of prior rights relating to any individual crossing or Utility Facility, at the location of the PROJECT; and

Whereas, OWNER acknowledges that, generally, absent a showing of prior rights, the costs of relocation, protection, removal, or adjustment performed by OWNER shall be borne by OWNER; and

Whereas, pursuant to O.C.G.A. § 32-6-170(b), DEPARTMENT is authorized to pay or participate in the payment of the costs of relocation, protection, or adjustment of OWNER'S facilities where DEPARTMENT has made the determination that (i) such payments are in the best interest of the public and necessary in order to expedite the staging of the design-build project; and (ii) the costs of the removal, relocation, protection, or adjustment of such facilities are included as part of the Contract between the Department and the Department's roadway contractor for the design-build project; and

1. Type of Utility

OWNER has the following utility facilities which may need to be adjusted or relocated as a result of the proposed PROJECT:

Type of facility or facilities of OWNER:

_____Domestic water mains and distribution lines and associated appurtenances
_____Sanitary Sewer facilities and/or Storm Drainage System
_____Electrical Distribution (overhead and underground) wires, poles, etc.
_____Electrical Transmission (overhead and underground) wires, poles, etc.
_____Natural Gas Distribution Facilities (underground)
_____Natural Gas Transmission Facilities (underground)
_____Petroleum Pipeline (underground)
__X__Telecommunications facilities and equipment
_____Cable TV facilities
_____Street Lighting
_____Internet Data Service
_____Other Facilities (Description) _____

2. New Utility Facilities Proposed (Betterment)

OWNER desires the following to be installed as new additional facilities within the PROJECT. Insert here or attach a detailed description of proposed new additional utility installations:

NONE

3. Assignment of Responsibilities for Design and Construction

This MEMORANDUM OF UNDERSTANDING and the following shall serve as a *basis* for assignment of responsibilities and costs for the DEPARTMENT, CONTRACTOR and the OWNER to enter into a Standard Utility Agreement (SUA) or Contract Item Agreement (CIA), if necessary, with OWNER once the PROJECT is awarded to the CONTRACTOR. For a PROJECT implementation, GDOT will not have in its possession exact costing plans to be utilized to determine exact locations of the removal, relocation, protection, or adjustment. However, Overhead/Subsurface Utility Engineering (SUE) investigations plans exist providing the best information and signifying the layout of known existing facilities. Please use these plans for developing the final determination of services as indicated below. The CONTRACTOR developed plans will be provided to the OWNER after the design build project is awarded by GDOT which shall be used by the CONTRACTOR as the final basis for the SUA or CIA. **Betterment costs will be the OWNER'S responsibility.**

NOTE: Water and Sewer Design and Construction relocation work put in the contract will automatically be accomplished by the DEPARTMENT'S CONTRACTOR. The UTILITY OWNER will still have design approval authority. (No Pre-Approved Contractor/Consultant List required, leave page 6 blank). If you are a Water & Sewer Utility and choose to put your relocation Design and Construction in the contract, please check Design and Construction under Option 2 under 3B. Owner's electing to perform their own design, at their own cost, please select design under 3C.

OWNER hereby intends to:

3A. OWNER, at the DEPARTMENT'S cost through an Agreement, will provide the following services for the properties for which it has established prior rights (Check to signify):

Design _____
Construction __X__

3B. OWNER, at the CONTRACTOR'S cost, for any removal, relocation, protection, adjustment and/or design (Regardless of Prior Rights) will allow their facilities to be placed into the DEPARTMENT'S contract for the following services pursuant to O.C.G.A. § 32-6-170(b). The CONTRACTOR will add the removal, relocation, protection, materials, adjustment and/or design cost, excluding betterment, to the overall PROJECT's cost. (Check to signify):

Option 1: OWNER wants the work to be performed by the OWNER's pre-approved Design Consultants and/or Contractors.

Design __X__
Construction __X__

Option 2: OWNER wants the DEPARTMENT'S CONTRACTOR to perform the design and/or construction. (Check to signify):

Design ____
Construction ____ **If both are checked, please leave page 6 blank.**

As per this section, all work necessary for the removal, relocation, protection, or adjustment of the described utilities in accordance with the plans when approved shall be included in the project contract and accomplished by the CONTRACTOR except as follows (Check none or list any work items to be performed by the OWNER)

None _____

Excluded Items: **All splicing of owners cable shall be accomplished by the owner and that work will be paid for/reimbursed by GDOT through a Standard Utility Agreement, due to the owner having a prior right within the CSX Right of Way.**

Comments:_____

3C. OWNER, at OWNER'S cost, will provide the following services (Check to signify):

Design _____
Construction _____

The following is hereby mutually agreed to and understood by both parties:

1. The identification of existing facilities including preparation of Overhead/Subsurface Utility Engineering (SUE) investigations plans will be accomplished by the DEPARTMENT prior to award of the PROJECT and thereafter supplemented by the CONTRACTOR.

2. The CONTRACTOR shall coordinate reviews of the utility relocation information and obtain acceptance from the OWNER and DEPARTMENT when required. However; the OWNER shall apply for and obtain any required permits from the DEPARTMENT and perform any final design or proprietary design needed to administer its own relocation work if the work will not be included in the contract If the preliminary plans indicate that no conflict exists, and the OWNER concurs with this information, the OWNER shall provide a letter of "no conflict" to the CONTRACTOR.

3. After award of the PROJECT, the CONTRACTOR will research any claimed compensable property interest for each OWNER claiming prior rights under section 3A and present the findings to the DEPARTMENT and OWNER for approval. The plans and estimate for the utility work shall be subject to approval of both the DEPARTMENT and the OWNER prior to construction. If the OWNER chooses to perform its own relocations and the OWNER holds no property interest as stated above; the OWNER shall confirm in writing that the OWNER will relocate its own facilities at no cost to the DEPARTMENT or the CONTRACTOR.

4. All construction engineering and contract supervision shall be the responsibility of the DEPARTMENT and the CONTRACTOR to ensure that all utility work included in the contract is accomplished in accordance with the PROJECT's plans and specifications. The CONTRACTOR will consult with the OWNER before authorizing any changes or deviations which affect the OWNER's facility.

5. For utility work included in the contract, the CONTRACTOR shall ensure that the design/construction and installation of the OWNER'S facilities is performed by a contractor/design consultant pre-approved/registered with both the DEPARTMENT and the OWNER. For any work included in the contract, excluding water and sewer, the OWNER will provide a list of pre-approved/registered contractors/design consultants on page 6 of the MOU.

6. For Utility work included in the contract, the OWNER or the OWNER's Consultant shall have the right to visit and inspect the work at any time and advise the CONTRACTOR and the DEPARTMENT'S Engineer of any observed discrepancies or potential issues. The DEPARTMENT agrees to notify the OWNER when all utility work is completed and ready for final inspection by the OWNER.

7. Upon Maintenance Acceptance or Final Acceptance of the utility work included in the contract and upon certification by the DEPARTMENT'S Engineer and the OWNER that the work has been completed in accordance with the plans and specifications, the OWNER will accept the adjusted, relocated, and additional facilities and will thereafter operate and maintain said facilities located within the PROJECT right of way subject to the DEPARTMENT'S Utility Accommodations Policy and Standards Manual (UAM), current edition" and any agreements in effect without further cost to the DEPARTMENT or it's CONTRACTOR. Final acceptance of the utility relocation work is accomplished by the execution of the Utility Facility Relocation Acceptance Form. The CONTRACTOR shall provide the OWNER with a complete set of "As-Built Plans" for review and approval reflecting the relocation work performed by the CONTRACTOR. Upon completion of the Utility Facility Relocation Acceptance Form and the exchange of the final OWNER approved "As-Built Plans", the OWNER will operate and maintain the installed facilities going forward based on the date of execution of the Utility Facility Relocation Acceptance Form by the DEPARTMENT.

8. For utility coordination, relocation and reimbursement matters, the OWNER shall cooperate with the CONTRACTOR in the same manner as if coordinating directly with the DEPARTMENT in accordance with the laws of the State of Georgia, the DEPARTMENT'S UAM and any agreements in effect between the DEPARTMENT and OWNER. The OWNER agrees to cooperate in good faith with the CONTRACTOR and to respond to all requests for information or meetings required to reach a resolution of any disputed items.

9. All Utility work included in the PROJECT's contract and Utility work completed by the OWNER that is reimbursed by the DEPARTMENT through an agreement shall be in accordance with the BUY AMERICA requirements of the Federal regulations (23 U.S.C. 313 and 23 CFR 635.410) all manufacturing processes for steel and iron products or predominantly of steel or iron (at least 90% steel or iron content) furnished for permanent incorporation into the work on this project shall occur in the United States. The only exception to this requirement is the production of pig iron and the processing, pelletizing and reduction of iron ore, which may occur in another country. Other than these exceptions, all melting, rolling, extruding, machining, bending, grinding, drilling, coating, etc. must occur in the United States.

    a. Products of steel include, but are not limited to, such products as structural steel piles, reinforcing steel, structural plate, steel culverts, and guardrail steel supports for signs, signals and luminaires. Products of iron include, but are not limited to, such products as cast iron frames and grates and ductile iron pipe. Coatings include, but are not limited to, the applications of epoxy, galvanizing and paint. The coating material is not limited to this clause, only the application process.

    b. A Certificate of Compliance shall be furnished for steel and iron products as part of the backup information with the billing. The form for this certification entitled "Buy America Certificate of Compliance" is attached to this agreement as "Exhibit A." Records to be maintained by the Developer for this certification shall include a signed mill test report and a signed certification by each supplier, distributor, fabricator, and manufacturer that has handled the steel or iron product affirming that every process, including the application of a coating, performed on the steel or iron product has been carried out in the United States of America, except as allowed by this Section. The lack of these certifications will be justification for rejection of the steel and/or iron product or nonpayment of the work.

The requirements of said law and regulations do not prevent the use of miscellaneous steel or iron components, subcomponents and hardware necessary to encase, assemble and construct the above products, manufactured products that are not predominantly steel or iron or a minimal use of foreign steel and iron materials if the cost of such materials used does not exceed one-tenth of one percent (0.1%) of the total contract price or $2,500.00, whichever is greater. The Memorandum of Understanding will be incorporated into the project contract by reference or Exhibit.

APPROVED FOR THE OWNER BY:

(Signature) 12-5-2017 (Date)

Gisela Macedo

Sr. Manager Network Eng. & Ops.

APPROVED FOR THE DEPARTMENT BY: 12/19/17 (Date)

STATE UTILITIES ADMINISTRATOR

~~EXHIBIT C~~

UTILITY OWNER PRE-APPROVED CONTRACTOR/CONSULTANT LIST

Pre-Approved Construction Contractor List

1. Shiflett Enterprises
   56 Pine Road
   Newnan, GA 30263
   Contact Person: Bobby Shiflett
   Ph # 770-502-1565
   Email: shifent@bellsouth.net

2. Fishel Company
   6523 Morbut Road
   Lithonia, GA 30058
   Contact Person: Steve Hinton
   Ph # 770-482-7550
   Email: shinton@tcomfishel.com

3. Lee Engineering
   Highway 84 – Lightsey Street
   PO Box 69
   Dupont, GA 31630
   Contact Perons: Kenneth Lee
   Ph # 912-487-5307
   Email: leeeng@windstream.net

4. Sanders Construction Services, Inc.
   111 Dryad Ct. #5754
   Ellijay, GA 30540
   Contact Person: Greg Sanders
   Ph # 404-886-0673
   Email: greg@scselectric.com

5. Globe Communications, LLC
   Contact Person: Jr. Passmore, Area Manager
   Ph # 478-251-7906
   Email: jrpassmore@globeinc.com

PRE-APPROVED DESIGN CONSULTANT LIST

1. Golden Filed Services
   Fair Oaks Court
   Jonesboro, GA 30236
   Contact Person: Darrin Wood
   Ph # 770-869-4682

Georgia Department of Transportation

Technical Provisions

For

Design-Build Agreement

P.I. No. 0013727

Attachment 6-13

AT&T MOU

Georgia DOT Project: Reconstruct the Dean Forest Road Interchange over I-16
GDOT P.I. # 0013727

DESIGN-BUILD
MEMORANDUM OF UNDERSTANDING
between the
Georgia Department of Transportation (hereafter the DEPARTMENT)
and
BellSouth Telecommunications, LLC d/b/a A&T Georgia (hereafter the OWNER)

Whereas GDOT, hereafter referred to as the DEPARTMENT proposes to undertake a design-build project hereafter referred to as a PROJECT to reconstruct the Dean Forest Road Interchange over I-16 in Chatham County, Georgia by contract through competitive bidding procedures; and,

Whereas the DEPARTMENT will accomplish the PROJECT through a Design Consultant, Design Consultant Team and/or Contractor, hereafter referred to as CONTRACTOR; and the utility owner hereafter referred to as the OWNER, and

Whereas, where OWNER has property rights ("Prior Rights") at the location of the PROJECT, OWNER will provide written evidence as to said prior rights within the area and will provide written documentation of prior rights relating to any individual crossing or Utility Facility, at the location of the PROJECT; and

Whereas, OWNER acknowledges that, generally, absent a showing of prior rights, the costs of relocation, protection, removal, or adjustment performed by OWNER shall be borne by OWNER; and

Whereas, pursuant to O.C.G.A. § 32-6-170(b), DEPARTMENT is authorized to pay or participate in the payment of the costs of relocation, protection, or adjustment of OWNER'S facilities where DEPARTMENT has made the determination that (i) such payments are in the best interest of the public and necessary in order to expedite the staging of the design-build project; and (ii) the costs of the removal, relocation, protection, or adjustment of such facilities are included as part of the Contract between the Department and the Department's roadway contractor for the design-build project; and

1. Type of Utility
OWNER has the following utility facilities which may need to be adjusted or relocated as a result of the proposed PROJECT:

Type of facility or facilities of OWNER:
_____Domestic water mains and distribution lines and associated appurtenances
_____Sanitary Sewer facilities and/or Storm Drainage System
_____Electrical Distribution (overhead and underground) wires, poles, etc.
_____Electrical Transmission (overhead and underground) wires, poles, etc.
_____Natural Gas Distribution Facilities (underground)
_____Natural Gas Transmission Facilities (underground)
_____Petroleum Pipeline (underground)
__X___Telecommunications facilities and equipment
_____Cable TV facilities
_____Street Lighting
_____Internet Data Service
_____Other Facilities (Description) _____

2. New Utility Facilities Proposed (Betterment)

OWNER desires the following to be installed as new additional facilities within the PROJECT. Insert here or attach a detailed description of proposed new additional utility installations:

_____

_____

3. Assignment of Responsibilities for Design and Construction

This MEMORANDUM OF UNDERSTANDING and the following shall serve as a *basis* for assignment of responsibilities and costs for the DEPARTMENT, CONTRACTOR and the OWNER to enter into a Standard Utility Agreement (SUA) or Contract Item Agreement (CIA), if necessary, with OWNER once the PROJECT is awarded to the CONTRACTOR. For a PROJECT implementation, GDOT will not have in its possession exact costing plans to be utilized to determine exact locations of the removal, relocation, protection, or adjustment. However, Overhead/Subsurface Utility Engineering (SUE) investigations plans exist providing the best information and signifying the layout of known existing facilities. Please use these plans for developing the final determination of services as indicated below. The CONTRACTOR developed plans will be provided to the OWNER after the design build project is awarded by GDOT which shall be used by the CONTRACTOR as the final basis for the SUA or CIA. **Betterment costs will be the OWNER'S responsibility.**

NOTE: Water and Sewer Design and Construction relocation work put in the contract will automatically be accomplished by the DEPARTMENT'S CONTRACTOR. The UTILITY OWNER will still have design approval authority. (No Pre-Approved Contractor/Consultant List required, leave page 6 blank). If you are a Water & Sewer Utility and choose to put your relocation Design and Construction in the contract, please check Design and Construction under Option 2 under 3B. Owner's electing to perform their own design, at their own cost, please select design under 3C.

OWNER hereby intends to:

3A. OWNER, at the DEPARTMENT'S cost through an Agreement, will provide the following services for the properties for which it has established prior rights (Check to signify):

Design _____
Construction _____

3B. OWNER, at the CONTRACTOR'S cost, for any removal, relocation, protection, adjustment and/or design (Regardless of Prior Rights) will allow their facilities to be placed into the DEPARTMENT'S contract for the following services pursuant to O.C.G.A. § 32-6-170(b). The CONTRACTOR will add the removal, relocation, protection, materials, adjustment and/or design cost, excluding betterment, to the overall PROJECT's cost. (Check to signify):

Option 1: OWNER wants the work to be performed by the OWNER's pre-approved Design Consultants and/or Contractors.

Design __X___
Construction __X___

Option 2: OWNER wants the DEPARTMENT'S CONTRACTOR to perform the design and/or construction. (Check to signify):

Design ____
Construction ____ **If both are checked, please leave page 6 blank.**

As per this section, all work necessary for the removal, relocation, protection, or adjustment of the described utilities in accordance with the plans when approved shall be included in the project contract and accomplished by the CONTRACTOR except as follows (Check none or list any work items to be performed by the OWNER)

None _____

Excluded Items __PLACE AERIAL COPPER OR FIBER CABLES, SPLICING / TIE IN WORK, _OR DO POLE ATTACHMENTS_____

Comments: While the DB Contractor will be able to perform much of the design and construction, only AT&T union personnel can pull cable/fiber, perform splicing/tie-in work, some technical design work and do pole attachments (AT&T will be responsible for these costs). The DB Contractor can install any required ducts, poles and vaults/manholes/handoles, enclosures and bridge attachments and will be responsible for the cost and design and construction (including materials). In the MOU, AT&T has selected design and construction under 3b, option 1. AT&T has also selected 3c design and construction. AT&T will be responsible for some cost as indicated above and the DB contractor will be responsible for the remaining costs._____

3C. OWNER, at OWNER'S cost, will provide the following services (Check to signify):

Design __X___
Construction __X___

The following is hereby mutually agreed to and understood by both parties:

1. The identification of existing facilities including preparation of Overhead/Subsurface Utility Engineering (SUE) investigations plans will be accomplished by the DEPARTMENT prior to award of the PROJECT and thereafter supplemented by the CONTRACTOR.

2. The CONTRACTOR shall coordinate reviews of the utility relocation information and obtain acceptance from the OWNER and DEPARTMENT when required. However; the OWNER shall apply for and obtain any required permits from the DEPARTMENT and perform any final design or proprietary design needed to administer its own relocation work if the work will not be included in the contract If the preliminary plans indicate that no conflict exists, and the OWNER concurs with this information, the OWNER shall provide a letter of "no conflict" to the CONTRACTOR.

3. After award of the PROJECT, the CONTRACTOR will research any claimed compensable property interest for each OWNER claiming prior rights under section 3A and present the findings to the DEPARTMENT and OWNER for approval. The plans and estimate for the utility work shall be subject to approval of both the DEPARTMENT and the OWNER prior to construction. If the OWNER chooses to perform its own relocations and the OWNER holds no property interest as stated above; the OWNER shall confirm in writing that the OWNER will relocate its own facilities at no cost to the DEPARTMENT or the CONTRACTOR.

4. All construction engineering and contract supervision shall be the responsibility of the DEPARTMENT and the CONTRACTOR to ensure that all utility work included in the contract is accomplished in accordance with the PROJECT's plans and specifications. The CONTRACTOR will consult with the OWNER before authorizing any changes or deviations which affect the OWNER's facility.

5. For utility work included in the contract, the CONTRACTOR shall ensure that the design/construction and installation of the OWNER'S facilities is performed by a contractor/design consultant pre-approved/registered with both the DEPARTMENT and the OWNER. For any work included in the contract, excluding water and sewer, the OWNER will provide a list of pre-approved/registered contractors/design consultants on page 6 of the MOU.

6. For Utility work included in the contract, the OWNER or the OWNER's Consultant shall have the right to visit and inspect the work at any time and advise the CONTRACTOR and the DEPARTMENT'S Engineer of any observed discrepancies or potential issues. The DEPARTMENT agrees to notify the OWNER when all utility work is completed and ready for final inspection by the OWNER.

7. Upon Maintenance Acceptance or Final Acceptance of the utility work included in the contract and upon certification by the DEPARTMENT'S Engineer and the OWNER that the work has been completed in accordance with the plans and specifications, the OWNER will accept the adjusted, relocated, and additional facilities and will thereafter operate and maintain said facilities located within the PROJECT right of way subject to the DEPARTMENT'S Utility Accommodations Policy and Standards Manual (UAM), current edition" and any agreements in effect without further cost to the DEPARTMENT or it's CONTRACTOR. Final acceptance of the utility relocation work is accomplished by the execution of the Utility Facility Relocation Acceptance Form. The CONTRACTOR shall provide the OWNER with a complete set of "As-Built Plans" for review and approval reflecting the relocation work performed by the CONTRACTOR. Upon completion of the Utility Facility Relocation Acceptance Form and the exchange of the final OWNER approved "As-Built Plans", the OWNER will operate and maintain the installed facilities going forward based on the date of execution of the Utility Facility Relocation Acceptance Form by the DEPARTMENT.

8. For utility coordination, relocation and reimbursement matters, the OWNER shall cooperate with the CONTRACTOR in the same manner as if coordinating directly with the DEPARTMENT in accordance with the laws of the State of Georgia, the DEPARTMENT'S UAM and any agreements in effect between the DEPARTMENT and OWNER. The OWNER agrees to cooperate in good faith with the CONTRACTOR and to respond to all requests for information or meetings required to reach a resolution of any disputed items.

9. All Utility work included in the PROJECT's contract and Utility work completed by the OWNER that is reimbursed by the DEPARTMENT through an agreement shall be in accordance with the BUY AMERICA requirements of the Federal regulations (23 U.S.C. 313 and 23 CFR 635.410) all manufacturing processes for steel and iron products or predominantly of steel or iron (at least 90% steel or iron content) furnished for permanent incorporation into the work on this project shall occur in the United States. The only exception to this requirement is the production of pig iron and the processing, pelletizing and reduction of iron ore, which may occur in another country. Other than these exceptions, all melting, rolling, extruding, machining, bending, grinding, drilling, coating, etc. must occur in the United States.

    a. Products of steel include, but are not limited to, such products as structural steel piles, reinforcing steel, structural plate, steel culverts, and guardrail steel supports for signs, signals and luminaires. Products of iron include, but are not limited to, such products as cast iron frames and grates and ductile iron pipe. Coatings include, but are not limited to, the applications of epoxy, galvanizing and paint. The coating material is not limited to this clause, only the application process.

    b. A Certificate of Compliance shall be furnished for steel and iron products as part of the backup information with the billing. The form for this certification entitled "Buy America Certificate of Compliance" is attached to this agreement as "Exhibit A." Records to be maintained by the Developer for this certification shall include a signed mill test report and a signed certification by each supplier, distributor, fabricator, and manufacturer that has handled the steel or iron product affirming that every process, including the application of a coating, performed on the steel or iron product has been carried out in the United States of America, except as allowed by this Section. The lack of these certifications will be justification for rejection of the steel and/or iron product or nonpayment of the work.

The requirements of said law and regulations do not prevent the use of miscellaneous steel or iron components, subcomponents and hardware necessary to encase, assemble and construct the above products, manufactured products that are not predominantly steel or iron or a minimal use of foreign steel and iron materials if the cost of such materials used does not exceed one-tenth of one percent (0.1%) of the total contract price or $2,500.00, whichever is greater. The Memorandum of Understanding will be incorporated into the project contract by reference or Exhibit.

APPROVED FOR THE OWNER BY:

G A Berg
(Signature)

11/15/2017
(Date)

Design Resource Manager
(Title)

APPROVED FOR THE DEPARTMENT BY:

Robert D Alt
(Signature)

12/19/17
(Date)

STATE UTILITIES ADMINISTRATOR

Pre-Approved Contractor List

Company Name: ANSCO & ASSOCIATES
Address: P.O. BOX 860785
Phone:
Contact Person: George Summers
E-Mail: gsummers@anscoinc.com

Company Name: Danella Construction Corporation of Fl., Inc.
Address: 581 Washburn Rd, Melbourne, Fl 32934
Phone: 321-259-6124
Contact Person: Joseph W. Hemple
E-Mail: dhowick@danella.com or JHemple@danella.com

Company Name: Edwards Telecommunications Inc.
Address: 777 Old Clemson Rd, Columbia, SC 29229
Phone: 803-750-2472
Contact Person: Buddy Timmons
E-Mail: btimmons@edwardstelecom.com

Please provide a minimum of three.

Pre-Approved Design Consultant List

Company Name: Byers Engineering
Address: 6285 Barfield Rd. Atlanta, GA 30328
Phone: 404-843-1000
Contact Person: Timothy H. Parker
E-Mail: tim.parker@byers.com

Company Name: RTS Associates (Regional Telecom Services Associates, LLC)
Address: 188 Hurricane Shoals Rd NE. Lawerenceville, GA 30046
Phone: 770-270-1212 x 1
Contact Person: Steven Gray
E-Mail: steven@rtsassociates.net

Company Name: SourceOne
Address: 1212 Coggins Place, Marietta GA 30060
Phone: 678-594-5100
Contact Person: BeeJee McGinty
E-Mail: beejee@sourceonecorp.com

Georgia Department of Transportation

Technical Provisions

For

Design-Build Agreement

P.I. No. 0013727

Attachment 6-14

AGL Resources MOU

Georgia DOT Project: Reconstruct the Dean Forest Road Interchange over I-16
GDOT P.I. # 0013727

DESIGN-BUILD
MEMORANDUM OF UNDERSTANDING

between the
Georgia Department of Transportation (hereafter the DEPARTMENT)
and
Atlanta Gas Light (hereafter the OWNER)

Whereas GDOT, hereafter referred to as the DEPARTMENT proposes to undertake a design-build project hereafter referred to as a PROJECT to reconstruct the Dean Forest Road Interchange over I-16 in Chatham County, Georgia by contract through competitive bidding procedures; and,

Whereas the DEPARTMENT will accomplish the PROJECT through a Design Consultant, Design Consultant Team and/or Contractor, hereafter referred to as CONTRACTOR; and the utility owner hereafter referred to as the OWNER, and

Whereas, where OWNER has property rights ("Prior Rights") at the location of the PROJECT, OWNER will provide written evidence as to said prior rights within the area and will provide written documentation of prior rights relating to any individual crossing or Utility Facility, at the location of the PROJECT; and

Whereas, OWNER acknowledges that, generally, absent a showing of prior rights, the costs of relocation, protection, removal, or adjustment performed by OWNER shall be borne by OWNER; and

Whereas, pursuant to O.C.G.A. § 32-6-170(b), DEPARTMENT is authorized to pay or participate in the payment of the costs of relocation, protection, or adjustment of OWNER'S facilities where DEPARTMENT has made the determination that (i) such payments are in the best interest of the public and necessary in order to expedite the staging of the design-build project; and (ii) the costs of the removal, relocation, protection, or adjustment of such facilities are included as part of the Contract between the Department and the Department's roadway contractor for the design-build project; and

1. Type of Utility
OWNER has the following utility facilities which may need to be adjusted or relocated as a result of the proposed PROJECT:

Type of facility or facilities of OWNER:
_____Domestic water mains and distribution lines and associated appurtenances
_____Sanitary Sewer facilities and/or Storm Drainage System
_____Electrical Distribution (overhead and underground) wires, poles, etc.
_____Electrical Transmission (overhead and underground) wires, poles, etc.
__X__Natural Gas Distribution Facilities (underground)
_____Natural Gas Transmission Facilities (underground)
_____Petroleum Pipeline (underground)
_____Telecommunications facilities and equipment
_____Cable TV facilities
_____Street Lighting
_____Internet Data Service
_____Other Facilities (Description) _____

2. New Utility Facilities Proposed (Betterment)

OWNER desires the following to be installed as new additional facilities within the PROJECT. Insert here or attach a detailed description of proposed new additional utility installations:

N/A

3. Assignment of Responsibilities for Design and Construction

This MEMORANDUM OF UNDERSTANDING and the following shall serve as a *basis* for assignment of responsibilities and costs for the DEPARTMENT, CONTRACTOR and the OWNER to enter into a Standard Utility Agreement (SUA) or Contract Item Agreement (CIA), if necessary, with OWNER once the PROJECT is awarded to the CONTRACTOR. For a PROJECT implementation, GDOT will not have in its possession exact costing plans to be utilized to determine exact locations of the removal, relocation, protection, or adjustment. However, Overhead/Subsurface Utility Engineering (SUE) investigations plans exist providing the best information and signifying the layout of known existing facilities. Please use these plans for developing the final determination of services as indicated below. The CONTRACTOR developed plans will be provided to the OWNER after the design build project is awarded by GDOT which shall be used by the CONTRACTOR as the final basis for the SUA or CIA. **Betterment costs will be the OWNER'S responsibility.**

NOTE: Water and Sewer Design and Construction relocation work put in the contract will automatically be accomplished by the DEPARTMENT'S CONTRACTOR. The UTILITY OWNER will still have design approval authority. (No Pre-Approved Contractor/Consultant List required, leave page 6 blank). If you are a Water & Sewer Utility and choose to put your relocation Design and Construction in the contract, please check Design and Construction under Option 2 under 3B. Owner's electing to perform their own design, at their own cost, please select design under 3C.

OWNER hereby intends to:

3A. OWNER, at the DEPARTMENT'S cost through an Agreement, will provide the following services for the properties for which it has established prior rights (Check to signify):

Design _____
Construction _____

3B. OWNER, at the CONTRACTOR'S cost, for any removal, relocation, protection, adjustment and/or design (Regardless of Prior Rights) will allow their facilities to be placed into the DEPARTMENT'S contract for the following services pursuant to O.C.G.A. § 32-6-170(b). The CONTRACTOR will add the removal, relocation, protection, materials, adjustment and/or design cost, excluding betterment, to the overall PROJECT's cost. (Check to signify):

Option 1: OWNER wants the work to be performed by the OWNER's pre-approved Design Consultants and/or Contractors.

Design _____
Construction _X_

Option 2: OWNER wants the DEPARTMENT'S CONTRACTOR to perform the design and/or construction. (Check to signify):

Design ____
Construction ____ **If both are checked, please leave page 6 blank.**

As per this section, all work necessary for the removal, relocation, protection, or adjustment of the described utilities in accordance with the plans when approved shall be included in the project contract and accomplished by the CONTRACTOR except as follows (Check none or list any work items to be performed by the OWNER)

None _X_

Excluded Items _____

Comments: _____

3C. OWNER, at OWNER'S cost, will provide the following services (Check to signify):

Design _X_
Construction _____

The following is hereby mutually agreed to and understood by both parties:

1. The identification of existing facilities including preparation of Overhead/Subsurface Utility Engineering (SUE) investigations plans will be accomplished by the DEPARTMENT prior to award of the PROJECT and thereafter supplemented by the CONTRACTOR.

2. The CONTRACTOR shall coordinate reviews of the utility relocation information and obtain acceptance from the OWNER and DEPARTMENT when required. However; the OWNER shall apply for and obtain any required permits from the DEPARTMENT and perform any final design or proprietary design needed to administer its own relocation work if the work will not be included in the contract If the preliminary plans indicate that no conflict exists, and the OWNER concurs with this information, the OWNER shall provide a letter of "no conflict" to the CONTRACTOR.

3. After award of the PROJECT, the CONTRACTOR will research any claimed compensable property interest for each OWNER claiming prior rights under section 3A and present the findings to the DEPARTMENT and OWNER for approval. The plans and estimate for the utility work shall be subject to approval of both the DEPARTMENT and the OWNER prior to construction. If the OWNER chooses to perform its own relocations and the OWNER holds no property interest as stated above; the OWNER shall confirm in writing that the OWNER will relocate its own facilities at no cost to the DEPARTMENT or the CONTRACTOR.

4. All construction engineering and contract supervision shall be the responsibility of the DEPARTMENT and the CONTRACTOR to ensure that all utility work included in the contract is accomplished in accordance with the PROJECT's plans and specifications. The CONTRACTOR will consult with the OWNER before authorizing any changes or deviations which affect the OWNER's facility.

5. For utility work included in the contract, the CONTRACTOR shall ensure that the design/construction and installation of the OWNER'S facilities is performed by a contractor/design consultant pre-approved/registered with both the DEPARTMENT and the OWNER. For any work included in the contract, excluding water and sewer, the OWNER will provide a list of pre-approved/registered contractors/design consultants on page 6 of the MOU.

6. For Utility work included in the contract, the OWNER or the OWNER's Consultant shall have the right to visit and inspect the work at any time and advise the CONTRACTOR and the DEPARTMENT'S Engineer of any observed discrepancies or potential issues. The DEPARTMENT agrees to notify the OWNER when all utility work is completed and ready for final inspection by the OWNER.

7. Upon Maintenance Acceptance or Final Acceptance of the utility work included in the contract and upon certification by the DEPARTMENT'S Engineer and the OWNER that the work has been completed in accordance with the plans and specifications, the OWNER will accept the adjusted, relocated, and additional facilities and will thereafter operate and maintain said facilities located within the PROJECT right of way subject to the DEPARTMENT'S Utility Accommodations Policy and Standards Manual (UAM), current edition" and any agreements in effect without further cost to the DEPARTMENT or it's CONTRACTOR. Final acceptance of the utility relocation work is accomplished by the execution of the Utility Facility Relocation Acceptance Form. The CONTRACTOR shall provide the OWNER with a complete set of "As-Built Plans" for review and approval reflecting the relocation work performed by the CONTRACTOR. Upon completion of the Utility Facility Relocation Acceptance Form and the exchange of the final OWNER approved "As-Built Plans", the OWNER will operate and maintain the installed facilities going forward based on the date of execution of the Utility Facility Relocation Acceptance Form by the DEPARTMENT.

8. For utility coordination, relocation and reimbursement matters, the OWNER shall cooperate with the CONTRACTOR in the same manner as if coordinating directly with the DEPARTMENT in accordance with the laws of the State of Georgia, the DEPARTMENT'S UAM and any agreements in effect between the DEPARTMENT and OWNER. The OWNER agrees to cooperate in good faith with the CONTRACTOR and to respond to all requests for information or meetings required to reach a resolution of any disputed items.

9. All Utility work included in the PROJECT's contract and Utility work completed by the OWNER that is reimbursed by the DEPARTMENT through an agreement shall be in accordance with the BUY AMERICA requirements of the Federal regulations (23 U.S.C. 313 and 23 CFR 635.410) all manufacturing processes for steel and iron products or predominantly of steel or iron furnished for permanent incorporation into the work on this project shall occur in the United States. The only exception to this requirement is the production of pig iron and the processing, pelletizing and reduction of iron ore, which may occur in another country. Other than these exceptions, all melting, rolling, extruding, machining, bending, grinding, drilling, coating, etc. must occur in the United States.

    a. Products of steel include, but are not limited to, such products as structural steel piles, reinforcing steel, structural plate, steel culverts, and guardrail steel supports for signs, signals and luminaires. Products of iron include, but are not limited to, such products as cast iron frames and grates and ductile iron pipe. Coatings include, but are not limited to, the applications of epoxy, galvanizing and paint. The coating material is not limited to this clause, only the application process.

    b. A Certificate of Compliance shall be furnished for steel and iron products as part of the backup information with the billing. The form for this certification entitled "Buy America Certificate of Compliance" is attached to this agreement as "Exhibit A." Records to be maintained by the Developer for this certification shall include a signed mill test report and a signed certification by each supplier, distributor, fabricator, and manufacturer that has handled the steel or iron product affirming that every process, including the application of a coating, performed on the steel or iron product has been carried out in the United States of America, except as allowed by this Section. The lack of these certifications will be justification for rejection of the steel and/or iron product or nonpayment of the work.

The requirements of said law and regulations do not prevent the use of miscellaneous steel or iron components, subcomponents and hardware necessary to encase, assemble and construct the above products, manufactured products that are not predominantly steel or iron or a minimal use of foreign steel and iron materials if the cost of such materials used does not exceed one-tenth of one percent (0.1%) of the total contract price or $2,500.00, whichever is greater. The Memorandum of Understanding will be incorporated into the project contract by reference or Exhibit.

APPROVED FOR THE OWNER BY:

Glen W. Killings — 11/21/17
(Signature) (Date)

VP OPERATIONS
(Title)

APPROVED FOR THE DEPARTMENT BY:

Patrick D. Ak — 12/19/17
(Signature) (Date)

STATE UTILITIES ADMINISTRATOR

Pre-Approved Contractor List

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

SEE ATTACHED SHEET

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

Please provide a minimum of three.

Pre-Approved Design Consultant List

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

Atlanta Gas Light
Pre-Approved Contractor List
Project: 0013549 Pedestrian Bridge over SR 21 – Chatham County
Date: March 4, 2016

First Name	Last Name	Company Name	City	State	Title	Work Phone	WorkEx	Email Name
Kevin	Adams	Southeast Connections	Conyers	GA	VP Operations	404-659-1422	240	kadams@seconnections.com
Jason	McCanles	Benton-Georgia, LLC	Douglasville	GA	Regional Manager	678-951-7667		jmccanles@benton-georgia.com
Bryan	Boyd	Gunter Construction Company, Inc.	Lawrenceville	GA	President	770-963-7760	201	bboyd@gunterconst.com
Doug	Suddeth	Player & Company	Atlanta	GA	President	404-725-4731		dsuddeth@playerco.com
John	Walker	CEDS Construction	Cumming	GA	VP	770-889-2361	14	jjwalker_ceds@bellsouth.net
Payton	Crawford	Pride Utility	Cumming	GA	Operation Manager	770-532-0085		pcrawford@prideutility.com
Tony	Pittman	Southern Pipeline, Inc.	Winder	GA	Owner	770-589-5184		southernpipeline@aol.com
Lance	Souther	D Lance Souther, Inc.	Macon	GA	President	478-742-2292		lance@dlsi.us
Edmund	Zammit		Macon	GA		478-742-2292		edmund@dlsi.us
Dooley	Eaves	Troy Construction, LLC	Commerce	GA	Regional Manager	706-336-0063	201	deaves@troyconstruction.com
Casey	Colbey		Commerce	GA	Estimating	706-336-0063	203	ccolbey@troyconstruction.com

Georgia Department of Transportation

Technical Provisions

For

Design-Build Agreement

P.I. No. 0013727

Attachment 6-15

City of Savannah MOU

Georgia DOT Project: Reconstruct the Dean Forest Road Interchange over I-16
GDOT P.I. # 0013727

DESIGN-BUILD
MEMORANDUM OF UNDERSTANDING

between the
Georgia Department of Transportation (hereafter the DEPARTMENT)
and
City of Savannah (hereafter the OWNER)

Whereas GDOT, hereafter referred to as the DEPARTMENT proposes to undertake a design-build project hereafter referred to as a PROJECT to reconstruct the Dean Forest Road Interchange over I-16 in Chatham County, Georgia by contract through competitive bidding procedures; and,

Whereas the DEPARTMENT will accomplish the PROJECT through a Design Consultant, Design Consultant Team and/or Contractor, hereafter referred to as CONTRACTOR; and the utility owner hereafter referred to as the OWNER, and

Whereas, where OWNER has property rights ("Prior Rights") at the location of the PROJECT, OWNER will provide written evidence as to said prior rights within the area and will provide written documentation of prior rights relating to any individual crossing or Utility Facility, at the location of the PROJECT; and

Whereas, OWNER acknowledges that, generally, absent a showing of prior rights, the costs of relocation, protection, removal, or adjustment performed by OWNER shall be borne by OWNER; and

Whereas, pursuant to O.C.G.A. § 32-6-170(b), DEPARTMENT is authorized to pay or participate in the payment of the costs of relocation, protection, or adjustment of OWNER'S facilities where DEPARTMENT has made the determination that (i) such payments are in the best interest of the public and necessary in order to expedite the staging of the design-build project; and (ii) the costs of the removal, relocation, protection, or adjustment of such facilities are included as part of the Contract between the Department and the Department's roadway contractor for the design-build project; and

1. Type of Utility
OWNER has the following utility facilities which may need to be adjusted or relocated as a result of the proposed PROJECT:

Type of facility or facilities of OWNER:
X Domestic water mains and distribution lines and associated appurtenances
X Sanitary Sewer facilities and/or Storm Drainage System
_____Electrical Distribution (overhead and underground) wires, poles, etc.
_____Electrical Transmission (overhead and underground) wires, poles, etc.
_____Natural Gas Distribution Facilities (underground)
_____Natural Gas Transmission Facilities (underground)
_____Petroleum Pipeline (underground)
_____Telecommunications facilities and equipment
_____Cable TV facilities
_____Street Lighting
_____Internet Data Service
_____Other Facilities (Description) _____

2. New Utility Facilities Proposed (Betterment)

OWNER desires the following to be installed as new additional facilities within the PROJECT. Insert here or attach a detailed description of proposed new additional utility installations:

N/A_____

_____

3. Assignment of Respousibilities for Design and Construction

This MEMORANDUM OF UNDERSTANDING and the following shall serve as a *basis* for assignment of responsibilities and costs for the DEPARTMENT, CONTRACTOR and the OWNER to enter into a Standard Utility Agreement (SUA) or Contract Item Agreement (CIA), if necessary, with OWNER once the PROJECT is awarded to the CONTRACTOR. For a PROJECT implementation, GDOT will not have in its possession exact costing plans to be utilized to determine exact locations of the removal, relocation, protection, or adjustment. However, Overhead/Subsurface Utility Engineering (SUE) investigations plans exist providing the best information and signifying the layout of known existing facilities. Please use these plans for developing the final determination of services as indicated below. The CONTRACTOR developed plans will be provided to the OWNER after the design build project is awarded by GDOT which shall be used by the CONTRACTOR as the final basis for the SUA or CIA. **Betterment costs will be the OWNER'S responsibility.**

NOTE: Water and Sewer Design and Construction relocation work put in the contract will automatically be accomplished by the DEPARTMENT'S CONTRACTOR. The UTILITY OWNER will still have design approval authority. (No Pre-Approved Contractor/Consultant List required, leave page 6 blank). If you are a Water & Sewer Utility and choose to put your relocation Design and Construction in the contract, please check Design and Construction under Option 2 under 3B. Owner's electing to perform their own design, at their own cost, please select design under 3C.

OWNER hereby intends to:

3A. OWNER, at the DEPARTMENT'S cost through an Agreement, will provide the following services for the properties for which it has established prior rights (Check to signify):

Design _____
Construction _____

3B. OWNER, at the CONTRACTOR'S cost, for any removal, relocation, protection, adjustment and/or design (Regardless of Prior Rights) will allow their facilities to be placed into the DEPARTMENT'S contract for the following services pursuant to O.C.G.A. § 32-6-170(b). The CONTRACTOR will add the removal, relocation, protection, materials, adjustment and/or design cost, excluding betterment, to the overall PROJECT's cost. (Check to signify):

Option 1: OWNER wants the work to be performed by the OWNER's pre-approved Design Consultants and/or Contractors.

Design
Construction

Option 2: OWNER wants the DEPARTMENT'S CONTRACTOR to perform the design and/or construction. (Check to signify):

Design X
Construction X **If both are checked, please leave page 6 blank.**

As per this section, all work necessary for the removal, relocation, protection, or adjustment of the described utilities in accordance with the plans when approved shall be included in the project contract and accomplished by the CONTRACTOR except as follows (Check none or list any work items to be performed by the OWNER)

None _____

Excluded Items _____

Comments: _____

3C. OWNER, at OWNER'S cost, will provide the following services (Check to signify):

Design _____
Construction _____

The following is hereby mutually agreed to and understood by both parties:

1. The identification of existing facilities including preparation of Overhead/Subsurface Utility Engineering (SUE) investigations plans will be accomplished by the DEPARTMENT prior to award of the PROJECT and thereafter supplemented by the CONTRACTOR.

2. The CONTRACTOR shall coordinate reviews of the utility relocation information and obtain acceptance from the OWNER and DEPARTMENT when required. However; the OWNER shall apply for and obtain any required permits from the DEPARTMENT and perform any final design or proprietary design needed to administer its own relocation work if the work will not be included in the contract If the preliminary plans indicate that no conflict exists, and the OWNER concurs with this information, the OWNER shall provide a letter of "no conflict" to the CONTRACTOR.

3. After award of the PROJECT, the CONTRACTOR will research any claimed compensable property interest for each OWNER claiming prior rights under section 3A and present the findings to the DEPARTMENT and OWNER for approval. The plans and estimate for the utility work shall be subject to approval of both the DEPARTMENT and the OWNER prior to construction. If the OWNER chooses to perform its own relocations and the OWNER holds no property interest as stated above; the OWNER shall confirm in writing that the OWNER will relocate its own facilities at no cost to the DEPARTMENT or the CONTRACTOR.

4. All construction engineering and contract supervision shall be the responsibility of the DEPARTMENT and the CONTRACTOR to ensure that all utility work included in the contract is accomplished in accordance with the PROJECT's plans and specifications. The CONTRACTOR will consult with the OWNER before authorizing any changes or deviations which affect the OWNER's facility.

5. For utility work included in the contract, the CONTRACTOR shall ensure that the design/construction and installation of the OWNER'S facilities is performed by a contractor/design consultant pre-approved/registered with both the DEPARTMENT and the OWNER. For any work included in the contract, excluding water and sewer, the OWNER will provide a list of pre-approved/registered contractors/design consultants on page 6 of the MOU.

6. For Utility work included in the contract, the OWNER or the OWNER's Consultant shall have the right to visit and inspect the work at any time and advise the CONTRACTOR and the DEPARTMENT'S Engineer of any observed discrepancies or potential issues. The DEPARTMENT agrees to notify the OWNER when all utility work is completed and ready for final inspection by the OWNER.

7. Upon Maintenance Acceptance or Final Acceptance of the utility work included in the contract and upon certification by the DEPARTMENT'S Engineer and the OWNER that the work has been completed in accordance with the plans and specifications, the OWNER will accept the adjusted, relocated, and additional facilities and will thereafter operate and maintain said facilities located within the PROJECT right of way subject to the DEPARTMENT'S Utility Accommodations Policy and Standards Manual (UAM), current edition" and any agreements in effect without further cost to the DEPARTMENT or it's CONTRACTOR. Final acceptance of the utility relocation work is accomplished by the execution of the Utility Facility Relocation Acceptance Form. The CONTRACTOR shall provide the OWNER with a complete set of "As-Built Plans" for review and approval reflecting the relocation work performed by the CONTRACTOR. Upon completion of the Utility Facility Relocation Acceptance Form and the exchange of the final OWNER approved "As-Built Plans", the OWNER will operate and maintain the installed facilities going forward based on the date of execution of the Utility Facility Relocation Acceptance Form by the DEPARTMENT.

8. For utility coordination, relocation and reimbursement matters, the OWNER shall cooperate with the CONTRACTOR in the same manner as if coordinating directly with the DEPARTMENT in accordance with the laws of the State of Georgia, the DEPARTMENT'S UAM and any agreements in effect between the DEPARTMENT and OWNER. The OWNER agrees to cooperate in good faith with the CONTRACTOR and to respond to all requests for information or meetings required to reach a resolution of any disputed items.

9. All Utility work included in the PROJECT's contract and Utility work completed by the OWNER that is reimbursed by the DEPARTMENT through an agreement shall be in accordance with the BUY AMERICA requirements of the Federal regulations (23 U.S.C. 313 and 23 CFR 635.410) all manufacturing processes for steel and iron products or predominantly of steel or iron furnished for permanent incorporation into the work on this project shall occur in the United States. The only exception to this requirement is the production of pig iron and the processing, pelletizing and reduction of iron ore, which may occur in another country. Other than these exceptions, all melting, rolling, extruding, machining, bending, grinding, drilling, coating, etc. must occur in the United States.

    a. Products of steel include, but are not limited to, such products as structural steel piles, reinforcing steel, structural plate, steel culverts, and guardrail steel supports for signs, signals and luminaires. Products of iron include, but are not limited to, such products as cast iron frames and grates and ductile iron pipe. Coatings include, but are not limited to, the applications of epoxy, galvanizing and paint. The coating material is not limited to this clause, only the application process.

    b. A Certificate of Compliance shall be furnished for steel and iron products as part of the backup information with the billing. The form for this certification entitled "Buy America Certificate of Compliance" is attached to this agreement as "Exhibit A." Records to be maintained by the Developer for this certification shall include a signed mill test report and a signed certification by each supplier, distributor, fabricator, and manufacturer that has handled the steel or iron product affirming that every process, including the application of a coating, performed on the steel or iron product has been carried out in the United States of America, except as allowed by this Section. The lack of these certifications will be justification for rejection of the steel and/or iron product or nonpayment of the work.

The requirements of said law and regulations do not prevent the use of miscellaneous steel or iron components, subcomponents and hardware necessary to encase, assemble and construct the above products, manufactured products that are not predominantly steel or iron or a minimal use of foreign steel and iron materials if the cost of such materials used does not exceed one-tenth of one percent (0.1%) of the total contract price or $2,500.00, whichever is greater. The Memorandum of Understanding will be incorporated into the project contract by reference or Exhibit.

APPROVED FOR THE OWNER BY:

(Signature) 1/11/2018 (Date)

(Title)

APPROVED FOR THE DEPARTMENT BY:

(Signature) 1/16/18 (Date)

STATE UTILITIES ADMINISTRATOR

Pre-Approved Contractor List

Company Name:
Address
Phone:
Contact Person:
E-Mail:

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

Please provide a minimum of three.

Pre-Approved Design Consultant List

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

Georgia Department of Transportation

Technical Provisions

For

Design-Build Agreement

P.I. No. 0013727

Attachment 6-16

Comcast Cable MOU

Georgia DOT Project: Reconstruct the Dean Forest Road Interchange over I-16
GDOT P.I. # 0013727

DESIGN-BUILD
MEMORANDUM OF UNDERSTANDING
between the
Georgia Department of Transportation (hereafter the DEPARTMENT)
and
Comcast (hereafter the OWNER)

Whereas GDOT, hereafter referred to as the DEPARTMENT proposes to undertake design-build projects hereafter referred to as PROJECTS to reconstruct the I-16 Interchange at I-95 and I-16 Widening from I-95 to I-516 in Chatham County, Georgia by contract through competitive bidding procedures; and,

Whereas the DEPARTMENT will accomplish the PROJECT through a Design Consultant, Design Consultant Team and/or Contractor, hereafter referred to as CONTRACTOR; and the utility owner hereafter referred to as the OWNER, and

Whereas, where OWNER has property rights ("Prior Rights") at the location of the PROJECT, OWNER will provide written evidence as to said prior rights within the area and will provide written documentation of prior rights relating to any individual crossing or Utility Facility, at the location of the PROJECT; and

Whereas, OWNER acknowledges that, generally, absent a showing of prior rights, the costs of relocation, protection, removal, or adjustment performed by OWNER shall be borne by OWNER; and

Whereas, pursuant to O.C.G.A. § 32-6-170(b), DEPARTMENT is authorized to pay or participate in the payment of the costs of relocation, protection, or adjustment of OWNER'S facilities where DEPARTMENT has made the determination that (i) such payments are in the best interest of the public and necessary in order to expedite the staging of the design-build project; and (ii) the costs of the removal, relocation, protection, or adjustment of such facilities are included as part of the Contract between the Department and the Department's roadway contractor for the design-build project; and

1. Type of Utility
OWNER has the following utility facilities which may need to be adjusted or relocated as a result of the proposed PROJECT:

Type of facility or facilities of OWNER:
_____Domestic water mains and distribution lines and associated appurtenances
_____Sanitary Sewer facilities and/or Storm Drainage System
_____Electrical Distribution (overhead and underground) wires, poles, etc.
_____Electrical Transmission (overhead and underground) wires, poles, etc.
_____Natural Gas Distribution Facilities (underground)
_____Natural Gas Transmission Facilities (underground)
_____Petroleum Pipeline (underground)
_____Telecommunications facilities and equipment
X Cable TV facilities
_____Street Lighting
_____Internet Data Service
_____Other Facilities (Description) _____

2. New Utility Facilities Proposed (Betterment)

OWNER desires the following to be installed as new additional facilities within the PROJECT. Insert here or attach a detailed description of proposed new additional utility installations:

_____

_____

3. Assignment of Responsibilities for Design and Construction

This MEMORANDUM OF UNDERSTANDING and the following shall serve as a *basis* for assignment of responsibilities and costs for the DEPARTMENT, CONTRACTOR and the OWNER to enter into a Standard Utility Agreement (SUA) or Contract Item Agreement (CIA), if necessary, with OWNER once the PROJECT is awarded to the CONTRACTOR. For a PROJECT implementation, GDOT will not have in its possession exact costing plans to be utilized to determine exact locations of the removal, relocation, protection, or adjustment. However, Overhead/Subsurface Utility Engineering (SUE) investigations plans exist providing the best information and signifying the layout of known existing facilities. Please use these plans for developing the final determination of services as indicated below. The CONTRACTOR developed plans will be provided to the OWNER after the design build project is awarded by GDOT which shall be used by the CONTRACTOR as the final basis for the SUA or CIA. **Betterment costs will be the OWNER'S responsibility.**

NOTE: Water and Sewer Design and Construction relocation work put in the contract will automatically be accomplished by the DEPARTMENT'S CONTRACTOR. The UTILITY OWNER will still have design approval authority. (No Pre-Approved Contractor/Consultant List required, leave page 6 blank). If you are a Water & Sewer Utility and choose to put your relocation Design and Construction in the contract, please check Design and Construction under Option 2 under 3B. Owner's electing to perform their own design, at their own cost, please select design under 3C.

OWNER hereby intends to:

3A. OWNER, at the DEPARTMENT'S cost through an Agreement, will provide the following services for the properties for which it has established prior rights (Check to signify):

Design _____
Construction _____

3B. OWNER, at the CONTRACTOR'S cost, for any removal, relocation, protection, adjustment and/or design (Regardless of Prior Rights) will allow their facilities to be placed into the DEPARTMENT'S contract for the following services pursuant to O.C.G.A. § 32-6-170(b). The CONTRACTOR will add the removal, relocation, protection, materials, adjustment and/or design cost, excluding betterment, to the overall PROJECT's cost. (Check to signify):

Option 1: OWNER wants the work to be performed by the OWNER's pre-approved Design Consultants and/or Contractors.

Design _____
Construction ____

Option 2: OWNER wants the DEPARTMENT'S CONTRACTOR to perform the design and/or construction. (Check to signify):

Design __X_
Construction __X__ **If both are checked, please leave page 6 blank.**

As per this section, all work necessary for the removal, relocation, protection, or adjustment of the described utilities in accordance with the plans when approved shall be included in the project contract and accomplished by the CONTRACTOR except as follows (Check none or list any work items to be performed by the OWNER)

None _____

Excluded Items Actual utility wire.

Comments: Comcast only request that the conduit for the facility gets installed by CONTRACTOR. Comcast will instill its own facility through provided conduit at OWNERS expense.

3C. OWNER, at OWNER'S cost, will provide the following services (Check to signify):

Design _____
Construction _____

The following is hereby mutually agreed to and understood by both parties:

1. The identification of existing facilities including preparation of Overhead/Subsurface Utility Engineering (SUE) investigations plans will be accomplished by the DEPARTMENT prior to award of the PROJECT and thereafter supplemented by the CONTRACTOR.

2. The CONTRACTOR shall coordinate reviews of the utility relocation information and obtain acceptance from the OWNER and DEPARTMENT when required. However; the OWNER shall apply for and obtain any required permits from the DEPARTMENT and perform any final design or proprietary design needed to administer its own relocation work if the work will not be included in the contract If the preliminary plans indicate that no conflict exists, and the OWNER concurs with this information, the OWNER shall provide a letter of "no conflict" to the CONTRACTOR.

3. After award of the PROJECT, the CONTRACTOR will research any claimed compensable property interest for each OWNER claiming prior rights under section 3A and present the findings to the DEPARTMENT and OWNER for approval. The plans and estimate for the utility work shall be subject to approval of both the DEPARTMENT and the OWNER prior to construction. If the OWNER chooses to perform its own relocations and the OWNER holds no property interest as stated above; the OWNER shall confirm in writing that the OWNER will relocate its own facilities at no cost to the DEPARTMENT or the CONTRACTOR.

4. All construction engineering and contract supervision shall be the responsibility of the DEPARTMENT and the CONTRACTOR to ensure that all utility work included in the contract is accomplished in accordance with the PROJECT's plans and specifications. The CONTRACTOR will consult with the OWNER before authorizing any changes or deviations which affect the OWNER's facility.

5. For utility work included in the contract, the CONTRACTOR shall ensure that the design/construction and installation of the OWNER'S facilities is performed by a contractor/design consultant pre-approved/registered with both the DEPARTMENT and the OWNER. For any work included in the contract, excluding water and sewer, the OWNER will provide a list of pre-approved/registered contractors/design consultants on page 6 of the MOU.

6. For Utility work included in the contract, the OWNER or the OWNER's Consultant shall have the right to visit and inspect the work at any time and advise the CONTRACTOR and the DEPARTMENT'S Engineer of any observed discrepancies or potential issues. The DEPARTMENT agrees to notify the OWNER when all utility work is completed and ready for final inspection by the OWNER.

7. Upon Maintenance Acceptance or Final Acceptance of the utility work included in the contract and upon certification by the DEPARTMENT'S Engineer and the OWNER that the work has been completed in accordance with the plans and specifications, the OWNER will accept the adjusted, relocated, and additional facilities and will thereafter operate and maintain said facilities located within the PROJECT right of way subject to the DEPARTMENT'S Utility Accommodations Policy and Standards Manual (UAM), current edition" and any agreements in effect without further cost to the DEPARTMENT or it's CONTRACTOR. Final acceptance of the utility relocation work is accomplished by the execution of the Utility Facility Relocation Acceptance Form. The CONTRACTOR shall provide the OWNER with a complete set of "As-Built Plans" for review and approval reflecting the relocation work performed by the CONTRACTOR. Upon completion of the Utility Facility Relocation Acceptance Form and the exchange of the final OWNER approved "As-Built Plans", the OWNER will operate and maintain the installed facilities going forward based on the date of execution of the Utility Facility Relocation Acceptance Form by the DEPARTMENT.

8. For utility coordination, relocation and reimbursement matters, the OWNER shall cooperate with the CONTRACTOR in the same manner as if coordinating directly with the DEPARTMENT in accordance with the laws of the State of Georgia, the DEPARTMENT'S UAM and any agreements in effect between the DEPARTMENT and OWNER. The OWNER agrees to cooperate in good faith with the CONTRACTOR and to respond to all requests for information or meetings required to reach a resolution of any disputed items.

9. All Utility work included in the PROJECT's contract and Utility work completed by the OWNER that is reimbursed by the DEPARTMENT through an agreement shall be in accordance with the BUY AMERICA requirements of the Federal regulations (23 U.S.C. 313 and 23 CFR 635.410) all manufacturing processes for steel and iron products or predominantly of steel or iron furnished for permanent incorporation into the work on this project shall occur in the United States. The only exception to this requirement is the production of pig iron and the processing, pelletizing and reduction of iron ore, which may occur in another country. Other than these exceptions, all melting, rolling, extruding, machining, bending, grinding, drilling, coating, etc. must occur in the United States.

    a. Products of steel include, but are not limited to, such products as structural steel piles, reinforcing steel, structural plate, steel culverts, and guardrail steel supports for signs, signals and luminaires. Products of iron include, but are not limited to, such products as cast iron frames and grates and ductile iron pipe. Coatings include, but are not limited to, the applications of epoxy, galvanizing and paint. The coating material is not limited to this clause, only the application process.

    b. A Certificate of Compliance shall be furnished for steel and iron products as part of the backup information with the billing. The form for this certification entitled "Buy America Certificate of Compliance" is attached to this agreement as "Exhibit A." Records to be maintained by the Developer for this certification shall include a signed mill test report and a signed certification by each supplier, distributor, fabricator, and manufacturer that has handled the steel or iron product affirming that every process, including the application of a coating, performed on the steel or iron product has been carried out in the United States of America, except as allowed by this Section. The lack of these certifications will be justification for rejection of the steel and/or iron product or nonpayment of the work.

The requirements of said law and regulations do not prevent the use of miscellaneous steel or iron components, subcomponents and hardware necessary to encase, assemble and construct the above products, manufactured products that are not predominantly steel or iron or a minimal use of foreign steel and iron materials if the cost of such materials used does not exceed one-tenth of one percent (0.1%) of the total contract price or $2,500.00, whichever is greater. The Memorandum of Understanding will be incorporated into the project contract by reference or Exhibit.

APPROVED FOR THE OWNER BY:

(Signature) 11/15/17 (Date)

CONSTRUCTION SPEC II

(Title)

APPROVED FOR THE DEPARTMENT BY:

(Signature) 12/19/17 (Date)

STATE UTILITIES ADMINISTRATOR

Pre-Approved Contractor List

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

Please provide a minimum of three.

Pre-Approved Design Consultant List

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

Georgia Department of Transportation

Technical Provisions

For

Design-Build Agreement

P.I. No. 0013727

Attachment 6-17

Georgia Power Distribution MOU

Georgia DOT Project: Reconstruct the Dean Forest Road Interchange over I-16
GDOT P.I. # 0013727

DESIGN-BUILD
MEMORANDUM OF UNDERSTANDING

between the
Georgia Department of Transportation (hereafter the DEPARTMENT)
and
Georgia Power Company (hereafter the OWNER)

Whereas GDOT, hereafter referred to as the DEPARTMENT proposes to undertake a design-build project hereafter referred to as a PROJECT to reconstruct the Dean Forest Road Interchange over I-16 in Chatham County, Georgia by contract through competitive bidding procedures; and,

Whereas the DEPARTMENT will accomplish the PROJECT through a Design Consultant, Design Consultant Team and/or Contractor, hereafter referred to as CONTRACTOR; and the utility owner hereafter referred to as the OWNER, and

Whereas, where OWNER has property rights ("Prior Rights") at the location of the PROJECT, OWNER will provide written evidence as to said prior rights within the area and will provide written documentation of prior rights relating to any individual crossing or Utility Facility, at the location of the PROJECT; and

Whereas, OWNER acknowledges that, generally, absent a showing of prior rights, the costs of relocation, protection, removal, or adjustment performed by OWNER shall be borne by OWNER; and

Whereas, pursuant to O.C.G.A. § 32-6-170(b), DEPARTMENT is authorized to pay or participate in the payment of the costs of relocation, protection, or adjustment of OWNER'S facilities where DEPARTMENT has made the determination that (i) such payments are in the best interest of the public and necessary in order to expedite the staging of the design-build project; and (ii) the costs of the removal, relocation, protection, or adjustment of such facilities are included as part of the Contract between the Department and the Department's roadway contractor for the design-build project; and

1. Type of Utility
OWNER has the following utility facilities which may need to be adjusted or relocated as a result of the proposed PROJECT:

Type of facility or facilities of OWNER:
_____Domestic water mains and distribution lines and associated appurtenances
_____Sanitary Sewer facilities and/or Storm Drainage System
__X___Electrical Distribution (overhead and underground) wires, poles, etc.
_____Electrical Transmission (overhead and underground) wires, poles, etc.
_____Natural Gas Distribution Facilities (underground)
_____Natural Gas Transmission Facilities (underground)
_____Petroleum Pipeline (underground)
_____Telecommunications facilities and equipment
_____Cable TV facilities
_____Street Lighting
_____Internet Data Service
_____Other Facilities (Description) _____

2. New Utility Facilities Proposed (Betterment)

OWNER desires the following to be installed as new additional facilities within the PROJECT. Insert here or attach a detailed description of proposed new additional utility installations:

N/A

3. Assignment of Responsibilities for Design and Construction

This MEMORANDUM OF UNDERSTANDING and the following shall serve as a *basis* for assignment of responsibilities and costs for the DEPARTMENT, CONTRACTOR and the OWNER to enter into a Standard Utility Agreement (SUA) or Contract Item Agreement (CIA), if necessary, with OWNER once the PROJECT is awarded to the CONTRACTOR. For a PROJECT implementation, GDOT will not have in its possession exact costing plans to be utilized to determine exact locations of the removal, relocation, protection, or adjustment. However, Overhead/Subsurface Utility Engineering (SUE) investigations plans exist providing the best information and signifying the layout of known existing facilities. Please use these plans for developing the final determination of services as indicated below. The CONTRACTOR developed plans will be provided to the OWNER after the design build project is awarded by GDOT which shall be used by the CONTRACTOR as the final basis for the SUA or CIA. **Betterment costs will be the OWNER'S responsibility.**

NOTE: Water and Sewer Design and Construction relocation work put in the contract will automatically be accomplished by the DEPARTMENT'S CONTRACTOR. The UTILITY OWNER will still have design approval authority. (No Pre-Approved Contractor/Consultant List required, leave page 6 blank). If you are a Water & Sewer Utility and choose to put your relocation Design and Construction in the contract, please check Design and Construction under Option 2 under 3B. Owner's electing to perform their own design, at their own cost, please select design under 3C.

OWNER hereby intends to:

3A. OWNER, at the DEPARTMENT'S cost through an Agreement, will provide the following services for the properties for which it has established prior rights (Check to signify):

Design _____
Construction _____

3B. OWNER, at the CONTRACTOR'S cost, for any removal, relocation, protection, adjustment and/or design (Regardless of Prior Rights) will allow their facilities to be placed into the DEPARTMENT'S contract for the following services pursuant to O.C.G.A. § 32-6-170(b). The CONTRACTOR will add the removal, relocation, protection, materials, adjustment and/or design cost, excluding betterment, to the overall PROJECT's cost. (Check to signify):

Option 1: OWNER wants the work to be performed by the OWNER's pre-approved Design Consultants and/or Contractors.

Design _X____
Construction _X____

Option 2: OWNER wants the DEPARTMENT'S CONTRACTOR to perform the design and/or construction. (Check to signify):

Design ____
Construction ____ **If both are checked, please leave page 6 blank.**

As per this section, all work necessary for the removal, relocation, protection, or adjustment of the described utilities in accordance with the plans when approved shall be included in the project contract and accomplished by the CONTRACTOR except as follows (Check none or list any work items to be performed by the OWNER)

None __N/A___

Excluded Items _____

Comments: _____

3C. OWNER, at OWNER'S cost, will provide the following services (Check to signify):

Design _____
Construction _____

The following is hereby mutually agreed to and understood by both parties:

1. The identification of existing facilities including preparation of Overhead/Subsurface Utility Engineering (SUE) investigations plans will be accomplished by the DEPARTMENT prior to award of the PROJECT and thereafter supplemented by the CONTRACTOR.

2. The CONTRACTOR shall coordinate reviews of the utility relocation information and obtain acceptance from the OWNER and DEPARTMENT when required. However; the OWNER shall apply for and obtain any required permits from the DEPARTMENT and perform any final design or proprietary design needed to administer its own relocation work if the work will not be included in the contract If the preliminary plans indicate that no conflict exists, and the OWNER concurs with this information, the OWNER shall provide a letter of "no conflict" to the CONTRACTOR.

3. After award of the PROJECT, the CONTRACTOR will research any claimed compensable property interest for each OWNER claiming prior rights under section 3A and present the findings to the DEPARTMENT and OWNER for approval. The plans and estimate for the utility work shall be subject to approval of both the DEPARTMENT and the OWNER prior to construction. If the OWNER chooses to perform its own relocations and the OWNER holds no property interest as stated above; the OWNER shall confirm in writing that the OWNER will relocate its own facilities at no cost to the DEPARTMENT or the CONTRACTOR.

4. All construction engineering and contract supervision shall be the responsibility of the DEPARTMENT and the CONTRACTOR to ensure that all utility work included in the contract is accomplished in accordance with the PROJECT's plans and specifications. The CONTRACTOR will consult with the OWNER before authorizing any changes or deviations which affect the OWNER's facility.

5. For utility work included in the contract, the CONTRACTOR shall ensure that the design/construction and installation of the OWNER'S facilities is performed by a contractor/design consultant pre-approved/registered with both the DEPARTMENT and the OWNER. For any work included in the contract, excluding water and sewer, the OWNER will provide a list of pre-approved/registered contractors/design consultants on page 6 of the MOU.

6. For Utility work included in the contract, the OWNER or the OWNER's Consultant shall have the right to visit and inspect the work at any time and advise the CONTRACTOR and the DEPARTMENT'S Engineer of any observed discrepancies or potential issues. The DEPARTMENT agrees to notify the OWNER when all utility work is completed and ready for final inspection by the OWNER.

7. Upon Maintenance Acceptance or Final Acceptance of the utility work included in the contract and upon certification by the DEPARTMENT'S Engineer and the OWNER that the work has been completed in accordance with the plans and specifications, the OWNER will accept the adjusted, relocated, and additional facilities and will thereafter operate and maintain said facilities located within the PROJECT right of way subject to the DEPARTMENT'S Utility Accommodations Policy and Standards Manual (UAM), current edition" and any agreements in effect without further cost to the DEPARTMENT or it's CONTRACTOR. Final acceptance of the utility relocation work is accomplished by the execution of the Utility Facility Relocation Acceptance Form. The CONTRACTOR shall provide the OWNER with a complete set of "As-Built Plans" for review and approval reflecting the relocation work performed by the CONTRACTOR. Upon completion of the Utility Facility Relocation Acceptance Form and the exchange of the final OWNER approved "As-Built Plans", the OWNER will operate and maintain the installed facilities going forward based on the date of execution of the Utility Facility Relocation Acceptance Form by the DEPARTMENT.

8. For utility coordination, relocation and reimbursement matters, the OWNER shall cooperate with the CONTRACTOR in the same manner as if coordinating directly with the DEPARTMENT in accordance with the laws of the State of Georgia, the DEPARTMENT'S UAM and any agreements in effect between the DEPARTMENT and OWNER. The OWNER agrees to cooperate in good faith with the CONTRACTOR and to respond to all requests for information or meetings required to reach a resolution of any disputed items.

9. All Utility work included in the PROJECT's contract and Utility work completed by the OWNER that is reimbursed by the DEPARTMENT through an agreement shall be in accordance with the BUY AMERICA requirements of the Federal regulations (23 U.S.C. 313 and 23 CFR 635.410) all manufacturing processes for steel and iron products or predominantly of steel or iron furnished for permanent incorporation into the work on this project shall occur in the United States. The only exception to this requirement is the production of pig iron and the processing, pelletizing and reduction of iron ore, which may occur in another country. Other than these exceptions, all melting, rolling, extruding, machining, bending, grinding, drilling, coating, etc. must occur in the United States.

    a. Products of steel include, but are not limited to, such products as structural steel piles, reinforcing steel, structural plate, steel culverts, and guardrail steel supports for signs, signals and luminaires. Products of iron include, but are not limited to, such products as cast iron frames and grates and ductile iron pipe. Coatings include, but are not limited to, the applications of epoxy, galvanizing and paint. The coating material is not limited to this clause, only the application process.

    b. A Certificate of Compliance shall be furnished for steel and iron products as part of the backup information with the billing. The form for this certification entitled "Buy America Certificate of Compliance" is attached to this agreement as "Exhibit A." Records to be maintained by the Developer for this certification shall include a signed mill test report and a signed certification by each supplier, distributor, fabricator, and manufacturer that has handled the steel or iron product affirming that every process, including the application of a coating, performed on the steel or iron product has been carried out in the United States of America, except as allowed by this Section. The lack of these certifications will be justification for rejection of the steel and/or iron product or nonpayment of the work.

The requirements of said law and regulations do not prevent the use of miscellaneous steel or iron components, subcomponents and hardware necessary to encase, assemble and construct the above products, manufactured products that are not predominantly steel or iron or a minimal use of foreign steel and iron materials if the cost of such materials used does not exceed one-tenth of one percent (0.1%) of the total contract price or $2,500.00, whichever is greater. The Memorandum of Understanding will be incorporated into the project contract by reference or Exhibit.

APPROVED FOR THE OWNER BY:

Mark Tilden
(Signature)

November 2, 2017
(Date)

Project Manager - DOT
(Title)

APPROVED FOR THE DEPARTMENT BY:

(Signature)

12/19/17
(Date)

STATE UTILITIES ADMINISTRATOR

Pre-Approved Contractor List

Company Name: See Attached List
Address:
Phone:
Contact Person:
E-Mail:

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

Please provide a minimum of three.

Pre-Approved Design Consultant List

Company Name: See Attached List
Address:
Phone:
Contact Person:
E-Mail:

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

GEORGIA POWER COMPANY

Design Contractors				
Name	Contact	Phone Number	Email	Address
McLean Engineering	Sean Knowles	(404) 520-0288	sean.knowles@mcleanengineering.com	1954 Airport Road, Suite 214, Chamblee GA 30341
Storm Services	David Dent	(678) 726-7551	david@stormsl.com	432 Wateroak Lane, Augusta, GA 30907
UC / Synergetic	Mark Murray	770-835-0319	mmurray@ucsinc.com	1700 Water Place, Suite 100, Atlanta, GA
Construction Contractors				
Name	Contact	Phone Number	Email	Address
MasTec	Thomas Jones	218-785-3030	thomas.jones@mastec.com	800 S. Douglas Road, 12th Floor Coral Gables, FL 33134
Pike Electric	Todd Badgett	333-719-4431	tbadgett@pike.com	P.O. Box 868,100 Pike Way Mount Airy, NC 27030
Service Electric	Jody Shea	(423) 265-3161 x102	jshea@serviceelectricco.com	1631 East 25th Street PO Box 3656 Chattanooga, TN 37404
Sumter Utilities	Mikell Murray	843-725-9521	jmmurray@suimail.com	1151 North Pike West Sumter, SC 29151
Utilicon	Jimmy Glover	(478) 348-3233	j.glover@utilicon.net	13275 Highway 231 Davisboro, Ga 31018
Williams Electric	Rick Falls	(704) 484-1882	rick.falls@weco.com	P.O. Box 2367 Shelby, NC 28151

Georgia Department of Transportation

Technical Provisions

For

Design-Build Agreement

P.I. No. 0013727

Attachment 6-18

Georgia Power Transmission MOU

Georgia DOT Project: Reconstruct the Dean Forest Road Interchange over I-16
GDOT P.I. # 0013727

DESIGN-BUILD
MEMORANDUM OF UNDERSTANDING

between the
Georgia Department of Transportation (hereafter the DEPARTMENT)
and
Georgia Power Company (hereafter the OWNER)

Whereas GDOT, hereafter referred to as the DEPARTMENT proposes to undertake a design-build project hereafter referred to as a PROJECT to reconstruct the Dean Forest Road Interchange over I-16 in Chatham County, Georgia by contract through competitive bidding procedures; and,

Whereas the DEPARTMENT will accomplish the PROJECT through a Design Consultant, Design Consultant Team and/or Contractor, hereafter referred to as CONTRACTOR; and the utility owner hereafter referred to as the OWNER, and

Whereas, where OWNER has property rights ("Prior Rights") at the location of the PROJECT, OWNER will provide written evidence as to said prior rights within the area and will provide written documentation of prior rights relating to any individual crossing or Utility Facility, at the location of the PROJECT; and

Whereas, OWNER acknowledges that, generally, absent a showing of prior rights, the costs of relocation, protection, removal, or adjustment performed by OWNER shall be borne by OWNER; and

Whereas, pursuant to O.C.G.A. § 32-6-170(b), DEPARTMENT is authorized to pay or participate in the payment of the costs of relocation, protection, or adjustment of OWNER'S facilities where DEPARTMENT has made the determination that (i) such payments are in the best interest of the public and necessary in order to expedite the staging of the design-build project; and (ii) the costs of the removal, relocation, protection, or adjustment of such facilities are included as part of the Contract between the Department and the Department's roadway contractor for the design-build project; and

1. Type of Utility

OWNER has the following utility facilities which may need to be adjusted or relocated as a result of the proposed PROJECT:

Type of facility or facilities of OWNER:

_____Domestic water mains and distribution lines and associated appurtenances
_____Sanitary Sewer facilities and/or Storm Drainage System
_____ Electrical Distribution (overhead and underground) wires, poles, etc.
__X___Electrical Transmission (overhead and underground) wires, poles, etc.
_____Natural Gas Distribution Facilities (underground)
_____Natural Gas Transmission Facilities (underground)
_____Petroleum Pipeline (underground)
_____Telecommunications facilities and equipment
_____Cable TV facilities
_____Street Lighting
_____Internet Data Service
_____Other Facilities (Description) _____

2. New Utility Facilities Proposed (Betterment)

OWNER desires the following to be installed as new additional facilities within the PROJECT. Insert here or attach a detailed description of proposed new additional utility installations:

N/A

3. Assignment of Responsibilities for Design and Construction

This MEMORANDUM OF UNDERSTANDING and the following shall serve as a *basis* for assignment of responsibilities and costs for the DEPARTMENT, CONTRACTOR and the OWNER to enter into a Standard Utility Agreement (SUA) or Contract Item Agreement (CIA), if necessary, with OWNER once the PROJECT is awarded to the CONTRACTOR. For a PROJECT implementation, GDOT will not have in its possession exact costing plans to be utilized to determine exact locations of the removal, relocation, protection, or adjustment. However, Overhead/Subsurface Utility Engineering (SUE) investigations plans exist providing the best information and signifying the layout of known existing facilities. Please use these plans for developing the final determination of services as indicated below. The CONTRACTOR developed plans will be provided to the OWNER after the design build project is awarded by GDOT which shall be used by the CONTRACTOR as the final basis for the SUA or CIA. **Betterment costs will be the OWNER'S responsibility.**

NOTE: Water and Sewer Design and Construction relocation work put in the contract will automatically be accomplished by the DEPARTMENT'S CONTRACTOR. The UTILITY OWNER will still have design approval authority. (No Pre-Approved Contractor/Consultant List required, leave page 6 blank). If you are a Water & Sewer Utility and choose to put your relocation Design and Construction in the contract, please check Design and Construction under Option 2 under 3B. Owner's electing to perform their own design, at their own cost, please select design under 3C.

OWNER hereby intends to:

3A. OWNER, at the DEPARTMENT'S cost through an Agreement, will provide the following services for the properties for which it has established prior rights (Check to signify):

Design _____
Construction _____

3B. OWNER, at the CONTRACTOR'S cost, for any removal, relocation, protection, adjustment and/or design (Regardless of Prior Rights) will allow their facilities to be placed into the DEPARTMENT'S contract for the following services pursuant to O.C.G.A. § 32-6-170(b). The CONTRACTOR will add the removal, relocation, protection, materials, adjustment and/or design cost, excluding betterment, to the overall PROJECT's cost. (Check to signify):

Option 1: OWNER wants the work to be performed by the OWNER's pre-approved Design Consultants and/or Contractors.

Design _X____
Construction _X____

Option 2: OWNER wants the DEPARTMENT'S CONTRACTOR to perform the design and/or construction. (Check to signify):

Design ____
Construction ____ **If both are checked, please leave page 6 blank.**

As per this section, all work necessary for the removal, relocation, protection, or adjustment of the described utilities in accordance with the plans when approved shall be included in the project contract and accomplished by the CONTRACTOR except as follows (Check none or list any work items to be performed by the OWNER)

None __N/A___

Excluded Items _____

Comments: _____

3C. OWNER, at OWNER'S cost, will provide the following services (Check to signify):

Design _____
Construction _____

The following is hereby mutually agreed to and understood by both parties:

1. The identification of existing facilities including preparation of Overhead/Subsurface Utility Engineering (SUE) investigations plans will be accomplished by the DEPARTMENT prior to award of the PROJECT and thereafter supplemented by the CONTRACTOR.

2. The CONTRACTOR shall coordinate reviews of the utility relocation information and obtain acceptance from the OWNER and DEPARTMENT when required. However; the OWNER shall apply for and obtain any required permits from the DEPARTMENT and perform any final design or proprietary design needed to administer its own relocation work if the work will not be included in the contract If the preliminary plans indicate that no conflict exists, and the OWNER concurs with this information, the OWNER shall provide a letter of "no conflict" to the CONTRACTOR.

3. After award of the PROJECT, the CONTRACTOR will research any claimed compensable property interest for each OWNER claiming prior rights under section 3A and present the findings to the DEPARTMENT and OWNER for approval. The plans and estimate for the utility work shall be subject to approval of both the DEPARTMENT and the OWNER prior to construction. If the OWNER chooses to perform its own relocations and the OWNER holds no property interest as stated above; the OWNER shall confirm in writing that the OWNER will relocate its own facilities at no cost to the DEPARTMENT or the CONTRACTOR.

4. All construction engineering and contract supervision shall be the responsibility of the DEPARTMENT and the CONTRACTOR to ensure that all utility work included in the contract is accomplished in accordance with the PROJECT's plans and specifications. The CONTRACTOR will consult with the OWNER before authorizing any changes or deviations which affect the OWNER's facility.

5. For utility work included in the contract, the CONTRACTOR shall ensure that the design/construction and installation of the OWNER'S facilities is performed by a contractor/design consultant pre-approved/registered with both the DEPARTMENT and the OWNER. For any work included in the contract, excluding water and sewer, the OWNER will provide a list of pre-approved/registered contractors/design consultants on page 6 of the MOU.

6. For Utility work included in the contract, the OWNER or the OWNER's Consultant shall have the right to visit and inspect the work at any time and advise the CONTRACTOR and the DEPARTMENT'S Engineer of any observed discrepancies or potential issues. The DEPARTMENT agrees to notify the OWNER when all utility work is completed and ready for final inspection by the OWNER.

7. Upon Maintenance Acceptance or Final Acceptance of the utility work included in the contract and upon certification by the DEPARTMENT'S Engineer and the OWNER that the work has been completed in accordance with the plans and specifications, the OWNER will accept the adjusted, relocated, and additional facilities and will thereafter operate and maintain said facilities located within the PROJECT right of way subject to the DEPARTMENT'S Utility Accommodations Policy and Standards Manual (UAM), current edition" and any agreements in effect without further cost to the DEPARTMENT or it's CONTRACTOR. Final acceptance of the utility relocation work is accomplished by the execution of the Utility Facility Relocation Acceptance Form. The CONTRACTOR shall provide the OWNER with a complete set of "As-Built Plans" for review and approval reflecting the relocation work performed by the CONTRACTOR. Upon completion of the Utility Facility Relocation Acceptance Form and the exchange of the final OWNER approved "As-Built Plans", the OWNER will operate and maintain the installed facilities going forward based on the date of execution of the Utility Facility Relocation Acceptance Form by the DEPARTMENT.

8. For utility coordination, relocation and reimbursement matters, the OWNER shall cooperate with the CONTRACTOR in the same manner as if coordinating directly with the DEPARTMENT in accordance with the laws of the State of Georgia, the DEPARTMENT'S UAM and any agreements in effect between the DEPARTMENT and OWNER. The OWNER agrees to cooperate in good faith with the CONTRACTOR and to respond to all requests for information or meetings required to reach a resolution of any disputed items.

9. All Utility work included in the PROJECT's contract and Utility work completed by the OWNER that is reimbursed by the DEPARTMENT through an agreement shall be in accordance with the BUY AMERICA requirements of the Federal regulations (23 U.S.C. 313 and 23 CFR 635.410) all manufacturing processes for steel and iron products or predominantly of steel or iron furnished for permanent incorporation into the work on this project shall occur in the United States. The only exception to this requirement is the production of pig iron and the processing, pelletizing and reduction of iron ore, which may occur in another country. Other than these exceptions, all melting, rolling, extruding, machining, bending, grinding, drilling, coating, etc. must occur in the United States.

    a. Products of steel include, but are not limited to, such products as structural steel piles, reinforcing steel, structural plate, steel culverts, and guardrail steel supports for signs, signals and luminaires. Products of iron include, but are not limited to, such products as cast iron frames and grates and ductile iron pipe. Coatings include, but are not limited to, the applications of epoxy, galvanizing and paint. The coating material is not limited to this clause, only the application process.

    b. A Certificate of Compliance shall be furnished for steel and iron products as part of the backup information with the billing. The form for this certification entitled "Buy America Certificate of Compliance" is attached to this agreement as "Exhibit A." Records to be maintained by the Developer for this certification shall include a signed mill test report and a signed certification by each supplier, distributor, fabricator, and manufacturer that has handled the steel or iron product affirming that every process, including the application of a coating, performed on the steel or iron product has been carried out in the United States of America, except as allowed by this Section. The lack of these certifications will be justification for rejection of the steel and/or iron product or nonpayment of the work.

The requirements of said law and regulations do not prevent the use of miscellaneous steel or iron components, subcomponents and hardware necessary to encase, assemble and construct the above products, manufactured products that are not predominantly steel or iron or a minimal use of foreign steel and iron materials if the cost of such materials used does not exceed one-tenth of one percent (0.1%) of the total contract price or $2,500.00, whichever is greater. The Memorandum of Understanding will be incorporated into the project contract by reference or Exhibit.

APPROVED FOR THE OWNER BY:

Mark Tilden
(Signature)

November 11, 2017
(Date)

Project Manager - DOT

(Title)

APPROVED FOR THE DEPARTMENT BY:

(Signature)

12/19/17
(Date)

STATE UTILITIES ADMINISTRATOR

Pre-Approved Contractor List

Company Name: See Attached List
Address:
Phone:
Contact Person:
E-Mail:

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

Please provide a minimum of three.

Pre-Approved Design Consultant List

Company Name: See Attached List
Address:
Phone:
Contact Person:
E-Mail:

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

EXHIBIT A
UTILITY OWNER PRE-APPROVED CONTRACTOR/CONSULTANT LIST

Pre-Approved Design Consultant List

Company: **Apogee Engineers, LLC**
Address: 4856 Anderson Road
Orlando, Florida 32812
Contact Person: David H. Seligson
Phone: 407-658-7590
Email: David.Seligson@ApogeeEngineers.com

Company: **Mesa Associates**
Address: 629 Market Street, Suite 200
Chattanooga,TN 37402
Contact Person: Kazem Shomali
Phone: 423-424-7345
Email: kshomali@mesainc.com

Company Name: **Power Delivery Solutions**
Address: 100 Commerce Drive, Suite 201
Newark, DE 19713
Contact Person: Dean Sevy
Phone: 770-617-6921
Email: Dsevy@powerdsllc.com

Company: **S. Nelson & Associates**
Address: 110 Evans Mill Drive Suite 204
Dallas, GA 30157
Contact Person: Graham Smith
Phone: 770-841-8242
Email: GSMITH@S-NELSON.COM

EXHIBIT A
UTILITY OWNER PRE-APPROVED CONTRACTOR/CONSULTANT LIST

Pre-Approved Contractor List

Company Name: Irby Construction Company
Address: 318 Old Highway 49 South
Richland, MS 39218
Contact Doug Blake, Vice President - Operations
Phone: 601-292-4143
blake@irbyconst.com

Company Name: Service Electric
Address: 1631 East 25th Street, Chatanooga, TN 37404
Phone: 423-265-3161
Contact Person: Jody Shea
E-Mail:jshea@serviceelectricco.com

Company Name: Pike Electric
Address: 100 Pike Way, Mount Airy, NC 27030
Phone: 336-789-2171
Contact Person: James T. Benfield, Region VP
jbenfield@pike.com or
Todd Badgett
E-Mail:tbadgett@pike.com

Company Name: Sumter Utilities
Address: 1151 North Pike West, Sumter, SC 29153
Phone: 803-469-8585
Contact Person: Colin Chalup
E-Mail: cchalupa@suimail.com

Company Name: Utilicon
Address: 13275 Highway 231, Davisboro, GA 31018
Phone: 478-348-3233
Contact Person: Joan Glover
E-Mail:joan.glover@utilicon.net

Company Name: L.E. Myers
Address: 401 Chestnut Street, Suite 120; Chattanooga, TN 37402
Phone: 423-265-4441 x 4133
Contact Person:Danny Gessman
E-Mail:dgessman@myrgroup.com

Georgia Department of Transportation

Technical Provisions

For

Design-Build Agreement

P.I. No. 0013727

Attachment 6-19

Hargray Telephone MOU

Georgia DOT Project: Reconstruct the Dean Forest Road Interchange over I-16
GDOT P.I. # 0013727

DESIGN-BUILD
MEMORANDUM OF UNDERSTANDING

between the

Georgia Department of Transportation (hereafter the DEPARTMENT)

and

Hargray of Georgia (hereafter the OWNER)

Whereas GDOT, hereafter referred to as the DEPARTMENT proposes to undertake a design-build project hereafter referred to as a PROJECT to reconstruct the Dean Forest Road Interchange over I-16 in Chatham County, Georgia by contract through competitive bidding procedures; and,

Whereas the DEPARTMENT will accomplish the PROJECT through a Design Consultant, Design Consultant Team and/or Contractor, hereafter referred to as CONTRACTOR; and the utility owner hereafter referred to as the OWNER, and

Whereas, where OWNER has property rights ("Prior Rights") at the location of the PROJECT, OWNER will provide written evidence as to said prior rights within the area and will provide written documentation of prior rights relating to any individual crossing or Utility Facility, at the location of the PROJECT; and

Whereas, OWNER acknowledges that, generally, absent a showing of prior rights, the costs of relocation, protection, removal, or adjustment performed by OWNER shall be borne by OWNER; and

Whereas, pursuant to O.C.G.A. § 32-6-170(b), DEPARTMENT is authorized to pay or participate in the payment of the costs of relocation, protection, or adjustment of OWNER'S facilities where DEPARTMENT has made the determination that (i) such payments are in the best interest of the public and necessary in order to expedite the staging of the design-build project; and (ii) the costs of the removal, relocation, protection, or adjustment of such facilities are included as part of the Contract between the Department and the Department's roadway contractor for the design-build project; and

1. Type of Utility

OWNER has the following utility facilities which may need to be adjusted or relocated as a result of the proposed PROJECT:

Type of facility or facilities of OWNER:

_____Domestic water mains and distribution lines and associated appurtenances
_____Sanitary Sewer facilities and/or Storm Drainage System
_____Electrical Distribution (overhead and underground) wires, poles, etc.
_____Electrical Transmission (overhead and underground) wires, poles, etc.
_____Natural Gas Distribution Facilities (underground)
_____Natural Gas Transmission Facilities (underground)
_____Petroleum Pipeline (underground)
___X Telecommunications facilities and equipment
_____Cable TV facilities
_____Street Lighting
_____Internet Data Service
_____Other Facilities (Description) _____

2. New Utility Facilities Proposed (Betterment)

OWNER desires the following to be installed as new additional facilities within the PROJECT. Insert here or attach a detailed description of proposed new additional utility installations:

N/A

3. Assignment of Responsibilities for Design and Construction

This MEMORANDUM OF UNDERSTANDING and the following shall serve as a *basis* for assignment of responsibilities and costs for the DEPARTMENT, CONTRACTOR and the OWNER to enter into a Standard Utility Agreement (SUA) or Contract Item Agreement (CIA), if necessary, with OWNER once the PROJECT is awarded to the CONTRACTOR. For a PROJECT implementation, GDOT will not have in its possession exact costing plans to be utilized to determine exact locations of the removal, relocation, protection, or adjustment. However, Overhead/Subsurface Utility Engineering (SUE) investigations plans exist providing the best information and signifying the layout of known existing facilities. Please use these plans for developing the final determination of services as indicated below. The CONTRACTOR developed plans will be provided to the OWNER after the design build project is awarded by GDOT which shall be used by the CONTRACTOR as the final basis for the SUA or CIA. **Betterment costs will be the OWNER'S responsibility.**

NOTE: Water and Sewer Design and Construction relocation work put in the contract will automatically be accomplished by the DEPARTMENT'S CONTRACTOR. The UTILITY OWNER will still have design approval authority. (No Pre-Approved Contractor/Consultant List required, leave page 6 blank). If you are a Water & Sewer Utility and choose to put your relocation Design and Construction in the contract, please check Design and Construction under Option 2 under 3B. Owner's electing to perform their own design, at their own cost, please select design under 3C.

OWNER hereby intends to:

3A. OWNER, at the DEPARTMENT'S cost through an Agreement, will provide the following services for the properties for which it has established prior rights (Check to signify):

Design _____
Construction _____

3B. OWNER, at the CONTRACTOR'S cost, for any removal, relocation, protection, adjustment and/or design (Regardless of Prior Rights) will allow their facilities to be placed into the DEPARTMENT'S contract for the following services pursuant to O.C.G.A. § 32-6-170(b). The CONTRACTOR will add the removal, relocation, protection, materials, adjustment and/or design cost, excluding betterment, to the overall PROJECT's cost. (Check to signify):

Option 1: OWNER wants the work to be performed by the OWNER's pre-approved Design Consultants and/or Contractors.

Design ✓
Construction ✓

Option 2: OWNER wants the DEPARTMENT'S CONTRACTOR to perform the design and/or construction. (Check to signify):

Design ____
Construction ____ **If both are checked, please leave page 6 blank.**

As per this section, all work necessary for the removal, relocation, protection, or adjustment of the described utilities in accordance with the plans when approved shall be included in the project contract and accomplished by the CONTRACTOR except as follows (Check none or list any work items to be performed by the OWNER)

None ✓

Excluded Items _____

Comments: _____

3C. OWNER, at OWNER'S cost, will provide the following services (Check to signify):

Design ____
Construction ____

The following is hereby mutually agreed to and understood by both parties:

1. The identification of existing facilities including preparation of Overhead/Subsurface Utility Engineering (SUE) investigations plans will be accomplished by the DEPARTMENT prior to award of the PROJECT and thereafter supplemented by the CONTRACTOR.

2. The CONTRACTOR shall coordinate reviews of the utility relocation information and obtain acceptance from the OWNER and DEPARTMENT when required. However; the OWNER shall apply for and obtain any required permits from the DEPARTMENT and perform any final design or proprietary design needed to administer its own relocation work if the work will not be included in the contract If the preliminary plans indicate that no conflict exists, and the OWNER concurs with this information, the OWNER shall provide a letter of "no conflict" to the CONTRACTOR.

3. After award of the PROJECT, the CONTRACTOR will research any claimed compensable property interest for each OWNER claiming prior rights under section 3A and present the findings to the DEPARTMENT and OWNER for approval. The plans and estimate for the utility work shall be subject to approval of both the DEPARTMENT and the OWNER prior to construction. If the OWNER chooses to perform its own relocations and the OWNER holds no property interest as stated above; the OWNER shall confirm in writing that the OWNER will relocate its own facilities at no cost to the DEPARTMENT or the CONTRACTOR.

4. All construction engineering and contract supervision shall be the responsibility of the DEPARTMENT and the CONTRACTOR to ensure that all utility work included in the contract is accomplished in accordance with the PROJECT's plans and specifications. The CONTRACTOR will consult with the OWNER before authorizing any changes or deviations which affect the OWNER's facility.

5. For utility work included in the contract, the CONTRACTOR shall ensure that the design/construction and installation of the OWNER'S facilities is performed by a contractor/design consultant pre-approved/registered with both the DEPARTMENT and the OWNER. For any work included in the contract, excluding water and sewer, the OWNER will provide a list of pre-approved/registered contractors/design consultants on page 6 of the MOU.

6. For Utility work included in the contract, the OWNER or the OWNER's Consultant shall have the right to visit and inspect the work at any time and advise the CONTRACTOR and the DEPARTMENT'S Engineer of any observed discrepancies or potential issues. The DEPARTMENT agrees to notify the OWNER when all utility work is completed and ready for final inspection by the OWNER.

7. Upon Maintenance Acceptance or Final Acceptance of the utility work included in the contract and upon certification by the DEPARTMENT'S Engineer and the OWNER that the work has been completed in accordance with the plans and specifications, the OWNER will accept the adjusted, relocated, and additional facilities and will thereafter operate and maintain said facilities located within the PROJECT right of way subject to the DEPARTMENT'S Utility Accommodations Policy and Standards Manual (UAM), current edition" and any agreements in effect without further cost to the DEPARTMENT or it's CONTRACTOR. Final acceptance of the utility relocation work is accomplished by the execution of the Utility Facility Relocation Acceptance Form. The CONTRACTOR shall provide the OWNER with a complete set of "As-Built Plans" for review and approval reflecting the relocation work performed by the CONTRACTOR. Upon completion of the Utility Facility Relocation Acceptance Form and the exchange of the final OWNER approved "As-Built Plans", the OWNER will operate and maintain the installed facilities going forward based on the date of execution of the Utility Facility Relocation Acceptance Form by the DEPARTMENT.

8. For utility coordination, relocation and reimbursement matters, the OWNER shall cooperate with the CONTRACTOR in the same manner as if coordinating directly with the DEPARTMENT in accordance with the laws of the State of Georgia, the DEPARTMENT'S UAM and any agreements in effect between the DEPARTMENT and OWNER. The OWNER agrees to cooperate in good faith with the

CONTRACTOR and to respond to all requests for information or meetings required to reach a resolution of any disputed items.

9. All Utility work included in the PROJECT's contract and Utility work completed by the OWNER that is reimbursed by the DEPARTMENT through an agreement shall be in accordance with the BUY AMERICA requirements of the Federal regulations (23 U.S.C. 313 and 23 CFR 635.410) all manufacturing processes for steel and iron products or predominantly of steel or iron furnished for permanent incorporation into the work on this project shall occur in the United States. The only exception to this requirement is the production of pig iron and the processing, pelletizing and reduction of iron ore, which may occur in another country. Other than these exceptions, all melting, rolling, extruding, machining, bending, grinding, drilling, coating, etc. must occur in the United States.

    a. Products of steel include, but are not limited to, such products as structural steel piles, reinforcing steel, structural plate, steel culverts, and guardrail steel supports for signs, signals and luminaires. Products of iron include, but are not limited to, such products as cast iron frames and grates and ductile iron pipe. Coatings include, but are not limited to, the applications of epoxy, galvanizing and paint. The coating material is not limited to this clause, only the application process.

    b. A Certificate of Compliance shall be furnished for steel and iron products as part of the backup information with the billing. The form for this certification entitled "Buy America Certificate of Compliance" is attached to this agreement as "Exhibit A." Records to be maintained by the Developer for this certification shall include a signed mill test report and a signed certification by each supplier, distributor, fabricator, and manufacturer that has handled the steel or iron product affirming that every process, including the application of a coating, performed on the steel or iron product has been carried out in the United States of America, except as allowed by this Section. The lack of these certifications will be justification for rejection of the steel and/or iron product or nonpayment of the work.

The requirements of said law and regulations do not prevent the use of miscellaneous steel or iron components, subcomponents and hardware necessary to encase, assemble and construct the above products, manufactured products that are not predominantly steel or iron or a minimal use of foreign steel and iron materials if the cost of such materials used does not exceed one-tenth of one percent (0.1%) of the total contract price or $2,500.00, whichever is greater. The Memorandum of Understanding will be incorporated into the project contract by reference or Exhibit.

APPROVED FOR THE OWNER BY:

Gary J. DeLong _____ 11/4/2017
(Signature) (Date)

Construction Engineer
(Title)

APPROVED FOR THE DEPARTMENT BY:

_____ 12/19/17
(Signature) (Date)

STATE UTILITIES ADMINISTRATOR

Pre-Approved Contractor List

Company Name: Fiber optic Communications
Address: 2401 Aimwell Rd. Vidalia GA 30476
Phone: 912-288-4300
Contact Person: Wade O'Neal
E-Mail: fibero@accessatc.net

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

Please provide a minimum of three.

Pre-Approved Design Consultant List

Company Name: Fiber optic Communications
Address: 2401 Aimwell Rd. Vidalia GA 30476
Phone: 912-288-4300
Contact Person: Wade O'Neal
E-Mail: fibero@accessatc.net

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

Company Name:
Address:
Phone:
Contact Person:
E-Mail:

Georgia Department of Transportation

Technical Provisions

For

Design-Build Agreement

P.I. Nos. 0012757 and 0012758

Attachment 11-1

Roadway Design Criteria

I-16 Widening and I-16 at I-95 Interchange Improvements
PI 0012757 0012758
Roadway Design Criteria

GENERAL - DESIGN ELEMENTS		Mainlines						I-16 Hurricane Cross-Over	I-95 C-D Lanes	COMMENTS / REMARKS
	I-16 (Proj. Begin to East of I-95) DE1	I-16 (East of I-95 to East of Hurricane Crossover) DE1	I-16 (East of Hurricane Crossover to West of Dean Forect Road) DE1	I-16 (West of Dean Forest Road to Bridge 6) DE1	I-16 (Bridge 6 to West of Exit for I-516) DE1, DE1A, DE1B	I-16 (East of Exit for I-516 To Proj. End) DE1, DE1A, DE1B	I-95 DE2		DE4	
Roadway Classification	Freeway - Urban	Freeway - Urban	Freeway - Urban	Freeway - Urban	Freeway - Urban	Freeway - Urban	Freeway - Rural	N/A	Freeway - Rural	
Design Vehicle	WB-67	WB-67	WB-67	WB-67	WB-67	WB-67	WB-67	WB-67	WB-67	
Design Speed	65 mph	65 mph	65 mph	65 mph	65 mph	65 mph	65 mph	45 mph	55 mph	
Min. Stopping Sight Distance	645-ft	645-ft	645-ft	645-ft	645-ft	645-ft	645-ft	360-ft	495-ft	On-level roadway
HORIZONTAL ALIGNMENT- DESIGN ELEMENTS										
Max. Super-elevation rate (emax.)	6%	6%	6%	6%	6%	6%	8%	NC	8%	
Min. Radius of Curvature	1,660-ft	1,660-ft	1,660-ft	1,660-ft	1,660-ft	1,660-ft	1,480-ft	6710-ft	960-ft.	
VERTICAL ALIGNMENT- DESIGN ELEMENTS										
Maximum Grade	3%	3%	3%	3%	3%	3%	3%	5%	4%	For short sections less than 500-ft that are on one-way downgrades, maximum grade may be 1% steeper
Crest Vertical Curve (min. K value)	193	193	193	193	193	193	193	61	114	
Sag Vertical Curve (min. K value)	157	157	157	157	157	157	157	79	115	
Minimum Vertical Clearance Over	17-ft	17-ft	17-ft	17-ft	17-ft	17-ft	17-ft	17	17-ft	
CROSS-SECTION ELEMENTS										
Number of Lanes	2 in each direction	2 to 3 in each direction	2 to 3 in each direction	3 in each direction	3 in each direction	2 to 3 in each direction	3 to 5 in each direction	2 in one direction	1 to 2	
Lane-Width	12-ft	12-ft	12-ft	12-ft	12-ft	12-ft	12-ft	11-ft	16-ft Single Lane 12-ft Multi-lane	
Median Type	Variable width grassed	Variable width grassed	Variable width grassed	Variable width barrier separated	Variable width	Variable width	Variable width grassed	N/A	N/A	
Inside Shoulder-Width (min.)	12-ft total	12-ft total	12-ft total	4-ft paved	12-ft total	12-ft total	12-ft total	4-ft total	8-ft total	
	10-ft paved	10-ft paved	10-ft paved		10-ft paved	10-ft paved	10-ft paved	4-ft paved	4-ft paved	See Reference Information Documents for Design Exception/Design Variance.
Outside Shoulder-Width (min.)	12-ft total	12-ft total	12-ft total	12-ft total	12-ft total	12-ft total	12 to 14-ft total	4-ft total	12-ft total	See Reference Information Documents for Design Exception/Design Variance.
	10-ft paved	10-ft paved	10-ft paved	10-ft paved	10-ft paved	10-ft paved	10 to 12-ft paved	4-ft paved	10-ft paved	See Reference Information Documents for Design Exception/Design Variance.
Normal Cross-Slope:										
up to 2 Lanes in one direction	Match Existing	1.5%	1.5 % Existing Pavement 2% Inside Widening	2%	2%	2%	2%	2%	2%	
over 2 Lanes in one direction with same cross-slope	N/A	2.5%	2.5%	3%	3%	3%	3%	N/A	N/A	
Inside Shoulders	Match Existing	4% 6% (Next to Median Barrier)	4%	4% 6% (Next to Median Barrier)	4%	4%	4%	2%	2%	8% max breakover
Outside Shoulders	Match Existing	2.5%	4%	6%	6%	3%	6%	2%	2%	8% max breakover
Side Slopes:										
Normal Slope	6:1	6:1	6:1	4:1	4:1	4:1	6:1	N/A	4:1	
Maximum Slope	2:1	2:1	2:1	2:1	2:1	2:1	2:1	N/A	2:1	

I-16 Widening and I-16 at I-95 Interchange Improvements
PI 0012757 0012758
Roadway Design Criteria

GENERAL - DESIGN ELEMENTS	I-95 SB Ramp to I-16 EB DE8	I-95 SB Ramp to I-16 WB DE7	I-95 NB Ramp to I-16 EB DE3	I-95 NB Ramp to I-16 WB DE5	I-16 WB Ramp to I-95 SB DE9	I-16 EB Ramp to I-95 NB DE6	I-16 EB Ramp to I-95 SB DE10	I-16 WB Ramp to I-95 NB DE11	I-16 EB Ramp to I-516 SB DE29	I-16 EB Ramp to I-516NB DE30	I-516 SB Ramp to I-16 WB DE28	COMMENTS / REMARKS
Roadway Classification	Rural Ramp	Rural Ramp	Rural Ramp	Rural Ramp	Rural Ramp	Rural Ramp	Rural Ramp	Rural Ramp	Urban Ramp	Urban Ramp	Urban Ramp	
Design Vehicle	WB-67	WB-67	WB-67	WB-67	WB-67	WB-67	WB-67	WB-67	WB-67	WB-67	WB-67	
Design Speed	45 mph	45 mph	45 mph	30 mph	45 mph	30 mph	45 mph	45 mph	45 mph	25 mph	45 mph	
Min. Stopping Sight Distance	360-ft	360-ft	360-ft	200-ft	360-ft	200-ft	360-ft	360-ft	360-ft	155-ft	360-ft	On-level roadway
HORIZONTAL ALIGNMENT- DESIGN ELEMENTS												
Max. Super-elevation rate (emax.)	8%	8%	8%	10%	8%	10%	8%	8%	6%	10%	6%	
Min. Radius of Curvature	587-ft	587-ft	587-ft	200-ft	587-ft	200-ft	587-ft	587-ft	643-ft	126-ft	643-ft	
VERTICAL ALIGNMENT- DESIGN ELEMENTS												
Maximum Grade	4%	4%	4%	6%	4%	6%	4%	4%	5%	6%	5%	For short sections less than 500-ft that are on one-way downgrades, maximum grade may be 1% steeper
Crest Vertical Curve (min. K value)	61	61	61	19	61	19	61	61	61	12	61	
Sag Vertical Curve (min. K value)	79	79	79	37	79	37	79	79	79	26	79	
Minimum Vertical Clearance Over	17-ft	17-ft	17-ft	17-ft	17-ft	17-ft	17-ft	17-ft	17-ft	17-ft	17-ft	
CROSS-SECTION ELEMENTS												
Number of Lanes	1	1	1	1	1 to 2	1	1	1	1-2	1	1	
Lane-Width	16-ft	16-ft	16-ft	20-ft	16-ft Single Lane 12-ft Multi-lane	20-ft	16-ft	16-ft	16-ft Single Lane 12-ft Multi-lane	16-ft	16-ft	
Median Type	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Inside Shoulder-Width (min.)	16-ft (Additional width may be required to meet horizontal sight distance requirements)	8-ft total	8-ft total	8-ft total	8-ft total	8-ft total	8-ft total	8-ft total	8-ft total	8-ft total	8-ft total	Wider shoulder may switch from right to left on the inside of the curved alignment to provide adequate sight distance. Additional shoulder width maybe required.
		4-ft paved	4-ft paved	4-ft paved	4-ft paved	4-ft paved	4-ft paved	4-ft paved	4-ft paved	4-ft paved	4-ft paved	
Outside Shoulder-Width (min.)	8-ft (Additional width may be required to meet horizontal sight distance requirements)	12-ft total	12-ft total	12-ft total	12-ft total	12-ft total	12-ft total	12-ft total	12-ft total	12-ft total	12-ft total	
		10-ft paved	10-ft paved	10-ft paved	10-ft paved	10-ft paved	10-ft paved	10-ft paved	10-ft paved	10-ft paved	10-ft paved	
Normal Cross-Slope:												
up to 2 Lanes in one direction	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	
over 2 Lanes in one direction with same cross-slope	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Inside Shoulders	2%	2%	2%	2%	2%	2%	2%	2%	6%	6%	6%	8% max breakover
Outside Shoulders	2%	2%	2%	2%	2%	2%	2%	2%	6%	6%	6%	8% max breakover
Side Slopes:												
Normal Slope	4:1	4:1	4:1	4:1	4:1	4:1	4:1	4:1	4:1	4:1	4:1	
Maximum Slope	2:1	2:1	2:1	2:1	2:1	2:1	2:1	2:1	2:1	2:1	2:1	

I-16 Widening and I-16 at I-95 Interchange Improvements
PI 0012757 0012758
Roadway Design Criteria

GENERAL - DESIGN ELEMENTS	Chatham Parkway Ramps DE24, DE25, DE26, DE27	Chatham Parkway DE23	Dean Forest Road	I-16 Ramps at Dean Forest Road	COMMENTS / REMARKS
Roadway Classification	Urban Ramp	Urban Principal Arterial	Urban Principal Arteria	Urban Ramp	
Design Vehicle	WB-67	WB-67	WB-67	WB-67	
Design Speed	55 mph	45 mph	45 mph 25 mph in DDI	45 mph	
Min. Stopping Sight Distance	495-ft	360-ft	360-ft	360-ft	On-level roadway
HORIZONTAL ALIGNMENT- DESIGN ELEMENTS					
Max. Super-elevation rate (emax.)	8%	4%	4%	8%	
Min. Radius of Curvature	960-ft	711-ft	711-ft	587-ft	
VERTICAL ALIGNMENT- DESIGN ELEMENTS					
Maximum Grade	4%	6%	6%	5%	For short sections less than 500-ft that are on one-way downgrades, maximum grade may be 1% steeper
Crest Vertical Curve (min. K value)	114	61	61	61	
Sag Vertical Curve (min. K value)	115	79	79	79	
Minimum Vertical Clearance Over	17-ft	17-ft	17-ft	17-ft	
CROSS-SECTION ELEMENTS					
Number of Lanes	1 to 2	2 lanes each direction	3 lanes in each direction across bridge; 2 thru lanes NB; 2 thru lanes SB	1 to 2	
Lane-Width	16-ft Single Lane	12-ft	12-ft to 15-ft	16-ft Single Lane	
	12-ft Multi-lane			12-ft Multi Lane	
Median Type	N/A	Variable flush median	Variable width raised	N/A	
Inside Shoulder-Width (min.)	8-ft total	N/A	N/A	8-ft total	
	4-ft paved			4-ft paved	
Outside Shoulder-Width (min.)	12-ft total	6-ft urban shoulder	16 - 20-ft Urban	12-ft total	
	10-ft paved	2.5-ft curb and gutter		10-ft paved	
Normal Cross-Slope:					
up to 2 Lanes in one direction	2%	2%	2%	2%	
over 2 Lanes in one direction with same cross-slope	N/A	2%	2%	2%	
Inside Shoulders	6%	N/A	N/A	6%	8% max breakover
Outside Shoulders	6%	N/A	N/A	6%	8% max breakover
Side Slopes:					
Normal Slope	4:1	4:1	4:1	4:1	
Maximum Slope	2:1	2:1	3:1	3:1	

Georgia Department of Transportation

Technical Provisions

For

Design-Build Agreement

P.I. Nos. 0012757 and 0012758

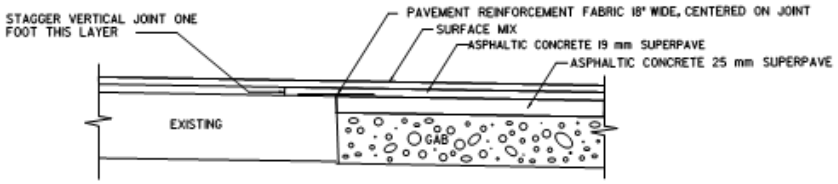
Attachment 11-2

RIGID-FLEXIBLE PAVEMENT TRANSITION DETAIL

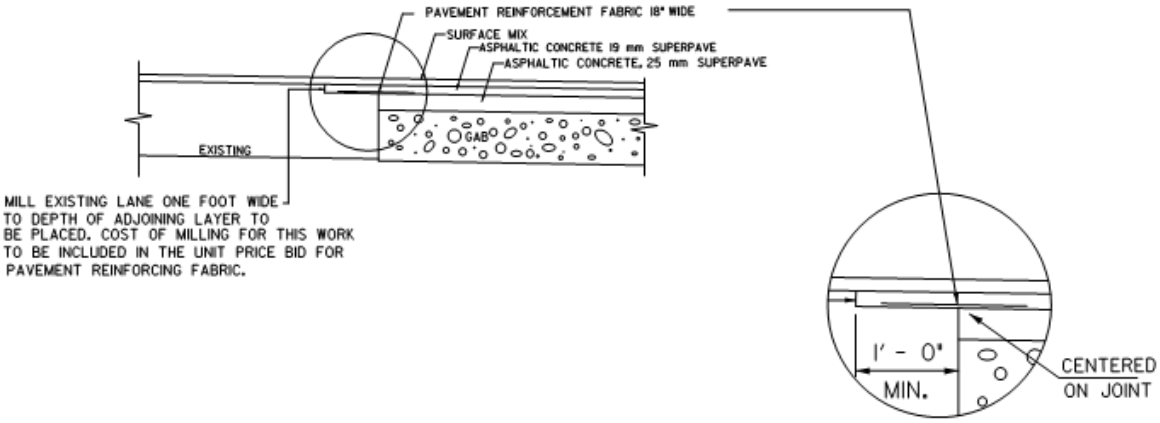
ATTACHMENT 11-2

RIGID-FLEXIBLE PAVEMENT TRANSITION DETAIL

TYPICAL SECTION DETAIL TO BE USED WHEN
EXISTING PAVEMENT IS TO BE RESURFACED WITH
TWO INCHES OR MORE OF ASPHALTIC CONCRETE



TYPICAL SECTION DETAIL TO BE USED WHEN
EXISTING PAVEMENT IS TO BE RESURFACED WITH
LESS THAN TWO INCHES OF ASPHALTIC CONCRETE



Georgia Department of Transportation

Technical Provisions

For

Design-Build Agreement

P.I. Nos. 0012757 and 0012758

Attachment 11-3

Special Provision Section 300 - General Specifications for Base and Subbase Courses

Date: July 5, 2001
First Use Date 2001 Specifications: November 1, 2002
Revised :November 5, 2007
Revised: July 29, 2009
Revised: September 28, 2009

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SPECIAL PROVISION

Section 300—General Specifications for Base and Subbase Courses

Delete Subsection 300.3.02.H and substitute the following:

H. Fine Grading Equipment

An approved fine grading machine is required for finishing the base and subbase material supporting Portland cement concrete pavement or hot mix asphaltic concrete pavement. Ensure fine grader:

- Is self-propelled and track driven.
- Is capable of trimming and finishing the base and subbase to the specified tolerances utilizing a rotating cutter head in front of a strike-off screed.
- Spans at least one lane width and is controlled automatically by direct contact with a string line or a combination of string line and existing pavement as appropriate.
- Is capable of trimming and finishing base and subbase to the specified tolerances.

Furnish, place, and maintain the necessary string lines to provide continuous line and grade reference to the fine grader control system. GPS controlled equipment can be used in lieu of string lines.

For Graded Aggregate Base construction, a motor grader equipped with GPS controlled equipment can be used as an option for fine grading.

GPS controlled Equipment will include but is not limited to:

1. Ability to read electronic files containing Department supplied data used to design the project.

2. Fixed or movable base station setup on the project to serve as a point of reference for the project. As the project progresses, the movable base station shall be moved for proper system function. If the base station is at a fixed location, radio repeaters will be utilized to ensure the signals from the base station are received throughout the project.

3. A GPS sensor mounted atop a mast affixed to the cutting blade. The masts will be arranged in a dual mast setup with a mast on each end of the blade attachment or in a lone mast setup. The sensor will be able to receive signals from the base station and/or a laser transmitter.

4. A blade position sensor with the ability to detect blade attitude and elevation of the cutting blade and relay this information to the operator. Blade attitude is defined as the orientation of the blade with respect to the three spatial axes in relation to a reference plane.

5. An operator-visible display allowing the operator to visually receive all necessary data in real-time from the GPS system and the cutting blade to properly construct the section to grade. The display will also reflect any changes made by the operator to any operation of the cutting blade.

6. If conformity to the cross sections with the prior listed equipment is unsatisfactory, provide a laser transmitter placed no farther than 800 feet (244 m) from the fine grading equipment. Projects having work progressing at different work sites more than 800 feet (244 m) apart necessitate the use of more than one laser transmitter to ensure accuracy. Select a location for the laser transmitter having a change in elevation of 25 feet (7.62 m) or less from the laser transmitter to the sensor mounted on the cutting blade. If project geography necessitates the use of more than one laser transmitter, the setup of the transmitters will be set to ensure the elevation difference between two consecutive transmitters in an array is not more than 25 feet (7.62 m); and this array cannot exceed a total change in elevation of 100 feet (30.5 m).

Georgia Department of Transportation

Technical Provisions

For

Design-Build Agreement

P.I. Nos. 0012757 and 0012758

Attachment 11-4

Special Provision Section 442 – Roller Compacted Concrete Pavement

Date: February 24, 2009

Revised: March 9, 2018

Georgia Department of Transportation

State of Georgia

Special Provision

PI Nos.: 002757 & 0012758

Section 442—Roller Compacted Concrete Pavement

442.1 General Description

This work includes constructing pavement composed of Roller Compacted Concrete (RCC) on a prepared subgrade or subbase course. Follow the requirements of these Specifications and conform to the lines, grades, thickness, and cross sections shown on the Plans or as directed by the Engineer.

442.1.01 Reserved

442.1.02 Related References

A. Standard Specifications

Section 106—Control of Materials

Section 430—Portland Cement Concrete Pavement

Section 500—Concrete Structures

B. Referenced Documents

ASTM C 1435

AASHTO T 22

AASHTO T 180, Method D

QPL 10

GDT 59

442.1.03 Submittals

Submit the following to the Engineer at least 35 days before start of any production of RCC:

A. Concrete Mix Design

Submit a mix design prepared by a qualified testing laboratory to the Engineer.

Include details on aggregate gradation, cementitious materials, admixtures (if used), compressive strengths, required moisture and density to be achieved and quantities of individual materials per cubic yard for the mix design.

B. Paving Plan

Submit paving procedures describing direction of paving operations, paving widths, planned longitudinal and transverse cold joints, curing methods and patterns and description of all equipment.

442.2 Materials

Ensure materials meet the requirements of the following Specifications:

Material	Section

Coarse Aggregate, Class A or B Crushed Stone or Gravel	800
Fine Aggregate, Size No. 10	801.2.02
Portland Cement, Type 1	830.2.01
Portland Pozzolan cement	830.2.03
Chemical Admixtures	831.2.02
Fly Ash and Slag	831.2.03
Curing Agents	832
Joint Fillers and Sealers	833
Low Modulus Silicone Sealant for Roadway Construction Joints	833.2.06
Water	880.2.01

A. **Fly Ash**

Ensure the use of fly ash conforms to Subsection 430.2.A.1, 2 and 4, "Fly Ash" and the fly ash mix conforms to Subsection 442.3.06, "Quality Acceptance".

B. Granulated Iron Blast-Furnace Slag

Ensure the use of slag conforms to Subsection 430.2.B.1, 2 and 4, "Granulated Blast-Furnace Slag" and the slag mix conforms to Subsection 442.3.06, "Quality Acceptance".

C. Composition of RCC

1. Aggregates

Use aggregates manufactured to meet the gradation at the quarry or blended at the plant site to produce the desired results. Ensure aggregates are well graded without gradation gaps and conform to the following gradation:

Sieve Size	Percent Passing By Weight
1 in (25 mm)	100
3/4 in (19 mm)	90 – 100
1/2 in (12.5 mm)	70 – 100
3/8 in (9.5 mm)	60 – 85
No. 4 (4.75 mm)	40 – 60
No. 16 (1.18 mm)	20 – 40
No. 100 (150 µm)	6 – 18
No. 200 (75 µm)	2 – 8

Produce evidence the proportions have the potential for strength development at 28 days as required in Subsection 442.3.06.B, "Approval of Mix Design Proportions".

442.3 Construction Requirements

442.3.01 Reserved

442.3.02 Equipment

Provide equipment and tools to construct RCC ensuring a completed pavement meeting the requirements for mixing, transporting, placing, compacting, finishing, and curing as provided in this specification. All equipment will be on hand and approved by the Engineer.

A. Mixing Plant

Produce an RCC pavement mixture in the proportions defined by the approved mix design and within the specified tolerances.

Ensure capacity of the plant will be sufficient to produce a uniform mixture at a rate compatible with the placement equipment.

1. Pugmill Plant

   a. Pugmill plant shall be a central plant with a twin shaft pugmill mixer, capable of batch or continuous mixing.

   b. Equip plant with synchronized metering devices and feeders to maintain the correct proportions of aggregates, cement, fly ash and water.

   c. The pugmill plant will also meet the following:

      1) Aggregate Storage

         a. Storage may be in a stockpile from which it is fed directly to a conveyor feeding mixer, if previously blended aggregate is furnished,

         b. Aggregate separation must be provided at the stockpile, if aggregate is furnished in two size groups.

      2) Aggregate Bins

         a. Control feed rate by a variable speed belt or operate gate calibrated to accurately deliver any specified quantity of material.

         b. The feed rate from each bin shall be readily adjustable to change aggregate proportions, when required, if two aggregate size stockpile sources are used

         c. Feed rate controls must maintain the established proportions of aggregate from each stockpile bin when the combined aggregate delivery is increased or decreased.

      3) Plant Scales

         a. If utilized, for any weigh box or hopper will be either of beam or springless dial type, and be sensitive to 0.5 percent of the maximum load required.

         b. Provide beam-type scales having a separate beam for each aggregate size, with a single telltale actuated for each beam, and a tare beam for balancing hopper.

         c. Belt scales will be of an approved design.

         d. Provide standard weights accurate to plus or minus 0.1 percent for checking plant scales.

      4) Cement, Fly Ash or Slag Material Storage

         a. Provide separate and independent storage silos for Portland cement, fly ash or slag.

         b. Identify clearly each silo to avoid confusion during silo loading.

      5) Cement, Fly Ash or Slag Feed Unit

         Provide satisfactory means of dispensing Portland cement, fly ash or slag, volumetrically or by weight, to assure a uniform and accurate quantity of cementitious materials enters the mixer

      6) Water Control Unit

         a. Measure by weight or volume the required amount of water for the approved mix.

         b. Equip the unit with an accurate metering device.

         c. Keep RCC mixture at optimum moisture by having the rate of water added adjustable.

7) Gob Hopper

For continuous operating pugmills, attach a gob hopper to the end of the final discharge belt to temporarily hold the RCC discharge to allow the plant to operate continuously.

2. Central Mix Batch Plant

Central mix batch plant may be used in RCC work meeting the requirements of Subsection 500.3.04.E of the Specifications.

3. Dry Batch Plant

a. A dry batch plant meeting the requirements of Subsection 500.3.04.E of the Specifications may be used on projects with less than 5000 cubic yards of RCC.

b. RCC may be mixed at a central point or wholly or in part in truck mixers as provided in Subsection 500.3.04.E of the Specifications.

B. Paver

Place RCC with an asphalt paver meeting the following requirements:

1. Equip the paver with compacting devices capable of producing a RCC pavement with a minimum of 90% of the maximum density in accordance with AASHTO T 180, Method D.

2. Spread and finish the RCC material without segregation, to the required thickness, smoothness, surface texture, cross-section and grade using a paver of suitable weight and stability.

C. Compactors

1. Use self-propelled smooth steel drum vibratory rollers having minimum weight of 10 tons (9.07 Mg) for primary compaction.

2. Use a steel drum roller, operating in static mode, a rubber tired roller or combination roller for finish rolling as required for final compaction or for removing roller marks.

3. Use walk-behind vibratory rollers or plate tampers for compacting areas inaccessible to large rollers

D. Haul Trucks

1. Provide sufficient number of trucks to ensure adequate and continuous supply of RCC material to paver.

2. Equip trucks hauling RCC material from the plant to the paver with covers to protect the material from inclement weather and to reduce evaporation losses.

E. Water Trucks

1. Ensure at least one water truck or other similar equipment on-site and available throughout the paving and curing process.

2. Equip the water truck with a spreader pipe containing fog nozzles capable of evenly applying a fine mist of water to the surface of the RCC without damaging the final surface.

442.3.03 Preparation

Prepare the subgrade/subbase as required by the Plans and Specifications before placing the RCC.

Ensure the foundation immediately under the RCC pavement and the areas supporting the paving equipment will not contribute to deficient pavement thickness or excessive yield losses.

442.3.04 Reserved

442.3.05 Construction

A. Mixing RCC

Use the same mix design and materials for the entire project. If the source of cement, fly ash, slag, or aggregates is changed, suspend construction and submit a new mix design to the Engineer for approval.

1. Mixing Time
   a. Assure complete and uniform mixing of all ingredients.
   b. Ensure the volume of RCC material in the mixing chamber does not exceed the manufacturer's rated capacity for dry concrete mixtures.
   c. Keep sides of the mixer and mixer blade surfaces free of hardened RCC and other materials.
   d. Check mixer blades routinely for wear and replace if wear is sufficient to cause inadequate mixing.
2. Mixing Ingredient Tolerances

   Ensure mixing plant receive the quantities of individual ingredients to within the following tolerances:

Material	Variation by Weight
Cementitious Materials	± 2.0%
Water	± 3.0%
Aggregates	± 4.0%

3. Plant Calibration
   a. Prior to RCC production, provide a complete and comprehensive calibration of the plant in accordance to the manufacturer's recommendation.
   b. Concrete batch plants currently listed on QPL 10, the calibration requirement is waived.

Supply daily plant records of production and quantities of materials used each day to the Engineer. These records may be used as a check on plant calibration.

B. Transporting RCC

Transport RCC pavement material from the plant to the paver as follows:

1. Use dump trucks fitted with retractable protective covers for protection from inclement weather or excessive evaporation.
2. Dump the trucks clean with no buildup or hanging of RCC material in the corners.
3. Deposit the RCC material directly into the hopper of the paver or secondary distribution system which deposits the material into the paver hopper.

C. Placing RCC

1. Subgrade/Subbase Condition
   a. Keep subgrade/subbase surface clean and free of foreign material, ponded water and frost prior to RCC placement.
   b. Uniformly moisten subgrade/subbase at the time of RCC placement.
   c. Uniformly water if the subbase becomes dry. Ensure the method of watering used will not form mud or pools of freestanding water on the subbase.
2. Paver Requirements
   a. Adjust the paver and regulate the speed to prevent segregation to ensure a smooth continuous surface course without tears and pulling. Limit the spread of the RCC to a length ensuring compaction and finishing within the appropriate time limit under the prevailing air temperature, wind, and climatic conditions will be achieved.
   b. Proceed in a steady, continuous operation with minimal starts and stops.
   c. Regulate speed to assure a constant supply of RCC material in the hopper.
   d. Maintain RCC material above the auger shaft at all times during paving.

3. Lift Thickness

   Construct pavements greater than 10 in (250 mm) in two lifts of equal thickness.

4. Adjacent Lane Placement

   a. Place adjacent paving lanes within 60 minutes.

   b. If more than 60 minutes has elapsed between placements of adjacent lanes, the vertical joint will be considered a cold joint. Prepare the cold joint in accordance with Subsection 442.3.05.E.2, "Cold Vertical Joints".

   c. At the discretion of the Engineer, this time may be increased or decreased depending on the use of set retarding admixtures or the ambient weather conditions of temperature, wind, and humidity.

5. Multiple Lift Placement

   a. The thickness of each lift will meet the requirements of Subsection 442.3.05.C.3, "Lift Thickness".

   b. Place second lift within 60 minutes of the completion of the first lift.

   c. If more than 60 minutes has elapsed, the interface between the first and second lift will be considered a cold joint. Prepare cold joint in accordance with Subsection 442.3.05.E.4, "Horizontal Cold Lift Joints".

   d. At the discretion of the Engineer, this time may be increased or decreased depending on the use of set retarding admixtures or the ambient weather conditions of temperature, wind, and humidity.

   e. The use of multiple pavers in tandem formation is advantageous to reduce the opportunity for cold joints to develop.

6. Hand Spreading

   a. Limit hand spreading, broadcasting, or fanning to immediately behind the paver and before compaction.

   b. Remove any segregated coarse aggregate from the surface before compaction.

7. Segregation

   a. Cease the spreading if segregation occurs in the RCC during paving operations until the cause is determined and corrected to the satisfaction of the Engineer.

   b. Remove and replace the segregated area at no additional cost if the Engineer determines the segregation to be severe.

Place RCC in a pattern to ensure the curing water from the previous placements will not pose a runoff problem on the fresh RCC surface or on the subbase layer.

D. Compacting

1. Immediately begin compaction behind the placement of RCC material and complete within 60 minutes of the start of mixing at the plant.

2. This time may be increased or decreased depending on the use of set retarding admixtures or ambient weather conditions of temperature, wind and humidity.

3. Plan operations and supply sufficient rollers to ensure these criteria are met.

4. Determine the sequence and number of passes by vibratory and non-vibratory rolling to obtain the specified density and surface finish.

5. Operation of rollers in the vibratory mode while stopped or reversing direction is not allowed.

6. Using rubber tire rollers for final compaction to knead and seal the surface is permissible.

7. Rolling Longitudinal and Transverse Joints:

   a. Do not operate roller within 12 in. (300 mm) of the edge of a freshly placed lane until the adjacent lane is placed.

   b. Within the allowable time roll together both edges of the two lanes.

c. Roll the complete lane and follow cold joint procedures as specified in Subsection 442.3.05.E.2, "Cold Vertical Joints" when a cold joint is planned.

d. Provide additional rolling for longitudinal joints with a vibratory roller as necessary to produce the specified density for the full depth of the lift and provide a tight smooth transition across the joint.

e. Smooth out any uneven marks left during the vibratory rolling utilizing a non-vibratory or rubber tire roller.

f. Roll until a smooth, flat surface, free of tearing and cracking is obtained.

g. Avoid displacement of RCC pavement by operating the speed of the rollers slow enough at all times.

h. Correct any displacement of RCC pavement resulting from reverse direction of the roller or from any other causes.

8. Density Requirements:

a. Perform in-place field density tests in accordance with GDT-59, direct transmission, as soon as possible, but no later than 30 minutes after completion of rolling. Only wet density will be used for evaluation.

b. In-place field density will be not less than 98% of the average maximum laboratory density obtained according to AASHTO T 180, Method D, based on a moving average of five consecutive tests, with no test below 95%.

c. RCC properly placed and compacted, but not meeting these requirements will be cored and tested at no additional cost.

d. If tested area achieves the 28 day design strength as outlined in Subsection 442.3.06.D, "Concrete Strength Acceptance", it will be paid for at full price.

e. Areas that fail the strength test will be removed and replaced at no additional cost.

E. Joints

1. Fresh Vertical Joints:

a. A vertical joint is considered a fresh joint when an adjacent RCC lane is placed within 60 minutes of placing the previous lane, with time adjusted depending on use of retarders or ambient conditions. Fresh joints will not require the treatment specified for cold joints.

b. Construct joints to assure continuous bond between new and previously placed lanes.

2. Cold Vertical Joints:

Note: Vertical joints that are constructed utilizing a drop extension or edging shoe are exempt from the following requirement when placed up to 15 degrees from vertical.

a. Cold joints are any planned or unplanned construction joint in the RCC pavement that does not qualify as fresh joints.

Treat longitudinal and transverse cold joints as followed:

1) Cut the joint vertically full depth. Cut vertically at least 6 in. (150 mm) from the exposed edge.

2) The edge of cold joints cut within 2 hours of placing the RCC pavement may be cut with an approved wheel cutter, or motor grader or other approved method provided that no edge raveling occurs.

3) Edges of cold joints cut after 2 hours of placing the RCC pavement, cut to 1/4 to 1/3 of the depth of the RCC pavement and excess material removed.

4) Cut full depth if the excess material cannot be removed without causing tearing and raveling.

b. Clean the joint of any loose or foreign material prior to placing fresh RCC material against a compacted cold vertical joint.

c. Wet the compacted cold joint to prevent excess loss of moisture before placement of fresh RCC.

3. Fresh Horizontal Joints

a. For multi-layer construction, a horizontal joint is considered a fresh joint when an subsequent RCC lift is placed within 60 minutes of placing the previous lift, with time adjusted depending on use of retarders or ambient weather conditions.

b. Clean the surface of all loose material and moisten the surface prior to placement of the subsequent lift.

4. Horizontal Cold Lift Joints

a. Clean all loose material and moisten the surface prior to placement of the subsequent lift for horizontal cold joints.

b. The Engineer or Plans may require use of a cement slurry or grout between lifts. If required, apply supplementary bonding materials immediately prior to placement of the subsequent lift.

5. Control Joints:

Joint locations shall be shown on the Plans or as directed by the Engineer.

a. Early entry saws should be utilized as soon as possible behind the rolling operation and set to the manufacturer's recommendation.

b. The control joint width will be 1/8 inch (3 mm) and sawn to 1/4 depth of the compacted RCC pavement.

c. Saw as soon as possible without causing raveling or other damage to the pavement, but no later than 18 hours after placement.

6. Joints at Structures

Treat joints between RCC pavement and concrete structures as cold vertical joints.

F. Finishing

1. The finished surface of the RCC pavement, when tested with a 10 foot (3 m) straight edge or crown surface template, will not vary by more than 1/4 inch (6 mm) at any one point.

2. When the surface smoothness is outside of the specified tolerance, grind the surface to within the tolerance by use of self-propelled diamond grinders at no additional cost.

3. Milling to obtain a final riding surface is not acceptable.

G. Curing

Keep the surface of the RCC pavement continuously moist for 7 days or until an approved curing method is applied immediately after final rolling and compaction testing.

1. Water Cure:

a. Apply water cure using water truck equipped with misting spray nozzles, soaking hoses, sprinkler system or other means to ensure a uniform moist condition to the RCC.

b. Apply moisture in a manner ensuring no wash out or damage to the surface of the finished RCC pavement.

2. Curing Compound:

a. Apply curing compound as specified in Subsection 430.3.05.L.1 of the Specifications.

b. Ensure the application provides a uniform void-free membrane across the entire RCC pavement surface.

3. White Polyethylene Sheeting

Use sheet material as specified in Subsection 430.05.L.2 of the Specifications

H. Sealing Joints

Seal joints in accordance to Subsection 430.3.05.M, "Seal the Joints" of the Specifications if required by the Plans or directed by the Engineer.

I. Permitting Traffic on Pavement

Before using the pavement as a haul road for loaded or unloaded vehicles:

1. Protect the RCC from vehicular traffic during the curing period.
2. Ensure compressive strength tests show the RCC has developed at least 2000 psi (14 MPa) and is at least 4 days old.
3. The Engineer shall determine if joints need to be sealed before permitting vehicles or equipment on the pavement.

442.3.06 Quality Acceptance

A. Concrete Mixing

Ensure mixing of RCC conforms to the requirements of Subsection 442.3.05.A, "Mixing RCC".

B. Approval of Mix Design Proportions

The Office of Materials and Research will review concrete mix designs and will verify compressive strength development.

The Department will approve material combinations and mix designs using approved materials and complying with Subsection 442.2, "Materials" and the following:

1. Compressive Strength

   Prepare and test 6 cylinders according to ASTM C 1435 and AASHTO T 22 to determine the 28 day compressive strength for RCC.

   The mix design will demonstrate a compressive strength of 4000 psi (28 MPa) at 28 days.

C. Thickness

The Engineer will designate pavement areas to be examined for depth measurement compliance with the Plan and Specifications.

The Engineer will evaluate areas deficient by more than 1/2 in (13 mm) thick. If the Engineer requires removal, remove and replace the pavement in full cross sections according to Plan requirements. The Engineer may require a reduction in payment if removal and replacement is not required.

D. Concrete Strength Acceptance

RCC pavement not meeting density requirements outlined in Subsection 442.3.05.D.8, "Density Requirements" will be accepted based on compressive strength development at 28 days. The compressive strength value shall be at least 3,500 psi (25 MPa).

Reserved Reserved Reserved Reserved Reserved

Georgia Department of Transportation

Technical Provisions
For
Design-Build Agreement
P.I. Nos. 0012757 and 0012758

Attachment 13-1

SP 443 Elastomeric Profile Bridge Joint Seals

SP 447 Modular Expansion Joints

SP 449 Silicone Seal

SP 449 Bridge Deck Joint Seals

SP 500 HPC

SP 500 Light Weight Concrete

SP 500 LRFD

SP 500 Mass Concrete

SP 511 Mechanical Bar Splice

SP 518 Raise Existing Bridge

SP 519 Two-Part Polymer Bridge Deck Overlay

SP 519 Concrete Bridge Deck Overlay

SP 521 Patching Concrete Bridge Structures

SP 581 Disc Bearings

SP 865 Manufacture of Prestressed Concrete Members

Date: May 15, 2013

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SPECIAL PROVISION

Project No: CHATHAM COUNTY
P.I. No. 012757 and 012758

SECTION 443 - ELASTOMERIC PROFILE BRIDGE JOINT SEALS

443.1 General Description

This work consists of furnishing and installing a bridge deck joint seal device to the limits shown on the plans that consists of a monolithic steel strip seal retainer, a polychloroprene gland, and alubricant adhesive. Only a continuous full length strip seal joint system is acceptable, unless stage construction or excessive length prohibits monolithic installation. Utilize a prequalified expansion device manufacturer with a five year proven history of successful product manufacture.

Provide an expansion joint device designed for HS-20 truck loading and impact in accordance with 2002 AASHTO specifications.

443.1.01 Definitions

A. Strip Seal Expansion Joint Device

This device is constructed of steel elements designed with a locking mechanism capable of securely locking the edges of a continuous non-reinforced polychloroprene gland. The steel elements are anchored to the structure in accordance with the specification. All materials are as specified in the contract documents or as recommended by the manufacturer of the strip seal joint assembly. The strip seal joint assembly is referred to throughout the specifications as the expansion joint device.

B. Joint

Provide joint opening between two portions of a structure to allow for expansion and contraction.

443.1.02 Related Referernces

General Provisions 101 through 150.

443.1.02 Submittals

Submit for review by the Engineer, complete shop drawings and product data for the expansion device. Submit seven (7) complete sets of information. At the discretion of the Engineer, furnish facilities for inspection of the completed device or a representative sample in the manufacturer's plant. Allow the inspector free access to the necessary

parts of the manufacturer's plant. Accurately set and securely support at the correct grade and elevation and the correct joint opening based on temperature as shown on the plans and on the approved shop drawings.

443.2 Materials

Furnish a manufacturer's certification that the materials proposed for use on the project have been pretested and meet the requirements as set forth in the specification and as detailed in the corresponding contract drawings. Do not install materials in the field prior to the Engineer's approval. The strip seal expansion joint device, including anchorages, is to be supplied by the manufacturer. The following requirements for each component are to be verified by the manufacturer:

A. Steel Elements

Provide ASTM A-588 weathering grade steel for the material utilized to produce a shape suitable to mechanically lock the sealing element in place throughout the normal movement cycle of the joint. Provide a minimum thickness of ¼ in. as measured from the internal locking mechanism cavity to the top surface of the steel retainer. Provide minimum dimensions of 2-1/4 in. width and 3 in. height.

Provide steel strip seal retainers that are a monolithic steel shape with a machined seal retainer cavity. Multiple component welded steel shapes and rolled steel, that is bent or crimped to achieve final shape and/or seal retainer cavity, is not permitted. Perform all welding in accordance to the Georgia Standard Specifications and paragraph D-1.5 of the AWS welding code. Provide full penetration groove welds for splices between sections of steel strip seal retainers.

B. Continuous Polychloroprene Gland

Supply and install the polychloroprene gland in one continuous length. Provide a gland with a shape that promotes self-removal of foreign material during normal joint operation. Provide a gland with physical properties generally in accordance with the following:

PHYSICAL PROPERTY	ASTM TEST METHOD	REQUIREMENTS
Tensile strength, min, psi	D-412	2000
Elongation @ break, min, %	D-412	250%
Hardness, Type A durometer	D-2240 Modified	55 ± 5% points
Oven aging, 70h @ 212°F	D-573	
Tensile strength, max % loss		20% max
Elongation, max % loss		20% max
Hardness, Type A durometer, points change		0 to + 10
Oil Swell, ASTM Oil No. 3, 70h @ 212°F	D-471	
Weight change, max %		45%
Ozone resistance	D-1149 Modified	
20% strain, 300 pphm in air 70h @ 104°F		no cracks
Low temperature stiffening, 7 days @ 14°F		
Hardness, Type A durometer, points change		0 to + 15
Compression Set,		
70h @ 212°F max	D-395 Method B (modified)	40%

C. Lubricant Adhesive

Use a one part moisture curing polyurethane and hydrocarbon solvent mixture meeting the requirements of ASTM D-4070-81 for the material used in bonding the polychloroprene gland to the steel elements.

D. Anchorage

Provide an anchorage as detailed on the contract drawings with a minimum of 0.75 in^2 of bolt area per 1.0 linear foot of joint (Minimum ½ in. diameter hardware at 6 in. O.C. both sides of joint).

443.2.01 Delivery, Storage and Handling

General Provisions 101 through 150.

Store all materials to prevent damage from the elements and to ensure the preservation of its quality and fitness for the work. Avoid contact with flame.

Inspect all stored materials, although accepted before storage, prior to their use in the work. Ensure that all stored materials meet the requirements of the Contract at the time of use.

Remove from the site of the work immediately, any material rejected because of failure to meet the required tests or rejected because of damage. Replace all removed material at no additional cost to the Department.

443.3 Construction Requirements

443.3.01 Personnel

General Provision 101 through 150.

443.3.02 Equipment

General Provisions 101 through 150.

443.3.03 Preparation

General Provisions 101 through 150.

443.3.04 Fabrication

General Provisions 101 through 150.

443.3.05 Construction

Measure and record the surface temperature of the concrete and/or steel with a surface thermometer as described below. Record the temperature of the underside of the concrete slab at each end of the superstructure element adjacent to the expansion joint. Take the average of the readings to use with the temperature shown on the shop drawings.

Immediately prior to installation, inspect the joint system for proper alignment and complete bond between the neoprene sealer and the steel and proper stud placement and effectiveness. No bends or kinks in the joint system are allowed, except as necessary to follow the roadway grades. Any joint system exhibiting bends or kinks due to transporting or as a result of mishandling are to be removed from the work site, and replaced by a new joint system, at no additional expense to the Department. Where stage construction is required, connect all steel sections using full penetration groove welds.

Inspect studs visually and give each a light blow with a 4 lb. hammer to ensure full connection to steel. Repalce any stud which does not have a complete end weld, or does not emit a ringing sound when struck with a light blow by hammer. Carefully remove studs located more than 1 inch in any direction from the location shown on the shop drawings and provide a new stud placed on the proper location. Perform all stud replacements at no additional expense to the Department.

Blast clean all metal surfaces to come in contact with the neoprene sealer in accordance with the requirements of Steel Structures Painting Council Surface Preparation NO. 6 (SSPC-SP6)-Commercial Blast Cleaning. After cleaning, all cleaned surfaces are to exhibit a clean quality of C SA 2, or better, as defined by Steel Structures Painting Council Standard SSPC-VIS 1.

Protect cleaned metal surfaces until such time as the sealer and lubricant adhesive are placed against the metal surface. Reclean any metal surface upon which rusting appears in accordance with the foregoing, at no additional expense to the Department. Replace neoprene seals not fully bonded to the steel at no additional expense to the Department.

After installation and when the adjacent concrete is cured, water test the expansion joint device under the Engineer's direction and supervision. Seeping of water through the joint is cause for rejection of the expansion joint device.

443.4 Measurement

Measurement for the expansion device is per each device completely installed, which is the expansion joint device in place with the concrete placed and finished and the watertight integrity test performed as described above.

443.5 Payment

Payment for the expansion device as specified above is paid for at the Contract Unit price bid per each. Such payment is full compensation for furnishing all equipment and materials and performing the work in accordance with the Plans and Specifications.

Payment will be made under:

Item No. 443	Elastomeric Profile Bridge Joint Seals, Bridge No - __ , Bent No - __	Per each

Date: June 28, 2006
First Use Date 2001 Specifications: March 19, 2004

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SPECIAL PROVISION

PROJECT NO. CHATHAM COUNTY
P.I. NO. 012757 and 012758

Section 447—Modular Expansion Joints

Delete Section 447 and substitute the following:

Section 447—Modular Expansion Joints

447.1 General Description

This work includes fabricating, furnishing, and installing a modular expansion joint device at the locations shown on the plans and in accordance with these specifications. Seal the deck surface and side barriers to prevent water from seeping through the bridge deck. Any seeping of water through the joint will be cause for rejection of the expansion device.

Use a modular expansion joint device supplied by one of the following:

(a) Wabo Modular Expansion Joint System – as furnished by:

Watson Bowman Acme
95 Pineview Drive
Amherst, New York 14228 Tel. (716) 691-7566

(b) Steelflex Modular Expansion Joint System – as furnished by:

D.S. Brown Company
300 East Cherry Street
North Balitmore, Ohio 45872 Tel. (419) 257-3561

Only a continuous full length modular joint device supplied by one of the foregoing suppliers is acceptable. No other supplier will be considered. Only one type of modular joint device will be permitted to be installed at all locations. The installation of two different types at separate locations will not be permitted.

447.1.01 Definitions

The term modular expansion device includes the following items:

- Elastomeric joint seals
- Support bar
- Center beam

- Edge beam
- Sliding elastomeric bearings

447.1.02 Related References

A. Standard Specifications

Section 501—Steel Structures

Section 535—Painting Structures

Section 645—Repair of Galvanized Coatings

Section 851—Structural Steel

B. Referenced Documents

General Provisions 101 through 150.

447.1.03 Submittals

A. Shop Drawings

Submit shop drawings in accordance with Section 501 of the Specifications. Include the manufacturer's instructions for proper installation of the expansion joint device. Show details of the expansion device at the barrier. Furnish the facilities for testing and inspecting the completed device or have the manufacturer provide a representative sample expansion device in his plant or at an independent test facility. Allow inspectors free access to the necessary parts of the manufacturer's plant and test facility and cooperate with the Inspector.

447.2 Materials

Ensure that materials meet the following requirements:

MATERIAL	SPECIFICATION
Structural Steel (except center beams, edge beams and support bars)	ASTM A 709 Gr 36 (A 709 Gr 250)
Center Beams, Edge Beams and Support Bars	ASTM A 709 Gr 50 (A 709 Gr 345) or ASTM A 709 Gr 50W (A 709 Gr 345W)
Headed Studs	ASTM A 108
Premolded Seals, Lubricant, Adhesive, and Sliding Surfaces	As per manufacturer's current literature and recommendations
Stainless Steel Bearing Surfaces	ASTM A 167 or A 240M/A 240, Type 304

447.2.01 Delivery, Storage, and Handling

General Provisions 101 through 150.

447.3 Construction Requirements

447.3.01 Personnel

Ensure that the manufacturer provides an experienced representative familiar with the installation of the expansion device to be present at all times while the expansion device is being installed. Notify the expansion device manufacturer of the scheduled installation a minimum of two (2) weeks prior to the installation date.

447.3.02 Fabrication

A. Modular Unit

1. Use a device consisting of premolded elastomeric expansion joint strip seals mechanically held in place by steel center beams and edge beams. Box seals will not be permitted. Ensure that the components meet the following requirements:
   - Each transverse center beam is a one-piece monolithic shape individually supported by, and welded to, an independent support bar.
   - Edge beams that are a minimum of 4 ¾ inches (120 mm) in height and have a machined or extruded retainer shape.
   - Securely anchored into concrete.
   - Support bars supported by sliding elastomeric bearings.
   - Provide equal-distance control of the premolded elastomeric seals.
2. Paint or galvanize all structural steel not in contact with elastomers or embedded in concrete in accordance with Section 501. Either painting or galvanizing may be used, unless noted otherwise on the plans. Galvanize (do not paint) portions of structural steel in contact with elastomeric seals or embedded in concrete. Shop apply all paint coats.

B. Center Beams and Support Bars

Design center beams, support bars, and their connections to satisfy the applicable requirements of the current edition of AASHTO Standard Specifications for Highway Bridges. In addition, design center beams and support bars to satisfy the minimum criteria:

- The maximum spacing of the support bars connected to a center beam is 4.0 feet (1.22 m) along the center beam.
- The minimum area of the center beam is 4.9 square inches (645 mm^2).
- Minimum section modulus about the horizontal axis for the bottom fiber of a center beam is 5.9 cubic inches (96 684mm^3).
- For the support bar, the minimum area (A) and minimum section modulus, about the horizontal axis for the top fiber (S), is as follows:

	Rated Movement (inches/millimeters)						
	0-6/150	0-9/230	0-12/305	0-15/380	0-18/460	0-21/535	0-21/610
A (in^2/mm^2)	5.1/3290	6.2/4010	7.0/4516	7.7/4968	8.5/5484	9.1/5871	9.7/6258
S (in^3/mm^3)	2.9/47 522	4.2/68 826	5.5/90 129	6.7/109 793	8.0/131 097	9.3/152 400	10.4/170 426

- Ensure that the center beams and support bars are sufficiently detailed in the shop drawings so that the above minimum section properties can be independently verified using the information contained in the shop drawings.

447.3.03 Construction

Install the modular expansion joint device in strict accordance with the manufacturer's written instructions, the advice of their representative, and these specifications. Ensure that the permanently installed expansion joint device matches the finished roadway profile and grade.

Immediately prior to installation, have the Engineer inspect the expansion joint device for proper alignment, and complete bond between the premolded elastomeric seals and the steel, and proper stud placement and constructability. Bond any

premolded elastomeric seals not fully bonded to the steel. Ensure that all bolted connections are checked and tightened if found to be loose.

Do not allow any bends or kinks in the expansion joint steel (except as necessary to follow the roadway grades). Straightening of bends or kinks will not be allowed. Remove any expansion joint device exhibiting bends or kinks from the work site, and replace it with a new expansion device.

Ensure that the manufacturer presets the expansion joint device prior to shipment. Preset the joint opening at 70° F (21° C) or as indicated on the plans. Remove any mechanical devices supplied to set the expansion joint to the proper width following final adjustment for temperature.

Inspect the concrete anchorages visually and give each one a light blow with a 4 lb (18 N) hammer. Replace any anchorage which does not have a complete weld or does not emit a ringing sound when struck with a light blow of the hammer.

Weld stainless steel sheet to the support member. Adhesive will not be allowed.

Anchor the expansion device as shown on the plans or as shown on the shop drawings approved by the Engineer. Where support bar boxes interfere with the edge beam anchorage method, weld the edge beam to the support bar boxes. For portions of the support bar boxes embedded in concrete, weld all plate connections perimeter in a manner that will prevent water or mortar from entering the box.

Accurately set and securely support the expansion device at the correct grade and elevation, and the correct joint opening as shown on the plans and on the shop drawings. If the maximum time between setting the joint opening and placing concrete exceeds four hours, check and adjust the opening as necessary.

Measure the structure temperature by recording the surface temperature of the concrete and/or steel with a surface thermometer as described below.

1. Concrete bridges: Record the temperature of the underside of the concrete slab a each end of the superstructure element adjacent to the expansion joint. Take the average of the readings to use with the temperature adjustment shown on the plans or on the approved shop drawings.
2. Steel bridges: Record the concrete slab temperature as described above. In addition, record the surface temperature of the shaded portion of the girder web at each location. Average the readings of the steel and concrete to use with the temperature adjustment.

Blast clean all non-galvanized metal surfaces that come in contact with the premolded elastomeric seal and lubricant adhesive in accordance with the requirements of Steel Structures Painting Council Surface Preparation Specification No. 6 (SSPC-SP6, Commercial Blast Cleaning).

Protect the cleaned metal surfaces from rusting until the premolded elastomeric seal and lubricant adhesive are placed against the metal surface. Reclean any previously cleaned metal on which rusting appears in a accordance with the foregoing.

In order to perform the work of installing the expansion joint device in a proper manner, some portions of the barrier and bridge deck cannot be constructed until after the expansion joint is installed. After the modular expansion joint device has been set to its final line and grade, fill recess openings in the deck and barrier with concrete (Class AA).

447.3.04 Quality Acceptance

A. Fatigue Testing

Perform fatigue testing by an independent testing laboratory on multiple spans of one or more full-size center beams. Test the same support and connections of the center beams and support bars as for the designed unit. Apply a simultaneous horizontal load, equal to a minimum of 20% of the vertical load. Perform the fatigue testing in accordance with the manufacturer's recommendations and approved procedures.

B. Watertight Integrity

After the expansion joint device has been permanently installed, test the full length of the device for watertight integrity. Use a method satisfactory to the Engineer.

Cover the entire joint system with water, either ponded or flowing, for a minimum duration of 15 minutes. Inspect the concrete surfaces under the joint during this 15 minute period and also for a minimum of 45 minutes after the supply of water has stopped, for any evidence of dripping water on any surface on the underside of the joint. Patches of moisture are not a cause for non-acceptance.

If the joint system exhibits evidence of water leakage at any place whatsoever, locate the leakage and take measures to correct the leakage as approved by the Engineer. Subsequent to corrective measures, perform the watertightness integrity test subject to the same conditions as the original test.

The words "permanently installed" as used above include completion of the portions of the barrier and deck that cannot be constructed until after the expansion device installed. This applies even though this workis to be paid for under other contract items.

C. Contractor Certification

Provide written certification to the Engineer that the expansion joint device was installed in accordance with the manufacturer's instructions, the advice of their representative, and these specifications. Also, provide in writing any certification from the joint manufacturer's representative

447.4 Measurement

Bridge expansion device will be measured as a unit, completely installed and accepted.

The words "completely installed" mean that the expansion joint device is in place with concrete placed and finished, and that the watertight integrity test has been successfully performed.

447.5 Payment

Each expansion joint device will be paid for at the Contract Price per each, complete in place. Payment will be full compensation for all work necessary to furnish, test, and install a modular expansion device, steel angles, concrete anchorages, placing and finishing concrete in block-outs.

Payment will be made under;

Item No. 447-1050 Modular Expansion Joint, Br No - , Bt No - ……. per each

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SPECIAL PROVISION

PROJECT No: CHATHAM COUNTY
P.I. NO. 012757 and 012758

SECTION 449 – Bridge Deck Joint Seals

Add the following Subsections to Section 449:

449.1 General Description

- A Preformed Pre-compressed, Silicone Coated, Self-Expanding Sealant System

449.2 Materials

J. Preformed Pre-compressed, Silicone Coated, Self-Expanding Sealant System

The preformed pre-compressed silicone joint seal shall as a minimum:

- Sealant system shall be comprised of three components: 1.) cellular polyurethane foam impregnated with hydrophobic 100% acrylic, water-based emulsion, factory coated with highway-grade, fuel resistant silicone; 2) field-applied epoxy adhesive primer, 3) field-injected silicone sealant bands.
- Be held in place by a non-sag, high modulus silicone adhesive.
- Be compatible with the epoxy and header material.
- Withstand the effects of vertical and lateral movements, skew movements and rotational movement without adhesive or cohesive failure.
- Designed so that, the material is capable of movement of +50%, -50% (100% total) of nominal material size.
- Changes in plane and direction shall be executed using factory fabricated 90 degree transition assemblies. The transitions shall be watertight at the inside and outside corners though the full movement of the product.
- The depth of the joint shall be recessed ½" below the riding surface throughout the normal limits of joint movement.
- Be resistant to ultraviolet rays
- Be resistant to abrasion, oxidation, oils, gasoline, salt, and other materials that may be spilled on or applied to the surface.
- Certify to the Engineer that the joint composition shall be free of any waxes or wax compounds; asphalts or asphalt compounds.

Ensure the joint meets the following physical properties:

Test	Requirements	Test Method
Tensile Strength of Silicone Coating (min)	140 psi	ASTM D 412
UV Resistance of Joint System	No Changes--2000 Hours	ASTM G155-00A
Density of Cellular Polyurethane Foam	200kg/m3 (12.5lb/ft3)	ASTM D545
Heat Aging Effects (Silicone Coating)	No cracking, chalking	ASTM C 792
Resilience (Silicone Coating)	≥ 95%	ASTM D 5329
Joint System Operating temp range (min)	-40° F to 185° F	ASTM C 711

The adhesive shall be a two-component, 100% solid, modified epoxy meeting the requirements of ASTM C881, Type I, Grade 3, Class B & C. The adhesive shall also have the following properties:

Tensile Strength	2,500 psi (24 MPa) min.
Compressive Strength	7000 psi (48 MPa) min.
Bond Strength (Dry Cure)	2000 psi (28MPa) min
Water Absorption	0.1% by weight

The silicone band adhesive shall have the following properties:

Test	**Requirements**	**Test Method**
Movement Capability	+100/-50%	ASTM C 719
Elongation at Break	>1400%	ASTM D 412
Slump	≤=0.3"	ASTM D 2202
Hardness (Shore A) max.	20	ASTM C 661
Tack free time (max)	60 minutes	ASTM C 679
Heat Aging Effects	No cracking, chalking	ASTM C 792
Resilience	≥ 95%	ASTM D5329
Bond	0% Adhesive or Cohesive Failure after 5 cycles @100%extension	ASTM D 5329

449.3.03 Preparation

A. Surface Preparation

2. Preparation for Joint Seal

Delete: "Saw-cutting of the concrete deck may be necessary to provide an acceptable attachment surface for the joint seal".

449.3.05 Construction

H. Preformed Pre-compressed, Silicone Coated, Self-Expanding Sealant System

1. After the epoxy or elastomeric concrete had developed enough strength to be traffic ready, remove the temporary joint filler (when called for) and thoroughly clean the joint faces of all joint filler.
2. Lightly sandblast the joint to remove all residues. Prior to installation ensure surfaces are completely dry and all recommendations of the manufacture have been completed.
3. Clean the seal prior to installation by wiping it down with a cloth saturated with acetone.
4. Apply epoxy adhesive to substrate in a thin layer inside cleaned substrate.
5. Install the foam length into the wet epoxy adhesive so that the top of the bellows is ½" below the deck surface.
6. Inject a ¾-inch band of Silicone between the substrate and the foam.
7. Tool the excess Silicone and remove excess Silicone from bellows at the joins. Coat any exposed foam ends.

449.5 Payment

Payment will be made under:

Item No. 449	Preformed Pre-compressed, Silicone Coated, Self-Expanding Sealant System, Bridge No - ____, Bent No - ___	Per Linear Foot (meter)

Date: October 28, 2015

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SPECIAL PROVISION

P.I. No: 0012757 and 0012758
Chatham County

SECTION 449 – Bridge Deck Joint Seals

Add the following Subsections to Section 449:

449.1 General Description

- A preformed silicone joint seal, or

449.2 Materials

J. Performed Silicone Joint Seal

The preformed silicone joint seal shall as a minimum:

- Be held in place by a non-sag, high modulus silicone adhesive.
- Be compatible with epoxy and elastomeric concrete header material and steel headers (if required).
- Withstand the effects of vertical and lateral movements, skew movements and rotational movement without adhesive or cohesive failure.
- The depth of the joint shall be recessed below the riding surface throughout the normal limits of joint movement.
- Be resistant to ultraviolet rays
- Be resistant to abrasion, oxidation, oils, gasoline, salt, and other materials that may be spilled on or applied to the surface.

Ensure the joint meets the following physical properties:

Test	Requirements	Test Method
Hardness Type A durometer	53 ± 5	ASTM D 2240
Tensile Strength (min)	550 psi (3.8 Mpa)	ASTM D 412
Elongation at break (min)	350%	ASTM D 412
Tear Strength (min)	80 lb/in (92 kg/cm)	ASTM D 624
Compression set (max)	30% at 350o F	ASTM D 395
Operating temp range (min)	-60° F to 450° F (51° C to 232° C)	

The adhesive shall also have the following properties:

Test	Requirements	Test Method
Sag/flow (max)	3/16" (4.8 mm)	ASTM C 639
Hardness	23 ± 3	ASTM C 661
Tack free time (max)	30 minutes	ASTM C 679
Skin over time (tooling Time) (max)	5 minutes	AT 75° F/50% RH
Cure through to ¼" thickness (max)	16 hours	AT 75° F/50% RH
Resistance to UV	No Degradation	ASTM C 793
Peel Adhesion to substrates (min)	50 lb/in (58kg/cm)	ASTM C 794

449.3.03 Preparation

A. Surface Preparation

2. **Preparation for Joint Seal**

   Delete: "Saw-cutting of the concrete deck may be necessary to provide an acceptable attachment surface for the joint seal".

449.3.05 Construction

H. Preformed Silicone Joint Seal

1. After the epoxy or elastomeric concrete has developed enough strength to be traffic ready, remove the temporary joint filler (when called for) and thoroughly clean the joint faces of all joint filler.
2. Lightly sandblast the joint to remove all residues. Prior to installation, ensure surfaces are completely dry and all recommendations of the manufacture have been completed.
3. Clean the seal prior to installation by wiping it down with a cloth saturated with denatured alcohol.
4. Apply a 3/8" thick bead of adhesive along both sides of the joint at the depth recommended by the manufacturer.
5. Position the joint seal to the proper depth as recommended by the manufacturer.
6. Apply a bead of adhesive along the top side of the joint on each side as recommended by the manufacturer.
7. Tool the adhesive twice to insure complete contact with the vertical edge.

449.5 Payment

Payment will be made under:

Item No. 449	Preformed Silicone Joint Seal, Bridge No - _____, Bent No - _____	Per Linear Foot (meter)

August 10, 2015

Georgia Department of Transportation

State of Georgia

Special Provision

PROJECT NO.: CHATHAM COUNTY

P.I. NO.: 0012757 and 0012758

Section 500—Concrete Structures

Delete Subsection 500.1 and substitute the following:

This work consists of manufacturing and using High Performance Portland cement concrete to construct precast-prestressed concrete bridge members as shown in the plans and using normal weight Portland cement concrete to construct structures as shown in the Plans.

Add the following to Subsection 500.1.02.A:

Section 831—Admixtures

Add the following to Subsection 500.1.02.B:

AASHTO T 277

Add the following to Subsection 500.1.03.A:

High Performance Concrete Mix Designs

The Fabricator is responsible for all concrete mix designs. Ensure that concrete mixes contain enough cement to produce workability within the water-cement ratio specified in Table 1A—High Performance Concrete Mix Table, below.

Submit a mix design for approval to the Office of Materials and Research. Include the sources and actual quantity of each ingredient and laboratory results that demonstrate the ability of the design to attain both the required compressive strength and chloride permeability at 56 days.

Include laboratory compressive strength test results of at least eight test cylinders prepared and cured according to AASHTO T 126. Ensure these test cylinders are made from two or more separate batches with an equal number of cylinders made from each batch.

Also include laboratory chloride permeability test results of at least two test specimens prepared and tested according to AASHTO T 277. Ensure these test specimens are made from two or more separate batches with an equal number of specimens made from each batch.

Table 1A—High Performance Concrete Mix Table

English									
Class of Concrete	**Coarse Aggregate Size No.**	**(1) Minimum Cement Factor (lbs/yd^3)**	**Maximum Water/ Cement ratio (lbs/lbs)**	**(2) Slump Acceptance Limits (in) Lower-Upper**		**Entrained Air Acceptance Limits (%) Lower-Upper**		**(3) Minimum Compressive Strength at 56 days (psi)**	**Maximum Chloride Permeability at 56 days (Coulombs)**
"AAA HPC"	67	650	.330	2	7	3.5	6.5	Beams – As shown on the Plans Piling – 5000	Beams – 3,000 Piling – 2,000
Metric									
Class of Concrete	**Coarse Aggregate Size No.**	**(1) Minimum Cement Factor (kg/m^3)**	**Maximum Water/ Cement ratio (kg/kg)**	**(2) Slump acceptance Limits (mm) Lower-Upper**		**Entrained Air Acceptance Limits (%) Lower-Upper**		**(3) Minimum Compressive Strength at 56 days (MPa)**	**Maximum Chloride Permeability At 56 days (Coulombs)**
"AAA HPC"	67	386	.330	50	180	3.5	6.5	Beams – As shown on the Plans Piling – 35	Beams – 3,000 Piling – 2,000

1. Determine the slump acceptance after the addition of high-range water reducer.
2. Determine the minimum compressive strength at 56 days using 4 in. diameter x 8 in. high (100 mm x 200 mm) cylinders.

Add the following to Subsection 500.2 Table 3:

Fly Ash	831.2.03.A.1
Silica Fume	831.2.03.A.4

Add the following note to Subsection 500.2 Table 3:

4. Use Type I or III Portland cement in High Performance concrete. Do not use air-entraining cement.

Add the following to Subsection 500.3.04.D.4:

f. For High Performance concrete, fly ash may be used as an additive at an addition rate not to exceed 15% of the cement by weight.

Add the following to Subsection 500.3.04.D:

6. Silica Fume

   Silica Fume may be used as an additive at an addition rate not to exceed 10% of the cement by weight.

June 19, 2012

Georgia Department of Transportation

State of Georgia

Special Provision

PROJECT NO.: CHATHAM COUNTY

P.I. NO.: 0012757 and 0012758

Section 500—Concrete Structures

Add the following to Subsection 500.1:

This work consists of manufacturing and using Portland cement concrete with lightweight aggregate to construct structures as shown in the Plans.

Add the following to Subsection 500.1.02.B

ASTM C 567

AASHTO T 96

AASHTO T 104

AASHTO M 195

AASHTO T 196

GDT 32

Add the following to Subsection 500.3.01:

C. ACI Concrete Technician

Provide a GDOT certified ACI Concrete Technician, from an independent GDOT prequalified consultant firm, which is certified to perform Field Testing of Roadway Construction Materials.

Add the following to Subsection 500.3.04.F.1:

f. Lightweight Concrete—Concrete composed of a mixture of cementitious material, normal weight fine aggregate, lightweight coarse aggregate conforming to AASHTO M 195, water and admixtures. All structural lightweight concrete will have a maximum equilibrium density of 115 lbs/ft3 (1840 kg/m3) as determined by ASTM C 567.

g. Lightweight concrete will comply with the applicable requirements of Section 500 of the Standard Specifications. Use GDT 32 or AASHTO T 196 to determine air content of structural lightweight concrete.

Use lightweight coarse aggregate from an approved source or stockpile meeting the requirements of AASHTO M 195 and the Sulfate Soundness (AASHTO T 104) and Los Angeles Abrasion (AASHTO T 96) requirements of Section 800.2. Nominal sizes of lightweight coarse aggregates are as specified in AASHTO M 195 as 3/4, 1/2 or 3/8 in. (19.0, 12.5 or 9.5 mm).

The use of lightweight aggregate in concrete in a particular component of a structure will be shown on the Plans or called for in the specifications.

Add the following to Subsection 500.3.06:

F. Air Content Testing of Structural Lightweight Concrete

Provide testing of structural lightweight concrete per Subsection 500.3.04.F.1.g, and in accordance with test frequencies outlined in the Sampling, Testing and Inspection Quick Guide. Perform air content by a technician meeting the requirements of Subsection 500.3.01.C and who is approved by the Engineer. Submit test results to the Engineer. No separate measurement for payment will be made for testing of structural lightweight concrete.

MATERIALS AND RESEARCH

Rev.: January 7, 2016

Department of Transportation

State of Georgia

Special Provision

PROJECT NO.: CHATHAM COUNTY

P.I. NO.: 0012757 and 0012758

Section 500—Concrete Structures

Add the following to 500.1.03.A:

The Contractor is responsible for all concrete mix designs. Submit a mix design for approval to the Office of Materials and Research. Include the sources, actual quantity of each ingredient, design slump, design air and laboratory results that demonstrate the ability of the design to attain the required compressive strength at 28 days.

Prepare and test at least 8 cylinders according to ASTM C192 and AASHTO T22 to ensure that the demonstrated laboratory compressive strength at 28 days exceeds the minimum acceptance strength (X). Make the specimens from two or more separate batches with an equal number of cylinders made from each batch. The minimum acceptance strength is:

$$X = f'c + 500 \text{ psi } (X = f'c + 3.4 \text{ MPa})$$

Where, f'c is the required minimum compressive strength at 28 days for Class D concrete as shown in Table 1–Concrete Mix Table.

Add the following to Table 1—Concrete Mix Table:

Table 1—Concrete Mix Table

English								
Class of Concrete	**(2) Coarse Aggregate Size No.**	**(1 & 6) Minimum Cement Factor lbs/yd³**	**Max Water/ Cement Ratio lbs/lbs**	**(5) Slump Acceptance Limits (in) Lower - Upper**		**(3 & 7) Entrained Air Acceptance Limits (%) Lower - Upper**		**Minimum Compressive Strength at 28 days (psi)**
Class D	**57,67**	**650**	**0.445**	**2**	**4**	**3.5**	**7.0**	**4000**
Metric								
Class of Concrete	**(2) Coarse Aggregate Size No.**	**(1 & 6) Minimum Cement Factor kg/m³**	**Max Water/ Cement Ratio kg/kg**	**(5) Slump Acceptance Limits (mm) Lower - Upper**		**(3 & 7) Entrained Air Acceptance Limits (%) Lower - Upper**		**Minimum Compressive Strength at 28 days (MPa)**
Class D	**57,67**	**386**	**0.445**	**50**	**100**	**3.5**	**7.0**	**28**

Delete Subsection 500.3.04.F.1.b

Add the following to Subsection 500.3.04.F.1:

f. Class D—Bridge superstructure concrete or as called for on the Plans

March 11, 2016

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA
SPECIAL PROVISION

PROJECT NO.: CHATHAM COUNTY

P.I. NO.: 0012757 and 0012758

Section 500—Concrete Structures

Add the following to Subsection 500.1.02:

B. Referenced Documents

"Guide to Mass Concrete", ACI 207.1R-05.

"Report on Thermal and Volume Change Effects on Cracking of Mass Concrete", ACI 207.2R-07.

"Cooling and Insulating Systems for Mass Concrete", ACI 207.4R-05.

"Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete", ACI 211.1-91

"Control of Cracking Concrete Structures", ACI 224R-01.

"Specification of Structural Concrete", Section 8, ACI 301-10.

"Compressive Strength of Cylindrical Concrete Specimens", AASHTO T 22-10

"Making and Curing Concrete Test Specimens in the Laboratory", ASTM C192

Add the following to Subsection 500.3.05:

AM. Mass Concrete

Mass concrete is defined as "Any large volume of concrete with dimensions large enough to require that measures be taken to cope with the generation of heat and attendant volume change to minimize cracking". Any concrete element with a least plan dimension greater than 5ft (or greater than 6 ft diameter for a drilled shaft) shall be designated as mass concrete and will use this specification. To account for variability in as-built dimension versus plan dimension, such as telescoping casing during construction, any concrete element with a least as-built dimension greater than 5 ½ ft (or great than 6 ½ ft diameter for a drilled shaft) shall be designated as mass concrete and use this specification. The introduction of a construction joint at a dimension less than 5 ft does not ensure that the maximum temperature attained by or the differential temperature in concrete is adequately controlled. Proposals for large volume concrete shall thus be evaluated based on the heat development and a Thermal Control Plan.

a. Temperature Specifications for Mass Concrete

Mass concrete shall conform to the concrete acceptance criteria and the following temperature requirements to prevent delayed ettringite formation (DEF) and thermally induced stress cracks:

1. The maximum allowable internal temperature of mass concrete meeting the requirements of Subsection 500.3.05.AM.b.1, shall not exceed 158 °F.

2. The maximum temperature differential between interior and exterior portions of the designated mass concrete element shall not exceed 35 °F.

3. The maximum temperature of the concrete when delivered and prior to placement shall be 85 °F.

b. Materials Selection and Mix Design Development

Materials used for mass concrete shall conform to the provisions in Section 500-Concrete Structures of GDOT *Standard Specifications-Construction of Transportation Systems* and the following requirements. When in conflict, materials shall conform to the special provisions below rather than those in Section 500.

1. Use Class F fly ash (no Class C fly ash is allowed), granulated iron blast-furnace slag or other pozzolans, if approved by the Department in all mass concrete. Slag may comprise no more than 75% by mass of total cementitious and pozzolanous materials. Class F fly ash may comprise no more than 40% by mass of total cementitious and pozzolanous materials. When a combination of multiple different pozzolans is used, the total amount may be no more than 75% by mass of total cementitious and pozzolanous materials.

2. High-early-strength (ASTM C150 Type III or ASTM C1157 HE) cement, metakaolin, silica fume calcium chloride and accelerating type admixtures shall not be used unless an adiabatic temperature study is completed showing temperature rise significantly less than that of plain unmodified concrete.

3. A retarding admixture, pretested with the job materials under job conditions, may be permitted to prevent cold joints due to the quantity of concrete placed, as approved by the Engineer.

4. Coarse aggregate larger than #5 stone maximum size aggregate is permitted to be used for mass concrete, if approved by the Engineer.

5. Other materials and/or mix designs may be proposed to the Engineer for approval, with documentation that the proposed mix designs meet temperature specifications from Subsection 500.3.05.AM.a for mass concrete.

6. Laboratory-designed mix proportions of materials are permitted for commonly used combinations of materials. Request these mixes in writing from the State Materials Engineer specifying the class of concrete and the source of ingredients.
7. Degree of Alkali-Silica Reactivity (ASR) of either fine or coarse aggregate is determined by testing the aggregates in ASTM C1260, or ASTM C1567 (either expansion shall be less than 0.10% after 14 days immersion). Unless the results of petrography indicate a significant change in the composition of materials in quarries, ASTM 1293 (expansion <0.04% at 1 year) is not required to be conducted, before a mix design can be approved by the Engineer. Alternatively obtain low ARS risk aggregate materials from certified suppliers.
8. The mixture will be capable of demonstrating a laboratory compressive strength at 28 days meeting the requirements of Table 1 – Concrete Mix Table, *Subsection 500.1.03.A.* Compressive strength will be determined based upon result of six cylinders prepared and tested in accordance with AASHTO T 22 and ASTM C192.

c. Thermal Control Plan

At least 30 calendar days prior to placing any concrete defined as mass concrete, the contractor shall submit to the Engineer for approval a Thermal Control Plan (TCP). The TCP shall show complete analysis of the anticipated thermal developments in the mass concrete elements for all expected project temperature ranges using the proposed mix design, casting procedures and materials. A primary focus of the TCP is actions to take when any of the temperature controls noted in Subsection 500.3.05.AM are exceeded or are anticipated to be exceeded. As a minimum, the TCP shall include details about the following:

1. Concrete mix design showing composition, proportions, and sources for all components.
2. Proposed methods to control concrete temperature at time of placement, such as pre-cooling of raw materials or concrete.
3. Duration and method of curing.
4. Calculations of maximum concrete temperatures for the range of expected air, water (for underwater construction) and concrete temperatures.
5. Proposed methods to control maximum temperature during curing. A mechanical cooling system may be used to control the internal temperature of mass concrete during curing but shall be designed in conformance with the Thermal Control Plan. If a mechanical cooling system is used, the plans for the cooling system operation and final grouting after cooling shall be submitted to the Engineer for approval.
6. When the maximum concrete temperature nears 140 °F, notify the Engineer and take corrective measures immediately to retard further increase in the temperature to limit it to the 158 °F maximum. Utilize the mechanical cooling system, if installed, to lower the overall temperature. Other active measures may include, but not limited to

for any further pours: chilled water for mixing, precooling aggregate stockpiles, ice for mixing water, nitrogen gas, and shade for aggregate stockpiles. Cease placement of concrete until the maximum temperature has been lowered.

7. Proposed methods to control temperature differentials during curing that could include insulation for the forms and exposed portions of concrete. Contractor must take actions that prevent the exterior surfaces of the concrete from getting too cool, too quickly such as using insulation or heater or by preventing the core from getting too hot.

8. When the internal concrete temperature differential between interior and exterior concrete nears 30°F, notify the Engineer and take corrective measures immediately to retard further increase in the temperature differential to limit it to the 35°F maximum. Utilize the mechanical cooling system, if being use, to lower the internal temperature. Other active measures may include, but not limited to: chilled water for mixing, precooling aggregate stockpiles, ice for mixing water, nitrogen gas, and shade for aggregate stockpiles. Cease placement of concrete until the temperature differential has been lowered.

9. Calculations of maximum temperature gradients within each concrete element during curing. Calculations shall include maximum possible temperature induced tensile stress in the concrete in addition to tensile stresses at 1 day, 3 days, 7 days, 28 days, and 56 days after placement. The thermal calculation model and/or computational software shall be submitted to the Engineer for approval.

10. Temperature monitoring and recording system, that shall consist of temperature sensors connected to a data acquisition system. The temperature sensor types and locations shall be specified.

11. Results of strength tests of sample cylinders. The concrete shall attain the specified strength at an age (28 or 56 days) as specified by the Engineer. Match curing of concrete is required. Match curing shall be conducted according to temperature history obtained using thermocouples typically 4 inches from surface and at the centroid of the concrete pour. The depth of the thermocouple may need to be established by the depth of rebar or other anchoring structure (See Subsection 500.3.05.AM.d.3 and Subsection 500.3.05.AM.d.5).

12. For all mass concrete construction, the TCP shall be developed by a Professional Engineer, licensed in the State of Georgia, who shall be competent in the modeling, design, and temperature control of mass concrete with at least three mass concrete projects experience that can be verified by the Department.

