GEORGIA DEPARTMENT OF TRANSPORTATION

GDOT Project No: NH000-0575-01(028)

PI No: 713640

JBT Project No. 255717

Bridge No. 36
I-575 REVERSIBLE OVER NOONDAY CREEK SOUTH

November, 2009

COBB COUNTY

DESIGN CALCULATIONS

Note 1: Georgia Department of Transportation (GDOT) terminated Contract Number TOURDPPI60072 for its convenience prior to the completion of all work under that contract and directed that the work with respect to these calculations be discontinued.

(a) These calculations were not completed at the time of GDOT's direction and the information contained herein is not complete and/or has not been fully verified or checked. These calculations are a work-in-progress and are presented only as such.

(b) Any user is cautioned that the use of these calculations and any related information or calculations, without access to pertinent factors and without proper regard for their purpose, could lead to erroneous conclusions.

(c) If any such calculations or any information contained herein is used in future work efforts or any follow on design work activity, a complete confirmation of the information contained herein should be performed prior to any such use.

(d) GTP has no responsibility for the use of this information not under its direct control.

Prepared for Georgia Transportation Partners
Atlanta, Georgia

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Purpose of Calculation

Bridge design calculations for Bridge #36 were made for costing purposes.

1. Specifications and References

AASHTO 17th Edition, 2002
GDOT Bridge Design Manual, 2008

2. Computer

Computer Type Used: PC
Operating System: Windows XP, Pentium 4, 2GB RAM (min.)

3. Computer Programs (Standard Computer Program)

Excel, Microsoft Office 2003 – JBT Calculation Spreadsheets
BRLLCA, 2008 – Live Load Case Program, by GDOT
BRPIER, 2008 – Pier Design and Analysis, by GDOT
BRPSBM1, 2008 – PSC Beam Design and Analysis, by GDOT
LEAP Geomath 08.01.00.01 – Bridge and Structure Geometry, by Bentley Systems Inc.
LPile 4.0 – Analysis of Piles and Drilled Shafts under Lateral Loads, by Ensoft Inc.
PCACOL 2.30 – Design of Reinforced Column Sections, by Portland Cement Association

CALCULATION COVER SHEET

PROJECT	JOB NO.	CALC NO.	SHEET
I-75 / I-575 NORTHWEST CORRIDOR	NH000-0575-01(028)	BR#36	1
SUBJECT	DISCIPLINE		
Bridge Geometry Output	STRUCTURAL		

CALCULATION STATUS DESIGNATION	PRELIMINARY	CONFIRMED	SUPSEDED	VOIDED	INCOMPLETE
	☐	☐	☐	☐	X

COMPUTER PROGRAM/TYPE	SCP	MAINFRAME	PC	PROGRAM	VERSION/RELEASE NO.
	X YES ◯ NO	◯	X	LEAP GEOMATH	08.01.00.01

Note 1: Georgia Department of Transportation (GDOT) terminated Contract Number TOURDPPI60072 for its convenience the completion of all work under that contract and directed that the work with respect to these calculations be discontinued.
(a) These calculations were not completed at the time of GDOT's direction and the information contained herein is not and/or has not been fully verified or checked. These calculations are a work-in-progress and are presented only as such.
(b) Any user is cautioned that the use of these calculations and any related information or calculations, without access to factors and without proper regard for their purpose, could lead to erroneous conclusions.
(c) If any such calculations or any information contained herein is used in future work efforts or any follow on design work a complete confirmation of the information contained herein should be performed prior to any such use.
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A	As per GDOT's termination for convenience direction	44	44	JCR			11/30/09
NO.	REASON FOR REVISION	TOTAL NO. OF SHEETS	LAST SHEET NO.	BY	CHECKED	APPROVED/ ACCEPTED	DATE
RECORD OF REVISIONS							

CALCULATION SHEET

PROJECT: I-75 / I-575 NORTHWEST CORRIDOR
JOB NUMBER NH000-0575-01(028)
CALC NO. BR#36

SUBJECT: Bridge Geometry Output
BY: JCR DATE: 11/30/2009

SHEET NO.
SHEET REV.