Place no concrete until the mass concrete mix design and the proposed TCP is reviewed and approved by the Engineer. If concrete design mixture is changed, the TCP must be updated and approved by the Engineer.

d. Temperature Monitoring and Recording System

1. Install within the concrete placed in each mass pour and in the surrounding environment of the concrete, temperature sensing devices (thermocouples) of a type approved by and at locations based on the plan approved by the Engineer.

2. The sensing system will contain as a minimum two independent sets of sensing devices in order to assure readings if one of the systems fail. The sensing devices shall be accurate to within 2°F range.
3. Thermocouples shall be placed at the centroid of the pour, or wherever the point of expected maximum temperature is anticipated. Additional thermocouples shall be placed on the exterior to monitor the maximum temperature differential. Ensure the thermocouples are placed at a depth of 2 to 6 inches below the surface.
4. The temperature monitoring and recording system for mass concrete shall consist of temperature sensors connected to a data acquisition system capable of printing, storing, and downloading data to a computer. Data shall be printed and submitted to the Engineer daily with a copy sent to Office of Materials and Testing.
5. Two independent sets of sensing devices shall be placed at each of the following locations and readings to be taken hourly: (1) center of the mass pour; (2) midpoint of the side which is the shortest distance from the center; (3) midpoint of the top surface; (4) midpoint of the bottom surface; and (5) corner of the mass pour which is furthest distance from the center. Ensure the thermocouples are placed at a depth of 2 to 6 inches below the surface.

e. Placing and Curing Mass Concrete

When placing and curing mass concrete do the following:

1. Maintain a temperature differential of 35 °F or less between the interior and exterior portions of the designated mass elements.
2. Monitor and maintain records of the concrete temperature, beginning with casting and continuing until the maximum temperature is reached and begins decreasing to a differential of no more than 35°F from the mean annual ambient temperature of the surrounding environment, for three consecutive days.
3. The contractor shall suggest consolidation techniques based on the placement technique to be used for mass concrete. The consolidation technique shall be reviewed and approved by the Engineer before start of placement of mass concrete. Slump tests or slump-flow (ASTM C 1611) tests, as applicable, shall be used to provide quality control from batch to batch.
4. Maintain a minimum concrete placement rate of 30 cubic yards per hour or as designated on the plans or in the Special Provisions. Any requested change from this placement rate is to be approved by the Engineer.

f. Acceptance

Mass concrete shall conform to the concrete acceptance criteria and the temperature requirements as stated earlier to prevent delayed ettringite formation (DEF) and thermally induced stress cracks.

If the Contractor fails to conform to any of the above temperature requirements in any one pour, any additional mass concrete pours will cease. The Engineer may, at its sole discretion, direct that the concrete be removed or otherwise mitigated, at no cost to the Department. The contractor shall revise the Thermal Control Plan and design calculations to correct the problem and resubmit the revised Thermal Control Plan. Mass concrete placement shall not begin until the Engineer has approved the revised Thermal Control Plan. No extension of time or compensation will be made for any rejected mass concrete element or revisions of the Thermal Control Plan.

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA
SPECIAL PROVISION

PROJECT NO. CHATHAM COUNTY

P.I. NO. 0012757 and 0012758

Section 511 – Reinforcement Steel

Add the following to 511.2 Materials, B. Fabrication:

2. **Reinforcement Steel Couplers.** When couplers are indicated on the Plans, use mechanical butt splices from an approved source listed on QPL 93.

   Provide mechanical butt splices which develop a minimum of 125% of the guaranteed yield strength of the reinforcing steel to be spliced. Limit the total slip of the reinforcing bars within the splice sleeve after loading to 30 kips per square inch (207 MPa) and relaxing to 3 kips per square inch (21 MPa) to no more than the following, as measured between gauge points clear of the splice sleeve: 0.010 of an inch (.25mm) for reinforcing bars no. 14 (43) or smaller, or 0.030 of an inch (.76mm) for reinforcing bars no. 18 (57).

   Prior to installation on GDOT projects, the contractor is required to submit job-control samples for testing to the Office of Materials and Testing. This is to ensure that the installer is qualified to construct the units. Make test specimens in the presence of the Engineer or his authorized representative using reinforcing steel consigned for the work. A test specimen consists of a splice made at the job site to connect two 24 inch (600mm) or longer bars using the same splice materials, position, location, and equipment, and following the same procedures to be used to make splices in the work. Prior to incorporating couplers into the work, make and test three specimens that meet the above criteria.

   Perform all testing required above by the Office of Materials and Testing or at a testing laboratory approved by the Department.

   If threaded couplers are used, equip them with approved devices which will prevent rotation after installation.

   After installation, clean all couplers with a power wire brush or by other approved methods and recoat the couplers with a material prepared and recommended by the coating manufacturer.

   Install the couplers in strict accordance with the manufacturer's instructions and as approved by the Engineer.

   All costs for the couplers, test samples (including reinforcing steel for tests) and testing of couplers shall be included in the costs of reinforcing steel.

Revised: July 5, 2017
Date: March 10, 2005
First Use Date 2001 Specifications: December 12, 2002

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SPECIAL PROVISION

P.I. No.: 0012757 and 0012758
Chatham County

Section 518—Raise Existing Bridge

Add the following:

518.1 General Description

This work consists of raising an existing bridge the minimum amount necessary to remove and reset bearing assemblies and replace existing bent caps while maintaining traffic in accordance with the Specifications and Plan Details.

518.1.01 Definitions

General Provisions Section 109 through 150.

518.1.02 Related References

Section 500

Section 501

518.1.03 Submittals

A. Shop Drawings

Submit proposed methods for raising the bridge spans in sufficient time for review and approval by the Engineer prior to commencing work.

B. Calculations

Submit calculations for the proposed method and materials.

518.2 Materials

Ensure that materials are in accordance with the Plans and Specifications.

518.3 Construction Requirements

518.3.01 Personnel

General Provisions 101 through 150.

518.3.02 Equipment

General Provisions 101 through 150.

518.3.03 Construction

A. Contractor Options

1. Use either of the following methods:
   a. Hydraulic jacks may be placed under each beam at each bent and act in unison in each bay at each bent and be supported on false bents or cribbing.
   b. Hydraulic jacks may be used in conjunction with jacking beams and act in unison in each bay at each bent and be supported directly on existing cap unless cap is being replaced as shown in the plans.
2. Jack the bridge by individual spans or in unison with adjacent spans. Do not exceed 1½ inches (37.5 mm) differential height between spans or bridge approaches.

B. Blocking

1. Temporary: Use standard steel rolled shapes and/or plates as temporary blocking under jacks. At other locations, standard steel rolled shapes or oak timbers may be used.
2. Permanent: Use steel bearings plates, shim plates and steel pedestals, and existing bearing assembly plates unless otherwise shown in the plans. When multiple shim plates are used, weld plates all around at each interface. The minimum thickness of any shim plate is ¼ inch (6 mm).

C. Anchor Bolts

Install new anchor bolts in accordance with the Plans.

D. Manifolds and Gauges

1. When the jack stroke is greater than 1 inch (25 mm), use a gauge at each jack and use a minimum of one manifold at each bent.
2. When the jack stroke is equal to or less than 1 inch (25 mm), use a minimum of one gauge per manifold.
3. Only use standard steel rolled shapes and/or plates as temporary blocking under jacks. At other locations, standard steel rolled shapes or oak timbers may be used.

D. Damage

Repair any damage to the bridge or road resulting from bridge jacking work at no expense to the Department.

518.4 Measurement

Raising of existing bridge is measured as an accepted Lump Quantity, complete in place.

518.4.01 Limits

General Provisions 101 through 150.

518.5 Payment

This work is paid for at the Contract Price, complete in-place and accepted. This Lump Sum price is full compensation for furnishing all labor, materials, equipment, and services necessary to raise the bridge. This cost also includes any costs associated with obtaining access, clearing, grading, excavation, and temporary shoring.

Payment will be made under:

Item No. 518	Raise Existing Bridge, STA -	Per Lump Sum

518.5.01 Adjustments

General Provisions 101 through 150.

First Use: September 23, 2002
Last Revised: June 22, 2017

Department of Transportation
State of Georgia
Special Provision
PROJECT NO.: CHATHAM COUNTY
P.I. NO.: 0012757 and 0012758
Section 519 – Concrete Bridge Deck Overlay

Add the following:

Section 519—TWO-PART POLYMER BRIDGE DECK OVERLAY

519.1 General Description

This work includes preparation of the bridge deck and furnishing and placing of a two-part polymer bridge deck overlay at the location and thickness as indicated on the plans. This bridge deck overlay system consists of a minimum 3/8 inch (9.5mm) thick application to provide complete waterproofing as well as providing a non-skid surface that withstands continuous heavy traffic and extreme changes in weather conditions.

519.1.01 Definitions

A. Standard Specifications

General Provision 101 through 150.

Section 107 – Legal Regulations and Responsibility to the Public

Section 504—Twenty-Four Hour Accelerated Strength Concrete

Section 886—Epoxy Resin Adhesives

Section 934—Rapid Setting Patching Materials for Portland Cement Concrete

519.2 Materials

A. Submittals: Submit the bridge deck overlay materials to the Office of Materials and Testing for approval. The Office of Materials and Testing will grant approval based on laboratory test results and on the system's performance during a 2 year field evaluation.

B. Pre-treatment: Use pre-treatment only when recommended by the overlay manufacturer. Use pre-treatment consisting of a two-part hybrid polymer that is free of any fillers or volatile solvents and formulated to provide simple volumetric ratio of two components such as one to one or two to one by volume. Formulate the two-part hybrid polymer to provide a unique combination of extremely low viscosity and low surface tension coupled with an affinity for concrete and steel. Use two-part hybrid polymer pre-treatment having the following physical requirements when cured:

PHYSICAL PROPERTIES FOR CURED PRE-TREATMENT SYSTEM		
TEST	**REQUIREMENTS**	**TEST METHOD**
Compressive Strength	5,500 PSI (38MPa) min.	ASTM C 109
Tensile Strength	3,100 PSI (21MPa) min.	ASTM D 638
Tensile Elongation	30% min.	ASTM D 638
Water Adsorption	0.10% max.	ASTM D 570
Shore "D" Hardness	65 min.	ASTM D 2240
Pot Life	40-70 minutes	GDT-58
Adhesion to Concrete	100% failure in concrete	ACI-503-R (Pull Out Test)

C. Bridge Deck Overlay: Use a bridge deck overlay consisting of a two-part polymer that is free of any fillers or volatile solvents and formulated to provide simple volumetric mixing ratio of two components such as one to one or two to one by volume. Use a two-part polymer system formulated to provide flexibility in the system without any sacrifice of the hardness, chemical resistance or strength of the system. Do not use external or conventional plasticizers. Introduce flexibility by interaction of elastomers to chemically link in the process of curing so that the flexibility of the molecule is minimally affected during the low temperature conditions that are confronted in actual use. Use a two-part polymer overlay system having the following physical properties when cured:

PHYSICAL PROPERTIES FOR CURED TWO PART POLYMER OVERLAY SYSTEM		
TEST	**REQUIREMENTS**	**TEST METHOD**
Compressive Strength	7,000 PSI (48MPa) min.	ASTM C 109
Tensile Strength	2,500 PSI (17MPa) min.	ASTM D 638
Tensile Elongation	30% min.	ASTM D 638
Water Adsorption	0.20% max.	ASTM D 570
Shore "D" Hardness	60 min.	ASTM D 2240
Pot Life	15-40 minutes	GDT-58
Flexural Creep	0.0065" (0.17mm) in 7 days	California Method 419
Adhesion to Concrete	100% failure in concrete	ACI-503-R (Pull Out Test)

D. Aggregate: Use bauxite, crushed porphyry, aluminum oxide or other similarly hard durable aggregates as recommended by the manufacturer and approved by the Engineer. Use embedded exposed aggregate conforming to the following gradation.

FINE AGGREGATE GRADATION	
SIEVE SIZE	**% PASSING BY WEIGHT**
No. 4	100
No. 20	0 – 5
No. 200	0 –1.0

Broadcast coarse aggregate conforming to the following gradation over the first layer of polymer, immediately prior to broadcasting fine aggregate.

COARSE AGGREGATE GRADATION	
SIZE	**% PASSING BY WEIGHT**
5/8"	98 - 100
½"	55 – 60
3/8"	12 – 14
¼"	0 - 1

519.2.01 Delivery, Storage and Handling

Deliver all materials in their original containers, bearing the manufacturer's label, specifying date of manufacture, batch number, trade name brand, quantity and mixing ratio.

Store all materials to prevent damage from the elements and to insure the preservation of its quality and fitness for the work. Avoid contact with flame.

Inspect all stored materials, although accepted before storage, prior to their use in the work. Ensure that all stored materials meet the requirements of the Contract at the time of use.

Remove from the site of the work immediately, any material rejected because of failure to meet the required tests or rejected because of damage. Replace all removed material at no additional cost to the Department.

519.3 Construction Requirements

519.3.01 Preparation

A. Removal and Preparation of Repair Area

Sound all visual bridge deck defects of greater than 1" X 6" (25mm X 150mm) to determine the limits of the damaged areas. Strike the deck surface around the defect with a hammer, chain drag, or other similar tool to detect unsound concrete having a "flat" or "hollow" sound. Mark the limits of the defective areas on the deck by making a rectangular area 2 inches (50mm) beyond the outer limits of the unsound concrete area to serve as a guide for sawing. Mark spalled areas within less than 6 inches (150mm) of each other as one spall area.

Saw the rectangular marked areas with near vertical faces not less than one inch (25mm) in depth. Exercise extreme care not to saw or damage the reinforcing steel. Remove all unsound material within the sawed areas. Remove concrete to a minimum depth of $^{1}/_{2}$ inch (13mm) below the top mat of reinforcing steel by power chipping or hand tools. Do not use pneumatic hammers heavier than a 15 lb. class (nominal). Do not operate pneumatic hammers and chipping tools at an angle exceeding 60 degrees relative to the surface of the deck slab. Such tools may be started in the vertical position but must be immediately tilted to a 60 degree operation angle. Clean all exposed reinforcing steel of all rust, corrosion products, oil, dirt, concrete fragments, loose scale and any other coating of any character that would destroy or inhibit the bond with the patching material. Exercise utmost care not to damage or fracture the sound concrete substrate left on the bottom of the spall repair area. Do not use sharp pointed bits.

Hold "over-cutting" of the bridge deck beyond marked areas to the minimum amount possible. Thoroughly clean all "over-cutting" of "saw slurry" and other contaminants. Then repair by filling full-depth with an approved Type II epoxy adhesive as specified in Section 886. Make such repairs as soon as possible.

Just prior to placing the patching material, thoroughly clean the surfaces within the repair areas by abrasive blasting and air blasting to remove any oil, dust, dirt, slurry from saw operation, and other contaminants. Remove abrasives from the blasting operation from the bridge deck. During blasting, protect traffic in adjacent lanes.

B. Placement of Patching Material

The Contractor shall use Repair Method No. 1 or Method No. 2 as described below. For both repair methods, ensure the surface within the repair areas is dry and thoroughly cleaned of all contaminants immediately before placement. Use air compressors equipped with suitable traps capable of removing all surplus water and oil in the compressed air for cleaning repair areas. Do not use contaminated air. Use air compressors capable of delivering compressed air at a continuous pressure of 90 psi (620kPa).

Ensure the finished surface meets a surface tolerance of $^{1}/_{16}$ inch (1.6mm). Utilize such approved measures as necessary to keep the deck surface adjacent to the patching operation reasonably clean of excess grout and other materials at all times. Unless otherwise specified, complete all patching operations and open all lanes to traffic before sunset each day.

1. **Repair Method No. 1 (24 Hour Accelerated Strength Concrete)**

   After the repair area preparation is complete, completely coat all concrete surfaces within the repair area with a film of Type II epoxy at a thickness of 10 to 20 mils (0.25 to 0.50mm).

   Use concrete meeting the requirements of Section 504. Mix the concrete on site. Use a mix design and mixing method approved by the Laboratory. Deposit concrete in the repair area while the epoxy is still tacky and vibrate sufficiently to form a dense, homogeneous mass of concrete, completely filling the area of the patch. Screed the concrete to the proper grade and allow to remain undisturbed until the water sheen disappears from the surface. Then cover the concrete with wet burlap or membrane curing compound. Continue curing for a minimum of 3 hours. The Engineer may require a longer curing time to ensure sufficient strength development of the concrete prior to opening to traffic.

2. **Repair Method No. 2 (Rapid Setting Patching Material)**

   Follow the above requirements for Repair Method No. 1. Additionally, prepare the surfaces in the repair areas in accordance with the manufacturer's written recommendations. Handle, mix, place, consolidate, screed, and cure the patching material in accordance with the manufacturer's written instructions as approved by the Laboratory. Continue curing for at least one hour and until the section is opened to traffic.

519.3.02 Construction

A. Surface Preparation: Clean the bridge deck by shotblasting to remove any oil, dirt, rubber or any other potentially detrimental material such as curing compound and laitance which may prevent proper bonding and curing of the material.

The Contractor is directed to Section 107 of the Standard Specifications giving the Contractor responsibility for the work site, and requiring conformance to all federal, state, and local laws relating to pollution control and worker protection. In particular, ensure that the Contractor is familiar with and in full compliance with the provisions of the laws concerning the management of waste and worker protection.

Do not allow construction traffic on any portion of the deck that has been shotblasted or on the overlay without specific approval of the Engineer. Overlay the deck surface within 24 hours of the surface preparation operation.

Ensure all surfaces to be overlaid are dry at the time of application. Immediately before applying the overlay system, clean all prepared surfaces with compressed air (or vacuum) to remove dust and debris. Use air compressors equipped with a filter to prevent oil in the air supply. Do not apply the overlay system when rain is forecast to occur within 24 hours of application. Do not apply the overlay system unless the minimum ambient temperature is 50° and rising.

If, in the opinion of the Engineer, the surface has become soiled or contaminated prior to the application of the overlay, re-clean the surface to the satisfaction of the Engineer at no additional cost to the Department.

B. Field Test: Prior to commencing the overlay operation, place a test area of overlay on the bridge deck. Prepare the area for the test overlay as described above. Ensure the test is large enough so the cleaning equipment and methods to be employed in the full-scale operation can be used for the field test. Ensure the degree of cleaning used on the test area is the minimum used on the remainder of the structure. Use the application of the overlay system to the test area to establish proper procedures and techniques for applying the overlay to the full structure.

After the test area has cured for 72 hours, check adhesion in accordance with ACI 503R-1980. Test a minimum of three sample areas. Ensure no adhesion test has an adhesive strength less than 250 psi (1725kPa) and the minimum average value for the 3 tests is greater than 300 psi (2070kPa).

If the test of a sample area fails to meet the above requirements due to a cohesive failure of the concrete substrate, the adhesive strength of the sample area will be considered acceptable. Successful completion of the adhesive strength tests will be required before the full-scale overlay operation is to begin.

C. Application: Provide suitable coverings, such as heavy duty drop cloths, to protect all exposed areas not to be overlaid, such as curbs, railings, parapets, deck drains, locations of expansion joints that are to receive expansion joint membranes, etc. Clean or repair any damage or defacement resulting from the application, at the Contractor's expense, to the satisfaction of the Engineer.

Ensure the application of the overlay system is done by the supplier, or by a factory trained or licensed applicator, with written approval from the manufacturer of the overlay system.

Ensure each component of the two-part polymer is metered, mixed together, and distributed onto the deck by machine. Use a dispensing machine capable of ratio check verification at the pump outlets as well as cycle counting to monitor output. Ensure the in line mixing is motionless so as not to overly shear the material. Ensure the machine makes maximum use of the working time of the polymer by mixing it immediately prior to dispensing onto the deck.

Provide the number of layers and the application rates of the materials in the various layers as recommended by the manufacturer in order to achieve a minimum $^{3}/_{8}$ inch (9.5mm) and maximum ½ inch (13mm) overlay thickness when measured from the top of the concrete substrate to the top of the polymer (not the peaks of the aggregate). Ensure the application of the overlay system is as follows:

1. APPLICATION OF POLYMER: After mixing of the components, evenly distribute the polymer on the clean, dry deck surface at the rate recommended by the manufacturer.
2. APPLICATION OF AGGREGATE: After application of each layer of polymer, allow a minimum lapse period as required by the manufacturer's instructions before broadcasting the aggregate. Ensure the method and rate of aggregate application is in accordance with the manufacturer's recommendations.
3. CONSOLIDATION: If required by the manufacturer, use a hand operated roller as approved by the Engineer and the manufacturer within 10 minutes of the aggregate application to evenly consolidate the aggregate into the polymer.
4. REMOVAL OF EXCESS AGGREGATE: After initial cure, remove excess aggregate by a power vacuum or other Engineer approved method prior to the application of subsequent layers of polymer.
5. APPLICATION OF ADDITIONAL LAYERS: Additional layers may be applied immediately after the initial set of the preceding layer (as determined by the Manufacturer and Engineer) and removal of all excess aggregate. The maximum time allowed between each layer shall be at the discretion of the Engineer and the Manufacturer and may vary depending on the temperature and circumstances of the project. Ensure joints are staggered and overlapped between successive layers so that no ridges will appear.
6. TRAFFIC CONSIDERATIONS: Traffic may be allowed on the final layer after the polymer has reached its final cure (as determined by the Manufacturer) and after removal of all excess, loose aggregate.
7. OVERLAY SURFACE: Ensure the finished surface consists of a uniform coat of imbedded exposed aggregate.

519.3.03 Quality Acceptance

A. Thickness Verification

Ensure the overlay is at least $^3/_8$" (9.5mm) thick as measured from the concrete substrate to the top of the polymer at three random locations for every 1000 yd^2 (830 m^2) of surface area. Recoat thin areas as described above and re-verify thickness at no additional cost to the Department. This verification may consist of cores, holes, etc., but in all cases repair any areas tested to destruction before final acceptance.

In thin areas that have been recoated to obtain the required minimum thickness, the Engineer may require additional adhesion strength tests in accordance with ACI 503R-29 to verify the Contractor's procedure for recoating existing overlay.

519.3.04 Contractor Warranty and Maintenance

The polymer manufacturer and the Contractor, by acceptance of the work described in this Specification, shall jointly agree to guarantee the wearing surface against all defects incurred during normal traffic use for a period of ten years. Submit this agreement in writing to the Engineer signed by both the polymer manufacturer and the Contractor. Commence the ten year period on the date of acceptance of the work. The guarantee shall cover all labor and materials required by the Department to satisfactorily repair and replace the wearing surface.

519.4 Measurement

519.4.01 Surface Preparation:

Measure the area of the deck acceptably repaired and blast cleaned prior to installation of the overlay in square yards (meters) computed from surface measurements taken to the nearest 0.1 foot (30mm). Do not measure the blast cleaning of any longitudinal or transverse construction joints or vertical surfaces for payment.

519.4.02 Polymer Overlay:

Measure the area of the deck acceptably overlaid with polymer and broadcast spread crushed aggregate in square yards (meters) computed from surface measurements taken to the nearest 0.1 foot (30mm).

519.5 Payment

519.5.01 Surface Preparation:

Surface preparation is paid for by the square yard (meter) of the deck acceptably repaired and blast cleaned prior to installation of the overlay. Payment includes all expenses associated with removal of existing concrete, repair and blast cleaning operations.

519.5.02 Polymer Overlay:

Polymer overlay is paid for by the square yard (meter) of the deck overlaid, complete in place and accepted, provided, however, that the specified minimum overlay thickness requirement is met. The individual layers necessary to attain the specified thickness will not be paid for individually. Payment includes all labor and material cost, procurement, handling, hauling and processing, coring for thickness verification, guarantee, and includes all equipment, tools, labor, and incidentals necessary to complete the work.

Payment will be made under:

Item No. 519	Surface Preparation	Per square yard (meter)
Item No. 519	Polymer Overlay	Per square yard (meter)

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SPECIAL PROVISION

Project No: CHATHAM COUNTY
P.I. No.: 0012757 and 0012758

Section 519 –Concrete Bridge Deck Overlay

Add the following:

519.1 General Description

This work consists of the construction of a Latex Modified Concrete (LMC) bridge deck overlay of an existing concrete bridge deck including the partial depth removal of the existing concrete bridge deck using hydrodemolition. This work also includes the removal and replacement of any unsound concrete and furnishing of all material, labor and equipment necessary to perform the work in accordance with the Specifications and Plan details.

519.1.01 Definitions

General Provisions 101 through 150.

519.1.02 Related References

A. Related Specifications

Section 449

Section 500

Section 510

Section 528

B. Related Documents

ASSHTO T22

ASTM C192

ASTM C685

ACI 308

519.1.03 Submittals

Submit a mix design for approval to the Office of Materials. Include the material sources, actual quantity of each ingredient, slump, air, concrete temperature and laboratory results demonstrating the ability of the design to meet the requirements shown in Table 1–Concrete Mix Requirements.

Prepare and test at least 8 cylinders according to ASTM C192 and AASHTO T22 to ensure the demonstrated laboratory compressive strength at 24 hours exceeds the minimum acceptance strength (X). Make the specimens from two or more separate batches with an equal number of cylinders made from each batch. The minimum acceptance strength is:

$$X = f'c + 500 \text{ psi } (X = f'c + 3.4 \text{ MPa})$$

Where, f'c is the required minimum compressive strength at 24 hours as shown in Table 1–Concrete Mix Requirements.

519.2 Materials

Meet the requirements of the Standard Specifications for all materials.

Table 1—Concrete Mix Requirements	
Materials	**Requirement**
Type I[1] or Type III Portland Cement, minimum	750 lbs/cubic yard (445 kg/ cubic meter)
Coarse Aggregate Size No.	7
Water/Cement Ratio, maximum	0.40
Slump Limits (Jobsite), maximum	7 in. (180 mm)
Air Acceptance Limits (Jobsite)	3.5 to 7.5%
Latex Admixture[2], maximum	24.5 gals/ cubic yard (121.2 L/ cubic meter)
Compressive Strength (Jobsite) @ 24 hours, minimum	3000 psi (20 MPa)

1. An additional 10 percent cement is required when using Type I cement.
2. The latex admixture shall contain a minimum of 46% solids. All non-solids in the Latex admixture are considered part of the total water.

Manufacture concrete for LMC overlays in accordance with Section 500 of the Specifications and as specified herein.

519.2.01 Delivery, Storage and Handling

Store all materials to prevent damage from the elements and to insure the preservation of its quality and fitness for the work.

Do not use materials exposed to flame.

Inspect all stored materials prior to their use in the work. Ensure all stored materials meet Contract requirements at the time of use, regardless of acceptance before storage.

Remove any rejected material from the worksite immediately upon discovery. Replace all rejected material at no additional cost to the Department.

519.3 Construction Requirements

519.3.01 Personnel

General Provision 101 through 150.

Utilize a latex manufacturer who will provide an on-site technical representative during the proportioning, mixing, placing and finishing of the overlay. Obtain, maintain, and cooperate with the latex manufacturer's on-site technical assistant during the proportioning, mixing, placing and finishing of the overlay.

519.3.02 Equipment

General Provisions 101 through 150.

A. Hydrodemolition Equipment

Use high-pressure water blasting (hydrodemolition) equipment designed specifically for concrete removal to remove concrete from the existing deck to be overlaid. Ensure hydrodemolition equipments meets the following:

1. The hydrodemolishing equipment consists of filtering and pumping units operating in conjunction with a remote-controlled robotics device.
2. The equipment operates at a noise level of less than 90 decibels at a distance of 66 ft. (20 m) from either the powerpac unit or the remote robot.
3. The equipment is capable of working 24 hours per day.

Provide an external water source for use in the hydrodemolition operations. Do not draw water from any waterway for use in construction. During the hydro-demolition operations, furnish protective platforms in accordance with Section 510 of the Specifications to prevent material and debris from falling into the waterway or roadway. Furnish, install and

maintain erosion control measures, approved by the Engineer, to contain and filter run-off from hydrodemolition operations. Prevent all debris, runoff or other materials from entering any waterway.

B. Mixer

The proportioning and mixing equipment shall be self-contained, mobile, continuous mixer capable of meeting Subsection 500.3.02.B, "Volumetric Proportioning Equipment", ASTM C 685 and the following requirements:

1. Provide a self-propelled mixer having the capability to carry sufficient unmixed dry bulk cement, fine aggregate, coarse aggregate, admixtures, latex emulsion and water in separate compartments, and to produce no less than 6 cubic yards (4.6 m^3) of concrete on site. The mixer shall be equipped so the cement, fine aggregate, coarse aggregate, latex emulsion and water can be fixed at calibration of the mixer, and thereafter shall not be changed without approval by the Engineer.

2. Provide a mixer capable of measuring cement introduced into the mix. A recording meter, visible at all times and equipped with a ticket printout. The metering device shall be readily accessible and accurate to within ± 1 percent.

3. The mixer shall provide control of the flow of water and latex emulsion into the mixer chamber. The latex admixture supply portion of the mixer shall be equipped with a cumulative-type meter which can be read to the nearest 0.1 gal (0.4 L) or 1 lb (0.5 kg). The water supply portion of the mixer shall be equipped with a flow meter or suitable device for calibrating the water supply, and a cumulative-type water meter which can be read to the nearest 0.1 gal (0.4 L) or 1 lb (0.4 kg). The latex and water meters shall be readily accessible and accurate to within ± 1 percent. The mixer shall be capable of continuously calculating or mechanically agitating the latex emulsion and shall have a flow through screen between the storage tank and discharge. The screen shall be the type that can be cleaned.

4. Provide an approved method for adding the air-entraining admixture and the water-reducing admixture. Keep the admixtures separated when adding.

5. Provide a mixer having a scalping screen over the fine aggregate bin to screen out mud balls, cemented or conglomerated lumps, or any other oversize materials which could interrupt the flow of fine aggregate during proportioning.

6. Have the Office of Materials calibrate the mixer prior to the start of Work. Recalibrate the mixer thereafter at least once during each 50 yd^3 (38 m^3) production if yield checks indicate recalibration is necessary and at any other times the Engineer deems necessary to ensure proper proportioning of the ingredients. The mixer shall be capable of being calibrated to automatically proportion and blend all components on a continuous or intermittent basis as required by the finishing operation, and shall discharge mixed material through a conventional chute directly in front of the finishing machine.

   Keep the mixer clean and free of partially dried or hardened materials at all times. Mixer shall consistently produce a uniform, thoroughly blended mixture within the specified air content and slump limits. Malfunctioning mixers will be immediately repaired and recalibrated or replaced with acceptable units.

C. Placing and Finishing

Include hand tools for placement and brushing-in freshly mixed latex modified concrete and for distributing it to approximately the correct level for strike-off with the screed.

Provide an approved finishing machine for finishing large areas of work meeting the following requirements:

1. Provide a self-propelled finishing machine capable of forward and reverse movement under positive control. Make provisions for raising all screeds to clear the screeded surface for traveling in reverse.
2. Provide a self-propelled finishing machine equipped with one or more rotating rollers, augers and 1500 to 2500 vpm vibratory pans may be used.
3. A suitable portable lightweight or wheeled work bridge shall be required and used behind the finishing operation.

519.3.03 Preparation

Removal of Existing Concrete

Remove concrete to a depth of 1 ½ in. (38 mm) below the existing concrete surface or as shown on plans *(in lieu of hydro blasting to the entire depth of 1 ½ in, if so desired, the contractor may mill off 1 in. then hydro blast ½ in.)* Remove concrete by the use of high pressure water blasting equipment designed specifically for this purpose. Provide equipment capable of

providing a rough and bondable surface while removing deteriorated or non-deteriorated concrete, and cleaning any exposed reinforcing steel of all rust and corrosion by use of high velocity water jets acting under continuous automatic control.

Take all steps necessary to prevent cutting or otherwise damaging reinforcing steel, including any vertical stirrups, structural steel, and welded shear connectors projecting into the slab and designated to remain in place. If any such bars or shear connectors are damaged during removal operations, replace with members of equal strength, size and spacing as the exisiting, to the satisfaction of the Engineer at no additional cost to the Department.

Remove concrete in areas of the deck not accessible or otherwise convenient to hydrodemolition operations using conventional (jackhammer) removal methods. Perform such removal by power chipping or hand tools. Pneumatic hammers heavier than 15 lbs class (6.8 kg) [nominal], {(30 lbs) [13.6 kg] maximum} are not permitted. Do not operate pneumatic hammers and chipping tools at an angle exceeding 60 degrees relative to the surface of the deck slab.

Remove concrete debris by hand or by mechanical means immediately following the hydrodemolition process to prevent the debris from re-setting or re-adhering to the surface or remaining sound concrete. Exercise care to avoid any damage to the remaining sound concrete,

519.3.04 Operations of Equipment:

A. General Operations

Provide qualified personnel to supervise and operate the hydrodemolition equipment. Avoid removal of sound concrete outside the limits and below the depth indicated on the plans.

Provide lighting as required to allow for the safe conduct of night time removal operations. Position lighting to avoid hazardous glare in the direction of oncoming traffic. Obtain the Engineer's approval for lighting placement and configuration. Store and maintain, on the job site, an inventory of common wear parts and replacement accessories for the equipment adequate to assure routine maintenance tasks can be performed readily without undue project delay.

B. Run-off Water

Until its removal, contain all water runoff and residue caused by the hydrodemolition operation within the limits of the bridge deck. Submit to the Engineer for approval, a plan detailing containment and removal of the run-off water and slurry prior to beginning work. If satisfactory containment and removal of the runoff water or slurry is not being accomplished, discontinue operations until adequate containment and disposal methods are approved and employed during removal operations to the satisfaction of the Engineer.

Provide for the disposal of runoff water and residue generated by the hydrodemolition operation. Obtain any required permits and comply with applicable regulations concerning such water and residue disposal. Make provision for the safe handling of runoff water insofar as it may constitute a hazard on the adjacent or underlying traveled roadway surface. Repair all existing slopes and berm areas damaged by scouring water jet, runoff water, or other operations at no additional expense to the Department.

Provide protective platforms over areas of vehicular traffic when under portions of bridges where hydrodemolition takes place. See the Plans and Specifications for additional requirements.

C. Calibration

Prior to the commencement of the removal operation with hydrodemolition, calibrate the equipment on an area of sound concrete as designated by the Engineer. After calibration, move the equipment to an area of unsound concrete as designated by the Engineer to demonstrate the equipment can remove all unsound concrete and provide a highly rough and bondable surface by the established recorded settings.

Provide to the Engineer the following settings for verification:

1. Water pressure gauge
2. Machine staging control (step)
3. Nozzle size
4. Nozzle speed (travel)

Begin hydrodemolition surface preparation production after the Engineer has approved the second calibration and the above settings.

Stop the surface preparation operation if it is determined that sound concrete is being removed or unsatisfactory results are being obtained, as determined by the Engineer. Perform the appropriate recalibration or changes in equipment and methods prior to resuming the operation.

519.3.05 Construction

The minimum overlay thickness is to be 1 ½ in (38 mm) or as specified in the plans.

A. Surface Preparation Prior to Overlay Placement

Prior to placing the overlay, blast clean all surfaces to which the overlay is to bond, including exposed reinforcing and structural steel, the work face of previously placed overlay, and the faces of curbs and barriers up to a height of at least 1 in (25 mm) above the proposed overlay surface.

Clean exposed reinforcing and structural steel to remove all loose and built-up rust, asphalt residue, and all other contaminants detrimental to achieving adequate bond. Clean pockets of rust (corrosion cells) on exposed reinforcing steel of all corrosion products. Inspect areas of steel where original hydroblasting was applied to assure cleanliness requirements are met.

Suitable blast methods may include high pressure water blasting, water blasting with abrasives in the water, abrasive blasting with containment, or vacuum abrasive blasting. The listed concrete surfaces shall be made free of spalls, laitance, and all contaminants detrimental to achieving bond.

If present, clean all bridge scuppers of all foreign matter and plugged prior to placement of overlay.

Vehicles other than approved construction equipment are not permitted on those sections of the deck where hydrodemolition has begun. Prevent contamination of the deck by construction equipment or from any other source.

B. Mixing

Mix the concrete at the work site in accordance with the specified requirement for the equipment used. The maximum time between completion of mixing and placement shall not exceed 20 minutes. Mixing capability shall be such that finishing operations can proceed at a steady pace with final finishing completed before the formation of the plastic surface film.

C. Placing, Consolidating and Finishing

Clean with compressed air, wet, and keep wet for at least one hour immediately prior to placing the overlay, the deck surface which will contact the overlay. Remove any standing water prior to placement of the overlay.

Pass the finishing machine or approved screeding device over the existing deck prior to placing the concrete overlay so measurements can be made to insure proper overlay thickness and steel cover is achieved. Equip screeds as outlined in Subsection 519.3.02.C with surface vibrators sufficient to thoroughly consolidate the overlay full depth, unless other methods are approved by the Engineer. Perform consolidation using hand-held vibrators when placing the mixture around steel reinforcement or structural members.

Satisfy the surface tolerances for the overlay as found in Section 500.3.06.E of the Specifications except as noted on the Plans. After finishing, texture the surface in accordance with the requirements of Section 500.3.05.T.9.c or as required by the Plans and Proposal. Do not begin surface grooving until the curing period specified herein has expired.

D. Construction Joints

If required, construct longitudinal joints between lanes vertical and at actual lane lines.

Minimize the number of longitudinal and transverse construction joints. Thoroughly clean both types of joints by blast cleaning. Coat the hardened sides of the joints with an approved bonding agent before fresh concrete is placed. When necessary, form longitudinal construction joints vertical by use of a header secured to the deck. After removal of the longitudinal header and transition, saw the overlay 3 in (75 mm) or more inside the construction joints and the overlay outside the saw cut removed before the adjacent overlay is placed. The volume of the overlay removed is not included in the volume measured for payment**.**

E. Curing

Cure the concrete overlay for a minimum of 24 hours.

1. Cover the overlay promptly with a single layer of clean, wet burlap. Sprinkle occasionally, if necessary, to keep burlap moist. Be sure to pre-saturate the burlap with water, overlapped a minimum of 6 in (150 mm), and place as soon as the surface will support it without deformation.
2. Keep burlap wet by a continuous flow of water through soaker hoses and covered with a 4-mil (100 µm) minimum thickness, white opaque polyethylene film or a wet burlap-white opaque polyethylene sheet. Lap adjacent sheet of curing covers a minimum of 6 in (150 mm).
3. Immediately replace torn, broken or damaged sheeting materials.

F. Limitations

Place no overlay concrete when it is raining, when the ambient air temperature is below 45 ºF (7 ºC) or when it is predicted to fall below 45 ºF (7 ºC) for the duration of the curing period.

Place overlays only when the overlay surface evaporation rate, as affected by ambient air temperature, concrete temperature, deck temperature, relative humidity and wind velocity is 0.1 lb/ft^2/hr (0.5 kg/m^2/h) or less. Determine and document the atmospheric conditions, subject to verification by the Engineer. Place no overlay if the ambient air temperature is 85 ºF (29 ºC) during the overlay placement regardless of the surface evaporation rate. Use Figure 4.1 in ACI 308R-01 to determine graphically the loss of surface moisture for the overlay. In no case shall the temperature of the overlay concrete exceed 85 ºF (29 ºC) during placement. Measure the weather parameters within 10 ft (3 m) of the placement area.

During delays in the overlay concrete's placement operations of more than 10 minutes and/or when a plastic surface film develops on a LMC overlay, temporarily cover the work face of the overlay with wet burlap. If an excessive delay is anticipated, install a bulkhead at the work face and the overlay placement operation terminated.

G. Repair of Cracks

Repair cracks occurring in the concrete deck overlay surface in accordance with Section 528 of the Specifications prior to grooving of the deck surface.

H. Expansion Joints

If required, after the curing process for the overlay is completed, install new expansion joint sealing systems according to Section 449 of the Specifications.

519.4 Measurement

Measurement for the concrete overlay is by the square yard of existing deck surface to be overlaid, complete in place and accepted.

Unsound concrete removal and replacement is measured by the square foot of unsound concrete removed for each removal category completed and accepted.

519.5 Payment

Payment for the concrete overlay as specified above is paid for at the Contract Unit price bid per square yard. Such payment is full compensation for furnishing all equipment, labor and materials and performing the work in accordance with the Plans and Specifications.

Removal of unsound concrete is paid for at the specified rate of payment per square foot for each removal category completed and accepted. Such payment is full compensation for furnishing all equipment, materials and labor to perform the work as directed by the Engineer, including the cost for the quantity of concrete required to replace removed unsound concrete and formwork necessary to replace the existing deck.

Category (1) Unsound concrete removal to full depth of deck for slabs over metal deck forms.
Removal and Replacement …… $5.00 per square foot ($54.00 per square meter)

Category (2) Unsound concrete removal to full depth of deck for slabs without metal deck forms.
Removal and Replacement ……. $20.00 per square foot ($215.00 per square meter)

Payment will be made under:

Item No. 519	Concrete Overlay, Latex Modified ,_____ in (mm) thick	Per square yard (meter)

Item No. 519	Unsound Concrete Removal and Replacement	Per square foot (meter)

Office of Materials

Date: January 30, 2015

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SPECIAL PROVISION

PROJECT No: CHATHAM COUNTY
P.I. NO. 012757 and 012758

SECTION 521 – PATCHING CONCRETE BRIDGE STRUCTURES

521.1 General Description

This work includes patching of substructure or superstructure concrete bridge components by removing the broken, damaged, or disintegrated concrete, cleaning existing reinforcement, adding supplemental reinforcement when required, and patching with approved conventional or accelerated Portland cement concrete or rapid setting patching materials according to this Specification and as shown on the Plans.

521.1.01 Definitions

General Provisions 101 through 150.

"Sound" – the act of striking a concrete surface with a chipping hammer or similar tools to detect unsound concrete.

521.1.02 Related References

A. Standard Specifications

Section 500—Concrete Structures

Section 504—Twenty-Four Hour Accelerated Strength Concrete

Section 511—Reinforcement Steel

Section 853—Reinforcement and Tensioning Steel

Section 886—Epoxy Resin Adhesives

Section 934—Rapid Setting Patching Materials for Portland Cement Concrete

B. Referenced Documents

QPL 10

QPL 27

521.1.03 Submittals

General Provisions 101 through 150.

521.2 Materials

Ensure that the materials used to repair and patch bridge components meet the following requirements:

A. Portland Cement Concrete Patching Materials

1. Conventional Portland Cement Concrete (Repair Method 1)

   a. Use Class "A" or Class "AA" concrete or as indicated on the Plans.

   b. Meets the requirements of Section 500 of the Specifications.

   c. Use concrete manufactured at plants that qualify as approved sources according to the Standard Operating Procedure for Ready Mix Concrete. See QPL 10 for a list of approved plants.

2. Twenty-Four Hour Accelerated Strength Concrete (Repair Method 2)

   a. Meets the requirements of Section 504 of the Specifications, except that the use of a portable concrete mixer is required.

B. Rapid Setting Patching Materials (Repair Method 3)

1. Use rapid setting patching materials meeting the requirements of Section 934. See QPL 27 for a list of approved patching materials. Patching materials not listed on QPL 27 will require testing and approval by the Office of Materials and Research before use.

2. When shown on the Plans, use Type III rapid setting patching material to patch vertical and overhead repair areas.

521.2.01 Delivery, Storage, and Handling

General Provisions 101 through 150.

521.3 Construction Requirements

521.3.01 Personnel

General Provisions 101 through 150.

521.3.02 Equipment

To clean the repair areas, use air compressors equipped with traps that can remove surplus water and oil in the compressed air. Ensure that the compressor can deliver compressed air at a continuous pressure of at least 90 psi (620 kPa).

The Engineer will check the compressed air daily for contamination. Do not use contaminated air.

521.3.03 Preparation

A. Limits of Repair

Repair all patches as shown on the Plans and as directed by the Engineer. Determine limits of patch repair as follows:

1. "Sound" concrete surface with visual defects to determine the limits of the damaged areas. Strike the surface with a chipping hammer or similar tools to detect unsound concrete. Concrete that is loose or exhibits a flat or hollow sound is considered unsound. Omit any defect for repair that is less than 1 in. by 6 in. by 0.5 in. (25 by 150 by 12 mm) deep.

2. Mark the limits of the defective areas on the concrete surface by making a rectangle 2 in. (50 mm) beyond the outer limits of the unsound concrete area as a guide for saw cuts.

3. Combine patched areas less than 6 in. (150 mm) from each other as one patch area.

4. Obtain approval from the Engineer on the limits of each repair prior to saw cutting.

B. Concrete Removal

1. Saw the rectangular marked areas a minimum of 1 in. (25 mm) deep or as shown on the plans. Exercise extreme care not to saw or damage the reinforcing steel.

2. Remove unsound material within the sawed area to a minimum depth of 2 inches for unreinforced concrete or 0.5 in. (12 mm) below the reinforcing steel or as shown on the Plans with power chipping or hand tools. Pneumatic hammers heavier than 15 lb. class nominal (30 lb. maximum) are not permitted. Exercise extreme care not to saw or damage the reinforcing steel.

3. Operate pneumatic hammers and chipping tools at an angle not to exceed 60 degrees relative to the surface of the concrete. After starting the tool in the vertical position, immediately tilt the tool to a 60 degree operating angle.

4. Do not damage or fracture the sound concrete substrate to be left on the bottom of the patch area. Do not use sharp pointed bits.

C. Surface Preparation

1. Clean all exposed reinforcing steel of all rust and corrosive products including oil, dirt, concrete fragments, loose scale and any other coating of any character that would destroy or inhibit the bond with the patching material.

2. Immediately before placing the patching material, thoroughly clean the surfaces within the repair areas by sandblasting and air blasting to remove oil, dust, dirt, slurry from saw operation, and other contaminants.

3. Place formwork as required to complete patch repair. Provide access in formwork for placement of patch material.

4. Ensure that the finished surface meets a surface tolerance of 1/16 in. (1.5 mm).

5. Use approved measures as necessary to keep the adjacent concrete surfaces free of excess grout and other materials.

521.3.04 Fabrication

General Provisions 101 through 150.

521.3.05 Construction

A. Concrete Patching

Patch concrete safely and rapidly to minimize inconvenience to the traveling public.

1. Accomplish this work with other operations in progress within an area if possible.
2. Remove and replace completed patches that contain cracks, shrinkage, compression failures, or are damaged by construction or traffic before Final Acceptance at no cost to the Department.

B. Placing Patching Material

Only use Repair Method 1 with the class of concrete on bridge components designated on the Plans.

Use Repair Method 2 unless the Engineer gives written approval to use Repair Method 3. Use Repair Method 1 and 2 when the average daily temperature is 50 °F (10 °C) or above. Use of Repair Method 3, if approved, is limited to the manufacturer's written recommendations.

For the following repair methods, begin the placement when the surface within the repair area is dry and thoroughly free of contaminants.

1. Repair Method 1: Conventional Portland Cement Concrete

a. Completely coat the concrete surface areas within the repair area with a film of Type II epoxy adhesive as specified in Section 886 approximately 10 to 20 mils (0.25 to 0.50 mm) thick or according to the manufacturer's written recommendations.

b. Deposit the concrete in the repair area while the epoxy is still tacky. Vibrate it to form a dense, homogeneous mass of concrete that completely fills the patch area.

c. Screed the concrete to the proper grade and do not disturb it until the water sheen disappears from the surface.

d. Cover the concrete with wet burlap or membrane curing compound. Allow the curing to continue until the required minimum design compressive strength is achieved as designated by the class of concrete used or as shown on the Plans. Complete curing prior to transferring load to the repaired section.

2. Repair Method 2: Twenty-Four Hour Accelerated Strength Concrete

a. Prepare, remove and place as outlined in Subsections 521.3.03 and 521.3.05.B and 521.3.05.B.1.

b. Mix the concrete on site in a portable mixer of adequate capacity. Obtain approval for the mix design and mixing method from the Office of Materials and Research.

c. The material must meet a slump range of 1.0 to 3.0 in. (25 to 75 mm).

3. Rapid-Setting Patching Material

a. In addition to the requirements outlined in Subsection 521.3.03, prepare the surfaces in the repair areas according to the manufacturer's written recommendations.

b. Perform the patching material handling, mixing, placing, consolidating, finishing, and curing according to the manufacturer's written recommendations as approved by the Office of Materials and Research.

c. Continue curing until a minimum design compressive strength of 3,000 psi (20 MPa) or as shown on the Plans is achieved. Complete curing prior to transferring load to the repaired section.

C. Special Requirements

The following special requirements apply to this work:

1. During sandblasting, protect traffic in adjacent travel lanes.
2. After the sandblasting operations:

a. Thoroughly clean the area to be repaired with compressed air.

b. Remove sand from the sandblasting operation from adjacent concrete surfaces.

3. Do not "over-cut" concrete surfaces beyond marked areas whenever possible.
4. Remove saw slurry and other contaminates from the over-cutting.
5. Repair the over-cuts by filling full-depth with an approved low-viscosity epoxy compound using a Type II epoxy adhesive specified in Section 886. Make these repairs as soon as possible.

521.3.06 Quality Acceptance

General Provisions 101 through 150.

521.3.07 Contractor Warranty and Maintenance

General Provisions 101 through 150.

521.4 Measurement

The area measured for payment is the number of square feet (meters) of patching complete in place and accepted.

521.4.01 Limits

General Provisions 101 through 150.

521.5 Payment

The area measured as specified above will be paid for at the Contract Unit Price per square foot (meter). Payment is full compensation for equipment, tools, labor, incidentals to complete the work, including but not limited to:

- Removing existing patching material or the spalled, broken, or damaged concrete
- Cleaning the open area by sandblasting
- Furnishing, placing, finishing, and curing the patching material
- Supplemental reinforcement

Payment will be made under:

Item No. 521	Patching concrete bridge	Per square foot (meter)

521.5.01 Adjustments

General Provisions 101 through 150.

Office of Materials and Research

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SPECIAL PROVISION

PROJECT NO.: CHATHAM COUNTY
P.I. NO. 0012757 and 0012758

Section 581—Pot Bearings

Delete Section 581 in its entirety and add the following:

Disc Bearings

581.1 General Description

This work includes furnishing and installing disc bearings (fixed and expansion types). Use the quality, type, and size designated in this Specification, on the Plans, or ordered by the Engineer.

581.1.01 Definitions

General Provisions 101 through 150.

581.1.02 Related References

A. Standard Specifications

Section 501—Steel Structures

Section 506—Expanded Mortar

Section 535—Painting Structures

Section 851—Structural Steel

Section 852—Miscellaneous Steel Materials

Section 885—Elastomeric Bearing Pads

Section 886—Epoxy Resin Adhesives

Section 887—Bearing Plates with Polytetrafluroethylene Surfaces

B. Referenced Documents

ASTM A 709 Grade 36 (ASTM A 709M Grade 250)

A 709 Grade 50 (A 709M Grade 345)

581.1.03 Submittals

Provide the following reports to the Project Engineer and the Office of Materials:

- Certified test reports
- Materials certificates
- Certificate of Compliance to conform with the requirements in this Specification
- Shop drawings
- Certification

A. Shop Drawings

Before fabricating the bearings, submit to the Engineer Shop Drawings according to Subsection 501.1.03.B, "Shop Drawings." Include the following on the drawings:

- Bearing plan and elevation
- Complete details and sections that show the materials incorporated into the bearing
- ASTM or other material designations
- Vertical and horizontal load capacity
- Rotation and translation capacity
- Compression stress on sliding surfaces and elastomeric surfaces at maximum and minimum design loads
- Complete design calculations
- Complete erection and installation procedure

B. Certification

Have the disc bearing manufacturer furnish the following to the Project Engineer and the Office of Materials:

- Certified test reports
- Material certificates
- Certificate of compliance to conform with these Specifications for each bearing furnished

581.2 Materials

Ensure that materials meet the requirements of the following Specifications:

Material	Section
Painting	535
Structural Steel	851
Anchor Bolts, Nuts, and Washers	852.2.02
Elastomeric Bearing Pads	885
Epoxy Resin Adhesives	886
Bearing Plates with PTFE Surfaces	887

A. Metals

Use the stainless steel sliding surfaces indicated below:

- Stainless Clad Steel Plate: Minimum eight percent stainless steel conforming to the requirements of ASTM A 264 (both Shear Strength and Bond Strength tests in 8.13 and 8.14 of ASTM A 264 are required). Use stainless steel cladding that meets Type 304. Use backing steel (base metal) that meets ASTM Designation A 709 Grade 50W(A 709M, Grade 345 W).
- Stainless Steel Plate Welded To A Steel Backup Plate: Use at least 16 gage (1.6 mm) thickness of the stainless steel plate that meets ASTM 240 Type 304. Use steel backing plate that meets ASTM Designation A 709 Grade

50W (A 709M Grade 345W) unless otherwise indicated on the Plans. Use qualified welders to weld the stainless steel plate to the steel backing. Furnish welding procedures and welder qualification documents to the Department for review and approval prior to fabrication. Weld entirely around the perimeter of the stainless steel plate.

- Solid Stainless Steel Plate: Mill-finish the stainless steel sliding surfaces to a maximum surface roughness of 20 micro-inches (0.50µm), RMS, according to the requirements of ANSI Standard B 46.1. Remove and replace, at no additional cost to the Department, bearing plates whose stainless steel sliding surfaces have been scratched or damaged.

B. Structural Steel

Use structural steel for the masonry plates and the components of the bearings that meet the requirements of these ASTM Specifications:

- ASTM A 709, Grade 36 (ASTM A 709M, Grade 250)
- A 709, Grade 50 (A 709M, Grade 345)

Machine the steel plates confining the disc from solid steel plates.

C. Anchor Bolts

Use anchor bolts, including nuts and washers, that meet the requirements of Subsection 852.2.02.

D. Polyether Urethane Elastomeric Disc

Ensure that the disc material is 100 percent polyether urethane meeting the following Specifications:

Property	Test Method	Range of Values
Hardness, Durometer D	ASTM D 2240	62 + or -2
Tensile Stress psi at 100% elongation at 200% elongation	ASTM D 412 Pulled at 20 in/min. (pulled at 8.5 mm/s)	2,030 minimum 3,771 minimum (14 minimum) (26 minimum)
Tensile Strength	ASTM D 412	5,000 minimum (34.5 minimum)
Ultimate Elongation, %	ASTM D 412	220 minimum
Compression Set, 22 hours at 159 degrees F., % (71° C, %)	ASTM D 395	40% maximum
Compression Strain, % at 5,000 psi stress* (35 MPa)		Strain % 8.0 min 15.0 max

* Compression stress is based on the net plan area of the rotational element and the compressive strain is the percentage of the original thickness. Gross bearing dimensions shall have a tolerance of -0 inch to + 1/8 inch (-0 mm to +3 mm).

E. Shear Restriction Mechanism

Design a shear restriction mechanism to take horizontal forces at all possible vertical loads that consists of a pin connected to the bottom plate and a ring connected to the upper bearing plate.

F. Expanded Mortar

Set anchor bolts in preformed or drilled holes using expanding mortar that meets the requirements of Section 506.

G. Paint

Paint exposed steel of each bearing assembly other than stainless steel according to System VI of Section 535. Take care to keep Polytetrafluroethylene (PTFE) or sliding surfaces free of paint.

H. Design and Applicable Codes

Design, fabricate, and erect disc bearings according to these Specifications and the applicable requirements of the following Standard Codes and Specifications.

- Section 501, including supplements
- Current AASHTO Standard Specifications for Highway Bridges

Additional design parameters with which the disc bearing manufacturer must comply:

1. Bearing on Concrete: Maximum bearing pressure is as indicated in AASHTO.
2. Polyether Urethane Disc: Design compressive strength is 5000 psi (35 MPa).
3. Virgin PTFE: Design compressive strength is 3,500 psi (25 MPa).
4. Sliding Surfaces: Accommodate translation by sliding of a hard mating surface of stainless steel across a PTFE surface.
   a. Stainless Steel Sliding Surface: Accurate, flat surface with Brinnell hardness of 125 minimum.
      1) Stainless steel sliding surface to completely cover PTFE surface in all operating positions of the bearing.
      2) Position the stainless steel sliding surface so that the sliding movement causes the dirt and dust accumulation to fall from the surface of the stainless steel.
   b. PTFE Sliding Surface: Do not use holes or slots in the PTFE sliding surface.
   c. Static Coefficient of Friction: Under a load of 3,500 psi (25 MPa), do not exceed 4 percent for unfilled PTFE nor 8 percent of filled PTFE surfaces.
   d. Rotation: 0.03 radians maximum.

I. Substituted Bearings

Disc bearings may be substituted for the bearings shown on the Plans provided the bearings to be substituted are approved by the State Bridge Engineer and comply with the following:.

1. Equal or better load carrying and moment capacity.
2. All control dimensions are maintained and bearings fit within the limits of detailed masonry plate.
3. Use filled or unfilled (recessed) PTFE.
4. Use Polyether Urethane disc material as a medium within the shear restricted disc bearing.
5. The Polyether Urethane disc shall be lined with PTFE on the bottom side of expansion guided bearings.
6. Do not use aluminum or aluminum alloy.
7. Equal or better than the pot bearings shown on the Plans in all structural respects and meets all design requirements.

581.2.01 Delivery, Storage, and Handling

A. Assembling and Marking

Have each disc bearing assembled at the plant, marked for identification, and delivered to the construction site as a complete unit.

Mark each bearing with permanent match-marks to indicate the normal position of the bearing.

B. Transportation, Storage, and Handling During Construction

Follow these guidelines to transport, store, and handle disc bearings during construction:

1. Protect each disc bearing from dust and moisture.
2. Store the PTFE surface in the shade to avoid the damaging effects of ultraviolet rays.

3. Protect the disc bearings from damage during construction and prevent contamination of the various components of the disc bearings.

Ensure that the Fabricator also follows the above requirements.

During transportation and storage, cover the bearings with moisture-proof and dust-proof covers.

581.3 Construction Requirements

581.3.01 Personnel

A. Skilled Representative

Have the bearing manufacturer provide a skilled representative who is certified by the manufacturer to be experienced in similar installations.

The representative shall:

- Give aid and instruction during the disc bearing installation.
- Be present during the initial bearing installation.
- Be present during welding of the lower steel plates to the masonry plates, if not performed in the manufacturer's shop.
- Remain on the job until the bearing installation proceeds without trouble and until the workmen are experienced with the work for each installation as determined by the Engineer.

Arrange to have the manufacturer's skilled representative present whenever requested by the Engineer.

581.3.02 Equipment

General Provisions 101 through 150.

581.3.03 Preparation

General Provisions 101 through 150.

581.3.04 Fabrication

A. Polytetrafluroethylene (PTFE)

Ensure that the PTFE, including its connection to its backup material, conforms with the requirements of Section 887, except as modified in this Specification.

Have the PTFE sliding surface bonded under factory controlled conditions to a rigid backup material that can resist bending stresses of the sliding surfaces.

As an alternate, PTFE material of twice the thickness specified above may be recessed for half its thickness in the backup material. Ensure that it is at least 1/8 in (3 mm) thick and that the PTFE sliding surface is bonded under factory controlled conditions.

1. When shown on the Plans, weld the lower steel plate to the masonry plate before installing the disc.

   If welding procedures established and approved by the Engineer restrict the temperature of the bond area to no greater than 300 °F (150 °C), welding to steel plates with a bonded PTFE surface is permitted.

   Use temperature-indicating wax pencils or other suitable means to determine the temperature.
2. After fabricating the backup material, plane it before bonding the stainless steel or PTFE to a true plane surface.
3. Have the PTFE sheets bonded at the bearing manufacturer's factory under controlled conditions in accordance with the written instructions of the manufacturer of the approved adhesive system.
4. When epoxy bonding PTFE sheets, ensure that the side of the PTFE sheet to be bonded to the metal is factory treated by the sodium napthalene or sodium ammonia process.
5. After the bonding operation, ensure that the PTFE surface is smooth, flat, and bubble free. Polish the filled PTFE surfaces.
6. Positively locate the elements of the bearing in the bearing manufacturing and assembling.

7. If using bearings other than those detailed on the Plans, obtain approval before constructing the substructure upon which the bearings will be installed.
8. Have each bearing assembled at the manufacturer's plant, marked for identification, and delivered to the construction site as a complete unit.

   Ensure that the bearings have permanent match-marks to indicate the normal position of the bearing.

581.3.05 Construction

A. Erection

Place bearings at their proper locations before erecting the superstructure supported by the bearings.

1. Install Pier Tops

   Install pier tops horizontal at the correct elevation with a plus or minus tolerance of zero. Do not install the masonry plates until the Engineer accepts the pier tops.
2. Install the Anchor Bolts

   Cast anchor bolts in the concrete or set them in preformed holes, unless otherwise shown on the Plans. If setting them in preformed holes, fill the preformed holes in the concrete substructure with epoxy grout.

   a. Insert the anchor bolts to the prescribed depth.
   b. Place additional grout as required in the annular space around the anchor bolts until the grout is well packed and flush with the top surface of the concrete.
   c. Wipe clean the exposed surfaces of the anchor bolts and substructure. Do not allow a load on grout that has not been in place at least 7 days.
3. Install Masonry Plates

   Set the masonry plates to the proper elevation on the previously finished concrete pads.
4. Install the Bearings

   a. Place the bearing at the predetermined locations when erecting the superstructure.
   b. Remove the temporary restraints as directed by the bearing manufacturer.
   c. Adjust the bearings as follows:
      - Adjust the expansion bearings from the normal position at 60 °F (15 °C) to allow for the ambient temperature during erection or casting.
      - Adjust the disc bearings to allow them to move when dead loads are applied. Ensure that the bearing is properly positioned and parallel (free from rotation) after applying the dead load.
      - Adjust the bearings horizontally on the masonry plate to properly fit the superstructure members being erected.
   d. After adjustments and approval by the Engineer, weld the bearings to the masonry plate.

581.3.06 Quality Acceptance

Instruct the manufacturer to furnish facilities to test and inspect the completed bearings in the plant or at an independent test facility. An approved testing laboratory or the manufacturer supervised by an approved independent expert shall perform the testing.

Follow these testing guidelines:

- Instruct the manufacturer to allow the Engineer and Inspectors access to the plant and test facilities.
- Furnish certified test reports, materials certificates, and a certificate of compliance to conform with the requirements in the Specifications.
- Perform testing according to Section 887 and this Specification. The Department reserves the right to sample and test the material and disc bearing assemblies as shown in Section 106.
- Test complete bearing assemblies or a specially manufactured disc bearing prototype that has a capacity of 400 kips (181 000 kg).

Successfully tested full-size bearings that meet the requirements of this subsection and have no damaged components, finishes, or surfaces may be used in construction. Provide prototype disc bearings, if used, at no additional expense to the Department.

Specific Items tested are as follows:

A. Coefficient of Friction

Perform tests to determine the static coefficient of friction of the first movement under a load of 3,500 psi (25 MPa) on a disc area applied continuously for 12 hours before testing. Determine under a load of 2,000 psi (14 MPa) on a disc area the following:

1. The static coefficient of friction value shall not exceed 10 percent for filled PTFE surfaces and 6 percent for unfilled PTFE surfaces.
2. The first movement static and dynamic coefficient of friction at a sliding speed of less than 1 in per min (0.4 mm per sec). Values shall not exceed 10 percent for filled PTFE surfaces and 6 percent for unfilled PTFE surfaces.
3. The static and dynamic coefficient of friction is determined after the bearing is subjected to 100 design movements at a speed of less than 1 ft per min (5 mm per sec). Values shall not exceed those indicated in step 2 above. Signs of bond failure or other defects are cause for disc bearing rejection.

B. Proof Loading

Perform, under maximum design loads, proof loading and compression deflection tests on a full-size disc bearing.

C. Rotation

The Polyether Urethane element shall be capable of retaining initial contact with the steel bearing plates through the rotational range under a compressive load equal in magnitude to the design load.

D. Cold Flow

Subject an approved sample of filled PTFE or unfilled PTFE to a static pressure of 3,500 psi (25 MPa) for at least 24 hours. Ensure that the PTFE material is bonded or mechanically connected to its backup material in the same way as the disc bearing.

Apparent cold flow of the PTFE material is cause for disc bearing rejection.

581.3.07 Contractor Warranty and Maintenance

General Provisions 101 through 150.

581.4 Measurement

Disc bearing assemblies are measured by Lump Sum for each bridge. Determine the actual quantities required before submitting the bid.

581.4.01 Limits

General Provisions 101 through 150.

581.5 Payment

The work in this Specification will be paid for on a Lump Sum basis.

Payment is full compensation for:

- Furnishing materials and equipment including structural steel components of the bearings, masonry plates, top plates, sole plates, PTFE, Polyether Urethane Disc, anchor bolts, and welding
- Designing the disc bearing
- Performing tests
- Furnishing prototype bearings and test samples
- Performing Work as described and specified in this Specification or the Plans
- Providing incidentals to complete the work

Payment will be made under:

Item No. 581	Pot bearings, bridge No.___	Per lump sum

581.5.01 Adjustments

General Provisions 101 through 150.

Georgia Department of Transportation

State of Georgia

Special Provision

PROJECT NO.: CHATHAM COUNTY

P.I. NO.: 0012757 and 0012758

Section 865—Manufacture of Prestressed Concrete Bridge Members

Delete Subsection 865.1 and substitute the following:

This section includes the following requirements for precast-prestressed concrete bridge members and piling using High Performance Portland cement concrete as shown in the Plans:

- Manufacturing
- Inspecting
- Testing
- Marking
- Painting
- Rubbing as specified
- Plant handling
- Storing
- Shipping

The term "precast-prestressed concrete" is referred to as "prestressed concrete" in the rest of this Section.

Add the following to Subsection 865.2:

Material	Section
Concrete, Class AAA HPC	500

Add the following to the end of Subsection 865.2.01.B.7.a.6:

Optional Method of Curing for Release Strengths with HPC: Temperature match curing ("Sure Cure" or equivalent methods) is allowed for specimens used to determine when stress may be transferred to the concrete for High Performance Concrete Units.

Georgia Department of Transportation

Technical Provisions

For

Design-Build Agreement

P.I. Nos. 0012757 and 0012758

Attachment 17-1

SP 682 – Electric Wire, Cable and Conduit

SP-797 – Hub Building

SP 940 – NaviGAtor Advanced Transportation Management System Integration

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA
SPECIAL PROVISION

SECTION 682 – ELECTRICAL WIRE, CABLE, AND CONDUIT

Section 682 - Electrical Wire, Cable, And Conduit

Add the following:

Delete Subsection 682.1 General Description and substitute the following:

682.1 General Description

This work includes furnishing and installing wire, cable, and conduit for roadway and structure lighting systems, complete or as indicated on the Plans. This work also consists of furnishing and installing a Multi-cell or Continuous Flexible Conduit System for Fiber Optic Cable, complete or as indicated on the Plans. The installation of conduit for fiber optic cable shall not require the presence of a qualified electrician on the job site.

Add the following to Subsection 682.2:

All multi-cell and continuous flexible conduit products shall meet the General Specifications as set out in these Special Provisions. Those products shall be installed, applied, inspected, and/or utilized in accordance with the Construction Section of these Special Provisions. Prior to any conduit work and within 60 days after Notice to Proceed, submit catalog sheets, engineering drawings, and maintenance procedures for review by the Engineer for all products and procedures in these Special Provisions to be used on the Project. If the products to be used are not specified within these Special Provisions or not listed separately and/or completely on the details of the Plans, submit catalog sheets, engineering drawings, factory specifications, a set of installation procedures, and a set of operation and maintenance procedures (for multi-cell conduit) for review by the Engineer. No work shall be done using these products until after submittals have been approved by the Engineer.

A summary of the products, their Sections, and each product's specification included in these Special Provisions are listed below:

A. MARKING TAPE .....Section 682.2.03

Visible marking tape, location and warning system.

B. CONDUIT, NONMETAL, TYPE 2 - POWER SERVICE .....Section 682.2.04

All conduit shall be Schedule 40 polyvinyl chloride.

C. MULTI-CELL FACTORY INSTALLED DUCT SYSTEM.....Section 682.2.05

The multi-cell innerducts shall be colored red, white, yellow, and orange, and utilized as noted: red = hybrid fiber optic cable; white = open spare/interconnect/control circuit; yellow = single mode fiber optic cable; and orange = multi-mode fiber optic cable.

D. CONDUIT DUCT BANK.....Section 682.2.06

Conduit duct bank shall be a configuration of high density polyethylene conduits.

E. CONDUIT, NONMETAL, TYPE 3.....Section 682.2.07

F. CONDUIT, FIBERGLASS .....Section 682.2.08

G. PULL TAPE .....Section 682.2.09

H. DUCT PLUGS .....Section 682.2.10

I. CONDUIT DETECTION WIRE .....Section 682.2.11

J. ELECTRICAL COMMUNICATION BOX.....Section 682.2.13

K. ELECTRICAL COMMUNICATION BOX REHABILITATION.....Section 682.2.14

Add the following Subsections: 682.2.02 – 682.2.14

682.2.02 MATERIAL CERTIFICATION

The following chart provides an outline of the submittal requirements for the equipment and components for this pay item. This chart shall be used as a guide and does not relieve the Contractor from submitting additional information to form a complete submittal package.

Submit submittal data for all equipment, materials, test procedures, and routine maintenance procedures required for these items within 60 calendar days after the Notice To Proceed and prior to any installation, unless noted otherwise in the Contract Documents.

Submit to the Engineer for approval, six (6) copies of the manufacturer's descriptive literature (catalog cuts), technical data, operational documentation, service and maintenance documentation, and all other materials required within these Special Provisions.

Provide submittal data that is neat, legible, and orderly. Neatly organize each package of submittal data and separate by hardware item. Use the "Materials Certification Package Index and Transmittal Form", contained in Section 105.02 of the Special Provisions, for each pay item to document and list all material and components that are included in the submittal package. Any submittal data submitted without the index/transmittal form or that is incomplete will be rejected.

Item	Specification Section	Catalog Cuts	Installation Procedure	Installation Equipment	Maintenance Procedures
Marking Tape	682.2.03	X			
Conduit, Nonmetal, Type 2 - Power Service	682.2.04	X			
Multi-Cell Factory Installed Duct System	682.2.05	X	X		X
HDPE Conduit in Duct Banks	682.2.06	X			
Couplings	682.2.06	X	X	X	
Conduit, Nonmetal, Type 3	682.2.07	X			
Couplings	682.2.07	X	X	X	
Conduit, Fiberglass	682.2.08	X			
Pull Tape	682.2.09	X			
Duct Plugs	682.2.10	X			
Conduit Detection Wire	682.2.11	X			
Electrical Communication Box, Type ___	682.2.13	X			
Electrical Communication Box Rehabilitation	682.2.14	X			

Submittal data shall include complete technical and performance specifications on all elements of the conduit system. Below is a sample listing of submittal data requirements by 682.X.X subsection.

For *Subsection 682.2.03 Marking Tape* submit materials submittal data for the marking tape.

For *Subsection 682.2.04 Conduit, Nonmetal, Type 2 - Power Service* submit materials submittal data for the conduit, fittings, pull boxes, and electrical service wire.

For *Subsection 682.2.05 Multi-Cell Factory Installed Conduit System* submit materials data for the conduit system, innerduct, outerduct, coupling body, fittings, accessories, bends and sweeps, installation procedures, and maintenance procedures.

For *Subsection 682.2.06 Conduit Duct Bank* submit materials submittal data for conduit, couplings, and coupling procedures.

For *Subsection 682.2.07 Conduit, Nonmetal, Type 3* submit materials submittal data for conduit, couplings, and coupling procedures.

For *Subsection 682.2.08 Conduit, Fiberglass* submit materials submittal data for conduit, couplings and fittings, and coupling and fittings procedures.

For *Subsection 682.2.09 Pull Tape* submit materials submittal data for pull tape and installation procedure.

For *Subsection 682.2.10 Duct Plugs* submit materials submittal data for duct plugs for empty conduit and duct plugs with cable installed.

For *Subsection 682.2.11 Conduit Detection Wire* submit materials submittal data for conduit detection wire and testing procedure.

For *Subsection 682.2.13 Electrical Communication Box, Type ___* submit materials submittal data for electrical communication box, ring and cover, conduit terminators, cable racks and hardware, sealant, and conduit alignment jigs or spacers.

For *Subsection 682.2.14 Electrical Communication Box, Rehabilitation* submit materials submittal data for cable racks and hardware.

682.2.03 MARKING TAPE SPECIFICATIONS

A. Requirement For Use

When fiber optic cable is installed underground in conduit or directly buried or when empty conduit is installed, install a dielectric marking tape directly over the conduit or cable below finished grade. The tape shall be installed for the full length of the cable or conduit run. When the conduit or cable is in a trench backfilled with full depth concrete, no marking tape shall be installed.

B. Printing

The color of the tape shall be orange with "GEORGIA DOT FIBER OPTIC CABLE-CALL 1-404-624-2661" printed every 6.5 ft (2.0 m).

C. Physical Properties

The tape shall be a dielectric, polyolefin film tape, 0.004 in. (0.1 mm) thick, 3 in. (76 mm) wide. The tape shall be constructed using material and ink colors which will not change when exposed to acids and other destructive substances commonly found in the soil.

The physical test methods along with typical properties and values are specified below:

PROPERTY	METHOD	VALUE
Standard Weight	ASTM-D2103	0.02 lb/ft^2 (0.1 kg/m^2)
Thickness-Overall	ASTM-D2103	0.004 in. (0.1 mm)
3" Tensile Break-MD	ASTM-D882	35 lbf (160 N)
3" Tensile Strength-MD	ASTM-D882	2900 psi (20000 kPa)
3" Tensile Break-TD	ASTM-D882	38 lbf (170 N)
3" Tensile Strength-TD	ASTM-D882	3160 psi (21790 kPa)
Elongation-MD	ASTM-D882	530%
Elongation-TD	ASTM-D822	660%
PPT Resistance-MD	ASTM-D2582	12 lbf (53 N)
PPT Resistance-TD	ASTM-D2582	14 lbf (62 N)
Tear Strength-3" x 8"-MD	ASTM-D2261	24 lbf (110 N)
Tear Strength-3" x 8"-TD	ASTM-D2261	32 lbf (140 N)

PPT – Puncture Propagation Tear
MD/TD – Machine Direction/ Transverse Direction

682.2.04 POWER SERVICE, NONMETAL, TYPE 2 - POWER SERVICE

Install conduit as indicated in the Plans. Conduit and fittings shall be Schedule 40 unplasticized PolyVinyl Chloride (PVC) that meets Federal Specification WC-1904-A. If the conduit is shown in the plans crossing pavement, install the conduit under the pavement via the directional bore method in accordance with Section 615 and Details. If using the directional bore method of installation, install a Schedule 40, UL-listed conduit suitable for being installed via the directional bore method that does not require solvent welds. Install Type 2 pull boxes if in unpaved shoulder or concrete ground mounted electrical junction boxes if in pavement along the conduit route between the electrical service pole and the equipment cabinet requiring power. Install the pull boxes as described in Section 647 and in Details that meet requirements in Section 925 except that the covers should be furnished with the logo "ELECTRICAL". Make any repairs to pavement required as a result of the installation of electrical junction boxes in accordance with Department standards. Within the conduit and pull boxes, install

electrical service wire that meets requirements in Section 922. Install any transformers as may be required because of voltage drops between the electrical service pole and the equipment cabinet requiring power.

682.2.05 MULTI-CELL "FACTORY INSTALLED" CONDUIT SYSTEM

A. DESCRIPTION

The multi-cell conduit system shall be a pre-assembled conduit manufactured from a 4 in. (102 mm) round outerduct containing either 3 or 4 factory installed round innerducts. The innerducts shall be held together in a square (4 conduit system) or triangular (3 conduit system) configuration by a system of spacers, bands, or other mechanism. The coupling system shall be resistant to water infiltration, air loss during cable installation and shall be capable of locking the system tightly together in order to not allow free twisting of the innerducts.

B. OUTERDUCT

All outerduct shall be 4 in. (102 mm) trade size and shall have a nominal 20 ft (6 m) lay length except for the steel conduit which shall have a minimum lay length of 10 ft (3 m). Types to be used shall be designated on the plans or in the proposal. All outerduct shall conform to the following requirements.

1. The outerduct shall have the following identification information:

Line text height shall be at least ½ in. (10 mm). Text labeling shall occur a maximum of every 2 ft (0.6 m). The text shall be indelibly printed in high contrast to the conduit. The text shall be oriented to face up for underground installation; the text shall be oriented to face down for under bridge installation.

2. The duct shall be marked with data which will provide traceability of the manufacturer, plant location, date, shift, and machine of manufacturer.

3. Any additional wording on the conduit, such as "this side up" or "this side down", shall be consistent with the installation orientation.

4. The spigot end of the duct shall have a circumferential insertion depth mark to insure that proper insertion depth is achieved. This mark is not required for spigots with threaded fittings.

C. INNERDUCT

Innerduct shall be manufactured from Poly-vinyl Chloride (PVC) or High Density Polyethylene (HDPE).

D. COUPLING BODY

The multi-cell conduit shall be joined by use of a coupling system which effectively seals the outerducts and innerducts but allows for expansion or contraction in the system.

E. ACCESSORIES AND FITTINGS

The multi-cell conduit system shall be furnished with all necessary fittings and accessories. These shall include, but shall not be limited to, coupling kits, lubrication fittings, repair kits, manhole terminator kits w/plugs, installation accessories, deflection fittings, and epoxy adhesive kits. Each multi-cell system shall offer a complete line of fixed, rigid bends and sweeps. For applications in which the multi-cell conduit system is specified on the Plans and/or by the Engineer to be attached to a bridge or other structure, bridge hanger assemblies, expansion joints, and conduit support devices shall be required. These hanger assemblies, expansion joints, and support devices shall be designed for application to the specific bridge or structure for which they will be used, and their materials and design shall be approved by the Department prior to their use.

F. MATERIALS

Provide the Engineer with Manufacturer's test results for the required testing and certification in accordance with Subsection 106.05 of the Georgia Standard Specifications.

1. OUTERDUCT
   a. Schedule 40, Polyvinyl Chloride (PVC) Conduit - Schedule 40, polyvinyl chloride (PVC) conduit shall conform to the requirements of the National Electrical Manufacturers Association (NEMA) Standards Publication No. TC-6 and 8-2003, Type DB-120, except that the conduit shall be white in color and shall have a minimum 5 in. (127 mm) long integral bell to accommodate the coupling body.

   b. Type "C", Polyvinyl Chloride (PVC) Conduit - Type "C," polyvinyl chloride (PVC) conduit shall conform to the requirements of the National Electrical Manufacturers Association (NEMA) Standards Publication No. TC-6 and 8-2003, Type DB-120, except that the conduit shall be white in color and shall have a minimum 5 in. (127 mm) long integral bell to accommodate the coupling body.

   c. Steel Conduit - Rigid steel conduit shall meet the requirements of Sub-Section 923.2 of The Georgia Standard Specifications. All metal accessories and fitting used with the conduit shall be compatible and shall meet the galvanization requirements of Sub-Section 923. 2.

   d. "Bullet Resistant" Fiberglass Conduit - Bullet resistant fiberglass conduit shall have a minimum wall thickness of 0.250 in. (6.35 mm). The conduit shall prevent the penetration of a 0.45 caliber slug fired from a distance of 20 ft (6 m). The conduit shall conform to the following requirements when tested in accordance with the referenced specification. All accessories and fittings, including outerduct couplings and expansion joints, shall meet all the same "bullet resistant" requirements as the conduit. All conduit and fittings shall be black.

PHYSICAL AND MECHANICAL PROPERTIES	TEST METHODS
Ultimate Tensile Strength - 11,000 PSI (75800 kPa) Min.	ASTM D 2105
Dielectric Strength - 500 Volts/Mil.	ASTM D 149
Water Absorption - 1% Max.	ASTM D 570
Specific Gravity - 1.9 - 2.0	ASTM D 792
Glass Content - 68 +- 2%	API SPEC 15 LR
Barcol Hardness - 58-52	ASTM D 2583

2. INNERDUCT (WITHIN MULTI-CELL)
   Innerducts shall be manufactured from polyvinyl chloride (PVC) or high density polyethylene (HDPE). Innerducts shall be factory treated with an atomized silicone or manufactured in a manner to reduce friction during pulling of fiber optic cable. Innerduct to be used in bends and sweeps shall have a minimum burn through time of 30 minutes when tested in accordance with Generic Requirement GR-356-CORE, Issue 1, October 1995. The dimensions of innerduct shall meet the requirements of the manufacturer's catalog cuts approved by the Department.

   a. PVC INNERDUCT
      PVC innerduct shall be factory treated with an atomized silicone to reduce friction. The innerduct shall conform to the following requirements:

COLOR OF INNERDUCTS	NOMINAL SIZE
3-way (2 gray & 1 white)	1 1/2" (38 mm)
4-way (3 gray & 1 white)	1 1/4" (32 mm)

      Note: The white innerduct shall be located directly under the print line on the outerduct.

      Alternate innerduct colors shall be permitted only when requested in writing and upon receiving written approval from the Engineer.

   b. HDPE INNERDUCT
      HDPE innerduct shall have a permanent dry lubricant extruded within the inner wall and shall incorporate longitudinal ribs within the inner wall. HDPE innerduct shall conform to the following requirements:

COLOR OF INNERDUCTS	NOMINAL SIZE
3-way (yellow, orange, red)	1 1/2" (38 mm)

4-way (red, white, yellow, orange) 1 1/4" (32 mm)

Innerduct colors shall be oriented in a clockwise direction as shown above, looking at the spigot end of the multi-cell conduit system. The white innerduct for 4-way and yellow innerduct for 3-way shall be located directly under the print line on the outerduct.

Alternate innerduct colors shall be permitted only when requested in writing and upon receiving written approval from the Engineer.

3. COUPLING BODY
The coupling body shall be designed with either 3 or 4 bores as required. The coupling body shall be designed so that when the conduit is joined, the outer walls of the innerducts and the inner walls of the outerduct shall be sealed, providing an airtight seal from within the innerduct system and a watertight seal from the outside of the outerduct. The coupling body shall be tested for water tightness and air tightness per Bellcore TA-NWT-000356 and shall conform to the following specifications.

Water infiltration: minimum 11-foot head or more for 7 days
Air Tightness: minimum 100 PSI (690kPa)

4. BENDS AND SWEEPS
Each multi-cell system shall offer a complete line of fixed bends and sweeps. No flexible bends will be permitted. HDPE, PVC, and bullet resistant fiberglass bends and sweeps shall have compatible bell and spigot ends. Steel conduit bends and sweeps shall have compatible threads and reversing couplings for connection to the conduit. PVC innerducts shall not be allowed in bends and sweeps. In no case shall bends and sweeps exceed a 90 degree direction change. Bends and sweeps shall be available as follows:

Fixed Bends: Fixed bends for steel conduit shall be available in no less than 4 ft (1.22 m) radii in 11 1/4 degrees, 22 1/2 degrees, 45 degrees, and 90 degree bends. Fixed bends for PVC and bullet resistant fiberglass multicell conduit shall be available in radii no less than the following:

RADIUS	DEGREE BEND
4 ft. (1.22 m)	11 1/4 degrees
6 ft. (1.83 m)	22 1/2 degrees
9 ft. (2.74 m)	45 and 90 degrees

682.2.06 CONDUIT DUCT BANK

A. MATERIAL

Install Conduit Duct Banks by configuring individual conduits into a continuous duct bank from termination point to termination point as shown in the Standard Details and other Contract Documents. Conduit Duct Bank, Type 1 shall include six 1-¼" (32 mm) conduits and three 2" (51 mm) conduits. Conduit Duct Bank, Type 2 shall include eight 1-¼" (32 mm) conduits and three 2"(51 mm) conduits. Conduit Duct Bank, Type 3 shall include four 2"(51 mm) conduits. Conduit Duct Bank, Type Special shall be as shown in the Plans.

Conduit shall be manufactured from virgin high-density polyethylene. Conduit shall be extruded from colored material for uniform full-thickness coloring. Where striping is required, a minimum of three colored longitudinal stripes of HDPE material shall be co-extruded on the conduit outer wall. The three stripes shall be equally spaced around the circumference and continuous for the entire length of conduit. Printed or embossed striping is not permitted.

All conduit shall be labeled with durable identification giving the name of the manufacturer, conduit size (inner diameter trade size and wall thickness/rating), manufacture/date codes, and sequential foot marking. Labeling shall occur at a maximum of every 2 ft (0.6 m).

Where required in the Contract Documents, conduits shall be located and secured in the conduit duct bank by conduit spacers configured into an assembly that is appropriate for the duct bank type.

1. 1-¼ in. (32 mm) Conduit
1-¼ in. (32 mm) Conduit shall conform to ASTM D-3035 and meet the following requirements:

- Smoothwall SDR 11
- Nominal outer diameter: 1.660 in. (42.16 mm)
- Minimum inner diameter: 1.313 in. (33.35 mm)
- Minimum wall thickness: 0.151 in. (3.84 mm)

2. 2 in. (51 mm) Conduit
   2 in. (51 mm) Conduit shall conform to ASTM D-3035 and meet the following requirements:

   - Smoothwall SDR 11
   - Nominal outer diameter: 2.375 in. (60.32 mm)
   - Minimum inner diameter: 1.885 in. (47.88 mm)
   - Minimum wall thickness: 0.216 in. (5.49 mm)

3. Conduit Spacer
   Conduit spacers shall be steel or molded high impact polystyrene that is resistant to rot and moisture absorption. Spacers shall be manufactured to have an interlocking design such that spacers for different conduits can be assembled for the appropriate duct bank configuration. All spacers on the bottom of an assembly shall be "base" that includes a flat base with a minimum of 6 in^2 (3900 mm^2) of bearing area for each bottom conduit.

B. COUPLING

Make every effort to minimize coupling. Coupling shall only be permitted with the advance permission of the Engineer.

Couplings shall be airtight and watertight. All couplings shall be installed in accordance with the conduit and the coupling manufacturer's recommendations. Only couplings of the type specified below and approved by the conduit manufacturer are permitted.

Couplings shall be accomplished only by hydraulic press-on or electro-fusion coupling methods. Use hydraulic press-on couplings of seamless tool-grade tubular aluminum with sealing barbs and center stop. Use hydraulic compression duct coupling tools and follow all manufacturer's installation procedures, fully inserting both conduit sections to the coupling center stop. Use pre-fabricated electro-fusion couplings that are field-installed using the coupling manufacturer's recommended automatic self-monitoring fusing machine and installation procedures. Do not use any other coupling methods.

C. TERMINATION

Conduit duct banks shall be terminated in electrical communications boxes (ECBs) and pull boxes as shown in the Standard Details of the Contract Documents and in accordance with Section 647. Duct banks terminated in ECBs shall be installed into factory-installed knockout windows only, which shall be fully grouted and sealed around all conduits and to the full thickness of the box wall. Duct banks terminated in pull boxes shall be installed into factory-installed conduit terminators; conduit adhesive sealants recommended by the terminator and conduit manufacturers shall be used.

682.2.07 CONDUIT, NONMETAL, TYPE 3

A. MATERIAL

Conduit shall be manufactured from virgin high-density polyethylene (HDPE). Conduit shall be extruded from colored material for uniform full-thickness coloring. Where striping is required, a minimum of three colored longitudinal stripes of HDPE material shall be co-extruded on the conduit outer wall. The three stripes shall be equally spaced around the circumference and continuous for the entire length of conduit. Printed or embossed striping is not permitted. Unless otherwise noted in the Contract Documents, color code for conduit used for Type 3 installation shall comply with the Conduit Duct Bank Color Code schedule listed on the plan detail sheet. .

All conduit shall be labeled with durable identification giving the name of the manufacturer, conduit size (inner diameter trade size and wall thickness/rating), manufacture/date codes, and sequential foot marking. The conduit shall also be labeled with the following: "Georgia DOT Cable – For Assistance Call 404-624-2661". Labeling shall occur a maximum of every 4 ft. (1.2 m).

1. 1 in. (25 mm) Conduit
   1 in. (25 mm) Conduit shall conform to ASTM D-3035 and shall meet the following requirements:
   - Smoothwall SDR 11
   - Nominal outer diameter: 1.315 in. (33.40 mm)
   - Minimum inner diameter: 1.030 in. (26.16 mm)
   - Minimum wall thickness: 0.120 in. (3.05 mm)

2. 1¼ in. (32 mm) Conduit
   1¼ in. (32 mm) Conduit shall conform to ASTM D-3035 and shall meet the following requirements:
   - Smoothwall SDR 11
   - Nominal outer diameter: 1.660 in. (42.16 mm)
   - Minimum inner diameter: 1.313 in. (33.35 mm)
   - Minimum wall thickness: 0.151 in. (3.84 mm)

3. 1½ in. (38 mm) Conduit
   1½ in. (38 mm) Conduit shall conform to ASTM D-3035 and shall meet the following requirements:
   - Smoothwall SIDR 11
   - Nominal outer diameter: 1.900 in. (48.26 mm)
   - Minimum inner diameter: 1.506 in. (38.25 mm)
   - Minimum wall thickness: 0.173 in. (4.39 mm)

4. 2 in. (51 mm) Conduit
   2 in. (51 mm) Conduit shall conform to ASTM D-3035 and shall meet the following requirements:
   - Smoothwall SDR 11
   - Nominal outer diameter: 2.375 in. (60.32 mm)
   - Minimum inner diameter: 1.885 in. (47.88 mm)
   - Minimum wall thickness: 0.216 in. (5.49 mm)

B. COUPLING

Make every effort to minimize coupling. Coupling shall only be permitted with the advance permission of the Engineer.

Couplings shall be airtight and watertight. All couplings shall be installed in accordance with the conduit and the coupling manufacturer's recommendations. Only couplings of the type specified below and approved by the conduit manufacturer are permitted.

Couplings shall be accomplished only by hydraulic press-on or electro-fusion coupling methods. Use hydraulic press-on couplings of seamless tool-grade tubular aluminum with sealing barbs and center stop. Use hydraulic compression duct coupling tools and follow all manufacturer's installation procedures, fully inserting both conduit sections to the coupling center stop. Use pre-fabricated electro-fusion couplings that are field-installed using the coupling manufacturer's recommended automatic self-monitoring fusing machine and installation procedures. Do not use any other coupling methods.

C. TERMINATION

Install Type 3 conduits in pull boxes in accordance with Section 647 and the Standard Details of the Contract Documents. Unless otherwise shown in the Plans, install Type 3 conduits in different types of underground spaces as follows. Type 3 conduits shall be terminated in electrical communications boxes (ECBs) and Types 6 and 7 pull boxes using factory-installed terminators in the ECB or pull box; conduit adhesive sealants recommended by the terminator and conduit manufacturers shall be used. Type 3 conduits shall be terminated in Types 1, 2, 3, 4S and 5S pull boxes bonded to a PVC sweep through the open bottom. Type 3 conduits shall be terminated in Types 4 and 5 pull boxes directly through cored holes in the side walls in accordance with Section 647.

682.2.08 CONDUIT, FIBERGLASS

A. MATERIAL

Conduit shall be manufactured from fiberglass reinforced epoxy. The conduit shall be "bullet resistant", capable of preventing the penetration of a 0.45 caliber slug fired from a distance of 20 ft. (6 m). The conduit shall conform to the following physical and mechanical properties when tested in accordance with the referenced specification. All accessories and fittings, including outerduct couplings and expansion joints, shall meet all the same "bullet resistant" requirements as the conduit. All conduit and fittings shall be black.

PHYSICAL AND MECHANICAL PROPERTIES	TEST METHODS
Ultimate Tensile Strength - 11,000 PSI (75800 kPa) Min.	ASTM D 2105
Dielectric Strength - 500 Volts/Mil.	ASTM D 149
Water Absorption - 1% Max.	ASTM D 570
Specific Gravity - 1.9 - 2.0	ASTM D 792
Glass Content - 68 +- 2%	API SPEC 15 LR
Barcol Hardness - 58-52	ASTM D 2583

All conduit shall conform to the following requirements:

a. The conduit shall have the following identification information:

Line text height shall be at least ½ in. (10 mm). Text labeling shall occur a maximum of every 2 ft. (0.6 m). The text shall be indelibly printed in high contrast to the conduit. The text shall be oriented to face up for underground installation; the text shall be oriented to face down for under bridge installation.

b. The duct shall be marked with data which will provide traceability of the manufacturer, plant location, date, shift, and machine of manufacturer.

c. Any additional wording on the conduit, such as "this side up" or "this side down", shall be consistent with the installation orientation.

d. The spigot end of the duct shall have a circumferential insertion depth mark to insure that proper insertion depth is achieved. This mark is not required for spigots with threaded fittings.

1. 2 in. (51 mm) Conduit

   2 in. (51 mm) Conduit shall meet the following requirements:
   - Nominal outer diameter: 2.500 in. (tolerance +0.028"/-0.018")
   - [63.50 mm (tolerance +0.71/-0.46)]
   - Minimum inner diameter: 2.000 in. (50.80 mm)
   - Minimum wall thickness: 0.250 in. (6.35 mm)

2. 4 in. (102 mm) Conduit

4 in. (102 mm) Conduit shall meet the following requirements:

- Nominal outer diameter: 4.500 in. (tolerance +0.034”/-0.028”)
- [114.3 mm (tolerance +0.86/-0.71)]
- Minimum inner diameter: 4.000 in. (101.6 mm)
- Minimum wall thickness: 0.250 in. (6.35 mm)

B. COUPLINGS AND FITTINGS

Coupling shall be by epoxy adhesive interference joint with bell and spigot or stop coupling fittings only. Couplings shall be airtight and watertight. All couplings shall be installed in accordance with the conduit and the coupling manufacturer’s recommendations. Only couplings of the same type of fiberglass as specified above are permitted.

Fixed bends and sweeps shall be used; no flexible bends are permitted. Bends and sweeps shall be compatible with the coupling requirements above. Bends and sweeps shall be of consistent radius and inner diameter, with a minimum radius of 10 times the inner diameter. In no case shall bends exceed a 90 degree direction change.

Where the fiberglass conduit is specified in the Plans and/or by the Engineer to be attached to a bridge or other structure, bridge hanger assemblies, expansion joints, deflection fittings, and conduit support devices are required and shall be designed for application to the specific bridge or structure for which they will be used. The Department shall approve all materials and design of bridge-attached conduit systems prior to any field installation. All bridge hanger assembly components that are in contact with the conduit’s outer surface shall be manufactured of the same fiberglass reinforced epoxy material or shall employ low-friction roller bushings.

C. TERMINATION

Fiberglass conduits shall be terminated in ECBs using factory-installed terminators in the ECB or by grouting and setting in a knockout window as shown in the Standard Details of the Contract Documents. Adhesive sealants recommended by the terminator and conduit manufacturers shall be used.

682.2.09 PULL TAPE

A. MATERIAL

Non-detectable pull tape shall be a polyester tape (Fibertek Part No. WP1250, NEPTCO Part No. WP1250P, or approved equal). The tape shall have the following properties:

- 1250 lb (567 kg) tensile strength
- flat, not round, construction
- printed foot markings
- pre-lubricated for reduced pulling tension at start of cable pull
- low susceptibility to absorption of moisture; moisture resistant

Detectable pull tape shall consist of a single 24 AWG copper wire with polyethylene or PVC jacket woven into a polyester tape (Fibertek Part No. WPT1250, NEPTCO Part No. DP1250P, or approved equal). The tape shall have the following properties:

- 1250 lbs. (567 kg) tensile strength
- flat, not round, construction
- printed foot markings
- pre-lubricated for reduced pulling tension at start of cable pull
- low susceptibility to absorption of moisture; moisture resistant
- corrosion resistant embedded conductor

B. INSTALLATION

Install pull tape, by hand pulling, blowing, or via vacuum method, into each empty conduit and innerduct and empty cell within a multi-cell conduit during conduit installation. Install the pull tape after conduit testing has been completed. Install and secure 5 ft (1.5 m) of slacked pull tape in each empty conduit or cell at each vault. Secure the pull tape by tying it to the duct plug for the conduit in which it is installed.

682.2.10 DUCT PLUGS

Install blank duct plugs in each empty conduit that enters an ECB, pull box, hub, or building entrance. The plug shall be sized to fit the conduit in which it is used and shall provide a watertight and airtight seal by use of mechanical expansion. No sealants or caulks shall be used. The duct plug shall have inner rings to which pull tape can be tied. All metallic components shall be stainless steel.

Install a fiber optic innerduct plug in each conduit that enters an ECB, pull box, hub, or building entrance and has a cable installed in it. The plug shall be sized to fit the conduit and cable with which it is used and shall be a split plug with a bushing assembly for sealing around the cable by mechanical compression. All metallic components shall be stainless steel.

Install a multi-conduit duct plug in each conduit that enters an ECB, pullbox, hub, or building entrance and has one or more innerducts installed in it. The plug shall be sized to fit the outer conduit and the innerducts with which it is used and shall have split holes for each innerduct with a bushing assembly for sealing around the innerducts by mechanical compression. Seal unused innerduct holes with the appropriate plug or solid bushing. All metallic components shall be stainless steel.

Install a multi-cable duct plug in each conduit that enters an ECB, pullbox, hub, or building entrance and has two or more cables installed in it. The plug shall be sized to fit the outer conduit and the cables (with appropriately-sized split bushings) with which it is used and shall have split holes for each cable with an overall bushing assembly for sealing around the cable bushings by mechanical compression. Where the conduit is 4-inch I.D. or greater, use a multi-cable duct plug with a minimum of four cable holes. Seal unused cable holes with the appropriate plug or solid bushing. All metallic components shall be stainless steel.

682.2.11 CONDUIT DETECTION WIRE

A. MATERIAL

Conduit detection wire shall be #10 AWG stranded green-insulated THWN or THHN-THWN conductor.

B. INSTALLATION

Install one conduit detection wire in the trench during conduit installation, directly below the conduit or at the same level as the conduit. All conduit installed by use of directional boring shall include the installation of a conduit detection wire. The conduit detection wire shall be pulled with, but not in, the bored conduit. If more than one conduit is being installed in a single bore, only one conduit detection wire shall be required.

When conduit detection wire installation is required in existing conduit, install one conduit detection wire in the existing conduit or in one of the existing innerducts.

The conduit detection wire shall be continuous and unspliced between pull boxes or vaults and shall enter the pull boxes or vaults at the same location as the conduit with which it is installed. Coil and secure 5 ft (1.5 m) of conduit detection wire in each pull box or vault.

C. TESTING

Perform a continuity or tone test after installation to confirm that a continuous run of conduit detection wire was installed between pull boxes or vaults. For conduit detection wire installed in a trench, test the conduit detection wire after backfilling, compaction, and ECB installation is complete. For conduit detection wire installed in a trench with full-depth conduit backfill, test the conduit detection wire before and after backfilling. The purpose of this test is to document that no damage or separation of the conduit detection wire has occurred during the installation of wire, backfilling of the trench, or ECB installation.

Prepare a test plan, supplying equipment, conducting the test and documenting the results. Submit a test plan at least 15 working days prior to the desired testing date. Testing shall not begin until the Engineer has approved the test plan, and all tests shall be conducted in the presence of the Engineer.

682.2.12 CONDUIT TESTING

Test every conduit after the conduit is installed and before cable or pull tape is installed. Perform testing on all conduit types in this Specification, including but not limited to each cell of multi-cell conduit, each conduit in duct banks, and each innerduct. All testing shall be performed using the procedures and mandrel size recommended by the conduit

manufacturer. Testing shall be performed in the presence of the Engineer. Payment for all testing is included in the cost of the conduit.

682.2.13 ELECTRICAL COMMUNICATION BOX

Design electrical communication box and cover in accordance with ASTM C-857-95. Ensure that the walls, floor, and roof be minimum 6 in. thicknesses. Form electrical communication box from 4500 psi concrete in accordance with Section 830. Manufacture and install the electrical communication box in accordance with Details which include the dimensions associated with each type of electrical communication box. Seal all joints and seams in the electrical communication boxes created from manufacture or final assembly with manufacturer-approved sealant.

Form electrical communication box with one (1) knockout window and three (3) conduit terminators for conduit, nonmetal, type 3, 2 in. on each wall of the electrical communication box as shown in the Details. The knockout window shall remain sealed unless used for conduit duct bank termination. Provide 1 in. to 1.5 in. separation between conduit terminators. Install conduit into terminators as shown in Plans and seal with manufacturer-approved sealant.

Install two (2) cable racks, minimum 54 in. in length, on each wall of the electrical communication box as shown in the Details. Install cable racks directly to the wall or use the shortest standoff bracket possible. Include cable support arms, 7 in. to 9 in. in length, with plastic or ceramic insulators with each rack. Install one (1) cable support arm per rack for each cable installed plus one (1) cable support arm per rack as spare. Manufacture all cable racks, cable support arms, and mounting/fastening hardware of hot-dipped galvanized steel.

Install electrical communication box on a 12 in. layer of compacted coarse aggregate. Terminate conduit duct banks as shown in the Details. Prior to grouting, compact backfill for the entire length of trench to within 10 ft. of the electrical communication box. Bundle conduit, as shown on conduit duct bank installation Details, with cable ties, wire, or duct tape. Secure and align individual conduits of conduit duct bank with conduit alignment jigs, ensuring that the conduits enter the electrical communication box level, straight, and perpendicular to the wall. Construct conduit alignment jigs of plywood or use conduit spacers in accordance with Section 682. Allow grout around individual conduits of conduit duct bank to set prior to final backfilling and paving around the electrical communication box. Do not use concrete for any backfill around the electrical communication box or the conduit approaches to the electrical communication box within 10 ft.

Install electrical communication boxes in the shoulder lane whenever possible, unless shown otherwise in the Plans. In the case of narrow shoulder lanes where the electrical communication box extends beyond the edge of pavement, backfill to the top of the electrical communication box. Never install any portion of the electrical communication box in the travel lane.

Electrical communication box covers shall be imprinted with “GEORGIA DOT COMMUNICATIONS”.

682.2.14 ELECTRICAL COMMUNICATION BOX REHABILITATION

Establish the location of the electrical communication box, recognizing that pavement may have been placed over the cover of the electrical communication box.

Open the cover of the electrical communication box which may include the use of power tools to accomplish and the removal of pavement.

Remove existing fiber optic cable coils temporarily ensuring no kinks or abrasions are made to the fiber optic cable.

Clean the interior of the electrical communication box and remove any debris, trash, mud, silt, and water.

Reseal all joints and seams in the electrical communication box with silicone sealant, type A as specified in Section 833.2.06.

Install two (2) cable racks per wall for inside wall widths greater than or equal to 36 in. Install one (1) rack per wall for inside wall widths less than 36 in. but greater or equal to 24 in. Install no racks for inside wall widths less than 24 in. Cable rack height shall be equal to inside height of the electrical communication box minus 6 in. Install cable racks such that the bottom of the cable rack is no greater than 3 in. from the bottom of the electrical communication box. Install cable

racks such that the distance between successive racks and the electrical communication box corners is equal to the extent permitted by the presence of knockout windows and/or conduit terminators. Install cable racks directly to the wall or use the shortest standoff bracket possible. Include cable support arms, 7 in. to 9 in. in length, with plastic or ceramic insulators with each rack. Install one (1) cable support arm per rack for each cable previously installed or being installed as part of the project plus one (1) cable support arm per rack as spare. Manufacture all cable racks, cable support arms, and mounting/fastening hardware of hot-dipped galvanized steel.

Re-set the electrical communication box and cover assembly such that the cover is at the elevation of the paved shoulder lane. Install class A concrete HES and 2 in. of 12.5 mm superpave or concrete surface to match existing paved shoulder.

Label any unlabeled fiber optic cables in accordance with labeling requirements set forth in Section 935.

If a suitable unused conduit terminator does not exist and a conduit is being terminated into an existing electrical communication box, neatly core conduit entry hole in electrical communication box wall and seal around conduit with silicone sealant or grout as necessary to prevent soil and/or water intrusion into the electrical communication box.

Add the following to Subsection 682.3.05:

A. Multi-Cell Conduit System

Secure from the manufacturer or supplier of the multi-cell system and provide to the Department complete and comprehensive written installation manuals for the complete system. At the start of the multi-cell installation, have the manufacturer or supplier provide technical assistance, as needed. At any time during the construction process, ensure that the manufacturer or supplier provides technical assistance to the Contractor and/or the Department.

For multi-cell conduit system installation under bridges, only fiberglass or steel multi-cell conduit systems shall be used. Install expansion and deflection joints according to the multi-cell conduit system manufacturer's and support hanger manufacturer's recommendations. Steel couplings shall be securely tightened; fiberglass coupling shall be epoxied. Ensure that during the construction process and at the request of the Department, the multi-cell conduit system or support hanger manufacturer provides on-site technical assistance at no additional cost to the Department.

B. Continuous Flexible Conduit

Whenever possible, conduits shall be placed in continuous manufactured lengths without coupling.

Conduit shall be placed in the straightest orientation possible, reducing bends, rises, and waves. Conduits shall be held in place during backfilling when necessary to keep straight. Where field conditions require the trench to change direction and bends are necessary, the bends shall be formed in the with the trench and should be smooth and gentle and shall not have less than a 4 foot radius (as measured to the inside surface of the conduit)

Delete Subsection 682.4 and substitute the following:

No items shall be measured separately

Multi-cell conduit system, innerduct, conduit duct bank, fiberglass conduit, and conduit nonmetal type 3 will not be measured separately for payment. Work shall include, but not limited to cutting asphalt or concrete, trenching, installing, backfilling trench, restoring asphalt or concrete, drilling existing concrete shoulder, installing #4 rebar, replacement of existing transverse joint material, directional boring, and testing of multi-cell conduit system, innerduct, conduit duct bank, conduit nonmetal type 3, fiberglass conduit, marking tape, pull tape, duct plugs, and conduit detection wire shall be included in the overall cost of the multi-cell conduit system, innerduct, conduit duct bank, fiberglass conduit, and conduit nonmetal type 3.

Conduit detection wire installed in existing conduit will not be measured separately for payment.

Conduit, nonmetal, type 2 – power service will be not be measured separately for payment. No separate measurement will be made for type 2 pull boxes, electrical junction boxes, electrical wire, directional bores, transformers, pavement repair, or any other required materials.

Electrical communication box, type ____ will not be measured separately for payment. No separate measurement will be made for, cable racks, cable support arms, compacted backfill material, compacted coarse aggregate, pavement removal, or pavement installation.

Electrical communication box rehabilitation will not be measured separately for payment by the electrical communication box that was rehabilitated as previously defined. No separate measurement will be made for cable racks, cable support arms, pavement removal, or pavement installation.

Delete Subsection 682.5 and substitute the following:

Payment for all items shall be made under CONSTRUCTION COMPLETE.

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SPECIAL PROVISION

PROJECT: I-16/I-95
CHATHAM COUNTY
P.I. NO. 0012757 and 0012758

SECTION-797 HUB BUILDING

Section 797 - Hub Building

Add the following:

797.1 General Description

This work includes site preparation, procurement, transportation, and installation of a Hub Building with conduit connections to the size and number of conduits specified in the Plans. Major elements of the hub building include the building components, HVAC, interior electrical distribution system, lighting, fire extinguisher, hub camera, lightning protection system, interior and exterior grounding, and paving and fencing around the hub building. Provide electrical utility connections as needed to provide service to the building. Provide a hub building that meets all local building codes, with electrical installation and wiring conforming to the latest edition of the National Electric Code.

Design the building for the explicit use of housing electronic equipment, fiber optics equipment, measuring devices and other related system components.

797.1.01 Definitions

Not applicable

797.1.02 Related References

A. Georgia Standard Specifications

Section 310 – Graded Aggregate Construction

Section 402 – Hot Mix Recycled Asphaltic Concrete

Section 500 – Concrete Structures (with exceptions as noted in Subsection 737.3.05.A)

Section 643 – Fence

Section 833 – Joint Fillers and Sealers

B. Referenced Documents

National Electric Code, (current edition)

National Fire Protection Association, NFPA 780 – Standard for the Installation of Lightning Protection Systems

Underwriter's Laboratory, UL 96 – Standard for Lightning Protection Components

Underwriter's Laboratory, UL 96A – Standard for Installation Requirements for Lightning Protection Systems

Underwriter's Laboratory, UL 752 – Standard for Bullet Resisting Equipment

ASTM, Designation C33, C330

ACI 318/318R, latest version/addendum

ASCE 7-98, latest version/addendum

ASCE 7-88, latest version/addendum

797.1.03 Submittals

Provide six copies of complete and thorough submittal data to the Engineer for all components of the hub building within 30 calendar days of the Contract Notice-to-Proceed. Include in the submittal data complete technical and performance specifications for all components, materials, wiring, fabrication methods, footing and foundation, and construction methods. Neatly organize each package of submittal data and separate by hardware item. Include an index of all submittal data documents included in the package. In the index, name each submittal data document, the applicable component (including the associated 797.X subsection), and the specific manufacturer model and part number of the item exactly as that item is proposed to be provided. Any submittal data document or documentary item that is not listed in the index will not be accepted for review.

797.2 Materials

A. Type

Install a building that is precast, pre-assembled concrete. Manufacture the precast concrete building inside an enclosed plant building in a controlled environment.

B. Concrete

Use only concrete that is in accordance with Section 500 of the Georgia Standard Specifications with the following exceptions:

- Compressive strength shall be 4000 psi (30 MPa) at 28 days.
- Mix design shall be 114-118 lb./ft^3 (1830 – 1890 kg/m^3) structural light weight concrete using expanded shale or expanded clay aggregation in accordance with ASTM Designation: C33 or C330. Use a homogeneous mix.

797.2.01 Delivery, Storage and Handling

Contractor shall be responsible for secured handling, storage, and delivery of the hub building. Prior to Contractor's procurement of the hub building, submit the hub building manufacturer guidelines for handling and storage of the hub building. Do not deliver the hub building to the building site until the site has been made ready to install the hub building.

797.3 Construction Requirements

797.3.01 Personnel

Not applicable

797.3.02 Equipment

Not applicable

797.3.03 Preparation

Survey the building site and perform any necessary grading to facilitate installation. Per Section 797.1.03, submit for review and approval foundation design as per Section 797.3.05.K that have been signed and sealed by a Georgia Professional Engineer. Place the building in a level position on the approved foundation. Ensure positive drainage away from the building.

797.3.04 Fabrication

Install a building with dimensions as specified in the Plans. The width and length of the building is specified to the outside of the finished walls. Measurements are either 12’ x 16’ (3.7 m x 4.9 m), 16' x 24' (4.9 m x 7.3 m) or 32’ x 24’ (9.8 m x 7.3 m).

Maintain an interior building height of 9'-6" (2.9 m) minimum from finished floor to finished ceiling.

797.3.05 Construction

A. Structural

Ensure that structural design and manufacturing conform to the requirements of ACI 318/318R, latest version/addendum.

Design the shelter for the following loading:

- Floor - uniform distributed load of 140 psf (680 kg/m^2) per ASCE 7-98, latest version/addendum
- Roof - roof snow specifications of 50 psf (240 kg/m^2) per ASCE 7-98, latest version/addendum
- Roof - dual roof air conditioning units live load specifications to meet manufacturer’s recommendations, including safety factor per ASCE 7-98, latest version/addendum.
- Wind - basic wind speed specifications of 115 mph (185 km/h) per ASCE 7-98, latest version/addendum
- Earthquake - Seismic Zone 2A, per ASCE 7-88, latest version/addendum

B. Floor Section

Include an 8" (200 mm) waffled structural precast concrete floor section. Use ribs that are 2'-0" (0.61 m) O.C. longitudinal and make all surfaces smooth.

Cover the interior surface with 1/8" (3.175 mm) vinyl floor covering (sheet or squares), bonded with a waterproof contact adhesive.

C. Roof Section

Use a concrete roof section with 96:1 drainage slope that slopes in two directions. Install a layer of impervious, UV resistant, non-corrosive, non-degradable material on top of the roof deck.

Install ceiling insulation and interior finish of R-9 foam insulation covered with minimum 0.7" (18 mm) thick plywood laminated with white vinyl or fiberglass reinforced plastic. Install plastic joint or corner trim at all panel joints.

Provide a 1.5 in. to 3 in. (40 mm to 80 mm) overhang on all sides of the roof section. Cap the roof over the walls, leaving no exposed roof to wall joint.

D. Wall Sections

Use solid concrete wall sections that are cast in one piece to minimize joints, with an exterior wood float finish followed by steel troweling leaving a uniform surface free of depressions or ridges. Install on the exterior wall an aggregate tan pebble rock finish in accordance with the building manufacturer’s specifications.

Install wall insulation and interior finish of R-9 foam insulation covered with minimum 0.7" (18 mm) thick plywood laminated with white fiberglass reinforced plastic. Install plastic joints or corner trim at all panel joints.

Finish the floor/wall intersection with 4" (100 mm) vinyl baseboard.

Extend the walls a minimum of 7" (200 mm) below the top of floor surface. Ensure that there is no exposed wall to floor joint.

E. Joints

Seal all joints with a sealant in accordance with Section 833 of the Standard Specifications.

Do not expose roof to wall or wall to floor joints.

F. Exterior Walls and Roof

Seal exterior surfaces of walls and roof with two coats of thoroglazed H Sealer, or acceptable equal in strict conformance with manufacturer's instructions, unless otherwise noted.

Seal all penetrations of the wall or roof for conduits, cabling, or HVAC vents with sealant in accordance with Section 833 of the Standard Specifications.

G. Door

Install a door frame(s) that is (are) 18 gauge galvanized steel, primed, painted brown and cast into the wall panel.

Install a door(s) that is (are) 3'x 7'x 1-3/4" (900 mm x 2100 mm x 45 mm) 18 gauge galvanized steel, insulated, primed, painted brown, and installed flush with door check. Include door stop, weather-stripping, hydraulic door closer, mortise lockset with deadbolt and stainless steel ball bearing hinges.

Provide three (3) sets of hub building keys to the Engineer no more than 18 hours after hub building installation.

H. Electrical System

1. Distribution

From the hub electrical power service assembly install 200 A 120/240 V main service entrance with exterior auxiliary disconnect and 42 position load center. From the Type 2 pull box outside the hub to the auxiliary disconnect, install 2 in. (50 mm) galvanized rigid steel conduit for the electrical service cable. Install an auxiliary disconnect enclosure that is UL-listed, rated for outdoor use, and does not have external handles or switches. Include a hinged door on the enclosure that has provisions for locking by means of a padlock. Mount the auxiliary disconnect on the exterior hub building wall directly opposite of the load center. Install a power distribution system that provides two 120 VAC, 20 A dedicated circuits to the vertical power strips on each of the fifteen (15) proposed and future equipment racks and frames or on each of the twelve (12) proposed and future equipment racks and frames for the 12' x 16'hub building. Mount two twist-lock receptacles (one per circuit) in boxes on the ceiling directly above each of the fifteen (15) proposed and future equipment rack and frame installation locations or on each of the twelve (12) proposed and future equipment racks and frames installation locations for the 12' x 16'hub building. Provide a dedicated 240 VAC circuit for each HVAC unit.

Install one grounded duplex outlet with GFCI breaker every 6.0 ft. (1.8 m) on each hub building interior wall, and install one grounded duplex outlet with GFCI breaker that is rated for outdoor use on an exterior hub building wall. Provide one dedicated 20 A circuit for interior convenience outlets and one for the exterior convenience outlet.

Install eight 4 ft. (1 m) fluorescent lights (two bulb fixtures) per 384 ft^2 (35.7 m^2) with one inside switch that is labeled for the interior lights. Install two lights behind each row of proposed equipment frames and racks, no more than 2.5 ft. (0.76 m) from the interior hub walls. Refer to the details for equipment frame/rack layout. Install the remaining four lights in front of the rows of proposed equipment frames and racks. Install all lights to provide lighting throughout the hub building. Install lights such that overhead cables, cable runways, or equipment frames and racks do not block the light. Provide a dedicated circuit for the hub interior lighting.

Install a lightning/surge arrestor at the load center for 120/240V, single phase, 3 wire plus ground that meets the following minimum requirements:

- Mounted in a metal enclosure with LED module status indicators on the enclosure cover
- Connected in parallel
- Rated for a service entrance or distribution panel
- Permanently connected
- Internal overcurrent protection — 200 kAIC
- Protection modes — L-N, L-G, N-G
- Suppression voltage, L-N, L-G, N-G — 400 V
- Surge energy capability, 10/1000 µs, total — 5000 joules
- Component response time — 1 ns

- Operating temperature -25 to 170°F (-32 to +77°C)

Install alarm circuit wiring (as specified in 797.3.05.H.2), HVAC control wiring and electrical wiring separately in individual surface mounted EMT conduits.

2. Alarm Equipment

Install an alarm terminal panel, wall mounted 12 in. (H) x 8 in. (W) x 4 in. (D) [300 mm (H) x 200 mm (W) x 100 mm (D)] equipped with 50 pair type 66 punch down terminal blocks. Terminate the surge arrestor alarm circuit and each alarm circuit individually for the open door, high temp., low temp., and smoke alarms on type 66 blocks within the alarm terminal cabinet. Label each alarm terminated on the punch down blocks.

Install open door alarm, high temp alarm, low temp alarm, and smoke alarm with dry relay contacts for normally closed or normally open alarm conditions. (This will interface to communication alarm system; by others).

The building manufacturer shall furnish alarm equipment of a quality equal to or greater than the following examples:

Open Door Alarm:	Rohn Commercial Products ESSWITCK Southeast Precast DTX MS2049FS
High Temp. Alarm:	Rohn Commercial Products ES ALARM AC Southeast Precast Dayton 2E 206
Low Temp. Alarm:	Rohn Commercial Products ES ALARM AC Southeast Precast Dayton 2E 206
Smoke Alarm:	Rohn Commercial Products ES SMOKE DET Southeast Precast ESL 320

3. Cable Runway

Install minimum 24 in. (0.61 m) wide cable runways that are electroplated gold chromate. Cap bare ends of each cable runway with a rubber or plastic cap provided by the cable runway manufacturer. Bond all horizontal and vertical cable runways together at each rigid connection point with copper bonding wires, and bond the four corners of the horizontal cable runway system to the halo bonding wire.

Install horizontal cable runways at 8.5 ft. (2.6 m) above finished floor and as shown in the details. Rigidly mount horizontal cable runways directly from the ceiling using mounting hardware capable of supporting the weight of 15 lb per linear foot of runway. Include with the horizontal cable runways a system of 2 in. (50 mm) ducts designed specifically for the management and protection of fiber optic jumpers as shown in the details; ducts shall connect with the vertical cable management ducts of the Equipment Frames.

Ensure horizontal cable runways do not interfere with vents from roof mounted HVAC units.

Install vertical cable runways 10 in. to 14 in. (250 mm to 360 mm) above finished floor at the fiber optic cable/conduit entry point to the height of the horizontal cable runways and as shown in the details. Do not install vertical cable runways directly above the conduits. Rigidly fasten vertical cable runway(s) to the wall and to the horizontal cable runway. Rigidly mount vertical cable runways directly from the ceiling using mounting hardware capable of supporting 200 lb of weight. Do not attach vertical cable runways to the floor.

4. Exterior Lighting

Install an exterior floodlight as shown in the details controlled by an adjustable motion detector with a switch, labeled for the exterior light, located inside the hub building near the door.

5. Grounding System

Install a halo bonding wire consisting of a continuous run of #2 AWG green insulated stranded copper wire mounted around the perimeter of the interior walls just below the ceiling, as shown in the details. Mount the halo with insulators, maximum 3 ft. (1 m) on center.

Install two (2) halo buss bars and two (2) interior main ground buss bars as shown in the details. Use 0.25 in. x 4 in. x 20 in. (6.4 mm x 100 mm x 500 mm) buss bars fabricated from a copper alloy material compatible with copper wire. Only use buss bars for termination of ground or neutral conductors. Install buss bars to the hub building walls with insulating standoffs. Install each halo buss bar directly above each interior main ground buss bar. If a hub building is constructed as two rooms without a door between them, install two (2) halo and two (2) interior main ground buss bars in each room.

Terminate the ends of the halo bonding wires on the halo buss bars, such that there are two terminations on each halo buss bar. Do not splice the halo bonding wires between halo buss bars. Connect each halo buss bar to the interior main ground buss bar directly below it with a #2 AWG stranded copper bonding wire. Mount the bonding wire to the interior hub building wall with insulators, maximum 2 ft. (0.6 m) on center.

Use minimum #12 AWG stranded copper bonding wire and copper compression lugs or clamps to individually bond all metallic items inside the hub building to the halo bonding wire, including but not limited to metal conduits, cable runways, and door frame. Do not daisy-chain or splice bonding wires, unless specified otherwise. Inside the hub building, bond the hub door to the door frame 6 in. (150 mm) from the top of the door frame with a #6 AWG flexible copper wire or braid of sufficient length to not hinder door movement. Ground equipment racks and frames installed in the hub building by installing a #12 AWG copper bonding wire across the top of all frames and racks. Bond the wire to the top of each frame and rack, and bond the ends of the wire to the halo.

6. HVAC

Install two roof-mounted air conditioners with dehumidifying capability and 4 kW heat strip all controlled from a single thermostat with automatic change over from heating to cooling. Each unit shall have a cooling capacity of 93 BTUs per square foot of hub building space. The units are to be operated by an air conditioner LEAD/LAG controller. The air conditioner controller shall include a contact closure output to report the failure of either of the two air conditioning units.

I. Fire Extinguisher

Provide a 15 lb. wall mounted CO_2 fire extinguisher rated for electrical fires (UL 10B:C). Install the fire extinguisher inside the hub building at the location shown in the details.

J. Fencing

Install an 8 ft. (2.4 m) high, 9 gauge zinc coated chain link fence with double 8 ft. (2.4 m) wide gates. Install 3-strand barbed wire with extension arms on the fence and gates. Provide fencing in accordance with Section 643 of the Georgia Standard Specifications. Install the fence and gates as shown in the details.

Secure the double gates with a padlock at the time of fence installation. Provide three (3) sets of padlock keys to the Project Engineer no more than 18 hours after padlock installation.

K. Foundation

Place a concrete foundation in accordance with the hub manufacturer's recommendations. All aspects of the final site-specific foundation design are the Contractor's responsibility, including but not limited to soil analysis and determination of allowable soil bearing strength, all footing and slab dimensions, requirement and design for inner footings, and steel reinforcing members. Design the concrete foundation as a monolithic cast-in-place slab with cast footings at the hub exterior walls as a minimum and a footprint with dimensions equal to the hub building. Use concrete with a minimum strength of 3000 psi (21 MPa) at 28 days. Build the concrete foundation with a minimum thickness of 6 in. (150 mm) in any section.

In the entire upper slab, embed a minimum 6 in. by 6 in. (150 mm by 150 mm) #10 welded steel wire mesh a minimum of 2 in. (50 mm) from upper or lower slab surfaces.

Install footings at a minimum depth of 18 in. (460 mm) below finish grade with a lower horizontal bearing surface no less than 15 in. (380 mm) wide at any point. For all footings, use a minimum of four #4 steel reinforcing bars along the entire footing length with a minimum 3 in. (75 mm) concrete cover in any direction. Connect all steel reinforcing members directly to the exterior ground ring with a minimum #6 AWG solid copper ground wire at each of the four corners of the slab. Do not connect the slab ground wires to any other ground wire. Provide a minimum 20 mil PVC or polyethylene sheet vapor barrier under the slab and under all footing side and bottom surfaces, except for the side footing surface at the exterior edge of the foundation.

If concrete piers are required by the Plans, construct them to the diameter, depth and number as specified in the building manufacturer's specifications. Install prefabricated concrete steps to building's entrance if the ground is a foot or more lower than the entrance.

Securely anchor the building in accordance with the manufacturer's specifications.

L. Outside Grounding

Install an exterior earth-ground ring as shown in the details, consisting of a system of ground rods connected to a ring of a #2 AWG, stranded bare copper ground wire. Install the ground rods and ground wire at a depth of 1 ft. (0.3 m). Provide access for inspection of the top of the ground rod and the ground wire welded to the ground rod in Type 1 or Type 2 pull boxes meeting the requirements of Section 925.2.33. Do not splice the ground wire between ground rods. Terminate the ground wires only at ground rods. Install a ground system with measured and documented resistance of no more than five (5) ohms. Install an active electrolytic system if soil conditions require this additional system to achieve five (5) ohms or less of grounding resistance.

Use exothermic welds or two-bolt ground rod clamps with preset break-off bolt heads (Electric Motion Company Part #EM2301-01 or approved equivalent) for making all connections from copper ground wires to the ground rods.

Connect the building foundation wire mesh reinforcing to the outside grounding array at each corner of the building using #2 AWG stranded bare copper ground wire.

Ground each building interior main ground buss bar and the hub electrical distribution system through the load center and/or auxiliary disconnect to the nearest ground rod. Use buss bar ground wires that are #2 AWG, stranded bare copper ground wire. For the buss bar ground wires and hub electrical distribution system ground wires, core the hub building wall with maximum 1 in. (30 mm) hole for each ground wire entry. Install the ground wires for the buss bar and hub electrical distribution system connections to the exterior earth ground ring in individual rigid metal conduits inside and outside the hub, not including underground installation. Seal around the rigid conduit connections to the inside and outside hub building walls with masonry grouting on the outside wall and waterproof silicone caulk on the interior wall. Do not use expanding foam or caulk products. Install underground ground wires at a depth of 1 ft. (0.3 m).

Bond the metallic portion of each air conditioner housing that is on the hub building exterior to the nearest ground rod with #2 AWG stranded bare copper ground wire. Terminate the wire to the bottom of the air conditioner housing with copper compression lugs and use insulators to fasten along the hub building wall to the ground level. Bury the remainder of the ground wire underground at a depth of 1 ft. (0.3 m) to the ground rod connection.

Install a #6 AWG stranded bare copper wire along the entire length of the fence, ending at the gate support posts, by weaving the wire through the chain links. Bond or clamp the wire to each fence support post. Make any splices of the copper wire at a fence or gate support post. Weave a #6 AWG stranded bare copper wire through the chain links of both gates of the double gate. Bond or clamp both wires at the gate ends. Bond each of the four fence corner posts and the two gate support posts to the nearest ground rod of the exterior earth ground ring with #6 AWG copper wire that is installed underground at a depth of 1 ft. (0.3 m). Alternately, bond the fence to the ground ring by clamping the earth ground ring copper wires to the fence copper wires at the six fence posts. Bond each gate to a gate support post with a #6 AWG flexible copper braid of sufficient length to not hinder gate movement. Install braid at a height 6 in. (150 mm) from the bottom of the gate.

Install one air terminal on each of the four roof corners, not more than 1 ft. (0.3 m) from the edge of the roof. Use 0.5 in. (12.7 mm) diameter, solid copper air terminals that are 2 ft. (0.6 m) in length with a rounded point. Install air terminals with lag bolts or through bolts. Bond air terminals to the nearest roof and down conductors. Do not use cast or stamped crimp type fittings. Install a No. 1/0 AWG copper cable roof conductor along the perimeter of the roof. Exothermically weld roof conductors to air terminals. Make roof conductor splices only by welding to an air terminal. Install two (2) No. 1/0 AWG copper cables down conductors at diagonally opposite corners of the hub building. Exothermically weld down conductors to air terminals and ground rods. The maximum bend for roof and down conductor cables is 90 degrees with a maximum bend radius of 8 in. (200 mm). Fasten roof and down conductors to the hub building at intervals not exceeding 3 ft. (0.9 m). Use fasteners fabricated of the same material as the conductor being fastened. Attach fasteners with bolts, screws, nails, or adhesive that can withstand a 200 lb (890 N) pull without loosening. Install underground portions of the down conductors at a depth of 1 ft. (0.3 m).

M. Hub Camera

Provide a black and white fixed-position security camera that meets or exceeds the following requirements:

- Camera Enclosure: Install the camera body with camera lens in a surface mount enclosure with maximum dimensions of 6 in x 6 in x 6 in (150 mm x 150 mm x 150 mm)
- Lens: Equip the camera with auto-iris function and a 4.0 – 8.0 mm manually driven variable focal length lens that is compatible with the CCD image sensor. Effective CCD and lens combination minimum of 0.08 lux at f1.4.
- Video Output: NTSC output with a minimum of 460 horizontal TV lines

- Power: Provide a camera powered from a 120VAC NEMA 5-15 or 5-20 receptacle. If the camera receives power through an external plug in transformer unit, provide a transformer unit that is rated for continuous duty and that is equipped with a mounting screw to secure the transformer unit to the receptacle faceplate mounting screw position.
- Cabling: Provide interconnection cabling as shown in the Plans and in accordance with the requirements for coaxial video patch cords in Section 939.2.A. Provide the camera with coaxial BNC or RCA connector. If the camera uses an RCA connector, provide an RCA-BNC adapter at the camera with gold-plated center pin sockets and shield connection.

Install the camera near the intersection of the wall and ceiling, in a position affording the maximum view of the hub interior and without visual obstruction from cable runways or other materials. Refer to the details for additional installation requirements. Configure the camera mounting and positioning and the lens focal length to maximize the view of the hub interior.

Install a 120VAC 5-15 or 5-20 wall-mount receptacle within 1.0 ft. (0.30 m) of the camera mounting location. Use a branch circuit for the camera receptacle that is separate from any circuit supplying equipment racks and frames.

Neatly dress all wiring.

N. Canopy

Mount a fiberglass canopy above the hub building door that is a minimum of 3.5 ft. (1.1 m) wide and extending 3.5 ft. to 4.5 ft. (1.1 m to 1.4 m) out from the hub building.

O. Electrical Power Service Assembly

Furnish and install electrical cables, conduit and power service necessary to make the hub building electrical system fully operational and in accordance with the Standard Specifications for Electrical Wire and Cable, Electrical Conduit, and Miscellaneous Electrical Materials. Include the underground or aerial power service feed from the electrical service provider's power source to the electrical power service assembly location. Request that the Department establish the electrical service required for a hub installation as described in Section 939.

Furnish and install all items required for a functional electrical power service assembly, including but not limited to a Class 3, 30 ft. (9 m) timber pole, main power service disconnect, power meter (if required), surge arrestor, ground wire, ground rod, rigid vertical conduit, wiring, and hardware. Install a main power service disconnect that is sized according to the hub building power service requirements specified in the Electrical System Distribution section of 797.3.05. Install a main disconnect enclosure that is UL-listed, rated for outdoor use, and does not have external handles or switches. Include a hinged door on the enclosure that has provisions for locking by means of a padlock. Install a surge arrestor that is rated for a maximum permissible line to ground voltage of 175 RMS and that conforms with the NEMA standards for surge arrestors. Mount the surge arrestor on the main disconnect enclosure. Install a ground wire in a ½ in. (12.5 mm) galvanized rigid steel conduit from the main power service disconnect to a ground rod installed at the base of the pole. From the Type 2 pull box at the base of the pole to the main disconnect, install a 2 in. (50 mm) galvanized rigid steel conduit for the electrical service cable. Furnish and install a service metering base where required by the local utility, electrical codes, or the Plans. Refer to the electrical power service assembly details for additional installation and material requirements.

Install an electrical service Type 2 pull box at the base of the electrical power service assembly pole and adjacent to the hub building. Between these pull boxes, install nonmetal, Type 2, 2 in. (50 mm) conduit for electrical service cable installation. Where the distance between these pull boxes is greater than 500 ft. (150 m), install a minimum of one electrical service Type 2 pull box for every 500 ft. (150 m) of uninterrupted conduit length. Install electrical service cable from the main disconnect at the electrical power service assembly to the auxiliary disconnect at the hub in the conduits and pull boxes specified within this section and the Electrical System Distribution section of 797.3.05. Provide an electrical service cable that includes ground conductor that connects between the main disconnect buss bar at the electrical power service assembly and the buss bar of the auxiliary disconnect buss at the hub. Do not use electrical service conduit in place of the ground conductor.

Use rigid metal for all aboveground electrical conduit and conduits bodies. For each hub building power service drop, dedicate an electrical service conduit from the electrical utility drop point through the meter base and main disconnect and to the hub building. Do not install any other wiring in the electrical service conduit. Do not splice any cable, shield or conductor used for power service.

P. Driveway, Approach, Parking Area

Place and compact 6 in (150 mm) of graded aggregate base to the limits shown in the Plans in accordance with Section 310. Place asphaltic concrete of the depth and type specified in the Plans to the limits noted in the Plans, and in accordance with Section 402.

797.3.06 Quality Acceptance

A. Operating Environment

Seal the shelter to resist dust and water infiltration.

B. Exterior

Install a building that can withstand 7.62 mm round fired from a rifle at a distance of 15 ft. (4.6 m) per UL 752 standards.

Install a canopy that can withstand wind loading of 115 mph (185 km/h).

C. Testing

Test the grounding system in the presence of the Engineer.

797.3.07 Contractor Warranty and Maintenance

Provide a one-year warranty on the building structure, as well as usual and customary O.E.M. warranties on all equipment installed in the building.

797.4 Measurement

Hub Buildings are measured for payment by the number installed, complete functional, and accepted, including the building components, HVAC, interior electrical distribution system, interior and exterior lighting, fire extinguisher, hub camera, lightning protection system, interior and exterior grounding, foundation, graded aggregate base, and fencing around the hub building, and any miscellaneous incidental items necessary to complete the work..

797.4.01 Limits

Not applicable

797.5 Payment

Hub Buildings, complete and in place according to this Specification and accepted by the Department, are paid for within the lump sum Contract Price. No separate payment shall be made. Payment is full compensation for procurement, transportation, site preparation, grading, installation, fees, and permits. Payment for horizontal runs of conduit and copper cable outside the hub building, pull boxes, and directional boring that are associated with the power service assembly for the hub building are also included in the Lump Sum Contract Price. No separate payment shall be made.

797.5.01 Adjustments

Not applicable

March 6, 2007
Revised: August 10, 2012
(Design Build)

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SPECIAL PROVISION

Section 940 - NaviGAtor Advanced Transportation Management System Integration

Add the following:

940.1 General Description

This work includes coordination and integration of the project into the Department's NaviGAtor advanced transportation management system to provide a complete and fully operational expansion of the Department's NaviGAtor system as shown in the Contract Documents.

An example project follows:

Project scope includes installation of communications and field equipment that will provide information to the Transportation Management Center (TMC) and other facilities. The backbone of the communication system is a fiber optic cable infrastructure utilizing IP protocols over Ethernet technology. Ethernet switching equipment is used to transport the data from field devices to hub buildings. Routing equipment at the hub-building routes the data to the TMC and other facilities as needed. Cameras will provide video for traffic surveillance and vehicle detection. Changeable message signs and surveillance cameras will be controlled from the TMC. Ramp Metering Operation will communicate with the NaviGAtor System using center-to-center communication between NaviGAtor and ACTRA. ACTRA will communicate to the Ramp Metering firmware.

Each hub-building and assigned field devices are configured as an IP subnet within the GDOT overall network. Each field device (VDS processor, CMS controller, video encoder and decoder) incorporates its own IP address. Each field device will connect to a field switch at the equipment cabinet. The field switches (located in the equipment cabinets) will be daisy-chained using GBIC optical links to form a string. The ends of the daisy-chained switches are terminated at different hub buildings.

Make communications between the surveillance cameras and the network by means of Ethernet video encoders as shown on the Plans. Make communications from the VDS sites by means of Ethernet compatible video detection system processor(s) at each VDS site. Make communications between the CMS and the network by means of CMS controllers incorporating Ethernet ports. Make communication between the ramp metering operations and the network using an Ethernet field switch within the Ramp Meter Controller Cabinet.

At the hubs buildings, data communication arrives through the field switches using Layer 2 protocols. At the hub building routers will disseminate the data as needed across the backbone network.

Video decoders will be used for decoding of the video images at specific locations as shown on Project Plans.

At Project completion, a complete and useable system comprised of all components involved in the Project will be established.

940.1.1 Related References

A. Georgia Standard Specifications

Section 631 – Permanent Changeable Message Signs

Section 647 – Traffic Signal Installation

Section 797 – Hub Buildings

Section 925 – Traffic Signal Equipment

Section 935 – Fiber Optic System

Section 936 – Closed Circuit Television System (CCTV)

Section 937 – Video Detection System

Section 938 – Microwave Radar Detection

Section 939 – Communication and Electronic Equipment

B. Referenced Documents

Not applicable

940.1.2 Submittals

Submit six copies of the Integration Plan to the Engineer within 15 days of Contract Notice to Proceed. Submit six copies of the Acceptance Test Plan to the Engineer within 45 days of Contract Notice to Proceed.

940.2 Materials

Not applicable

940.3 Construction Requirements

Not applicable

940.3.1 Personnel

Not applicable

940.3.2 Equipment

Not applicable

940.3.3 Preparation

Not applicable

940.3.4 Fabrication

Not applicable

940.3.5 Construction

Not applicable

940.3.6 Quality Acceptance

If, in the Department's judgement, the Contractor is not demonstrating progress in solving any technical problem, the Contractor may be directed to supply Factory technical representation and diagnostic equipment at no cost to the Department until satisfactory resolution of those defined problems.

The Engineer may direct any completed or partially completed portions of the project placed in service. Such action cannot be deemed an acceptance of the project in whole or in part, nor shall such action be construed as a waiver by the Engineer of any provision of the specifications. Assume no right to additional compensation or extension of time for completion of the work. Fully maintain all equipment until final acceptance, which includes but is not limited to equipment configuration and communication systems that are being integrated.

Perform all acceptance testing in the presence of the Engineer. Notify the Engineer of a desired acceptance test no less than fourteen calendar days prior to beginning the testing except for testing using the NaviGAtor software and existing NaviGAtor control center and communications equipment. For acceptance testing using the NaviGAtor software and existing NaviGAtor control center and communications equipment, coordinate the testing schedule with the Engineer no less than 30 days prior to the start of this testing. Do not conduct any testing during any State or Federal holiday.

Ramp Meter Testing

The Contractor shall submit to and obtain approval from the Engineer a ramp metering testing procedure for each specific ramp meter location. The testing procedure shall demonstrate that all components: hardware, cable, and connections furnished and installed by the contractor operates correctly and that all functions are in conformance with the specifications. Testing requirements are also outlined in Section 647.

The Department will provide controller firmware. The Contractor shall provide the controller to the Department. The Department will load the firmware into the controller and return to the Contractor

At a minimum, the Contractor shall demonstrate to the Engineer:

- The I-VDS and loop detectors at each location are functioning with expected accuracy as specified.
- The ramp meter signals function properly at all stages, including non-metering, startup, metering, and shutdown.
- In multi-lane configurations, the ramp meter can operate a simultaneous release of vehicles from all lanes and as well as an alternating or staggered release of vehicles from the two (or three) lanes..
- Queue detectors are functioning as specified, including both queue detection and queue override.
- The ramp meter functions properly for both local traffic responsive and time of day operations.
- The advance warning sign can be clearly seen and can be activated and deactivated properly.
- The ramp meter can communicate properly with the Hub/TMC.
- The traffic enforcement heads are operating as per the plans and can be seen by enforcement personnel.

The Contractor shall coordinate closely with the NaviGAtor system integrator for conducting ramp meter operational tests. Note: Pretest should be performed prior to calling the Engineer for inspection. Pretest shall be defined as all tests that will be performed during the Engineer's inspection. Begin operational tests after the Engineer is satisfied that all work has been completed. After the ramp meter has been placed in operation, the contractor, in coordination with the system integrator, shall demonstrate that all equipment furnished and installed by the Contractor operates with all software and firmware as specified.

After successful completion of the test procedure, each ramp meter assembly shall go through a burn-in period for 30 consecutive days of normal ramp metering operations. During the burn-in period, the Contractor shall ensure that all Contractor-supplied equipment operates without failures of any type. If any equipment component malfunctions or fails to provide the specified functionality during the 30-day burn-in period, the Contractor shall replace or repair the defective equipment within 48 hours of notification by the Engineer.

After the malfunctioning component(s) have been repaired or replaced to the satisfaction of the Engineer, the Contractor shall begin a new 30-day burn-in period. The new 30-day burn-in period shall apply only to equipment components supplied by the Contractor. In the event of a failure or malfunctioning of equipment furnished by others which prevents the 30-day burn-in test from continuing, the Engineer will suspend the burn-in test and resume when the other equipment failures are corrected.

940.3.7 Contractor Warranty and Maintenance

Not applicable

940.3.8 Training

Not applicable

940.4 Measurement

The Department will pay all costs of coordination with and integration of the project into NaviGAtor under the integration pay item when the pay item is included in the Contract. The integration pay item is measured as a lump sum for all supplies, materials and subsistence it requires.

When the integration pay item is not included in the Contract, all costs of coordination with and integration of the project into NaviGAtor with all supplies, materials and subsistence it requires shall be included in other Contract items. The Department will make no separate payment for integration.

940.4.01 Limits

Not applicable

940.5 Payment

The Department will pay for integration that is complete, in place and accepted by the Department. Payment is full compensation for the work.

Payment for Section 940 is made under:

Item No. 940	Integration	Lump Sum

– or –

Not applicable [when the Integration pay item is not included on the job.]

940.5.01 Adjustments

Not applicable

Georgia Department of Transportation

Technical Provisions

For

Design-Build Agreement

P.I. Nos. 0012757 and 0012758

Attachment 17-2

SS 631 – Permanent Changeable Message Signs

SS 926 – Wireless Communications System

SS 935 – Fiber Optic System

SS 936 – Closed-Circuit Television (CCTV) Camera System

SS 937 – Detection Systems

SS 939 – Communications and Electronic Equipment

August 2, 2017

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SUPPLEMENTAL SPECIFICATION

Section 631—Permanent Changeable Message Sign

Delete Section 631 in its entirety and substitute the following:

631.1 General Description

Furnish, install, test, and provide warranty and training for dynamic message signs (DMS) and other components and materials as specified herein and shown in the Contract documents.

631.1.1 Definitions, Acronyms, and Abbreviations

A. Definitions

1. **Permanent DMS Type 1**: Full color matrix, 3 lines by 21 characters, 18 in character height, walk-in enclosure.
2. **Permanent DMS Type 2:** Full color matrix, 3 lines by 18 characters, 18 in character height, walk-in enclosure.
3. **Permanent DMS Type 3:** Full color matrix, 3 lines by 15 characters, 18 in character height, front access enclosure.
4. **Permanent DMS Type 4:** Full color matrix, 3 lines by 15 characters, 12 in character height, front access enclosure.
5. **Permanent DMS Type 5:** Full color matrix, 1 line by 3 characters, 18 in character height, front access enclosure.
6. **Permanent DMS Type 6A:** Full color matrix, 1 line by 8 characters, 18 in character height, embedded or front access.
7. **Permanent DMS Type 6B:** Full color matrix, 1 line by 8 characters, 12 in character height, embedded or front access.
8. **Embedded DMS:** A sign assembly that consists of a dynamic message panel that is embedded or inserted into an outer static sign panel.
9. **Sign Border:** The blank area (no pixels) between the outermost pixels and the outermost edge of the sign as defined in NTCIP 1203v02.

B. Acronyms and Abbreviations

Refer to Sections 101.01 and 940.1.01 for a list of acronyms, abbreviations, and common terminology used throughout the ITS specifications.

631.1.2 Related References

A. GDOT Standard Specifications

1. Section 150 – Traffic Control
2. Section 638 – Structural Supports for Overhead Signs
3. Section 682 – Electrical Wire, Cable, and Conduit
4. Section 922 – Electrical Wire & Cable
5. Section 923 – Electrical Conduit

6. Section 926 – Wireless Communications Equipment
7. Section 939 – Communication and Electronic Equipment
8. Section 940 – ITS General Requirements

B. Referenced Standards and Documents

1. Refer to Section 940.1.01(B) for a list of standards and documents referenced in this section and throughout the ITS specifications.
2. Ensure that DMSs and associated materials are consistent and compliant with the latest version or edition of the standards and industry practices as specified.

631.1.3 Submittals

Refer to Section 940.2.01 for submittal requirements. Requirements for DMS materials and components are specified herein.

631.2 Materials

631.2.01 DMS Requirements

A. General Requirements

1. Manufacture in an International Organization for Standardization (ISO) 9001-certified manufacturing facility that is regularly engaged in the production of the materials described in this section.
2. Provide only proven and commercial-off-the-shelf equipment and materials.
3. Provide equipment and materials that are of new manufacture and previously unused.
4. Provide equipment and materials that are of like kind and function from the same manufacturer, using the same model, part number, revision, and firmware.
5. Use the most stringent material requirement for this Contract if a conflict or difference exists between the specified industry standards and practices listed in Section 631.1.02(B) and these minimum standard specifications. Notify and resolve with the Department or authority having jurisdiction of any such conflicts or differences prior to procurement of materials and components.
6. Provide a DMS that is designed to comply with the current version of NEMA TS 4 standards.
7. Provide a DMS with the mounting hardware and sign supports necessary to attach the sign assembly to the DMS sign structure.
8. Provide a design with support structure attachment hardware that is signed and sealed by a Professional Engineer holding a valid license to practice engineering in the State of Georgia. Note: DMS sign structure and foundation structural design is defined in Section 638, and is paid for separately.
9. Provide a ground-mount DMS field cabinet as shown in the Contract documents and in accordance with Section 939. The field cabinet shall be paid for separately.

B. Display Matrix Requirements

1. **Type and Layout**:
   a. Provide a full-color LED display matrix capable of displaying continuous and uniform messages composed of any combination of alphanumeric text, punctuation symbols, and graphic images across multiple message frames.
   b. Provide displays that are full matrix.
   c. Support both fixed and proportional spaced fonts.

d. Provide capability for character and interline spacing to be determined by GDOT Central Software.

2. **Character Font Type**: Provide typeface and fonts for DMS messaging according to the NEMA TS 4 standard character maps that define how each character of the alphabet is to be displayed on the sign.

3. **Pixel Pitch**: Provide maximum spacing of 0.787 in (20 mm) from the center of one pixel to the center of adjacent pixels, both horizontally and vertically. A variation in the pixel pitch of up to ±5% is acceptable.

4. **Display Response**: Provide the capability to clear any display and post any new display not exceeding 500 ms.

5. **Display Characteristics**: Provide a DMS that is capable of displaying standard text applications shown in Table 1.

Table 1 – Display Characteristic Requirements for Standard Text Applications

Requirement	Type 1	Type 2	Type 3	Type 4	Type 5	Type 6A/6B
Usage	Text and/or Graphics	Text and/or Graphics	Text and/or Graphics	Text and/or Graphics	Text and/or Graphics	Text and/or Graphics
Inter-line Vertical Spacing (pixels – minimum)	11	11	11	8	N/A	N/A
Character Horizontal Spacing (pixels – minimum)	5	5	5	4	5	5
Rows (pixels – minimum)	90	90	90	54	23	23
Columns (pixels – minimum)	457	391	325	176	61	122
Default Text Character Font Array	23 x 17	23 x 17	23 x 17	16 x 11	23 x 17	23 x 17
Contrast Border	Yes	Yes	Yes	No	No	No

6. **Display Legibility**:

a. **LED Cone of Vision**:

i. Provide LEDs with a nominal cone of vision of 30 degrees with a half-power angle of 15 degrees measured from the longitudinal optical axis of the LED.

ii. Ensure the viewing cone tolerances specified in the DMS manufacturer product specifications do not exceed ±5 degrees.

iii. Provide LED manufacturer assurance for color uniformity and consistency on the LED display face within the 30 degree cone of vision, with no visible inconsistent color shifts or intensity. Inconsistent color shifts or intensity will be cause for rejection.

b. **LED Display Legibility**: Ensure that the LED display matrix is clearly visible and legible from distances between 150 ft (45.7 m) and 1,000 ft (305 m) from the DMS front face under normal freeway operating conditions during daylight hours with direct sunlight on the face and behind the DMS.

c. **Luminance Intensity**: Ensure that the LED display matrix maintains a minimum of 12,000 candelas per square meter minimum (white) for full color displays when measured using a photometric meter through the DMS front face panel assembly. Do not utilize light enhancing lenses to achieve LED viewing angles.

i. Provide LEDs that have no less than 50% of the normalized intensity at 50% of their maximum viewing angles.

ii. Ensure that LEDs used in a sign are from one luminous intensity bin from which the dimmest LED does not emit less than 70% of the luminous intensity of the brightest LED when driven with identical currents.

C. LED Requirements

1. Group the LEDs in pixels consisting of discrete LEDs arranged in a full continuous matrix display with individual pixel addressability. Character-based matrix arrangements are not acceptable.

2. Ensure that LEDs used in DMS are from the same manufacturer and of the same part number, except for the variations in the part number for color and intensity.
3. **Mean Time Between Failure (MTBF)**: Provide a minimum MTBF of 10 years as defined by NEMA TS 4 Section 6.2.2.
4. **LED Mounting**: Mount LEDs secured in perpendicular alignment to the display panel along the 0 degree centerline of the LED.
5. **LED Wavelength**: Provide multiple individual red, green, and blue LEDs conforming to the following requirements:
   a. Provide red LEDs utilizing aluminum indium gallium phosphide (AlInGaP) semiconductor technology and emitting red light with a peak wavelength of 615 to 635 nm.
   b. Provide green LEDs utilizing indium gallium nitride (InGAN) semiconductor technology and emitting green light with a peak wavelength of 519 to 539 nm.
   c. Provide blue LEDs utilizing InGaN semiconductor technology and emitting blue light with a peak wavelength of 460 to 480 nm.
6. **LED Display Modules**:
   a. Provide LED display modules, LED pixel boards, and driver circuit boards that are identical and interchangeable throughout the LED pixel matrix.
   b. Provide individual LED display modules conforming to the following requirements:
      i. Provide printed circuit boards of laminated fiberglass material that comply with the latest version of IPC-A-610 Class B.
      ii. Ensure that LED display modules are mounted such that LEDs emit light through the face panels, with the face panel not blocking any portion of the individual LED viewing cones in the pixel.
      iii. Provide quick-disconnect locking connector types for LED display module power and signal connections.
      iv. Ensure that each LED display module is mounted to the rear of the display front face panel(s) using durable non-corrosive hardware.
      v. Ensure that maintenance removal or replacement of an individual LED module, or a pixel board or a driver circuit board from its LED module, does not require soldering.
      vi. Ensure that maintenance removal or failure of any LED module does not affect the operation of any other LED module or sign component.
      vii. Ensure that each LED display module consists of one printed circuit board with header connections constructed such that the LED module cannot be incorrectly connected upside down or in an otherwise incorrect position within the matrix.
      viii. Provide a design where the current flow through the LED does not exceed manufacturers' stated current for non-surface and surface mount.

D. Redundancy Requirements

1. Provide the minimum number of LEDs per pixel as specified in the NEMA TS 4 standard.
2. Provide LED power supply redundancy in compliance with Section 631.2.01(I)(5).

E. DMS Controller Requirements

1. **Message Library and Memory**:
   a. Provide a controller with both permanent and changeable memory.

b. Provide permanent memory in the form of plug-in EEPROM integrated circuits or an approved equivalent flash memory technology to contain the operating system, application software, and firmware.

c. Provide changeable memory in the form of NVRAM integrated circuits (or other approved backup) that retains the data in memory for a minimum of one year following a power failure.

2. **Local User Interface**:

a. Provide a graphical LCD and keypad interface for direct operation, configuration, and diagnostics of the DMS.

b. Provide capability to display available display test patterns on the sign, blank the current message, and perform available canned tests (pixel, power supplies, etc.).

c. Provide sign controller that requires login credentials for access and can store multiple user configurable passwords.

3. **Failure Mode**: Ensure that failure mode in the sign controller is in compliance with NEMA TS 4 and that, in the event of a controller failure or loss of communications or power, any displayed message will be blanked and the sign face will remain blank when the controller communications or power is restored.

F. DMS Cabling Requirements

1. Provide fiber optic cable in accordance with manufacturer requirements for communications between the sign controller inside the DMS field cabinet and the DMS enclosure communications and interface electronics. Provide no communications interfaces with the DMS using non-fiber conductors.

2. Terminate and secure the fiber strands with factory installed connectors on both ends of the cable.

3. Provide power service cabling to the DMS enclosure and DMS field cabinet as specified by the DMS manufacturer and in accordance with NEC and this Contract.

G. Network Requirements

1. **Network Hardware Interface**: Equip the DMS controller assembly with a minimum of the following communications ports:

a. Provide a minimum of 1 x 10/100 Ethernet port for connectivity to the GDOT network.

b. Provide a minimum of 1 x 10/100 Ethernet port for technician local support.

c. Provide a minimum of 1 x serial port for local support.

d. Provide a minimum of 1 x SFP fiber-optic channel connection port for communications to the DMS housing electronics via single-mode or multi-mode fiber.

2. **NTCP Requirements**: Comply with NTCIP 1203 v02 or later, as specified in the Department Protocol Requirements List (PRL). Contact the Department for the current list.

3. **Network Security**: Support authentication and restricted access to the built-in web server through usernames and passwords at a minimum of three different levels.

4. **Network Configuration**:

a. Provide secure access through the DMS Controller Local User Interface and remotely through a Secure Shell (SSH) login or HTTP browser/web-based interface.

b. Provide access to user-programmed features and settings, including but not limited to, configuration parameters, sign controller settings, sign status, and security functions.

H. Electrical Requirements

1. **AC Power**:

a. Provide the sign with a power load center or electrical panel with multiple separate thermomagnetic equipment circuit breakers and a two-pole main breakers.

b. Size breakers in accordance with the NEC for the anticipated loads that will be experienced by equipment and interior lighting and power receptacles located within the sign housing.

2. **DMS Bonding**: Electrically bond the DMS to the support structure at mounting bolt locations, consisting of an electrical bond wire or properly prepared electrical contact points.

3. **Conformal Coating**: Ensure that driver boards and electronic circuit boards installed in the sign housing have been coated with an acrylic or urethane conformal coating for moisture-resistance.

4. **LED Display Drivers**: Provide UL-listed auto-ranging regulated DC power supplies for the LED pixel display modules.

5. **DC Power Supplies**:

   a. Provide power supplies that operate from 120 VAC power.

   b. Provide LED displays that operate at low internal DC voltage not exceeding 24 VDC.

   c. Provide power supplies that provide N+1 redundancy, or approved equivalent method.

   d. Provide power supplies that are rated so that if one supply fails the other(s) can operate the entire LED section under nominal load conditions.

   e. Provide a minimum of one LED driver per display module unless otherwise approved by the Department.

   f. Ensure that a failure of one display module driver does not cause a failure of the others.

   g. Ensure that a single failure of one power supply does not cause a failure of the other(s).

   h. Provide power supplies that meet NEMA TS 4 temperature requirements.

   i. Provide power supplies with over-voltage protection devices that supplement the DMS assembly's overvoltage, surge, and transient voltage protection devices.

   j. Provide power supplies with short circuit protection by turning the DC power off and resetting automatically after five seconds of AC power off.

   k. Protect power supplies by a minimum overload allowance of 125% and have an efficiency rating of at least 80%.

   l. Provide power supplies that are UL listed and Restriction of Hazardous Substances Directive (RoHS) compliant.

   m. Provide power supplies with a visible means of determining power status of individual supplies via the DMS controller and the supplies themselves.

   n. Provide indicators that identify whether the supplies are functioning properly and outputting power at the correct and calibrated levels.

   o. Ensure that the DMS controller indicates that a power supply has failed and provide an identifier that indicates the specific power supply that has failed.

6. **Surge Protection**:

   a. **Sign Housing**: Protect incoming power within the DMS housing with surge protection as recommended by the sign manufacturer that is compliant with UL 1449.

   b. **DMS Field Cabinet**: Refer to Section 939 for minimum surge protection requirements and modify as recommended by the sign manufacturer and in compliance with UL 1449.

7. **Electrical Cabling**:

a. Use stranded copper electrical conductors that are sized as required by load and distance for connecting 120 VAC circuits between the DMS controller and the DMS housing equipment power distribution area.

b. Comply with NEC requirements and Section 925 for grounding wire and connectors.

8. **Walk-In DMS Interior Lighting**: Provide a circuit breaker protected, shielded, fluorescent lighting system on the interior of the walk-in sign housing activated by a two hour timer switch located on the interior near the door.

9. **Walk-In DMS Interior Duplex Receptacles**: Provide a circuit breaker to protect a minimum of one duplex 120 VAC ground fault interrupter (GFI) receptacles rated for 15A inside the sign housing for the use of maintenance personnel.

I. Mechanical Requirements

1. **Structural Requirements**: Provide a design in conformance with the current edition of AASHTO LTS-6 and AASHTO "Standard Specification for Structural Supports for Highway Signs, Luminaires, and Traffic Signals."

2. **Structural Frame**: Construct with 6061-T6 and/or 6063-T6 aluminum alloy extrusions.

3. **Sign Housing**: Construct with 5052-H32 aluminum alloy sheeting with a minimum thickness of 0.125 in (3.17 mm).

4. **Contrast Border (Types 1 through 5)**: Provide displays with a range of 2 in (50 mm) to 4 in (101 mm) physical borders consisting of yellow, retro-reflective, fluorescent self-adhesive tape on all four sides for display clarity and background contrast. Ensure border tape material meets the requirements of Section 647.

5. **Surface Finish**: Provide bare-aluminum mill finish for both exterior and interior surfaces, excluding the front face of the sign housing. No painted surfaces are allowed, excluding the front face of the sign housing.

6. **Sign Adjustment**: Provide a design to allow sign mounting angles up to ±3 degrees from the vertical, or ensure that the front face of the DMS is designed with a permanent forward tilt angle of 3 degrees such that the top of the DMS housing is deeper than the bottom.

7. **Weight and Dimension**:

   a. Total weight, including internal and external components for walk-in signs, cannot exceed 3,400 lb (1,542 kg) for signs up to 15 characters wide, and 4,100 lb (1,859 kg) for signs greater than 15 characters wide.

   b. Individually limit the maximum outside dimensions, excluding minor appurtenances, of the sign to the following.

      i. Width 31 ft (9.44 m)

      ii. Height 10 ft (3.3 m)

      iii. Depth 4.5 ft (1.4 m)

8. **Lifting Eyes**: Provide a minimum of two lifting eyes attached directly to the DMS housing structural frame with strength to allow sign lifting and moving without damage.

   a. Provide stainless steel or other structurally capable metal hex nuts and flat washers that are chemically nonreactive with the aluminum sign case material on each side of the sign case (interior/exterior).

   b. Provide a sealant to lifting eye intrusions to prevent water infiltration.

9. **UV Protection**: Ensure that the polycarbonate sheeting is attached securely to the inside of the aluminum face panel and contains UV inhibitors to prevent premature aging of the material and to protect the LED display matrix from the effects of UV light exposure.

10. **Welding**: Ensure that welding is performed and inspected in accordance with the requirements of ANSI/AWS D1.2 Structural Welding Code - Aluminum.

11. **Corrosion Protection**: Use non-corrosive materials such as aluminum and stainless steel and provide corrosion protection between dissimilar metals, including sign mounting hardware and materials.

12. **Drain Holes**: Provide drain holes at the bottom of the housing with replaceable drain filter plug inserts as approved by the Department.

13. **Maintenance Features**:

    a. **Maintenance Laptop Computer**: Provide a hardened maintenance laptop computer located inside the walk-in DMS to provide controller features and capabilities located in the DMS controller cabinet for maintenance and operation when working in the walk-in housing.

    b. **Maintenance Access**: Provide internal DMS access for maintenance to provide unobstructed viewing, removal, and replacement of any non-structural component within the sign case and ground- or pole-mounted field cabinets.

    c. **Replacement and Serviceability**:

        i. Types 1 and 2 only: Provide display modules and panels that are replaceable from the inside rear of the display without the need for specialized tools.

        ii. Types 3 through 6 only: Provide display modules and panels from the outside of the enclosures without the need for specialized tools.

        iii. Provide display modules that are interchangeable between signs employing the same display technology and pixel pitch furnished by a DMS manufacturer.

        iv. Provide a design that upon replacement of panels and other internal components the sign remains watertight as specified in NEMA TS 4 Section 3.1.1.

        v. Provide a design so that the removal of any combination of one or more display modules will not alter the structural strength of the sign display assembly or sign case or adversely affect the operation of the remaining functional modules.

        vi. Provide LED driver boards that are replaceable with simple hand tools and hot swappable within the sign housings.

14. **Walk-In DMS Access Door**:

    a. **Access Door Keys**: Provide two No. 2 Corbin keys for each DMS provided. Alternative access methods are provided in Section 939.

    b. **Access Door Braces**: Provide hold-open braces and access door stops designed to withstand a minimum of 30 mph (48 km/hr) winds that allow the door to be held in the 180 (full), 90, 45, or 30 degree open positions without the use of tools.

15. **Walk-In DMS Access Platform**:

    a. Provide an access platform with safety rails as required extending from the supporting sign structure and installed flush with or extending underneath the sign housing.

    b. Comply with AISC, AASHTO, and OSHA requirements for the design of the platform dimensions, structure, and safety systems.

16. **Front Access Type**:

    a. Provide a design that allows for the lift face to be open and hold it open at a minimum angle of 60 degrees (typical) from vertical. Easily open from a bucket truck by a single person.

    b. Provide a design so that regular opening and closing of the lift face does not cause warping or misaligned fit/closure.

    c. Provide gaskets to provide a weather-tight seal when the lift is closed.

J. Environmental Design Requirements

1. Provide a DMS system that meets current NEMA TS 4 environmental requirements and provide with third-party testing certification from the DMS manufacturer.
2. Provide electronic components that are rated for and tested at NEMA TS 4 environmental conditions.
3. Provide electrical/electronic component power, signal, data, board-to-board, board-to-connector, and grounding connections that are non-corrosive, low loss, vibration resistant that pass the minimum and maximum current levels without loss levels that reduce the performance of the inter-mating assemblies when subjected to NEMA TS 4 environmental conditions.
4. **Ventilation System** (Types 1 and 2 only):
   a. **Thermostat Control**: Provide thermostatically controlled fans meeting the NEMA TS 4 ventilation requirements for walk-in housings.
   b. **Temperature Sensors**: Provide multiple temperature sensors used to activate the system including an additional sensor located to accurately measure the ambient temperature outside the sign housing.
   c. **Temperature Threshold**: Provide the capability for the temperature thresholds to be changed locally and remotely.

K. DMS Diagnostics

Provide a DMS system that meets current NEMA TS 4 diagnostics requirements and has third-party testing certification from the DMS manufacturer.

L. DMS Spare Equipment

1. Provide the following spare components for each type of DMS installed in the Contract:
   a. 10 LED display modules
   b. 10 LED driver cards
   c. 2 DC power supplies (including surge protectors)
   d. 2 complete fan assemblies (for DMS sign case) including thermostats
   e. 1 temperature sensor
   f. 1 light sensor (photocell)
   g. 1 DMS controller; provide one controller for every 4 DMS in the Contract documents, minimum of one controller.
2. Ensure that these items are identical to those that are provided within each type of DMS assembly provided by the Contractor.
3. Box each item individually with a label attached to the box that includes a description of the item, date of manufacture, part number, and manufacturer or vendor of the item. A description of the item's function and installation or replacement (remove and install) procedures shall be included with each item on 8.5 in by 11 in sheets of paper. If multiple sheets are required, the sheets shall be stapled together in sequential order. The top sheet shall have the item name and vendor's name at the top of the sheet. The sheets shall be placed in the boxes with the item.

631.3 Construction

Ensure that construction and installation of the equipment, materials, components, and assemblies specified in this section comply with the manufacturer's requirements and recommendations.

631.3.1 Contractor Experience and Qualifications

1. Bring a minimum of 10 years of experience in the design and manufacture of state highway or interstate highway, permanently mounted, overhead DMSs, and central control systems installed in freeway service. These 10 years of experience shall include the complete design and manufacture of all aspects of the DMS, including the electronic hardware, software, and sign housings.
2. Deployed over a minimum of 100 NTCIP-compliant LED DMS that are installed, successfully operating and owned by State Departments of Transportation. These NTCIP-compliant LED DMS must be permanently mounted, outdoor, roadway, LED DMS that are remotely controlled by an NTCIP-compliant central computer.
3. Submit manufacturer documentary evidence and complete reference data for the above requirements in accordance with Section 940. Reference data shall include the name and address of the organization, and the name and telephone number of an individual from the organization who can be contacted to verify the above requirements and all the details required to support the above requirements.

631.3.2 Construction Requirements

A. General Construction Requirements

1. **Timing of Work**:
   a. Refer to Section 940 for the list of submittals and pre-installation tests required for approval prior to start of work.
   b. Do not lift and install the DMS housing and display until equipment, materials, and labor are available such that the DMS can be operated with messages from the local controller within 72 hours of installation on the overhead structure.
   c. Install the DMS according to the maintenance of traffic restrictions listed in the Contract, as designated by the Department, and control traffic using the GDOT-approved pacing methods.
   d. Attach and secure mechanical hardware for initial attachment prior to the reopening of lanes to traffic. Attach hardware prior to the release of crane cables.
   e. Install and connect the DMS sign wiring and communications cables to the ground-mounted field cabinet and disconnect switch in the field cabinet only after attaching and securing the sign to the sign structure.
2. Maintain full responsibility for the sign housing mounting to the support structure and confirm the sign can be properly mounted on the sign support structure prior to installation.
3. For structural aspects and mounting attachments, use stainless steel nuts with nylon inserts for locking.
4. Securely install mounting hardware to the torque recommended by the overhead sign support manufacturer.
5. Utilize liquid-tight metal flexible conduit (LMFC) for installation of cables between the sign housing and sign structure. Secure conduit to the structure with strap intervals of 3 ft maximum spacing.
6. Install cabling between the DMS housing and DMS field cabinet unit in continuous, un-spliced cable lengths. Install cabling within the DMS sign in supported cable trays.
7. Upon completion of wiring and connections, bundle incoming cables and hold in place with nylon cable ties.
8. Connect the front panel and chassis to the field cabinet ground bus from a single point only.
9. Ensure AC and DC logic control circuits are separately bundled or contain shielded wiring.
10. **DMS Orientation**:
    a. **Vertical Tilt:** Initially set the housing at a 3 degree tilt forward toward traffic and adjust the housing under both day and night conditions to optimize the view of the sign from the roadway by a motorist and eliminate reflections. Alternatively, the housing may be constructed at a 3 degree tilt toward traffic, if approved by the

Department, and shall be adjusted to obtain the same optimization of the viewing of the sign from the roadway. During the stand alone test, the Department will evaluate the initial setting of the sign and direct the Contractor to adjust the sign tilt if necessary.

b. **Sign Rotation:** Signs mounted on roadside supports shall be angled toward the roadway as directed by the Department and Contract documents to maximize the viewing angle for motorists.

11. **Cable Slack**: Coil cable slack neatly in the base of the DMS field cabinet to ensure that the connections to the housing and power source will be possible without the need to add or splice any cables as follows:

    a. Fiber communications cable: Refer to Section 935 for cable slack requirements.

    b. Electrical service cable: Refer to Section XXX.XX for cable slack requirements.

12. **Cabinet Equipment and Wiring**:

    a. Make connections to terminal boards or screw-type equipment terminals with insulated fork-tongue compression connectors only when using stranded cable.

    b. Make wiring to bulkhead connectors on equipment housings with Mil-Spec (MS) bayonet-type connectors.

    c. Solder connector joints for use with extra-low voltage systems, with the joint metals preheated to the flow temperature of the solder or crimped using ratchet-type positive crimp tools and a double crimp (conductor and jacket) connector.

    d. Remove the outer jacket of data and communications cables to expose approximately 6 in (150 mm) of the shielding or drain wire. Twist together and solder the shielding or drain wire for cables serving a similar function with a #10 AWG minimum insulated (green) ground lead securely connected to the field cabinet ground bus. Make the ground lead routing as short as possible. Cut the shield off and leave it isolated at the other end.

    e. Upon completion of wiring and connections, bundle incoming cables and hold in place with nylon cable ties. Connect the front panel and chassis to the field cabinet ground bus from a single point only.

    f. Power the controller from the power distribution assembly provided in the field cabinet.

    g. Bond the shields of extra-low voltage cables to the ground bus inside the field cabinet. The shield inside the sign enclosure shall be unconnected and insulated.

    h. Route low voltage cables and extra-low voltage cables installed in the cabinet on opposite sides of the cabinet.

    i. Group similar extra-low voltage cables in the field cabinets, between common locations, together with cable ties.

    j. Install cables and connectors so that the manufacturer's rated minimum bending radius and pulling tension are not exceeded.

    k. Take proper care to prevent abrasions to the cable jacket during installation.

13. **Light Sensor System**: Adjust the light sensor(s) and calibrate the dimming system consistent with field conditions for each sign as a part of the installation process.

14. **Spare Components and Materials:**

    a. Provide and test spare and support materials and components specified herein per the appropriate pre-installation procedures defined in Section 940.

    b. Deliver the spare components prior to maintenance acceptance letter.

631.3.3 Equipment Configuration and Integration Requirements

Refer to Section 940.2.03 for equipment configuration and integration requirements.

631.3.4 Testing Requirements

Refer to Section 940.2.04 for testing requirements.

631.3.5 Training Requirements

Refer to Section 940.2.05 for training requirements.

631.3.6 Warranty and Maintenance Support Services

A. Warranty Requirements

1. Ensure that the DMS and associated components defi ned herein furnished, assembled, and installed have a manufacturer's warranty (usual and customary) covering defects in assembly, fabrication, and materials. Include in warranty and support, all contractor or manufacturer activities related to maintenance, removal, and replacement of parts and materials during the period of support.
2. Provide the DMS and associated components with a minimum warranty length of five years. If the manufacturer's warranties for the components are for a longer period, those longer period warranties shall apply.
3. Ensure warranty periods begin on the date of maintenance acceptance letter by the Department.
4. Ensure that the manufacturer's warranties are continuous throughout the period and are fully transferable from the Contractor to the Department and any maintenance consultant/contractor.
5. Provide maintenance support services and make any replacements required during the warranty period without additional charge for labor, equipment, parts, shipping, handling, testing, diagnostics, or other materials required. Support all system components notwithstanding any supplier's warranties whether written or implied.

B. Maintenance Support Services

Refer to Section 940.2.06 for maintenance support services requirements.

631.4 Measurement

The DMS system and training complete, in place, accepted and of the kind, size, and type specified is measured as follows:

A. DMS System

Item No. 631-0101 – Permanent DMS, 3x21, 18 in, Walk-In, Type 1 (EA)

Item No. 631-0102 – Permanent DMS, 3x18, 18 in, Walk-In, Type 2 (EA)

Item No. 631-0103 – Permanent DMS, 3x15, 18 in, Front Access, Type 3 (EA)

Item No. 631-0104 – Permanent DMS, 3x15, 12 in, Front Access, Type 4 (EA)

Item No. 631-0105 – Permanent DMS, 1x3, 18 in, Front Access, Type 5 (EA)

Item No. 631-0106 – Permanent DMS, 1x8, 18 in, Embedded, Type 6A (EA)

Item No. 631-0107 – Permanent DMS, 1x8, 12 in, Front Access, Type 6B (EA)

The DMS system will be measured for payment by the number installed, complete, functional, and accepted. Unless otherwise specified in the Contract, furnish and install the following minimum items as part of a DMS system: DMS housing and internal electronics and components, spare components, electrical panel, cabling and wiring, eyebolts, manufacturer software, power supplies, surge protection, grounding, attachment hardware, and work, equipment, and appurtenances as required to provide a fully functional DMS system. The price bid shall also include configuration software, and system documentation to be turned over to the Department, including shop drawings, operations and maintenance manuals, wiring diagrams, block diagrams, and other material necessary to document the operation of the applicable DMS system. This price shall be full compensation for labor, tools, materials, equipment, and incidentals necessary to complete the work.

B. DMS Spare Components

Supply the following spare components and materials as specified in the Contract documents:

1. **LED display module, Furnish Only**: LED display modules units are measured for payment by the number actually furnished and accepted.
2. **LED driver card, Furnish Only**: LED driver cards units are measured for payment by the number actually furnished and accepted.
3. **DC Power Supply, Furnish Only**: DC power supplies including surge protectors are measured for payment by the number actually furnished and accepted.
4. **Fan Assembly, Furnish Only**: Fans are measured for payment by the number actually furnished and accepted.
5. **Temperature Sensor, Furnish Only**: Temperature sensors are measured for payment by the number actually furnished and accepted.
6. **Light Sensor, Furnish Only**: Light sensors are measured for payment by the number actually furnished and accepted.
7. **DMS Controller, Furnish Only**: DMS controllers are measured for payment by the number actually furnished and accepted.

C. DMS Training

Item No. 631-8500 – DMS Training (Lump Sum)

Training is measured as a lump sum for supplies, equipment, materials, handouts, travel, and subsistence necessary to conduct the training.

Measurement Notes:

Submittal

Submittal requirements are included in Section 940 and shall not be paid for separately and shall be considered incidental to the DMS pay item.

DMS Field Cabinet

DMS field cabinets are included in Section 939 and shall be paid for separately under the 939-4120 Type 3 Field Cabinet pay item.

Testing

Testing is included in Section 940 and shall not be paid for separately and shall be considered incidental to the DMS pay item.

NaviGAtor Integration

NaviGAtor integration requirements are included in Section 940 and shall be paid for under 940-1000.

Spare Equipment

Spare equipment is provided with the DMS pay items, and is incidental to the DMS pay item cost.

Support Equipment

The “Furnish Only” pay items represent equipment as specified by the Contract documents, in addition to the spare equipment.

631.5 Payment

631.5.1 DMS System

DMSs of the types specified in the Contract documents are paid for at the Contract Unit Price. Payment is full compensation for installing, testing, and providing warranty for the DMS system.

The Department will pay 25% of the total Contract bid amount for properly stored materials. The Department will pay 50% of the total Contract bid amount upon installation of the physical sensors and components of the DMS and completion of the stand-alone/site testing acceptance. The Department will pay 25% of the total Contract bid amount upon completion of the Final Project Acceptance. The total sum of all payments cannot exceed the original Contract amount for this item.

Payment for DMS system is made under:

Item No. 631	Permanent DMS, 3x21, 18 in, Walk-In, Type 1	Per each
Item No. 631	Permanent DMS, 3x18, 18 in, Walk-In, Type 2	Per each
Item No. 631	Permanent DMS, 3x15, 18 in, Front Access, Type 3	Per each
Item No. 631	Permanent DMS, 3x15, 12 in, Front Access, Type 4	Per each
Item No. 631	Permanent DMS, 1x3, 18 in, Front Access, Type 5	Per each
Item No. 631	Permanent DMS, 1x8, 18 in, Embedded, Type 6A	Per each
Item No. 631	Permanent DMS, 1x8, 12 in, Front Access, Type 6B	Per each
Item No. 631	LED Display Module, Furnish Only	Per each
Item No. 631	LED Driver Card, Furnish Only	Per each
Item No. 631	DC Power Supply, Furnish Only	Per each
Item No. 631	Fan Assembly, Furnish Only	Per each
Item No. 631	Temperature Sensor, Furnish Only	Per each
Item No. 631	Light Sensor, Furnish Only	Per each
Item No. 631	DMS Controller, Furnish Only	Per each

631.5.2 Training

The Department will pay 25% of the total Contract bid amount for training upon approval of the Training Plan. The Department will pay the remaining 75% after completion of training described in Section 940.2.05. The total sum of all payments cannot exceed the original Contract amount for this item.

Payment for training is made under:

Item No. 631	Training	Lump Sum

August 2, 2017

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SUPPLEMENTAL SPECIFICATION

Section 926—Wireless Communications System

Delete Section 926 in its entirety and substitute the following:

926.1 General Description

Furnish, install, optimize, test, and provide warranty and training for a wireless system comprised of a radio transceiver, wireless router, antennas, and other components and materials as specified herein and shown in the Contract documents.

926.1.1 Definitions, Acronyms, and Abbreviations

A. Definitions

1. **Type 1, 900 MHz Wireless Ethernet System**: Provide up to 10 Mbps throughput capacity at a minimum range of 10 mi (16 km).
2. **Type 2, 2.4 or 5 GHz Wireless Ethernet System**: Provide up to 100 Mbps throughput capacity at a minimum range of 15 mi (24 km).
3. **Type 3, 2.4 or 5 GHz Wireless Backhaul Ethernet System**: Provide up to 600 Mbps throughput capacity at a minimum range of 25 mi (40 km).
4. **Type 4, 4G Cellular Wireless System**: Provide up to 4G throughput capacity using the Department's current wireless service provider's 4G network.

B. Acronyms and Abbreviations

Refer to Sections 101.01 and 940.1.01(A) for a list of acronyms, abbreviations, and terminology used in this section and throughout these ITS specifications.

926.1.2 Related References

A. GDOT Standard Specifications

1. Section 150 – Traffic Control
2. Section 639 – Strain Poles for Overhead Sign and Signal Assemblies
3. Section 647 – Traffic Signal Installation
4. Section 694 – Weather Monitoring and Reporting System
5. Section 682 – Electrical Wire, Cable, and Conduit
6. Section 939 – Communication and Electronic Equipment
7. Section 940 – ITS General Requirements

B. Referenced Standards and Documents

1. Refer to Section 940.1.01(B) for a list of standards and documents referenced in this section and throughout these ITS specifications.

2. Ensure that all wireless system equipment, components, and materials are consistent and compliant with the latest version or edition of the standards and industry practices as specified.

926.1.3 Submittals

Refer to Section 940.2.01 for submittal requirements. Requirements for wireless system equipment, materials, and components are specified herein.

926.2 Materials

926.2.1 General Requirements

1. Manufacture in an International Organization for Standardization (ISO) 9001-certified manufacturing facility that is regularly engaged in the production of the materials described in this section
2. Provide only proven and commercial-off-the-shelf equipment and materials.
3. Provide equipment and materials that are of new manufacture and previously unused.
4. Provide equipment and materials that are of like kind and function from the same manufacturer, using the same model, part number, revision, and firmware.
5. Ensure that component parts are readily accessible for inspection and maintenance using standard hand tools (no non-standard tools).
6. Use the most stringent material requirement for this Contract if a conflict or difference exists between the specified industry standards and practices listed in Section 926.1.02(B) and these minimum standard specifications. Notify and resolve with the Department or authority having jurisdiction of any such conflicts or differences prior to procurement of materials and components.

926.2.2 Types 1 to 3 Wireless System Requirements

A. Wireless System Requirements

1. **System Type and Network Topology**:
   a. Provide a wireless system that supports point-to-point (PtP) or point-to-multi-point (PtMP) network topology as shown in the Contract documents.
   b. Provide a wireless system that operates in an unlicensed (license-exempt) Federal Communications Commission (FCC) frequency band.
   c. Type 1 only: Provide a single radio that is integrated with an antenna unit or as an alternative a single radio with an external antenna.
   d. Types 2 and 3 only: Provide a single radio that is integrated with an antenna unit.
2. **Frequency**: Provide a system that operates in a FCC unlicensed Industrial, Scientific, and Medical (ISM) band of 900 MHz, 2.4 GHz, or 5 GHz as specified in the Contract documents or as determined during the wireless survey as specified in Section 926.3.02 (B).
3. **FCC Certification**: Comply with the following:
   a. Comply with FCC Part 15 of Title 47 of the Code of Federal Regulations (CFR), Subpart B, Class B.
   b. FCC Part 15.247 (ISM)
   c. IEC EN 61326-1
4. **Transmit Power**: Provide user programmable or selectable output levels, up to the maximum output power and effective isotropic radiated power (EIRP) allowed by FCC Part 15 for unlicensed frequencies.
5. **Link Range**: Provide a wireless radio link that provides range coverage as specified in the Contract documents.

6. **System Throughput**:
   a. Type 1 only: Provide a minimum aggregate system throughput of up to 10 Mbps.
   b. Type 2 only: Provide a minimum aggregate system throughput of up to 100 Mbps.
   c. Type 3 only: Provide a minimum aggregate system throughput of up to 600 Mbps.
7. **Channel Size**:
   a. Type 1 only: Provide minimum channel bandwidths of 5 MHz, 10 MHz, and 20 MHz.
   b. Type 2 only: Provide minimum channel bandwidths of 20 MHz and 40 MHz.
   c. Type 3 only: Provide minimum channel bandwidths of 40 MHz and 80 MHz.
8. **Channel Frequency and Selection**: Provide dynamic frequency and channel selection capability based on interference detection, with a manual override option.
9. **Modulation**: Provide adaptive modulation and space diversity to provide maximum throughput.
10. **Modulation Type**:
    a. **Type 1 only**: Provide frequency hopping direct sequence spread spectrum (DSSS) or orthogonal frequency division multiplexing (OFDM) modulation technology.
    b. **Types 2 and 3 only**: Provide multiple-in-multiple-out (MIMO) OFDM modulation with binary phase-shift keying (BPSK), quadrature phase shift keying (QPSK), QAM16, QAM64, QAM256.
    c. **Types 2 and 3 only**: Provide Modulation and Coding Scheme (MCS) 0 to 9 with dynamic data rate selection.
11. **Mean-Time-Between-Failure (MTBF)**: Provide a minimum MTBF of 200,000 hours using Telcordia SR-332, Method 1, Case 3 or MIL-HDBK-217J standards.

B. Antenna Requirements

1. **Antenna Type**:
   a. **Type 1 only**: Provide a flat panel type, dual polarized (H+V), narrow beam-width antenna or alternative Yagi.
   b. **Types 2 and 3 only**: Provide a 2x2: 2 MIMO flat panel type, dual polarized (H+V), narrow beam-width antenna or alternative parabolic.
   c. Provide antenna types as recommended by manufacturer for PtP and PtMP topologies as required.
2. **Antenna Gain**: Provide an antenna with antenna gain of 23 dBi or the maximum as allowed by FCC Part 15. Final antenna gain shall be selected per manufacturer's recommendation based on distance and signal strength.
3. **Antenna Connector**: Provide outdoor-rated and environmentally hardened Type-N connectors or as recommended by the manufacturer.
4. **On-Board Alignment Tools**: Provide wireless system with alignment tools for aligning the antenna system. These tools shall consist of external LED indicators and audible indicators, or as recommended by the manufacturer.

C. Network Requirements

1. **Network Standards and Protocols**: Provide a wireless system that meets the following minimum network standards and protocols:
   a. Comply with IEEE 802.3 standards for 10/100/1000 Mbps Ethernet.
   b. Comply with IEEE 802.1d (Ethernet Bridging) standard.
   c. Comply with IEEE 802.1p (Traffic Prioritization/Quality of Service) standard.
   d. Comply with IEEE 802.1q (Virtual LAN [VLAN]) standard.

e. Comply with IEEE 802.1d (Spanning Tree Protocol) and IEEE 802.1w (Rapid Spanning Tree Protocol) standards.

f. Comply with IEEE 802.3x (Full Duplex and Flow Control) standard.

g. Comply with IEEE 802.3ad (Link Aggregation) standard.

2. **Data Port**: Equip with a minimum of one 10/100/1000 Base-T/TX, shielded Ethernet-port, using an IP66 rated RJ45 weathertight connector or other Ethernet-compatible locking shielded and weathertight connector.

3. **Network Features**: Types 2 and 3 only: Provide wireless system that supports the following minimum features and capabilities:

a. **Forward Error Correction**: Provide forward error correction capabilities with automatic retransmission.

b. **Dynamic Bandwidth Allocation**: Provide dynamic allocation of uplink and downlink bandwidth.

c. **Jitter Correction**: Provide capability for jitter correction to avoid delay fluctuation in video streams.

d. **Data Burst Transmission**: Provide data burst transmission capability to ensure that fragmented packets are transmitted together.

e. **Polling**: Provide the capability to use a polling protocol to reduce packet loss due to RF collisions.

f. **Traffic Control**: Provide support for Layer 2 features including quality of service (QoS) and Internet Group Management Protocol (IGMP) snooping to reduce un-needed multicast traffic.

D. Security Requirements:

1. Provide at a minimum Advanced Encryption Standard 128-bit (AES-128), FIPS197, keys set through password-protected browser interface.

2. Comply with ISO/IEC 18033-3 standards.

3. Types 2 and 3 only: Support Secure Sockets Layer (SSL).

4. Types 2 and 3 only: Support RADIUS networking protocol for authentication, authorization, and accounting.

E. Radio Configuration and Management Software Requirements:

1. Types 2 and 3 only: Provide local and remote management capabilities through Hypertext Transfer Protocol (HTTP), HTTP Secure (HTTPS), Telnet, Secure Shell (SSH), and/or Simple Network Management Protocol (SNMP).

2. Provide programming and software to make operational and support the wireless system with the following minimum features: radio and network configuration, diagnostic routines (i.e., bandwidth test, spectrum scan, and ping test), and alarm management.

3. Provide status LED indicators including data port link activity, data port speed, and link status.

4. Provide the following alarm features:

a. Provide 24hour monitoring capability for user-selected alarms.

b. Provide optional alarm notifications via email and/or text messages.

F. Electrical Requirements

1. Provide wireless radios with PoE injectors meeting specified requirements when the input power is 115 VAC ±20%, 60 Hz ±3 Hz, and that maximum power required does not exceed 30W, including optional equipment.

2. Provide PoE power to the wireless radio meeting the following minimum requirements:

a. Provide a standalone PoE injector. Providing PoE service using a PoE-capable Ethernet switch is not permitted.

b. Select PoE injectors based on the power requirements of the wireless system as recommended by the manufacturer conforming to the following PoE standards:

i. PoE in compliance with IEEE 802.3af standard.

ii. PoE+ in compliance with IEEE 802.3at standard.

c. Mount PoE injectors to wall/panel or DIN-rail within the field cabinet.

3. Meet the requirements in Section 2.1.4, "Power Interruption," of the National Electrical Manufacturers Association (NEMA) Standard TS 2 for Traffic Control System.

4. Meet the requirements of Section 2.1.6, "Transients, Power Service," of NEMA Standard TS 2.

G. Mechanical and Mounting Requirements:

1. For non-integrated types provide a wireless radio that is capable of being rack- or shelf-mounted in a secure manner.

2. Provide equipment that is modular in design such that it can be easily replaced in the field.

3. Ensure unit dimensions and weight are as follows:

a. Maximum dimensions shall be 16 in by 16 in by 12 in for integrated units, not including the antenna.

b. Maximum weight shall not exceed 35 lb.

4. Coat printed circuit boards with a clear-coat moisture and fungus-resistant material (conformal coating).

5. Provide pole mounting attachment hardware as required and needed for mounting to existing poles or structures, as determined by the wireless radio survey and/or the device manufacturer.

6. Use external screws, nuts, and locking washers that are stainless steel; no self-tapping screws shall be used unless specifically approved by the Department.

7. Use parts made of corrosion-resistant material, such as plastic, stainless steel, anodized aluminum, or brass.

8. Use materials in construction that are protected from fungus growth and moisture deterioration.

9. Ensure that any dissimilar metals are separated by an inert dielectric material.

926.2.3 Type 4 Wireless System Requirements

Provide an integrated 4G/LTE cellular wireless router only as listed on the GDOT Qualified Products List (QPL) and as approved by the Department's current cellular telecommunications service provider. No other devices are permitted.

A. General Requirements:

1. Provide integrated cellular wireless router that is an approved product by the Department's existing cellular telecommunications service provider.

2. Provide a 4G cellular wireless router that meets the following minimum network standards and protocols:

a. Comply with IEEE 802.3 standards for 10/100/1000 Mbps Ethernet.

b. Provide full support for Secure Sockets Layer (SSL).

c. Provide full support for Internet Protocol Security (IP Sec) and Virtual Private Network (VPN) functionality.

d. Provide at a minimum AEC 128-bit (AES-128) encryption capability.

e. Support MAC address filtering and Access Control List.

3. Provide capability for network traffic to be accessible via a public or private IP connection, via VPN tunnel with SSL, IP Sec, and IP pass-through.

4. Equip with a minimum of one 10/100/1000 Base-T/TX, shielded Ethernet-port, outdoor-rated RJ-45 connector or other Ethernet-compatible weathertight connector.
5. Provide visual status indicators including Power, Signal, Ethernet Link, and Activity.
6. Provide wireless router that can operate using 100 to 240 VAC, 50 to 60 Hz or 12/24/48 VDC power, as specified by the Contract documents or directed by the Department.

B. Antenna Requirements

1. Provide an external ruggedized antenna for wireless 4G operations meeting the following minimum requirements:
   a. Provide a minimum gain of 4 dBi, vertical polarized.
   b. Provide omnidirectional pattern.
   c. Support up to 100W power.
   d. Provide a VSWR of 2.0:1 or less.
   e. Provide multiband support including the 698 to 960 MHz and 1700 to 2700 MHz bands.
   f. Provide mounting hardware as recommended by the manufacturer.
2. Provide RF coaxial cable as specified in Section 926.2.04(C) between the wireless modem/router and the antenna.

926.2.4 Cable and Surge Requirements

A. Antenna Coaxial Cables

Provide antenna coaxial cables as specified herein for external antenna (non-integrated radio and antenna) sites or outdoor-rated Cat-6 cables for integrated radio/antenna sites.

B. Outdoor-Rated Cat-6 Cable:

Provide outdoor-rated, shielded Cat-6 cabling from the PoE injector to the wireless radio meeting the following minimum requirements:

1. Comply with TIA-568-C.2 standard.
2. Comply with ICEA 5-56-434 standard for communications cables for outdoor use including watertight, outdoor CMX UV-rated jacket.
3. Provide with insulated 22 to 23 AWG, solid bare copper conductors with polyolefin insulation, arranged in four color-coded shielded twisted-pairs with drain wire incorporating a cross-web separator design.
4. Provide modular IP66-rated shielded RJ-45 8P8C male push-pull connectors with eight-position non-keyed and eight gold anodized pins.

C. RF Coaxial Cable:

Provide a RF coaxial cable meeting the following minimum requirements (Note: The Department currently uses LMR series coaxial at wireless sites).

1. Provide a cable that is flexible, low-loss, outdoor-rated and watertight.
2. Provide a cable with a black UV-resistant polyethylene jacket.
3. Provide a cable with a dual shield consisting of 100%foil and 88%braided.
4. Provide shielding effectiveness of >90 dB.
5. Provide solid bare, copper center conductor.
6. Provide a characteristic impedance of 50 ohms, nominal.

7. Provide a cable with maximum frequency of 6 GHz.
8. Provide an attenuation of 3.9 dB/100 ft (at 900 MHz) or better. If cable length is shorter than 20 ft, the cable can be smaller in diameter with a maximum attenuation of 9.9 dB/100 ft.
9. Provide a capacitance (conductor to shield) of 23.9 pF/ft or better, nominal.
10. Provide an inductance of 0.060 uH/ft or better, nominal.
11. Provide Type N connectors or as recommended by the manufacturer that are weathertight and factory installed on both ends with a maximum insertion loss of 0.2 dB.

D. Surge Protection

Meet the following minimum surge protection device (SPD) requirements:

1. **Catagory-6 Ethernet PoE Surge Protection**:
   a. Provide SPD that is UL 497B listed.
   b. Comply with TIA-568-A/B.
   c. Comply with IEEE 802.3af and IEEE 802.3at as required.
   d. Support data rates of up to 1 Gbps.
   e. Provide a peak surge current rating (Imax) of a minimum of 2 kA (8/20 µs waveform).
   f. Provide a clamping voltage of up to 90 VDC.
   g. Provide protection for all eight pins.
   h. Provide differential and common mode protection.
   i. Provide input and output connections with shielded RJ-45 connectors.
   j. Provide system capable of being wall/panel or DIN-rail mounted.
   k. Provide a SPD that is constructed of aluminum metal housing.
2. **RF Coaxial Surge Protection**:
   a. Provide SPD that is UL 497E listed.
   b. Provide a Rated Nominal Surge Current (In) per UL 497E of 10 kA (8/20 µs waveform).
   c. Provide a Rated Power/Current (RF, DC) per UL 497E: VHF 375W, UHF (low) 250W, 800 MHz to 1 GHz 125W.
   d. Provide a protection level of <1000V for up to 375W SPD.
   e. Provide an insertion loss of ≤0.2 dB over wireless system frequency range.
   f. Provide SPD that supports a VSWR of 1.3:1.
   g. Provide SPD with field replaceable gas discharge tube for maintenance.
   h. Provide SPD with minimum environmental protection rating of IP65.
   i. Provide SPD with mating connectors per antenna type.
3. **Bonding**: Provide hardware and materials to bond SPDs to the field cabinet ground buss bar.

926.2.5 Wireless System Environmental Requirements

1. Provide wireless equipment and components as specified herein that meets the following minimum operating ambient temperature range and humidity levels:

   a. −4°F (−20°C) through 165°F (74°C)
   b. Up to 95% relative humidity (non-condensing)
2. Comply with NEMA 250, Type 4X corrosion requirements.
3. Comply with IEC 61000-4-5 surge immunity testing requirements.
4. Comply with NEMA TS 2 Sections 2.2.8 (vibration) and 2.2.9 (shock) test requirements.
5. Ensure that the wireless system can withstand wind speeds of 100 mph (161 kph) with a 20% gust factor.

926.3 Construction

Ensure that construction and installation of the equipment, materials, components, and assemblies of the wireless system specified comply with the wireless manufacturer's requirements and recommendations.

926.3.1 Contractor Experience and Qualifications

1. Provide evidence of five similar projects completed by the Contractor and/or sub-contractor that consisted of wireless communications installation, testing, and system optimization. Each project must include transmitting signals over a minimum of five miles distance and installation of a minimum of three devices.
2. Provide evidence that the technical staff who will perform the wireless system work on the Project have a minimum of three years of similar experience and are certified by the manufacturer for installation and maintenance of their equipment.
3. Provide three continuous years of wireless communications services by the Contractor and/or sub-contractor including the following:
   a. Conducting radio installation studies consisting of:
      i. Signal noise studies
      ii. Spectrum analysis
      iii. Antenna gain/radio power calculations
      iv. System attenuation
      v. Measurement of standing wave ratios
   b. Installation and optimization of broadband radio systems consisting of:
      i. Equipment installation
      ii. Configuration of radios
      iii. Antenna calibration
      iv. Cabling
   c. Installation and optimization of interconnected Ethernet networks (LAN and WAN) consisting of:
      i. Cabling
      ii. Switch/router configuration
      iii. Network analysis

926.3.2 Construction Requirements

A. General Installation Requirements

1. Provide and install materials, including support, optimization, and test equipment, to ensure an operating and functional wireless radio system. This includes installation of power and data cables, and the power grounding and lightning suppression and surge protection systems.
2. Prior to beginning installation, inspect each site to verify suitability of the design for installation, grounding, and lightning protection.
3. Conduct a wireless system survey as specified in Section 926.3.02(B).
4. Adjust antenna polarities and channel plans on equipment to minimize interference from other sources, as applicable and determined by the wireless system survey.
5. Provide equipment that is modular in design such that it can be easily replaced in the field.
6. Label with UV-resistant methods to identify each unit with name, model number, serial number, and any other pertinent information required to facilitate equipment maintenance.
7. Utilize the latest available industry standard construction techniques with a minimum number of parts, subassemblies, circuits, cards, and modules to maximize standardization and commonality.
8. Design equipment for ease of maintenance and orient component parts to be readily accessible for inspection and maintenance.
9. Connectors and Harnesses:
    a. Ensure that external connections are made by means of weathertight connectors.
    b. Provide connectors that are keyed to preclude improper mating or coupling.
    c. Ensure that wires to and from the connectors are color-coded and/or appropriately marked.
    d. Ensure that pins and mating connectors are corrosion resistant.
    e. Ensure that connectors utilizing solder type connections have each soldered connection covered by a piece of heat shrink tubing securely shrunk to ensure that it protects the connection.

B. Wireless System Survey Requirements (Types 1 to 3 only)

1. Conduct wireless survey if required by the Contract documents and upon approval of wireless system and test equipment submittals.
2. Provide required wireless test equipment to conduct wireless survey. Equipment to be submitted and approved by the Department prior to conducting the survey.
3. Survey wireless locations and provide a site-by-site analysis and overall system survey field report.
    a. Verify that the path is clear and provide calculations to show that there is sufficient fade margin to achieve the path availability as specified herein under the expected weather events.
    b. Include an interference analysis of local RF conditions and a path analysis for each wireless node as shown in the Contract documents.
    c. Provide an interference analysis for each wireless node location to identify potential sources of interference. If the interference analysis shows possibility for interference at the Department sites, conduct in-field monitoring to determine whether actual interference exists.
    d. Include a field evaluation of the feasibility of using existing poles or structures for mounting of the integrated wireless radio/antenna system.

e. Determine whether repeaters are required as part of the field survey and report. It is not anticipated that repeaters will be needed.

f. Submit the wireless system report to the Department for review and approval. No equipment related to the wireless network shall be purchased or installed prior to the approval of the Wireless System Survey Report. Refer to Section 940 for details on submittal requirements.

C. Radio Mounting Requirements

1. Provide and install radio mounts, standoffs, brackets, hardware, and grounding assemblies for the mounting surface shown in the Contract documents.
2. Install radios at specified locations as shown in the Contract documents.

D. Antenna Mounting Requirements

1. Provide and install antenna mounts, standoffs, brackets, hardware, transmission line, hanger kits, grounding kits, and lightning suppressors for the mounting surface shown in the Contract documents.
2. Install antennas at specified centerlines and as recommended by the manufacturer.
3. Perform antenna alignment for each path and compare with path calculations.
4. Type 4: Mount the antenna on the field cabinet using threaded stub mount for vandal resistant mounting.

E. System Power and Grounding Requirements

1. Connect the wireless equipment to the 115V circuits provided in the field cabinet at the site.
2. Provide grounding and lightning protection for wireless system cable runs at the top of the support structure and at the field cabinet entry port.
3. If the field cabinet and associated entry port is not collocated on the same support structure, provide grounding and lightning protection at the bottom of the support structure.

E. System Optimization

Optimize equipment alignment and settings at each site to provide a complete and operational system.

F. Cabling Requirements

1. Provide conductors and wiring that meet the requirements of the most current version of the NEC.
2. Provide copper-based Ethernet cables that do not exceed IEEE 802.3 distance limitations.
3. Provide conductors that are cut to proper length before assembly. It is not permissible to “double-back” conductors to take up slack inside the field cabinet.
4. Lace conductors neatly with nylon lacing or plastic straps.
5. Organize conductors neatly inside the cabinet and secure cables with clamps.
6. Provide rubber grommets for drilled entrance holes in field cabinets, poles, and structures.
7. Provide service loops at connection points when connecting to hardware inside the cabinet. No splicing of cables or exposed conductors is allowed.
8. Label with UV-resistant methods to identify conductors.

926.3.3 Equipment Configuration and Integration Requirements

Refer to Section 940.2.03 for wireless switch and component configuration and integration requirements.

926.3.4 Testing Requirements

Refer to Section 940.2.04 for testing requirements.

926.3.5 Training Requirements

Refer to Section 940.2.05 for training requirements.

926.3.6 Warranty and Maintenance Support Services

A. Warranty Requirements

1. Ensure that the wireless system including wireless radios, antennas, cabling, and associated components defined herein furnished, assembled, and installed have a manufacturer's warranty (usual and customary) covering defects in assembly, fabrication, and materials. Include in warranty and support, all contractor or manufacturer activities related to maintenance, removal, and replacement of parts and materials during the period of support.
2. Provide the wireless system and associated components with a minimum warranty length of two years. If the manufacturer's warranties for the components are for a longer period, those longer period warranties shall apply.
3. Ensure warranty periods begin on the date of maintenance acceptance letter by the Department.
4. Ensure that the manufacturer's warranties are continuous throughout the period and are fully transferable from the Contractor to the Department and any maintenance consultant/contractor.
5. Provide maintenance support services and make any replacements required during the warranty period without additional charge for labor, equipment, parts, shipping, or other materials required. Support all system components notwithstanding any supplier's warranties whether written or implied.

B. Maintenance Support Services

Refer to Section 940.2.06 for maintenance support services requirements.

926.4 Measurement

The wireless system and training complete, in place, accepted and of the kind, size, and type specified is measured as follows:

A. Types 1 to 3 Wireless System

Item No. 926-2101 – 900 MHz Wireless Ethernet System, Type 1 (EA)

Item No. 926-2102 – 2.4 or 5 GHz Wireless Ethernet System, Type 2 (EA)

Item No. 926-2103 – 2.4 or 5 GHz Wireless Backhaul Ethernet System, Type 3 (EA)

The wireless IP-based Ethernet system will be measured for payment by the number installed, complete, functional, and accepted. Unless otherwise specified in the Contract, furnish and install the following minimum items as part of a wireless system: radio transceiver, antennas, antenna coaxial cables, Cat-6 outdoor-rated cables, PoE injectors, power supplies, surge protection, attachment hardware, any pole attachment permit fees, and work, equipment, and appurtenances as required to provide a fully functional wireless communications system. The price bid shall also include radio configuration and management software, any licenses, programming, device cabling, and system documentation to be turned over to the Department, including shop drawings, operations and maintenance manuals, wiring diagrams, block diagrams, and other material necessary to document the operation of the applicable wireless radio system. This price shall be full compensation for labor, tools, materials, equipment, and incidentals necessary to complete the work and provide a fully operational wireless communications system.

B. Type 4 Wireless System

Item No. 926-2104 – 4G Cellular Wireless Ethernet System, Type 4 (EA)

The 4G cellular wireless system will be measured for payment by the number installed, complete, functional, and accepted. Unless otherwise specified in the Contract, furnish and install the following minimum items as part of a 4G wireless system: 4G cellular wireless router or modem, antennas, cabling and associated components, and work, equipment, and appurtenances as required to provide a fully functional 4G cellular wireless communications system. The price bid shall also include system documentation to be turned over to the Department and other material necessary to document the operation of the applicable 4G cellular wireless radio system. This price shall be full compensation for labor, tools, materials, equipment, and incidentals necessary to complete the work.

C. Wireless Training

Item No. 926-3000 – Wireless Training (Lump Sum)

Training is measured as a lump sum for supplies, equipment, materials, handouts, travel, and subsistence necessary to conduct the wireless training.

D. Wireless Radio Survey

Item No. 926-4000 – Wireless Radio Survey (Lump Sum)

Wireless survey is measured as a lump sum for wireless measurement tools, supplies, equipment, materials, development of report and recommendations, travel, and subsistence necessary to conduct the wireless radio survey.

Measurement Notes:

Submittal

Submittal requirements are included in Section 940 and shall not be paid for separately. It shall be considered incidental to the wireless system pay item.

Testing

Testing requirements are included in Section 940 and shall not be paid for separately. It shall be considered incidental to the wireless system pay item.

Wireless Enclosures and Cabinets

Wireless system enclosures and cabinets for housing the communications equipment, and other components shall be considered incidental to the wireless system pay item.

NaviGAtor Integration

NaviGAtor integration requirements are included in Section 940 and shall be paid for under 940-1000.

926.5 Payment

926.5.1 Wireless System

Wireless systems of the types specified in the Contract documents are paid for at the Contract Unit Price. Payment is full compensation for installing, testing, and providing warranty for the wireless system.

The Department will pay 25%of the total Contract bid amount for properly stored materials. The Department will pay 50%of the total Contract bid amount upon installation of the wireless radios, antennas, and other components of the wireless system and completion of the stand-alone/site testing acceptance. The Department will pay 25%of the total Contract bid amount upon completion of the Final Project Acceptance. The total sum of all payments cannot exceed the original Contract amount for this item.

Payment for wireless system is made under:

Item No. 926	900 MHz Wireless Ethernet System, Type 1	Per each
Item No. 926	2.4 or 5 GHz Wireless Ethernet System, Type 2	Per each
Item No. 926	2.4 or 5 GHz Wireless Backhaul Ethernet System, Type 3	Per each
Item No. 926	4G Cellular Wireless Ethernet System, Type 4	Per each

Item No. 926	Wireless Radio Survey	Lump sum

926.5.2 Training

The Department will pay 25%of the total Contract bid amount for training upon approval of the Training Plan. The Department will pay the remaining 75%after completion of training described in Section 940.2.05. The total sum of all payments cannot exceed the original Contract amount for this item.

Payment for training is made under:

Item No. 926	Training	Lump Sum

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SUPPLEMENTAL SPECIFICATION

Section 935—Fiber Optic System

Delete Section 935 in its entirety and substitute the following:

935.1 General Description

Furnish, install, test, and provide warranty and training for fiber optic system equipment and materials as shown in the Contract documents.

935.1.1 Definitions, Acronyms, and Abbreviations

A. Definitions

1. **Fiber Interconnect Cable**: A 12 or 24 fiber factory-connectorized cable from the splice tray to the back of the bulkhead connector panel.
2. **Fiber Pigtail Cable**: A single or multi-fiber factory-connectorized cable within a FPP.
3. **Fiber Patch Panel (FPP)/Fiber Distribution Unit (FDU)**: Provide fiber termination at field cabinets and hubs to provide network connectivity for ITS devices. FPPs are defined as providing 6 to 36 connectors or ports, and FDUs are larger providing 48 to 288 connectors or ports.
4. **Trunk Fiber**: A multi-fiber count fiber optic cable that provides the network interconnection and transport between field cabinets, hubs and the TMC and other buildings.
5. **Drop Fiber**: A smaller-strand count fiber optic cable that provides the interconnection of network equipment inside a field cabinet and/or a hub to the trunk or backbone fiber optic cable.

B. Acronyms and Abbreviations

Refer to Sections 101.01 and 940.1.01 for a list of acronyms, abbreviations, and common terminology used throughout the ITS specifications.

935.1.2 Related References

A. GDOT Standard Specifications

1. Section 150–Traffic Control
2. Section 939–Communication and Electronic Equipment
3. Section 940–ITS General Requirements

B. Referenced Industry Standards and Documents

It is the Contractor's responsibility to utilize the standards, codes, manuals, and guidelines that apply to the work required to complete this Project.

Fiber optic system materials are to be consistent and compliant with the latest version or edition of the standards and industry practices as specified.

1. American National Standard Institute (ANSI)/Institute of Electrical and Electronics Departments (IEEE) C2, National Electrical Safety Code, latest edition.
2. ANSI/National Fire Protection Association (NFPA)-70, National Electrical Code, latest edition.
3. ASTM A135, “Standard for Electric-Resistance-Welded Steel Pipe,” latest edition.
4. ASTM B695, “Standard for Coatings of Zinc Mechanically Deposited on Iron and Steel,” latest edition.
5. ASTM D1248, “Standard for Polyethylene Plastics,” latest edition.
6. ASTM F593/594, “Standards for Stainless Steel Bolts and Nuts,” latest edition.
7. Insulated Cable Engineers Association, Inc. (ICEA) S-87-640, “Optical Fiber Outside Communication Cable,” latest edition.
8. International Telecommunication Union-Telecommunication Standardization Sector (ITU-T) G.652D, “Characteristics of a single-mode optical fiber and cable,” latest edition.
9. ITU-T G.657, “Characteristics of a bending-loss insensitive single-mode optical fiber and cable,” latest edition.
10. Occupational Safety and Health Administration (OSHA) Regulations, 29 Code of Federal Regulations (CFR) 1910, “Occupational Safety and Health Administration Standards,” latest edition.
11. Restriction of Hazardous Substances (RoHS) Directive 2011/65/EU.
12. RUS 7 CFR 1755.900, “United States Department of Agriculture Rural Utilities Service (RUS) Standard 7 CFR 1755.900,” latest edition.
13. Telcordia GR-20-CORE, “Generic Requirements for Optical Fiber and Cable,” latest edition.
14. Telcordia GR-326-CORE, “Generic Requirements for Single-mode Optical Connectors and Jumper Assemblies,” latest edition.
15. Telcordia GR-769-CORE, “Generic Requirements for Fiber Organizer Assemblies,” latest edition.
16. Telcordia GR-771-CORE, “Generic Requirements for Fiber Splice Enclosures,” latest edition.
17. Telecommunications Industry Association (TIA) 492-CAAB, “Detail Specification for Class IVa Dispersion-Unshifted Single-mode Optical Fibers with Low Water Peak,” latest edition.
18. TIA-455-A, “Standard Test Procedure for Fiber Optic Fibers, Cables, and Components,” latest edition.
19. TIA-598-B.3, “Optical Fiber Cabling Components Standard,” latest edition.
20. TIA-598-D, “Optical Fiber Cable Color,” latest edition
21. TIA-604-XX, “Fiber Optic Connector Intermateability Standards (FOCIS),” where XX specifies the fiber optic connector type (i.e., ST, LC, etc.), latest edition.
22. UL94/VO, “UL Flammability Standard,” latest edition.

935.1.3 Submittals

Refer to Section 940.2.01 for submittal requirements. Requirements for materials and components are specified herein.

935.2 Materials

935.2.1 Fiber Cable and Optical Requirements

Provide outside plant (OSP), single-mode (SM) fiber optic cabling that is suitable for underground in conduit and aerial installation. Provide cable-related hardware, connectors, splice closures, fiber pigtail cables, fiber-interconnect cables, fiber patch panels, fiber distribution units, and any other ancillary and incidental materials required or needed to provide a complete fiber optic system.

A. General Requirements

1. Manufacture materials in an International Organization for Standardization (ISO) 9001-certified manufacturing facility that is regularly engaged in the production of the materials described in this section.
2. Use only fiber optic cables and components that are new (manufactured no more than one year prior to the Project Notice-to-Proceed), provided by one manufacturer, and from the same manufacturer production batch.
3. Provide standard products manufactured and distributed for a minimum of three years by the same manufacturer that is regularly engaged in the production of these materials.
4. Furnish only commercial off-the-shelf materials, equipment, and components.
5. Use the most stringent material requirement for this Contract if a conflict or difference exists between the specified industry standards listed in Section 935.1.02(B) and between the specified industry standards and these supplemental specifications. Notify and resolve with the Department or authority having jurisdiction of any such conflicts or differences prior to procurement of materials and components.
6. Use fiber optic cable that is splice-compatible with the Department's existing G.652 SM fiber and requires no electronic equipment for dispersion compensation between new and existing fiber.
7. Provide SM fiber optic cables ranging from 6 strands to 288 strands depending on its location and function as listed in the Contract documents.
8. Provide cables that comply with National Electrical Code (NEC) Article 770.
9. Provide cables that comply with Restriction of Hazardous Substances (RoHS) Directive 2011/65/EU.

B. Fiber Optical Requirements

1. Provide fiber optic cables that comply with ICEA S-87-640.
2. Provide fiber optic cables that comply with Telcordia GR-20-CORE.
3. Provide fiber optic cables that comply with RUS 7 CFR 1755.900, 901, and 902 (PE-90).
4. Provide fiber optic cables that comply with ITU-T G.652.D.
5. Provide fiber optic cables that comply with ITU-T G.657.A1.
6. Provide fiber optic cables that comply with TIA 492-CAAB (OS2).
7. Ensure that fibers are 100 percent usable and meet the optical performance requirements when tested according to TIA 455:
    a. Provide a fiber section attenuation of ≤0.35 dB/km at 1310 nm with a variability of ≤0.03 dB/km between 1285 nm and 1330 nm. Tested according to Fiber Optic Test Procedure (FOTP)-78-B.
    b. Provide a fiber section attenuation of ≤0.25 dB/km at 1550 nm with a variability of ≤0.02 dB/km between 1525 nm and 1575 nm. Tested according to FOTP-78-B.
    c. Provide a mode field diameter of 9.2 µm ±0.4 µm at 1310 nm and 10.4 µm ±0.5 µm at 1550 nm. Tested according to FOTP-191-B.

8. Ensure uniform attenuation with no point discontinuities >0.05 dB at both 1310 nm and 1550 nm.
9. Provide a mechanically strippable, dual-layer, ultraviolet (UV) acrylate, color-coded protective coating.

C. Fiber Cable Construction Requirements

1. Provide OSP fiber optic cables with the following characteristics:
   a. Provide cable suitable for underground (i.e., in conduit) and aerial installation.
   b. Provide cable with a single jacket that is unarmored.
   c. Provide all-dielectric (no metal or electrically conductive) materials.
   d. Provide water-blocking materials that are gel-free, dry-type, non-nutritive to fungus, electrically non-conductive, and homogenous.
   e. Provide loose tube design that is SZ-stranded around an anti-buckling central strength member.
   f. Provide buffer tubes that contain 12 optical fibers placed inside each tube for cables 24 count and higher.
   g. Ensure that fibers and buffer tubes are color coded according to TIA-598-D.
      i. Ensure colors are stable during temperature cycling and aging.
      ii. Ensure colors do not fade or smear onto each other.
2. Provide cable outer jacket or sheath meeting the following minimum requirements:
   a. Provide a minimum medium-density polyethylene black outer jacket as defined by ASTM D1248, Type II, Class C, Category 4 or 5 and Grades J4, E7, and E8.
   b. Provide a track-resistant polyethylene black outer jacket if the fiber optic cable is installed in an aerial application and the space potential is >12 kV.
   c. Provide jacket that is smooth; concentric; free from holes; consistent thickness; free of splits, blisters, and any other surface flaws; and contains carbon black to provide UV protection and prevent the growth of fungus.
   d. Provide a method to permit removal of the sheath.
3. Provide labeling for the fiber optic cable meeting the following minimum requirements:
   a. Cable Print-line Labeling: Label fiber cables using the following template, unless otherwise listed in the Contract:
      i. Manufacturer's name – Optical Cable – Year – Telecommunication Handset Symbol – GA DOT – Description (which consists of XX SM, where XX denotes the fiber count).
      ii. Sequentially mark the cable length reflecting the distance from the cable origin point in English units every 2 ft (0.6 m). Ensure that the cable length markings are within 1 percent of the actual length of the cable.
      iii. Provide cable marking that is contrasting in color to the cable jacket. Marking font height shall be no less than 0.10 in (2.5 mm).
   b. Cable Marking: Cable marking will meet the following minimum requirements:
      i. Use 2.5 in (64 mm) wide, 4 in (100 mm) long, wrap-around type cable markers suitable for underground and aerial use.
      ii. Use UV-stabilized marker material and printing inks to provide an aerial durability of at least five years.
      iii. Print text in bold black type on orange or yellow PVC markers.
      iv. Fabricate markers from PVC base material with a minimum thickness of 0.015 in (0.38 mm).

v. Pre-print the following text, or alternate text shown in the Plans, legibly on markers used for the cables:

Cable ID: XXXXXXX
GA DOT
Optical Cable

Where XXXXXX is the cable ID as defined in the Contract documents.

vi. Print the text specified above twice on every cable marker with the text of the second image reversed and abutting the first image in such a manner to ensure the text "reads right" when either short edge of the cable marker is held horizontally upright.

D. Cable Performance Requirements

1. Provide fiber optic cable that can operate over a temperature range of −30°F to +158°F (−34°C to +70°C) at a relative humidity of up to 95 percent condensing.

2. Provide fiber optic cable that has been tested in accordance with TIA-455 as shown in Table 1, resulting in no permanent change in attenuation, no signs of water leakage, no mechanical damage to the cable, and no adverse effects to the jacket or fibers. Upon the request of the Department, provide certification from an independent testing laboratory certifying the cable conforms to the following specifications and test procedures.

Table 1 – Cable Performance Testing

ID	Parameter	Test Performed	Test Condition/ Specification
Testing requirements that apply to all fiber optic cable			
1	Bend Test (Low and High Temperature)	FOTP-37-A	Four full turns around mandrel of 20 times cable outer diameter at 4 hours of −22°F and +140°F (−30°C and +60°C)
2	Impact Resistance	FOTP-25-D	25 impact cycles (at 4.4 nm) at different points along the sample
3	Compressive Strength (Crush Resistance)	FOTP-41-A	125 lb/in (220 Newton/cm) (short)
4	Tensile and Fiber Strain (Macro-bending)	FOTP-33-B	Maximum 600 lb (2,700 Newton) – during tensile load, Maximum 180 lb (800 Newton) – without tensile load
5	Cable Twist-Bend	FOTP-85-A	10 cycles ±180 degrees of mechanical twisting
6	Cable Cyclic Flexing	FOTP-104-B	25 times mechanical flexing cycles around a sheave of 20 times cable outer diameter
7	Temperature-Humidity Cycling	FOTP-3-B	Minus 40°F to +158°F (−40°C to +70°C)
8	Water (Fluid) Penetration	FOTP-82-B	1 m static head for 1 hour
9	Cable Freezing	FOTP-98	Frozen on ice
Testing requirements that apply to aerial fiber optic cable			
1	High Frequency (Aeolian) Vibration	IEEE P1222	100 million vibration cycles
2	Low Frequency (Galloping) Vibration	IEEE P1222	100 thousand vibration cycles

E. Aerial Cable Lashing Materials Requirements

1. Provide minimum 0.038 in (0.96 mm) diameter lashing wire to attach aerial fiber optic cable to the messenger or strand.

2. Provide lashing wire, attachment, and mounting hardware with sufficient tensile strength for the application and meeting the requirements of ASTM F593 and ASTM F594 for corrosion resistance.

3. Use Type 302 stainless steel lashing materials in non-coastal regions and Type 316 along coastal regions (within 5 miles of the coast line).

F. Aerial Snowshoe Storage Requirements

1. Provide a factory-manufactured UV-stabilized snowshoe fiber storage unit that is designed to store excess or slack fiber optic cable or fiber optic cable and a splice closure in the span.
2. Provide fiber optic snowshoe that is constructed with plastic or aluminum bodies that maintain the minimum cable bend radius and have integral cable lashing strap slots or holes to secure cable attachments to the storage bracket.
3. Provide galvanized or stainless steel hanging and attachment hardware (bolts, nuts, washers) and strand clamps for attachment to messenger or strand according to ASTM A135 and B695.
4. Provide cable protection bracket that minimizes cable abrasion and organizes cable against the pole.
5. Provide side facing channel to minimize ice and leaf loading.

G. Fiber Patch Cord Requirements

1. Provide the same glass type and performance requirements as the manufacturer of the backbone and drop fiber optic cable provided in this Contract.
2. Provide factory pre-assembled, riser-rated, factory-tested, pre-terminated duplex patch cords with two fibers with connectors as described in Section 935.2.03(A) on each end.
3. Ensure patch cords meet UL94-VO flammability requirements.
4. Provide lengths as listed in the Contract with a minimum of 1 ft (30 cm) slack between connected equipment.
5. Ensure that the optical fiber within the body of fiber optic connectors is mechanically isolated from cable tension, bending, and twisting.
6. Provide an outer jacket and a connector boot and housing color as directed by the Department.
7. Label duplex patch cords to distinguish between the two zip legs of the duplex cord as approved by the Department.
8. Provide protective dust caps on the connector ferrules.
9. Ensure no splices of any type are within a patch cord assembly.
10. Provide qualification or certification data from the manufacturer upon request by the Department.
11. Package each assembly individually within a plastic bag and clearly mark on the outside of that bag the submitted manufacturer's part number.

935.2.2 Fiber Optic Connection Hardware Requirements

Ensure that splice closures, organizers, cable end preparation tools, and procedures are compatible with the fiber optic cable and are approved by the Department.

A. Fiber Optic Splice Closure Requirements

1. House optical fiber splices within a fiber optic splice closure, complete with fiber splice and buffer organizer assembly, dome, grommets, end plate, mounting hardware and bracket, cable restraint hardware, buffer tube storage, splice protection, sealant materials, and any other materials and components needed to provide a sealed fiber splice closure installation.
2. Provide splice closures that are stand-alone and be from the same manufacturer and type.
3. Use splice closures that are either “cylindrical” or “rectangular dome” type with cable entries at one end only and sealed one-piece high-density black polyethylene (thermoplastic) dome bodies.

4. Ensure splice closures comply with Telcordia GR-771-CORE.
5. Use only RUS-listed splice closures.
6. For splice closures up to 144 splices as shown on the Contract documents meet the following minimum configuration requirements:
   a. Splice Capacity (maximum): 144 splices, single fusion
   b. Cable Entrance Configuration: Butt
   c. Cable Entries Supported (maximum): up to 4 cables at 0.75 in each
   d. Express Capacity (maximum): 16 express buffers (when configured for 144 splices)
   e. Physical Dimension (typical): 6 in to 22 in
7. For splice closures between 144 and 288 splices as shown on the Contract documents meet the following minimum configuration requirements:
   a. Splice Capacity (maximum): 288 splices, single fusion
   b. Cable Entrance Configuration: Butt
   c. Cable Entries Supported (maximum): up to 5 cables at 0.75 in each + 1 cable at 1.0 in each
   d. Express Capacity (maximum): 36 express buffers (when configured for 288 splices)
   e. Physical Dimension (typical): 8 in to 28 in
8. Port Sealing Method: Provide a flexible thermoplastic compression seal grommet for each pre-template cable port that matches the required number and size of cables coming in and out of the splice closure without jeopardizing the waterproof characteristics of the splice closure.
9. Hermetically seal closures to protect fiber, splices, and internal components from water entry without the use of an encapsulate, including being submerged in standing water.
10. Ensure spliced closure is sealed from insects, rodent proof, airtight, crush resistant, chemical-resistant, and corrosion resistant.
11. Provide an external pressurization air value or port for flash testing the splice closure.
12. Provide fiber organizers and splice trays that organize fiber buffers, protect fiber splices and provide fiber and buffer slack storage.
13. Provide splice closures that can be re-entered and re-sealed using no special tools, reusable sealing materials (grommets, O-rings, etc.) allowing multiple re-entries without removal of any component and without disruption to the surrounding cables.
14. Provide splice closures that are suitable for mounting on the inside wall of an underground buried electrical communications box (ECB), pull box, or aerial messenger or strand as listed in the Contract documents.
15. Use corrosion-resistant or stainless steel mounting brackets and hardware.
16. Aerial Installation: In addition to the above requirements the closure shall meet the following minimum requirements:
   a. Provide universal mounting bracket with features to permit aerial strand mounting with strand clamps or as approved by the Department.
   b. Provide a design that eliminates the need for drip collars and sealing collars.
   c. Package the closure with all necessary hardware for aerial mounting.

B. Fiber Splice Tray Requirements

1. Hold each fiber strand and buffer tube in the tray so that no stress or tensile force is placed on completed and finished fusion splices within the tray.
2. Loop individual fibers one full turn within the splice tray to avoid micro bending.
3. Maintain minimum bend radius of fiber at all times.
4. Provide slack storage for exposed fibers and buffer tubes to prevent damage to fibers.
5. Ensure that splice trays include a cover with a locking mechanism to hold it in place.
6. Provide access to individual fibers without disrupting other fibers in the tray.
7. Ensure the fiber can be visually inspected.
8. Package and protect each fusion-spliced fiber housed within the splice tray with a minimum 1.5 in (40 mm) reinforced, heat shrink, and waterproof sleeve.

935.2.3 Fiber Optic Cable Termination Requirements

A. Fiber Optic Connector Requirements

1. Provide certified Lucent Connector (LC) fiber optic connectors for Small Form-Factor Pluggable (SFP) optical transceivers.
2. Provide only Straight Tip (ST)-compatible, ceramic-insert couplers where barrel couplers are used in passive termination applications such as FPPs and FDUs.
3. Ensure connectors comply with TIA-568-B.3.
4. Ensure connectors comply with TIA-604-10B (Type LC) and TIA-604-2B (Type ST) intermateability requirements.
5. Test connectors according to Telcordia GR-326-CORE.
6. Provide ceramic ferrule ultra-polish connectors (UPC) that are polished.
7. Mechanically isolate the optical fiber within the body of connectors from cable tension, bending, and twisting.
8. Ensure that connectors are factory-assembled and tested. No field installed connectors are permitted.
9. Provide unmated connectors with protective dust caps installed. Provide dust caps for both sides of couplers at all times until permanent connector installation.
10. Provide industry standard approved connector for SM optical fiber that meets or exceeds the applicable provisions of TIA-455-X related to fiber optic connectors and interfaces and meets the following requirements:
    a. Operating temperate range of −40°F to +167°F (−40°C to +75°C).
    c. Insertion loss of ≤0.25 dB (typical) and ≤0.5 dB (maximum).
    d. Return loss (back reflection) ≤−55 dB (UPC).
    e. Mating durability ≤0.2 dB (typical) change, 500 mating cycles.

B. Fiber Patch Panel (FPP) and Fiber Distribution Unit (FDU) Requirements

1. Provide FPPs (6 to 36 connectors) and FDUs (48 to 288 connectors) that meet the requirements as presented in this section.
2. Ensure FPPs and FDUs comply with TIA-310-D standard 19-in rack-mounted or wall or panel-mounted installation.
3. For 6 to 36 connectors, use FPP and FDU enclosures that integrate the splice trays and connector modules into one compartment within one enclosure. For 48 connectors and larger, use FDU enclosures as one integrated

compartment or house the splice trays and connector modules in separate compartments integrated into one enclosure.

4. Provide splice trays for storing the number of fusion splices as listed in the Contract documents.
5. Ensure FPPs and FDUs meet UL94-VO flammability requirements.
6. Provide wire management system at every FPP and FDU location for fiber cables and patch cords.
7. Provide access to fiber splicing trays and fiber termination couplers.
   a. Provide access from the front or rear with removable, fold-down or swing-out doors, drawers, and covers.
   b. Provide physical protection when doors, drawers, and covers are in the closed position and completely enclose fiber splicing trays, fiber pigtails, and fiber termination couplers.
   c. Provide storage space to house and protect the number of splice trays required to splice and terminate the fibers.
   d. Provide rubber grommets or similar material to prevent the cable from coming in contact with bare metal.
   e. Provide radius guides and strain relief for the incoming fiber optic cable(s) to maintain bend radius and protect the fibers.
   f. Provide bulkhead-mounted, termination coupling connectors that include locknuts for mounting the connectors in predrilled or punched holes in the connector panel.
   g. Provide bulkhead-mounted coupling connectors with dust caps.
8. Provide fiber interconnect cables and fiber pigtail cables meeting the following minimum requirements:
   a. Provide 12-fiber fiber interconnect cables for FDU's with 12-splice capacity trays, and 24-fiber interconnect cables with FDU's with 24-splice capacity trays.
   b. Use fiber-interconnect cables for FPP's with splice trays (for 48 to 288 fiber OSP cables).
   c. Provide single fiber pigtail cables for FPP's without splice trays (for 6 to 36 fiber OSP cables) that meet the requirements as presented in this section.
   d. Provide cables with factory installed connectors in accordance with Subsection 935.2.03(A).
   e. Provide cables with 900 micron tubing or 0.12 in (3 mm) fan out tubing as required for the application.
   f. Use fiber pigtail cables with 900 micron tubing only when fully enclosed within the FPP from splice tray to the back of the bulkhead connector panel.

935.3 Construction Requirements

Ensure that construction and installation for the fiber optic cabling and components comply with the fiber optic cable manufacturers' installation procedures and guidelines and follows the Project Fiber Optic Installation Plan as specified herein.

935.3.1 Contractor Experience and Qualifications

1. Provide the following documentation
    a. Provide three current client references for projects that were performed by the Contractor and/or sub-contractor for the installation of fiber optic cables, including fusion splicing, terminating, and testing of SM fiber optic cable.
    b. Proof of staff certification by the equipment manufacturer as being training and proficient for use of the equipment.
    c. Proof that splicing personnel have been trained for the fusion splicing and possess a fiber optic splicing certification from an industry recognized authority such as International Municipal Signal Association (IMSA) or Electronics Technicians Association (ETA).
    d. Evidence that the technical staff who will perform the fiber optic work have a minimum of three years of similar outside plant (OSP) project experience and proficient with state-of-the-art fiber optic fusion splicers, Optical Time Domain Reflectometers (OTDR), optical power meters, and other fiber test diagnostic equipment and tools as required on this Project.
    e. Evidence that the directional boring staff, including the drilling supervisor, have experience in similar installs and conditions.
2. Ensure the drilling supervisor is in direct charge and control of the directional boring operation at all times.
3. Provide credentials and experience of the directional boring drilling supervisor and other drilling field staff. The Department reserves the right to request replacement of said individual if they do not have sufficient experience prior to the start of any directional drilling.

935.3.2 Construction Requirements

A. Cable Installation Procedures and Standards

1. **Fiber Installation Plan:**
    a. Develop a Fiber Installation Plan for review and approval by the Department prior to fiber optic cable installation, splicing, and termination work on this Project. Include at a minimum the following components:
        i. Fiber running path line (route). Where not specifically shown in the Contract documents, show proposed trunk fiber and existing fiber (if any) to identify trunk to trunk fiber splice points, coordination of fiber allocation and associated splice details, and as-built drawings of the complete fiber system.
        ii. The vendor and part numbers for proposed materials and equipment, i.e., fiber optic trunk and drop cables, splice closures and splice trays, splicer equipment, fiber patch panels, connectors and other materials required or needed.
        iii. Location of fiber drop cables and proposed splice locations.
        iv. Location of fiber terminations.
        v. Fiber splice details for each location, showing buffer/strand utilization and allocation plan.
2. **Safety Requirements**: Follow OSHA and industry standards related to safety when working in manholes or underground vaults and when handling optical fibers.

3. **Fiber Cable Shipping and Storage**:
   a. Assume full responsibility for any cable/fiber damage that occurs during shipment.
   b. Pack the cable and wrap in weather and temperature resistant covering to prevent damage during shipment, to facilitate unloading, and to allow for outdoor storage as approved by the Department.

B. Cable Installation Guidelines:

1. Before the installation begins, inspect the cable reels for imperfections such as nails that might cause damage to the cable as it is unreeled.
2. Whenever unreeled cable is placed on the pavement or surface above a manhole, provide means of preventing vehicular or pedestrian traffic through the area in accordance with Section 150.
3. **Cable Handling**: Comply with the manufacturer's recommended procedures and these specifications.
4. **Pulling Tension**: Comply with the maximum recommended pulling tension during installation as specified by the cable manufacturer.
5. **Allowable Bend Radius**: Comply with the minimum recommended bend radius during installation as specified by the cable manufacturer. Unless the manufacturer's recommendations are more stringent, use the following guidelines for minimum bend radius:
   a. 20 times the outside cable diameter for short term (during installation)
   b. 10 times the outside cable diameter for long term (installed)
6. **Cable Monitoring:** Submit the method of monitoring cable stress during installation to the Department for review and approval. Ensure allowable pulling tension is the lesser of either of the two values below:
   a. The cable manufacturer's recommended pulling tension from the outer jacket for the cable.
   b. 80 percent of the cable manufacturer's maximum pulling tension from the outer jacket.
7. When using lubricants, comply with the cable manufacturer's recommendations for type, amount, application tools and method, and removal of the lubricant from the exposed cable. Pre-lubrication of cable is acceptable to provide uniform lubrication.
8. Use rollers and sheaves for difficult pulls to eliminate damage when entering and existing the conduit system.
9. During the installation of the fiber cable, record as-built fiber cable footage at riser locations, hand-holes, and slack storage locations.
10. Where messenger cable is required, as shown in the Contract documents, lash aerial fiber optic cable to a steel strand wire messenger cable of the size specified in the Contract documents that conforms to Section 915.02.
11. **Installation Methods**: Ensure fiber cable installation method selected meets the following requirements:
    a. If pulling is utilized on this Project:
       i. Install the fiber optic cable by hand and/or by using a mechanical pulling machine.
       ii. If a mechanical pulling machine is used, equip the machine with a monitored or recording tension meter. Ensure that at no time the manufacturer's recommended maximum pulling tension is exceeded.
       iii. Ensure that the central strength member and aramid yarn are attached directly to the pulling eye during cable pulling. Use pulling attachments, such as "basket grip" or "Chinese finger" type, so that the optical and mechanical characteristics are not degraded during the fiber optic cable installation.
       iv. Ensure that excess cable is coiled in a figure eight and fed manually when pulling through pull boxes by hand.

v. If rollers, pulleys, and sheaves will be used to mechanically pull through pull boxes and splice boxes, provide a drawing of the proposed layout showing that the cable shall never be pulled through a radius less than the manufacturer's minimum bend radius.

vi. Use large diameter wheels, pulling sheaves, and cable guides to maintain the bend radius. Provide tension monitoring at all times during the pulling operation.

vii. Ensure that cable pulling lubricant used during installation is recommended by the optical fiber cable manufacturer.

viii. Provide a continuous section of cable throughout the pull. Cable breaks are allowed only at designated splice points.

b. If air assisted/blowing is utilized on this Project:

i. Use either the high-airspeed blowing (HASB) method or the Piston method.

ii. When using the HASB method, ensure that the volume of air passing through the conduit does not exceed 600 cubic feet per minute or the conduit manufacturer's recommended air volume, whichever is more restrictive.

iii. In cold temperatures, an air dryer accessory is recommended to avoid introducing water condensation into the HASB air inlet chamber or conduit/duct system. Condensation may result in frost. In hot temperatures, an air cooler is recommended to avoid excessive temperatures at the conduit/duct and cable.

iv. When using the Piston method, comply with the conduit manufacturer's recommended air volume or limit to 300 cubic feet per minute, whoever is less.

C. Cable End Sealing:

1. Where a cable ends without termination in a fiber optic closure, seal the end of the cable by reusing a cable end cap shipped with a cable reel, or use a cap that is size-matched to the cable to be sealed.
2. Clean the end of the cable. Partly fill the cap with a waterproof silicone adhesive sealant and press the cap fully onto the cable end, rotating the cap to fully encapsulate the cable end with the sealant in the cap.
3. Apply a full sealant bead between the end of the cap and the cable jacket.

D. Cable Slack Storage

1. At designated intervals throughout the cable plant, pull and store excess cable for slack for future terminations or splicing.
2. Store cable slack to minimize susceptibility to damage.
3. **Communication and Pull Boxes**: Store the excess or slack cable in the pull box or communication box in accordance with the Contract documents.
4. **Aerial Installations**:

a. Where messenger strand or cable is required, as shown in the Contract documents, lash aerial fiber optic cable to a steel strand wire messenger cable of the size specified in the Contract documents that conforms to Section 915.02.

b. Store the excess or slack cable at storage loops in a "bow tie" configuration on the messenger strand using two fiber optic snowshoes (aerial fiber cable storage brackets) that maintain the proper bend radius in the fiber cable.

c. Install one fiber optic snowshoe for drop cable and trunk cable storage at aerial splice closures to maintain the bend radius in the fiber optic cable.

5. **Minimum Cable Slack Storage Requirements – Underground**: Unless otherwise noted on the Contract documents, meet the following requirements for cable storage for underground applications:

   a. Pull Box Types 4, 4S, 5, 5S, 6, and 7: Apply the following storage requirements for the indicated cable/splice closure situations.

      i. Drop cable with no splice closure: 10 ft (3 m).

      ii. One or more trunk cables with no splice closure: 110 ft (34 m) of each cable.

      iii. Two or more trunk cables with one splice closure: store 55 ft (17 m) of each trunk cable so that the splice closure can be removed from the pull box approximately 55 ft (17 m). If a drop cable is spliced to the trunk cable at this point, store 55 ft (17 m) of each drop cable.

      iv. One trunk cable with one splice closure: 110 ft (34 m). Install splice closure in the center of the 110 ft (34 m) cable loop, so that the splice closure can be removed from the ECB approximately 55 ft (15 m). If a drop cable is spliced to the trunk cable at this point, store 55 ft (17 m) of each drop cable.

      v. One trunk cable with one splice closure and trunk cable ends: 95 ft (30 m). Install splice closure on the trunk cable at 55 ft (17 m) from the pull box. If a drop cable is spliced to the trunk cable at this point, store 55 ft (17 m) of each drop cable.

      vi. Trunk cable ends with no closure: 95 ft (30 m).

   c. Hub Building (interior): Do not store slack cable inside the hub building.

   d. Hub Building (exterior adjacent ECBs): 180 ft (55 m).

   e. Traffic Control Center & Transportation Management Center (OSP splice vault): 180 ft (55 m).

   f. Traffic Control Center & Transportation Management Center (ISP at equipment room): cable entrance to distribution panel bay plus 20 ft (6 m).

   g. Electrical Communication Box (ECB) Types 3, 4, 5, and 6: Apply the following storage requirements for the indicated cable/closure situations. More than one situation may occur in a single ECB, in which case apply each requirement

      i. Trunk cable with no splice closure: 110 ft (34 m).

      ii. Trunk cable with one splice closure: 110 ft (34 m). Measure the storage amount from the top of the ECB manhole opening. Install closure in the center of the 110 ft (34 m) cable loop, so that the splice closure can be removed from the ECB approximately 55 ft (17 m). If a drop cable(s) is spliced to the trunk cable at this point, store 55 ft (17 m) of each drop cable.

      iii. Trunk cable with one splice closure and trunk cable ends: 95 ft (30 m). Install closure at 55 ft (17 m) from the ECB on the trunk cable. If a drop cable(s) is spliced to the trunk cable at this point, store 55 ft (17 m) of each drop cable.

      iv. Trunk cable ends with no closure: 95 ft (30 m).

6. **Minimum Cable Storage Requirements – Aerial Applications**: Unless otherwise noted on the Contract documents, the following are the minimum requirements for cable storage for aerial applications.

   a. Install a minimum 150 ft (45 m) storage loop approximately one-half the distance between every equipment drop or as shown in the Contract documents.

   b. Where equipment drops are >1000 ft (300 m) apart, install a minimum 150 ft (45 m) storage loop for every 1000 ft (300 m) of uninterrupted cable length.

   c. At aerial splice closures, install 75 ft (23 m) of drop cable storage and 150 ft (45 m) of trunk cable storage, unless otherwise noted in the Contract documents, to allow the fully assembled splice closure, including the trunk cable and drop cable, to be lowered to ground level for maintenance purposes.

E. Cable Splicing

1. Splice together each individual reel of fiber optic cable to provide the continuous length of installed cable.
2. Splice cable only at splice points shown in the Contract documents.
3. Make no splices within a fiber patch cable assembly or fiber drop cable.
4. **Fusion Splicing:** Use the fusion technique for splices and terminations. Use a fusion splicing machine (fusion splicer) to splice optical fiber. Mechanical splicing is not allowed.
5. **Splice Equipment and Preparation**:
   a. Ensure fusion splicing equipment is supported with calibration records indicating a factory calibration within three months preceding their use on this Project.
   b. Clean and calibrate fusion splicing equipment per the manufacturer's specifications, and specifically adjust the fiber and environmental conditions at the start of each splicing shift.

   Splicing: Comply with the cable manufacturer's and fusion splicer's procedures, accepted standards, codes, and practices. Do not install mechanical splices.
6. **Splice Loss:**
   a. Splice optical fibers using the fusion splice method and ensure the mean (average) splice loss does not exceed 0.1 dB for new fiber to new fiber and 0.3 dB (per TIA-568.3-D) for new fiber to existing (legacy) fiber).
   b. Obtain the mean splice loss by measuring the loss through the splice in both directions and then averaging the resultant values.
7. **Splice Protection**:
   a. Protect fusion splices in splice trays or organizers in a splice closure or enclosure.
   b. Provide the splice with strain relief and protection of the stripped fiber splice in a manner recommended by the splice tray or organizer manufacturer. Use splice types compatible with the tray design.
   c. Protect fusion splices with a heat shrink tubing that protects the splice and extends over the fiber coating.
   d. Do not leave bare fiber exposed.

F. Mid Span/Drop Access

1. At points where mid span/drop access is required, keep fibers intact except those being accessed for the equipment drop.
2. Use a suitable tool for removing fibers from the buffer tube to prevent damage to the fibers remaining intact.

G. Connector Termination Procedures

Comply with procedures for the termination of the connectors as required by the connector manufacturer's fiber optic installation standard operating procedure (FOSOP) for the field installation.

H. Cable Marking Installation

1. Clean the installed cable of dirt and grease before applying any marker.
2. Follow the marker manufacturer's recommended procedure for applying cable markers.
3. Mark cables in or at every Hub, ECB, pull box, hand-hole, field cabinet, aerial or underground splice closure, pole attachment, aerial storage bracket, and pole conduit riser entrance.

4. At every trunk cable termination, reel end-to-reel end splice, ECB, pull box, hand-hole, field cabinet, aerial splice closure, and aerial storage bracket, record the cable distance markings from the print-line for the cable entry and exit, along with the exact location by station number or location name.
5. Record the cable distance markings in a tabular format approved by the Department or on a documentation form provided by the Department.
6. Place cable markers in the following locations:
   a. Within 18 in (460 mm) of every cable entry to a pull box, hand-hole, ECB, and Hub building
   b. Within 6 in (150 mm) of every cable entry or termination in a field cabinet
   c. Within 18 in (460 mm) of every splice closure at cable entry points
   d. Within 6 in (150 mm) of every FPP/FDU or splice cabinet in a Hub building in which a cable terminates or enters
   e. Every 20 ft (6 m) for the length of a cable in maintenance coils in ECBs or pull boxes
   f. Within 12 in (0.30 m) of every pole attachment, aerial storage bracket, and pole conduit riser entrance
7. Use orange markers at all locations, except as noted below:
   a. Where a trunk cable enters and leaves a closure (mid-span cable entry or end-to-end splice), use orange markers for one leg of the trunk cable and yellow for the other leg, placing corresponding color labels at the closure end of a leg and at the conduit entrance (underground installation) or span attachment (aerial installation).
   b. Where two drop cables terminate in a closure, use orange markers for one drop cable and yellow markers for the other drop cable, throughout the drop cable's length to its other termination.

I. Splice Closures

1. Install splice closures according to manufacturers' recommendations.
2. Install splice closures where shown in the Contract documents and in the approximate center of fiber cable storage coils.
3. Securely mount splice closures in ECBs or pull boxes to cable rack hooks or mounting brackets.

J. Fiber Patch Panel (FPP)/Fiber Distribution Unit (FDU)

1. Do not install mechanical splices or field installed connectors.
2. Equip unused panel slots with blank panels.
3. Provide inter-cabinet and inter-bay bend radius and jumper management on each side of the FDU.
4. Install hardware according to the manufacturer's recommended procedures and Department standards.
5. Determine specific hardware sizing from the Contract documents.
6. For rack-mount and wall-mount FPPs/FDUs, array connectors in a vertical pattern with number one being at the top left position.
7. Route and secure the drop cable beside or behind the cabinet side panel such that it is fully strain-relieved, does not violate the manufacturers' recommended bending radius, and does not interfere with the operation of or access to any field cabinet equipment or electrical components.

935.3.3 Equipment Configuration and Integration Requirements

Not Applicable

935.3.4 Testing Requirements

Refer to Section 940.2.04 for fiber optic system testing requirements.

935.3.5 Training Requirements

Refer to Section 940.2.05 for fiber optic system training requirements.

935.3.6 Warranty and Maintenance Support Services

A. Warranty Requirements:

1. Ensure that the fiber optic system including fiber optic cable and associated components and materials defined herein furnished, installed, and tested have a manufacturer's warranty (usual and customary). Include in warranty and support, contractor or manufacturer activities related to maintenance, removal, and replacement of parts and materials during the period of support.
2. Provide a minimum warranty length of two years for fiber optic cable and associated components installed.
3. If the manufacturer's warranties for the components are for a longer period, those longer period warranties shall apply.
4. Ensure warranty periods begin on the date of maintenance acceptance by the Department.
5. Ensure that the manufacturer's warranties are continuous throughout the period and are fully transferable from the Contractor to the Department and any maintenance consultant/contractor.
6. Provide maintenance support services and make any replacements required during the warranty period without additional charge for labor, equipment, parts, shipping, and other materials required. Support system components notwithstanding any supplier's warranties whether written or implied.

B. Maintenance Support Services:

Refer to Section 940.2.06 for fiber optic system maintenance support services requirements.

935.3.7 Project Close-Out Requirements

Refer to Section 940.2.07 for fiber optic system project close-out requirements.

935.4 Measurement

The fiber optic system and training complete, in place, accepted, and of the kind, size, and type specified is measured as follows:

A. Outside Plant Fiber Optic Cable – Trunk/Backbone & Drop

Item No. 935-1111 to 1119 – OSP Fiber Optic Cable, Single Mode, X-fiber (LF)

OSP SM fiber optic cabling shall be measured in units of actual linear feet and paid for at the contract price per linear feet, including cable slack. The price bid shall include the length in feet of actual cable installed as measured from the cable sequential length markings, cable labels, aerial snowshoes for storage (aerial segments), ancillary and incidental materials, documentation, and labor and equipment necessary to complete the work. No measurement for payment shall be made for cable storage amounts in excess of that required in the Project Plans, Details, and Special Provisions. This price shall be full compensation for labor, tools, materials, equipment, and incidentals necessary to complete the work.

B. Fiber Optic Closures

Item No. 935-4101 to 4109 – Fiber Optic Closure, Underground, X Splices (EA)

Item No. 935-4201 to 4209 – Fiber Optic Closure, Aerial (Sealed), X Splices (EA)

Item No. 935-4401 to 4409 – Fiber Optic Closure, FPP/FDU Rack Mount, X Ports (EA)

Item No. 935-4501 to 4505 – Fiber Optic Closure, FPP/FDU Wall Mount, X Ports (EA)

Underground splice closures, aerial splice closures, FPPs, and FDUs shall be measured for payment by the number of units installed, complete, functional, and accepted. The price bid shall include, but not be limited to, cable labels, splice trays, mounting hardware within the pull box, on the messenger strand, rack and wall mounting hardware, ancillary and incidental materials, testing, documentation, and labor and equipment necessary to complete the work. This price shall be full compensation for labor, tools, materials, equipment, and incidentals necessary to complete the work.

C. Fiber Optic Splice, Fusion

Item No. 935-4010 – Fiber Optic Splice (EA)

Fiber optic fusion splices shall be measured for payment by the number of splices made, complete, and accepted. Fiber optic splices associated with the use of factory-connectorized pigtails, in accordance with Subsection 935.2.03, shall not be measured separately for payment. The price bid shall include, but not be limited to, ancillary and incidental materials, testing, documentation, and labor and equipment necessary to complete the work. This price shall be full compensation for labor, tools, materials, equipment, and incidentals necessary to complete the work.

D. Fiber Patch Cable

Item No. 935-5050 – Fiber Patch Cable, SM (EA)

Fiber patch cable shall be measured in units of each and paid for at the contract price per each. The price bid shall include, but not be limited to, ancillary and incidental materials, testing, documentation, and labor and equipment necessary to complete the work. This price shall be full compensation for labor, tools, materials, equipment, and incidentals necessary to complete the work.

E. Fiber Pigtail Cable

Item No. 935-0330 – Fiber Pigtail Cable (EA)

F. Fiber Interconnect Cable

Item No. 935-0335 – Fiber Interconnect Cable (EA)

G. Fiber Optic Connector

Item No. 935-5030 – Fiber Optic Connector, SM (ST Only) (EA)

H. Training

Item No. 935-8500 – Training (Lump Sum)

Training is measured as a lump sum for supplies, equipment, materials, handouts, travel, and subsistence necessary to conduct the training.

Measurement Notes:

Submittal

Submittal requirements are included in Section 940 and shall not be paid for separately and shall be considered as incidental to the fiber optic system pay item.

Testing

Testing requirements are included in Section 940 and shall not be paid for separately and shall be considered as incidental to the fiber optic system pay item.

Labeling

Labeling is included in the quantities of other pay items and shall not be measured separately for payment.

Fiber Optic Snowshoes

Fiber optic snowshoes are included in the aerial fiber optic cable quantities and shall not be measured separately for payment.

935.5 Payment

935.5.1 Fiber Optic System

Outside fiber optic cable, splice closures, splices, FDU interconnect cables, fiber pig tails, fiber patch cables, and fiber optic connectors shall be paid for at the Contract Unit Price for the various items. Other required items including testing, fiber optic snowshoes, labeling, and other ancillary items for a completed fiber optic system are included as part of the below pay items. No separate payment shall be made for these items.

The Department will pay 50 percent of the total Contract bid amount for properly stored fiber cable and associated materials. The Department will pay 50 percent of the total Contract bid amount upon installation and testing of the fiber optic cable plant including all terminations. The total sum of all payments cannot exceed the original Contract amount for this item

Payment for fiber optic system is made under:

Item No. 935	Outside Plant Fiber Optic Cable, SM, X-fiber	Linear Feet (Linear Meter)
Item No. 935	Fiber Optic Closure, Underground, X-splice	Per each
Item No. 935	Fiber Optic Closure, Aerial, X-splice	Per each
Item No. 935	Fiber Optic Closure, FPP/FDU, Rackmount, X-port	Per each
Item No. 935	Fiber Optic Closure, FPP/FDU, Wall mount, X-port	Per each
Item No. 935	Fiber Optic Splice	Per each
Item No. 935	Fiber Patch Cable	Per each
Item No. 935	Fiber Pigtail Cable	Per each
Item No. 935	Fiber Interconnect Cable	Per each
Item No. 935	Fiber Optic Connector	Per each

935.5.2 Training

The Department will pay 25 percent of the total contract bid amount for training upon approval of the Training Plan. The Department will pay the remaining 75 percent after completion of training described in Section 940.2.05. The total sum of payments cannot exceed the original contract amount for this item.

Payment for training is made under:

Item No. 935	Training	Lump Sum

July 17, 2017

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SUPPLEMENTAL SPECIFICATION

Section 936—Closed-Circuit Television (CCTV) Camera System

Delete Section 936 in its entirety and substitute the following:

936.1 General Description

Furnish, install, test, and provide training for closed circuit television (CCTV) field equipment and materials as shown in the Contract documents.

936.1.1 Definitions, Acronyms, and Abbreviations

A. Definitions

1.	CCTV Camera System, Type 1	Internet Protocol (IP) Pan-Tilt-Zoom (PTZ), High Definition (HD), Dome Type Camera, Non-Pressurized
2.	CCTV Camera System, Type 1P	Same as Type 1 except Pressurized
3.	CCTV Camera System, Type 2	IP PTZ, HD, Turret/Positioning Type Camera, Non-Pressurized
4.	CCTV Camera System, Type 2P	Same as Type 2 except Pressurized
5.	CCTV Camera System, Type 3	IP Fixed, HD, Barrel or Box Type Camera, Non-Pressurized
6.	CCTV Camera System, Type 3P	Same as Type 3 except Pressurized

B. Acronyms and Abbreviations

Refer to Sections 101.01 and 940.1.01 for a list of acronyms, abbreviations, and common terminology used throughout the ITS specifications.

936.1.2 Related References

A. GDOT Standard Specifications

1. Section 150–Traffic Control
2. Section 639–Strain Poles for Overhead Sign and Signal Assemblies
3. Section 647–Traffic Signal Installation
4. Section 682–Electrical Wire, Cable, and Conduit
5. Section 694–Weather Monitoring and Reporting System
6. Section 922–Electrical Wire & Cable
7. Section 923–Electrical Conduit
8. Section 924–Miscellaneous Electrical Materials

9. Section 925–Traffic Signal Equipment
10. Section 926--Wireless Communications Equipment
11. Section 939–Communication and Electronic Equipment
12. Section 940–ITS General Requirements

B. Referenced Industry Standards and Documents

It is the Contractor's responsibility to utilize the standards, codes, manuals, and guidelines that apply to the work required to complete this Project.

All CCTV camera materials are to be consistent and compliant with the latest version or edition of the standards and industry practices as specified.

1. American National Standards Institute (ANSI)/International Electrotechnical Commission (IEC) 60529, “Degrees of Protection Provided by Enclosures (IP Code),” latest edition.
2. ANSI/Institute of Electrical and Electronics Departments (IEEE) C2, National Electrical Safety Code, latest edition.
3. ANSI/National Fire Protection Association (NFPA)-70, National Electrical Code, latest edition.
4. American Society of Civil Engineers (ASCE) 7, Minimum Design Loads and Associated Criteria for Buildings and Other Structures.
5. Insulated Cable Departments Association (ICEA) 5-56-434, “Polyolefin Insulated Communications Cables For Outdoor Use,” latest edition.
6. IEC EN 61000-6-4, “Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard for industrial environments,” latest edition.
7. IEC EN 61000-4-5, “Electromagnetic compatibility (EMC) - Part 4-5: Testing and measurement techniques - Surge immunity test,” latest edition.
8. ISO/IEC 14496-10, H.264, “Advanced video coding for generic audiovisual services,” latest edition.
9. Military Standard (MIL-STD)-810F (3), Environmental Engineering Considerations and Laboratory Tests.
10. National Electrical Manufacturers Association (NEMA) 250, “Enclosures for Electrical Equipment (1000 Volts Maximum),” latest edition.
11. NEMA TS2, “Traffic Controller Assemblies with NTCIP Requirements Version 03.07,” latest edition.
12. NTCIP 1205, “National Transportation Communications for ITS Protocol Object Definitions for CCTV Camera Control v01.08,” latest edition.
13. Occupational Safety and Health Administration Regulations, 29 Code of Federal Regulations (CFR) 1910, “Occupational Safety and Health Administration Standards.”
14. SMPTE 274M, “1920 x 1080 Image Sample Structure,” latest edition.
15. SMPTE 296M, “1280 × 720 Progressive Image Sample Structure,” latest edition.
16. Telcordia GR-1089-CORE, “Electromagnetic Compatibility and Electrical Safety - Generic Criteria for Network Telecommunications Equipment,” latest edition.
17. Telecommunications Industry Association (TIA)-568-A/B, “Telecommunications Cabling Standard,” latest edition.
18. TIA-568-C.2, “Balanced Twisted-Pair Telecommunication Cabling and Components Standard,” latest edition.
19. Underwriters Laboratories (UL) 497B, Protectors for Data Communications and Fire-Alarm Circuits.

936.1.3 Submittals

Refer to Section 940.2.02 for submittal requirements. Requirements for materials and components are specified herein.

936.2 Materials

936.2.1 CCTV Camera System Requirements

Provide a CCTV camera system for outdoor use with internal video encoder, weather-tight camera casing or enclosure, outdoor-rated cabling, Power-over-Ethernet (PoE) injector for powering the IP camera, surge protection, mounting brackets and hardware, network patch cables, and any other ancillary and incidental materials required or needed to provide a complete CCTV camera system.

A. General Requirements

1. Manufacture in an International Organization for Standardization (ISO)-9001 certified manufacturing facility that is regularly engaged in the production of the materials described in this section.
2. Provide commercial-off-the-shelf only equipment and materials that are of new manufacture and previously unused.
3. Provide all equipment and materials of like kind and function of the exact same manufacturer, model, part number, revision, and firmware.
4. Use the most stringent material requirement for this Contract if a conflict or difference exists between the specified industry standards and practices listed in Section 936.1.02(B) and these minimum standard specifications. Notify and resolve with the Department or authority having jurisdiction (AHJ) of any such conflicts or differences prior to procurement of materials and components.
5. Support an open and published application programming interface or software development kit that provides the necessary information for integration of functionality into third party applications and the users' central control system environment.

B. CCTV Camera Requirements

1. **Image Sensor and Scanning**: Provide a progressive scan digital complementary metal-oxide semiconductor (CMOS) or charge-coupled-device (CCD) image sensor.
2. **Image Resolution**: Support at a minimum the following resolutions.
   a. High Definition Television (HDTV) User-configurable 1080P (1920 x 1080) to 320 x 180 pixel array.
   b. HDTV User-configurable 720P (1280 x 720) to 320 x 180 pixel array.
3. **Frame Rate**: Allow user-configurable frame rates from 5 up to 30 frames per second (fps) with a default of 30 fps.
4. **Camera Format**: Provide removable Infrared (IR)-cut filter, providing day (color) and night (monochromatic) functionality.
5. **Aspect Ratio**: Support width to height aspect ratio of 16:9.
6. **Image Processing**:
   a. Provide automatic and manual electronic shutter speed setting that is user selectable from 1/2 second to 1/30,000 second at 60 Hz.
   b. Provide automatic and manual user selectable automatic gain control.
   c. Provide automatic and manual user selectable white balance control.
   d. Provide on/off backlight compensation operation with user control.
   e. Provide on/off wide dynamic range operation with user controls and manual override option.

f. Provide automatic and manual user selectable defog mode.

g. Provide on/off electronic image stabilization (EIS) algorithms integrated within the camera assembly system.

i. Provide compensation algorithms based on those particular movement wavelengths associated with vibration present at the roadside or pole movement (e.g., 5 Hz and 10 Hz sinusoidal frequencies at a minimum).

ii. Ensure EIS function automatically pauses while PTZ functions are occurring and restores when no PTZ is occurring.

iii. Provide stabilization such that standard Department of Transportation placards with a size of 1 ft (0.3 m) by 1 ft (0.3 m) are continuously legible in conjunction with viewing specification and maximum zoom level at a distance of 500 ft (152 m).

7. **Lens**:

a. For Type 1, 1P, 2, and 2P cameras, provide an integrated zoom lens assembly for each camera with the following features:

i. An aperture f-stop of f/1.6 (wide) or better zoom lens with variable focal lengths.

ii. A minimum 30X optical zoom and 2X digital zoom.

iii. Automatic switching from optical zoom to digital when optical zoom range is exceeded.

iv. Adjustable zoom speed.

v. Automatic and manual user selectable focus control.

vi. Automatic and manual user selectable iris control to compensate for changes in scene illumination to maintain constant video-level output within sensitivity specifications.

b. For Type 3 and 3P cameras, provide a varifocal lens for each camera with the following features:

i. An aperture f-stop of f/1.4 (wide) or better.

ii. A horizontal angular field of view of 46 degrees (wide angle) to 9 degrees (telephoto), typical.

iii. Adjustable zoom remotely through the camera's web interface. Final focus to be adjustable through camera's web interface.

8. **Sensitivity**: Provide a camera that has useable video at the following ambient low light conditions:

a. Scene Illumination; F-stop set at wide open at 50 percent video (50 Institute of Radio Departments [IRE])

b. 1.0 Lux (0.1 fc) at 1/30 shutter, color mode

c. 0.1 Lux (0.01 fc) at 1/30 shutter, monochromatic (black and white) mode

C. Pan-Tilt (P/T) Positioning Drive Requirements

1. **P/T Range and Speed**:

a. Provide Type 1, 1P, 2, and 2P camera system that has an integrated P/T unit meeting the following minimum requirements:

i. Pan Range: 360 degrees, full endless or continuous rotation movement.

ii. Pan Manual Speed: variable up to 90 degrees per second (minimum), user adjustable through the full speed range.

iii. Pan Preset Speed: minimum 180 degrees per second.

iv. Preset Pan Repeatability: ±0.36 degree, or <0.10 percent or better.

v. Tilt Range: minimum of 180 degrees total tilt range for Type 1 and 1P cameras and minimum 130 degrees total tilt range for Type 2 and 2P cameras.

vi. Tilt Manual Speed: variable up to 90 degrees per second (minimum), user adjustable through the full speed range.

vii. Tilt Preset Speed: minimum 180 degrees per second.

viii. Preset Tilt Repeatability: ±0.36 degree, or <0.10 percent or better.

b. Provide an automatic electronic image inversion or "auto flip" functionality that shall automatically rotate the image 180 degrees electronically when following a moving object passing under the camera. No mechanical stops are permitted.

c. Provide proportional zoom control allowing variable P/T speeds based on "zoom" position. This is to scale the maximum P/T speed, while maintaining variable speed capability, throughout the zoom range of the camera.

2. **P/T Preset Functions**: Provide Type 1, 1P, 2, and 2P camera system that has P/T presets meeting the following minimum requirements:

a. A minimum of 64 presets for PTZ and focus settings.

b. A minimum of eight tours (sequences) that allow the camera to automatically move between selected presets using an individual speed and viewing dwell time for each preset.

c. A minimum of eight programmable blackout privacy masks or zones.

D. Video Encoding Requirements

1. **Encoding Standards**: Comply with the following standards:

a. ISO/IEC 14496-10, Advanced Video Coding (H.264), Baseline, Main and High Profiles

b. Motion JPEG (MJPG)

2. **Video Standards**: Comply with the following HDTV video standards in regards to resolution, frame rate, aspect ratio, and color fidelity:

a. SMPTE 296M (HDTV 720P)

b. SMPTE 274M (HDTV 1080P)

3. **Video Stream Format and Configuration**:

a. Provide simultaneous unique video streams that are independently and individually configurable that meet the following minimum requirements:

i. Stream 1: H.264 Baseline, Main or High Profile

ii. Stream 2: H.264 Baseline, Main or High Profile

iii. Snapshot: JPG full-frame capture

b. Provide the following encoding parameters minimum ranges and operation, that can be independently and individually configurable by the user for each stream:

i. Target multicast address, port and time-to-live (TTL) setting

ii. Video compression technology and levels: H.264 Baseline, Main or High Profile for video and JPG/MJPG for snapshot captures or full-frame captures from a video stream

iii. Image resolution of 1080P (1920 x 1080) to 320 x 180 or 720P (1280 x 720) to 320 x 180

iv. Frame rate: adjustable 5 to 30 fps (North American, 60 Hz)

v. Bandwidth and encoding bit rate control: variable bit rate or constant bit rate/maximum bit rate selectable from 192 Kbps to 8 Mbps

vi. Group of Pictures length

c. Provide simultaneous and continuous encoding and streaming for a minimum of three video streams. The activation of one, two, or three simultaneous streams shall not result in a performance degradation of any video stream, video image, control function, or device management interface. The video streams shall be capable of providing the following minimum requirements:

i. Stream 1: 4 Mbps/1920 x 1080/Main Profile/30 fps/RTP

ii. Stream 2: 384 Kbps/720 x 480/Main Profile/15 fps/RTP

iii. Snapshot: 1920 x 1080/120 second capture interval

4. **Video Compatibility**: Ensure encoded streams are fully compatible with the GDOT Central software decoding system and with VLC (Video LAN Client) Ver. 2.1.3.

5. **Video Snapshot**:

a. Provide JPG snapshots from either a dedicated stream or from any of the video streams and image transfer via File Transfer Protocol (FTP) either by push or pull at a user-defined interval between 60 and 300 seconds.

b. Include on-screen display (OSD) capabilities in the snapshot images.

c. Provide target FTP server settings including connection credentials for push function.

d. Provide a minimum space for 32 characters for the snapshot filename for push function.

6. **Management System and User Interface Requirements**:

a. Manage encoder through Hypertext Transfer Protocol (HTTP)/HTTP Secure (HTTPS) and Secure Shell (SSH).

b. Provide a built-in web server user interface making video, status, and configuration available to multiple clients in a standard operating system and browser environment using HTTP, without the need for any additional software of any kind, except video player plugins solely for displaying a live image stream of the video output.

c. Provide web server user interface that supports access to all configurable parameters in the CCTV camera system, without the need for any separate textual or line commands of any kind.

d. Provide user-configurable password-protected accounts with at least one full administrative and one read/view permissions profile.

e. Reset or reboot and upload firmware via the methods listed above.

i. Update the firmware in the encoder from a network connection.

ii. Access the firmware number, IP address, and equipment configuration.

7. **On-Screen Display (OSD)**: Provide a camera system that meets the following minimum OSD requirements:

a. Provide static text insertion on streams and insert a minimum of one line of user configurable text messages with support for date and time of at least 40 ASCII characters in length.

b. Provide text insertion that scales appropriately or is independently configurable for different video image size resolutions.

c. Provide JPG, BMP, or PNG image insertion on streams in the upper portion of the image, using image file(s) uploaded by the user and stored in the encoder's memory and configuration. Text display on the side of the image is prohibited.

d. Provide the capability to insert a different image file for each stream.

8. **Configuration Backup**: Provide automatic recovery from an over or under voltage condition when prime power has returned to the tolerance values specified herein.
    a. Store configuration parameters in non-volatile memory.
    b. Ensure no reprogramming or manual adjustments are required upon power recovery.

E. Network Requirements

1. **Network Format**: Comply with Ethernet compliant IEEE 802.3, 802.3u, and 802.3x; 10/100 Mbps or higher, auto sensing full or half-duplex operations.
2. **Network Hardware Interface**: Equip with a minimum of one 10BASE-T/100BASE-TX PoE Ethernet-port using an IP66 rated RJ-45 weathertight connector or other Ethernet-compatible locking weathertight connector.
3. **Video Encapsulation**: Provide encapsulation of each of the video streams in User Datagram Protocol (UDP) packet and transmission control protocol (TCP) packets, depending on stream configuration, for network transmission.
4. **Network Protocols**: Support network protocol standards Real-Time Protocol (RTP), Real Time Streaming Protocol (RTSP), TCP/IP, UDP, IPv4, Internet Group Multicast Protocol (IGMP) v2, Simple Network Management Protocol (SNMP) v1/v2c/v3, HTTP, HTTPS, QoS DiffServ, DNS, Dynamic Host Control Protocol (DHCP), FTP, Network Time Protocol (NTP) or Standard Network Time Protocol (SNTP), SSL, SSH, Unicast, and IP Multicast features for digital video transmission, individually and independently for each stream.
5. **Camera Protocols**: Support NTCIP 1205, Open Network Video Interface Forum (ONVIF) or other as directed by the Department or AHJ.
    a. Comply with NTCIP objects determined mandatory and optional by the Department. Contact the Department for the current list.
    b. Comply with ONVIF Profile S requirements determined mandatory by the Department. Contact the Department for the current list.
6. **Video Network Transmission**:
    a. Support both unicast (one-to-one) and multi-cast (one-to-many) streams simultaneously.
    b. Allow for video to be transported over:
        i. RTP (Unicast and Multicast)
        ii. RTP over RTSP (Unicast)
        iii. RTP over RTSP over HTTP (Unicast)
        iv. HTTP/HTTPS tunneling (Unicast)
7. **IP Addresses**:
    a. Support both fixed IP addresses and dynamically assigned IP addresses provided by a DHCP server.
    b. Support static management interface IP addressing (classes A, B, and C).
    c. Support static IP addressing of the multi-cast group individually and independently for each stream.

F. Electrical Requirements

1. **PoE**: Provide PoE power to the camera system meeting the following minimum requirements:
    a. Provide a standalone PoE injector. PoE service through the use of a PoE capable Ethernet switch is not permitted.

b. Select PoE injectors that are based on power requirements of the camera system as recommended by the manufacturer conforming to the following PoE standards:

i. PoE+ in compliance with IEEE 802.3at (latest revision)

ii. PoE++ in compliance with IEEE 802.3bt (latest revision)

c. Mount PoE injectors to wall or panel or DIN-rail mount within the Intelligent Transportation System (ITS) field cabinet as approved by the Department.

d. Meet the same environmental requirements as the outdoor-rated elements of the CCTV system.

2. **Outdoor-Rated Cat-6 Cable**: Provide outdoor-rated, shielded Cat-6 cabling from the PoE injector to the camera encoder meeting the following minimum requirements:

a. Comply with TIA-568-C.2 standard.

b. Comply with ICEA 5-56-434 standard for communications cables for outdoor use.

c. Provide eight (four STP) insulated 22 to 23 American Wire Gauge (AWG), solid copper conductors with polyolefin insulation, arranged in four color-coded twisted-pairs.

d. Provide modular IP66-rated RJ-45 male push-pull connectors with eight-position non-keyed and eight gold anodized pins or other Ethernet-compatible locking weathertight connector.

3. **Surge Protection**: Provide single-channel, in-line surge protection for the Cat-6 cabling meeting the following minimum requirements:

a. Comply with TIA-568-A/B.

b. Comply with UL 497B requirements.

c. Provide a fully shielded RJ-45 connector.

d. Provide PoE+ and PoE++ power, IEEE 802.3at and 802.3bt.

e. Test according to Telcordia GR-1089-CORE and IEC EN 61000-4-5.

f. Provide a maximum cut-off voltage of 60 VDC and greater.

g. Provide protection modes of line to line, line to ground, and shield to ground.

h. Provide a maximum surge current (per pin) line to ground (8/20 µs) of 100 A, typical.

i. Provide a maximum surge current shield to ground (8/20 µs) of 5 kiloamps, typical.

j. Provide heavy-duty single point ground.

k. Ensure it can be wall or panel or DIN-rail mounted.

l. Provide protection against corrosion and UV degradation.

G. Mechanical Requirements

1. **Camera Casing or Enclosure (Non-Pressurized)**:

a. Provide a casing or enclosure that is manufactured in compliance with IEC 60529 IP66, NEMA 4X, and IK08 ratings or greater.

b. Provide camera assembly that meets or exceeds the requirements stated above without the need for additional components such as mounting brackets and hardware to achieve the stated ratings.

c. Provide high-impact, non-metallic UV-stabilized material of a light color or an aluminum material with a heat-cured paint coating or powder coating of an equivalent color.

d. Provide viewing windows constructed of an optically corrected acrylic material designed to mitigate degradation of materials and yellowing due to prolonged exposure to UV rays or as approved by the Department.

e. Protect interior of casing by providing weatherproof glands or grommets for cabling to maintain IP rating.

f. Provide camera and housing with measures to protect against water, dust, corrosive elements, and insect intrusion into the camera casing or housing.

g. Provide a housing that is secure from unauthorized entries and vandals.

2. **Camera Casing or Enclosure (Pressurized)**:

a. Meet the casing or enclosure requirements specified in Section 936.2.01.G.1.

b. Meet the following minimum pressurization requirements:

i. Provide a Schrader inlet valve for pressurized extra dry nitrogen.

ii. Provide an operating pressure range of 3 to 7 pounds per square inch (psi) (21 to 48 kPa).

iii. Provide a pressure relief for protection against overpressure.

3. **Sunshield**: Provide a sunshield to reduce the solar heating of the camera casing or enclosure.

4. **Heating and Ventilation**:

a. Provide a heater and blower function to maintain internal temperatures within the manufacturer's operating temperatures for temperature ranges internal to the camera unit not conforming to the environmental requirements in Section 936.2.01(H)(1).

b. For Type 1 and 1P cameras, provide a conventional mechanical thermostat-controlled heater and circulating blower fan system that is designed to keep the camera equipment within the required operational temperature range and to maintain a clear viewing window

c. For Type 2, 2P, 3, and 3P cameras, an alternative method may be provided to prevent dust and humidity build-up and to keep internal camera casing temperatures to within operational tolerances defined by the manufacturer as approved by the Department.

5. **Mounting Arm Requirements**:

a. Attach the camera system to the camera pole as shown in the Contract documents using stainless steel banding, clamps, brackets, and other incidental hardware in compliance with the manufacturer's recommendations.

b. Provide mounting solution(s) as listed in the Contract. Mounting options will be paid for under separate pay items to include the following:

i. Type 1: Strap to pole using arm

ii. Type 2: Attached to luminaire mounting mechanism

iii. Type 3: Small "candy cane" hook

iv. Type 4: Large "candy cane" hook

c. Allow for cabling to be routed inside the poles and mounting hardware and protected from exposure to the outside environment.

d. Provide stainless steel mounting hardware and straps in accordance with MIL-STD-810F (3) Method 509 Procedure 1 for exterior salt atmospheres.

e. Provide light-colored camera mounts and mounting bracket arm coatings.

f. Provide opening in mounting bracket arms to fully enclose the cables. Provide non-metallic cable protection grommets for cable entrances.

g. Provide camera casing mounts that shall accommodate a weight load capacity of no less than 40 lb (18 kg).

H. Environmental Requirements

1. Provide equipment that meets the following operating ambient temperature range and humidity levels:

   a. Camera Assembly and PoE Injectors

      i. −4°F (−20°C) through +140 °F (+60°C, maximum).

      ii. Up to 95 percent relative humidity (condensing).

   b. Cat-6 PoE Surge Protector

      i. −40°F (−40°C) to +149°F (+65°C, maximum)

      ii. Up to 95 percent relative humidity (condensing).

2. Provide a camera assembly that meets the following environmental and emission requirements:

   a. Comply with NEMA TS2 Sections 2.1.9, 2.2.3, and 2.2.8 and meet the specified requirements during and after being subjected to a vibration of 5 to 30 Hz up to 0.5 g applied in each of three mutually perpendicular planes for 30 minutes.

   b. Comply with NEMA TS2 Sections 2.1.10, 2.2.4, and 2.2.9 and do not yield permanent mechanical deformation or any damage that renders the unit inoperable when subjected to a shock of 10 g applied in each of three mutually perpendicular planes for 30 minutes.

   c. Comply with IEC 60529 Section 14.2.6 for IP66 or greater rating.

   d. Comply with NEMA 250, Type 4X corrosion requirements for salt environments (i.e., coastal regions).

   e. Ensure that the CCTV camera system the can withstand wind forces of 100 mph (161 kph) with a 20 percent gust factor.

   f. Provide the following Electromagnetic Compatibility (EMC) emission approvals:

      i. FCC Part 15, Subpart B, Class A

      ii. IEC EN 61000-6-4

936.2.2 CCTV Camera Lowering Device (CLD) Requirements

A. General Requirements:

1. Provide a camera lowering device (CLD) for all new CCTV camera poles 60 ft (18.3 m) or greater above ground level unless otherwise shown in the Contract documents.

2. Provide a CLD designed to support and lower a standard CCTV camera system as specified herein and other supporting components without causing damage or degradation of camera operations.

3. Provide the electrical connection between the ITS field cabinet and the camera assembly installed on the lowering device.

4. Ensure that the CLD shall work with and support Cat-6 Ethernet-based PoE camera operations.

5. Provide CLD and external components that are corrosion-resistant powder-coated, galvanized materials, or otherwise protected from the environment by industry-accepted coatings that can withstand exposure to a corrosive environment.

6. Provide a CLD that can withstand wind forces of 100 mph (161 kph) with a 20 percent gust factor using a 1.65 safety factor.

B. Lowering Cable Requirements:

1. Provide a lowering cable that shall support a minimum of 200 lb (90.7 kg) load.
2. Provide a lowering cable that is stainless steel and located inside conduit within the pole to avoid cable twisting and ensure that only the lowering cable is in motion when the lowering device is operated. All other cables are to remain stable and secure during lowering and raising operations.
3. Provide a design so that the lifting cable does not come into contact with the power or video cables.
4. Ensure that lowering cable accessories, such as connecting links, have a minimum workload rating that meets or exceeds that of the lowering cable.
5. Provide weights and/or counterweights to ensure the alignment for the camera connection can be raised into position without binding and that it can be lowered properly.

C. Disconnect Unit and Connection Requirements:

1. Provide a disconnect unit with a minimum load capacity of 200 lb (90.7 kg) with a 4:1 safety factor.
2. Provide a locking mechanism between the fixed and movable components of the disconnect unit.
3. Provide a minimum of two mechanical latches for the movable assembly to remove all weight from the lowering cable when latched.
4. Provide the fixed unit with a heavy-duty cast tracking guide and a means for latching in the same position each time.
5. Provide capability of securely holding the lowering device and the equipment installed on the lowering device.
6. Provide stainless steel or aluminum interface and locking components.
7. Provide a watertight suspension contact unit with a gasket to seal the interior from dust and moisture without the use of pressurization.
8. Provide connectors that are resistant to UV light degradation.
9. Ensure that male and female matched parts mate together to make a weatherproof, non-corrosive electrical connection between the cable and the camera housing when the camera is fully raised and locked.
10. Ensure the wire leads from both the male and female contacts are permanently and securely fastened into a weatherproof, non-corrosive body.
11. Provide a design to keep contacts protected or provide a method to displace surface contaminants.
12. Ensure any grease or lubricant used on moving parts of the CLD components is recommended by the manufacturer.

D. Camera Lowering Tool Requirements:

1. Provide a camera lowering tool consisting of a portable, lightweight, corrosion-resistant metal frame and winch assembly with a cable, a quick release cable connector, and an adjustable safety clutch.
2. Provide a camera lowering tool that is powered by a 0.5 in chuck, variable speed, and reversible, industrial duty drill, ½ horsepower (minimum). Do not exceed the CLD manufacturer's maximum rotations per minute.
3. Ensure that the lowering cable winds evenly on the winch drum during operation.
4. Provide a camera lowering tool that is manufactured of durable, corrosion-resistant materials that are powder-coated, galvanized, or otherwise protected from the environment by industry accepted coatings that can withstand exposure to a corrosive environment.

5. Provide a camera lowering tool that can support itself and the load equipped with a positive braking mechanism to secure the cable reel during raising and lowering operations and to prevent freewheeling or freefall.
6. Provide a minimum of one camera lowering tool plus any additional tools required to operate the lowering device for each set of five poles or fraction thereof. Upon the Final Project Acceptance, the Contractor shall deliver the camera lowering tool(s) to the Department.

E. CLD Pole Provisions:

1. Provide a 1.25 in (3.2 mm) polyvinyl chloride (PVC) conduit to contain the CLD stainless steel lowering cable for the full length of cable run inside the camera pole.
2. Provide new camera poles with appropriate hand-holes, cable entry points, and weather-heads so that all cabling, grounding conductors, lowering device, etc., for the complete CCTV camera and CLD installation are run inside the pole. Include these details on the shop drawing submittals and submit for review and approval by the Department prior to fabrication.
3. Provide a hand-hole of sufficient size to provide access to the camera pole interior and for temporarily securing and operating the lowering tool.
4. Provide a pole-top tenon that is rotatable.
5. Provide an attachment point inside the camera pole for attaching the lowering device cable that is fully accessible from the hand-hole.
6. Provide the attachment point material and means of attachment to the pole of sufficient strength and durability to hold the lowering device cable in place if the camera lowering device were to release at the top of the pole.

936.3 Construction Requirements

Ensure that construction and installation of the equipment, materials, components, and assemblies of the CCTV system specified comply with the CCTV manufacturer's requirements and recommendations.

936.3.1 Contractor Experience and Qualifications

1. Provide the following documentation:
   a. Provide three current client references for project that were performed by the Contractor and/or sub-contractor for the installation, integration and testing of CCTV camera systems including IP-based PTZ dome and fixed camera systems.
   b. Evidence that the electronic technicians performing installation, configuration, setup, program, and related works are thoroughly trained by the manufacturer in the installation and service of the equipment provided.

936.3.2 Construction Requirements

A. General Installation Requirements

1. Request that the Department establish the utility service as described in Section 682.
2. Mount the camera system assembly and the mounting bracket arm at the cardinal direction and height as shown in the Contract documents, and so the pole is not obstructing the camera's view of the roadway or traffic signals.
3. Install cables between the camera system assembly and the CCTV camera field cabinet inside new hollow steel or metal or concrete support poles unless otherwise specified. Where devices are installed on existing wood poles, install cabling on the wood poles in conduit risers of minimum 2 in (51 mm) diameter.
4. Provide wiring and cabling meeting the following minimum requirements:
   a. Comply with local, state, and national electrical codes.

b. Provide wires that are cut to proper length before assembly. It is not acceptable to "double-back" wires to take up slack inside the cabinet.

c. Neatly arrange and dress wiring, firmly lace or bundle it, and mechanically secure the wiring without the use of adhesive fasteners.

d. Organize cables neatly inside the cabinet and secure cables with clamps to minimize movement in the wind and chafing against the pole, device, or bracket.

e. Provide service loops at connection points when connecting to hardware inside the cabinet.

f. No splicing of cables or exposed wiring is allowed.

g. Ensure that wiring entry to the camera casing or enclosure uses watertight fittings.

h. Ensure that wiring entry and exits are made at the side or underneath components; no exposed top entry or exits are permitted. This requirement extends to enclosures, junction boxes, support arms, or any other externally exposed devices.

i. Route and secure wiring and cabling to avoid sharp edges and to avoid conflicts with other equipment or cabling.

j. Route CCTV cables separate from any 120 VAC power wiring or surge suppressor ground wiring.

k. Clearly label all wiring as approved by the Department.

l. Neatly coil and dress between 3 ft (1 m) and 5 ft (1.5 m) of cables in the bottom of the cabinet.

5. Dress and route grounding wires separately from other field cabinet wiring and with the minimum length possible between the surge protector and the ground buss-bar.

6. Do not splice any cable, shield, or conductor used for CCTV camera operation, communications signaling, power supply, or grounding.

7. Provide mechanical components meeting the following requirements:

a. Provide stainless steel external screws, nuts, and locking washers. Self-tapping screws are not acceptable.

b. Provide parts that are made of corrosion resistant material; examples include plastic, stainless steel, anodized aluminum, or brass.

c. Protect materials used in construction from fungus growth and deterioration due to sustained moisture.

d. Separate dissimilar metals by an inert dielectric material.

B. Camera Lowering Device Requirements

1. Install in accordance with the manufacturer's installation instructions.

2. Install materials in a neat and professional manner.

3. Coordinate with the Department to determine actual mounting height and azimuth. Typically, the camera lowering system azimuth shall be perpendicular to the mainline lanes.

C. As-Built Documentation

1. Furnish as-built CCTV system wiring diagrams identified by location.

2. Include wiring, cabling, conductor function, connector type, and pinouts in an electronic (PDF) format.

3. Include the height of the camera in feet above the travel lanes.

936.3.3 Equipment Configuration and Integration Requirements

Refer to Section 940.2.03 for CCTV equipment configuration and integration requirements.

936.3.4 Testing Requirements

Refer to Section 940.2.04 for CCTV testing requirements.

936.3.5 Training

Refer to Section 940.2.05 for CCTV training requirements.

936.3.6 Warranty and Maintenance Support Services

A. Warranty Requirements:

1. Ensure that the CCTV camera system, communication cables, and associated components defined herein furnished, assembled, and installed have a manufacturer's warranty (usual and customary) covering defects in assembly, fabrication, and materials. Include in warranty and support, all contractor or manufacturer activities related to maintenance, removal, and replacement of parts and materials during the period of support.
2. Provide a minimum warranty length as follows:
   a. CCTV camera assembly and associated components: Minimum of three years.
   b. Cat-6 PoE surge protector: Minimum of five years.
   c. Camera lowering system: Minimum of two years.
3. If the manufacturer's warranties for the components are for a longer period, those longer period warranties shall apply.
4. Ensure warranty periods begin on the date of maintenance acceptance by the Department.
5. Ensure that the manufacturer's warranties are continuous throughout the period and shall be fully transferable from the Contractor to the Department and any maintenance consultant/contractor.
6. Provide maintenance support services and make any replacements required during the warranty period without additional charge for labor, equipment, parts, shipping, and other materials required. Support all system components notwithstanding any supplier's warranties whether written or implied.

B. Maintenance Support Services:

Refer to Section 940.2.06 for maintenance support services requirements.

936.3.7 Project Close-out Requirements

Refer to Section 940.2.07 for CCTV project close-out requirements.

Reserved Reserved

September 30,2015

DEPARTMENT OF TRANSPORTATION

STATE OF GEORGIA

SUPPLEMENTAL SPECIFICATION

Section 937—Detection Systems

937.1 General Description

This work includes the procurement and installation of a detection system as shown in the plans. Ensure the detection system is capable of traffic data collection meeting the general and specific requirements of this specification. Ensure the firmware and software furnished and installed as part of an Intelligent Transportation System (ITS) or traffic signal project are the most current and approved releases or versions, unless otherwise requested by the Department. Provide all equipment, materials, and work in accordance with all manufacturers' recommendations. All equipment, cables, and hardware must be part of an engineered system that is designed by the manufacturer to fully interoperate with all other system components.

A. Video Detection System (VDS)

Provide an IP/Ethernet video detection system which provides presence detection, vehicle counts, roadway occupancy, vehicle classification, and speed information to the Department's central ITS management software. The video detection system shall be able to provide a minimum of three programmable vehicle classifications. The video detection system shall be able to detect in both high speed freeway and intersection presence modes. The video detection system includes, but is not limited to, camera image sensor(s), including the detector housing, mounting hardware, an application programming interface (API) and protocol for system communications, a video detection system processor, central and local system management software, cabling between the detector and the cabinet, surge suppressors, terminations, output expansion modules which mount in the traffic signal controller cabinet input files, vertical conduit, weather heads and related equipment. The video detection system processors shall communicate through an Ethernet interface and TCP/IP (transmission control protocol/Internet protocol) connection to multiple Transportation Management Center (TMC) computers. The detection video shall be encoded within the VDS processor to MPEG4 digital video format and be able to be viewed at the TMC without the use of external encoders.

B. Microwave Vehicle Detection System (MVDS) – ITS Applications

Provide a high resolution microwave radar detection system which provides presence detection, vehicle counts, classification, occupancy, and speed information to the Department's central ITS management software. The microwave radar detection system includes, but is not limited to, microwave/ radar detectors, including detector housing, mounting hardware, an application programming interface (API) and protocol for system communications, system management software, cabling between the microwave detector(s) and the cabinet, surge suppressors, terminations, and related equipment. The high resolution Microwave Vehicle Detection System shall be able to emulate single or dual zone loop detectors and be able to detect a minimum of 10 lanes with a range of up to 250 feet away. These microwave detection systems are typically used for gathering near real-time information about the flow of traffic on freeways, highways, or other designated roadway types. The MVDS shall be provided with all necessary cabling, surge protection devices and modules for local serial and IP/Ethernet communications.

C. Wireless Magnetometer Vehicle Detection (WMVD)

Provide a wireless in-pavement magnetometer system for use in both freeway and intersection applications. The detection system shall provide accurate vehicle count, occupancy and speed information, as well as presence/stop bar applications, as needed. The battery-powered wireless sensor shall consist of a magnetometer capable of low-power

radio communications to a roadside transceiver, packaged in a small, hardened plastic case, suitable for in-pavement mounting. The sensors shall detect changes in the earth's magnetic field to determine the presence or absence of vehicles, relative to the detection zone. Detection 'events' are transmitted via wireless radio communications to a wired access point connected to the control cabinet. The wired access point shall utilize IP/Ethernet communication. The system includes, but is not limited to battery operated wireless sensors, battery operated wireless repeaters, antennas, wired access points with respective radios, mounting hardware, cabling, surge protection devices, jumper cables and all items necessary for a complete WMVD installation

D. Short-Range Radio Device Detection System

Provide a Short-Range Radio Device detection system in which a roadside monitoring unit continually and passively listens for Short-Range Radio enabled devices that broadcast their BDADDR (or BADDR), also referred to as the MAC address. The addresses shall be passively collected in order to get vehicle probe data for use in determining travel time along a route. These devices shall not have the ability to correlate a MAC address with personal information, such as subscriber names and/or vehicle ownership information. This type of detection system shall not be used to collect highly accurate volume and occupancy of a roadway, but rather collect a sampling of vehicles in order to derive approximate speeds and travel time for a corridor. Provide separate, powered and surge protected enclosures for Short-Range Radio Device modules so that they may be installed in various cabinet types. All modules shall utilize IP/Ethernet communications, or cell modem by Type. The system includes, but is not limited to the Short-Range Radio Device processor, antenna, power supplies, mounting hardware, cabling, surge protection devices, jumper cables and all items necessary for a complete installation.

E. Microwave Vehicle Detection System (MVDS) – Intersection Applications

Provide a high resolution microwave radar detection system which provides presence detection, vehicle counts, classification, occupancy, and speed information. The microwave radar detection system includes, but is not limited to, microwave / radar detectors, including detector housing, mounting hardware, an application programming interface (API) and protocol for system communications, system management software, cabling between the microwave detector(s) and the cabinet, surge suppressors, terminations, and related equipment. The high resolution Microwave Vehicle Detection System shall be able to emulate single or dual zone loop detectors and be able to detect a minimum of 8 lanes with a minimum range of 100 feet. These microwave detection systems are typically used for detecting vehicles at signalized intersections and inputting service calls to the signal controller. The MVDS shall be provided with all necessary cabling, surge protection devices and modules for local serial and IP/Ethernet communications.

937.1.1 Definitions

General Provisions 101 through 150

937.1.2 Related References

A. Standard Specifications

Section 150 – Traffic Control

Section 639 – Strain Poles for Overhead Sign and Signal Assemblies

Section 647 – Traffic Signal Installation

Section 922 – Electrical Wire and Cable

Section 925 – Traffic Signal Equipment

Section 939 – Communication and Electronics Equipment

Section 940 – NaviGAtor Advanced Transportation Management System Integration

B. Referenced Documents

American National Standards Institute (ANSI)

American Society of Testing and Materials (ASTM)

EIA-170A

Electronic Industries Association (EIA) – 170A

FCC Part 15, Subparts J and B

National Electric Code (NEC) 210-19a., FPN No. 4

National Electrical Manufacturers Association (NEMA) TS1-1989 (R1994, R2000, R2005), Section 2.1.5.2, Section 2.1.12

NEMA TS-1-1989 (R1994, R2000, R2005)

NEMA TS2-2003 Type 2, Type 170 and Type 179 Standards

NEMA 250 Type 4 enclosure standards

Underwriter's Laboratory Incorporated (UL) Submittals

937.1.3 Submittals

Use only equipment and components that meet the requirements of these minimum specifications and the Department's Qualified Products List (QPL).

Provide submittal data for all equipment, materials, test procedures, and routine maintenance procedures required for these items as required in these Specifications.

For training, submit to the Engineer for consideration and approval a training schedule and all training materials within 60 calendar days from the NTP.

For each applicable vehicle detection system, submit to the Engineer for approval, two (2) hard copies and one (1) electronic copy of the manufacturer's descriptive literature (catalog cuts), technical data, operational documentation, service and maintenance documentation and all other materials required within these specifications. Electronic documents shall be placed on a CD as Adobe® pdf documents and delivered to the Engineer.

Provide as-built documentation of all detector installations after the completion of acceptance testing.

937.2 Materials

937.2.01 Video Detection System

Use a video camera sensor that is compatible with the video detection system processor and meets the following technical and functional requirements:

A. Requirements

1. Video Camera Sensor Type A

Furnish and install a video camera sensor that is compatible with both freeway and arterial video applications, and compatible with the required detection processor type. Send a video signal from the video camera sensor to the processor, using high resolution, video camera sensors as the primary video source for real-time vehicle detection. Utilize high-sensitivity optics in the video camera sensor to compensate for variations in lighting conditions, including blooming at night caused by headlights and minor vibration caused by wind. Include a heater at the front of the enclosure, or alternate method, to prevent the formation of ice and condensation in cold weather. Ensure that the heater does not interfere with the operation of the video camera sensor electronics, or cause interference with the video signal, where applicable. As a minimum, meet the following requirements for each video camera sensor assembly installation:

a. Use a 1/4" to 1" color interline or frame transfer charge coupled device (CCD) or CMOS sensor.

b. Signal to Noise Ratio shall be greater than 47 dB

c. If using analog video, the video standard should be compliant with National Television System Committee (NTSC) Standard, RS-170A Compliant (available as EIA-170A specification)

d. If using digital video, the video standard should be compliant with ATSC Standard H.264

e. Provide a lens with a minimum 18X digital or optical zoom. Zoom and camera controls shall be over the camera coaxial video connector

f. A minimum resolution of 380 Horizontal Television Lines (TVL), 350 Vertical TVL

g. For Electromagnetic interference, ensure compliance with FCC Part 15, Subpart J, Class A device requirements, which apply to the video camera sensor and associated connected equipment in their installed condition

h. Power the video camera sensors with 115 VAC+/-10%, 60 Hz nominal +/-3 Hz. Size the power conductors from the power source to the camera input so that no more than a 3% voltage drop is experienced (NEC 210-19 a., FPN No. 4). Include a provision at the rear of the camera enclosure for a waterproof connection of power and video signal cables over a single weather-tight MilSpec connector. Provide power from the cabinet power source through a surge suppressor and then to the video camera sensor.

i. The Video camera sensor enclosure shall be installed in a light colored enclosure to limit solar heating. Meet NEMA 250 Type 4 enclosure standards for the enclosure and seal the enclosure to prevent sand, dirt, dust, salt and water from entering. Affix a sun shield visor to the front of the enclosure which is sufficiently adjustable to divert water away from the video camera sensor lens and also prevent direct sunlight from entering the iris when mounted in its installed location.

j. Provide a single run of non-spliced outdoor-rated power and coaxial video cabling from the sensor enclosure to the cabinet in accordance with the manufacturer's recommendations. Interruptions in cable runs shall only be allowable for interfacing necessary surge protection devices. All connectors shall be professionally sealed to manufacturer recommendations.

k. Environmental: Ensure that temperature and humidity limits of the sensor adhere to NEMA TS2-2003 requirements.

l. Shock and Vibration: Ensure that shock and vibration of the sensor adheres to NEMA TS2-2003 requirements

2. Video Camera Sensor Type B

Furnish and install a thermal video camera sensor that is compatible with both freeway and arterial video applications, and compatible with the required detection processor type. Send a thermal video image from the thermal video camera sensor to the processor for real-time vehicle detection. Utilize thermal imaging to compensate for variations in lighting conditions, including blooming at night caused by headlights, rain and ice glare, and daytime cloud and sun position shadowing where a normal video camera sensor may not function as intended. Include a heater, or alternate method, to prevent the formation of ice and condensation in cold weather. Ensure that the heater does not interfere with the operation of the video camera sensor electronics, or cause interference with the thermal video signal. As a minimum, meet the following requirements for each thermal video camera sensor assembly installation:

a. Use a long-life, uncooled Vanadium Oxide (VOx) Microbolometer for the detector sensor, with a spectral range of 7.5 – 13.5 µm.

b. If using analog video, the video standard should be compliant with NTSC Standard and shall have a minimum NTSC array format of 320 x 240, with a 76,800 effective resolution

c. If using digital video, the video standard should be comliant with ATSC Standard H.264

d. For Electromagnetic interference, ensure compliance with FCC Part 15, Subpart B, Class B device requirements.

e. Power: Input voltage shall be 90 – 240 VAC single phase, with standard operating voltage at 110 VAC. Power consumption shall be 1.7 Watts nominal at 110 VAC with a maximum of 18 Watts.

f. The thermal video camera sensor enclosure shall be installed in a light colored enclosure to limit solar heating and prolong equipment life.

g. Provide a single run of non-spliced outdoor-rated power and coaxial video cabling from the sensor enclosure to the cabinet in accordance with the manufacturer's recommendations. Interruptions in cable runs shall only be allowable for interfacing necessary surge protection devices. All connectors shall be professionally sealed to manufacturer recommendations.

h. Environmental: -50° C to + 75° C (-58° F to 167° F) operating ambient temperature rated, in 0% - 95% relative humidity, with an IP66 rating.

3. Video Detection System Processor

m. Freeway Cabinet Mounting

The IP addressable, MPEG4 encoded video detection system processor shall be either shelf or rack mountable in a standard 19-inch rack assembly space conforming to Standard CEA-310, 2005, latest version/addendum. If the video processor is shelf mounted, the Contractor shall provide the shelf and the processor unit housing for each processor type. If the video detection system requires a 19" rack with powered backplane, the contractor shall provide the 19" rack and attach all power and communications cables according to manufacturer specifications. The video detection system processor shall be designed for mounting in an enclosed cabinet and/or Hub building without blower fans and mounting without insulation from other electronic devices such as power supplies, communications equipment, etc. The video detection system shall meet NEMA TS-2 temperature requirements.

Power the video detection system processor by 120 VAC, 60 Hz, single phase. If a transformer is required for a 12 or 24 VDC power requirement, the Contractor shall supply the transformer and/or enclosure and size it appropriately for the installation. Size power conductors from the power source for the video detection system processor input so that no more than a 3% voltage drop is experienced (NEC 210-19 a., FPN No. 4). The video detection system processor shall have transient protection that meets the requirements of NEMA TS1-1989 (R1994, R2000, R2005) and NEMA TS2-2003 standards.

- Video Detection System Processor, Type A

  Provide one (1) video inputs on the video detection system processor such that signals from one video camera sensor or other synchronous or non-synchronous video source can be processed in real time. Use BNC connectors on the processor for all video inputs. Use a BNC connector or RCA connector on the front of the video detection system processor for video output.

- Video Detection System Processor, Type B

  Provide at least two (2) video inputs on the video detection system processor such that signals from up to two (2) video camera sensors or other synchronous or non-synchronous video sources can be processed in real time in one cabinet. Use BNC connectors on the back of the video detection system processor for all video inputs. Use a BNC connector on the front or back of the video detection system processor for video output.

- Video Detection System Processor, Type C

  Provide at least four (4) video inputs on the video detection system processor such that signals from up to four (4) video camera sensors or other synchronous or non-synchronous video sources can be processed in real time in one cabinet. Use BNC connectors on the back of the video detection system processor for all video inputs. Use a BNC connector on the front or back of the video detection system processor for video output.

n. Signal or Ramp Meter Cabinet Mounting

Provide an IP addressable processor module, which performs video image processing and MPEG4 encoding, that completely fits within the loop detector slots of the traffic signal or ramp meter controller cabinet input file and that provides a standard relay closure detector input to the controller. Provide from one to four detector outputs through the processor module which communicate through the edge card connector. Use a module that is not wider than two standard input file slots. Include detection indicators on the front panel of the processor module for each channel of detection provided through that module to indicate detector output in real time when the system is operational. Include a BNC connector with gold plated center pin or RCA connector on the front panel for video output to a Monitoring device, and include a RJ-45 Ethernet port connector on the front panel to connect and communicate the Programming Device.

Provide power to the processor modules through the signal or ramp cabinet detector input file, or the Output Expansion Module.

- Video Detection System Processor, Type D

  Provide one (1) video inputs on the video detection system processor such that signals from one video camera sensor or other synchronous or non-synchronous video source can be processed in real time. Use BNC connectors on the processor for all video inputs. Use a BNC connector or RCA connector on the front of the video detection system processor for video output.
- Video Detection System Processor, Type E

  Provide at least two (2) video inputs on the video detection system processor such that signals from up to two (2) video camera sensors or other synchronous or non-synchronous video sources can be processed in real time in one cabinet input file. Use BNC connectors on the back of the video detection system processor for all video inputs. Use a BNC connector on the front or back of the video detection system processor for video output.
- Video Detection System Processor, Type F

  Provide at least four (4) video inputs on the video detection system processor such that signals from up to four (4) video camera sensors or other synchronous or non-synchronous video sources can be processed in real time in one cabinet input file. Use BNC connectors on the back of the video detection system processor for all video inputs. Use a BNC connector on the front or back of the video detection system processor for video output.

- Environmental Requirements (All Types)

  Provide a video detection system processor that operates reliably in a typical roadside traffic cabinet environment. Provide internal cabinet equipment and a video detection system processor that meet the environmental requirements of NEMA TS1-1989 (R1994, R2000, R2005) and NEMA TS2 standards.
- Operating ambient temperature range: Ensure that temperature limits adhere to NEMA TS2-2003 requirements. Additionally, include a heater to prevent the formation of ice and condensation in cold weather. Do not allow the heater to interfere with the operation of the video camera sensor electronics, or cause interference with the video signal.
- Humidity range**:** Ensure that humidity limits adhere to NEMA TS2-2003 requirements.

B. Functional Requirements for Video Detection Systems (all Types)

This section defines the minimally required functional aspects of the system as well as the required accuracy levels. It also outlines the testing process that will be used to determine whether a proposed video detection system product meets these specifications.

1. Ensure that Video Detection Systems provides vehicle presence, speeds, vehicle counts and roadway occupancies on a lane-by-lane basis. Video detection systems operating in a traffic signal installation shall not be required to provide occupancy or classification data. Verify that the system can, at a minimum, emulate the output of a pair of 6 ft. by 6 ft. in-pavement loops spaced 16 ft. apart. Ensure that the Video Detection Processor is capable of providing a minimum 24 detection zones with one video camera sensor. Verify that the system responds with the accumulated traffic data as collected since the last request.
2. Verify that the detection system is IP-addressable and that all communication addresses are user programmable. Ensure the setup program assigns an IP address to the detection processor. Ensure that configuration to the system are either in serial format using an Electronic Industries Alliance (EIA) standard EIE-232 communication or an Internet Protocol (IP) interface as approved by GDOT's Information Technology group.
3. Verify that the traffic data collected by the Video Detection System and the system configuration is stored within internal non-volatile memory within the video detection system processor. Perform software updates through an Ethernet, serial, or USB port. Verify that data can be retrieved from the system either locally or via requests from computers at the central Transportation Management Center (TMC) over the communications network.
4. Ensure the video detection system processor front panel includes a visual display of the status of each video input. Indicators shall display, at a minimum, the status of video detection system processor communications, the status of the video detection system processor, the status of communications, and whether or not each video camera sensor is actively detecting. The Video Processor shall allow a remote user with a standard web browser to gain remote access, collect data, control, and configure the VDS.

5. Ensure the Video Detection System includes computer software, which enables the user to program, calibrate, operate and view current status of all system features using a laptop computer, or network-connected workstation at the central TMC. Ensure the system allows the user to view live MPEG4 video from the image sensor with the programmed detectors overlaying the image. Ensure individual vehicle actuations can be viewed while observing the live MPEG4 encoded video.
6. Ensure the Video Detection System configuration data can be uploaded and saved to a laptop or TMC workstation computer for later re-loading to the video detection processor ifnecessary.
7. Ensure that the system offers an open Application Programming Interface (API) and software development kit (SDK) for GDOT developers and their consultants to integrate the Video Detection System with Central Software or other third-party software and systems. Furnish needed software licenses for the system.
8. Ensure the system user can use a laptop to reprogram, calibrate, adjust or alter any previously defined detector configurations in the field and also reprogram any detector configurations over the network or from a TMC workstation.
9. Provide software that can communicate concurrently between multiple users and multiple video detection processors on the same network without any interruption or conflict with the normal polling cycle.

C. Additional Functional Requirements for Signal and Ramp Meter Video Detection Systems (Type D, E, F)

1. System Hardware: Provide a detection system that does not require any equipment external to the traffic signal/ramp meter controller cabinet input file (excluding the video camera sensor, video camera sensor power connection, circuit breakers and surge protection for video or data). Mount the processor and expansion modules in the traffic signal/ramp meter controller cabinet input files, using the edge card connector to obtain power and provide contact closure outputs. Rewiring of the backplane or any other cabinet panel for the system is not permitted except for power and grounding for the interface panel, wiring from the video camera sensor to the loop detector panel for the video signal and wiring to obtain power for the video camera sensor.
2. Provide a system capable of providing a minimum of eight detector outputs per video camera sensor. Provide all detector outputs through edge card connectors of the processor module and output expansion module(s). Rewiring external to the edge connectors is not permitted for obtaining a minimum of eight outputs for one video camera sensor.
3. System Software System Processing Software: On the processor module that mounts in the traffic signal/ramp meter controller cabinet input file, include the software that processes the video camera sensor signals and converts the signals into detector outputs. Detect either approaching or receding vehicles in multiple lanes within the field of view (FOV) of each video camera sensor. Provide the capability of detecting vehicles in up to 24 detection zones per video camera sensor with the detection system. Allow the detection zones to be combined to form one output.
4. Detection Compensation: Provide the capability for the processor to compensate for camera movement attributable to temperature effects, wind shifting, pole sway, pole expansion, or vibration.
5. System Configuration Software: On the processor module, include the configuration software to program the detection system, including the detection zones.
6. On a monitoring device, display the detection zones superimposed on the video camera sensor's images. Provide the capability to create detection zones of varying size and shape to allow best coverage of the viewable roadway lanes and ramps. Provide the capability to save the detection zone format on the processor module card once drawn for a particular video camera sensor image. Provide the following capabilities for the user to view the currently active detector zone format of the MPEG4 encoded processor module via a monitoring device:
    a. Confirmation: When viewing vehicle actuations in real time on the monitoring device, indicate the passage or presence of each vehicle detected by each detection zone by changing the color or intensity of that particular zone.
    b. Detection During Reconfiguration: Provide the capability for the detection system to continue detecting vehicles on all existing zones during reconfiguration, except on the zone that is being reconfigured.
    c. I-VDSn designation: I-VDSn refers to all of the specific VDS components necessary for operation and detection on one approach leg of an intersection. The "n" denotes the approach's through-movement controller phase in the nomenclature of a typical 8-phase dual-ring intersection operation (e.g., I-VDS2, I-VDS4, I-VDS6, I-VDS8) when four video camera sensors are installed. If more than four video camera

sensors are installed, the "n" denotes the controller phase being detected in the nomenclature of a typical 8-phase dual ring intersection operation. I-VDSn is also used as a prefix to identify the individual VDS components of the "n" approach as follows:

a. I-VDSnVCS: the video camera sensor for approach "n"
b. I-VDSnCC: the coaxial cable from the video camera to the controller cabinet for approach "n"
c. I-VDSnPC: the video camera sensor power cable from the video camera to the controller cabinet for approach "n"
d. I-VDSnCSS: the coaxial cable surge suppressor in the controller cabinet for approach "n"
e. I-VDSnCJ: the coaxial jumper cable from the coaxial surge suppressor in the controller cabinet to the processor module or detector panel for approach "n"
f. I-VDSnPM: the processor module for approach "n", where a Processor Module, Type A is installed
g. I-VDSpn/snPM: the processor module for approach "pn" and "sn", where "pn" is the primary approach and "sn" is the secondary approach, where a Processor Module, Type B is installed.
h. Occupancy: individual lane occupancy measured in percent of time

d. Ramp Meter Controller Cabinet Input File: A Ramp Meter Controller Cabinet Input File is a chassis within a traffic signal cabinet rack that has slots where a detector card provides detector output to the traffic signal controller through its edge card connectors. The backplane connector pin output of the edge connectors conforms to Georgia traffic signal controller cabinet standards for the cabinet type specified in the plans.

e. I-VDSnnn: I-VDSnnn refers to all of the specific VDS components necessary for operation and detection related to ramp metering installations based on direction, type of detection and lane assignments The first "n" denotes the approach direction (north, south, east or west) and the second "n" denotes the type of detection, P=Passage Detection Zones, D=Demand Detection Zones, Q=Queuing Detection Zones, ML=Mainline Detection Zones, the third "n" denotes the lane assignment (lane 1=L01, lane 2=L02,lane =L03, lane= L04), the (e.g., I-VDSnPL01, I-VDSsDL02, I-VDSeQL03, I-VDSwMLAL04). The typical ramp metering layout is shown below:

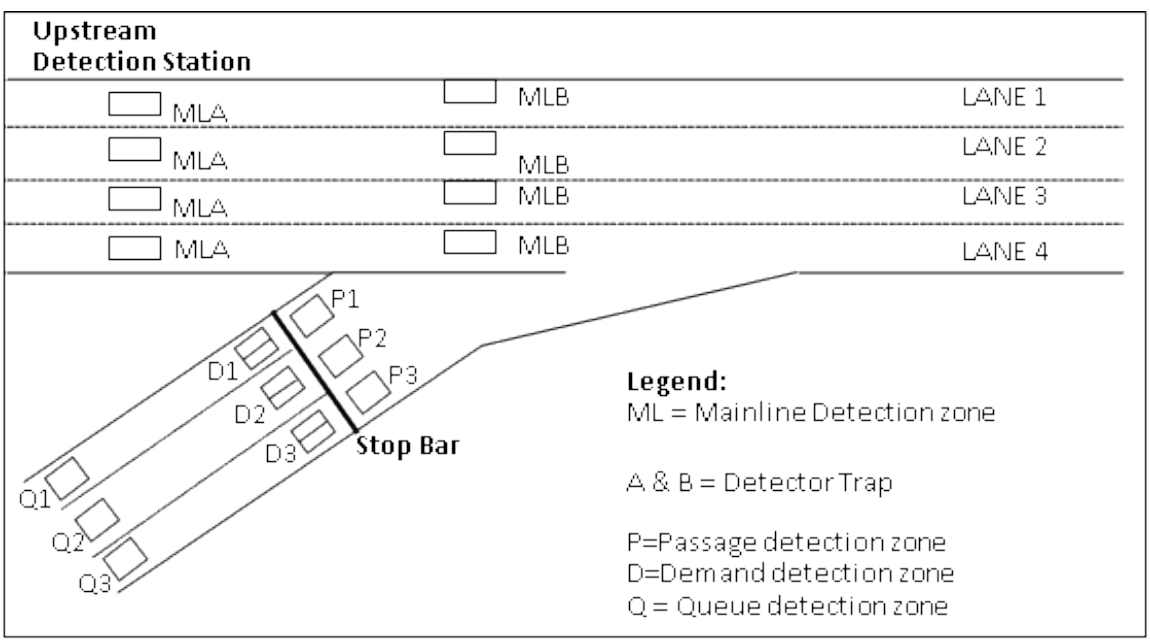


Figure 1: Typical Ramp Meter Layout

Lane numbering shall began at the median for mainline travel lanes. Lane numbering for ramp meter lanes shall began with the lane adjacent to the mainline travel lanes,

I-VVDS is also used as a prefix to identify the individual I-VDS components used for signal and freeway ramp metering as follows:

- I-VDSnnnVCS: the video camera sensor for “nnn” direction, type of detection and lane assignment
- I-VDSnnnCC: the coaxial cable from the video camera to the controller cabinet for approach “nnn” direction, type of detection and lane assignment
- I-VDSnnnPC: the video camera sensor power cable from the video camera to the controller cabinet for approach “nnn” direction, type of detection and lane assignment
- I-VDSnnnCSS: the coaxial cable surge suppressor in the controller cabinet for approach “nnn” direction, type of detection and lane assignment
- I-VDSnnnCJ: the coaxial jumper cable from the coaxial surge suppressor in the controller cabinet to the processor module or detector panel for approach “nnn” direction, type of detection and lane assignment
- I-VDSnnnPM: the processor module for approach “nnn” direction , type of detection and lane assignment

D. Accuracy Requirements for Video Detection Systems

Provide a Video Detection System that meets the below minimum accuracy requirements for both daytime and night time conditions:

1. For volume (vehicle counts): 85% (no more than +/- 15% missed actuations).
2. For speed measurement: 85% (no more than +/- 15% error in speed calculation)
3. For occupancy measurement: 85% (no more than +/- 15% missed actuations)
4. For presence detection: 85% (no more than +/- 15% error in missed actuations)

E. Testing

Vendors are required to submit an independent test evaluation report from a third party which verifies the accuracies stated within their specifications.

Develop and submit plans for post-installation testing to the Engineer for consideration and approval. Ensure the plans test all functional requirements outlined in Section 937.2.01, and the accuracy requirements stipulated in Section 937.2.1 D. Provide the Engineer with Application Protocol Interface (API) documentation and Software Development Kit (SDK) for the video detection system, as requested by the Department. GDOT will have 30 days from receipt of the API and SDK to make a determination if it can be integrated. If the device cannot be integrated, the Engineer will give notice that the Contractor must submit a device that can be integrated into the central system software.

1. Post Installation Test Requirements

Utilize the following test procedures after the video detection system has been installed in its entirety as shown on the Plans. Commence no post-installation testing until all video detection systems in the project have been configured and/or calibrated to gather speed, volume, occupancy and/or presence detection, and programmed to communicate on the GDOT network. Including the accuracy testing requirements, at a minimum, provide the following on the test plan to be submitted and approved by the Engineer:

a. Inspect all vehicle detection system field components to ensure proper installation and cable termination.

b. Verify that field construction has been completed as specified in the plans.

c. Inspect the quality and tightness of ground and surge protector connections.

d. Check power supply voltage and outputs and ensure device connections are as specified in the Plans.

e. Verify that the installation of cables and connections between all detectors and field cabinets are as specified in the Plans

f. Demonstrate that each Video Detection System is fully operational and gathering the required data types at the specified interval. Perform this test from the hub building through which the detection system is connected.

g. Upon satisfactory completion of step f, GDOT will add the new video detection system(s) into the central system

937.2.02 Microwave Vehicle Detection System (MVDS)

A. Requirements

1. Microwave Detector Type A

Provide a microwave detection system for ITS installations that meets the following minimum requirements:

a. Microwave Transmission: The microwave radar detector shall transmit on a frequency band of 24 (twenty-four) GHz or another approved spectral band. It shall comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules or the appropriate Spectrum Management Authority. The Microwave Unit shall not interfere with any known equipment.

b. Area of Coverage

The Microwave Unit's field of view shall cover an area defined by an oval shaped beam and its maximum detection range shall be as follows:

Elevation Beam Width	50 degrees or more
Azimuth Beam Width	12 degrees or less
Range	up to 250 feet

c. Detection Zones

The minimum number of detection zones defined shall be no less than ten (10) for side-fired configuration.

d. Capabilities

Ensure that Microwave Detection Systems Type A proposed for use provide vehicle presence, classification, speeds, vehicle counts and roadway occupancies on a lane-by-lane basis at a user definable reporting period and can detect a minimum of 10 detection zones where the farthest lane at ideal mounting height can detect at a maximum distance of 250 feet.

The Microwave Unit shall be a presence detector. It shall be suitable for mounting on roadside poles or on overhead structures at a mounting height determined by the manufacturer, to provide the following:

- Presence indication of vehicles in its detection zones.
- Traffic data, periodically accumulated over user defined time intervals in a 10 to 600 sec range, shall be transmitted via serial RS-485 communications lines to a serial port on the terminal server.
- Traffic data shall be available simultaneously with detection zone contact closures and serial communications. Supply all modules as necessary for simultaneous communications.
- Vehicle classification by length in a minimum of 3 user defined classes.
- MVDS shall allow the user to define the contents of transmitted data.
- Furnish the unit with the required software for data collection, processing, configuration and set-up, and data logging and retrieval. An operator shall be able to use the software to set detector count periods, sensitivities, and other operational features and parameters. The software must be capable of providing both manual and automatic setup and calibration.

Side-fired configuration data shall include the following in each of up to ten (10) detection zones (lanes):

- Volume
- Lane occupancy
- Average speed

e. Environmental Conditions and Protection

Except as stated otherwise herein, the equipment shall meet all its specified requirements during and after subjecting to any combination of the following:

- Temperature and humidity limits per NEMA TS2-2003 requirements
- Power surge of ± 1kV (rise time = 1.2 μsec, hold = 50μsec) applied in differential mode to all lines, power and output, as defined by IEC 1000-4-5 and EN 61000-4-5 standards or 300v TS2

- The microwave radar detector shall be resistant to vibration in accordance with IEC 68-2-30 (test Fc), NEMA TS-1 (Section 2.1.12), or approved equivalent
- The microwave detector shall be resistant to shock in accordance with IEC 68-2-27 (test a), NEMA TS-1 (Section 2.1.13), or approved equivalent

f. Mechanical

The microwave radar detector shall be enclosed in a rugged weather proof box and sealed to protect the unit from wind up to 90 mph, dust and airborne particles, and exposure to moisture (NEMA Type 3R or 4x enclosure).

The mounting assembly shall have all coated steel, stainless steel, or aluminum construction, and shall support a load of 20 pounds. The mounting assembly shall incorporate an approved mechanism that can be tilted in both axes and then locked into place, to provide the optimum area of coverage.

g. Electrical

The MVDS unit shall be operable from 12 - 24 VDC. Power supply shall be obtained from the MVDS communications wiring module in the device cabinet. Alternative power sources and adapters shall be submitted and approved by the Engineer.

The MVDS unit shall include Power Management features, allowing remote shutdown or cyclical shutdown of the unit.

h. Cables

Connection between the MVDS and the cabinet equipment shall be provided by a single MVDS unit harness cable that is MS-connector terminated at the MVDS detector and terminated to the MVDS communications wiring module in the equipment cabinets. No splices are permitted in the cable. The cable shall at a minimum provide power and the RS-485 serial data interface to the MVDS unit.

The MS connector pins must be crimped to the cable conductors and assembled and tested by the manufacturer prior to installation and pulling of cable on site. RS-485 signal ground shall be provided by the shield drain wire, an additional conductor, or an additional shielded pair, in accordance with the MVDS unit manufacturer's recommendations. Twisted pairs shall be identified by separate insulation colors. Communications pairs shall be individually or commonly shielded. Low voltage power conductors shall not be shielded in common with the communications pairs.

i. Electrical Isolation and Surge Protection

All power lines, contact closures and the serial port shall be surge protected within the unit. Contact closures and the serial port shall be isolated. Ensure that the surge protection of all cables and connections meets the minimum requirements of Section 925.2.02 A, part 14, Surge Protection.

j. Data Interface

- Data communications shall be full duplex asynchronous, configurable as:
- Opto-isolated RS-485 port at rates from 9600 up to 115200 bits per second
- Separate, local control RS-232 or RS-485 ports
- Serial data format shall be standard binary NRZ 8 bits data, 1 stop bit, No parity
- Both point-to-point and multi-dropped configurations shall be supported.

2. Microwave Detector Type B

Provide a microwave detection system for traffic signal installations that meets the following minimum requirements:

a. Microwave Transmission: The microwave radar detector shall transmit on a frequency band of 24 (twenty-four) GHz or another approved spectral band. It shall comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules or the appropriate Spectrum Management Authority. The Microwave Unit shall not interfere with any known equipment.

b. Area of Coverage

The Microwave Unit's field of view shall cover an area defined by an oval shaped beam and its maximum detection range shall meet manufacturer's specification and provide accurate detection to the controller.

c. Detection Zones

The minimum number of detection zones defined shall be no less than eight (8).

d. Capabilities

Ensure that Microwave Detection Systems Type B proposed for use provides vehicle presence on a lane-by-lane basis and can detect a minimum of 8 detection zones where the farthest lane at ideal mounting height can detect at a minimum distance of 100 feet.

The Microwave Unit shall be a presence detector. It shall be suitable for mounting on roadside poles or on overhead structures at a mounting height determined by the manufacturer, to provide the following:

- Presence indication of vehicles in its detection zones.
- Traffic data shall be transmitted to the controller. Supply all modules as necessary for simultaneous communications.
- MVDS shall allow the user to define the contents of transmitted data.
- Furnish the unit with the required software for data collection, processing, configuration and set-up, and data logging and retrieval. An operator shall be able to use the software to set detector count periods, sensitivities, and other operational features and parameters. The software must be capable of providing both manual and automatic setup and calibration.
- Volume
- Travel direction
- Per vehicle speed and direction (in forward looking configuration)

e. Environmental Conditions and Protection

Except as stated otherwise herein, the equipment shall meet all its specified requirements during and after subjecting to any combination of the following:

- Temperature and humidity limits per NEMA TS2-2003 requirements
- Power surge of ± 1kV (rise time = 1.2 μsec, hold = 50μsec) applied in differential mode to all lines, power and output, as defined by IEC 1000-4-5 and EN 61000-4-5 standards or 300v TS2
- The microwave radar detector shall be resistant to vibration in accordance with IEC 68-2-30 (test Fc), NEMA TS-1 (Section 2.1.12), or approved equivalent
- The microwave detector shall be resistant to shock in accordance with IEC 68-2-27 (test a), NEMA TS-1 (Section 2.1.13), or approved equivalent

f. Mechanical

The microwave radar detector shall be enclosed in a rugged weather proof box and sealed to protect the unit from wind up to 90 mph, dust and airborne particles, and exposure to moisture (NEMA Type 3R or 4x enclosure).

The mounting assembly shall have all coated steel, stainless steel, or aluminum construction, and shall support a load of 20 pounds. The mounting assembly shall incorporate an approved mechanism that can be tilted in both axes and then locked into place, to provide the optimum area of coverage.

g. Electrical

The MVDS unit shall be operable from 12 - 24 VDC. Power supply shall be obtained from the MVDS communications wiring module in the device cabinet. Alternative power sources and adapters shall be submitted and approved by the Engineer.

The MVDS unit shall include Power Management features, allowing remote shutdown or cyclical shutdown of the unit.

h. Cables

Connection between the MVDS and the cabinet equipment shall be provided by a single MVDS unit harness cable that is MS-connector terminated at the MVDS detector and terminated to the MVDS communications wiring module in the equipment cabinets. No splices are permitted in the cable. The cable shall at a minimum provide power and the RS-485 serial data interface to the MVDS unit.

The MS connector pins must be crimped to the cable conductors and assembled and tested by the manufacturer prior to installation and pulling of cable on site. RS-485 signal ground shall be provided by the shield drain wire, an additional conductor, or an additional shielded pair, in accordance with the MVDS unit manufacturer's recommendations. Twisted pairs shall be identified by separate insulation colors. Communications pairs shall be individually or commonly shielded. Low voltage power conductors shall not be shielded in common with the communications pairs.

i. Electrical Isolation and Surge Protection

All power lines, contact closures and the serial port shall be surge protected within the unit. Contact closures and the serial port shall be isolated. Ensure that the surge protection of all cables and connections meets the minimum requirements of Section 925.2.02 A, part 14, Surge Protection.

j. Data Interface

Data communications shall be full duplex asynchronous, configurable as:

- Opto-isolated RS-485 port at rates from 9600 up to 115200 bits per second
- Separate, local control RS-232 OR rs-485 ports
- Serial data format shall be standard binary NRZ 8 bits data, 1 stop bit, No parity
- Both point-to-point and multi-dropped configurations shall be supported.

B. Functional Requirements for Microwave Detection Systems Type A and B

This section defines the minimally required functional aspects of the microwave detection system as well as the required accuracy levels. It also outlines the testing process that will be used to determine whether a proposed microwave detection system product meets these specifications.

1. Verify that the traffic data collected by the Microwave Detection System is stored within internal non-volatile memory. Verify that data can be retrieved from the system either locally or via requests from computers at the central Transportation Management Center (TMC) over the communications network. Verify that the system configuration data and system software is also stored within internal non-volatile memory.
2. Ensure the Microwave Detection System includes computer software for the user to program, calibrate, operate and view current status of all system features using a laptop computer or network-connected workstation at the central TMC. Ensure the system allows the user to view live actuations from the microwave detector with the programmed detectors overlaying a representation of the roadway.
3. Ensure the Microwave Detection System configuration data can be uploaded and saved to a laptop or TMC workstation computer for later re-loading to the video detection processor if necessary. Ensure the system user can use a laptop or TMC workstation to reprogram, calibrate, adjust or alter any previously defined detector configurations. Ensure no periodic adjustments or fine-tuning is required except in the case of physical roadway changes such as lane-shifts, new construction or closures.
4. Ensure that the system offers an open Application Programming Interface (API) and software development kit (SDK) for GDOT developers and their consultants to integrate the Microwave Detection System with GDOT Central Software or other third-party software and systems. Furnish needed software licenses for the system.

C. Accuracy Requirements for Microwave Detection Systems

Provide a Microwave Detection System that meets the below minimum accuracy requirements for all conditions. Accuracy measurements for the testing shall be done with an appropriate sample size of vehicles, over a specific time period. Submit to the Engineer the Test plan for accuracy testing at the location that is site specific to the plans. The test

plan shall take into account the roadway type (freeway, arterial), location (urban, rural), and traffic conditions in order to determine appropriate testing length and sample size. The following conditions shall be met for each sensor installed:

Measurement Accuracy

The following error levels shall be achievable and demonstrated during testing:

Parameter (For Type A and B)	Error Percentage
Presence	±5%
Time event	10ms
Input Voltage	±2%
Parameter (For Type A)	**Error Percentage**
Volume	±8%
Lane Occupancy	±10%
Average Speed	±10%
Length Classification limits	±10%

D. Testing

Develop and submit plans for post-installation testing to the Engineer for consideration and approval. Ensure the plans test all functional requirements outlined in Section 937.2.02 B and the accuracy requirements stipulated in Section 937.2.2 C. Provide the Engineer with Application Protocol Interface (API) documentation and Software Development Kit (SDK) for the microwave detection system. GDOT will have 30 days from receipt of the API and SDK to make a determination if it can be integrated. If the device cannot be integrated, the Engineer will give notice that the Contractor must submit a device that can be integrated into the central system software.

1. Post-installation test requirements

Utilize the following test procedures after the microwave detection system has been installed in its entirety as shown on the Plans. Commence no post-installation testing until all microwave detection systems in the project have been configured and/or calibrated to gather speed, volume, classification, and occupancy and programmed to communicate on the GDOT network. Including the accuracy testing requirement, at a minimum, provide the following on the test plan to be submitted and approved by the Engineer.

a. Inspect all microwave detection system field components to ensure proper installation and cable termination.

b. Verify that field construction has been completed as specified in the plans.

c. Inspect the quality and tightness of ground and surge protector connections.

d. Check power supply voltage and outputs and ensure device connections are as specified in the Plans.

e. Verify that the installation of cables and connections between all detectors and field cabinets are as specified in the Plans and in accordance with the manufacturers' recommendations.

f. Demonstrate that each Microwave Detection System is fully operational and gathering the required data types at the specified interval. Perform this test from the hub building through which the detection system is connected.

g. Upon satisfactory completion of step f, GDOT will add the new microwave detection system(s) into the central system

937.2.3 Wireless Magnetometer Vehicle Detector System (WMVD)

This specification sets forth the minimum requirements for a system to detect vehicles on a roadway by using battery-powered magnetometer-type sensors that communicate their detection data by radio to a roadside communications hub before the data is relayed to a freeway cabinet, a local traffic controller cabinet, a central software system, and/or a data

server as required by the application. The application of the WMVDS and equipment specified shall be as shown in the plans. These specifications cover both intersection presence based vehicle detection used for traffic controller input, as well as freeway system or advanced system detection data collection of volume, occupancy and speed.

A. Requirements

The detection system shall provide accurate roadway information as needed to support the traffic management application.

1. The Wireless Battery-Powered Magnetometer Vehicle Detection System shall consist of one or more of the following:
   a. Battery-powered wireless sensors installed in-pavement in each traffic lane w/ reuse enclosure.
   b. Serial Port Protocol (SPP) Digital Radios mounted on the side of the roadway w/ cable and mount.
   c. Wireless battery-powered Repeaters (RPs) mounted on the side of the roadway, serving to extend the radio range of an SPP w/ mount.
   d. Access Point Contact Closure Interface (APCC) cards to provide sensor information processing and support the interface between an SPP and a standard traffic controller using contact closure signals, or mounted in a stand alone cabinet w/ direct IP communications.
   e. Extension (EX) contact closure cards to provide additional detector outputs to a traffic controller
   f. Isolation (ISO) Modules to provide surge protection and isolation, as well as providing signal conditioning to enhance the communication distance from the SPP and the APCC.
   g. Input/Output (I/O) Modules used to provide additional communication options, memory options and a battery backed real time clock.
   h. Software to control and configure the sensors, APCC, SPP's and RPs.
   i. Communications between a sensor and SPP can be direct, via a single repeater, or via two repeaters operating in tandem. Communications between the sensors and the SPP or RP and between the RP and SPP or another RP shall be via radio.
   j. Detection data shall be capable of being relayed from each AP to a local traffic controller for real-time vehicle detection using contact closure signals. Data shall also be capable of being relayed directly from each AP to a central software system or central server over standard IP (Internet Protocol) networks.
   k. Antenna mounted on the side of the roadway, serving to extend the radio range of the AP.
2. WMVD Sensor Type
   a. All sensor components shall be contained within a single housing.
   b. The sensor housing shall conform to NEMA Type 6P and IEC IP68 standards.
   c. The sensor components shall be fully encapsulated within the housing to prevent moisture from degrading the components.
   d. Sensor shall be capable of operation within the temperature and humidity limits set forth in NEMA TS2- 2003.
   e. A sensor shall be battery-powered with a minimum lifetime of seven (7) years when the sensor is configured for and operating under normal traffic conditions.
   f. Two configurations of sensors shall be available from the manufacturer:
      - Type A: shall provide all sensor functions, including data collection functions
      - Type B: shall support presence detection only
      - The drawings and/or plans shall dictate the sensor type required.
3. Serial Port Protocol (SPP) Device
   a. An SPP shall support at least 48 sensors with a 0.125 second latency.
   b. An SPP shall operate within the temperature and humidity limits set forth in NEMA TS2-2003.

c. All SPP components shall be contained within a single housing.

- The SPP housing shall conform to NEMA Type 4X and IEC IP67 standards.

d. The SPP shall communicate to the APCC utilizing a standard CAT5e or higher Ethernet cable. hh. The SPP shall have a weatherproof Ethernet connector on the bottom.

e. The Ethernet connector shall be shipped with a cover firmly attached to provide protection from the elements prior to cable connection.

- The weatherproof connector shall not require any specialized tools for installation.

4. WMVD Repeater (RP)

a. An RP communicating directly to an AP shall support at least 10 sensors.

b. An RP communicating to an AP via an intermediate RP (i.e., tandem operation) shall support at least 6 sensors.

c. An RP shall be battery-powered and battery shall last for a minimum of seven years when operating in normal traffic conditions.

d. The RP battery shall be field replaceable.

e. An RP shall operate within the temperature and humidity range set forth in NEMA TS2-2003. oo. All RP components shall be contained within a single housing.

- The RP housing shall conform to NEMA Type 4X and IEC IP67 standards.

5. WMVD Access Point Contact Closure (APCC) Card Type

a. Each APCC card shall be capable of communicating with at least 2 SPP modules.

b. Optional Extension (EX) cards shall provide additional contact closures in a signal cabinet (user configurable form 1 to 4 outputs each).

c. The APCC shall provide all the higher level processing and interface functions of the system. ss. Each APCC card shall provide detector data as contact closure signals to the traffic controller.

- Type A: An APCC card shall directly plug in to standard 170/2070 input files.
- Type B: An APCC card shall be supplied within a standard enclosure to supply power for use in freeway applications.

d. The APCC and EX cards front panel shall be either software or via front panel switches configurable to provide:

- Presence or pulse mode
- Delay timing
- Extension timing

e. An APCC and EX card shall operate within the temperature limits set forth in NEMA TS2-2003.

f. An APCC and EX card shall operate in humidity up to 95% (non-condensing).

6. Isolator module

a. An Isolator module shall be used between each SPP and APCC to extend communications range and protect the APCC card from transient surges.

b. The isolator module shall extend the communication range between the APCC and SPP from 33 feet (10 m) to 2000 feet (600 m).

c. The isolator module shall provide electrical isolation of 1500V.

d. The isolator module shall provide surge protection of up to 1500V.

e. The isolator module shall provide AC power cross protection.

7. Input/Output (I/O) Module Type

An I/O module shall expand the capabilities of an APCC by adding a SD Memory Card Slot and battery backed up real time clock. The module shall be of the following types.

a. Type A: RS232 port for serial communications

b. Type B: Detection data shall be communicated as IP data over GSM-based cellular data services via a GPRS cellular modem.

c. Type C: Detection data shall be communicated as IP data over CDMA-based cellular data services via a 1xRTT cellular modem.

d. The I/O module shall be physically mounted to the APCC and shall be the same width. The combined APCC with I/O module shall be the width of a standard 2 slot wide detector amplifier.

8. Antenna

a. Antenna shall meet the environmental requirements set forth in NEMA TS2-2003.

b. Antenna shall operate in an approved frequency band that is compatible with the detection equipment and shall not interfere with any known equipment.

c. Furnish an antenna that will interface with associated detection equipment. Include all necessary cables and connectors per manufacturer's specification.

d. Furnish mounting hardware to secure the antenna to the pole as recommended by the manufacturer of the antenna and as approved by the Engineer.

e. All antenna cable attenuation shall be respective and appropriately sized to the frequency being attenuated at industry standard.

B. Functional Requirements for Wireless Magnetometer Vehicle Detection

1. Sensors

Each sensor shall detect a vehicle by measuring changes in the earth's magnetic field near the sensor as caused by a stopped or passing vehicle (i.e., magnetometer-type detection)

a. The sensor shall communicate time-stamped ON and OFF vehicle detection events lll. Each sensor shall automatically recalibrate in the event of a detector lock

b. Each sensor shall communicate by radio to a nearby SPP, AP, antenna, or RP

c. Each sensor shall automatically re-transmit a detected event if no acknowledgement is received from the AP

d. Each sensor shall respond within 100 seconds when the AP is powered on and transmitting

2. The radio links between each sensor and associated communication link shall conform to the following:

a. The center frequencies, bandwidths, and transmit power levels of the radio links shall allow operation in an unlicensed frequency band

b. Frequency channels shall be employed by the sensors, APs, antenna and RPs to avoid interference with other devices operating in the unlicensed band

c. Frequency channels shall be user-configurable when using 2.4GHz

d. At least 16 frequency channels shall be supported

3. If detection data is relayed to a central software system or central server, each installation of the Wireless Battery-Powered Magnetometer Vehicle Detection System shall provide the following measurements, as required by the application:

a. Vehicle volume (count) per lane over a specified time interval

b. Lane occupancy (percent) over a specified time interval

c. Vehicle speed (mph or kph) when more than one sensor is deployed in a lane

d. Per-vehicle speed

e. Median speed over a specified time interval yyy.Mean speed over a specified time interval

f. Distribution of speeds over a specified time interval

g. Vehicle classification when more than one sensor is deployed in a lane

h. Per-vehicle length

i. Report distribution of vehicle lengths over a specified time interval

j. The time interval for measurements shall be selectable from 30 seconds to 24 hours

4. Each sensor in an installation shall be capable of being individually configured with its own sensitivity level.

   a. A single sensor shall be capable of being configured with a sensitivity level that approximates the detection zone of a standard 6′ x 6′ inductive loop

   b. Each sensor shall be capable of being configured with relatively higher or lower sensitivity levels as may be required to detect bicycles, motorcycles, or light rail

   c. An APCC shall support the relay of sensor detection data through several interfaces as required by the application. The APCC shall be capable of simultaneously communicating detection data via the contact closure interface, Ethernet interface, and cellular data modem interface, as applicable.

C. Accuracy Requirements for the Wireless Magnetometer Vehicle Detection System

Provide a WMVD system that meets the below minimum accuracy requirements for all conditions. Accuracy measurements for the testing shall be done with an appropriate sample size of vehicles, over a specific time period. Submit to the Engineer the Test plan for accuracy testing at the location that is site specific to the plans. The test plan shall take into account the roadway type (freeway, arterial), location (urban, rural), and traffic conditions in order to determine appropriate testing length and sample size. The following conditions shall be met for each sensor installed:

D. Measurement Accuracy

The following error levels shall be achievable and demonstrated during testing for the parameters relevant to each installation.

Parameter	Error Percentage
Presence	±5%
Volume	±8%
Lane Occupancy	±10%
Average Speed	±10%
Length Classification limits	±10%

E. Testing

Develop and submit plans for post-installation testing to the Engineer for consideration and approval. Ensure the plans test all functional requirements outlined in Section 937.2.03B and the accuracy requirements stipulated in Section 937.2.03C. Provide the Engineer with Application Protocol Interface (API) documentation and Software Development Kit (SDK) for the WVDS detection system. GDOT will have 30 days from receipt of the API and SDK to make a determination if it can be integrated. If the device cannot be integrated, the Engineer will give notice that the Contractor must submit a device that can be integrated into the central system software. The testing shall prove that all in-pavement sensors are configured and collecting data as required in this specification and as shown on the plans.

1. Post-installation test procedures: Utilize the following test procedures after the WVDS system has been installed in its entirety as shown on the Plans. Commence no post-installation testing until all WVDS systems in the project

have been configured and/or calibrated to gather speed, volume, classification, occupancy, and/or presence and programmed to communicate on the GDOT network as required per installation. Including the accuracy testing requirement, at a minimum, provide the following on the test plan to be submitted and approved by the Engineer:

a. Inspect all detection system field components to ensure proper installation and cable termination.

b. Verify that field construction has been completed as specified in the plans.

c. Inspect the quality and tightness of cable, ground and surge protector connections.

d. Check voltage and outputs and ensure device connections are as specified in the Plans and manufacturer recommendations.

e. Verify that the installation of cables and connections between all APCC′s and field cabinets are as specified in the Plans

f. Demonstrate that each Wireless In-Pavement Vehicle Detection System is fully operational, communicating and gathering the required data types at the specified interval.

937.2.4 Short-Range Radio Device Detector System

The Short-Range Radio Device Detection System shall be capable of monitoring and measuring vehicular and pedestrian movement by identifying and comparing unique MAC (Media Access Control) addresses associated with Short-Range Radio enabled electronic devices. The system can be used to collect high quality, high-density travel times by sampling a portion of actual travel activity from the traffic stream of a predetermined route. The MAC address received by a sequence of two or more Short-Range Radio Device receivers shall be matched and used to develop a sample of travel time for that particular segment of the roadway, based on the relative detection times recorded by the adjacent units.

The Short-Range Radio enabled device (sensor) shall be an anonymous Short-Range Radio Device MAC address, which is a hardware identifier for the manufacturer and specific electronic device type. MAC addresses are not associated with any specific user account or any specific vehicle. The MAC address shall not be linked to a specific person through any type of central database, but is assigned by the Short-Range Radio Device electronic chip manufacturer and shall not be tracked through the sales chain. Privacy concerns typically associated with alterative probe systems shall be eliminated.

A. Requirements (Type A, Type B, and Type C)

The Short-Range Radio Device Detection System shall be connected to, and work in conjunction with the support data processing system, located in a designated server at the TMC. All The Short-Range Radio Device Detection units shall adhere to the following requirements:

- Short-Range Radio Device: Class 1 Transceiver with 4 dB to 8 dB Omni Directional Antenna
- Environmental: - 30°C to +65°C, 5 – 90% humidity
- Connectivity: IP/Ethernet 10/100 Base-T (minimum)
- I/O ports: minimum one (1) RJ45 Ethernet port and one (1) RS-232 Configuration Serial Port

1. Short-Range Radio Device Detection System, Type A

   Provide a Short-Range Radio Device Detection System that can be installed in a typical signal or ITS cabinet. The unit shall be enclosed in its own housing and sit on a shelf within the cabinet. Utilize a conduit, as shown on the plans, for routing the antenna cable, and attach the antenna at the location shown on the plans. The power for the Short-Range Radio Device Detection System, Type A unit shall come from typical cabinet power (110 VAC) receptacles or terminal block. Supply all wiring for the Short-Range Radio Device Detection System Type A unit. Should the unit require a POE adapter or transformer to VDC, submit the adapter or transformer to the Department for review. The Contractor shall supply all surge protection devices for the external POE adapter or transformer.

2. Short-Range Radio Device Detection System, Type B

Provide a Short-Range Radio Device Detection System that is self-enclosed in a NEMA 4X enclosure that can be mounted to a pole, mast arm or cabinet structure. The voltage input shall be between 6 and 30 VDC, or be able to connect to 110 VAC with appropriate transformers and adapters, as determined by the Department. The Short-Range Radio Device Detection System Type B unit shall be wired to a cabinet or approved communication/power source, as

shown on the plans. The unit shall not reside within the cabinet. Provide all grounding, wiring, adapters, transformers, and surge protection devices needed to support the Short-Range Radio Device Detection System Type B unit, as installed.

3. Short-Range Radio Device Detection System, Type C

Provide a Short-Range Radio Device Detection System that is self-enclosed in a NEMA 4X enclosure that can be mounted to a pole, mast arm or cabinet structure. Provide a Solar Power Array, which includes the solar panel, charging unit and batteries necessary for solar power. The Short-Range Radio Device Detection System Type C unit shall also include a GSM cellular modem with antennas, or approved equivalent. This Short-Range Radio Device Detection System type shall be a completely wireless installation. Provide all grounding, wiring, adapters, transformers, and surge protection devices needed to support the Short-Range Radio Device Detection System Type C unit, as installed.

4. Short-Range Radio Device Detection System Support Data System Software and Database

Provide a Support Data System software package, including all necessary database 3rd party software required in order for the software to run as intended in support and conjunction of the Short-Range Radio Device sensor system. The software shall be installed on a server designated by the Department. It is the Contractor's responsibility to populate and configure the database for each field Short-Range Radio Device Detection System, and to test the accuracy of the data. The data shall be in an XML format compatible with the Department's central software. The software shall also display a real time chart or graph showing calculated travel time and speeds of the sampled vehicles and MAC address counts. The Short-Range Radio Device Detection System support software is required for all new Short-Range Radio Device Detection System installations, but shall not be required for additional Short-Range Radio Device Detection System sensor installations on an existing network.

B. Functional Requirements for the Short-Range Radio Device Detection System

The sensor shall be capable of delivering data from both an Ethernet connection and a GSM wireless modem. The Short-Range Radio Device Detection sensor working in conjunction with the network's support data processing system must deliver real-time speed and travel time information in XML format to the central software system for routes where the sensors are deployed. The system shall be able to add multiple pairs of Short-Range Radio Device Detection sensors to form a network of manageable travel routes. Each route will display the data for the first and last sensor in addition to the travel-time and speed information for that segment. The Short-Range Radio Device Detection sensor shall be able to detect, at a minimum, within a radius of 300 feet when mounted on a pole or mast arm. The data processing shall be able to filter and 'throw out' MAC addresses that do not supply accurate information when compared to other device time stamps of the segment between two Short-Range Radio Detection devices. The data shall be smoothed, and be able to process median and mean average speeds. The following data shall be able to be compared and filtered, as needed, to deliver the most accurate information:

1. Pedestrians
2. Oversize Vehicles
3. Mass Transit (i.e. nearby trains or buses)

The Short-Range Radio Device Detection System equipment shall contain advanced features designed to allow the unit to operate efficiently in a remote environment. Diagnostic and configuration information shall be able to be viewed remotely, such that the health and operating status of the sensor is known. The system shall be designed to be able to automatically or remotely "reboot" if a condition is detected that requires such action.

C. Testing

Develop and submit plans for post-installation testing to the Engineer for consideration and approval. Ensure the plans test all functional requirements outlined in Section 937.2.03B. Provide the Engineer with the appropriate XML data interface, as necessary, for testing of the travel time accuracy and integration into the central software.

1. Post-installation test procedures: Utilize the following test procedures after the Short-Range Radio Device Detection System has been installed in its entirety as shown on the Plans. Commence no post-installation testing until all Short-Range Radio Device Detection sensors systems in the project have been configured, calibrated and

programmed to communicate on the GDOT network to the support data system software. At a minimum, provide the following on the test plan to be submitted and approved by the Engineer:

a. Inspect all Short-Range Radio Device Detection System field components to ensure proper installation and cable termination.

b. Verify that field construction has been completed as specified in the plans.

c. Inspect the quality and tightness of ground and surge protector connections.

d. Check power supply voltage and outputs and ensure device connections are as specified in the Plans.

e. Verify that the installation of cables and connections between all Short-Range Radio Device units, antennas and field cabinets and/or components are as specified in the Plans

f. Demonstrate that each Short-Range Radio Device unit is fully operational and gathering the required data types at the specified and necessary interval.

937.3 Construction/Installation Requirements

This section shall include typical construction requirements for installing and configuring the vehicle detection systems. This specification only gives general requirements of installations. It is the Contractor's responsibility to be fully certified and trained in the detection technology application and the required installation of such devices by the manufacturer. All cable connections shall be manufacturer-rated and secured from outside elements. The Contractor shall be experienced and/or certified in proper cable/connector crimping and manufacturer sealing methods so as to ensure a water-tight and corrosion resistant installation. Wrap all other exposed cable connections with self sealing tape for weatherproofing and moisture seal.

Refer to Subsection 107.07 of the Specifications regarding proper conduct of The Work.

937.3.1 Personnel

All personnel shall be fully trained and manufacturer certified in the applicable vehicle detection installation application. When installing into a signal or ramp meter cabinet, the technician shall be minimum International Municipal Signal Association (IMSA) Level II certified.

937.3.2 Equipment

Use machinery such as trucks, derricks, bucket vehicles, saws, trenchers, and other equipment necessary for the work and approved by the Engineer prior to installation operations.

937.3.3 Preparation

Utility Permits

A. Application

Apply for, obtain, and pay for utility services, and pole attachment permits required in the Plans.

B. Maintenance

Maintain these utility services until Final Acceptance of each installation. After Final Acceptance, transfer these services and permits to the Department, local government or jurisdiction responsible for maintenance and operation. Ensure that the transfer does not interrupt service.

C. Utility Location

When installing aerial cable of any type, ensure that overhead clearance and separation requirements conform to local utility company standards, OSHA, the NEC and the NESC. Refer to the Standard Details Drawings for further information on utility clearances.

937.3.4 Fabrication

General Provisions 101 through 150.

937.3.5 Construction

A. Video Detection System Installation Requirements

1. General Installation Requirements:

   a. Install all video camera sensors, video detection system processors, output expansion modules, and associated enclosures and equipment at the locations specified in the Plans and per manufacturer recommendations. For traffic signal/ramp meter controller cabinets (Type D, E, and F processors), mount the processor and output expansion modules within the input files, or at a location as designated by the Engineer. Physical changes to the cabinet input files are not permitted. Make all necessary adjustments and modifications to the detection system prior to obtaining recommendation for system acceptance testing. For freeway applications (Type A, B and C processors), install all rack-mounted equipment with one rack unit space between adjacent equipment in the freeway ITS cabinet.

   b. Installation, surge protection and all cabling shall comply with manufacturer's recommendation, at a minimum, or as specified in these plans. All equipment, cables, and hardware must be part of an engineered system that is designed by the manufacturer to fully interoperate with all other system components and be fully protected from all surge potential. Connectors installed outside the cabinets and enclosures shall be manufacturer terminated and be corrosion resistant, weather proof, and watertight. Use a UL listed cable that is ozone and UV resistant and weather resistant. Label cables with permanent cable labels at each end.

   c. Wiring and cables must be continuous (without splices) between the VDS camera sensor and processor, except for surge protection connections between sensor and cabinet, so that both the camera and processor are appropriately protected. Coil a minimum of 6 feet of slack in the bottom of the controller or freeway cabinet. Tape ends of unused and spare conductors to prevent accidental contact to other circuits. Label conductors inside the cabinet for the functions depicted in the approved detailed diagrams of the cabinet and VDS documents.

   d. Furnish an as-built cabinet wiring diagram, identified by location, for each VDS cabinet. Include all wiring, cabling, connections, and camera mounting height. Place all documentation in a weatherproof holder in the cabinet.

   e. For freeway installations (Type A, B and C processors), install VDS power supply or transformer on a standard DIN rail using standard mounting hardware and power conductors wired to terminal blocks in the cabinet.

2. Camera Sensor Installation (all Types)

Adjust the video camera sensor lens as recommended by the manufacturer, and as required to minimize vehicle occlusion. For Type A camera sensors, aim the camera so that no part of the horizon is in the video image so as to protect it from the effects of the sun. Mount the camera on the specified pole or structure for that location as shown on the plans.

Mounting Bracket Assembly: Mount the video camera sensor on a mounting bracket such that its height and position provide a clear view of the approach or lanes. Mount the video camera sensor securely such that it is stable and steady. The mounting bracket assembly includes a video camera sensor mounting bracket, nipple pipe, cable-mount nipple clamp, and all associated hardware and materials. Mount the video camera sensor on a mounting bracket assembly which meets the following requirements unless otherwise specified in the plans:

   a. Use stainless steel fastening hardware with lock washers on threaded fasteners

   b. Use a video camera sensor enclosure mounting bracket that is non-rusting and is made from die cast aluminum, extruded aluminum, powder-coated galvanized steel or hot dipped galvanized steel. Provide a mounting bracket that permits vertical and horizontal adjustment of the video camera sensor. Provide a mounting bracket that securely fastens to the video camera sensor enclosure and mounts to the nipple pipe by threading onto the pipe or as a slip-fit, using a set-screw fastener in either above method.

   c. Use a 1 ½" (38 mm) aluminum nipple pipe that is threaded on both ends.

d. Fasten the nipple pipe to the mast arm using a cable mount nipple clamp with minimum 2 5/16″ (58 mm) U bolts. Use aircraft grade galvanized steel cables with stainless steel fastening hardware and that make at least two wraps around the mast arm. Do not use banding straps.

Install all VDS equipment into a cabinet type as shown in the plans with the following equipment:

3. Cabinet Equipment (All Types)

   a. Wiring, Conductors and Terminal Blocks: Use stranded copper for all conductors, including those in jacketed cables, except for earth ground conductors, which may be solid copper. Neatly arrange all wiring, firmly lace or bundle it, and mechanically secure the wiring without the use of adhesive fasteners. Route and secure all wiring and cabling to avoid sharp edges and to avoid conflicts with other equipment or cabling. Route camera control wiring, and 120 VAC power wiring separately. Terminate all wiring on a terminal block, strip, bussbar, or device clamp or lug; do not splice any wiring. Use a minimum #12 AWG for all conductors of 120 VAC circuits, or as recommended by the manufacturer of the VDS device.

   b. Label coaxial cables for VDS cameras. Number all terminal blocks, terminal strips, circuit breakers and bussbar breakers and have each item and each terminal position numbered and named according to function. Labels shall be weather and wear resistant.

   c. Surge Protection: Protect all copper wiring and cabling entering the cabinet housing by surge protection devices as specified in these specifications and per Section 925.2.02 Section A, part 14. Terminate all wiring between cabinet devices and the transient surge protection devices, except for the video signal coaxial feed, on terminal strips. Use a minimum #16 AWG grounding of each surge protection device, or larger if recommended by the surge protection device manufacturer. Do not "daisy chain" with the grounding wires of other devices including other surge suppressors. Dress and route grounding wires separately from all other cabinet wiring. Install grounding wires with the absolute minimum length possible between the surge protection device and the ground bussbar. Label all surge protection devices with silk- screened lettering on the mounting panel.

   d. Furnish and install a surge suppressor for each video signal coaxial line. Install a BNC connector, three stage surge protection device for the coax cable that employs gas discharge tubes, series current limiting components, and secondary 'fine' protection. The coax surge protection device shall have a surge current rating of 10 kA. For each cabinet housing, include surge protection devices for the VDS camera power lines installed on the terminal bloc.

   e. All surge protection shall be furnished and installed by the Contractor to protect not only the cabinet processor, but the camera sensor itself from ground rise potential (i.e. surge up to the camera sensor).

   f. Documentation: Provide the following documentation in a waterproof documentation pouch in each cabinet:

      - One operation manual with programming instructions
      - One maintenance manual with schematics
      - Three legible wiring prints showing all VDS components, model and serial number and connections with the cabinet

4. Cabinet Equipment (Type A, B, and C)

   Component Installation: Fasten all components of the cabinet assembly to be mounted on cabinet side panels with hex-head or Phillips-head machine screws. Install the screws into tapped and threaded holes in the panels. These components include but are not limited to terminal blocks, bussbars, panel and socket mounted surge protection devices, accessory and equipment outlets, and DC power supply chassis. Fasten all other cabinet components with hex-head or Phillips-head machine screws insulated with nuts (with locking washer or insert) or into tapped and threaded holes. All fastener heads and nuts (when used) shall be fully accessible within a complete cabinet assembly, and any component shall be removable without requiring removal of other components, panels, or mounting rails. Do not use self-tapping or self-threading fasteners.

5. Cabinet Equipment (Type D, E, and F)

   a. . Exercise extreme caution when installing VDS equipment and materials at traffic signal/ramp meter installations. Installation technicians accessing a signal cabinet shall be accompanied by a certified

(minimum) International Municipal Signal Association (IMSA) Level II traffic signal technician. Repair any damage to existing traffic/ramp meter control equipment and materials which occurred during VDS installation to the Engineer′s satisfaction at the Contractor′s sole expense.

b. In 336S cabinets, locate the VDS power termination panel on the equipment rail in the lower left portion of the rear of the cabinet as shown in the details and plans. Adjust the panel as far toward the cabinet sidewall as possible while still providing access to the circuit breaker. Notify the Engineer immediately if there is any conflict with existing cabinet equipment in this position. Ensure that there is no conflict with door-mounted components when the door is closed.

c. In 332 and 334 cabinets, locate the VDS coax termination panel in the lower open section of the front of the cabinet equipment rack as shown in the details. Notify the Engineer immediately if there is any conflict with existing cabinet equipment in this position. Ensure that there is no conflict with door-mounted components when the door is closed. Dress, label, and secure all coaxial cabling to and from the coax termination panel such that the panel can be hinged open a minimum of 90 degrees without binding or stressing any coaxial cable.

B. Microwave Detection System Installation Requirements

1. General Installation Requirements

Install all detectors and associated equipment at the locations specified in the Plans. Installation must comply with manufacturer's recommendation. All detector equipment, cables, and hardware must be part of an engineered system that is designed by the manufacturer to fully interoperate with all other system components for the Microwave Detection System. Surge protection devices must be approved by the manufacturer, and must be of quality or better than manufacturer recommendations.

2. Detector

Furnish and Install the microwave radar detector on poles as shown in the plans using Contractor supplied materials and brackets. Install the microwave radar detector to achieve the field of coverage shown in the Plans. Aiming and alignment shall be per the manufacturer's recommendations. The Contractor shall verify height requirements based on manufacturer recommendations and shall notify the Engineer should the mounting height vary from the plans. It is the Contractor's responsibility to make all field adjustments to the locations shown in the Plans, in order to match manufacturer recommendations for operation. All field adjustments shall be approved by the Engineer. The Contractor shall use his laptop to setup the detection zones using detector manufacturer specific software. Use only the latest software that is compatible with the detector, as provided by the manufacturer. Use mounting hardware that meets hardware specifications as described in the Video Detection System Installation Requirements, mounting hardware assembly.

3. Cabinet Equipment

a. Wiring, Conductors, and Terminal Blocks: Furnish and Install a manufacturer terminated cable of length necessary for the detector installation. Use only cables provided by the manufacturer of the detection system. The detector end-connector shall be manufacturer assembled and tested prior to installation. It shall be completely watertight and weather resistant. All cabling shall be UV rated for outdoor and underground use. Use only stranded copper for all conductors, including those in jacketed cables, except for earth ground conductors, which may be solid copper. Neatly arrange all wiring, firmly lace or bundle it, and mechanically secure the wiring without the use of adhesive fasteners. Route and secure all wiring and cabling to avoid sharp edges and to avoid conflicts with other equipment or cabling. Route microwave radar detector control wiring and 120VAC power wiring separately so as no transient voltage bleeds over to the detector cable.

Terminate all wiring on a terminal block, strip, bussbar, or device clamp or lug; do not splice any wiring from the detector unit to the terminal blocks.

b. Number and label all terminal blocks, terminal strips, circuit breakers and bussbar breakers and have each item and each terminal position numbered and named according to function. Label terminal blocks, terminal strips, circuit breakers and bussbars with weather and wear resistant labels.

c. Surge Protection Devices (SPD): Protect all copper wiring and cabling entering the cabinet housing by surge protection devices as specified in this specification and the minimum requirements of Section 925.2.02 Section A, part 14. Terminate all wiring between cabinet devices and the transient surge protection devices and between the microwave radar detection unit and the surge protectors on terminal strips. Use a minimum #16 AWG grounding for each surge protection device, or larger if recommended bythe surge protection device manufacturer. Use insulated green wire and connect the ground wire directly to the ground bussbar. Do not

"daisy chain" with the grounding wires of other devices including other surge protection devices. Dress and route grounding wires separately from all other cabinet wiring. Install grounding wires with the absolute minimum length possible between the suppressor and the ground bussbar. Label all surge suppressors with silk-screened lettering on the mounting panel.

d. Furnish and install all necessary transient surge protection devices for the microwave radar detection units such that the detector and cabinet equipment are protected.

e. Component Installation: Fasten all components of the cabinet assembly to be mounted on cabinet side panels with hex-head or Phillips-head machine screws. Install the screws into tapped and threaded holes in the panels. The components include but are not limited to terminal blocks, bussbars, panel and socket mounted surge protectors, terminal servers, Ethernet switches, circuit breakers, and accessory and equipment outlets. Fasten all other cabinet components with hex-head or Phillips-head machine screws installed with nuts (with locking washer or insert) or into tapped and threaded holes. Fasten stud-mounted components to a mounting bracket providing complete access to the studs and mounting nuts. All fastener heads and nuts (when used) shall be fully accessible within a complete cabinet assembly, and any component shall be removable without requiring removal of other components, panels, or mounting rails. Do not use self-tapping of or self-threading fasteners.

f. As-Built Drawings: Furnish an as-built cabinet wiring diagram, identified by location, for each cabinet. Include label names and numbering, surge protection devices (SPD's), wiring, cabling, and connections. Place all documentation in a weatherproof holder in the cabinet.

4. Cables, Conduit and Power Service

Furnish and install electrical cables used for control, communications signaling and power supply as required by the manufacturer. Do not splice any cable, shield or conductor used for control, communications signaling, or power supply. Identify all conductors of all cables by color and number. Identify the conductor function in as-built documentation included in the cabinet documentation. After termination and dressing the cables in the cabinet, neatly coil and store a minimum of 6 ft of cable slack in the bottom of the cabinet. Cut unused conductors to a length that can reach any appropriate terminal. Bend back unused conductors over their outer jackets and individually tape them.

Install cabling inside new hollow metal or concrete support poles unless otherwise specified. Where devices are installed on existing wood poles, install cabling on the wood poles in rigid metal conduit risers of minimum 2 inch (5.08 cm) diameter. Use weatherheads on all nipple and conduit openings. Neatly install and route cabling to minimize movement in the wind and chafing against the pole, device or bracket. Form a drip loop at the weather head and route cabling to minimize water entry into the cable connector. Use a 24" diameter drip loop where cables enter a weatherhead.

5. As-Built Drawings

Furnish as-built drawings that include the cabinet wiring diagrams as outlined in 2d above. As-built drawings shall include but not be limited to microwave radar detection locations, microwave radar detection mounting heights, and component lists with brand, model and serial numbers. Place one copy of the as-built drawings in the cabinet documentation pouch and submit another copy to the Engineer.

C. Wireless Magnetometer Vehicle Detection

1. General Installation Requirements

Each installation of the Wireless Battery-Powered Magnetometer Vehicle Detection System shall consist of one or more sensors installed in the center of each traffic lane, avoiding sources of magnetic noise such as underground power cables, overhead high tension power cables, light rail or subway tracks, and power generation stations and sub-stations.

a. The sensors shall be located as specified by the plans

b. For count applications, sensors shall be placed in areas with minimum stop-and-go traffic flow

c. If vehicle speeds are to be determined by the system, then at least two sensors are required in each lane, separated according to the anticipated average vehicle speed.

- If the anticipated average vehicle speed is less than 25 mph / 40 kph, the spacing between sensors shall be approximately 10 feet / 3 meters (and measured precisely at the time of installation in order to properly configure the system)
- If the anticipated average vehicle speed is greater than 25 mph / 40 kph but less than 45 mph / 75 kph, the spacing between sensors shall be approximately 10 to 12 feet / 3.1 to 3.7 meters (and measured precisely at the time of installation in order to properly configure the system)
- If the anticipated average vehicle speed is greater than 45 mph / 75 kph, the spacing between sensors shall be approximately 20 to 24 feet / 6.1 to 7.3 meters (and measured precisely at the time of installation in order to properly configure the system)

Prior to installation, the contractor shall provide personnel that have been certified by the manufacturer to test and pre-configure the components, including assigning channels and sensors to SPP, RP's, etc. The Contractor shall record all detection component ID numbers on a project plans drawing or intersection detail prior to installation, and supply all drawings showing the recordings as part of the as-builts at the end of the project. The Contractor shall install each sensor in the roadway per Manufacturer's recommendations. The contractor will install Type B sensors for stop bar detection only, where presence is only required, and Type A sensors will be deployed for all other detection applications.

2. Sensor Installation:

For a sensor installed just below the roadway surface:

a. The roadway shall be core drilled to provide a 4″ diameter hole, a minimum 2.25″ / 5.7 cm deep

b. The sensor shall be placed inside a small, clear plastic shell formed to provide a tight fit around the sensor.

c. A small layer of epoxy approximately 1.25″ / 3.2 cm shall be applied to the bottom of the cored hole.

The epoxy must adhere to the following requirements:

- The epoxy shall be a two-part poly-urea based joint sealant.
- It shall have self-leveling characteristics.
- The surface the epoxy will be bonding to shall be free of debris, moisture and anything else which might interfere with the bonding process.

d. The epoxy shall be approved by the manufacturer of the detection system

e. The sensor shall then be placed on top of this layer of epoxy in the correct orientation as clearly marked on the sensor

f. The sensor shall be fully encapsulated with the epoxy to the lip of the cored hole

3. Sensor to Repeater, or Sensor to SPP Installation:

The maximum distance between a sensor installed in the roadway and an SPP or an RP with a clear line-of-sight between devices shall be:

a. At least 175 feet / 53 meters for an SPP or RP installed 30 feet / 9 meters above the roadway cccccc. At least 150 feet / 46 meters for an SPP or RP installed 20 feet / 6 meters above the roadway

b. At least 125 feet / 38 meters for an SPP or RP installed 16 feet / 5 meters above the roadway

c. The maximum distance between an SPP and an RP or between an RP and another RP shall be at least 750 feet / 228.6 meters when both units are installed 18 feet / 5.5 meters above the roadway and with a clear line-of-sight between devices

4. Repeater to SPP Installation:

Maximum wireless distances shall be based on the following:

a. SPP or Repeater front of the housing shall be aimed directly at the device (SPP, RP or Sensor) it is communicating with

b. Deviations from the centerline of the front of the SPP or RP shall reduce the effective distance of communication

D. Short-Range Radio Device Detection System Installation Requirements

1. General Installation Requirements

hhhhhh. Install the Short-Range Radio Device Detection antenna and/or NEMA 4X enclosure on poles as shown in the plans using Contractor supplied materials and brackets. Install the Short-Range Radio Device Detector to achieve the field of coverage shown in the Plans. Make field adjustments to the locations shown in the Plans only with the Engineer's approval.

iiiiii. The minimum recommended mounting height for the Short-Range Radio Device sensor antenna shall be 10 feet above grade, unless otherwise approved by the Engineer. When using a solar power supply the panel shall be mounted in accordance with environmental and location geographic conditions, and as shown and noted in the plans. It shall be the Contractor's responsibility to tune the sensor for best coverage of the roadway vehicles being detected.

jjjjjj. All mounting hardware shall be stainless steel or aluminum, and shall not be susceptible to weather and rusting. Use mounting hardware specifications as outlined in the Video Detection System Installation Requirements. Route all cabling within new conduit, unless otherwise approved by the Engineer. Protect the Short-Range Radio Device processor from the antenna with a surge protection device of specification recommended by the manufacturer.

kkkkkk. It is the Contractor's responsibility to populate and configure the database and support data system software package and to test the accuracy of the data. Each Short-Range Radio Device Detector shall be configured in the software and show that it is taking a representative sample of vehicles from the traffic stream.

937.3.6 Quality Acceptance/Testing

The acceptance testing of the vehicle detection systems shall consist of two phases: 1) post installation detection system site testing, as outlined in the specific detection technology sections; and 2) burn-in period. Perform acceptance testing for all equipment, hardware and work as provided under this Contract. Perform all testing in the presence of the Engineer. Submit all testing plans and documents to the Engineer during the submittal phase of the vehicle detection equipment.

A. Burn-in Period

1. General Requirements

llllll. Provide a 30-day burn-in period for all work and equipment included in the Contract and associated with the vehicle detection equipment. The burn-in period shall consist of the field operation of the specific vehicle detection system in a manner that is in full accordance with the requirements of the Plans and Specifications.

mmmmmm. Conduct only one (1) burn-in period on the entire Contract for all vehicle detection devices. Commence with the burn-in period only after meeting all of the following requirements:

- All work required in all Contract documents for the vehicle detection system project-wide has been completed and inspected by the Engineer.
- Successfully complete the Post-Installation Vehicle Detection System Site Testing.

nnnnnn. Commence with the burn-in period upon written authorization by the Department to commence. Terminate the burn-in period 30 consecutive days thereafter unless an equipment malfunction occurs. Stop the burn-in period for the length of time any equipment is defective. After repairing the equipment so that it functions properly, resume the burn-in period at the point it was stopped.

oooooo. Successful completion and acceptance of the burn-in period will be granted on the 31st day unless any equipment has malfunctioned. If any equipment has failed during the burn-in period, final acceptance will be withheld until all the equipment is functioning properly.

pppppp. When one specific piece of equipment has malfunctioned more than three times during the 30 day burn-in period, replace that unit with a new unit at no cost to the Department. Multiple failures of detection devices in different locations shall be determined as a failure of the 30 day burn-in period. The Contractor shall investigate the detection system failure and shall give a full report to the Engineer. The Contractor shall replace the failed devices and shall restart the burn-in period at Day 1, once those devices have been replaced and retested.

2. Contractor Responsibilities

   During the burn-in period, maintain all work under this Contract in accordance with the Specifications. Restore any work or equipment to proper operating condition within 12 hours after notification.

3. Department Responsibilities

   Department responsibilities during the burn-in period will be as follows:

   - Expeditious notification of Contractor upon failure or malfunction of equipment
   - In the event that the Contractor does not provide the services enumerated above under his Contract responsibilities, the Department or its authorized agents may in the interest of public safety take emergency action to provide for adequate traffic control. Pay any costs incurred as a result of these emergency actions. Such action by the Department will not void any guaranties or warranties or other obligations set forth in the Contract.

4. Burn-In Period Acceptance

   The Department will make burn-in period acceptance after satisfactory completion of the required burn-in period and on the basis of a comprehensive field inspection of the complete vehicle detection system in accordance with the Specifications. Upon burn-in period acceptance but prior to Final Acceptance of the entire Contract, maintain the complete vehicle detection system in accordance with the specifications.

937.3.7 Contractor Warranty and Maintenance

Equipment provided under this specification shall be warranted by the manufacturer to be free from defects in materials and workmanship for a minimum of three (3) years from Maintenance Acceptance.

The manufacturer's and supplier's warranties shall be transferable to the agency or user that is responsible for maintenance and shall be continuous throughout their duration.

During the warranty period, the manufacturer shall repair or replace any faulty equipment without cost to the purchaser, State of Georgia, or maintaining agency for all incidentals to the repair or replacement, including but not limited to parts, labor, or shipping.

The manufacturer shall be responsible for providing firmware or software updates associated with the CCTV system at no cost to the State of Georgia or maintaining agency during the warranty period. Further, the manufacturer is also responsible for ensuring that any updates will not degrade the original functionality of the product warranted.

The manufacturer and/or supplier shall provide consultation to the Department or user that is responsible for maintenance as needed at no cost during the warranty period for operating questions or problems that arise.

937.3.8 Training

Provide a minimum of at least eight (8) hours of configuration and maintenance training. The persons to be trained will be determined by the Engineer. Configuration training should last a minimum of three (3) hours and must include instructions for programming, hands on training in programming detection zones, adjusting, and calibrating the detection system. One hands on unit shall be provided per attendee during training. Operation and Maintenance training should last a minimum of five (5) hours and must include instructions on troubleshooting, maintenance, and operation for all detection system components. Each class will have a maximum of eight (8) people. The contractor must provide a training notebook to each trainee and an electronic copy of the training notebook to the Engineer.

The contractor must provide a location for holding the courses and pay all costs associated with travel and accommodation of the trainees if training is conducted away from the project area.

Notify the Engineer 20 days before training and agree on a time and place to conduct the training. If agreement cannot be reached, the Engineer will determine the time.

937.4 Measurement

937.4.1 Video Detection System

A. Video Camera Sensor Assembly (All Types)

Video camera sensor assemblies are measured for payment per each actually installed, complete, functional, and accepted. Unless otherwise specified in the Plans, furnish and install the following minimum items for a video camera sensor assembly.

1. Camera, environmental enclosure, and mounting assembly with all associated hardware.
2. Cabinet equipment, including but not limited to wiring, conductors, terminal blocks, surge protection devices, and mounting panels
3. All weather heads, vertical conduit risers, and conduit hardware on the VDS support pole for power service, grounding, communications, and control. If VDS and CCTV are mounted on the same pole, install common weather heads, conduit risers, and conduit hardware under Section 936 of the Specifications.
4. All hardware and materials necessary to provide electrical power service to the VDS field location as shown in the Plans, including but not limited to vertical sections of conduit, conduit hardware, wire, circuit breakers, disconnect closures, and grounding. The Department will pay for horizontal sections of conduit separately.
5. All cables, connectors, hardware, interfaces, supplies, and any other items necessary for the proper operation and function of any VDS system component to carry video signals to the video detection system processor. All cables shall have manufacturer installed and tested connector ends at the detection side of the cable.

B. Video Detection System Processor (All Types)

Video detection system processors are measured for payment per each actually installed, configured, complete, functional, and accepted. Unless otherwise specified in the Plans, furnish and install a video detection system processor to include, at a minimum, the following:

1. Video detection system processor module
2. Appropriate power supplies, power and communication wiring.
3. Necessary housing and rack assemblies for processors that do not plug directly into signal cabinet input files
4. System software provided within the video detection system processor and configuration software

C. Output Expansion Module

Output expansion modules are measured for payment per each actually installed, complete, functional, and accepted. Unless otherwise specified in the Plans, furnish and install an Output Expansion Module to include, at a minimum, the following:

1. Output expansion module
2. Any cabling and hardware required to connect to the processor module or additional expansion modules to the cabinet and controller input pins

D. Testing

Testing is measured as a lump sum for full delivery of testing and acceptance requirements.

E. Training

Training is measured as a lump sum for all supplies, equipment, materials, handouts, travel, and subsistence necessary to conduct the training.

937.4.2 Microwave Radar Detection

A. Microwave Radar Detector Assembly

Microwave radar detection assemblies are measured for payment per each actually installed, complete, functional, and accepted. Unless otherwise specified in the Plans, furnish and install the following minimum items for a microwave detection assembly:

1. Microwave radar detector (including housing)
2. Field cabling surge protection devices, and cabinet equipment. Field cable shall have manufacturer installed end connector at the detection end
3. Power supply modules
4. Serial communication modules
5. Local communication modules
6. Mounting bracket(s)
7. All weatherheads, vertical conduit risers, and conduit hardware on the support pole for power and detector signal as shown in the plans
8. Configuration and Software

B. Testing

Testing is measured as a lump sum for full delivery of testing and acceptance requirements.

C. Training

Training is measured as a lump sum for all supplies, equipment, materials, handouts, travel, and subsistence necessary to conduct the training.

937.4.3 Wireless In-Pavement Vehicle Detection

A. Sensor (All Types)

Sensors are measured for payment per each actually installed, complete, functional, and accepted. Unless otherwise specified in the Plans, furnish and install the following minimum items for a sensor detection assembly:

1. Sensor
2. Epoxy
3. Core Drilling and Placement
4. Sensor plastic enclosure
5. Configuration and Software

B. Access Point Contact Closure (All Types)

Access Point Contact Closure assemblies are measured for payment per each actually installed, complete, functional, and accepted. Unless otherwise specified in the Plans, the APCC shall include all configuration, software, enclosures, surge protection devices and power supplies, as necessary for a full installation. Provide all modules and cabling with the APCC for connection directly into an Ethernet switch.

C. Wireless Repeater

Repeaters are measured for payment per each actually installed, complete, functional, and accepted. Unless otherwise specified in the Plans, furnish and install the following minimum items for a wireless repeater assembly:

1. Repeater including housing
2. 7-year battery
3. Mounting hardware
4. Configuration and Software

D. Serial Port Protocol Unit (SPP)

SPP's are measured for payment per each actually installed, complete, functional, and accepted. Unless otherwise specified in the Plans, furnish and install the following minimum items for a SPP assembly:

1. Radio unit including housing
2. Cabling, surge protection devices and connectors from unit to cabinet
3. Mounting hardware
4. Configuration and Software

E. Expansion Contact Closure Card

Expansion Contact Closure Cards (EX) are measured for payment per each actually installed, complete, functional, and accepted. The EX card shall include all configuration to provide a full contact closure detection system.

F. Isolator Module

Isolator Modules are measured for payment per each actually installed, complete, functional, and accepted. Unless otherwise specified in the Plans, furnish and install the isolation module at all locations the Wireless In-Pavement Detection System is called out in the plans. Ensure that the isolation module is installed per the manufacturer recommendation and is providing protection and amplification of the signal. This shall include all configuration of the unit.

G. Input/Output Module

Input/Output Modules are measured for payment per each actually installed, complete, functional, and accepted. Ensure that the Input/Output module is installed per the manufacturer recommendation and is providing the correct communications options necessary for the installation. This shall include all configuration of the unit.

H. Testing

Testing is measured as a lump sum for full delivery of testing and acceptance requirements.

I. Training

Training is measured as a lump sum for all supplies, equipment, materials, handouts, travel, and subsistence necessary to conduct the training.

937.4.4 Short-Range Radio Device Detection System (All Types)

A. Short-Range Radio Device Detection System (All Types)

Short-Range Radio Device Detectors are measured for payment per each actually installed, complete, functional, and accepted. Each type of system shall be complete, installed and in place and include all units necessary for full operation, as determined by Type. Unless otherwise specified in the Plans, furnish and install the following minimum items for a Short-Range Radio Device Detection assembly:

1. Short-Range Radio Device Detection assembly, including housing and necessary power supplies
2. Power and communications cabling
3. Antenna and mounting hardware
4. Surge Protection Devices
5. Cellular Modem (if applicable)
6. Solar Panel Array (if applicable)
7. Solar Battery charger (if applicable)
8. Batteries (if applicable)

9. NEMA 4X Enclosure (if applicable)
10. Configuration

B. Short-Range Radio Device Detection System Support Data System Software and Database Package

Short-Range Radio Device Detection System software and database packages are measured for payment per each package actually installed, complete, functional, and accepted. Each type of system shall be complete, installed and in place. Unless otherwise specified in the Plans, furnish and install the following minimum items for Short-Range Radio Device Detection System software:

1. Installation of the Software on a Department determined server
2. Installation of the Database software on a Department determined server
3. Configuration of the Short-Range Radio Device Detection System units and initial testing on the software
4. Testing of the XML data and interface to the central system

937.5 Payment

A. General

All Vehicle Detection assemblies, complete in place and accepted by the Department after a successful 30 day burn-in period, are paid for at the Contract Unit Price. Payment is full compensation for furnishing and installing the vehicle detection technology as shown on the plans.

B. Testing

The Department will pay for testing performed as prescribed by this Item, measured as provided under Measurement at the Lump Sum Contract bid price.

C. Training

Training is paid for as a lump sum for all supplies, equipment, materials, handouts, travel, and subsistence necessary to conduct the training, measured as provided under Measurement at the Lump Sum Contract bid price

Payment is full compensation for furnishing and installing the items complete in plans according to this Specification.

Payment will be made under:

Item No. 937	Video Camera Sensor Assembly, Type_	Per Each
Item No. 937	VDS System Processor, Type _	Per Each
Item No. 937	Output Expansion Module, Type _	Per Each
Item No. 937	Testing - Video Detection System	Lump Sum
Item No. 937	Training - Video Detection System	Lump Sum
Item No. 937	Microwave Radar Detection Assembly	Per Each
Item No. 937	Testing - Microwave Detection System	Lump Sum
Item No. 937	Training - Microwave Detection System	Lump Sum
Item No. 937	Wireless Magnetometer Sensor Type _	Per Each
Item No. 937	Access Point Contact Closure Type _	Per Each
Item No. 937	Wireless Repeater	Per Each

Item No. 937	Serial Port Protocol Unit	Per Each
Item No. 937	Expansion Contact Closure Card	Per Each
Item No. 937	Isolator Module	Per Each
Item No. 937	Input/Output Module	Per Each
Item No. 937	Testing – WMVD System	Lump Sum
Item No. 937	Training – WMVD System	Lump Sum
Item No. 937	Short-Range Radio Device Detection System Type _	Per Each
Item No. 937	Short-Range Radio Device Support Data Processing Software Package	Per Each
Item No. 937	Testing – Short-Range Radio Device Detection System	Lump Sum
Item No. 937	Training – Short-Range Radio Device Detection System	Lump Sum

July 24, 2017

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SUPPLEMENTAL SPECIFICATION

Section 939—Communications and Electronic Equipment

Delete Section 939 in its entirety and substitute the following:

939.1 General Description

Furnish, install, test, and provide warranty and training for communications and electronic equipment and materials as shown in the Contract documents.

939.1.1 Definitions, Acronyms, and Abbreviations

A. Definitions

1. **Field Switch, Type A:** Layer 2, minimum 6 copper ports and 2 Small Form Factor Plug-in (SFP) 1 Gbps fiber ports.
2. **Field Switch, Type B:** Layer 2, minimum 6 copper ports and 3 SFP 1 Gbps fiber ports.
3. **Field Switch, Type C:** Layer 2, minimum 1 copper port and 7 SFP 1 Gbps fiber ports.
4. **Field Switch, Type D:** Layer 2 or 3 upgradeable, minimum 4 copper ports and 4 dual-purpose 1 Gbps ports.
5. **Field Switch, Type E:** Layer 2 or 3 upgradeable, minimum 8 copper ports and 4 dual-purpose 1 Gbps ports.
6. **SFP, Type 1:** LX optics for shorter distances.
7. **SFP, Type 2:** ZX optics for longer distances.
8. **Routing Switch, Hub, Type A:** Layer 3, minimum 48 ports at 1G/10G/25 Gbps SFP+ and 6 ports at 40G/100 Gbps QSFP28.
9. **Routing Switch, Hub, Type B:** Layer 3, minimum 48 ports at 10/100/1 Gbps copper and 4 ports at 1 Gbps SFP.
10. **Field Cabinet, Type 1:** A modification of the Joint Committee (JC) Standard ITS Cabinet Housing #2.
11. **Field Cabinet, Type 2:** JC Standard ITS Cabinet Housing #2.
12. **Field Cabinet, Type 3:** JC Standard ITS Cabinet Housing #1.
13. **Field Cabinet, Type 4:** JC Standard ITS Cabinet Housing #3.

B. Acronyms and Abbreviations

Refer to Sections 101.01 and 940.1.01(A) for a list of acronyms, abbreviations, and terminology used in this section and throughout these ITS specifications.

939.1.2 Related References

A. GDOT Standard Specifications

1. Section 150 – Traffic Control
2. Section 639 – Strain Poles for Overhead Sign and Signal Assemblies

3. Section 647 – Traffic Signal Installation
4. Section 682 – Electrical Wire, Cable, and Conduit
5. Section 694 – Weather Monitoring and Reporting System
6. Section 922 – Electrical Wire & Cable
7. Section 923 – Electrical Conduit
8. Section 924 – Miscellaneous Electrical Materials
9. Section 925 – Traffic Signal Equipment
10. Section 926 -- Wireless Communications Equipment
11. Section 939 – Communication and Electronic Equipment
12. Section 940 – ITS General Requirements

B. Referenced Standards and Documents

1. Refer to Section 940.1.01(B) for a list of standards and documents referenced in this section and throughout the ITS specifications.
2. Ensure that all communications and electronic equipment and materials are consistent and compliant with the latest version or edition of the standards and industry practices as specified.

939.1.3 Submittals

Refer to Section 940.2.02 for submittal requirements. Requirements for communications and electronic equipment materials are specified herein.

939.2 Materials

Provide communication and electronic equipment that meet following minimum general requirements:

939.2.1 General Requirements

1. Manufacture in an International Organization for Standardization (ISO) 9001-certified manufacturing facility that is regularly engaged in the production of the materials described in this section.
2. Provide only proven and commercial-off-the-shelf only equipment and materials.
3. Provide equipment and materials that are of new manufacture and previously unused.
4. Provide all equipment and materials that are of like kind and function from the same manufacturer, using the same model, part number, revision, and firmware.
5. Use the most stringent material requirement for this Contract if a conflict or difference exists between the specified industry standards and practices listed in Section 939.1.02(B) and these minimum standard specifications. Notify and resolve with the Department or authority having jurisdiction of any such conflicts or differences prior to procurement of materials and components.

939.2.2 Network Field Switch Requirements

A. General Requirements

1. Provide one or more of the network field switch types listed in Table 1 as specified in the Contract documents:

Table 1 – Network Field Switch Types		
Type	**Layer Capability**	**Ethernet Port Configuration**
Type A	Layer 2	Minimum 8 ports total including 2 x Gigabit-Ethernet SFP modules and 6 10/100Base-T/TX ports
Type B	Layer 2	Minimum 9 ports total including 3 x Gigabit-Ethernet SFP modules and 6 10/100Base-T/TX ports
Type C	Layer 2	Minimum 8 ports total including 7 x Gigabit-Ethernet SFP modules and 1 10/100Base-T/TX ports
Type D	Layer 2 or Layer 3 upgradeable	Minimum 8 ports total including 4 dual-purpose uplink or downlink ports that can be used for 10/100/1000BASE-T/TX ports or 100/1000 Mbps SFP-modules, and 4 10/100/1000Base-T/TX ports
Type E	Layer 2 or Layer 3 upgradeable	Minimum 12 ports total including: 4 dual-purpose uplink or downlink ports that can be used for 10/100/1000Base-T/TX ports or 100/1000 Mbps SFP-modules, and 8 10/100/1000Base-T/TX ports

2. Ensure compatibility and interoperability of network field and routing switches with the existing GDOT network by support of features and implementation of common standards that enable switches to work together and minimize integration effort.
3. Provide the following network field switch interfaces:
   a. Fiber Ports: 1000BaseSFP slot or 100/1000BaseSFP slot.
   b. RJ-45 Ports: 10/100Base-T(X) or 10/100/1000Base-T(TX) auto negotiation speed and capable of being manually set to half-duplex or full-duplex.
   c. Console Port along with any adapter cables as needed and approved by the Department.
   d. LED Indicators: Power on/off and network status per port (transmit, receive, link, and speed).
4. Operate with non-blocking, store and forward, switching at full wire speed.
5. Provide a minimum Mean Time Between Failure (MTBF) of 200,000 hours using Telcordia SR-332, Method 1, Case 3 or MIL-HDBK-217J standards.
6. Comply with IEEE 802.3 for 10Base-T standard specifications.
7. Comply with IEEE 802.3u for 100Base-T(X) standard specifications.
8. Comply with IEEE 802.3ab for 1000Base-T(X) standard specifications.
9. Comply with IEEE 802.3z for 1000Base-X standard specifications.
10. Provide a fan-less (no fan) design.

B. Network Capabilities and Features

1. Provide support for multicast with Internet Group Management Protocol (IGMP) v1/v2/v3 snooping and IGMP filtering.
2. Comply with IEEE 802.3x (Flow Control) standard.
3. Comply with IEEE 802.1p (Class of Service or Priority Queuing) standard.
4. Comply with IEEE 802.1Q (VLAN tagging) standard per port.
5. Comply with IEEE 802.1D (Spanning Tree Protocol) and IEEE 802.1w (Rapid Spanning Tree Protocol) standards.
6. Comply with IEEE 802.3ad (Link Aggregation or Port Trunk) standard for a minimum of two groups of four ports.

C. Security Requirements

1. Provide the capability to configure static Media Access Control (MAC) addresses access.
2. Provide the capability to disable automatic address learning per ports; known hereinafter as Secure Port. Secure Ports only forward statically configured MAC addresses.
3. Provide the capability to trap and alarm upon any unauthorized MAC address and shutdown. Require administrator to manually reset the port before communications are allowed.
4. Comply with IEEE 802.1X Port Access Authentication.
5. Provide support for Hyper Text Transfer Protocol (HTTP) and HTTP Secure (HTTPS).
6. Provide support for Secure Sockets Layer (SSL).

D. Network Management Requirements

1. Provide network management capabilities that are compatible with the existing GDOTnetwork management consisting of Cisco Prime centralized enterprise management software supporting remote management.
2. Provide network field switch that is password manageable with a minimum of one read-only profile and one full administration profile.
3. Provide full implementation of Simple Network Management Protocol (SNMP) v1/v2/v3.
4. Provide implementation of Link Layer Discovery (LLDP) protocol as defined in IEEE 802.1ab (Station and Media Access Control Connectivity Discovery).
5. Provide full implementation of Remote Network Monitoring (RMON) I statistics, history, alarms, and events objects.
6. Provide network field switch that can mirror any port to any other port within the network field switch.
7. Provide network field switch that can be managed remotely by an enterprise software/program for configuration, reporting, updates, and monitoring of alarms.
8. Provide environment monitoring capabilities.
9. Provide management capabilities via a serial maintenance/console serial port (local) and over the network (remote).
10. Provide support for HTTP (Embedded Web Server) with SSL.
11. Provide full implementation of RFC 783 (TFTP) to allow remote firmware upgrades.

E. Additional Requirements for Network Field Switch Types D and E

1. Provide, in the quantity specified in the Contract documents, Gigabit-Ethernet Combo ports, where each Gigabit-Ethernet Combo port is defined as a single interface that can be used as a 10/100/1000Base-T/TX ports or 100/1000Base SFP GBIC socket.
2. Provide a card slot for a field removable SanDisk (SD) read-write memory card (included) that can store switch operating system modules and switch configuration modules, and is addressable/manageable from the switch's management interface and built-in memory system.
3. Provide capability for booting from and loading configuration from the removable memory card slot or from the built-in memory, as defined by the user.
4. Provide capability for push/pull of switch operating system modules and switch configuration settings from the GDOT network management system.
5. Provide capability for conversion from Layer 2 to Layer 3 switch and routing protocols, as specified in Section 939.2.03, with only a change in the switch operating system and/or license.

F. Mechanical and Cabling Requirements

1. Unless otherwise specified in the Contract documents, provide network field switches that are DIN rail panel mountable. Rack-mounted DIN rails may be installed if cabinet space is available and approved by the Department. Rack-mountable switches may be used if approved by the Department. Shelf mount is not permitted.
2. Provide corrosion-resistant hardware and materials for mounting within the field cabinet.
3. Provide a quantity of fiber optic patch cords that matches the number of populated optical ports on the network field switch, in accordance with Section 935, with ST connectors on one end (at the FPP/FDU) and an LC connector on the other end (at the network field switch).
4. Provide rubber dust caps or covers with insertion and removal handles that completely seal the port opening for unused copper and optical ports.

G. Electrical Requirements

1. Provide network field switch that is capable of operating over minimum input voltage range of 108 VAC to 132 VAC at 50/60 Hz (±5%, maximum).
2. Provide network field switch with power conversion/supplies (24 VDC or 24 VAC) as specified herein and provide regulation necessary to support electronics operation.
3. Comply with IEC EN 61000-4-5 surge immunity for network equipment.
4. Ensure that power transformers are a "fastening mechanism" type. No plug-in types will be permitted. Corded transformers are to be mountable with neatly secured power cords.

H. Environmental Requirements

1. Provide hardened network field switch including power supply that comply with NEMA TS 2 Sections 2.1.7, 2.1.8, and 2.1.9 temperature, humidity, vibration, and shock testing requirements.
2. Comply with FCC Part 15, Class A, EMC emission standard.

939.2.3 Network Routing Switch Requirements

Provide a network routing switch with the minimum number and types of ports along with functionality according to the Routing Switch Type indicated in the Contract documents.

A. General Requirements

1. Provide one or more of the network routing switch types listed in Table 2 as specified in the Contract documents:

Table 2 – Network Routing Switch Types

Type	Layer Capability	Ethernet Port Configuration
Type A	Layer 3	Providing a minimum 48 1/10/25Gbps SFP+ fiber ports + 6 40/100Gbps QSFP28 fiber uplink ports per switch
Type B	Layer 3	Providing a minimum 48 10/100/1000 Ethernet copper ports + 4 SFP 1Gbps fiber uplink ports per switch, stackable

2. Provide network routing switches that are compatible with the existing GDOT routing network consisting of Cisco Nexus 93180YC-FX Layer 3 routing switch (Type A) and Cisco Catalyst 2960XR Layer 3 routing switch (Type B) that can be managed by the Department's existing network management software.
3. Populate network routing switch with optical SFPs meeting the minimum SFP requirements in Section 939.2.05.
4. Provide network routing switch with SFP fiber ports that accept LC fiber optic single-mode connectors.

5. Provide a minimum MTBF of 200,000 hours using Telcordia SR-332, Method 1, Case 3 or MIL-HDBK-217J standards.
6. Provide up to 4,096 VLANs.
7. Provide network routing switch where modules are hot-swappable.
8. Provide network routing switch that can be EIA 19 in (483 mm) rack mounted (one RU per network routing switch, typical).

B. Network Standards and Protocols

1. Provide support for the network standards and Layer 2 and 2+ protocols specified in Section 939.2.02.
2. Provide support for additional network Layer 3 protocols as follows:
   a. Provide support for IPv4 and IPv6.
   b. Provide full implementation of IGMP v1/v2/v3.
   c. Provide support for Terminal Access Controller Access Control System (TACACS) Plus (+).
   d. Provide support for Remote Authentication Dial-In User Service (RADIUS) protocol.
   e. Provide full implementation of Routing Information Protocol (RIPv2).
   f. Provide full implementation of Open Shortest Path First (OSPF) protocol.
   g. Provide full implementation of Generic Multicast Registration Protocol (GMRP).
   h. Provide full implementation of Generic VLAN Registration Protocol (GVRP).
   i. Provide full implementation of Protocol Independent Multicast Sparse Mode (PIM-SM).
   j. Provide full implementation of Virtual Router Redundancy Protocol (VRRP).

C. Mechanical and Cabling Requirements

1. Provide network routing switches that are rack mountable.
2. Provide hardware and materials for mounting within the equipment rack that are corrosion resistant.
3. Provide a quantity of fiber optic patch cords that matches the number of populated optical ports on the network routing switch, in accordance with Section 935, with ST connectors on one end (at the FPP/FDU) and an LC connector on the other end (at the network field switch).
4. Provide rubber dust caps or covers with insertion and removal handles that completely seal the port opening for unused copper and optical ports.

D. Electrical Requirements

1. Provide network field switch that is capable of operating over minimum input voltage range of 108 VAC to 132 VAC at 50/60 Hz (±5%, maximum).
2. Comply with IEC 61000-4-5 surge immunity testing requirements.
3. Provide network routing switch with dual redundant power supplies and fans, N+1 configuration, hot swappable, and configured for 120 VAC service.

E. Environmental Requirements

1. Provide network routing switch including power supply that meets following minimum ambient temperature and humidity requirements:

a. Temperature range from +23°F through +113 °F (−5°C to +45°C).

b. Relative humidity from 10% through 95%, noncondensing.

c. Comply with NEMA TS 2 Sections 2.1.8 and 2.1.9 vibration, and shock testing requirements.

2. Comply with FCC Part 15, Class A, EMC emission standard.

939.2.4 Reserved

939.2.5 Small Form Factor Plug-in (SFP) Fiber Module Requirements

1. Provide single-mode, dual-fiber SFPs.
2. Provide one of more the following types of full duplex, SFP fiber optical modules as shown in the Contract documents or as required:

   a. Type 1: LX/LH optics for single-mode >10 km (6.2 miles) in length (under ideal conditions).

   b. Type 2: ZX optics for single-mode fiber of > 70 km (43 miles) in length (under ideal conditions).
3. Comply with IEEE 802.3x, 1000Base-LX/LH and 1000Base-ZX standards.
4. Provide fiber optic patch cables as specified in Section 935.2.01(G) with integral optical attenuators if required for optical power control per the network field switch manufacturer's recommendations.
5. Provide SFPs that are 100% compatible with the network field switch, including any serial number or other identifying information. Only demonstrated proven SFPs that do not require non-default, switch configuration settings are acceptable.
6. Provide SFPs that are hot-swappable to maximize uptime.
7. Support detecting and shutting down one-way link failures using auto-negotiation.
8. Operate as its' own switched port.
9. Provide network field switch with SFP fiber ports that accept LC fiber optic single-mode connectors.
10. Provide with LC connectors as approved by the Department.
11. **Environmental Requirements:** Provide SFPs with extended temperature capabilities meeting the following minimum requirements:

    a. Ambient temperature range from +23°F through +185°F (−5°C through +85°C).

    b. Relative humidity from 10% through 95%, non-condensing.

939.2.6 Network Patch Cord Requirements

A. Network Field Switch Patch Cords:

Verify that network field switch patch cords meet ANSI/TIA requirements for Category 6, 4-pair unshielded twisted pair cabling with stranded conductors and RJ-45 connectors meeting the following minimum requirements:

1. Provide patch cords that are factory assembled, connectorized, and certified by the manufacturer to meet the relevant performance standards specified herein.
2. Comply with ANSI/TIA-568-C.2 and UL 444 standards.
3. Provide eight (four STP) insulated 22 to 24 AWG, solid copper conductors arranged in four color-coded twisted-pairs.
4. Provide modular RJ-45 male connectors with 8-position non-keyed and eight gold anodized pins.

5. Ensure that connectors incorporate mechanical cable strain relief and protective boots.
6. Characterize to 600 MHz and provide design margin (headroom) beyond standard Near-End Crosstalk (NEXT), Power Sum NEXT (PSNEXT), Attenuation-to-Crosswalk Ratio (ACR), and Power Sum ACR (PSACR).
7. Provide with lengths of patching from network field switch to equipment inside the field cabinet or equipment rack without strain. Provide custom or standard lengths as required or needed based on final equipment layout and configuration that permits future movement of equipment within the field cabinet or equipment rack.
8. Provide a riser-rated patch cord.

B. Fiber Optic Patch Cords:

Provide fiber optic patch cords that meet the requirements of Section 935.

939.2.7 Reserved

939.2.8 Field Cabinet Requirements

A. General Requirements

1. Provide one or more of the field cabinet types listed in Table 3 as specified in the Contract documents:

Table 3 – Field Cabinet Types and Configuration

GDOT Type	Joint Committee ITS Cabinet Standard	Minimum Cabinet Dimension Range			Number of Doors
		Height	Width	Depth	
Type 1	Modified ITS Cabinet Housing #2	30 in to 36 in	23 in to 26 in	18 in to 24 in	2
Type 2	ITS Cabinet Housing #2	44 in to 47 in	23 in to 26 in	18 in to 24 in	2
Type 3	ITS Cabinet Housing #1	64 in to 67 in	23 in to 26 in	24 in to 30 in	2
Type 4	ITS Cabinet Housing #3	64 in to 67 in	44 in to 46 in	24 in to 30 in	4

2. Unless otherwise specified in the Contract documents or directed and approved by the Department, construct all ITS cabinet (field cabinet) housing assemblies in conformance with this Subsection 939.2.08 and the Joint Committee (JC) ITS Cabinet Standard Specifications for Roadside Cabinets v01.02.17b or latest version.
   a. Do not include with the ITS field cabinet housing the following:
      i. Police panel and associated wiring.
      ii. Power distribution assembly (PDA) and associated flasher units, and signal power contactor.
      iii. DC power supply unit (24 VDC and 12 VDC).
      iv. Input file and associated sensor units, isolator units, and serial interface unit (SIU).
      v. Output file and associated auxiliary monitor unit, SIU unit, transfer relay unit, and switch pack unit.
      vi. Cabinet monitor unit (CMU) assembly.
      vii. Serial and control bus assemblies and wiring.
   b. Unless otherwise specified, configure all field cabinet housing assemblies for pole mounting.
      i. Properly reinforce the holes for pole mounting with metal plates of adequate size and strength welded longitudinally across the inside depth of the field cabinet.
      ii. Where base-mounting of field cabinets is specified, make the field cabinet bottom open and provide an approved base mounting adapter, in accordance with the Department's Standard Specification for Traffic Signal Equipment.

B. Field Cabinet Components

1. Rack Cage
   a. Equip all field cabinet housings with the standard EIA 19 in (483 mm) rack cage as described in the JC ITS Cabinet Standard Specifications and as follows:
      i. Do not use unistruts or other rail types.
      ii. Types 1, 2 and 3: Equip field cabinet housings with the standard EIA 19 in (483 mm) rack cage.
      iii. Type 4: Equip field cabinet housings with two standard EIA 19 in (483 mm) rack cages.
2. Cabinet Side Mounting Panels
   a. Fabricate side mounting panels as described in the JC ITS Cabinet Standard Specifications for J Panels and as follows:
      i. Do not provide pre-punched terminal block/bar or component mounting holes, except holes for mounting the panel to the rack cage.
      ii. Do not provide shelf assemblies.
      iii. In all field cabinet types provide side panels that are the full depth of the rack cage and the rack cage height less 2 in (50 mm) at the top and bottom.
   b. In all field cabinet types provide side panels on both sides of each rack cage.
3. Shelf and Drawer
   a. Provide shelf and drawer meeting the following minimum requirements:
      i. Provide drawer that is an aluminum storage compartment mounted in the rack cage that is approximately 1.75 in (44.4 mm) (height) by 16 in (410 mm) (width) by 14 in (360 mm) (depth) and is approximately 40 in above final grade.
      ii. Provide telescoping guides to allow full extension from the rack cage.
      iii. Provide construction that supports a weight of 25 lb (11 kg) when extended.
      iv. Provide a minimum non-slip work area measuring 12 in (304 mm) by 12 in (304 mm).
   b. Types 2 and 3: Equip field cabinet with one cabinet-sliding internal shelf and drawer.
   c. Type 4: Equip field cabinet with two sliding internal shelves and drawers.
4. Document Pouch
   a. Provide a plastic documentation pouch that is side-opening, resealable, opaque, and of a heavy-duty plastic material to store the cabinet and equipment documentation.
   b. Provide a pouch that has metal or hard-plastic reinforced holes for hanging from hooks included on the field cabinet door.
   c. Provide a pouch that is of the size and strength to easily hold wiring diagrams, equipment documentation, and the maintenance logbook.
   d. Provide field cabinets with hooks, welded to the inside of the front cabinet door, for hanging the plastic documentation pouch.
5. Wiring, Conductors and Terminal Blocks
   a. Component Mounting Deutsche Industrie Norm (DIN) Rail

i. Provide 1.38 in (35 mm) wide by 0.3 in (7.5 mm) high by 0.04 in (1 mm) thick standard DIN rails perforated and cut to length for flexible mounting of devices including switches with power supply, PoE injector, terminal blocks, circuit breakers, and surge protection devices.

ii. Provide DIN rail that is burr free with no sharp edges or deformation from the standard profile.

iii. Comply with IEC EN 50022 (NS35), IEC EN 60715, and DIN 46277.

iv. Provide nut, bolt, and start washers to mount to panel for low resistance electrical connection.

v. Provide an anti-corrosion paste to provide a solid and long lasting electrical connection between the DIN rail and the mounting panel.

b. Terminal Blocks

i. Use DIN terminal blocks with voltage and current ratings greater than the voltage and current ratings of the wires that are terminated on the blocks

ii. Terminate conductors on terminal blocks using insulated terminal lugs large enough to accommodate the conductor to be terminated.

iii. Terminate on field wiring terminal block screws using a terminal ring lug for termination when two or more conductors are terminated.

iv. Use metallic terminal block connection hardware and components that are non-ferrous copper or nickel/tin-plated copper alloy or equivalent.

v. Comply with the following colors listed for all supplied terminal blocks and wires.

a) Black – Line

b) White – Neutral

c) Green or Green/Yellow – Ground

vi. Provide a ground terminal that is the same size and pitch as the power terminals and provides positive electrical and mechanical connection to the mounting rail.

vii. Provide the quantity of terminals as shown in the Contract documents.

viii. Service Entrance Terminal Blocks:

a) Make the terminal block for the 120 VAC field cabinet service entrance (SE) a 10 mm single level screw type device.

b) Provide a terminal block that accommodates #14 to #2 AWG wiring for terminating electrical inputs and outputs.

ix. Distribution Terminal Blocks:

a) Make terminal blocks for distribution of 120 VAC (TB2) and ground located on the protected side of the power service panel assembly a 6 mm single level screw type device.

b) Provide terminal block that accommodates #24-6 AWG wiring and provide in colors as specified herein.

c. Circuit Breakers

i. Provide enclosed, thermal magnetic molded case circuit breakers bolted to the panel of the types, sizes, and quantities listed in the Contract documents.

ii. Provide spare breaker space.

iii. Provide two-pole (2P) breakers for 120/240 VAC and single-pole (1P) for 120 VAC single-phase operating voltages.

iv. Comply with UL 489 and NEMA AB-1 standard for molded-case circuit breakers.

v. Ensure that amperage rating of breakers is shown on the face of the breaker or handle.

vi. Provide circuit breakers that have a quick-make, quick-break over center toggle-type mechanism and a position between "ON" and "OFF" when tripped automatically.

vii. Provide circuit breakers that are 120 VAC rated with a minimum symmetrical interrupting short circuit capacity of 18,000A.

viii. Use only circuit breakers that are DIN rail mounted.

ix. Provide circuit breakers that are UL listed.

d. Fuses:

i. Provide DIN rail-mounted switch or disconnect type fuse holders and fuses for low voltage AC and DC circuits in the proper capacity and configured as required.

ii. Fuse size rating labeled on the holder or one the panel adjacent to the holder.

e. Spacer:

i. Provide spacers or dividers between terminal blocks and other components as shown in the Contract documents for visual separation.

ii. Ensure that spacers snap on to DIN rail be approximately 5 to 18 mm thick and match the size of the terminals they separate.

f. Safety Cover:

i. Provide safety covers on terminal blocks to prevent contact with exposed conductors or any metallic components. This cover will provide electrical and visual separation between terminal blocks and other rail-mounted devices.

ii. Ensure that covers are approximately 2 mm thick and sized to match the terminal blocks they protect or separate.

g. Internal Wiring

i. Provide wiring between terminal blocks and attached devices insulated and the proper size.

ii. Utilize #12 to #14 AWG, THHN-THWN, stranded, copper wiring for internal branch circuits.

iii. Use insulated green wire to connect the ground wire directly to the ground terminals.

iv. Do not "daisy chain" with the grounding wires of other devices including other surge protectors.

h. Ground Fault Interrupter (GFI) Service Outlet

i. Provide one duplex, NEMA 15A, 5-15R, GFI duplex receptacle (convenience service outlet) with ground-fault circuit interrupters, box, and cover plate able to be accessed after equipment is installed within the field cabinet.

ii. Provide a UL-listed receptacle meeting Federal Specification #WC596.

i. Ground Buss Bar: Provide a ground buss bar of copper alloy material compatible with copper wire and provide at least two positions where a No. 2 AWG stranded copper wire can be attached.

j. Grounding and Bonding: Provide grounding and bonding that complies with NEC requirements. Refer to Section 682 for detailed grounding and bonding requirements.

k. End Brackets: Provide screw-clamped end brackets to positively lock all DIN rail-mounted devices to the rail.

6. Surge Protection

a. Provide a Type 2 Surge Protection Device (SPD) for the cabinet's main AC power input on the load side of the field cabinet circuit breaker. Other surge protection devices are covered under individual device specifications.

b. Provide SPD that meets the following minimum performance requirements:

i. Posted at UL.com under certification with 20KA I-nominal rating.

ii. Provide a performance that equals or exceeds 100KA per phase, less than 1nSec response time, and with a maximum protection rating of 600V for L-G and L-N and 1,000V for L-L modes of protection.

iii. Provide a SCCR that equals or exceeds 100KA.

iv. Provide a UL Voltage Protection Rating (VPR) per L-N mode of 800V or lower.

c. Provide SPD that has no leakage current to ground.

d. Include directly connected thermally protected MOVs.

e. Provide pluggable SPD modules.

f. Comply with UL 1449 4th edition, Open-Type 1 Listed.

g. Comply with IEEE C62.45, C62.41.1, and C62.41.2 rated for NEMA TS 2 temperature and humidity requirements.

h. Provide solid-state bi-directional operation.

i. Provide SPD that can be DIN rail mounted.

j. Provide SPDs that are equipped with visual and remote status indication and with an audible alarm.

7. Rack-Mounted Power Strip

a. Provide a maximum rating of 15A, 120 VAC, 60 Hz.

b. Provide minimum of eight NEMA 5-15R receptacles or as specified in the Contract documents.

c. Provide spacing to accommodate a minimum of four plug-in power supplies without covering up remaining outlets.

d. Mount the power strip on the rear near the top of the standard TIA-310-D rack cage. Mount the power strip facing toward the back of the field cabinet providing a minimum spacing of 3 in (76 mm) between the outlet's face and the field cabinet door when the door is closed.

e. Provide power strip that does not hinder accessibility to the back of existing electrical equipment.

f. Provide power strip with integrated surge protection meeting the following minimum requirements:

i. Provide power strip that is UL 1449 listed.

ii. Exceed IEEE 587 Category A and B specifications.

iii. Provide a minimum UL 1449 let-through voltage rating of less than 330V(RMS).

iv. Provide a minimum AC suppression joule rating of 600 joules.

v. Provide an AC suppression surge current rating of 20,000A.

vi. Provide a minimum UL 1283 EMI/RFI noise filtering protection rating of 40 dB.

vii. Provide LED status indicators.

8. Interior Lighting
   a. Provide LED lights at the front and back of the field cabinet.
   b. Equip the LED lights with a manual on/off switch that is connected to a door switch that allows the lights to be powered when the field cabinet door is open.
9. .Environmental Systems: For vented cabinet types provide the following ventilation system:
   a. Temperature
      i. Provide a thermostatically controlled ventilation blower fan(s) to maintain internal temperatures below the upper operating temperature thresholds for installed equipment and components that are operating continuously at full capacity.
      ii. Provide the capability for the user-set temperature thresholds to automatically active the fan(s) to turn on or off when the internal field cabinet temperature exceeds the threshold.
   b. Ventilation System
      i. Provide a design so that openings prevent the entrance of dust, insects, and other foreign matter.
      ii. Provide a bottom trough to drain any accumulated moisture to the outside of the field cabinet.
      iii. Type 1: Provide one 100 cubic feet per minute (cfm) (minimum) 120 VAC blower exhaust fan mounted near the top of the field cabinet.
      iv. Types 2, 3 and 4: Provide two 100 cfm (minimum) 120 VAC blower exhaust fans mounted near the top of the field cabinet.
10. Cable and Wire Management
   a. Provide vertical and horizontal cable management as shown in the Contract documents or as approved by the Department.
   b. Provide cable and wire management for AC branch, low-voltage power, and communications/data wiring within the field cabinet.
   c. Provide cable and wire management components securely attached to the field cabinet/rack cage with screws; no adhesive or self-stick mounting is acceptable.
   d. Provide separate wire management for power and other field cabinet low-voltage and communications wiring.
   e. Type 4 cabinet only: Provide a minimum of four wiring pass-through holes on the inside side-mounting panels to permit patch cords to pass between the two cabinet sides:
      i. Provide 5 in (127 mm) pass-through holes that are fully grommetted for patch cord protection, with the holes positioned with two in the cabinet front and two in the cabinet rear and aligning horizontally between the two side panels.
      ii. Provide plastic- or rubber-coated J-hooks or D-rings, minimum 1 in (25 mm) depth and height, on the inside rails of the rack cabinet cages, to organize patch cords passing between the two cabinet sides.

939.2.9 Reserved

939.2.10 Field UPS Requirements

1. Provide an industrial-grade UPS that is a double-conversion, on-line type.
2. Comply with UL 1778 standard.
3. Provide one or more of the field UPS types listed in Table 4:

Table 4 – UPS Types		
Type	**Location**	**UPS Output Power Capacity (minimum, full load)**
Type 1	Field Cabinet	350 watts
Type 2	Field Cabinet	800 watts
Hub	Hub Building	1900 watts

4. Provide UPS that is capable of operating over minimum input voltage range of 80 VAC to 138 VAC at 50/60 Hz (±5%, maximum).
5. Ensure that the UPS outputs a pure sine wave at 120 VAC ±3% at 50/60 (±0.3% maximum).
6. Provide a Total Harmonic Distortion (THD) of <3% (resistive load).
7. Provide a minimum of four output receptacles type NEMA5-15R.
8. Provide a UL listed, external, make-before-break maintenance bypass capability.
9. Provide a UPS with a minimum of 85% efficiency (AC-to-AC).
10. Support a minimum transfer time of 0 ms for line fails/recovers, and 5 ms or less for UPS to bypass and reverse.
11. Battery System
    a. Provide maintenance-free sealed batteries that can be serviced and replaced separately from the UPS.
    b. Provide batteries that are rated for extreme temperatures that have been field proven and tested.
    c. Provide UPS batteries that maintain 80% of original capacity for a minimum of five years.
    d. Provide a maximum battery recharge time of 8 hours to 90% of full charge.
    e. Provide battery charger capability that provides a minimum of three-stage, temperature compensated charging and keeps the batteries above a minimum depth of discharge point of 50% or as recommended by the manufacturer.
    f. Provide user-replaceable and hot-swappable battery packs.
    g. Provide batteries with non-conductive terminal covers.
12. Size the battery bank to meet the following minimum runtimes:
    a. Type 1 and 2 field UPS: Provide a minimum runtime of one hour under full load as shown in Table 4.
    b. Hub UPS only: Provide a minimum runtime of four hours under full load as shown in Table 4.
    c. Provide the capability to be expanded for increased runtime using additional expansion battery banks or packs
13. Provide UPS that supports local and remote monitoring and control via RS232 port and Ethernet SNMP interface:
    a. Provide an addressable SNMP command set including, at a minimum, UPS state, battery condition (capacity, age, internal temperature); current AC input conditions (voltage, phase, frequency, failure condition); current AC output conditions (voltage, frequency, load); and diagnostic/self-test control and status.
    b. Provide remote environmental sensing hardware and software integrated with SNMP minimally capable of temperature and humidity monitoring including generating alarms for Low Battery, Over/Under Voltage, Over/Under Frequency, and High Temperature.
    c. Provide UPS with LCD display for monitoring unit.
    d. Provide four dry contact closures.
    e. Provide support for adjustable high and low voltage buck/boost function.

f. Provide a UPS with automatic low-battery and high temperature shutdown features.

g. Ensure the UPS will return to normal operations without a manual reset.

14. Provide UPS with a maximum audible noise of <50 dBA at 3 ft (0.9 m).

15. Provide UPS with battery bank(s) that mount on an EIA 19 in (483 mm) rack using a maximum space of five rack units.

16. **Environmental Requirements**: Provide a UPS system including battery bank that meets following minimum requirements:

    a. Types 1 and 2 field UPS: Ambient temperature range from −4°F through +131°F (−20 °C through +55°C).

    b. Hub UPS: Ambient temperature range from +32°F through +104°F (0°C through +40°C).

    c. Relative humidity from 10% through 95%, noncondensing.

    d. Comply with FCC Part 15, Class B EMC emission standard.

939.2.11 Solar Power System Requirements

A. General Requirements

1. Provide a solar system that can be mounted in a permanent configuration or in a temporary portable type configuration.

2. Provide one or more of the solar power system types listed in Table 5 as specified in the Contract documents:

Table 5 – Solar Power System Types

Type	Location	Site Output Power Capacity (minimum, full load)
Type 1	Field Cabinet	350 watts
Type 2	Field Cabinet	800 watts

3. Provide DC-to-DC and DC-to- AC conversion equipment, as specified herein.

B. Solar Panel Requirements

1. Provide high-efficiency, photovoltaic solar panel(s) made from tempered glass with an anodized aluminum frame, sized to provide full charging of batteries within a one day full sunlight cycle while under operation in December.

2. Provide solar panels that deliver power for the equipment at the site such that it operates using the lowest average winter insolation values for the area in which the system is installed, accounting for system inefficiencies.

3. Provide IP67-rated junction boxes as required on the backside of the panel.

4. Provide bypass diodes to minimize power drop caused by shade and provide better performance in low-light conditions.

C. Solar Battery Requirements

1. Provide batteries that are individually replaceable (hot-swappable), completely sealed, and maintenance free, requiring no watering.

2. Provide battery capacity (amp-hours) and type that will keep field cabinet equipment operating for a minimum of 72 hours without sunlight or charging of the batteries. Include a 20% safety factor to ensure operation in unseasonable weather conditions and battery degradation over time.

3. Provide solar batteries that maintain 80% of original capacity for a minimum of five years.

4. Provide solar batteries with non-conductive terminal covers.

D. Solar Charge Controller Requirements

1. Provide a minimum 30A rated Pulse Width Modulation (PWM) charge controller that charges 12, 24, and 48V batteries.
2. Provide a charge controller that supports the selected battery type.
3. Provide a charge controller with built-in energy LCD monitor to track and indicate the state of charge, voltage level of the solar batteries, and output of the solar panels.
4. Provide a charge controller that keeps the solar batteries above the minimum depth of discharge point of 50% or as recommended by the battery manufacturer.
5. Provide a charge controller with data logging capabilities that can be viewed over the network.
6. Provide charge controller that disconnects the equipment from the solar batteries at a variable percentage load and allows the batteries to reach a higher state of charge, commonly referred to as a low voltage disconnect feature.

E. Solar Power Inverter Requirements

1. Provide a power inverter that outputs a true sine wave DC to 120 VAC ±5% rated for off-grid solar application.
2. Provide power inverter that meets the continuous power wattage (total load capacity) requirements of the ITS field cabinet equipment and components.
3. Provide a minimum surge rating that is double the continuous power wattage calculation to support equipment start-up power needs (peak power).
4. Provide a power inverter with a power factor of 0.9 to 1.0.
5. Provide power inverter with a minimum 3 x NEMA 5-15R, 15A outlet receptacles.

F. Environmental Requirements

Provide solar panels, charge controller, inverter and battery bank that meets following minimum temperature and humidity requirements:

1. Ambient temperature range from −4°F through +131°F (−20°C through +55°C).
2. Relative humidity from 10% through 95%, noncondensing.

939.2.12 Field Power Controller Requirements

1. Provide a field power controller that is IP-addressable (static) and accessible over a network.
2. Provide a 10/100 autosensing, port selectable, RJ-45 Ethernet interface.
3. Provide capability for rebooting and control of outlet receptacles in remote locations from a web browser.
4. Provide secure control through a user web interface, including SSL and multi-user password secure access.
5. Provide a minimum of 18 x NEMA 5-15R, 15A outlet receptacles with eight switched pairs and two unswitched receptacles.
6. Provide an automatic ping feature that monitors and automatically reboots if locked up devices.
7. Provide a minimum surge protection using dual 3,600J metal oxide varistors (MOV) to clamp power surges and spikes.
8. Provide configurable event data logging.

9. Provide field power controller that mounts on an EIA 19 in (483 mm) rack (maximum space of two rack units) inside a standard ITS field cabinet or hub building rack.
10. **Environmental Requirements**: Provide a field power controller that meets following minimum requirements:
    a. Provide field power controller including power supply that comply with NEMA TS 2 Sections 2.1.7, 2.1.8, and 2.1.9 temperature, humidity, vibration, and shock testing requirements.
    b. Comply with FCC Part 15, Class A EMC emission standard.

939.3 Construction

Ensure that construction and installation of the equipment, materials, components, and assemblies specified in this section comply with the manufacturer's requirements and recommendations.

939.3.1 Contractor Experience and Qualifications

Provide a minimum of three current client references for projects that were performed by the Contractor and/or sub-contractor for the installation, integration, and testing of Ethernet network switches (Layer 2 and Layer 3), field cabinets and components, UPS and battery systems, and solar power systems. The systems must have been in continuous service for at least two years.

939.3.2 Construction Requirements

A. General Installation Requirements

1. Install network switches, field cabinets and components, UPS and battery systems, and solar power components as required by the Contract documents and recommended by the manufacturer.
2. Install equipment in new and/or existing rack space in accordance with the equipment manufacturer's recommendations, including mounting, interconnection wiring, and electrical service.
3. Furnish and install mounting hardware and incidental materials, including fasteners and auxiliary supporting frames/brackets, as recommended by the manufacturer.
4. Furnish and install miscellaneous hardware, materials, wiring/cabling, configuration, and any other incidental items necessary for fully operational components and subsystems shown in the Contract documents and Section 940, except when specifically identified as existing or as work to be performed by the Department.
5. Work on this Project may require access to various Department buildings, hub buildings, and field cabinets requiring coordination of all work activities in these locations with the Department 10 days before access is needed.
6. Work on this Project requires system configuration and integration tasks to be performed by the Department before some Contractor-installed items can be brought online and completely system tested. Coordinate all work activities needing system configuration with the Department a minimum of 14 days prior to any testing.
7. Provide properly sized electrical service, including grounding and current rating, in the equipment racks for all hardware installed under this Project. Furnish and install additional power outlet strips in new and existing equipment racks if needed for the new equipment.
8. For any equipment that is not rack mountable with "rack ears," provide perforated shelves and secure shelf-mounted equipment with rack mounting hardware.
9. Protect cable ends at all times with acceptable end caps. Never subject any cable to exceed its minimum bend radius as recommended by the manufacturer.
10. Terminate ground wiring between cabinet surge protectors on the DIN rail-mounted ground terminal blocks.
11. Dress and route grounding wires separately from all other field cabinet wiring.
12. Install grounding wires with the absolute minimum length possible between the surge protector and the ground terminals.
13. Provide grommets, guides, and/or strain relief material where necessary to avoid abrasion of or excess tension on wire and cable.
14. Neatly route, dress, and secure patch cords in the equipment racks and at both ends. Use all available cable management devices and/or trays. Route patch cords only vertically on the sides of the equipment racks or horizontally across the bottom or top of the racks; no diagonal routing is permitted. Follow manufacturer's recommendations including bend radius requirements during patch cord installation.

15. Store uninstalled cable according to manufacturer recommended bend radius and cable reel requirements.
16. Inspect and test cable for continuity when received, with results compared with factory pre-shipping tests.
17. Inspect the cable nomenclature to make certain that the correct product has been received. Notify the supplier (or manufacturer) of discrepancies for immediate correction.

B. Communications Subsystem

1. Install communications network equipment and materials necessary for a complete communications path from the field site to the TMC or communications hub as shown in the Contract documents.
2. Furnish and install mounting and interconnection materials, including but not limited to mounting panels and rack hardware, fiber and Cat-6 patch/jumper cables, surge protection, and power supply cables.
3. Mount field equipment in a manner as to not restrict the replacement of other components in the field cabinet housing or hub building.

C. Uninterruptible Power Supply

1. Install UPS and battery bank or pack in the field cabinet rack and hub equipment rack.
2. Furnish and install a dedicated electrical service branch circuit from the hub main service panel for the UPS system.
3. Ensure that the UPS system branch circuit is in accordance with all recommendation of the UPS manufacturer, including the provision of a locking plug/receptacle connection.
4. Locate the branch circuit receptacle as close as possible to the UPS mounting position to minimize the UPS input line cord and to minimize tripping hazards.
5. Configure the electrical service inputs for network switches and other equipment to be supplied by the UPS.
6. Furnish and install line cords, power strips, and incidental materials to configure the UPS service to the above equipment.

D. Solar Power System

1. Install and mount the solar panel(s) with mounting bracket and the field cabinet on the ITS pole or structure at heights specified in the Contract documents or as directed by the Department.
2. The installation locations of poles and structures may require slight adjustments to maximize sun exposure for the solar panel assembly. Obtain approval of final site location and orientation from the Department prior to installation.
3. Install in accordance with the manufacturer's recommended installation procedures and the Contract documents.
4. Mount and orient the solar panel(s) to maximize sun exposure in accordance with the manufacturer's recommendations.
5. Mount panels at an angle to enable runoff of rain and snow.
6. Provide power from the solar power assembly to the controller cabinet by connecting to the UPS in the cabinet.
7. Ensure no wires from the solar panel(s) to the battery and from the battery to the charge controller are exposed.
8. Install wires in liquid tight flexible conduit, run inside a pole, or other method approved by the Department. The cost to furnish and install any conduit for the solar power assembly installation shall be included in the cost of the solar power assembly.
9. Electrically ground the solar power assembly in accordance with manufacturer recommendations.

E. Patch Cables and Labeling

1. Label wiring and cabling, including entrance cables, jumper and patch cords, and power supply cables. Cable labels shall consist of UV-protected, waterproof permanent ink printed or legibly written on self-laminating and over-wrapping label material.
2. Apply cable labels at each end and in the center of the cable. Cable labels shall consist of permanent ink printed or legibly written on self-laminating and over-wrapping label material.
3. Label patch cords using cable identification numbers shown in the Contract documents or provided by the Department.
4. Apply cable labels at each end and in the center of the cable.
5. Use printer-generated adhesive overlapping cable labels.

939.3.3 Equipment Configuration and Integration Requirements

Refer to Section 940.2.03 for network equipment configuration and integration requirements.

939.3.4 Testing Requirements

Refer to Section 940.2.04 for testing requirements.

939.3.5 Training Requirements

Refer to Section 940.2.05 for training requirements.

939.3.6 Warranty and Maintenance Support Services

A. Warranty Requirements

1. Ensure that the network equipment, field cabinets and components, UPS battery back-up systems, solar equipment, surge protection, communication cables, and associated components defined herein furnished, assembled, and installed have a manufacturer's warranty (usual and customary) covering defects in assembly, fabrication, and materials. Include in warranty and support, all contractor or manufacturer activities related to maintenance, removal, and replacement of parts and materials during the period of support.
2. Provide a minimum warranty length as follows:
   a. Network Field Switch: minimum of five years.
   b. Network Routing Switch: minimum of five years.
   c. Surge Protectors: minimum of five years.
   d. UPS and Battery System: minimum of three years.
   e. All other equipment and materials furnished and installed as part of this section: minimum of two years.
3. If the manufacturer's warranties for the components are for a longer period, those longer period warranties shall apply.
4. Ensure warranty periods begin on the date of maintenance acceptance by the Department.
5. Ensure that the manufacturer's warranties are continuous throughout the period and shall be fully transferable from the Contractor to the Department and any maintenance consultant/contractor.
6. Provide maintenance support services and make any replacements required during the warranty period without additional charge for labor, equipment, parts, shipping, and other materials required. Support all system components notwithstanding any supplier's warranties whether written or implied.

B. Maintenance Support Services:

Refer to Section 940.2.06 for maintenance support services requirements.

939.3.7 Project Close-Out Requirements

Refer to Section 940.2.07 for project close-out requirements.

939.4 Measurement

The network equipment, field cabinets and components, UPS battery back-up systems, solar equipment, surge protection, and communication cables defined herein and training complete, in place, accepted, and of the kind, size, and type specified is measured as follows:

A. Network Field Switch

Item 939-2300 -- FIELD SWITCH, TYPE A (EA)

Item 939-2301 -- FIELD SWITCH, TYPE B (EA)

Item 939-2305 -- FIELD SWITCH, TYPE C (EA)

Item 939-2310 -- FIELD SWITCH, TYPE D (EA)

Item 939-2315 -- FIELD SWITCH, TYPE E (EA)

Network field switches (all types) with mounting hardware will be measured for payment by the number installed, complete, functional, and accepted. This price will be full compensation for labor, tools, materials, equipment, and incidentals necessary to complete the work.

B. SFP Fiber Module

Item 939-2390 – SFP FIBER MODULE, TYPE 1 (EA)

Item 939-2391 – SFP FIBER MODULE, TYPE 2 (EA)

SFPs (all types) are measured for payment by the number installed, complete, functional, and accepted.

C. Network Routing Switch

Item 939-2401 -- ROUTING SWITCH, Hub, TYPE A (EA)

Item 939-2402 -- ROUTING SWITCH, Hub, TYPE B (EA)

Network routing switches (all types) with mounting hardware will be measured for payment by the number installed, complete, functional, and accepted. This price will be full compensation for labor, tools, materials, equipment, and incidentals necessary to complete the work.

D. Field Cabinet

Item 939-4101 -- FIELD CABINET, TYPE 1 (EA)

Item 939-4110 -- FIELD CABINET, TYPE 2 (EA)

Item 939-4120 -- FIELD CABINET, TYPE 3 (EA)

Item 939-4130 -- FIELD CABINET, TYPE 4 (EA)

E. Solar Power System

Item No. 939-4201 – SOLAR POWER SYSTEM, TYPE 1 (EA)

Item No. 939-4202 – SOLAR POWER SYSTEM, TYPE 2 (EA)

F. Field UPS

Item 939-6000 – HUB UPS (EA)

Item 939-6050 – FIELD UPS, TYPE 1 (EA)

Item 939-6060 – FIELD UPS, TYPE 2 (EA)

G. Field Power Controller

Item 939-6100 – FIELD POWER CONTROLLER (EA)

H. Training

Item 939-8500 – TRAINING (LS)

Training is measured as a lump sum for supplies, equipment, materials, handouts, travel, and subsistence necessary to conduct the training.

Measurement Notes:

Submittal

Submittal requirements are included in Section 940 and shall not be paid for separately and shall be considered incidental to the different communications and electronic equipment specified in this section.

Testing

Testing requirements are included in Section 940 and shall not be paid for separately and shall be considered incidental to the communications and electronic equipment specified in this section.

NaviGAtor Integration

NaviGAtor integration requirements are included in Section 940 and shall be paid for under 940-1000.

939.5 Payment

Communications and electronic equipment of the type specified in the Contract documents are paid for at the Contract Unit Price. Payment is full compensation for furnishing and installing or delivering the communications and electronic equipment.

The Department will pay 25%of the total Contract bid amount for properly stored materials. The Department will pay 50%of the total Contract bid amount upon installation of the communications and electronic equipment and completion of the stand-alone/site testing acceptance. The Department will pay 25%of the total Contract bid amount upon completion of the Final Project Acceptance. The total sum of all payments cannot exceed the original Contract amount for this item.

Payment for communications and electronic equipment is made under:

Item No. 939	Field Switch, Type A	Per each
Item No. 939	Field Switch, Type B	Per each
Item No. 939	Field Switch, Type C	Per each
Item No. 939	Field Switch, Type D	Per each
Item No. 939	Field Switch, Type E	Per each
Item No. 939	SFP Fiber Module, Type 1	Per each
Item No. 939	SFP Fiber Module, Type 2	Per each
Item No. 939	Routing Switch, Hub, Type A	Per each
Item No. 939	Routing Switch, Hub, Type B	Per each
Item No. 939	Field Cabinet, Type 1	Per each
Item No. 939	Field Cabinet, Type 2	Per each
Item No. 939	Field Cabinet, Type 3	Per each
Item No. 939	Field Cabinet, Type 4	Per each

Item No. 939	Solar Power System, Type 1	Per each
Item No. 939	Solar Power System, Type 2	Per each
Item No. 939	Hub UPS	Per each
Item No. 939	Field UPS, Type 1	Per each
Item No. 939	Field UPS, Type 2	Per each
Item No. 939	Field Power Controller	Per each

694.5.02 Training

The Department will pay 25%of the total Contract bid amount for training upon approval of the Training Plan. The Department will pay the remaining 75%after completion of training described in Section 940.2.05. The total sum of all payments cannot exceed the original Contract amount for this item.

Payment for training is made under:

Item No. 939	Training	Lump Sum

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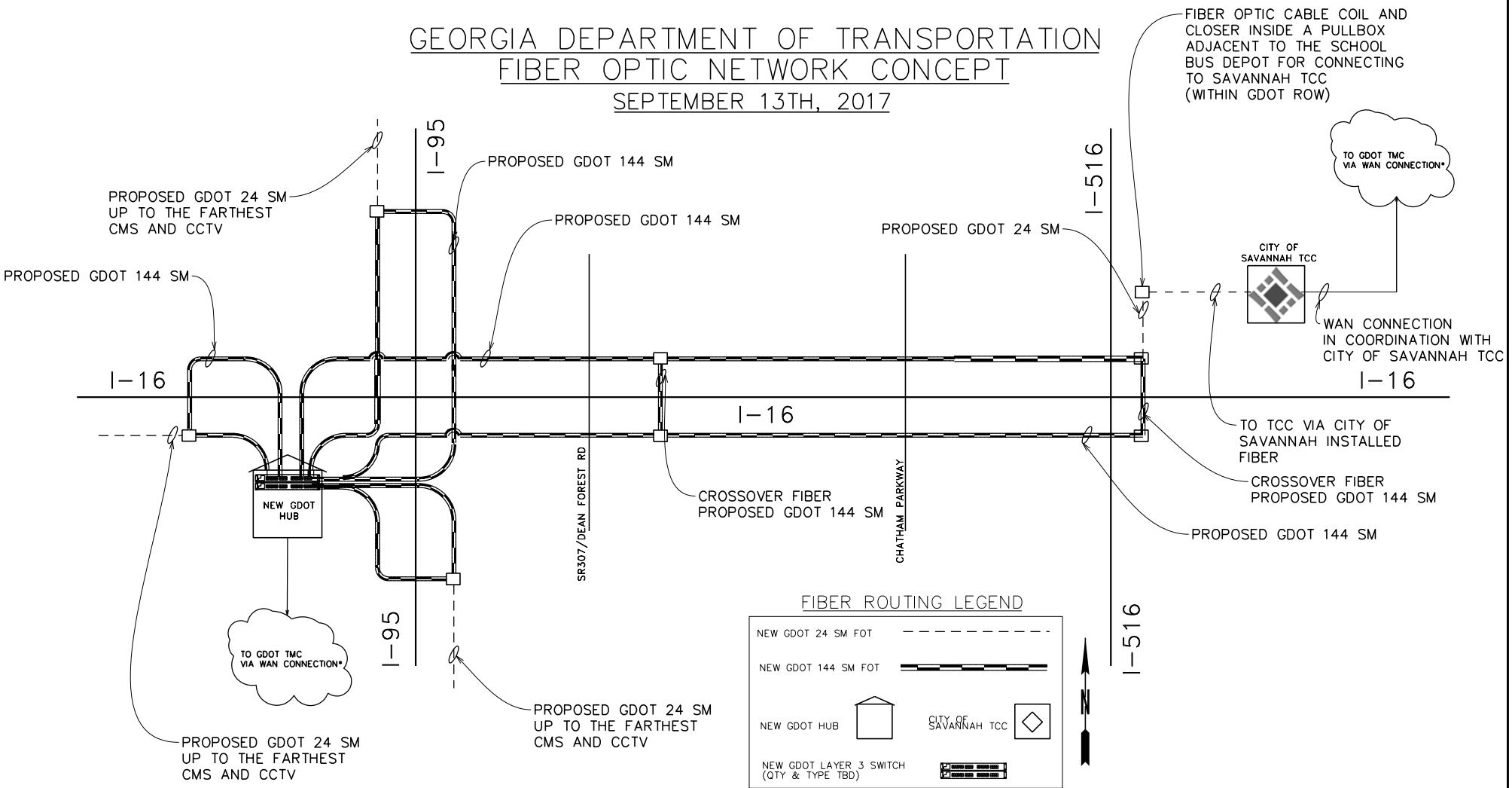
Attachment 17-3

Network Concept Diagram

ATTACHMENT 17-3



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Attachment 17-4

Surge Protection

Attachment 17-4

Surge Protection Systems and Devices

Section 17-1 Surge Protection Systems and Devices

17-1.1 General Description

This work consists of furnishing materials and installation of Surge Protection Devices for traffic signal and intelligent transportation system implementation.

It also includes all test periods, warranties and guarantees as designated in subsequent sections, and response to maintenance and operational issues as described in subsequent sections.

17-1.1.01 Definitions

General Provisions 101 through 150.

17-1.1.02 Related References

A. Standard Specifications

Section 106—Control of Materials

Section 500—Concrete Structures

Section 501—Steel Structures

Section 631—Changeable Message Signs

Section 636 – Highway Signs

Section 639—Strain Poles for Overhead Sign and Signal Assemblies

Section 680—Highway Lighting

Section 681—Lighting Standards and Luminaires

Section 682—Electrical Wire, Cable, and Conduit

Section 915—Mast Arm Assemblies

Section 923—Electrical Conduit

Section 925—Traffic Signal Equipment

Section 935—Fiber Optic System

Section 936—CCTV System

Section 937—Video Detection System

Section 938—Radar Detection System

Section 939—Communications & Electronic Equipment

Section 940—Navigator Integration

B. Referenced Documents

National Electrical Manufacturers Association (NEMA) Traffic Control Systems Standards No. TS 1

NEMA Traffic Control Systems Standards No. TS 2

AASHTO Roadside Design Guide

The Manual on Uniform Traffic Control Devices (MUTCD), current edition

National Electrical Code (NEC)

UL 467, Grounding and Bonding Equipment;

UL 497A, Standard for Secondary Protectors for Communications Circuits;

UL 497B, Standard for Protectors for Data Communications and Fire-Alarm Circuits;

UL 497C, Standard for Protectors for Coaxial Communications Circuits;

UL 752, Standard for Bullet-Resisting Equipment;

UL1008, Standard for Transfer Switch Equipment;

UL 1449, Standard for Surge Protective Devices; and the NEC.

Ensure that lightning protection systems conform to the requirements of NFPA 780, Standard for the Installation of Lightning Protection Systems.

GDT 7

GDT 24a

GDT 24b

GDT 67

17-1.1.03 Submittals

Submit to the Engineer, SPD material specifications information on all materials proposed for use on the project. The Engineer will forward the materials submissions to the District Traffic Operations offices, which will forward the information onto the Traffic Operations offices at the TMC building.

A. Review

For all submittals, the State Traffic Signal Design Engineer's review of the material should be completed within thirty (30) days from the date of receipt of the submission unless otherwise specified. The State traffic Signal Design Engineer will advise in writing, as to the acceptability of the material submitted.

All material submittals for equipment and materials used on the project will be reviewed by the Department's Traffic Signal Electrical Facility (TSEF). The material review should be completed within thirty (30) days from the date of receipt of the material submission unless otherwise specified. The State Traffic Signal Engineer will advise in writing as to acceptability of materials to be used on the project.

The State Traffic Signal Design Engineer may determine that the item is approved, in which case no further action is required; or the item may be partially or totally rejected in which case, modify the submittal as required and resubmit within fifteen (15) days. At this time, the review and approval cycle described above begins again.

B. Submittal Costs

Include the costs of submittals within the price paid for individual bid items. No additional compensation will be made.

17-1.2 Materials

17-1.2.01 General

Furnish and install grounding and Surge Protective Devices (SPDs) for all ITS devices to protect the devices from lightning, transient voltage surges, and induced current. Use only new materials meeting the requirements of this section. Use equipment or materials that have been tested and approved for the specific use intended by a NRTL, recognized by the Occupational Safety and Health Administration, in accordance with 29 CFR 1910.7 and that also meet the following requirements.

Install SPDs on all power, data, video and any other conductive circuit. Use only equipment and components that meet the minimum requirements of this specification. All SPD shall operate as specified during and after being subjected to the transients, temperature, voltage, humidity, vibration, and shock tests described in National Electrical Manufacturers Association (NEMA) TS2, 2.2.7, 2.2.8, and 2.2.9.

A. Temperature and Humidity:

Equipment shall operate as specified when the ambient temperature and humidity are within the following specified limits:

- The operating ambient temperature range shall be from - 30° to 165°F (-34.4° to 73.8°C).
- The storage temperature range shall be from -50° to 185°F (-45.5° to 85°C).
- The relative humidity shall not exceed 95 percent, non-condensing

B. Vibration:

The equipment shall operate as specified and maintain its physical integrity when subjected to a vibration of 5 to 30 Hz up to 0.5 gravity applied in each of three mutually perpendicular planes.

C. Shock:

The equipment shall suffer neither permanent mechanical deformation nor any change that renders the unit inoperable when subjected to a shock of 10 gravities applied in each of three mutually perpendicular planes.

17-1.2.01 Installation:

Provide all ITS field installation sites with both primary and secondary surge protection on the AC power. Connect the primary surge protection at the service entrance or main disconnect. Connect the secondary surge protection on the power distribution to the equipment.

A. SPD at Power Entry Point:

Install a SPD at the closest termination/disconnection point where the supply circuit enters the ITS device cabinet. Locate the SPD on the load side of the main disconnect and ahead of any and all ITS electronic devices. Configure the SPD to operate at 120 volt single phase (i.e., line, neutral and ground) or 120/240 volt single phase (line 1, line 2, neutral and ground) as required to match the supply circuit configuration. Ensure that the SPD maximum surge current rating is 80kA per phase or greater. Verify that the SPD has been labeled to indicate that the unit is UL listed and meets the requirements of UL 1449, Third Edition.

Ensure that the SPD has a visual indication system that monitors the weakest link in each mode and shows normal operation or failure status and also provides one set of normally open (NO)/normally closed (NC) Form C contacts for remote alarm monitoring. The enclosure for a SPD shall have a NEMA 4 rating.

B. SPD at Point of Use:

Install a SPD at the point the ITS devices receive 120 volt power. Ensure that the units are rated at 15 or 20 amps load and a minimum of 20kA of surge current capacity and configured with receptacles.

Ensure that these units have internal fuse protection and provide common mode (L+N-G) protection.

C. SPD for Low-Voltage Power, Control, Data and Signal Systems:

Install a specialized SPD on all conductive circuits including, but not limited to, data communication cables, coaxial video cables, and low-voltage power cables. Ensure that these devices comply with the functional requirements shown in Table 785-1 for all available modes (i.e. power L-N, N-G; L-G, data and signal center pin-to-shield, L-L, L-G, and shield-G where appropriate).

SPD Minimum Requirements				
Circuit Description	**Clamping Voltage**	**Data Rate**	**Surge Capacity**	**Maximum Let-Through Voltage**
12 VDC	15-20 V	N/A	5kA per mode (8x20 µs)	<150 Vpk
24 VAC	30-55 V	N/A	5kA per mode (8x20 µs)	<175 Vpk
48 VDC	60-85 V	N/A	5kA per mode (8x20 µs)	<200 Vpk

SPD Minimum Requirements				
Circuit Description	**Clamping Voltage**	**Data Rate**	**Surge Capacity**	**Maximum Let-Through Voltage**
120 VAC at POU	150-200 V	N/A	20kA per mode (8x20 µs)	<550 Vpk
Coaxial Composite Video	4-8 V	N/A	10kA per mode (8x20 µs)	<30 Vpk
RS422/RS485	8-15 V	Up to 10 Mbps	10kA per mode (8x20 µs)	<30 Vpk
T1	13-30 V	Up to 10 Mbps	10kA per mode (8x20 µs)	<30 Vpk
Ethernet Data	7-12 V	Up to 1 Gbps	1kA per mode (10x1000 µs)	<30 Vpk

17-1.2.01 Warranty for Surge Protective Devices:
Provide a SPD that is warranted by its manufacturer against any failures caused by electrical events, including direct lightning strikes, for a period of not less than 10 years or the SPD device manufacturer's standard warranty period, whichever is greater.
The term "failure" for warranty replacement is defined as follows:

- Parallel-connected, power-rated SPD units are considered in failure mode when any of the visual indicators shows failure mode when power is applied to the terminals at the unit's rated voltage, or the properly functioning over-current protective device will not reset after tripping.
- Series-connected, low-voltage power, data, or signal units are considered in the failure mode when an open circuit condition is created and no data/signal will pass through the SPD device or a signal lead is permanently connected to ground.

In the event that the SPD, including any component of the unit, should fail during the warranty period, the entire SPD shall be replaced by the manufacturer at no cost to the Department. Costs relating to the removal of the SPD, shipping and handling, and the reinstallation of the SPD shall be paid by the Department.

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VOLUME 3

Programmatic Technical Provisions

For

Design-Build Agreement

P.I. Nos. 0012757 and 0012758

I-16 AT I-95 INTERCHANGE RECONSTRUCTION AND I-16 WIDENING FROM I-95 TO I-516 PROJECT

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1 GENERAL

1.1 Project Design

Refer to Volume 2.

1.2 Project Scope

Refer to Volume 2.

1.2.1 Design and Construction Requirements

The DB Team shall design and construct the Project to comply with the requirements of the DB Documents.

The DB Team shall coordinate with GDOT and adjacent Governmental Entities and other third parties as appropriate to determine the design criteria, standards, and specifications of those components of Work that the DB Team will construct but are to be maintained by others. For components of Work that potentially or actually impact the infrastructure of any Governmental Entity or third-party entity, the DB Team's design shall conform to the design requirements of such entity.

1.3 Transitions to Adjacent Infrastructure, Roadways and Facilities

Design and construct Project transitions and interconnections with adjacent infrastructure, roadway, and facilities and related appurtenances to be compatible and uniform at all interfaces. The DB Team shall coordinate with Persons, including other contractors, performing Work at or adjacent to the Site to provide seamless transitions from the Project to any work proposed, being developed, or existing. The DB Team shall remove any temporary transitions that are not intended to accommodate permanent traffic operations connecting the proposed improvements to existing roadways and shall restore all areas within the Work or impacted by the Work. The DB Team shall minimize disruption to traffic operations and adjacent property access throughout the performance of the Work.

2 PROJECT MANAGEMENT

2.1 General Requirements

2.1.1 Management Organization and Personnel

The DB Team shall establish and maintain an organization that effectively manages all Elements of the Work. This project management effort shall be defined by and follow the Project Management Plan (PMP), which is a collection of several management plans describing discrete Elements of the Work. The PMP is an umbrella document that describes the DB Team's managerial approach, strategy, and quality procedures to design and build the Project and to achieve all requirements of the DB Documents.

2.1.1.1 DBE Manager

Refer to Volume 2.

2.1.2 Partnering

Refer to Volume 2.

2.1.3 Project Communications

2.1.3.1 Media and Public Information

A critical objective for all projects is to maintain the trust, support, and confidence of the media and public throughout the life of the project. In order to meet this objective, it will be critical to proactively manage messages and communications to the media. GDOT will be responsible for all communications with the media; all inquiries from media shall be directed to GDOT for responses. The DB Team shall coordinate and collaborate with GDOT on the development of the Public Information and Communications Plan (PICP). The DB Team shall ensure updated Project information is provided to GDOT in a timely manner. The DB Team shall document all forms of Project communications with Customer Groups, interested citizens, stakeholders, and general public. The DB Team shall develop a PICP conforming to the requirements in Section 2.7.2.

2.1.3.2 Project Meetings

The DB Team attendance at each meeting shall, at a minimum, include all appropriate staff necessary to make decisions regarding the subject matter of the meeting to progress the Project and maintain the schedule. The DB Team shall "own" the meetings and shall prepare meeting agendas and distribute agendas a minimum of 24 hours in advance, and shall cause meeting minutes to be prepared and distributed within three (3) business days after the meeting. The DB Team shall, at the request of GDOT or its representative(s), hold additional meetings, and the DB Team shall cause additional staff to attend all meetings if requested by GDOT or its representative(s). At a minimum, the DB Team shall hold, participate, and prepare minutes in the following regular meetings with GDOT.

2.1.3.2.1 Weekly Meeting Requirements

1. Progress Meeting
2. Design Coordination Meeting(s) (may be separate meetings for major disciplines)
3. Submittals Review Team Meeting
4. ITS Communications Meeting
5. Construction Meeting (starting after NTP 3; may be combined with the Traffic Interruption Meeting)
6. Traffic Interruption Meeting

2.1.3.2.2 Twice Monthly (every Two Weeks) Meeting Requirements

1. Public Communications Team Meeting
2. ITS Communications Meeting
3. Utility Coordination Team Meeting
4. Quality Management/Compliance Team Meeting
5. Environmental Management Meeting
6. Materials Team Meeting
7. ROW Acquisition Team Meeting

2.1.3.2.3 Monthly Meeting Requirements

1. Schedule Review Meeting (shall be held the first week of each month)
2. Payment Request/Progress Status Team Meeting (shall be held the first week of each month)

As the Project progresses, the DB Team shall also hold work sessions with GDOT on Project technical design elements; these may include roadways, structures, utilities relocations, drainage and MS4, and other disciplines as needed to facilitate timely input from GDOT.

2.1.4 Project Management Controls System (PMCS)

GDOT will implement a project management controls system (PMCS) throughout the term of the Agreement for workflows, file storage, communication, and correspondence. The DB Team shall utilize the PMCS provided by GDOT.

This PMCS provides all Project team members:

1. Centralized data that acts as a single source of truth and eliminates data redundancy.
2. Clear, efficient, and targeted access to Project information.
3. Efficient prosecution of the work through consistent, streamlined processes.

4. Accountability with automated ball-in-court tracking.
5. Informed and streamlined decision-making.
6. Reporting to achieve the Program and Project objectives.

All Project team members shall be required to use this system for all official Project communications and interactions, including:

1. Correspondence, including payment items, notices of potential claims, and Supplemental Agreements
2. Project Management Plans in accordance with Section 2.2
3. Issues
4. Meetings/Meeting Minutes/Action Items
5. Design Management
6. Requests for Information (RFI)
7. Submittals as listed in Section 3
8. Schedule submittals as listed in Section 2.5
9. Nonconformance reporting (NCR's)
10. Punch Lists
11. Reporting
12. Document Management (see Section 2.1.4.1.1 for the required File Naming Convention)
13. Construction Drawing Management (including management markups, versions and revisions)
14. Project Archiving and Closeout
15. Record Drawing Management

All Project team members shall utilize the PMCS on a daily basis to perform their Project responsibilities.

Additional requirements/guidelines of the system:

1. The PMCS shall be used to track and manage the Project and will be an official record of all Project communication. Organizations shall upload all Project-related information to the PMCS.
2. No later than thirty (30) calendar days after NTP 1, all Project team organizations involved shall designate a PMCS coordinator (an internal point of contact) and provide the coordinator's name, phone, and e-mail to GDOT and the DB Team.
3. All users of this PMCS must complete training prior to having access to the system provided by GDOT.

4. All Project team members will be solely responsible for establishing and furnishing high-speed internet connectivity (fiber, cable modem, or DSL connectivity is recommended) to access the PMCS.
5. Submittals must be uploaded, submitted, tracked, and reviewed via the PMCS. In the case where physical samples are required, the submittal will still be reviewed and tracked via the system. The sample itself will be transmitted to the reviewer via traditional means.
6. The DB Team shall utilize the filing naming convention as provided in Section 2.1.4.1.1.

All Submittals shall be uploaded to the PMCS. Project documents shall comply with the naming convention requirements of GDOT's Electronic Data Guidelines (EDG). When not specified in the EDG, Project documents transmitted via the system must comply with the following electronic formats:

1. Documents generated in Computer Aided Design (CAD) applications (MicroStation V8 or InRoads) shall be submitted in Portable Document Format (PDF) generated by a PDF writer from the CAD application.
2. Documents that are marked up or unavailable in electronic format (drawings, sketches, correspondence, etc. generated by hand drafting methods) shall be scanned to Tagged Image Format version 5 or 6 [TIFF 5 or 6 (.TIF)], Bitonal [or Black and White (a.k.a. Line Art), on some scanners] (.tif) or PDF (.pdf), black and white with a resolution of 200 dpi using CCITT Group 4 (2d Fax) compression.
3. Documents that have been generated using PDF printer drivers (not scanned) shall be submitted via the system.
4. Electronic photographs shall be submitted in Joint Photographic Experts Group (JPEG) (.jpg) file format, sized at a minimum resolution of 1024 x 768 pixels.
5. Grayscale or color photo images that are scanned shall be saved in JPEG (.jpg) file format with medium to low quality compression at a resolution of 200 dpi.
6. Product data that is available for download from the manufacturer's website that has been generated using PDF printer drivers (not scanned) may also be submitted via the System.
7. All design drawings shall be submitted incompliance with GDOT Electronic Data Guidelines, latest revision and all policies and guideline on GDOT's Design Manuals and Guides website:

   http://www.dot.ga.gov/PS/DesignManuals/DesignGuides

2.1.4.1.1 File Naming Convention

PROJECT		Project Number. i.e.: 0012757 (7 digit)
YYYY		The digits representing the calendar year (e.g. 2018) the document is dated

MM		The two digits representing the calendar month (e.g. 01 for January) the document is dated
DD		The two digits representing the calendar day the document is dated
LTR		The 3-digit document type (e.g. LTR = Letter, TRN = Transmittal. RPT = Report)
SSSS		The Sender company (e.g. PMC) *Companies may have between 4-6 letters (communication documents)
RRRR		The Recipient company (e.g. GDOT) *Companies may have between 4-6 letters (communication documents)
Descr		Document title
Rev		The 2-digit revision or version number if applicable

The following file naming convention shall be used on all correspondence created or issued by the Project and for filing any document.

PI_YYYY-MM-DD__DocType_File Name

For example, July 4, 1776, will be represented as 1776-07-04.

All FINAL versions of documents shall be clearly identified and saved in the "**Final Deliverables**" folder as follows:

PI_Date_File Type ID_File Name Final

The DB Team may use "versions" or "drafts" included in the file name portion of the naming convention at the end of the file name for the non-final document. The following are file naming guidelines:

1. Correspondence Files: The file names of correspondence should include the name of the correspondent, an indication of the subject, the date of the correspondence and whether it is incoming or outgoing correspondence.

2. Dates: Dates should always be presented 'back to front', that is with the year first (always given as a four-digit number), followed by the month (always given as a two digit number), and the day (always given as a two digit number)

3. Keep File Names Short but Meaningful: Some words add length to a file name but do not contribute towards the meaning, for example words like "the", "a", and "and".

4. No Spaces in File Names: The use of an underscore "_" or a dash "- "heading fields and words for ease in sorting. Use of caps to distinguish words for ease of reading is encouraged (i.e. Document_Management_Plan).

5. Numbers in File Names: To maintain the numeric order when file names include numbers it is important to include the zero for numbers 0-9. This helps to retrieve

the latest record number. i.e. 01, 02 … 99, unless it is a year or another number with more than two digits.

6. Special Characters: The use of special characters can cause problems with uploading, viewing and downloading documents over the internet. Special characters @ # $ % ^ & *.,? should not be used in filenames. Even if your operating system allows you to save the file you may encounter difficulties if you try to transport the file to another operating system; for example, the file may not be recognized, or if you send it to someone else they may not be able to open it.

Table 2-1: File Type Identification Table

File Type ID	*File Type*	*File Type*
ACC	Accidents	
ADV	Advertisement	Advertisements to the public, such as advertisement for intent to post RFQ, advertisements for public meetings (Public Information Open House (PIOH) and Public Hearing Open House (PHOH)), etc.
ACP	Acceptances	
BND	Bond Related	All bond related items.
CAL	Calculations	
CIN	Contractor Invoices	
CLM	Claims	
CMR	Construction Management Related	
COM	Comments	
COR	Correspondence	Not to be used for letters (see LTR) and memorandums (see MEM).
CRP	Construction Reports	Construction reports of any frequency; the name of the file will clarify frequency of reporting/
CST	Cost Estimate	
CDO	Contract Document, RFP, RFQ	
DBE	Disadvantaged Business Enterprise	
DAU	Document Audit	
DWG	Drawing	Examples: PDF of CAD drawings.

File Type ID	*File Type*	*File Type*
EEO	Equal Employment Opportunity	
EML	E-Mail	Emails are NOT considered deliverables, this is for record keeping purposes.
ENV	Environmental	All Environmental Documents, including special studies.
FAX	Facsimile	
FPL	Financial Plan	
INS	Insurance Related	All insurance related items.
IGA	Intergovernmental Agreements	
ISS	Issues	Design related issues and request for information.
LCR	Lane Closure Requests	
LDA	Liquidated Damages	
LOG	Log	
LTR	Letter	
MAT	Materials Related	
MDR	Materials Deficiency Reports	
MEM	Memorandum	To be used for correspondence with “memorandum” in the subject line.
MOM	Meeting Minutes	
MOT	Maintenance of Traffic	
MPL	Project Master Plans, Planning Documents	
MSC	Miscellaneous	
MSI	Meeting Minutes Sign-In Sheet	
MTGA	Meeting Agenda	
MUN	Municipal	
NCR	Non-Conformance Report	
NOI	Notice of Intent	
NTF	Note to File	
NTP	Notice to Proceed	
OMM	Operation & Maintenance	

File Type ID	*File Type*	*File Type*
PCR	Project Change Request Document	
PDI	Product Data and Information	Examples: bottomless culvert product catalog, guardrail beam information, etc.
PER	Permit Related	
PIX	Photos	
PLI	Punch List	
PJM	Project Management	All project management related documents and files.
PPR	Program Procedure	
PPM	Policies and Procedures Manual	
PSP	Plan Specification(s)	
PST	Presentation	PowerPoint and other types of presentations; not to be used for animations (see VID)
PRT	Permit	
PUB	Public Involvement	To be used for all outreach related documents and files, including stakeholder, industry, agency and legislator outreach
QAD	Quality Acceptance or Assurance	
QCD	Quality Control	
RDW	Record Drawings	
REG	Regulatory Agencies	To be used for documents and guidelines published by regulatory agencies; not to be used for permitting related files and documents (see PT).
RES	Research	
REV	Plan Revisions	
RFC	Released for Construction	
RFI	Request for Information	Construction related issues and request for information.
RFP	Request for Proposal	

File Type ID	*File Type*	*File Type*
RFQ	Request for Qualifications	
ROW	Right of Way	
RPT	Report (All Technical Reports)	All technical analyses, studies, whitepapers, etc.; excludes environmental related documents and files (see ENV).
SAD	Supplemental Agreement Documents	
SCH	Schedule	
SDW	Shop Drawing	
SPC	Specification/Special Provision	
SRV	Submittal Review	Not to be used for plan revisions (see REV).
STD	Project Standards	
SUB	Subcontractors	
SUR	Survey	Land survey information and documents, not question surveys
TXT	Time Extension	
TRF	Traffic Related	
TRN	Transmittal	
UTL	Utility	
VID	Video	Animations; daily videos of construction sites
WAR	Warranty Related	All warranty related items

2.1.5 Document Management

The DB Team shall establish and maintain an electronic and hard copy document control system to manage, store, catalog, and retrieve all Project-related documents in a format that is accepted for use by GDOT. Unless otherwise directed by GDOT, record retention shall comply with the requirements included in the Retention Schedules for State Government Paper & Electronic Records, State Agency Specific Schedules for GDOT, and any other applicable local, state, and federal guidelines. All documentation and content shall be provided to GDOT at the time of the expiration or earlier termination of the Agreement.

At a minimum, the DB Document Management System shall:

1. Establish standardize procedures for document control.

2. Provide for effective PMCS training.
3. Ensure that documents are safely secured, protected from loss, damage or deterioration, maintained and readily retrievable and available for use by persons with access approval.
4. Index documents received or collected for systematic filing.
5. Preserve all Project records.
6. Ensure auditability.
7. Provide an audit function to ensure that Document Management policies and procedures are being consistently followed.

2.1.5.1 Backup of Electronic Files and Protection of Hardcopy Files

All Project content shall be protected from loss, damage and deterioration. The DB Team shall provide a secure, fireproof location with controlled access in which to store electronic and hardcopy backup files.

2.1.6 Joint Project Inspection

A Joint Project Inspection of the Project area shall be performed and approved with the Construction Maintenance Limits Plan no later than one hundred and eighty (180) days from NTP 1. The physical in-field Joint Project Inspection shall be performed by a GDOT-authorized representative and the DB Team, and attended by GDOT, if desired. The purpose of the Joint Project Inspection is to create a physical baseline of the existing real estate and permanent fixtures and assets of GDOT prior to the start of construction. The area shall encompass the entire Project area including areas outside the limits of the Project, as there will be required Elements outside of the actual Project limits.

The DB Team shall clean the existing drainage system sufficiently enough to allow for the proper detailed inspection of the system during the joint inspection within the Construction Maintenance Limits and as required in Section 19.

The Joint Project Inspection Submittal shall include, but not be limited to, the following:

1. Preliminary Plan or Construction Maintenance Limits Plan providing marked-up notes of deficiencies and location reference for cross-referencing any photographs or additional information denoting the existing condition of the infrastructure within the proposed Construction Maintenance Limits Plan area.
2. Pre-construction digital photographs and high-resolution digital video of the Project Area including all existing facilities, structures, and environmentally sensitive areas that can readily depict the exact conditions of the existing Elements of the Work. The DB Team shall provide a sample report of a section of the Project to determine the level of expected accuracy and increments of the photo documentation.

3. Intermittent photographs along the pavement and shoulders to clearly depict the existing condition of the pavement and shoulders that will be utilized during construction. The DB Team shall be responsible for maintaining the existing pavement and shoulders to a condition equal to or better than existing conditions at all times during the Design-Build Period.
4. Video recording prior to the beginning of construction and at final acceptance of any existing underground storm or sanitary sewer system within the Construction Maintenance Limits Plan or to the nearest structure outside the Construction Maintenance Limits Plan, whichever is greater.
5. Pre-construction digital photographs and high-resolution digital video of existing bench marks, temporary bench marks, existing utilities, and trees and plants to remain.

The DB Team shall restore the Existing ROW outside the General Purpose lanes and within the construction maintenance limits to a condition equal to or better than existing conditions by Substantial Completion.

2.1.7 Photography

The DB Team shall provide monthly aerial photo submittals (one hard copy and both high resolution and low resolution digital files), a minimum of two (2) photos of the entire Project and three to four (3-4) photos per phase at GDOT specified locations on the Project for the various phases of construction. Photos shall be taken from the same angle, elevation and location as previously taken, in order to show the progress of the work from commencement of construction to Substantial Completion. Hard copy photographs shall be 8-inch by 10-inch size.

All the data shall become property of GDOT. The DB Team will be responsible for any photography equipment installation including power, and maintenance of the equipment at all times. All photographs shall be labeled and cataloged with the date and time the photograph was taken, and a brief description of the location and view.

In addition to the requirements for photography submittals found elsewhere in these Technical Provisions, one electronic copy of all photographs shall be filed in a single folder on the PMCS, cataloged in a logical manner as approved by GDOT.

2.1.8 Requirements for GDOT Office and Equipment

Refer to Volume 2

2.2 Project Management Plans

The Project Management Plan shall document the procedures and processes that are in effect to provide timely information to the Project decision makers to effectively manage the scope, costs, schedules, and quality of, and the Federal requirements applicable to, the Project; and the role of the agency leadership and management team in the delivery

of the Project. The DB Team is required to complete the following Management Plans/documents and include as Appendices to the Project Management Plan in addition to the Project Management Plan requirements in this Section 2. The requirements of these management plans and documents can be found throughout the Technical Provisions.

2.2.1 Project Management Plan Requirements

The DB Team shall submit the following management plans for GDOT review and acceptance:

1. Design Schematic of the Project (Project Differences from Reference Information Documents and incorporating approved ATC concepts, provided at time of Proposal Submission)
2. Project Schedule, pursuant to Section 2.5
3. Project Quality Management Plan and other Quality Management Plans, pursuant to Section 2.3
4. Safety Plan, pursuant to Section 2.2.4
5. Construction Phasing Plan, pursuant to Section 2.2.5
6. Public Information and Communications Plan (PICP), pursuant to Section 2.7.2.1
7. Comprehensive Environmental Protection Program (CEPP), pursuant to Section 4.3
8. Hazardous Materials Management Plan, pursuant to Section 4.4
9. ROW Acquisition Plan, pursuant to Section 5.8
10. Demolition and Abandonment Plan, pursuant to Section 10.2
11. Transportation Management Plan (TMP), pursuant to Section 18.2.1
12. Construction Maintenance Limits Plan, pursuant to Section 19.2
13. Maintenance Management Plan, pursuant to Section 19.3

All audits, findings and reports shall be provided to GDOT with all submittals.

A QA/QC statement letter shall be submitted with all Submittals.

2.2.2 Administrative Functions

The Project Management Plan shall include the DB Team's plan for planning, organizing, staffing, directing, and controlling the day-to-day operations necessary for effective decision-making and Project performance.

2.2.3 Project Team Communications

Project Team communications shall be identified in the Project Management Plan.

2.2.4 Safety Plan

The DB Team shall submit to GDOT for acceptance a comprehensive safety plan ("Safety Plan") that is consistent with and expands upon the preliminary safety plan submitted with the Proposal. The Safety Plan shall fully describe the DB Team's policies, plans, training programs, Work Site controls, and Incident response plans to ensure the health and safety of personnel involved in the Project and the general public affected by the Project during the Term of the Agreement.

The DB Team's Safety Plan shall address procedures for immediately notifying GDOT of all Incidents arising out of or in connection with the performance of the Work, whether on or adjacent to the Project.

See Section 2.4 for additional requirements.

2.2.5 Construction Phasing Plan and Submittal Schedule

The DB Team may design and construct the Project in multiple phases. A Construction Phase is a portion (segment) of the overall Project. If the Project will be designed and constructed in multiple phases, then the DB Team shall provide a Construction Phasing Plan and Submittals Schedule for each construction phase within thirty (30) days from NTP 1.

The Construction Phasing Plan shall provide logical termini for each proposed segment or phase of the Work and must consider any phasing of required acceptances. For a given Construction Phase, the DB Team shall be allowed to either submit a complete set of drawings or make a series of Staged Design Submittals (components). The timing and content of Staged Design Submittals must be logical and shall include or be preceded by related items (e.g., bridge submittals must include or be preceded by related highway geometry; a bridge and its related retaining walls must be submitted together; etc.). The Submittals Schedule shall identify all proposed Staged Design Submittals and what components will be included in each.

The DB Team must obtain GDOT acceptance of the Construction Phasing Plan and the Submittals Schedule prior to providing any design submittals for GDOT review. In addition, a "Design Submittal Guide" including a proposed index of plan sheets for each Construction Phase must be submitted and accepted prior to providing any design submittal. Once accepted, this Design Submittal Guide shall be updated and provided with each subsequent design submittal. File naming of each plan sheet in a submittal shall correspond to the final index name of the plans for ease of reference to create the final set of drawings. The Design Submittal Guide shall also include all reports, specifications, studies, calculations, and supporting documents and information.

The DB Team has the right to propose phasing the design and construction of the Project to accelerate the schedule and provide added value. GDOT reserves the right to review, require revisions, or request additional conditions to the proposed phasing plan prior to acceptance. Each phase of the proposed plan will require an NTP. The Project Phasing

may be proposed during the procurement phase for the Project or after the issuance of NTP 1.

2.2.6 Public Information and Communications Plan

The DB Team shall support the execution of an approved Public Information and Communications Plan under GDOT supervision that includes stakeholder involvement and public information strategies to engage and inform key stakeholders. Refer to Section 2.7 for further information and requirements.

2.2.7 Comprehensive Environmental Protection Program

The DB Team shall develop, execute, and maintain a Comprehensive Environmental Protection Program (CEPP) for the Work to ensure environmental compliance with all applicable environmental laws and commitments. The DB Team's CEPP shall comply with the requirements of Section 4.3

2.2.8 Right of Way Acquisition Plan

The DB Team shall provide a Right of Way Acquisition Plan in accordance with Section 5.8, and shall provide Right of Way plans for any required Additional Properties identified in Section 7.2.

2.2.9 Demolition and Abandonment Plan

The DB Team shall develop a Demolition and Abandonment Plan for all existing structures, features, and utilities as described in Section 10.2 (types and sizes) that will be removed, abandoned or partially abandoned during the Term. The Plan shall ensure that said structures are structurally sound after the abandonment procedure. The Plan shall show the locations of all existing features that will be abandoned and shall show sufficient detail for the Abandonment.

2.2.10 Transportation Management Plan

The DB Team shall develop a Transportation Management Plan and a traffic control plan for each phase of its Work. The DB Team's Transportation Management Plan and the traffic control plans shall comply with the requirements of Section 18.

2.2.11 Construction Maintenance Limits Plan

The DB Team shall develop a Construction Maintenance Limits Plan; refer to Section 19 for additional requirements. The plan shall identify the physical boundaries of the DB Team's maintenance responsibilities for the construction Work during the Design–Build Period. If the DB Team decides to use part of the facility outside of the specified maintenance limits by any means, such as lane/shoulder closures, staging, or any other activity, the DB Team will be obligated to maintain and repair any element affected as required above, and the Construction Maintenance Limits Plan shall be revised to incorporate the new maintenance limits.

2.2.12 Maintenance Management Plan

The DB Team shall develop, implement, and maintain, for the Term, a Maintenance Management Plan for routine maintenance of all existing infrastructure as described in Section 19.3. The Plan shall identify maintenance elements, frequency of monitoring and inspection, levels of importance (emergency, urgent, periodic/routine), processes and repair and/or execution periods per the standards in Section 19. The DB Team shall provide the information in tabular format for ease of review and monitoring.

2.2.13 Hazardous Materials Management Plan

The DB Team shall develop, execute, and maintain a Hazardous Materials Management Plan (HMMP) for the Work to ensure compliance with all applicable environmental laws and commitments dealing with hazardous materials. The DB Team's HMMP shall comply with the requirements of Section 4.4

2.3 Quality Management Requirements

2.3.1 General

Personnel assigned to perform independent design reviews, inspection, testing, or monitoring of characteristics for quality control shall not be those personnel performing or directly supervising the Work being accepted. The DB Team's Quality Assurance Manager and quality control staff shall have no responsibilities in the production of the Work.

The Quality Assurance Manager shall prepare a monthly report of the quality reviews, inspections and tests performed, results of such reviews, inspections and tests, and occurrences and resolution of non-conformance discoveries. The DB Team shall submit the monthly reports to GDOT for review.

The DB Team's Quality Assurance Manager and quality control manager(s) shall have the authority to stop Work for quality-related issues. The DB Team shall conduct all work necessary to meet the requirements of the DB Document and this Section 2.3 and to satisfy all functional needs and characteristics of the quality assurance program, including Quality Control (QC), Quality Acceptance (QA), and quality improvement.

The DB Team is responsible for all aspects of quality related to all aspects of the Work. The approach to quality shall be developed in the DB Team's quality program. The DB Team's quality program shall be documented in a Quality Management Plan (QMP). The DB Team shall create the quality program and develop the QMP in cooperation with the independent Construction Quality Assurance Firm (CQAF) and GDOT.

Inspections, reviews, and testing shall only be performed by entities prequalified by GDOT and having satisfied all training, qualifications, and certifications requirements; and done using equipment that is accurately calibrated and maintained in good operating condition at an AASHTO Materials Reference Laboratory (AMRL) accredited facility

(AASHTO R18, Establishing and Implementing a Quality System for Construction Materials Testing Laboratories).

Materials and equipment installed as part of any permanent construction shall be new, unless otherwise specified. The DB Documents contemplate the use of first-class materials and equipment throughout the performance of the Work, and it is agreed that any material for which no particular specification is given shall be of the highest quality of its class or kind. For the purpose of this provision, "new" shall mean purchased specifically for the Project for which award was made.

The CQAF shall be responsible for notifying GDOT of any deviations from the approved Disadvantaged Business Enterprise ("DBE") requirements, (including any DBE contractor substitutions and DBE-awarded Work performed by unauthorized entities), potential Equal Employment Opportunity ("EEO") related issues, and documenting the corrective action being taken by the DB Team. The DB Team has the sole responsibility for and controls the Work.

2.3.2 Quality Management Plan

The QMP shall define all processes used by the DB Team to ensure that all disciplines, aspects, and elements of the Work will comply with the requirements of the DB Documents, including Attachments 2-1 and 2-2; and that all materials incorporated into the Work will perform satisfactorily for the purpose intended. The DB Team shall implement the QMP for all elements of the Project, including for administration and management, design, construction, and environmental compliance. The QMP shall be in effect until Final Acceptance and address the responses to Warranty issues during the Warranty period.

The QMP shall describe, in detail, the quality processes for all aspects of the Work, including internal checks, reviews, audits, assignments for responsibility and authority, and resolutions to occurrences of non-conformance to Contract requirements. The QMP shall address the responsibility, approval authority of GDOT and outline processes for resolving GDOT comments and securing appropriate approvals and acceptances, as well as resolving all issues related to elements of Work that do not comply with the Contract.

2.3.2.1 Quality Policy

The QMP shall contain a complete description of the quality policies and objectives that the DB Team will implement throughout its organization. The policy shall demonstrate the DB Team senior management's commitment to implement and continually improve the quality management system for the Work. The quality policy shall demonstrate the DB Team's understanding that 1) the quality assurance function is acceptance and shall be outside of production and given significant authority; and 2) the quality control functions are the processes, procedures, testing, and inspections used to prepare a product for acceptance. Objectives shall be specific to the Project and the DB Team's quality

commitment to GDOT relative to the Project. It shall not be a restatement of the quality policy of the DB Team or one of its Affiliates from other projects.

2.3.2.2 Quality Management Plan Requirements

The DB Team shall submit a comprehensive QMP to GDOT for approval that is consistent with and expands upon the preliminary QMP submitted with the Proposal and that conforms to the Construction Quality Assurance Program procedures in Volume 3, Attachment 2-2 and the provisions of 23 CFR 637 Subpart B. All audits, findings, and reports shall be provided to GDOT timely and no later than on a monthly basis.

The DB Team shall develop, implement, and maintain the QMP until Final Acceptance. The QMP shall describe the system, policies, and procedures that ensure the Work meets the requirements of the DB Documents and provides documented evidence of the same.

The QMP shall encompass all Work performed by the DB Team, its Affiliates, and Contractors and Subcontractors of all tiers.

The QMP shall contain detailed procedures for the DB Team's Quality Control (QC) and Quality Acceptance (QA) activities. The DB Team's quality processes shall incorporate planned and systematic verifications and audits undertaken by the Construction Quality Assurance Manager (CQAM) as an independent party. The DB Team shall conduct all QC, QA, performance verification, and design overlay and coordination among design disciplines in accordance with the QMP and the requirements of the DBA.

2.3.3 Quality Management Plan Structure

The DB Team shall organize the QMP in accordance with, and shall include the topics described in, the following outline:

1. Quality policy
2. Quality objectives
3. Resources for each section of the QMP (project, design, and construction)
4. Procedures
5. Work instructions

The QMP shall include written procedures that describe the purpose, overview, responsibilities, and steps of the quality system process, and records resulting from the process. The QMP shall include flow charts or other graphical representations showing the organization and participants of the quality program, all quality processes and their relationship to each other, inspection and test controls, and an accompanying narrative of each.

2.3.3.1 Project Quality Management Plan

The Project QMP will include the quality policy statement and will include plans, actions, processes, and procedures for the DB Team's QC and QA for the administration and management of the Project, including for:

1. Organizational requirements and contact information of the DB Team's organization;
2. Roles and responsibilities of the quality team;
3. Administrative processes and procedures common to both design and construction quality management;
4. Independent auditing of administrative and management processes;
5. Contract compliance;
6. Quality records management processes and procedures;
7. Document control processes;
8. A comprehensive noncompliance process; and
9. Certification process for all Payment Requests and Completion Deadlines.

The Project portion of the QMP shall address and be applied, and shall describe how it is applied, to the development, transmittal, and final resolution of all submittals required by the DB Documents, including for all Project Management Plans, Project Schedules and other required schedules, monthly reporting, and monthly Payment Requests.

2.3.3.2 Design Quality Management Plan

The Design Quality Management Plan (DQMP) shall be submitted for GDOT review and approval prior to the start of design. No design Submittals shall be provided until the DQMP is approved by GDOT. The DQMP shall include both the quality responsibilities of the Design Quality Assurance Manager (DQAM) and the independent responsibilities of the QAM. The DQMP shall be specific to each stage of design development. The DB Team shall make a single independent, comprehensive design check and design review for every Submittal. The DB Team shall provide plans in accordance with the Plan Development Process (PDP), Electronic Data Guidelines (EDG), and the Plan Presentation Guide (PPG) and Manuals for GDOT reviews. Any deviation of software versions from the Technical Provisions used in producing the plans will be allowed under the condition that the DB Team provides the software, access to software licenses, and training for use of the proposed software.

The DQMP stages of design development per the approved Construction Phasing Plan (see Section 3) are:

- Preliminary Design Documents for each approved Construction Phase;
- Final Design Documents for the Staged Design Submittals;

- Final Design Documents for the approved Construction Phase; and
- Record Drawings.

The DQMP will include plans, actions, processes, and procedures for the DB Team's QC and QA for all design aspects of the Project, including for:

1. Design development, including checking, peer review, cross-discipline coordination for developing Project plans and Project specifications, material quantities, and estimates with supporting technical documentation.
2. Managing design reviews and changes during design and construction.
3. Independent design reviews and checks on major, permanent structural components.
4. Design decision making.
5. Design communication, coordination, and collaboration.
6. Design document control and Submittals.
7. Managing GDOT reviews and responses.
8. Design and engineering observation of and support during construction, witnessing of tests, reviewing quality inspection and test records, responding to Request for Information (RFIs) applications, and making post-Released for Construction (RFC) design and field changes.
9. Independent auditing of design quality management.
10. Design criteria adherence.
11. Non-compliance management.

The QMP shall outline a process to maintain a written record of all design reviews.

The written record shall include for each design review:

1. A list of the participants in each review or visit.
2. The meeting agendas and minutes.
3. A report of all items discussed.
4. Identification of discrepancies noted and reports on corrective action(s) taken or planned.
5. Identification of follow-up action items, due dates, and the responsible party for each.
6. Identification of items needing resolution and time constraints for resolution for each item.

The DB Team shall provide reports of design reviews and comment resolution processes within three (3) Calendar Days of the completion of the review.

The DQMP shall specify detailed quality procedures for coordinating design performed by different persons, firms, or disciplines on related tasks, in the same geographic area, or in adjacent geographic areas of the Project to ensure that no conflicts, omissions, or misalignments occur, and to ensure environmental compliance.

The DQMP shall include specific procedures for verifying computer programs used and their output, and the processes and procedures that the DQAM employs to demonstrate that the QMP is understood and followed by the design personnel and shall clearly identify the design engineer and checker on all design documents.

The DQMP shall outline the design, review, and approval method for issuing notice of design changes and field design changes (after plans have been Released for Construction). Design changes are new items of work that were not included in the review packages. New items must go through a design review process even if they appear on existing plan sheets.

In the DQMP, the DB Team include a process to propose, notify, receive, track, respond to, and distribute design changes, and to identify the general goal, the participants and their associated responsibilities, and a work process for each change. The DQAM shall review all design changes. GDOT shall be invited to all reviews. The DQAM, in coordination with GDOT, will jointly determine the procedures and timing of reviews, with the mutual understanding that a timely and expeditious design change process may benefit all parties, balanced with the quality of the end product.

2.3.3.3 Independent Design Review and Checks

The DQAM, through the DB Team, shall provide to GDOT and the Utility Adjustment Team (UAT) a plan and written procedures for the independent design check. An independent design check shall be provided for each design Submittal prior to being submitted to GDOT. The DB Team shall provide all comments and comment responses between the DB Team's EOR and the DQAM's independent design review for each Submittal review. GDOT will not initiate any design Submittal Review before the DB Team submits all comments and comment responses between the DB Team's EOR and the DQAM's independent design review.

Independent design checks are comprised of design assessments and analytical checks as follows:

Design Assessment – a review of general compliance with the requirements of the DBA, including taking into consideration the following areas:

1. Project design criteria
2. Applicable codes and standards
3. Methods of analysis

4. Computer software and its validation
5. Interface requirements
6. Materials and material properties
7. Durability requirements
8. Constructability
9. Context Sensitivity
10. Environmental compliance
11. Any required Design Exceptions or Variances

The DB Team shall submit to GDOT, and FWHA as appropriate, all requests for Design Exceptions and Design Variances, including justification and supporting documentation, for review and approval.

Analytical Check – a review using separate calculations (and without reference to Designer's calculations) to establish the structural adequacy and integrity of critical structural members. This includes, but is not limited to the following:

1. Structural geometry and modeling
2. Material properties
3. Member properties
4. Loading intensities
5. Foundation loads
6. Structural boundary conditions

2.3.3.4 Construction Quality Management Plan

The Construction Quality Management Plan (CQMP) shall include a description of the roles and responsibilities of both the DB Team's QC staff, QA staff, and GDOT, and shall incorporate the requirements of GDOT's Construction Quality Assurance Program Attachment 2-2 for the Project, and as summarized herein.

The Construction QMP shall address all requirements of the Construction Quality Assurance Program and include an Inspection and Test Plan for all the proposed QA inspections and tests to be performed throughout the construction process. The CQAM shall review and approve all Inspection and Test Plans.

The Construction QMP will include plans, actions, schedule, processes, and procedures for the DB Team's QC and QA for the Construction Work, including:

1. Construction inspection, testing, management, and administration;
2. Tracking, Measuring, and documenting construction progress;

3. Construction decision making;
4. Ensuring that only the most up-to-date Released for Construction documents are being used;
5. Plans and protocols for inspection, testing, and maintaining quality certifications;
6. Managing reviews and responses to construction documentation (RFIs, field changes, design changes, construction changes, claims, etc., during construction);
7. Managing and tracking approved construction changes;
8. Managing and controlling construction schedule;
9. Construction communication, coordination, and collaboration;
10. Construction documentation requirements and management, including for daily reports; Non-Conformance Reports; responding to Request for Information (RFIs) applications; QA and QC inspection checklists; materials testing Reports; and Traffic Control Supervisor's daily reports;
11. Environmental compliance;
12. Independent auditing of construction quality management, as well as quality oversight processes and procedures; and
13. Non-compliance management and resolution.

In addition, the Construction QMP shall:

1. Describe all of the material receiving, in-process, and final inspection and tests to be undertaken.
2. Identify what products or services are to be subcontracted or supplied that require QMP training.
3. Describe the process to verify compliance with requirements by Contractors and Subcontractors of all tiers.
4. Identify who within the Construction QC and QA organization has stop Work authority.

QMP forms and checklists shall be used to facilitate and document QA efforts, including pre-work activity checklists that depict all items required to perform the particular design, construction, or operational efforts such as: means and methods, subcontractor involvement, materials, and inspection and testing requirements.

2.3.3.5 Submittal Requirements

The DB Team shall obtain GDOT's approval of the QMP in two stages: first, for all non-Construction Work related procedures and plans (Stage 1); second, for all elements of the Work, including Construction Work-related procedures and plans (Stage 2).

GDOT will deliver its approval or disapproval and provide comments on the QMP submission within thirty (30) Calendar days following GDOT's receipt of the QMP. The DB Team shall revise its QMP within seven (7) Calendar days upon notification by GDOT of its disapproval or receipt of comments. Each subsequent submittal or iteration of the QMP shall include the same review duration for GDOT and revision duration for the DB Team.

The Stage 1 QMP, shall be submitted to GDOT for review no later than thirty (30) days after NTP 1 and no administrative or design Submittal will be reviewed by GDOT until Stage 1 of the QMP is approved. NTP 3 will not be issued and no Construction Work can commence until the entire QMP is approved.

2.3.3.6 GDOT Access and Quality Reporting

The QMP shall incorporate all GDOT access and the DB Team reporting requirements of the DB Documents, including the following:

1. The DB Team shall immediately file all quality documentation and make all quality records available to GDOT at all times and shall provide GDOT with a hard copy of any and all quality records within twenty-four (24) hours of when requested.
2. The DB Team shall submit to GDOT the results of all internal audits within seven (7) days of their completion.
3. The DB Team shall promptly submit to GDOT non-conformance reports, but no later than twenty-four (24) hours of their issuance and again from their resolution.

The QMP shall outline a reporting process for recording, organizing, and distributing a record of internal quality activities. Quality reports shall be distributed to the DB Team's and GDOT's management personnel. Reports must be prepared and submitted monthly with the progress reports. These reports shall include a summary of all internal quality activities for the reporting period, and the status of any Non-Conformance Reports (NCRs) issued or unresolved during the reporting period. The reports shall also include a summary of Quality improvements, and include all proposed or actual corrective actions suggested or taken by the DB Team and the associated GDOT responses.

2.3.3.7 Quality Management Plan Updates

After the QMP has been approved, the QMP shall be subject to changes from time to time (including clarifications, modifications, additions, and deletions), which may be initiated by the DB Team, the CQAM, or GDOT. Such changes initiated by GDOT are made under GDOT's approval authority and may result in the DB Team expending additional

resources and time to comply with the revised QMP. No such change constitutes a Compensation or Relief event and is not eligible for additional compensation or time extension. Any revisions to the QMP initiated by the DB Team or CQAM requires prior GDOT approval. Upon GDOT approval, the revised QMP shall then be in effect.

The DB Team shall regularly maintain and update the QMP to ensure it is accurate and up-to-date, including for the following information:

1. The organizational chart identifying all quality management personnel, their roles, authorities, and line reporting relationships.
2. Names and descriptions of the roles and responsibilities of all quality management personnel and including which have the authority to stop Work.
3. Identification of testing agencies, including information on each agency's capability to provide the specific services required for the Work, certifications held, equipment, and location of laboratories.

The QMP shall be conformed and updated annually. The DB Team shall revise its QMP within fourteen (14) days of GDOT or DB Team detection of a substantial or systemic problem related to the Work, or as directed by GDOT. Submissions of the QMP and all updates to the QMP shall include both a clean copy and a copy tracking all changes since the previous approval.

2.3.4 Nonconforming Work and Corrective Action

The QMP will identify a process for documenting, reporting, and tracking all elements of the Work in a manner consistent with ISO 9001 that have not conformed, or are believed not to conform, to the requirements of the DB Documents. NCRs shall be issued as a result of such non-conformances. Examples of nonconformance include: physical defects; test failures; incorrect or inadequate documentation; or deviation from the design processes, inspection, or test procedures described in the Project QMP. The process developed within the QMP shall address the tracking and reporting of issuance, comments and discussions, and ultimate resolution of all NCRs.

2.3.4.1 General

The QMP will identify the process for responding to all NCRs. The NCR remediation process will include a report which clearly describes the element of Work that is non-conforming, the reason for the non-conformance, and details the remedial actions proposed (rework or repair) to achieve conformance to the Contract requirements. Any proposed remediation shall be approved by GDOT prior to it being performed. The remedial actions employed will undergo the same level of inspection and testing as required for the original Work.

GDOT will implement and the DB Team must use a PMCS, which will have the capability for documenting and implementing the NCRs, that includes the description of the NCR,

corrective action, action to prevent, the defined roles, dispositions, tracking log, and work-flow states.

The DB Team shall provide a full description of the NCR's nature, date, location, and any other pertinent facts, and also indicate the root cause, corrective action(s), and other action(s) to prevent its recurrence. The responsible organization shall submit a proposed disposition to GDOT of the Nonconforming Work that has been reviewed and approved by the DB Team's Quality Assurance Manager (QAM) and EOR. If the disposition is not accepted by GDOT, the NCR will remain opened until the disposition is accepted by GDOT.

The QAM will maintain a log of all NCRs and submit it weekly to GDOT. Number each NCR sequentially and provide a brief description and status.

2.3.4.2 Initiating an NCR

The DB Team, including individuals performing any QC or QA function, SRTA and GDOT can initiate an NCR. Only the initiating party may close an NCR they initiated. The Originator closes the NCR document once all requirements have been met. An NCR cannot be closed until all requirements have been met and the disposition approved by GDOT.

Table 2-2: Non-Conformance Report Workflow States

State	Description
Draft	Indicates that the NCR is being written.
Active	Indicates that the NCR has been submitted to the DB Team, which shall provide causes, corrective actions, actions to prevent recurrence, and a disposition for the Nonconforming Work.
Pending Review/Correction	Indicates that the DB Team has responded with a proposed disposition, and the disposition is under review. The document is routed to appropriate parties for approval of the disposition.
Pending Closure	Indicates that the Nonconforming Work has been corrected, and the DB Team is waiting for inspection, verification and closure.
Closed	Indicates that the nonconformance has been resolved satisfactorily, and the NCR is closed.

2.3.4.3 Disposition Options

After an NCR is initiated, the initiating party provides a proposed disposition. Options available for the disposition are:

- Reject – The Work is unsuitable for its intended use and incapable of being reworked or repaired to meet the specified requirements of the DB Documents.
- Rework – The deficiency can be brought into conformance with the DB Documents through re-machining, reassembling, reprocessing, reinstalling, or completing the required operations. In cases of rework, an inspection is required after completion to verify the rework is satisfactory.
- Repair – Action is required that will result in making the Work acceptable for its intended use, as determined by an engineering evaluation, although the item might not meet all of the requirements of the DB Documents. In cases of repair, an inspection is required after completion to verify the rework is satisfactory. If the repair does not meet all of the requirements of the DB Documents, it may be subject to a deduction for non-conforming Work, upon the discretion of GDOT.
- Accept-as-is – Allows the use of the Work completed that does not meet all requirements of the DBA, but it is determined by engineering evaluation that the Work will satisfy its intended use. If the Work is Accepted-as-is and does not meet all of the requirements of the DB Documents, it may be subject to a deduction for non-conforming Work, upon the discretion of GDOT.

2.3.4.4 Corrective Action

In addition to the resolution of a nonconformance on an individual basis, the corrective action process will urgently recognize, report, and resolve systemic and serious deficiencies, including:

- Repetitive NCRs that indicate inadequacies in either production processes or inspections.
- Issues of safety or conditions likely to have a significant effect on the Project.
- Quality procedures not being carried out in a timely fashion.

The Corrective Action mechanism will address the possibility that the personnel responsible for the relevant activity might be a primary cause of the deficiencies. Remedial action might involve additional training and, in some cases, removal of personnel or Contractors or Subcontractors from the activity or Project.

2.3.5 Quality Terminology

Quality terminology, unless defined or modified elsewhere in the DB Documents, shall have the meaning defined in ISO 9001. Terms used in ISO 9001 shall have the meanings defined below:

- Organization: The DB Team's organization, including any Affiliates and Contractors.
- Customers: The Users of the roadways, GDOT, SRTA, and Customer Groups.

2.3.6 Quality Organization

The DB Team shall provide QA and QC for management, design, and construction of the Project, and verify that all environmental and permit commitments are met to ensure the Work conforms to the DB Document requirements. The QMP shall detail the quality organization.

In preparing the QMP, the DB Team shall ensure that the QMP complies with the applicable environmental requirements and the GDOT and AASHTO publications listed in these Technical Requirements. The DB Team shall revise the QMP and its implementation when repetitive or recurring quality issues arise.

The DB Team's QMP shall include an organizational chart of the QA and QC personnel, or quality team, including the Project QAM, the CQAM, the DQAM, the QC manager/superintendents, personnel in charge of QA and QC activities, and any other personnel the DB Team acknowledges as having significant quality-related responsibilities from the DB Team to the quality team. The QMP shall list the number of full-time equivalent employees, specific responsibilities for each employee, and the lines of authority and reporting responsibilities.

This organizational chart shall be updated to reflect any changes in QA and QC personnel as the Project progresses.

2.3.7 Responsibility and Authority of The DB Team Staff

The personnel and organizations performing QA functions shall have sufficient authority and organizational autonomy to identify quality issues, and to be able to initiate, recommend, and verify implementation of Corrective Action plans. Personnel performing QA functions shall be at an organizational level that ensures they will not be influenced by the impact of the QA measures on the Project schedule, performance, or cost. The QMP shall list by discipline the name, qualifications, applicable certifications, duties, responsibilities, and authority for all personnel proposed to be responsible for QA and QC. Personnel performing QA functions shall not be assigned to perform conflicting duties.

The DB Team's QA team is responsible for obtaining all documentation necessary for approval and acceptance of materials; obtaining materials certifications as required; ensuring that all required materials testing is completed; and ensuring that all test results meet the DB Document requirements. The DB Team's QA team shall inspect all Work and ensure that sufficient QA staff is present to determine whether the Work complies with DB Document requirements, in accordance with the process required in the Contract Documents and the approved QMP.

Personnel assigned to perform inspection, testing, or monitoring of characteristics for QC shall not be those personnel performing or directly supervising the Work being accepted. The DB Team's QAM and QA managers and staff shall have no responsibilities in the production of the Work.

The QAM shall prepare a monthly report of the quality inspections and tests performed, results of such inspections and tests, and occurrences and resolution of non-conformance discoveries. The DB Team shall submit the monthly reports to GDOT for review.

The DB Team's QAM, CQAM, DQAM, and QC Manager(s) shall have the authority to suspend all or a portion of the Work because of quality-related issues.

2.3.7.1 Project Quality Assurance Manager

The DB Team shall designate a Project Quality Assurance Manager (QAM) who shall be responsible for developing and updating the QMP, ensuring that all elements of Work are performed in accordance with the DB Documents, and ensuring adequate staffing and expertise is being utilized for the DB Team's QA and QC efforts.

The Project QAM shall report directly to the person or group with overall Project management responsibilities such as the Project Manager, an off-Site principal with binding authority for the DB Team, or an executive oversight committee established for the Project. The QAM could be an employee of the DB Team or be the DQAM, but cannot be the Construction QA Manager.

Minimum Qualifications

The Project Quality Assurance Manager shall be a Licensed Professional Engineer in the State of Georgia and have at least ten (10) years of recent experience in the management of major urban freeway projects, including five (5) years managing a quality management program.

2.3.7.2 Design Quality Assurance Manager

The DB Team shall designate a Design QAM (DQAM) who shall have overall responsibility for the design portion of the QMP. Through audits, the DQAM shall be responsible for verifying and validating that the QA and QC procedures required by the QMP are administered and being followed. The DQAM shall audit design packages for both temporary and permanent Work. The DQAM shall report to the Project QAM. The DQAM could also be the Project QAM, but cannot be the CQAM.

In accordance with this Section 2.3.7.2 and the QMP, the DQAM shall certify that all Design Documents have been subjected to all required QC checking procedures; all documentation has been completed and filed in an acceptable manner; and all design packages have been subjected to a QA audit prior to submittal to GDOT or prior to release.

Minimum Qualifications

The DQAM shall be a Licensed Professional Engineer in the State of Georgia and have at least ten (10) years of recent experience in the design or quality management of major urban freeway projects. Generally, the DQAM must have equal or greater qualifications and experience as the EOR.

2.3.7.3 Design Quality Assurance Firm

The DB Team shall employ an independent Design Quality Assurance Firm (DQAF), which will be led by a Design Quality Assurance Manager (DQAM) and provide design review personnel to perform 100% reviews of the Design documents, including independent design checks on the Design Documents, which includes design assessment and analytical checks. The independent design review personnel may not be involved in the production of the design being reviewed and shall either be employed by a different engineering firm than the EOR, or if employed by the same engineering firm, the independent design review personnel and DQAM must be appropriately firewalled from the design production. The DQAM could also be the Project QAM (in which case the QAM must be an independent quality management firm) but cannot also be the CQAM.

2.3.7.4 Construction Quality Assurance Manager

The DB Team shall employ an independent Construction Quality Assurance Firm (CQAF) who shall be led by a Construction Quality Assurance Manager, who shall have overall responsibility for development and implementation of the construction portion of the QMP. The CQAM shall be responsible for implementing, monitoring, and adjusting the processes to ensure acceptable quality. The CQAM shall report directly to the Project Quality Manager. The CQAM could also be the Project Quality Assurance Manager (QAM) (in which case the QM must be an independent quality management firm) but cannot also be the DQAM.

It is the responsibility of the CQAM to implement quality planning; oversee the QA testing and inspection; and coordinate with GDOT's verification testing, inspection, and Independent Assurance (IA) requirements. All duties listed for the Project CQAF shall be the responsibility of the CQAM or designee. The CQAM shall not be assigned to perform conflicting duties on the Project. The CQAM is an oversight position, therefore, shall not perform testing or inspection duties. The CQAM shall have the authority to stop any Work that does not meet the standards, specifications, or criteria established for the Project.

The CQAM or a designated Assistant CQAM shall be on the Project at all times Construction Work is being performed or available so that they can be on the Project Site within 2 hours of being notified of a problem regarding the QA of any Work being performed by the DB Team, or any of its subcontractors or agents.

Minimum Qualifications

The CQAM shall have a minimum of ten (10) years' experience in construction quality management overseeing the inspection and materials testing on major highway construction projects. The CQAM shall be a Licensed Professional Engineer in the State of Georgia.

2.3.7.5 QA Staffing and Training

Quality personnel, including employees of the DB Team and CQAF and its subconsultants shall have been trained in the applicable procedures for inspection of the Work, environmental monitoring, and material sampling and testing. The professional training and experience of the quality personnel shall be commensurate with the scope, complexity, and nature of the activity to be checked, inspected, monitored, or tested.

2.3.8 Design Quality Management

2.3.8.1 Design Quality Requirements

The DB Team is solely responsible to provide Project Design Documents of such a nature to deliver the finished construction Work in accordance with all DB Document requirements. GDOT comments pertaining to Design Documents shall not relieve the DB Team of that responsibility. The DB Team shall not begin Construction Work until all GDOT comments on the applicable design Submittal are resolved to the satisfaction of GDOT, and the plan is issued as an RFC.

The DB Team shall assign a Design Quality Assurance Manager that shall be responsible for the supervision and quality of all Design Work and design processes, including the following:

1. Accuracy
2. Adequacy
3. Conformance to professional standards of practice
4. Compliance with all legal requirements and standards mandated by the DBA
5. Cost effectiveness
6. Quality
7. Fitness for purpose and function as specified or implied in the DB Documents

At GDOT's discretion, GDOT will perform periodic audits of the DB Team's design quality management at a frequency no less than monthly.

2.3.9 Construction Quality Management

The Construction Quality Assurance Program (CQAP) established by the Georgia Department of Transportation (GDOT) validates that materials and workmanship incorporated into the Project are in reasonable conformance with the approved plans and specifications, including any approved changes. Prior to the commencement of any construction activities, the Design-Build (DB) Team shall develop and implement a Construction Quality Management Plan (CQMP) for all phases of construction that addresses all components of the CQAP.

The CQAP consists of three main components; a Quality Control (QC) Program, an

Acceptance Program and an Independent Assurance (IA) Program. The Acceptance Program is further delineated into Quality Acceptance (QA) and the Owner Verification (OV).

2.3.9.1 Quality Control Program

The DB Team shall be fully responsible for the quality of the Work, QC, and for all QC activities specified by the DB Documents. The DB Team's QC portion of the CQMP shall include the internal procedures used by the DB Team that will ensure that the Work is delivered in accordance with the released-for-construction plans, shop drawings, working drawings, and specifications (as applicable). The DB Team's CQMP shall establish a systematic approach to define the processes, methods, procedures, and documentation for delivery of QC on the Project. These methods and procedures shall clearly define the authority and responsibility for the administration of the DB Team's QC plan. The DB Team's QC shall not be part of the acceptance program.

2.3.9.2 Control Point Inspections

A control point is a point in time when construction has proceeded to a defined stage and at which representatives of the DB Team's production, QC, and QA staff determine the conformance of the Work to that point. GDOT shall be invited to all control points, with notice of each control point provided three (3) days prior to the expected inspection time and 24 hours in advance of the actual inspection.

The Construction Quality Assurance Program document provides a list of control points. The QMP shall specify processes for monitoring the progression of Work, including associated quantities of materials, through the tracking of control points. The process should be designed to aid in progressing Work, verifying payments, and avoiding duplicate inspection, testing, and reporting. The DB Team shall provide a 6 week look ahead schedule listing the upcoming Work to be inspected.

GDOT or the DB Team may identify additional control points to be included at any time throughout the Project. GDOT and the CQAF will coordinate to define the procedures and criteria for additional control points.

2.3.9.3 Reserved

2.3.9.4 Quality Acceptance Program

GDOT has chosen to transfer the responsibility for the acceptance of the sampling and testing to the DB Team and to use their results. The CFR requires the verification of the acceptance results by GDOT or its representative. The Construction Quality Assurance Program allows for the use of the DB Team's performed construction Quality Acceptance (QA) firm test results as part of an acceptance decision if the QA results are verified or validated by Owner Verification (OV) test results performed by GDOT/OVF. Both testing results, OV and QA together, are the basis for the acceptance decision. GDOT will provide acceptance (provisional until issuance of Final Acceptance) when test results are statistically validated or verified by the Owner's Verification Firm (OVF) results.

2.3.9.4.1 Construction Quality Assurance Firm

In the Construction Quality Assurance Program, the DB Team-performed acceptance is the front-line sampling and testing, and inspection is performed through a CQAF hired by the DB Team. The verification will be performed by GDOT or its Owner's Verification Firm (OVF).

The following summarizes or further develops the components and requirements for the Construction Quality Assurance Program:

1. The CQAF shall meet the requirements in Attachment 2-2 (Construction Quality Assurance Program), sampling and testing per the STI Quick Guide in Attachment 3-1 Manuals, and Attachment 2-1 (CQAF Construction and Engineering Services), and as required by the DB Documents. The DB Team is required to provide independent (other than the contractor performed) inspection and testing services throughout the Term of the Agreement as provided in Attachment 2-1. The DB Team shall provide a copy of the CQAF contract prior to execution for approval by GDOT and shall provide a copy of the final executed CQAF contract to GDOT, including a full scope statement and showing the contract price within thirty (30) days of NTP 1 and prior to submittal of any management or design Submittal. The DB Team shall utilize Attachment 2-1 as a guideline for the contract with the CQAF consultant.
2. The DB Team shall also include the cost of the total CQAF services contract as part of their preliminary Schedule of Values provided with their Proposal. The total contract cost for the CQAF services shall not be less than 4.5% of the DB Team's CONSTRUCTION COMPLETE bid item. The DB Team is not entitled to any cost savings from reducing the CQAF level of effort so that the total cost of CQAF services is less than 4.5% of the Construction Complete amount. The DB Team shall enter into a lump-sum contract for the CQAF services, which shall not contain any clause or mechanism for reducing the services to be performed by the CQAF. If the total amount paid to the CQAF for its services is less than 4.5%, the difference will be deducted by SRTA from the Final Payment.
3. The DB Team shall only terminate the CQAF contract or remove any of the personnel provided under the CQAF services by written direction from GDOT, at its sole discretion.
4. The DB Team's QA portion of the CQAP shall include all the internal procedures used by the DB Team's QC and QA as performed by the CQAF to ensure that the Work is inspected and tested to verify compliance with the RFC plans, approved shop drawings, working drawings, and specification.
5. The DB Team's QA shall be separate from the DB Team's QC program.
6. The CQAF must not be owned by or be an affiliate of the DB Team, any principal participant, or construction subcontractor.

7. The DB Team's CQAP shall establish a systematic approach to define the processes, methods, procedures, and documentation for delivery of QA on the Project. These methods and procedures shall clearly define the authority and responsibility for the administration of the DB Team's CQAP.
8. Disputes over specific test results may be resolved in a reliable, unbiased manner by Referee Testing (RT) according to the requirements of the Construction Quality Assurance Program and evaluation performed by a referee laboratory. The referee laboratory shall be the GDOT laboratory or an AMRL/CCRL-certified testing laboratory designated by GDOT.
9. Based on the System-based Independent Assurance (IA) Program, as per Section 4 of the Construction Quality Assurance Program, GDOT's IA engineers shall evaluate all DB Team technicians and their equipment at least annually.

2.3.9.5 Owner Verification

Owner Verification (OV) will be performed by GDOT personnel or its representative. GDOT's representative will perform OV sampling and testing and inspection as part of the CQAP, through an OVF. The OVF requirements and responsibilities are described in the CQAP. The OVF will use the current monthly Materials CompStat meeting and continuous process improvement to manage the materials acceptance process. This process shall include the performance and approval of OV tests, review of QA test results, performance of statistical analysis on OV and QA test results, and any associated tasks arising out of the statistical analysis.

2.3.9.6 Statistical Analysis

For Statistical Analysis, sampling is either random or fixed, depending on whether the location was selected randomly (random) or if a specific location was subjectively identified (fixed). Sampling is also either independent or dependent, based on whether the location was independently selected (independent) or based on the location of another sample (dependent/split). The F- and t- tests are only valid when using random independent samples. A comparison process for performing and analyzing split samples between GDOT (OV testing) and CQAF (QA testing) may be utilized during the initial implementation of the CQAP. These samples will be analyzed by GDOT, and the results will be discussed with the CQAF to assure laboratory and technician test results compare favorably. When acceptable tolerance is exceeded, corrective actions for either or both parties will be identified, and corrective actions will be incorporated as appropriate. This process will help provide initial alignment of GDOT and CQAF laboratories and testing procedures. Split samples may also be performed throughout the life of the Project as necessary to investigate non-validating material categories and verify or realign testing equipment and personnel.

F-tests and t-tests may be used when sufficient data is available to analyze OV and QA data. The F-test is a comparison of variances to determine if the OV and QA population

variances are equal. The t-test is a comparison of means to determine if the OV and QA population means are equal. All significant failures are to be discussed at a monthly Material CompStat meeting. In addition to these two types of analyses, independent verification and observation verification will also be used to validate the QA test results.

2.3.9.7 Independent Assurance

GDOT will implement the IA Program, as per Section 4 of the Construction Quality Assurance Program (Attachment 2-2), which provides an independent verification of reliability of the acceptance (or verification) data obtained by the agency and the data obtained by the DB Team. The results of IA testing are not to be used as a basis of acceptance. IA provides an assessment of certified sampling and testing personnel and information for quality system management. This IA Program evaluates all sampling and testing procedures, personnel, and equipment used as part of an acceptance decision. The IA Program evaluates the qualified sampling and testing personnel, as well as testing equipment and is established using the system approach. The system approach bases frequency of IA activities on time (regardless of the number of tests), quantities of materials, or numbers of projects tested by the individual being evaluated. This program provides uniform statewide procedures to ensure that tests are performed by qualified personnel and that laboratory facilities and equipment are adequate to perform the required sampling and testing methods.

2.3.9.8 FHWA Reporting

GDOT will submit quarterly reports to FHWA to demonstrate compliance with the approved CQAP. GDOT will submit an Annual IA report to FHWA.

2.3.9.9 Environmental Compliance

The QMP shall describe the methods, processes, and procedures to provide for the effective implementation and documentation of the environmental protection, training, compliance, and monitoring program. The DB Team, through the QMP, shall be responsible for the quality of Work, including the workmanship and products of Affiliates, Contractors, Subcontractors, fabricators, suppliers, and vendors for environmental compliance monitoring per the CEPP.

2.3.9.10 Construction Quality Acceptance (QA) Inspection

All Construction Work processes, procedures, and workmanship shall be inspected by the DB Team's CQAF. Inspection shall include the observations, measurements, and documentation specified in the DB Team's CQAP and the DB Documents. Inspection, observations, verification of conformance to specified requirements, measurements, results, non-conformances, and required corrective actions shall be documented on the DB Team's forms as defined in the Construction Quality Assurance Plan.

2.3.9.11 Certified Testing Laboratory

QA laboratory testing of field-tested materials shall be conducted by testing laboratories that are certified by GDOT or by a nationally recognized organization for the applicable tests or AASHTO by the time that NTP 3 is issued. This certification shall be valid for one (1) year from date of issue and such certifications shall remain in effect throughout the Term of the Agreement. Laboratories performing QA testing may be the DB Team's own, the material supplier's, or an independent testing laboratory as long as certifications are current and available for GDOT's review. The laboratory or field laboratory shall be located on-Site or no more than twenty (20) miles from the Project limits.

2.3.9.12 Field-Tested Materials

The DB Team shall be responsible for providing all sampling and material testing per the STI Quick Guide located on GDOT's website, furnishing materials of the quality specified, and furnishing quality-level analysis during production when required by the Quality Plan or DBA specifications. DB Team's construction QA testers shall perform sampling and testing for process control and QA consistent with the Quality Plan and DBA specifications. Inspections, reviews, and testing shall only be performed by personnel with appropriate training, qualifications, and certifications using appropriate equipment that is accurately calibrated and maintained in good operating condition at an AMRL-(AASHTO R18, "Establishing and Implementing a Quality System for Construction Materials Testing Laboratories") accredited facility, or at a facility with comparable certification (e.g., ISO 17025, "General Requirements for the Competence of Testing and Calibration Laboratories"). The Quality Plan shall address failing tests, retests, and unsuitable test results.

2.3.9.13 Non-Field-Tested Materials

The DB Team shall provide materials meeting all DBA requirements, along with all materials conformance and quality compliance documents. Quality compliance documents shall be in the form of test results certifications, quality compliance certificates, and equipment lists and drawings. Non-field-tested materials shall be accepted for use according to the DB Document requirements and the QMP.

2.3.10 Final Inspection

At the completion of constructed elements of the Work, the CQAM will jointly conduct a final inspection with GDOT and the DB Team. The DB Team shall develop a process, documented within the QMP, for scheduling, accomplishing, and tracking the inspection process and developing punch lists. Final inspection will include inspection of the Work and associated Record Drawings, certifications, and Project cleanup requirements.

The CQAF shall prepare and provide an accurate preliminary punch list to GDOT/OVF sixty (60) days prior to the Substantial Completion walk through date. The submittal of the preliminary punch list shall be identified as an activity on the Project CPM schedule. An acceptable preliminary punch list must be submitted to GDOT/OVF by the DB Team

before the written request for Substantial Completion will be taken into consideration in accordance with Article 7.7.1.4 of Volume 1 of the DBA documents.

During the inspection, GDOT, the CQAM, and the DB Team will jointly agree upon punch list items and an agreed date of correction of the items.

2.3.11 Quality Documentation

The DB Team shall establish and maintain an electronic and hard copy document control system to store, catalog, and retrieve all Project-related documents in a format that is approved for use by GDOT. Unless otherwise directed by GDOT, record retention shall comply with the requirements included in the Retention Schedules for State Government Paper and Electronic Records, and the State Agency Specific Schedules for Departments of Transportation, and they shall be provided to GDOT at the time of the expiration or earlier termination of the Agreement.

Design quality records shall be maintained by the DB Team in an auditable format according to the QMP procedures. GDOT has the right to audit the quality records for compliance with the QMP and the DBA requirements. Upon completion of the Project, the quality records shall be turned over to GDOT.

2.4 Safety and Security

The DB Team shall be responsible for the safety of its personnel and of the general public affected by the Project. See Section 2.2.4 regarding basic Safety Plan requirements.

This following defines the requirements to be incorporated into the Project and included in the Safety Plan in order to ensure that the Project is a safe and secure environment for all individuals working on the Project. The prevention of accidents during execution of the project shall be a primary concern of all participants, and shall be the responsibility of all levels of management. Safety shall never be sacrificed for production, but shall be considered an integral part of an efficient and quality Project.

Safety and security procedures shall include and/or address the following:

1. Safety and health standards to be adhered to
2. Roles and responsibilities of the safety/security staff
3. Contractors (meaning prime contractors and subcontractors combined) having a Safety Director and an accepted safety manual (or plan) available to all employees
4. Contractors holding periodic on-site safety meetings
5. Contractors conducting periodic on-site safety inspections
6. Contractors providing safety training for all new employees, and refresher training for all employees
7. Contractors conducting drug screening for all new hires

8. Contractors establishing daily housekeeping and clean-up procedures
9. Possible employee sharing of accident prevention savings
10. Having first-aid and medical kits readily available
11. Having a site security plan, possibly including such items as restricted parking near vulnerable structures, physical barriers (fences, barricades, etc.), coordinated efforts with local law enforcement officials during heightened threat levels, video surveillance, alarm systems, emergency telephones, etc.
12. Having an emergency preparedness and incident management plan, including roles and responsibilities, emergency evacuations, communications, first responder awareness training, and field drills
13. Establishment of an employee identification (ID) system
14. Level and frequency of audit and oversight safety/security reviews to be performed by GDOT, FHWA, independent consultants, and/or other agencies (as applicable)
15. Safety and security periodic reporting (no less than monthly)

In addition, appropriate threat and vulnerability assessments shall be made and taken into consideration thought the Project's life cycle. The transportation elements of the Project could have a significant impact on regional safety and security plans.

2.4.1 Safety Management

The DB Team management has a responsibility to provide health and safety leadership, and promote and support a safe working environment. It is expected that all DB Team management and Contractors will support the DB Team's safety department personnel in the implementation and enforcement of the Safety Plan program.

The DB Team shall designate a safety manager ("Safety Manager") who shall be responsible for the development of the Safety Plan and the enforcement of safety and health policies, procedures, and work practices. The Safety Manager will provide Project direction to maintain a safe, healthy, and secure work environment for all employees, Contractors and the general public.

Field supervisors and managers shall be responsible for monitoring their direct hire employees and subcontractors to ensure that the work is being performed in a manner consistent with safety policies, procedures and work practices of the DB Team. They are responsible for promoting a safe, healthful and secure work environment for workers and visitors that is free from violence, threats, harassment, and intimidation, and protects the general public from harm in connection with jobsite operations.

All workers are responsible for planning and completing all work in a safe manner by following all applicable policies, procedures, and safe work practices.

2.4.2 Worksite and Jobsite Analysis

The DB Team shall conduct and shall require of each contractor and subcontractor a job hazard analysis for each task to be performed at the beginning of each shift and whenever there is a change in the task or in the environmental conditions. The job hazard analysis shall solicit input from all members of the crew and shall be documented in writing.

2.4.3 Hazard Prevention and Personal Safety

The DB Team shall be responsible for the safety of its personnel and of the general public affected by the Project.

The prevention of accidents during execution of the Project shall be a primary concern of all participants, and shall be the responsibility of all levels of management. Safety shall never be sacrificed for production and shall be considered an integral part of an efficient and quality Project.

2.4.4 Training

The Safety Manager shall ensure that all personnel on the Project are provided a thorough safety orientation and periodic refreshers on the Project site safety requirements. The safety orientation shall include:

1. Roles and responsibilities
2. Hazard communications
3. Job hazard analysis
4. Reporting of incidents and accidents
5. Drug and alcohol policies
6. Driving policies
7. Disciplinary procedures
8. General health and safety requirements including proper usage of personal protective equipment (PPE)
9. General site safety rules

2.4.5 Incident and Emergency Management

The DB Team shall prepare (for GDOT review and comment) and implement plan(s) for responding to incidents and Project and Work emergencies. The plans shall identify responsibilities and procedures for responding to incidents and emergencies, including coordination and cooperation with first responders in the performance of their normal duties.

The incident and emergency management plan(s) shall include:

1. The DB Team's incident response team availability.
2. The DB Team's incident response team training to effectively respond to accidents, incidents and emergencies.
3. Incident site security, including traffic control measures and eliminating hazards to other road users.
4. Debris clearing and site assessment for damage repair.
5. Reporting and evaluation protocol and procedures prior to the dispatch of the DB Team's response crews or arrival of first responders.

2.5 Schedule Requirements

Project Schedules shall mean any of the following: Proposal Schedule, Preliminary Baseline Schedule, Project Baseline Schedule, Revised Baseline Schedule, Progress Schedule, Recovery Schedule, or As-Built Schedule, as further defined in this Section 2.5 and as appropriate for the context in which they are used.

2.5.1 General Schedule Requirements

The DB Team shall create and maintain a complete and logical Project Schedule. The Project Schedule shall be used to: plan, manage, and execute the Work, define the timeframe for completion of the Project, including all milestone commitments shown in Exhibit 9 Milestone Schedule; provide milestones of all major Submittals (including all design submittals and submittals shown in Section 3, Table 3-1), monitor progress, form the basis for progress payments, measure the impact of changes that occur during design and construction, and for planning, monitoring, and recording the Work. SRTA and GDOT, Government Entities, and Customer Groups, will rely on Project Schedules for timing of reviews and oversight activities, and for coordinating with, monitoring, and evaluating the DB Team's progress.

The DB Team shall have the right to modify the Project Schedule, within the requirements and limitations of the DB Documents, as it deems necessary to properly represent the progress of the Work and the remaining Work to completion. The sequence of work as represented in the current submitted Project Schedule shall be at all times the DB Team's plan for the execution of the Work and accurately record the Work completed at the time of that submittal.

The DB Team shall comply with the Critical Path Method (CPM) schedule requirements as defined in this Section 2.5 and by reference, as described by and within the terms defined in the Associated General Contractors of America (AGC) publication, *Construction Planning and Scheduling*, latest edition, for design and construction scheduling, establishing the critical items of the Work, and measuring progress of the

Work. In case of discrepancy between the DB Documents and Construction Planning and Scheduling, these DB Documents shall govern.

2.5.2 Staged Project Schedule Development

As the design is developed and the planning refined, it is intended that the Project Schedule shall represent the most accurate information known. Accordingly, a four-staged schedule development process shall be used as follows:

2.5.2.1 Proposal Schedule

Submitted with the Proposal, the Proposal Schedule establishes the Completion Deadlines shown in Exhibit 9 of the Agreement; shows the general approach to the phasing and overall executing of the Work, and shows the cost-loaded Proposal Schedule (Schedule of Values) and Maximum Payment Curve to be within the limits of the Annual Cumulative Payment Cap Schedule identified in Article 5.2, Table 5-1 of Volume 1.

2.5.2.2 Preliminary Baseline Schedule

Submitted within 30 days of NTP 1, the Preliminary Baseline Schedule shall fully detail all Work authorized by NTP 1 and NTP 2, all Work required for issuance of NTP 3, and for all Work anticipated to be initiated within the first 120 days from NTP 1. Other NTP 3 Work can remain at a more summary detail level but shall accurately reflect the latest approach and planning for the prosecution of the Work. The DB Team shall use the Preliminary Baseline Schedule as a foundation to prepare the Project Baseline Schedule. Once approved by GDOT, the Preliminary Baseline Schedule shall be cost-loaded and serve as the basis for payment for all Work prior to approval of the Project Baseline Schedule. The cost-loaded Preliminary Baseline Schedule (and Preliminary SOV) and Maximum Payment Curve shall be within the limits of the Annual Cumulative Payment Cap Schedule. Upon approval, the DB Team shall update the Preliminary Baseline Schedule and Preliminary SOV monthly until the Project Baseline Schedule is approved. Monthly updates shall meet the requirements for Progress Schedules.

2.5.2.3 Project Baseline Schedule

The Project Baseline Schedule shall fully detail all Work and activities necessary to complete the Work and shall accurately reflect the latest approach and planning for the prosecution of the Work, meeting all requirements of the DB Documents. Once approved, the Project Baseline Schedule shall be cost-loaded and serve as the Baseline Schedule of Values (Baseline SOV) and be the basis for payment for the Project. The Baseline SOV and Maximum Payment Curve shall be within the limits of the Annual Cumulative Payment Cap Schedule. Upon approval, The DB Team shall update the Project Baseline Schedule and Baseline SOV monthly.

2.5.2.4 Revised Baseline Schedule(s)

The DB Team shall provide a Revised Baseline Schedule within 30 days of Final Design or once 30% completion of the Construction Work is achieved, whichever occurs sooner. From time to time, GDOT may direct or the DB Team may request submittal of a Revised Baseline Schedule, which is subject to prior GDOT approval. The Revised Baseline Schedule shall fully detail all Work and activities necessary to complete the Work, meeting all requirements of the DB Documents. Upon approval by GDOT, the Revised Baseline Schedule shall become the new Project Baseline Schedule. Once approved, it shall be cost-loaded and serve as the Revised Baseline SOV and be the basis for payment for the Project. The Revised Baseline SOV and Maximum Payment Curve shall be within the limits of the Annual Cumulative Payment Cap Schedule. GDOT direction or approval of submittal of a Revised Baseline Schedule shall not constitute a Relief Event or Compensation Event.

2.5.3 Schedule Organization

The schedule shall include a Work Breakdown Structure (WBS) and activity codes to enhance the ability of the DB Team and GDOT to plan, analyze, monitor, and record the progress of the Work. The DB Team shall work with GDOT prior to submittal of the Preliminary Baseline Schedule, Project Baseline Schedule, and any Revised Baseline Schedule(s) to ensure an adequate WBS and activity codes have been developed and assigned to each activity to the satisfaction of GDOT. GDOT reserves the right to request additional WBS levels and activity codes be added throughout the Project if changes to the scope or modifications to the Project Schedule warrant the need.

2.5.3.1 Work-Breakdown Structure (WBS)

The schedule activities shall be mapped to, organized by, and rolled-up to a deliverable-based, hierarchal WBS. The organization and breakdown of the WBS shall reflect the DB Team's overall approach to the planning, scheduling, and execution of the Work and shall conform to all Project-specific phasing, staging, sequencing, design, and deliverable requirements.

The WBS shall be broken-down, at a minimum, to the following discrete levels: *Phase*, *Segment*, *Stage*, *Location*, *Work Element, and Work Package,* such that each specific level of WBS throughout the schedule remains consistent with the order and hierarchy number of these required levels. The design phase WBS shall identify each design package required for construction phasing and sequencing and shall identify each stage of design. Expectations of these required minimum levels is further described below under Activity Code definition requirements. The DB Team may further develop and detail the base WBS, however any modifications cannot alter or interfere with the base WBS minimum requirements or the ability to summarize to the required minimum base WBS levels.

2.5.3.2 Activity Codes

The Project Schedule shall include, at a minimum, the following activity codes: Phase, Segment, Stage, Location, Work Type, Work Element, Work Package, and Responsibility; where:

1. *Phase* – is the code value used to describe the Phase of Work, to include Project Management, Design, Right-of-Way, Utility Adjustments, Construction, Operations During Construction, and Maintenance During Construction.
2. *Segment* – is the code value used to describe the specific segments and sub-segments that the Project is broken down to as defined in the DB Documents or required or prudent per the DB Team's means and methods.
3. *Stage* – is the code values used to describe Project-specific staging, phasing, or sequencing as defined in the DB Documents or required or prudent per the DB Team's means and methods.
4. *Location* – is the code value used to describe a definable geographic area or region, including specific local roads, crossing streets, managed toll lanes, mainlines, ramps etc. and could be further defined by station-to-station sectioning.
5. *Work Element* – is the code value used to describe a discrete, definable element of the Work including each specific Bridge, Retaining Wall, Noise Wall, Building, and Drainage Run.
6. *Work Package* – is the code value used to further describe and supplement each Work Element including each specific bridge broken-down by substructure/ superstructure, individual bents/ spans, misc. finishes, etc.
7. *Work Type* – is the code value used to describe a specific type of Work, which includes Environmental, Roadway, Drainage, Structures (Bridges, Retaining Walls, Noise Walls), Landscaping, Traffic Related Elements, ITS, Traffic Management, Tolling, and Buildings.
8. *Responsibility* – is the code value used to describe the responsible party for the activity including work to be performed by GDOT, Utility Owner(s), or their subcontractor(s); and other third parties.

Activity Codes assigned to activities shall be "Project" level only (i.e., <u>not</u> global). If the DB Team utilizes Enterprise Project Structure (EPS) level activity codes, all code values and definitions must be converted to Project level Activity Codes prior to beginning the export process. All Activity Code definitions shall include the PI number in the description. The use of hierarchical activity code structure is acceptable to GDOT.

2.5.4 Schedule Requirements

2.5.4.1 Scheduling Requirements

The DB Team will ensure all Project Schedules shall:

1. Be a CPM graphic diagram, computer prepared, utilizing the Precedence Diagram Method (PDM), and that clearly delineates the relationship between Work activities. The schedule network calculations shall be computer-generated and shall show a continuous flow of information from left to right with no arrows from right to left and shall be on a time scale of calendar days.
2. Clearly identify the critical path with no periods of inactivity.
3. Define the timeframe for completion and achievement of all Completion Deadlines (as defined in Volume 1, Exhibit 9) in adherence with all Project-specific phasing, staging, sequencing, design requirements, maintenance of traffic/closure or restriction periods, non-Work periods, or any other time restrictions.
4. Divide the Work to encompass all activities that occur over the life of the Project with appropriate durations and dependency relationships representing the DB Team's overall approach to the planning, scheduling, and execution of the Work. The DB Team shall be responsible for ensuring that all Work sequences are logical and that the schedule indicates their coordinated plan. Failure to include any element of Work required to perform the Contract or failure to properly sequence the Work shall not excuse the DB Team from completing all work within the Contract Time and Contract Sum.
5. Utilize standard and consistent activity identification numbers. Only an alphanumeric coding structure with no spaces, hyphens, symbols or special characters to be used in the activity identification numbers shall be used. Periods are acceptable to use in the activity identification numbers.
6. Each activity shall describe Work associated with only one operation. Each activity name shall depict its scope in sufficient detail to readily identify, monitor, evaluate, and measure planning, design, and construction progress.
7. Ensure each activity shall be uniquely named and consist of a verb, noun, and location. Physical locations of activities within definable geometric limits (e.g., from station to station, within a single ramp, individual bents, individual spans, etc.) shall be included in the activity description and represented in the WBS and Activity Codes relative to each activity. Expectations of sufficient detail for activities is further described below:
    (a) Sufficient detail in submittals indicates distinct activities for the development, submittal, review, and approval of all Submittals as called out in Volume 2, Section 3, other sections of the DB Documents, or as required to obtain any approval or acceptance by SRTA, GDOT, or any other Government Entity.
    (b) Sufficient detail in permitting indicates distinct activities related to development, submittal, and approval for each required permit.
    (c) Sufficient detail in right-of-way (ROW), right-of-entry (ROE), or easements indicates distinct activities related to appraisals, negotiations, settlements or agreements, and acquisitions for each specific parcel. Activities shall be included for the acquisition of any

proposed ROW, whether State proposed/State acquired or DB Team proposed/DB Team acquired.

(d) Sufficient detail for material and equipment procurement includes shop drawings timeframes, fabrication, and delivery for all major procurement items; including identified long-lead items.

(e) Sufficient detail in structures Work indicates each bridge element (piles, footings, columns, caps, rebar, cure time, etc.) of individual bents; each element of Work in individual spans (girders, strip seal joints, formwork, rebar, concrete placements, cure time, etc.); individual approach slabs; railings; rebar for all the above as separate activities; and miscellaneous other bridge Work.

(f) Sufficient detail in structures Work indicates each cast-in-place retaining wall broken-out by excavation, formwork, rebar, concrete placement(s), cure and back-fill and each mechanically-stabilized earth (MSE) wall broken-out by excavation, leveling pad, lifts, settlement periods, wall caps, and related Work.

(g) Sufficient detail in structures Work indicates each sound wall broken-out by excavation, post piles/foundations, panel foundations, posts, panels, and related Work.

(h) Sufficient detail in road Work indicates individual runs of pipe in drainage structures; individual box culverts; utility adjustments and relocations, individual detour roads; clearing and grubbing, embankment, excavation, base, paving layers, signing, striping, guardrail, water, sewer, roadway electrical and lighting, and other miscellaneous elements within definable geometric limits (e.g., from station to station, within a single ramp, etc.).

(i) Sufficient detail in intelligent transport systems (ITS) and tolling includes structure foundations, structure supports, conduits, cabinets, power conductors, fiber optic, ITS equipment, cable splicing, testing and start-up, and other related Work.

8. Provide sufficient time for all submittals and re-submittal review times as required in the DB Documents. All SRTA/ GDOT/ Government Entity review periods are to be 30 days unless otherwise specifically noted in Volume 2, Section 3 (Table 3-1).
9. Include activities for interfaces with other projects, localities, municipalities and other Governmental Entities.
10. Show responsibility for each respective activity; all activities to be performed by Subcontractors must include Subcontractor names.
11. Be comprised of activities with durations in whole calendar days with a maximum duration of twenty (20) Working Days (160 hours), and not less than one (1) Day (8 hours), except activities relating to approvals, acceptances, and reviews by SRTA, GDOT, Governmental Entities, procurement activities, or as otherwise approved by GDOT. Durations for each activity shall represent the

anticipated work effort to complete the task and will reflect the planned production rates utilized by the DB Team. Durations shall not conflict with any time or sequencing requirement in the DB Documents.

12. Ensure all activities, except for the first and last activity, have a minimum of one predecessor activity and a minimum of one successor activity. Each activity shall have at least one "start" predecessor (i.e. FS0d, SS0d) and at least one "finish" successor (i.e. FS0d, FF0d).
13. Contain sufficient hard logic (also known as vertical or construction logic) ties to ensure the integrity and logical soundness of the overall CPM Network.
14. Contain sufficient preferential logic (also known as trade flow, horizontal, or soft logic) to communicate the DB Team's overall approach to the Work, as well as specific means, methods, crew planning, and staffing. This includes logic ties that will dictate the planned flow of Work on an early date basis, as well as sufficient logic to ensure the late date basis represents a reasonable plan, production rates, and resource constraints that can be met.
15. No float for any activity can be in excess of one hundred and twenty (120) days without prior written consent by GDOT.
16. Clearly identify all resource constraints, including planned crews, equipment, etc. This shall be accomplished explicitly using activity relationships and a detailed description in the schedule narrative.
17. Identify self-imposed and regulatory non-Work periods arising out of climatological, environmental, or other restrictions or concerns. The DB Team may constrain Work scheduling in these periods by using special calendars or other equally effective means. All starts or completions imposed on the Project Schedule shall be clearly identified by the DB Team.
18. Utilize the Gregorian calendar and satisfactorily account for anticipated adverse weather. With the Preliminary Baseline Schedule but no later than with submittal of the Project Baseline Schedule, the DB Team shall provide in writing to GDOT its planned methodology to account for anticipated adverse weather days over the course of the Project. This may be achieved via activity durations, calendar non-work days clearly defined for weather, or other equally effective means as approved by GDOT.
19. Not include any constraints, logic ties, and/or sequences not authorized by the DB Documents or deemed unreasonable by GDOT.
20. Float is a jointly owned resource available to the Project and shall not be used to the sole benefit or detriment of either GDOT or the DB Team. Any and all methods utilized to sequester float calculations are prohibited. Project Schedules showing an early Completion Date shall consider the time between the scheduled Completion Date and the applicable contractual Milestone Deadline as Project float. Declaration of scheduled early Completion Date(s), either explicitly or implicitly, shall not entitle the DB Team to any provisions concerning benefits or relief, including incentives, disincentives, excusable delays, compensable delays, or liquidated damages.

21. The DB Team is not entitled to and hereby waives any and all rights to delay damages in meeting any scheduled early completion date(s).
22. Be regularly updated for actual progress (not calculated progress) through the data date, recalculated and plotted utilizing the retained logic method. The DB Team will revise, adjust, and recalculate Project Schedules to represent the current plan to complete the Work with no out-of-sequence progress activities.
23. Contemporaneously and accurately memorialize progress including actual start, actual finish, and appropriate physical percent complete (manually input) for activities progressed as of the selected data date. All completed or started activities are to be at least one day prior to the data date. Actual dates inputted shall be limited to the active update period. Actual dates shown beyond the data date (i.e. to its right) shall not be permitted. Previously statused activities shall not be subsequently edited from update-to-update without prior written explanation to, and approval from GDOT.
24. Adequately forecast remaining dates for all outstanding activities that are in progress at the time of the update. This shall be accomplished through reasonable physical percent complete and updated remaining durations. Use of expected finish dates, for in-progress or not-started activities is not permitted. In cases where the full original duration has been expended, an accurate remaining duration to forecast the completion of an activity is required.
25. Adequately reforecast early dates and late dates for all remaining activities.
26. Ensure any interruptions to an activity, after that activity has begun, shall be added as a separate activity. The activity that is interrupted shall be split into two activities. The initial activity shall be marked as completed. The new activity shall have a FS relationship with the added interruption activity and shall retain all existing successor relationship(s) of the original activity.
27. Not have any activities deleted after the Project Baseline Schedule has been approved. If an activity's scope has been eliminated from the schedule, the activity's description should be revised to include "- scope deleted," original duration reduced to zero days, logic removed, and dates contemporaneously actualized on the day immediately preceding the applicable data date.
28. Ensure each activity maintains its unique identification number and activity name and scope, which shall not be modified or reassigned. If the DB Team chooses to incorporate additional detailed activities to supplement or replace the scope of an existing activity, the existing activity shall maintain its original activity ID and be converted to a level of effort summary activity that spans the newly added detailed activities.
29. Contemporaneously incorporate all approved changes to the Work that occur during design or construction. These changes are to be identified by including the Supplemental Agreement or Change Order number in the activity description or other method approved by GDOT to identify the change, and must be identified and the scope described for each new activity in the narrative

for the reporting period in which the Supplemental Agreement or Change Order was approved or executed.

2.5.4.2 Baseline Schedule Submittal Requirements

Within fourteen (14) days from NTP 1, the DB Team shall schedule and coordinate a Schedule Kick-off Meeting with GDOT to discuss the schedule structure, methodology, expectations, and how the requirements will be met. A preliminary WBS shall be submitted at the Schedule Kick-off meeting for subsequent GDOT review and approval. The Preliminary Baseline Schedule shall be submitted no later than thirty (30) days after NTP 1. GDOT will provide written approval or comments to the DB Team to revise and resubmit the Preliminary Baseline Schedule. Within seven (7) days of being directed by GDOT to revise and resubmit, the DB Team shall revise and resubmit the Preliminary Baseline Schedule. This procedure will be repeated as necessary until GDOT approval.

Not later than fourteen (14) days prior to the anticipated Project Baseline Schedule submittal date, the DB Team shall schedule and coordinate a Schedule Kick-off Meeting with GDOT to discuss the complete Project Baseline Schedule structure, methodology, expectations, and how the requirements will be met. A preliminary, complete WBS shall be submitted no later than at the Schedule Kick-off meeting for GDOT review and approval. The Project Baseline Schedule shall be submitted no later than one hundred and twenty (120) days after NTP 1. GDOT will provide written approval or comments to the DB Team to revise and resubmit the Project Baseline Schedule. Within seven (7) days of being directed by GDOT to revise and resubmit, the DB Team shall revise and resubmit the Project Baseline Schedule. This procedure will be repeated as necessary until GDOT approval.

The approved final submittal of the schedule shall be called the “Project Baseline Schedule.” Once approved, the Project Baseline Schedule shall not be modified in any way.

The Preliminary and Project Baseline Schedule submittal(s) shall include:

1. Electronic Primavera P6 file format (.XER or .XML) of the schedule submittal
2. A schedule narrative meeting the requirements as described herein
3. A critical path schedule plot (in .PDF format)
4. A full schedule plot (in .PDF format)
5. Required SOV, Cumulative S-Curve Data, and Maximum Payment Curve as prescribed in Sections 2.5.8 and 2.5.9 (once cost loaded).
6. Cumulative S-Curve Data (early and late date basis) ensuring the Project Schedule is within the limits of the Maximum Payment Curve and the annual Cumulative Payment Caps.

2.5.4.3 Progress Schedule Requirements

The DB Team shall prepare and submit for review and acceptance by GDOT monthly Project Schedule updates (Progress Schedules) that meet the requirements as described in this Section 2.5. Progress Schedules do not constitute revisions or amendments to the Preliminary Baseline Schedule, Project Baseline Schedule, or Revised Baseline schedule. The DB Team shall update monthly the prior accepted Progress Schedule to reflect the current status of the Project, and any accepted Compensation or Relief Events by GDOT.

The DB Team shall submit Progress Schedules with actual start and finish dates for completed activities, and physical percent complete and remaining durations for activities in progress. The data date for each Progress Schedule shall be the day after the progress period for payments closes.

The DB Team shall submit the Progress Schedules with the monthly narrative report. A Progress Schedule (whether or not such update has been approved by GDOT) does not constitute a revision to the Project Schedule. Refer to Section 2.5.2.4 and 2.5.4.4 for the process by which revisions to the Project Schedule shall be submitted and approved by GDOT.

2.5.4.3.1 Acceptable Schedule Changes

Acceptable scheduling changes in a Progress Schedule include: logic adjustments to address out of sequence Work and splitting of activities to address significant periods of inactivity for payment purposes.

The DB Team shall not revise descriptions to represent a different scope than originally intended. No changes in activity durations, activity cost loading, calendar assignments, or constraints will be allowed without GDOT's written concurrence. These are considered revisions to the Project Baseline Schedule. An activity identification number can only be used once. The DB Team shall not delete an activity and then create a new activity at a later date utilizing the same activity identification number.

2.5.4.3.2 Progress Schedule Submittal Requirements

Progress Schedules shall be submitted on or before the fifth day of the month after acceptance of the Project Baseline Schedule and shall be developed in accordance with the applicable provisions of the DB Documents. GDOT will review the monthly Progress Schedule(s) for consistency with the DB Team's WBS, the current accepted Project Baseline Schedule and the previous month's accepted update for conformance with the DB Documents. Following GDOT's notice of review findings, the DB Team is responsible to schedule and coordinate a meeting with GDOT to discuss the Progress Schedule. At a minimum, the following topics will be discussed: the DB Team's compliance with contractual schedule requirements, delays, proposed and approved contract quantity

increases and decreases, proposed and approved extra work, actual starts, durations and finishes, and actual progress to date.

Within seven (7) days of being directed by GDOT to revise and resubmit, the DB Team shall revise the Progress Schedule and re-submit the Progress Schedule. GDOT may withhold payment until the Progress Schedule is accepted.

The Progress Schedule submittal(s) shall include the following:

1. Electronic Primavera P6 file format (.XER or .XML) of the schedule submittal.
2. A schedule narrative meeting the requirements as described herein.
3. A critical path schedule plot (in .pdf format).
4. A full schedule plot (in .pdf format).
5. A five (5) week look ahead schedule for the activities to be completed between the schedule submittal and the following month's schedule update (in .pdf format).
6. A detailed variance report of the previous months five (5) week look ahead schedule.
7. A computer-generated log report listing all changes made between the current submitted schedule and the latest approved predecessor schedule as described herein.
8. Required SOV, Cumulative S-Curve Data, and Maximum Payment Curve as prescribed in Sections 2.5.8 and 2.5.9.
9. Cumulative S-Curve Data (early and late date basis) including current progress and ensuring the Project Schedule is within the limits of the Maximum Payment Curve and the annual Cumulative Payment Caps.

2.5.4.4 Revised Baseline Schedule

The DB Team may be required to prepare and submit for review and acceptance to GDOT a Revised Baseline that meets the requirements as described in Section 2.5.2.4 and 2.5.4.4. At any point during the Project, GDOT reserves the right to direct the DB Team develop and submit a Revised Project Baseline, at no additional cost to GDOT, that represents a reasonable plan to complete the work if any of the following occur:

1. The Schedule forecasts a finish date for the Project or any other contractual milestone that is more than 30 days later than contractually required.
2. The actual cumulative Job-to-Date Work-in-Place falls below 95% of the accepted Baseline Schedule Cumulative S-Curve (Late Date Basis).
3. Overall approach to work, sequence(s), or timing are fundamentally changed.
4. Contractual changes (accepted Relief Events or Compensation Events).

5. Field condition changes (means, methods, crew planning and staffing, resource constraints, etc.).
6. The current plan, as communicated by the Schedule, is deemed an insufficient or unreasonable plan by GDOT.

The Revised Baseline Schedule shall be submitted in accordance with Section 2.5.2.4 and within fourteen (14) days of written notice from GDOT. GDOT will review the Revised Project Baseline and provide written approval or direction for the DB Team to revise and resubmit the Revised Project Baseline. Following GDOT's review comments, the DB Team shall schedule and coordinate a meeting with GDOT to discuss the Revised Baseline Schedule. At a minimum, the following topics will be discussed: actual progress to date, remaining work to be completed, and nature and justification of changes related overall approach to the work, specific means, methods, crew planning and staffing, and resource constraints. Within seven (7) days of being directed by GDOT to revise and resubmit, the DB Team shall revise the Revised Project Baseline and re-submit the Revised Project Baseline. Once a Revised Project Baseline Schedule is approved by GDOT, it shall be used as the basis for subsequent Progress Schedule(s).

The Revised Baseline Schedule submittal(s) shall include:

1. Electronic Primavera P6 file format (.XER or .XML).
2. A schedule narrative meeting the DB Documents requirements.
3. A critical path schedule plot (in .pdf format).
4. A full schedule plot (in .pdf format).
5. A computer-generated log report listing all changes made between the current submitted Project Schedule and the latest accepted predecessor Project Schedule.
6. Required SOV, Cumulative S-Curve Data, and Maximum Payment Curve as prescribed in Sections 2.5.8 and 2.5.9 (once cost loaded).
7. Cumulative S-Curve Data (early and late date basis), including current progress and ensuring the Project Schedule is within the limits of the Maximum Payment Curve and the annual Cumulative Payment Caps.

2.5.4.5 Recovery Schedule

At any point during the Project, GDOT reserves the right to request the DB Team develop and submit a Project Recovery Schedule that meets the requirements as described throughout Section 2.5 and that represents a reasonable plan to complete the work when any of the following occur:

1. The schedule forecasts a finish date for the Project or any other contractual milestone that is more than thirty (30) calendar days later than contractually required.

2. On cost-loaded schedules, the actual cumulative Job-to-Date Work-in-Place falls either below 95% of the accepted Baseline Schedule Cumulative S-Curve (late date basis) or exceeds the early completion pay curve by greater than 5%.
3. There have been cumulative or substantial changes to the planned or observed field condition changes (means and methods, crew planning and staffing, resource constraints, etc.).
4. The current plan, as communicated by the schedule, is deemed to be an insufficient or unreasonable plan by GDOT.

The Recovery Schedule must achieve all remaining Completion Deadlines, including Interim Milestones, Substantial Completion, and Final Acceptance. This effort may include applying additional resources, working longer or additional shifts, or other measures. The Recovery Schedule shall clearly communicate the DB Team's overall approach to the remaining work, as well as specific means, methods, crew planning, and staffing. This includes logic ties that will dictate the planned flow of work on an early date basis, as well as sufficient logic to ensure the late date basis represents a reasonable plan, production rates, and resource constraints that can be met. GDOT may, in its sole discretion, require that a Recovery Schedule be resource loaded in accordance with the requirements of Section 2.5.7 at no additional cost to GDOT. The Recovery Schedule SOV and Maximum Payment Curve shall be within the limits of the Annual Cumulative Payment Cap Schedule. GDOT direction or approval of submittal of a Recovery Schedule shall not constitute a Relief Event or Compensation Event.

The Recovery Schedule shall be submitted within fourteen (14) days of written notice from GDOT. GDOT will review the Recovery Schedule and provide written acceptance or direction for the DB Team to revise and resubmit. This process will be repeated as necessary until the Recovery Schedule has been accepted by GDOT. Once accepted, the Recovery Schedule shall be used as the basis for subsequent Project Schedule Updates (Progress Schedules).

The Recovery Schedule submittal(s) shall include the following:

1. Electronic Primavera P6 file of the schedule submittal
2. Schedule Narrative
3. Critical Path Schedule Exhibit
4. Full Schedule Exhibit
5. Required SOV, Cumulative S-Curve Data, and Maximum Payment Curve as prescribed in Sections 2.5.8 and 2.5.9 (once cost loaded).
6. Cumulative S-Curve Data (early and late date basis), including current progress and ensuring the Project Schedule is within the limits of the Maximum Payment Curve and the annual Cumulative Payment Caps

2.5.4.6 As-Built Schedule

A Project As-Built Schedule shall be submitted at Final Acceptance. All activities shall have accurate start and completion dates (and, where cost-loaded, all associated Contract Sum values paid completely). All dates shall be consistent with dates contained in the DB Team's QA/QC documentation. The As-Built Schedule shall incorporate all Supplemental Agreements where and when they occurred on the Project, with logic to identify what activity(ies) preceded them and which activity(ies) they influenced. Once accepted, the As-Built Schedule will serve as the final update of the Project Schedule.

The Project As-Built Schedule submittal shall include:

1. An electronic, Primavera P6 file format (.XER or .XML), of the schedule submittal.
2. A full schedule plot (in .pdf format).
3. Final SOV layout.

2.5.4.7 Requests for Time Extension

The DB Team shall be responsible for submitting a written request for all extensions of Contract Time in accordance with the DB Documents. Requests that are not submitted in writing, do not include the required documentation and justification, or are not submitted within the timeframes required by the Agreement will not be considered.

The DB Team shall include in the documentation written justification for the extension of time, supporting evidence, and specific references to the then-current and accepted Progress Schedule at the time the qualifying event occurred.

The DB Team shall also include a calendar time-scaled CPM network schedule (FRAGNET) analysis and supporting reports depicting the time impact basis of the request with the affected Project areas prominently highlighted. The DB Team shall use only the most-current and accepted Progress Schedule at the time the qualifying event occurred when determining a time extension request.

If GDOT finds that the DB Team is entitled to an extension of time of any Completion Deadline under the Agreement, GDOT's determination of the total number of days' extension will be based upon the analysis of the current Progress Schedule and upon data relevant to the extension. Extensions of time for performance under all of the DB Agreement will be granted only to the extent that equitable time adjustments for the activity or activities affected exceed the total float along the path(s) involved on the most-recent and accepted Progress Schedule. Once accepted, the DB Team shall incorporate the delay fragnets into the latest accepted Project Schedule, which will be used as a basis for subsequent Progress Schedules.

2.5.4.8 Narrative Requirements

All Project Schedules shall include a separate narrative report, submitted as one electronic text, searchable .PDF file or MS Word file. The narrative report shall describe

the Work completed in the last reporting period, a detailed description of the Work to be completed in the next three months, and any anticipated or actual issues with achieving the scheduled as-planned activity dates for the Work and meet all applicable requirements of Sections 2.5 and 2.6. The narrative shall be updated with each subsequent Project Schedule submission and pertain to the Work performed during that reporting period and all remaining Work.

For the Preliminary Baseline Schedule and Project Baseline Schedule submittals, a schedule basis shall be developed that will include the following separated into sections:

1. The original contract completion date presented as actual calendar date and as a workday number, if applicable.
2. The present computed completion date presented as an actual calendar date and as a workday number, if applicable.
3. The DB Team's proposed methods of operation for designing and constructing the major portions of the Work required by the DB Documents.
4. An explanation of the DB Team's plan to complete the Project, including where the work will begin and how the work and crews will progress through the Project.
5. Description of the work to be completed each season for multi-year projects.
6. A description of the critical path.
7. A narrative description of any near-critical path (any path with less than 30 days of float).
8. A statement describing the status of any required permits.
9. An explanation of the use and application of the workdays per week, number of shifts per day, number of hours per shift, holidays observed, and how the schedule accommodates anticipated weather days for each month. Submit a list of the calendars used and a definition of their type.
10. An explanation of the use of any allowed constraints, lags, and non-standard logic ties (SS, FF, and non-zero lags), including the reason and purpose for each.

For Progress Schedules, the narrative shall include the following:

1. The original and current contract completion date presented as actual calendar date and as a workday number, if applicable.
2. The present computed completion date presented as an actual calendar date and as a workday number, if applicable. The DB Team shall also provide:
    a. An explanation if any Completion Deadlines are projected to occur after the dates set out in the DB Documents and how they will be recovered.
    b. A description of the status of the scheduled Completion Date, focusing on any changes since the previous submission, including an explanation for any

scheduled Completion Date that is projected to occur after the associated Completion Date.

3. The number of days adjusted to the Contract Time by approved Supplemental Agreement (if any; if none, so state).
4. A list of activities added, including their descriptions and reasons why (if any; if none, so state).
5. A list of any "Scope Deleted" activities, including their descriptions and reasons why (in any; if none, so state).
6. A list of logic changes, reasons for the changes, and expected impact of the changes (if any; if none, so state).
7. A list of duration changes, the reasons for the changes, and expected impact of the changes (if any; if none, so state).
8. A narrative description of any changes to the critical path(s).
9. A narrative description of any changes to a near-critical path (any path with less than 30 days of float).
10. A description of the work performed since the last approved or accepted (as applicable) Project Schedule. If the work performed does not match the work scheduled to be performed, the DB Team shall include a detailed description of why there is a discrepancy between the activities that should have been completed or progressed as indicated in the previous schedule submittal.
11. A description of unusual labor, shift, equipment or material conditions, or restrictions encountered.
12. A description of any problems encountered or anticipated since the last Project Schedule. A statement that identifies any current and anticipated delays (identification does <u>not</u> constitute nor satisfy the notice requirements of the DBA nor Section 105.13 of the Standard Specifications and shall not be deemed formal nor actual notice). The statement should include identification of the delayed activity, the type of delay, the cause of the delay, the effect of the actual and projected delay to other activities and Completion Milestones and identification of actions required to mitigate the delay.
13. Discussion of schedule recovery techniques (if any) incorporated into the current schedule including specific measures and their anticipated or calculated impact.

In addition to the narrative requirements for Progress Schedules, for Revised Baseline Schedule and Recovery Schedule submittal(s), the narrative report shall include the following separated into sections with justification for the changes, including, at the minimum, the following:

1. Changes to activity original durations.

2. Changes to activity relationships and/or schedule logic.
3. Identification of activities that have been added, deleted, or modified.
4. Changes to the Project Baseline Schedule critical path.
5. Changes or delay in any contractual completion date since the last Project Baseline Schedule submittal.
6. Changes to the overall sequencing and/or approach to completing the Project and the remaining work.
7. Changes to the work crews (number and/or size of each crew), shifts, hours worked, days worked, or major equipment changes.

2.5.4.9 Exhibit Requirements

The DB Team shall maintain and provide a computer-generated log report listing all changes made between every submitted Project Schedule and its last submitted predecessor schedule using the P6 Visualizer Schedule Comparison tool provided in the Primavera Project Management software bundle (i.e. Claim Digger) or equivalent as approved by GDOT. The DB Team shall submit this log with each Project Schedule submittal.

All Project Schedules and accompanying schedules, reports, and supporting data shall also be submitted to GDOT in electronic PDF file format as further described below.

Each schedule exhibit submitted to GDOT shall display the following items on each page:

1. Activity ID
2. Activity Description (or Activity Name)
3. Original Duration
4. Remaining Duration (for Updates only)
5. Start
6. Finish
7. Total Float
8. Physical Percent Complete
9. Activity Calendar
10. Cost (Budget / SOV and Actual / Invoice Value)
11. Legend
    a. contract number
    b. GDOT District(s)

c. DB Team name

d. Project location

e. Original Contract Time and all Milestone Completion dates

f. Revised Contract Time and Milestone Completion dates (if any)

g. Data date

Each schedule plot (full schedule, critical path, look-ahead, etc.) shall be submitted in electronic text searchable PDF file and formatted as follows:

1. Activities in early start sorted within logical grouping such as WBS.
2. Minimum font size 8-point at 85 percent normal.
3. Distinctive pattern and/or colored bars for critical path, completed Work, remaining (non-critical) Work, level of effort and expected finish date activities.
4. Color coding must remain in effect.
5. Each sheet or page of each submittal shall be identified with the DB Team's name, state project number, project name, date prepared, revision dates, and sheet or page number.
6. If the submittals are not prepared by the DB Team's own staff, the company name of the preparer shall be shown on each sheet or page.

At the request of GDOT, but not more often than once a month unless in the case of a Revised Baseline Schedule or Recovery Schedule (in which case twice that month), the DB Team may be required to submit one Gantt Chart printed on large-format media suitable for display in the Project conference room.

2.5.4.10 Reserved

2.5.4.11 Five-Week Detail Schedules

A Five-Week Detail Schedule shall be submitted to GDOT on the same day for every week in which Construction Work occurs. The Five-Week Detail Schedule is a computer-generated bar chart that spans a forward-looking, rolling period of at least four (4) weeks ahead for planned activities and one (1) week back (recording actual dates and durations for Work performed).

1. The Five-Week Detail Schedule shall be based on the current Progress Schedule and provide a greater breakdown of the schedule activities for the purpose of coordination of the Work, oversight planning, verification of Work completed, and materials inspection and testing. Any deviations from the then-current Project Schedule must be clearly noted and explained; and
2. The Five-Week Detail Schedule shall reference the Project Baseline Schedule and Progress Schedule activity identification numbers and define subsequent specific daily operations for all Work activities scheduled to be performed during the five-week period.

Each Five-Week Detail Schedule exhibit shall be:

1. Filtered by:
   (a) In progress activities, or
   (b) Remaining early start "is less than or equal to" the data date plus four weeks, or
   (c) Actual start "is greater than or equals" the data date less one week, or
   (d) Actual finish "is greater than or equals" the data date less one week
2. Sorted by start, then finish
3. Displayed in the following columns:
   (a) Activity ID
   (b) Activity name
   (c) Original duration
   (d) Remaining duration
   (e) Physical percent complete
   (f) Start
   (g) Finish

Upon prior approval by GDOT, Five-Week Detail schedules may be prepared using a different tool as long as they align accurately with and are derived from the then-current overall Project Schedule or Progress Schedule.

2.5.5 Software Requirements

The DB Team shall utilize the latest available version of Primavera P6 software for the development and maintenance of all Project Schedules. All schedule submittals will be provided to GDOT in electronic Primavera P6 file format (.XER or .XML) compatible with the program, revision number, and service pack used by GDOT. In addition to compliance with all schedule software settings and restrictions as prescribed throughout this Section 2.5, the DB Team shall coordinate with GDOT to ensure all Project-related Primavera P6 data is properly imported with each submittal. This includes which import configuration options will be utilized.

2.5.5.1 Software Practices and Restrictions

Except as noted elsewhere in this Section 2.5, the DB Team shall ensure all Project Schedules comply with the following software practices and restrictions:

2.5.5.1.1 Activity Constraints

Each start milestone ("Milestone") shown in Volume 1, Exhibit 9, will be constrained with a "start on-or-after" primary constraint date. Each finish milestone ("Deadline"), as defined in Volume 1, Exhibit 9, shall be clearly identified and represented in the Project Schedule using the following convention:

1. The applicable ending event shall be a finish milestone identified as "Completion Deadline _____", constrained with a "Finish On" Primary Constraint date, (where the underlined space will identify the applicable Milestone Schedule Deadline).
2. Activity "Completion Deadline _____" shall have sole predecessor identified as a finish milestone named "Currently Forecasted Completion Deadline _____" (tied with a finish-finish relationship with zero lag value). Both activities shall be assigned to the same Calendar.
3. Activity "Currently Forecasted Completion Deadline _____" shall have as predecessors all the activities that must be completed prior to the Milestone Schedule Deadline, as defined in Volume 1, Exhibit 9.

Date constraint(s), other than those required by the DB Documents, will not be allowed unless approved prior in writing by GDOT. The DB Team shall identify any constraints proposed and provide an explanation for the purpose of the constraint. Use of "As late as possible," project level "Must finish by," and "Mandatory" constraint types are not permitted.

2.5.5.1.2 Logic, Relationships, and Relationship Lags

The DB Team shall ensure the majority of activity relationship types are finish-to-start (FS) with no leads or lags for construction phase activities. Finish-to-finish (FF) or start-to-start (SS) relationship types may contain lags that are no greater than one-half (½) of the predecessor's duration. Use of a start-to-finish relationship type is not permitted. Relationship lags shall not be used when the creation of an activity will perform the same function (e.g., concrete cure time). The DB Team shall identify any lag proposed and provide an explanation for the purpose of the lag. Use of lags with a negative value shall not be allowed.

2.5.5.1.3 Progress Data

Scheduling data, including actual costs, actual start, and actual finish dates shall not be automatically updated by default mechanisms that may be included in the scheduling software system (including update progress, apply actuals, etc.). Actual start and actual finish dates shall match the dates contained in the DB Team's QA/QC documentation and Week Detail Schedules. Work activities shall be updated by actual Work progression. If used, labor and equipment hours associated with activities shall be derived from the DB Team's contemporaneous Project diaries and daily reports.

2.5.5.1.4 Calendars

All calendars utilized on Project Schedules shall be Project-level calendars. The DB Team shall not use or reference global level calendars. Use of "Inherit holidays and exceptions from Global Calendar" option shall not be permitted.

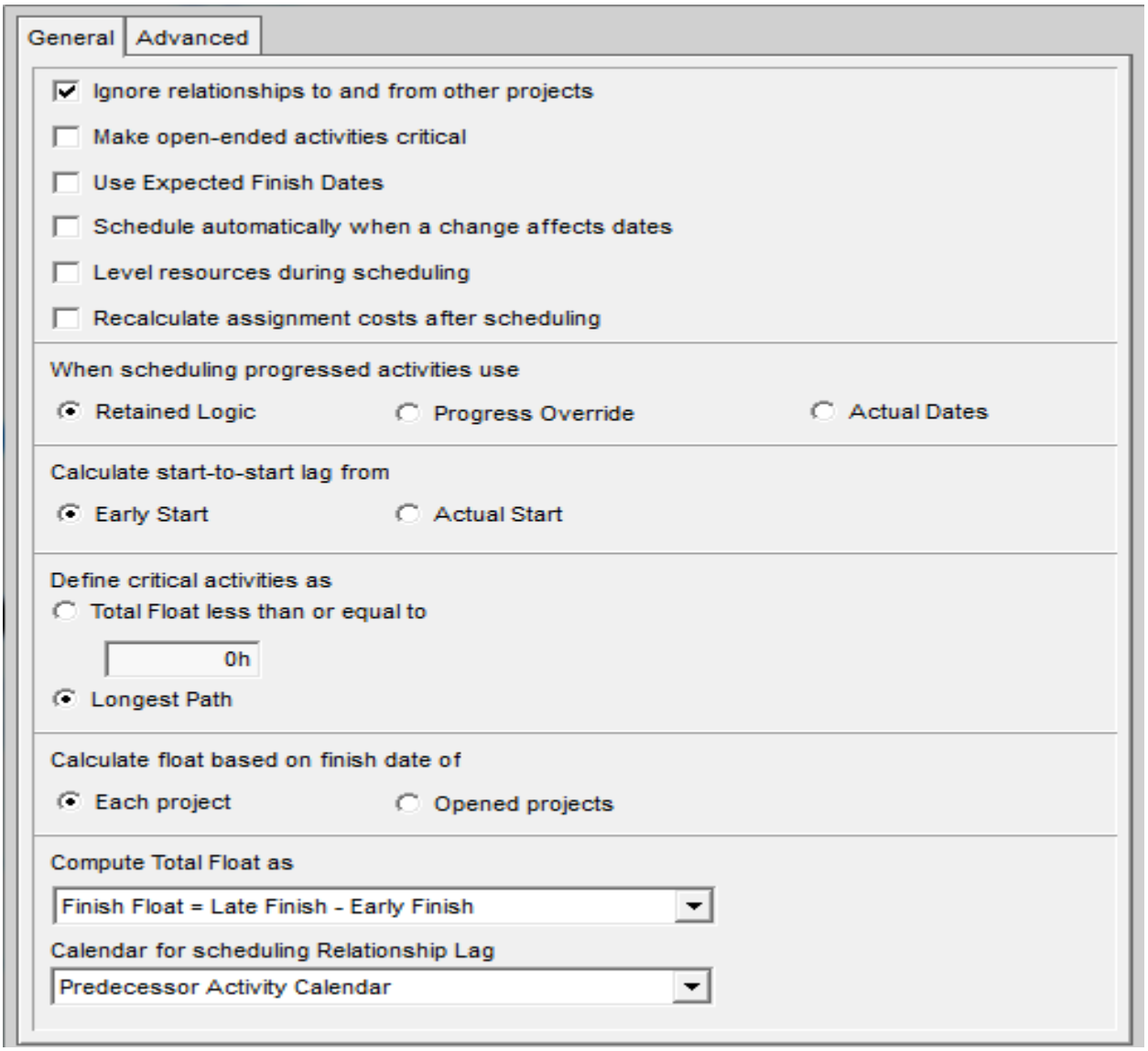
Each calendar shall identify work days and non-work days and should include identifiable PI# in the description (i.e. "PI###### - 5-Day Work Week,"). Each calendar utilized should maintain the same hourly work/non-work times and same hours/day. The DB Team shall ensure all calendars utilized maintain the same hours per time period as specified in software "Admin Settings" and ensure "Use assigned calendar to specify the number of work hours for each time period" is selected. Unless otherwise approved by GDOT, a standard working day shall consist of eight (8) work hours per day and be defined as 8:00 AM to 5:00 PM (with a 1-hour, non-work lunch at 12:00 PM - 1:00 PM). Each calendar (5-day work week, 6-day work week, 7-day work week, etc.), shall remain consistent with these start and finish times.

The DB Team shall not change an activity's calendar assignment, modify a calendar's work/non-work periods (both work days or work hours/day), add, or delete calendars used in the Project Baseline Schedule, or any monthly Progress Schedule, without prior agreement from GDOT.

2.5.5.2 Software Settings

Except as noted elsewhere in this Section 2.5, the DB Team shall ensure all schedules comply with the software settings and schedule options are selected in Figure 2-1.

Figure 2-1: Schedule Software Options Settings



At the time of the Project Baseline Schedule submittal, the DB Team shall specify if lags are to be calculated on predecessor, successor, or 24-hour calendar, and shall remain consistent with such setting throughout the course of the Project.

Project Settings and Defaults - The DB Team shall apply the following Project settings:

1. Each Project Schedule submittal shall be clearly identified; have a unique Project ID, and Project name prior to submission (prior to the DB Team starting the export process); and shall adhere to the following naming convention:

Table 2-3: Project Schedule File Naming Conventions

Project Id	Project Name	XER or XML File Name
For Preliminary Baseline Schedule and Project Baseline Schedule Submittals		
PI#_BLS01	Project Name_BLS01	PI#_Date Uploaded_Sch_BLS01_ddYYMMDD
PI#_BLS02	Project Name_BLS02	PI#_Date Uploaded_Sch_BLS02_ddYYMMDD
PI#_BLS03	Project Name_BLS03; etc.	PI#_Date Uploaded_Sch_BLS03_ddYYMMDD
For Progress Schedule Submittals		
PI#_UDP01	Project Name_UDP01	PI#_Date Uploaded_Sch_UDP01_ddYYMMDD
PI#_UDP02	Project Name_UDP02	PI#_Date Uploaded_Sch_UDP02_ddYYMMDD
PI#_UDP03	Project Name_UDP03	PI#_Date Uploaded_Sch_UDP03_ddYYMMDD
PI#_UDP03r01	Project Name_UDP03 (Resubmitted) *Note: shown for example purposes only*	PI#_Date Uploaded_Sch_UDP03r01_ddYYMMDD
For Revised Project Baselines Submittal(s)		
PI#_RBL01	Project Name_RBL01	PI#_Date Uploaded_Sch_RBL01_ddYYMMDD
For Project Recovery Schedule Submittal(s) (if applicable)		
PI#_PRS01	Project Name_PRS01	PI#_Date Uploaded_Sch_PRS01_ddYYMMDD
For Project As-Built Schedule Submittal(s)		
PI#_ABS	Project Name_ABS	PI#_Date Uploaded_Sch_ABS_ddYYMMDD
Where the following abbreviations and conventions represent:		
PI# = Project Number BLS = Baseline Submittal UDP = Update Period RBL = Revised Baseline Submittal PRS = Project Recovery Schedule ABS = As-Built Schedule Sch = Schedule YYMMDD = data date in 2-digit format (Year, Month, Day)		

2. Each Progress Schedule (update submittal) must be related to the coinciding ordinal month progress period.
3. Project status shall be “Active.”
4. Project level “Must Finish By” shall be left blank.
5. The data date for the Preliminary Baseline Schedule submittal shall be set to the authorization date to begin NTP 1 Work, as identified in writing by SRTA or GDOT.
6. The data date for Project Schedule submittals, excepting the Preliminary Baseline Schedule, shall be set to the day immediately following close of the update period, so that if the period closes on the 31st at 11:59 p.m., the data date should be set to the 1st of the next month at 12:00 a.m.
7. The character for separating code fields for the WBS tree shall be “.”

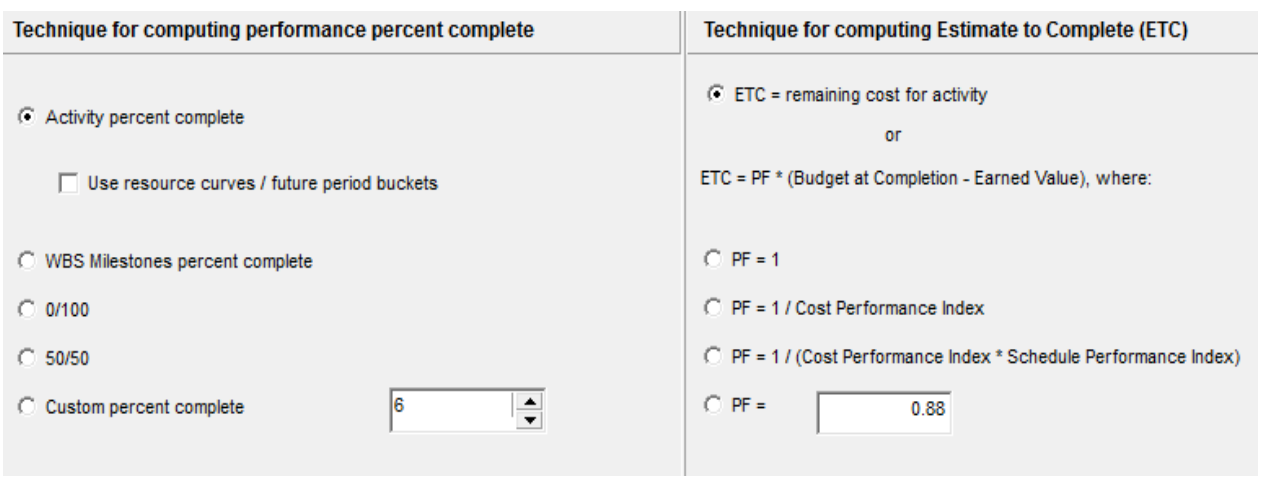
8. The fiscal year begins on the 1st day of July.
9. The baseline for earned value calculations shall be "Project baseline."
10. Critical Activities shall be defined as "Longest Path."

Activity Settings and Defaults - The DB Team shall ensure all schedule activities conform to the following:

1. The duration type shall be "Fixed Duration and Units"; start and finish milestones shall be "Fixed Duration and Units/Time."
2. The percent complete type shall be "Physical."
3. Activity Type shall be set to "Task Dependent" except for Milestones and Level of Effort/Summary activities.
4. The default calendar shall be set to most common Project-specific production calendar. Calendar assignments may be changed at the activity level, as applicable.
5. Default price/unit for activities without resource or role price/units shall be "$0.00/h."
6. "Activity percent complete based on activity steps" shall not be selected.
7. "Link Budget and At Completion for not started activities" shall be selected.
8. "Reset Remaining Duration and Units to Original" shall be selected.

WBS Default Settings – The DB Team shall ensure the status for all WBS levels with activities assigned is "Active" and the following Earned Value Settings are selected:

Figure 2-2: WBS Default Settings



Admin Settings - The following settings shall be placed:

1. Industry to use for terminology and default calculation settings in the P6 Professional module shall be "Engineering and Construction."
2. Currency shall be "USD – Dollar."
3. Time Periods shall be defined as follows:
   a) Hours/Day: 8.0
   b) Hours/Week: 40.0
   c) Hours/Month: 172.0
   d) Hours/Year: 2000.0
4. "Use assigned calendar to specify the number of work hours for each time period" shall be selected.
5. Earned Value Technique for computing performance percent complete shall be "Activity % Complete."
6. Technique for computing estimate to complete (ETC) shall be "ETC = Remaining Cost for activity."
7. When calculating earned value, use "Planned values with Current Dates" or "At Completion values with Current Dates" options. "Planned Values with Planned Dates" option is not permissible.

2.5.6 Scheduler Qualifications

The DB Team shall designate at least one scheduler, who will be full-time on the Project and responsible for the development, preparation, and management of all required Project Schedules. The designated scheduler(s) shall have at least five (5) years of experience developing, creating, managing, and reporting on schedules of similar size, type, and complexity to this Project and proficiency in the designated scheduling software system. The DB Team shall submit a resume outlining the qualifications of the proposed scheduler(s) to GDOT for review and approval within fourteen (14) days of NTP 1. Should the scheduler(s) leave the employment of the DB Team, leave the Project, or GDOT finds the DB Team's scheduler(s) performance to be poor or any proposed scheduler(s) to be lacking in qualifications or experience, the DB Team shall replace them with (an) equal or better replacement(s) meeting all original qualification requirements within fourteen (14) days of written notice from GDOT.

2.5.7 Resource Loading a Recovery Schedule

GDOT may require, in its sole discretion, that a Recovery Schedule be resource loaded in accordance with this Section 2.5.7. For all construction activities, including Utility relocations, resources shall be incorporated into the Project Schedule in a manner that represents a reasonable plan, production rates, and resource constraints that can be met to complete the Work.

The DB Team shall provide a list of crews and crew types separate from the Project Schedule in the project narrative, and shall identify the composition of and production rate

for each crew type. The crews shall be defined as a labor resource type and shall be assigned to appropriate activities. The resource-loading method the DB Team elects to use shall adhere with all scheduling requirements as set forth under this Section 2.5, including all specified software practices, restrictions, and settings. Additionally, the following requirements shall be met:

1. The commodity, labor, or equipment quantity that the activity value will be based on shall be indicated as a resource.
2. Labor-loading of activities may be based upon total number of workers or total number of crews to be used by the DB Team and subcontractors.
3. Major construction equipment to be used by the DB Team and subcontractors at all tiers in prosecuting Work shall be assigned to applicable activities.
4. The quantity shall represent the estimated effort in-place for the activity value. Labor and equipment resources shall have price/unit equal to $0.00.
5. A unique Resource Breakdown Structure (RBS) must be created, clearly identifying a Project Identification number and populated with resources assigned within the project hierarchy.
6. Standard Resource fields shall be populated with Project-related and appropriate information including:
   a) resource ID (prefix for each shall be project PI#)
   b) resource name
   c) resource type
   d) unit of measure
   e) default units/ time
   f) resource calendar
   g) effective date (prior to or same as Project start date)
   h) max units/time
   i) price/unit

The DB Team may be required to adjust resource levels to meet all milestones on the Milestone Schedule (Exhibit 9). Additional adjustments may include Supplemental Agreements.

As part of the proposed Project Baseline Schedule and all subsequent schedule submittals, the DB Team shall also provide GDOT with the following exhibits:

1. **Resource Assignment Data -** shall be a tabular layout or report, organized by resource with summary band info displayed, and rolled-down to display all activities assigned. As applicable, required fields may include identification of each resource assigned, activity ID, activity name, duration, activity status, physical percent complete, budgeted, actual, remaining and at-completion units, unit price and unit of measure.
2. **Resource S-Curve Data -** shall be a product of the software creating the Project Schedule and shall be a tabulation of monthly incremental budgeted, actual, and remaining units on an early- and late-date basis.

2.5.8 Schedule of Values (SOV) and Cost-Loading

The Preliminary Baseline Schedule, Project Baseline Schedule, Revised Baseline Schedule(s), and Recovery Schedule(s) shall be cost-loaded to create the Project SOV (which may be the Preliminary SOV, Baseline SOV, Revised Baseline SOV, or Recovery Schedule SOV, as further defined in this Section 2.5 and as appropriate for the context in which they are used). Progressed during each respective reporting period, the Project SOV shall be the basis for periodic compensation due the DB Team throughout the performance of the Work.

The Project SOV shall be derived from and be generally consistent with the cost-loaded Proposal SOV and all cost-loaded schedule activities shall roll-up to the activities shown on Exhibit 2 to the Design-Build Agreement.

In developing the Preliminary SOV, Baseline SOV, or Revised Baseline SOV, the DB Team shall apportion its Contract Sum across schedule activities that, in aggregate, represent all Work. The DB Team shall devise an account structure representing the major categories of the Work in consultation with GDOT and which is subject to GDOT approval. The DB Team shall allocate the total Contract Sum among these accounts. Each account will include one or more cost-loaded activities scheduled on the Project Schedule. Once approved, this devised account structure and allocated dollar values to each account via specific activities shall constitute the Project's "Schedule of Values". The applicable Baseline Schedule (Preliminary, Project, or Revised) and successor monthly Progress Schedules will form the basis of payment for the Project.

Each Progress Schedule submittal will be accompanied with an updated Project SOV. For each Progress Schedule, the DB Team and GDOT will agree upon the progress percent complete for Work in place related to each activity. The percent complete utilized for progress payments for a given activity shall reflect the activity's physical percent complete value. The agreed updates shall be submitted with and shall justify the DB Team's monthly Payment Requests. The Project SOV shall show for each schedule activity: SOV value, progress percent complete, individually and in aggregate and the associated invoice amount.

The DB Team shall select a method and scheme compatible with the scheduling software to cost-load the CPM Schedule to form the Project Schedule of Values. The DB Team's method must have the ability to, at the schedule activity level, track each cost-loaded activity value as a "budget" against periodic, total to date, and final Project earnings for that activity. The cost-loading structure will be reviewed by GDOT for approval at the time of the Preliminary Baseline Schedule, Project Baseline Schedule, or Revised Baseline submittals, as applicable and shall not be modified without the prior approval of GDOT. The DB Team shall devise a system for tracking, grouping and sorting cost-loaded activities as approved by GDOT. The DB Team shall allocate the total Contract Sum among activities adhering with the following:

1. Cost-loading shall be applied to task dependent, detailed administrative, design, and construction activities. Cost-loading level of effort or summary type activities in lieu of detailed design and construction activities shall not be permitted.
2. The cost for each activity shall accurately represent the value of the Work identified in the activity.
3. The cost-loaded activities shall not be front-end loaded. A linear and uniform distribution of cost over each activity's duration is required. To resolve disputes, the DB Team agrees to provide GDOT access to the DB Teams' escrow bid documents.
4. No single schedule activity may be assigned a value greater than $100,000 or 1% of the total Contract Sum, whichever is less, without prior written approval by GDOT.
5. The sum of the costs of all activities shall equal the total Contract Sum.
6. The sum of the costs of a particular subset of activities assigned to a particular SOV account shall equal the total Contract Sum for that particular SOV account.
7. Once approved, no changes in activity cost loading will be allowed without GDOT's prior approval.

All payments to the DB Team under this DB Agreement, except for payments under Article 3.2.4 of the DB Agreement, will be represented by cost-loaded activities. Supplemental Agreements that include changes to the Contract Sum will be incorporated into the Project SOV.

As part of the proposed Preliminary Baseline Schedule, Project Baseline Schedule, Revised Baseline Schedule, Recovery Schedule, and Progress Schedule submittals, the DB Team shall provide GDOT with the following exhibits with each cost loaded Project Schedule submittal:

1. **Schedule of Values (SOV) -** shall be provided as tabular layout or report, organized by SOV accounts with summary band info displayed, and rolled-down to display all activities assigned cost-loading data under each SOV account. As applicable, required fields may include identification of particular SOV assigned, activity ID, activity name, duration, activity status, physical percent complete, budgeted and actual units, unit price and unit of measure (if applicable), budgeted and actual cost, remaining cost, and at-completion cost.
2. **Cumulative S-Curve Data -** shall be a product of the software creating the Project Schedule and shall be a tabulation of monthly incremental budgeted, actual, and remaining cost on an early- and late-date basis.

2.5.9 Maximum Payment Curve

All Project SOVs are subject to the Maximum Payment Curve requirements herein; however, notwithstanding any other provision within the DB Documents, in no case shall

the Project SOV exceed the Annual Cumulative Payment Caps set forth in Article 5.2, Table 5-1 of the Agreement, as modified by executed Supplemental Agreement(s). Except upon the execution of a Supplemental Agreement, GDOT or SRTA approval or acceptance of any Project Schedule or Project SOV, and Progress Schedule or Progress SOV, shall not supersede, increase, or modify the Annual Cumulative Payment Cap.

The Maximum Payment Curve may be modified from time to time: i) when requested by the DB Team and approved by GDOT and SRTA in their sole discretion; ii) upon issuance of a unilateral change by SRTA increasing the Maximum Payment Curve; and iii) to account for adjustments to the Contract Sum due to Supplemental Agreements. Such modification cannot be based solely upon cost adjustments to the existing SOV payment activities.

2.5.9.1 Establishing the Maximum Payment Curve

The DB Team shall submit to GDOT and SRTA for review and approval, which approval is subject to GDOT's and SRTA's sole discretion, a Maximum Payment Curve derived from the approved Project SOV. The Maximum Payment Curve will be provided: i) as a graph showing a cumulative cash flow curve based on the early Project Schedule completion dates and as modified below to establish the proposed Maximum Payment Curve; and ii) as a Maximum Payment Curve Table with a row for each year and month from NTP 1 to Final Acceptance and width columns showing the month and year, the cap amount for each payment period, and the accumulative cap amount up to and through that period.

The Maximum Payment Curve Table shows the earliest date by which the aggregate amounts may become available to the DB Team, and which constitutes a cap on the aggregate amount of payments that may be made to DB Team at any specified time, but which may be revised from time-to-time as specified in Article 5.3 of the Design-Build Agreement.

Each entry in the Maximum Payment Curve Table need not exactly reflect the Project SOV but in no case, can the Maximum Payment Curve exceed: i) any of the Annual Cumulative Payment Caps; and ii) 125% of the Project SOV for any reporting period, as reflected by the early completion of the Project Completion dates. The total of the accumulative cap column must equal the Contract Sum. Upon GDOT and SRTA approval, the Payment Cap Table will become a binding term and condition under the Agreement (Volume 1).

The Maximum Payment Curve must be submitted for approval with the applicable cost loaded Baseline Schedule (Preliminary, Project, or Revised) is approved by GDOT.

Notwithstanding any other provision in these DB documents, no payment for Work contemplated by the Project SOV will be made until the Maximum Payment Curve Table and the Project SOV have been approved by GDOT and SRTA with the exception of payments as allowed in Article 3.2.4 of the DB Agreement.

2.5.9.2 Reporting Cumulative Progress

The monthly narrative report will include a comparison of the actual accumulated expenditures against the accumulated expenditures shown on the approved Maximum Payment Curve Table through the then-current reporting period, and shall project the planned level of expenditures for the remaining Work against the funds available as shown in the Maximum Payment Curve Table and against the Annual Cumulative Payment Cap Schedule.

In addition, with each monthly narrative report, the DB Team shall provide a graph showing the cumulative cash flow curve based on the early completion dates and compared against the approved Maximum Payment Curve.

2.5.9.3 Payment Under the Maximum Payment Curve

On or about the fifth day of each month following approval of the Project Schedule, Project SOV, and Maximum Payment Curve, and continuing through the last date of the Maximum Payment Curve Table (Final Acceptance), the DB Team shall deliver to GDOT three (3) hard copies and one (1) electronic copy of a Payment Request in a form approved by GDOT and SRTA and meeting all requirements in the DB Documents. Each Payment Request shall be signed by the DB Team's Authorized Representative.

2.5.9.4 Annual Reconciliation with the Annual Cumulative Payment Cap Amount

Unless otherwise agreed to by the Parties, a revised Maximum Payment Curve shall be submitted for approval at the end of each GDOT fiscal year (which ends on June 30) to account for any remaining amounts under the Annual Cumulative Payment Cap Schedule set forth in Article 5.2.1, Table 5-1 that are then made available. If at any time during the progression of the Work and prior to the last fiscal year specified in Volume 1, Table 5-1: i) the DB Team's cumulative sum of the value of the estimated Work in progress, ii) the accumulated total progress Payment Requests received, or iii) the accumulated total progress payments projected are within five percent (5%) of the accumulative total expenditure permitted by the Maximum Payment Curve, the DB Team shall provide prompt notice to GDOT and SRTA, but not later than with submittal of the Project Update Schedule narrative report for that period, along with a plan showing how the DB team will remain under the Maximum Payment Curve while mitigating any potential delays to the Project, including slowing, resequencing, or stopping the Work.

No later than the earlier of: i) two months prior to each GDOT Fiscal Year end (June 30th) or ii) when the DB Team's projected cumulative progress payments sum of the value of the estimated Work in progress is projected to exceed the Cumulative Payment Cap Schedule for the next month, the Parties shall meet to review the DB Team's actual payments received and the projected cumulative sum of the value of the estimated Work to the end of the Fiscal Year against those established in the Maximum Payment Curve Table and the Annual Cumulative Payment Cap Schedule shown in Article 5.2.1, Table 5-1 to the Agreement. If the DB Team's projected cumulative progress payments sum of

the value of the estimated Work exceeds the Cumulative Annual Payment Cap Schedule, the DB Team shall provide a plan, subject to GDOT and SRTA approval, for slowing, resequencing, or stopping the Work until the next Fiscal Year, when additional Annual Funds become available. Such plan will address minimizing impacts to traffic and upon approval shall be performed by the DB Team.

If the DB Team does not meet any of the requirements of this Section 2.5.9 Maximum Payment Curve or if GDOT deems the DB Team's plan under this Section 2.5.9 unreasonable or unworkable, then GDOT may, in its sole discretion, stop the Work until such time that the Annual Funds become available. In such case, any additional Work or disruptions caused by or related to slowing, resequencing, or stopping the Work and minimizing impacts to traffic, whether directed by GDOT, or required by this Section 2.5.9.4 will not constitute either a Relief Event or Compensation Event.

2.5.10 GDOT Review, Approval, and Acceptance

GDOT will review the Preliminary Baseline Schedule, the Project Baseline Schedule, and Revised Baseline Schedule submittals within thirty (30) days of submission and a Recovery Schedule within fourteen (14) days of submission; and return them as approved, approved with comments (which must be addressed to GDOT's satisfaction in the following Progress Schedule), or rejected for resubmission within seven (7) days from the date of receipt by the DB Team. The DB Team shall repeat the submittal process until the Project Schedule is approved by GDOT.

GDOT's review and approval of the Preliminary Baseline Schedule, the Project Baseline Schedule, and Revised Baseline Schedule submittals is for conformance to the requirements of the DB Documents and Good Industry Practice and does not relieve the DB Team of sole responsibility for meeting DB Document requirements and Completion Deadlines. Approval does not expressly or by implication warrant, acknowledge, or admit the reasonableness of the logic, durations, resourcing, or any other element. If the DB Team fails to define any element of Work, activity, or logic and GDOT's review does not detect this omission or error, the DB Team remains responsible for correcting the error or omission without qualification. Approval does not take precedence over any DB Document requirement unless such approval includes specific, written waiver of a DB Document requirement.

GDOT will review Progress Schedule and Recovery Schedule submittals within fourteen (14) days of submission, and return them as approved, approved with comments (which must be addressed to GDOT's satisfaction in the following Progress Schedule), or rejected for resubmission within seven (7) days from the date of receipt by the DB Team. The DB Team shall repeat the submittal process until the Project Schedule is approved by GDOT.

GDOT's review and acceptance of Progress Schedules, Recovery Schedule(s), and the As-Built Schedule is for review for conformance to the requirements of the DB Documents

and does not relieve the DB Team of the sole responsibility for meeting all DB Document requirements and Completion Deadlines. Acceptance does not expressly or by implication warrant, acknowledge, or admit agreement; the reasonableness of the logic, durations, resourcing, or any other element of the Progress or Recovery Schedule. If the DB Team fails to define any element of Work, activity, or logic and GDOT's review does not detect this omission or error, the DB Team remains solely responsible for correcting the error or omission, without qualification or recourse.

The DB Team is solely responsible for planning and executing the Work and for providing sufficient administration, planning, design, materials, equipment, and labor to guarantee completion of the Project in accordance with the DB Documents and Completion Deadlines.

GDOT will retain final authority to approve, accept, reject, or accept as noted for every Project Schedule, as described in Article 6.3 of the DBA, this Volume 3, Section 2.5; Volume 2, Section 3, and the DB Documents. If rejected by GDOT, the DB Team shall address GDOT comments and revise and resubmit the Project Schedule until acceptance or approval, as applicable, by GDOT. GDOT's approval or acceptance of any Project Schedule shall not relieve the DB Team from its responsibilities for adjusting workforces, equipment, and Work schedules to ensure Completion of the Project within the time specified in Exhibit 9 to the DBA. Similarly, GDOT's approval or acceptance of any Project Schedule does not in any way relieve the DB Team from its responsibility to produce and utilize a complete, accurate, and appropriate schedule for managing its Work. GDOT's approval or acceptance only implies that the submittal appears to meet the requirements of this specification and appears to provide a valid Work plan for the Project, but in no way constitutes GDOT's approval or acceptance of time impacts or other changes to the Work. If GDOT deems that any Project Schedule fails to provide the information required in this Section 2.5 or the DB Documents, GDOT may withhold a portion of or all progress payments until the proposed Project Schedule containing the required information has been submitted by the DB Team and approved or accepted by GDOT, as applicable. Unaccepted or rejected Project Schedules and associated data shall not be considered relevant or applicable for any purposes during or after completion of the Project and shall not be binding on GDOT.

2.6 Progress, Payment Requests, and Payment

For purposes of processing and reviewing all Payment Requests for this Agreement, GDOT shall serve as the representative and payment approval agent for SRTA. All Payment Requests and deliverables in connection therewith shall be submitted to GDOT, with copies to SRTA, and GDOT shall provide approvals on behalf of SRTA with respect to all such Payment Requests, and to the extent appropriated pursuant to the Joint Resolution, SRTA shall issue all payments on account of the Work. References herein to SRTA's review and approval, shall mean review and approval by GDOT as payment review and approval agent for SRTA.

These payment provisions are subject to GDOT Standard Specification Section 109.03 to the extent that they do not contradict the requirements of this Section 2.6.

With the exception of payments as allowed in Article 3.2.4 of the DB Agreement, no other payment will be made until the Project SOV is approved by SRTA, except that SRTA shall pay Termination Compensation in accordance with the Agreement and shall pay the Payment Request Amount set forth in any approved Payment Request on the date anticipated for such payment when it was approved by SRTA.

The DB Team shall submit a Preliminary SOV for approval with the Preliminary Baseline Schedule, and a Baseline SOV upon approval of the Baseline Schedule according to the following:

1. For the Preliminary Baseline Schedule, provide detailed costs for those activities authorized by NTP 1 and NTP 2.
2. For the Baseline Schedule, provide detailed costs for those activities authorized by the Design-Build Agreement.

The DB Team shall update and revise the Project SOV during the progress of the Work when a Revised Baseline Schedule is submitted, as and when requested by SRTA, or to reflect all Contract Sum adjustments necessitated by Supplemental Agreement(s).

GDOT may, at its sole discretion, require a Revised Baseline Schedule or a Recovery Schedule when the Project SOV is revised.

In no event shall the DB Team include in any Payment Request amount any request for payment on account of Work performed by any Contractor that shall not be remitted to such parties in accordance with the terms of the DB Documents and applicable Law. In no event shall either the DB Team or any Contractor or Subcontractor withhold or impose retainage on any Subcontractor or Supplier, or any downstream sub-subcontractors or suppliers of any tier. The DB Team shall provide SRTA with details regarding the withholding or deduction of any payments to Contractors or Subcontractors, including specificity as to amounts and the basis for such withholding or deductions and if any such Contractors or Subcontractors are included within the DB Team's DBE Performance Plan.

2.6.1 Payment Activities

The Project SOV provides an itemized list of Payment Activities that establishes the value or cost of each detailed part of the Work and for which the for which the DB Team desires to be paid. A Preliminary SOV shall be derived from the cost-loaded, approved Preliminary Baseline Schedule, and a complete Baseline SOV shall be derived from the cost-loaded, approved Baseline Schedule. The DB Team shall allocate the Contract Sum in the Project SOV consistent with the Proposal SOV. GDOT may verify the amounts by review of the Escrowed Bid Documents.

The following pertains to presentation of the SOV:

1. The Payment Activities shall be organized and grouped according to the SOV.

2. The SOV shall contain for each Payment Activity, the activity identification number, the activity description, the quantity, the applicable unit and percentage of Work complete.
3. For design work, the SOV shall be based on design packages and stages.
4. For administrative Work, the SOV shall have on-going Payment Activities accurately apportioned for each month in which Work occurs. The administrative Work Payment Activities shall include a line item(s) for the DBE manager position and related reporting, coordination, and other administration efforts necessary to manage and secure the DBE participation goals and technical provision commitments.
5. Payments shall be made for Payment Activities, but which shall not be fully paid (100% of the budgeted amount) until that portion of the Work is completed and all applicable required documentation is received and substantiated by GDOT. For on-going administrative activities, payment shall be made for the amount apportioned for the period payment is being requested.
6. The amount payable to the DB Team for insurance and bond premiums will be their actual cost, paid upon proof of payment by the DB Team. Where a Payment Activity requires submittal of a bond, the Payment Activity is complete when the bond has been provided in the amount and under the terms required in the Agreement.
7. GDOT will not pay for direct costs of equipment used to construct the Project. The DB Team shall allocate costs for equipment, whether new, used, or rented, as part of the activities with which the equipment is associated.

2.6.2 Payment for Final Completion Activities

The SOV shall include Final Completion Activities sufficient to cover all efforts necessary to fulfill all DB Document requirements and successfully complete the Work for the following activities:

Record Drawings (As-Built) Submittal, which shall be equal to no less than 0.1% of the Contract Sum.

Completion of punch list items, which shall be equal to no less than 0.5% of the Contract Sum.

Final Close-out, which shall be equal to no less than 0.2% of the Contract Sum.

Demobilization, which shall be equal to no less than 0.2% of the Contract Sum.

2.6.3 Reporting Progress

The DB Team shall include the following in the monthly narrative report:

1. Project Schedule Update
2. Totals of materials incorporated into the Project from execution through the reporting period:

a. Fill incorporated into the Project, in cubic yards

b. Concrete paving placed, in square yards

c. Asphalt paving placed, in tons

d. Lane miles completed

e. Length of pipe installed (of any size diameter)

f. Number of craft and total workers employed to work directly on the Project (including construction and professional services subcontractors)

g. Milestones achieved during the period

h. Summary of Project accidents (frequency and severity) and corrective actions taken

i. Progress photographs to show major activity and improvements, including those made in the last reporting period.

j. The total monthly labor hours for craft labor and non-construction personnel by classification of management, engineering, and other technical personnel used on the Project

2.6.4 Payment Request

The DB Team shall submit a draft Payment Request to GDOT, as payment review and approval agent for SRTA and with a copy to SRTA, containing the amount asserted to be payable for each SOV line item and amounts due under Supplemental Agreements. The draft Payment Request shall be submitted prior to the Payment Request Review Meeting.

Requests for progress payment shall be submitted both electronically and in hardcopy format using forms provided or approved prior by GDOT, and shall include supporting documentation for the amount claimed payable when requested by GDOT.

The DB Team may present variations to these formats for GDOT and SRTA approval at least fourteen (14) days prior to the submittal of the first Payment Request. Once GDOT and SRTA have approved the formats, the formats shall not change unless approved by SRTA prior to their submittal. The DB Team shall obtain GDOT and SRTA's approval of the requirements for the supporting documents that are to be included with the Payment Request within fourteen (14) days after the issuance of NTP 1.

Upon receipt of a Payment Request, GDOT will review the submitted Payment Request and within seven (7) days provide comments to the DB Team that lists any discrepancies and other amounts intended to be deducted.

2.6.5 Payment Request Review Meeting

The DB Team shall schedule and hold Payment Request review and progress status meeting(s) (each, a "Payment Request Review Meeting") with GDOT within seven (7) days after it submits the draft Payment Request. The Payment Request review and progress status meeting is intended to result in GDOT's approval of the relevant draft

Payment Request or the changes necessary to the draft Payment Request to allow a final Payment Request to be issued by the DB Team pursuant to Section 2.6.6 below. As such, the meeting shall address and finalize the following:

1. Actual Payment Activity start dates, finish dates, and forecast dates.
2. Total Project Payments earned based on the SOV for the month and for the Project to date.
3. Incorporation of and summary list of all approved Supplemental Agreements.
4. Critical Path(s) and analysis of potential performance areas.
5. Written summary of actions that are either in consideration or are being taken to minimize areas of potential impact or concerns.

2.6.6 Approval of Payment Requests

Within seven (7) days after each Payment Request Review Meeting, the DB Team shall submit to SRTA the final Payment Request based on the approved draft Payment Request. No Payment Request will be reviewed or processed until SRTA receives a complete Payment Request in compliance with these requirements. In the event that the final Payment Request submitted by the DB Team is consistent with the form discussed, including the changes agreed, as part of the Payment Request Review Meeting, GDOT shall confirm its approval of the Payment Request within five (5) days of receipt from the DB Team.

The DB Team shall submit a revised Payment Request to address any outstanding issues identified by GDOT. If the DB Team includes items for payment that remain unresolved, GDOT will either: i) notify the DB Team that unresolved items in the Payment Request remain, and request a resubmittal of a revised Payment Request; or ii) deduct those amounts GDOT asserts are not eligible for payment, and process the Payment Request. In such case, GDOT shall notify the DB Team of any such deductions.

2.6.7 Certification for Progress Payment

All Payment Requests, whether as a Progress Payment or Final Payment, shall be certified by the DB Team's Project Manager using the "DB Team Certification for Payment" form (Attachment 2-4 to this Volume 3). No Payment Request will be processed without such certification.

2.6.8 Documents Required to be Provided with the Payment Request

The following documents shall be submitted with each Payment Request application. No Payment Request will be processed without such documents properly completed, signed, and dated:

1. Form of Payment Request (Attachment 2-3)
2. DB Team Certification for Payment (Attachment 2-4)

3. DB Team Certificate and Release (Attachment 2-4)
4. Affidavit of Wages Paid (Attachment 2-4)
5. Project SOV derived from the cost-loaded Project Schedule listing all progressed Payment Activities for which payment is being requested,
6. Conditional lien releases from Contractor and Subcontractors of any tier with a contract value greater than $1,000,000 on a form provided or approved by SRTA and GDOT
7. The monthly narrative report as defined in Section 2.5.9.2 and Section 2.6.3

All required insurance certificates, Payment Limitations, and Partial Suspension of Payment

2.6.9 Limitations on Progress Payments

GDOT will not pay for Work unless the following conditions are met with respect to such Work:

1. Released for Construction Documents are on Site for the Work being performed;
2. Released for Construction Documents have been checked and reviewed, and design documentation has been maintained, in accordance with the Contract Documents; and
3. Nonconforming Work Items are corrected and/or resolved to the satisfaction of GDOT.

On any Payment Request, GDOT may suspend or deduct amounts otherwise due to the DB Team for that period's apportionment for any continuing activity for any of the items identified in Exhibit 18 of the Agreement.

No payment will be made for design or construction Work necessary to correct Nonconforming Work.

If the DB Team fails to completely prosecute Work of a Payment Activity, GDOT may deduct that Payment Activity amount from the next successive month for the corresponding Payment Activity.

The DB Team is entitled to payment at the rate of completion of the Payment Activities except as restricted by the Annual Cumulative Payment Cap Schedule set forth in Article 5.2 of the Agreement and Table 5-1, and the Maximum Payment Curve as set forth in Article 5.3 and this Section 2.6.

2.6.10 Price Reductions for Nonconforming Work

Nonconforming Work from the specification, if accepted by GDOT, will result in reductions of the Contract Sum as specified below.

Unit prices for materials are not utilized in the payment structure of this Contract. However, unit prices for reductions are required to utilize the pay factors, daily deductions, and rejection values identified in the GDOT 2013 Standard Specifications and 2016

Supplemental Specifications relating to price reductions. Unit prices for reductions listed shall be applied as unit prices, daily deductions, or rejection values as listed. Reductions per unit of Nonconforming Work allowed to remain in place by GDOT that are not covered by GDOT Standard Specifications shall be determined by GDOT. The DB Team shall be provided the opportunity to accept the reduction or remove and replace the Nonconforming Work. Girder defects will be assessed for price reductions based on long term durability and maintenance concerns.

2.6.11 Other Deductions

GDOT may deduct from any amounts otherwise owing to the DB Team, including each monthly progress payment and the final payment, the following:

1. Any anticipated or accrued losses, liability, Liquidated Damages, fees, or other damages for which the DB Team is responsible hereunder.
2. The estimated or actual cost, as determined by GDOT, of remedying any Nonconforming Work or otherwise remedying any breach of contract by the DB Team.
3. The amount of any outstanding claim relating to the Work.
4. The estimated amount, as determined by GDOT, or the amount identified in the Project SOV for Work that the DB Team is obligated to perform under the Contract that the DB Team has failed to perform, whichever is greater.
5. Any other sums which GDOT is entitled to recover from the DB Team under the terms of the Contract.
6. With regard to final payment, in addition to the above, the amount GDOT deems advisable to retain to cover any existing or threatened Disputes, Claims, Liens and stop notices relating to the Project, or the cost of any uncompleted Work (including uncompleted Warranty Work).

GDOT's failure to deduct from a progress payment or final payment any amount that GDOT is entitled to recover from the DB Team under the Contract shall not constitute a waiver of GDOT's right to such amounts.

2.6.12 Processing and Payment

Once GDOT reviews and approves the Payment Request, GDOT will sign and date and return a copy of the Payment Request cover sheet with any corrections noted and proceed with processing the Payment Request. From the date signed, GDOT shall cause SRTA to make payment on approved amounts within 10 Business days.

2.6.13 Prompt Payment to Contractors and Subcontractors

Upon receipt of payment from or on behalf of SRTA, the DB Team shall promptly pay all Contractors out of the amount paid to the DB Team on account of the respective Work performed by such Contractors as and to the extent that such Contractors are entitled to same under the respective Contracts and applicable law. The DB Team shall require Contractors by appropriate agreement with the Subcontractors to require all such

Subcontractors to make payments to all downstream sub-subcontractors and suppliers in a similar manner. SRTA shall have no obligation to pay or to see to the payment of money to the Contractors or Subcontractors, except as may otherwise be required by Law, provided however, that SRTA reserves the right to make payments to the DB Team and jointly payable to any such parties where the DB Team has failed to remit payments properly due and as required.

2.6.14 Application for Final Payment

Final payment will be made in accordance with Section 2.6.15.

On or about the date of delivery of SRTA's issuance of the certificate of Final Acceptance, the DB Team shall prepare and submit an application for Final Payment to GDOT showing the proposed total amount due the DB Team. In addition to meeting all other requirements for invoices hereunder, the application for Final Payment shall include (i) the executed release and affidavit described in Section 2.6.15 below; (ii) a list of any asserted, outstanding, or pending Relief Events or Compensation Events and all existing or asserted claims, liens, and stop notices by Subcontractors, laborers, Utility Owners, or other third parties relating to the Project, including any notices filed or to be filed with the Affidavit of Final Completion, stating the amount at issue associated with each such notice; (iii) the written consent by the Surety to such payment; and (iv) such other documentation as GDOT may reasonably require.

GDOT will review the DB Team's proposed application for Final Payment, and changes or corrections will be forwarded to the DB Team for correction. If no changes or corrections are required, GDOT will approve the Application for Final Payment.

2.6.15 Final Payment

As a condition to its obligation to make payment to the DB Team based on the application for Final Payment, GDOT shall have received an executed release from the DB Team, releasing and waiving any claims against the Indemnified Parties, excluding only those matters identified in any asserted, outstanding, or pending Relief Event or Compensation Event Notices listed as outstanding in the application for Final Payment, and otherwise satisfactory in form and content to GDOT.

The executed release shall be accompanied by an affidavit from the DB Team certifying the following:

1. All Work has been performed in strict accordance with the requirements of the Contract Documents.
2. The DB Team has resolved any claims made by Subcontractors, Suppliers, Utility Owners, laborers, and others against the DB Team, GDOT, or the Project, except for those claims identified in the Application for Final Payment or those claims for which the Subcontractor has executed a release against GDOT, the Project, and the Payment Bond.

3. The DB Team has followed GDOT's procedures for Final Acceptance and has provided complete lien releases from all Subcontractors and Suppliers, except for those with claims listed above, in a form and with language that will be provided by GDOT.
4. The DB Team has no reason to believe that any Person has a valid claim against the DB Team, GDOT, or the Project that has not been communicated in writing by the DB Team to GDOT as of the date of the certificate.

All prior partial estimates and payments shall be subject to correction in the final payment.

The executed release and the affidavit shall survive final payment. The payment amount will be reduced by any amounts deductible under these DB Documents.

The DB Team's acceptance of final payment shall constitute a waiver of affirmative claims by the DB Team, except such claims previously made in writing and identified in writing as outstanding and unsettled at the time of the application for Final Payment.

2.6.16 No Waiver

No payments shall be construed as an acceptance of any defective work or improper materials nor shall any such payments be conclusive evidence of the performance of this Agreement.

2.6.17 Disputes

Failure by SRTA to pay any amount in dispute shall not alleviate, diminish, or modify in any respect the DB Team's obligation to perform under the DB Documents and the DB Team shall not cease or slow down its performance under the DB Documents on account of any such amount. Any dispute regarding such payment shall be resolved pursuant to the Dispute Resolution Procedures.

In the event that SRTA and the DB Team disagree as to the form of the Payment Request or other matters relating to the procedure outlined herein, such disputes shall be resolved pursuant to the Dispute Resolution Procedures in Article 17.

2.7 Public Information and Communications

2.7.1 General Requirements

It is vital to the success of the Project that GDOT and the DB Team gain and maintain public awareness and support. This shall be accomplished through proactive communication of Project information to all Project Stakeholders in a timely manner, providing advanced notification of potential impacts, allowing meaningful opportunities for stakeholders to identify issues and recommend solutions, facilitating timely and appropriate feedback from GDOT, and supporting the execution of a high-quality, well executed communications plan to keep stakeholders informed, engaged, and educated. The DB Team shall coordinate with GDOT on items necessary to comply with GDOT's adopted *Public Information Policy Manual*.

This Section 2.7 describes the requirements with which the DB Team shall comply during the Term of the Agreement regarding the provision of information and communication with GDOT to facilitate outreach and education to Project Stakeholders.

2.7.1.1 Public and Stakeholder Meetings

When requested by GDOT, the DB Team shall participate and provide necessary staff support in meetings with the public arranged and conducted by GDOT. During such meetings, the DB Team shall be in attendance to assist GDOT in providing the public with an update on the progress the Project and discussing key issues as they emerge, or as requested by GDOT.

The DB Team's Project Information Coordinator (PIC) shall assist in implementing public and stakeholder meetings by performing the following responsibilities:

- Conduct media and other stakeholder group tours of the Project, as requested.
- Upon request and with GDOT's acceptance, the PIC and other DB Team members shall attend meetings with key elected officials, the general public, representatives of civic organizations, businesses, and special interest groups within the Project corridor (individually or in groups) for the purpose of informing and building rapport with affected Project stakeholders.
- Support GDOT in the planning and implementation of public meetings, stakeholder working group meetings, and public outreach presentations to inform stakeholders and the public of construction plans and detours. Support shall include, but not be limited to, attendance of PIC and other SME's at meetings, upon request.

2.7.2 Administrative Requirements

2.7.2.1 Public Information and Communications Plan

The DB Team shall support the execution of an approved Public Information and Communications Plan (PICP) under GDOT supervision that includes stakeholder involvement and public information strategies to engage and inform key stakeholders.

The DB Team will provide input and content to the comprehensive PICP. The PICP shall include detailed strategies and action steps to inform, educate, and engage Project Stakeholders throughout every Project phase. The DB Team shall provide input into an Emergency Event Communications plan that outlines guidelines for communications protocol, roles and responsibilities, specific activities, and timelines to adhere to during emergency situations. The DB Team shall coordinate and collaborate with GDOT on the development of the PICP. The DB Team shall also comply with the PICP throughout the Term of the Agreement. The PICP will also include a Project-specific stakeholder list that will be developed, maintained, and updated by the DB Team throughout design and construction activities to ensure that all interested and affected Project Stakeholders will be notified about meetings and Project updates. Additionally, the PICP will include a

general schedule of public information activities for the Project over the entire Term of the Agreement.

The PICP will be flexible, to capture the full magnitude of yet-to-be-determined impacts as a result of Project activities such as design, construction, and the public's reaction to these and other impacts. The PICP will also be resilient, to successfully guide the implementation of the outlined strategies, given the ever-changing desire for depth, breadth, and frequency of information by a variety of Project Stakeholders such as the media, elected officials, transportation stakeholders, and the general public. The DB Team shall coordinate with GDOT throughout the Project to ensure information is shared in a timely manner and effective resources are allocated for outreach needs.

The PICP shall provide a protocol for communicating with Project Stakeholders in coordination with GDOT. GDOT will approve all Project Stakeholder communications. GDOT and the DB Team will share responsibilities for disseminating information to the public, as specified in the PICP.

The PICP shall detail the communication hierarchy for information distribution related to compliance with approved Environmental Documents, as described in Section 4 (Environmental). The PICP shall also include names and contact information, including Emergency contact information, and the preferred methods of both routine and Emergency communications distribution. The DB Team shall ensure that any changes to contact information pertaining to the CEPP are incorporated into the PICP within five (5) Business days.

2.7.3 Project Information Coordinator (PIC)

The DB Team shall designate a member of the Project team or subconsultant team to carry out the role of the Public Information Coordinator (PIC), who will lead the DB Team's responsibility for public information and involvement activities on a day-to-day basis throughout the Term of the Agreement until Final Acceptance. The PIC should be proficient in Microsoft Word, PowerPoint and InDesign or similar graphic design software. Relevant communications experience is preferred. The PIC or another member of the DB Team familiar with the PICP shall be available 24 hours a day, seven (7) days a week.

PIC responsibilities shall include coordinating with GDOT to facilitate communication between the DB Team, GDOT personnel (including GDOT's communications officers), and Project Stakeholders. Responsibilities shall also include interacting with affected stakeholders and representing the interests of the Project at public meetings and other formal and informal outreach events, upon GDOT request.

The PIC shall assist GDOT by performing the following responsibilities to implement the PICP:

1. Notify GDOT no less than twenty-one (21) days in advance of the start of any construction activity that will impact the general public such as any changes in traffic patterns to the existing general purpose lanes or existing transportation facilities so that GDOT can communicate the potential impacts of these activities

with all Project Stakeholders to include the general public, the media, and adjacent Government Entities.

2. Disseminate Project Public Information materials in community locations specified in the PICP or as requested by GDOT.
3. Be available to answer questions via a direct telephone number, U.S. mail, email, and in person during normal business hours and Emergency situations. If the PIC is unavailable, these duties shall be fulfilled by another designated member of the DB Team as defined in the PICP.
4. Maintain an electronic database to document public inquiries and complaints including, at a minimum, the complaint, the response, and the date the complaint was resolved. The PIC will make this information available to GDOT at a frequency defined in the PICP and upon request.
5. Participate, as requested, in communication with Project Stakeholders and GDOT.
6. Provide supportive information for media and citizen inquiries when requested by GDOT.
7. Staff Project outreach events upon request from GDOT.
8. Provide GDOT with information, maps and print or digital graphics on Project status, traffic impacts and other information for communicating to key stakeholder groups and the general public. Information may be communicated using channels including email, text, a GDOT-hosted Project webpage, outreach presentations, newsletters, public meetings, video, and social media.

2.7.4 Monthly Public Information and Communications Reporting

The DB Team shall provide a monthly Public Information and Communication Report to GDOT. The report shall include, but not be limited to, the following information:

1. Environmental, design, and construction issues affecting adjacent residential areas, frontage roads, local streets, and utilities, grading, drainage, and noise, retaining walls, lane closures, ramp closures, local road closures and traffic shifts (changes in any use of exiting traffic);
2. Street and roadway detour design and implementation;
3. Scheduling and duration of work, including hours of construction;
4. Haul routes;
5. Methods to minimize noise and dust;
6. Environmental mitigation measures;
7. Number of public inquiries and complaints received, including an attachment of details and resolution;
8. Number of safety or emergency incidents, if any; and
9. Thirty (30)-day look ahead of anticipated construction activities.

2.7.5 Emergency Event Communications

For all Emergency events, such as vehicle collisions, ice/snow conditions, flooding, Hazardous Material spills, construction failures or injuries, Force Majeure Events, or other unforeseen events, the PIC shall take timely and appropriate action to inform GDOT of all pertinent details. The PIC shall provide these details through the agreed-upon protocol to ensure effective and timely communication to GDOT representatives who will, in turn, inform the media, elected and local officials, and all key stakeholders.

As indicated in Section 2.7.2, the DB Team shall provide input into an Emergency Response plan in collaboration with GDOT, to define communications protocol in Emergency situations. This plan shall include a twenty-four (24) hour contact list and protocol (hierarchy of team notification) for all of the Project team members including the local Emergency response members adjacent to the Project, counties, municipalities, utility companies with facilities within Project limits and FHWA. Notification tools include: overhead changeable message signs (CMS), temporary changeable message signs, GDOT's web-based information tool, email/web alerts, telephone notification, texts, facsimiles, and media releases/interviews, as appropriate. The DB Team shall continue to provide updated information, as available and on a timely basis, until the Emergency has been resolved.

In the event of an unforeseen Emergency, timely notification shall occur as soon as practicable, but no longer than fifteen (15) minutes from of the start of the occurrence. If advance warning is available for an Emergency event such as ice/snow, timely notification shall mean as soon as practicable, but no more than fifteen (15) minutes from the time the information was made available. In both situations, the DB Team shall continue to provide updated information to GDOT, as available and on a timely basis, until the Emergency has been resolved.

2.7.6 Disseminating Public Information

The PIC and the DB Team shall assist GDOT in the development of and review of public information materials. Activities shall include:

1. The PIC and the DB Team shall assist in the review of materials regarding Project-related subjects, for use in meetings, news releases, telephone correspondence, newsletters, email, GDOT's web based information tool, overhead dynamic and changeable message board signs, web alerts, maps, displays, renderings, presentations, digital renderings/animations, photos, brochures, pamphlets, and any other relevant public information materials.
2. The PIC and the DB Team shall provide weekly Traffic Interruption Request summaries for public information purposes. The PIC will provide draft press releases and detour maps of planned impacts to affected stakeholders or the traveling public. The DB Team shall provide to the PIC any lane closure and detour requirements 72 hours in advance of closure and detour activities.
3. The PIC shall provide narrative content, photos and graphic information for weekly social media posts and monthly Project e-newsletters.

4. The PIC and the DB Team shall support the planning and implementation of special events including a groundbreaking ceremony at commencement of construction and ribbon cutting at Project completion.
5. The DB Team shall supply high-quality construction progress photos and video (detail images and aerial) monthly and at major construction milestones.
6. The DB Team also shall assist in the development of Project-related information for the GDOT Project website, including:
    a. Narrative Project updates
    b. Project maps
    c. Digital renderings and/or animations
    d. Frequently asked questions (FAQs)
    e. Current Project activities addressing design and construction
    f. Timing of road and ramp closures and openings
    g. Any utility disruptions
    h. Recommended route alternatives during closures

2.7.7 Public Involvement Action Items

Table 2-2 summarizes the responsibilities for the DB Team and GDOT on each of the Project information tasks. It also describes the general timeframe and audience for these activities.

Table 2-2: DB Team Project Information Tasks and Responsibilities

Task	Audience	Timeframe	Responsibility
Responding to General Public Inquiries/ comments	General Public	Project Duration	DB Team with oversight from GDOT
Continuous Communications with Elected/ Public Officials	All Audiences	Monthly at Key Milestones and as requested	GDOT to coordinate and facilitate with support from the DB Team
Public Information Meetings	General Public	Key Milestones and as requested	GDOT to coordinate and facilitate with support from the DB Team
Public Outreach Meetings	Selected Groups	Project Duration, as Necessary	GDOT to coordinate and facilitate with support from the DB Team
Traffic Impact and Lane, Ramp and Road Closure Notices	General Public	Duration of Construction Period	The DB Team to provide information to GDOT in advance of traffic impacts. Weekday traffic interruptions for the next week shall be disseminated by the DB Team no later than noon the Thursday before.

Task	Audience	Timeframe	Responsibility
			Weekend traffic interruptions for the next weekend shall be disseminated by the DB Team no later than the close of business the Wednesday before. Ramp and road closure notices shall be requested by the DB Team a minimum of two weeks prior to the closure.
Website Information	General Public	Project Duration	GDOT with support from DB Team
News Releases and Traffic Advisories	General Public	Project Duration	GDOT with support from the DB Team
Crisis Communications	General Public	As Necessary During Project	GDOT with support from the DB Team per Emergency Plan
Responding to News Media Inquiries	General Public (via media)	Project Duration	GDOT Project support staff to serve as media contact with support from the DB Team
Electronic Communications, Social Media, E-newsletter	All Audiences	Project Duration	GDOT with support from the DB Team
Special Events Highlighting Project Milestones	Targeted Stakeholders	Groundbreaking and Open to Traffic	GDOT with support from the DB Team
Print Materials	All Audiences	Project Duration	GDOT with support from the DB Team
Project Site Visits	Special Groups	Special Coordination During Construction Period	DB Team to coordinate with staffing by appropriate technical staff in collaboration with GDOT

3 DESIGN AND SUBMITTALS

3.1 General

The DB Team shall provide Project Submittals in both electronic and hard copy format.

The DB Team may design and construct the Project in multiple phases. See Section 2.2.5 for requirements of the Construction Phasing Plan and Submittal Schedule.

Sufficient review and revision time shall be provided in the schedule and shall account for possible multiple re-submittals to secure Released for Construction (RFC) status prior to starting construction on any particular Element of the Work. Construction shall not proceed on any of the work until the design submittal has been reviewed, accepted, and Released for Construction.

Proprietary structural design software may be used in lieu of GDOT specific computer software programs. All alternative software programs are subject to prior GDOT approval, and upon such approval may be used to design the following structural elements:

1. Prestressed concrete beams,
2. Steel girders (both curved and straight),
3. Concrete decks,
4. Bridge substructure, including end bents and intermediate bents;
5. Foundations, including pilings and drilled caissons; and
6. Bearings.

Structural analysis software may be used to perform complex analysis or finite element modeling of bridges and bridge elements.

The DB Team may utilize spreadsheets or MathCad type programs to develop “hand calculations” for repetitive design elements.

All software, spreadsheets, and MathCad output shall be present in design documentation so that it can be verified to be compliant with design requirements by an independent checker. For hand calculations developed using software, the input, formulas (with code references shown) and output shall be provided so that it can be verified. Proprietary software output shall not be a “black box” type output and all code checks shall be visible to be verified by an independent checker. GDOT may require further verification of results of any design software using GDOT bridge design programs, hand calculations, or structural analysis software. The DB Team shall seek GDOT determination of any such reviews and account for any additional GDOT review time in the Project Schedule, which additional time shall not constitute a Relief Event.

Use of any software does not relieve the designer of their responsibility to perform required QA/QC of designs performed using this software. “Bugs” or errors or

deficiencies that exist in any proprietary or "out of the box" software which produces errors in the design or construction will be the responsibility of the DB Team.

INROADS output and Microsoft Excel spreadsheets may be subject to verification of results using GDOT's bridge geometry program.

3.1.1 GDOT Standards and Manuals

All Work shall conform with all applicable Manuals and Guidelines developed for and including AASHTO, FHWA, GDOT, and additional requirements stated in Attachment 3-1 Manuals and reasonably inferred therefrom.

3.1.2 Detailed Estimate of Quantities

The DB Team shall provide a detailed estimate with the RFC Plans that identifies GDOT Pay Items, pay item descriptions, units, and estimated quantities for the Project. The DB Team shall provide quantities in the Final Bridge Plans in accordance with the *GDOT Bridge and Structures Design Manual*.

3.2 Design

3.2.1 Design Workshop

Within fifteen (15) days of NTP 1, the DB Team shall arrange a design workshop which shall be attended by the Designer's personnel, GDOT, and the UAT and any invited participants of the Project. The purpose will be to familiarize involved personnel with the design concepts, issues, status, and review procedures. The DB Team and GDOT will jointly develop the agenda of the workshop and agree upon how it will be organized (such as by GDOT department and engineering discipline). During the design workshop, the DB Team and GDOT will discuss the application of Interim Design Reviews to reach resolution for Project elements that pose complex constraints or entail additional review effort. The workshop will also discuss the extent of GDOT and UAT reviews. The primary goal of the workshop is to make the design review process more effective and efficient for all parties. Agreements made regarding design review times shall be aspirational only and shall not override the durations stipulated in the DB Documents.

3.2.2 Design Reviews

Design reviews and meetings shall be conducted by the DB Team's Engineer of Record (EOR). The DQAM, the DB Team's independent design reviewer(s), and any design professionals having significant input into the design under review shall be present. The DB Team shall notify and invite GDOT and the UAT to participate in all design reviews. The EOR shall organize and facilitate the design review kick-off workshop with GDOT no later than thirty (30) days from NTP 1 to discuss the DB Team's approach to design the Project, any phasing, design packages, and related design Submittals. Thereafter, design review meetings shall be scheduled no less frequently than monthly, or to the frequency determined by GDOT, until all Submittals have been accepted and Final

Design achieved. Multiple, weekly design meetings for various aspects of the design should be planned and shall be accounted for in the DB Team's level of effort for design and scheduling. GDOT may also invite additional stakeholders to attend. GDOT's participation in design reviews shall not relieve the DB Team of its responsibility for the satisfactory completion of the Work in accordance with all requirements of the DB Documents.

The DB Team's EOR or designated design leads shall provide the agendas of the meetings at least three (3) days in advance of the meetings which shall include a detailed summary status of all submittals provided to GDOT that are the subject of the meeting. A design submittal detailed summary status list shall be provided monthly and, at a minimum, shall provide date submitted, to whom it was submitted, contractual required review period, total days in submission, date accepted, and associated comments for each submittal transmitted to GDOT or any other Person.

The DB Team shall provide or make available to review meeting participants all design documents (e.g., drawings, reports, specifications, basis of design memorandums, and other technical memorandums as necessary to support design decisions) pertinent to the design review, including all prior comments and actions resulting therefrom. The DB Team shall prepare and distribute minutes from the review meetings within three (3) days of the meeting.

At a minimum, Design Reviews shall be conducted for the following:

1. Conceptual Layout Plans submittal shall include alignment and lane configuration information necessary to verify lane continuity and general scope compliance for the entire Project.
2. Preliminary Design Submittal shall be sufficiently developed to show and GDOT to verify that the concepts proposed by the DB Team comply with the detailed requirements of the DB Documents. The DQAM shall verify in writing the compliance and completeness of the Design Submittal prior to submitting and presenting the Preliminary Design to GDOT for review. During this design review meeting, the following issues shall be discussed:
    a. All requirements of the DB Documents applicable to the proposed concept documents, including all applicable standards and legal requirements, environmental compliance, and environmental permit conditions have been identified, and the proposed designs are in compliance.
    b. That the proposed concepts are substantiated and justified by adequate Site investigation and analysis.
    c. Right of way requirements have been identified and any changes to the State Proposed right of way have been addressed for GDOT to maintain and operate the Project after Final Acceptance.
    d. The constructability of the proposed concepts and design.
    e. The availability of required materials and equipment.

f. That the proposed concepts meet all quality requirements, and all required Design Quality Management Plan procedures have been followed including those for Site maps and concept drawings, as well as draft specifications for any materials or methods that are not industry standard.

g. The acceptance of all Design Exceptions and Variances.

3. Optional limited Interim Design reviews are intended to resolve conflicts and unresolved comments after the Preliminary Design has been reviewed but prior to Final Design. The DB Team should use Interim Design Reviews to remedy conflicts, account for exceptions, and incorporate betterments. The DB Team shall notify GDOT and the UAT if Interim Design reviews are necessary and shall schedule the necessary design reviews. Workshops, meetings and over-the-shoulder reviews are means to facilitate Interim Design reviews with GDOT.

   The DB Team may also use Interim Design reviews to verify that the concepts and parameters established and represented by Preliminary Design are being followed and that all requirements of the Agreement continue to be met. The DB Team shall specifically highlight, check, and bring to the attention of GDOT any information differing from or supplemented to that presented at the Preliminary Design review.

4. Final Design reviews shall verify that the concepts and parameters established and represented by Preliminary Design and any Interim Designs are being followed and that all Agreement requirements continue to be met. The DB Team shall specifically highlight, check, and bring to the attention of GDOT any information differing from or supplemental to that presented previously. Prior to scheduling the Final Design review with GDOT and the UAT, the Design Quality Assurance Manager's independent review shall have been completed.

   The DB Team shall be responsible for demonstrating that any proposed specifications meet or exceed the minimum DB Document and permit requirements. GDOT shall have final determination that these requirements are being met and that the specifications are suitable and appropriate to control the Work.

5. Temporary Works design reviews, except where public safety might be affected, are the responsibility of the DB Team to assure conformance with the Final Design plans and specifications and in accordance with the DB Document requirements. The DB Team shall verify pertinent dimensions in the field prior to conducting a Temporary Works plan review. The DB Team shall check, review, and certify Temporary Works Designs prior to their use in fabrication or construction.

6. Review of the Record Documents shall be performed initially by the DB Team to assure red-lines and authorized changes to the Final Design Plans are properly notated on the record plans and specifications, and that quality documents and facility records indicating variances or changes have been reflected on the plans and specifications. Once the DQAM has completed its review, the Record Drawings are to be submitted to GDOT for review and acceptance.

7. Independent design review for any tolling-related components shall be conducted by the same team of individuals for the entire Project unless approved in writing by GDOT.

Design quality records shall be maintained by the DB Team in an auditable format according to the QMP procedures. GDOT has the right to audit the quality records for compliance with the QMP and DB Document requirements. Upon completion of the Project, all quality records shall be turned over to GDOT.

3.2.3 Changes Subsequent to Review

If the design is amended subsequent to design review and acceptance by GDOT, the DB Team shall re-check and re-certify the design as an additional design review. Substantive changes to plans and specifications initiated by the DB Team and already checked by the EOR and certified by the DQAM shall be subjected to the design review process as an entirely new design.

3.3 Other Agency Approvals

3.3.1 Federal Aviation Administration

Unless otherwise specified in the DB Documents, the DB Team shall be responsible for all costs for ascertaining and obtaining all required approvals, permits, and agreements for performance of the Work with the Federal Aviation Administration (FAA). The DB Team is responsible for all costs of the Work, whether incurred by the DB Team or by the FAA.

The DB Team shall ensure that design and permanent and temporary construction complies with requirements of the Federal Aviation Administration (FAA) aeronautical study.

3.4 Design Data Book

The DB Team shall document all design criteria and design decisions in a Project Design Data Book submitted for approval, and kept with the Project files. The Project Design Data Book shall include complete and up-to-date design parameters and decisions (as applicable to the Project) as presented in Chapter 5, Concept Design of the GDOT Plan Development Process (GDOT PDP) included in Attachment 3-1 Manuals.

The DB Team shall submit the initial Project Design Data Book for GDOT review and approval no later than thirty (30) days after NTP 1. The DB Team shall not submit any Design Submittal until the Project Design Data Book has been approved.

The DB Team shall update and include the relevant portions, or as requested by GDOT, of the Project Design Data Book with each design submittal, including Preliminary Design, Final Design, RFC, and RFC revisions. The DB Team shall include the finalized and comprehensive Design Project Data Book with the Record Drawings submittal.

3.5 Design Submittals and Progress of Design Work

Documents received after 12:00 p.m. (noon) Eastern Standard or Daylight Time (as applicable), including all notices, correspondence, communications (including e-mail and facsimile), or other Submittals received after 12:00 p.m. (noon) shall be deemed received on the first Business Day following delivery (for example, in order for a fax to be deemed received on the same day, at least the first page of the fax must have been received before 12:00 p.m.).

Each required Submittal shall be delivered to GDOT in conformance of the review times provided in Article 6.3.2 and in Table 3-1: Master Submittal List. The times provided in Table 3-1 are specifically for the review period required for GDOT to comment and GDOT to subsequently accept. Accuracy, completeness, and time spent to address GDOT comments and resubmit for re-review are the responsibility of the DB Team.

No fabrication, casting, or construction will occur until all related design review and shop drawing review comments are resolved and the corresponding drawings and specifications have been accepted by GDOT and stamped "Released for Construction."

All design Submittals shall be complete along with all the supporting information necessary for review. The Submittal and supporting information must represent logical Work activities and must show impacts on subsequent Work on this Project. Any modification to the component construction due to subsequent design changes or as a result of design development is solely at the DB Team's risk, regardless of GDOT acceptance.

The DB Team shall provide Project Submittals detailed in Volume 2, Table 3-1: Master Submittal List. Each required Submittal shall be delivered to GDOT in conformance of the review times provided. As indicated above, the times provided are specifically for the review period required for GDOT to comment and GDOT to subsequently accept (if all requirements of the DB Documents are met) or approve, as applicable. Not all Submittals listed in Table 3-1: Master Submittal List may be required for the Project and some Submittals may be combined into a single Submittal such as the Project Management Plans; the DB Team shall coordinate with GDOT prior to combining any Submittals and receive GDOT approval prior to omitting any listed Submittals.

3.6 Additional Submittal Requirements

The DB Team is responsible for obtaining any Government Approvals or other approvals required to allow for implementation and construction of the Construction Phasing Plan.

3.6.1 Staged Design Submittals

Once the Conceptual Layout Plan for the entire Project has been accepted by GDOT, the DB Team is allowed to submit Staged Design Submittals (components) instead of a completed set of drawings for an entire accepted Construction Phase. A Staged Design Submittal is a submittal that consists of a portion or portions of the Work within the limits

of an accepted Construction Phase. For example, a Staged Design submittal for a bridge might be categorized as foundations, substructures, abutments, or complete continuous units of superstructure. Staged Design Submittals for other components of the Project might include grading, drainage, signing and pavement marking, and erosion control. If the DB Team chooses to provide Staged Design Submittals, the list of Staged Design Submittals shall be identified as part of the proposed Construction Submittals Schedule.

3.6.2 Changes to Accepted and Released for Construction Submittals

After a design package has been Released for Construction, any subsequent plan or design changes must be submitted to GDOT with documentation sufficient to justify the reasoning behind the change request. GDOT must accept the requested change with written notice to the DB Team prior to its implementation by the DB Team as a plan revision and also prior to any related subsequent construction activity.

3.6.3 Presentation Requirements

The DB Team shall provide all plan submittals as required by and in accordance with the GDOT Plan Development Process (PDP)*,* Electronic Data Guidelines (EDG) *and the* Plan Presentation Guide (PPG)*.*

The Plans shall be fully dimensioned in English units; all elevations necessary for construction shall be shown similar to GDOT's normal practice. All plans are to be prepared on the scales according to GDOT's Plan Presentation Guide (PPG).

Each location shall include details for all civil elements and calculations within proximity of the site so that these locations can be reviewed holistically and connections with communication and electrical networks are clearly understood.

3.6.4 Construction Plans Organization and Sheet Index

Construction plans shall be assembled according to the GDOT Plan Presentation Guide (PPG).

3.6.5 Computations

All design computations and computer printouts shall be neatly recorded on 8 ½- by 11-inch sheets, fully titled, numbered, indexed, dated and signed by the designer/Project manager and checker. The computer files and two copies of the computations fully checked and appropriately bound, shall be submitted to GDOT with the plans. A complete tabulation of the drainage analysis along with the calculations used to determine the size of drainage structures shall be submitted to GDOT.

3.6.6 Submittal Formats

Each design submittal shall, in addition to electronic delivery in .pdf format on the PMCS, consist of ten (10) sets of scalable 11- x 17-inch or 12- x 18-inch drawings, six (6) full size 24- x 36-inch design drawings and six (6) sets of calculations and a portable flash drive of the submittal including all InRoads, MicroStation V8 format files. For all Final Plan submittals (plans, calculations, specifications, reports, etc.), each document shall be

sealed by a qualified Professional Engineer. In addition to written design review comments (if any), design drawings may be returned to the DB Team with any remarks indicated. After a design drawing submittal is "Released for Construction", the DB Team shall, in addition to posting the complete electronic files on the PMCS, furnish GDOT with corrected design drawings in accordance with Section 3. After all individual Staged Design Submittals have been accepted for a particular Construction Phased Plan; a final complete set of plans for the Construction Phase will be compiled and provided to GDOT as the Released for Construction set.

3.6.7 Additional Specifications

In addition to the design drawings that include Georgia standards and details, the DB Team shall prepare and submit specifications for construction work included in the plans which are not covered by GDOT's Standard Specifications, the Supplemental Specifications and/or the Special Provisions as required in Attachment 3-1 Manuals.

Any submittal(s) received by GDOT after 12 PM (noon) shall be considered as being received the following Business Day.

3.6.8 Submittals Process

Review of the Design Documents by GDOT may be limited to the basic requirements of the DB Documents, relating to design compliance and material type(s) and may not include detailed review or checking of design of components and related details or the accuracy with which such designs are depicted on the design drawings.

Review or acceptance by GDOT or other Persons of any Design Documents shall not relieve the DB Team of responsibility under the Contract, including the overall correctness of Design Documents including engineering mathematical computations. All Design Documents, including plans, specifications, reports, calculations, shop drawings (where public safety is affected) and Permit documents shall be submitted to GDOT.

The DB Team shall provide all copies for distribution. GDOT will be responsible for distributing the submittals to all required parties of the contract.

All Submittals shall include a cover letter describing the submittal, review period, and the due date for any GDOT response.

All Submittals shall include the DB Team's QA certification statement (in addition to the design consultant's QA certification statement for all design-related submittals). GDOT will reject any submittal if the QA certification statement is not included. Each submittal shall also provide a certification statement that the submittal complies with all terms and conditions of the Agreement, signed by the EOR.

3.6.9 Required Participants of the Process

The QAM and DQAM, except as otherwise required in the DB Documents, will be primarily responsible for verifying that the accepted Design Quality Management Process as required in Section 2.3 has been followed, verifying that the submittal meets all DB

Document requirements, ensuring that all necessary Governmental Approvals have been obtained by the DB Team, and performing any review(s) as provided for in Section 3.

The DB Team is responsible to provide all required Submittals in compliance with the DB Documents and in compliance of the accepted Submittals Schedule. The DB Team must further provide a certification that the submittal meets the terms of the DB Documents and has been independently reviewed in accordance with the accepted Design Quality Management Plan (see Section 2.3) with each submittal.

3.6.10 GDOT Design Review Process

The DB Team shall provide the submittal to GDOT via the PMCS and shall provide the required hard copies in accordance with the Submittal Schedule. Submittals shall be categorized into Discipline Groups as follows:

1. Right of Way, Railroad, and Utilities (RRU Group)
2. Roadway, Drainage, and Maintenance of Traffic (RDMOT Group)
3. Bridge, Structures, Retaining Walls, and Aesthetics (BSRA Group)
4. ITS, Traffic (includes signing, pavement marking, signals and lighting) (ITSTT)
5. All types (ALL Group)
6. Other (OTH)

GDOT will log in the submittal and distribute to the required review participants.

The review period begins the following Business Day after any submittal is received for the period prescribed in Article 6.3.2 and Table 3-1: Master Submittal List, except where there is a maximum number of concurrent submittals of a particular type specifically noted in this Section 3. In cases where the maximum is exceeded, the review period will begin when prior submittal reviews are completed so that the maximum number in concurrent review is not exceeded. For the general case where there is not a maximum number of concurrent submittals specifically noted in this Section 3, an additional seven (7) days will be added to the prescribed review period whenever there are more than five (5) concurrent submittals in review in the subject document's particular Discipline Group. Further, an additional seven (7) days will be added for each additional increment of five (5) concurrent submittals in review in a Discipline Group. For example, if there are six (6) to ten (10) submittals in concurrent review in a Discipline Group, then an additional seven (7) days are added; and if there are eleven (11) to fifteen (15) submittals in concurrent review in a Discipline Group, then an additional fourteen (14) days are added, etc. For purposes of calculating the number of submittals, the accepted Submittal Schedule will generally be used as a guide except that complementary documents, for example bridge plans and bridge calculations, will be considered a single Submittal. Documents that fully integrate multiple disciplines in the presentation, for example roadway and drainage plans, together with the respective calculations would be counted as one submittal. For documents or packages that include multiple bridges or toll gantries, each individual

bridge or toll gantry will be counted as a separate submittal. For documents or packages that include multiple retaining walls, noise barriers, BFIs, or WFIs, GDOT will make a determination on the number of Submittals to be counted.

Once a review is complete, the drawings or Submittal will be designated by GDOT as either:

- Accepted
- Accepted with Comments
- Rejected

The terms "Accepted" and "Accepted with Comments" shall mean that the design process may proceed and is not a notice that construction may begin.

- If "Accepted" or "Accepted with Comments", the GDOT representative will deliver the comments and, if necessary, return the drawings or Submittal via PMCS or hard copy to the DB Team. For final Submittals, after updating the documents to resolve all comments (as applicable) and receiving written notice from GDOT that the drawings or Submittal are "Released for Construction", the DB Team shall stamp the accepted set "Released for Construction" and distribute copies to GDOT within three (3) Business days.
- If "Rejected", the GDOT representative shall deliver the rejected drawings or Submittal via PMCS or hard copy to the DB Team. The DB Team shall address the specific comments and resubmit. The resubmittal shall be a new Submittal and shall follow the same time period as provided in Article 6.3.2 and Table 3-1: Master Submittal List. Drawings or Submittals may be rejected without review if the submission is incomplete.

3.7 Shop Drawings and Temporary Works Submittals

3.7.1 General

Shop drawings include all working, shop, and erection drawings, associated trade literature, calculations, schedules, manuals, and similar documents submitted by the DB Team to define some portion of the Project work. The type of work includes both permanent and temporary works as appropriate to the Project. Permanent works include all the permanent structures and parts thereof required of the completed DB Documents. Temporary works include any temporary construction work necessary for the construction of the permanent works. This includes falsework, formwork, scaffolding, shoring, temporary earthworks, sheeting, cofferdams, special erection equipment, and the like. Falsework includes any temporary construction work used to support the permanent structure until it becomes self-supporting. Falsework includes steel or timber beams, girders, columns, piles and foundations, and any proprietary equipment including modular shoring frames, post shores, and adjustable horizontal shoring. Formwork includes any structure or mold used to retain plastic or fluid concrete in its designated shape until it

hardens. Formwork comprises common materials such as wood or metal sheets, battens, soldiers and walers, ties, proprietary forming systems such as stay-in-place metal forms, and proprietary supporting bolts, hangers, and brackets. Formwork may be either permanent formwork requiring a shop drawing submittal such as stay-in-place metal or concrete forms, or may be temporary formwork that requires certification by the Professional Engineer designing the specialized component(s) (the "Specialty Engineer") for construction affecting public safety and for major and unusual structures. Scaffolding is an elevated work platform used to support workmen, materials and equipment, but not intended to support the structure. Shoring is a component of falsework such as horizontal, vertical or inclined support members. This term is interchangeable with falsework.

Construction affecting public safety is defined as construction that may jeopardize public safety, such as structures spanning functioning vehicular roadways, pedestrian walkways, railroads, navigation channels of navigable waterways, and walls or other structure foundations located in embankments immediately adjacent to functioning roadways. It does not apply to those areas of the Site under the DB Team's control and outside the limits of, or influence of, normal public access.

For the purpose of shop drawing review and processing as described in this Section 3.7, the term "Shop Drawing Engineer" shall be a Professional Engineer as defined in Exhibit 1 of Volume 1 and will apply to the initiator or producer of shop drawings regardless of whether or not that party is normally the lead Professional Engineer for the design or the EOR; and the term "Shop Drawing Checking Engineer" shall be a Professional Engineer as defined in Exhibit 1 of Volume 1 and will apply to the shop drawing checker and certifier regardless of whether or not that party is normally the EOR, the Shop Drawing Engineer, or the lead Professional Engineer for the design.

3.7.2 Work Items Requiring Shop Drawings

In general, GDOT requires shop drawings for items of work not fully detailed in the plans which require additional drawings and coordination prior to constructing the item, including:

1. Bridge components not fully detailed in the plans, i.e. segments, steel girder details, post-tensioning details, handrails, etc.
2. Retaining wall systems
3. Precast Box Culverts
4. Non-standard Drainage structures, attenuators, and other nonstructural items
5. Building structures
6. Drainage structures, attenuators, and other nonstructural items
7. Design and structural details furnished by the DB Team in compliance with the Contract
8. Temporary Works affecting public safety

3.7.3 Schedule of Submittals

Shop drawings shall be included in the required Submittal Schedule. For each planned shop drawing submittal, the DB Team shall define the type and approximate number of drawings or other documents that are included and the planned submittal date, considering the processing requirements herein. The DB Team shall coordinate subsequent submittals with Project Schedule and Submittal Schedule to allow sufficient time for review and re-submittal as necessary.

3.7.4 Style, Numbering, and Material of Submittals

3.7.4.1 Drawings

The DB Team shall submit the shop drawings electronically in .pdf format on the PMCS. In addition to the electronic delivery, the DB Team shall furnish four (4) sets of shop drawings to GDOT for review. The DB Team shall consecutively number each sheet in the submittal series, and indicate the total number in the series (i.e., 1 of 12, 2 of 12, . . ., 12 of 12), and shall include on each sheet the following items as a minimum requirement:

1. Bridge Number(s),
2. drawing title and number,
3. a title block showing the names of the fabricator or producer and the DB Team for which the work is being done,
4. the initials of the person(s) responsible for the drawing,
5. the date on which the drawing was prepared,
6. the location of the item(s) within the Project,
7. the DB Team's approval stamp with date and initials, and, when applicable,
8. the signature and seal of the Specialty Engineer.

A re-submittal will be requested when any of the required information is not included.

3.7.4.2 Other Documents

In addition to electronic delivery in .pdf format on the PMCS, the DB Team shall provide four (4) sets of original documents or clearly legible photographic or xerographic copies of documents other than drawings, such as trade literature, catalogue information, calculations, and manuals. The DB Team shall clearly label and number each sheet in the submittal to indicate the total number of sheets in the series (i.e., 1 of 12, 2 of 12, . . . 12 of 12), and shall provide an additional three (3) sets of documentation for items involved with precast pre-stressed components, and provide an additional two (2) sets of documentation for items involving structural steel components. The DB Team shall bind and submit all documents with a table of contents cover sheet, and list on the cover sheet the total number of pages and appendices, and include a title referencing the submittal item(s), the name of the firm and person(s) responsible for the preparation of the document, the DB Team's approval stamp with date and initials, and, when applicable, the signature and seal of the Specialty Engineer. The DB Team shall submit appropriately prepared and checked calculations and manuals that clearly outline the design criteria,

and shall include on the internal sheets the initials of the person(s) responsible for preparing and checking the document. The DB Team shall clearly label trade literature and catalogue information on the front cover with the title, date and name of the firm and person(s) responsible for that document.

3.7.4.3 Qualified Products

Shop drawings are not required for Qualified Products accepted by GDOT and included on the Qualified Product List as specified in Attachment 3-1 Manuals. For non-Qualified Products, the DB Team shall submit shop drawings to GDOT after the Shop Drawing Checking Engineer has reviewed and accepted for conformance with the DB Documents and compliance to the design intent. Upon completion of GDOT's review, GDOT's red ink review stamp will signify an officially reviewed shop drawing and will state either "Released for Construction" or "Released for Construction as Noted".

3.7.4.4 DB Team-Originated Design

The DB Team shall submit shop drawings and applicable calculations to the Shop Drawing Checking Engineer for review, and shall ensure that each sheet of the shop drawings and the cover sheet of the calculations are signed and sealed by the Shop Drawing Engineer.

3.7.4.5 Temporary Works

For construction affecting public safety, the DB Team shall submit shop drawings and the applicable calculations for the design of special erection equipment, false-work, scaffolding, etc. to the Shop Drawing Checking Engineer, and shall ensure that each sheet of the shop drawings and the cover sheet of the applicable calculations is signed and sealed by the Shop Drawing Engineer.

3.7.4.6 Formwork and Scaffolding

The DB Team is solely responsible for the safe installation and use of all formwork and scaffolding. GDOT does not require any formwork or scaffolding submittals unless such work would be classified as construction affecting public safety.

3.7.4.7 Other Miscellaneous Design and Structural Details Furnished by the DB Team in Compliance with the Contract

The DB Team shall submit shop drawings and the applicable calculations to the Shop Drawing Checking Engineer, and shall ensure that each sheet of the shop drawings and the cover sheet of the applicable calculations is signed and sealed by the Shop Drawing Engineer.

3.7.5 Processing of Shop Drawings

3.7.5.1 DB Team Responsibility for Accuracy and Coordination of Shop Drawings

The DB Team shall coordinate, schedule, and control all submittals, with a regard for the required priority, including those of the various subcontractors, suppliers, and GDOT, to provide for an orderly and balanced distribution of the work. The DB Team shall also coordinate, review, date, stamp, accept, and sign all shop drawings prepared by the DB Team, Contractors, or DB Team-Related Entities (subcontractor, fabricator, supplier, etc.) prior to submitting them to GDOT for review. Submittal of the drawings confirms verification of the work requirements, units of measurement, field measurements, construction criteria, sequence of assembly and erection, access and clearances, catalog numbers, and other similar data. The DB Team shall indicate on each series of drawings the specification section and page or drawing number of the Released for Construction plans to which the submission applies, and shall indicate on the shop drawings all changes from the Released for Construction drawings and itemize all changes in the letter of transmittal. Likewise, whenever a submittal conforms to the Released for Construction plans, the DB Team shall clearly state so in the transmittal letter. The DB Team shall schedule the submission of shop drawings to allow a GDOT review period as specified in the DB Documents. The review period commences upon GDOT's receipt of the valid submittal or re-submittal and terminates upon the transmittal of the submittal back to the DB Team. The DB Team is discouraged from transmitting voluminous submittals of shop drawings at one time. For submittals transmitted in this manner, the DB Team shall allow for additional review time. Only shop drawings distributed by GDOT with the "red ink" stamps are valid and all work that the DB Team performs in advance of GDOT's release of shop drawings will be at the DB Team's risk.

3.7.5.2 Scope of Review by the Shop Drawing Checking Engineer

The Shop Drawing Checking Engineer's review of the shop drawings is for conformity to the requirements of the DB Documents and to the intent of the design. The Shop Drawing Checking Engineer's review of shop drawings, which includes means, methods, techniques, sequences, and construction procedures, is limited to the effects on the permanent works. The Shop Drawing Checking Engineer's review of submittals, which includes means, methods, techniques, sequences, and construction procedures, does not include an in-depth check for the ability to perform the Work in a safe or efficient manner.

3.7.5.3 Special Review by the Shop Drawing Checking Engineer of Shop Drawings for Construction Affecting Public Safety

For construction affecting public safety, the Shop Drawing Checking Engineer will make an independent design review of all relevant shop drawings and similar documents. The DB Team shall not proceed with construction of the permanent works until receiving the Shop Drawing Checking Engineer's approval. The DB Team shall send a copy of the

approval letter to GDOT. The review of these shop drawings is for overall structural adequacy of the item to support the imposed loads and does not include a check for economy, efficiency, or ease of construction.

3.7.6 Other Requirements for Shop Drawings for Bridges

3.7.6.1 Shop Drawings for Structural Steel and Miscellaneous Metals

The DB Team shall furnish shop drawings for structural steel and miscellaneous metals. Shop drawings shall consist of working, shop, and erection drawings, welding procedures, and other working plans showing details, dimensions, sizes of material, and other information necessary for the complete fabrication and erection of the metal work.

3.7.6.2 Shop Drawings for Concrete Structures

The DB Team shall furnish shop drawings for concrete components that are not cast-in-place and are not otherwise exempted from submittal requirements, shall also furnish shop drawings for all details that are required for the effective prosecution of the concrete work and are not included in the DB Documents such as: special erection equipment, masonry layout diagrams, and diagrams for bending reinforcing steel, in addition to any details required for concrete components for the permanent work.

3.7.6.3 Special Construction Submittals

In addition to any other requirements, within sixty (60) days from the issuance of Notice to Proceed 1, the DB Team shall submit information to GDOT outlining the plan for integration into the overall approach to the Project. Where applicable to the Project, include:

1. The overall construction program for the duration of the Agreement. Clearly show the milestone dates (for example, the need to open a structure by a certain time for traffic operations.)
2. The overall construction sequence. The order in which individual structures are to be built, the sequence in which individual spans of girders or cantilevers are erected, and the sequence in which spans are to be made continuous. Erection plans and sequence drawings shall be provided for all bridge construction work to be performed on or over railroad ROW as defined in Section 14 of Volume 3.
3. The general location of any physical obstacles to construction that might impose restraints or otherwise affect the construction, and an outline of how to deal with such obstacles while building the structure(s) (for example, obstacles might include road, rail and waterway clearances, temporary diversions, transmission lines, utilities, property, and the DB Team's own temporary works, such as haul roads, cofferdams, plant clearances, and the like.)
4. The approximate location of any special lifting equipment in relation to the structure, including clearances required for the operation of the equipment (for example, crane positions, operating radii, and the like.)

5. The approximate location of any temporary falsework, and the conceptual outline of any special erection equipment. Provide the precise locations and details of attachments, fixing devices, loads, etc. in later detailed submittals.
6. An outline of the handling, transportation, and storage of fabricated components, such as girders or concrete segments. Provide the precise details in later detailed submittals.
7. Any other information pertinent to the proposed scheme or intended approach.

Clearly and concisely present the above information on as few drawings as possible in order to provide an overall, integrated summary of the intended approach to the Project. GDOT will use these drawings for information, review planning, and to assess the DB Team's approach in relation to the intent of the original design. The delivery to and receipt by GDOT does not constitute any GDOT acceptance or approval of the proposals shown thereon; the DB Team shall include the details of such proposals on subsequent detailed shop drawing submittals, and shall submit timely revisions and re-submittals for all variations from these overall scheme proposals.

3.7.6.4 Shop Drawings Requiring Railroad Coordination

GDOT acceptance of shop drawings and submittals involving railroad coordination and review does not constitute final acceptance to begin work on these items. Refer to the requirements of Section 14 for coordination and duration of shop drawing reviews for construction work being performed on or over the ROW of the railroad. Direct coordination between GDOT (including the GDOT Bridge Office and/or Utilities Office) and the railroad will be necessary to ensure that all necessary approvals from the railroad are in place prior to beginning of construction activities in these areas.

3.7.6.5 Modifications on Construction

Where GDOT allows the DB Team to make modifications to the permanent works for the purposes of expediting the DB Team's chosen construction methods, the DB Team shall submit proposals to the EOR for review and approval prior to modifying the works. Proposals for minor modifications shall be submitted under the shop drawing process. The DB Team shall indicate on all drawings the change(s) from the DB Documents and itemize all Change Requests in the letter of transmittal. GDOT will require additional submittals for major modifications. Minor modifications are those items that, in the opinion of GDOT, do not significantly affect the quantity of measured work, or the integrity or maintainability of the structure or its components (for example, adjusting concrete dimensions, substituting steel plate sizes, changing reinforcing bar size and spacing, etc., all within the acceptable limits of the design). Major modifications are any modifications that, in the opinion of GDOT, significantly affect the quantity of measured work, or the integrity or maintainability of the structure or its components; for example, substituting alternative beam sizes and spacings, changing material strength or type, and the like. The DB Team shall provide signed and sealed revised sheets to GDOT for any required revisions to the Released for Construction plans prior to submitting shop drawings.

GDOT's decision on the delineation between a minor and a major modification and the disposition of a proposal is final.

3.8 Release for Construction Documents

Sufficient review and revision time shall be provided in the schedule and account for possible multiple re-submittals to secure a final Release for Construction prior to starting construction on any particular Element of the Work. Construction cannot proceed on any of the Work until the design Submittal has been reviewed, accepted, and Released for Construction.

For final Submittals, after updating the documents to resolve all comments (as applicable) and receiving written notice from GDOT that the drawings or Submittal are "Released for Construction", the DB Team shall stamp the accepted set "Released for Construction" and distribute copies to GDOT within three (3) Business days.

3.9 Record Drawings and Project Closeout

The EOR shall perform a Site visit at no more than thirty (30) days following NTP 3, and subsequent site visits every thirty (30) days thereafter until Substantial Completion is achieved. Additionally, an EOR Site visit shall take place at the midpoint of each and every individual bridge construction. The purpose of the Site visits is for the EOR to visually inspect the progression of the Work for compliance to the RFC Documents. The EOR shall prepare a Site observation compliance report to document elements of the work that are compliant and non-compliant with the RFC Documents. If elements of the work are not compliant with the RFC Documents, the EOR shall coordinate with the DB Team to determine corrective action and describe the corrective action in the Site observation compliance report. The Site observation compliance report shall be submitted within seven (7) days of the Site visit, and shall be stamped by the EOR.

3.9.1 Final Inspection

The EOR and CQAM shall participate in any final inspection and prepare a final Site observation compliance report to document elements of the work that are compliant and non-compliant with the RFC Documents. If elements of the work are not compliant with the RFC Documents, the EOR shall coordinate with the DB Team to determine corrective action and describe the corrective action in the final Site observation compliance report. This process shall be repeated until no non-compliance items remain. The final Site observation compliance report(s) shall be submitted within seven (7) days of the Site visit, and the last one submitted, once all non-compliance items are corrected and meet the DB Requirements, shall be stamped by the EOR and certified by the CQAM as accurate and complete. Final Acceptance cannot be achieved until this process is complete and the final Site observation compliance report, stamped by the EOR and certified by the CQAM as accurate and complete, is received by GDOT.

Refer also to Section 2.3.10 for additional information regarding the final inspection process.

3.9.2 Required Documents

Within 30 days of Substantial Completion and prior to Final Acceptance, the DB Team shall submit to GDOT a complete set of Final Design documents and Record Drawings for all the Construction Phases of the Project. The Record Drawings and documentation shall be an organized, complete record of Work performed and supporting calculations and details that accurately represent what the DB Team constructed. The DB Team shall ensure that the Record Drawings reflect the actual condition of the constructed Work.

Prior to any portion of the Project being opened to traffic, Record Drawings for that portion of the Project shall be submitted in hard copy and electronic format with a signed statement by the EOR and CQAM that the Record Drawings reflect the actual condition of the constructed Work.

3.9.3 Final Acceptance

Upon completion of the Construction Work, a complete set of Record Drawings, organized by Construction Phase, shall be provided to GDOT as a condition to Final Acceptance in accordance with Section 3 of Volumes 2 and 3, in the following formats:

- A portable flash drive containing:
  - All electronic design files, electronic calculations, etc.
  - Full-size 24- x 36-inch .pdf of each plan sheet and the entire plan set
- Hard copy of the design databook, and drainage calculations
- Full-size 24- x 36-inch set of bond prints
- Half-size 11- x 17-inch or 12- x 18-inch set of bond prints

These Record Drawings shall not be field sketches or redlines, but shall be CAD generated drawings that compile all field changes, redlines, plan revisions, and all non-conforming work into a single “strike-through” format set of plans. Where appropriate, new drawings may be inserted in to the plans to depict portions of the as-built work.

All files shall conform to the criteria for the design platform of choice (CAiCE or InRoads) found in GDOT’s Electronic Data Guidelines (EDG).

The DB Team shall be responsible for all production and delivery of materials needed for GDOT review.

Final Acceptance cannot be achieved until a complete set of Record Drawings is received and accepted by GDOT.

For toll projects: [reserved]

4 ENVIRONMENTAL

4.1 General

The DB Team shall comply with all Environmental Law, and policies set forth by the federal, State, and local agencies with jurisdiction over the construction activities associated with the Project as described in the approved Environmental Document and permits. The DB Team shall follow all pertinent policies and procedures as described in the 23 CFR 771, O.C.G.A. 12-16-1, and the GDOT Environmental Procedures Manual.

The DB Team shall be responsible for coordination with GDOT and other required approval agencies to ensure that commitments made during the environmental review are being met. The DB Team shall be responsible to reassess Project impacts and for additional associated costs incurred due to any changes in the Project impacts as described in the approved Environmental Document. This may require resubmittal of environmental studies for approval by applicable agencies.

GDOT shall be responsible for completing and resubmitting environmental documentation. The DB Team is not allowed to complete the environmental documentation or reevaluation.

The DB Team shall execute the Environmental Commitments required by the approved Environmental Documents, DB Documents, Governmental Entities, Governmental Approvals, and all applicable federal and State Law.

The DB Team's obligation regarding Governmental Approvals and Law, including Environmental Law and the DB Team's obligation for Environmental Compliance is set forth in Volume 2, Section 4. Limits of the Existing and Proposed Right of Way will be described in the approved Environmental Document.

The DB Team shall cause Work to comply with approved Environmental Document, permit, and compliance requirements for any additional actions throughout the Term of the DB Documents. The DB Team shall monitor and document Work activities so that documents providing evidence for compliance are available to FHWA and Governmental Entities (as applicable) and GDOT for inspection at any time. Evidence of compliance activities may include photo documentation and other appropriate methods to demonstrate compliance. The DB Team shall execute the Environmental Mitigation Plan, which lists responsible parties for Environmental Commitments detailed in the approved Environmental Document as agreed on by GDOT and/or other approval agencies.

The DB Team shall consider the use of environmentally sustainable practices and/or materials in the development of the Project.

If the Environmental Documents have not yet been approved, the alternative has not yet been "selected"; therefore, the "No-Build" option will still be a viable alternative for the

Project. However, if the "No-Build" alterative is selected, the Project will be terminated according to Article 19 of the Design-Build Agreement.

4.1.1 Standards

The DB Team shall conduct activities in this section accordance with GDOT's Environmental Procedures Manual, other Attachment 3-1 manuals, and other provisions of the DB Documents.

4.2 Environmental Approvals

4.2.1 Responsibilities Regarding Environmental Documents

Environmental Documents were prepared and approved by GDOT prior to the Effective Date. During the Term, such approvals may require re-evaluation, amendment, or supplement as the Work progresses or in order to accommodate actions not identified in the approved Environmental Document or covered specifically by existing resource agency coordination and permits. The DB Team shall be responsible to validate, provide design information to support additional environmental studies (cultural resources, ecology, aquatics, traffic, noise, and/or air) conducted by GDOT or on behalf of GDOT by others and comply with the Environmental Commitments identified in the approved Environmental Document within the final limits of the Project and subsequent approved Environmental Documents as updated to incorporate the DB Team's Conceptual Layout Plan of Project or Design Documents or due to regulatory or policy changes. The DB Team shall follow GDOT policies and procedures when conducting these activities for the Project.

Any changes to the Project as described in the NEPA Approval may require DB Team to reassess impacts and submit information to GDOT for incorporation into reevaluation reports and studies. The DB Team is not allowed to complete the NEPA document or reevaluation. GDOT shall be responsible for completing and resubmitting NEPA documentation and may procure consultant services that are independent from DB Team to complete the documentation necessary to obtain Environmental Approvals. The DB Team shall follow all pertinent policies and procedures as described in the 23 CFR 771, 23 CFR 772, 23 CFR 774, and the GDOT Environmental Procedures Manual. The DB Team shall be responsible for coordination with GDOT and FHWA to ensure that appropriate environmental documentation and compliance are being followed. GDOT will provide the costs to prepare and finalize the NEPA Re-evaluation documents for FHWA. The DB Team shall be responsible to prepare and pay for supporting documentation for any design changes proposed by the DB Team that differ from the NEPA Approval at the time of the Proposal Due Date.

If the DB Team's Conceptual Layout Plan of Project or Design Documents deviate from the plan set incorporated into the approved Environmental Documents, then GDOT and/or Governmental Entities will need to conduct an assessment to determine whether the approved Environmental Documents remain valid. The DB Team shall provide

information to support evaluation of the deviations from the plan set incorporated into the approved Environmental Documents. The DB Team shall facilitate a meeting with GDOT within 45 days of NTP 1 to discuss potential deviations from the approved Environmental Document. The following terms define GDOT and/or FHWA required documentation needed to assess impacts to the approved Environmental Document:

- **No Change Reevaluation:** No design or regulatory changes have occurred since the last approved Environmental Document. As applicable, GDOT will utilize document procedures following the Memorandum of Agreement with FHWA dated July 19, 2016.
- **Change Reevaluation (design modifications):** The Conceptual Layout Plan for the Project or Design Documents contain modifications to the design in the plan set incorporated into the approved Environmental Documents; the Project corridor in the area of the changes (or as applicable) must be considered for additional or reduced environmental impacts. There may be a need for additional agency coordination as a result of the design modifications. As applicable, GDOT will utilize document procedures following the Memorandum of Agreement with FHWA dated July 19, 2016.
- **Change Reevaluation (regulatory/policy changes):** Changes in Law or regulatory practice may require additional survey or technical analysis, environmental condition changes over time, and associated agency coordination. The additional analysis may be required regardless of design changes, construction staging, etc. (There may be no action taken by the design team that would trigger the additional technical analysis).

The DB Team will be responsible for ensuring compliance with the conditions and schedules set forth in amendments to any approved Environmental Documents due to deviations in the plan set incorporated into the approved Environmental Documents in the Conceptual Layout Plan for the Project and/or the Design Documents.

The DB Team assumes all risk arising out of or related to deviations from the plan set incorporated into the approved Environmental Documents. The DB Team is encouraged to minimize deviations from the plan set incorporated into the approved Environmental Documents. The DB Team shall be responsible to provide all information reasonably required to support evaluation of deviations from the plan set incorporated into the approved Environmental Documents and to comply with all policies and procedures of GDOT and Governmental Entities having jurisdiction over the Project. GDOT shall be responsible for all coordination of environmental studies with appropriate Governmental Entities. The DB Team is responsible to provide GDOT with the information reasonably required for coordination with Governmental Entities. The DB Team is required to have staff that meet the GDOT environmental prequalification requirements.

The DB Team, acting through the Environmental Compliance Manager (ECM), shall designate an environmental team (ET), as detailed in this section, to prevent, minimize,

and/or correct any violation of or noncompliance with Environmental Approvals. The ET shall include the following persons as defined in the following sections: environmental training staff, Environmental Compliance Inspectors (ECI), NEPA Specialist, Archeologist, Historian, Natural Resource Biologist, Water Quality Specialist, Air Quality Specialist, Noise Specialist, Hazardous Materials Manager, and Worksite Erosion Control Supervisor (WECS). All of the ET shall be deemed other principal personnel.

The DB Team shall set forth procedures and methods for the following:

- Staffing and availability of ECM and all ET personnel
- ET staff response times during the Work

4.2.1.1 Environmental Compliance Manager

The DB Team shall designate a full-time ECM for the Work. The ECM shall report and coordinate all issues directly with GDOT and the DB Team's Project Manager. In the event the ECM, in consultation with the DB Team's Project Manager and GDOT, is unable to reach satisfactory resolution of environmental issues, the ECM shall provide written notification to the DB Team and GDOT outlining the concerns, actions taken in attempt to correct the concerns, and provide a recommendation as to the suggested course of action.

The ECM shall direct the work of the ET and shall monitor, document, and report environmental compliance for the Work. The ECM shall report immediately to GDOT and DB Team any violation or non-compliance and shall include with any such report, the appropriate recommendations for corrective action including stoppage of Work.

The ECM shall coordinate with GDOT, the DB Team, and appropriate Governmental Entities. The ECM shall submit all necessary environmental documentation and monitoring reports to the appropriate Governmental Entities and when applicable, through GDOT, to the extent necessary to maintain compliance with applicable Environmental Approvals.

The ECM shall be an employee or subcontractor of the DB Team. The DB Team shall not have the ability to relieve the ECM of his or her duty without the written approval of GDOT. Should the DB Team desire to replace the ECM, the DB Team shall submit the résumé of a replacement candidate. The replacement candidate shall be available fulltime within thirty (30) days after delivery of GDOT's written acceptance. In the absence of the ECM, the DB Team's Hazardous Materials Manager may act as an interim ECM with GDOT approval.

Qualifications: The ECM candidate shall have at least five (5) years of experience successfully managing environmental compliance of urban freeway construction. This person or firm must be prequalified by GDOT and all costs associated with the ECM shall be included in the DB Team's Proposal. The qualifying experience required of an ECM candidate must include the following:

1. Has developed and managed a storm water pollution prevention plan
2. Has developed and managed a hazardous substance and petroleum products management plan
3. Has implemented environmental mitigation plans
4. Has provided environmental and personal protection training
5. Has monitored compliance with Section 404 Permit conditions

The ECM's qualifying experience must demonstrate familiarity with:

1. The scope and terminology of ASTM E 1527-05, "Standard Practice for Environmental Site Assessment Process"
2. Provisions of the NPDES Construction General Permit (GAR1000002)
3. Requirements of Section 404 and permit provisions

4.2.1.2 Environmental Training Staff

Under the direction of the ECM, the environmental training staff shall develop, schedule, and conduct environmental awareness and environmental compliance training for the DB Team's personnel. All training shall be in accordance with the requirements set forth below.

The DB Team shall develop and implement an Environmental Protection Training Program (EPTP) that shall meet the minimum requirements set forth herein. The EPTP shall include methods and procedures documented in the CEPP to:

1. Educate every worker to:
    a. Recognize the overall importance of environmental issues as they relate to the Project and its successful completion, and
    b. Appreciate the various environmental sensitivities of the Project.
2. Train appropriate staff to:
    a. Recognize environmentally sensitive resources that may be encountered during the Work;
    b. Avoid or take appropriate action to minimize environmental impacts from the Work; and
    c. Know the required actions, practices, and procedures regarding regulated resources.
3. Foster the DB Team's management and supervisory personnel's attitude of commitment to the Project's environmental quality.
4. Convey to all workers, the DB Team's management commitment to the Project's environmental quality.
5. Convey GDOT's and the DB Team's commitment to zero tolerance for violations to all workers.

4.2.1.3 Environmental Compliance Inspectors

The Environmental Compliance Inspectors (ECIs) shall conduct on-Site environmental monitoring, prepare documentation, and report to the ECM daily all violations, compliance, and noncompliance with Environmental Approvals.

The ECIs shall report immediately to the ECM any violation or non-compliance and shall include with any such reports, the appropriate recommendations for corrective action including stoppage of Work.

Qualifications: Each ECI shall have at least one (1) year of operational control experience of Water Quality Certification Plan Activities.

4.2.1.4 NEPA Specialist

The ECM shall designate a NEPA Specialist to provide expertise in NEPA laws, regulations, and policies during the course of the Work. In particular, the NEPA Specialist should be able to address environmental justice (EJ) issues related to the Project.

The ECM shall designate personnel in the event that a need arises for renewed activities to comply with environmental laws.

Qualifications: The NEPA Specialist shall meet the certification requirement of GDOT Transportation Planning Prequalification Category 1.06(a) NEPA Documentation.

4.2.1.5 Cultural Resource Management Personnel

The ECM shall designate an Archeologist, Architectural Historian, Historian, and/or Historical Architect to provide expertise in monitoring impacts to cultural resources during the course of the Work.

The ECM shall designate personnel in the event that a need arises for renewed activities to comply with cultural resources laws.

Qualifications: The Cultural Resource Management Personnel shall meet the certification requirement of GDOT Transportation Planning Prequalification Category 1.06(b) History and 1.06(f) Archaeology. Cultural Resource Management Personnel must meet professional standards under regulations developed by the Secretary of the Interior, found at http://www.nps.gov/history/local-law/Prof_Qual_83.htm.

4.2.1.6 Natural Resource Biologist

The ECM shall designate a Natural Resource Biologist to provide expertise in monitoring impacts on wildlife and the natural environment during the course of the Work.

The ECM shall designate personnel in the event that a need arises for renewed activities to comply with natural resources laws.

Qualifications: The Natural Resource Biologist shall meet the certification requirement of GDOT Transportation Planning Prequalification Categories 1.06(e) and 1.06(g).

4.2.1.7 Water Quality Specialist

The ECM shall designate a Water Quality Specialist to provide expertise in permitting delineation, storm water pollution prevention, and the protection of jurisdictional waters during the course of the Work.

Qualifications: The Water Quality Specialist shall have verifiable experience implementing Water Quality Certification Plans and be able to demonstrate a working knowledge of the National Pollutant Discharge Elimination System and MS4 permit requirements applicable to the Project. The Water Quality Specialist shall meet the certification requirements of GDOT Transportation Planning Prequalification Category 1.06(e) and 1.06(g).

4.2.1.8 Air Quality Specialist

The ECM shall designate an Air Quality Specialist to provide expertise for air quality studies during the course of the Work, if necessary.

Qualifications: The Air Quality Specialist shall meet the certification requirement of GDOT Transportation Planning Prequalification Category 1.06(c).

4.2.1.9 Noise Specialist

The ECM shall designate a Noise Specialist to provide expertise for noise studies during the course of the Work, if necessary.

Qualifications: The Noise Specialist shall meet the certification requirement of GDOT Transportation Planning Prequalification Category 1.06(d).

4.2.1.10 Hazardous Materials Manager

The ECM shall designate a Hazardous Materials Manager to provide expertise in the safe handling of Hazardous Materials required to perform the Work and those that may be discovered/impacted during the term of the Agreement. The Hazardous Materials Manager shall conduct appropriate activities such as the following:

1. Schedule and/or conduct training for the DB Team's employees
2. Verify all employee certifications prior to and required for any handling of Hazardous Materials
3. Maintain records of all incidents involving Hazardous Materials and notify the ECM, GDOT, and appropriate authorities in writing of any such incidents

Qualifications: The Hazardous Materials Manager shall meet the certification requirements of GDOT Soils, Foundation and Material Testing, Hazardous Waste Site Assessment Studies 6.05, and be a qualified professional with forty (40) hours of HAZWOPER certification. In addition, the Hazardous Material Manager shall have at least five (5) years of experience on similar projects in the following areas:

- Developing investigative work plans, site investigation reports, and remedial action plans or equivalent reports necessary and acceptable to the EPA in material discovery and remediation efforts of Hazardous Materials
- Investigation and remediation of Hazardous Materials following GDOT Environmental Procedures Manual guidelines

4.2.1.11 Worksite Erosion Control Supervisor (WECS)

Before beginning Work, the DB Team shall designate a Worksite Erosion Control Supervisor (WECS) to initiate, install, maintain, inspect, and report the condition of all erosion control devices as described in GDOT Standard Specifications Sections 160 through 171 or in the DBA and erosion, sedimentation and pollution control plan (ESPCP) documents. The designee shall submit their qualifications on the GDOT provided resume form for consideration and approval. The DB Team may utilize additional persons having WECS qualifications to facilitate compliance however, only one WECS shall be designated at a time.

The WECS and alternates shall:

1. Have at least one year of experience in erosion and sediment control, including the installation, inspection, maintenance and reporting of BMPs.
2. Successfully completed the Georgia Soil and Water Conservation Commission Certification Course Level IA and GDOT's WECS Certification Course.
3. Provide phone numbers where the WECS can be located 24 hours a day.

The WECS' duties include the following:

1. Be available or have an approved representative available 24-hours a day and have access to the equipment, personnel, and materials needed to maintain erosion control and flooding control.
2. Inform GDOT in writing whenever the alternate WECS assumes project responsibilities.
3. Ensure that erosion control deficiencies are corrected within seventy-two (72) hours or immediately during emergencies. Deficiencies that interfere with traffic flow, safety or downstream turbidity are to be corrected immediately.
4. During heavy rain, have the construction area patrolled day and night, any day of the week to quickly detect and correct erosion or flooding problems before they interfere with traffic flow, safety, or downstream turbidity.
5. Be on the site within three (3) hours after receiving notification of an emergency prepared to positively respond to the conditions encountered. GDOT may handle emergencies without notifying the DB Team. GDOT will recover costs for emergency maintenance work according to GDOT Standard Specifications Subsection 105.15, "Failure to Maintain Roadway or Structures."

6. Maintain and submit for the Project records, "as-built" Erosion and Sedimentation Control Plans that supplement and graphically depict EC-1 reported additions and deletions of BMPs. The as-built plans are to be accessed and retained at a GDOT facility at all times.
7. The WECS shall maintain a current certification card for the duration of the Project. Recertification of the WECS will be required prior to the expiration date shown on the Certification card in order to remain as Certified Personnel and the WECS for the Project.
8. Ensure that both the WECS and the alternate meet the criteria of this Section 4.2.1.11.

Failure of the WECS or alternate to perform the duties specified in the Contract, or whose performance has resulted in a citation being received from a State or Federal Regulatory Agency, e.g. the Georgia Environmental Protection Division, shall result in one or more of the following:

1. Suspension of the WECS' certification for a period of not less than 30 days
2. Removal of the Contractor's Project superintendent in accordance with Subsections 105.05 and 108.05 for a period not less than 14 days
3. GDOT-wide revocation of the WECS certification for a period of 12 months
4. Removal of the Contractor's Project superintendent in accordance with Subsections 105.05 and 108.05

4.2.2 GDOT Review and Approval of Environmental Documents and Permits

The approval time frames for Environmental Documents are listed in Tables 4-1 and 4-2. The tables below do not include any required public comment period and time for responding to the public comments. Upon receipt of Final Plans covering the technical report study area established in the NEPA Approval, GDOT shall be responsible for developing the technical report addenda and NEPA Approval reevaluations as provided in Tables 4-1 and 4-2. GDOT will coordinate and provide approved documentation to the appropriate Governmental Entities. The review and issuance time periods listed in Tables 4-1 and 4-2 are per agency and may not occur concurrently. GDOT reserves the right to request revisions to the tables as needed to meet Governmental Entity approval. The timeframe for the development of the technical studies and NEPA document reevaluation are subject to the extent of change proposed by the DB Team; therefore, GDOT reserves the right to modify schedule durations as appropriate after receipt of the DB Team's Preliminary Plans.

Table 4-1: GDOT-Led Environmental Preparation and Approval

Document*	Governmental Entity Approval Time Frame	Reviewing Governmental Entity

Document*	Governmental Entity Approval Time Frame	Reviewing Governmental Entity
Environmental Document Reevaluation Approval	Prepare Document: 30 days (from approval of Technical Report Addendum)	GDOT
	Revise Document: 7 days	GDOT
	Review period 1: 30 days Review period 2: 14 days	GDOT
	Review period 1: 30 days Review period 2: 14 days	FHWA
Ecology Report and Addendum	Prepare Survey and Report Addendum: 30 days	GDOT
	Revise Addendum: 7 days	GDOT
	Review period 1: 30 days Review period 2: 14 days	GDOT
	30 days	USACE
	45 days (informal Section 7)	USFWS
	135 days (for formal Section 7)	USFWS
	45 days (for protected species - for Fish and Wildlife Coordination Act concurrence)	USFWS
	45 days	NMFS
Section 106 AOE Addendum	Prepare AOE Addendum: 21 days	GDOT
	30 days	GDOT
	Revise AOE Addendum: 7 days	GDOT
	14 days	GDOT
	30 days	State Historic Preservation Officer (SHPO)
Public involvement for noise barrier voting	Logistics, Fieldwork, voting, ballot, tally, and dry run:45 days	GDOT
	30 days	GDOT
	15 days	FHWA
Noise Report and Addendum	60 days	GDOT
	Revise noise report: 21 days	GDOT
	30 days	FHWA

Document*	Governmental Entity Approval Time Frame	Reviewing Governmental Entity
Air Quality Report and Addendum	Memo to file for no change: 7 days	GDOT
	30 days	GDOT
Traffic Report and Addendum	45 days	GDOT or FHWA (per Projects of Division Interest (PoDI) Agreement)

*FHWA intends to publish a notice in the Federal Register following NEPA Approval and the Section 404 permit, as applicable. If such a notice is published, claims seeking judicial review of this federal action will be barred unless such claims are filed within one hundred and fifty (150) days after the publication date of the Federal Register notice for each federal action (e.g., NEPA Approval and/or Section 404 permit). At minimum, the period of time may only be limited by the Administrative Procedures Act of 1946 (APA) (5 United States Code [USC] Section 701-06).

The DB Team shall be responsible for preparing required permits and permit modifications as stated in Table 4-2, and shall pay all fees required. The DB Team shall provide to GDOT copies of receipts of delivery of the applications and paid fees to the permitting agencies. For Notice(s) of Termination (NOT), the DB Team shall provide a copy of the acknowledgement of receipt of the NOT by EPD.

The DB Team is responsible to obtain all other permits not included in Table 4-2 to meet the requirements of the DB Documents. GDOT will be responsible for reviewing the permits and permit modifications and submitting to the appropriate Governmental Entities, unless the applicant is listed as the DB Team. Documentation not meeting current submission standards or requirements of Governmental Entities will be returned to GDOT, and shall be revised by a qualified independent consultant approved by GDOT at DB Team's cost. GDOT reserves the right to review, comment on, require revisions to, and reject for resubmission documentation submitted to GDOT by the independent consultant or the DB Team for environmental compliance or approval. The agency review time frame for permits is specified in Table 4-2. The review and issuance time periods listed in Table 4-2 for DB Team-led approvals do not apply to any revisions of the new permit applications proposed by the DB Team's Conceptual Layout Plan of Project.

Table 4-2: DB Team-Led Environmental Permit Approval

Permit Required	Agency Review and Issuance Time Period (Calendar Days)***	Listed Applicant	Preparer of Application
United States Army Corps of Engineers (USACE) Section 404			

Permit Required	Agency Review and Issuance Time Period (Calendar Days)***	Listed Applicant	Preparer of Application
* Section 404 General Permit	140	GDOT	DB Team
** Section 404 Individual Permit	240	GDOT	DB Team
Subsurface testing of all Underground Storage Tanks and Hazardous Materials	150	GDOT	DB Team
National Pollutant Discharge Elimination System (NPDES) Construction General Permit (GAR100002), Notice of Intent (NOI)	14	DB Team	DB Team
NPDES Construction General Permit (GAR100003), Notice of Intent (NOI)	90	DB Team	DB Team
NPDES Construction General Permit (GAR150000), Notice of Termination (NOT)	90	DB Team	DB Team
Georgia Stream Buffer Variance	150	GDOT	DB Team

* This applies to Section 404 permitting and if additional impacts are incurred after the permit has been approved, a new permit that covers all impacts is required and the original review times apply to the new permit. No work is authorized in the areas of the previous permit until the new permit is approved and construction authorization is received.

** This applies to Section 404 permitting impacts which may exceed the cumulative threshold for a General Permit.

*** The review and issuance time periods shall commence once a completed permit package that complies with the requirements of the DB Documents is accepted by GDOT and submitted to the issuing agency and end once the permit is issued by the appropriate Governmental Entity. Therefore, the DB Team shall schedule several review periods to ensure proper planning to accomplish the entire process for each required permit. Each GDOT review period is thirty (30) days. Should the Submittal not be complete or rejected as provided in Section 3, each subsequent review period shall be fifteen (15) days, and is excluded from the timeframe in Table 4-2 above.

The above permits and review times do not contemplate offsite plant or other offsite activity that the DB Team may propose for use in construction or other non-permanent construction.

The DB Team shall be responsible for payment of any fines incurred as a result from failure to obtain any necessary permits or approvals, and/or for any fines levied as a result of inadequate or improper installations.

4.3 Comprehensive Environmental Protection Program

The DB Team shall adopt a proactive approach for overseeing and inspecting environmental Work during construction to help guard against unanticipated impacts to the environment. The DB Team shall be responsible for complying with the scope of environmental commitments from the Environmental Documents, including the NEPA/GEPA document, environmental permits, and other environmental approvals.

To that end, the DB Team shall develop, execute, and maintain a Comprehensive Environmental Protection Program (CEPP) for the Work to ensure environmental compliance with all applicable environmental laws and commitments. The CEPP shall obligate the DB Team to protect the environment and document the measures taken during the performance of the Work to avoid, minimize, and mitigate impacts on the environment from the design and construction activities of the Project. The CEPP shall effectively demonstrate in detail the DB Team's knowledge of all applicable Project-specific Environmental Approvals, issues, and commitments, as well as applicable environmental laws, as set forth in Volume 2 and Volume 3. It shall also describe the processes that will be followed during the course of the Work to comply with those Environmental Approvals, issues, and commitments and laws, as well as the documentation required to validate compliance. All monitoring and reporting activities shall be concise and consistent throughout the term of the Agreement as applicable to the activities being performed, and shall be in accordance with the requirements set forth in the environmental laws. The CEPP shall also effectively describe the quality control and assurance measures that the DB Team will implement to verify the compliance of the CEPP with all applicable environmental laws. The CEPP shall establish a goal of zero environmental violations during the performance of all Work activities while meeting each regulatory agency's permitting requirements. However, should violations occur, the CEPP shall set forth detailed processes for rectifying such violations in an appropriate and timely manner.

4.4 Hazardous Materials Management Plan

The DB Team shall prepare a Hazardous Materials Management Plan (HMMP) for the safe handling, storage, treatment, and/or disposal of Hazardous Materials, whether encountered at or brought onto the Project Site by the DB Team, encountered or brought onto the Project Site by a third party, or otherwise, during the term of the Agreement. The DB Team shall submit the final HMMP to GDOT for review and approval within sixty (60) days of NTP 1; approval of the Plan by GDOT shall be a condition of commencement of Construction Work. The DB Team shall follow the federal Environmental Protection Agency (EPA), EPD guidelines, and GDOT Policies and Procedures for Underground Storage Tank (UST), and Hazardous Waste (HW) Site Investigation Procedure.

The DB Team's HMMP shall include procedures compliant with all applicable environmental laws and shall include, at a minimum:

1. Updated Material Safety Data Sheets (MSDS) for all chemicals to be used on the Project, per OSHA requirements, for the term of the Agreement
2. Designated individuals responsible for implementation of the plan
3. Procedures for identifying and documenting potential contaminated sites that might impact Project development
4. Procedures for mitigation of known contaminated sites anticipated to impact construction
5. Procedures for mitigation of unanticipated contaminated sites encountered during construction
6. Procedures for developing a detailed Spill Response Plan for the term of the Agreement
7. Process for training personnel for responding to and mitigating incidents involving contamination or waste
8. Provisions for appropriate storage and disposal of all waste encountered or disposed of on the Project for the term of the Agreement
9. Provision for a Hazardous Materials training module as an element of the EPTP component of the CEPP
10. Procedures for preparing Underground Storage Tank/Hazardous Waste (UST/HW) site investigation report(s) and package submittals to the Environmental Testing Unit of the Office of Materials and Testing (OMAT) for review in the event that Hazardous Materials are discovered during construction
11. Identification and contact information for designated responsible individuals

The HMMP shall include provisions for making all workers aware of the potential Hazardous Materials to which they may be exposed, limiting Contractors and other Site workers' exposure to Hazardous Materials and providing all necessary personal protection equipment to protect workers from exposure. The HMMP shall require the DB Team to provide any non-DB Team personnel who visits the Project area with the appropriate personal protection equipment.

The HMMP shall require that all personnel of the DB Team-Related Entities handling Hazardous Materials be trained and certified at least to the minimum requirements established under the current guidelines of OSHA 1910.120 (HAZWOPER Training).

Further, the HMMP shall include procedures for ensuring that all applicable certifications, licenses, authorizations, and Governmental Approvals for the DB Team personnel handling Hazardous Materials are current and valid through the duration of the Work.

5 RIGHT OF WAY (ROW) – DB TEAM ACQUISITIONS

5.1 General

This section sets forth the activities assigned to the DB Team, including pre-acquisition and acquisition activities, and it designates which activities GDOT will conduct. This section also sets forth the requirements applicable to the work assigned to the DB Team related to the acquisition of State Proposed ROW. The DB Team shall provide all services necessary to acquire title to the State Proposed ROW, in a form and substance acceptable to GDOT, in the name of the Georgia Department of Transportation. The DB Team shall also provide for relocation of displaces and clearance/demolition of the improvements from the ROW, as more fully described in the following sub-sections.

The DB Team's ROW staff and/or the DB Team will function as independent contractors while acquiring the State Proposed/DB Team Acquired ROW.

5.1.1 Standards

The DB Team shall provide activities in this section accordance with the GDOT Right of Way Manual, other Attachment 3-1 Manuals, and other provisions of the DB Documents.

5.2 Administrative Requirements

State Proposed/DB Team Acquired ROW shall be acquired in accordance with State and/or federal laws and in conformance to FHWA and GDOT policies, procedures, and guidelines.

Pursuant to the applicable State and/or federal regulations, the DB Team shall:

1. Acquire State Proposed/DB Team Acquired ROW parcels for the Project on behalf of GDOT subject to GDOT's rights of review, approval, and audit
2. Maintain adequate access to all properties at all times or until relocation is completed
3. Maintain utility service to occupied properties at all times or until relocation is completed

The DB Team shall maintain a complete and current set of approved ROW plans for public use.

GDOT will either provide to the DB Team any GDOT forms referenced in this section or will make them available upon request. All ROW activities shall be completed and documented in compliance with all applicable State and/or federal laws, including the GDOT Right of Way Manual, Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Uniform Act), and the rules and regulations implementing the Uniform Act. In the event of an irreconcilable conflict between the GDOT Right of Way Manual and the Uniform Act, the standard, criterion, requirement, condition, procedure, specification or other provision offering higher quality or better performance will apply per

DBA Article 1.2.3. In the event the DB Team does not follow the provisions of 49 CFR Part 24 of the Uniform Act in the performance of the acquisition and/or relocation processes for the Project, fails to obtain or create any necessary written documentation in the ROW parcel file(s), or violates any requirements of the Uniform Act that results in the Project losing federal funding on a parcel(s) or the Project in general, the DB Team shall be responsible for any and all such loss of federal funds and all expenses determined to be ineligible for federal reimbursement due to the DB Team's failure to comply with the provisions of the Uniform Act (This is applicable to Federal-Aid Design-Build projects).

5.3 DB Team's ROW Scope of Services

The DB Team shall complete all administrative activities and prepare all documentation sufficient for the DB Team to acquire the State Proposed/DB Team Acquired ROW.

Upon the DB Team's request to GDOT, GDOT will request that the Office of Attorney General assign an approved Special Assistant to the Attorney General (SAAG) to conduct the title work, closings, condemnations, and any related legal activities.

All pre-acquisition activities may commence immediately upon receiving ROW NTP.

The DB Team shall not, without prior approval, initiate negotiations of the State Proposed/DB Team Acquired ROW until the ROW plans for the applicable constructible segment have been approved by GDOT, and the constructible segment has environmental clearance.

The DB Team shall continue all negotiations for no less than 90 days unless it is clearly apparent that continued negotiations would be unproductive or an amicable settlement is reached.

If the DB Team and the property owner cannot negotiate a settlement acceptable to GDOT, then GDOT will enter into an administrative review process with the property owner. Only after a reasonable settlement with a property owner cannot be reached through an administrative review, then acquisition of the property through eminent domain may commence. The DB Team will not be permitted to commence any condemnation action through the statutory "Declaration of Taking" on behalf of GDOT.

The DB Team shall not exceed ten percent (10%) in condemnations of the total parcels required for the Project, without prior written approval of GDOT.

A Right of Entry (ROE) may only be obtained from Governmental Entities, and/or public Utility-owned companies. The DB Team must seek and receive written approval from GDOT prior to the use of a ROE.

The DB Team shall not begin construction on any parcel of real estate unless property rights for the parcel have been obtained and recorded in favor of GDOT, possession has

occurred, ROW Certification has been completed and the parcel(s) has been released for construction.

The DB Team shall provide condemnation court coordinator support for twelve (12) months after filing of petition, but not to exceed Final Acceptance date.

The DB Team's ROW Project Manager (ROW PM) shall be responsible for ensuring that the State Proposed ROW is free of obstructions prior to construction commencing on any constructible segment of the Project including illegal encroachments on existing right of way.

The DB Team's ROW PM will audit, review, and pre-approve all negotiations, files, settlements, etc. prior to requesting any required GDOT's review and/or approval.

5.4 DB Team Conflict of Interest

The DB Team shall promptly disclose the same to GDOT if at any time, the DB Team, a DB Team-Related Entity, or any subsidiary or parent company of the DB Team to the best of the DB Team's knowledge, directly or indirectly:

1. Acquires or has previously acquired any interest in real property likely to be parcels of the ROW or the remainders of any such parcels.
2. Loans or has previously loaned money to any interest holder in any real property likely to be a ROW parcel and accepts as security for such loan the parcel, or the remainder of any such parcel that is not a whole acquisition.
3. Purchases or has previously purchased from an existing mortgagee the mortgage instrument that secures an existing loan against real property likely to be a ROW parcel, (or the remainder of any such parcel), or is employed by or acts as a representative of any property owner or tenant from which ROW or easement necessary for the Project. In the case of acquisitions, loans, or mortgage purchases that occurred prior to Effective Date, such disclosure shall be made within fourteen (14) days after Effective Date.

In the event that the DB Team, a DB Team-Related Entity, or any subsidiary or parent company of the DB Team, acquires a real property interest, whether by title or mortgage, in any ROW parcels of said interest shall be conveyed to the State of Georgia by condemnation. Any property interests acquired within thirty-six (36) months prior to NTP 1 will deem the DB Team ineligible to bid on the Project at GDOT's discretion.

In the event that the DB Team, a DB Team-Related Entity, or any subsidiary or parent company of the DB Team, is employed by or acts as a representative of any property owner or tenant which ROW or easement necessary is for the Project, the DB Team must immediately cease said relationship or activity.

5.5 Responsibilities of DB Team

The DB Team shall be responsible for the costs of services and preparation of documentation for State Proposed/DB Team Acquired ROW acquisition, related relocation assistance for displacees, and property demolition and removal. The Work related to State Proposed/DB Team Acquired ROW acquisition includes, but is not limited to:

1. ROW plan development and/or revisions after NTP 1
2. Conceptual stage study
3. Surveying
4. Environmental assessment
5. Testing and remediation
6. Appraisals
7. Other necessary valuation or damage impact studies
8. Negotiations
9. Acquisitions
10. Administrative Settlement Analysis for all settlements over Fair Market
11. Closing package preparations
12. Condemnation petition preparations
13. Court coordination efforts

The DB Team shall also be responsible for relocation advisory assistance, as well as demolition or removal of obstructions within the State Proposed/DB Team Acquired ROW in compliance with all applicable local, State and/or federal laws.

For billboards impacted within State Proposed/DB Team Acquired ROW, the DB Team shall only be responsible for providing services which include, but are not limited to surveys to establish horizontal and vertical location that shall be clearly noted on ROW plans (including cat walks), appraisal/Sign Valuation Reports, specialty reports, cost-to-cure reports, negotiation services, demolition services, and other services as necessary to handle removal or relocation of billboards and their footings. After being reviewed and released, said Sign Valuation Report shall be made part of the appraisal report for the parent parcel on which the billboard is located.

The DB Team shall be permitted to negotiate with a property owner to use private property located beyond the State Proposed Project limits for mobile work trailers, storage, equipment, etc. Said negotiation of use shall be between the DB Team and the property owner and shall, in no way, affect the negotiations related to right of way acquisition for the Project. GDOT will not be obligated to exercise its power of eminent domain in connection with the the DB Team's acquisition of any such temporary right or interest,

and GDOT will have no obligations or responsibilities with respect to the acquisition, maintenance, or disposition of such temporary rights or interests.

5.6 Responsibilities of GDOT

GDOT will have the following responsibilities in connection with acquisition of State Proposed/DB Team Acquired ROW:

1. Provide just and adequate compensation (i.e., negotiated settlements, condemnation jury awards);
2. Provide final approval, where final approval is warranted, for all negotiation settlements and relocation assistance payments;
3. Provide copies of the GDOT- approved ROW information brochures;
4. Provide payment for SAAG services and necessary expert witnesses.
5. Provide a staff ROW Oversight Manager and/or Administrative Review Officer to serve as first point of contact, and who will be responsible for reviewing all negotiated settlements; and
6. ROW Oversight Manager, State ROW Program Manager, Assistant ROW Administrator or ROW Administrator will be the only authorized persons allowed to sign the Option Agreements and Administrative Settlement Analysis.

5.7 Responsibilities of the Office of the Attorney General

The parties hereto acknowledge the statutory requirements that the Attorney General of the State of Georgia has exclusive authority to represent and defend GDOT, through the appointed SAAG. In its role as attorney for GDOT, the SAAG has the responsibility to:

1. Prepare Ownership Verifications and/or Preliminary Title Certificates which shall include all pertinent deeds or documents relating to each parcel.
2. Review Right of Way plans for property line discrepancies or errors.
3. Analyze recommended parcel values and/or appraisal issues.
4. Coordination with GDOT on all legal matters concerning acquisition processes, including all negotiated legal settlements.
5. Conduct closings within ninety (90) days of GDOT's acceptance of the Option Agreement.
6. Prepare final title opinions.
7. Represent GDOT in all condemnation and eviction proceedings.
8. Prepare, obtain, and file of all necessary legal documentation for eviction of property owners or tenants.
9. Implement jury trials including determination of expert witnesses and all appeals.

10. Provide additional legal advice and opinions as needed by GDOT.

5.8 ROW Acquisition Plan

The DB Team must submit written acquisition and relocation procedures to GDOT for approval prior to commencing right-of-way activities. These procedures shall contain a prioritized appraisal, acquisition, and relocation strategy as well as check points for GDOT approval, such as approval of just compensation, replacement housing payment calculations, replacement housing payment and moving cost claims, appraisals, administrative and stipulated settlements that exceed determined thresholds based on a risk management analysis, etc.

The DB Team shall prepare a ROW Acquisition Plan within sixty (60) days of NTP 1. The ROW Acquisition Plan shall set forth the DB Team's:

1. Organization to include names, titles, and qualifications of key personnel and other ROW personnel
2. Key personnel roles and responsibilities
3. Integration of the ROW schedule into the Project Schedule
4. Interface between design and ROW activities
5. Acquisition process and key interactions
6. Documentation and reporting procedures
7. Quality control procedures
8. Quality review standards and audits

The ROW Acquisition Plan shall establish the specific means by which the DB Team will:

1. Provide sufficient prequalified personnel (include an organizational chart) to achieve, in accordance with the Project schedule, the goals and milestones established for ROW acquisition, relocation assistance, appraisals, and clearance/demolition of the improvements from the ROW.
2. Provide relocation advisory assistance such as finding replacement properties and offering special assistance including ADA requirements, if applicable.
3. Provide administrative support.
4. Provide a conceptual stage study, if applicable.
5. Provide translation to foreign language, or communications for those visually impaired or hearing impaired, as necessary.
6. Provide documentation and reports.
7. Procure, distribute, and explain GDOT acquisition and relocation brochures as approved by GDOT and/or FHWA.
8. Establish, implement, and maintain QC procedures and quality review standards for the acquisition of ROW while preventing fraud, waste, and mismanagement.

9. The ROW Acquisition Plan shall include:
    a. General Information/Project Introduction
    b. Project Approach
    c. Overview of Roles and Responsibilities (DB Team/GDOT)
    d. Key personnel roles and responsibilities
    e. Process and Procedures for the following phases/activities:
        i. Pre-Acquisition
        ii. Acquisition
        iii. Administrative Appeal
        iv. Condemnation and Condemnation Support
        v. Closing
        vi. Relocation Assistance
        vii. Certification (Single/Phased Release)
        viii. Clearance of ROW
        ix. Property Fencing
10. Acquisition support staff and activities
11. Meetings
12. Schedule
13. Documentation and Document Control
14. File Management
15. Progress Tracking and Reporting
16. Quality Assurance/ Quality Control and Audits
17. Appendix:
    a. ROW Plan Exhibit
    b. Key personnel Organization Chart
    c. Acquisition team member roles, responsibilities, associated certifications
    d. Project Inspection Checklist
    e. Correspondence/Forms/Templates

The DB Team shall identify all personnel and provide a copy of the GDOT Service Class Certification for the DB Team's proposed ROW PM, Acquisition Manager, appraisers, other valuation experts, relocation negotiation agents, relocation benefits specialist, pre-acquisition agent, conceptual stage study preparer, condemnation court coordinator, condemnation petition preparer, property manager (including asbestos inspector, asbestos abatement, demolition, and UST removal personnel and affiliation), negotiators,

and any State Proposed ROW personnel whose services will be required. All of the above shall be in good standing with the GDOT Office of ROW.

The DB Team shall update the ROW Acquisition Plan including the organization chart whenever changes in the Plan or personnel occur. Any changes in personnel must receive GDOT approval prior to commencing Work for the particular scope of work contemplated.

5.9 Acquisition Process Summary

The DB Team's major activities and services to be provided with respect to the acquisition of the State Proposed/DB Team Acquired ROW shall include, but are not limited to, the following:

1. ROW plans development, if applicable
2. ROW budget estimates and updates, if applicable
3. Title-related activities, if applicable
4. Appraisals and/or other valuation or damage study reports, if applicable
5. Relocation benefits package preparations, if applicable
6. Negotiations
7. Relocation advisory assistance
8. Condemnation petition preparations
9. Condemnation coordination services
10. Abatement inspections, abatement, and demolition or removal of obstructions to clear required ROW
11. ROW Certification support
12. ROW Release request
13. Documentation and document control
14. Monthly Progress Reports
15. ROW administration and management
16. ROW quality management
17. Other activities required to obtain all ROEs, as necessary

5.10 Advanced ROW Acquisition

Advanced ROW acquisitions shall be considered by the DB Team according to the guidelines set forth in 49 CFR 710.503. The DB Team shall submit to GDOT a letter of recommendation for any advance “Hardship” purchase requests. GDOT and/or FHWA will review all advanced “Hardship” purchase requests.

The DB Team shall notify GDOT if an advanced "Protective Buy" purchase request would be in GDOT's best interest. GDOT and/or FHWA will review all advanced "Protective Buy" purchase requests.

The DB Team shall update GDOT regularly, no less frequently than monthly, on the status of any advanced acquisition purchases, and the DB Team's ROW PM shall track all acquisitions through GDOT's ROW tracking system.

5.11 Pre-Acquisition Activities

5.11.1 ROW Plans and Engineering

The DB Team shall adhere to the GDOT Plan Presentation Guide, the GDOT ROW Manual, and the GDOT ROW plans checklist for the development of the ROW plans.

Upon approval from GDOT and/or FHWA, the ROW plans may be prepared in separate constructible segments.

The DB Team shall stake and flag all required ROW to include all temporary and permanent easements in accordance with the GDOT Automated Survey Manual, and prior to beginning negotiations with property owner(s) or prior to the appraiser reviewing the property (whichever occurs first), shall re-stake such areas as requested by property owner or GDOT.

The DB Team shall prepare a report by an environmental professional that meets the requirements of ASTM E-1527-05, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process, documenting the environmental condition, as appropriate for each parcel, which may be based on field investigations and/or historical review. The report shall be completed in coordination with the appraiser(s) and shall be available to the appraiser(s). A Phase I environmental site assessment shall be performed for all properties based on UST findings listed in the environmental document. If it is determined that there is a potential environmental risk based on the Phase I report, then a Phase II investigation shall be performed.

The DB Team shall prepare timely written notification to GDOT of any environmental or other concerns associated with the ROW or DB Team Proposed/DB Team Acquired ROW to be acquired that could require environmental remediation or other special attention or that would require a report to be prepared.

5.11.2 Title Services

The DB Team shall provide to the assigned SAAG one (1) full-size and one (1) half-size set of printed preliminary ROW plans in order for the SAAG to prepare owner verifications and preliminary title reports prior to negotiations. The DB Team shall adhere to the GDOT ROW Manual, and shall also comply with the following requirements:

1. Review the preliminary title commitment or report to ensure that all current owners of record title are contacted and that negotiations or condemnation actions are conducted with all appropriate parties.
2. Work with the current owners of record of each parcel or with interest in a parcel or their designee and all other appropriate parties to clear any title exceptions or exclusions not acceptable to GDOT.
3. Submit a request for a plan revision attaching a copy of the Owner Verification Form if the attorney certifies that the plans, legal descriptions, and/or property owner's name is in conflict.
4. Furnish the following data for entry into the TPro System: Property Owner's names (as the title reports are received from the SAAG).

5.11.3 Property Owner's Meeting

A property owner's meeting will be held within 30 days of ROW NTP and prior to acquisition negotiations.

The DB Team shall schedule the Property Owner's Meeting, mail notices to all owners informing them of time, date, and location of the meeting, attend and coordinate all activities for the meeting prior to negotiations.

The ROW Program Manager and all ROW acquisition team members will attend the Property Owner's Meeting.

5.11.4 Project Inspection Checklist

The DB Team shall schedule a Project Field Review with the DB Team ROW PM, GDOT Project Review Appraiser and ROW Oversight Manager to determine the type and scope of appraisal work required for the Project along with any necessary specialty reports. Following the meeting, GDOT will complete the Project Inspection Checklist and return to the DB Team.

5.11.5 Appraisal Services

The DB Team shall provide GDOT with fair market value appraisals. All appraisals shall be prepared in conformance with acceptable appraisal methods/standards (including the Uniform Act), and in accordance with professional appraisal methods and applicable GDOT and/or FHWA policies and procedures. In addition, the DB Team shall adhere to the GDOT ROW Manual, and shall also comply with the following requirements:

1. Select appraisers from GDOT's prequalified list of appraisers per the appropriate level as determined by the GDOT review appraiser. GDOT shall have final approval of the selection of each appraiser submitted by the DB Team.
2. Obtain back-up appraisal reports per GDOT ROW Manual guidelines.
3. Select certain specialty valuation and cost estimators as may be required by the assigned review appraiser.

4. Establish personal pre-appraisal contact with each owner of record title and each occupant, and shall document all contacts.
5. Contact the owner of record or their designated representatives, by telephone, to offer them the opportunity to accompany the appraiser on the appraiser's inspection of the parcel, and maintain a record of all such contacts in the parcel file.
6. Obtain and include in the appraisal copies of all written leases, licenses, and other occupancy agreements, including outdoor advertising/sign agreements, in order to identify lessees, licensees, and other occupants with potential compensable interests in each parcel and to determine the value of each such interest.
7. Coordinate with the GDOT review appraiser regarding corrections and/or additional information that may be required for a particular appraisal.
8. Cause the appraiser(s) to prepare updated appraisals when required by GDOT or as needed during eminent domain proceedings. An updated appraisal package shall comply with Uniform Standards of Professional Appraisal Practice (USPAP).
9. Prepare and deliver to GDOT upon request, a copy of all file documents, as formally requested in discovery motions or requests for production.

5.12 Acquisition Activities

5.12.1 DB Team Responsibilities during ROW Negotiations

The DB Team shall comply with the following requirements during ROW negotiations:

1. Conduct all negotiations in accordance with the requirements of applicable State and/or federal laws, including 23 CFR 710 and 49 CFR 24.
2. Contact each property owner or owner's designated representative in person and onsite, when possible. Fair Market Value (FMV) shall be presented in the appropriate offer letter on GDOT's letterhead and shall be accompanied by the following additional documents:
    a. Statement of Value
    b. Option with plats attached
    c. GDOT-approved brochure and receipt for same
    d. Incidental Payment Claim Form
    e. "To scale" ROW plan sheets, cross section, and driveway profiles pertaining to subject parcel and receipt for same
3. At the time of the Initiation of Negotiations (IN), the Title Report shall be no more than six (6) months old and an appraisal no more than twelve (12) months old.
4. Make no less than three negotiation contacts with the owner or the owner's representative (one (1) original contact and two (2) follow-up contacts).

5. The DB Team's Acquisition Manager shall make one additional contact, "Last Contact."
6. Distribute to all property owners and displacees affected by the Project, GDOT-approved informational brochures, at the time of the initiation of negotiations.
7. Identify lessors, lessees, licensees, occupants, or other parties with potential compensable interests including outdoor advertising sign owners, and, if appropriate after consultation with GDOT, negotiate with such parties for the acquisition of their compensable interests utilizing the appropriate paperwork.
8. Verify the property owners, lessees, licensees, occupants, and other holders of compensable interests. Confer with and transmit to GDOT any settlement proposals from property owners, lessees, licensees, occupants, or other holders of any compensable interest, as applicable, including a detailed Administrative Settlement Analysis from the DB Team. GDOT will determine whether to accept any settlement proposal.
9. Deliver any settlement proposal and the DB Team's Administrative Settlement Analysis to GDOT within seven (7) days of the DB Team's receipt of the settlement proposal from the interest holder.
    a. GDOT shall provide a settlement decision to the DB Team within ten (10) days.
    b. The DB Team shall then provide a response to the interest holder within five (5) days.
10. Provide documents to support the closing, including but not limited to: appropriate information from the parcel file, legal description, parcel plat, and data tables.
11. If negotiations are unsuccessful, prior to sending out any 10-day Administrative Appeal letters regarding warnings of condemnation on each parcel, the DB Team shall send to GDOT a request to move to condemnation providing information and justification to support the request.
12. Send a 10-day Administrative Appeal letter to the interest holder for those negotiations that are unsuccessful. In the event the interest holder requests an administrative review hearing, GDOT will facilitate the process. GDOT will then provide the results of the administrative review hearing to the DB Team and the interest holder.
13. Provide timely (not more than five (5) days after inquiry) response to the verbal or written inquiries of any property owner, lessee, licensee, occupant, or other holder of a compensable interest, as applicable.
14. Create and maintain a complete negotiation parcel file for each interest holder (separately from the relocation files), and in conformance with the GDOT ROW Manual. All original ROW documents must be retained and properly secured in the DB Team's Project office, or as otherwise approved by GDOT, and shall be accessible by GDOT upon request.

15. Submit completed (closed or condemned) negotiation parcel files to GDOT for review only after a thorough review is performed by the DB Team's ROW PM.
16. Be open to all reasonable settlement proposals (that comply with the regulations as outlined in this section) from the interest holders, which are feasible and help expedite the ROW acquisition process. The DB Team understands that GDOT and FHWA encourage solutions that satisfy the interest holder and promote the success of the Project.

5.12.2 DB Team Responsibilities during Relocation Assistance

The DB Team shall coordinate and perform the administrative requirements necessary to relocate any occupants and/or their personality from ROW. All Work prepared by the DB Team with respect to relocation assistance shall be performed in accordance with applicable State and federal laws, the Uniform Act, and in accordance with all provisions of this Agreement.

The DB Team's major activities with respect to the relocation assistance of occupants from ROW shall include, but is not limited to:

1. Prepare a revised conceptual stage study, if needed.
2. Prepare a Relocation Plan in accordance with the *GDOT ROW Manual*.
3. Monitor all relocation assistance activities.
4. Prevent fraud, waste, and mismanagement.
5. Assist with all GDOT requests and be responsible for carrying out decisions made by GDOT.
6. With respect to determining relocation assistance benefits and preparing relocation assistance benefits packages (offer package and any replacement housing reports), all packages shall be prepared in conformance with applicable State and/or federal laws and regulations, 49 CFR, Part 24 – the Uniform Act, FHWA and/or GDOT policies and procedures. The DB Team shall employ Relocation Specialists who shall be thoroughly familiar with the Uniform Act in regard to determining relocation assistance benefits. In addition, the GDOT-approved format for relocation assistance benefits packages shall be used and demonstrated in all forms, letters, and package documentation. Measures shall be taken to protect the integrity of the relocation assistance benefits determination process, such as designating a separate qualified individual to administer the relocation assistance benefits (other than the individual determining the relocation assistance benefits). Relocation assistance benefits packages must be submitted to GDOT ROW for review and approval prior to the DB Team proceeding with administering any relocation assistance benefits.
7. Provide relocation assistance strictly in accordance with the State and/or federal laws and the Uniform Act. With respect to administering relocation assistance benefits, the DB Team shall:

a. Provide written notice to all property owners, lessees, licensees, occupants, and potential relocated person(s) regarding eligible relocation assistance; provide them with a GDOT-approved brochure; perform relocation interviews, complete and maintain interview forms, and discuss general eligibility requirements, programs, and services with potential displacees; and maintain a thorough written record of all contacts.

b. Provide in writing to GDOT any questions as to the eligibility of a potential relocated person(s).

c. Contact and provide relocation assistance to those parties affected by the ROW acquisition.

d. Locate information, evaluate, and maintain files on comparable available housing, commercial, retail, and industrial sites.

e. Calculate replacement supplement benefits.

f. Compute and submit relocation benefits packages to GDOT for review and approval prior to the DB Team's proceeding with any relocation activities.

g. Perform and complete a Decent, Safe, and Sanitary (DSS) inspection for any replacement housing.

h. Secure and process any required moving estimates and forms, to be approved by GDOT, for the relocation of personal property.

i. Coordinate moves with displacees and/or moving companies in accordance with GDOT procedures and the Uniform Act.

j. Attend all closings on replacement properties and ensure supplemental payments, if any, are properly distributed in a timely manner.

k. Process and compute increased interest payments on the mortgage of owner-occupied dwellings, as required.

l. Deliver to displacees a ninety (90) Day notice of eligibility letter simultaneous with the delivery of the relocation benefits package along with the location of the comparable property used to compute the supplement.

m. Deliver a sixty (60) Day notice to vacate letter to displacees after obtaining title to the displacee's ROW.

n. Notify GDOT immediately if a displacee has not moved after the sixty (60) Day notice to vacate has expired. Provide to GDOT a written recommendation to facilitate the displacees' move.

o. Be available for any appeals or hearings.

p. Prepare relocation payment claim submissions for all displacees and all relocation assistance benefits.

q. Verify DSS dwelling criteria on all replacement housing as selected by the displacees.

r. Secure dwellings and structures no later than fourteen (14) days after vacancy and protect the ROW following acquisition and relocation.

s. Maintain a complete file, separate from acquisition files, on each displacee and make available to GDOT for immediate inspection.

t. Be responsible for all relocation activities that may occur after title is secured by condemnation.

u. Prepare all correspondence to the displacees or their representative(s) on GDOT's approved letterhead.

v. Assist the SAAG with eviction proceedings: Serve notice of eviction proceedings to the occupant(s) of the property who have not complied with move dates; coordinate the eviction process with the local authorities; and accompany the Sheriff's Department when they are carrying out evictions.

5.12.3 DB Team Responsibilities during Closings

The GDOT-assigned SAAG will conduct all closings. For purposes of closing services related to Relocation/Replacement Housing, the DB Team shall:

1. Ensure Relocation Negotiation Agent attends all relocation closings.
2. Ensure the Relocation Negotiation Agent properly coordinates all assistance payments with the SAAG and GDOT.
3. Provide transportation assistance to all interest holders needing transportation services to and/or from the closing.

5.12.4 DB Team Responsibilities during Administrative Appeal

After it has been determined that an agreement cannot be reached with the property owner, the DB Team, as directed by GDOT, shall support the administrative review appeal efforts undertaken by the GDOT and shall:

1. Notify GDOT of Acquisition Manager's final or last contact and submit information to confirm negotiation compliance.
2. Mail the owner a 10-day Administrative Review (Appeal) Letter informing the owner of the impending condemnation and the Review process.
3. Upon receipt of the Appeal Hearing Request from the owner, GDOT General Office support staff shall mail to the owner an acknowledgement letter confirming receipt of the Administrative Review Request and provide a copy to the DB Team.
4. Submit the Administrative Appeal Package, negotiation parcel file and other required supporting documents to the GDOT ROW Oversight Manager.

5.12.5 DB Team Responsibilities for Condemnation Support

The DB Team, as directed by GDOT, shall support condemnation efforts undertaken by the GDOT-assigned SAAG and shall:

1. Notify GDOT and document the reason(s) for condemnation, including recommendations for properly obtaining title in consideration of all interest holders.
2. List all interest holders in the condemnation petition including those not listed in the Title Report but are found to be tenants in possession.
3. Coordinate with the assigned SAAG on all applicable eminent domain/condemnation activities in accordance with the policies and procedures as described in the GDOT ROW Manual and as required per State and federal laws.
4. Request an updated title report from the GDOT-assigned SAAG issuing the original title commitment prior to condemnation.
5. Prepare and submit condemnation petitions to the Office of ROW for review by GDOT's Legal Division and make any revisions or corrections, as requested by GDOT.
6. Forward, upon GDOT approval, petitions to assigned SAAG for recording with the appropriate Clerk of Superior Court.
7. Procure and make available a Condemnation Court Coordinator who shall: assist the assigned SAAG in making arrangements for conferences with witnesses prior to trial, appearing at court hearings, and perform any other duties necessary in eminent domain proceedings.
8. Coordinate the procurement of appraisals and specialty reports, as required for condemnation proceedings, and as acceptable to GDOT and the assigned SAAG.
9. Coordinate the procurement of and make available any necessary expert witnesses as required by GDOT and assigned SAAG. GDOT will make payments to expert witnesses required by SAAG.
10. Arrange for the appearance of all expert witness(es) or fact witness(es) when requested by the assigned SAAG.
11. Provide GDOT with a parcel status, on a monthly basis, for all condemnation parcels.
12. Provide the assigned SAAG with proper monetary court deposits for Fair Market Value (FMV).
13. Coordinate the procurement of the condemnation valuation expert witness as according to the process as defined in the GDOT ROW Manual.

5.13 Post-Acquisition Activities

5.13.1 Certification and Release

The Certification of Right of Way projects is regulated by the 23 CFR 635.309 for Physical Construction Authorization.

In order for the DB Team to submit a **Single-Phase Certification** to GDOT, the following conditions must be met:

1. The plans must be approved by GDOT.
2. A statement is required from the State certifying that all individuals and families have been relocated to decent, safe and sanitary housing or the State has made available to relocatees adequate replacement housing in accordance with Federal Highway Administration directives.
3. All necessary right of way, including control of access rights when pertinent, have been acquired including legal and physical possession.
4. Trial or appeal of cases may be pending in court but legal possession has been obtained.
5. All occupants have vacated the lands and improvements.
6. The State has physical possession and the right to remove, salvage or demolish these improvements.
7. All Certifications must have the same format and be accompanied by:
    a. Preconstruction Status Report,
    b. ROW Project Status Report (TPro)
    c. Relocation Advisory Service Certificate
    d. TPro Relocation Status Report
    e. Right of Way Improvement Status (PM-14)
    f. Trade Fixture and Sign Inventory Report (PM-15)
    g. Copies of Right of Entries or Options with Special Stipulations
    h. Copy of cover sheet highlighting outstanding parcels

In order for the DB Team to submit a **Multiple-Phase Certification/Release** to GDOT, in addition to the above-mentioned conditions, the following shall occur:

1. No less than forty-five (45) days prior to the DB Team's planned closing date for all or any portion of a constructible segment, the DB Team shall submit a Phased/Segmented ROW Certification Release Request for the applicable group of parcels for GDOT review and approval.
2. GDOT will approve the DB Team's Request for Certificate/Release or alternatively provide the right of entry within seven (7) days of the last parcel of the requested group of parcels has been closed.
3. If due to an unexpected delay to closing, GDOT and the DB Team shall work collaboratively to redefine the constructible segment and ROW certification. In that case, GDOT's approval of the DB Team's certification will not be unreasonably withheld and will be issued within seven (7) days. Without limiting any other conditions to start of construction, GDOT approval of the ROW certification for the applicable portion of the requested group shall be a condition to start of Construction Work within the applicable portion of the constructible segment. GDOT approval shall not be unreasonably withheld.

4. Should the parcel go to condemnation, GDOT will approve the DB Team's certification and release parcels within seven (7) days of possession of the property passing to GDOT. Possession of non-relocation parcels pass on the 31st day after petition has been filed, possession of parcels involving the relocation of a displacee pass on 61st day after petition has been filed.
5. If a "Motion to Set Aside a Declaration of Taking" (also referred to as "Petition to Set Aside") per O.C.G.A. 32-3-11 is filed, then the possession is deferred until the motion is resolved.

5.13.2 DB Team Responsibilities for Clearance of ROW

Prior to removal or demolition of any buildings, improvements, and/or fixtures, the DB Team shall provide to GDOT photographs of the property and all improvements, and other necessary documentation as applicable per the GDOT ROW Manual. The DB Team shall also provide photos of personalty and items of dispute in and of a quality suitable for presentation as evidence in court. Following possession of any improved property ROW, the DB Team shall:

1. Coordinate all property management activities with the GDOT ROW Property Management Demolition/Removal Unit.
2. Comply with all required government jurisdictions.
3. Secure and protect the buildings, improvements, and fixtures on the ROW until they are disposed of or demolished. The DB Team shall board-up, mow, and winterize as required by GDOT or other governmental applicable laws.
4. Coordinate with owners and occupants to ensure the clearance of personal property from the ROW has occurred.
5. Provide for any insect and rodent control and initiate extermination as required to protect the adjacent properties and rid the ROW from infestations.
6. Secure all appropriate governmental approvals required for demolition or removal of improvements. Secure any environmental surveys or tests as may be required by local, State, and/or federal jurisdictions. Notify GDOT in writing of all such activities.
7. Prepare necessary documentation for disposal of improvements, fixtures, and buildings in accordance with applicable laws and submit the same to GDOT.
8. Properly disconnect all Utility service(s) including, but not limited to power, water, gas (meter pulls), and sewer (sewer caps), at the back of the required ROW at a minimum, prior to any demolition or removal of any buildings, improvements, and/or fixtures. The exact location of these Utility disconnects shall be given to the GDOT ROW Property Management Demolition/Removal Unit in a format that can be used to easily locate them in the field (e.g., Northing/Easting, parcel number).
9. Process all required forms, documents, and permit applications in order to proceed with the timely demolition or removal of any improvements, buildings, and fixtures.

10. Properly notify GDOT ROW property management upon completion of the demolition and clearance of all buildings, improvements, and/or fixtures.

5.13.3 DB Team Responsibilities for Property Fencing

The DB Team shall comply with GDOT Policy and the 2009 International Building Code, 2009 Edition – International Code Council, as well as, the specifications found in the GDOT Standard Specifications, and any supplemental specifications. The DB Team shall also comply with applicable sections of GDOT's Design Policy Manual on fencing. Fencing standards for the DB Team-provided fencing shall conform to the overall aesthetics requirements found elsewhere in these DB Documents and referenced standards. All fencing installed by the DB Team shall be preapproved by GDOT prior to installation.

5.14 Schedule and Reviews

5.14.1 Schedule

The Project schedule shall indicate the date to begin the acquisition activities of the State Proposed/DB Team Acquired ROW and the anticipated completion date of acquisition activities for each parcel. Acquisition activities noted between Start and Complete shall comply and be in conformance with applicable State and/or federal laws and regulations, 49 CFR, Part 24 – the Uniform Act, FHWA and/or GDOT policies and procedures. In developing the Project schedule, the DB Team will give priority to the acquisition of parcels that have significant impact on the Project schedule and/or affect the Critical Path (i.e., relocation parcels, parcels with improvements, and property management). GDOT shall be advised of all DB Team Proposed/DB Team Acquired ROW and temporary rights or interests in real property to be acquired by the DB Team.

5.14.2 GDOT and/or FHWA Reviews

In developing the Project schedule, the DB Team shall incorporate the following applicable time periods for GDOT and/or FHWA reviews:

1. ROW plans approval by GDOT and/or FHWA: forty-five (45) days
2. ROW plan revisions approval by GDOT: fifteen (15) days
3. Assignment of review appraiser: ten (10) days
4. Revised Conceptual Stage Study review, if needed: thirty (30) days
5. Parcel Specialty Report(s) review: fifteen (15) days
    a. No more than eight (8) Parcel Specialty Report(s) can be submitted to GDOT for review within a fifteen (15) day period.
6. Appraisal review: thirty (30) days
    a. No more than eight (8) Parcel Appraisal Packages can be submitted to GDOT for review within a fifteen (15) day period.

7. Relocation benefits package check review: thirty (30) days
    a. No more than 4 relocation benefits packages can be submitted to GDOT for review within a fifteen (15) day period.
8. Review and provide disposition of the proposed Negotiation settlement offer, to include settlement amount: ten (10) days
9. Review Administrative Review (appeals) package: fifteen (15) days
    a. No more than four (4) Administrative reviews can be submitted to GDOT within a thirty- (30) day period.
10. GDOT shall conduct Administrative Review proceedings within 45 days of approval of the Appeals package.
11. Review of Condemnation Petition Request package: thirty (30) days
    a. No more than eight (8) Condemnation Petition Request packages can be submitted to GDOT for review within a thirty (30) day period.
12. Review of Condemnation Petition package and filing: thirty (30) days
    a. No more than eight (8) Condemnation Petition packages can be submitted to GDOT for review and filing within a thirty (30) day period

GDOT and/or FHWA will not begin review until the submittal package is complete. If any Submittal is determined by GDOT to be incomplete or to be revised, the Submittal will be returned and the timeframe given above shall start over for each re-submittal.

Schedule delays resulting from inadequate or incomplete appraisals, specialty reports, ROW Plans, negotiation packages, relocation packages, and condemnation petitions, shall be the responsibility of the DB Team.

5.15 Meetings

The DB Team shall conduct and attend meetings as requested by GDOT. Meetings may include, but are not limited to, property acquisition status meetings, Project status meetings, and property owner's meetings.

At any such meetings, the DB Team shall provide exhibits, take minutes, and distribute minutes, as requested by GDOT. Minutes shall be distributed within five (5) days of the meeting but will not be finalized until a comment period of five (5) days has been allowed.

5.16 Correspondence

All correspondence with GDOT relating to acquisition of real property shall include a heading with the following information (at a minimum):

1. County
2. Project number(s)
3. PI number(s)

4. Parcel number
5. Name and address of owner(s) of record, tenant, or other interest holder

All correspondence with property owners relating to acquisition of real property shall be on GDOT Letterhead and include the following information (at a minimum):

1. County
2. Project number(s)
3. PI number(s)
4. Parcel number
5. Name and address of owner(s) of record, tenant, or other interest holder
6. Name and contact information of ROW service provider

5.17 File Management and Document Control

In administering and managing its ROW activities, the DB Team shall:

1. Maintain parcel records on file of all aspects of the acquisition process in accordance with GDOT requirements and applicable State and/or federal laws. Each negotiation parcel file shall include all documents required by GDOT and/or FHWA.
2. Furnish the following data for entry into GDOT's electronic data management system at a frequency defined by GDOT, but no less than monthly:
    a. Property Owner's names (as the title reports are received from Attorney).
    b. Appraiser's name(s) (after approval of recommendation),
    c. Appraisal due date(s) (after furnishing appraiser with the written R/W Assignment Letter),
    d. Appraisal received date(s) (as the appraisals are received from the Appraiser)
    e. Project/Parcel comments (anytime when appropriate).

5.18 Project Tracking and Reporting

The DB Team must establish a Project tracking system and reporting system.

1. The DB Team shall provide monthly ROW parcel status updates to GDOT.
2. The DB Team shall provide GDOT with all specific reports and supporting documentation for review and approval during the acquisition process.
3. Provide monthly summaries (or as requested) for the cost of ROW acquisition and related relocation assistance, including amounts authorized and amounts paid on a parcel-by-parcel basis and budget forecasting on an overall Project basis.

4. Maintain and electronically transmit to GDOT, in a format acceptable to GDOT, monthly status reports (or as requested) including pre-acquisition, acquisition, relocation, and demolition or removal of improvement status.
5. Prepare and submit electronically to GDOT, on a monthly basis (or as requested), a spreadsheet that contains ROW-specific data including, but not limited to, parcel number, type of ROW, and progress status, type of properties.

5.19 Quality Assurance, Quality Control, and Audits

The DB Team must establish a quality assurance, quality control and audit system. The QA/QC and Audit process shall:

1. Show the appraisal, acquisition and relocation status of all parcels.
2. Identify how the DB Team shall remain in compliance during the property acquisition process.
3. Ensure that activities are undertaken to prevent fraud, waste and mismanagement.
4. Ensure that negotiation records are complete, detailed and thorough.
5. Perform or ensure that routine and random audits are performed on the process and parcel files throughout the life of the acquisition process.

QA/QC and/or audits may be administered by an independent consultant with the necessary expertise in appraisal, acquisition and relocation policies and procedures, who can make periodic reviews and reports to the DB Team and GDOT.

For GDOT initiated audits, the DB Team shall:

1. Make files available
2. Acknowledge required actions and/or findings
3. Take correction actions, as required, to address findings

6 UTILITY ADJUSTMENTS

6.1 General

By Georgia Statutes, utilities, whether publicly or privately owned, aerial or underground, are permitted by GDOT and local governments to be accommodated within the public Right of Way. To this end, the DB Team shall make every effort to avoid utilities. Design/construction techniques that minimize or avoid utility conflicts may involve increased upfront costs; however, those costs may be offset by savings during construction, in addition to the total cost savings for the Project, GDOT, and the respective Utility Owners. This Section 6 establishes procedures and requirements for Utility Adjustments including such processes as coordination with Utility Owners, administration of the engineering, construction and other activities necessary for Utility Adjustments, and required documentation.

The Utility Plans are a valuable tool used to identify and resolve utility related conflicts/issues prior to beginning the construction of a Project. Also, when these plans are properly prepared per guidance in this Section 6, they will support the vital coordination required between the DB Team and the Utility Owner during construction.

6.1.1 Standards

The DB Team shall provide Utility coordination and Utility adjustment activities in accordance with GDOT's Utility Accommodation Policy and Standards, current edition, AASHTO's A Guide for Accommodating Utilities within Highway Right of Way, AASHTO's A Policy on Geometric Design of Highways and Streets, TRB's Policies for Accommodation of Utilities on Highway Rights-of-Way, Attachment 3-1 Manuals, and other provisions of the DB Documents.

6.1.2 Memorandum of Understanding (MOU)

The allocation of responsibility for the Utility Adjustment work will be specified in the MOU.

GDOT has executed MOUs between GDOT and each Utility Owner. Copies of the MOUs can be found in the attachments to Volume 2 Section 6. If a Utility is impacted by the Project and the impact requires a relocation of the Utility, refer to the executed MOU for the Party responsible for the cost of the relocations. See Section 6.1.3.6 regarding the DB Team cost responsibilities for each MOU.

The DB Team shall cause Utility Adjustments to occur either by coordinating the relocation with the Utility Owner self-performing the relocation work, performing the work with its own forces or by using the Utility Owner's Pre-Approved Design Consultants or Contractors.

6.1.3 Responsibilities of the DB Team

The DB Team shall cause all Utility Adjustments necessary to accommodate the Project.

6.1.3.1 DB Team Pre-Construction Coordination

The DB Team shall communicate, cooperate, and coordinate with GDOT, the Utility Owners, Utility Owner's design consultants and construction contractors, property owners, local agencies (Government Entities), locally impacted businesses, and potentially affected third parties, as necessary for performance of the Utility Adjustment Work. The DB Team shall provide advance notification to all impacted local agencies, business and property owners for and planned disruption of service. The DB Team shall coordinate with GDOT for any public outreach for planned utility disruptions as required. The DB Team shall be responsible for assisting in the preparation of all Standard Utility Agreement(s) (SUA) and Contract Item Agreement(s) (CIA) as required. Utility agreement templates can be acquired from the State Pre-Construction Utility Manager. As part of the Pre-construction coordination, the DB team will be required to coordinate with all utility permitting agencies within the Project limits to ensure that any utility permits issued by any agency are reviewed and approved by the DB Team. The DB Team shall notify the Utility Owners that a Georgia Utility Permitting System (GUPS) permit is required for any facilities located inside the Project limits.

All Utility coordination shall be performed to GDOT standards by a prequalified firm in Area Class 3.10 - Utility Coordination. Refer to the following website for a list of current prequalified firms:

http://www.dot.ga.gov/PS/Business/Prequalification/PrequalConsultants

The DB Team utility coordination shall include, but not be limited to the following:

1. The DB Team shall schedule and meet with all Utility Owners within the Project limits, GDOT's District Utilities Office, and the State Subsurface Utilities Engineer (or designee) for a utility kick-off meeting within 15 days of the NTP 1. The DB Team shall discuss schedule, provide a Project overview and provide Utility Owners with a clear understanding of Design-Build Utility Coordination processes and what the Utility Owners can expect for the duration of the Project.
2. Contacting each Utility Owner to advise of the proposed Project; and obtaining supplemental verification of the locations of existing utility facilities (including the employment of additional Overhead/Underground Subsurface Utility Engineering (SUE) investigations as needed in determining requirements for the relocation or adjustment of facilities.
3. The DB Team shall perform any and all coordination necessary for Utility Adjustments.

6.1.3.2 DB Team Design Activities

The DB Team shall be responsible for the following design activities:

1. The DB Team shall be responsible for collecting the following from each Utility Owner self-performing their relocation work that is located within the Project limits:

Utility relocation plans; Utility agreements if required; and cost estimates and letters of "no conflict" where the Utility Owner's facilities will not be impacted by the Project.

2. The DB Team shall prepare all engineering design, plans, technical specifications required to perform the necessary utility relocations.
3. The DB Team shall be responsible for coordinating the design work of its subcontractors, Utility Owners and/or Utility Owners' contractors. This shall include any required inspection, permitting, testing and monitoring to ensure that the Work is properly performed in accordance with approved design plans.
4. The resolution of any conflicts between Utilities and the construction of the Project shall be the responsibility of the DB Team.
5. No additional compensation will be allowed for any delays, inconveniences, or damage sustained by the DB Team or its Subcontractors due to interference from Utilities or the operation of relocating utilities.
6. The DB Team shall provide each Utility Owner with design plans and preliminary utility plans as soon as the plans have reached a level of completeness adequate to allow them to fully understand the Project impacts. The Utility Owner or Utility Owner's design consultant will use the DB Team's design plan for preparing Utility relocation plans, cost estimates, and respective Utility Adjustment Schedules (UAS).
7. The DB Team shall assist Utility Owners in the preparation and submittal to GDOT a Utility Retention Request for any utility that is to remain under the roadway within the construction limits.
8. If a party other than the Utility Owner prepares Utility relocation plans, there shall be a concurrence box on the plans where the Utility Owner signs and accepts the Utility relocation plans as shown.
9. The DB Team shall review the utility plans to identify that there are no conflicts with the proposed highway improvements, and ensure that there are no conflicts between each of the Utility Owner's relocation plans.
10. The DB Team shall show all existing and proposed utilities on the cross sections and drainage profiles.
11. The DB Team shall furnish the final utility relocation plans to each utility owner to incorporate into the GUPS Project permit. Once the GUPS Project permit is submitted, GDOT will forward to the DB Team for concurrence.
12. The DB Team shall review all utility relocation plans, Utility agreements, utility estimates, and certificates of eligibility to ensure that relocations comply with GDOT's Utility Accommodation Policy and Standards Manual.
13. The DB Team shall certify to GDOT that utility relocation design plans have been reviewed and accepted by the respective Utility Owner.

6.1.3.3 DB Team Construction Activities

The DB Team shall cause Utility Adjustments to occur either by the Utility Owner, the Utility Owner's pre-approved contractors or by self-performing the construction Work.

The DB Team Utility Work construction management shall be performed by the Worksite Utility Coordination Supervisor.

6.1.3.4 Worksite Utility Coordination Supervisor (WUCS)

The DB Team shall designate, prior to beginning any work, a Worksite Utility Coordination Supervisor (WUCS) who shall be responsible for initiating and conducting utility coordination meetings and accurately recording and reporting the progress of utility relocations and adjustment work. Also, the WUCS shall prepare an Emergency Utility Response Plan for the purpose of planning, training, and communicating among the agencies responding to the emergency. The WUCS shall be the primary point of contact between all of the Utility companies, the DB Team and GDOT. The WUCS shall recommend the rate of reoccurrence for utility coordination meetings and GDOT will have the final decision on the regularity for utility coordination meetings. In no case will utility coordination meetings occur less than monthly until controlling items of utility relocations and adjustment milestones are completed. The WUCS shall contact each of the utility companies for the purpose of obtaining information including, but not limited to, a Utility Adjustment Schedule for the controlling items of utility relocations and adjustments. The WUCS shall notify the appropriate utility company and/or utility subcontractors and GDOT of the status of controlling items of relocations and adjustment milestones as they are completed. The WUCS shall furnish GDOT, for approval, a Progress Schedule Chart, immediately following the receipt of the Notice to Proceed unless otherwise specified, which includes the utility companies controlling items of work and other information in accordance with Standard Specification Section 108.03 or elsewhere in the Contract documents.

6.1.3.4.1 Qualifications

The WUCS shall be an employee of the Prime Contractor, shall have at least one year experience directly related to highway and utility construction in a supervisory capacity and have a complete understanding of the Georgia Utilities Protection Center operations, and shall be knowledgeable of the High-voltage Safety Act and shall be trained on the Georgia Utility Facility Protection Act (GUFPA). GDOT does not provide any training on GUFPA but will maintain a list of the Georgia Public Service Commission certified training programs developed by other agencies. Currently the following companies offer approved GUFPA training programs:

Associated Damage Consultants
Phone: (706) 234-8218 or (706) 853-1362

Georgia Utility Contractors Association
Phone: (404) 362-9995

Georgia Utilities Protection Center

Phone: (678) 291-0631 or (404) 375-6209

H B Training & Consulting
Phone: (706) 619-1669 or (877) 442-4282 (Toll Free)

The DB Team is responsible for obtaining the GUFPA training for their employees. Questions concerning the Georgia Public Service Commission GUFPA training program should be directed to:

Georgia Public Service Commission
244 Washington St. SW
Atlanta, GA 30334-5701
(404) 463-9784

6.1.3.4.2 Ticket Status

During the utility coordination meetings, the WUCS shall collect and maintain the Ticket Status information to determine the status of all locate requests within the Project limits. This information will be used to ensure those planning to use mechanized equipment to excavate or work within the Project limits are prepared to begin work when they have reported or estimated beginning work. At points where the DB Team's or utility company's operations are adjacent to or conflict with overhead or underground utility facilities, or are adjacent to other property, damage to which might result in considerable expense, loss, or inconvenience, work shall not commence until all arrangements necessary for the protection thereof have been made.

6.1.3.4.3 Notice

The names of known utility companies and the location of known utility facilities will be shown on the Plans, or listed in the Subsurface Utility Engineering Investigation if performed or in the Special Provisions; and the WUCS shall give 24-hour notice to such utility companies before commencing work adjacent to said utility facilities which may result in damage thereto. The WUCS shall further notify utility companies of any changes in the DB Team's work schedules affecting required action by the utility company to protect or adjust their facilities. Notice to the utility companies by GDOT of the Award of Contract, under Subsection 105.06, shall not be deemed to satisfy the notice required by this paragraph. Furthermore, this 24-hour notice shall not satisfy or fulfill the requirements of the DB Team as stated in Chapter 9 of Title 25 of the Official Code of Georgia Annotated, known as the "Georgia Utility Facility Protection Act".

6.1.3.4.4 Agenda

The WUCS shall cooperate with the companies of any underground or overhead utility facilities in their removal and relocations or adjustment work in order that these operations may progress in a reasonable manner, that duplication of their removal and relocations or adjustment work may be reduced to a minimum, and services rendered by those parties will not be unnecessarily interrupted. To promote this effort the WUCS

shall prepare an agenda for the utility coordination meetings and circulate same in advance of the meeting to encourage input and participation from all of the utility companies. The agenda will be prepared by an examination of the Project Site and may include photographs of potential/actual utility conflicts.

6.1.3.4.5 Emergency Response Plan

The WUCS shall prepare an Emergency Utility Response Plan (EURP) no later than 30 days prior to NTP 3. The EURP shall indicate the Project location (which includes street address and or major intersections / major highway route, if possible with a land mark) that would be reported in case of an emergency, WUCS, Emergency Utility Coordinator (EUC), utility company name, utility company emergency contact information to include but not limited to emergency phone number, response time for emergency, working condition of devices needed to facilitate prompt shut off, and primary point of contact name and phone number for the Project.

The Emergency Utility Coordinator (EUC) shall be an employee of the DB Team and shall notify the appropriate utility company and/or utility subcontractors in case of an emergency. The EURP must include the contact details of the EUC, if WUCS is not the primary emergency utility coordinator for this Project.

The EURP will also include a means of reporting emergencies and the Utility Emergency Response Information for each company. The WUCS/EUC shall post the EURP in an area readily accessible to GDOT and Project personnel. Also, WUCS shall distribute the copies of EURP by e-mail and hard copy to GDOT, the DB Team's Project manager, superintendent, and all approved sub-contractors whose work can be in conflict with utilities facilities, personnel of each facility/owner/ operator who has facilities within the Project limits and keep a copy in close proximity to active construction.

In the event of interruption to gas, water or other utility services as a result of accidental breakage or as a result of being exposed or unsupported, the WUCS/EUC shall promptly notify the appropriate emergency officials, the Georgia Utilities Protection Center and the appropriate utility facility company or operator, if known. Until such time as the damage has been repaired, no person shall engage in excavating or blasting activities that may cause further damage to the utility facility.

In order to keep up with the latest / most updated EURP contact information (name and phone numbers), the WUCS shall include an item in the agenda of Utility Coordination meeting about the updates / changes in the EURP plan.

The Emergency Utility Response Plan and Emergency Utility Response Information template can be found at the State of Georgia, Office of Utilities webpage.

6.1.3.4.6 Submission

Provisions for reporting all utility coordination meetings, the progress of utility relocation and adjustment work milestones and ticket status information will be reported on a form developed by the WUCS and will be distributed by the WUCS to all

of the utility companies as milestones are met and shall be included as part of the Project records. These reports shall be delivered to the Engineer for review, on a monthly basis. The WUCS shall immediately report to the Engineer any delay between the utility relocation and adjustment work, the existing Utility Adjustment Schedule, or the proposed Utility Adjustment Schedule so that these differences can be reconciled.

6.1.3.4.7 Delays

Under no circumstances will the DB Team be entitled to any additional compensation or time extension hereunder as the result of any Utility Adjustment, whether performed by the DB Team or by the Utility Owner, except as provided in Article 14 of the DBA.

6.1.3.4.8 Facilities Supported on Bridges

If the utility facilities are to be supported on bridges, the following provisions shall apply:

1. The Plans shall show the location of the facility and the auxiliary items necessary to support the facility.

2. The contractor constructing the bridge shall install anchor bolts, thimbles, inserts, or other auxiliary items attached to the bridge as a part of the support for the utility facility. The Utility Company shall furnish these auxiliary items, unless the Contract indicates these items are to be furnished by the DB Team as a part of the bridge construction.

3. The Utility or its subcontractor constructing the utility facility shall install hanger rods, pipe rollers, and other attachments necessary for the support of the utility facility as indicated on the Plans. The Utility Company shall furnish these attachments at no cost to GDOT or the prime contractor unless otherwise specified. This work shall also include:

   a. Caulking the openings around the utility where it passes through endwalls to prevent the passage of undesirable materials.

   b. Painting the exposed portions of utility supports unless such supports are corrosion resistant. Painting shall be done in accordance with the applicable portions of Standard Specification Section 535, unless otherwise specified.

4. The sequence of bridge construction work may be set forth in the Plans and/or the Special Provisions and will show at what stage of the Work a utility company will be allowed to make the utility installation. Further, all or any portion of the Work under this Section 6.1.3.4.8 may be included in the Agreement by the Plans and/or the Special Provisions.

5. Any damage to the bridge structure caused by the Utility or its subcontractor shall be repaired to the satisfaction of GDOT at the expense of the Utility or its subcontractor installing the utility facility.

6.1.3.4.9 Clearances

The Plans shall provide for at least minimum clearance of utilities as required by the National Electrical Safety Code, U.S. Department of Commerce, and National Bureau of Standards. Any additional clearance the DB Team may desire or require in performing the Work shall be arranged by the DB Team with the utility company. GDOT will pay no extra compensation for such additional clearances.

6.1.3.4.10 Utility Relocation Progress Schedule

The purpose of the Utility Adjustment Schedule is to provide the DB Team with the pertinent information, including any utility staging required, dependent activities, or joint-use coordination that is required for the creation of a feasible progress schedule. A suitable Utility Adjustment Schedule form is available from GDOT for the WUCS to circulate to utility companies for any proposed Project construction staging or should a utility company not duly file a Utility Adjustment Schedule to GDOT during the preconstruction phase of the Project. The WUCS shall submit a Utility Relocation Progress Schedule showing together the Progress Schedule Chart and the proposed Utility Adjustment Schedules from all utility companies to GDOT for review and approval.

6.1.3.5 General Responsibilities of GDOT

GDOT will provide guidance to the DB Team in the Utility Adjustment process to the extent as described in the Design-Build Documents and the Utility Accommodation Policy and Standards Manual.

6.1.3.6 Utility Adjustment Relocation

The DB Team shall be responsible for all Utility Adjustment Work associated with the Project, with the exception of Betterment and items explicitly excluded within the MOU's.

6.1.3.7 When Utility Adjustment is Required

Utility Adjustment may be necessary to accommodate the Work for either or both of the following reasons: (i) a physical conflict between the Work and the Utility, and/or (ii) an incompatibility between the Work and the Utility, even though there may be no physical conflict. The physical limits of all Utility Adjustments shall extend as necessary to replace the existing Utility, whether inside or outside of the Existing ROW and Proposed ROW. Section 6.2.2.2 (Acquisition of Replacement Utility Property Interests) contains provisions that address the acquisition of easements for Utilities to be installed outside of the Existing ROW and Proposed ROW.

6.1.4 Certain Components of the Utility Adjustment Work

6.1.4.1 Betterments

Replacements for existing Utilities shall be designed and constructed to provide service at least equal to that offered by the existing Utilities, unless the Utility Owner specifies a

lesser replacement or unless a larger size is required to meet current Law, industry standards, or Code. Services include equal access and ability to maintain the facility at its current level of functionality; in other words, like for like in-kind replacement and in accordance with the UAM and GDOT Design Policies.

Utility Enhancements are not included in the Work.

Any Betterment work furnished or performed by the DB Team as part of a Utility Adjustment shall be deemed added to the Work. That proportion of the costs representing improvement or Betterment in a facility shall be excluded from the costs eligible for payment by the DB Team or participation by GDOT, unless required to meet Law, industry standards, or Code.

The DB Team shall pay the in-kind replacement costs or larger facility costs if required to meet current Law, industry standards, or Code for removing, adjusting, and relocating those facilities that are physically in place and in conflict with proposed construction and where replacement is necessary.

6.1.4.2 Protection in Place

The DB Team shall assist the Utility Owner in the submission of Retention Request to GDOT for review and acceptance for each utility that will remain in place in accordance with GDOT's Utility Accommodation Policy and Standards Manual. The DB Team shall be responsible for Protection in Place through the use of a GDOT approved Retention Request of all Utilities impacted by the Project as necessary for their continued safe operation and structural integrity.

6.1.4.3 Early Adjustments

Refer to Volume 2.

6.2 Administrative Requirements

6.2.1 Communications

6.2.1.1 Communication with Utility Owners: Meetings and Correspondence

The DB Team is responsible for holding meetings and otherwise communicating with each Utility Owner and/or sub-contractor and/or the Utility Owner's pre-approved design consultant and construction contractor as necessary to timely accomplish the Utility Adjustments in compliance with the DB Documents. GDOT may participate in these meetings if requested by the Utility Owner or the DB Team or otherwise as GDOT deems appropriate.

At least seven (7) days in advance of each scheduled meeting, the DB Team shall provide notice and an agenda for the meeting separately to GDOT and the appropriate Utility Owner. The DB Team shall prepare and distribute minutes of all meetings within seven

(7) days of the meeting with Utility Owners and shall keep copies of all correspondence between the DB Team and any Utility Owner.

The DB Team will be allowed to coordinate with Utility Companies for early coordination of Utility Adjustments.

6.2.2 Real Property Matters

The DB Team shall provide the services described below in connection with existing and future occupancy of property by Utilities.

Determination of Utility Right-of-Way and Easement – The determination as to the need for replacement right-of-way or easement for utilities will be made as follows:

1. GDOT will determine what right-of-way is required for construction of the Project and will normally provide adequate right-of-way for the existing or typical utility facilities that will be permitted to be accommodated within that right-of-way. The DB Team will coordinate with each Utility to request any special right-of-way requirements necessary for their facilities.
2. If there is not sufficient space for the utility within the right of way or easement that will be required for the construction of the Project, the DB Team will coordinate with the Utility Owner to verify such circumstance and will obtain a written statement as to whether the Utility Owner desires that the DB Team acquire such additional rights of way or easement as may be required for utility relocation under the provisions of the O.C.G.A. § 32-6-172.
3. If the Utility Owner intends to acquire its own right of way or easement:
    a. The DB Team shall obtain written notification from the Utility Owner of such decision including this acquisition in the Utility Owner's Work Plan.
    b. The DB Team shall notify the GDOT Project Manager of that status in a format that will be included in GDOT's monthly Right of Way Status Acquisition Reports.
    c. The DB team shall request from the State Right of Way Office, and forward to such Utility Owner, the Right of Way Status Acquisition Report.

Method of Acquisition - The method of acquisition described in Section 4.1.C.6 of the UAM shall apply. It is desirable that replacement right of way and easements for utilities be acquired concurrently with acquisition of right of way for the Project.

Adjustment on Projects

1. **Reimbursable Cases** - When the Utility Owner is entitled to reimbursement for the cost of acquisition of replacement right of way or easements, GDOT will request permission from the Utility Owner, which must be obtained in writing, to acquire necessary utility right of way or easements concurrently with its acquisition of the normal highway right of way. If the Utility Owner has some particular reason

for insisting on acquiring the right of way or easement, this will be included in a Standard Utility Agreement.

2. **Non-Reimbursable Cases** - If the cost of acquisition of replacement right of way or easement is not reimbursable, GDOT will, at the written request of the Utility Owner, acquire such right of way or easement under written agreement and the Utility Owner will reimburse GDOT for such cost in accordance with the State Law. Any acquisition by GDOT will comply with all requirements pertaining to GDOT's acquisition of its own right of way or easement.

Interest to be Acquired - If the Utility Owner agrees for the DB Team to acquire replacement right of way, or easement:

1. The DB Team in conjunction with GDOT's Office of Right of Way will determine what interest will be acquired and the instrument (i.e., quitclaim, easement limited agreement, etc.) to be used to transfer such interest from GDOT to the Utility Owner.
2. The State Right of Way Administrator will notify the DB Team, District Utility Manager and the State Utilities Office as to a determination regarding GDOT's agreement to acquire the right of way and of what interest is proposed to acquire.
3. The DB Team will notify the Utility Owner and District Utility Manager of that determination and will promptly notify the State Right-of Way Office, with a copy to the State Utilities Administrator, of any exceptions the Utility Owner may make to that determination.
4. The State Utilities Administrator will be responsible for the establishment of Easement Limited Agreements (ELA) with the Utility Owner after determination by the State Right of Way Administrator that such ELA is required to complete the rights of way acquisition. A copy of the ELA will be sent to the State Right of Way Office for legal recording.

6.2.2.1 Documentation of Existing Utility Property Interests – Affidavits

For each Existing Utility Property Interest within the Existing ROW and Proposed ROW claimed by any Utility Owner, the DB Team shall include an easement deed or an Affidavit of Property Interest in the applicable Utility Work Plan, with appropriate documentation of the Existing Utility Property Interest attached. Any such claim shall be subject to GDOT's acceptance as part of a Utility Work Plan review. Except as otherwise directed by GDOT, the DB Team shall prepare all Affidavits of Property Interest using the standard GDOT form.

6.2.2.2 Acquisition of Replacement Utility Property Interests

Each Utility Owner will be responsible for acquiring any Replacement Utility Property Interests that are necessary for its Utility Adjustments if the DB Team is not responsible as outlined in the MOU. For acquisitions not the responsibility of the DB Team, the DB Team shall have the following responsibilities for each acquisition:

1. The DB Team shall coordinate with, and provide the necessary information to, each Utility Owner as necessary for the Utility Owner to acquire any Replacement Utility Property Interests required for its Utility Adjustments.
2. If any of the DB Team-Related Entities assists a Utility Owner in acquiring a Replacement Utility Property Interest, such assistance shall be by separate contract outside of the Work, and the DB Team shall ensure that the following requirements are met:
    a. The files and records must be kept separate and apart from all acquisition files and records for the Proposed ROW and Additional Properties.
    b. The items used in acquisition of Replacement Utility Property Interests (e.g., appraisals, written evaluations and owner contact reports) must be separate from the purchase of the Proposed ROW and Additional Properties.
    c. Any DB Team Related Entity personnel negotiating the acquisition of Replacement Utility Property Interests must be different from those negotiating the acquisition of Project ROW.

Condemnation: The DB Team is not responsible for Utility Owner condemnation proceedings.

6.2.2.3 Georgia Utility Permitting System (GUPS)

The DB Team shall submit, or shall ensure that each Utility Owner submits, utility permit requests through GUPS for the following:

1. Each Utility proposed to be relocated within the Existing ROW, Proposed ROW and Additional Properties.
2. Each Utility proposed to remain in its existing location within the Existing ROW, Proposed ROW and Additional Properties.

6.2.2.4 Documentation Requirements

The DB Team shall prepare, negotiate (to the extent permitted by this Section 6.2.2 (Real Property Matters), and obtain execution by the Utility Owner of (and record in the appropriate jurisdiction, if applicable) all agreements and deeds described in this section, including all necessary exhibits and information concerning the Project (e.g., reports, Plans, and surveys). Each agreement or deed shall identify the subject Utility(ies) by the applicable Utility Permit Number, and shall also identify any real property interests by parcel number or highway station number, or by other identification acceptable to GDOT.

6.2.2.5 Record Keeping

The DB Team shall maintain design, construction and inspection, and other Utility related records in order to ascertain that Utility Adjustment Work is accomplished as required by the Design-Build Documents and the applicable Utility agreement(s).

6.3 Design

6.3.1 DB Team's Responsibility for Utility Identification

All Design Documents for Utility Adjustment Work, whether furnished by the DB Team or by the Utility Owner or pre-approved design consultant, shall be consistent and compatible with the following:

1. The applicable requirements of the DB Documents, including Section 6.1.1 (Standards)
2. Any Utilities remaining in, or being installed in, the same vicinity
3. All applicable Governmental Approvals
4. Private approvals of any third parties necessary for such work

The DB Team shall ensure that the Design Documents are complete and include all utility adjustment schedules (required only if the Utility Owner self performs), utility relocation plans, and associated agreements (if required) necessary to address all foreseeable utility impacts that might affect the Project. This includes utility issues affecting right of way acquisition, environmental clearances, project staging, and project constructability.

The DB Team shall endeavor to design the Project to avoid conflicts with utilities when feasible, and minimize impacts where conflicts cannot be avoided. The DB Team shall submit to GDOT a SUE Utility Impact Analysis (UIA) in GDOT's prescribed format as specified in Volume 2, Section 3, Table 3-1.

When a Utility Owner claims prior rights in the MOU and does not include either design or construction in the Design-Build Documents, the DB Team shall research and verify any compensable prior right claimed in the MOU that would result in reimbursement to the Utility Owner for any relocation design, construction or material cost. If there is a dispute over property interests with a Utility Owner, the DB Team shall be responsible for resolving the dispute. The DB Team shall meet with GDOT's District Utilities Manager to present the property interests information gathered. This information shall be sufficient for the District Utilities Manager (or designee) to certify the extent of the Utility Owner's property interests. GDOT shall have final approval authority as to the DB Team's determination of whether the Utility Owner has property interests. The DB Team will be responsible for all design, construction and material costs when the design and construction are included in the Design-Build Documents.

6.3.2 Utility Relocation Plans

The DB Team shall submit final Utility Relocation Plans after the DB Team has reviewed and addressed internal comments on the Utility Adjustment Preliminary Plan.

6.3.2.1 Plans Prepared by the DB Team

Where the DB Team and the Utility Owner have agreed that the DB Team will furnish a Utility Adjustment design, the DB Team shall prepare final Utility Relocation Plans and

have an authorized representative of the Utility Owner sign the plans as "reviewed and approved for construction." The Utility Work Plan (as approved by the Utility Owner) shall be attached to the applicable Utility Agreement (if required), for GDOT's acceptance.

Unless otherwise specified in the applicable Utility Agreement(s), all changes to final Utility Relocation Plan(s) previously approved by the Utility Owner (excluding estimates, if the Utility Owner is not responsible for any costs) shall require written Utility Owner approval. The DB Team shall transmit any GDOT comments to the Utility Owner, and shall coordinate any modification, re-approval by the Utility Owner and re-submittal to GDOT as necessary to obtain GDOT's acceptance.

6.3.2.2 Plans Prepared by the Utility Owner

For all Utility Adjustments to be furnished by a Utility Owner, the DB Team shall coordinate with the Utility Owner as necessary to confirm compliance with the applicable requirements. Those Utility Adjustments shall be attached to the applicable Utility Agreement (if required), which the DB Team shall include in the appropriate Utility Work Plan for GDOT's acceptance. The DB Team shall transmit any GDOT comments to the Utility Owner, and shall coordinate any modification, review by the DB Team and re-submittal to GDOT as necessary to obtain GDOT's acceptance.

6.3.2.3 Design Documents

Each proposed Utility Adjustment shall be shown in the Design Documents, regardless of whether the Utility Relocation Plan is prepared by the DB Team, Utility Owner or Utility Owner's design consultant.

Required Information

1. Preliminary Utility Relocation Plans

    9. Preliminary Utility Relocation Plan sheets are typically comprised of preliminary roadway plan sheets with the inclusion of all existing utility facility locations (overhead and underground) found within a Project's limits. The "degree of effort" exerted on the part of GDOT and the Utility Owner varies with the type and location of the utility. GDOT has classified these "degrees of effort" into different quality levels of information.

    10. Preliminary Utility Relocation Plans shall be produced and used by the DB Team in the utility coordination/relocation design activities outlined here. The following minimum information shall be shown on the Preliminary Utility Plans:

        1. Construction centerlines with Project stations and begin/end Project limits
        2. Curb and gutter or edge of pavement (proposed and existing)
        3. Road and street names
        4. Existing and required Right of Way limits, property lines, environmentally sensitive area limits, and property owners

5. All proposed and existing easements (including existing utility easements)
6. Proposed and existing drainage structures/features (excluding drainage text)
7. Proposed construction limits (C/F lines)
8. Topographical planimetrics (i.e., existing buildings/structures, existing tree/vegetation limits)
9. All proposed bridges, walls, other structures and landscape hardscapes
10. All proposed and existing strain poles (signal, sign, lighting)
11. Utilities Legend
12. Miscellaneous General Notes
13. Existing overhead and underground utilities found within the Project's limits, including size and material if known
14. Sanitary sewer manhole top, and invert elevations. Sanitary Sewer pipe flow directions
15. Railroad mainline and spur tracks with their respective property/easement limits
16. Project survey control point locations

1. Final Utility Relocation Plans

    11. The final Utility Relocation Plans shall clearly show all existing utilities on the plans and clearly indicate all existing utilities are "To Remain" and all proposed relocations necessary to avoid construction conflicts.
    12. In addition to the information required for the Preliminary Utility Relocation Plans, the final Utility Relocation Plans shall include: Miscellaneous General Notes required for coordination of utility facilities with roadway construction.

Sheet Layout

1. The DB Team will ensure that any information and graphic data that is not necessary to depict the disposition of utilities found within the Project's limits is removed by turning off the appropriate CAD levels(s) on which the data is stored. This will help ensure that information pertinent to utility facilities can be clearly seen in the Utility Plan sheets. Examples of extraneous information would be items such as horizontal curve data, superelevation data, roadway dimensions, misc. text, etc. All background information such as pavement limits, existing structures, etc. shall be screened back. Also, the DB Team shall ensure all text, line work, details, and symbols are clear and legible when plans are reduced to half-size (typically, 11" x 17").

2. In order to maintain plan clarity, all applicable general notes, tables, details, and the Utility Legend shall be placed separately from the Utility Plan sheets. A Utility Plan "Cover Sheet" shall be provided for both preliminary and final Utility Relocation Plans. A recommended example utility sheet schedule is provided below:

    13. Utility Sheet 1 (Cover Sheet) – Utility General Notes, Utility Legend, Miscellaneous Details

    14. Utility Sheet 2 (required as needed) – Additional Miscellaneous Details, Pole Data Table

    15. Utility Plan Sheets – Utilities shown in plan view with respect to Project shall be displayed on 24 Series Plan Sheets.

    16. Utility Profile and Cross Sections Sheets - Proposed Utility facility profiles and cross sections (as required)

    17. Miscellaneous Utilities Sheets – Miscellaneous proposed utility details (as required)

    The above sheet schedule shall also be generally followed for all separate utility relocation plans (i.e., water and sewer plans) included in the Project plans.

The DB Team shall note on the Utility Relocation Plans whose responsibility it is for utility adjustment. For bridge plans required, the DB Team shall ensure the plans have made accommodations for utility crossings and attachments, if applicable. Any new utility crossings requests shall include the size, weight, and type of utility. In addition, the method of attachment to the bridge shall be fully detailed. Such requests shall be reviewed by the DB Team to ensure adequacy and constructability and final acceptance shall be obtained by the DB Team from GDOT. The DB Team shall follow the approval process within this specification. The DB Team is responsible to ensure that all proposed and existing utilities are coordinated with the respective Project's Construction Staging Plans and Erosion Control Plans.

Upon completion of the Utility relocation plans, the DB Team shall ensure that any additional environmental impacts due to utilities are addressed in the Project's Environmental Document and/or Permit.

6.3.2.4 Certain Requirements for Underground Utilities

Casing as specified in the Utility Accommodation Policy and Standards Manual shall be used for all underground Utilities crossing the Existing ROW, Proposed ROW and/or Additional Properties.

The WUCS shall ensure that all Georgia 811 requirements are met.

6.3.2.5 Utility Work Plan

Utility Work Plan means the combination of the Utility Relocation Plans and the Utility Adjustment Schedule (if required), and any required agreements, specifications, cost estimates (if required), and any other information and materials which the Design-Build Team is required to submit to GDOT in connection with each Utility Relocation. The Utility Work Plan also includes the Utility Owner's approval of plans, specifications, and cost estimates (if required). The term Utility Work Plan also refers to Supplemental Utility Work Plans and Utility Work Plan Retention Requests.

Each Utility Adjustment (as well as each Utility remaining in place and not requiring any Protection in Place or other Utility Adjustment) shall be addressed in a Utility Work Plan prepared by the DB Team and submitted to GDOT for its review and acceptance. The DB Team shall provide Utility Work Plans for each individual Utility Owner and the Utility Work Plan shall be provided in accordance with the Utility Accommodations Policy and Standards Manual. The DB Team shall coordinate with the Utility Owner or Utility Owner's design consultant to prepare all components of each Utility Work Plan. Completion of the review and comment process for the applicable Utility Work Plan, as well as issuance of any required GDOT acceptances, shall be required before the start of construction for the affected Utility Adjustment Work.

Provisions governing the procedure for and timing of Utility Work Plan submittals are in Section 6.5

All Utility Adjustments covered by the same initial Utility Agreement shall be addressed in a single full Utility Work Plan.

6.3.2.6 Utility Adjustment Schedule (UAS)

The purpose of the UAS is to provide the DB Team with the pertinent information when Utility Owners are self-performing. When the DB Team is performing the relocation work or if the relocation work has been included in the contract to be accomplished by the Utility Owner pre-approved contractor, no UAS will be required, unless there is a dependent activity by the Utility Owner to facilitate this work.

The DB Team shall schedule all utility relocations and adjustments. The DB Team shall obtain a written schedule from the Utility Owner or a Utility Owner pre-approved contractor.

6.3.2.7 Revised Work Plan Acceptance

If previously unforeseen utility removal, relocation, or adjustment work is found necessary by the DB Team, the Utility, or the DB Team after the start of construction of a project, the DB Team shall obtain from the Utility (if self-performing) a revised Utility Work Plan within 30 days after becoming aware of such work or upon receipt of the DB Team's written notification advising of such work. The incorporation of this revised Utility Work Plan into the overall project schedule is not intended to correct errors and omissions with

the original or current accepted Utility Work Plans submitted to GDOT. If such errors or omissions occur, it will be the Utility's responsibility to adhere to the original or current Utility Work Plan submitted and approved. However, when it is deemed appropriate for a revised Utility Work Plan to be submitted, the following procedure shall be followed for its acceptance:

1. The DB Team shall review all revised Utility Work Plans submitted by the Utility found within a project's limits.
2. After review and acceptance, the revised Work Plan shall be submitted to GDOT for review and acceptance by the District Utility Manager. Note that the District Utility Manager will typically consult with the District Construction Office and GDOT Project Manager to determine the reasonability of such revised Work Plans. If, upon review, the District Utilities Manager determines a revised Work Plan to be unreasonable based on the required scope of Utility Adjustment and/or relocation required to accommodate a project, the District Utility Manager will initiate the escalation process to resolve such disputes involving the revised Utility Work Plan if disputes occur.

6.3.2.8 Post-Let Utility Certification

The DB Team shall develop the Preliminary Utility Status Report. This report shall include a listing of all Utility Owners located within the Project limits and a recommendation as to the extent of each Utility Owner's property interests. This report shall include copies of easements, plans, or other supporting documentation that substantiates any property interests of the Utility Owners. The report shall list each Utility Owner with contact information, any Utility Agreements, current UIA, and a preliminary assessment of the impact to each Utility Owner.

Upon receipt of the accepted utility relocation plans and the Preliminary Utility Status Report, the DB Team will review and forward that information to the District Utility Manager for review. The District Utility Manger will review the information and forward to the State Pre-Construction Utility Manager for final acceptance. The State Pre-Construction Utility Manager will perform the post-let utility certification and issue notice to proceed (NTP 3) released for construction.

6.4 Construction

6.4.1 Reserved

6.4.2 General Construction Criteria

At the time the DB Team notifies GDOT that the DB Team deems the Project to have reached Substantial Completion, the DB Team shall certify to GDOT that all Utilities have been identified and that those Utility Owners with property interests or other claims related to relocation or coordination with the Project have been relocated or their claims otherwise satisfied or shall be satisfied by the DB Team.

In addition to the above, the DB Team shall comply with all provisions set forth under subsection 107.21 of the Georgia Department of Transportation's Specifications, Construction of Transportation Systems, current edition.

All Utility Adjustment construction performed by the DB Team shall conform to the requirements listed below. If the Utility Owner chooses to perform their own relocations and the Utility Owner holds no property interest, the DB Team shall obtain written confirmation from the Utility Owner stating that the Utility Owner will relocate its own facilities at no cost to the DB Team. All construction engineering and contract supervision shall be the responsibility of the DB Team to ensure that all utility relocation work included in the contract is accomplished in accordance with the Utility Owner approved final design plans and specifications. The DB Team will consult with the Utility Owner before authorizing any changes that affect the Utility Owners facilities. For work included in the DB Team's contract, the Utility Owner or Utility Owner's contractor shall have the right to visit and inspect the work at any time and advise the DB Team and GDOT of any observed discrepancies or potential issues. The DB Team will notify the Utility Owner when all utility relocation work is completed and ready for final inspection. Upon final acceptance of the utility relocation included in the contract and upon certification by the Utility Owner that the work has been completed in accordance with the Utility Owner approved final design plans and specifications, the Utility Owner will accept the adjusted, relocated, and additional facilities. In addition, the DB Team is responsible for verifying that all Utility Adjustment construction performed by each Utility Owner conforms to the requirements described below. In case of nonconformance, the DB Team shall cause the Utility Owner (and/or its contractors, as applicable) to complete all necessary corrective work or to otherwise take such steps as are necessary to conform to these requirements:

1. All criteria identified in Section 6.3
2. The Utility Work Plan(s) included in the Utility Agreements approved by GDOT (other than Utility Adjustment Field Modifications complying with Section 6.4).
3. All safety and environmental requirements
4. Overall schedule or proposed ROW schedule described in Sections 2, 5 and 7
5. Ensure that the placed, abandoned, excavated, or relocated utilities within the Project limits are all locatable. Locatable shall mean that the line can be field located using SUE QL-B methodology.

The DB Team shall be responsible for performing all utility removal, relocation, and adjustments required to accommodate the proposed Project in accordance with the MOU and any required Utility Agreements. This shall include any required inspection, permitting, testing, and monitoring to ensure that all the work is properly performed to the approved design plans. The resolution of any conflicts between Utilities and the construction of the Project shall be the responsibility of the DB Team. No additional compensation will be allowed for any delays, inconveniences, or damage sustained by

the DB Team or its subcontractor(s) due to interference from utilities or the operation of relocating utilities.

6.4.3 Inspection of Utility Owner Construction

The DB Team shall set forth procedures for inspection of all Utility Adjustment Work performed by Utility Owners (and/or their contractors) to verify compliance with the applicable requirements described in Section 6.4.2 and to ensure the work is being accomplished in accordance with the GDOT approved Utility Relocation Plan.

6.4.4 Scheduling Utility Adjustment Work

The Utility Adjustment Work (other than construction) may begin at any time following issuance of NTP 1. Refer to Article 7.6.2 of the Agreement for the conditions to commencement of Utility Adjustment Construction Work by the DB Team. The DB Team shall not arrange for any Utility Owner to begin any demolition, removal, or other construction Work for any Utility Adjustment until all of the following conditions are satisfied:

1. The Utility Adjustment is covered by an executed Utility Agreement (if required) (and any conditions to commencement of such activities that are included in the Utility Agreement have been satisfied).
2. Availability and access to affected Replacement Utility Property Interests have been obtained by the Utility Owner (and provided to the DB Team, if applicable).
3. Proposed ROW and/or Additional Properties have been obtained in accordance with the applicable requirements of the DB Documents.
4. If applicable, the Alternate Procedure List has been approved by FHWA, and either (a) the affected Utility is on the approved Alternate Procedure List, as supplemented, or (b) the Utility Owner is on the approved Alternate Procedure List, as supplemented.
5. The review and comment process has been completed and required approvals have been obtained for the Utility Work Plan covering the Utility Adjustment.
6. All third-party approvals (such as railroad, governmental, etc.) necessary for the Utility Adjustment construction have been obtained, and any pre-construction requirements contained in those approvals have been satisfied.
7. All other conditions to that Work stated in the DB Documents have been satisfied.

6.4.5 Standard of Care Regarding Utilities

The DB Team shall carefully and skillfully carry out all Work impacting Utilities and shall mark, support, secure, exercise care, and otherwise act to avoid damage to Utilities in accordance with O.C.G.A. 25-9 (The Georgia Utility Facility Protection Act). At the completion of the Work, the condition of all Utilities shall be at least as safe and permanent as before.

6.4.6 Emergency Procedures

The WUCS shall prepare and submit to GDOT an Emergency Utility Response Plan in accordance with Section 6.1.3.4.5.

6.4.7 Switch Over to New Facilities

After a newly adjusted Utility has been accepted by the Utility Owner and is otherwise ready to be placed in service, the DB Team shall coordinate with the Utility Owner regarding the procedure and timing for placing the newly adjusted Utility into service and terminating service at the Utility being replaced.

6.4.8 Traffic Control

The DB Team shall be responsible for, and the Construction Traffic Control Plan shall cover, all traffic control made necessary for Utility Adjustment Work, whether performed by the DB Team or by the Utility Owner. Traffic control for Adjustments shall be coordinated with GDOT. Traffic control shall comply with the guidelines of the Manual of Traffic Control Devices (MUTCD), current edition, and of Section 18.

6.5 Deliverables

The DB Team shall time all Submittals described in this Section 6 to meet the Project Baseline Schedule, taking into account GDOT's applicable review and response times designated in this Section 6, or if not stated therein, then as stated in Article 6.3 of the Design-Build Agreement (Volume 1).

The DB Team will provide to GDOT concurrently with accepted construction Utility Record Drawings (as-built plans), one full-sized, three half-sized, one PDF, and one MicroStation copy of the Utility Record Drawings (as-built plans) for review. GDOT will have 30 days to review and return as accepted or with comments. The DB Team will address any comments and return to GDOT for final review and acceptance. Upon GDOT review and acceptance, the DB Team will provide a copy of the accepted final Utility plans to all Utility Owners whose utility relocation work was performed by the DB Team.

6.5.1 Utility Work Plan Submittals

The DB Team shall transmit any GDOT comments to the Utility Owner, and shall coordinate any modification, review, and approval by the Utility Owner and re-submittal to GDOT, as necessary to resolve all GDOT comments and/or obtain GDOT's acceptance, as applicable.

6.5.2 Preliminary Utility Status Report

The DB Team shall prepare and submit to GDOT a Preliminary Utility Status Report concurrently with accepted relocated utility plans in accordance with Section 3.

6.5.3 Subsurface Utility Engineering (SUE) Requirements

The DB Team shall compile and submit to GDOT all SUE deliverables, Utility relocation plans, SUE Utility Impact Analysis, Utility Adjustment Schedules (if required), Utility Agreements (if required), Utility Estimates (if required) (if estimates are provided by the utility owners), and Letters of "no conflict," as set forth above for the Project. The DB Team is expected to assemble the information included in the Utility Agreements and Utility relocation plans in a final and complete form and in such a manner that GDOT may accept the submittals with minimal review required.

Each Utility Agreement and Utility relocation plan submitted shall be accompanied by a certification from the DB Team stating that the proposed relocation will not conflict with the proposed highway improvement and will not conflict with another Utility Owner's relocation plan.

6.5.4 Utility As-Built Standard

6.5.4.1 General As-Built Utility Requirements

The DB Team shall be responsible for managing, ensuring the accuracy of, and delivering all utility Record Drawings, which must be provided after utility relocations are completed and prior to Project closeout. The DB Team shall submit detailed as-built utility information, which will include all resulting abandoned or relocated utilities present within the Project limits. A "Record Drawing" will be submitted for each utility on the Project, whether the utility work is included in the contract price or the utility work is performed by the Utility Owner or the Utility's contractor.

The DB Team shall ensure the following:

1. All underground utilities that were relocated within the Project limits will be surveyed at the time of installation to determine the exact location and position of the utility line, including:
   a) The outside diameter of pipe or width of duct banks and configuration of non-encased multi-conduit systems
   b) The utility's structural material composition and condition
   c) Identification of benchmarks used to determine elevations
   d) Elevations with an accuracy of +/- 0.05 ft and certified accurate to the benchmark(s) used to determine elevations
   e) Horizontal data accurate to within +/- 0.2 ft or applicable survey standards, whichever is more precise
   f) Recording and labeling of the average depth below the surface of each run, all change of direction points, and all surface or underground components such as valves, manholes, drop inlets, clean outs, meters, etc.
      i) For wet facilities – typically at 100' intervals

ii) For dry facilities – typically at 25'-50' intervals, depending on the vertical alignment

2. All resulting abandoned or excavated underground utilities within the Project limits shall be clearly delineated and labeled as "abandoned" or "removed."
3. All relocated aerial facilities shall be recorded to include the the following:
   a) Owner
   b) Age
   c) Size
   d) Height
   e) Number
   f) Material type
   g) General condition of the utility
   h) Horizontal location surveyed to the same accuracies and precision as is required for the topographic data
   i) Aerial Utility Owners attached to the pole
   j) Horizontal connectivity of the utilities between the poles, including major service drops (substations or industrial facilities).

6.5.4.2 As-Built Utility CADD Files and Plans Preparation

The DB Team shall submit as-built information in GDOT's current CADD format (Microstation and InRoads) and in PDF format in accordance with GDOT's current Electronic Data Guidelines (EDG) and Plan Presentation Guide (PPG).

The DB Team shall ensure the as-built utility information is submitted as follows:

CADD Files

1. All points/data shall be placed in one (1) CADD file per Utility Owner.
2. DGN files shall be named using the naming convention "1234567UTLAB_XYZ.dgn" (where "1234567" represents the PI# and "XYZ" the Owner's UPC code).
3. One (1) empty, overall file using the naming convention "1234567UTLEAB.dgn" shall be created with all individual files named "1234567UTLAB_XYZ.dgn" attached as reference files.
4. All UTLAB files shall follow the conventions set forth in the EDG for the UTLE file.
5. Sheet files, using GDOT's title block, shall be created for each Utility Owner in accordance with Section 24, and Section 44 (if required) of GDOT's PPG; levels shall be correctly turned on/off/grayed back to enable future printing if needed.
6. The Project's scale shall be maintained.

7. Relocated poles shall be numbered and matched to a pole data table.
8. Pole data tables and point data tables shall be included.
9. All street names shall be labeled.
10. All easements and ROW shall be labeled.
11. The location and elevation of the referenced benchmark shall be identified and labeled; if the referenced benchmark is not within the Project limits, then a complete description of its location shall be provided to assist in future locating.
12. Any changes in details of design and/or additional supporting information, such as approved placement details, pipe sizes, material changes, geo-coded photos, etc., shall be labeled.

PDF Files

1. PDFs of the CADD sheet files shall be created for each Utility Owner in accordance with Section 24, and Section 44 (if required) of the GDOT PPG; levels shall be correctly turned on/off/grayed back to enable future printing.
2. Include the name, address, and telephone number of the firm preparing the drawing in the title block.
3. Include the date the as-built data is collected in the revision block of the title block.
4. Include the Professional Surveyor's or Professional Engineer's stamp and statement certifying that Record Drawings reflect the true conditions in the field.
    a. An electronic stamp may be used.
    b. Certification applies to new as-built information (not to the existing utility information) provided by GDOT.
5. Provide the Contractors' statement (with an original signature and Project Number on the cover sheet and transmittal letter) verifying that all construction specifications and product qualities have been met.
6. Label "Record Drawing" on each sheet.

6.5.4.3 Utility Record Drawings Review and Submittal Process

1. The DB Team shall submit completed as-built CADD files and PDFs of the Record Drawings utility plan sheets to the DB Team's EOR for review and comment(s).
2. Each respective Utility Owner, whose work was included in the contract, shall receive a PDF copy of their Record Drawings for review and acceptance at the interval(s) specified in the Project's contract; all comments shall be provided to the DB Team.

3. The DB Team shall revise and make changes or adjustments to the as-built utility-related data, as necessary.
4. Record Drawings shall not be considered complete until the DB Team has responded to all comments from these reviews to the satisfaction of the DB Team's EOR and the Utility Owners.
5. The DB Team shall submit final Record Drawings utility plans to GDOT as follows:
    a. One (1) overall, final CADD file in GDOT's current CADD Software with each Utility Owner's file appropriately attached as a reference file per GDOT's PPG and EDG
    b. One (1) PDF set of Section 24, and Section 44 (if required) plans for each Utility Owner's facilities
6. Quality Assurance (QA) shall be performed by GDOT on all deliverables to determine compliance with GDOT's EDG ad PPG before final acceptance by GDOT.

6.5.4.4 Utility Facility Relocation Acceptance Form

The Utility Facility Relocation Acceptance Form (see Attachment 6-1) shall be completed by the Contractor's Worksite Utility Coordination Supervisor (WUCS). It shall also be signed by an authorized representative of the Utility Owner and by the GDOT Project Manager upon completion and acceptance of the final utility as-built plans by the Utility Owner.

Execution of the Utility Facility Relocation Acceptance Form by the DB Team, Utility Owner and GDOT provides acknowledgement that the utility relocation work accomplished by the DB Team has been visually inspected and accepted by the Utility Owner as to having been constructed in accordance with the Utility Owner approved relocation design plans and their current specifications and the requirements of the Memorandum of Understanding (MOU) as executed by the Utility Owner. Further, the Contractor's WUCS shall provide the Utility Owner with a complete set of Record Drawings (CADD and PDF) reflecting the relocation work performed by the Contractor for review and approval. Upon completion of the Utility Facility Relocation Acceptance Form and the exchange of the final Utility Owner approved Record Drawings, all parties shall agree that the Utility Owner will operate and maintain the installed facilities covered by Utility Facility Relocation Acceptance Form going forward based on the date of execution by the GDOT Project Manager (PM). However, any items inadvertently overlooked and as identified in a subsequent utility punch list shall still be the responsibility of the DB Team to correct and provide up to date Record Drawings to the Utility Owner.

Execution of the Utility Facility Relocation Acceptance Form by GDOT does not confer legitimacy and accuracy or in any way transfers liability for errors or omissions made by the preparer.

7 RIGHT OF WAY (ROW) – Additional Properties

7.1 General

Additional Properties that require acquisition in addition to the Existing ROW owned by GDOT and proposed ROW as shown in the approved Environmental Documents shall be approved by GDOT and FHWA, if applicable, by a NEPA/GEPA re-evaluation. All cost to acquire Additional Properties shall be paid for by the DB Team and fully reimbursable to GDOT for actual costs to acquire.

This Section 7 sets forth the ROW acquisition activities for Additional Properties that will be provided by the DB Team and designates the ROW acquisition activities GDOT will conduct. The DB Team shall provide all engineering and ROW documents necessary to acquire title for Additional Properties, in form and substance acceptable to GDOT, in the name of the Georgia Department of Transportation. The DB Team shall also provide for relocation of displacees and clearance/demolition of the improvements from the ROW, as more fully described in the following sub-sections.

7.1.1 Standards

The DB Team shall provide activities in this Section 7 accordance with the GDOT Right of Way Manual, Attachment 3-1, and other provisions of the DB Documents.

7.2 Administrative Requirements

The DB Team shall provide information of all proposed and final acquisition requirements for Additional Properties, including temporary easements, permanent easements, full acquisitions, or leased property for construction means and methods by the DB Team.

Additional DB Team acquired ROW shall be acquired in accordance with State and/or federal laws and in conformance to FHWA and GDOT policies, procedures, and guidelines.

Pursuant to the applicable State and/or federal regulations, the DB Team shall:

1. Acquire additional DB Team ROW parcels for the Project on behalf of GDOT subject to GDOT's rights of review, approval, and audit.
2. Maintain adequate access to all properties at all times or until relocation is completed.
3. Maintain Utility service to occupied properties at all times or until relocation is completed.

The DB Team shall maintain a complete and current set of approved ROW plans for public use.

GDOT will either provide to the DB Team any GDOT forms referenced in this section or will make them available upon request. All ROW activities shall be completed and documented in compliance with all applicable State and/or federal laws, including the GDOT Right of Way Manual, Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Uniform Act), and the rules and regulations implementing the Uniform Act. In the event of an irreconcilable conflict between the GDOT Right of Way Manual and the Uniform Act, the standard, criterion, requirement, condition, procedure, specification or other provision offering higher quality or better performance will apply per DBA Article 1.2.3.

In the event the DB Team does not follow the provisions of 49 CFR Part 24 of the Uniform Act in the performance of the acquisition and/or relocation processes for the Project, fails to obtain or create any necessary written documentation in the ROW parcel file(s), or violates any requirements of the Uniform Act that results in the Project losing federal funding on a parcel(s) or the Project in general, the DB Team shall be responsible for any and all such loss of federal funds and all expenses determined to be ineligible for federal reimbursement due to the DB Team's failure to comply with the provisions of the Uniform Act (This is applicable to Federal-Aid Design-Build projects).

7.3 DB Team's ROW Scope of Services

The DB Team shall reimburse GDOT for any administrative activities provided in support of the acquisition of Additional Properties. Once the DB Team receives approval from GDOT to acquire additional parcels, GDOT will request that the Office of Attorney General assign an approved Special Assistant to the Attorney General (SAAG) to conduct the title work, closings, condemnations, and any related legal activities. The DB Team shall reimburse GDOT within thirty (30) days of receipt of the invoice from GDOT for the cost GDOT will pay the Office of Georgia Attorney General for its services. The DB Team shall not, without prior approval, initiate negotiations of the additional DB Team acquired ROW until the ROW plans for the applicable constructible segment have been approved by GDOT and the constructible segment has environmental clearance.

The DB Team shall not begin construction on any parcel of real estate unless property rights for the parcel have been obtained and recorded in favor of GDOT, possession has occurred, ROW Certification has been completed and the parcel(s) has been released for construction. ROW property possession may be by use of Right of Entry (ROE) as may be granted by certain Governmental Entities, and/or certain Public Utility parcels, and as accepted by GDOT on a case by case basis.

The DB Team's ROW Project Manager (ROW PM) shall be responsible for ensuring that the additional ROW is free of obstructions prior to construction commencing on any constructible segment of the Project including illegal encroachments on existing right of way.

The DB Team's ROW PM will audit, review, and pre-approve all negotiations, files, settlements, etc. prior to requesting any required GDOT's review and/or approval.

7.4 DB Team Conflict of Interest

The DB Team shall promptly disclose to GDOT if at any time, the DB Team, DB Team-Related Entity, or any subsidiary or parent company of the DB Team to the best of the DB Team's knowledge, directly or indirectly:

1. Acquires or has previously acquired any interest in real property likely to be parcels of the ROW or the remainders of any such parcels
2. Loans or has previously loaned money to any interest holder in any real property likely to be a ROW parcel and accepts as security for such loan the parcel, or the remainder of any such parcel that is not a whole acquisition
3. Purchases or has previously purchased from an existing mortgagee the mortgage instrument that secures an existing loan against real property likely to be a ROW parcel (or the remainder of any such parcel), or is employed by or acts as a representative of any property owner or tenant from which ROW or easement necessary for the Project. In the case of acquisitions, loans, or mortgage purchases that occurred prior to Effective Date, such disclosure shall be made within fourteen (14) days after Effective Date

In the event that the DB Team, DB Team-Related Entity, or any subsidiary or parent company of the DB Team, acquires a real property interest, whether by title or mortgage, in any ROW parcels of said interest shall be conveyed to the State of Georgia by condemnation. Any property interests acquired within thirty-six (36) months prior to NTP 1 will deem the DB Team ineligible to bid on the Project at GDOT's discretion.

In the event that the DB Team, DB Team-Related Entity, or any subsidiary or parent company of the DB Team, is employed by or acts as a representative of any property owner or tenant which ROW or easement necessary is for the Project, the DB Team must immediately cease said relationship or activity.

7.5 Responsibilities of DB Team

As set forth in Article 2 of the Design-Build Agreement and as more fully described in this Section 7, the DB Team shall be responsible for the reimbursement to GDOT for costs of all services and preparation of all documentation for all Additional Properties.

The DB Team's services to be provided with respect to the acquisition of the Additional Properties shall include, but are not limited to the following:

1. Appraisals
2. Environmental due diligence
3. Letter from the DB Team's EOR certifying that the required ROW Properties acquisition is necessary and that any proposed alternatives are not feasible (unless otherwise authorized by GDOT)

The DB Team shall be permitted to negotiate with a property owner to use private property located beyond the State Proposed Project limits for mobile work trailers, storage,

equipment, etc. Said negotiation of use shall be between the DB Team and the property owner and shall, in no way, affect the negotiations related to right of way acquisition for the Project. GDOT will not be obligated to exercise its power of eminent domain in connection with the DB Team's acquisition of any such temporary right or interest, and GDOT will have no obligations or responsibilities with respect to the acquisition, maintenance, or disposition of such temporary rights or interests.

7.6 Responsibilities of GDOT

In accordance with the provisions of Section 7.1 in Volume 3 the DB Team shall reimburse GDOT for the costs of the following services and GDOT will have the following responsibilities in connection with acquisition of the DB Team proposed Additional Properties:

1. Provide final approval, where final approval is warranted, for all negotiation settlements and relocation assistance payments.
2. Provide a staff ROW Oversight Manager and/or Administrative Review Officer to serve as first point of contact, and who will be responsible for reviewing all negotiated settlements.
3. ROW Oversight Manager, State ROW Program Manager, Assistant ROW Administrator or ROW Administrator will be the only authorized persons allowed to sign the Option Agreements and Administrative Settlement Analysis.

7.7 Responsibilities of the Office of the Attorney General

The parties hereto acknowledge the statutory requirements that the Attorney General of the State of Georgia has exclusive authority to represent and defend GDOT, through the appointed SAAG. In accordance with the provisions of Section 7.1 in Volume 3, the DB Team shall reimburse GDOT for the costs of the following SAAG services and in its role as attorney for GDOT, the SAAG has the responsibility to:

1. Prepare Ownership Verifications and/or Preliminary Title Certificates which shall include all pertinent deeds or documents relating to each parcel.
2. Review Right of Way plans for property line discrepancies or errors.
3. Analyze recommended parcel values and/or appraisal issues.
4. Coordination with GDOT on all legal matters concerning acquisition processes, including all negotiated legal settlements.
5. Conduct closings within ninety (90) days of GDOT's acceptance of the Option Agreement.
6. Prepare final title opinions.
7. Represent GDOT in all condemnation and eviction proceedings.
8. Prepare, obtain, and file of all necessary legal documentation for eviction of property owners or tenants.

9. Implement jury trials including determination of expert witnesses and all appeals.
10. Provide additional legal advice and opinions as needed by GDOT.

7.8 ROW Acquisition Plan

The DB Team shall update the ROW Acquisition Plan including the organization chart whenever changes in the Plan or personnel occur. For the acquisition of Additional Properties, the DB Team shall assess the ROW Acquisition Plan and revise accordingly.

7.9 Acquisition Process Summary

The DB Team's major activities and services to be provided with respect to the acquisition of the DB Team proposed Additional Properties shall be as described in Volume 3 Section 5.9 for all applicable actives and services.

7.10 Reserved

7.11 Pre-Acquisition Activities

7.11.1 ROW Plans and Engineering

The DB Team shall prepare a plat and legal description for Additional Properties needed in accordance with the requirements of this Section 7. The DB Team shall revise the Existing and Proposed ROW Plan (Exhibit 4 of the Agreement) and shall submit within thirty (30) days from the Issuance of NTP 1. No acquisition activities by GDOT can begin until the DB Team revised Existing and Proposed ROW Plan (Exhibit 4 of the Agreement) is accepted by GDOT, and if required FHWA and the NEPA Reevaluation is approved by FHWA.

The DB Team shall prepare timely written notification to GDOT of any environmental or other concerns associated with the proposed the DB Team proposed Additional Properties that could require environmental remediation or other special attention or that would require a report to be prepared.

The NEPA Reevaluation shall be approved by GDOT prior to commencing acquisition activities for any parcel.

7.11.2 Title Services

The DB Team shall comply with the requirements in Volume 3 Section 5.11.2.

7.11.3 Reserved

7.11.4 Project Inspection Checklist

The DB Team shall submit a request for an update to the Project Inspection Checklist for any Additional the DB Team acquired properties.

The DB Team shall schedule a Project Field review with the DB Team ROW PM, GDOT Project Review Appraiser and ROW Oversight Manager to determine the type and scope of appraisal work required for the Additional DB Team proposed properties along with any necessary specialty reports. Following the meeting, GDOT shall complete an update to the Project Inspection Checklist and return to the DB Team.

7.11.5 Appraisal Services

The DB Team shall comply with the requirements in Volume 3 Section 5.11.5.

7.12 Acquisition Activities

The DB Team shall comply with the requirements in Volume 3 Section 5.12.

7.13 Post-Acquisition Activities

The DB Team shall comply with the requirements in Volume 3 Section 5.13.

7.14 Schedule and Reviews

The DB Team shall comply with the requirements in Volume 3 Section 5.14.

The revised Existing and Proposed ROW Plan for Additional Properties shall be coordinated with the development of the Construction Phasing Plan. The DB Team's Preliminary Baseline Schedule and the Project Baseline Schedule must account for all newly proposed parcel acquisition and provide a Schedule Activity for each parcel.

GDOT and/or FHWA will not begin review until the Submittal package is complete. If any Submittal is determined by GDOT to be incomplete or to be revised, the Submittal will be returned and the timeframe given above shall start over for each re-submittal.

Schedule delays resulting from inadequate or incomplete appraisals, specialty reports, ROW Plans, negotiation packages, relocation packages, and condemnation petitions, shall be the responsibility of the DB Team.

7.15 Meetings

The DB Team shall conduct and attend meetings as requested by GDOT. Meetings may include, but are not limited to, property acquisition status meetings, Project status meetings, and property owner's meetings.

At any such meetings, the DB Team shall provide exhibits, take minutes, and distribute minutes, as requested by GDOT. Minutes shall be distributed within five (5) days of the meeting but will not be finalized until an adequate comment period of five (5) days has been allowed.

7.16 Correspondence

The DB Team shall comply with the requirements in Volume 3 Section 5.16.

7.17 File Management and Document Control

The DB Team shall comply with the requirements in Volume 3 Section 5.17.

7.18 Project Tracking and Reporting

The DB Team shall comply with the requirements in Volume 3 Section 5.18.

7.19 Quality Assurance Quality Control and Audits

The DB Team shall comply with the requirements in Volume 3 Section 5.19.

8 GEOTECHNICAL

8.1 General

The DB Team shall perform all geotechnical investigations, testing, research, and analysis necessary to effectively determine and understand the existing surface and subsurface geotechnical conditions. The DB Team shall ensure the geotechnical investigations and analyses are both thorough and complete, so as to provide accurate information for the design of roadways, pavements, foundations, structures, and other facilities that result in a Project that is safe and meets operational standards. The DB Team shall design the Project in general conformance with GDOT policies, guidelines, and Attachment 3-1 Manuals.

All geotechnical reports, provisions, and recommendations developed by the DB Team and accepted and/or concurred by GDOT will be part of the Project's design and shall be endorsed by the EOR.

8.1.1 Standards

The DB Team shall construct and maintain roadway pavements in conformance to GDOT's Pavement Design Manual and GDOT policies and procedures.

The Work should be performed in accordance with GDOT's Geotechnical Engineering Manual and guidelines per EOR recommendations, and shall be performed in accordance with AASHTO guidelines, and Attachment 3-1 Manuals, and other provisions of the DB Documents.

8.2 Design Requirements

8.2.1 Subsurface Geotechnical Investigation by the DB Team

The DB Team shall determine the specific locations, frequency, and scope of all subsurface geotechnical investigations, testing, research, and any additional analysis the DB Team considers necessary to provide a safe and reliable roadway, pavement, foundation, structure, and other facilities for the Project.

The DB Team shall prepare and amend, as needed, Geotechnical Engineering Reports documenting the assumptions, conditions, and results of the geotechnical investigation and analysis, including the following:

1. The geology of the Project area, including soil and/or rock types, and drainage characteristics.
2. Field investigations and laboratory test results used to characterize engineering and physical properties of soil and rock, including moisture content, plasticity index, gradations for each major soil strata change, levels of shrink/swell potential soil compressibility, and short-term and long-term settlement/ consolidation,

strength tests and engineering properties; recording rock recovery and rock quality designation in the field in addition to laboratory tests to determine compressive and split tensile strength tests of rock cores.

3. A discussion of conditions and results with reference to specific locations on the Project including dewatering plan and its impact on near-by structures.
4. Design and construction parameters resulting from the geotechnical investigation and analysis, including parameters for the design of pavements, pipes, foundations, structures, slopes, and embankments.
5. Plan view locations of field sampling, profile of boring logs and other field data, laboratory test results, calculations, and analyses that support design decisions taking into consideration down-drag on piles and soil squeeze in high embankments.
6. Include the slope stability analysis for embankment and excavation slopes including both short-term (undrained) and long-term (drained) conditions, and discussion of design measures undertaken to ensure stability and safety of all slopes. The analysis shall consider the potential for long-term surficial slide failures common to high plasticity clays in Georgia, and specific recommendations shall be provided to minimize their occurrence. Internal and external stability analysis shall be considered for walls supporting fill/cut within the Project.

Each Geotechnical Engineering Report along with back-up of calculations and input and output of GDOT recognized computer software, upon completion, shall be submitted to GDOT for review and comment as a Submittal.

If environmentally-sensitive conditions such as undocumented contaminated soil or archaeological sites are encountered during the subsurface exploration activities, the DB Team shall notify GDOT immediately. For hazardous materials, the DB Team shall also follow the requirements in Article 7.8 of the DBA and in GDOT Standard Specification 107.22.

8.2.2 Bridge Foundation Investigation (BFI)

The DB Team shall perform a BFI for all Projects that include bridge substructure work in conformance with this section, the GDOT Geotechnical Engineering Manual, AASHTO guidelines, and Attachment 3-1 Manuals for all new bridge construction and widening. The BFI report and all recommendations shall be endorsed by the EOR.

Pile Foundation

1. The DB Team shall design and construct the pilings in accordance with all related special provisions per the approved Bridge Foundation Investigation recommendations.

2. All piles shall be embedded a minimum of 10 feet into natural ground and 10 feet below 500 year scour line with additional length determined by the lead Professional Engineer for geotechnical design.

3. Piles shall have minimum embedment in the following materials:

Table 8-1: Pile Embedment Specifications

Material and Density	Minimum Embedment
15 to 20-blow count soil	15 feet
40 to 50+ blow count soil	10 feet
Hard rock (requires pilot holes)	5 feet

4. Pile tips should be set below any soft/loose soils that may settle/consolidate under the design load unless the soft/loose soils are at least deeper than five (5) pile diameters below the pile tip.

5. When piles must penetrate into rock to provide the minimum embedment, use pilot holes drilled a minimum of 5 feet into the rock.

Drilled Caisson

1. The DB Team shall design and construct the drilled caissons in accordance with Special Provision 524 per the approved Bridge Foundation Investigation recommendations.

2. When sound rock is encountered, drilled caissons shall be embedded a minimum of 10 feet into sound rock as defined by Special Provision 524.3.05 or per the approved Bridge Foundation Investigation recommendations.

Spread Footings

1. Top of footing shall be a minimum of 2 feet below the top of final grade.

2. Spread footings shall not be used within Environmentally Sensitive Areas. Spread footings in stream buffers are allowed if no other less impactful options are available.

3. Spread Footings should bear below the scour line, if applicable.

8.2.3 Dynamic Pile Testing

The DB Team shall perform dynamic pile testing using the Pile Driving Analyzer (PDA) to monitor the driving of piles with accelerometer and strain gauges attached to the piles. The DB Team shall perform a minimum of two (2) PDAs (one for the abutment and one for the intermediate bents), but no less than two percent (2%) of the production piles, and additional PDAs will be required for a change in bent type, change in abutment, change in geotechnical material, or as determined by the EOR. The DB Team shall perform the

dynamic pile testing in accordance with ASTM D4945-08 and Special Provision 523 per the approved Bridge Foundation Investigation recommendations.

Upon completion of a PDA test, the DB Team shall provide a complete report consisting of but not limited to PDA field monitoring data, results of CAPWAP computer analyses, and the driving criteria recommendation from the geotechnical engineer who developed the BFI. The recommendation shall be endorsed by the EOR. The DB Team shall submit the report electronically in PDF format and the electronic data files of the PDA analysis and CAPWAP to GDOT and allow seven (7) calendar days for review and acceptance before proceeding with driving production piles.

8.2.4 Soil Survey (SS)

The DB Team shall perform Soil Survey for all Projects that include the design of roadway foundations, embankments, and the treatments for geotechnical and related problems on the Project in conformance with the GDOT Geotechnical Engineering Manual and Attachment 3-1 Manuals. The SS report and all recommendations shall be endorsed by the EOR.

8.2.5 Pavement Design

The DB Team shall follow the required minimum pavement design provided in Volume 2, Section 11.

If pavement design has not been previously approved by GDOT, then the DB Team shall prepare a pavement design report that confirms or revises the required minimum pavement design provided in Volume 2, Section 11. The pavement design report shall document the assumptions, considerations, and decisions contributing to the Project's pavement design and meet all requirements of GDOT's Pavement Design Manual.

For roadways adjacent to and crossing the Project that are disturbed by the construction activities of the Project:

1. The DB Team shall, at a minimum, match the in-place surface type and structure of the existing roadways.
2. All new shoulders shall be constructed as full depth shoulders unless otherwise specified in Volume 2.
3. The DB Team shall design all tie-in Work to avoid differential settlement between the existing and new surfaces.
4. The DB Team shall coordinate the design and construction of all cross roads with the Governmental Entity having jurisdiction whether a municipality, county, or GDOT.

8.2.6 Wall Foundation Investigation (WFI)

The DB Team shall perform a WFI for all Projects that include wall structures in conformance with the GDOT Geotechnical Engineering Manual, AASHTO guidelines, and Attachment 3-1 Manuals for all new walls and wall extensions. The WFI report and all recommendations shall be endorsed by the EOR.

8.2.7 High Mast Lighting Foundation

See Volume 2.

8.3 Construction

Materials used to construct the Project shall meet the minimum requirement as specified in GDOT specifications, policies and procedures, guidelines, and Attachment 3-1 Manuals. All materials used to construct the Project shall conform to the requirements of the GDOT Qualified Products List (QPL) or equivalent as approved by GDOT. Testing of materials shall be performed by personnel possessing the requisite GDOT materials certifications.

The DB Team shall be responsible for obtaining and complying with all Governmental Approvals for construction of the Project.

The DB Team shall submit to GDOT for review and acceptance any blasting plan(s). Blasting shall be performed in accordance with State Law, and in accordance with GDOT's specifications, policies and procedures.

8.4 Reserved

9 SURVEYING AND MAPPING

9.1 General

The DB Team shall provide accurate and consistent land surveying and mapping necessary to support ROW acquisition, design, and construction of the Project. The DB Team is responsible for all surveying responsibilities.

The DB Team shall review existing survey data and determine the requirements for updating or extending the existing survey and mapping data. The DB Team is responsible for the final precision, accuracy, and comprehensiveness of all survey and mapping.

9.1.1 Standards

The DB Team shall provide surveying and mapping activities in accordance with the GDOT Automated Survey Manual and Attachment 3-1 Manuals, and other provisions of the DB Documents.

9.2 Administrative Requirements

9.2.1 Ownership

The documents produced by the surveyor or the surveyor's subcontractors are the property of GDOT and release of any such document shall be approved by GDOT.

9.2.2 Property Owner Notification

The DB Team shall prepare for GDOT review and acceptance a property owner notification letter in accordance with the GDOT Automated Survey Manual prior to entering any private property outside the Existing ROW.

9.3 Design Requirements

9.3.1 Units

All survey Work shall be performed in U.S survey feet. Work shall conform to state plane coordinates.

The combined sea level and scale factor for the Project shall conform to the GDOT Automated Survey Manual.

9.3.2 Survey Control Requirements

The DB Team shall ensure that all surveying conforms the Georgia Professional Land Surveying Practices Act, follows the General Rules of Procedures and Practices of the Georgia Board of Professional Engineers and Land Surveying, and otherwise conforms to all applicable Law. The DB Team shall ensure that any person in charge of the survey is proficient in the technical aspects of surveying, and is a Professional Land Surveyor (Surveyor).

The DB Team shall establish all horizontal and vertical primary Project control from approved control provided by GDOT. If the DB Team chooses to use GPS methods, the DB Team shall meet the guidelines as defined in the GDOT Automated Survey Manual.

The DB Team shall establish and maintain additional survey control as needed and final ROW monumentation throughout the duration of the Project.

The DB Team shall tie any additional horizontal and vertical control for the Project to the established primary Project control network.

All survey control points shall be set and/or verified by a Professional Land Surveyor.

The DB Team shall establish and maintain a permanent horizontal and vertical primary survey control network. The control network shall consist of, at minimum, horizontal deltas coordinated and elevated set in intervisible pairs at spacing of no greater than one (1) mile. Control monuments shall be installed per the GDOT Automated Survey Manual. Prior to construction, the DB Team in coordination with GDOT shall provide NOAA no less than a 90-day notification of planned activities that will disturb or destroy any geodetic control monuments. This will provide time to plan for and execute relocation of geodetic monuments. The DB Team shall replace all existing horizontal and vertical primary survey control points disturbed or destroyed. The DB Team shall make all survey computations and observations necessary to establish the exact position and elevation of all other control points based on the primary survey control.

The DB Team shall deliver to GDOT a survey control package in accordance with the criteria in the GDOT Automated Survey Manual. In addition, the DB Team shall deliver to GDOT a revised survey control package when survey monuments or control points are disturbed, destroyed or found to be in error.

9.3.3 Conventional Method (Horizontal & Vertical)

If the DB Team chooses to use conventional methods to establish additional horizontal control, the DB Team shall meet the accuracy of the appropriate level of survey as defined in the GDOT Automated Survey Manual.

9.3.3.1 Horizontal Accuracy Requirements for Conventional Surveys

Horizontal control is to be established (at a minimum) on the Georgia State Plane Coordinate System of 1985 [NAD83 or GCS 85].

Upon request by the DB Team, GDOT will compile and provide to the DB Team a survey control package of existing GDOT approved survey monumented data in the Project vicinity.

9.3.3.2 Vertical Accuracy Requirements for Conventional Surveys

Vertical control shall be established on the North American Vertical Datum of 1988 (NAVD 1988).

Table 9-1: North American Vertical Datum of 1988

	1st Order	2nd Order	3rd Order	Remarks and Formulae
Error of Closure	0.013 feet $\sqrt{M}$	0.026 feet $\sqrt{M}$	0.049 feet $\sqrt{M}$	Loop or between control monuments
Maximum Length of Sight	250 feet	300 feet		With good atmospheric conditions
Difference in Foresight and Backsight Distances	±10 feet	±20 feet	±30 feet	Per instrument set up
Total Difference in Foresight and Backsight Distances	±20 feet per second	±50 feet per second	±70 feet per second	Per total section or loop
Recommended Length of Section or Loop	2.0 miles	3.0 miles	4.0 miles	Maximum distance before closing or in loop
Maximum Recommended Distance Between Benchmarks	2000 feet	2500 feet	3000 feet	Permanent or temporary benchmarks set or observed along the route
Level Rod Reading	± 0.001 foot	± 0.001 foot	± 0.001 foot	
Recommended Instruments and Leveling Rods	Automatic or tilting w/ parallel plate micrometer precise rods	Automatic or tilting w/ optical micrometer precise rods	Automatic or quality spirit standard, quality rod	When two or more level rods are used, they should be identically matched
Principal Uses	Broad area control, subsidence or motion studies jig and tool settings	Broad area control, engineering projects basis for subsequent level work	Small area control, drainage studies, some construction and engineering	

9.3.4 Reserved

9.3.5 Right of Way Surveys

The DB Team shall base all surveys on the primary horizontal and vertical control network established for the Project.

9.3.5.1 Accuracy Standard

In performing ROW surveys consisting of boundary locations, the DB Team shall meet the accuracy standards of the appropriate level of survey as defined in the following table.

Table 9-2: Chart of Tolerances

	Urban / Rural	Urban Business District	Remarks and Formulae
Error of Closure	1:20,000	1:20,000	Loop or between Control Monuments
Angular Closure	15” $\sqrt{N}$	10” $\sqrt{N}$	N = Number of Angles in Traverse
Accuracy of Bearing in Relation to Source*	20 “	15 “	Sin α = denominator in error of closure divided into 1 (approx.)
Linear Distance Accuracy	0.1 foot per 1,000 feet	0.05 foot per 1,000 feet	Sin α x 1000 (approx.) where ± = Accuracy of Bearing
Positional Error of any Monument	*AC*/10,000	*AC*/15,000	*AC* = length of any course in traverse
Adjusted Mathematical Closure of Survey (No Less Than)	1:50,000	1:50,000	

*GDOT policy requires all bearings or angles be based on the following source: Grid bearing of the Georgia Coordinate System of 1985, with the proper zone and epoch specified.

9.3.6 Survey Records and Reports

The DB Team may use electronic field books to collect and store raw data. The DB Team shall preserve original raw data and document any changes or corrections made to field data, such as station name, height of instrument, or target. The DB Team shall also preserve raw and corrected field data in hardcopy output forms in a similar manner to conventional field books for preservation.

Field survey data and sketches that cannot be efficiently recorded in the electronic field volume shall be recorded in a field note volume and stored with copies of the electronic data.

All field notes shall be recorded in permanently bound books. (Loose leaf field notes will not be allowed.) The DB Team shall deliver copies of any or all field note volumes to GDOT upon request.

The documents produced by the Surveyor, or the Surveyor's subcontractors, are the property of GDOT, and release of any such document shall be approved by GDOT prior to release.

All topographic mapping created by the DB Team shall be provided to GDOT in digital terrain model format using the software and version thereof being used by GDOT at the time of delivery.

9.4 Construction Requirements

9.4.1 Units

Comply with the requirements in Section 9.3.

9.4.2 Construction Surveys

Comply with the requirements in Section 9.3.

9.4.3 ROW Monuments

Comply with the requirements in Section 9.3.

Upon completion of the ROW acquisition and all Construction Work, such that the Final ROW Lines will not be disturbed by construction, the DB Team shall set permanent and stable concrete ROW monuments (constructed according to current GDOT specifications) located on the final ROW line at all points of curvature (PCs), points of tangency (PTs), points of intersection (PIs), miters and breaks, points of compound curvature (PCCs), points of reverse curvature (PRCs), and all intersecting crossroad ROW lines. In addition, the DB Team shall set permanent and stable concrete ROW monuments (constructed according to current GDOT specifications) located on all final ROW lines where the distance between such significant ROW line points exceeds fifteen hundred (1,500) feet at no more than 1,000-foot intervals.

The DB Team shall purchase all materials, supplies, and other items necessary for proper survey monumentation.

9.5 Reserved

10 GRADING

10.1 General

The DB Team shall conduct all Work necessary to meet the requirements of grading, including clearing and grubbing, excavation and embankment, removal of existing buildings, pavement and miscellaneous structures, subgrade preparation and stabilization, dust control, aggregate surfacing and earth shouldering.

All borrow, stockpile, and waste Sites for this Project shall be environmentally approved prior to construction activities occurring in them. All common fill or excess material disposed of outside Project Right of Way shall be placed in either a permitted solid waste facility, a permitted inert waste landfill, or in an engineered fill. See Section 201 of the Standard Specifications Construction of Transportation Systems, Special Provisions, Shelf Special Provisions, Reference Special Provisions, and Supplemental Specifications thereto for additional information.

Existing bridge and/or construction debris shall not be disposed of within the Project. The DB Team shall provide an environmentally approved site to dispose the existing bridge and/or construction debris at no additional cost to GDOT.

Should the DB Team discover any non-permitted encroachment in the existing right of way, the DB Team shall notify GDOT. The DB Team shall not take any action to remove the encroachment without GDOT approval.

Any features that are abandoned in place, e.g. parking lots, abandoned pavements, sidewalks, driveways, catch basins, drop inlets, pipes, manholes, curbing, retaining walls, utilities, foundations, paved floors, underground tanks, fences, bridges, buildings, and other incidental structures shall be removed to the following depths:

1. Abandoned pavements: Ensure existing pavement inside the Project no longer being used is obliterated, graded to drain, and grassed.
2. Abandoned pipes: Ensure abandoned pipes that are left in place are grout filled or filled with flowable fill.
3. Under pavements: Remove to a depth of at least three (3) feet below the finished subgrade elevation.
4. Underneath other structures: Remove to at least three (3) feet below the foundations of any proposed structure, including installations such as guard rail posts and utility poles.
5. Elsewhere within the ROW and easement areas, remove as follows: Remove to at least three (3) feet below the finished surface of slopes and shoulders and one (1) foot below natural ground outside construction lines.

6. Thoroughly crack or break abandoned structures that may impound water. These structures include but are not limited to concrete floors, basements, and catch basins within ten (10) feet of finished grade.
7. Break floors so that no section greater than ten (10) square feet remains intact.

10.1.1 Standards

The DB Team shall provide grading activities in accordance with Attachment 3-1 Manuals and other provisions of the DB Documents.

10.2 Demolition and Abandonment Plan

The DB Team shall develop, implement, and maintain, for the Term, a Demolition and Abandonment Plan for all existing structures, features, and utilities as described in Section 10.1 above (types and sizes) that will be removed, abandoned or partially abandoned during the Term. The Plan shall ensure that said structures are structurally sound after the abandonment procedure. The Plan shall show the locations of all existing features as listed in Section 10.1 that will be abandoned and shall show sufficient detail for the Abandonment.

GDOT reserves the right to require the DB Team, at any time to salvage equipment and/or material in an undamaged condition and to deliver to a location designated by GDOT within the GDOT District in which the Project is located. GDOT shall have first right of refusal to retain any salvage material or equipment. If GDOT decides not to salvage the material or equipment, the DB Team shall take possession but not reuse for the Project. All material incorporated into the Project shall be new.

The material from structures designated for demolition shall be the DB Team's property. All material removed shall be properly disposed of by the DB Team outside the limits of the Project.

10.3 Slopes and Topsoil

The DB Team shall comply with Attachment 3-1 Manuals regarding design limitations and roadside safety guidelines associated with the design of slopes along roadways. The DB Team shall adjust grading to avoid and minimize disturbance to the identified waters of the U.S. The DB Team's grading plan shall be in accordance with the approved Environmental Documents. The DB Team shall secure all associated Governmental Approvals to meet the Released for Construction (RFC) plans.

The DB Team shall perform finished grading and place topsoil in all areas suitable for vegetative slope stabilization (and areas outside the limits of grading that are disturbed in the course of the Work) that are not paved.

The DB Team shall clear the entirety of cut slopes within the available Right of Way. Debris shall be removed by the DB Team.

10.4 Special Flood Hazard Areas Fill Mitigation

Refer to Volume 2

11 ROADWAYS

11.1 General

The DB Team shall coordinate its roadway design, construction, maintenance, and operation with all other Work planned or under construction by GDOT and/or Governmental Entity.

Whenever the DB Team receives a design request from an adjacent property owner, the DB Team shall, within thirty (30) days of the request, produce a report to GDOT identifying the nature of the request, the financial consequences to GDOT of compliance (if any), the DB Team's assessment of the feasibility of compliance, any Change Requests from the Technical Provisions that would be required and any potential risks to GDOT that may arise from implementation of the design request such as environmental and permitting risks. Where the DB Team determines that there are no financial consequences to GDOT, time impacts to the Project, and Change Request from the Technical Provisions, and provided that GDOT raises no objection within thirty (30) days of the DB Team's report, the DB Team may proceed with the implementation of the design request at its option and shall advise GDOT in writing of its decision.

No open cutting (removal of pavement to construct, repair, or relocate utilities/drainage structures or for any purposes that cause a full depth cut of existing pavement and removal of any subgrade beneath) of the Travel Lane pavements or ramp pavements shall be allowed without prior approval of GDOT. Any pavement that is open cut as described in this paragraph shall be repaired in kind prior to the Travel Lane or ramp being opened to traffic.

The stockpiling of materials may be permitted on a case by case basis provided that participation is based on the appropriate value of approved specification materials delivered by the DB Team to the Project Site, or other designated location in the vicinity of the Project and the terms and conditions below. Stockpiled materials that may qualify for material allowances include materials that are not readily available, can be easily identified and secured for this Project, and, can be stockpiled for long periods without detriment. The procedure identified in GDOT Supplement Specifications 109.07.B shall be used to process a Material Allowance Request. Other provisions include:

1. Stockpiles shall be constructed in conformity with the provisions in the current GDOT Standard Specifications, Construction of Transportation Systems. Appropriate erosion control measures shall be placed and maintained, and the site shall be restored to its original condition.
2. The stockpiled material is stored in such a manner that security and inventory can be maintained. The DB Team shall be responsible for storage of said materials at no additional cost to GDOT.

3. The material is supported by a paid invoice or receipt for delivery, with the DB Team to furnish the paid invoice within a reasonable time after receiving payment.
4. The material conforms with the requirements of the plans and specifications.
5. Any damage to material due to the delay in incorporation of the material into the Final Plans, shall be at the risk of the DB Team.
6. The quantity of material does not exceed the quantity required by the Project, nor does the value exceed the appropriate portion of the contract item in which the material is to be incorporated.
7. If the stockpiled material is embankment or other erodible material, then proper erosion control measures shall be adhered to.

11.1.1 Standards

The DB Team shall provide activities in this section in accordance with GDOT *Standard Specifications, Construction of Transportation Systems*, other Attachment 3-1 Manuals, and other provisions of the DB Documents.

11.2 Design Requirements

The DB Team shall coordinate its roadway design with the design of all other components of the Project. The Project roadways shall be designed to integrate with streets and roadways that are adjacent or connecting to the Project.

The Project roadways shall be designed to incorporate roadway appurtenances, including fences, noise attenuators, barriers, and hazard protection as necessary to promote safety and to mitigate visual and noise impacts on neighboring properties. Fence type shall be replaced in accordance with GDOT's Construction Standards and Details. Should the existing type of fence not match the type provided in GDOT's Construction Standards and Details, the type of proposed fence shall be submitted to GDOT for approval prior to construction.

The DB Team shall design and construct any and all proposed intersection reconstruction or rehabilitation to meet the requirements of the Environmental Document Approvals and Attachment 3-1 Manuals.

11.2.1 Design Criteria Order of Precedence

The following requirements shall be adhered to for the design of the Project. The plans provided in the Reference Information Documents are provided for reference only and may contain or conform to some but not all of the design requirements herein. In the event of any conflict, ambiguity or inconsistency among the following design criteria, the order of precedence, from highest to lowest, one being higher than two, shall be as follows:

1. Allowable Design Exception(s)/Variance(s) as set forth in Section 11.2.7
2. Volume 2 and Volume 2 Attachments (Technical Provisions)

3. Volume 3 and Volume 3 Attachments (Programmatic Technical Provisions)

11.2.2 Vibration Control

The DB Team is responsible for any and all vibration related damages to existing structures or other facilities located in the vicinity of construction related activities. Where vibration-inducing construction activities are to be performed in the vicinity of existing properties, structures, utilities, or other facilities, the DB Team shall evaluate potential impacts and develop a Vibration Control Plan for GDOT review and acceptance. The plan shall include certain triggers of action to ensure no damage to existing structures occurs as well as a means to resolve public concerns for the vibration at any level. Additional requirements for the Vibration Control Plan are as follows:

1. Use attenuation relationships published by applicable governmental agencies and/or applicable equipment manufacturers to estimate the zones within which vibrations caused by the Project may impact existing properties and facilities.
2. Within the zone of potential vibration impacts, conduct site reconnaissance of properties during site investigations to determine the sensitivity of each structure/facility to vibrations.
3. List all properties that may be adversely affected by vibrations.
4. Conduct a preconstruction survey of each structure determined to be susceptible to vibrations.
5. Provide GDOT with recommendations to mitigate that may be adversely affected by vibrations.
6. Use the vibration monitoring records to develop attenuation curves for predicting vibrations at varying distances from the source.

The DB Team shall adjust operations immediately if the threshold readings above are exceeded.

11.2.3 Blasting

The DB Team shall follow GDOT Standard Specification 107.12 and Supplemental Specifications 107.12 2016 Edition.

11.2.4 Control of Access

The DB Team shall maintain all existing property accesses, including those not shown on the schematic, and shall not revise control of access without GDOT review and the written agreement of the affected property owner. Access control shall be in conformance with the *GDOT* Regulations for Driveway and Encroachment Control.

11.2.5 Typical Section(s) and Pavement Design

Refer to Volume 2.

11.2.6 Additional Roadway Design Requirements

The DB Team shall coordinate, design and construct the improvements on crossing streets in accordance with the requirements of the Governmental Entity having jurisdiction of said roadway.

All roadside safety devices used on the Project shall meet current crash test and other safety requirements that meet or exceed current GDOT requirements.

Longitudinal pavement joints in the wheel path of the traveling public shall not be designed or constructed unless specifically approved by GDOT in writing.

When designing and constructing hardscape elements at intersections, at a minimum, the DB Team shall use colored textured concrete in all raised medians. Monolithic concrete medians shall not be permitted. Stamped concrete may only be used where the DB Teams acquires written agreement, in a manner acceptable to GDOT, from local communities to maintain it, and where it meets the requirements in GDOT specifications, policies, procedures and Attachment 3-1 Manuals.

Concrete paving shall be used in hard to reach mowing areas or under structures (such as, but not limited to, areas near or next to or between guard fence posts, sign posts, bent columns, next to retaining walls, freeway ramp gores, paved ditches, flumes, ditch inlets, etc.) to improve roadway appearance.

When construction impacts existing cable barrier that will remain in place, new end terminals shall be installed as required to ensure cable barrier remains in operation at all times. If existing cable barrier cannot remain in operation during construction, temporary concrete barrier shall be installed in the same general location as the existing cable barrier for the full length impacted, including approaches.

11.2.7 Allowable Design Exception(s)/Variance(s)

Refer to Volume 2.

11.2.8 Visual Quality

See Volume 2

11.2.9 Permanent Lighting

All third-party requests for lighting within the Project Site shall be subject to GDOT approval.

The DB Team shall design the lighting of the Project in accordance with Attachment 3-1 Manuals and published guidelines, manuals, policies, etc. by reference in the manuals listed in Attachment 3-1, the DB Documents, and at a minimum shall match the existing lighting. The DB Team shall also make all necessary enhancements or changes to the existing lighting system to maintain the existing illumination if diminished by the Project.

The DB Team shall design and construct the lighting system in a manner that will reduce and/or discourage vandalism.

The DB Team shall install mechanical copper wire theft deterrent devices in all Project electrical conduits supplying power to the Project. The theft deterrent devices typically consist of a rubber stopper mechanical device that compress against the electrical wiring and prevents the wires from being easily pulled through the conduits. The DB Team shall also install electrical pull box lids that contain locking mechanisms that works with the use of cams to prevent unauthorized access.

The DB Team shall prepare photometric studies to show luminance, illuminance and veiling luminance and uniformity as appropriate for the roadways, interchanges, and special areas including roadway intersections. Provide vertical illuminance calculations as appropriate in sidewalk or multi-use areas as appropriate, as well as within crosswalk areas.

The DB Team shall provide photometric calculations per AASHTO's Standard Specifications for Structural Supports for Highway Signs, Luminaire, and Traffic Signals, the Illuminating Engineering Society of North America (IESNA) RP-8-14 Roadway Lighting Standard Practice for Roadway Lighting and AASHTO's Roadway Lighting Design Guide for tolled lanes, general use lanes, High Occupancy Vehicle (HOV) lanes, auxiliary lanes, ramps, frontage roads, and ramp terminal intersections with cross streets.

The DB Team shall design the lighting system to minimize or eliminate illumination of areas outside the Existing ROW. Luminaires shall meet GDOT specifications. All luminaires shall be LED, unless the DB Team is removing and replacing an existing lighting system. Neither mercury vapor nor metal halide is allowed. All alternative energy efficient lighting technology can be considered, pending GDOT acceptance.

The DB Team shall design and construct the lighting system in a manner that will reduce and/or discourage vandalism.

Luminaire poles and breakaway bases shall be designed in accordance with AASHTO's *Standard Specifications for Structural Supports for Highway Signs, Luminaire, and Traffic Signals*. The DB Team shall install breakaway wiring connectors when using breakaway bases. For all poles located within the clear zone of the roadways, the DB Team's design shall incorporate breakaway devices that are pre-qualified by GDOT. Appropriate safety measures shall be used if the DB Team does not use luminaire poles and breakaway bases. Breakaway bases shall not be used when mounted on side barriers, median barriers or bridge structures.

The DB Team shall place all understructure lighting in a configuration that minimizes the need for lane closures during maintenance. No part of any light structure, mounting hardware or conduit under structures shall protrude below the bridge beams or other structure under any circumstance.

The DB Team shall determine and design appropriate foundation types and lengths for permanent lighting structures. GDOT requires consistent footing designs and has minimum footing size criteria for caisson type footings as follows:

Table 11-1: Minimum Footing Size Criteria

Height of Pole	Diameter by Depth of Footing
Less than or equal to 40’	2’ by 6’
40’ to 50’	3’ by 7’
50’ to 60’	3’ by 9’
High Mast	See Section 8.2.7
NOTE: Poles for barrier mounted have a minimum of 2-ft by 4-ft base	

The DB Team shall not place ITS cable, fiber-optic lines, signal conductors, or any other non-lighting related cables or conductors in the lighting conduit, ground boxes, or junction boxes.

Top latch mechanisms shall be used on all high mast lighting towers.

The DB Team shall minimize the potential hazards of lighting poles through the careful consideration of mounting options and pole placements, including the following options:

1. Placing mast arms on traffic signal poles
2. Placing pole bases on existing or proposed concrete traffic barrier
3. Placing poles behind existing or proposed concrete traffic barrier, guardrail or cable barrier
4. Placing high mast lighting outside the clear zone, especially in roadway horizontal curves

The DB Team shall ensure that lighting structures comply with Federal Aviation Administration (FAA) height restrictions within five (5) miles of airport facilities. In the event that proposed or existing luminaries, mast arms, or poles infringe into an airport’s or heliport’s base surface, the DB Team shall coordinate with the FAA and GDOT to permit or relocate such structures. If FAA restrictions prohibit lighting structures from being placed in certain areas near an airport Project, the DB Team shall find alternative ways of providing the required level of lighting at no additional cost to GDOT.

The DB Team shall coordinate with the Utility Owner(s) and ensure power service is initiated and maintained for permanent lighting systems. Where the Work impacts existing lighting, the DB Team shall maintain the existing lighting as temporary lighting during construction and restore or replace prior to Substantial Completion.

The DB Team shall place all bore pits safely away from traffic, provide positive barrier protection, and provide necessary signs to warn of the construction area.

The DB Team shall contact Utility Owners regarding their specific required working clearance requirements as depicted in Section 6.

The DB Team shall ensure that roadway lighting is provided for the safety of vehicles and pedestrians as they approach local intersections.

The DB Team shall affix an identification decal on each luminaire, ground box, and electrical service for inventory purposes and shall submit inventory information to GDOT in a GDOT-compatible format. This identification shall denote that these are property of GDOT and shall provide a contact phone number and address in the event of emergency.

11.2.10 Related Transportation Facilities

The DB Team shall design and construct all new roadway and bridges to accommodate the planned expansions or updates of Related Transportation Facilities as found in Volume 2.

11.3 Construction

Refer to Volume 2.

12 DRAINAGE

12.1 General

Effective performance of the drainage design and construction implemented for the Project ("the Drainage System") is an integral part of the success of the Project. All stormwater runoff that flows through the Project, whether originating within or outside the Project, must be accounted for in the design of the Drainage System. All existing and proposed riverine/tidal bridges, stormwater conveyances (open-channel and closed-conduit), inlets, and stormwater management such as detention/retention ponds are included as part of the Drainage System.

The Drainage System shall meet the following requirements:

1. The analysis, design, and construction of all components of the Drainage System shall address the interim conditions during construction of the Project and the conditions depicted in the RFC Plans.
2. The Drainage System shall have adequate capacity to convey all stormwater through the Project without any adverse impacts to upstream and/or downstream adjacent properties.

12.1.1 Standards

The DB Team shall provide activities in this section in accordance with GDOT's *Manual on Drainage Design for Highways (Drainage Manual),* Attachment 3-1 Manuals, and other provisions of the DB Documents.

12.2 Administrative Requirements

12.2.1 Data Collection

The DB Team shall collect all necessary data, including those components outlined in this Section 12.2.1, to establish a Drainage System that complies with the requirements and accommodates the historical hydrologic flows within the Project limits.

The DB Team shall collect all available data identifying stormwater runoff obligations, including:

1. Water quality regulations as imposed by local, State and federal governments
2. National Wetland Inventory and any other wetland/protected waters inventories
3. Any local floodplain ordinances in effective Federal Emergency Management Agency (FEMA) floodplains
4. Any restrictions on discharging storm water to environmentally sensitive areas, navigable waters or coastal zones

5. Official documents concerning the Project, such as the Environmental Documents and any other drainage or environmental studies

The DB Team shall determine any stormwater runoff issues that may include areas with historically inadequate drainage (evidence of flooding or citizen complaints of flooding), maintenance problems associated with drainage, and areas known to contain Hazardous Materials. The DB Team shall identify watershed boundaries, protected waters, areas classified as wetlands, floodplains, and boundaries between regulatory agencies (e.g., watershed districts and watershed management organizations).

The DB Team shall acquire all applicable municipal drainage plans, watershed management plans, coastal zone management plans and records of citizen concerns. The DB Team shall acquire all pertinent existing storm drain plans, bridge hydraulic studies and/or survey data, including data for all culverts, drainage systems, storm sewer systems, and bridge sites within the Project limits. The DB Team shall also identify existing drainage areas and calculate the estimated runoff to the Drainage System.

The DB Team shall obtain photogrammetric and/or geographic information system (GIS) data for the Project limits that depicts any impaired waters as listed by EPD. The DB Team shall conduct surveys for information not available from other sources.

If documentation is not available for certain components of the existing drainage system within the Project limits and these Components are scheduled to remain in place, the DB Team shall investigate and video record or photograph these components to determine condition, size, material, location, and other pertinent information.

The data collected shall be taken into account in the Final Plans of the drainage facilities.

12.2.2 Coordination with Other Agencies

The DB Team shall coordinate all stormwater runoff issues with affected interested parties and regulatory agencies, including EPD, USACE, and USFWS.

12.3 Design Requirements

Within the construction maintenance limits, the DB Team shall upgrade all substandard drainage facilities where the design and construction of the Project propose to utilize or impact those facilities. A drainage facility utilized on the Project is any drainage facility receiving Project stormwater runoff and/or any drainage facility conveying stormwater through the Project. A substandard drainage facility is any stormwater drainage system component where the existing structural condition per Section 13 and/or hydraulic capacity per this Section 12 is inadequate to carry additional stormwater generated by the Project. The design of the Drainage System shall include reconfiguration of the existing drainage systems within the Project limits and design of new storm drainage systems as required per the performance requirements, defined in this Section 12.

Damage to existing infrastructure due to the DB Team's operation shall be immediately repaired to maintain existing system capacity at all times. This permanent repair shall be at the DB Team's expense.

The DB Team shall provide facilities compatible with the existing drainage system and all applicable municipal drainage plans or systems in adjacent properties. The DB Team shall preserve existing drainage patterns wherever possible.

The DB Team may utilize the existing drainage facilities, provided overall drainage requirements for the Project are achieved. Modifications of existing systems or installations of new drainage systems to create in-line/buried/subsurface/underground detention or stormwater runoff storage shall not be allowed. The use of blind junctions and/or non-accessible structures shall not be allowed unless otherwise approved in writing by GDOT. The DB Team shall not install and/or utilize longitudinal storm sewer pipe under travel lanes unless otherwise approved in writing by GDOT. If no modification or upgrading of the existing GDOT stormwater system is required, the DB Team shall at a minimum maintain the existing system. This maintenance includes but is not limited to silt removal from any pipe, ditch, or structure and removal of any debris prior to the use of any existing GDOT stormwater system. This maintenance shall be at the DB Team's expense.

The DB Team shall base its Final Plans on design computations and risk assessments for all aspects of Project drainage.

The DB Team shall design channels and ditches such that erosion within and downstream of the channels and ditches is controlled by channel protection designed with GDOT's channel protection design program (http://liningdesign.ce.gatech.edu/). Roadside and median channel design shall be based on the design storm events specified in GDOT's Drainage Manual. The design high water elevation shall be at least six (6) inches below the roadway's normal shoulder break point. The travel lane shall not be encroached upon during the 50-year design storm event. On depressed roadways/sections, at low points and sag locations/areas/points, all median drains shall be designed for the 50-year design storm event such that the water will not reach the bottom of the pavement structure. All roadway, berm, surface, and outfall ditches shall be designed such that the 25-year design storm event will not reach the bottom of the pavement structure. A 50-year design storm event shall be used for ditches and channels at low points where flow must escape through an inlet. This requirement does not apply to roadways where water can escape over a curb, roadway, etc. into another channel. If these requirements are not achievable with a channel, the DB Team may design an open concrete-lined conveyance limiting ponding per Section 12.3.2.3, Gutter Spread/Ponding.

The DB Team shall coordinate with FEMA and/or the appropriate local community regarding any impacts to regulatory floodways and floodplains. In the event a Conditional Letter of Map Revision (CLOMR) is required, local community approval and the subsequent submission to FEMA shall occur as early in the Project timeline as possible.

The DB Team shall allow up to one (1) year in the schedule for FEMA approval of any required CLOMR review.

The DB Team shall design the Project to follow FEMA regulations in FEMA regulated floodplains. This design may include but is not limited to bridge structures over streams, bridge(s) or bottomless culverts over streams, increasing the tie slope and/or utilizing retaining walls to reduce fill in the floodplain/floodway.

All areas of the Project shall comply with the Post-Construction Stormwater Design Guidelines contained in the Drainage Manual.

Flood damage potential for the completed Project shall not exceed pre-Project conditions.

12.3.1 Surface Hydrology

12.3.1.1 Design Frequencies

The DB Team shall use the Design Discharge Criteria in the *Drainage Manual* and comply with CFR Part 650-Bridges, Structures, and Hydraulics.

If a design storm frequency is not specified for a given component of the temporary Drainage System, the DB Team shall use the design storm frequency as required for the corresponding facility in the Final Plans.

12.3.1.2 Hydrologic Analysis

The DB Team shall design the Drainage System to accommodate the Project drainage areas. These areas may extend outside of the Project limits.

The DB Team shall perform hydrologic analyses for the design of drainage features during the staging of construction and for the Final Plans for the Project according to the Drainage Manual.

12.3.2 Storm Sewer Systems

Where precluded from handling runoff with open channels or ditches, the DB Team shall design enclosed storm sewer systems to collect and convey runoff to appropriate discharge points.

The DB Team shall prepare storm sewer analysis, which shall constitute a section of the Drainage Design Report that contains, at a minimum, the following:

1. Drainage area maps with each storm drain inlet and its pertinent data, such as delineated drainage area, topographic contours, runoff coefficients/design curve numbers, times of concentration, land uses, discharges, velocities and headwater elevations.
2. Detailed tabulation of all existing and proposed storm drains. This includes but may not be limited to conveyance size and class or gauge; catch basin spacing/location and detailed structure designs.

3. Specifications for the pipe bedding material and structural pipe backfill on all proposed pipes and pipe material alternates.
4. Storm drain profiles, including pipe size, length, type, height of fill, class/gauge, gradient and design hydraulic grade line (HGL); and numbered drainage structures with station offsets from the roadway alignment and elevations.

12.3.2.1 Pipes

Storm drains shall be designed with design flow velocities greater than or equal to three (3) feet per second (fps) or slopes greater than or equal to 0.0100 ft/ft to prevent sedimentation in the pipe. Storm drains shall be designed to prevent surcharging of the system at the flow rate for the design year event.

All storm drains shall be reinforced concrete unless accepted otherwise by GDOT prior to installation. The DB Team shall adhere to the approved Geotechnical Engineering Report and ensure appropriate materials are used pursuant to Section 8.

Minimum pipe inside diameter shall be eighteen (18) inches. GDOT acceptance shall be required for all existing pipes to be utilized with a diameter less than eighteen (18) inches.

Existing pipe systems not meeting GDOT's maximum structure spacing requirement that are not being impacted by the construction of the Project may remain. If an existing system is impacted it shall be upgraded to meet the requirements of this Section 12.

12.3.2.2 Municipal Separate Storm Sewer System (MS4)

The DB Team shall follow requirements in the Drainage Manual for compliance with GDOT's General NPDES Stormwater Permit No. GAR 041000 (MS4 Permit). The DB Team shall also be directly responsible for the minimum control measures within the MS4 Permit, as required in Attachment 12-1 *MS4 Responsibilities - Design-Build Project*. The DB Team shall also adhere to Supplemental Specification 168 – Post-Construction Stormwater BMP Items (Attachment 12-2). BMP details are available on GDOT's website, and special grading sheets related to BMP details are posted in the RIDs.

Thirty (30) days prior to the end of each reporting period, as required in the MS4 Permit, the DB Team shall provide to GDOT annual report data covering the portion of GDOT's MS4 within the Project limits. The DB Team shall submit to GDOT a signed and sealed Post-Construction Stormwater Report prepared per the Drainage Manual for review and approval. Upon GDOT approval, the Report will be sent to EPD per the permit requirements. EPD will have sixty (60) days to disapprove the Report. GDOT will not issue substantial completion until after the 60-day EPD disapproval period ends. The DB Team may proceed with construction at their own risk prior to the 60 days expiring. GDOT will not issue reimbursement for any revisions to installed post construction BMPs as required by EPD.

The DB Team shall:

1. Attend GDOT training courses, Overview of Post-Construction Stormwater (O-PCS), CEI for Post-Construction BMPs (CEI), and Stormwater Pollution Prevention at Facilities (SWPP).
2. Provide GIS data of the existing and proposed storm sewer systems and all ditches within the ROW. This GIS data shall comply with GDOT's Supplemental Specification 156 – GPS Specifications for Conveyance Structures GIS Mapping (available on GDOT's website as part of the Supplemental Specifications Modifying the 2013 Standard Specifications, Construction of Transportation Systems, 2016 Edition); the DB Team shall contact GDOT to obtain the inventory standards and MS4 policy guidance prior to any data collection efforts.
3. Clean the existing drainage system sufficiently enough to allow for the proper detailed inspection of the system within the Project limits and as required in Section 19 for any proposed stormwater systems.

12.3.2.3 Gutter Spread/Ponding

The DB Team shall design pavement drainage systems, in both staging of construction and the Project, to limit ponding to the widths listed below for the design storm frequency:

1. For all interstate highways and all roads other than interstates with design speeds of greater than 45 mph; ponding shall be confined within the shoulder. In no event shall any ponding occur in an interstate travel lane.
2. For all roads other than interstates with design speeds of 45 mph or less, ponding shall be confined to within one-half (½) the lane adjacent the gutter/shoulder and the gutter/shoulder.
3. For all bridge decks, ponding shall be limited according to Section 13.2.2 Design Spread and Frequency in the Drainage Manual.

Note: Bicycle lanes are considered part of the shoulder for drainage design purposes.

Concentrated stormwater shall not be allowed/released to flow across any travel lane within the Project. The term "shallow-concentrated" shall be synonymous with "concentrated" with respect to flows across travel lanes. Only sheet flow shall be allowed to flow across travel lanes.

12.3.3 Hydraulic Structures (Culverts/Bridges)

The DB Team shall analyze existing and proposed culverts and bridges impacted, replaced, or created by the Project design, for any flooding problems.

For all culverts, the DB Team shall determine the allowable headwater depth (HWd) for the design-year storm per the Drainage Manual and based on items such as potential damage or loss of use to adjacent property, the culvert, roadway, stream and/or floodplain, as well as traffic interruption or hazard to human life.

All hydraulic computations, designs, and recommendations shall be consistent with past studies and projects in the area performed by local, State, or federal agencies.

Where hydraulic design is influenced by upstream storage and/or tidal surges, the analysis of the storage and/or the tidal surges shall be considered in the design of the structure.

Bridge culverts shall have a minimum rise dimension of four (4) feet.

12.3.3.1 Method Used to Estimate Flows

The DB Team shall ensure the selected hydrologic method is appropriate for the watershed conditions.

As appropriate, the DB Team shall utilize flow information within FEMA Flood Insurance Studies (FIS) and any subsequent Letters of Map Revision (LOMR).

For crossings not located within a FEMA FIS or on a gauged waterway, the DB Team shall utilize the required method for calculating the design flows according to the Drainage Manual.

12.3.3.2 Design Frequency

Culverts and storm drain systems shall be designed for the Design Storm Event according to the Design Discharge Criteria in the Drainage Manual. Bridges shall be designed for the fifty- (50) and one hundred- (100) year frequencies.

12.3.3.3 Hydraulic Analysis

The DB Team shall evaluate a bridge(s) for contraction and pier scour concerns and shall design for scour protection in accordance with the Drainage Manual.

For bridge abutments in urban areas, the DB Team shall install protection in accordance with Section 15 Landscape and Hardscape Enhancements.

12.3.3.4 Riverine Bridge/ Bridge Culvert Design

For existing bridges, the DB Team shall analyze each structure with the proposed flows to ensure it provides the required freeboard per the Drainage Manual. If this requirement is not met, the DB Team shall design and construct a replacement structure with sufficient capacity to pass the Design Storm Event flows while providing the required freeboards.

For existing bridge culverts, the DB Team shall analyze each structure with the proposed flows to ensure the headwater does not exceed that of the allowable headwater per the Drainage Manual. If this requirement is not met, the DB Team shall design and construct a replacement structure with sufficient capacity to pass the proposed Design Storm Event with a resulting headwater depth of no greater than the HWd.

Bridge/bridge culvert design shall maintain the existing channel morphology through the structure, if possible.

12.3.3.5 Bridge Deck Drainage

Runoff from bridge decks shall be carried off the bridge and into the adjoining roadway drainage system. The roadway drainage design shall include bridge approach drains to intercept gutter/shoulder flow at each end of the bridge. Stormwater flowing toward the bridge shall be intercepted upstream of the bridge.

Open deck drains are not permissible for bridges passing over environmentally sensitive areas, roadways or railroads. In these situations, if ponding will exceed width limits, runoff shall be collected in inlets and conveyed in a closed deck drain system before discharging outside of these areas.

12.3.3.6 Drainage Report for Hydraulic Structures

The DB Team shall prepare a Hydraulic and Hydrologic (H&H) Study and any other required documentation for all existing and/or proposed river and tidal bridge sites and for culverts that meet any of the conditions listed in the Drainage Manual (Section 12.1) and any Environmental Commitments identified in the approved Environmental Documents. Additional documentation may include but not be limited to the preparation and submittal of any CLOMR or LOMR required for community and/or FEMA coordination. The H&H Study shall further include the detailed calculations with electronic and printed copies of the computer software input and output files, as well as a discussion about hydrologic and hydraulic analysis and reasons for the design recommendations. At a minimum, for each crossing the H&H Study shall include:

<u>Hydrology</u>

1. Drainage area maps with watershed characteristics (hardcopy)
2. Hydrologic calculations (where computer software is used, both hardcopy report and electronic input and output files on a disc)
3. Historical or site data used to review computed flows

<u>Hydraulics and Recommended Waterway Opening and/or Structure</u>

1. Photographs of Site (pre- and post-construction)
2. General plan, profile, and elevation of recommended waterway opening and/or structure
3. Calculations – include a hardcopy report of output, in addition to electronic input and output files for all computer models used for final analysis or for permit request(s) as well as a summary of the basis of the models
4. Cross-sections of waterway (a hard copy plot, plus any electronic data used)
5. Channel profiles

<u>Scour Analysis</u>

1. Channel cross-sections at bridge(s) showing predicted scour depths

2. Calculations and summary of the calculations table, clearly showing predicted scour and assumptions regarding bridge opening and piers (dimensions, shape, etc.) used to calculate predicted scour
3. Discussion of the potential for long-term degradation/aggradations and effects
4. Recommendation(s) for abutment protection (type, size, dimensions, etc.)

These H&H Studies shall constitute a section in the Drainage Design Report.

12.4 Construction Requirements

The DB Team shall design the Drainage System to accommodate construction staging. The design shall include temporary erosion control, sediment basins and other BMPs needed to satisfy the NPDES and other regulatory requirements. All environmental approval commitments related to drainage design and erosion control shall be included as “notes” on the plans for each stage of construction.

The DB Team shall obtain GDOT acceptance during the Term to utilize any existing stormwater system (all pipe, structure, ditch, detention/retention system or any other component necessary for the conveyance of stormwater) outside the Project limits. Maintenance responsibility and costs shall be as follows during the Term:

1. Costs to reconstruct or upgrade the substandard drainage facility(ies) outside of the Project limits, shall be at the sole cost of the DB Team. Rehabilitation of substandard drainage facilities may be considered upon request from the DB Team. The rehabilitation shall meet the useful life as if the substandard drainage system structure was replaced as new.
2. Any stormwater system accepted by GDOT and constructed for the sole purpose of the Project outside of the Project limits shall be maintained by the DB Team at the DB Team’s sole expense.
3. The DB Team, at the DB Team’s expense, shall be responsible for maintenance and restoration of the existing system to its original intended purpose for any accepted existing stormwater system whether used jointly by the DB Team and GDOT or for the DB Team’s sole use.
4. Maintenance work includes but is not limited to silt removal of any pipe, ditch, or structure, and removal of debris prior to the use of any existing GDOT stormwater system.

12.5 Deliverables

The DB Team shall submit to GDOT for review and acceptance, a Drainage Design Report per the accepted Construction Phasing Plan, which shall be a complete documentation of all components of the Project’s drainage system. At a minimum, the report shall include:

1. A set of all drainage computations, both hydrologic and hydraulic, with all support data;
2. Hydraulic notes, models, and tabulations;
3. Bridge and culvert designs and Hydraulic reports. (each riverine bridge layout/design shall be submitted at the same time as their corresponding H&H Study);
4. Pond designs, including a graphic display of treatment areas and maintenance guidelines for operation;
5. A correspondence file;
6. Drainage system data (location, type, material, size, and other pertinent information) in a suitable electronic format such as GIS;
7. A post-Construction Stormwater Report with a Post-Construction BMP Infeasibility Report as applicable; and
8. Storm sewer drainage reports (if applicable) including Temporary and Final Drainage System layout with staged erosion control BMP location details.

13 STRUCTURES

13.1 General

The structural Elements of the Project, including bridges, culverts, drainage structures, signage supports, illumination assemblies, traffic signals, retaining walls, and noise barrier, shall be designed and constructed in order to provide the general public a safe, reliable, and aesthetically-pleasing facility.

13.1.1 Standards

The DB Team shall provide activities in this section accordance with GDOT's Bridge and Structures Design Manual (GDOT Bridge Manual) as the primary reference, the current AASHTO LRFD Bridge Design Specifications (AASHTO LRFD Specifications), other Attachment 3-1 Manuals, and other provisions of the DB Documents.

Where AASHTO LRFD Specifications and GDOT Bridge Manual requirements contradict or conflict with one another, the GDOT Bridge Manual requirements shall take precedence.

Unless otherwise noted, design and detailing for all structural elements to be constructed or rehabilitated and incorporated within the Project (not including future replacement structures) shall be based on the LRFD methodology using the GDOT Bridge Manual as the primary reference.

13.2 Design Requirements

13.2.1 Design Parameters

The DB Team shall ensure that bridges crossing over waterways are designed in accordance with Section 12 and the DB Documents.

The DB Team shall design and construct all new bridge structures to accommodate any planned expansions or updates of each facility by its respective Governmental Entity or GDOT as designated in their respective current transportation master plans. The current transportation master plans (if any) can be found in Section 11 of Volume 2. For the purpose of the Technical Provisions, superstructure is the portion of the bridge above and including the bearings and the substructure is the remaining portion of the bridge below the superstructure.

Longitudinal expansion joints shall not be placed in the travel lane.

The DB Team may use GDOT Construction Standards and Details on the Project without updating to meet LRFD requirements. If the DB Team chooses to modify any of the standards and details, the design shall be updated to meet LRFD requirements.

Vertical Clearances

New bridges constructed over the interstate shall provide a minimum vertical clearance of seventeen (17) feet (new box girder bridges shall be seventeen (17) feet six (6) inches). All bent substructure elements over the interstate, including straddle bents, shall provide a minimum vertical clearance of seventeen (17) feet six (6) inches. New bridges constructed over other roads such as State, Rural Secondary and Urban Routes, as defined by the GDOT Design Policy Manual shall provide a minimum vertical clearance of sixteen (16) feet nine (9) inches.

Bridge Design Live Loads and Load Ratings

All new or widened bridges must be designed to carry an HL-93 vehicle live load. The DB Team is responsible to ensure that the Final Plans of each bridge meet the load rating requirements for the design vehicle as well as all current state legal live loads. GDOT will perform a load rating as part of the final review for each bridge design. Load ratings will be performed according to the current GDOT policy and practices.

Seismic Design

Bridges shall be designed in accordance with the seismic design guidelines in the GDOT Bridge and Structures Manual *as* well as the current AASHTO LRFD Bridge Design Specifications.

Fatigue Design

Fatigue design shall be in in accordance the GDOT LRFD Bridge and Structures Manual as well as the current AASHTO LRFD Bridge Design Specifications.

13.2.2 Bridge Decks and Superstructures

Timber bridges, masonry bridges, unpainted weathering steel and structural plate arches will not be permitted. Bridges shall not use intermediate hinges.

The DB Team shall minimize the number of deck joints wherever possible. The DB Team shall locate joints to provide for maintenance accessibility and future replacement.

To the extent possible, the DB Team shall make bridge superstructures, joints, and bearings accessible for long-term inspection and maintenance. The DB Team shall make open-framed superstructures accessible with walkways or by use of ladders or an under-bridge inspection truck.

The DB Team shall provide concrete diaphragms for pre-stressed concrete beams spanning 40 feet or more.

Galvanized steel diaphragms are allowed on pre-stressed concrete beam bridges, with the following limitations:

1. Only structures with substantial clearance (20 ft. or greater) over roadways are acceptable locations for galvanized steel diaphragms.

2. Structures over waterways are acceptable locations for galvanized steel diaphragms.
3. Concrete diaphragms shall be used over roadways where the beams may be impacted by over-height loads.
4. Bolts shall not be exposed on the exterior face of concrete beams.
5. Only steel X-type cross frames shall be used.

The maximum weight of beam that may be transported on State routes is limited. Shipping weights larger than 150,000 pounds, including the truck, shall be submitted to GDOT to determine if a special hauling route is necessary for delivery.

Bolted field splices are allowed for use on steel girders providing the following requirements are met:

1. Bolts shall be placed in double shear
2. Splice plates and bolts shall not encroach on the slab design thickness
3. Direct Tension Indicators (DTIs) shall not be used

The DB Team shall install locked entryways on all hatches and points of access.

Cover plates are prohibited for use on new steel beams. When widening existing bridges “in kind” that have cover plated members, use a larger member size that will not require plates. For strengthening and rehabilitation work of existing steel beams, the DB Team shall determine if there are other methods available to provide the required capacity before submitting to GDOT for acceptance. If accepted, cover plates shall be checked for fatigue in accordance with GDOT and AASHTO LRFD guidelines.

Fracture critical members (FCMs) shall not be used for bridges. Steel box girder straddle bent caps are considered to be FCMs due to their non-redundant properties and will not be permitted on the Project. Post-tensioned concrete straddle bent caps are not considered FCMs as the posttensioning strands provide internal redundancy. Bridges designed using rolled steel beams, steel plate girders, pre-stressed concrete I-beams and pre-stressed concrete bulb-tee beams as the main members of the bridge superstructure shall be designed and constructed using a minimum of four (4) beams in the bridge typical section. Joints for all grade separation structures shall be sealed.

Box girder superstructures and substructures shall be accessible without impacting traffic below. The DB Team shall make box girders and box beam pier caps with a minimum inside depth of six (6) feet to facilitate interior inspection. The DB Team shall include a minimum access opening of three feet (3’-0”) diameter into all cells and between cells of the girders or pier caps to allow free flow of air during inspections. The outside access opening cover shall hinge to the inside of the box girder and pier caps. An electrical system (110V and 220V) shall be incorporated inside the box girder and pier caps with lighting and power outlets. The DB Team shall install air-tight sealed and locked entryways on all hatches and points of access.

13.2.3 Bridge/ Retaining Wall Foundations

The foundation design shall be based on the recommendations of the accepted Bridge or Wall Foundation Investigation report and the requirements of Section 8 of Volumes 2 and 3. The DB Team shall perform LRFD bridge and wall foundation investigations for all proposed walls and bridges to be constructed on this Project. Except as provided in Section 8 of Volume 2, any previously accepted reports provided by GDOT are for informational purposes only and GDOT does not certify or warranty the information contained in these reports.

For bridges crossing streams or any other body of water, all foundations shall be evaluated and designed to account for the effects of scour. The design shall include the recommendations of the hydraulics and hydrological report to ensure that footings, piles and caissons/ drilled shafts have the proper embedment below the scour line. Protection of slopes with rip rap shall be in accordance with the recommendations of the hydraulics report.

Foundations shall be designed based on LRFD methodology in accordance with Section 8, GDOT and AASHTO guidelines.

13.2.4 Bridge Railing and Barriers

All barrier systems used on the Project shall meet current crash test and other safety requirements as determined by GDOT. All testing and associated costs for non-standard railings shall be the sole responsibility of the DB Team and shall be accomplished through a third party acceptable to GDOT.

13.2.5 Retaining Walls

To the extent possible, the DB Team shall design and construct to provide embankments without the use of retaining walls. Where earthen embankments are not feasible, the DB Team may use retaining walls.

Metal walls, including bin walls and sheet pile walls, recycled material walls and timber walls shall not be permitted.

If pipe culverts are to extend through the retaining walls or noise barriers, the pipe shall be installed so that no expansion joints are located within two pipe diameters from centerline of the pipe or under the wall.

No weep holes through the face of retaining walls shall be permitted, except at the base of the walls.

Modular walls employing interlocking blocks shall not be used where surcharge loads from vehicular traffic are present or as part of bridge abutments.

Mechanically Stabilized Earth (MSE) walls shall not be used to support spread footing abutment foundations on the Project.

13.2.6 Aesthetics

The DB Team shall design retaining/structural walls to be similar in color, texture, and style that are consistent with other Elements present in the entire Project such as structures, landscaping, and other highway components.

All embellishments for structural Elements shall be coordinated with the DB Team's structural design team to facilitate constructability and maintain safety requirements. Structural element surfaces exposed to public view shall meet the requirements of the Standard Specifications, Construction of Transportation Systems.

No exposed conduits shall be allowed on bents, columns, bridge beams, overhangs or any other visible surface. The DB Team is to minimize drain pipe exposure to public view.

All bridge substructure columns shall be consistent in form and texture, with similar shapes and details used for all bridges on the Project.

Bridges with all or part of the structure visible to traffic either passing beneath the bridge or travelling in lanes adjacent to the bridge shall use constant depth of fascia beams along the entire length of the bridge to maintain a uniform appearance. An exception to this requirement is at locations where the fascia beam material changes from steel to concrete or vice versa. In this case, cheek walls shall be used at piers to mask transitions where superstructure depth change is required due to the change in material type. Spans crossing mainline interstates shall be constructed with the same superstructure type over both directions of traffic; for example, do not span one direction with concrete and the other direction with steel.

Bridges that are not visible to traffic either passing beneath the bridge or travelling in lanes located adjacent to the elevated portions of the bridge are not required to have all fascia beams constant throughout the bridge length.

13.2.7 Drainage Structures

In developing the design of drainage structures, the DB Team shall account for maximum anticipated loadings. "Step down" design shall not be utilized for any part of the proposed drainage system.

Energy dissipators, if used, shall be considered as structural Elements.

13.2.8 Sign, Illumination, and Traffic Signal Supports

The DB Team shall be responsible for the design of overhead sign supports to accommodate a full load of signs for the Project. The DB Team shall use sign bridge (Type I) or butterfly (Type III), or combination (Type IV) in accordance with GDOT's Attachment 3-1 Manuals. Type II sign (cantilever type) structures are not permitted.

Support columns for Type I, III, and IV overhead sign structures or traffic signal mast arms shall not be mounted to any portion of the new or existing bridge superstructure. Where an overhead sign structure or mast arm is required to be placed on a bridge, it shall be mounted either on the bridge substructure directly, such as the concrete pier cap, or on

a pier and foundation separate from the bridge entirely. For a sign structure that is mounted to the pier cap, the bridge pier must be designed for the additional loads and forces the sign structure will induce on the bridge substructure, including dead load, ice load, wind load and vibration. Loads shall be developed in accordance with the current edition of the AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals. For a sign structure or mast arm mounted to a foundation that is independent from the bridge, the design of the sign foundation shall be in accordance with the current edition of the AASHTO Standard Specification for Structural Supports for Highway Signs, Luminaires and Traffic Signals.

13.2.9 Widening/Modification of Existing Structure

Structures to be widened are listed in Section 13.2.9 of Volume 2. The DB Team is required to rehabilitate/strengthen/replace that portion of the existing structure as recommended by the most recent bridge condition and bridge deck condition surveys, and the portions of the existing structure that must be strengthened or upgraded as a direct result of the widening. Examples include strengthening of an existing fascia beam or improving the strength of a pier cap to meet the increased load capacity requirements due to the new load distribution on those elements. Any portion of the existing bridges damaged as a result of the widening operations will be replaced or repaired at the DB Team's cost, as determined by GDOT. The DB Team shall provide any studies, calculations, and plans that are required for GDOT review and acceptance prior to any bridge widening or modification.

13.2.10 Reserved

13.3 Construction Requirements

Refer to Volume 2.

13.3.1 Concrete Finishes

Concrete finishes shall comply with the performance requirements as stated in Section 15 or as otherwise allowable in the DB Documents.

13.3.2 Structure Metals

Welding shall be in accordance with the requirements of the American National Standards Institute (ANSI)/AASHTO/ American Welders Association (AWS) D1.5M/D1.5:2010 Bridge Welding Code.

13.4 Final Bridge Inspection Prior to Substantial Completion

GDOT shall inspect all bridges constructed prior to Substantial Completion. GDOT will perform the initial bridge ratings as part of this Work. Bridges shall not be opened to traffic until accepted by GDOT.

The DB Team shall provide to GDOT an overall schedule of completion for each structure in accordance with the Construction Phasing Plan and coordinate an inspection schedule with GDOT that will meet the Substantial Completion Date.

13.5 Deliverables

Preliminary Bridge Plan Layouts

The DB Team shall prepare Preliminary Bridge Plan Layouts in accordance with the GDOT Bridge Detailing Manual guidelines.

Additionally, the DB Team shall provide a typical section that indicates the following information:

1. The center to center spacing of girders
2. Overhang or distance from outside edge of slab to center of exterior girder: This distance (overhang) shall meet AASHTO requirements, but shall not exceed 4'-7½" or one half of the adjacent beam spacing, whichever is less. Overhangs shall be a minimum width of one-half top beam flange plus 6 inches.
3. Cross slope of the deck
4. Deck thickness between girders and deck thickness at the centerline of girder measured from the top surface of deck to top of the flange
5. Barrier location, height and width
6. Gutter to gutter and out-to-out dimensions
7. Location of the profile grade

The DB Team shall also provide any drawing and/or narrative description of the construction scheme necessary to indicate how the bridge is to be built, including traffic handling sketches and temporary barrier locations.

Preliminary Wall Plans

The DB Team shall prepare Preliminary Wall Plans in accordance with the GDOT Bridge Detailing Manual guidelines. The acceptable wall types are as follows:

1. MSE (Mechanically Stabilized Earth)
2. Alternate wall types, including cast-in place walls, are permissible. Soil-nail type walls and modular block type walls will not be permitted directly adjacent to areas subject to roadway surcharge loads, including bridge end bents.
3. Any construction sequence requirements that will affect the construction of the walls and which will have to be accounted for in the preparation of retaining wall plans.

Bridge and Wall Construction Plans

After the preliminary bridge and wall layouts have been accepted by GDOT, the DB Team shall prepare final plans. The DB Team shall arrange a meeting with GDOT to specifically discuss how the plans will be prepared prior to beginning plan preparation on the Project.

The DB Team shall provide Submittals as required in Section 3, Attachment 3-1 Manuals, and in the DB Documents in addition to the following:

- Hardscape Enhancement Plan for bridges, retaining walls, noise barriers, sign structures, and other structure components as required in Section 15.

14 RAIL

14.1 General

This section defines the criteria required for addressing impacts to established railroad right of way (ROW) within or adjacent to the Project limits. Any activity that penetrates or encroaches on the horizontal plan limits of established railroad ROW or other related limits as may be prescribed in the DB Documents shall be considered as impacting the railroad ROW. Such activities could include, but are not limited to:

1. Construction and/or removal of at-grade crossings (temporary or permanent).
2. Overhead or underground utility encroachments on railroad ROW; including construction of temporary bore and jack pits.
3. Protection of existing railroad facilities during Project construction activities; including protection from crane booms or other equipment with potential for fouling live track(s).
4. Construction of Project facilities, such as bridges and/or roadways, across or adjacent to established railroad ROW.
5. Temporary and/or permanent modifications to existing railroad facilities in connection with Project objectives.

If the Project includes impacts to existing railroad ROW as defined herein, the DB Team's Project Management Plan (PMP) shall set forth detailed procedures and methods for addressing those impacts meeting the requirements set forth in the DB Documents.

In the DB Documents the term "railroad" shall be understood to mean the owning railroad(s) and/or the operating railroad(s), in the event that more than one such entity owns or operates within the impacted corridor.

The railroad or its authorized representative shall have final authority in all matters affecting the safe maintenance of railroad traffic and facilities including determining impacts to its ROW; determining adequacy of structures and foundations supporting railroad track(s) and/or embankment(s); approving procedures for Work to be performed over its track(s); and determining the necessity for flagging protection during construction.

GDOT or its authorized representative shall have authority over all other matters as prescribed in the DB Documents.

14.1.1 Standards

The DB Team shall provide activities in this section accordance with the American Railway Engineering and Maintenance-of-Way Association (AREMA Manual), Attachment 3-1 Manuals, Government Approvals, and other provisions of the DB Documents.

14.2 Railroad Design Standards

The DB Team's design shall, as a minimum, preserve the current operational characteristics of existing rail lines and shall be capable of accommodating the future operational needs of the railroad.

At highway-rail grade crossings, the roadway and drainage design parameters shall be maintained at the crossing, except that the cross slope of the pavement may be transitioned to match the grade across the rail line.

14.2.1 Design Railroad Live Load

The DB Team shall design any permanent or temporary facilities that could be subjected to train loadings from existing or future tracks, including false work, temporary shoring, temporary crossings or structures, shooflies, culverts, bore and jack pits, etc., in accordance with applicable provisions of the current edition of the Manual for Railway Engineering as published by the American Railway Engineering and Maintenance-of-Way Association (AREMA Manual). The governing design railroad live load for such facilities is the Cooper E-80 live load as specified in Chapter 15, Section 1.3.3 of the AREMA Manual.

14.2.2 Design Lateral Pressures for Railroad Live Load Surcharge

Permanent and temporary facilities supporting railroad embankment excavation shall be designed for lateral pressures resulting from railroad live load surcharge. The Boussinesq equation as shown in Chapter 8, Part 20, Section C, Paragraph 2(b) of the AREMA Manual shall be used to determine lateral pressure values for railroad live load surcharge loading.

14.2.3 Clearances

Wherever practicable, overhead bridge structures shall have all piers and abutments located outside of the railroad ROW. Overhead bridge structures shall otherwise provide the horizontal and vertical clearances specified herein for existing tracks and drainage ditches. If future tracks and drainage ditches have been designated by the railroad in the Project area, the clearances specified herein shall apply to those tracks and ditches as well.

14.2.3.1 Permanent Clearances

Minimum horizontal clearance from centerline of track to face of nearest bridge substructure unit shall be 25'-0". Bridge substructure units located less than 25'-0" from face of pier to centerline of nearest track shall be designed with crash wall protection. Edges of footings shall not be closer than 13'-0" from centerline of nearest track to provide adequate room for shoring.

Horizontal clearances must provide sufficient space for construction of the required track ditch parallel to the standard roadbed section. Bridge substructure units and end slopes

shall be located so that they do not interfere with track drainage ditches, and horizontal clearances shall be increased as necessary to accommodate such ditches. Where special conditions make this impossible, an explanation of such conditions must be submitted, along with supporting plans and calculations, to the railroad for approval.

Minimum vertical clearance measured from top of high rail to lowest point of structure 10' from both sides of centerline of existing and future tracks shall be 23'-0". Existing top of rail profile shall be plotted on the DB Team's plans for at least 500 ft. on either side of the proposed overhead bridge crossing. If the profile contains a sag vertical curve at the proposed overhead bridge location, the vertical clearance from the top of rail to the proposed overhead bridge shall be increased sufficiently to permit future raising of the track to minimize or eliminate the sag per the railroad's direction. The DB Team shall coordinate with the railroad accordingly and obtain written approval from the railroad of the proposed overhead bridge profile prior to proceeding with Final Plans.

Proposed vertical and horizontal clearances shall be adjusted so that the sight distance to railroad signals is not reduced, unless the signals are to be relocated as a part of the Project.

On structures to be rehabilitated or replaced, the proposed minimum vertical and horizontal clearances as well as the existing clearances shall be indicated on the General Plan and Elevation sheet.

The permanent clearances shall be correlated with the methods of construction so that temporary construction clearances will not be less than the minimum allowed.

14.2.3.2 Temporary Clearances

Falsework and formwork above or adjacent to operated tracks shall conform to the following:

1. Maintain minimum vertical clearance of 23'-0" above top of high rail.
2. Maintain minimum horizontal clearance of 13'-0" from centerline of tangent track or 14'-0" from centerline of curved track.

Minimum temporary clearances, if less than required minimum permanent clearances, shall be indicated on the General Plan and Elevation Sheet.

Temporary clearance requirements shall also apply to all other physical obstructions including stockpiled materials, parked equipment, placement or driving of piles, and bracing or other construction supports.

14.2.4 Crashwalls

Chapter 8, Article 2.1.5 of the AREMA Manual covers requirements for crashwalls. Crashwalls are required when any portion of the face of a pier is closer than 25'-0" to centerline of track (including future tracks), measured perpendicular or radial to the track.

Crashwalls for single column piers shall be a minimum of 2'-6" thick and shall extend a minimum of 10'-0" above the top of high rail. Crashwalls shall extend a minimum of 6'-0" beyond the column on each side in the direction parallel to the track. The face of the crashwall shall extend at least six (6) inches beyond the face of the column on the side adjacent to the track.

For multi-column piers, the columns shall be connected with a crashwall with a minimum thickness of 2'-6". Crashwalls shall extend a minimum of 10'-0" above the top of high rail and shall extend a minimum of 2'-6" beyond the end of outside columns in a direction parallel to the track. The face of the crashwall shall extend at least six (6) inches beyond the face of the columns on the side adjacent to the track.

Reinforcing steel to adequately anchor the crashwalls to the column and footing shall be provided.

Crashwalls may be omitted for piers of heavy construction as defined by the aforementioned AREMA Manual requirements.

14.2.5 Drainage

The bridge and roadway plans shall indicate all proposed drainage encroachments on railroad ROW.

Drainage plans shall be included with the bridge and roadway plans submitted to the railroad for approval. These plans shall include hydrologic computations, indicating the rainfall intensity and duration of the design storm used, as well as the method of analysis. A 100-year recurrence interval is the minimum design storm. If the proposed Project will not change the quantity and/or character of flow in the railroad's ditches and/or drainage structures, the plans shall include a general note stating thus.

Cross sections perpendicular to the centerline of track shall be submitted along with the drainage plans. Maximum interval of cross sections shall be 20' along the affected length of track; however, at least five (5) cross sections shall be submitted for each bridge site, and additional cross sections shall be provided if warranted by special conditions. Furthermore, one cross section shall be taken at the centerline of each road crossing, one at each limit of construction, and one located midway between each end and the center. The existing railroad ditch and the proposed toe of slope for the end fill shall be shown and located on all cross sections.

Where the Project design calls for an increase in the drainage flow through the railroad embankment, a separate drainage structure parallel to existing drainage structure(s) shall be provided for such purposes. The structure shall be designed and constructed per the AREMA Manual.

When the proposed Project will change the quantity and/or character of flow in the track ditches, the ditches shall be modified as required to handle the drainage. The ditch design shall be submitted to the railroad for approval.

No scuppers or other deck drains, roadway drainage, catch basins, inlets or outlets are permitted to drain onto railroad ROW. Any variance of this policy must have prior written approval of the railroad, and maintenance responsibility, including maintenance during construction and any required maintenance agreements, for such drainage structures shall be approved by GDOT. Drainage from bridge scuppers and deck drains must be conveyed through pipes to a location off of, and draining away from, railroad ROW. If it is not practicable to convey such drainage away from track drainage ditches, calculations demonstrating the ability of the ditch to carry the additional runoff shall be provided to the railroad for approval.

Approval of the drainage plan does not relieve the DB Team of ultimate responsibility and liability for a satisfactory drainage design.

14.2.6 Erosion Control

The DB Team's plans shall indicate the proposed methods of erosion control and shall specifically address means to prevent silt accumulation in railroad ditches and culverts and to prevent fouling the track ballast and sub-ballast. If the plans do not show erosion control, the DB Team shall submit a proposed method of erosion control and shall have the method approved by the railroad prior to beginning any grading on the Project Site.

Existing track ditches shall be maintained at all times throughout the construction period. After the construction has been completed, all erosion control measures shall be removed, all deposits of silt removed, and the ditches restored.

Approval of the erosion control plan does not relieve the DB Team of ultimate responsibility and liability for a satisfactory erosion control plan.

14.2.7 Utilities

The DB Team's plans shall show dimensioned locations of all existing and proposed utilities within the railroad ROW. Plans shall define the responsibility for locating, marking, or installing and protecting such utilities. The railroad and GDOT shall not be responsible for these activities.

Pressurized and non-pressurized liquid carrier pipe lines under the railroad ROW suspended from overhead bridges that cross or run adjacent to railroad ROW shall be encased so as to protect railroad ROW and facilities from free falling discharge in the event of a carrier rupture.

If fiber optic cables are presently buried on the railroad ROW or if such installations are scheduled during the course of the Project, then the presence of such facilities shall be considered in the design and appropriate measures for protection of the fiber optic cables shall be addressed on the Plans and in the Contract Documents.

14.2.8 Miscellaneous

The DB Team shall furnish Record Drawings to the railroad showing actual clearances and depth, size, and location of all foundation components.

Cast-in-place girders or pier caps will not be permitted in bridge spans crossing over operated track or in spans of bridges adjacent to and within 13'-0" of centerline of operated track.

Pedestrian fencing shall be provided for all structures designed to carry pedestrian or bicycle traffic. Consideration shall be given to providing pedestrian fencing on other structures where special circumstances, such as past history of vandalism, warrant such fencing.

The DB Team shall coordinate design and construction of any Elements of the Work as appropriate with the railroad, including any falsework, temporary shoring, temporary crossings or structures, shooflies, etc.

14.3 Project Work Affecting Railroad Operations

The DB Team shall coordinate Work performed under this section with the railroad as appropriate.

14.3.1 Railroad Agreements

Unless otherwise specified in the DB Documents, the DB Team shall be responsible for all costs for ascertaining and obtaining all required approvals, permits, and agreements for performance of the Work, including any railroad related Work. The DB Team is responsible for all costs of the railroad Work, whether incurred by the DB Team or by the railroad, including costs of acquiring railroad property interests, and costs with respect to relinquishment or acquisition of existing railroad property interests.

14.3.1.1 Permanent ROW Encroachment Agreement(s)

GDOT shall prepare all documentation required to establish permanent ROW encroachment agreements between the railroad and GDOT.

14.3.1.2 Reserved

14.3.1.3 Railroad Right of Entry Agreement(s)

Prior to entering or encroaching upon railroad ROW to perform the Work, the DB Team shall secure a right of entry agreement from the railroad and shall coordinate directly with the railroad the arrangements of said agreement, which may include an outline of specific and general conditions with which the DB Team must comply. For purposes of securing this agreement, the DB Team shall furnish to the railroad a schedule for all Work impacting railroad ROW.

The railroad's right of entry agreement shall include the names, addresses, and telephone numbers of the railroad's representatives for notification purposes. Where more than one representative is designated, area of responsibility of each representative shall be specified.

The DB Team shall furnish a copy of the fully executed right of entry agreement to GDOT as proof of compliance with this provision. The DB Team shall not enter or impact railroad ROW prior to furnishing this proof of compliance to GDOT.

14.3.2 Operation Safety

The DB Team shall so arrange and conduct its Work that there will be no interference with railroad operations, including train, signal, and communication services, or damage to the facilities or property of the railroad or tenants on the ROW of the railroad. Whenever Work is liable to affect such operations, safety, facilities, or property, the method of doing such Work shall first be submitted to the railroad for review and approval, but such approval shall not relieve the DB Team from liability. Any Work to be performed by the DB Team which requires flagging and inspection by the railroad shall be deferred by the DB Team until the flagging and inspection required by the railroad is available at the job site.

Whenever Work within railroad ROW is of such a nature that impediment to railroad operations is unavoidable, e.g. Work requiring use of runaround or detour tracks or speed reductions (i.e., "slow orders") on existing tracks, the DB Team shall schedule and conduct its operations so that such impediment is reduced to the absolute minimum.

Should conditions arising from, or in connection with the Work, require that immediate and unusual provisions be made to protect operations, facilities, and property of the railroad, the DB Team shall make such provisions. If in the judgment of the railroad, or GDOT, if the railroad is unavailable for such judgment, such provision by DB Team is insufficient, either Party may require or make such provisions as deemed necessary. In any event, such unusual provisions shall be at the DB Team's expense and without cost to the railroad or GDOT. The DB Team shall comply with the railroad's requirements for contractor safety, training and criminal background checks prior to entering railroad ROW.

14.3.3 Insurance Requirements

Insurance requirements are provided in Section 14.11.

14.4 Construction Requirements

The DB Team shall comply with all construction requirements and specifications set forth by the railroad.

The DB Team shall be responsible for scheduling the Work to be completed by railroad as well as Work to be completed by its own forces.

14.4.1 General

Construction Work and operations by the DB Team on railroad ROW shall be:

1. Subject to the inspection and approval of the railroad.
2. In accord with the railroad's most current version prior to Project let date of the Railroad's Public Project Manual and additional written outline of specific conditions.
3. In accord with the railroad's general rules, regulations, and requirements including those relating to safety, fall protection, and personal protective equipment. Safety guidelines are provided in the Section 14.
4. In accordance with DB Documents.
5. In accordance with any executed agreement, license agreement, and right of entry.

14.4.2 Track Clearances

The minimum track clearances to be maintained by the DB Team during construction are included in the DB Documents. Clearances less than these will not be permitted unless specifically authorized by the railroad. If minimum clearances are not stated in the DB Documents, then such clearances shall be specified by the railroad.

14.4.3 Temporary Excavation

The subgrade of an operated track shall be maintained with edge of berm at least 10 feet from centerline of track and not more than 24 inches below top of rail. The DB Team will not be required to make an existing section meet this specification if the existing section is substandard, in which case the existing section shall be maintained.

14.4.4 Excavation for Structures

The DB Team shall take special precaution and care in connection with excavation for construction of bridges, walls, footings, drainage pipes, utilities, etc. under or adjacent to tracks, and any other structures or construction, including the driving of piles or sheeting adjacent to tracks, to provide adequate lateral and vertical support for the tracks and the loads which they carry. Such precautions and their associated operations shall be taken without disturbance of track alignment and surface, and so as to avoid obstructing track clearances with working equipment, tools or other material. The procedure for doing such Work, including need of and plans for excavation and shoring shall first be approved by the railroad, but such approval shall not relieve the DB Team or GDOT from liability. Before submission of plans to the railroad for approval, such plans shall first be reviewed by GDOT's Office of Bridges and Structures or its authorized representative. Shoring Plans submitted must be prepared, signed, and sealed by a Professional Engineer.

Footings for all piers, columns, walls or other facilities shall be located and designed such that any temporary shoring required for support of adjacent track(s) during construction

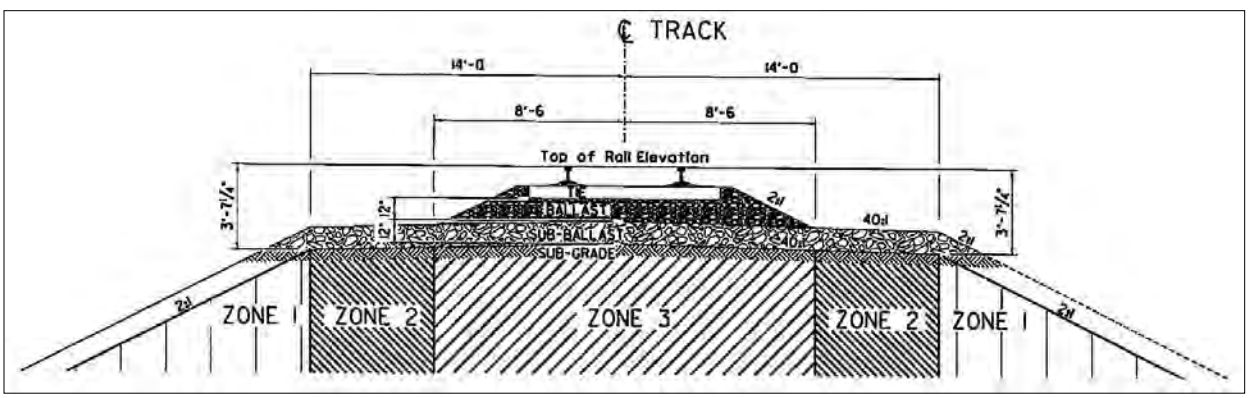
will be no closer than 10'-0" to centerline of track(s). Edges of footings located no closer than 13'-0" to centerline of track(s) shall satisfy the 10'-0" minimum. Excavations shall be no closer than 10'-0" to centerline of track(s) unless specifically approved by the railroad.

The DB Team shall submit excavation plans and calculations that have been prepared and signed by a Professional Engineer. The DB Team shall be responsible for the accuracy of all controlling dimensions as well as the selection of soil design values which will accurately reflect the actual field conditions. The DB Team's plans shall contain details of the shoring system showing sizes of all structural members, connection details, and embedment depths. A plan view showing layout of all proposed excavations and distances from centerline of track(s) to faces of excavations shall be included. Plans shall show a section normal to the track(s) showing the shoring location relative to the centerline of track(s) and showing the height of shoring and track elevation(s) in relation to the bottom of excavation. The Plans shall be complete and accurately describe the nature of the Work.

Excavation plans and calculations shall address all false work, shoring, excavation supports, etc., adjacent to railroad track(s) and shall be certified to be complete and satisfactory by GDOT prior to being submitted to the railroad for review. Four (4) copies of sealed plans and calculations shall be submitted. A minimum of thirty (30) days shall be allowed for the railroad's review of such submittals. No excavation will be allowed until the Plans and calculations are reviewed and approved by the railroad. All excavations on or adjacent to the railroad ROW shall be reviewed by the railroad before excavation begins.

All shoring or other supports for excavations within the limits shown in Figure 14-1 shall be designed for railroad live load surcharge.

Figure 14-1: Railroad Embankment Shoring Requirements



ZONE 1: Excavation penetrating any portion shall be supported with shoring for protection of the railroad embankment.

ZONE 2: Excavation penetrating any portion shall be supported with shoring consisting of interlocking steel sheeting for protection of the railroad embankment.

ZONE 3: EXCAVATION NOT ALLOWED IN THIS ZONE.

Shoring located in Zone 2 shall be designed using interlocking sheeting as shown in Figure 14-1. Use of soldier piles and lagging in this region will be considered only if the required penetration of interlocking steel sheeting cannot be obtained and when dry, stable material will be encountered. Approval for soldier piles and lagging must be granted in writing by the railroad prior to construction. Submittal of excavation plans showing soldier piles and lagging in Zone 2 without prior written approval from the railroad will be rejected.

Safety railings shall be constructed around all excavations on railroad's property, and shall conform to applicable Occupational Safety and Health Administration (OSHA) requirements. Layout and details of safety railings shall be submitted to the railroad for review and approval prior to construction. Walkways with safety railings shall be constructed over open excavations located within Zone 2 of Figure 14-1. Walkways shall have a minimum clear width of 2'-6" and shall be capable of supporting an applied gravity live load of 100 PSF in addition to their own weight. Safety railings shall have a 6 inch tall continuous kick plate at the base. Walkways shall be situated such that safety railings shall be no closer than 10'-0" horizontally from centerline of track.

The railroad's approval of the DB Team's excavation plan does not relieve the DB Team and/or GDOT of ultimate responsibility and liability for the excavation Plan.

14.4.5 Demolition, Erection, Hoisting

Railroad ROW and facilities shall be protected from damage during demolition, erection and hoisting procedures.

A pile driving submittal is required for review and approval on a case-by-case basis, depending on Site conditions and space limitations.

The DB Team shall submit a plan showing the location of cranes horizontally and vertically with respect to railroad's facilities, crane operating radii, and delivery or disposal locations. The location of all railroad facilities as well as all obstructions such as wire lines, poles, adjacent structures, etc. shall be shown.

Crane rating sheets showing cranes to be adequate for 150% of the actual weight of the pick shall be submitted, along with a complete set of crane charts including crane, counterweight, and boom nomenclature.

Plans and calculations showing the weight of the pick shall be submitted. Calculations shall be made from plans of the existing and/or proposed structure showing complete and sufficient details with supporting data for the demolition or erection of the structure in question. If plans do not exist, lifting weights must be calculated from field measurements. The field measurements are to be made under the supervision of the Professional Engineer submitting the procedure and calculations.

A data sheet shall be submitted listing the type, size, and arrangements of all rigging and connection equipment. A complete procedure shall also be submitted, including the order of lifts, time required for each lift, and any repositioning or re-hitching of the crane or cranes.

All erection or demolition plans, procedures, data sheets, etc. submitted shall be prepared, signed and sealed by a Professional Engineer. All such submittals must be reviewed and approved in writing by the railroad prior to performing any of the associated work.

The DB Team shall not perform demolition, erection procedures or any other activities on railroad property at any time unless the railroad's representative is present at the Site and actively engaged in the Work (i.e., monitoring, flagging, etc.) during the procedure.

14.4.6 Blasting

The DB Team shall obtain advance approval from the railroad and GDOT for use of explosives on or adjacent to railroad property. The request for permission to use explosives shall include a detailed blasting plan. If permission for use of explosives is granted, the DB Team will be required to comply with the following:

1. Blasting shall be done with light charges under the direct supervision of a responsible officer or employee of the DB Team and a licensed blaster.
2. Electric detonating fuses shall not be used because of the possibility of premature explosions resulting from operation of two-way train radios.
3. No blasting shall be done without the active presence of an authorized representative of the railroad. At least seventy two (72) hours advance notice to the person designated in the railroad's notice of authorization to proceed is required to arrange for the presence of an authorized railroad representative and such flagging the railroad may require.
4. The DB Team shall have at the job site adequate equipment, labor, and materials and allow sufficient time to clean up debris resulting from the blasting without delay to trains. Correction of any track misalignment or other damage to railroad property resulting from the blasting shall be done as directed by the railroad's authorized representative at the DB Team's expense. If its actions result in delay of trains, the DB Team shall bear the entire cost thereof.
5. Storage of explosives on railroad property will not be permitted.

6. The DB Team shall furnish satisfactory evidence of XCU (explosion-collapse-underground damage) insurance coverage to the railroad and GDOT.

The railroad will:

1. Determine the approximate location of trains and advise the DB Team of the approximate amount of time available for the blasting operation and clean-up.
2. Have the authority to order discontinuance of blasting if, in its opinion, blasting is too hazardous or is not in accord with the DB Documents.

Other Requirements:

Each railroad has its own requirements for blasting that may include provisions in addition to the above. It is the DB Team's responsibility to contact the railroad before performing any blasting and determine and comply with these requirements. The DB Team shall handle all matters relating to blasting with the railroad and pay for all costs involved.

14.4.7 Maintenance and Repair of Railroad Facilities

The DB Team will maintain all ditches and drainage structures free of silt or other obstructions that may result from its operations and provide and maintain any erosion control measures as required by the DB Documents. The DB Team will promptly repair eroded areas within railroad ROW.

The DB Team will also repair, or cause to be repaired, any other damage to the property or facilities of the railroad or its tenants.

All such maintenance and repair of damages due to the DB Team's operations shall be done at the DB Team's expense.

14.4.8 Storage of Materials and Equipment

Materials and equipment shall not be stored where they will interfere with railroad operations, nor on railroad ROW without first having obtained permission from the railroad, and such permission will be with the understanding that the railroad will not be liable for damage to such material and equipment from any cause and that the railroad may move or require the DB Team to move, at the DB Team's expense, such material and equipment. All grading or construction machinery that is left parked unattended near the track or on the railroad ROW shall be effectively immobilized so that it cannot be moved by unauthorized persons. Safety guidelines are provided in Section 14.10.

14.4.9 Cleanup

Upon completion of the Work, the DB Team shall remove from within the limits of the railroad ROW, all machinery, equipment, surplus materials, falsework, temporary erosion measures, rubbish or temporary buildings of the DB Team, and leave said ROW in a neat condition satisfactory to the railroad.

14.5 Damages

The DB Team shall assume all liability for any and all damages to its work, employees, servants, equipment and materials caused by railroad traffic.

Any cost incurred by the railroad for repairing damages to its property or to property of its tenants, caused by or resulting from the operations of the DB Team, shall be paid directly to the railroad by the DB Team.

14.6 Flagging Services

14.6.1 When Required

The railroad has sole authority to determine the need for flagging required to protect its operations and facilities. In general, the requirements for flagging will be whenever the DB Team's personnel or equipment are, or are likely to be, working on the railroad's ROW, or within distances as may be specified in the DB Documents or by the railroad, or across, over, adjacent to, or under a track, or when such work has disturbed or is likely to disturb a railroad structure or the railroad roadbed or surface and alignment of any track to such extent that the movement of trains must be controlled by flagging. These requirements include situations where a crane, or other piece of equipment, is located such that its boom, or extremity, could move and pass within 20 feet of the centerline of a track or within a distance as may otherwise be specified by the railroad. Safety guidelines are provided in Section 14.10. Normally the railroad will assign one flagman to a Project, based on an 8 hour workday and 40 hour workweek, but in some cases more than one may be necessary depending upon the activities of the construction.

14.6.2 Scheduling and Notification

Not later than the time that approval is initially requested to begin work on railroad ROW, the DB Team shall furnish to the railroad and GDOT a schedule for all work required to complete the portion of the Project within railroad ROW.

The DB Team will be required to give the railroad representative at least twenty-one (21) days of advance notice of intent to begin work within railroad ROW. Once begun, when such work is then suspended at any time, or for any reason, the DB Team will be required to give the railroad representative at least five (5) days of advance notice before resuming work on railroad ROW. Such notices shall include sufficient details of the proposed work to enable the railroad representative to determine if flagging will be required. If such notice is in writing, the DB Team shall furnish GDOT a copy; if notice is given verbally it shall be confirmed in writing with copy to GDOT. If flagging is required, no work shall be undertaken until the flagman is, or flagmen are, present at the job site. It may take up to thirty (30) days to obtain flagging initially from the railroad. When flagging begins, the flagman is usually assigned by the railroad to work at the Project site on a continual basis until no longer needed and cannot be called for on a spot basis. If flagging becomes unnecessary and is suspended, it may take up to thirty (30) days to again obtain flagging

from the railroad. Due to railroad practices, in some cases it may be necessary to give six (6) days' notice before flagging service may be discontinued and payment stopped.

If, after the flagman is assigned to the Project site, unusual circumstances or conditions arise which require the flagman's presence elsewhere, then the DB Team shall delay work on railroad ROW until such time as the flagman is again available. Any additional costs resulting from such delays shall be borne by the DB Team and not GDOT or the railroad.

14.6.3 Payment

The DB Team will be responsible for paying the railroad directly for any and all costs of flagging which may be required to accomplish the construction. The DB Team shall not delegate this responsibility to any Subcontractor or any other Party. GDOT will not reimburse the railroad for any costs of the flagging required by the DB Team's work. The cost of flagging is based on an 8-hour work day and 40-hour work week. This cost includes the base pay for the flagman, overhead, and generally includes travel expenses, meals, lodging, equipment, etc. The railroad will charge the DB Team for the actual flagging cost based on the rate of pay for the railroad's employees who are available for flagging service at the time the service is required. Work by a flagman in excess of 8 hours per day and 40 hours per week will result in overtime pay at 1½ times the appropriate rate. Also, holiday work will result in overtime pay at 2 times the appropriate rate. Railroad work involved in preparing and handling bills will also be paid by the DB Team. Charges to the DB Team by the railroad will be in accordance with Federal-Aid Highway billing procedures and requirements as contained in applicable provisions of Part 140, Subpart I, and Part 646, Subpart B, of Title 23, Highways, of the Code of Federal Regulations, current edition, and shall further be on the same basis as GDOT would be billed by the railroad if GDOT was paying for the charges.

Option 1: The DB Team shall make advance deposit of funds based on an estimate of the cost of protective flagging or other services as determined by the railroad. The cost for railroad services shall then be assessed by the railroad against this advanced deposit. Upon completion of the Project, any unused funding will be returned to the DB Team. If the Railroad's cost exceeds the advance deposit(s), a request will be made to the DB Team for additional funds, or an invoice will be issued to the DB Team for final payment. The DB Team shall remit payment to the railroad within thirty (30) days of receipt of either a request for additional funds or an invoice.

Option 2: The DB Team is typically billed for flagging services on a periodic basis directly by the railroad. The DB Team shall promptly pay such bills within thirty (30) days after each bill is rendered. Should the DB Team fail to pay the railroad within sixty (60) days after any bill is rendered, GDOT may pay directly to the railroad any amounts due and deduct the amount of such payments from any funds due the DB Team or all Work. requiring flagging shall cease until such payment is made. This provision does not affect

the obligation of the DB Team under his bond or the rights of the railroad or GDOT under the bond.

14.6.4 Verification

The DB Team will review and sign the railroad flagman's time sheet, or other similar documentation, attesting that the flagman was present during the time recorded.

The railroad flagman assigned to the Project will be responsible for notifying GDOT and the DB Team upon arrival at the job site on the first day (or as soon thereafter as possible) that flagging services begin and on the last day that he performs such services for each separate period that services are provided. The DB Team shall document such notification in the Project records. When requested, the DB Team shall also sign the flagman's time sheets showing daily time spent at the Project site.

14.7 Transporting Materials and Equipment Across Tracks

Any temporary grade crossings, work mats, or other means needed during construction by the DB Team for transporting materials of any nature or equipment across railroad tracks or property of railroad will be the responsibility of the DB Team to handle directly with the railroad and make all necessary arrangements and obtain all required approvals. The DB Team shall execute a written agreement with the railroad to cover such matters and appropriate time should be allowed for the preparation and handling of such agreement. The DB Team shall bear all costs incidental to such matters including flagging services by railroad personnel. Safety guidelines are given in Section 14.10 herein.

14.8 Work for Benefit of the DB Team

All temporary or permanent changes in wire lines or other facilities which are considered necessary to the Project shall be documented in the agreement between the DB Team and the Railroad.

Should the DB Team desire any changes in addition to the above, then it shall make separate arrangements with the railroad for same to be accomplished, including any required flagging service, at the DB Team's expense.

14.9 Cooperation and Delays

It shall be the DB Team's responsibility to coordinate a schedule with the railroad for accomplishing stage construction involving work by the railroad or tenants of the railroad. In coordinating the schedule the DB Team shall ascertain, from the railroad, the lead time required for assembling crews and materials and shall make due allowance.

No charge or claims of the DB Team against either GDOT or the railroad will be allowed for hindrance or delay on account of railway traffic, any work performed or to be performed by the railroad, or other delay incident to or necessary for safe maintenance of railway traffic and facilities, or for any delays.

14.10 Safety Guidelines

14.10.1 Guidelines for Personnel on Railroad ROW

1. All persons shall wear personal protective equipment (PPE) consisting of hard hat, reflective vest, eye protection, hearing protection when appropriate, and hard sole, steel toed safety boots fitting snugly about the ankles via laces, zippers or cinched straps. Working in shorts is prohibited. Shirts must cover shoulders, back and abdomen. Working in tennis or jogging shoes, sandals, boots with high heels, cowboy and other slip-on type boots is prohibited.

2. No one is allowed within 25 feet of the centerline of a track unless specifically authorized by the flagman.

3. All persons working near track while a train is passing are to look out for dragging bands, chains and protruding or shifted cargo.

4. No one is allowed to cross tracks unless specifically authorized by the flagman.

5. All welders and cutting torches working within 25 feet of the track must stop when a train is passing.

6. No steel tape, chain or other metal implement will be allowed to cross or touch rails without permission.

14.10.2 Guidelines for Equipment on Railroad ROW

1. No crane or boom equipment will be allowed to set up to work or park within boom distance plus 15 feet of the centerline of track unless specifically authorized by the railroad and flagman.

2. No crane or boom equipment will be allowed to foul track or lift a load over the track without flag protection and track time.

3. All employees will stay with their machines when crane or boom equipment is pointed toward track.

4. All cranes and boom equipment under load will stop work while a train is passing (including pile driving).

5. Swinging loads must be secured to prevent movement while a train is passing.

6. No loads will be suspended above a moving train.

7. No equipment will be allowed within 25 feet of centerline of track unless specifically authorized by the flagman.

8. Trucks, tractors or any equipment will not touch a ballast line unless specifically authorized by railroad and flagman.

9. No equipment or load movement is allowed within 25 feet or above a standing train or railroad equipment unless specifically authorized by the flagman.

10. All operating equipment within 25 feet of track must halt operations when a train is passing. All other operating equipment may be halted by the flagman if the flagman views the operation to be dangerous to the passing train.

11. All equipment, loads, and cables are prohibited from touching rails.

12. While clearing and grubbing, no vegetation will be removed from the railroad embankment with heavy equipment without specific authorization from the railroad and flagman.

13. No equipment or materials will be parked or stored on the railroad's property unless specific authorization is granted from the railroad.

14. All unattended equipment that is left parked on railroad property shall be effectively immobilized so that it cannot be moved by unauthorized persons.

15. All cranes and boom equipment will be turned away from track after each work day or whenever unattended by an operator.

14.11 Insurance

14.11.1 Requirements

Prior to executing any Work impacting the existing railroad ROW, the DB Team shall procure insurance policies naming GDOT and railroad as insured parties. Such policies shall be maintained throughout the duration of Work performed under this section.

The DB Team shall obtain insurance in sufficient amounts to cover requirements set forth by all named insured parties. The following types of insurance are typically required, though the specific requirements of the named insured parties shall be covered:

1. Worker's Compensation Insurance
2. Employer's Liability Insurance
3. Commercial General Liability Insurance
4. Automobile Liability Insurance
5. Errors and Omissions and/or Professional Liability Insurance

All insurance policies shall be in a form acceptable to the railroad. Copies of all insurance policies accompanied by written approval from the railroad of such policies shall be submitted to GDOT prior to any entry by the DB Team upon railroad ROW. Certificates and endorsements will be acceptable for up to 90 days until copies of the policies are available, subject to approval of the railroad.

In addition to the above forms of insurance or insurance and bonds required under the terms of the DB Documents, the DB Team will be required to carry insurance of the following kinds:

14.11.1.1 DB Team's Liability Insurance

The DB Team shall furnish to the railroad and copy to GDOT the certificate of insurance in TRIPLICATE as evidence with respect to the operations it performs that it carries regular **DB Team's Public Liability Insurance** and regular **DB Team's Property Damage Liability Insurance** both providing for limits of not less than **$5,000,000.00**.

The DB Team shall furnish the railroad and copy to GDOT the certificate of insurance in TRIPLICATE as evidence with respect to the operations performed for it by any subcontractor that it carries in its own behalf regular **DB Team's Protective Public Liability Insurance** and regular **DB Team's Protective Property Damage Liability Insurance** both providing for limits of not less than **$5,000,000.00**.

14.11.1.2 Railroad Protective Liability Insurance

The DB Team shall furnish to the railroad and copy to GDOT the ORIGINAL and TWO (2) COPIES of a Railroad Protective Insurance Policy with limits of liability as follows:

Table 14-1: Railroad Protective Liability Insurance Minimum Liability

Coverage	Minimum Combined Limits of Liability
Bodily Injury Liability:	$5,000,000.00 per occurrence $10,000,000.00 aggregate
Property Damage Liability:	
Physical Damage to Property:	

The Standards for this protective insurance shall follow the requirements of Part 646, Subpart A, of Title 23, Highways, of the Code of Federal Regulations, current edition.

Railroad protective insurance shall be provided on "ISO-RIMA" (Insurance Services Office – Railroad Insurance Management Association) policy form No. CG 00 35 01 96. ISO Amendatory Endorsement No. CG 28 31 10 93 should also be included if a policy form number other than the foregoing is used. The equivalent of the foregoing will also be acceptable.

BINDERS ARE NOT ACCEPTABLE FOR THIS COVERAGE.

14.11.2 Evidence of Insurance

Evidence of insurance as required in Section 14.11.1 shall be furnished to the address shown in Volume 2, Section 14.11.2, for review and approval by the railroad and copied to GDOT.

The Project number, description of the work and designation of the job site shall be shown on all insurance certificates and policies.

14.11.3 Reserved

14.11.4 Cancellation

All insurance hereinbefore specified shall be carried until all work required to be performed under the terms of the DB Documents has been satisfactorily completed within the limits of the ROW of the railroad as evidenced by formal acceptance by GDOT and the railroad. Insuring companies may cancel insurance by permission of GDOT and railroad or on THIRTY (30) days written notice to GDOT and railroad. See Volume 2, Section 14.11.4 for specific parties to be notified.

14.12 Failure to Comply

In the event the DB Team violates or fails to comply with any of the requirements herein:

1. The railroad may require that the DB Team vacate railroad property.
2. GDOT may withhold all monies due the DB Team on monthly statements.

Any such orders shall remain in effect until the DB Team has remedied the situation to the satisfaction of the railroad and GDOT.

15 LANDSCAPE AND HARDSCAPE ENHANCEMENTS

15.1 General Requirements

Aesthetic treatments play a significant role in the Project. This Section 15 defines the minimum requirements with which the DB Team shall design and construct aesthetic treatment enhancements for the roadway and landscaping Elements of the Project. Aesthetic treatments shall be designed to harmonize with the indigenous landscape and architecture.

15.2 Administrative Requirements

The intent of this Section 15 is to provide guidelines on enhancement value for both the users and the onlookers of the corridor and to provide a roadway corridor with continuity and attractiveness through the use of comprehensive aesthetic treatments. This Section 15 presents minimum landscape and hardscape design requirements for the Project.

15.2.1 Reserved

15.2.2 Reserved

15.2.3 Reserved

15.3 Design Requirements

15.3.1 Reserved

15.3.2 Walls

The DB Team shall design noise barriers and retaining/structural walls to be similar in color, texture, and style that are consistent with other Elements present in the entire Project such as structures, landscaping, and other highway components.

The DB Team shall apply aesthetic treatments to the vertical surfaces of retaining and sound barrier walls where the surface is visible from the roadway or adjacent houses.

Consistent treatments shall be used for retaining walls and noise barriers that articulate the design themes established for the Project.

The DB Team shall pay special attention to themed design embellishments and utilize high-quality finishes and materials at interchanges.

15.3.3 Bridges and Other Structures

All embellishments for structural Elements shall be coordinated with the DB Team's structural design team to facilitate constructability and maintain safety requirements. Structural element surfaces exposed to public view shall meet the requirements of the GDOT Standard Specifications.

No exposed conduits shall be allowed on bents, columns, bridge beams, overhangs, or any other visible surface. Drain pipe exposure shall be minimized to public view.

All bridge substructure columns shall be consistent in form and texture, with similar shapes and details used for all bridges.

Bridges with all or part of the structure visible to traffic, either passing beneath the bridge or travelling in lanes adjacent to the bridge, shall use constant depth of fascia beams along the entire length of the bridge to maintain a uniform appearance. An exception to this requirement is at locations where the fascia beam material changes from steel to concrete or vice versa. In this case, cheek walls may be used at piers to mask transitions where superstructure depth change is required due to the change in material type.

Bridges that are not visible to traffic either passing beneath the bridge or travelling in lanes located adjacent to the elevated portions of the bridge are not required to have all fascia beams constant throughout the bridge length.

15.3.4 Reserved

15.3.5 Reserved

15.3.6 Reserved

15.3.7 Reserved

15.3.8 Reserved

15.4 Construction Requirements

Prior to start of production of any embellishment element, the DB Team shall provide GDOT samples, mock ups, or catalog cuts for review and approval.

The DB Team shall provide GDOT sample panels of textured concrete surfaces a minimum of sixty (60) days in advance of starting construction for review and approval.

16 SIGNING, PAVEMENT MARKING, SIGNALIZATION

16.1 General

The DB Team shall design and construct all signing, delineation, pavement markings, and signalization for the Project.

16.1.1 Standards

The DB Team shall provide activities in this Section 16 in accordance with GDOT Signing and Marking Design Guidelines, Attachment 3-1 Manuals, Government Approvals, and other provisions of the DB Documents.

16.2 Administrative Requirements

16.2.1 Meetings

The DB Team shall arrange and coordinate all meetings with local agencies that will assume responsibility for maintaining and operating traffic control devices including traffic signals. The DB Team shall provide GDOT with notification of such meetings a minimum of ten (10) Business Days prior to the start of the meeting. GDOT, in its discretion, may attend such meetings.

The DB Team shall arrange and coordinate all meetings with requesting agencies or individuals regarding special signs.

16.3 Design Requirements

16.3.1 Final Plans

The DB Team shall submit the Preliminary and Final Plans for the signing, delineation, pavement marking, and signalization for GDOT review and acceptance.

The DB Team shall locate the existing GDOT traffic signal equipment including conduit, fiber drop and electrical lines. As a result of the locating GDOT's existing traffic signal equipment, the DB Team will identify and notify GDOT of all traffic signals needing repair no later than sixty (60) days prior to NTP 3. GDOT will perform, or cause to be performed, repairs to all traffic signals in need of repairs. The DB Team is responsible for the signals and signal equipment within the Project limits upon issuance of NTP 3. The DB Team shall perform preventative maintenance, respond to problem notifications from GDOT, make repairs or upgrades as necessary, and repair traffic signals damaged by any party during Construction Work.

See Section 7, Right of Way - Additional Properties, for requirements related to any Additional Property acquisitions needed to place any required signs outside Proposed ROW.

16.3.2 Permanent Signing and Delineation

Signs for the Project shall include all new signs required for the Project as well as replacing existing signs and structures that are impacted by the Project. The DB Team's design shall include the locations of proposed ground-mounted and overhead signs as well as existing signs that are to remain, graphic representation of all signs, proposed pavement markings, delineation placement, guide sign and special sign details, clearance diagrams and structural and foundation requirements. Signs shall be located in a manner that avoids conflicts with other signs, vegetation, CMS, lighting, and structures. The DB Team shall ensure that signs are clearly visible, provide clear direction and information for users, and comply with all applicable MUTCD requirements. The DB Team shall ensure that placement, construction and installation activities of signage shall avoid impacts to all environmentally sensitive resources. The DB Team shall prepare preliminary and final unveiling plans for permanent signing 120 days and 60 days, respectively, prior to opening to traffic.

The DB Team shall ensure that all sign placements meet or exceed appropriate sight line requirements and standards. All sign structures and overhead signs shall be designed and located to ensure that they and any existing GDOT overhead signs have minimum sight distance of 1000 feet and shall meet any other MUTCD or GDOT Signing and Marking Design Guidelines, allowable sign spacing requirements.

The DB Team shall review with GDOT all requests for new signs, including traffic generators, or modifications of existing sign legend. Such requests are subject to GDOT's acceptance.

Any existing signs and sign structures impacted by the Project or in conflict with proposed signs shall be replaced with new signs and structures that comply with Attachment 3-1 Manuals, or as otherwise approved by GDOT.

All overhead signs on a single structure shall be the same height with the exception of general information or regulatory signs such as Rest Area or an R554-X.

Arrow per lane guide signs shall be required for all multi-lane exits at major interchanges that have an optional exit lane that also carries the through route and for all splits that include an option lane.

Sign attachments to any existing roadway bridge shall not be permitted.

Support columns for Type I, III, and IV overhead sign structures shall not be mounted to any portion of the new bridge superstructure. When an overhead sign structure is required to be placed on a bridge it shall be mounted either on the bridge substructure directly, such as the concrete pier cap, or on a pier and foundation separate from the bridge entirely. For a sign structure that is mounted to the pier cap, the bridge pier must be designed for the additional loads and forces the sign structure will induce on the bridge substructure, including dead load, ice load, wind load and vibration. Loads shall be developed in accordance with AASHTO Standard Specifications for Highway Bridges,

17th Edition and the current edition of the AASHTO Standard Specification for Structural Supports for Highway Signs, Luminaires and Traffic Signals. For a sign structure mounted to a foundation that is independent from the bridge, the design of the sign foundation shall be in accordance with the current edition of the AASHTO Standard Specification for Structural Supports for Highway Signs, Luminaires and Traffic Signals.

Supplemental signs on interstates shall comply with MUTCD. Guidance on destinations is provided in GDOT's Policies and Procedures 6775-9.

16.3.3 Project Signs – Outside the Existing and Proposed ROW

For signs located outside the Existing ROW, Proposed ROW, and Additional Properties but within a public ROW, the DB Team shall install the signs in existing rights of way controlled by local or other Governmental Entities. The DB Team shall coordinate with applicable Governmental Entities for the design, approval, and installation of such signs. This shall include any trailblazing signing required for the Project.

16.3.4 Reserved

16.3.5 Specific Service Signs

In addition to the warning, regulatory, and guide signs within the Project, GDOT or Governmental Entities may allow specific service signs, such as LOGO signs to be installed. The DB Team shall coordinate and cooperate with GDOT or any third party performing such work. The DB Team shall remove and remount any LOGO sign that conflicts with a proposed sign installation and also allow for proper sign spacing in accordance with GDOT Signing and Marking Design Guidelines and the MUTCD.

The DB Team shall contact Georgia Logos, LLC 770-447-6399 prior to removing or resetting LOGO signs. Cost for removing, resetting, and maintaining LOGO signs as necessary shall be included in the DB Team's overall bid price. Existing LOGO signs shall be maintained during construction on a moveable structure. Any LOGO signs damaged during construction shall be replaced at no additional cost.

16.3.6 Sign Support Structures

The DB Team shall determine foundation types and design sign foundations based upon geotechnical surveys/tests. Sign support structures shall be designed in accordance with GDOT Signing and Marking Design Guidelines and AASHTO's Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals. The DB Team design of the structural support for overhead signs shall be provided to GDOT and must provide for the maximum allowable sign area that can be placed onto the structure support as defined in GDOT Signing and Marking Design Guidelines. Type III structures shall be designed to accommodate at least five hundred fifty (550) square feet of sign area. A GDOT structural support number shall be placed on the outside vertical support of the structure. Requirements for the alphanumeric code are specified in the GDOT Signing and Marking Design Guidelines. The DB Team shall use sign bridge (Type I) or butterfly (Type III) overhead sign structures in accordance with GDOT's related standard specifications, policies, guidelines, and Attachment 3-1 Manuals. Designs for sign

supports shall also comply with requirements in Section 13, Structures. Type II cantilever signs shall not be used for sign installations. The DB Team assumes all responsibility for ensuring that any existing overhead sign structure that has a change in design sign area and/or load due to new or revised signs must meet all structural requirements in the GDOT Signing and Marking Design Guidelines and AASHTO's Standard Specifications for Structural Supports for Highways Signs, Luminaires, and Traffic Signals.

16.3.7 Permanent Pavement Marking

The DB Team shall ensure that the design and installation of all pavement markings including Raised Pavement Markings (RPM) comply with the MUTCD, GDOT *Signing and Marking Design Guidelines*, and GDOT *Standards and Details*. RPM's shall be installed where new pavement marking is provided.

16.3.8 Permanent Signalization

16.3.8.1 Traffic Signal Requirements

The DB Team shall design and install fully-actuated permanent traffic signals at all GDOT-permitted intersections within Project limits. In addition, the DB Team shall modify, as appropriate, any existing traffic signals impacted by the Project. The DB Team shall coordinate with GDOT and the applicable local Governmental Entities to define appropriate traffic signal design requirements, local agency oversight of the DB Team's Work, and final acceptance of traffic signals. The DB Team shall coordinate with local Governmental Entities for synchronization of traffic signal networks.

The DB Team shall provide interconnection systems between new or modified signals and any other signal system within the Project Site as required by GDOT or the applicable local Governmental Entity. Connection of the completed intersection to the Governmental Entity's communications network shall be coordinated with the Governmental Entity. The DB Team shall ensure continuous communication with the traffic signal system within the Project Site, and shall provide all communication hardware/equipment for GDOT or the applicable local Governmental Entity to communicate with the signal systems within the Project Site.

The DB Team shall provide both pedestrian and vehicle detectors at all traffic signals per GDOT or applicable local Governmental Entity's (maintaining agency) requirements within the Project Site.

The DB Team shall coordinate with the GDOT TMC and the GDOT District Traffic Operations to ensure that all signalized locations are permitted prior to submission of Final Plans.

16.3.8.2 Traffic Signal Timing Plans

The DB Team shall coordinate and implement signal timing plans that optimize traffic flows and provide signal coordination with adjacent intersections and arterials for all existing and new traffic signals, modified signals, and interconnected signals. The DB

Team shall obtain acceptance with GDOT or applicable local Governmental Entity for the initial signal timings and updating signal timing as necessary to maintain optimized flow.

16.3.8.3 Traffic Signal Permit

As part of the design process, the DB Team shall be responsible for obtaining necessary traffic signal permit or permit revisions by following applicable GDOT or local Governmental Entities signal permit process(es), prior to any new signal installation or existing signal modification.

16.3.8.4 Traffic Signal Support Structures

As part of the design process, the DB Team shall coordinate with GDOT and the local Governmental Agencies to determine the type of acceptable traffic signal support structures. The DB Team shall obtain the maintaining agency's acceptance of traffic signal support structures to be used on new signal installations.

16.4 Construction Requirements

16.4.1 Permanent Pavement Marking

The DB Team shall install required full pattern pavement markings on all pavement courses before any roadway is opened to traffic in conformance with the MUTCD, GDOT Signing and Marking Design Guidelines and GDOT's standards, details and specifications. RPM's shall be placed and/or maintained when the roadway is open to traffic.

Before placing any permanent pavement markings, the DB Team shall provide GDOT a layout indicating the proposed location of such items.

16.4.2 Permanent Signing and Delineation

The DB Team shall use established industry and utility safety practices when erecting or removing signs located near any overhead or underground utilities, and shall consult with the appropriate Utility Owner(s) prior to beginning such work.

The DB Team shall maintain all applicable advance guide signs and/or exit direction signs in place at all times and shall not obstruct the view of the signs to the motorist. The DB Team shall replace any other removed signs before the end of the work day.

Signing reflectivity shall conform to the current edition of the MUTCD and the GDOT Signing and Marking Design Guidelines.

Before placing any permanent signs, delineation, third-party signs, or non-standard sign structures, the DB Team shall provide GDOT a layout indicating the proposed location of such items. Overhead sign structures and locations shall be submitted for review and acceptance by the GDOT Bridge Design and Maintenance Office.

16.4.3 Permanent Signalization

The DB Team shall coordinate with the Utility Owner(s) and ensure necessary power service is initiated and maintained for permanent signal systems.

The DB Team shall, after implementing accepted timing plans, provide GDOT and Governmental Entities (maintaining agencies) responsible for operation and maintenance of the traffic signal system legible written documentation of all intersection characteristics, timing plan parameters and installation information necessary for GDOT or the Governmental Entity to incorporate the completed signal installation into the central intersection management software being used.

17 INTELLIGENT TRANSPORTATION SYSTEMS

Refer to Volume 2 for all Intelligent Transportation System requirements.

18 TRAFFIC CONTROL

18.1 General

The DB Team shall provide for the safe and efficient movement of people, goods, and services through and around the Project while minimizing negative impacts to users, residents, and businesses.

18.1.1 Standards

The DB Team shall provide activities in this section accordance with Attachment 3-1 Manuals, Government Approvals, and other provisions of the DB Documents.

18.2 Administrative Requirements

18.2.1 Transportation Management Plan

The DB Team shall prepare and implement a Transportation Management Plan (TMP), if required, that meets the requirements of the FHWA Work Zone Mobility and Safety Program which can be found at:

http://www.ops.fhwa.dot.gov/wz/resources/final_rule/tmp_examples/tmp_dev_resources.htm

At a minimum, the TMP shall include descriptions of the qualifications and duties of the traffic engineering manager, traffic control coordinator, Worksite Traffic Control Supervisor (WTCS), and other personnel with traffic control responsibilities. Additional requirements of the TMP are below:

1. Procedures to identify and incorporate the needs of transit operators, Utility Owners, Governmental Entities, local governmental agencies, emergency service providers, school districts, business owners, and other related users, Customer Groups or entities in the Project corridor and surrounding affected areas
2. Procedures for obtaining acceptance of detours, road and lane closures and other traffic pattern modifications from applicable Governmental Entities, and implementing and maintaining those modifications. At a minimum, these procedures must include:
    a. The DB Team shall notify the traveling public by placing CMSs a minimum of seven (7) days in advance of actual roadway closure or major traffic modifications. Where available and when possible, the DB Team shall coordinate and utilize overhead changeable message signs on the regional ITS system.
    b. The DB Team shall utilize off-duty uniformed police officers for mainline lane closures.
3. Procedures for signing and marking transitions during construction from one stage to the next and from interim to permanent signing and marking.

4. Procedures for maintenance and replacement of traffic control devices, including pavement markings and traffic barriers, if used.
5. Procedures to regularly evaluate and modify, if necessary, traffic signal timings, and the procedures for the development, GDOT acceptance (and local Governmental Entity acceptance, if necessary), implementation, testing, and maintenance of all affected signals.
6. Procedures to coordinate with the appropriate Governmental Entities operating signal networks along the Project or Project detour routes to ensure temporary system compatibility, establish responsibilities for temporary signal installation, maintenance, operation and removal, and coordinate traffic signal timing with local signal networks.
7. Procedures and processes for the safe ingress and egress of construction vehicles in the work zone.
8. Provisions to provide continuous access to established truck routes and Hazardous Material (HazMat) routes, and to provide suitable detour routes, including obtaining any acceptances required by the appropriate governmental entities for these uses.
9. Procedures to modify plans as needed to adapt to current Project circumstances.
10. If required, procedures to communicate TMP information to the DB Team's public information personnel and notify the public of maintenance of traffic issues in conjunction with the requirements of Section 2.7, of Volume 2.
11. Descriptions of contact methods, personnel available, and response times for any deficiencies or Emergency conditions requiring attention during off-hours.

The TMP shall be submitted within one hundred twenty (120) days from NTP 1 and must be accepted by GDOT prior to NTP 3.

The safe, convenient passage of the traveling public shall be ensured by the DB Team at all times. The DB Team shall prepare contingency traffic control plans for use in relieving travel delays. If in GDOT's sole opinion, sustained traffic control placement creates unnecessary hindrance to the travelling public, the DB Team shall implement contingency plans that will alleviate traffic congestion immediately or cease traffic interruptions immediately upon notification from GDOT.

18.2.2 Worksite Traffic Control Supervisor (WTCS)

The DB Team shall designate a qualified individual as the WTCS. The WTCS shall be responsible for selecting, installing and maintaining all traffic control devices in accordance with the Plans, Specifications, Special Provisions and the MUTCD. The WTCS shall be currently certified by the American Traffic Safety Services Association (ATSSA) Work Site Traffic Supervisor Certification program or the National Safety Council Certification program. On-line classes will not be accepted.

The WTCS shall be available on a twenty-four (24) hour basis to perform his duties. If the work requires traffic control activities to be performed during the daylight and nighttime hours, it may be necessary for the DB Team to designate an alternate WTCS. An alternate WTCS must meet the same requirements and qualifications as the primary WTCS and be accepted by GDOT prior to beginning any traffic control duties. The WTCS's traffic control responsibilities shall have priority over all other assigned duties.

As the representative of the DB Team, the WTCS shall have full authority to act on behalf of the DB Team in administering the Traffic Control Plan. The WTCS shall have appropriate training in safe traffic control practices in accordance with Part 6 of the MUTCD. In addition to the WTCS, all other individuals making decisions regarding traffic control shall meet the training requirements of the Part 6 of the MUTCD.

The WTCS shall have a copy of Part 6 of the MUTCD and the Contract on the job site. Copies of the current MUTCD may be obtained from the FHWA web page at http://mutcd.fhwa.dot.gov .

The WTCS shall supervise the initial installation of traffic control devices. GDOT, prior to the beginning of construction, will review the initial installation. Modifications to traffic control devices as required by sequence of operations or staged construction shall be reviewed by the WTCS.

Any work performed on the interstate or limited access highway right-of-way that requires traffic control shall be supervised by a submitted/approved certified WTCS. No work requiring traffic control shall be performed unless the certified WTCS is on the worksite. Failure to maintain a Certified WTCS on the work will be considered as non-performance under Volume 1, Exhibit 18.

The WTCS shall be available on a full-time basis to maintain traffic control devices with access to all personnel, materials, and equipment necessary to respond effectively to an emergency situation within forty-five (45) minutes of notification of the emergency.

The WTCS shall perform inspections, at a minimum once a month, to ensure that traffic control is maintained. For all interstate and limited access highways, the WTCS shall perform, as a minimum, weekly traffic control inspections. The inspections will start with the installation of the advance warning signs and will stop when a maintenance acceptance is issued or when the punch list is completed.

An inspection shall include both daytime and nighttime reviews. The inspection shall be reported to GDOT on a Traffic Control Inspection Report (TC-1). Unless modified by the special conditions or by GDOT, routine deficiencies shall be corrected within a twenty-four (24) hour period. Failure to comply with these provisions shall be grounds for dismissal from the duties of WTCS and/or removal of the WTCS from the Project. Failure of the WTCS to execute his duties shall be considered as non-performance under Subsection 150.5.01. GDOT will periodically review the work for compliance with the requirements of the Traffic Control Plan.

On projects where traffic control duties will not require full time WCTS supervision, GDOT may allow the DB Team's Project superintendent, foreman, subcontractor, or other designated personnel to serve as the WTCS as long as satisfactory results are obtained. Nevertheless, the individual shall meet the requirements and perform the duties of a WTCS.

18.3 Design Requirements

18.3.1 Traffic Control Plans

The DB Team shall use the procedures in the TMP (if applicable) and the guidelines of the MUTCD, AASHTO's Roadside Design Guide, as well as comply with GDOT Special Provision 150 – Traffic Control to develop detailed traffic control plans which provide for all Construction Phases and construction stages, as well as all required traffic shifts procedures.

The DB Team shall produce a traffic control plan for every Construction Phase that impacts traffic. Each traffic control plan shall be submitted to GDOT for review a minimum of fourteen (14) days prior to implementation. The traffic control plan shall include details for all detours, traffic control devices, striping, and signage applicable to each Construction Phase. Information included in the traffic control plans shall be of sufficient detail to allow verification of design criteria and safety requirements, including typical sections, alignment, striping layout, drop off conditions, and temporary drainage. The traffic control plans shall clearly designate all temporary reductions in speed limits. Changes to posted speed limits will not be allowed unless specific prior acceptance is granted by GDOT.

Opposing traffic on a divided roadway shall be separated with appropriate traffic control devices in accordance the MUTCD based on the roadway Design Speed and Attachment 3-1 Manuals.

The DB Team shall maintain signing continuity on all active roadways within or intersecting the Project at all times.

Throughout the Term, the DB Team shall ensure all streets and intersections remain open to traffic to the greatest extent possible by constructing the Work in stages. The DB Team shall maintain access to all adjacent streets and shall provide for ingress and egress to public and private properties at all times during the term of the Project.

The DB Team shall prepare public information notices, if required, in coordination with Section 2.7, in advance of the implementation of any lane closures or traffic switches. These notices shall be referred to as Traffic Advisories.

18.3.1.1 Roadway Guidelines

The DB Team shall produce traffic control plans for periods of construction in accordance with Attachment 3-1 Manuals, Special Provision Section 150, and the DB Documents document.

18.3.1.1.1 Design Parameters for Traffic Control

Design Vehicle: Turning movements shall accommodate a design vehicle specified by the GDOT Design Policy Manual for specific road classifications. Turning movements on all other local streets and driveways shall, at a minimum, provide similar characteristics as existing Geometry.

Work Zone Speed Limits: The work zone speed limits on Interstate and State Highways shall be in conformance with Special Provision 150.

Number of Lanes: Except as allowed by Section 18 of Volume 2, the minimum number of lanes to be maintained shall be the number of lanes currently available on each controlled access facility. Lane closures on other roadways may be considered so long as all traffic patterns and accesses are not reduced and are maintained.

Lane Widths: During construction, the minimum lane width for main lanes, frontage roads and major crossing streets is eleven (11) feet. For minor crossing streets, GDOT may, in its sole discretion, allow ten (10') lanes in limited circumstances during construction for short distances after reviewing the DB Team's traffic control plan. See Volume 2 for additional information.

18.3.1.1.2 Allowable Shoulder/Lane/Roadway Closures and Traffic Stage Changes

The DB Team shall provide GDOT and appropriate Customer Groups a minimum of two (2) weeks advance notice in writing for lane/shoulder closures and/or traffic stage changes planned to be in effect longer than twenty-four (24) hours, and a minimum of twenty four (24) hours advance notice for lane closures that are planned to be in effect less than twenty four (24) hours, using all appropriate tools as needed. The DB Team shall coordinate the closure restrictions with GDOT on all lane/shoulder closures (or an event that results in lane closures) into GDOT's ITS web-based information tool.

Closures must be coordinated with adjacent projects to ensure the safe convenient passage of the traveling public. During construction of the Project, GDOT will facilitate coordination with all local entities for traffic control.

Lane and Shoulder Closure During Design-Build Period

The DB Team may reduce the number of travel lanes in accordance with the restrictions in Section 18 of Volume 2.

The DB Team shall not install lane and shoulder closures, perform flagging, or move equipment on the travel way of any roads or streets from the Wednesday before

Thanksgiving Day to the first Business Day after New Year's Eve yearly between the hours of 5:00 a.m. to 11:00 p.m. Monday thru Friday and between the hours of 7:00 a.m. to 11:00 p.m. Saturday and Sunday; however, the Holiday Restrictions below shall take precedence for the holidays within the aforementioned timeframe.

Additional lanes may be closed during off peak or nighttime hours upon receipt of written permission from GDOT. Consideration will be given to traffic data collected in VPH/lane formatting during allowed closure periods that clearly demonstrates industry-accepted traffic flow ratios can be maintained.

Full Roadway Closure

The DB Team will not be allowed any full roadway (all lanes and shoulders) closures unless accepted by GDOT and Governmental Entities having jurisdiction of roadways affected by the closure.

GDOT will have the right to lengthen, shorten, or otherwise modify the foregoing restrictions as actual traffic conditions may warrant. The detour route for these full roadway closures shall be limited to usage of the on- and off-ramps at the mainline interchange locations. The DB Team shall utilize off-duty uniformed police officers for all detours.

Any complete roadway closure will require a Traffic Control Plan to be submitted and accepted by GDOT and Governmental Entities having jurisdiction of roadways affected by the closure. Availability of frontage roads, ramp locations and detour distances shall be considered in the design.

Holiday Restrictions

No work that restricts or interferes with traffic shall be allowed from 12:00 noon on the day preceding to 10:00 pm on the day after the following holiday schedule. GDOT has the right to lengthen, shorten, or otherwise modify these restrictions as actual or projected traffic conditions may warrant.

		Restriction Begins	Restriction Ends
1.	Easter (Friday through Monday)	Friday at 12:00 noon	Monday at 10:00 pm
2.	Memorial Day Weekend (Friday through Monday)	Friday at 12:00 noon	Monday at 10:00 pm
3.	Independence Day (July 3 through July 5)	July 3 at 12:00 noon	July 5 at 12:00 noon
4.	Labor Day Weekend (Friday through Monday)	Friday at 12:00 noon	Monday at 10:00 pm
5.	Thanksgiving Holiday (Wednesday through Sunday)	Wednesday at 5:00 am	Monday at 11:00 pm
6.	Christmas Holiday (December 23 through 26)	December 23 at 5:00 am	December 26 at 11:00 pm
7.	New Year Holiday (December 31 through January 1)	December 31 at 5:00 am	First Business Day following December 31 at 11:00 pm

18.4 Construction Requirements

Construction shall be in accordance with GDOT accepted DB Team's TMP and applicable provisions of the MUTCD and GDOT Special Provision Section 150 – Traffic Control.

18.4.1 DB Team Responsibility

If at any time GDOT determines the DB Team's traffic control operations do not meet the intent of the TMP (if applicable) or any specific traffic control plan, the DB Team shall immediately revise or discontinue such operations to correct the deficient conditions.

The DB Team shall provide GDOT the names of the certified WTCS and support personnel, and the phone number(s) where they can be reached twenty-four (24) hours per day, seven (7) days per week.

Workzone law enforcement consists of utilizing uniformed police officer(s) equipped with a marked patrol vehicle and blue flashing lights to enforce traffic laws in construction workzones and the administration of this service. Workzone law enforcement shall be deployed during lane closures, traffic pacing, and at all other times the DB Team determines necessary for the safety of everyone within the Project limits. The DB Team shall be responsible for coordinating and scheduling the utilization of the Workzone law enforcement.

The DB Team shall provide a daily work record compiled on a form provided by GDOT, signed by the police officer(s) and signed by the DB Team's WTCS attesting that the police officer(s) was utilized during the time recorded. No separate payment will be made for Workzone law enforcement. The DB Team shall be responsible for coordinating, scheduling, and administering Workzone law enforcement.

18.4.2 Access

Existing bicycle and pedestrian access and mobility shall be maintained across all cross streets. Access to existing transit stop locations shall be maintained during construction or reasonable alternative locations shall be provided, if applicable.

18.4.3 Detours

The DB Team shall maintain all detours. A pavement transition, required in accordance with AASHTO's Roadside Design Guide, GDOT guidelines and the MUTCD based on the roadway design speed of the section shall be provided at all detour interfaces.

19 MAINTENANCE DURING THE DESIGN-BUILD PERIOD

19.1 General

The DB Team shall maintain the Project from NTP 3 through the remainder of the Design-Build Period in a manner that provides a safe and reliable transportation system. Upon NTP 3, the DB Team shall be fully responsible for maintenance.

19.1.1 Standards

The DB Team shall provide activities in this section in accordance with GDOT Standard Specifications 104.05, 105.14, 105.15, Attachment 3-1 Manuals, Government Approvals, and other provisions of the DB Documents.

19.1.2 Reserved

19.1.3 GDOT Obligation to Repair

In the period between the Effective Date and NTP 3, GDOT/appropriate local agency will reasonably perform the type of routine maintenance of each Element Category of the existing improvement which normally occurs in GDOT's highway maintenance and repair program. GDOT/appropriate local agency is not obligated to extend the Residual Life of any Element through reconstruction, rehabilitation, restoration, renewal, or replacement.

19.2 Construction Maintenance Limits Plan

The Construction Maintenance Limits Plan can be provided as a drawing or set of drawings that highlight the exact area of the proposed construction and maintenance responsibilities within the ROW, as well as the limits of any Additional Properties to be acquired for the Project. This Plan will serve as the boundary for construction Work and will also be used as the exact limits for the DB Team to maintain any Element required to construct the Project beginning at the time of NTP 3 through Final Acceptance. The DB Team shall be responsible for all maintenance activities, in accordance with the GDOT Standard Specifications, Construction of Transportation Systems, within these limits that is impacted due to the construction activity of the DB Team, including:

1. Pavement maintenance including pothole patching, concrete patching, striping, etc.
2. Existing ITS system and Drainage System continuity
3. Landscaping repair
4. Utility Adjustments
5. Existing lighting system

The DB Team shall provide the final Construction Maintenance Limits Plan no later than one hundred and fifty (150) days from NTP 1 or prior to the start of a construction phase.

The Plan should show hash marks or a method to clearly depict the area of the construction maintenance limits. The DB Team is required to depict in the Construction Maintenance Limits Plan any and all proposed staging and lay down areas. All staging and lay down areas must have prior approval by GDOT.

Notwithstanding GDOT's approval of the Construction Maintenance Limits, the DB Team shall be responsible for any and all maintenance for any area(s) encroached on by the DB Team during the performance of the construction Work. Also see Section 2 for additional requirements.

19.3 Maintenance Management Plan

In conjunction with the Construction Maintenance Limits Plan, the DB Team shall prepare a Maintenance Management Plan that outlines the frequency of inspection and repair and/or maintenance of those items under the DB Team's responsibility. The plan shall include, as a minimum, the following:

1. Pavement inspection and repair
2. Debris removal on the traveled way
3. Guardrail inspection and safety protections in place where guardrail has been damaged within 48 hours, and repair of damage within 7 days
4. Temporary striping restriping at no longer than 60-day intervals, or more frequently if required

20 BICYCLE AND PEDESTRIAN FACILITIES

20.1 General

This section includes requirements with which the DB Team shall design and construct all bicycle and pedestrian facilities for the Project, if required. The DB Team shall ensure the bicycle and pedestrian facilities of this Project support GDOT's commitment to integrate bicycle and pedestrian travel into Project development. The DB Team shall coordinate the Elements of this Project with the existing and planned trails and other facilities of local and county administrations for pedestrians and cyclists. The DB team shall design all bicycle and pedestrian facilities according to the reference documents located in Attachment 3-1 Manuals.

20.1.1 Standards

The DB Team shall provide activities in this section in accordance with Attachment 3-1 Manuals, Government Approvals, and other provisions of the DB Documents.

20.2 Design Requirements

20.2.1 Bicycle Facilities

The DB Team's bicycle facilities shall be consistent with state, regional, and local bicycle and pedestrian plans, and accommodate proposed and existing bicycle paths and crossings, and on-street bicycle facilities. The DB Team shall coordinate their design with Governmental Entities design to ensure consistency of use with existing and accommodating proposed bicycle facilities. Refer to GDOT - Design Policy Manual, Chapter 9.

20.2.2 Pedestrian Facilities

The DB Team shall design, construct, and maintain sidewalks where sidewalks currently exist and where required by State or Federal regulations. Sidewalks shall comply with the Title II provisions of the Americans with Disabilities Act (ADA) Accessibility Standards. The DB Team shall install pedestrian signals and curb ramps at all existing and proposed signalized intersections. All pedestrian facilities shall be designed to incorporate ambulatory, visibility, and auditory needs of all users.

20.2.3 Final Plans

Consistent with the requirements of the DB Documents and all RIDs, the DB Team shall incorporate the following elements relating to bicycle and pedestrian facilities into the Preliminary and Final Plans:

1. Alignment, profile, cross-section, and materials

2. Points of connection to existing and proposed bicycle and pedestrian facilities, such as a connection to an existing or proposed multi-use trail, sidewalk, or bike lane on an adjacent facility
3. Signing, signalization, and pavement markings
4. Methods of illumination, where applicable
5. Requirements of the Landscape Enhancement Plan and Hardscape Enhancement Plan

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22 NOISE BARRIERS

22.1 General

The DB Team shall design and construct the noise barriers to achieve the decibel reduction requirements in the Environmental Documents. A final decision on the installation of noise barriers will be made upon completion of additional detailed noise abatement analysis based on the Final Plans, applicable State policies and federal guidelines, and public outreach to property owners and dwellers. Coordination with property owners and dwellers will be conducted prior to the final decision on the installation of the noise barriers. If coordination with property owners results in a noise barrier or portion of a noise barrier to not be installed, this shall be considered a GDOT Change. The DB Team is responsible to implement the noise barriers required in the final noise abatement analysis in the Environmental Documents. All materials used to construct the noise barriers shall conform to the requirements of the GDOT Qualified Products List (QPL). Precast concrete noise barrier panel materials shall meet the requirements of Attachment 22-1, Special Provision 624 – Noise Barriers. SP 624 shall apply only to precast noise barrier panels.

The DB Team shall design noise barriers walls to be similar in color, texture, and style that are consistent with other Elements present in the entire Project such as structures, landscaping, and other highway components.

Interlocking Steel Panels (Type B) and Treated Timber Panels (Type D) as listed in the Standard Specifications, Construction of Transportation Systems, Section 624.1 for noise barriers shall not be permitted, except that Interlocking Steel Panels (Type B) can be used on existing bridge barriers and on existing retaining walls. The DB Team shall provide a final structural design to the existing infrastructure that meets the requirements of the location(s) of the noise barriers as provided in the approved Environmental Document.

All bottom panels of free standing noise barriers shall be embedded a minimum of six inches (6”) below finished ground line. Noise barriers shall include access doors at regular intervals for maintenance. Access doors shall be located in noise barrier walls that are greater than fifteen hundred (1,500) feet in length. An access door shall be located at the mid-point of the wall length for walls between fifteen hundred (1,500) feet and two thousand (2,000) feet. Access doors shall be spaced approximately every one-thousand (1,000) feet for noise barrier walls greater than two thousand (2,000) feet in length. Access doors shall not be located on noise barrier walls mounted to bridges, retaining walls, or where a steep or vertical drop-off of the final grade is occurring.

Color scheme of noise barriers shall be consistent throughout the Project and shall be aesthetically pleasing as determined by GDOT.

22.1.1 Standards

The DB Team shall provide activities in this Section 22 accordance with Attachment 3-1 Manuals, Government Approvals, and other provisions of the DB Documents.

23 RESERVED

Georgia Department of Transportation

Programmatic Technical Provisions

For

Design-Build Agreement

P.I. Nos. 0012757 and 0012758

VOLUME 3 ATTACHMENTS

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Georgia Department of Transportation

Programmatic Technical Provisions
For
Design-Build Agreement
P.I. Nos. 0012757 and 0012758

Attachment 2-1

Construction Quality Assurance Firm (CQAF) Requirements

Construction Quality Assurance Firm (CQAF) Requirements

1 SCOPE OF SERVICES

1.1 Statement of Work

This statement of work describes the minimum requirements and Scope of Services to be provided by the Construction Quality Assurance Firm (CQAF) required for construction inspection, materials sampling, testing of required materials and installed work, and contract administration related to the construction Work (Work).

The Design-Build (DB) Team shall engage a qualified and experienced consultant to provide construction quality acceptance inspection, materials sampling and testing services as the CQAF as required by 23 CFR 637.207(b) and Attachment 2-2 of Volume 3 GDOT Construction Quality Assurance Program (CQAP). The CQAF shall be on the GDOT prequalified list to provide these services at the time of selection and maintained during the Term of the Agreement. The DB Team and the CQAF shall collaborate with GDOT and/or GDOT representatives in the development of the Project-specific quality program and Construction Quality Management Plan (CQMP).

The CQAF shall be under contract with the DB Team prior to issuance of NTP 3. The CQMP submittal must include all documents included in the Appendices B, C, and D attached to this Attachment 2-1 and executed by the CQAF and the Design-Build Agreement (DBA) Document requirements to be considered a complete Submittal under the requirements of Article 6.3. GDOT will not accept receipt of the complete CQMP unless it includes such statement, date, and signature by the CQAF.

The CQAF shall provide frontline 100% field acceptance inspection and materials sampling and testing for the Project as part of the Quality Acceptance Program as described in the CQAP. The CQAF will meet requirements and responsibilities in the DB Documents and the CQAP.

The CQAF shall proactively manage the administrative processes of the DB Documents required to determine whether or not the constructed and completed Work conforms to the requirements of the DB Documents and the DB Team's approved CQMP.

The CQAF shall be responsible for monitoring and notifying the DB Team and GDOT of any and all nonconformance(s) observed and documenting the corrective action to be taken by the DB Team per the requirements of the DB Documents. The CQAF shall be responsible for notifying the DB Team, in writing, to correct Work in progress when continuation is likely to result in an unacceptable element of construction. If the DB Team fails or refuses to follow or

correct the situation as stated in the notification, the CQAF shall immediately inform GDOT to determine if the Work in question should be temporarily suspended in accordance with Section 105.1 of the Standard Specifications and Special Provisions.

The CQAF firm selected by the DB Team shall be subject to final approval by GDOT and will have the additional following responsibilities:

1. Check, verify, and document the Work, as specified in the DB Documents, for compliance with DB Documents and CQAP requirements.

2. Keep daily records and measurements of the quantities involved. Monitor and record the progress of the Contractor in against the Project Schedule. Certify that the Work asserted to be completed on all Progress Schedules is in fact completed and free of defects. Any exceptions must include a non-conformance report for that portion of the work.

3. Effectively and efficiently process all documentation necessary to acceptably administer the DB Documents, including but not limited to Construction Submittal Review (CSR), Request for Information (RFI); Correspondence, DBE goal attainment, and the development and distribution of Meeting Minutes. Consult with GDOT or the GDOT's Owner Verification Firm (OVF), if applicable, for proper routing of documentation or use of the Program Management Controls System (PMCS). Keep logs, records and document all activities and proceedings relevant to the administration of the Work in accordance with GDOT's requirements. Documentation of work progress, DBE goal progress, meetings, conferences, changes and all required documentation per the DB Documents shall be timely, factual, concise and complete. Perform all on-site and off-site testing of all construction materials as required in the DB Documents, CQAP, Standard Specifications and Special Provisions.

4. Perform soils inspection and testing as required by the DB Documents and as determined by the GDOT to verify that the DB Team maintains proper control of density and moisture content of embankments, backfills and other earthwork items.

5. Monitor the DB Team's QMP for proper field quality control of Concrete used in paving and structures. Verify DB Team's QMP by performing testing as defined in the DB Documents. Monitor the DB Team's QMP for proper field quality control of asphalt mixtures and mix designs used in the Work, including performing field and laboratory tests as required by the DB Documents.

6. Anticipate the need and prepare documentation for and perform any field work and advise DB Team, GDOT and OVF for any Relief or Compensation Event.

7. Monitor and verify all pavements for thickness and surface tolerance as required by the DB Documents.

8. Perform quality acceptance compaction testing on backfill for relocated/adjusted utilities under the new roadway as required by GDOT. Monitor utility and railroad work as it relates to the DB Documents. Maintain daily records of labor, equipment, materials, and supervision for all DB Team or GDOT reimbursable work to the railroad.

9. Monitor and verify any Maintenance of Traffic (MOT) plan and document and report to the DB Team and the GDOT confirming if all MOT activities are in conformance with the DB Documents, both prior to placement and before opening to or shifting of traffic for each stage of construction.

10. Monitor and record the date and time of all lane, roadway, and shoulder closures; and traffic stage changes.

11. Check and document conformance with all environmental requirements of the DB Documents, including but not limited to erosion and sediment control, dust control, and diesel emissions.

12. Provide inspection, sampling and testing services for all other elements of work in accordance with the DB Documents not listed above. (i.e. ITS, etc.)

13. Provide recommendations of payment to the DB Team for Work satisfactorily completed.

14. Prepare and provide an accurate preliminary punch list to GDOT/OVF in accordance with Article 7.7.1.4 of Volume 1 and Article 2.3.10 of Volume 3 of the DBA documents.

Daily inspection for all key elements of construction through the utilization of Senior Inspectors, Inspector Level II's, Inspector Level I's, and Inspector Aids who will be assigned to and work under the direct supervision of the CQAF to verify quality control and quality acceptance is provided per the requirements of the DB Documents. The Minimum Experience and Training Requirements for each classification are provided in the CQAP, Attachment 2-1 of the DB Documents and Article 2 of this Scope of Services. DB Team shall cause the CQAF to pay all applicable workers employed by it in accordance with the requirements of the DB Documents and all applicable State and Federal Laws.

Inspectors should be assigned to the Work within the defined area of the project based on workload demands. The DB Team shall provide a plan per Sections 2 and 3 of Volume 3 to verify proper amount or coverage of inspection per the DB Team's proposed schedule, construction phasing plan, and adapt to any changes in the plan during the progress of the Work.

This Project will require multiple work shifts and weekend inspection.

1.2 General

1.2.1 The CQAF shall provide inspectors who will be assigned to and work under the direct supervision of the CQAF. Inspectors will be assigned to the Project within the defined geographic area of the Project based on workload demands within the area to meet the quality requirements of the DB Documents. Inspectors may be reassigned regularly during the duration of this contract as inspection needs dictate. Some of this work will consist of inspection of all phases of bridge construction. Some of the projects may require night and weekend inspection. Each inspector will be required to have a vehicle, equipped with an amber strobe light, to be used in fulfilling the transportation needs of their inspection duties. Each inspector will also be required to have a cellular telephone and/or other communication devices such as a lap top computer capable of communicating with all project personnel and compatible with the use of GDOT's web based PMCS.

The CQAF shall provide an initial staffing plan based on the approved baseline schedule and provide updates to GDOT as required.

1.2.1 The CQAF shall be responsible for 100% acceptance construction inspection, field materials sampling and testing in accordance with GDOT Standard Specification, Special Provision, and the Project Quick Guide (PQG) included in the CQAP, and any other requirement in the DB Documents including this attachment. The CQAF shall also perform the following field acceptance tests: Bridge Deck Steel Cover inspection with the use of a Covermeter or Pachometer in accordance with ACI 228 and ASTM 4748, concrete deck thickness as per GDT-131, and concrete pavement thickness as per Standard Specification 430.3.06-H and GDT-131. If the DB Team's plan includes an item is not discussed in the PQG or is not covered by GDOT Standard Operating Procedure (SOP), Georgia Sampling Procedures (GSP), GDT, or any Standard Specification, then the DB Team will be responsible for providing a plan and procedure for inspection and testing based on industry standard. The plan shall be approved by GDOT before item will be allowed.

1.2.3 The CQAF shall be responsible for assigned construction administrative functions as defined in this scope of services and referenced DB Documents.

1.2.4 The CQAF shall utilize effective control procedures to determine and to verify the DB Team's construction of the Project is performed in conformity with the plans, Standard Specifications, and DB Documents provisions.

1.2.5 All services shall be performed in accordance with the established standard procedures and practices of GDOT. Prior to the start of construction, the DB Team shall confirm that it and its CQAF are familiar with the DB Documents, the CQAP, the RFC Plans, Standard Specifications, Special Provisions, those departmental standard procedures and practices as set forth in the GDOT Construction Manual, as applicable, and associated documents and with informal procedures and practices

including the computer based PMCS for construction contract administration used by GDOT. Further, the DB Team and its CQAF shall confirm that its staff is thoroughly familiar with the nature of the Work and the requirements of the construction.

1.2.6 The DB Team shall verify that the CQAF shall provide a Construction Quality Assurance Manager (CQAM) whose duties will include but not be limited to the following:

(a) Serve as the primary contact and on-site liaison between the DB Team, CQAF, GDOT and OVF.
(b) Coordinate with GDOT and OVF regarding the CQAF inspector and testing assignments including required coordination meetings.
(c) Review project records prepared by the CQAF to verify services conform to the DB Documents.
(d) Assist and foster teamwork with all project leadership.
(e) At least monthly, provide all required testing and inspection reporting results as required by DB Documents.

1.2.7 The CQAF shall provide all inspectors whose duties shall include daily visual and physical acceptance inspection and reporting to verify project is constructed per the requirements of this Scope of Services and the DB Documents. The CQAF shall prepare and provide a CQMP for all the acceptance inspections and materials sampling and testing based on the requirements in the CQAP, Standard Specifications, and DB Documents. The CQMP will be reviewed and approved by GDOT. The CQAF shall provide inspection reports and check list of the control point Inspection (CPI) and any other acceptance inspection and testing as described in the CQAP and the approved CQMP. The CQAF shall provide all the HIP reports and inspection check list and materials sampling and testing reports within twenty-four (24) hours of the inspection to GDOT and/or OVF.

1.2.8 The CQAF shall furnish all services and labor necessary to conduct and complete the services to accomplish the Work included in this Scope of Services and the DB Documents, and shall furnish all materials, equipment, laptops, supplies and incidentals other than those designated in writing as to be furnished by GDOT necessary to perform the services, and check or test them prior to use under this contract.

1.2.9 At the request of GDOT, the CQAF during the progress of the services shall furnish information or data relating to the services under the contact as may be required by GDOT to enable it to carry out or to proceed with related phases of the project not covered by this contract, or which may be necessary to enable GDOT to furnish information to the CQAF upon which to proceed with further services.

1.2.10 The DB Team and its CQAF shall maintain close coordination with GDOT and OVF to verify the proper number of personnel is provided at the appropriate Project locations of Work.

1.2.11 Compliance with all of the foregoing shall be within the purview of the contract and shall not constitute a basis for additional or extra compensation.

1.3 Work Activities

The CQAF work activities will include the following:

1.3.1 It shall be the responsibility of the CQAF to confirm that the Project is constructed by the DB Team in conformance with the plans, Standard Specifications and other contract provisions of the DB Documents.

1.3.2 The CQAF shall work under the guidance and direction of the DB Team. The CQAF shall make normal and routine project decisions consistent with the DB Documents and with consideration of GDOT's policies, procedures, and general guidance provided by GDOT. If there is a conflict with the DB Documents and GDOT's policies, procedures, and general guidance, GDOT (the "Program Manager") shall be consulted for further guidance.

1.3.3 The CQAF shall advise GDOT's Program Manager of any omissions, substitutions, defects and deficiencies noted in the work of the DB Team and any corrective action taken. Non-Conformance Reporting per the DB Documents requirements shall be implemented throughout the term of the DBA. The services provided by the CQAF shall, in no way, relieve the DB Team of responsibility for the satisfactory performance of the DB Documents.

1.3.4 The CQAF shall make and record measurements as are necessary to calculate and document quantities for pay items as directed by the DB Team and established through documentation for the progress payments. The CQAF shall not include any item of material on a progress payment estimate for which there is no evidence of Material Inspection or approval. Materials not meeting the Standard Specifications as determined by the CQAF shall not be used in the Work. Re-tests of materials may be authorized whenever there is sufficient reason to question the accuracy of the original tests. If re-tests are made, at least two (2) samples should be tested for each sample that failed. Both re-test samples should meet the Standard Specifications before the material is reconsidered for acceptance. The CQAF shall calculate and enforce pay factor to Asphaltic Concrete when materials or construction are not within the tolerances specified in Sections 400 and 402, deductions shall be made in accordance with the applicable requirements of Sections 106, 400 and 402. The deduction will be determined by the formula and table in the DB Documents.

1.3.5 The CQAF shall monitor the DB Team's on-site construction operation and to inspect and test all materials incorporated into the Work as necessary to determine and to confirm that the quality of the DB Team's workmanship and materials is such that the Project will be completed in conformance with the plans, Standard Specifications, and DB Documents provisions. The CQAF shall keep detailed, accurate records of the DB Team's daily operations and significant events that affect the work.

1.3.6 The CQAF shall inspect traffic control and monitor traffic operations during the normal course of other inspection duties. Additional periodic traffic control inspections and reports shall be made in accordance with GDOT's policy and DB Documents requirements.

1.3.7 The CQAF shall perform 100% field sampling and testing of component materials and completed work items to determine and to ensure the materials and workmanship incorporated into the Project are in conformance with the CQAP, plans, Standard Specifications, and the DB Documents. The sampling and testing will be performed by the CQAF in conformance with Volume 3, Attachments 2-1 and 2-2 of the DB Documents, and this attachment. The CQAF shall perform on-site sampling and testing of concrete (air, slump, and cylinders) and temperature measurement of asphalt. Inspectors are required to be certified by GDOT's Office of Materials and Testing (OMAT).

1.3.8 The CQAF shall attend the preconstruction conference and all other project meetings as directed by the DB Team or requested by GDOT. The CQAF shall prepare and lead all the constriction pre-activity meetings and provide minutes of the meetings.

1.3.9 The CQAF shall maintain on a daily basis a complete and accurate record of all activities and events relating to the project and a record of all work completed by the DB Team, including quantities of pay items in conformity with GDOT's policies and procedures.

1.3.10 The CQAF shall prepare inspector's daily reports of the DB Team's operations, materials sampling and testing reports, and any other requirements stated in the GDOT's Construction Manual. All inspection reports shall be uploaded daily to the PMCS.

1.3.11 The CQAF shall maintain records of all sampling and testing accomplished and analyze such records to determine and to ensure acceptability of materials and completed work items. The CQAF shall provide weekly and monthly inspection, and materials sampling and testing reports, generate and provide; monthly materials certification, materials check list, and other results and documentation required by GDOT and/or OVF to verify and validate that all the materials used and the workmanship in the Project are in conformance with the DB Documents.

1.3.12 The CQAF shall, when requested, provide to the DB Team interpretations of the plans, Standard Specifications, and other contract provisions. The CQAF shall consult with GDOT when an interpretation involves complex issues or may have an impact on the cost of performing the Work or is known to be an area of dispute with the DB Team.

1.3.13 The CQAF shall monitor each construction operation to the extent necessary to determine whether construction activities violate the requirements of any permits contained in the contract. The CQAF shall notify the DB Team and GDOT and its representative immediately of any violations or potential violations, as well as any unanticipated project conditions that require immediate resolution.

1.3.14 The CQAF shall present, on a weekly basis, all records and documentation prepared in the course of project administration to the DB Team and GDOT as directed by the DB Team or GDOT. At the conclusion of the DB Team's work on the Project, all records and documentation shall be transmitted to GDOT with copies reserved for the DB Team. All such records and documentation are the property of GDOT.

1.3.15 The CQAF shall certify to the DB Team and GDOT that all materials incorporated into the Work were in close conformity with the DB Documents, approved plans and Standard Specifications. The CQAF shall provide the certification monthly along with documentation to substantiate invoice amounts. The CQAF's monthly material certification and check list shall be submitted with the DB Team's monthly pay request. The project material certification must be submitted with any references to nonconforming materials to be documented.

1.3.16 The CQAF shall be familiar with the standard construction practices of GDOT, the construction plans and contract(s) for the project, and the DB Team's proposed schedule of operations prior to beginning field services under the contract. Be familiar with Critical Path Method scheduling including Primavera.

1.3.17 The CQAF shall withdraw any personnel or halt any services no longer required, at the request of the DB Team and/or GDOT, or within a reasonable time after the lack of need becomes apparent to the CQAF.

1.3.18 The CQAF shall verify that test report records or certificates of compliance have been received, prior to the incorporation of materials tested off the project site.

1.3.19 The CQAF shall perform CQAP field operations in accordance with GDOT regulations and accepted safety practices.

1.3.20 The CQAF shall provide for CQAF personnel transportation equipped with appropriate safety equipment, communication devices, hard hat, high visibility vests, and incidentals as are needed to accomplish the services required under the contract.

1.3.21 The CQAF shall collect, properly label or identify, and deliver to the DB Team all original diaries, logs, notebooks, accounts, records, reports, and other documents prepared by the CQAF in the performance of the contract, upon completion or termination of the contract. Copies of deliverables shall be made available to GDOT upon request.

1.3.22 The CQAF shall return, upon completion or termination of the contract, all Standard Specifications, manuals, guides, written instructions, construction contracts and plans, unused forms and record keeping books, and other documents and materials furnished by GDOT. The CQAF may be responsible for replacing lost documents or materials.

1.3.23 The CQAF shall prepare and submit such periodic, intermediate and final reports and records as may be required and as applicable to the Project, which may include, but is not limited to: weekly progress reports, weekly statement of working days, notice of change in construction status, report of field inspection of material, test report record, DB Team pay estimates, pile driving data, piling record, final certification of materials, explanation of quantity variation, statement of contract time, intermediate and final estimates, contractor evaluation form, preliminary punchlist, and other records and reports as required.

1.3.24 The CQAF shall be responsible for checking DBE reports, to verify work amounts of DBE, to verify compliance with Davis-Bacon, and field labor interviews. Each month, the CQAF shall provide documentation to GDOT that these requirements have been met.

1.3.25 The CQAF shall maintain a log and copy of the weekly Certified Payrolls from the DB Team. The original copies shall be delivered to GDOT's field office and filed in a fire proofed cabinet.

2 INSPECTION AND TESTING PERSONNEL QUALIFICATIONS

The CQAF shall provide a competent and qualified field organization consisting of a Project Engineer, Senior Inspector(s) and Inspector(s) necessary to monitor and verify the DB Team's CQMP and report on the compliance with the contract requirements.

The DB Team shall have the CQAF provide and maintain an organizational chart and staffing plan for review and approval by GDOT. Both shall be kept current for review, approval and modification by the GDOT and shall be updated when requested by GDOT.

Federal Regulation 23 CFR requires that DB Team, CQAP, local agency and any personnel performing materials acceptance sampling and testing on Federal-aid projects on the National Highway System is qualified.

2.1 Construction Quality Assurance Manager (CQAM)

The CQAM is responsible for the overall management, coordination, supervision, and performance of all construction quality acceptance activities performed by the DB Team. The CQAM shall be responsible for the daily management of the quality acceptance aspect of the CQMP. The CQAM or his/her designee shall be on the project on a daily basis and always available upon 4 hours' notice to administer the CQMP. The CQAM shall be a Georgia-licensed Professional Engineer and an employee of the CQAF. The CQAM shall report to the DB Team's Quality Manager. The CQAM shall not report to any person or party directly responsible for design or construction production. The CQAM shall meet and enforce the requirements in the CQAP and this scope work.

CQAM responsibilities shall include, but not limited to the following:

1. Monitor compliance to the CQMP
2. Managing all aspects of the QA
3. Determining the staffing levels required for performing the management and administrative duties of the construction quality assurance team
4. Identifying processes or activities that require written QA procedures and reviewing each procedure prepared by QA staff to ensure the scope and content have been properly defined in each written procedure.
5. Overseeing QA document management activities to verify QA records are appropriately maintained
6. Confirming the QA test and inspection reports are reviewed and approved by authorized personnel
7. Verifying QA activities are performed by properly qualified personnel
8. Reviewing and approving Inspection and Test Plans for specific construction work elements
9. Preparing and participating in the Construction Pre-Activity Meetings
10. Reviewing, approving, and distributing construction QA procedures
11. Managing the efforts to initiate, create, and track NCR when work is found to be nonconforming; addressing and resolving non-conformance issues
12. Assisting the QM in managing Nonconformance Reporting system and process to confirm resolution
13. Developing, reviewing, and implementing corrective plans that are approved by the QM to address systemic issues within the QA organization Maintaining copies of training and certifications for the inspectors and technicians working for the project team
14. Coordinating with GDOT, GDOT Representative, OVF, and GDOT IA on a daily basis for independent auditing

15. Developing or assisting with the development of all reports required for FHWA, SRTA, GDOT, or others
16. Managing reviews and responses to construction documentation Request for Information (RFIs), Field Change Documentation (FCD), etc.)
17. Managing and Tracking Construction Changes
18. Verifying and managing Environmental Compliance
19. Reviewing and providing response on monthly progress and construction schedules compliance.

2.2 Project Engineer

This is advanced level technical work in functional areas of project administration and management. Project Engineer employees, under limited supervision, independently manage construction activities on large complex projects (phases) such as complex bridge, urban, or interstate reconstruction projects.

Project Engineer employees inspect and supervise lower level inspectors performing routine to moderately complex inspections of roadway and structure construction processes and materials to assure compliance with the construction contract and other applicable guidelines. Work includes monitoring traffic control and erosion control on the project. Work also includes monitoring construction costs; negotiating prices for contract modifications with contractors; writing or supervising the preparation of reports and correspondence; and working and communicating with contractors, supervisors, subordinates, local officials, media and the general public.

Knowledge, Skills and Abilities: Thorough knowledge of Standard Specifications and standards, acceptable construction practices, materials, methods and equipment used in highway construction and engineering. Thorough knowledge of mathematical functions, including algebraic, geometric, and trigonometric calculations related to highway/transportation engineering. Ability to read and comprehend construction plans and all other documents associated with the project. Project Engineer employees shall be licensed to operate motor vehicles in accordance with Georgia Law.

Minimum Training and Experience Requirements: Graduation from a university with a degree in civil engineering or from a four-year college with a degree in civil engineering technology and five years of progressive transportation technician experience; graduation from a two-year technical college with a degree in civil engineering technology and seven years of progressive transportation technician experience; or graduation from high school and ten years of progressive transportation technician experience as an employee or consultant for a State Highway Agency; or an equivalent combination of training and directly related experience.

2.3 Roadway Testing Technician (RTT)

This is advanced level technical work supporting inspectors and engineers in functional areas of structure and roadway materials sampling and testing. Work usually involves a wide range of decision making and use of judgment, and would normally include providing work direction to others. Under general supervision, the RRT to perform field testing work of a complex nature, provide sampling and testing of various construction materials for quality control and acceptance, coordinate efforts with contractors and supervisors to verify contract Standard Specifications are met, and prepare all reports and documentation for projects on a daily basis, maintain assigned vehicle and equipment to comply with GDOT standards.

Knowledge, Skills and Abilities: Some knowledge of surveying, highway construction or design. Proper certification and proficiency with the use of nuclear gauge devices. General knowledge of mathematical functions, including averages and percentages. General computer skills, including data entry and use of modems. Ability to read and interpret such things as construction plans and manuals. Good communications skills. Shall be licensed to operate motor vehicles in accordance with Georgia law.

Minimum Training and Experience Requirements: High School Diploma or GED, two (2) years transportation experience or equivalent combination of training and materials testing related experience is desired, two (2) years of experience with nuclear gauge equipment for compaction control, GDOT Roadway Testing Technician (RTT), and Quality Control Technician Level I.

Job Responsibilities & Performance Standards:

1) Prepare reports and document all activities pertaining to sampling or testing for GDOT projects.

    a) Accurately record type of material, results, location of test, project number and contract identification number, with a minimal degree of error. Complete all contractual reports and submit to manager for verification on a daily basis.
    b) Maintain a personal sample log on a daily basis.
    c) Enter all test data into computer and upload to GDOT approved materials management collection system on a regular basis (no later than two days after test is completed).
    d) Acceptance test results shall be submitted to GDOT's representative (OVF) for review and verification.
    e) Acceptance test results of asphaltic concrete pavement (compaction) will be sent to the asphalt producer's quality control technician no later than the day following completion of a lot of asphalt.
    f) Review, verification and approval of all acceptance test results with the OVF.
    g) The RTT is responsible for uploading all test reports to GDOT approved materials management data collection system no more than two (2) days after receiving test results.
    h) Make mathematical calculations on the test data in an accurate manner.

i) Findings regarding acceptance of materials should reflect sound thorough analysis.

2) Provide acceptance testing on soils, aggregate, asphaltic concrete, and concrete.

a) Properly select sites for obtaining test samples or performing tests according to established practices.
b) Perform roadway construction material compaction testing according to accepted procedures on soils, aggregate and asphaltic concrete using the Nuclear Gauge to accurately obtain density and moisture results.
c) Perform necessary tests according to established practices for adherence to GDOT Standard Specifications.
d) Perform other field and laboratory tests as requested and according to accepted procedures.
e) Test results must meet reliability and validity expectations; problems with testing procedures are resolved independently, demonstrating expert knowledge.
f) Tests are performed according to required schedule without causing unnecessary construction project delay.
g) Study proposals of projects and determine type and frequency of compaction and other testing required.

3) Sample soil, aggregate, asphaltic concrete and concrete materials on projects in accordance with established GDOT sampling and testing methods. Perform miscellaneous acceptance sampling which includes rebar, dowel bars, dowel cages, silt fence and other materials.

a) Sample soil, base, asphalt, and other materials according to GDOT's Sampling and Testing Manual.
b) Obtain cores of asphaltic concrete or portland cement concrete on roadway projects to determine actual depths of in-place roadway materials.
c) Obtain cores for calibration of nuclear gauges and investigation of failing densities on asphaltic concrete paving projects.
d) Submit completed sample cards with each item being forwarded to the branch or central laboratory.
e) Transport all samples on a weekly basis for analysis.
f) Perform required sampling in a timely manner consistent with schedules without causing project delay. The Project Quick Guide is included in Attachment 2-2 "Construction Quality Assurance Program (CQAP)". The CQAP provides information and quick reference of the distribution of responsibilities between the DB Team's CQAF, OVF and IA. It is not intended to be an all-inclusive list of materials. The Project Quick Guide should be used to determine materials requirements, frequencies, etc. for any materials not specified in this attachment.

4) Observe roadway for problems indicative of materials or procedure deficiencies on assigned projects.

a. Verify the contractor has an approved Job Mix Formula and verify that all current documentation is posted at the asphalt plant.
b. Visually inspect the roadway for segregation and other noticeable problems.
c. Visually inspect the roadway for segregation of asphaltic concrete and other noticeable problems.

5) Prepare reports and document all activities pertaining to sampling or testing for GDOT projects.

a. Accurately record type of material, results, location of test, project number and contract identification number, with a minimal degree of error. Complete all contractual reports and submit to manager for verification on a daily basis.
b. Maintain a personal sample log on a daily basis.
c. Enter all test data into computer and upload to GDOT approved materials management collection system on a regular basis.
d. Acceptance test results shall be submitted to GDOT's representative (OVF) for review and verification.
e. Acceptance test results of asphaltic concrete pavement (compaction) will be sent to the asphalt producer's quality control technician no later than the day following completion of a lot of asphalt to complete the test report.
f. Responsible for uploading all test reports to GDOT approved materials management data collection system no more than two days after receiving test results.
g. Make mathematical calculations on the test data in an accurate manner.
h. Findings regarding acceptance of materials should reflect sound thorough analysis.

6) Coordinate testing and sampling with project personnel to verify GDOT standard specifications are met and optimum construction results are achieved.

a. Respond to project personnel questions and concerns in a timely and professional manner.
b. Clearly communicate test findings and results, testing and sampling methods, and analytical methods to project personnel.
c. Coordinate resolution of acceptance issues in professional manner to achieve mutual understanding of problem nature and possible solutions.
d. Exercise advanced judgment and decision-making abilities when interacting with project personnel, and GDOT officials.

7) Maintain thorough knowledge of testing procedures.

a. Maintain thorough knowledge of most recent specifications.
b. Maintain certifications.
c. Demonstrate capabilities to employ and understand appropriate analytical techniques for assessing acceptability of materials for construction.

8) Maintain equipment according to GDOT Guidelines.

   a. Verify that all equipment is clean and in working order and calibrated yearly or when needed.
   b. Calibrate moisture/density nuclear gauge to graded aggregate bases and asphaltic concrete according to Standard Specifications.
   c. Inspect haul vehicles for compliance with agency standards.

2.4 Concrete Testing Technician (CTT)

This is advanced level technical work supporting inspectors and engineers in functional areas of structure and roadway materials sampling and testing. Work usually involves a wide range of decision making and use of judgment, and would normally include providing work direction to others. Under general supervision, the CTT shall perform field testing work of a complex nature, provide sampling, testing and inspections in the field for concrete materials for quality acceptance, coordinate efforts with contractors and supervisors to verify contract Standard Specifications are met, prepare all reports and documentation for projects on a daily basis and maintain assigned vehicle and equipment to comply with GDOT standards.

Knowledge, Skills and Abilities: The CTT shall have some knowledge of surveying, highway construction or design, proper certification and proficiency with the use of Air Meter, Slump Cone equipment and Temperature devices, also be able to fabricate of concrete cylinders, general knowledge of mathematical functions, including averages and percentages, general computer skills, including data entry and use of computers/laptops, ability to read and interpret such things as construction plans and manuals, good communications skills. The CTT must be able to accurately report and calculate field findings from field records and analysis. They are responsible for transporting field samples back to laboratory for testing, responsible for communicating with field inspectors and Project Managers and must have a clean driving record and a valid Georgia driver's license.

Minimum Training and Experience Requirements: The CTT shall have High School Diploma or GED, two (2) years transportation experience or equivalent combination of training and materials testing related experience is desired, Quality Control Technician Level I, and GDOT Concrete Sampling and Testing Certifications for GDT-26, GDT-27 and GDT-35 are required (ACI certification is accepted).

NOTE: All references to qualified consultant technicians in the Scope of Services indicates that the technicians possess GDOT Certification as Roadway Testing Technician (RTT), GDOT Certification as Quality Control Technician Level I and GDOT Certification to sample and test concrete.

2.5 Senior Inspector

This is advanced level technical work supporting engineers in functional areas of structure and roadway construction inspection; materials sampling, inspection and testing. Work usually involves a wide range of decision making and use of judgment, and would normally include providing work direction to others.

Senior Inspector employees may function as lead project inspectors conducting independent complex inspections themselves, and supervising lower level inspectors performing routine to moderately complex inspections of roadway and structure construction processes and materials to assure compliance with the construction contract. Senior Inspector employees may perform contract administrative duties such as field measurements of pay items as well as other GDOT required documentation. Work may include other duties and responsibilities as assigned.

Knowledge, Skills and Abilities: Thorough knowledge of materials, methods and equipment used in highway construction. Considerable knowledge of mathematical functions, including algebra, geometry, and trigonometry and the skill in the use of office equipment such as calculators and computers. Ability to read, interpret and explain such things as construction plans, contract provisions, Standard Specifications, and inspection procedures; ability to take notes and prepare or review reports; good communicative ability; and supervisory ability to coordinate the activities of lower level employees and instruct them in proper work methods. The Senior Inspector shall be licensed to operate motor vehicles in accordance with Georgia Law.

Minimum Training and Experience Requirements: Graduation from a university with a degree in civil engineering or from a four-year college with a degree in civil engineering technology and three years of progressive transportation technician experience; graduation from a two-year technical college with a degree in civil engineering technology and six years of progressive transportation technician experience; or graduation from high school and eight years of progressive transportation technician experience as an employee or consultant for a State Highway Agency; or an equivalent combination of training and directly related experience.

2.6 Inspector Level II

This is advanced journey level technical work supporting higher level technicians and engineers in functional areas such as construction inspection and surveying; scheduling and status; roadway design; traffic signal equipment; traffic signalization and geometrics; materials sampling; inspection and testing. Work usually involves a significant amount of decision making and use of judgment, and may include providing work directions to others.

Inspector Level II employees may perform independent complex inspections of roadways and structure construction processes and materials to assure compliance with the construction contract. Inspector Level II employees may perform moderately complex inspections; or

supervise other inspectors conducting routine and standardized inspections. Work may include inspecting asphalt and concrete for acceptable materials and mix; pavement for proper spreading, rolling, depth, alignment and compaction; roadways and structures for conformance to plans, and Standard Specifications; structural materials and members; placement of culverts; structural operations such as foundation excavation; placement of piling, reinforcing and structural steel, concrete and backfill; and traffic control and erosion control devices. Inspector Level II employees may also perform the more complex variety of calculations and computations. Inspector Level II employees may perform contract documentation duties, which may include field measurements of pay items as well as other GDOT required documentation. Work may include other duties and responsibilities as assigned.

Knowledge, Skills and Abilities: Considerable knowledge of materials, methods, and equipment used in highway construction; and considerable knowledge of mathematical functions including geometry and trigonometry. Drafting skills and skill in the use of office equipment such as calculators and computers, ability to read, interpret, and explain such things as construction plans, contract provisions, Standard Specifications, and inspection procedures; ability to take notes and prepare or review reports; good communicative ability; and ability to instruct other employees in proper work methods. Inspector Level II employees shall be licensed to operate motor vehicles in accordance with Georgia Law.

Minimum Training and Experience Requirements: Graduation from a university with a degree in civil engineering or from a four-year college with a degree in civil engineering technology and 2 years of progressive transportation technical experience; graduation from a two-year technical college with a degree in civil engineering technology and five years of progressive transportation technical experience; or graduation from high school and seven years of progressive transportation technician experience as an employee or consultant for a State Highway Agency; or an equivalent combination of training and directly related experience.

2.7 Inspector Level I

This is advanced journey level technical work supporting higher level technicians and engineers in functional areas such as construction inspection and surveying; scheduling and status; roadway design; traffic signal equipment; traffic signalization and geometrics; materials sampling; inspection and testing. Work usually involves a significant amount of decision making and use of judgment, and may include providing work directions to others.

Inspector Level I employees may perform independent complex inspections of roadways and structure construction processes and materials to assure compliance with the construction contract. Inspector Level I employees may perform moderately complex inspections; or supervise other inspectors conducting routine and standardized inspections. Work may include inspecting asphalt and concrete for acceptable materials and mix; pavement for proper spreading, rolling, depth, alignment and compaction; roadways and structures for conformance to plans, and Standard Specifications; structural materials and members; placement of culverts; structural operations such as foundation excavation; placement of piling, reinforcing and

structural steel, concrete and backfill; and traffic control and erosion control devices. Inspector Level I employees may also perform the more complex variety of calculations and computations. Inspector Level I employees may perform contract documentation duties, which may include field measurements of pay items as well as other GDOT required documentation. Work may include other duties and responsibilities as assigned.

Knowledge, Skills and Abilities: Considerable knowledge of materials, methods, and equipment used in highway construction; and considerable knowledge of mathematical functions including geometry and trigonometry. Drafting skills and skill in the use of office equipment such as calculators and computers, ability to read, interpret, and explain such things as construction plans, contract provisions, Standard Specifications, and inspection procedures; ability to take notes and prepare or review reports; good communicative ability; and ability to instruct other employees in proper work methods. Inspector Level I employees shall be licensed to operate motor vehicles in accordance with Georgia Law.

Minimum Training and Experience Requirements: Graduation from a university with a degree in civil engineering or from a four-year college with a degree in civil engineering technology; graduation from a two-year technical college with a degree in civil engineering technology and three years of progressive transportation technical experience; or graduation from high school and five years of progressive transportation technician experience as an employee or consultant for a State Highway Agency; or an equivalent combination of training and directly related experience.

2.8 Inspector Aid

This is beginning level technical work supporting higher level technicians and engineers on assignments relating to highway and bridge construction inspection.

Inspector Aid employees perform a range of routine and standardized work which may include duties such as manual or electronic calculations and computations. Inspector Aid employees will perform independent routine and standardized inspections of construction processes and materials to assure compliance with the DB Documents. Inspector Aid employees may inspect truck load tickets for roadway aggregate base course; borrow material and asphaltic concrete at project field sites.

Inspector Aid employees may perform a variety of simple materials sampling, inspection and/or testing. Inspector Aid employees may perform contract administrative duties, which may include field measurements of pay item quantities as well as other GDOT required documentation. Work is generally performed under technical and administrative supervision, and may include other duties and responsibilities as assigned.

Knowledge, Skills and Abilities: Some knowledge of surveying, highway construction or design. General knowledge of mathematical functions, skill in the use of office equipment such as calculators, ability to read and interpret such things as construction plans, contract provisions,

and inspection procedures; and good communications ability. Inspector Aid employees shall be licensed to operate motor vehicles in accordance with Georgia Law.

Minimum Training and Experience Requirements: Graduation from high school. One year transportation experience; or equivalent combination of training and directly related experience is desired.

2.9 Technician Equipment List (but not limited to list below)

1. Work Gloves
2. First Aid Kit
3. Fire Extinguisher
4. Lighter, Matches
5. Calculator
6. Contracts Clipboards
7. Stapler
8. File folders W/ File Cabinet
9. Sample Containers (Cloth Bags, Plastic Bags & Hot Melt Boxes, concrete cylinder molds (4”X8” & 6”x12”)
10. Heat Gloves
11. Wire Brush
12. Spatula
13. Large Spoons (Plant and Field)*
14. Mixing Bowls
15. 6000 Grams Scales (Plant and Field)*
16. Gas Stove W/Regulator and Bottle
17. Paint Brush 3 inch
18. Laptop or Desk Top Computer (W/GDOT Software for data collection)
19. Gauge Book
20. 12” to 16” Diameter Round Pan
21. Cell Phone
22. Specification Book
23. Quick Guide
24. Accordion Folders for Files
25. Strobe Lights
26. Cell Phone
27. Marking Crayon
28. Marking Paint
29. Nuclear Gauge W/Approved Transport Case
30. Bill of Lading
31. Standard Block
32. Gauge Charger
33. Plate, Pin and T-handle (Nuclear Gauge)
34. Portable Core Drills - A total of three (3) to be utilized by all consultant techs. **

35. Sample Card Bags
36. Hard Hat
37. Safety Vest & Safety Flag
38. Flash Light
39. Rain Suit
40. Work Boots
41. 16” to 24” Straight Edge
42. 1/30 CF Mold
43. Mold Block 35-40 lbs.
44. Mold Rammer
45. Chisel
46. Three Pound Hammer
47. 12” Ring
48. Pie Pans
49. Square Shovel
50. Round Shovel
51. Posthole Digger
52. Pick
53. 6 Feet Folding Ruler
54. Laptop Computer (W/GDOT Software for data collection)

**Portable Core Drill /with a min of 15 HP engine and a 15 to 20 Gal water tank

3 STAFFING

3.1 Methodology

The DB Team in conjunction with its CQAF shall provide a specific written plan to GDOT describing the proposed staffing plan according to the DB Team construction phasing plan and managing the required inspection personnel.

The plan shall provide the names and resumes of all Project Engineers, Senior Inspectors, Inspector Level I’s and Inspector Level II’s proposed to be used for this work on the Project. The name of the Project Liaison Manager shall also be provided.

The DB Team shall only terminate the CQAF contract or remove any of the personnel provided under the inspection, sampling and testing services by written direction of GDOT for any noncompliance or at the sole discretion of GDOT.

4 COMPENSATION AND PAYMENT METHOD

4.1 Total Cost

It is agreed that the compensation specified for the DB Team's agreement with the CQAF shall include both direct and indirect costs chargeable to the Project under generally accepted accounting principles and as allowed in the Federal Acquisition Regulations Subpart 31.2 and not prohibited by the Laws of the State of Georgia.

4.2 Partial Payment

An invoice, itemized statement, shall be submitted monthly showing the hours worked and rates for each of all CQAF personnel. Upon its determination that the invoice is complete, GDOT will, at the request of the DB Team, make payment to the DB Team as the work progresses, but not more often than once each month. Should the work for the services begin within any one month, the first invoice shall cover the partial period from the beginning date of the work through the last date of the month in which it began. The invoices shall be numbered consecutively and subsequent invoices submitted each month until the work for the services is completed. GDOT

Should the work under this Scope of Services be terminated by GDOT or the DB Team with the approval of GDOT, the DB Team shall be paid based upon the units of work completed by the CQAF at the point of termination.

4.3 Final Payment

It is further agreed that upon completion of the work by the DB Team and acceptance of the Work by GDOT, including the receipt of any final written submission by the DB Team and a final statement of costs, GDOT will pay to the DB Team who shall pay the CQAF a sum equal to one hundred percent (100%) of the total compensation as set forth in all invoices.

The DB Team agrees that acceptance of this final payment shall be in full and final settlement of all claims arising against GDOT for Work done, materials furnished, costs incurred, other otherwise arising out of this Agreement and shall release GDOT from any and all further claims of whatever nature, whether known or unknown, for and on account of said Agreement, and for any and all work done, and labor furnished in connection with the same.

The DB Team and the CQAF will allow the examination and verification of costs by GDOT's representatives before final payment is made, in accordance with the provisions of this Agreement and the DB Documents.

5 INSURANCE

Prior to beginning the Work, the DB Team shall obtain and furnish certificates to GDOT per the requirements of the DB Documents.

6 COMPLIANCE WITH APPLICABLE LAW

6.1 Equal Employment Opportunity

This work will be governed by Title VI of the Civil Rights Act of 1964 for Federal Aid Contracts. GDOT strongly encourages the solicitation of interest from Disadvantaged Business Enterprises (DBE), and any selection made as a result of this notice will be made without regard to race, color, religion, sex, or national origin. The DBE requirements for this project are defined in the DB Agreement, Article 10.9.2.

6.2 Applicable Laws

The DB Team shall confirm that its CQAF acknowledges and complies with the following:

1. Sections 45-10-20 through 45-10-28 of the Official Code of Georgia Annotated relating to Conflict of Interest and State Employees and Officials Trading with the State have been complied with in full.

2. Section 50-24-1 through 50-24-6 of the Official Code of Georgia Annotated, relating to the "Drug-Free Workplace Act" have been complied with in full, as stated in Appendix B of this Scope of Services.

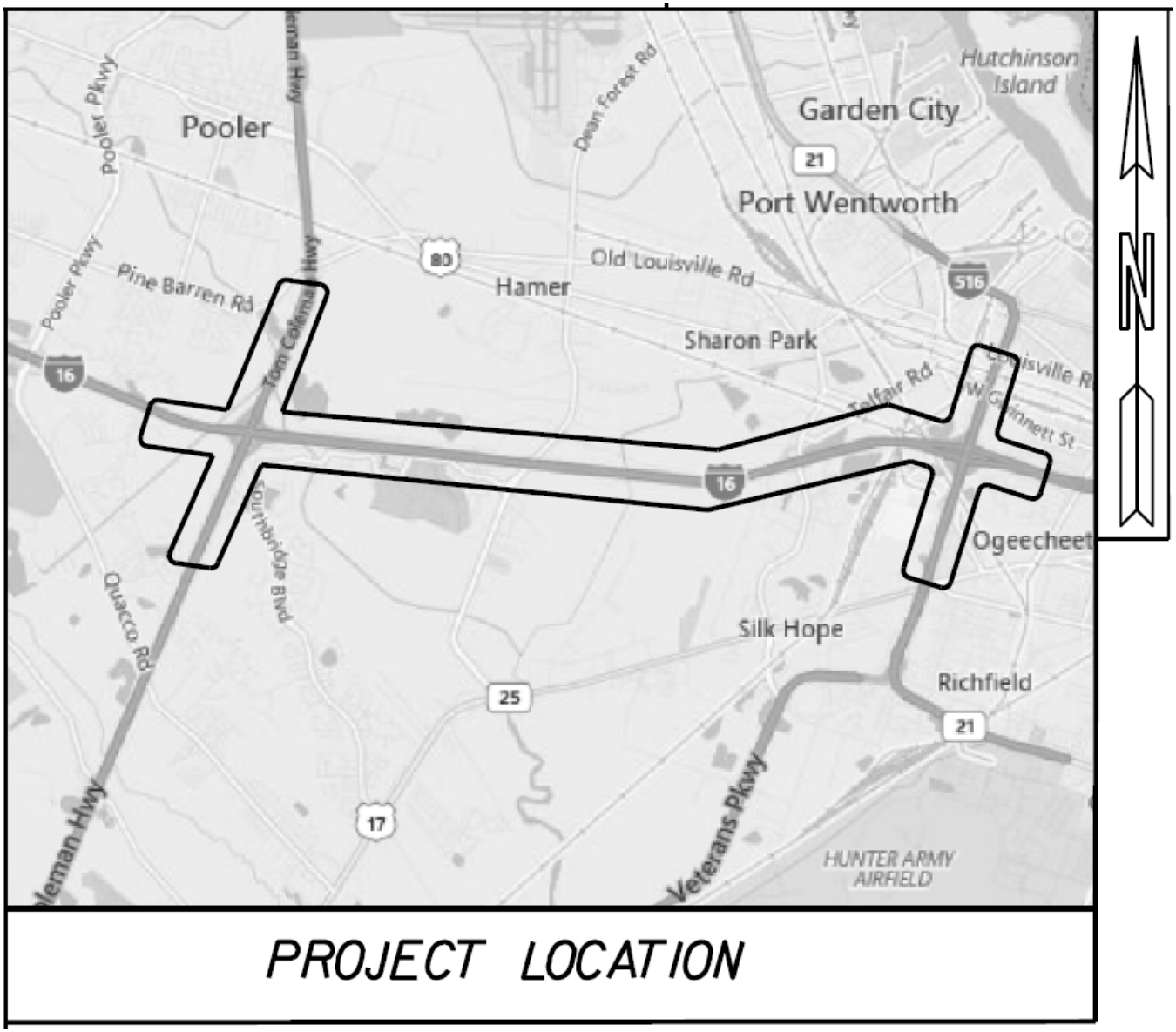
3. The regulations for COMPLIANCE WITH TITLE VI OF THE CIVIL RIGHTS ACTS OF 1964, as amended, and 23 C.F.R. 200 et seq. as stated in Appendix C of this Scope of Services.

4. The laws and regulations governing Disbarment, Suspension, and Other Responsibility Matters pursuant to Executive Order 12549 and 49 CFR Part 29 as stated in Appendix D of this Scope of Services.

5. The Covenants Against Contingent Fees as set out in Appendix E of this Scope of Services. For breach or violation of this warranty, GDOT shall have the right to require the DB Team to annul the Scope of Services with the CQAF without liability, or in GDOT's discretion, to deduct from the Scope of Services Agreement price or consideration, or otherwise recover, the full amount of such fee, commission, percentage, brokerage fee, gift or contingent fee from the DB Team and/or its CQAF.

APPENDIX A

PROJECT LOCATION MAP



PROJECT LOCATION

APPENDIX B

CERTIFICATION OF CQAF

DRUG-FREE WORKPLACE

I hereby certify that I am a principle and duly authorized representative of _____ whose address is _____, and it is also certified that:

(1) The provisions of Section 50-24-1 through 50-24-6 of the Official Code of Georgia Annotated, relating to the "Drug-Free Workplace Act" have been complied with in full; and

(2) A drug-free workplace will be provided for the consultant's employees during the performance of the contract; and

(3) Each subconsultant hired by the CQAF shall be required to ensure that the subconsultant's employees are provided a drug-free workplace. The CQAF shall secure from that subconsultant the following written certification: "As part of the subcontracting agreement with the CQAF, certifies to the CQAF that a drug-free workplace will be provided for the subconsultant's employees during the performance of this contract pursuant to paragraph (7) of subsection (b) of the Official Code of Georgia Annotated Section 50-24-3"; and

(4) It is certified that the undersigned will not engage in unlawful manufacture, sale, distribution, dispensation, possession, or use of a controlled substance or marijuana during the performance of the contract.

_____ _____
Date Signature

APPENDIX C

NOTICE TO CQAF

COMPLIANCE WITH TITLE VI OF THE CIVIL RIGHTS ACT OF 1964

During the performance of this Agreement, the CQAF, for itself, its assignees and successors in interest (hereinafter referred to as the "CQAF"), agrees as follows:

(1) **Compliance with Regulations**: The CQAF will comply with the Regulations of the Department of Transportation relative to nondiscrimination in Federally assisted programs of the Department of Transportation (Title 49, Code of Federal Regulations, Part 21, hereinafter referred to as the Regulations [also 49 CFR Part 27]), which are herein incorporated by reference and made a part of this contract.

(2) **Nondiscrimination:** The CQAF, with regard to the work performed by it after award and prior to completion of the contract work, will not discriminate on the grounds of race, color, national origin, or sex in the selection and retention of subconsultants including procurement of materials and leases of equipment. The CQAF will not participate either directly or indirectly in the discrimination prohibited by Section 21.5 of the Regulations, including employment practices when the contract covers a program, set forth in Appendix B of the Regulations. In addition, the CQAF will not participate either directly or indirectly in the discrimination prohibited by 23 CFR 710.405(b).

(3) **Solicitations for Subcontracts, Including Procurement of Materials and Equipment**: In all solicitations, either by competitive bidding or negotiations made by the CQAF for work to be performed under a subcontract, including procurement of materials or equipment, each potential subconsultant or supplier or lessor shall be notified by the CQAF of the CQAF's obligations under this contract and the
Regulations relative to nondiscrimination on the grounds of race, color, national origin or sex.

(4) **Information and Reports**: The CQAF will provide all information and reports required by the Regulations, or orders and instructions issued pursuant thereto, and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the State Department of Transportation or the Federal Highway Administration to be pertinent to ascertain compliance with such Regulations, orders and instructions. Where any information required of a CQAF is in the exclusive possession of another who fails or refuses to furnish this information, the CQAF shall so certify to the State Department of Transportation, or the Federal Highway Administration as appropriate, and shall set forth what efforts it has made to obtain this information.

(5) **Sanctions for Noncompliance**: In the event of the CQAF's noncompliance with the nondiscrimination provisions of this contract, the State Department of Transportation shall impose such contract sanctions as it or the Federal Highway Administration may determine to be appropriate, including, but not limited to:

(a) withholding of payments to the CQAF under the contract until the CQAF complies, and/or

(b) cancellation, termination or suspension of this contract, in whole or in part.

(6) **Incorporation of Provisions**: The CQAF will include the provisions of paragraphs (1) through (6) in every subcontract, including procurement of materials and leases of equipment, unless exempt by the Regulations, order, or instructions issued pursuant thereto. The CQAF will take such action with respect to any subcontract or procurement as the State Department of Transportation or the Federal Highway Administration may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, however, that in the event a CQAF becomes involved in, or is threatened with, litigation with a subconsultant or supplier as a result of such direction, the CQAF may request the State to enter into such litigation to protect the interests of the State, and, in addition, the CQAF may request the United States to enter into such litigation to protect the interests of the United States.

APPENDIX D

PRIMARY CQAF CERTIFICATION REGARDING DISBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS

I hereby certify that I am the _____ and duly authorized representative of _____, whose address is _____, and I certify that I have read and understand the attached instructions and that to the best of my knowledge and belief the firm and its representatives:

(a) Are not presently debarred, suspended, proposed for debarment, declared ineligible or voluntarily excluded from covered transactions by the Georgia Department of Transportation and by any Federal department or agency;

(b) Have not within a three year period preceding this Agreement been convicted of or had a civil judgment rendered against the firm or its representatives for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain or performing a public (Federal, State, or Local) transaction or contract under a public transaction in violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(c) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or Local) with commission of any of the offense enumerated in paragraph (b) of this certification;

(d) Have not within a three year period preceding this Agreement had one or more public transaction (Federal, State or Local) terminated for cause or default; and

(e) That the firm will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transaction" as attached hereto and without motivation, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

I acknowledge that this certification, Primary CQAF Certification Regarding Disbarment, Suspension, and Other Responsibility Matters, is provided pursuant to Executive Order 12549 and 49 CFR Part 29 and that this firm agrees to abide by the rules and conditions set forth therein for any misrepresentation that would render this certification erroneous, including termination of this Agreement and other remedies available to the Georgia Department of Transportation and Federal Government.

I further acknowledge that this certificate is to be furnished to the Georgia Department of Transportation, in connection with this Agreement involving participation of Federal-Aid Surface Transportation Funds, and is subject to applicable State and Federal laws, both criminal and civil.

_____ _____

Date Signature

INSTRUCTIONS FOR APPENDIX D

CERTIFICATION

Certification Regarding Debarment, Suspension, and Other Responsibility Matters - Primary Covered Transactions (CQAPs)

1. By signing and submitting this contract the CQAF is providing the certification set out in Appendix D.

2. The inability of the CQAF to provide the certification required may not necessarily result in denial of participation in this covered transaction. The CQAF shall then submit an explanation of why it cannot provide the certification. The certification or explanation will be considered in connection with the Department's determination whether to enter into this transaction. However, failure of the CQAF to furnish a certification or an explanation shall disqualify such person or firm from participation in this transaction.

3. The certification, Appendix D, is a material representation of fact upon which reliance is placed by the Department before entering into this transaction. If it is later determined that the CQAF knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the Department may terminate this transaction for cause of default.

4. The CQAF shall provide immediate written notice to the Department if at any time the CQAF learns that it certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

5. The terms "covered transaction", "debarred", "suspended", "ineligible", "lower tier covered transaction", "participant", "person", "primary covered transaction", "principal", "proposal", and "voluntarily excluded", as used in these instructions and the certification, have the meanings set out in the Definitions and Coverage sections of the rules implementing Executive Order 12549. You may contact the Department for assistance in obtaining a copy of those regulations.

6. The CQAF agrees by submitting this proposal/contract that should the proposed covered transaction be entered into, it shall not knowingly enter into a lower tier covered transaction with a person/firm who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction unless authorized by the Department.

7. The CQAF further agrees by submitting this proposal/contract that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transaction", as provided by the Department without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

8. A CQAF in a covered transaction may rely upon a certification of a prospective participant in lower tier covered transaction that it is not debarred, suspended, ineligible or voluntarily excluded from the covered transaction; unless it knows that the certification is erroneous. The CQAF may decide the method and frequency by which it determines the eligibility of its principals.

9. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by these instructions. The knowledge and information of CQAF is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

10. Except for transactions authorized under paragraph 6 of these instructions, if the CQAF in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction in addition to other remedies available to the Federal Government, the Georgia Department of Transportation may terminate this transaction for cause or default.

APPENDIX E

CERTIFICATION OF CQAF

I hereby certify that I am the _____ and authorized representative of the firm of _____ whose address is _____ and that neither I nor the above firm I hereby represent has:

(a) employed or retained for a commission, percentage, brokerage contingent fee, or other consideration, any firm or person (other than a bona fide employee working solely for me or the above CQAF) to solicit or secure this Agreement,

(b) agreed, as an express or implied condition for obtaining this contract, to employ or retain the services of any firm or person in connection with carrying out the agreement, or

(c) paid, or agreed to pay, to any firm, organization or person (other than a bona fide employee working solely for me or the above CQAF) any fee, contribution, donation, or consideration of any kind for, or in connection with, procuring or carrying out the agreement; except as here expressly stated (if any):

I acknowledge that this certificate is to be furnished to the Department of Transportation and the Federal Highway Administration, U. S. Department of Transportation, in connection with this Agreement involving participation of Federal-aid Highway funds, and is subject to applicable State and Federal Laws, both criminal and civil.

_____ _____

Date Signature

_____

Type or Print Name

Georgia Department of Transportation

Programmatic Technical Provisions

For

Design-Build Agreement

P.I. Nos. 0012757 and 0012758

Attachment 2-2

Construction Quality Assurance Program

(CQAP)

Construction Quality Assurance Program (CQAP)

1 INTRODUCTION

1.1 General

The Construction Quality Assurance Program (CQAP) for the I-16 at I-95 Interchange Reconstruction and I-16 Widening from I-95 to I-516 Project (the "Project") established by the Georgia Department of Transportation (GDOT) validates that materials and workmanship incorporated into the Project are in reasonable conformance with the approved plans and specifications, including any approved changes. Prior to the commencement of any construction activities, the Design-Build (DB) Team shall develop and implement a Construction Quality Management Plan (CQMP) for all phases of construction that addresses all components of the CQAP as delineated in Section 1.2.

The CQAP is developed based on 23 CFR 637.207(b), Federal Highway Administration (FHWA) Technical Advisory T6120.3, non-regulatory supplement, NS 23 CFR 637B, and TechBrief (FHWA-HRT-12-039).

The four documents cited above, are available at the following links:

1. 23 CFR 637B - https://www.gpo.gov/fdsys/granule/CFR-2011-title23-vol1/CFR-2011-title23-vol1-part637
2. TA T 6120.3 - http://www.fhwa.dot.gov/construction/t61203.cfm
3. NS 23 CFR 637 - https://www.fhwa.dot.gov/pavement/0637bsup.cfm
4. TechBrief, FHWA-HRT-12-039 - https://www.fhwa.dot.gov/publications/research/infrastructure/12039/

The CQAP consists of three main components; a Quality Control (QC) Program, an Acceptance Program and an Independent Assurance (IA) Program. The Acceptance Program is further delineated into Quality Acceptance (QA) and the Owner Verification (OV) as illustrated in Figure 1. The purpose of the CQAP is to provide a consistent approach to quality assurance for the Project where the test results obtained by Construction Quality Assurance Firm (CQAF) and the Owner Verification Firm (OVF) are utilized in the quality acceptance decision. It also clarifies federal requirements relating to quality assurance and statistical analysis procedures. Any modification to this CQAP requires review and approval by GDOT and FHWA.

Failure by the DB Team to follow the CQAP may result in suspension of the Construction Work by the CQAF, OVF, or the IA (GDOT's Office of Materials and Testing). The DB Team shall provide a CQMP within 120 days after Notice to Proceed 1 (NTP 1) to GDOT and FHWA. Approval of the CQMP is a condition precedent to issuance of NTP 3.

Acronyms and definitions for terms used in the CQAP are provided in Appendix A.

The CQAP components and corresponding responsible parties are shown in Figure 1.

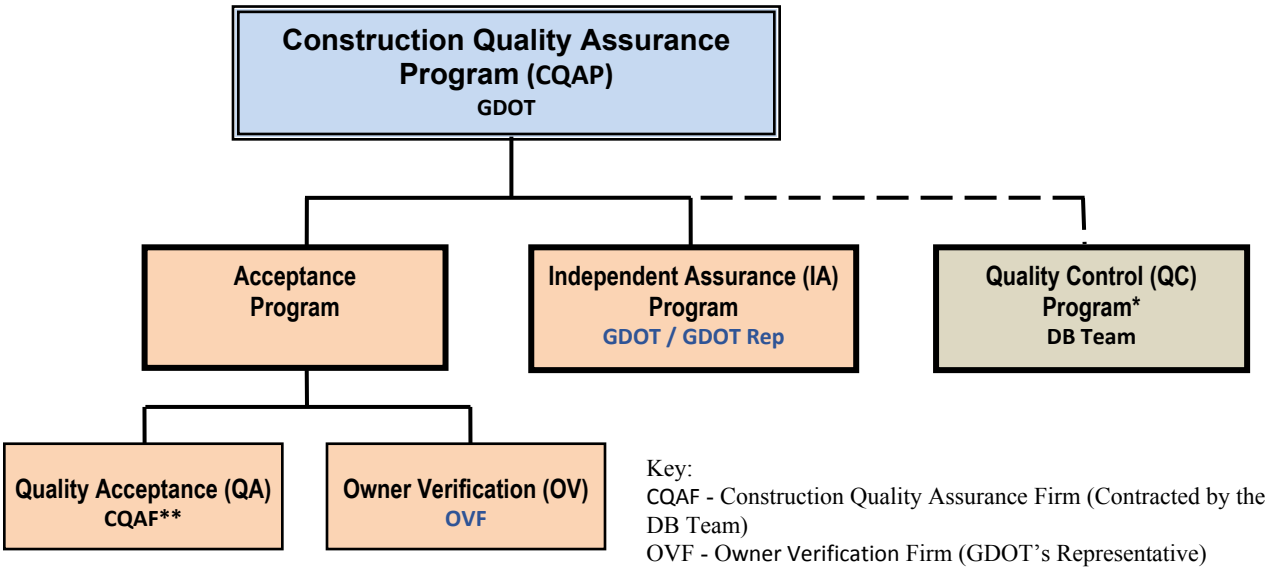


Figure 1 – Components and Responsible Parties in the CQAP

**DB Team QC efforts are shown off to the right of the figure with a dotted line because the DB Team's QC efforts may not be used in the acceptance decision. In addition, QC does not participate in the requirements of the IA Program.*
***CQAF reports jointly to DB Team's management team and GDOT/GDOT Representative. In simplest terms, the CQAF is equivalent to a GDOT Area Engineer and acts independently from the DB Team on acceptance decisions of construction inspections and materials sampling and testing.*

1.2 Construction Quality Management Plan

The DB Team's CQMP shall consist of both QC and QA with respect to performance of the Work. Requirements for the QC portion of the CQMP are described in Volume 3 Section 2. of the Design-Build Agreement as well as in Section 2 of this document. Requirements for the QA portion of the CQMP are described in Section 3 of this document. The CQMP shall establish a clear distinction between QC and QA activities and the persons performing each function. See DBA Volume 3 Section 2. for additional details of the CQMP Structure. The CQMP shall be submitted 120 days after NTP 1 and must be approved by GDOT and FHWA before construction may begin. The components and the relationships between the parties and their functional responsibilities for the CQMP are shown in Figure 2.

CQMP Flow Chart

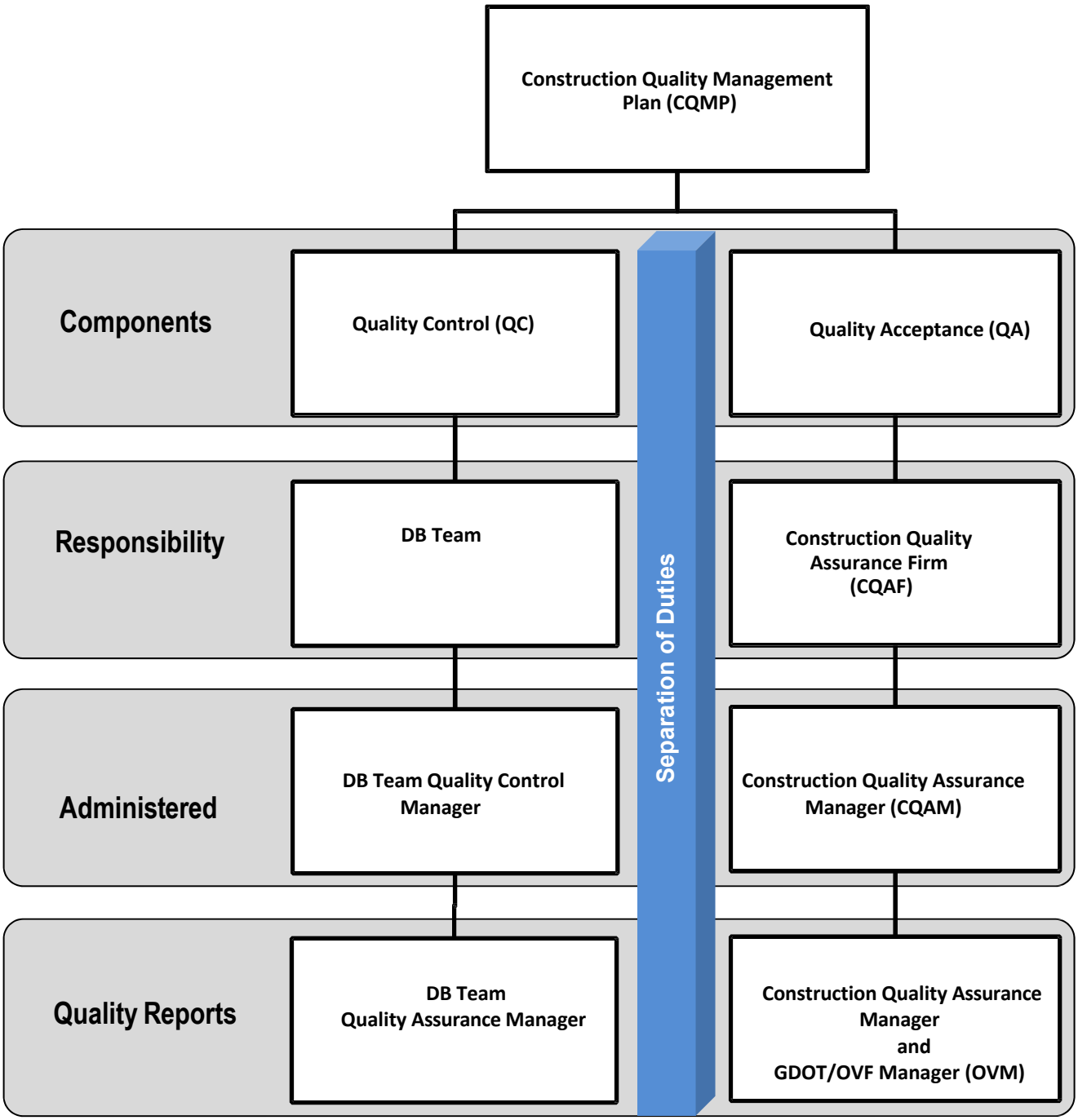


Figure 2.1- Flow Chart

1.3 Owner Verification Testing and Inspection Plan

GDOT's Owner Verification Testing and Inspection Plan (OVTIP) shall describe GDOT's commitments to perform OV of the DB Team's QA testing and inspection. Requirements for the OVTIP are described in Section 3 of this document.

1.4 Conflict of Interest

To avoid any actual or appearance of a conflict of interest, any independent qualified laboratory shall perform only one of the following types of testing on the same Project:

i. Quality control testing;
ii. Quality acceptance testing;
iii. Owner verification testing*;
iv. Independent assurance testing*; or
v. Referee testing*.

* GDOT may perform OV, IA, and referee testing provided that different personnel are performing tests.

2 QUALITY CONTROL PROGRAM (QC)

2.1 General

The DB Team shall be responsible for the quality of the Work. Project quality will be enhanced through the daily efforts of all the workers involved with the Work, supported by the DB Team's QC. The DB Team's QC portion of the CQMP shall include the internal procedures used by the DB Team that will confirm the Work is delivered in accordance with the Released for Construction (RFC) plans and all other Design Documents. This involves the active participation of the entire work force working to achieve quality initially and minimize or eliminate rework. The DB Team's QC shall not be part of the Acceptance Program; the QC requirements are for the DB Team's process control for production.

2.2 DB Team Quality Control Requirements

The DB Team's CQMP shall establish a systematic approach to define the processes, methods, procedures, and documentation for delivery of QC on the Project. These methods and procedures shall clearly define the authority and responsibility for the administration of the DB Team's CQMP.

3 ACCEPTANCE PROGRAM

3.1 General

For the Project, GDOT has chosen to utilize the DB Team-performed acceptance, where all the frontline acceptance inspections, materials sampling and testing will be the responsibility of the CQAF. The OVF will be responsible for the verification and validation of the QA results. Both testing results, OV and QA together establish the basis for the acceptance decision. GDOT will provide final acceptance when test results are statistically validated and/or verified by the OVF results.

The CQAF QA portion of the CQMP shall include the internal procedures used by the CQAF to confirm the Work is inspected and tested to verify compliance with the RFC plans and all other Design Documents. The DB Team's QA shall be separate from the DB Team's QC program. The CQAF must not be owned by or be an affiliate to the DB Team, any principal participant, or construction subcontractor. GDOT's OV program shall include internal procedures used by GDOT to validate the DB Team's frontline acceptance is performed in accordance with the approved CQMP and to verify the CQAF QA testing and inspection results. The construction QA inspections or Control Point Inspections (CPI) must include the observations, measurements, and documentation specified in Appendix C and Appendix J.

3.1.1 GDOT-Performed Verification

GDOT's representative will perform OV inspection, sampling and testing as part of the CQAP acceptance program. The CQAF shall perform acceptance inspection, sampling and testing as defined by Appendix E. If items to be inspected are not in the Appendix E - Project Quick Guide, then the acceptance inspection, sampling and testing shall meet GDOT Standard Operating Procedures (SOP). Materials which are monitored or pre-approved by GDOT under the Quality Product List (QPL) are subject to QA and OV sampling and testing as part of acceptance program unless otherwise specified by this document.

3.1.2 Quality Acceptance Decision

Under CQAP acceptance program, both the QA and OV testing make up the acceptance decision. Section 3.2 describes sampling and testing requirements for both the QA and OV groups. Section 3.3 describes materials acceptance specific to QA requirements and Section 3.4 describes owner verification testing, statistical analysis, and reporting requirements specific to OV requirements.

3.2 Sampling and Testing

This section provides FHWA and GDOT's guidance on sampling, testing, inspection, and

acceptance requirements to be used in the acceptance decision. References in the DB Documents to GDOT test method are in Appendix C or test designation of the American Association of State Highway and Transportation Officials (AASHTO), The American Society for Testing and Materials (ASTM), or any other recognized national organization means the latest revision of that test method or specification for the work in effect prior to construction and issuance of NTP 3.

3.2.1 Sample Types and Uses

Sampling is either random or fixed, depending on whether the location was selected randomly (random) or if a specific location was subjectively identified (fixed). Sampling is also either independent or dependent, based on whether the location was independently selected (independent) or whether is based on the location of another sample (dependent/split). The F- and t- tests described in Section 3.4.4.1 are only valid when using random independent samples.

A random sample is a sample drawn from a lot in which each increment in the lot has an equal probability of being chosen. A fixed sample is a sample for which a specific location is subjectively identified. An independent sample is a sample taken without regard to any other sample that may have been taken to represent the material in question. A dependent sample is a split sample.

Split samples may be used outside of the statistical analysis for OV of CQAF acceptance tests under GDOT's OV program. A comparison process for performing and analyzing split samples between OVF and CQAF is necessary during the startup operation of the CQAP as described in Appendix B. These samples will be analyzed by GDOT and the results discussed with the CQAF to confirm laboratory and technician test results compare favorably. When the acceptable tolerance limits in Appendix F are exceeded, corrective actions for either or both parties will be identified and corrective actions will be incorporated as appropriate. This process will help provide initial alignment of the OVF and CQAF laboratories and testing procedures.

Split samples may also be performed throughout the life of the Project as necessary to investigate non-validating material categories and verify or realign testing equipment and personnel.

3.2.2 Notification

The DB Team shall, on a weekly basis, provide the CQAF, GDOT and OVF with a 30-day look-ahead schedule of planned activities to include all anticipated material quantities for sampling, testing and IA preparations.

The DB Team shall also, on a daily basis, communicate changes to the scheduled work (a 24-hour notification is required for each current day to the CQAF and OVF) and shall notify the QCAF and OVF when materials are ready for sampling and testing. The OVF may observe any sampling testing performed by CQAF. If the OVF observes a deviation from the specified sampling or testing procedures, the OVF will verbally notify the Construction Quality Assurance Manager (CQAM). The DB Team's Project Manager and the GDOT Representative Construction Manager about the

observed deviation immediately. If the deviation is a critical issue or if it relates to safety, the OVF will initiate a Nonconformance Report (NCR) process through e-Builder within 24 hours.

3.2.3 Quantities and Testing Frequency

The CQAF shall continuously track and record the quantity of material incorporated into the Project and shall generate a weekly report to verify compliance with Appendix E, GDOT or the OVF shall use the report to verify compliance of both the QA and OV testing frequency. The weekly report shall be transmitted to GDOT and the OVF via e-Builder within two (2) days after the end of the week. Reporting week starts on Saturday and ends on Friday. Manufacturers' warranties, guarantees, Certificate of Compliance, Certificate of Analysis, Certificate of Delivery, instruction sheets, parts lists and other materials that are furnished with articles or materials incorporated into the Work, shall be included in the weekly report.

At a minimum, the CQAF shall perform material sampling and testing at locations and frequency defined in Appendix E. This minimum testing frequency must be met with random independent samples as defined in Section 3.2. A random sample is a sample drawn from a lot in which each increment in the lot has an equal probability of being chosen. An independent sample is a sample taken without regard to any other sample that may have been taken to represent the material in question. When there are any concerns over the quality of material, the CQAF may be required to conduct additional or increase (or as required by Appendix B) testing frequency to reduce risk. The intent of increasing testing at the start of production is to verify that the DB Team's processes are in control and to establish acceptability requirements early.

While the testing of random independent samples are required to meet the Appendix E schedule testing requirements, the CQAF shall perform additional (fixed) tests when the quality of material is questionable at a location other than the randomly selected location. This fixed test shall constitute an acceptance test and a failing result shall be addressed in a similar manner to a failing random independent test. Fixed tests shall not count towards meeting minimum the CQAF testing frequencies.

The OVF will perform oversight inspection and material verification sampling and testing. To verify QA test results, OV testing shall be performed at a frequency shown in Appendix E. Split sample testing defined in Appendix C does not replace or relieve the requirements found in Section 4.0. Frequency will be based on each job mix formula source or class of concrete.

3.3 Design Build Quality Acceptance Requirements

The DB Team's CQMP shall establish a systematic approach to define the processes, methods, procedures, and documentation for delivery of QA on the Project. These methods and procedures shall clearly define the authority and responsibility for the administration of the DB Team's CQMP.

3.3.1 Staffing

The CQAF shall assign an on-site CQAM who shall be responsible for management of the quality acceptance aspect of the CQMP. The CQAM or their designee shall be on the Project on a daily basis and always available upon 4 hours' notice to administer the CQMP. The CQAM shall be a Georgia-licensed Professional Engineer and an employee of the CQAF. The CQAM shall report to the DB Team's Quality Manager. The CQAM shall not report to any person or party directly responsible for design or construction production.

The OVF shall resolve any issues concerning methods or procedures requiring the "Engineers' review, approval, authorization, examination, interpretation, confirmation, etc." which are contained in the Technical Provisions.

The CQAF shall provide staff to perform quality acceptance inspection and material sampling and testing of all Work performed and materials incorporated into the Project, inspection and testing staff shall be qualified and certified as required by DB Documents and as shown in Appendix C. This staff shall be under the direction of the CQAM. If necessary, requested and approved in writing in advance by GDOT, qualified individuals who are employees of or retained by manufacturers, vendors or Suppliers may inspect certain portions of Work to provide recommendations, the ultimate decision for final acceptance will be by GDOT.

The quality acceptance inspection staff shall be employees of the CQAF and/or its subconsultant, and shall be certified in the applicable inspection and material sampling and testing procedures as described in DB Documents and as per GDOT Requirements. The training and experience of the quality acceptance staff shall be commensurate with the scope, complexity, and nature of the activity to be inspected and tested. Documentation of the training and certification shall be maintained by the CQAF and available for review and audit at the request of GDOT at any time.

The size of the CQAF quality acceptance staff shall reflect the volume of quality acceptance activities necessary for the Work in progress and shall be maintained in accordance with the approved CQMP. If GDOT reasonably determines the CQAF is understaffed, GDOT may require additional staffing to cover the work activities at no additional cost to GDOT.

The CQAF staffing requirements shall be updated as necessary throughout the Term of the Work to reflect changes in the actual project schedule. The DB Team shall verify adequate the CQAF staff is available and that CQMP activities are undertaken in a manner consistent with the project schedule and in a manner that will enable the DB Team to achieve Project milestones and Completion Deadlines, including Substantial Completion and Final Acceptance, as defined in the DB Documents.

3.3.2 Quality Acceptance Facilities and Equipment

The QA testing laboratory may be owned by the DB Team, the CQAF, or independent laboratory and shall be certified by GDOT and/or AASHTO by the time that NTP 3 is issued. The certification shall be valid at minimum for one (1) year from date of issue, and

available for GDOT's review. QA inspections, reviews, and testing shall only be performed by personnel with appropriate training, qualifications, and certifications using appropriate equipment that is accurately calibrated and maintained in good operating condition at an AMRL (AASHTO R18, "Establishing and Implementing a Quality System for Construction Materials Testing Laboratories") accredited facility, or at a facility with comparable certification (e.g., ISO 17025, "General Requirements for the Competence of Testing and Calibration Laboratories"). The laboratory or field laboratory shall be located on the Project site or within thirty (30) miles of the Project limits.

3.3.3 CQMP Requirements for Quality Acceptance

The DB Team's CQMP shall clearly address, at the minimum, how the CQAF staff will address the following requirements:

A. Methods and procedures that clearly define the authority and responsibility for the administration of the DB Team's CQMP.

B. Procedures for inspecting, checking, and documenting the Work for acceptance, on-site and off-site as requested or directed by GDOT (including fabricators, prestressed plants, etc.). QA staff shall develop procedures and perform CPI in accordance with the DB Documents and GDOT Standard Specifications and minimum requirements in Appendix J. Details of the CPI procedures shall be part of the DB Team's CQMP. CPI inspections, examinations and measurements shall be performed for each operation of the Work to assure quality.

C. Procedures to verify the education, training, and certification of personnel performing CQMP activities are achieved and maintained and that all Work is performed in accordance with the DB Documents and approved contract changes.

D. Procedures documenting and tracking the disposition of any identified noncompliance with the plans and specifications and applicable Progress Check Point (PCP). These procedures shall include a clearly defined process for communicating identified non-compliances to GDOT and the DB Team's Quality Manager.

E. Measures to verify purchased materials, equipment, and services conform to the DB Documents, the Governmental Approvals, applicable Laws, Rules, and the Design Documents, including compliance with Buy America. These measures shall include provisions for source evaluation and selection, objective evidence of quality furnished by Subcontractors and Suppliers, inspection at the manufacture or vendor source, and examination of products upon delivery.

F. Measures to verify tools, gauges, instruments, and other measuring and testing devices used in activities affecting quality are properly maintained, controlled, calibrated, certified and adjusted at specified periods to maintain accuracy within industry standards.

G. A comprehensive system of planned and annual audits of the DB Team's CQMP to determine adherence to and the effectiveness of the CQMP. The CQAF personnel shall perform the audits in accordance with the written procedures or

checklists. Audit results shall be documented, reviewed, transmitted to GDOT, and acted upon by the DB Team. Follow-up action, including re-audit of deficient areas following corrective action, shall be taken where indicated.

H. The CQAF must develop and maintain a robust document control system for materials sampling and testing, construction inspections and NCR's etc. that is acceptable to GDOT.

I. Inspection of all Work to verify and document that the Work has been constructed in conformance with the RFC plans and DB Documents.

J. Procedures on how quality acceptance material sampling and testing will be performed including the process for generating random test locations, tracking material samples, processing material samples, review and approval of test records, tracking compliance with material testing frequency, and identification of PCP for each test.

K. Procedures for addressing failed tests: For a failed random independent test, a fixed test at the original failing test location and a new random independent test at a new location in the same lot are required. For a failed fixed test, a new fixed test is required at the original failing test location.

L. Procedures for reviewing QA test results for compliance with mutually agreed-upon processes and naming conventions to provide data integrity for accurate statistical analyses.

M. Procedures for auditing of QC and QA records, documentation, procedures, and processes to verify compliance with the DB Documents and approved CQMP.

N. Procedures for the review and approval of all Portland cement concrete, soil-lime treatment, soil-cement treatment, and hot mix asphaltic concrete mix designs by a Georgia Registered Professional Engineer. The CQAF shall also verify trial batches.

O. Procedures for confirming quality acceptance material sampling and testing shall be performed at the frequency stipulated in Appendix E.

P. Procedures for confirming the size of quality acceptance staff shall reflect the volume of quality acceptance activities necessary to provide oversight and perform audits of the quality control inspection and material sampling/testing operation.

Q. Procedures for confirming that pre-approved materials used on the Project maintain their approved status on the QPL. Materials which do not maintain QPL approval shall be sampled and tested on a project-level basis.

R. Procedures for notifying the GDOT's representative when construction activities requiring IA sampling and testing will be in progress in accordance with Section 4.

3.3.4 Reporting, Record Keeping, and Documentation

The DB Team shall document and maintain documentation showing how the CQAF

has complied with the CQMP requirements in Section 3.3.3.

The CQAF shall maintain electronically and transmit to GDOT and/or OVF daily inspection reports within twenty-four (24) hours after the work shift through e-Builder Daily Report Form. The daily inspection reports must be in narrative form and shall document the day's events, activities, materials and quantities placed, identify inspections conducted, results of inspections, location and nature of defects found, causes for rejection, and remedial or corrective actions taken or proposed, weather conditions, asserted occurrences, events and conditions causing or threatening to cause any significant delay or disruption or interference with the progress or any of the work, significant injuries to person or property, a listing of each CPI activity depicted on the current monthly plan update which is being actively prosecuted, and traffic accidents in the Project area as well as lane closures in effect at the time of the accident. The responsible inspector and supervisor shall sign the daily inspection reports.

The CQAF shall be responsible for entering QA materials test data into GDOT's database systems and submit copies of the reports via e-Builder. The responsible technician and his/her supervisor shall sign the daily test reports and the results of the daily tests shall be entered into the database systems and electronically signed within 24 hours of test completion. This electronic reporting is intended to allow the DB Team and GDOT/OVF to make timely and accurate decisions on workmanship and material quality issues.

The CQAF shall provide weekly and monthly inspection and material sampling and testing reports, material certification check list, and any other submittals as required by GDOT and/or OVF in order to verify and validate the work.

The CQAF inspection and material test results shall be simultaneously transmitted to both GDOT/OVF and the DB Team. The DB Team shall not receive the CQAF inspection or material test results prior to GDOT/OVF.

The CQAM will provide information to OVF to verify that CPI inspections are performed as per the DB Team's Schedule. A monthly audit of CPI inspections will be performed by the OVF and any required correction will be made to the subsequent progress payment. GDOT or OVF review and audit will verify that the CPI achievement and correct quantities are show. Document for payment of Supplemental Agreements must also contain sufficient information to satisfy an audit. Documents for the closure of each Change Order or Supplemental Agreement will be reviewed and included in the final payment. Additionally, in accordance with the DB Documents, GDOT's Program Manager will have the authority to suspend the work if at any time the GDOT Program Manager determines that the DB Team is not in conformance with the contract requirements.

3.4 Owner Verification Requirements

3.4.1 General

GDOT has the ultimate responsibility for verifying that the Project is designed and

constructed in compliance with the DB Documents. As such, GDOT or its representative (OVF) will perform owner verification sampling, testing and inspection, and conduct audits to verify the DB Team's compliance with the approved CQMP.

GDOT shall establish a system for managing the materials acceptance process. This process shall include the performance and approval of OV tests at the stipulated test frequency, review of QA test results, performance of statistical analysis on OV and QA test results, and any associated tasks arising out of the statistical analysis.

GDOT/OV laboratory shall meet the requirements described in Section 4.

3.4.2 Owner Verification Testing and Inspection Plan

The OVF will develop a comprehensive OVTIP. The CQAF is responsible for acceptance of inspected items and material testing results. The primary function of the OVF staff is to oversee the CQAF inspections and to validate or verify the CQAF test results. As such, the majority of the procedures in the OVTIP should identify means to perform the validation and not necessarily be the detailed, step-by-step methods of inspection and testing. The procedures should, however, provide a sufficient level of detail so that any team member can identify procedures associated with their role and how they are accomplished under different scenarios. Level of inspection is adequate to assess the specific attributes which reflect the quality of the finished product.

The OVTIP should include the internal procedures used by GDOT to verify that the DB Team's CQAF acceptance is performed in accordance with the approved CQMP.

The OVTIP will be provided prior to construction, as dictated by GDOT contract with OVF, to the GDOT's Program Manager for review and approval.

The OVTIP shall clearly address, at the minimum, how OVF staff will address the following requirements, as well as requirements in Section 3.4.3:

A. Methods and procedures that clearly define the authority and responsibility for the administration of OVTIP.

B. Procedures for overseeing and inspecting the Work for compliance with the DB Team's CQMP for each operation. OVF shall randomly inspect the CQAF's construction quality acceptance inspection requirements included in Appendixes E and J, as required in OVF contract with GDOT.

C. Procedures to confirm the education, training, and certification of personnel performing OV activities are achieved and maintained and that all Work is performed in accordance with the approved OVTIP.

D. Procedures to oversee the status and disposition of any identified noncompliance with the plans and specifications.

E. Measures to verify tools, gauges, instruments, and other measuring and testing

devices used in activities affecting quality are properly maintained, controlled, calibrated, certified and adjusted at specified periods to maintain accuracy within industry standards.

F. A system of planned and periodic audits of the DB Team's CQMP to determine adherence to and the effectiveness of the CQMP. Audit results shall be documented, reviewed, sent to FHWA, GDOT and the DB Team. Follow-up action, including re-audit of deficient areas following corrective action, shall be taken where indicated.

G. A system of planned and periodic audits of the OVF to determine adherence to and the effectiveness of the OVTIP. Audit results shall be documented, reviewed, sent to FHWA and GDOT. Follow-up action, including re-audit of deficient areas following corrective action, shall be taken where indicated.

H. Procedures for performing periodic inspection of all Work components at the time of placement or installation, including workmanship and quality of the finished product, to verify that the CQAF has performed work in compliance with the RFC plans, approved Supplemental Agreements, specifications, and approved working and shop drawings. The procedure should identify a target oversight inspection rate, methods for performing verification inspections for all QC and CQAF inspectors.

I. Procedures on how OV material sampling and testing will be performed including the process for generating random test locations, tracking material samples, processing material samples, review and approval of test records, tracking compliance with material testing frequency.

J. Procedures for reviewing QA and OV test results for compliance with mutually agreed-upon processes and naming conventions to provide data integrity for accurate statistical analyses.

K. Procedures for ensuring that only tests performed by qualified CQAF testing personnel are submitted to GDOT.

L. Procedures for auditing of QC and QA records, documentation, procedures, and processes to verify compliance with the DB Documents and approved CQMP.

M. Procedures for reviewing Portland Cement Concrete (PCC), soil-lime treatment, soil-cement treatment, and hot mix asphaltic concrete mix designs.

N. Procedures for ensuring OV testing shall be performed at the frequency stipulated in this CQAP.

O. A system for ensuring continuous statistical analyses in compliance with procedures outlined in this CQAP.

P. Procedures for notifying the District Laboratory when construction activities requiring IA sampling and testing will be in progress in accordance with Section 4.

Q. Procedures for observing and reviewing the CQAF's initial start-up testing operations and periodically during ongoing production operations verifying compliance with test procedures.

3.4.3 Inspection Oversight

3.4.3.1 General

Inspection of the construction materials and the performance of the work, by both the DB Team's QC personnel and the CQAF personnel, are critical to the delivery of a quality product meeting the DB Documents. As part of the implementation of the DB Team's CQMP, the DB Team has made commitments for the inspection requirements for various construction items of the Project. In general, the role of construction inspection oversight is to monitor, in a timely manner, the performance of inspection commitments of the DB Team's CQAF inspection team. Section 3.4.3.2 provides an outline of the inspection requirements for OVF.

GDOT's commitments to the oversight of construction inspection are documented in the OVTIP for the Project. The plan shall include oversight activities and processes for GDOT/OVF personnel will interact with corresponding QC and QA personnel. Although the OVTIP requires periodic OV inspection of construction to verify the QA's quality of inspection, the responsibility for acceptance inspection resides, for work performed on-site, with the CQAF personnel. The successful use of the QA/OV model requires the QA to provide inspection with OV performing the oversight necessary. The best way to develop that confidence is for the OV personnel to engage with the QA personnel on a regular basis to develop a pattern of communication and provide support as needed.

3.4.3.2 Requirements for Construction Inspection Oversight

The requirements for construction inspection oversight are documented by the OV team in the OVTIP. The OVTIP includes a compilation of all of the oversight inspection, verification testing procedures, audits identified for the Project. Inspection procedures and personnel roles are detailed in Section 3.4. OVF will employ qualified and GDOT certified staff as described in Appendix C to perform the OV inspections and testing. OVF will perform on a weekly basis at minimum ten percent (10%) oversight/verification inspection of CQAF inspections in addition to scheduled audits of a minimum one per month per each category of the Critical Activity Point inspections as well as random audits of any category when directed by GDOT. The following are typical but not limited to inspection roles for OV inspections:

A. Earthwork Inspector: oversees the CQAF inspection of earthwork activities, including the operations required for preparation of right-of way; demolition of existing structures; excavation of roadway; preparation of subgrade; and compaction of embankment, subbase, and base materials;

B. Pavement Inspector: oversees the CQAF inspection of hot mix asphalt concrete and hydraulic cement pavement placement;

C. Structural Inspector: oversees the CQAF inspections of the various structural elements of the Project including, but not limited to the structural excavations,

drilled piers, concrete bridge elements, structural steel construction, retaining walls, and concrete culverts;

D. Utility Inspector: oversees the CQAF inspections of the utility construction and relocations;

E. Environmental Inspector: oversees the CQAF inspections of the erosion control measures, including Storm Water Pollution Prevention Plan (SW3P) measures, and the re-establishment of ground cover; and

F. Toll Facility Inspector: oversees the CQAF inspection of the construction of the toll facilities.

G. Intelligent Transportation Systems (ITS) Inspector: oversees the CQAF inspection of the ITS requirements for the project.

Due to the size and complexity of the Project, there may be multiple categories of inspectors, or an inspector may be required to fulfill more than one role. The intent is not to duplicate inspection of the work provided by the CQAF but to verify the performance and documentation of the CQAF inspections. The responsibility for inspection of the work for acceptance and the risk associated must remain with the CQAF; however, the CQAP does require GDOT to provide a procedure to perform oversight inspections for all QC and QA inspectors. A set frequency of oversight inspections is not specifically required. The oversight of a particular inspector should be performed early in the construction process to identify any concerns, whether it is the manner of inspection or the documentation. Once confidence in an inspector is obtained, less vigorous oversight of that inspector may not be required unless inspection responsibilities change or a concern is identified. It is by this method of performing oversight inspections of the inspectors, performing their own observation of the Work and verifying the required inspections are performed and documented, that the OV team confirms the QA inspection requirements are being met.

3.4.4 FHWA Quarterly Reporting and Material Certification

The CQAP requires that a report be produced and submitted to the FHWA Division Office for concurrence describing GDOT's efforts to comply with the QA commitments for each material incorporated into the Project. The reporting period for specific materials is dependent on the pace of construction and the number of tests performed in each analysis category, the time period of the sampling, and the specification and quality requirements. OVF will submit quarterly reports to GDOT and FHWA for concurrence with Project compliance with the approved CQAP. The report will be submitted three (3) weeks after the CQAM has provided all quarterly inspection and testing documentation, and the monthly material certifications as described in Section 3.4.4.5. Approved reports shall be distributed to the CQAF after receiving FHWA concurrence. Each report shall cover a period of construction not greater than three (3) months.

The FHWA quarterly report shall address the following areas:

A. Transmittal letter,

B. Summary of findings for each material category and major findings for non-validation investigations;

C. Statistical analysis results, to include specification requirements and status of validation process during start-up and completion of an item;

D. Non-validation investigation;

E. Non-conformance log;

F. Engineering judgment log; and

G. Monthly CQAM Material Certification.

3.4.4.1 Statistical Analysis

F-tests and t-tests will be used to analyze OV and QA data of Level 1 materials. The F-test is a comparison of variances to determine if the OV and QA population variances are equal. The t-test is a comparison of means to determine if the OV and QA population means are equal. In addition to these two types of analyses, independent verification and observation verification will also be used to validate *the* QA test results. The type of analysis is described, and recommended level of significance for specific tests are shown in Appendix B.

Before performing any statistical analyses, it is important to verify the data contained in each analysis categories are in reasonable compliance with the underlying assumptions of the F-test and t- test. F-tests and t-test may be used for additional tests as directed by GDOT. Some materials due to small quantities, may not have sufficient number of QC and verification test to perform a statistical comparison. In these instances, it may advisable to use only the agency's verification test result.

3.4.4.2 Validation Investigation

If the OV test results do not validate the QA test results, the DB Team may proceed with working at their own risk until an investigation shall be conducted to determine the reason for not verifying. If the analysis categories were established appropriately, other areas for investigation include data integrity and accuracy, testing equipment and procedures, sampling variability and material variability. Material quality when non-validation occurs is further discussed in Section 3.5. Results of the investigation should be reported for the non-validating categories.

3.4.4.3 Engineering Judgment Log

The CQAP allows the CQAM to exercise engineering judgment to request acceptance for materials that do not meet minimum specification limits but indicate reasonable conformance for their intended use. The use of engineering judgment must be

documented and supported by sound engineering reasoning. The CQAM generates a log of engineering decisions, which is provided to GDOT on a monthly basis. The DB Team shall provide a proposed list of Engineering Judgments, including tolerances and remedial actions for GDOT approval. However, each occurrence has to be properly documented. Documentation shall include the location where the material is incorporated, the specification requirement, the recorded test value, and the Engineering Judgment applied to allow use of that material. If the CQAM does not choose to exercise Engineering Judgment or GDOT does not allow Engineering Judgment to accept material failing specifications, the material in question may still be accepted through the NCR process, brought into conformance with specifications, or removed from the Project.

3.4.4.4 Non-Conformance Log

Materials that do not meet the minimum specification requirements may be adequate for their intended use. The incorporation of the material in questions is subject to the review and approval by the Engineer of Record (EOR); however, GDOT has final approval on the incorporation of this material. The approval process must be documented through the NCR process.

The CQAF shall identify, document and report to GDOT and OVF via e-Builder all instances of Work that have not been constructed with the strictest adherence to the approved drawings and specifications and with the requirements of the DB Documents, the Governmental Approvals and applicable Law. This reporting shall be in the form of an NCR as described below and shall be submitted to GDOT in writing within twenty-four (24) hours of the DB Team obtaining knowledge of the same. The DB Team shall simultaneously send a copy of each NCR to the DB Team's EOR and CQAM.

The NCR shall clearly describe the element of Work that is non-conforming and the reason for the non-conformance. The engineer who stamped and sealed the drawings for the Work shall evaluate the effect of the Nonconformance on the performance, safety, durability, and effect of the long-term maintenance of the Project and the specific element affected. If the EOR determines remedial actions are necessary, the proposed remedial action shall be documented and bear the stamp of the original EOR or the responsible Engineer from the same firm assigned to replace the original EOR. The NCR will then be submitted to GDOT for review and final approval. The DB Team will be responsible for the cost of the remedial actions. The DB Team shall maintain a log of all NCRs and submit this log to GDOT and the CQAF on a bi-weekly basis. Each NCR shall be numbered sequentially, given a brief description, a status and, if it is not closed, an expected date for closure. All NCRs must be closed with the stamp of the EOR or the responsible Registered Professional Engineer from the same firm assigned to replace the original EOR and GDOT approval.

3.4.4.5 CQAM Monthly Material Certification Letter and Check List

The CQAM shall provide a monthly written material certification letter including the material certification check list, delivered to GDOT with each payment request, indicating that the CQMP and all of the measures and procedures provided therein are

being fully complied with and are functioning properly, example of the letter for the monthly material certification is in Appendix D. The CQAM shall maintain and submit records monthly that include factual evidence that required activities and tests have been performed, including the following: (i) type, number, and results of CQMP activities, including reviews, inspections, tests, audits, monitoring of Work performance and materials analysis; (ii) related data such as qualifications of personnel, procedures and equipment used; (iii) the inspector or data recorder, the type of test or observation employed, the results and the acceptability of the Work and action taken in connection with deficiencies; (iv) nature of Nonconforming Work and causes for rejection; (v) proposed corrective action for Nonconforming Work; (vi) corrective actions taken with respect to Nonconforming Work; (vii) results of such corrective actions; (viii) source documentation, invoices, mill certifications and/or other verification .

At the completion of the Project, the DB Team shall submit with the final invoice a certificate of compliance signed by the DB Team Project Manager and CQAM indicating that all material incorporated in the Project conform to Contract and the CQAP requirements with all exceptions listed.

The Final Material Certification is developed by OVF and GDOT and submitted to FHWA for acceptance. This letter references the FHWA Quarterly Reports as the documentation for both the acceptance of materials through statistical validation and certification of monthly materials with exceptions. The final letter also certifies that both the QA and OV programs were evaluated by the IA program.

3.5 Dispute Resolution

Through the life of the Project, there may be differences in material test results or statistical sample populations between the CQAF and the OVF. Due to the natural variability in construction materials testing and unavoidable biases in sampling and testing, these differences are often difficult to avoid. It is important to recognize the difference between material quality and statistical validation.

Material quality is measured by whether a test passes or fails and is an indication of whether a material will perform to its intended purpose. Engineering judgment may be used to substantiate the use of material failing to meet the specification if the material still meets the intended purpose and does not affect the service life equivalent to design service life. Statistical validation is a measure of whether the OV and QA populations are statistically equal. It does not represent the quality of material being incorporated into the Project.

3.5.1 Non-Validation and Status of Material Quality

When OV test results do not statistically validate the QA test results as outlined in Section 3.4.4.1, GDOT OMAT will investigate the source of non-validation. OVF and the CQAF will lead the investigation and coordinate with GDOT OMAT. The OMAT Engineer, or independent laboratory, will provide the GDOT Program Manager with a probable cause of the non-validation and a resolution recommendation. If the non-validation persists over two consecutive analyses as required in Appendix B, a NCR

process shall be issued by GDOT to formally document and seek resolution to the non-validation.

In addition to the need to investigate the non-validation, the material in question has to be immediately evaluated to determine if it can be left in place or has to be removed, reworked or repaired. The material in question will be evaluated using the process described in this section. The GDOT may exercise Engineering Judgment to determine that the material will perform its intended purpose. There are four possible combinations of passing and failing results between the QA and OV test results.

1. Both the QA and OV test results pass specification limits:

   Although statistical validation has not occurred, both the CQAF and OVF test results are passing the established specification limits. Thus, material quality in question is considered acceptable.

2. QA test results fail and OV test results pass specification limits:

   The acceptance of material is subject to one of the two scenarios below.

   a. CQAM may exercise approved Engineering Judgment to accept the material if results from all other levels of related OV material testing, within the same lot, pass specification limits.

   b. For those materials not on the Approved Engineering Judgment Log, the CQAF needs to provide OVF an explanation of error and/or proposed correction for acceptance of materials thru the NCR process.

3. Both the QA and OV test results fail the specification limits:

   Material may be left in place if the GDOT determines that Engineering Judgment may be used to accept the material or if the material is accepted through the NCR process. Results from all other levels of related OV material testing, within the questionable area, will be included in Judgment decision.

   The acceptance of material is subject to one of the two scenarios below.

   a. OV test result indicates reasonable conformance with specification requirements for the lot in question, CQAF shall provide to OVF an explanation of error and/or proposed correction for acceptance of material through the NCR process.

   b. OV test result and/or the results of other levels of related OV testing does not indicate reasonable conformance with specification requirement for the lot in question, the CQAF must perform additional testing within the lot in question to identify the problem area. Based on the results of the CQAF testing, all local OV testing of related materials and subsequent investigation discussions between GDOT and the DB Team, a determination of the material disposition is made and documented through the NCR process.

4. QA test results pass but OV test results fail specification limits:

   Material may be left in place if the GDOT determines that Engineering Judgment may be used to accept the material or if the material is accepted through the NCR process. Results from all other levels of related OV material testing, within the questionable area, will be included in Judgment decision.

   This is subject to GDOT response in the two scenarios below.

   a. OV test result indicates reasonable conformance with specification requirements for the lot in question, the CQAF shall provide to OVF an explanation of error and/or proposed correction for acceptance of material thru the NCR process.

   b. OV test result and/or the results of other levels of related OV testing does not indicate reasonable conformance with specification requirement for the lot in question, the CQAF must perform additional testing within the lot in question to identify the problem area. Based on the results of the CQAF testing, all local OV testing of related materials and subsequent investigation discussions between GDOT and the DB Team, a determination of the material disposition is made and documented through the NCR process.

3.5.2 Referee Testing

Disputes over specific test results may be resolved in a reliable, unbiased manner by referee testing and evaluation performed by a referee laboratory. The referee laboratory shall be the GDOT Materials and Testing Laboratory or designated laboratory qualified per Section 3.3.2, and approved by GDOT.

4 INDEPENDENT ASSURANCE PROGRAM (IA)

4.1 General

This Standard Operating Procedure (SOP) outlines the procedure and responsibility under which the IA program will operate. The FHWA requires each State Department of Transportation to establish and maintain an IA program as part of an overall CQAP. IA is defined as activities that are unbiased and independent evaluations of all the sampling and testing procedures used in the QA program. IA provides an independent verification of the reliability of the acceptance (or verification) data obtained by the agency and the data obtained by the DB Team. The results of IA testing are not to be used as a basis of acceptance. IA provides an assessment of certified sampling and testing personnel and information for quality system management.

The CQAP will be administered using a system basis approach by conducting unbiased systematic audits as independent evaluations, and will adhere to guidelines set forth in AASHTO Designation R 44 (Standard Practice for IA program).

4.2 Authority

The CQAP was instituted by GDOT under certain guidelines established by the FHWA, set forth in the Code of Federal Regulations (23 CFR 637 B) - Quality Assurance Procedures for Construction.

4.3 IA Program Benefits and Services

4.3.1 Customer Service

The primary function of this program is to provide an unbiased and independent assessment of all certified sampling and testing personnel. This assessment includes evaluation of procedures and equipment used for the acceptance of highway materials and construction.

IA is used for verification of sampling procedures, testing procedures, and testing equipment. Information is provided to FHWA and various GDOT personnel and partners on the accuracy and reliability of the QA and OV programs.

1. **Benefits the IA program provides to FHWA**

    a. It provides an annual report to the FHWA detailing the IA program findings and actions in Georgia.

    b. It provides information to identify strengths and areas for improvement in the QCAP by evaluating the accuracy and reliability of sampling and testing equipment and personnel.

2. **Benefits the IA program provides to OMAT, GDOT Testing Management,**

Consultant firms, Contractors, Suppliers, Local Governments

a. It provides identification of strengths and weaknesses of OMAT's Technician Training & Certification programs. It assists in identifying future goals.

b. It assesses skill levels for certified technicians and encourages these technicians and their supervisors to set high goals for sampling and testing proficiency.

4.3.2 Technical Recertification

An additional value of the IA program is that it will be utilized as part of the recertification process for technicians. This is an administrative process whereby the technician certification team will draw upon information provided by the IA annual reports and evaluation information Refresher courses are currently offered to technicians as part of recertification, and the IA evaluations will supplement the recertification requirements.

4.4 Independent Assurance Program Features

The IA program will be accomplished by using the System Basis approach. The System Basis approach is personnel-related rather than project-related and allows easier tracking of individuals. It establishes frequency of evaluation and testing to verify technicians are competent. Using the System Basis method, the Independent Assurance Engineer (IAE) will evaluate the accuracy of sampling and testing procedures and the reliability and calibration of equipment utilized by the Office of Materials and Testing Management Technicians, Contractor's Quality Control and Quality Acceptance Technicians (QC/QAT), GDOT Construction Field Concrete Technicians, and Consultant Technicians actively performing acceptance verification OV sampling and testing on GDOT and Local Government projects which utilize Federal Aid Funds. Acceptance sampling and testing includes QC, QA, OV, IA, and resolution as part of the CQAP. At the end of each calendar year, the GDOT Program Operations Manager, in conjunction with the Independent Assurance Area Supervisors, will prepare an annual report that will assess the quality of the acceptance sampling & testing program. The Program Operations Manager will submit the annual report to the FHWA by March 31st of each year.

The independent assurance unit will utilize a computer database of technician evaluations for this assessment. This data will be used to determine technician recertification status.

4.4.1 General Responsibilities

1. Independent Assurance Organization

a. IA Engineers are employed by the GDOT's OMAT, Quality Assurance Branch, independent assurance unit.

b. IA Engineers must be certified in each of the same sampling and testing

methods as the technicians they are evaluating.

c. IA Engineers will schedule evaluations of the field technicians in the CQAP (on a project or as part of a District meeting.)

d. Each IA Area Supervisor will prepare an annual Area Report from evaluations performed by IA Engineers under their supervision.

Independent Assurance Organization Chart

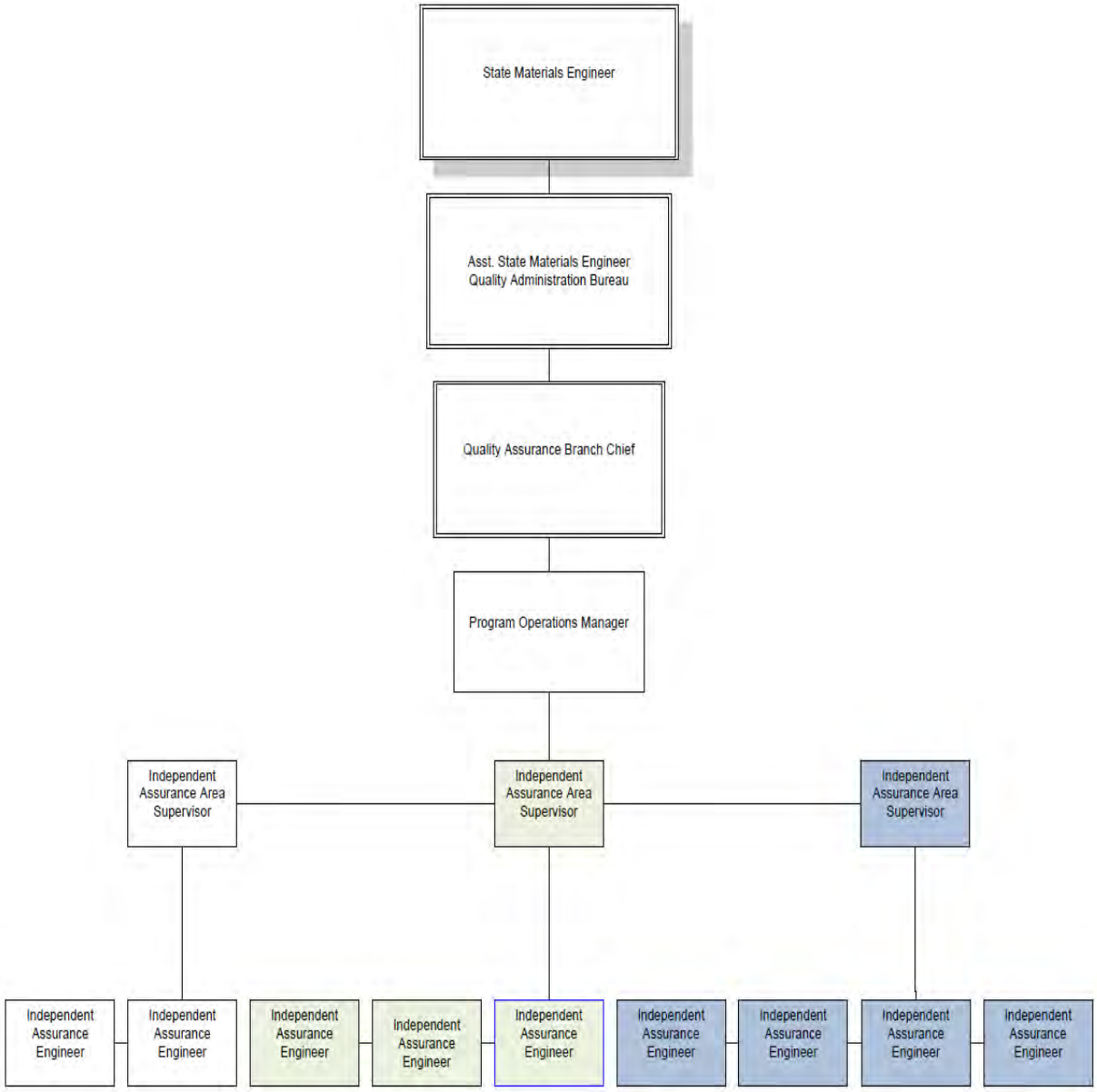


Figure 3

2.Testing Technicians

a. Testing Technicians are responsible for maintaining current certification(s).

b. Technicians must cooperate fully with these periodic evaluations. Lack of cooperation will result in an unsatisfactory evaluation.

c. Upon an unsatisfactory evaluation, the testing technician will have between 2 and 10 working days from the date of this unsatisfactory evaluation to request a re-evaluation. IA will have 10 days from this request to re-evaluate the technician. Technicians who receive an unsatisfactory evaluation will not conduct acceptance sampling and testing. Failure by the

technician to adhere to the requirements above will mandate re-certification, which includes both written and field tests administered by the Testing Management Branch, in order to resume acceptance sampling and testing operations.

3. Quality Assurance Branch Management

a. The Quality Assurance Branch Program (QABP) Operations Manager will prepare and distribute the statewide annual Systems Report to the Federal Highway Administration, Testing Management Supervisors, Testing Management Branch Chief, Quality Assurance Branch Chief, Testing Bureau Chief, Quality Administration Bureau Chief, District Construction Engineers, District Engineers, and the State Materials Engineer. Additional Systems Reports may be created as requested.

b. The Program Operations Manager will monitor and review the IA program statewide to provide consistency in the administering of the program, evaluate its effectiveness, and suggest changes as necessary for continuous process improvement.

c. Dispute resolutions of evaluations by IA Engineers under the IA program will be conducted by the Program Operations Manager coordinating with the IA Area Supervisors and Testing Management Operations Supervisors.

4.4.2 Evaluation of Sampling and Testing Technicians

1. Frequency and Locations of Evaluations

a. Evaluations of the active technicians shall be scheduled throughout a calendar year to meet the IA program's goal. The QCAP's goal is the annual evaluation of 90% of technicians who have performed acceptance testing on GDOT or local government projects that utilized Federal Aid Funds within the prior calendar year. Technicians who do not maintain certification will not be allowed to perform acceptance sampling and testing.

b. Location for evaluation of each technician will be at the job sites on GDOT projects (whenever possible), production plants involved in the acceptance decision, and/or alternative sites where such an evaluation may be accomplished. The technicians may be employed by GDOT, Contractors or Subcontractors, consultant firms, or other Governmental Entities.

2. Independent Assurance Evaluation Methods

a. IAE will evaluate each technician by Observation, Proficiency, or Split Sample assessments.

i. **Observation** allows the IAE to check both the equipment and the technicians under actual testing conditions, using a checklist based on GDOT and industry standard published procedures. The IAE will score

the technician using criteria set forth below. The IAE will promptly document the results of the evaluation on the Qualification Performance Report (QPR). (See Appendix G for Example QPR).

ii. **Split samples** are satisfactory if the test results meet the comparison criteria as defined in Appendix F. See Section 4.4.5 below for additional information. For Hot Mix Asphalt and Field Concrete sampling and testing, at least 10% of IA evaluations will be split sample evaluations.

iii. **Proficiency samples** allow the IAE to check both the equipment and the technicians under actual testing conditions and allow comparison of individual test results with the average of two or more laboratories. This approach allows a GDOT Laboratory to manufacture samples, which are used to test and evaluate technicians. Acceptable tolerance for these test results falls within two standard deviations of the mean.

b. Certified Technicians will be evaluated for assurance in the following certification areas:

i. Quality Control Technician Level 1 (QCT 1)

ii. Quality Control Technician Level 2 (QCT 2)*

iii. Roadway Testing Technician (RTT)

iv. Field Concrete Technician (FCON)

*Level 2 Technicians will go through the same evaluation process as Level 1 Technicians.

3. Criteria for Identifying Proficient, Satisfactory, or Unsatisfactory Technicians

The IAE will use Checklist Summary Sheets to determine if the technician is "Proficient", "Satisfactory", or "Unsatisfactory" in each applicable Certification Area. (See Appendix H for Sample Checklist Summary Sheet). Refusal to participate or lack of cooperation in the IA evaluation will be referred to the technician's immediate supervisor and will be sufficient reason to consider an evaluation "Unsatisfactory." Evaluation results are entered into the database for the Annual Report. The Technician's Evaluation Score is reviewed with the Technician.

a. Procedures Performed Proficiently

A "Proficient" Technician is highly skilled in the sampling and/or testing method(s). Test results provided by this technician can be used in the materials acceptance decision. When the Technician achieves a total score of at least 95% in the sampling and testing methods evaluated for each certification type, the Technician receives an evaluation of "Proficient." The following statement is designated on the QPR: "The Technician performed the procedures proficiently and this Technician's samples and tests can be

used in the acceptance decision on Georgia Department of Transportation or Federal Aid Local Government projects."

b. Procedures Performed Satisfactorily

A "Satisfactory" Technician is skilled in the sampling and/or testing method(s). Test results provided by this technician can also be used in the materials acceptance decision. When the Technician achieves a total score of at least 85%, but less than 95% in the sampling and testing methods evaluated for each certification type, the Technician receives an evaluation of "Satisfactory." The following statement is designated on the QPR: "The Technician performed the procedures satisfactorily and this Technician's samples and tests can be used in the acceptance decision on Georgia Department of Transportation or Federal Aid Local Government projects." The IAE should encourage the technician to strive for Proficient status on the next evaluation.

c. Procedures Performed Unsatisfactorily

An "Unsatisfactory" Technician does not meet the minimum requirements for test results to be used in the materials acceptance decision. When the Technician achieves a total score of less than 85% in the sampling and testing methods evaluated for each certification type, the Technician receives an evaluation of "Unsatisfactory." The following statement is designated on the QPR: "The Technician did not perform the procedures satisfactorily and must receive at least a Satisfactory rating on a re- evaluation of the procedures before this Technician's samples and tests can be used in the acceptance decision on Georgia Department of Transportation or Federal Aid Local Government projects."

i. The IAE reviews the QPR with the Technician and the Technician's immediate supervisor after an unsatisfactory evaluation.

ii. After a first unsatisfactory evaluation, the Technician is advised that they should request re-evaluation within 2 to 10 working days following the unsatisfactory evaluation. See Section 4.4.1-2 for more details on certification following failed evaluation.

iii. After a second unsatisfactory evaluation, the Technician and the Technician's immediate supervisor are advised that the supervisor may request one additional Technician re- evaluation for a maximum of three evaluation attempts.

iv. After a third unsatisfactory evaluation, the OMR will revoke the Technician's certification, and there will be no additional IA re-evaluation of the Technician until he or she is re-certified. Testing Management Branch will conduct recertification, which includes both written and field tests before the technician can resume acceptance sampling and testing operations.

Distribution of Qualification Performance Report to be Sent by IA Engineers			
Result	Contractor's QC Technician	OMR/Consultant/Local Government Technician	Construction Technician
Proficient or Satisfactory	Technician, Contractor's QC Manager, Testing Management Operations Supervisor, Independent Assurance Area Supervisor, Testing Management Branch Chief	Technician, Testing Management Operations Supervisor, Consultant Rep, Local Government Rep, Independent Assurance Area Supervisor, Testing Management Branch Chief	Technician, Construction Project Manager, Independent Assurance Area Supervisor
1st Unsatisfactory	Technician, Contractor's QC Manager, Testing Management Operations Supervisor, Independent Assurance Area Supervisor, Testing Management Branch Chief	Technician, Testing Management Operations Supervisor, Consultant Rep, Local Government Rep, Independent Assurance Area Supervisor, Testing Management Branch Chief	Technician, Construction Project Manager, Area Engineer, Independent Assurance Area Supervisor, Concrete Branch Chief
2nd Unsatisfactory	Technician, Contractor's QC Manager, Testing Management Operations Supervisor, Independent Assurance Area Supervisor, Testing Management Branch Chief, Quality Administration Bureau Chief	Technician, Testing Management Operations Supervisor, Consultant Rep, Local Government Rep, Independent Assurance Area Supervisor, Quality Administration Bureau Chief, Testing Management Branch Chief	Technician, Construction Project Manager, Area Engineer, District Construction Engineer, Independent Assurance Area Supervisor, Concrete Branch Chief

3rd Unsatisfactory – Certification Revoked	Technician, Contractor's QC Manager, Testing Management Operations Supervisor, Independent Assurance Area Supervisor, Testing Management Branch Chief, Quality Administration Bureau Chief, District Engineer, State Materials Engineer	Technician, Testing Management Operations Supervisor, Consultant Rep, Local Government Rep, Independent Assurance Area Supervisor, Testing Management Branch Chief, Concrete Branch Chief, Quality Administration Bureau Chief, State Materials Engineer	Technician, Construction Project Manager, Area Engineer, District Construction Engineer, Independent Assurance Area Supervisor, Concrete Branch Chief, District Engineer

4.4.3 Evaluation of Test Equipment Accuracy

Equipment checks and performance will be documented for the Annual Report. The testing equipment shall be evaluated by using one or more of the following methods:

1. Observation/Calibration

The IAE observes the sampling and/or testing procedures of the Technician to verify that the equipment is being operated properly. The condition of the equipment is also examined for signs of wear or deterioration. Prior to or during Project or plant visits the IA Engineer performs calibration checks of equipment using known weights and/or calibration/standardization devices.

2. Split Sample Test Results

Side by side tests are performed at the job site with the IAE's test equipment or split samples are returned to the Central or Branch Labs for testing and comparison. Comparison tolerances are documented in Appendix F.

3. Proficiency Samples

These samples allow the IAE to check both the equipment and the technicians under actual testing conditions and allow comparison of individual test results with the average of two or more laboratories. This approach allows a GDOT Laboratory to manufacture samples, which are used to test and evaluate technicians. Acceptable tolerance for these test results falls within two standard deviations of the mean.

4.4.4 Resolution of Unsatisfactory Equipment Performance

1. Equipment maintained by the technician or by a third party and evaluated as not in good repair and/or not functioning properly requires immediate repair or

replacement before test results may be used in the acceptance program on GDOT projects.

2. Failure to repair or replace equipment known not to be in good repair and/or not functioning properly will result in an "Unsatisfactory" audit for the Technician.

3. Equipment rechecks and performance will be documented for the Annual Report

4.4.5 Split Sample Testing

All sampling and testing shall be in accordance with appropriate procedures in the "Sampling, Testing, and Inspection Manual." IA samples and/or tests must be taken from the same location at approximately the same time as project acceptance samples and/or tests. IAE must verify that correct sampling and/or test methods and procedures are used.

1. Asphaltic Concrete Comparison

a. Extraction

i. A sample shall be taken, quartered, and divided by Acceptance personnel in the presence of the IA Engineer in accordance with GSP 15 – Sampling Procedure for Asphalt Concrete Mixtures.

ii. When circumstances make quartering impractical, such as with OGFC mix, separate samples may be secured provided they are taken at the same time and location.

iii. When acceptance and/or IA split sample results are not immediately known, the IA Engineer will review the results. In the event the results of the split sample are not within the established tolerances, the IA Engineer shall:

1) Review the sampling technique and procedure.

2) Immediately notify the Testing Management Supervisor and when appropriate, the Technical Services Engineer.

3) When the discrepancy cannot be resolved, a written notification shall be sent to the Testing Management Operations Supervisor and/or Technical Services Engineer requesting assistance in investigating the matter.

4) Within 2 days, follow up on the written request to confirm an investigation has been made and properly documented.

b. Testing Management Supervisor and Technical Services Engineer

i. For some materials, such as asphaltic concrete, the investigation into discrepancies between the technician's and IA test results will require the IAE to request assistance from Technical Services or Testing Management personnel. The IAE will request information concerning previous problems encountered with the testing equipment and personnel. In such situations, the IAE will initiate a letter requesting such assistance with the investigation as described in Section 4.4.5 1.a.iii above.

ii. The IAE will document on the test report the findings of such investigations.

c. Cores

When cores are used to monitor compaction or voids, comparison tests may be made by either of two methods. IA cores from the same area as acceptance cores may be taken, or the acceptance cores may be used for the IA tests providing they are tested by a different technician, preferably using a different facility.

d. Nuclear Gauge

When a nuclear gauge is used to monitor compaction or voids, comparison tests should be made in the same general location and at the same time as project acceptance tests. Whenever possible, comparison of the results is to be made on individual areas and not on average of tests.

2. Soil Compactions

IA and acceptance soil compactions run for comparison purposes shall be conducted at the same time and at the same location on the roadway. When the results do not compare, the IAE will make a thorough investigation of test procedures and equipment.

3. Comparison Tolerance

See Tolerances as Listed in Appendix F.

4. Split Sample Testing and Discrepancy Resolution

Note: Acceptable Split Sample tolerances are located in Appendix F.

a. When Acceptance and IA results are known at the test site and they are not within the established tolerances, the IAE will notify the technician's supervisor for resolution.

b. If the situation requires further investigation, the IAE will include this information on the test report.

c. When Acceptance and/or IA split sample results are not immediately

known, the IAE will obtain and review the results within 2 working days.

d. In the event the results of the split sample are not within the established tolerances, the IAE will review the sampling technique and procedure and immediately notify the Testing Management Operations Supervisor and when appropriate, the Technical Services Engineer.

e. The IAE will send a written request to the Testing Management Operations Supervisor and/or Technical Services Engineer requesting assistance in investigating split sample discrepancies. With this assistance the IAE will investigate and document the discrepancy within ten business days. (See Appendix I for an example of written request.)

f. The IAE will document on the test report the findings of such investigations.

4.5 Documentation

4.5.1 Qualification Performance Report

During Project or plant visits the IA Engineer performs technician evaluations and checks equipment by observation and by using known weights or calibration devices, and enters the results in the database. The Qualification Performance Report will be used to document the results after the evaluation concludes.

4.5.2 Split Sample Results

These are side by side tests performed at the job site with the IAE's test equipment or Split Samples returned to the Central or Branch Labs for testing and assessment. Comparison tolerances are documented in Appendix F.

4.5.3 Proficiency Samples

These samples allow the IAE to check both the equipment and the technicians under actual testing conditions and allow comparison of individual test results with the average of two or more laboratories. This approach allows a GDOT Laboratory to manufacture samples, which are used to test and evaluate technicians. Acceptable tolerance for these test results falls within two standard deviations of the mean.

4.5.4 Annual Report

According to the Federal Aid Policy Guide, 23 CFR 637.207(a) (2) (iv), "If the SHA [State Highway Agency] uses the system approach to the IA program, the SHA shall provide an annual report to the FHWA summarizing the results of the IA program."

Each Independent Assurance Area Supervisor (IAAS) will prepare an Area Report for the Program Operations Manager by January 31st of each year. The report will contain a list of technicians evaluated, results achieved, and any pertinent comments concerning procedures and/or equipment.

The Program Operations Manager will use the Area Reports to compile a statewide Annual Report and submit this report to the FHWA Division Administrator by March 31st of each year. This Annual Report will contain the following:

1. A summary of the System Basis Program for IA that assesses the capabilities of personnel and equipment used on projects in Georgia. This summary will be a composite of the IA Area Supervisors' Area Reports.

2. A summary of all personnel that received an independent assurance evaluation for the calendar year.

3. A summary of equipment that received an independent assurance evaluation for the calendar year.

4. A summary of recurrent infractions taken from checklists that may or may not have caused an unsatisfactory evaluation, but indicate a recurring problem that can be addressed in future training programs.

5. A summary of personnel and/or equipment which received an unsatisfactory independent assurance evaluation and actions taken to rectify failures and to prevent future occurrences.

APPENDIX A

ACRONYMS AND DEFINITIONS

The following terms and definitions are referenced in this manual and have the meanings set forth below:

AAP	AASHTO Accreditation Program
AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
AMRL	AASHTO Materials Reference Laboratory
CC	Certificate of Conformance
CD	Certificate of Delivery
CCRL	Concrete and Cement Reference Laboratory
CPI	Control Point Inspection
CQA	Construction Quality Acceptance
CQAF	Construction Quality Assurance Firm
CQAM	Construction Quality Assurance Manager
CQAP	Construction Quality Assurance Program
CQCM	Construction Quality Control Manager
CQMP	Construction Quality Management Plan
DBF	Design-Build Finance
FHWA	Federal Highway Administration, United States Department of Transportation
GDOT	Georgia Department of Transportation
IA	Independent Assurance
IAE	Independent Assurance Engineers
NCR	Non-conformance Report
OV	Owner's Verification
OVF	Owner Verification Firm
OVT	Owner Verification Testing
OVTIP	Owner Verification Testing and Inspection Plan
PCC	Portland Cement Concrete
PCP	Progress Check Point
QA	Quality Acceptance
QC	Quality Control
QPR	Qualification Performance Report
RFI	Request for Information
SHA	State Highway Agency

Acceptance Program shall mean all factors that comprise the GDOT Construction Quality Assurance Program (CQAP) to determine quality of the product as specified in the contract requirements. These factors include the DB Team's acceptance and the Owner's verification sampling, testing, and inspection.

Affiliate means:

(a) any shareholder, member, partner or joint venture member of DB Team,

(b) any Person which directly or indirectly through one or more intermediary controls, or is controlled by, or is under common control with, DB Team or any of its shareholders, members, partners or joint venture members; and

(c) any Person for which ten percent (10%) or more of the equity interest in such Person is held directly or indirectly, beneficially or of record by (i) DB Team, (ii) any of DB Team's shareholders, members, partners or joint venture members or (iii) any Affiliate of DB Team under clause (b) of this definition.

For purposes of this definition the term "control" means the possession, directly or indirectly, of the power to cause the direction of the management of a Person, whether through voting securities, by contract, family relationship or otherwise.

Construction Quality Assurance Firm (CQAF) shall mean an independent engineering/testing firm employed by the DB Team responsible for administering and managing the construction quality acceptance (QA) inspection, sampling, and testing. The CQAF and any subcontractors or sub consultants thereto must not be owned or controlled by the DB Team, any Principal Participant of the DB Team, any Affiliate of any Principal Participant, any Construction Subcontractor, the Designer, a firm associated with or subsidiary to the Designer, or any design subcontractor or sub consultant of any tier to the DB Team.

Construction Quality Assurance Program shall mean the overall quality program and associated activities including the GDOT Independent Assurance (IA), GDOT's Owner Verification, the DB Team's internal QC and independent Quality Assurance Firm's QA, the Contract quality requirements, and the DB Team's Construction Quality Management Plan.

Construction Quality Management Plan shall mean the DB Team's plan for complying with its obligations for construction quality control/process control and quality acceptance as required by the Construction Quality Assurance Program for GDOT Design-Build projects. This plan will be written as a stand-alone document, but will also be a part of the DB Team's overall Quality Management Plan required by the Contract documents. The plan must be provided and maintained in accordance with the Contract following consultation and written comment thereof by the Department's Project Manager.

Contract means any agreement, and any supplement or amendment thereto, by either (a) DB Team with any other Person or Contractor, or (b) any Contractor with any Person or Subcontractor, to perform any part of the Work or provide any materials, equipment or supplies for any part of the Work, or any such agreement, supplement or amendment at a lower tier, between a Subcontractor and its lower tier sub-subcontractor or supplier. The term "Contract" excludes Utility Agreements and any agreement with SRTA or GDOT.

Design Firm shall mean the qualified Registered Professional Engineer's firm responsible for the design of the Project.

Design Documents shall mean all drawings (including plans, profiles, cross-sections, notes, elevations, sections, details and diagrams), specifications, reports, studies, calculations, electronic files, records and submittals necessary for, or related to, the design of the Project and/or the Utility Adjustments in accordance with the Contract, the Governmental Approvals and applicable Law.

Design Build Team (DB Team) shall mean the entity identified in the Agreement to perform Work under the Project, together with its successors and assigns. The entity contractually responsible for delivering the design and construction of the Project.

Effective Date means the date of the Agreement or such other date as shall be mutually agreed upon in writing by SRTA and DB Team.

Engineer in Responsible Charge shall mean the professional engineer accountable for direction, control and supervision to assure that the Work has been critically examined and evaluated for compliance with appropriate professional standards and the requirements of the Contract.

Engineering Judgment shall mean determinations as to whether a material failing to meet specification requirements and not within applicable tolerances should be accepted, or not accepted, shall be based upon sound engineering principles, experience, and/or related results of applicable material tests, and be made by a Georgia Licensed Professional Engineer.

Environmental Law means any Law applicable to the Project or the Work regulating or imposing liability or standards of conduct that pertains to the Environment, Hazardous Materials contamination of any type whatsoever, or environmental health and safety matters, and any lawful requirements and standards that pertain to the Environment, Hazardous Materials, contamination of any type whatsoever, or environmental health and safety matters, set forth in any permits, licenses, approvals, plans, rules, regulations or ordinances adopted, or other criteria and guidelines promulgated, pursuant to Laws applicable to the Project or the Work, as such have been or are amended, modified, or supplemented from time to time (including any present and future amendments thereto and reauthorizations thereof) as further defined in the DB Documents.

Final Acceptance shall mean the acceptance of the Work by the GDOT's designated representative upon the completion of the Work as defined in the Contract and through Oversight and Design Acceptance of that Work by the GDOT, as and when confirmed by SRTA's issuance of a certificate in accordance with the procedures and within the time frame established in Section 7.7.3 of the Contract. Final Acceptance does not relieve the DB Team's obligations pursuant to any guaranty or warranty under the terms of the Contract.

F-test shall mean the statistical analysis to compare the variances of two sets of data.

Governmental Approval shall mean any permit, license, consent, concession, grant, franchise, authorization, waiver, variance or other approval, guidance, protocol, mitigation agreement, or memoranda of agreement/understanding, and any amendment or modification of any of them provided by Governmental Entities, including State, local, or federal regulatory agencies, agents, or employees, which authorize or pertain to the Project or the Work.

Governmental Entities shall mean any federal, State or local government and any political subdivision or any governmental, quasi-governmental, judicial, public or statutory instrumentality, administrative agency, authority, body or entity other than SRTA and GDOT.

GDOT Program Manager shall mean the GDOT primary point of contact for the Design-Build Project. All correspondence to/from GDOT shall be thru this contact.

GDOT Representative shall mean the consultant acting for GDOT through delegated authority for the duration of the Project.

GDOT Standard Specifications shall mean the GDOT Standard Specifications for Construction of Highways, Streets and Bridges, adopted by GDOT, including all revisions thereto applicable on the Effective Date of the Agreement.

Independent Assurance Program shall mean all activities that are included in an unbiased and independent (of the DB Team or Project staff) evaluation program for all the design, sampling and testing procedures, equipment calibration, and qualifications or personnel (DB Team's or GDOT's) used in the Acceptance Program, including the DB Team's Quality Control (QC) and Quality Acceptance (QA), as well as Owner Verification (OV) Sampling and Testing. The GDOT, or the designated Consultant retained by GDOT, will perform Independent Assurance (IA).

Law or **Laws** means (a) any statute, law, code, regulation, ordinance, rule or common law, (b) any binding judgment (other than regarding a Dispute), (c) any binding judicial or administrative order or decree (other than regarding a Dispute), (d) any written directive, guideline, policy requirement or other governmental restriction (including those resulting from the initiative or referendum process, but excluding those by SRTA and GDOT within the scope of its administration of the Contract Documents or in the normal course of adoption of new or revised technical standards pursuant to Section 7.2.5 of the Agreement) (e) any similar form of decision of or determination by, or any written interpretation or administration of any of the foregoing by, any Governmental Entity, in each case which is applicable to or has an impact on the Project or the Work, whether taking effect before or after the Effective Date, including Environmental Laws. "Laws", however, excludes Governmental Approvals.

Level of Significance (alpha) shall mean the probability of erroneously rejecting the null hypothesis when it should have been accepted.

Nonconforming Work (Nonconformance) shall mean Work that has not been constructed with the strictest adherence to the approved drawings and specifications and with the requirements of the Contract Documents, the Governmental Approvals and applicable Law.

Nonconformance Record (NCR) shall mean a record of how Nonconforming Work was accepted for incorporation into the Work.

Proficiency samples shall mean homogenous samples that are distributed and tested by two or more laboratories and/or personnel. The test results are compared to assure that the laboratories and/or personnel are obtaining the same results.

Qualification shall mean a quality, ability, or accomplishment that makes a person technically competent for a particular position or task.

Quality Acceptance shall mean all planned and systematic actions performed by the CQAF and OVF / GDOT's Representatives including design reviews and checks; inspection of material handling and construction; calibration and maintenance of sampling and testing equipment; working plan review; document control; and any inspection, sampling, and testing done for the GDOT's acceptance decision. The CQAF test results will be used as part of the GDOT's Acceptance Decision.

Quality Assurance shall mean all planned and systematic actions performed by the DB,

CQAF, OVF, and IA necessary to provide confidence that a product or service will satisfy given requirements for quality.

Quality Control shall mean all DB Team process control and operational techniques/activities that are performed or conducted to fulfill the contract requirements.

Random Sampling shall mean a process whereby each element of the population has an equal chance of being selected.

Registered Professional Engineer shall mean a person who is duly licensed and registered by the Georgia Board of Professional Engineers to engage in the practice of engineering in the State.

Rules shall mean Georgia Administrative Code.

Subcontractor shall mean any other Person, including any Supplier with whom any Contractor has further subcontracted, purchased or procured any part of the Work, at all tiers, an individual, partnership, corporation, or any other legal entity or any acceptable combination thereof, or JV or LLC, to which the DB Team sublets part of the Work. Any individual, partnership, corporation, or any other legal entity will not be considered to be a Subcontractor if it is a subsidiary which is wholly-owned or majority- owned by the DB Team or the Principal Participants of the DB Team, or an Affiliate of the DB Team, or affiliated or otherwise controlled by the DB Team or Principal Participants of the DB Team such that a true and independent Subcontractor- DB Team relationship reached by bidding or arms-length negotiation does not result therefrom.

Supplier shall mean any Person not performing work at or on the Site which supplies machinery, equipment, materials, hardware, software, systems or any other appurtenance to the Project to Design Builder or to any Subcontractor in connection with the performance of the Work. Persons who merely transport, pick up, deliver or carry materials, personnel, parts or equipment or any other items or persons to or from the Site shall not be deemed to be performing Work at the Site.

t-test shall mean the statistical analysis to compare the variances of two sets of data.

Utility or **utility** shall mean a public, private, cooperative, municipal and/or government line, facility or system used for the carriage, transmission and/or distribution of cable television,

electric power, telephone, telegraph, water, gas, oil, petroleum products, steam, chemicals, hydrocarbons, telecommunications, sewage, storm water not connected with the drainage of the Project, and similar substances that directly or indirectly serve the public.

Utility Adjustment means each relocation (temporary or permanent), abandonment, Protection in Place, removal (of previously abandoned Utilities as well as of newly abandoned Utilities), replacement, reinstallation, and/or modification of existing Utilities necessary to accommodate construction, operation, maintenance and/or use of the Project; provided, however, that the term "Utility Adjustment" shall not refer to any of the work associated with facilities owned by any railroad. For any Utility crossing the Property, the Utility Adjustment Work for each crossing of the Property by that Utility shall be considered a separate Utility Adjustment. For any Utility installed longitudinally within the Property, the Utility Adjustment

Work for each continuous segment of that Utility located within the Property shall be considered a separate Utility Adjustment.

Utility Owner shall mean the owner or operator of any Utility (including both privately held and publicly held entities, cooperative utilities, and municipalities and other governmental agencies).

Vendor shall mean a supplier of project-produced material that is not the contractor.

Verification Testing shall mean sampling and testing performed to validate the quality of the product. The sampling and testing are to be performed by qualified testing personnel employed by the GDOT or its designated agent, excluding the DB Team.

Work shall means all of the work required to be furnished and provided by DB Team under the DBF Documents for the Project, including without limitation, all administrative, design, engineering, construction, Utility Adjustment, utility accommodation, support services, ECTS and software integration, and coordination, except for those efforts which such DBF Documents expressly specify will be performed by Persons other than DB Team-Related Entities, all as required and as may reasonably inferred for full and proper completion of the Project in accordance with this Agreement and the DBF Documents.

APPENDIX B

OWNER'S VERIFICATION LEVELS FOR MATERIALS TESTING VALIDATION

The OV program is using a three-tiered approach, which the fundamental principal behind it is to assign the appropriate level of resources to monitor and evaluate each analysis category based on GDOT's residual risk after the DB Team has completed the construction. In general, the higher the residual risk for the performance of the material after the DB Team's warranty and maintenance obligations expire, the higher the level of monitoring and verification. Similarly, the stronger the relationship between the material property being tested and the material's performance, the higher the level of monitoring and verification required. This three-tiered approach was developed using the required test methods contained in the Quick Guide Schedule. A default level of analysis (1, 2, or 3) was assigned to each test for each analysis category (a combination of "material or product" and test method). Designation of OVT Levels 1, 2, and 3 are clearly defined in Appendix E (Project Quick Guide).

Start-Up Requirements

During start-up operations, the Construction Quality Assurance Firm (CQAF) and Owner Verification Firm (OVF) will perform split sample testing for the first 10 acceptance tests for all tests listed as Level 1 and Level 2. OVF will evaluate split sample results against GDOT's split sample tolerance limits contained in Appendix F (Comparison Tolerance).

For those test methods that do not validate during start-up operations, both the CQAF and OVF will collaborate to determine the cause(s) of the non-validation and will both take appropriate corrective actions during the early phases of material production to align the testing operations. When there is a failure to validate, the DB Team shall not proceed until appropriate action has been taken. For tests listed as Level 3, OVF will observe and review the CQAF's initial start-up testing operations.

Start-up split sampling procedures must be repeated when operations have become idle for more than 6 months due to phasing or other project circumstances, or an investigation is needed.

The Level of Significance (alpha) used for statistical analyses are provided in Table 1 of this Appendix B unless otherwise approved in writing by GDOT.

NOTE: OV Use of QA Proctors:

During startup operations, test 5 split samples with the QA and verify all values are within the split sample tolerance, as specified in Appendix F (Comparison Tolerance). The QA must provide OV laboratory with complete curve data for all proctor tests. Prior to testing in-place densities, QA shall furnish the selected curve for each in- place density point. The OV either agrees that the QA proctor is representative of the material being tested or the OV will obtain in-place density values and sample the material in order to conduct a one-point proctor to verify proctor values are within 3.0 pcf of curve estimates.

Level 1 Tests: F & t-test

F and t-Tests: OVF will perform continuous F and t-test analyses on Level 1 tests with the OV testing frequency, unless otherwise noted in this document, at the following testing frequency:

OVF will meet a testing frequency of one to ten (1:10) ratio of the QA testing frequency for each Material Validation reporting quarter, and will confirm a minimum of seven (7) OV tests are obtained for each Material Validation reporting quarter.

When QA sample populations for a reporting quarter are less than 7 samples, the OVF will sample one to one (1:1) ratio of the QA testing frequency for the Material Validation reporting quarter.

The continuous statistical analysis will be run daily with new OV test results being added to the OV sample population as older OV test results are removed. The analyses will be performed against the corresponding QA sample population.

Continuous Statistical Analysis Algorithm

The following describes the continuous statistical analysis referenced in this Appendix B.

Categorizing For Analysis

When a test version record is added, the first step is to assign it to any applicable analysis categories. A test record must have Sample Type “Random-Independent” or “Random-Split” to be associated with any category. Assignment to a category is done immediately when the record enters the system, but the record will not be included in any analyses until the record had been approved for analysis (i.e. it is Approved or intermediate break data is Reviewed).

Note: A new version of an existing record can actually belong to a different analysis category than a previous version if the header values were changed. This is not a problem, as an analysis run represents a snapshot of the current data in the system at the time the analysis was done.

Finding Categories to Analyze

Every night, OVF will scan data in the system for categories that need to be analyzed. A category is triggered for analysis whenever a new OV record appears. A record is new if it had been approved for analysis and has never been analyzed before. Some examples of new OV records are:

1. A test was added and approved today.
2. A test was added a month ago and approved/reviewed today.
3. A test that was added and analyzed last week was revised and reapproved. This new version has never been analyzed, so it will trigger an analysis the same as if it were the first version of the record.

Analyzing a Category

The first step in the analysis is to find the date range of the analysis populations. The age of a record is determined by its sampled date. GDOT has set the maximum desired number

of days to 90 days. In addition, the desired maximum number of OV records to include in one analysis run has been set to 25 records. The end date of analysis will always be the current date. The start date of the analysis is determined by the following:

1. If there is an unanalyzed record for either OVF or the CQAF that is OLDER than 90 days, the start date is that record's Sampled Date. OVF will analyze ALL records from that date forward.
2. If there are less than 25 OV records within the last 90 days, the start date will be 89 days before the current date (i.e. 90 days total in the analysis).
3. If there are 25 OV records or more within the last 90 days, OVF will use a smaller date range. The Sampled Date of the 25th OV record back from the current date will be the start date of the analysis.

The next step is to pull all data points for the analysis. OVF will pull values for all records approved for analysis from the OVF and CQAF between the start date and the end date, using ONLY the latest versions of those records.

Last, OVF will perform the F and t-test statistical analysis and save the P-values for review by the Project Manager. The analysis requires at least two points from each population to calculate. If there are less than two data points for either OVF or CQAF, OVF will skip the analysis. The category will be picked up again the next time an approved OV record comes in.

Level 2 Tests: Independent Verification Samples

Independent Verification: OVF will perform independent verification on Level 2 tests with the OV testing frequency once per quarter with lower frequency tests missed during one quarter being specifically targeted the next quarter, or at a frequency specified by GDOT. This verification shall be performed by comparing the independent OV test results with a group of corresponding QA test results as an independent check of the QA test results.

Level 3: Observation Verification

OVF will observe and review CQAF's initial start-up testing operations and periodically during ongoing production operations to verify compliance with test procedures.

Table 1- Level of Significance for Level 1 Tests

MATERIAL CATEGORY	TEST FOR	LEVEL OF SIGNIFICANCE (α)
Embankment Cut and Fill, Backfill	In Place Density	0.01
	In Place Moisture	0.01
Non-Plastic Embankment and Granular Mate. on Roadway	In Place Density	0.01
	In Place Moisture	0.01
Select Soil	In Place Density	0.01
	In Place Moisture	0.01
	Plasticity Index	0.01
Base Material on Roadway	In Place Density	0.01
	In Place Moisture	0.01
Soils on Roadway for Soils Cement	In Place Density	0.01
	In Place Moisture	0.01
Material for Base prior to spreading Cement	In Place Density	0.01
Mixture with Cement on Roadway (soil cement)	In Place Density	0.01
	In Place Moisture	0.01
Mixture on Roadway (Lime Treatment)	In Place Density	0.01
	In Place Moisture	0.01
Asphaltic Concrete	Void Content	0.025
	In-Place Density	0.025
	In-Place Joint Density	0.025
Concrete Pavement-	Unit Weight	0.025
	Compressive Strength	0.025
Structural Concrete	Compressive Strength	0.025
	Surface Resistivity	0.025
Precast Concrete	Compressive Strength	0.025
	Surface Resistivity	0.025
Concrete Minor Structure	Compressive Strength	0.025

APPENDIX C

CONSTRUCTION TESTS AND CERTIFICATIONS
TESTING METHODS FOR FIELD PERSONNEL QUALIFICATIONS

The location for the testing frequencies of the following tests may be found at:

http://www.dot.state.ga.us/doingbusiness/TheSource/Pages/sti.aspx

Field Concrete Technician

GDOT Field Concrete Technician			
Test Procedure			Concrete Field Sampling & Testing Certification
GDOT	**AASHTO**	**ASTM**	**Field Concrete Technician (GDOT) certification required [Concrete Field Testing Technician – Grade 1 (ACI) can be submitted in lieu of GDOT testing]**
GSP17	T141	C172	Sampling Procedure for Freshly Mixed Concrete
GDT27	T119	C143	Slump of Portland Cement Concrete
GDT26	T152	C231	Air Content Freshly Mixed Concrete by the Pressure Method
GDT28	T121	C138	Weight Per Cubic Foot, Yield, and Air Content (gravimetric) of Concrete
GDT122	T309	C1064	Temperature of Freshly Mixed Portland Cement Concrete
GDT35	T23	C31	Making and Curing Concrete Compression and Flexure Test Specimens in the Field

Roadway Testing Technician (RTT)

GDOT Test Method	Equivalent AASHTO Test Method	Test Procedure
GSP2		Sampling procedure for coarse and fine aggregates
GDT21		Determining Field Density of Soils Containing >45% Retained on 2 mm sieve (& <10% retained on 25 mm sieve)
GDT39		Specific Gravity of Compressed Bituminous Mixtures
GDT42		Measurement of Thickness of bases and Subbases Methods a and b
GDT59		Testing Density of Roadway materials with Nuclear Gauges
GDT67	T272	Family of Curves Method for Determining Maximum Density of Soils
GDT73		Random Selection and Acceptance Testing of Asphalt Concrete

Additional tests and procedures required:		
	T11	Materials Finer than No. 200 Sieve in Mineral Aggregates by Washing
	T27	Sieve Analysis of Fine and Coarse Aggregates
GDT7	T99	Determining Maximum Density of Soils
GDT20	T191	Determining Field Density of Soils with <45% retained on 2 mm sieve (or >10% retained on 25 mm sieve)
GDT36		Bulking of Sand
GDT131		Measurement of Bridge Deck Thickness
	T209	Theoretical Maximum Specific Gravity and Density of Hot Mix Asphalt
GSP 9		Sampling procedure for soils and soil-aggregate mixtures
GSP 10		Sampling procedure for bituminous materials
GSP 15		Sampling procedure for asphalt concrete mixtures

GDOT - Minimum Training and Experience Requirements:

Roadway Testing Technician (RTT)

1. High School Diploma or GED
2. One (1) year transportation experience or equivalent combination of training and materials testing related experience is desired.
3. Two (2) years of experience with nuclear gauge equipment for compaction control.
4. GDOT Roadway Testing Technician (RTT) and Quality Control Technician Level I certifications.

Concrete Testing Technician (CTT)

1. High School Diploma or GED
2. Must have ACI or GDOT Certifications for testing concrete:
3. GDT-26 (AASHTO T 152) air test
4. GDT-27 AASHTO 119) slump test
5. GDT- 35 (AASHTO T 23) fabrication of concrete cylinders for compressive strength testing.
6. Candidate must have 2+ years of experience sampling and testing concrete.
7. Must have a clean driving record and a valid driver's license.
8. GDOT Concrete Sampling and Testing Certifications are required (ACI Certification is accepted).

SPECIAL FIELD PERSONNEL QUALIFICATIONS

Precast-Prestressed Concrete Inspection Certifications			
Test Procedure			GDOT or American Concrete Institute (ACI)
GDOT	AASHTO	ASTM	Plant Concrete Tester (GDOT) or Concrete Field Testing Technician – Grade 1 (ACI)
GSP17	T141	C172	Sampling Procedures for Freshly Mixed Structural Concrete
GDT27	T119	C143	Slump of Portland Cement Concrete
GDT26	T152	C231	Air Content of Freshly Mixed Concrete by the Pressure Method
GDT28	T121	C138	Weight Per Cubic Foot, Yield, and Air content (gravimetric) of Concrete
GDT122	T309	C1064	Temperature of Freshly Mixed Portland Cement Concrete
GDT35	T23	C31	Making and Curing Concrete Compression and Flexure Test Specimens in the Field

GDOT or Prestressed/Precast Concrete Institute (ACI)	
* The following certifications also require the Plant Concrete Tester (GDOT) or Concrete Field Testing Technician – Grade 1 (ACI)	
Structural Precast*	Concrete Batcher (GDOT) and Precast Concrete Technician (GDOT) -Or- Prestressed/Precast Concrete Institute (PCI) Level II Certification
Prestress*	Concrete Batcher (GDOT) and Precast Concrete Technician (GDOT) and Prestress Concrete Technician (GDOT) -Or- Prestressed/Precast Concrete Institute (PCI) Level II Certification

Structural Steel	
Shop Fabrication & Field Inspection Requirements	
Certification	Description
ASNT Level II	American Society of Non-Destructive Testing (ASNT) NDT Level II – Personnel shall be certified to perform Ultrasonic (UT), Magnetic Particle (MT) and Dye Penetrant (PT) testing in the fabrication shop and on welded bridge splices, which are required to be UT tested.
CWI	American Welding Society (AWS) Certified Welding Inspector - Certified in accordance with the provisions of AWS QC1
NACE/SSPC	National Association of Corrosion Engineers (NACE) Certified Coatings Inspector or Society for Protective Coatings (SSPC) Bridge Coating Inspector (BCI)

TESTING METHODS FOR LAB QUALIFICATIONS

All Laboratories are to be GDOT 6.04a Prequalified

PORTLAND CEMENT CONCRETE			
GDOT	**AASHTO**	**ASTM**	**Description**
GSP17	T141	C172	Sampling Procedure for Freshly Mixed Structural Concrete
GDT27	T119	C143	Slump of Portland Cement Concrete
GDT26	T152	C231	Air Content of Freshly Mixed Concrete by the Pressure Method
GDT28	T121	C138	Weight Per Cubic Foot, Yield, and Air Content (gravimetric) of Concrete
GDT122	T309	C1064	Temperature of Freshly Mixed Portland Cement Concrete
GDT35	T23	C31	Making and Curing Concrete Compression and Flexure Test Specimens in the Field
—	T22	C39	Compressive Strength of Cylindrical Concrete Specimens
GDT29	T97	C78	Flexural Strength of Concrete
—	T231	C617	Capping Cylindrical Concrete Specimens
GDT103	—	C1231	Compressive Strength of 6-inch x 12-inch Concrete Cylinders using Neoprene Pads
—	—	C1077	Minimum Standards for Acceptance of a Laboratory (Concrete & Aggregate)
—	—	E329	Standard Specification for Inspection and Testing
—	T24	C42	Obtaining & Testing Drilled Cores
GDT31	T148	C174	Measuring Length of Concrete Cores (Pavement Thickness)

Concrete Strength Testing Technician (ACI)			
GDOT	**AASHTO**	**ASTM**	**Description**
—	T22	C39	Compressive Strength of Cylindrical Concrete Specimens

Concrete Laboratory Testing Technician – Level 1 (ACI)			
GDOT	**AASHTO**	**ASTM**	**Description**
—	T22	C39	Compressive Strength of Cylindrical Concrete Specimens
GDT29	T97	C78	Flexural Strength of Concrete

NCAT Superpave Mix and Stone Matrix Asphalt Design			
GDOT	**AASHTO**	**ASTM**	**Description of Test**
GSP15			Sampling Procedure for Asphalt Concrete Mixtures
GDT22			Sieve Analysis of Mineral Filler
GDT38			Mechanical Analysis of Extracted Aggregate (T-30)
GDT39			Method of Test for Specific Gravity of Compressed Bituminous Mixtures
GDT56			Heat Stable Anti-strip Additive
GDT66			Evaluating the Moisture Susceptibility of Bituminous Mixtures by Diametral Tensile Splitting (T-165,T-283)
GDT73			Method of Random Selection and Acceptance Testing of Asphaltic Concrete
GDT83			Extraction of Bitumen from Paving Mixtures using the Vacuum Extractor (T-164)
GDT113			Asphalt Release Agent
GDT114			Determining Optimum Asphalt Content for Open-graded Bituminous Paving Mixtures
GDT115			Determining Rutting Susceptibility using the Asphalt Pavement Analyzer
GDT120			Designing Cold Recycled Asphalt Concrete Mix
GDT123			Determining the Design Proportions by Stone Matrix Asphalt Mixtures
GDT125	T308		Determining Asphalt Content by Ignition
GDT127	T305		Determining Drain-Down Characteristics in Uncompacted Bituminous Mixtures
GDT130			Determining the Shot Content of Mineral Fiber by Web Elutriation
	T44		Solubility of Bituminous Materials
	T166		Bulk Specific Gravity of Compacted Hot Mix Asphalt Mixtures Using Saturated Surface-Dry Specimens
	T209		Theoretical Maximum Specific Gravity and Density of Hot Mix Asphalt (HMA)
	T245		Resistance to Plastic Flow of Bituminous Mixtures Using Marshall Apparatus
	T269		Percent Air Voids in Compacted Dense and Open Asphalt Mixtures
	T275		Bulk Specific Gravity of Compacted Hot Mix Asphalt Mixtures Using Paraffin-Coated Specimens
	T312		Preparing and Determining the Density of the Hot Mix Asphalt (HMA) Specimens by Means of the Superpave Gyratory Compactor
	T324		Hamburg Wheel-Track Testing of compacted Hot Mix Asphalt (HMA)
	T331		Bulk Specific Gravity and Density of Compacted Hot Mix Asphalt (HMA) Using Automatic Vacuum Sealing Method
	M303		Standard Specification for Lime for Asphalt Mixtures
		C25	Standard Test Methods for Chemical Analysis of Limestone, Quicklime, and Hydrated Lime
		C110	Standard Test Methods for Physical Testing of Quicklime, Hydrated Lime, and Limestone
		C612	Standard Specification for Mineral Fiber Block and Board Thermal Insulation
		D1417	Standard Test Methods for Rubber Latices-Synthetic
		PS129	Standard Provisional Test Method for Measurement of Permeability of Bituminous Paving Mixtures Using a Flexible Wall Permeameter
GDOT	**AASHTO**	**ASTM**	**GDOT Superpave Binder Certification: Level 1**
GSP10			Sampling Procedure for Bituminous Materials
	T 315		Determining the Rheological Properties of Asphalt Binder Using Dynamic Shear Rheometer (DSR)

	T 316		Viscosity Determination of Asphalt Binder Using Rotational Viscometer (RV)

GDOT	AASHTO	ASTM	GDOT Superpave Binder Certification: Level 2
GSP10			Sampling Procedure for Bituminous Materials
	T 315		Determining the Rheological Properties of Asphalt Binder Using Dynamic Shear Rheometer (DSR)
	T 316		Viscosity Determination of Asphalt Binder Using Rotational Viscometer (RV)
	T 48		Flash and Fire Points by Cleveland Open Cup
	T 240		Effect of Heat and Air on a Moving Film of Asphalt Binder (Rolling Thin Film Oven)
	T 28		Accelerated Aging of Asphalt Binder Using a Pressurized Aging vessel (PAV)
	T 313		Determining the Flexural Creep Stiffness of Asphalt Binder Using the Bending Beam Rheometer (BBR)

GDOT	AASHTO	ASTM	EMULSIFIED ASPHALT Certification: Level 1
GSP10			Sampling Procedure for Bituminous Materials
	T 49		Penetration of Bituminous Materials
	T 59		Testing Emulsified Asphalt_ Residue by Distillation
	T 59		Testing Emulsified Asphalt Sieve
	T 59		Testing Emulsified Asphalt_ Saybolt-Furol Viscosity

GDOT	AASHTO	ASTM	EMULSIFIED ASPHALT Certification: Level 2
GSP10			Sampling Procedure for Bituminous Materials
	T 49		Penetration of Bituminous Materials
	T 59		Testing Emulsified Asphalt_ Residue by Distillation
	T 59		Testing Emulsified Asphalt Sieve
	T 59		Testing Emulsified Asphalt_ Saybolt-Furol Viscosity
	T 59		Testing Emulsified Asphalt_ Residue by Evaporation
	T 59		Testing Emulsified Asphalt_Demulsibility
	T 295		Specific Gravity of Liquid Asphalts by Hydrometer Method
	T 59		Testing Emulsified Asphalt Storage Stability
	T 59		Testing Emulsified Asphalt_ Particle Charge

GDOT	AASHTO	ASTM	CUTBACK ASPHALT Certification
GSP10			Sampling Procedure for Bituminous Materials
	T 48		Flash and Fire Points by Cleveland Open Cup
	T 201		Kinematic Viscosity of Asphalts
	T 295		Specific Gravity of Liquid Asphalts by Hydrometer Method
	T 78		Distillation of Cutback Asphaltic Products
	T 49		Penetration of Bituminous Materials
	T 55		Water in Petroleum Products and Bituminous Materials by Distillation

GDOT	AASHTO	ASTM	Pavement Smoothness
GDT126 SOP34			Determining the Ride Quality Smoothness of a Pavement Using a Road Profiler Certification of Contractor Personnel and Equipment for Smoothness Testing of Portland Cement Concrete Pavement with the Rainhart Profilograph

Soils & Aggregates Testing	
Test Procedure	**Description of Test**

GDOT	AASHTO	ASTM	
	T27		Sieve Analysis of Fine/Coarse Aggregates
GDT4			Determining Gradation of Soils
GDT6			Determining Volume change of Soils
GDT7	T99		Determining Maximum Density of Soils
GDT49			Determining the Theoretical Maximum of Dry Density of Materials containing >25% retained on the no. 10 sieve using a 10 pound rammer and an 18 inch drop.
GDT63			Sand Equivalent of Soils and Fine Aggregates
GDT67	T272		Family of curves Method for Determining Maximum Density of Soils
GDT108			Unconsolidated Limerock Base Theoretical Density and Limerock Bearing Ratio
	T21		Organic Impurities in Fine Aggregates for Concrete
	T89		Determining the Liquid Limit of Soils
	T90	D 4318	Determining the Plastic Limit and Plasticity Index of Soils
Special Soils Testing that may be required:			
		D 421	Dry Prep of Samples
		D 422	Particle-Size Analysis
		D 2435	One-Dimensional Consolidation of Soils
		D 4767	Consolidated-Undrained Triaxial Compression
		D 2850	Unconsolidated, Undrained Triaxial Compression
		C702	Standard Practice for reducing samples of aggregate to testing size
		D 75	Standard Practice for Sampling Aggregate
		D 2166	Unconfined Compressive Strength of Soils
		D 2216	Moisture Content of Soils

APPENDIX D

MATERIAL CERTIFICATION EXAMPLE LETTER

The intent of the material certification is to ensure that the quality of all materials incorporated into the project is in conformance with the plans and specifications, thus ensuring a service life equivalent to the design life. Any material represented by an acceptance test that does not meet the criteria contained in the plans and specifications is considered an exception. Exceptions should be investigated to determine if in fact the material is in reasonably close conformity with the plans and specifications. Nonconforming materials and workmanship will be tracked, monitored and appropriately addressed.

Submit a monthly CQAM Material Certification Letter. Include CQAM Material Certification Letters in the Quarterly FHWA Report for the months covered on the quarterly report. An example follows.

Date_____

To_____

From_____

Project No._____

RE: Monthly CQAM Material Certification

This is to certify that:

The results of the tests used in the acceptance program indicate that the materials incorporated in the construction work, and the construction operations controlled by sampling and testing, were in conformity with the approved plans and specifications.

Exceptions to the plans and specifications are as follows:

1. Description

_____
CQAM Signature Block

APPENDIX E
PROJECT QUICK GUIDE
SCHEDULE OF SAMPLING AND TESTING

		Acceptance Decision						QA & OV	QA & OV		OV
Material PAY ITEM	TEST METHOD	**Acceptance Sampling and Testing (QA)** Construction Quality Assurance Firm (CQAF)		**Verification Sampling and Testing (OV)** Owner Verification Firm (OVF)		CQAF QA Lab	GDOT/OVF LAB	Test Report	Upload to Site-Manager and e-Builder	Upload to Site-Manager and e-Builder	OVT Level
		Acceptance (QA)	Frequency	Verification (OV)	Frequency						
163 or 171 Silt Fence	Visual Inspection	Inspect Visually	As Placed	Sample Deliver to GDOT Lab for Testing	1 per Type per Mile of Fence	Test Samples Delivered by CQAF	Test Samples Delivered by OV	DOT-168	General Contractor Lab & GDOT UPLOAD TO PHYS/CHEM		Level 3
											Level 3
SOIL 207 Backfill	GDT-4 Gradation	Sample Delivered to General Contractor Lab for Testing	1 per major soil type	Sample Deliver to GDOT Lab for Testing	1/10 Acceptance Tests	Test Samples Delivered by CQAF	Test Samples Delivered by OV	DOT-408 DOT-97	General Contractor Lab & GDOT UPLOAD TO PHYS/CHEM		Level 3
	GDT-4 Percent Clay										Level 3
	GDT-6 Volume Change										Level 3
	GDT-7 or GDT-67 Theoretical Density										Level 3
	GDT-59 In Place Density	Test	1/3 Structures or 1/2800 cubic feet of pipe volume 1/500 cubic yards	Test	1/10 Acceptance Tests			DOT-553	FDCS		Level 1
207 Type II Aggregate	T-27	Sample	One per 500 tons based upon QPL-2, except for Section D, Stockpile Basis Sources; material from Section D must be sampled.	Sample Deliver to GDOT Lab for Testing	1/10 Acceptance Tests	Test Samples Delivered by CQAF	Test Samples Delivered by OV	DOT-658	General Contractor Lab & GDOT UPLOAD TO PHYS/CHEM		Level 1
SOIL 208 Embankment	GDT-4 Gradation	Sample	1 per major soil type	Sample Deliver to GDOT Lab for Testing	1/10 Acceptance Tests	Test Samples Delivered by CQAF	Test Samples Delivered by OV	DOT-408 DOT-97	General Contractor Lab & GDOT UPLOAD TO PHYS/CHEM		Level 3
	Section 810 Classification										Level 3
	GDT-6 Volume Change										Level 3
	GDT-7 or GDT-67 Theoretical Density										Level 3
	GDT-59 In Place Density	Test	1/5000 cubic yards	Test	1/10 Acceptance Tests			DOT-553	FDCS		Level 1
	GDT-4 Gradation										Level 2

		Acceptance Decision						QA & OV	QA & OV		OV
Material PAY ITEM	TEST METHOD	**Acceptance Sampling and Testing (QA)** Construction Quality Assurance Firm (CQAF)		**Verification Sampling and Testing (OV)** Owner Verification Firm (OVF)		CQAF's QA Lab	GDOT/OVF LAB	Test Report	Upload to Site-Manager and e- Builder	Upload to Site-Manager and e- Builder	OVT Level
		Acceptance (QA)	Frequency	Verification (OV)	Frequency						
SOIL 209 Subgrade	Section 810 Classification	Sample	1/1500'/2 lanes	Sample Deliver to GDOT Lab for Testing	1/10 Acceptance Tests	Test Samples Delivered by CQAF	Test Samples Delivered by OV	DOT-408 DOT-97	General Contractor Lab & GDOT UPLOAD TO PHYS/CHEM		Level 2
	GDT-6 Volume Change										Level 2
	GDT-7 or GDT-67 Theoretical Density										Level 2
	GDT-59 In Place Density	Test	1/1500' /2 lanes	Test	1/10 Acceptance Tests			DOT-553	FDCS		Level 1
SOIL 211 Excavation Backfill for Bridge Structures Type 1 Class I or II Soils	GDT-4 Gradation	Sample	1/3 Structures or 1/500 cubic yards	Sample Deliver to GDOT Lab for Testing	1/10 Acceptance Tests	Test Samples Delivered by CQAF	Test Samples Delivered by OV	DOT-408 DOT-97	General Contractor Lab & GDOT UPLOAD TO PHYS/CHEM		Level 2
	Section 810 Classification										Level 2
	GDT-4 Percent Clay										Level 2
	GDT-6 Volume Change										Level 2
	GDT-7 or GDT-67 Theoretical Density										Level 2
	GDT-59 In Place Density	Test	1/10' of backfill depth per end bent	Test	1/10 Acceptance Tests			DOT-553	FDCS		Level 1
211 Type II Aggregate	T-27	Sample	One per 500 tons based upon QPL-2, except for Section D, Stockpile Basis Sources; material from Section D must be sampled.	Sample Deliver to GDOT Lab for Testing	1/10 Acceptance Tests	Test Samples Delivered by CQAF	Test Samples Delivered by OV	DOT-658	General Contractor Lab & GDOT UPLOAD TO PHYS/CHEM		Level 1
	GDT-4 Gradation								General		Level 3
	Section 810 Classification										Level 3

		Acceptance Decision						QA & OV	QA & OV		OV
Material PAY ITEM	TEST METHOD	**Acceptance Sampling and Testing (QA)** Construction Quality Assurance Firm		**Verification Sampling and Testing (OV)** Owner Verification Firm (OVF)		CQAF 's QA Lab	GDOT/OVF LAB	Test Report	Upload to FDCS, Phys/Chem or e-Builder	Upload to VAX & e-Builder	OVT Level
		Acceptance (QA)	Frequency	Verification (OV)	Frequency						
SOIL 212 GRANULAR EMBANKMENTS oils	GDT-4 Percent Clay	Sample	1 per major soil type	Sample Deliver to GDOT Lab for Testing	1/10 Acceptance Tests	Test Samples Delivered by CQAF	Test Samples Delivered by OVI	DOT-408 DOT-97	Contractor Lab & GDOT UPLOAD TO PHYS/CHEM		Level 3
	GDT-6 Volume Change										Level 3
	GDT-7 or GDT-67 Theoretical Density										Level 3
	GDT-59 In Place Density	Test	1/5000 cubic yards	T e	1/10 Acceptance Tests			DOT-553	FDCS		Level 1
BASE 310 Graded Aggregate Base Aggregate-Group 1 or 2	T-27 Gradation	Sample	NOTE 1-- If material is delivered directly from an approved source and placed with an approved spreader, no classification samples will be required. NOTE 2-- If material is stockpiled prior to placement OR placed without an approved spreader, the material shall be sampled 1/ 20,000 tons	Sam ple	1/10 Acceptance Tests	Test Samples Delivered by CQAF	Test Samples Delivered by OV	DOT-658	General Contractor Lab & GDOT UPLOAD TO PHYS/CHEM		Level 1
	GDT-63 Sand Equivalency										Level 1
	GDT-49 Theoretical Density	Sample	Established before beginning construction	Sam ple	1/10 Acceptance Tests		Established before beginning construction				Level 1
	In-Place Material Thickness Measurement GDT-42	Test	1/1500' /2 lanes/Lift	Test	1/10 Acceptance Tests			DOT-553	FDCS		Level 1

		Acceptance Decision						QA & OV	QA & OV		OV
Material PAY ITEM	TEST METHOD	**Acceptance Sampling and Testing (QA)** Construction Quality Assurance Firm (CQAF)		**Verification Sampling and Testing (OV)** Owner Verification Firm (OVF)		CQAF 's QA Lab	GDOT/OVF LAB	Test Report	Upload to FDCS, Phys/C hem or e-Builder	Upload to VAX & e-Builder	OVT Level
		Acceptance (QA)	Frequency	Verification (OV)	Frequency						
	GDT-21 or GDT-59 In-Place Density										Level 1
400 Hot Mix Asphaltic Concrete	Void Content GDT-39 or GDT- 59 According to GDT-73	Test	Tests per Lot with a minimum of 1 Test/100 Tons	Test	One per 10 Lots, per Mix, 5 Tests per Lot with a minimum of 1 Test/100 Tons			DOT150	FDCS		Level 1
402 Hot Mix Recycled Asphaltic Concrete	Void Content GDT-39 or GDT-59	Test	5 Tests per Lot with a minimum of 1 Test/100 Tons	Test	One per 10 Lots, per Mix, 5 Tests per Lot with a minimum of 1 Test/100 Tons			DOT150	FDCS		Level 1
	Concrete GDT-35 & T-22 Compressive Strength	Test	3 Sets of 4 Cylinders Per Lot	Test	3 Sets of 4 Cylinders Per 10 Lots Material obtained at the same time as acceptance tests	Test Samples Delivered by CQAF		Test Samples Delivered by OV	DOT-319		Yes	Level 1
	Concrete GDT-26 Air Content	Test	3 Tests Per Lot at same time as Cylinder Fabrication	Test	3 Tests Per10 Lots at same time as Cylinder Fabrication				DOT-319		Yes	Level 1
	Concrete GDT-27 Slump	Test	3 Tests Per Lot at same time as Cylinder Fabrication	Te st	3 Tests Per 10 Lots at same time as Cylinder Fabrication				DOT-319		Yes	Level 1
	Portland Cement T137 Air Content M85 Fineness Autoclave Compressive Strength Chemical T131 Vicat	QPL-3		Sample	One per 2000 tons per source			Test Samples Delivered by OV	DOT175			Level 3

		Acceptance Decision						QA & OV	QA & OV		OV
Material PAY ITEM	TEST METHOD	**Acceptance Sampling and Testing (QA)** Construction Quality Assurance Firm (CQAF)		**Verification Sampling and Testing (OV)** Owner Verification Firm (OVF)		CQAF 's QA Lab	GDOT/OVF LAB	Test Report	Upload to FDCS, Phys/C hem or e-Builder	Upload to VAX & e-Builder	OVT Level
		Acceptance (QA)	Frequency	Verification (OV)	Frequency						
430 Portland Cement Concrete Pavement	**Portland Pozzolan Cement** T137 Air Content M240 Fineness Autoclave Compressive Strength Chemical T131 Vicat	QPL-3		Sam ple	One per 2000 tons per source		Test Samples Delivered by OV	DOT175			Level 3
	Curing Agent M148 Spec's for Liquid Membrane Curing	QPL-16 Or preinspected by Central Lab Personnel									Level 3
	Curing Agent Paper Mats, Plastic Specifications	Preinspected by Central Lab Personnel									Level 3
	Air Entraining Admixture	QPL-13		Sam ple	1 per 7 production days per source		Test Samples Delivered by OV	DOT168			Level 3
	Chemical Admixture	QPL-14		Sam ple	1 per 7 production days per source		Test Samples Delivered by OV	DOT168			Level 3
	Fly ash M295 Fineness Activity Soundness Density Chemical	QPL-30		Sam ple	1 per 2000 tons per source		Test Samples Delivered by OV	DOT175			Level 3
	Slag M302 Fineness Activity Air Content Density Chemical	QPL-30		Sam ple	1 per 2000 tons per source		Test Samples Delivered by OV	DOT175			Level 3
	Dowel Bars and Tie Bars Baskets			Sam ple	One Per 10 Lane Miles		Test Samples Delivered by OV	DOT166	General Contractor Lab & GDOT UPLOAD TO PHYS/CHEM		Level 2

		Acceptance Decision						QA & OV	QA & OV		OV
Material PAY ITEM	TEST METHOD	**Acceptance Sampling and Testing (QA)** Construction Quality Assurance Firm (CQAF)		**Verification Sampling and Testing (OV)** Owner Verification Firm (OVF)		CQAF 's QA Lab	GDOT/OVF LAB	Test Report	Upload to FDCS, Phys/C hem or e-Builder	Upload to VAX & e-Builder	OVT Level
		Acceptance (QA)	Frequency	Verification (OV)	Frequency						
	Multi-Piece Tie Bars	As per Section 430.2.E of the Specifications		Sample	One per Project		Test Samples Delivered by OV	DOT166	General Contractor Lab & GDOT UPLOAD TO PHYS/CHEM		Level 2
	Coarse Aggregate T27 Gradation T11 Washed 200	Sample	One per 1500 tons based upon QPL-2 except for Section D. Stockpile Basis Sources; material from Section D must be sampled	Samp le	1/10 Acceptance Tests	Test Samples Delivered by CQAF	Test Samples Delivered by OV	DOT658	General Contractor Lab & GDOT UPLOAD TO PHYS/CHEM		Level 1
	Fine Aggregate T27 Gradation T11 Washed 200 GDT-63 Sand Equivalency	Sample	One per 1500 tons based upon QPL-1 except for Section D. Stockpile Basis Sources; material from Section D must be sampled	Samp le	1/10 Acceptance Tests	Test Samples Delivered by CQAF	Test Samples Delivered by OV	DOT658	General Contractor Lab & GDOT UPLOAD TO PHYS/CHEM		Level 1
	Water T26 Water Quality	Sample	One per unpotable Source per month			Test Samples Delivered by CQAF		DOT088			Level 3
	Concrete GDT-35 & T-22 Compressive Strength	Test	3 Sets of 4 Cylinders Per Lot	Te st	3 Sets of 4 Cylinders Per 10 Lots Material obtained at the same time as acceptance tests	Test Samples Delivered by CQAF	Test Samples Delivered by OV	DOT319		Yes	Level 1
		NOTE 1 One set per each 350 yd3 of each Class of Concrete placed daily for each structure, except for Concrete used in Bridge curb, Handrail or Wall Coping. Two concrete cylinders shall be fabricated for									
	Concrete GDT-26 or GDT-32 Air Content	Test	3 Tests Per Lot at same time as Cylinder Fabrication	Test	3 Tests Per10 Lots at same time as Cylinder Fabrication			DOT319		Yes	Level 1
	Concrete GDT-27 Slump	Test	3 Tests Per Lot at same time as Cylinder Fabrication	Test	3 Tests Per10 Lots at same time as Cylinder Fabrication			DOT319		Yes	Level 1
	Mix Temperature GDT-122	NOTE 2 Air, Slump and Mix Temperature tests are all required when cylinders are made and as judged necessary to insure adequate controls. Additional tests are recommended at least every third load on Bridge Deck Placement.									Level 1

		Acceptance Decision						QA & OV	QA & OV		OV
Material PAY ITEM	TEST METHOD	**Acceptance Sampling and Testing (QA)** Construction Quality Assurance Firm (CQAF)		**Verification Sampling and Testing (OV)** Owner Verification Firm (OVF)		CQAF 's QA Lab	GDOT/OVF LAB	Test Report	Upload to FDCS, Phys/C hem or e-Builder	Upload to VAX & e-Builder	OVT Level
		Acceptance (QA)	Frequency	Verification (OV)	Frequency						
439 Portland Cement Concrete Pavement (Special < 50,000 yd2)	**Portland Cement** T137 Air Content M85 Fineness Autoclave Compressive Strength Chemical T131 Vicat	QPL-3		Sample	One per 2000 tons per source		Test Samples Delivered by OV	DOT175			Level 3
	Portland Pozzolan Cement T137 Air Content M240 Fineness Autoclave Compressive Strength Chemical T131 Vicat	QPL-3		Sample	One per 2000 tons per source		Test Samples Delivered by OV	DOT175			Level 3
	Fly ash M295 Fineness Activity Air Content Density Chemical	QPL-30		Sample	1 per 2000 tons per source		Test Samples Delivered by OV	DOT175			Level 3
	Slag M302 Fineness Activity Soundness Density Chemical	QPL-30		Sample	1 per 2000 tons per source		Test Samples Delivered by OV/OCEI	DOT175			Level 3
	Dowel Bars and Tie Bars Baskets			Sample	One per 10 Lane Miles		Test Samples Delivered by OV	DOT166			Level 2
	Multi-Piece Tie Bars	As per Section 430.2.E of the Specifications		Sample	One per Project		Test Samples Delivered by OV	DOT166			Level 2

		Acceptance Decision						QA & OV	QA & OV		OV
Material PAY ITEM	TEST METHOD	**Acceptance Sampling and Testing (QA)** Construction Quality Assurance Firm (CQAF)		**Verification Sampling and Testing (OV)** Owner Verification Firm (OVF)		CQAF 's QA Lab	GDOT/OVF LAB	Test Report	Upload to FDCS, Phys/C hem or e-Builder	Upload to VAX & e-Builder	OVT Level
		Acceptance (QA)	Frequency	Verification (OV)	Frequency						
	Coarse Aggregate T27 Gradation T11 Washed 200	Sample	One per 1500 tons based upon QPL-2 except for Section D. Stockpile Basis Sources; material from Section D must be sampled	Sample	1/10 Acceptance Tests	Test Samples Delivered by CQAF	Test Samples Delivered by OV	DOT658	General Contractor Lab & GDOT UPLOAD TO PHYS/CHEM		Level 1
	Fine Aggregate T27 Gradation GDT-63 Sand Equivalency	Sample	One per 1500 tons based upon QPL-1 except for Section D. Stockpile Basis Sources; material from Section D must be sampled	Samp le	1/10 Acceptance Tests	Test Samples Delivered by CQAF	Test Samples Delivered by OV	DOT658	General Contractor Lab & GDOT UPLOAD TO PHYS/CHEM		Level 1
	Water T26 Water Quality	Sample	One per unpotable Source per month			Test Samples Delivered by CQAF		DOT088			Level 3
	Concrete GDT-35 & T-22 Compressive Strength	Test	One set per each cumulative 100 cubic yards OR 1 set per week per Plant	Te st	1/10 Acceptance Tests	Test Samples Delivered by CQAF	Test Samples Delivered by OV	DOT319		Yes	Level 1
	Concrete GDT-26 Air Content	Test	Air and Slump Tests are required when cylinders are made & as judged necessary to insure adequate control	Te st	1/10 Acceptance Tests			DOT319		Yes	Level 2
	Concrete GDT-27 Slump	Test		Te st	1/10 Acceptance Tests			DOT319		Yes	Level 2
	Portland Cement T137 Air Content M85 Fineness Autoclave Compressive Strength Chemical T131 Vicat	QPL-3									Level 3

		Acceptance Decision								QA & OV	QA & OV		OV
Material PAY ITEM	TEST METHOD	**Acceptance Sampling and Testing (QA)** Construction Quality Assurance Firm (CQAF)		**Verification Sampling and Testing (OV)** Owner Verification Firm (OVF)		CQAF's QA Lab		GDOT/OVF LAB		Test Report	Upload to FDCS, Phys/C hem or e-Builder	Upload to VAX & e-Builder	OVT Level
		Acceptance (QA)	Frequency	Verification (OV)	Frequency								
441 Miscellaneous Concrete	**Portland Pozzolan Cement** T137 Air Content M240 Fineness Autoclave Compressive Strength Chemical T131 Vicat	QPL-3											Level 3
	Curing Agent M148 Spec's for Liquid Membrane Curing	QPL-16											Level 3
	Air Entraining Admixture	QPL-13											Level 3
	Chemical Admixture	QPL-14											Level 3
	Fly ash M295 Fineness Activity Soundness Density Chemical	QPL-30											Level 3
	Coarse Aggregate T27 Gradation T11 Washed 200	Sample	One per 1500 tons based upon QPL-2 except for Section D. Stockpile Basis Sources; material from Section D must be sampled	Samp le	1 / 10 Acceptance Tests	Test Samples Delivered by CQAF		Test Samples Delivered by OV		DOT658	General Contractor Lab & GDOT UPLOAD TO PHYS/CHEM		Level 1
	Fine Aggregate T27 Gradation T11 Washed 200 GDT-63 Sand Equivalency	Sample	One per 500 tons based upon QPL-1 except for Section D. Stockpile Basis Sources; material from Section D must be sampled	Samp le	1 / 10 Acceptance Tests	Test Samples Delivered by CQAF		Test Samples Delivered by OV		DOT658	General Contractor Lab & GDOT UPLOAD TO PHYS/CHEM		Level 1

		Acceptance Decision						QA & OV	QA & OV		OV
Material PAY ITEM	TEST METHOD	**Acceptance Sampling and Testing (QA)** Construction Quality Assurance Firm (CQAF)		**Verification Sampling and Testing (OV)** Owner Verification Firm (OVF)		CQAF's QA Lab	GDOT/OVF LAB	Test Report	Upload to FDCS, Phys/C hem or e-Builder	Upload to VAX & e-Builder	OVT Level
		Acceptance (QA)	Frequency	Verification (OV)	Frequency						
	Concrete GDT-35 & T-22 Compressive Strength	Test	One set per each 50 yd3 of each Class of Concrete placed daily for each structure, except for Concrete used in Bridge Curb, Handrail or Wall Coping. Two Concrete cylinders shall be fabricated for each cumulative 50 yd3 or fraction thereof, of Concrete placed per week in each structure. Cylinders shall not be fabricated at one structure to represent Concrete placed in another	Test	1 Set per 10 Acceptance Sets	Test Samples Delivered by CQAF	Test Samples Delivered by OV	DOT-319		Yes	Level 1
	Concrete GDT-26 Air Content	Test	Air, Slump & Mix Temperature tests are all required when cylinders are made & as judged necessary to insure adequate controls. Additional tests are recommended at least every third load on bridge deck placement.	Test	3 Test Per 10 Acceptance Tests			DOT-319		Yes	Level 1
	Concrete GDT-27 Slump	Test		Test	1 Test Per 10 Acceptance Tests			DOT-319		Yes	Level 1
	Portland Cement T137 Air Content M85 Fineness Autoclave Compressive Strength Chemical T131 Vicat	QPL-3		Sample	One per 2000 tons per source		Test Samples Delivered by OV	DOT175			Level 3

		Acceptance Decision						QA & OV	QA & OV		OV
Material PAY ITEM	TEST METHOD	**Acceptance Sampling and Testing (QA)** Construction Quality Assurance Firm (CQAF)		**Verification Sampling and Testing (OV)** Owner Verification Firm (OVF)		CQAF 's QA Lab	GDOT/OVF LAB	Test Report	Upload to FDCS, Phys/C hem or e-Builder	Upload to VAX & e-Builder	OVT Level
		Acceptance (QA)	Frequency	Verification (OV)	Frequency						
500 Concrete	**Portland Pozzolan Cement** T137 Air Content M240 Fineness Autoclave Compressive Strength Chemical T131 Vicat	QPL-30		Sample	One per 2000 tons per source		Test Samples Delivered by OV	DOT175			Level 3
	Air Entraining Admixture	QPL-13		Sample	1 per 7 production days per source		Test Samples Delivered by OV	DOT168			Level 3
	Chemical Admixture	QPL-14		Sample	1 per 7 production days per source		Test Samples Delivered by OV	DOT168			Level 3
	Fly ash M295 Fineness Activity Soundness Density Chemical	QPL-30		Sample	1 per 2000 tons per source		Test Samples Delivered by OV	DOT175			Level 3
	Slag M302 Fineness Activity Soundness Density Chemical	QPL-30		Sample	1 per 2000 tons per source		Test Samples Delivered by OV	DOT175			Level 3
	Steel Bars for Reinforcement M31M Number Weight Dimensions Deformation Spacing Height & Gap Chemical T244 Tensile Strength Yield Strength Elongation T285 Bend Test			Sample	One Piece @ 24" Per Size		Test Samples Delivered by OV	DOT166	General Contractor Lab & GDOT UPLOAD TO PHYS/CHEM		Level 2

		Acceptance Decision						QA & OV	QA & OV		OV
Material PAY ITEM	TEST METHOD	**Acceptance Sampling and Testing (QA)** Construction Quality Assurance Firm (CQAF)		**Verification Sampling and Testing (OV)** Owner Verification Firm (OVF)		CQAF 's QA Lab	GDOT/OVF LAB	Test Report	Upload to FDCS, Phys/C hem or e-Builder	Upload to VAX & e-Builder	OVT Level
		Acceptance (QA)	Frequency	Verification (OV)	Frequency						
	Steel Wire for Reinforcement M32M Size Diameter Area Bend Test T244 Tensile Strength Yield Strength Area Reduction			Sample	One Piece @ 24" Per Size		Test Samples Delivered by OV	DOT166	General Contractor Lab & GDOT UPLOAD TO PHYS/CHEM		Level 2
	Welded Steel Wire Fabric for Reinforcement M55M Size Diameter Area Bend Test Weld Sheer Strength Width Length Spacing T244 Tensile Strength Yield Strength Elongation T285 Bend Test			Sample	2' X 2' per size per project		Test Samples Delivered by OV	DOT166	General Contractor Lab & GDOT UPLOAD TO PHYS/CHEM		Level 2

		Acceptance Decision						QA & OV	QA & OV		OV
Material PAY ITEM	TEST METHOD	**Acceptance Sampling and Testing (QA)** Construction Quality Assurance Firm (CQAF)		**Verification Sampling and Testing (OV)** Owner Verification Firm (OVF)		CQAF 's QA Lab	GDOT/OVF LAB	Test Report	Upload to FDCS, Phys/C hem or e-Builder	Upload to VAX & e-Builder	OVT Level
		Acceptance (QA)	Frequency	Verification (OV)	Frequency						
	Dowel Bars M31M Number Weight Dimensions Deformation Spacing Height & Gap Chemical T244 Tensile Strength Yield Strength Elongation T285 Bend Test 853.08 Coating	Sample	One per Project	Sample	One per Project	Test Samples Delivered by CQAF	Test Samples Delivered by OV	DOT166	General Contractor Lab & GDOT UPLOAD TO PHYS/CHEM		Level 2
	Coarse Aggregate T27 Gradation T11 Washed 200	Sample	One per 1500 tons based upon QPL-2 except for Section D. Stockpile Basis Sources; material from Section D must be sampled	Sample	1/10 Acceptance Tests	Test Samples Delivered by CQAF	Test Samples Delivered by OV	DOT658	General Contractor Lab & GDOT UPLOAD TO PHYS/CHEM		Level 1
	Fine Aggregate T27 Gradation T11 Washed 200 GDT-63 Sand Equivalency	Sample	One per 1500 tons based upon QPL-1 except for Section D. Stockpile Basis Sources; material from Section D must be sampled	Sample	1/10 Acceptance Tests	Test Samples Delivered by CQAF	Test Samples Delivered by OV	DOT658	General Contractor Lab & GDOT UPLOAD TO PHYS/CHEM		Level 1
	Water T26 Water Quality	Sample	One per unpotable Source per month			Test Samples Delivered by CQAF		DOT088			Level 3

		Acceptance Decision						QA & OV	QA & OV		OV
Material PAY ITEM	TEST METHOD	**Acceptance Sampling and Testing (QA)** Construction Quality Assurance Firm (CQAF)		**Verification Sampling and Testing (OV)** Owner Verification Firm (OVF)		CQAF"sQA Lab	GDOT/OVF LAB	Test Report	Upload to FDCS, Phys/C hem or e-Builder	Upload to VAX & e-Builder	OVT Level
		Acceptance (QA)	Frequency	Verification (OV)	Frequency						
	Per Section 500.3.06.E (page 510 of 2013 spec book)	E. Ride Quality Test After the bridge decks and approach slabs are completed, the Department will perform a Ride Quality Test using the Lightweight Profiler and a profile index value determined according to GDT 134. The Department will conduct the test as follows: Obtain Profile Index Values for bridge decks and approach slabs for: State roads with four lanes or more State roads with 2 lanes where the current traffic count is 2,000 vehicles per day or higher Other roads designated on the Plans Bridges and approach slabs must meet the straightedge check limits described in Subsection 500.3.06.D, "Bridge Deck Surface Check." Obtain profiles in the wheel paths and in safety areas to within 6 ft. (1.8 m) of barrier or curb lines. Average the profile index values for bridge decks including the approach slabs for the left and right wheel path for each lane. The average value must not exceed 15 in/mile (235 mm/km) for each lane. After the test is complete, correct individual bumps or depressions that exceed 2/10 in (5 mm) from the blanking band on the profiler trace. The deck surface must then meet a 1/8 inch in 10 ft. (3 mm in 3 m) straightedge check made transversely. Correct bridge decks and approach slabs that do not pass the Ride Quality Test as described in Subsection 500.3.05.AG, "Complete Corrective Work."									
	Plain Steel Bars - Threaded Ends Chemical Hardness ASTM A370 Tensile Strength Yield Strength Elongation Reduction of Area ASTM T244 Thread Dimensions			Sample	1 Per Size per Project		Test Samples Delivered by QA		GDOT UPLOAD TO PHYS/CHEM		Level 3

		Acceptance Decision						QA & OV	QA & OV		OV
Material PAY ITEM	TEST METHOD	**Acceptance Sampling and Testing (QA)** Construction Quality Assurance Firm (CQAF)		**Verification Sampling and Testing (OV)** Owner Verification Firm (OVF)		CQAF's QA Lab	GDOT/OVF LAB	Test Report	Upload to FDCS, Phys/C hem or e-Builder	Upload to VAX & e-Builder	OVT Level
		Acceptance (QA)	Frequency	Verification (OV)	Frequency						
507 Prestressed Concrete Bridge Members	**Anchor Bolts** Grade as Specified on Plans Yield Strength Tensile Strength Elongation Reduction of Area T244 Thread Dimensions Size Diameter Length Chemical			Sample	One Each Bolt, Nut, Washer		Test Samples Delivered by QA		GDOT UPLOAD TO PHYS/CHEM		Level 3
	Elastomeric Bearing Pads Hardness ASTM D2240 Tensile Strength Elongation ASTM D412 Heat Resistance ASTM D573 Compression Set ASTM D395 Brittleness ASTM D746 Dimensions Laminate Thickness Tensile Strength Yield Strength Elongation M183			Sa mp le	One Pad Per Lot Number Per Size Per Project		Test Samples Delivered by OV		GDOT UPLOAD TO PHYS/CHEM		Level 3
608 Brick Masonry	**Clay or Shale Brick** Specification Requirements M91, Grade MA	Sample	One Set of 10 Bricks per 25,000 Bricks per Source	Sa mp le	1/10 Acceptance Tests	Test Samples Delivered by CQAF	Test Samples Delivered by OV		General Contractor Lab & GDOT UPLOAD TO PHYS/CHEM		Level 3

		Acceptance Decision						QA & OV	QA & OV		OV
Material PAY ITEM	TEST METHOD	**Acceptance Sampling and Testing (QA)** Construction Quality Assurance Firm (CQAF)		**Verification Sampling and Testing (OV)** Owner Verification Firm (OVF)		CQAF 's QA Lab	GDOT/OVF LAB	Test Report	Upload to FDCS, Phys/C hem or e-Builder	Upload to VAX & e-Builder	OVT Level
		Acceptance (QA)	Frequency	Verification (OV)	Frequency						
638 Structural Supports For Overhead Signs 639 Strain Pole for Overhead Sign & Signal Assemblies 920 Lighting Standards and Towers	**Anchor Bolts** Grade Chemical M314 Yield Strength Tensile Strength Elongation Reduction of Area T244 Thread Dimensions Size Diameter Length Galvanization ASTM A153			Sample	One bolt per diameter, per Heat Number, per Project		Test Samples Delivered by QA		GDOT UPLOAD TO PHYS/CHEM		Level 3
643 Fence	**Chain Link Fence** Specification Requirements ASTM A392 or ASTM A491 Height Diamond Count Mesh Size Wire Diameter Breaking Strength ASTM A817 Coating ASTM A817			Sample	1 Ft X Height of Fence. One Sample per 50 Rolls per Project		Test Samples Delivered by OV		GDOT UPLOAD TO PHYS/CHEM		Level 3
	Chain Link Fence Posts Specification Requirements ASTM F669 Dimensions Yield Strength ASTM A702 Tensile Strength ASTM A702 Weight Hardness ASTM A702 Galvanization ASTM A123			Sample	1 Ft or 1 Piece for accessories. One Sample per 500 Posts per Project		Test Samples Delivered by OV		GDOT UPLOAD TO PHYS/CHEM		Level 3

		Acceptance Decision							QA & OV	QA & OV		OV
Material PAY ITEM	TEST METHOD	**Acceptance Sampling and Testing (QA)** Construction Quality Assurance Firm (CQAF)		**Verification Sampling and Testing (OV)** Owner Verification Firm (OVF)		CQAF 's QA Lab		GDOT/OVF LAB	Test Report	Upload to FDCS, Phys/C hem or e-Builder	Upload to VAX & e-Builder	OVT Level
		Acceptance (QA)	Frequency	Verification (OV)	Frequency							
	Barbed Wire Specification Requirements Coating ASTM A121 or ASTM A585 Diameter Number of Points Shape and Spacing of Barbs Breaking Strength ASTM A121			Sample	3 Ft. One Sample per 50 Rolls per Project			Test Samples Delivered by OV		General Contractor Lab & GDOT UPLOAD TO PHYS/CHEM		Level 3

APPENDIX F

COMPARISON TOLERANCE

The following tolerances are provided as a guide. Independent Assurance personnel should initiate an investigation into any differences between independent assurance and acceptance results when they exceed these tolerances.

Asphaltic Concrete		
Sieve Size	**Maximum Differences Surface**	**Maximum Differences Intermediate and Base**
1/2” (12.5 mm)	3.5%	4.0%
3/8” (9.50 mm)	3.5%	4.0%
No. 4 (4.75 mm)	3.5%	3.5%
No. 8 (2.36 mm)	2.5%	3.0%
No. 200 (75 µm)	2.0%	2.0%
A.C.	0.40%	0.50%
Compaction or voids	2.0%	2.5%

Coarse Aggregate for Concrete, Surface Treatment	
Sieve Size	**Maximum Difference**
Top sieve	2.0%
Next to top sieve	3.0%
No. 4 (4.75 mm) >	6.0%
< No. 4 (4.75 mm)	3.0%
No. 200 (75 µm)	1.0%

Concrete Sand	
Sieve Size	**Maximum Difference**
3/8 in (9.5 mm)	2.0%
No. 4 (4.75 mm)	2.0%
No. 16 (1.18 mm)	4.0%
No. 50 (300 µm)	3.0%
No. 100 (150 µm)	2.0%
No. 200 (75 µm)	2.0%

Graded Aggregate (Section 815)	
Sieve Size	**Maximum Difference**
2 in (50 mm)	2.0%
1 ½ in (37.5 mm)	3.0%
3/4 in (19.0 mm)	6.0%
No. 10 (2.00 mm)	8.0%
No. 60 (250 µm)	6.0%
No. 200 (75 µm)	5.0%
Sand Equivalent	4 points
Compaction	2.0%

Soil Aggregate (Section 816)	
Sieve Size	**Maximum Difference**
2 in (50 mm)	3.0%
1 ½ in (37.5 mm)	3.0%
¾ in (19.0 mm)	8.0%
No. 10 (2.00 mm)	10.0%
No. 60 (250 µm)	8.0%
No. 200 (75 µm)	5.0%
Clay Content	5.0%
Volume Change and Plasticity Index	5.0%
Compaction	2.0%

Soil Materials (Sections 810, 812, 814)	
Sieve Size	**Maximum Difference**
No. 40 (425 µm)	5.0%
No. 60 (250 µm)	5.0%
No. 200 (75 µm)	5.0%
Clay Content	5.0%
Volume Change	
0-5	5.0%
6-15	7.0%
15>	9.0%
Theo. Density	3 pcf (48 kg/m^3)
Compaction	2.0%

Structural and Miscellaneous Concrete	
Test	**Maximum Difference**
Air Content	1.0%
Slump	1 in (25 mm)

APPENDIX G

QUALIFICATION PERFORMANCE REPORT

GEORGIA DEPARTMENT OF TRANSPORTATION

Qualification Performance Report

Technician Name: _____ Technician ID #: _____

Date: _____ Time: _____

District: _____ Area: _____

County: _____ Location: _____

Test Type

QC: _____

Acceptance: _____

Ind. Verification: _____

Other: _____

Qualification Reviewed

RTT: _____

QCT Level 1: _____

Field Concrete: _____

Observation: _____

Split Sample: _____

Proficiency Sample: _____

Technician Sample No.: _____

IA Sample No.: _____

Observation Section

Record Overall Score in Proper Block below:

Procedures Performed Proficiently: _____

The Technician performed the procedures proficiently and this Technician's samples and tests can be used in the acceptance decision on Georgia Department of Transportation or Federal Aid Local Government projects.

Procedures Performed Satisfactorily: _____

The Technician performed the procedures satisfactorily and this Technician's samples and tests can be used in the acceptance decision on Georgia Department of Transportation or Federal Aid Local Government projects.

Procedures Performed Unsatisfactorily: _____

The Technician did not perform the procedures satisfactorily and must receive at least a Satisfactory rating on a re-evaluation of the procedures before this Technician's samples and tests can be used in the acceptance decision on Georgia Department of Transportation or Federal Aid Local Government projects.

If Results Unsatisfactory (Overall Score):		***Date of Unsatisfactory Evaluation***
1st Unsatisfactory:		
2nd Unsatisfactory:		
3rd Unsatisfactory:		

Comments: _____

Signed: Independent Assurance: _____ Date: _____

Technician: _____ Date: _____

APPENDIX H
SAMPLE CHECKLIST SUMMARY SHEET

Roadway Testing Technician Summary Sheet

Technician Name:	
Title:	
Certification Number:	

Procedure	Score	Possible	Total Weight	Total Score	Date
GSP 2		2	5	0.0	
GDT 21		12	20	0.0	
GDT 39		10	15	0.0	
GDT 42		7	5	0.0	
GDT 59		17	20	0.0	
GDT 67		10	20	0.0	
GDT 73		1	15	0.0	
Totals:	0	59	100	0.0	

Overall Score:	0

<85	Unsatisfactory	_____
>=85 <95	Satisfactory	_____
>=95	Proficient	_____

APPENDIX I
SAMPLE REQUEST FOR ASSISTANCE

DOT 66 REV. 3/01

DEPARTMENT OF TRANSPORTATION

STATE OF GEORGIA

INTERDEPARTMENT CORRESPONDENCE

FILE

OFFICE Materials & Research
Forest Park, Georgia

DATE

FROM David Duffey, Quality Assurance Branch Supervisor

TO Testing Management Operation Supervisors & Bituminous Area Engineers

SUBJECT INDEPENDENT ASSURANCE SAMPLES EXCEEDING TOLERANCES

Attached are asphaltic concrete extraction split sample comparisons. You will notice that the results are outside our recommended percentages. In order to clarify these differences, we would appreciate your assistance in this investigation determining the possible cause(s), including any information concerning previous problems you have encountered with testing equipment and personnel. Please initial and return this report within one (1) week whether or not you have information regarding this problem.
A copy of this letter will be distributed to Lab Files.

SIEVE SIZE	MAXIMUM DIFFERENCES	
	Surface	Intermediate & Base
12.50 mm	3.5%	4.0%
9.50 mm	3.5%	4.0%
4.75 mm	3.5%	3.5%
2.36 mm	2.5%	3.0%
75 µm	2.0%	2.0%
A.C.	0.4%	0.5%
Compaction	2.0%	2.5%

If you have any questions, please let me know.
DD:dd

CC Lab files
Attachment

INITIAL: T.M.O.S._____ B.C.E._____

APPENDIX J

MINIMUM CQAF CONSTRUCTION QUALITY ACCEPTANCE INSPECTION OR CONTROL POINT INSPECTION (CPI)

Activity	INSPECTION REQUIREMENT	DOCUMENTATION FORM(S)
All	Location and type of work Weather and Site Conditions (Marietta, GA) Checks for compliance with Design Plans and Project Specifications Extent of Work Problems Encountered Instructions	Project Diary
Signs and Barricades	Location, stationing and distance from edge of road Visibility, height above road, condition of signs Daily to verify condition Night inspections initial and periodic for reflectivity	627-02 “Lump Sum” TC1
Clearing and Grubbing	Clearing and grubbing limits Disposal Protection of surroundings from damage Removal of large roots and stumps Blading the site to confirm drainage	627-09 “Lump Sum”
Temporary Erosion Control	Temporary Erosion Control -Mulch -Seeding -Slope Drains -Silt Fencing -Hay Bales	627-07 “Mulch Weight” 627-02 “Lump Grassing” 627-04 “Temp Slope Drain” 627-04 “Temp Silt fence + Hay Bales Verify clear + Grubb less than 17 AC (unless approved waiver)
Removals	Verify only designated structures, facilities, or obstructions are removed or relocated. Proper notifications given for removal of Underground Storage Tanks and other hazardous materials. Disposal of materials	627-09 “Lump Sum”

Activity	INSPECTION REQUIREMENT	DOCUMENTATION FORM(S)
Culverts and Storm Drains	Adequate structure Backfill material, bedding material, and fabrics sampled and approved Pipe Invoice w/ GDOT CPT Stamp Laying Pipe Bedding and backfill “O” Rings used on pipe Compaction and compactive effort	627 - (04, 06, 15, 16) DOT 319 QPL Source/GDOT Number Recorded; Pipe plot up
Earthwork	Area preparation Soils sampled and approved Lift Thickness Compaction and compactive effort Slope and Grade	
Geotextile	GEO Grid Material acceptance	627-05; Shop Drawings
Stone Base	Material Sampled and approved Compaction and compactive effort Curing membrane	627-05 or 627-07; GDOT Compact Results
Asphaltic Concrete	Surface prepared Materials sampled and approved Plant and Equipment calibrated and approved Temporary traffic tape Signing and flagging Certified technicians Weather Conditions Mix design submitted and approved Plant operation Temperature of mix Spreading and finishing Compaction/pavement density Joints Surface tolerances Tack shots monitored	627-05 or 627-07; JMF; Sign Date Tickets 159-5’s Completed & Approved

Activity	INSPECTION REQUIREMENT	DOCUMENTATION FORM(S)
Portland Cement Concrete Paving	Surface prepared Materials sampled and approved Plant and Equipment calibrated and approved Forms Dowels and load transfer devices Mix design submitted and approved Placing and spreading concrete Finishing and texturing Joints Surface tolerance Slump and air Curing Removing forms (fixed form paving) Protection of pavement Sealing joints	(GDOT OMAT Approval) GADOT Approved Mix Design GADOT – Aggregate Samples + Port Cement Dowel Basket Sample DOT 627-05; DOT 319
Aggregate Surface Course	Materials - approved source	GDOT 627-07 QPL Source
Incidental Concrete Work - Sidewalks and Drives	Surface prepared Forms Mix design submitted and approved Depth Cylinders Curing	GDOT 319 Approved Concrete Mix Design
Driven Piles	Type, size, and length of pile Pile lengths recorded Storing, handling, and damage to piles before and during driving. Adequate bearing capacity achieved	GDOT 627-04; QPL Source recorded Approval; Visual Inspection (of storing; damaged pile) (Inspect for achieving bearing capacity)

Activity	INSPECTION REQUIREMENT	DOCUMENTATION FORM(S)
Drilled Shafts	Installation Plan Safety Excavation methods Casings – temporary and/or permanent Slurry Location, size, and alignment Reinforcing steel Concrete placement and finishing Verification of integrity of shafts	Review superintendent resume; Concrete mix design approved DOT 319 Cut sheets, reinforce steel Documenting integrity of rock GDOT 627-04
Structural Concrete	Forms, Ambient Temperature Slump and Air tests Placement and vibrating Cylinders Surface finish Curing	DOT 627-02 GDOT 319 Dry run document Cut sheets reinforce steel Steel cover (Pachometer) Deck thickness verification (TBD)
Reinforcing Steel	Storing and handling Check QPL Spacing; Number; Size Splices	627-17
Prestressed Concrete Units	When receiving units -Inspector's stamp of approval -Certificate of Delivery -Damage during shipment -Visual defects Erection plan Repair of defects	627-04; Document GDOT stamp on beam Inspect and document any defects Inspect + document any defects Inspect + document rejected beams; or note repairs made
Structural Steel	Fabrication -Shop drawings -Mill test reports -Certified test reports for bolts and nuts Field Erection -Sequence -False work -Site storage and handling -Connections	Review + receive shop drawings 627-02

Activity	INSPECTION REQUIREMENT	DOCUMENTATION FORM(S)
Bridge Bearings	Materials Fabrication Protective coatings Bearing surface preparation Anchor bolts Pad installation	Check bearing pads for GDOT stamps 627-02
Bridge Bearings cont.	Materials Fabrication Cleaning Assembly Installation -Preparation	
Superstructure Slabs and Approach Slabs	Forming -Forms -Support systems -Haunch depths -Joints -Drainage Placing and fastening reinforcing steel Concrete Operations -Pre Pour Conference -Placing sequence (Pour Sequence) -Adequacy of personnel and equipment -Concrete supply -Curing materials -Admixtures +Weather and temperature +Placing (Wet Checks) +Finishing +Curing	627-02; Shop drawings S.I.P Deck forms; check reinforced steel ties; check dry run; review wet checks; DOT 319; check cure techniques
Permanent Erosion Control	Final dressing of area Area determinations Spread rate for seed and fertilizer Watering	627-02 627-07 (Fertilized)

Activity	INSPECTION REQUIREMENT	DOCUMENTATION FORM(S)
Maintenance and Protection of Traffic	Surface condition Intersecting traffic Dust control and spillages Flaggers Delineation and guiding devices Construction signs, temporary barriers, barricades and lighting Pavement markings Pavement drop-off protection	TCI; 627-02 WTCS Resumes
Signs	Materials Fabrication Sign face construction Work sequence Location Erection Transporting, handling, and storage Foundations Sign post Breakaway bases	627-04; 627-05; GDOT 319; Shop drawing (Review + Approval)
Traffic Signals	Materials Payment Schedule Excavation Pole excavation and concrete foundations Poles Grounding Conduit and direct burial cable Pull boxes Signal control cable and shielded communications cable Cable splices Span wire assemblies Messenger assemblies Buy assemblies Signal heads	Approval by TOPS of new signal installation Approval of shop drawings 627-02 DOT 319
Pavement Markings	Atmospheric conditions General requirements Materials Surface cleaning and preparation Equipment Application of markings	627-04; 627-05 GDOT Lot # on RPM's + thermal material

Georgia Department of Transportation

Technical Provisions

For

Design-Build Agreement

P.I. No. 0012757 and 0012758

Attachment 2-3

FORM OF PAYMENT REQUEST

Form of Payment Request

Project: _____
SRTA Contract No.: P.I. No. _____
Payment Request Period: _____, 20__ through _____, 20__

Payment Requests for this Payment Request Period:

Payment Request No	Payment Request Amount	Deposit to Designated Account
	$	
	$	
	$	
	$	
	$	
	$	
	$	
	$	
	$	
	$	
	$	
	$	
	$	
	$	
Total	$	

Designated Account 1: [TO BE PROVIDED TO SRTA BY DB TEAM]
Designated Account 2: [TO BE PROVIDED TO SRTA BY DB TEAM]

Total Payment Request Amounts for this Payment Request Period must equal the amount reflected on Line 2(c) below.

PAYMENT REQUEST COVER SHEET

Contract Sum and Payment Summary			
1(a)	Original Contract Sum	$[_____]	
1(b)	Sum of approved Supplemental Agreements	$[_____]	
1(c)	Adjusted total Contract Sum *Line 1(a) plus Line 1(b)*		$[_____]
1(d)	Sum of prior Net Payment Requests approved by SRTA	($[_____])	
1(e)	Net balance of Contract Sum before this Payment Request Period *Line 1(c) minus Line 1(d)*		$[_____]

Detailed Summary for Payment Request Period			
2(a)	Aggregate amount from Payment Activities requested this Payment Request period	$[_____]	
2(b)	Deduction for withholdings, Nonconforming Work, Liquidated Damages, Nonrefundable Deductions and other amounts due to SRTA during this Payment Request Period	$[_____]	
2(c)	Net Payment Request for this Payment Request Period *Line 2(a) less Line 2(b)*		$[_____]
Contract Sum Remaining			
3(a)	Net outstanding balance of Contract Sum after this Payment Request Period *Line 1(e) less Line 2(c)*		$[_____]

DB Team hereby certifies that the Completed Payment Activities applicable to this Payment Request No. [XXXX] have been performed to level of completion represented herein.

[DB Team]

By: _____

Name: _____

Title: _____

Date: _____

Approved by:

GEORGIA DEPARTMENT OF TRANSPORTATION

By: _____

Name: _____

Title: _____

Date: _____

Approved by:

STATE ROAD AND TOLLWAY AUTHORITY

By: _____

Name: _____

Title: _____

Date: _____

Georgia Department of Transportation

Technical Provisions

For

Design-Build Agreement

P.I. Nos. 0012757 and 0012758,

Attachment 2-4

DB Team Certification for Payment
DB Team Certificate and Release
Affidavit of Wages Paid

DB Team Certification for Payment

In order to induce the State Road and Tollway Authority ("SRTA") to make payment as requested by the Payment Request, DB Team hereby certifies, represents and warrants to SRTA, with respect to Payment Request No(s).____ for the period from _____ to _____, as follows:

1. Unless otherwise indicated, capitalized terms used herein shall have the meanings set forth in that certain Design, Build Agreement between SRTA and DB Team (the "DB Agreement").

2. The Work associated with each Payment Activity described in the exhibits and documents attached hereto has been completed to the level represented by this Payment Request and has been fully performed in compliance in all material respects with the requirements of the DB Documents; and the information contained in such exhibits and documents is true, complete and correct in all material respects.

4. The amount specified in the Payment Request has been computed in accordance with, and is due and payable under, the terms and conditions of the DB Agreement, has not been the subject of any previous Payment Request (unless disputed or rejected for payment) and is not the subject of any pending Payment Request from DB Team.

5. No DB Team Default has occurred and is continuing that has not been reported to SRTA.

6. The representations and warranties of DB Team set forth in the DB Agreement are true and correct as of the date of this Payment Request.

7. All Governmental Approvals necessary for the Work that are DB Team's obligation to obtain pursuant to the DB Documents and to which this Payment Request relates have been secured, except to the extent SRTA and the issuing Governmental Entity have granted a written exception, and there exists no reason to believe that any future Governmental Approvals that are DB Team's obligation to obtain pursuant to the DB Documents for the Work cannot be secured.

8. Neither DB Team nor any Contractor is barred or suspended from providing goods or services to any local, state or federal agency. Except for any specific subcontractor or Supplier listed as barred or suspended in an attachment hereto, each Subcontractor for the Work has certified in its respective invoice to the DB Team that it is not barred or suspended from providing goods or services to any local, state or federal agency, and to DB Team's knowledge no Subcontractor has been so barred or suspended.

9. As of the date hereof, the DB Team and all Contractors and Subcontractors, together with all Utility Owners and other third parties engaged or retained by DB Team or such Contractors for performance or supply of Work have been paid all amounts due under their respective contracts or purchase agreements other than, in each case, amounts to be paid pursuant to this Payment Request and amounts in dispute and for

which DB Team has previously given SRTA written notice setting forth in detail the amounts in dispute.

10. Prevailing wages have been paid to all employees of DB Team, the Design-Build Contractor, and all Contractors and Subcontractors in accordance with the rates set forth in the DB Agreement.

11. DB Team and the undersigned making the certifications in connection with the Payment Request acknowledge that GDOT and SRTA shall rely on the certifications and information presented herein and represent and certify that the calculations as set forth in the Payment Request are true and correct as of the date hereof.

12. Also attached hereto are:

(a) A certificate and release signed by the Design-Build Contractor, each other Contractor for Work, and each Subcontractor and Utility Owner or other third party engaged or retained for performance of Work or supply of related services, materials or equipment included in any preceding Payment Request for which DB Team received payment, certifying that it has received payment in full for such services, materials or equipment, except only for amounts in dispute, stating any amounts in dispute, and waiving and releasing any and all claims, liens, or security interests, known or unknown, suspected or unsuspected, arising out of such services, materials or equipment against any person or property whatsoever, including SRTA, GDOT, the State, the Project, any P&P Bond and any letters of credit, except potential claims against retainage (as and to the extent permitted pursuant to the DB Agreement), or letters of credit or certificates of deposit for retainage.

(b) An updated Schedule of Values reflecting the true Work performed.

(d) An “Affidavit of Wages Paid” submitted by the DB Contractor, each Contractor, and each subcontractor, certifying wages paid and compliance with applicable prevailing wage requirements.

[DB TEAM]

By:

_____

Name: _____

Title: _____

Date: _____

DB TEAM / CONTRACTOR / SUBCONTRACTOR CERTIFICATE AND RELEASE

Pursuant to that certain Design-Build Agreement dated as of _____, 201_ between the State Road and Tollway Authority ("SRTA") and _____ (the "Agreement"), the undersigned, on behalf of _____ (the "DB Team"), hereby certifies that as of the date indicated below, the DB Team has received payment in full for services, materials or equipment furnished or provided by DB Team, except only for retainage (as to the extent permitted pursuant to the Agreement) and amounts in dispute, stating any amounts in dispute and waiving and releasing any and all claims, liens or security interests, known or unknown, suspected or unsuspected, arising out of such services, materials or equipment against any person or property whatsoever, including SRTA, GDOT, the State, the Project, any P&P Bond and any letters of credit, except potential claims against retainage (as and to the extent permitted pursuant to the Agreement), or letters of credit or certificates of deposit for retainage.

Notwithstanding anything herein to the contrary, it is understood that the effect and enforceability of this Certificate and Release shall be conditioned upon receipt by the undersigned (or its assignee) of payment in the amount of $_____ pursuant to Approved Project Payment Request No(s). _____for the period ending _____and this Certificate and Release is given by the undersigned and is accepted and relied upon by all parties subject to such understanding.

Capitalized terms used herein that are not otherwise defined shall have the respective meanings assigned to such terms in the Agreement.

[DB Team]

By: _____

Name: _____

Title: _____

Date: _____

AFFIDAVIT OF WAGES PAID

STATE OF GEORGIA

_____ COUNTY

The undersigned affiant, _____, being first duly sworn, hereby states:

1. I am over the age of eighteen, suffer no legal disabilities, and have personal knowledge of the facts set forth below.

2. I am employed as _____ of _____ (the "Company"). As such, I have personal knowledge of wages paid by the Company in connection with the _____ Project (the "Project") as set forth in that certain Design-Build Agreement dated as of _____ between the State Road and Tollway Authority ("SRTA") and the Company (the "Agreement").

3. For the period of ending _____, I hereby certify that, in connection with the Project:

   all persons employed by the Company on said project have been paid the full weekly wages earned, that no rebates have been or will be made either directly or indirectly on behalf of the Company from the full weekly wages earned by any person and that no deductions have been made either directly or indirectly from the full wages earned by any person, other than permissible deductions as defined in Regulations, Part 3 (29 C.F.R. Subtitle A), issued by the Secretary of Labor under the Copeland Act, as amended (48 Stat. 948, 63 Stat. 108, 72 Stat. 967; 76 Stat. 357; 40 U.S.C. § 3145), and described below:

   _____

   _____

   _____

   payrolls required to be submitted by the Company for the above period are correct and complete; that the wage rates for laborers or mechanics contained therein are not less than the applicable wage rates for laborers or mechanics contained in any wage determination incorporated into the

contract; that the classifications set forth therein for each laborer or mechanic conform with the work he performed.

any apprentices employed by the Company in the above period are duly registered in a bona fide apprenticeship program registered with a State apprenticeship agency recognized by the Bureau of Apprenticeship and Training, United States Department of Labor, or if no such recognized agency exists in a State, are registered with the Bureau of Apprenticeship and Training, United States Department of Labor.

all laborers or mechanics listed in the above referenced payrolls have received have been paid the applicable basic hourly wage rate plus the amount of the required fringe benefits, either in cash or by payment to approved plans, funds or programs except as noted below:

_____

_____

_____

[COMPANY]

By: _____

Name: _____

Title: _____

Date: _____

Georgia Department of Transportation

Programmatic Technical Provisions

For

Design-Build Agreement

P.I. Nos. 0012757 and 0012758

Attachment 3-1

Manuals

Manuals

All Work shall conform with all applicable Manuals and Guidelines developed for and including AASHTO, FHWA, GDOT, and additional requirements stated in this document and reasonably inferred therefrom. It is the Design-Build Team's responsibility to verify order of the precedence of any State or Federal manual requirement where any potential conflict may exist. The Design-Build Team shall coordinate with the appropriate State and/or Federal agency to confirm the policy and regulations to avoid any conflict of the following manuals prior to design and/or construction. Following is a list of manuals and guidelines that shall be used in the performance of the Work provided that the Work shall not be governed solely by such manuals and guidelines listed herein, and provided further that it is the Design-Build Team's responsibility to locate and utilize the most current edition in effect at the date identified in Article 7.2.4 of Volume 1, including updates, of all such referenced materials for the Work required.

1. AASHTO – A Policy on Geometric Design of Highways and Streets
   https://bookstore.transportation.org/collection_detail.aspx?ID=110
2. AASHTO – Guide for High-Occupancy Vehicle Facilities
   https://bookstore.transportation.org/Item_details.aspx?id=114
3. AASHTO – Standard Specification for Structural Supports for Highway Signs, Luminaires and Traffic Signals (LTS-6)
   https://bookstore.transportation.org/collection_detail.aspx?ID=126
4. AASHTO – Roadside Design Guide
   https://bookstore.transportation.org/item_details.aspx?ID=1807
5. AASHTO – Roadway Lighting Design Guide
   https://bookstore.transportation.org/item_details.aspx?ID=1412
6. AASHTO – AASHTO Standard Specifications for Highway Bridges, 17th Edition - 2002
   https://bookstore.transportation.org/Item_details.aspx?id=51
7. AASHTO – AASHTO LRFD Bridge Design Specifications, 7th Edition - 2014
   https://bookstore.transportation.org/collection_detail.aspx?ID=132
8. AASHTO –Manual for Bridge Evaluation, 2nd Edition, with 2011 Interim Revisions
   https://bookstore.transportation.org/item_details.aspx?ID=1809
9. AASHTO – Guide Specification for Structural Design Sound Barrier
   https://bookstore.transportation.org/item_details.aspx?ID=1155
10. AASHTO – AWS D1.1/ANSI Structural Welding Code – Steel
    http://www.techstreet.com/cgi-bin/detail?doc_no=AWS%7CD1_1_D1_1M_2008&product_id=1519645
11. AASHTO – D1.5/AWS D1.5 Bridge Welding Code
    https://bookstore.transportation.org/item_details.aspx?ID=1756
12. AASHTO – Highway Capacity Manual
    http://www.techstreet.com/cgi-bin/detail?product_id=957255

13. AASHTO – Manual for Assessing Safety Hardware (MASH), 2nd Edition, 2016
    https://bookstore.transportation.org/Item_details.aspx?id=2707
14. Federal Highway Administration (FHWA) Roadway Construction Noise Model (RCNM) and Guideline Handbook
    http://www.fhwa.dot.gov/environment/noise/construction_noise/rcnm/index.cfm
15. AISC Manual of Steel Construction, referred to as "AISC Specifications"
    http://www.aisc.org/store/p-1578-steel-construction-manual-thirteenth-edition.aspx
16. American National Standards Institute (ANSI)/ Illuminating Engineering Society of North America (IESNA) RP-14-8-Recommended Practice for Roadway Lighting
    http://www.ies.org/store/product/roadway-lighting-ansiies-rp814-1350.cfm
17. America Disabilities Act Accessibility Guidelines (ADAAG)
    http://www.ada.gov/stdspdf.htm
18. FHWA - Manual of Uniform Traffic Control Devices (MUTCD)
    http://mutcd.fhwa.dot.gov/
19. GDOT – Signing and Marking Design Guidelines
    http://www.dot.ga.gov/PS/DesignManuals/DesignGuides
20. GDOT – Utility Accommodation Policy and Standards Manual
    http://www.dot.ga.gov/PS/Utilities
21. GDOT - Guidelines on Geotechnical Studies *[including updates to LRFD requirements dated 1/31/2018 and 2/16/2018]*
    http://www.dot.ga.gov/PS/Materials
22. GDOT – STI (Sampling, Testing and Inspection) Quick Guide and Documents
    http://www.dot.ga.gov/PS/Materials
23. GDOT – Qualified Products List (QPL)
    http://www.dot.ga.gov/PS/Materials/QPL
24. GDOT – Pavement Design Manual
    http://www.dot.ga.gov/PS/Materials
25. GDOT –Drainage Design for Highways *[Revision 3.2 dated 2/9/2018]*
    http://www.dot.ga.gov/PS/DesignManuals/DesignGuides
26. GDOT – Automated Survey Manual
    http://www.dot.ga.gov/PS/DesignManuals/DesignGuides
27. GDOT – Regulations for Driveway and Encroachment Control
    http://www.dot.ga.gov/PS/DesignManuals/DesignGuides
28. GDOT – Electronic Data Guidelines
    http://www.dot.ga.gov/PS/DesignManuals
29. GDOT – Plan Development Process
    http://www.dot.ga.gov/PS/DesignManuals/DesignGuides
30. GDOT – Plan Presentation Guide
    http://www.dot.ga.gov/PS/DesignManuals
31. GDOT – Preliminary Field Plan Review Checklist
    http://www.dot.ga.gov/PS/DesignManuals/DesignResources

32. GDOT – Final Field Plan Review Checklist
http://www.dot.ga.gov/PS/DesignManuals/DesignResources
33. GDOT – Design Policy Manual *[Revision 5.3 dated 4/24/2018]*
http://www.dot.ga.gov/PS/DesignManuals/DesignGuides
34. GDOT – ITS Design Manual
http://www.dot.ga.gov/PS/DesignManuals/DesignGuides
35. GDOT – NPDES General Permit Guidance
http://www.dot.ga.gov/PS/DesignManuals/DesignGuides
36. GDOT – MS4 Special Design Post-Construction Details
http://www.dot.ga.gov/PartnerSmart/DesignManuals/NPDES/MS4 Special Design Details.zip
37. GDOT –Bridge and Structures Design Manual
http://www.dot.ga.gov/PS/DesignManuals/DesignGuides
38. GDOT – Environmental Procedures Manual
http://www.dot.ga.gov/PS/DesignManuals/EnvironmentalProcedures
39. GDOT – Standard Specifications, Construction of Transportation Systems
http://www.dot.ga.gov/PS/Business/Source/Specifications
40. GDOT – Special Provisions, Shelf Special Provisions, Reference Special Provisions, Supplemental Specifications
SharePoint Site
41. GDOT – Construction Standards and Details
http://standarddetails.dot.ga.gov/stds_dtls/
42. GDOT – Right of Way Manual
http://www.dot.ga.gov/PartnerSmart/DesignManuals/ROW/00ExternalRightofWayManual.pdf
43. GDOT – Acquisition Guide for Local Public Agencies
http://www.dot.ga.gov/PartnerSmart/DesignManuals/ROW/ROW-AcquisitionGuideforLocalPublicAgenciesSponsors.pdf
44. GDOT – Statewide MS4 Permit
http://epd.georgia.gov/sites/epd.georgia.gov/files/related_files/site_page/Final_DOT_SW_NPDES_Permit_MS4_Dec_2011.pdf
45. GDOT – Design of Post-Construction BMPs
http://www.dot.ga.gov/PS/DesignManuals/DesignGuides
46. Georgia Soil and Water Conservation Commission - Manual for Erosion and Sediment Control in Georgia
http://gaswcc.georgia.gov/manuals
47. GDOT – Facilities Stormwater Pollution Prevention Plan
48. GDOT – Stormwater System Inspection and Maintenance Manual
http://www.dot.ga.gov/PS/DesignManuals/DesignGuides
49. Bridge Inspection Evaluation Maintenance Manual
https://bookstore.transportation.org/item_details.aspx?ID=1617

50. FHWA Diverging Diamond Interchange Informational Guide
https://safety.fhwa.dot.gov/intersection/alter_design/pdf/fhwasa14067_ddi_infoguide.pdf
51. FHWA Traffic Detector Handbook
http://www.fhwa.dot.gov/publications/research/operations/its/06108/06108.pdf
52. FHWA Mitigation Strategies for Design Exceptions
http://safety.fhwa.dot.gov/geometric/pubs/mitigationstrategies/fhwa_sa_07011.pdf
53. FHWA Traffic Monitoring Guide
http://www.fhwa.dot.gov/ohim/tmgbook.pdf
54. Occupational Safety and Health Administration Standards (OSHA)
http://www.osha.gov/pls/oshaweb/owasrch.search_form?p_doc_type=STANDARDS&p_toc_level=1&p_keyvalue=Construction
55. National Electrical Safety Code ANSI C2 (NESC)
http://standards.ieee.org/nesc/nesc_preprint.html
56. U. S. Environmental Protection Agency Regulations
http://www.epa.gov/lawsregs/
57. GDOT – Public Information Policy Manual
http://www.dot.ga.gov/PartnerSmart/DesignManuals/Environmental/Public%20Involvement%20Plan/PublicInvolvementPlan.pdf
58. American Railway Engineering and Maintenance-of-Way Association (AREMA)
https://www.arema.org/
59. GDOT – Work Zone Safety and Mobility Policy
http://www.dot.ga.gov/PartnerSmart/Training/Documents/WZS/WorkZoneSafety/images/WorkZoneSafetyandMobilityPolicyRevwiithsubpartK.DOCX
60. GDOT – Quality Control and Quality Assurance Manual
http://www.dot.ga.gov/PS/DesignManuals/DesignResources
61. Federal Railroad Administration Regulations
http://www.fra.dot.gov
62. Public Project Information for Construction and Improvement Projects That May Involve the Railroad (CSX)
https://www.csx.com/index.cfm/library/files/about-us/property/public-project-manual/
63. MUTCD – Standards Highway Signs and Markings
http://mutcd.fhwa.dot.gov/ser-shs_millennium.htm
64. 2016 Edition of the Georgia Stormwater Management Manual Volumes 1 & 2
http://www.georgiastormwater.com/
65. Georgia EPD – Coastal Stormwater Supplement to the Stormwater management Manual
https://epd.georgia.gov/georgia-epd-coastal-stormwater-supplement-stormwater-management-manual
66. GDOT – ITS Strategic Deployment Plan (Posted on SharePoint)
67. ITE/AASHTO Traffic Management Data Dictionary (TMDD), Standards for Traffic Management Center to Center Communications Version 2.1

68. AASHTO – A Policy on Design Standards Interstate System
https://bookstore.transportation.org/item_details.aspx?ID=1175
69. Georgia Traffic Incident Management Guidelines
http://www.timetaskforce.com/documents/TIM/GeorgiaTIMGuidelines_FINAL_V0003.pdf
70. GDOT – Construction Manual and Form Documents
http://www.dot.ga.gov/PartnerSmart/Business/Source/Pages/ConstructionSpecs.aspx
71. Other manuals, documents, procedures and standards as referenced in the DB Documents

Georgia Department of Transportation

Programmatic Technical Provisions

For

Design-Build Agreement

P.I. Nos. 0012757 and 0012758

Attachment 6-1

Utility Facility Relocation Acceptance Form Template

Utility Facility Relocation Acceptance Form

Project PI Number:

Project Number:

County(ies):

Project Description:

Utility Owner Name:_____

Type of Utility Facilities Installed by Contractor:_____

Type of Relocation Work Described Herein (Circle One): Initial Relocation or Revised Relocation

Station Limits:_____

General Description of Utility Facilities Installed by Contractor:_____

_____

_____

Utility Work Completion Date:_____

This Utility Facility Relocation Acceptance Form shall be completed by the Contractor's Worksite Utility Coordination Supervisor (WUCS). It shall also be signed by an authorized representative of the Utility Owner and by the GDOT Project Manager upon completion and acceptance of the work described herein.

Execution of this Utility Facility Relocation Acceptance Form by the parties below provides acknowledgement that the work described above, has been visually inspected and accepted by the Utility Owner as to having been constructed in accordance with the Utility Owner approved relocation design plans and their current specifications and the requirements of the Memorandum of Understanding (MOU) as executed by the Utility Owner. Further, the Contractor's WUCS shall provide the Utility Owner with a complete set of "As-Built Plans" for review and approval reflecting the relocation work performed by the Contractor as outlined in the Contract Specifications. Upon completion of this form and the exchange of the final Utility Owner approved "As-Built Plans", all parties agree the Utility Owner will operate and maintain the installed facilities covered by this document going forward based on the date of execution by the GDOT Project Manager (PM). However, any items inadvertently overlooked and as identified in a subsequent utility punch list shall still be the responsibility of the Contractor to correct and provide up to date "As-Built Plans" to the Utility Owner.

Acceptance of this form by the Department does not confer legitimacy and accuracy or in any way transfers liability for errors or omissions made by the preparer.

Contractor's WUCS:

Printed Name: _____ Date: _____

Signature: _____ Title: _____

Utility Owner Representative:

Printed Name: _____ Date: _____

Signature: _____ Title: _____

GDOT Project Manager:

Printed Name: _____ Date: _____

Signature: _____ Title: _____

Georgia Department of Transportation

Programmatic Technical Provisions

For

Design-Build Agreement

P.I. Nos. 0012757 and 0012758

Attachment 12-1

MS4 Responsibilities – Design-Build Project

MS4 Responsibilities – Design-Build Project

2017-2022 Permit No. GAR041000 Ref.	Best Management Practice (BMP)	Activity Description	Design-Build Team	GDOT	PMC	3rd Party
4.2.1	**Public Education**					
4.2.1-1	DOT website to educate the public regarding stormwater related topics (e.g. litter prevention, Adopt-A-Highway)	N/A		✓		
4.2.1-2	Training program to educate contractors and employees conducting activities that may impact stormwater runoff	Attend periodic training related to stormwater impacts including Construction Engineering & Inspection for Post-Construction BMPs (CEI) course, Facility Stormwater Pollution Prevention (F-SWPP) and Overview of Post-Construction Stormwater (O-PCS).	✓	✓	✓	✓
4.2.1-3	Distribution of stormwater related educational materials to the public	N/A		✓		
4.2.1-4	Storm draining marking, and/or pet waste program in high pedestrian areas, such as welcome centers / rest areas, maintenance facilities, and along streets with sidewalks within a permitted area	N/A		✓		
4.2.2	**Public Involvement**					
4.2.2-1	Adopt-A-Highway Program	N/A		✓		
4.2.2-2	Public Information Open Houses (PIOHs) to allow public input into projects	Conduct all appropriate public information open houses as applicable. As part of each public information open house, contact GDOT Office of Design Policy to ensure that a Stormwater Management Program display is provided and displayed at the open house. Provide the number of open houses conducted each year.	✓			
4.2.2-3	Memorandum of Agreements	N/A		✓		
4.2.3	Illicit Discharge Detection and Elimination					
4.2.3-1	Outfall Map and Inventory	Provide a list of new outfalls within the project area indicating the location and geographic coordinates for each outfall. Provide all information per SP 156.	✓			
4.2.3-2	A policy that prohibits non-stormwater discharges into the MS4	N/A		✓		
4.2.3-3	An Illicit Discharge Detection and Elimination (IDDE) Plan	Conduct inspections outfalls within the project area each year inspecting the outfalls for the presence of dry weather discharges in accordance with the IDDE plan. For a copy of the IDDE plan, contact the GDOT Office of Design Policy. Provide a copy of the inspection reports (see the IDDE plan) for each outfall inspected. If a dry weather discharge is detected, contact the District Environmental Compliance Engineer for further investigation / action.		✓		
4.2.3-4	Procedures for tracing and eliminating any identified illicit discharges	N/A		✓		

2017-2022 Permit No. GAR041000 Ref.	Best Management Practice (BMP)	Activity Description	Design-Build Team	GDOT	PMC	3rd Party
4.2.3-5	Education	N/A		✓		
4.2.3-6	Procedures for receiving and responding to complaints related to illicit discharges	Report all complaints related to illicit discharges to the District Environmental Compliance Engineer. Provide a summary of the number of complaints and summary of resolution including the date and time received each year for the project area to GDOT.		✓		
4.2.3-7	Spill response procedures	Report all spills in accordance with the IDDE plan and the Georgia Oil or Hazardous Material Spills and Releases Reporting. If a spill occurs and the spill reaches an MS4 structure, report the spill to the District Environmental Compliance Engineer.	✓			
4.2.4	**Construction Site Runoff Stormwater Control**					
4.2.4-1	A contractual obligation mechanism	Requires erosion and sediment controls consistent with the Manual for Erosion and Sediment Control in Georgia and the Construction General Permits, as well as penalties to ensure compliance, to the extent allowable, under State or local law.	✓			
4.2.4-2	Erosion, Sedimentation and Pollution Control Plans (ESPCPs)	Prepare and submit to EPD an ESPCP that complies with the requirements of the most recent Construction Activity Permits, which identify the Manual for Erosion and Sediment Control in Georgia (Green Book) and stream buffer requirements for all land disturbance activities that require coverage.	✓			
4.2.4-3	Procedures for receiving and responding to erosion and sedimentation complaints	Report all complaints related to construction site runoff to the District Environmental Compliance Engineer. Provide a summary of the number of complaints and summary of resolution including the date and time received each year for the project area to GDOT.	✓			
4.2.4-4	Site plan review procedures	Incorporate consideration of potential water quality impacts.	✓			
4.2.4-5	Site inspection procedures in accordance with the Construction Activity Permits	Maintain inspections as required in the most recent Construction Activity Permits, which identify the Manual for Erosion and Sediment Control in Georgia (Green Book) and stream buffer requirements for all land disturbance activities that require coverage. Provide a copy of all inspections performed.	✓			
4.2.4-6	Ensure through contracts or other mechanisms that construction site operators control waste that may cause adverse water quality impacts in accordance with the Construction Activity Permits		✓		✓	✓
4.2.4-7	Procedures for bringing contractors back into compliance with the contract requirements	N/A			✓	✓
4.2.5	Post-Construction Stormwater Management					
4.2.5-1	Inventory of post-construction stormwater management structures, designed for filtering and/or detention	Provide an inventory of all permanent Post Construction Stormwater management structures following GDOT acceptance utilizing SP 156 for required data to be provided on each structure.	✓			

2017-2022 Permit No. GAR041000 Ref.	Best Management Practice (BMP)	Activity Description	Design-Build Team	GDOT	PMC	3rd Party
4.2.5-2	Policy or other regulatory mechanism to address post-construction runoff	N/A		✓		
4.2.5-3	Program for the long-term operation and maintenance of post-construction structures	Inspect and maintain Post Construction Stormwater management structures within the project area utilizing the inspection forms in the current effective GDOT Stormwater System Inspection & Maintenance (I&M) Manual. Report all maintenance performed on each structure utilizing GDOT Maintenance Activity Codes.	✓			
4.2.5-4	Program for ensuring the use of a stormwater design manual and the feasibility of inclusion of the post-construction standards from Section 4.2.5.1 during the project design phase	Submit and secure approval of a Post Construction Stormwater Report for all applicable construction projects within the project area following the specifications in the most current GDOT Drainage Manual.	✓			
4.2.5.4	Green Instructure / Low Impact Development					
4.2.5.4-1	Program for conducting a green infrastructure / low impact development (GI/LID) feasibility study, and implementing GI/LID infrastructure, where feasible	Submit and secure approval of a Post Construction Stormwater Report for all applicable construction projects within the project area following the specifications in the most current GDOT Drainage Manual.	✓			
4.2.6	Pollution Prevention / Good Housekeeping for Municipal-Type Operations					
4.2.6-1	Inventory of GDOT facilities conducting municipal-type activities that have the potential to cause pollutant runoff	N/A		✓		
4.2.6-2	Program for inspecting the GDOT facilities for good housekeeping practices	Perform inspections on 20% of all GDOT accepted facilities annually utilizing the F-SWPPP such that all facilities are inspected over the course of 5 years.		✓		
4.2.6-3	Manual detailing procedures for routine maintenance activities at municipal type operations to prevent pollutant runoff	Provide an annual copy of inspections and corrective actions implemented for each GDOT accepted facility utilizing the F-SWPPP for guidance.		✓		
4.2.6-4	Inventory and Map of MS4 structures	Provide an inventory of all MS4 structures following GDOT acceptance utilizing SP 156 for required data to be provided on each structure.	✓			
4.2.6-5	Program for inspecting and maintaining MS4 structures	Perform inspections on 10% of all GDOT MS4 structures within the project area annually utilizing the GDOT Stormwater System Inspection & Maintenance Manual such that all structures are inspected over the course of 5 years. Report all maintenance performed on each structure utilizing GDOT Maintenance Activity Codes.		✓		
4.2.6-6	An employee training program, with the purpose of preventing and reducing stormwater pollution from GDOT facilities and activities	All field personnel with supervisory capacity assigned to the project must have attended a GDOT F-SWPP training course within 5 years of the contract date of the project. For those personnel that have not attended the training course within the previous 5 years, the training course must be completed within 6 months of assignment to the project.	✓			

2017-2022 Permit No. GAR041000 Ref.	Best Management Practice (BMP)	Activity Description	Design-Build Team	GDOT	PMC	3rd Party
4.2.6-7	Procedures for receiving and responding to complaints related to MS4 structures	Report all complaints related to runoff / pollution from GDOT accepted facilities within the project area to the District Environmental Compliance Engineer. Provide a summary of the number of complaints and summary of resolution including the date and time received each year for the project area to GDOT.		✓		

Reporting:

GDOT's NPDES Phase II MS4 permit requires that an annual report be submitted each year documenting compliance with all aspects of the permit from January 1st to December 31st (reporting period). To aid in that reporting, the contractor shall submit quarterly update reports documenting those activities undertaken during the reporting period as required in the matrix above. The deadlines for each update report shall be established as shown below:

Quarter	Dates	Quarterly Update Report Due Date
Q1	January 1st – March 31st	April 30th
Q2	April 1st – June 30th	July 31st
Q3	July 1st – September 30th	October 31st
Q4	October 1st – December 31st	January 31st

Georgia Department of Transportation

Programmatic Technical Provisions

For

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P.I. Nos. 0012757 and 0012758

Attachment 12-2

Supplemental Specification 168

Post-Construction Stormwater BMP Items

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SUPPLEMENTAL SPECIFICATION

Section 168—Post-Construction Stormwater BMP Items

168.1 General Description

This work includes constructing the following as shown in the Plans or as directed by the Engineer:

- Bioretention basins
- Bioslopes
- Dry detention basins
- Enhanced dry swales
- Enhanced wet swales
- Infiltration trenches
- Sand filters
- Wet detention ponds
- Other permanent water treatment structures as shown on the Plans or as directed by the Engineer

168.1.01 Related References

A. Standard Specifications

Section 109—Measurement and Payment

Section 161—Control of Soil Erosion and Sedimentation

Section 208—Embankments

Section 500—Concrete Structures

Section 511—Reinforcement Steel

Section 573—Underdrains

Section 574—Edge Drains

Section 603—Riprap

Section 700—Grassing

Section 702—Vine, Shrub, and Tree Planting

Section 708—Plant Topsoil

Section 711—Turf Reinforcement Matting

Section 800—Coarse Aggregate

Section 801—Fine Aggregate

Section 805—Riprap and Curbing Stone

Section 806—Aggregate for Drainage

Section 814—Soil Base Materials

Section 830—Portland Cement

Section 839—Corrugated Polyethylene Underdrain Pipe

Section 846—Polyvinyl Chloride (PVC) Profile Wall Drain Pipe

Section 853—Reinforcement and Tensioning Steel

Section 881—Fabrics

Section 890—Seed and Sod

Section 893—Miscellaneous Planting Materials

Section 894—Fencing

Section 910—Sign Fabrication

Section 911—Sign Posts

Section 914—Sign Paint

B. Referenced Documents

AASHTO M-252

AASHTO M-294

AASHTO M-304

AASHTO T 215

ASTM D-422

ASTM D-698

ASTM D-1784

ASTM D-1785

ASTM D-2434

ASTM D-2466

ASTM D-2564

ASTM D-2665

ASTM D-3786

ASTM D-4491

ASTM D-4533

ASTM D-4632

ASTM D-4751

ASTM D-4833

ASTM F-758

ASTM F-949

168.1.02 Submittals

General Provisions 101 through 150.

168.2 Materials

Provide materials shown on the Plans, such as pipe, spillways, wood baffles, plants, and other accessories including an anti-seep collar, when necessary.

Materials may be new or used; however, previously used materials shall be approved by the Engineer before use.

Materials shall meet the requirements of the following Specifications:

Material	GDOT Section/Requirement

Material	GDOT Section/Requirement
Nonwoven Filter Fabric	ASTM D-3786: Mullen burst strength = 280 psi ASTM D-4491: permittivity = 1.30 sec^{-1} ASTM D-4533: Trapezoidal tear strength = 60 lb ASTM D-4632: Grab tensile strength = 160 lb ASTM D-4632: Grab tensile elongation = 50% ASTM D-4751: AOS = 70 US standard sieve
Nonwoven Filter Fabric	ASTM D-4833: Puncture Resistance = 85 lb
Class A, AA, and B Concrete	500/ASTM C-76-10
Reinforcement Steel	511
Riprap	603, 805
Permanent Grass, Sod, and Other Vegetation	700
Turf Reinforcement Matting	711
Coarse Aggregate	800
Fine Aggregate	801
Soil Base Materials	814
Riprap and Curbing Stone	805
Portland Cement	830
Corrugated Polyethylene Underdrain Pipe	839/AASHTO M252 or M294
PVC Underdrains	846/ASTM F-758, ASTM F-949
Reinforcement and Tensioning Steel	853
Geosynthetic Fabric	881/ASTM D-3786, ASTM D-4491, ASTM D-4533, ASTM D-4632, ASTM D-4751, ASTM D-4833
Seed	890
Miscellaneous Planting Materials	814, 893
Mulch	893.2.09-A.4
Signage	910, 911, 914
Landscape Plantings	702

Engineered Soil Mix

Requirements

1. Use an engineered soil mix that meets the requirements herein. Do not use a mixture that contains deleterious substances. Obtain the materials from sources approved by the Engineer. Ensure that aggregate retained on No. 10 (2 mm) sieve is of hard, durable particles.
2. Remove particles with a diameter greater than 2 in (50 mm) before placing the engineered soil mix. Remove particles with screens or by hand if few oversized pieces exist. Otherwise, crush the oversized pieces to less than 2 in and use them in the proportions shown by the gradation table below.
3. Use 5-10% by dry weight composted organic matter as topsoil components. All components shall be free of heavy metals, pathogens, pesticides, and herbicides.
4. Use 90-95% by dry weight inorganic topsoil components with the following properties:

Sieve Size	Percent Passing by Weight
Passing 2 in (50 mm)	100
Passing No. 4 (4.75mm)	98-100
Passing No. 8 (2.36 mm) sieve	95-100

Passing No. 10 (2.0 mm)	86-100
Passing No. 16 (1.18 mm) sieve	70-100
Passing No. 30 (600 µm) sieve	40-75
Passing No. 50 (300 µm) sieve	10-35
Passing No. 100 (150 µm) sieve	2-15
Passing No. 200 (75 µm) sieve	0-10
Clay size (< 2 µm)	0-6

5. Ensure that material passing the No. 10 (2 mm) sieve meets the following requirements:

Property	Value
Liquid Limit (LL)	≤25
Plasticity Index (PI)	≤10
Volume Change, Maximum Percent	12
Maximum Dry Density, lb/ft³*	105
Permeability (in/hr)	1 – 6
*by standard Proctor	

Fabrication

General Provisions 101 through 150.

Acceptance

The Contractor is required to submit a minimum of three (3) cubic-foot-sized random soil samples per 150 tons of material per each source to the Department's Geotechnical Bureau of the Materials Office 20 working days before placement for testing to ensure acceptability for use as directed by the Project Engineer. The Department's Geotechnical Bureau of the Materials Office reserves the right to disapprove the engineered soil mix for use if test results show that parameters do not meet the acceptable values specified above. Acceptance must be granted prior to placement.

The Department will test engineered soil mix as follows:

Test	Method
Soil Gradation	GDT 4
Volume Change	GDT 6
Maximum Density	GDT 7 or GDT 67
Liquid Limit	AASHTO T 89
Plastic Limit and Plasticity Index	AASHTO T 90
Permeability	AASHTO T 215

168.2.01 Materials Warranty

General Provisions 101 through 150.

168.2.02 Delivery, Storage, and Handling

General Provisions 101 through 150.

168.3 Construction Requirements

168.3.01 Personnel

General Provisions 101 through 150.

168.3.02 Equipment

General Provisions 101 through 150.

168.3.03 Preparation

General Provisions 101 through 150.

168.3.04 Fabrication

General Provisions 101 through 150.

168.3.05 Construction

A. Bioretention Basins

Construct bioretention basins as shown in the Plans, or as modified by the Engineer, after final grade and stabilization of the area upstream of each bioretention basin are achieved. If this is not feasible, stormwater flow shall be diverted around the bioretention basin and the basin area protected with temporary erosion and sediment control measures. Once the basin has been stabilized, vegetation shall be established within the bioretention basin per the details shown in the plans. Contractor shall maintain the bioretention basin after construction as outlined in the GDOT Stormwater System Inspection and Maintenance Manual until the project is turned over.

1. Excavation

Excavation should be limited to the width and length of the bioretention basin per the details shown in the plans or as directed by the Engineer. Avoid placing excavated material near the open trench so as not to jeopardize the stability of the trench sidewalls. The bottom of the excavated trench should be flat across its width and length, shall not be loaded in a way that causes soil compaction, and should be scarified prior to placement of specified materials. The sides of the trench shall be trimmed of all large roots. The sidewalls should be uniform with no voids and scarified prior to placement of materials for specified engineered drainage layers. Trench sidewalls shall be lined with the specified filter fabric. Infiltration testing should be performed prior to excavation of the bioretention basin if the bioretention basin is designed for infiltration. If infiltration is feasible, a second infiltration test is required prior to the placement of the underdrain system/aggregate layer to ensure that infiltration rates were not impacted during excavation.

2. Underdrain System/Aggregate Layer

Install underdrain system(s) made of 8-inch diameter perforated polyethylene or perforated PVC pipe at the locations and depth per details shown in the plans for conveyance of stormwater that has filtered through the media. Perforations shall be 3/8-inch diameter and spaced 6-inches on center with four rows running longitudinally while the pipe is placed at a minimum slope of 0.5%. A removable end cap connected to the underdrain system shall be installed per the details shown in the plans. If infiltration is feasible, the end cap shall be closed except for emergency drainage or maintenance purposes. The underdrain pipe shall be surrounded by an aggregate layer as defined in the details and a 2-3-inch filter blanket of size no. 8 or no. 89 aggregate (Georgia Department of Transportation Specification Section 800) shall be used to segregate the aggregate layer from the engineered soil mix. Aggregates used in underdrain systems shall be double washed and free of fines and organic materials. Cleanouts shall be provided at the end of each underdrain branch and placed at a maximum spacing of 100 linear feet. Cleanouts shall extend to an elevation such that they are accessible once the trench is backfilled with the specified media and shall have a locking screw top lid, to discourage vandalism and tampering.

3. Engineered Soil Mix

Install the engineered soil mix specified above for the 24-inch-minimum-thickness engineered soil mix and nonwoven filter fabric per the details shown in the plans. The engineered soil mix shall be placed in a maximum of 12-inch lifts and shall be protected from contamination by foreign matter during installation. If the engineered soil mix becomes contaminated or the filter fabric is damaged, remove contaminated or damaged materials and replace them at no additional cost to the Department. Avoid using heavy equipment on the basin area during installation to maintain hydraulic conductivity of the engineered soil mix and to prevent damage to the underdrains.

4. Mulch Layer

The mulch layer of the bioretention basin shall be a minimum thickness of 3 inches and shall consist of triple shredded hardwood mulch resistant to floating (Georgia Department of Transportation Specification Section 893.2.09.A.4). The mulch layer should be well aged (stockpiled or stored for at least six months), uniform in color, and free of other materials, such as weed seeds, soil, roots, etc. Grass clippings or pine straw shall not be used as mulch material.

5. Plantings

Plant species used in bioretention basins shall be installed per the details shown in the plans and meet the requirements outlined in Georgia Department of Transportation Specification Section 702. Plants shall be selected on the basis of a specified hydric tolerance zone and shall be capable of surviving both wet and dry conditions. All plants used shall be well grown and healthy and free from disease and infestation by invasive species. Trees shall not be planted in bioretention basins.

6. Pretreatment

Install riprap forebays, filter strips, level spreaders and other pretreatment devices per the details and at the locations specified in the plans. Riprap used in pretreatment devices shall meet the requirements outlined in Georgia Department of Transportation Specification Section 603 and woven filter fabric shall meet shall meet the requirements outlined in Georgia Department of Transportation Specification Section 881.2.05. Riprap forebays shall be located at major inflow locations or at any inlet contributing more than 10 percent of the total flow to the bioretention basin. If this is not feasible, energy dissipation devices shall be provided at all concentrated inflow location to prevent erosion and to ensure that inflows spread evenly across the bottom of the bioretention basin. If inflow is in the form of sheet flow, a vegetated filter strip shall be provided where space permits. Grasses used in filter strips shall be tolerant of both wet and dry conditions and meet the requirements outlined in Georgia Department of Transportation Specification Section 700. Maintenance access shall be provided to the forebay.

7. Signage

Install signage per the details and locations specified in the plans.

B. Bioslopes

Complete bioslopes as shown in the construction Plans, or as modified by the Engineer, after final grade and stabilization of the area upstream of each bioslope is reached. If this is not feasible, stormwater flow shall be diverted around the bioslope and the bioslope protected with temporary erosion and sediment control measures. Contractor shall maintain the bioslope after construction as outlined in the GDOT Stormwater System Inspection and Maintenance Manual until the project is turned over.

1. Excavation

Excavation should be limited to the width and length of bioslope per the details shown in the plans or as directed by the Engineer. Avoid placing excavated material near the open trench so as not to jeopardize the stability of the trench sidewalls. The bottom of the excavated trench should be flat across its width and length, shall not be loaded in a way that causes soil compaction, and should be scarified prior to placement of specified materials. The sides of the trench shall be trimmed of all large roots. Sidewalls should be uniform with no voids and scarified prior to placement of materials for specified engineered drainage layers. Trench sidewalls shall be lined with the specified filter fabric.

2. Underdrain System/Aggregate Layer

Install underdrain system(s) made of 8-inch diameter perforated polyethylene or perforated PVC pipe at the locations and depth per details shown in the plans for conveyance of stormwater that has filtered through the media. Perforations shall be 3/8-inch diameter and spaced 6-inches on center with four rows running longitudinally while the pipe is placed at a minimum slope of 0.5%. The underdrain pipe shall be surrounded by an aggregate layer of size no. 57 aggregate. Filter fabric shall be used to protect the aggregate layer from the bioslope media mix. Aggregates used in underdrain systems shall be double washed and free of fines and organic materials. Cleanouts shall be provided at the end of each underdrain branch and placed at a maximum spacing of 100 linear feet. Cleanouts shall extend to an elevation such that they are accessible once the trench is backfilled with the specified media and shall have a locking screw top lid to discourage vandalism and tampering.

3. Bioslope Media Mix

a) The bioslope media mix shall contain aggregate, dolomite, gypsum, and perlite and shall be mixed as follows:

Material	Quantity
Aggregate: GDOT size no. 89 stone No recycled material Non-limestone material mineral aggregate	3 (yd^3) (3 yd^3 used as a baseline for other mixture components: adjust total quantity based on bioslope dimensions)
Perlite: Horticultural grade, free of toxic materials	1 yd^3 per 3 yd^3 of mineral aggregate

99-100% passing US No. 4 Sieve 0-30% passing US No. 18 Sieve 0-10% passing US No. 30 Sieve	
Dolomite: calcium magnesium carbonate, $CaMg(CO_3)^2$ Agricultural grade, free of toxic materials 100% passing US No. 8 Sieve 0% passing US No. 16 Sieve	40 pounds per yd^3 of perlite
Gypsum: Non-calcined, agricultural gypsum $CaSO_4 \cdot 2H_2O$ (hydrated calcium sulfate) Agricultural grade, free of toxic materials 100% passing US No. 8 Sieve 0% passing US No. 16 Sieve	12 pounds per yd^3 of perlite

b) Install the bioslope media mix specified above for the 12-inch-minimum-thickness bioslope media mix layer and nonwoven filter fabric per the details shown in the plans. Protect the bioslope media mix from contamination by foreign matter during installation. If the bioslope media mix becomes contaminated or the filter fabric is damaged, remove contaminated or damaged materials and replace them at no additional cost to the Department.

c) Cover the bioslope media mix with turf reinforcement matting 1 (TRM 1).

4. Engineered Topsoil Mix

Requirements

1. The top 3 inches of the bioslope should consist of an engineered topsoil mix. Use an engineered topsoil mix that meets the requirements herein. Do not use a mixture that contains deleterious substances. Obtain the materials from sources approved by the Engineer. Ensure that aggregate retained on No. 10 (2 mm) sieve is of hard, durable particles.
2. Remove particles with a diameter greater than 2 in (50 mm) before placing the engineered topsoil mix. Remove particles with screens or by hand if few oversized pieces exist. Otherwise, crush the oversized pieces to less than 2 in and use them in the proportions shown by the gradation table below.
3. Use 5-10% by dry weight composted organic matter as topsoil components. All components shall be free of pesticides and herbicides.
4. Use 90-95% by dry weight inorganic topsoil components with the following properties:

Sieve Size	Percent Passing by Weight
Passing 2 in (50 mm)	100
Passing 1-1/2 in (37.5 mm)	95-100
Passing No. 10 (2 mm) sieve	75-90
Passing No. 40 (425 µm)	50-70
Passing No. 60 (250 µm) sieve	30-60
Passing No. 200 (75 µm) sieve	10-25
Clay size (< 2 µm)	3-10

5. Ensure that material passing the No. 10 (2 mm) sieve meets the following requirements:

Property	Value
Liquid Limit (LL)	25 or less
Plasticity Index (PI)	10 or less
Volume Change, Maximum Percent	12
Maximum Dry Density, lb/ft^3*	105
*by standard Proctor	

6. Nonwoven filter fabric shall be installed between the engineered topsoil mix and bioslope media mix and shall be readily separated for maintenance. Stabilize the disturbed area adjacent to the bioslope per the plans immediately after the bioslope is installed. Permanent vegetation using grass cover shall be established within the bioslope using sod once the basin has been stabilized.

5. Sod Layer

The sod layer must be grown in primarily sand/sandy-loam soils with less than 6% clay content. Sod shall be half cut or thin cut to promote infiltration. Sod shall consist of at least 75% of the designated grass species specified in the plans.

6. Pretreatment

Install filter strips per the details and locations specified in the plans. Grasses used in filter strips shall be tolerant of both wet and dry conditions and meet the requirements outlined in Georgia Department of Transportation Specification Section 700.

7. Signage

Install signage per the details and locations specified in the plans.

C. Dry Detention Basins

Construct dry detention basins per the Plans at the required locations, or as modified by the Engineer. Construct the basins complete as shown, including but not limited to: grading, drainage, accessories to complete the dry detention basins and temporary mulching and permanent grassing on external slopes. The contractor may propose alternate construction staging for review and approval. Alternate construction submittals for review shall be provided a minimum of 30 days prior to the construction of a dry detention basin. Contractor shall maintain the dry detention basin after construction as outlined in the GDOT Stormwater System Inspection and Maintenance Manual until the project is turned over.

1. Excavation

Excavation should be limited to the width and length of the dry detention basin per the details shown in the plans or as directed by the Engineer. Embankments shall be constructed using the materials and methods specified in Section 208 and shall be compacted to at least 95 percent of the maximum laboratory dry density. Stabilize the disturbed areas adjacent to dry detention basins per the plans immediately after each dry detention basin is installed.

2. Pretreatment

Install riprap forebays per the details and at the locations specified in the plans. Riprap used in forebays shall meet the requirements outlined in Georgia Department of Transportation Specification Section 603 and woven filter fabric shall meet the requirements outlined in Georgia Department of Transportation Specification Section 881.2.05. Riprap forebays shall be located at major inflow locations or at any inlet contributing more than 10 percent of the total flow to the dry detention basin. Maintenance access shall be provided to the forebay.

3. Signage

Install signage per the details and locations specified in the plans.

D. Enhanced Dry Swales

Construct enhanced dry swales as shown in the Plans, or as modified by the Engineer, after final grade and stabilization of the area upstream of each enhanced dry swale is reached. If this is not feasible, stormwater flow shall be diverted around the swale and the swale protected with temporary erosion and sediment control measures. Contractor shall maintain the enhanced dry swale after construction as outlined in the GDOT Stormwater System Inspection and Maintenance Manual until the project is turned over.

1. Excavation

Excavation should be limited to the width and length of the enhanced dry swale per the details shown in the plans or as directed by the Engineer. Avoid placing excavated material near the open trench so as not to jeopardize the stability of the trench sidewalls. The bottom of the excavated trench shall not be loaded in a way that causes soil compaction, and should be scarified prior to placement of specified materials. The sides of the trench shall be trimmed of all large roots. Sidewalls should be uniform with no voids and scarified prior to placement of materials for specified engineered drainage layers. Trench sidewalls shall be lined with the specified filter fabric. Infiltration testing should be performed prior to excavation of the dry enhanced swale if the enhanced dry swale is designed for infiltration. If infiltration is feasible, a second infiltration test is required prior to the placement of the underdrain system/aggregate layer to ensure that infiltration rates weren't impacted during excavation.

2. Underdrain System/Aggregate Layer

Install underdrain system(s) made of 8-inch diameter perforated polyethylene or perforated PVC pipe at the locations and depth per details shown in the plans for conveyance of stormwater that has filtered through the media. Perforations shall be 3/8-inch diameter and spaced 6-inches on center with four rows running longitudinally while the pipe is placed at a minimum slope of 0.5%. A removable end cap connected to the underdrain system shall be installed per the details shown in the plans. If infiltration is feasible, the end cap shall be closed except for emergency drainage or maintenance purposes. The underdrain pipe shall be surrounded by an aggregate layer as defined in the details and a 2-3-inch filter blanket of size no. 8 or no. 89 aggregate (Georgia Department of Transportation Specification Section 800) shall be used to segregate the aggregate layer from the engineered soil mix. Aggregates used in underdrain systems shall be double washed and free of fines and organic materials. Cleanouts shall be provided at the end of each underdrain branch and placed at a maximum spacing of 100 linear feet. Cleanouts shall extend to an elevation such that they are accessible once the trench is backfilled with the specified media and shall have a locking screw top lid, to discourage vandalism and tampering.

3. Engineered Soil Mix

Install the engineered soil mix specified above for the 30-inch thick engineered soil mix and nonwoven filter fabric per the details shown in the plans. The engineered soil mix shall be placed in a maximum of 12-inch lifts and shall be protected from contamination by foreign matter during installation. If the engineered soil mix becomes contaminated or the filter fabric is damaged, remove contaminated or damaged materials and replace them at no additional cost to the Department. Avoid using heavy equipment on the basin area during installation to maintain hydraulic conductivity of the engineered soil mix and to prevent damage to the underdrains.

4. Sod Layer

The sod layer must be grown in primarily sand/sandy-loam soils with less than 6% clay content. Sod shall be half cut or thin cut to promote infiltration. Sod shall consist of at least 75% of the designated grass species specified in the plans.

5. Pretreatment

Install riprap forebays per the details and at the locations specified in the plans. Riprap used in forebays shall meet the requirements outlined in Georgia Department of Transportation Specification Section 603 and woven filter fabric shall meet the requirements outlined in Georgia Department of Transportation Specification Section 881.2.05. Riprap forebays shall be located at major inflow locations and energy dissipation shall be provided at all concentrated inflow locations. Maintenance access shall be provided to the forebay.

6. Signage

Install signage per the details and locations specified in the plans.

E. Enhanced Wet Swales

Construct enhanced wet swales as shown in the Plans, or as modified by the Engineer, after final grade and stabilization of the area upstream of each enhanced wet swale is reached. If this is not feasible, stormwater flow shall be diverted around the swale and the swale protected with temporary erosion and sediment control measures. Contractor shall maintain the enhanced wet swale after construction as outlined in the GDOT Stormwater System Inspection and Maintenance Manual until the project is turned over.

1. Excavation

Excavation should be limited to the width and length of enhanced wet swale per the details shown in the plans or as directed by the Engineer. Avoid placing excavated material near the open trench so as not to jeopardize the stability of the trench sidewalls. The bottom of the excavated trench shall not be loaded in a way that causes soil compaction, and should be scarified. The sides of the trench shall be trimmed of all large roots, uniform with no voids, and scarified during normal stage construction. Install matted permanent grass slopes adjacent to enhanced wet swales immediately after each enhanced wet swale is installed. Once the basin has been stabilized, vegetation shall be established within the enhanced wet swale per the details shown in the plans.

2. **Plantings**

   Plant species used in enhanced wet swale shall be installed per the details shown in the plans and meet the requirements outlined in Georgia Department of Transportation Specification Section 702. Plants shall be selected on the basis of a specified hydric tolerance zone and shall be capable of surviving wetland conditions. All plants used shall be well grown and healthy and free from disease and infestation by invasive species.

3. **Pretreatment**

   Install riprap forebays per the details and at the locations specified in the plans. Riprap used in forebays shall meet the requirements outlined in Georgia Department of Transportation Specification Section 603 and woven filter fabric shall meet the requirements outlined in Georgia Department of Transportation Specification Section 881.2.05. Riprap forebays shall be located at major inflow locations and energy dissipation shall be provided at all concentrated inflow locations. Maintenance access shall be provided to the forebay.

4. **Signage**

   Install signage per the details and locations specified in the plans.

F. Infiltration Trenches

Construct infiltration trenches as shown in the Plans, or as modified by the Engineer, only after final grade and stabilization of drainage areas upstream of the infiltration trenches are completed to prevent contamination. If this is not feasible, stormwater flow shall be diverted around the trench and the trench area protected with temporary erosion and sediment control measures. Contractor shall maintain the infiltration trench after construction as outlined in the GDOT Stormwater System Inspection and Maintenance Manual until the project is turned over.

1. **Excavation**

   Excavation should be limited to the width and length of infiltration trench per the details shown in the plans or as directed by the Engineer. Avoid placing excavated material near the open trench so as not to jeopardize the stability of the trench sidewalls. The bottom of the excavated trench should be flat across its width and length, shall not be loaded in a way that causes soil compaction, and should be scarified prior to placement of specified materials. The sides of the trench shall be trimmed of all large roots. The sidewalls should be uniform with no voids and scarified prior to placement of materials for specified engineered drainage layers. Trench sidewalls shall be lined with specified filter fabric. Infiltration testing is required before excavation and prior to placement of the drainage layer to ensure that infiltration rates were not impacted during excavation and that the in-situ soils have a minimum infiltration rate of 0.5 in/hr.

2. **Observation Wells**

   Install observation wells made of 2-inch diameter, 0.01-inch-slotted, threaded, schedule 80 PVC pipe at the locations and depth per details shown in the plans for percolation monitoring. Observation wells shall have a threaded or slip-on top cap and shall have a locking steel sleeve to discourage vandalism and tampering.

3. **Drainage Layer**

   Install the specified materials for drainage layers and filter fabric per the details shown in the plans. The bottom 6 inches of the drainage layer shall consist of size 10 NS sand (Georgia Department of Transportation Specification Section 801). The drainage layer shall consist of size no. 3 drainage aggregate to the depth specified in the plans and filter fabric shall be used to segregate the aggregate layer from the pea gravel/sod layer. All aggregates used in drainage layers shall be double washed and free of fines and organic materials. Protect drainage layers from contamination by foreign matter during installation. If drainage layers become contaminated or filter fabric is damaged, remove contaminated or damaged materials and replace them at no additional cost to the Department.

4. **Pea Gravel/Sod Layer**

   The top 2 inches of the trenches shall consist of pea gravel or sod as specified in the plans. Pea gravel shall be of either size no. 89 or size no. 9 aggregate (Georgia Department of Transportation Specification Section 800). Sod must be washed or grown in primarily sand/sandy-loam soils with less than 6% clay content. Stabilize the disturbed areas adjacent to infiltration trenches per the plans immediately after each infiltration trench is installed.

5. **Pretreatment**

Install riprap forebays, filter strips, level spreaders and other pretreatment devices per the details and at the locations specified in the plans. Riprap used in pretreatment devices shall meet the requirements outlined in Georgia Department of Transportation Specification Section 603 and woven filter fabric shall meet the requirements outlined in Georgia Department of Transportation Specification Section 881.2.05. Riprap forebays shall be located at major inflow locations or at any inlet contributing more than 10 percent of the total flow to the infiltration trench. If this is not feasible, energy dissipation devices shall be provided at all concentrated inflow locations. If inflow is in the form of sheet flow, a vegetated filter strip shall be provided where space permits. Grasses used in filter strips shall be tolerant of both wet and dry conditions and meet the requirements outlined in Georgia Department of Transportation Specification Section 700. Maintenance access shall be provided to the forebay.

6. **Signage**

Install signage per the details and locations specified in the plans.

G. Sand Filters

Construct sand filters as shown in the Plans or as modified by the Engineer, after final grade and stabilization of the area upstream of each sand filter is reached/ If this is not feasible, stormwater flow shall be diverted around the sand filter and the area shall be protected with temporary erosion and sediment control measures. Contractor shall maintain the sand filter after construction as outlined in the GDOT Stormwater System Inspection and Maintenance Manual until the project is turned over.

6. **Excavation**

Excavation should be limited to the width and length of the sand filter per the details shown in the plans or as directed by the Engineer. Avoid placing excavated material near the open trench so as not to jeopardize the stability of the trench sidewalls. The bottom of the excavated trench should be flat across its width and length, shall not be loaded in a way that causes soil compaction, and should be scarified prior to placement of specified materials. The sides of the trench shall be trimmed of all large roots. The sidewalls should be uniform with no voids and scarified prior to placement of materials for specified engineered drainage layers. Trench sidewalls shall be lined with the specified filter fabric.

7. **Underdrain System/Aggregate Layer**

Install underdrain system(s) made of 8-inch diameter perforated polyethylene or perforated PVC pipe at the locations and depth per details shown in the plans for conveyance of stormwater that has filtered through the media. Perforations are shall be 3/8-inch diameter and spaced 6-inches on center with four rows running longitudinally while the pipe is placed at a minimum slope of 0.5%. The underdrain pipe shall be surrounded by an aggregate layer as defined in the details. Filter fabric shall be used to segregate the aggregate layer from the sand filter bed and in-situ soils. Aggregates used in underdrain systems shall be double washed and free of fines and organic materials. Cleanouts shall be provided at the end of each underdrain branch and placed at a maximum spacing of 100 linear feet. Cleanouts shall extend to an elevation such that they are accessible once the trench is backfilled with the specified media and shall have a screw top lid, preferably also locking, to discourage vandalism and tampering.

8. **Sand Filter Bed**

Install the sand filter bed consisting of size 10 NS sand (Georgia Department of Transportation Specification Section 801) for the 18-inch-minimum-thickness sand filter bed layer and nonwoven filter fabric per the details shown in the plans. The sand filter bed shall be placed in a maximum of 12-inch lifts and shall be protected from contamination by foreign matter during installation. If the sand filter bed becomes contaminated or the filter fabric is damaged, remove contaminated or damaged materials and replace them at no additional cost to the Department. Avoid using heavy equipment on the filter bed to maintain hydraulic conductivity of the soil media and avoid damaging the underdrains.

9. **Engineered Topsoil Mix**

Requirements

7. The top 3 inches of the sand filter should consist of an engineered topsoil mix. Use an engineered topsoil mix that meets the requirements herein. Do not use a mixture that contains deleterious substances. Obtain the materials from sources approved by the Engineer. Ensure that aggregate retained on No. 10 (2 mm) sieve is of hard, durable particles.
10. Remove particles with a diameter greater than 2 in (50 mm) before placing the engineered topsoil mix. Remove particles with screens or by hand if few oversized pieces exist. Otherwise, crush the oversized pieces to less than 2 in and use them in the proportions shown by the gradation table below.

11. Use 5-10% by dry weight composted organic matter as topsoil components. All components shall be free of pesticides and herbicides.
12. Use 90-95% by dry weight inorganic topsoil components with the following properties:

Sieve Size	Percent Passing by Weight
Passing 2 in (50 mm)	100
Passing 1-1/2 in (37.5 mm)	95-100
Passing No. 10 (2 mm) sieve	75-90
Passing No. 40 (425 µm)	50-70
Passing No. 60 (250 µm) sieve	30-60
Passing No. 200 (75 µm) sieve	10-25
Clay size (< 2 µm)	3-10

13. Ensure that material passing the No. 10 (2 mm) sieve meets the following requirements:

Property	Value
Liquid Limit (LL)	25 or less
Plasticity Index (PI)	10 or less
Volume Change, Maximum Percent	12
Maximum Dry Density, lb/ft³*	105
*by standard Proctor	

14. Nonwoven filter fabric shall be installed between the engineered topsoil mix and sand filter bed and shall be readily separated for maintenance. Stabilize the disturbed area adjacent to the sand filter per the plans immediately after the sand filter is installed. Permanent vegetation using grass cover shall be established within the sand filter using seeding once the basin has been stabilized. Grass used within the sand filter should be capable of withstanding frequent periods of wet and dry conditions.

5. Pretreatment-Sediment Chamber

Riprap forebays should be used as sediment chambers for sand filters. Sediment chambers are required for each sand filter and shall be installed per the details and at the locations specified in the plans. The sediment chamber shall be designed to treat 25 percent of the required water quality volume and shall be designed such that inflows spread evenly onto the sand filter bed. Riprap used in sediment chambers shall meet the requirements outlined in Georgia Department of Transportation Specification Section 603 and woven filter fabric shall meet the requirements outlined in Georgia Department of Transportation Specification Section 881.2.05. The sediment chamber shall be located at the major inflow location and energy dissipation shall be provided at all concentrated inflow locations. Maintenance access shall be provided to the sediment chamber.

6. Signage

Install signage per the details and locations specified in the plans.

H. Wet Detention Ponds

Construct wet detention ponds per the Plans at the required locations or as modified by the Engineer. Construct the ponds complete as shown, including but not limited to: grading, drainage, accessories to complete the wet detention ponds and temporary mulching and permanent grassing on external slopes. The contractor may propose alternate construction staging for review and approval. Alternate construction submittals for review shall be provided a minimum of 30 days prior to construction of a wet detention pond. Contractor shall maintain the wet detention pond after construction as outlined in the GDOT Stormwater System Inspection and Maintenance Manual until the project is turned over.

1. Excavation

Excavation should be limited to the width and length of the wet detention pond per the details shown in the plans or as directed by the Engineer. Embankments shall be constructed using the materials and methods specified in Georgia Department of Transportation Specification Section 208 and shall be compacted to at least 95 percent of the maximum laboratory dry density. Infiltration testing shall be performed prior to excavation of the wet detention pond to determine if a permanent pool will be maintained. If infiltration test results show an infiltration rate greater than 1 inch/hour at the proposed wet detention pond invert, an impervious liner shall be approved by the Engineer for use. Install matted permanent grass slopes adjacent to wet detention ponds immediately after each wet detention pond is installed. Once the basin has been stabilized, vegetation shall be established within the wet detention pond per the details shown in the plans.

2. Liners

1. If geotechnical testing confirms the need for a liner, acceptable options include one of the following and shall be approved by the Engineer for use: (a) six to 12 inches of clay soil that meets the specifications below, (b) a 30 mm poly-liner, (c) bentonite, (d) use of chemical additives, or (e) a design prepared by a professional engineer registered in the state of Georgia.

Clay Liner Specifications			
Property	**Test Method**	**Unit**	**Specification**
Permeability	ASTM D-2434	cm/sec	$1 X 10^{-6}$
Plasticity Index of Clay	ASTM D-423/424	%	Not less than 15
Liquid Limit of Clay	ASTM D-2216	%	Not less than 30
Clay Particles Passing	ASTM D-422	%	Not less than 30
Clay Compaction	ASTM D-2216	%	95% of standard proctor density

2. For wet detention ponds designed to have a clay liner, 4” of topsoil shall be added to the top of the clay liner. The topsoil may be amended organic material in order to support plant growth depending on the soil analysis. If a geosynthetic liner is used to reduce exfiltration from the wet detention pond, a minimum of 1 foot of soil shall separate the geosynthetic liner from the planting surface.

3. Plantings

Plant species used in wet detention ponds shall be installed per the details shown in the plans and meet the requirements outlined in Georgia Department of Transportation Specification Section 702. Vegetation surrounding the normal pool and along the safety bench shall be water tolerant wetland species and the remaining areas shall be planted with turfgrass to prevent erosion. Woody vegetation shall not be planted on the embankment or 25 feet from the outlet structure. Plants shall be selected based on a specified hydric tolerance zone and all plants used shall be well grown and healthy and free from disease and infestation by invasive species.

3. Pretreatment

Install riprap forebays per the details and at the locations specified in the plans. Riprap used in forebays shall meet the requirements outlined in Georgia Department of Transportation Specification Section 603 and woven filter fabric shall meet the requirements outlined in Georgia Department of Transportation Specification Section 881.2.05. Riprap forebays shall be located at major inflow locations or at any inlet contributing more than 10 percent of the total flow to the wet detention pond. Maintenance access shall be provided to the forebay.

4. Signage

Install signage per the details and locations specified in the plans.

168.3.06 Quality Acceptance

General Provisions 101 through 150.

168.3.07 Contractor Warranty and Maintenance

General Provisions 101 through 150.

168.4 Measurement

A. Bioretention Basins

Bioretention basins are measured for payment by the entire basin constructed at each location complete in place and accepted. The outlet control structure, underdrain system, engineered soil mix, mulch, any pretreatment (e.g. forebay),

any landscape plants, any signage, any outlet pipe, and any outlet apron and/or other energy dissipation devices are included in the lump sum cost of the bioretention basin.

B. Bioslopes

Permanent bioslopes are measured for payment by the entire bioslope complete in place and accepted. The outlet control structure, underdrain system, any outlet pipe, any pretreatment, any signage, and any outlet apron and/or other energy dissipation devices are included in the lump sum cost of the bioslope. Permanent grassing is not measured and paid for separately.

C. Dry Detention Basins

Dry detention basins are measured for payment by the entire structure constructed at each location complete in place and accepted. The outlet control structure, any outlet pipe, any pretreatment (e.g. forebay), any signage, and any outlet apron and/or other energy dissipation devices are included in the lump sum cost of the dry detention basin. Permanent grassing is not measured and paid for separately.

D. Enhanced Dry Swales

Enhanced dry swales are measured for payment by the entire structure constructed at each location complete in place and accepted. The outlet control structure, underdrain system, engineered soil mix, any pretreatment (e.g. forebay), any signage, any outlet pipe, and any outlet apron and/or other energy dissipation devices are included in the lump sum cost of the enhanced dry swale.

E. Enhanced Wet Swales

Enhanced wet swales are measured for payment by the entire structure constructed at each location complete in place and accepted. The outlet control structure, any outlet protection, any pretreatment (e.g. forebay), any landscape plants, any signage, and any outlet apron and/or other energy dissipation devices are included in the lump sum cost of the enhanced wet swale.

F. Infiltration Trenches

Infiltration trenches are measured for payment by the entire structure constructed at each location complete in place and accepted. Any pretreatment and any signage are included in the lump sum cost of the infiltration trench. Sod, if required, is not measured and paid for separately.

G. Sand filters

Sand filters are measured for payment by the entire structure constructed at each location complete in place and accepted. The outlet control structure, underdrain system, sand filter bed, sedimentation chamber, any signage, any outlet pipe, and any outlet apron/or other energy dissipation devices are included in the lump sum cost of the sand filter.

H. Wet Detention Ponds

Wet detention ponds are measured for payment by the entire structure constructed at each location complete in place and accepted. The outlet control structure, any outlet pipe, any pretreatment (e.g. forebay), landscape plants, any signage, and any outlet apron and/or other energy dissipation devices are included in the lump sum cost of the wet detention pond. Permanent grassing is not measured and paid for separately.

168.4.01 Limits

General Provisions 101 through 150.

168.5 Payment

A. Bioretention Basins

Bioretention basins are paid for at the Contract Unit Price per lump sum. The outlet control structure, any outlet pipe, any pretreatment (e.g. forebay), any landscape plants, any signage, and any outlet apron and/or other energy dissipation devices are paid for as a lump sum for the overall cost of the bioretention basin. Payment is full compensation for:

- Furnishing the material and labor
- Preparation and grading required to construct bioretention basins
- Installation of the drainage aggregate, nonwoven filter fabric, and complete underdrain system as shown in the details for construction of bioretention basins
- Installation of the permeable engineered soil mix, and mulch, as shown in the details for construction of bioretention basins

- Installation of landscape plantings as shown in the plans for construction of bioretention basins
- Any other incidentals such as but not limited to pipe fittings and connections to other specified structures required to construct bioretention basins

B. Bioslopes

Bioslope drains are paid for at the Contract Unit Price per lump sum. The outlet control structure, any outlet pipe, any pretreatment, any signage, and any outlet apron and/or other energy dissipation devices are paid for as a lump sum for the overall cost of the bioslope. Payment is full compensation for:

- Furnishing the material and labor
- Preparation and grading required to construct bioslopes
- Installation of the drainage aggregate, collector pipes, bioslope soil media, nonwoven filter fabric, and turf reinforcement matting 1, as shown in the details for construction of bioslope drains
- Any incidentals such as but not limited to pipe fittings and connections required to construct the bioslope

C. Dry Detention Basins

Dry detention basins are paid for at the Contract Unit Price per lump sum. The outlet control structure, any outlet pipe, any pretreatment (e.g. forebay), any signage, and any outlet apron and/or other energy dissipation devices are paid for as a lump sum for the overall cost of the dry detention basin. Payment is full compensation for:

- Furnishing the material and labor
- Preparation and grading required to construct dry detention basins
- Any other incidentals such as but not limited to pipe fittings and connections to other specified structures required to construct dry detention basins

D. Enhanced Dry Swales

Enhanced dry swales are paid for at the Contract Unit Price per lump sum. The outlet control structure, any outlet pipe, any pretreatment (e.g. forebay), any signage, and any outlet apron and/or other energy dissipation devices are paid for as a lump sum for the overall cost of the enhanced dry swale. Payment is full compensation for:

- Furnishing the material and labor
- Preparation and grading required to construct enhanced dry swales
- Installation of the drainage aggregate, nonwoven filter fabric, and complete underdrain system as shown in the details for construction of enhanced dry swales
- Installation of the permeable engineered soil mix, and sod if required, as shown in the details for construction of enhanced dry swales
- Any other incidentals such as but not limited to pipe fittings and connections to other specified structures required to construct enhanced dry swales

E. Enhanced Wet Swales

Enhanced wet swales are paid for at the Contract Unit Price per lump sum. The outlet control structure, any outlet pipe, any pretreatment (e.g. forebay), any landscape plants, any signage, and any outlet apron and/or other energy dissipation devices are paid for as a lump sum for the overall cost of the enhanced wet swale. Payment is full compensation for:

- Furnishing the material and labor
- Preparation and grading required to construct enhanced wet swales
- Installation of landscape plantings as shown in the plans for construction of enhanced wet swales
- Any other incidentals such as but not limited to pipe fittings and connections to other specified structures required to construct wet swales

F. Infiltration Trenches

Infiltration trenches are paid for at the Contract Unit Price per lump sum. Any pretreatment and any signage are paid for as a lump sum for the overall cost of the infiltration trench. Payment is full compensation for:

- Furnishing the material and labor
- Preparation and grading required to construct infiltration trenches

- Installation of the drainage aggregate, nonwoven filter fabric, and observation wells as shown in the details for construction of infiltration trenches
- Installation of the sod if required, as shown in the details for construction of infiltration trenches
- Any other incidentals such as but not limited to pipe fittings and connections to other specified structures required to construct infiltration trenches

G. Sand Filters

Sand filters are paid for at the Contract Unit Price per lump sum. The outlet control structure, the sedimentation chamber, any outlet pipe, any signage, and any outlet apron and/or other energy dissipation devices are paid for as a lump sum for the overall cost of the sand filter. Payment is full compensation for:

- Furnishing the material and labor
- Preparation and grading required to construct sand filters
- Installation of the drainage aggregate, nonwoven filter fabric, 10 NS sand, and complete underdrain system as shown in the details for construction of sand filters
- Installation of the permeable topsoil as shown in the details for construction of sand filters
- Any other incidentals such as but not limited to pipe fittings and connections to other specified structures required to construct sand filters.

H. Wet Detention Ponds

Wet detention ponds are paid for at the Contract Unit Price per lump sum. The outlet control structure, any outlet pipe, any pretreatment (e.g. forebay), any landscape plants, any signage, and any outlet apron and/or other energy dissipation devices are paid for as a lump sum for the overall cost of the wet detention pond. Payment is full compensation for:

- Furnishing the material and labor
- Preparation and grading required to construct wet detention ponds
- Installation of landscape plantings as shown in the plans for construction of wet detention ponds
- Any other incidentals such as but not limited to pipe fittings and connections to other specified structures required to construct wet detention ponds

Payment is made under:

Item No. 168	Construct bioretention basin	Per lump sum
Item No. 168	Construct bioslope	Per lump sum
Item No. 168	Construct dry detention basin	Per lump sum
Item No. 168	Construct enhanced dry swale	Per lump sum
Item No. 168	Construct enhanced wet swale	Per lump sum
Item No. 168	Construct infiltration trench	Per lump sum
Item No. 168	Construction sand filter	Per lump sum
Item No. 168	Construct wet detention pond	Per lump sum

168.5.01 Adjustments

General Provisions 101 through 150.

168.6 As-Built Documents

168.6.01 Description

Arrange for the inspection of post-construction stormwater BMPs during construction activities as specified and submit post-construction stormwater BMP as-built documents to the Department within 45 calendar days prior to substantial completion of the Contract.

168.6.02 Construction

Submit to the Department within 45 calendar days of completing construction of all post-construction stormwater BMPs in the Contract post-construction stormwater BMP as-built documents that contain the specified information for each post-construction stormwater BMP constructed. Submit two hard copies and one digital copy in PDF format on a CD. All post-construction stormwater BMPs shall meet the construction tolerances outlined in Georgia Department of Transportation specification 168.6.03 and will require approval from construction engineering and inspection personnel.

The post-construction stormwater BMP as-built documents include the following content, neatly presented and organized in an easy-to-follow format, for each post-construction stormwater BMP in the Contract.

a) Red line revision data must be overlaid on the appropriate Contract Plan sheet(s). Red line revision data must be red in color, clearly legible, and easily distinguishable. Printed copies must be submitted on 11 in. X 17 in. sheets.

b) Applicable supporting computations demonstrating that the functionality of the post-construction stormwater BMP meets the approved design requirements as noted in the approved Post-Construction Stormwater Management (PCS) Report for the Contract. Include any necessary revisions to the final PCS Report.

Upon, written request, the Department will provide CADD files in DGN format for the approved plans and a copy of the PCS Report in PDF format to facilitate completion of the post-construction stormwater BMP as-built documents.

168.6.03 Construction Tolerances

Construction tolerances for post-construction stormwater BMPs shall be as follows.

a) Depths. Depths within 5% of the depths specified in the Contract Documents not to exceed 2 in.

b) Water Quality and Channel Protection Volumes.

- Measurement of Water Quality volume and Channel Protection volume shall be within 5% of the volumes specified in the Contract Documents.
- Outlet structure orifices and weirs shall be within 3/16 inch of the Contract Documents.

c) Dimensions.

- Length of bioslopes, enhanced dry/wet swales, grass channels, infiltration trenches, and filter strips shall be within 5% of the length specified in the Contract Documents not to exceed 10 feet.
- Width of infiltration trenches and filter strips shall be within 5% of the width specified in the Contract Documents.
- Surface area for bioretention basins and sand filters shall be within 5% of the surface area specified in the Contract Documents.
- In lieu of measuring length and width and depth of a post construction structure the average end area method for calculating volume can be used to calculate of post construction structures that have an irregular shape. The accepted tolerance of the difference between the volume measured and the volume derived from the contract documents shall be 10%.

168.6.04 Payment

Post-construction stormwater BMP as-built documents will be paid for at the contract unit price per lump sum. The payment will be full compensation for services of the professional engineer, and for all material, labor, equipment, tools, and incidentals necessary to complete the work.

Subsequent inspections and reconstructed post-construction stormwater BMPs because of failure to address deviations from the Contract Documents that exceed specified tolerances and do not meet the design functions as presented in the approved final PCS Report shall be at no additional cost to the Department.

Subsequent revisions to and submissions of the post-construction stormwater BMP as-built documents following the initial submission shall be at no additional cost to the Department.

Georgia Department of Transportation

Programmatic Technical Provisions

For

Design-Build Agreement

P.I. Nos. 0012757 and 0012758

Attachment 22-1

Special Provision 624 – Noise Barriers

July 31, 2017

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA
SPECIAL PROVISION
Section 624 – Noise Barriers

Delete Sub-Section 624.2.C and substitute the following:

C. Type C

1. Use precast concrete panels meeting the following requirements:

Class AA, or * SCC Concrete	Section 500*
Reinforcing	AASHTO M 31/M 31M and M 32/M 32M
Piling-Galvanized Steel	Section 520 and AASHTO M 111/M 111M
Elastomeric Bearing Pads	Section 885
*If SCC is used: water/cement ratio 0.40, 3500 PSI, Spread Slump 24”±2” Air Entrainment -Min = 3.5% Max = 6.5%.	

2. Use Piling, bolts, and fittings that are hot-dip galvanized when the barrier rests on another concrete structure.

DEPARTMENT OF TRANSPORTATION
PERFORMANCE, PAYMENT, AND NONRESIDENT
CONTRACTOR'S TAX BONDS
(NONRESIDENT CONTRACTOR)

KNOW ALL MEN BY THESE PRESENTS, That we,

Savannah Mobility Contractors JV
810 Seventh Avenue, 9th Floor, New York, NY 10019

as Principal, and the Corporation or Corporations hereinafter designated as Surety A or Surety A to Surety D inclusive, as Surety or Sureties, are held and firmly bound, both "jointly and severally" as well as "severally" only, unto the State Road and Tollway Authority and the Department of Transportation as co-obligees in the penal sum of 120% of the Original Contract Amount of:

$260,520,016.00

for the use of the co-obligees herein named and of all persons doing work or furnishing skill, tools, machinery, or materials under or for the purpose of this contract hereinafter described, and for the use of the State and all political subdivisions thereof for all taxes (including contributions due under the employment security law), together with penalties and interest collectible as taxes, which may accrue during the period of this bond on account of the execution and performance of this contract hereinafter described; Provided, that it is mutually understood and agreed between the Principal and Surety and/or Sureties and the co-obligees herein named that this bond is to be construed as being in compliance with and subject to the provisions of Sections 13-10-1, 36-82-101, and 48-13-30 through 48-13-38 of the Official Code of Georgia Annotated, as well as the other applicable provisions, and that in compliance with the aforesaid sections this instrument is intended and is to be construed as three separate bonds, namely, as a "performance bond" in the full penal sum heretofore set forth, and as a "payment bond", in the full penal sum heretofore named, and as a "tax bond" in the amount of ten percent of the full penal sum heretofore named and that all bonds shall be construed to be in full force and effect at the same time, as the case may be, and that the obligations shall be several as to each type of bond; and for the payment of which sums well and truly to be made we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents; Provided, that the Sureties bind themselves in such sums "jointly and severally", as well as "severally" only for the purpose of allowing a joint action or actions against any or all of us, and for all other purposes each Surety binds itself, jointly and severally with the Principal, and with each other, for 210 percent of the penal sum of this bond, and provided further that, while each Surety binds itself, jointly and severally with the Principal, for 210 percent of penal sum herein provided for, the total liability of all Sureties shall not exceed the total penal sum heretofore provided for as to each of the respective obligations herein provided for.

Signed and sealed this day of September 19, 2018.

Aon Risk Services
3565 Piedmont Center
Atlanta, GA 30305

Surety	Name and State of incorporation	Name and Address of Georgia Resident Agent
A	Liberty Mutual Insurance Company / MA	Agent Name: Elizabeth K. Sterling
	Bond# 015054762	
B	American Home Assurance Company / NY	Agent Address 3550 Lenox Road NE, Suite 1700
	Bond# 926307	Atlanta, GA 30326
C	Berkshire Hathaway Specialty Insurance Company / NE	Agent Phone Number 404-240-6108
	Bond# 47-SUR-300002-01-0108 / 47-SUR-300002-01-0110	
D	The Continental Insurance Company / PA	*PLEASE PRINT ALL INFORMATION*
	Bond # 929627892 / 929627894	

Note: The Surety Company for Performance and Payment Bonds shall be a company acceptable as Surety on Federal Bonds and listed in the current Federal Register and licensed in the State of Georgia.

THE CONDITIONS OF THE FOREGOING OBLIGATIONS is such that whereas the above named Principal has entered into a contract with said department of Transportation bearing even date herewith for the Construction of:

I-16 at I-95 Interchange Reconstruction and I-16 Widening from I-16 to I-516

PI numbers 0012757 and 0012758

The surety hereby binds itself to provide performance bond and payment bond for work added by Supplemental Agreement(s) and/or Extension Agreement(s), whereby the original Contract amount or the total Project length may be increased by as much as twenty (20) percent without the written assent of the Surety.

Now, therefore, the condition of these obligations is such that if the above named bound Principal shall in all respects comply with the terms and conditions of said contract, including all modifications or extensions thereof, and his obligations thereunder, including the notice to contractors, the plans, general conditions, specifications, special provisions and proposals, therein referred to and made a part thereof, and shall complete the said contract in accordance with its terms and shall save co-obligees free from all cost and charge that may accrue on account of the doing of the work specified, then this bond, construed as a" performance bond" shall be void, otherwise of full force and effect.

Provided further, that upon the failure of the said Principal to promptly and efficiently prosecute said work, in any respect, in accordance with the contract, the above bound Surety or Sureties shall take charge of said work and complete the contracts at its own expense, pursuant to its terms, receiving, however, any balance of funds in the hands of said Department of Transportation under said contract.

And, further, the condition of these obligations is such that if the above bound Principal shall make prompt payment to all subcontractors and all other persons supplying labor, materials, machinery and equipment furnished for the performance of the work provided for in said contract, as well as all duly authorized modifications thereof which may hereafter be made, including any extension of time to complete the same, then this bond, as a "payment bond", shall be void, otherwise of full force and effect.

It is agreed that, in the event that this bond is executed by more than one surety company, the term "Surety" as used in this bond shall be construed to mean any one or all of such surety companies executing this bond. It is further agreed that such surety companies herein named and executing this bond as surety for the Principal, by mutual agreement between themselves, and with the Principal, and with the co-obligee herein named, do hereby designate and authorize:

Liberty Mutual Insurance Company

as the "controlling surety".

It is further agreed that the term, "controlling surety", shall be defined as that one of such sureties herein designated and authorized by all of such sureties, upon whom any notice or other demand may be made by the co-obligees herein named, or other person having a claim against the Principal under the provisions of this bond, or with whom such co-obligees, or other such person, may negotiate or deal as to any matter pertaining to the obligations of this bond, and against whom any right of action growing out of this bond may be enforced, as provided for by Sections 36-82-102 through 36-82-105 of the Official Code of Georgia Annotated as fully and effectively as though the same were had or done with each of such named sureties individually, and with the right upon the part of such "controlling surety" to vouch such co-sureties into court to defend any action against it or them arising out of the obligations of this bond, as provided by Section 9-10-13 of the Official Code of Georgia Annotated, or to call upon such co-sureties, in accordance with the terms of any notice, demand, suit, suit at law, or other action, commenced or brought against it by the co-obligees named herein, or any other person having a claim against the Principal under the conditions and provisions of this bond, or in accordance with any private contract between the sureties executing this bond on behalf of said Principal, it being the purpose and intent of this contract that the co-obligees named in this bond, or such other person having a claim under the provisions of this bond, may enforce any right that it or they may have growing out of this bond by notice, demand, negotiation, suit, or other appropriate action against the controlling surety only, and such action shall be deemed to be binding upon all the sureties named herein; Provided however, the foregoing notwithstanding, the co-obligees, or such other person having a claim under this bond, at its or their option, may take such action against any or all of said surety companies.

IN WITNESS WHEREOF, the said "Authorized Signer" and the said "Surety" have duly executed this bond under seal this date September 19, 2018.

Signed, Sealed, and Delivered in the presence of us.

IN WITNESS WHEREOF THE PARTIES HAVE SET THEIR HANDS AND AFFIXED THEIR SEALS

Savannah Mobility Contractors JV

Signature of Contractor (SEAL)

FERNANDO BOLINAGA
Printed Name of Signee:

Liberty Mutual Insurance Company
American Home Assurance Company
Berkshire Hathaway Specialty Insurance Company
The Continental Insurance Company

Andrea E. Gorbert
Signature of Attorney-In-Fact (SEAL)

Andrea E. Gorbert
Printed Name of Signee:

Elizabeth K. Sterling
Georgia Resident Agent Elizabeth K. Sterling
(Required for Non-Resident Contractor) #3118255

THIS POWER OF ATTORNEY IS NOT VALID UNLESS IT IS PRINTED ON RED BACKGROUND.
This Power of Attorney limits the acts of those named herein, and they have no authority to bind the Company except in the manner and to the extent herein stated.

Certificate No. 8064716

Liberty Mutual Insurance Company
The Ohio Casualty Insurance Company West American Insurance Company

POWER OF ATTORNEY

KNOWN ALL PERSONS BY THESE PRESENTS: That The Ohio Casualty Insurance Company is a corporation duly organized under the laws of the State of New Hampshire, that Liberty Mutual Insurance Company is a corporation duly organized under the laws of the State of Massachusetts, and West American Insurance Company is a corporation duly organized under the laws of the State of Indiana (herein collectively called the "Companies"), pursuant to and by authority herein set forth, does hereby name, constitute and appoint, Nancy Schnee; Andrea E. Gorbert; Jennifer L. Jakaitis; Anne Potter; Valorie Spates; Susan A. Welsh; Beverly A. Woolford

all of the city of Garden City, state of NY each individually if there be more than one named, its true and lawful attorney-in-fact to make, execute, seal, acknowledge and deliver, for and on its behalf as surety and as its act and deed, any and all undertakings, bonds, recognizances and other surety obligations, in pursuance of these presents and shall be as binding upon the Companies as if they have been duly signed by the president and attested by the secretary of the Companies in their own proper persons.

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Companies and the corporate seals of the Companies have been affixed thereto this 17th day of April 2018.

THE OHIO CASUALTY INSURANCE COMPANY INCORPORATED 1919 NEW HAMPSHIRE
LIBERTY MUTUAL INSURANCE COMPANY INCORPORATED 1912 MASSACHUSETTS
WEST AMERICAN INSURANCE COMPANY INCORPORATED 1991 INDIANA

The Ohio Casualty Insurance Company
Liberty Mutual Insurance Company
West American Insurance Company

By: David M. Carey
David M. Carey, Assistant Secretary

STATE OF PENNSYLVANIA ss
COUNTY OF MONTGOMERY

On this 17th day of April, 2018, before me personally appeared David M. Carey, who acknowledged himself to be the Assistant Secretary of Liberty Mutual Insurance Company, The Ohio Casualty Company, and West American Insurance Company, and that he, as such, being authorized so to do, execute the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

IN WITNESS WHEREOF, I have hereunto subscribed my name and affixed my notarial seal at King of Prussia, Pennsylvania, on the day and year first above written.

TERESA PASTELLA COMMONWEALTH OF PENNSYLVANIA NOTARY PUBLIC

COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Teresa Pastella, Notary Public
Upper Merion Twp., Montgomery County
My Commission Expires March 28, 2021
Member, Pennsylvania Association of Notaries

By: Teresa Pastella
Teresa Pastella, Notary Public

This Power of Attorney is made and executed pursuant to and by authority of the following By-laws and Authorizations of The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company which resolutions are now in full force and effect reading as follows:

ARTICLE IV – OFFICERS – Section 12. Power of Attorney. Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signature and execution of any such instruments and to attach thereto the seal of the Corporation. When so executed, such instruments shall be as binding as if signed by the President and attested to by the Secretary. Any power or authority granted to any representative or attorney-in-fact under the provisions of this article may be revoked at any time by the Board, the Chairman, the President or by the officer or officers granting such power or authority.

ARTICLE XIII – Execution of Contracts – SECTION 5. Surety Bonds and Undertakings. Any officer of the Company authorized for that purpose in writing by the chairman or the president, and subject to such limitations as the chairman or the president may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Company by their signature and execution of any such instruments and to attach thereto the seal of the Company. When so executed such instruments shall be as binding as if signed by the president and attested by the secretary.

Certificate of Designation – The President of the Company, acting pursuant to the Bylaws of the Company, authorizes David M. Carey, Assistant Secretary to appoint such attorneys-in-fact as may be necessary to act on behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations.

Authorization – By unanimous consent of the Company's Board of Directors, the Company consents that facsimile or mechanically reproduced signature of any assistant secretary of the Company, wherever appearing upon a certified copy of any power of attorney issued by the Company in connection with surety bonds, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

I, Renee C. Llewellyn, the undersigned, Assistant Secretary, The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company do hereby certify that the original power of attorney of which the foregoing is a full, true and correct copy of the Power of Attorney executed by said Companies, is in full force and effect and has not been revoked.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this _____ day of SEP 19 2018, 20_____.

THE OHIO CASUALTY INSURANCE COMPANY INCORPORATED 1919 NEW HAMPSHIRE
LIBERTY MUTUAL INSURANCE COMPANY INCORPORATED 1912 MASSACHUSETTS
WEST AMERICAN INSURANCE COMPANY INCORPORATED 1991 INDIANA

By: Renee Llewellyn
Renee C. Llewellyn, Assistant Secretary

Not valid for mortgage, note, loan, letter of credit, currency rate, interest rate or residual value guarantees.

To confirm the validity of this Power of Attorney call 1-610-832-8240 between 9:00 am and 4:30 pm EST on any business day.

LMS_12873_022017

Liberty Mutual. SURETY

LIBERTY MUTUAL INSURANCE COMPANY

FINANCIAL STATEMENT — DECEMBER 31, 2017

Assets

Cash and Bank Deposits	$370,003,299
*Bonds — U.S Government	1,331,664,975
*Other Bonds	11,127,053,004
*Stocks	16,367,850,688
Real Estate	272,895,626
Agents' Balances or Uncollected Premiums	5,258,657,823
Accrued Interest and Rents	100,341,596
Other Admitted Assets	11,192,287,530
Total Admitted Assets	**$46,020,754,541**

Liabilities

Unearned Premiums		$7,503,154,587
Reserve for Claims and Claims Expense		19,658,731,454
Funds Held Under Reinsurance Treaties		224,693,828
Reserve for Dividends to Policyholders		967,520
Additional Statutory Reserve		52,491,027
Reserve for Commissions, Taxes and Other Liabilities		4,049,392,852
Total		**$31,489,431,268**
Special Surplus Funds	$176,230,822	
Capital Stock	10,000,000	
Paid in Surplus	9,484,316,385	
Unassigned Surplus	4,860,776,066	
Surplus to Policyholders		**14,531,323,273**
Total Liabilities and Surplus		**$46,020,754,541**

LIBERTY MUTUAL INSURANCE COMPANY INCORPORATED 1912 MASSACHUSETTS

* Bonds are stated at amortized or investment value; Stocks at Association Market Values.
The foregoing financial information is taken from Liberty Mutual Insurance Company's financial statement filed with the state of Massachusetts Department of Insurance.

I, TIM MIKOLAJEWSKI, Assistant Secretary of Liberty Mutual Insurance Company, do hereby certify that the foregoing is a true, and correct statement of the Assets and Liabilities of said Corporation, as of December 31, 2017, to the best of my knowledge and belief.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the seal of said Corporation at Seattle, Washington, this 16th day of March, 2018.

T A Mikolajewski

Assistant Secretary

POWER OF ATTORNEY

American Home Assurance Company
National Union Fire Insurance Company of Pittsburgh, PA.
Principal Bond Office: 175 Water Street, New York, NY 10038

Power No. 8087

No. 01-B-031965

KNOW ALL MEN BY THESE PRESENTS:

That American Home Assurance Company, a New York corporation, and National Union Fire Insurance Company of Pittsburgh, PA., a Pennsylvania corporation, does each hereby appoint

---Nancy Schnee, Beverly A. Woolford, Anne Potter,
Valorie Spates, Andrea E. Gorbert of Garden City, New York---

its true and lawful Attorney(s)-in-Fact, with full authority to execute on its behalf bonds, undertakings, recognizances and other contracts of indemnity and writings obligatory in the nature thereof, issued in the course of its business, and to bind the respective company thereby.

IN WITNESS WHEREOF, American Home Assurance Company and National Union Fire Insurance Company of Pittsburgh, PA. have each executed these presents

this 26th day of July, 2018

Michael Yang, Vice President

STATE OF NEW YORK }
COUNTY OF NEW YORK } ss.

On this 26th day of July, 2018 before me came the above named officer of American Home Assurance Company and National Union Fire Insurance Company of Pittsburgh, PA., to me personally known to be the individual and officer described herein, and acknowledged that he executed the foregoing instrument and affixed the seals of said corporations thereto by authority of his office.

JULIANA HALLENBECK
Notary Public - State of New York
No. 01HA6126671
Qualified in Bronx County
My Commission Expires April 19, 2021

CERTIFICATE

Excerpts of Resolutions adopted by the Boards of Directors of American Home Assurance Company and National Union Fire Insurance Company of Pittsburgh, PA. on May 18, 1976:

"**RESOLVED,** that the Chairman of the Board, the President, or any Vice President be, and hereby is, authorized to appoint Attorneys-in-Fact to represent and act for and on behalf of the Company to execute bonds, undertakings, recognizances and other contracts of indemnity and writings obligatory in the nature thereof, and to attach thereto the corporate seal of the Company, in the transaction of its surety business;

"**RESOLVED,** that the signatures and attestations of such officers and the seal of the Company may be affixed to any such Power of Attorney or to any certificate relating thereto by facsimile, and any such Power of Attorney or certificate bearing such facsimile signatures or facsimile seal shall be valid and binding upon the Company when so affixed with respect to any bond, undertaking, recognizance and other contract of indemnity and writing obligatory in the nature thereof;

"**RESOLVED,** that any such Attorney-in-Fact delivering a secretarial certification that the foregoing resolutions still be in effect may insert in such certification the date thereof, said date to be not later than the date of delivery thereof by such Attorney-in-Fact."

I, Martin Bogue, Assistant Secretary of American Home Assurance Company and of National Union Fire Insurance Company of Pittsburgh, PA., do hereby certify that the foregoing excerpts of Resolutions adopted by the Boards of Directors of these corporations, and the Powers of Attorney issued pursuant thereto, are true and correct, and that both the Resolutions and the Powers of Attorney are in full force and effect.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the facsimile seal of each corporation

this SEP 19 2018 day of

Martin Bogue, Assistant Secretary

65166 (4/96)

American Home Assurance Company
Executive Offices
175 Water Street
New York, NY 10038

STATUTORY FINANCIAL STATEMENT

as of DECEMBER 31, 2017

Assets			Liabilities		
Bonds	$	15,152,548,354	Reserve for Losses and Loss Expense	$	12,115,080,705
Stocks		625,057,121	Reserve for Unearned Premiums		3,301,363,014
Cash & Short-Term Investments		238,422,453	Reserve for Expenses, Taxes, Licenses and Fees		139,760,541
Other Invested Assets		3,900,611,146	Provision for Reinsurance		19,826,022
Agents' Balances or Uncollected Premiums		1,874,202,399	Funds Held Under Reinsurance Treaties		1,695,233,354
Funds Held by Ceding Reinsurers		217,237,377	Other Liabilities		2,130,598,814
Reinsurance Recoverable on Loss Payments		324,863,206	TOTAL LIABILITIES		19,401,862,450
Equities & Deposits in Pools & Associations		7,680,377	Capital Stock		28,815,918
Other Admitted Assets		3,299,102,160	Surplus		6,209,004,523
TOTAL ASSETS	$	25,639,682,891	TOTAL POLICYHOLDERS' SURPLUS		6,237,820,441
			TOTAL LIABILITIES AND POLICYHOLDERS' SURPLUS	$	25,639,682,891

Bonds and stocks are valued in accordance with the basis adopted by the National Association of Insurance Commissioners. Securities carried at $ 1,644,830,392 in the above statement are deposited as required by law or otherwise pledged.

CERTIFICATE

Alexander Ross Baugh, President, and James Bracken, Chief Financial Officer, of American Home Assurance Company being duly sworn, each for himself deposes and says that they are the above described officers of the said Company and that on the 31st day of December, 2017, the Company actually possessed the assets set forth in the foregoing statement and that such assets were available for the payment of losses and claims and held for the protection of its policyholders and creditors, except as hereinbefore indicated, and that the foregoing statement is a correct exhibit of such assets and liabilities of said Company on the 31st day of December, 2017, according to the best of their information, knowledge and belief respectively.

President

Chief Financial Officer

STATE OF NEW YORK
COUNTY OF NEW YORK } SS.:

On this 30 day of March 2018, before me came the above named officers of American Home Assurance Company to me known to be the individuals and officers described herein, and acknowledged that they executed the foregoing instrument and affixed the seal of said corporation thereto by authority of their office.

Vincent J Patalano

31078 (3/03)

VINCENT J. PATALANO
Notary Public, State of New York
No. 01PA4987423
Qualified in New York County
Commission Expires October 15, 2021

Berkshire Hathaway
Specialty Insurance

Power Of Attorney

BERKSHIRE HATHAWAY SPECIALTY INSURANCE COMPANY
NATIONAL INDEMNITY COMPANY / NATIONAL LIABILITY & FIRE INSURANCE COMPANY

Know all men by these presents, that **BERKSHIRE HATHAWAY SPECIALTY INSURANCE COMPANY**, a corporation existing under and by virtue of the laws of the State of Nebraska and having an office at 100 Federal Street, 20th Floor, Boston, Massachusetts 02110, **NATIONAL INDEMNITY COMPANY**, a corporation existing under and by virtue of the laws of the State of Nebraska and having an office at 3024 harney Street, Omaha, Nebraska 68131 and **NATIONAL LIABILITY & FIRE INSURANCE COMPANY**, a corporation existing under and by virtue of the laws of the State of Connecticut and having an office at 100 First Stamford Place, Stamford, Connecticut 06902 (hereinafter collectively the "Companies"), pursuant to and by the authority granted as set forth herein, do hereby name, constitute and appoint: **Andrea E. Gorbert, Beverly A. Woolford, Anne Potter, Nancy Schnee, Valorie Spates, 900 Stewart Avenue, 3rd Floor, Suite 300 of the city of Garden City, State of New York,** their true and lawful attorney(s)-in-fact to make, execute, seal, acknowledge, and deliver, for and on their behalf as surety and as their act and deed, any and all undertakings, bonds, or other such writings obligatory in the nature thereof, in pursuance of these presents, the execution of which shall be as binding upon the Companies as if it has been duly signed and executed by their regularly elected officers in their own proper persons. **This authority for the Attorney-in-Fact shall be limited to the execution of the attached bond(s) or other such writings obligatory in the nature thereof.**

In witness whereof, this Power of Attorney has been subscribed by an authorized officer of the Companies, and the corporate seals of the Companies have been affixed hereto this date of April 12, 2018. This Power of Attorney is made and executed pursuant to and by authority of the Bylaws, Resolutions of the Board of Directors, and other Authorizations of **BERKSHIRE HATHAWAY SPECIALTY INSURANCE COMPANY, NATIONAL INDEMNITY COMPANY** and **NATIONAL LIABILITY & FIRE INSURANCE COMPANY**, which are in full force and effect, each reading as appears on the back page of this Power of Attorney, respectively.

BERKSHIRE HATHAWAY SPECIALTY INSURANCE COMPANY,

By: _____
David Fields, Executive Vice President

NATIONAL INDEMNITY COMPANY, NATIONAL LIABILITY & FIRE INSURANCE COMPANY,

By: _____
David Fields, Vice President

NOTARY
State of Massachusetts, County of Suffolk, ss:
On April 12, 2018 before me appeared David Fields, Executive Vice President of BERKSHIRE HATHAWAY SPECIALTY INSURANCE COMPANY and Vice President of NATIONAL INDEMNITY COMPANY and NATIONAL LIABILITY & FIRE INSURANCE COMPANY, who being duly sworn, says that his capacity is as designated above for such Companies; that he knows the corporate seals of the Companies; that the seals affixed to the foregoing instrument are such corporate seals; that they were affixed by order of the board of directors or other governing body of said Companies pursuant to its Bylaws, Resolutions and other Authorizations, and that he signed said instrument in that capacity of said Companies.

[Notary Seal]

GEOFFERY A. DELISIO
Notary Public
Commonwealth of Massachusetts
My Comm. Expires November 29, 2024

_____
Notary Public

I, Ralph Tortorella, the undersigned, Officer of **BERKSHIRE HATHAWAY SPECIALTY INSURANCE COMPANY, NATIONAL INDEMNITY COMPANY** and **NATIONAL LIABILITY & FIRE INSURANCE COMPANY**, do hereby certify that the above and foregoing is a true and correct copy of the Power of Attorney executed by said Companies which is in full force and effect and has not been revoked. IN TESTIMONY WHEREOF, see hereunto affixed the seals of said Companies this September 19, 2018.

_____
Officer

To verify the authenticity of this Power of Attorney please contact us at: BHSI Surety Department, Berkshire Hathaway Specialty Insurance Company, 100 Federal Street, 20th floor, Boston MA 02110 (617) 936-2971 or by email at Courtney.Walker@bhspecialty.com, **THIS POWER OF ATTORNEY IS VOID IF ALTERED.**
To notify us of claim please contact us on our 24-hour toll free number at (855) 453-9675, via email at claimsnotice@bhspecialty.com, via fax to (617) 507-8529, or via mail 500 Northpark Town Center, 1100 Abernathy Road, N.E., Suite 1200, Atlanta, GA 30328.

BERKSHIRE HATHAWAY SPECIALTY INSURANCE COMPANY (BYLAWS)

ARTICLE V.

CORPORATE ACTIONS

. . . .

EXECUTION OF DOCUMENTS:

. . . .

Section 6.(b) The President, any Vice President or the Secretary, shall have the power and authority:

(1) To appoint Attorneys-in-fact, and to authorize them to execute on behalf of the Company bonds and other undertakings, and

(2) To remove at any time any such Attorney-in-fact and revoke the authority given him.

NATIONAL INDEMNITY COMPANY (BY-LAWS)

Section 4. Officers, Agents, and Employees:

A. The officers shall be a President, one or more Vice Presidents, a Secretary, one or more Assistant Secretaries, a Treasurer, and one or more Assistant Treasurers none of whom shall be required to be shareholders or Directors and each of whom shall be elected annually by the Board of Directors at each annual meeting to serve a term of office of one year or until a successor has been elected and qualified, may serve successive terms of office, may be removed from office at any time for or without cause by a vote of a majority of the Board of Directors, and shall have such powers and rights and be charged with such duties and obligations as usually are vested in and pertain to such office or as may be directed from time to time by the Board of Directors; and the Board of Directors or the officers may from time to time appoint, discharge, engage, or remove such agents and employees as may be appropriate, convenient, or necessary to the affairs and business of the corporation.

NATIONAL INDEMNITY COMPANY (BOARD RESOLUTION ADOPTED AUGUST 6, 2014)

RESOLVED, That the President, any Vice President or the Secretary, shall have the power and authority to (1) appoint Attorneys-in-fact, and to authorize them to execute on behalf of this Company bonds and other undertakings and (2) remove at any time any such Attorney-in-fact and revoke the authority given.

NATIONAL LIABILITY & FIRE INSURANCE COMPANY (BY-LAWS)

ARTICLE IV

Officers

Section 1. Officers, Agents and Employees:

A. The officers shall be a president, one or more vice presidents, one or more assistant vice presidents, a secretary, one or more assistant secretaries, a treasurer, and one or more assistant treasurers, none of whom shall be required to be shareholders or directors, and each of whom shall be elected annually by the board of directors at each annual meeting to serve a term of office of one year or until a successor has been elected and qualified, may serve successive terms of office, may be removed from office at any time for or without cause by a vote of a majority of the board of directors. The president and secretary shall be different individuals. Election or appointment of an officer or agent shall not create contract rights. The officers of the Corporation shall have such powers and rights and be charged with such duties and obligations as usually are vested in and pertain to such office or as may be directed from time to time by the board of directors; and the board of directors or the officers may from time to time appoint, discharge, engage, or remove such agents and employees as may be appropriate, convenient, or necessary to the affairs and business of the Corporation.

NATIONAL LIABILITY & FIRE INSURANCE COMPANY (BOARD RESOLUTION ADOPTED AUGUST 6, 2014)

RESOLVED, That the President, any Vice President or the Secretary, shall have the power and authority to (1) appoint Attorneys-in-fact, and to authorize them to execute on behalf of this Company bonds and other undertakings and (2) remove at any time any such Attorney-in-fact and revoke the authority given.

Berkshire Hathaway Specialty Insurance

Power Of Attorney

BERKSHIRE HATHAWAY SPECIALTY INSURANCE COMPANY
NATIONAL INDEMNITY COMPANY / NATIONAL LIABILITY & FIRE INSURANCE COMPANY

Know all men by these presents, that **BERKSHIRE HATHAWAY SPECIALTY INSURANCE COMPANY**, a corporation existing under and by virtue of the laws of the State of Nebraska and having an office at 100 Federal Street, 20th Floor, Boston, Massachusetts 02110, **NATIONAL INDEMNITY COMPANY**, a corporation existing under and by virtue of the laws of the State of Nebraska and having an office at 3024 harney Street, Omaha, Nebraska 68131 and **NATIONAL LIABILITY & FIRE INSURANCE COMPANY**, a corporation existing under and by virtue of the laws of the State of Connecticut and having an office at 100 First Stamford Place, Stamford, Connecticut 06902 (hereinafter collectively the "Companies"), pursuant to and by the authority granted as set forth herein, do hereby name, constitute and appoint: **Andrea E. Gorbert, Beverly A. Woolford, Anne Potter, Nancy Schnee, Valorie Spates, 900 Stewart Avenue, 3rd Floor, Suite 300 of the city of Garden City, State of New York,** their true and lawful attorney(s)-in-fact to make, execute, seal, acknowledge, and deliver, for and on their behalf as surety and as their act and deed, any and all undertakings, bonds, or other such writings obligatory in the nature thereof, in pursuance of these presents, the execution of which shall be as binding upon the Companies as if it has been duly signed and executed by their regularly elected officers in their own proper persons. **This authority for the Attorney-in-Fact shall be limited to the execution of the attached bond(s) or other such writings obligatory in the nature thereof.**

In witness whereof, this Power of Attorney has been subscribed by an authorized officer of the Companies, and the corporate seals of the Companies have been affixed hereto this date of April 12, 2018. This Power of Attorney is made and executed pursuant to and by authority of the Bylaws, Resolutions of the Board of Directors, and other Authorizations of **BERKSHIRE HATHAWAY SPECIALTY INSURANCE COMPANY, NATIONAL INDEMNITY COMPANY** and **NATIONAL LIABILITY & FIRE INSURANCE COMPANY,** which are in full force and effect, each reading as appears on the back page of this Power of Attorney, respectively.

BERKSHIRE HATHAWAY SPECIALTY INSURANCE COMPANY,

By: _____
David Fields, Executive Vice President

NATIONAL INDEMNITY COMPANY, NATIONAL LIABILITY & FIRE INSURANCE COMPANY,

By: _____
David Fields, Vice President

NOTARY
State of Massachusetts, County of Suffolk, ss:
On April 12, 2018 before me appeared David Fields, Executive Vice President of BERKSHIRE HATHAWAY SPECIALTY INSURANCE COMPANY and Vice President of NATIONAL INDEMNITY COMPANY and NATIONAL LIABILITY & FIRE INSURANCE COMPANY, who being duly sworn, says that his capacity is as designated above for such Companies; that he knows the corporate seals of the Companies; that the seals affixed to the foregoing instrument are such corporate seals; that they were affixed by order of the board of directors or other governing body of said Companies pursuant to its Bylaws, Resolutions and other Authorizations, and that he signed said instrument in that capacity of said Companies.
[Notary Seal]

GEOFFERY A. DELISIO
Notary Public
Commonwealth of Massachusetts
My Comm. Expires November 29, 2024

_____
Notary Public

I, Ralph Tortorella, the undersigned, Officer of **BERKSHIRE HATHAWAY SPECIALTY INSURANCE COMPANY, NATIONAL INDEMNITY COMPANY** and **NATIONAL LIABILITY & FIRE INSURANCE COMPANY,** do hereby certify that the above and foregoing is a true and correct copy of the Power of Attorney executed by said Companies which is in full force and effect and has not been revoked. IN TESTIMONY WHEREOF, see hereunto affixed the seals of said Companies this September 19, 2018.

_____
Officer

To verify the authenticity of this Power of Attorney please contact us at: BHSI Surety Department, Berkshire Hathaway Specialty Insurance Company, 100 Federal Street, 20th floor, Boston MA 02110 (617) 936-2971 or by email at Courtney.Walker@bhspecialty.com, **THIS POWER OF ATTORNEY IS VOID IF ALTERED.**
To notify us of claim please contact us on our 24-hour toll free number at (855) 453-9675, via email at claimsnotice@bhspecialty.com, via fax to (617) 507-8529, or via mail 500 Northpark Town Center, 1100 Abernathy Road, N.E., Suite 1200, Atlanta, GA 30328.

BERKSHIRE HATHAWAY SPECIALTY INSURANCE COMPANY (BYLAWS)

ARTICLE V.

CORPORATE ACTIONS

. . . .

EXECUTION OF DOCUMENTS:

. . . .

Section 6.(b) The President, any Vice President or the Secretary, shall have the power and authority:

(1) To appoint Attorneys-in-fact, and to authorize them to execute on behalf of the Company bonds and other undertakings, and

(2) To remove at any time any such Attorney-in-fact and revoke the authority given him.

NATIONAL INDEMNITY COMPANY (BY-LAWS)

Section 4. Officers, Agents, and Employees:

A. The officers shall be a President, one or more Vice Presidents, a Secretary, one or more Assistant Secretaries, a Treasurer, and one or more Assistant Treasurers none of whom shall be required to be shareholders or Directors and each of whom shall be elected annually by the Board of Directors at each annual meeting to serve a term of office of one year or until a successor has been elected and qualified, may serve successive terms of office, may be removed from office at any time for or without cause by a vote of a majority of the Board of Directors, and shall have such powers and rights and be charged with such duties and obligations as usually are vested in and pertain to such office or as may be directed from time to time by the Board of Directors; and the Board of Directors or the officers may from time to time appoint, discharge, engage, or remove such agents and employees as may be appropriate, convenient, or necessary to the affairs and business of the corporation.

NATIONAL INDEMNITY COMPANY (BOARD RESOLUTION ADOPTED AUGUST 6, 2014)

RESOLVED, That the President, any Vice President or the Secretary, shall have the power and authority to (1) appoint Attorneys-in-fact, and to authorize them to execute on behalf of this Company bonds and other undertakings and (2) remove at any time any such Attorney-in-fact and revoke the authority given.

NATIONAL LIABILITY & FIRE INSURANCE COMPANY (BY-LAWS)

ARTICLE IV

Officers

Section 1. Officers, Agents and Employees:

A. The officers shall be a president, one or more vice presidents, one or more assistant vice presidents, a secretary, one or more assistant secretaries, a treasurer, and one or more assistant treasurers, none of whom shall be required to be shareholders or directors, and each of whom shall be elected annually by the board of directors at each annual meeting to serve a term of office of one year or until a successor has been elected and qualified, may serve successive terms of office, may be removed from office at any time for or without cause by a vote of a majority of the board of directors. The president and secretary shall be different individuals. Election or appointment of an officer or agent shall not create contract rights. The officers of the Corporation shall have such powers and rights and be charged with such duties and obligations as usually are vested in and pertain to such office or as may be directed from time to time by the board of directors; and the board of directors or the officers may from time to time appoint, discharge, engage, or remove such agents and employees as may be appropriate, convenient, or necessary to the affairs and business of the Corporation.

NATIONAL LIABILITY & FIRE INSURANCE COMPANY (BOARD RESOLUTION ADOPTED AUGUST 6, 2014)

RESOLVED, That the President, any Vice President or the Secretary, shall have the power and authority to (1) appoint Attorneys-in-fact, and to authorize them to execute on behalf of this Company bonds and other undertakings and (2) remove at any time any such Attorney-in-fact and revoke the authority given.

BERKSHIRE HATHAWAY SPECIALTY
I N S U R A N C E C O M P A N Y

1314 Douglas Street, Suite 1400, Omaha, Nebraska 68102

ADMITTED ASSETS*

	12/31/2017	9/30/2017	12/31/2016
Total invested assets	$ 4,516,104,907	$ 4,327,535,008	$ 3,707,827,160
Premium & agent balances	297,141,264	279,204,700	193,621,498
All other assets	137,220,394	129,486,990	185,024,482
Total Admitted Assets	$ 4,950,466,565	$ 4,736,226,698	$ 4,086,473,140

LIABILITIES & SURPLUS*

	12/31/2017	9/30/2017	12/31/2016
Loss & loss exp. unpaid	$ 327,823,391	$ 288,456,911	$ 142,981,337
Unearned premiums	209,113,536	198,098,348	160,310,927
All other liabilities	663,892,150	770,564,561	446,041,395
Total Liabilities	1,200,829,077	1,257,119,820	749,333,659
Total Policyholders' Surplus	3,749,637,488	3,479,106,878	3,337,139,481
Total Liabilities & Surplus	$ 4,950,466,565	$ 4,736,226,698	$ 4,086,473,140

* Assets, liabilities and surplus are presented on a Statutory Accounting Basis as promulgated by the NAIC and/or the laws of the company's domiciliary state.

A.M. Best: A++ Rating **Standard & Poor's: AA+ Rating**

POWER OF ATTORNEY APPOINTING INDIVIDUAL ATTORNEY-IN-FACT

Know All Men By These Presents, That The Continental Insurance Company, a Pennsylvania insurance company, is a duly organized and existing insurance company having its principal office in the City of Chicago, and State of Illinois, and that it does by virtue of the signature and seal herein affixed hereby make, constitute and appoint

Nancy Schnee, Valorie Spates, Andrea E Gorbert, Beverly Woolford, Anne Potter, Individually, of Garden City, NY Debra A Deming, Cynthia Farrell, Sandra Diaz, Edward Reilly, Peter Healy, Susan A Welsh, Aklima Noorhassan, Frances A Rodriguez, Francesca Kazmierczak, Individually, of New York, NY

its true and lawful Attorney(s)-in-Fact with full power and authority hereby conferred to sign, seal and execute for and on its behalf bonds, undertakings and other obligatory instruments of similar nature

- In Unlimited Amounts -

and to bind them thereby as fully and to the same extent as if such instruments were signed by a duly authorized officer of the insurance company and all the acts of said Attorney, pursuant to the authority hereby given is hereby ratified and confirmed.

This Power of Attorney is made and executed pursuant to and by authority of the By-Law and Resolutions, printed on the reverse hereof, duly adopted, as indicated, by the Board of Directors of the insurance company.

In Witness Whereof, The Continental Insurance Company has caused these presents to be signed by its Vice President and its corporate seal to be hereto affixed on this 5th day of March, 2018.

The Continental Insurance Company

Paul T. Bruflat — Vice President

State of South Dakota, County of Minnehaha, ss:

On this 5th day of March, 2018, before me personally came Paul T. Bruflat to me known, who, being by me duly sworn, did depose and say: that he resides in the City of Sioux Falls, State of South Dakota; that he is a Vice President of The Continental Insurance Company, a Pennsylvania insurance company, described in and which executed the above instrument; that he knows the seal of said insurance company; that the seal affixed to the said instrument is such corporate seal; that it was so affixed pursuant to authority given by the Board of Directors of said insurance company and that he signed his name thereto pursuant to like authority, and acknowledges same to be the act and deed of said insurance company.

J. MOHR
SEAL NOTARY PUBLIC SOUTH DAKOTA SEAL

My Commission Expires June 23, 2021

J. Mohr — Notary Public

CERTIFICATE

I, D. Johnson, Assistant Secretary of The Continental Insurance Company, a Pennsylvania insurance company, do hereby certify that the Power of Attorney herein above set forth is still in force, and further certify that the By-Law and Resolution of the Board of Directors of the insurance company printed on the reverse hereof is still in force. In testimony whereof I have hereunto subscribed my name and affixed the seal of the said insurance company this _____ day of SEP 19 2018, _____.

The Continental Insurance Company

D. Johnson — Assistant Secretary

Form F6850-4/2012

Go to www.cnasurety.com > Owner / Obligee Services > Validate Bond Coverage, if you want to verify bond authenticity.

Authorizing Resolutions

ADOPTED BY THE BOARD OF DIRECTORS OF THE CONTINENTAL INSURANCE COMPANY:

This Power of Attorney is made and executed pursuant to and by authority of the following By-Law duly adopted by the Board of Directors of the Company at a meeting held on May 10, 1995.

> "RESOLVED: That any Group Vice President may authorize an officer to sign specific documents, agreements and instruments on behalf of the Company provided that the name of such authorized officer and a description of the documents, agreements or instruments that snch officer may sign will be provided in writing by the Group Vice President to the Secretary of tbe Company prior to such execution becoming effective."

This Power of Attorney is signed by Paul T. Bruflat, Vice President, who has been authorized pursuant to the above resolution to execution power of attorneys on behalf of The Continental Insurance Company.

This Power of Attorney is signed and sealed by facsimile under and by the authority of the following Resolution adopted by the Board of Directors of the Company by nnanimous written consent dated the 25th day of April, 2012:

> "Whereas, the bylaws of the Company or specific resolution of the Board of Directors has authorized various officers (the "Authorized Officers") to execute various policies, bonds, undertakings and other obligatory instruments of like nature; and
>
> Whereas, from time to time, the signature of the Authorized Officers in addition to being provided in original, hard copy format, may be provided via facsimile or otherwise in an electronic format (collectively, "Electronic Signatures"); Now therefore be it resolved: that the Electronic Signature of any Authorized Officer shall be valid and binding on the Company."

THE CONTINENTAL INSURANCE COMPANY
Radnor, Pennsylvania
Statement of Net Admitted Assets and Liabilities
December 31, 2017

ASSETS

Bonds	$	1,330,429,936
Stocks		167,742,715
Cash and short-term investments		85,825,850
Receivables for securities		20,196
Investment income due and accrued		17,161,745
Amounts recoverable from reinsurers		76,945,537
Funds held by or deposited with reinsured companies		1,540,327
Net deferred tax asset		36,893,768
Premiums and considerations		53,800,822
Other assets		5,375,416
Total Assets	$	1,775,736,312

LIABILITIES AND SURPLUS

Losses	$	766,069,688
Loss adjustment expense		35,005,913
Unearned premiums		-
Other expenses		696,304
Ceded reinsurance premiums payable (net of ceding commissions)		61,662,528
Funds held by company under reinsurance treaties		4,756,715
Provision for reinsurance		76,000,000
Other liabilities		(726,512,230)
Total Liabilities	$	217,678,918

Surplus Account:				
Capital paid up	$	53,566,360		
Gross paid in and contributed surplus		1,423,436,994		
Special Surplus		306,057,919		
Unassigned funds		(225,003,878)		
Surplus as regards policyholders			$	1,558,057,394
Total Liabilities and Capital			$	1,775,736,312

I, Troy Wray, Assistant Vice President of Continental Insurance Company hereby certify that the above is an accurate representation of the financial statement of the Company dated December 31, 2017, as filed with the various Insurance Departments and is a true and correct statement of the condition of Continental Insurance Company as of that date.

THE CONTINENTAL INSURANCE COMPANY

By _____
Assistant Vice President

Subscribed and sworn to me this 8th day of March, 2018.

My commission expires:

YOLANDA JIMENEZ
OFFICIAL SEAL
Notary Public, State of Illinois
My Commission Expires
September 24, 2021

_____
Notary Public