Sufficient sample calculations representative of the scope and conditions in the design calculation were performed and the results compared to demonstrate the computer program adequacy.

Filename: N:\TRA\255717\Eng\BR36\Geomath\I-575 BR36.gmd

Alignment ID: 575align

Start Station: 1124+28.9373

P.I.	North	East	Trans	Spiral-In	Spiral-Out	Radius
1	1,464,250.1979	2,177,492.8622	None			
2	1,464,498.7939	2,177,450.4448	None			

***** End of Report *****

Filename: N:\TRA\255717\Eng\BR36\Geomath\I-575 BR36.gmd

Alignment ID: 575align

Element # 1 Shape: Tangent

	Station	North	East	Direction	Radius
Start:	1124+28.9373	1,464,250.1979	2,177,492.8622	N 350 19 01.184903	INFINITY
End:	1126+81.1261	1,464,498.7939	2,177,450.4448	N 350 19 01.184903	INFINITY
Length:	252.1888		Delta:	0 00 00.000000	

***** End of Report *****

Filename: N:\TRA\255717\Eng\BR36\Geomath\I-575 BR36.gmd

Profile ID: 575vert

VPI	Station	Elevation	Trans	Parabola-1	Parabola-2
1	1116+43.5000	951.3900	None		
2	1121+43.5000	945.8400	Parabola	1,000.0000	
3	1126+43.5000	951.0900	None		

***** End of Report *****

Filename: N:\TRA\255717\Eng\BR36\Geomath\I-575 BR36.gmd

Profile ID: 575vert

Elem		Start	End	Apex		Transition
1	Sta	1116+43.5000	1116+43.5000	None	Length	0.0000
	Elev	951.3900	951.3900	None	Type	Tangent
	Grade	-0.0111	-0.0111			
2	Sta	1116+43.5000	1126+43.5000	1121+57.3889	Length	1,000.0000
	Elev	951.3900	951.0900	948.5379	Type	Parabola
	Grade	-0.0111	0.0105			
3	Sta	1126+43.5000	1126+43.5000	None	Length	0.0000
	Elev	951.0900	951.0900	None	Type	Tangent
	Grade	0.0105	0.0105			

***** End of Report *****

Filename: N:\TRA\255717\Eng\BR36\Geomath\I-575 BR36.gmd

XSection ID: 575xsect

SLOPE BREAK POINTS: 9

STATION	PGL-OFFSET	POINT	DIST-FR-PGL	GRADE	DESCRIPTION
1124+50.0000	0.0000	1	-58.8333		
				0.010417	CUT-HOVB
		2	-57.5000		
				0.010417	HOVB
		3	-55.5000		
				0.010417	HOVB-CL
		4	-32.0000		
				0.010417	CL-CROWN
		5	-26.0000		
				-0.020833	CROWN-HOVB
		6	-22.0000		
				-0.020833	HOVB
		7	-20.0000		
				-0.020833	HOVB-CROWN
		8	-14.0000		
				-0.010417	CROWN-PGL
		9	0.0000		

SLOPE BREAK POINTS: 9

STATION	PGL-OFFSET	POINT	DIST-FR-PGL	GRADE	DESCRIPTION
1126+50.0000	0.0000	1	-58.8333		
				0.010417	CUT-HOVB
		2	-57.5000		
				0.010417	HOVB
		3	-55.5000		
				0.010417	HOVB-CL
		4	-32.0000		
				0.010417	CL-CROWN
		5	-26.0000		
				-0.020833	CROWN-HOVB
		6	-22.0000		
				-0.020833	HOVB
		7	-20.0000		
				-0.020833	HOVB-CROWN
		8	-14.0000		
				-0.010417	CROWN-PGL
		9	0.0000		

***** End of Report *****

Filename: N:\TRA\255717\Eng\BR36\Geomath\I-575 BR36.gmd

COORDINATE REPORT

Station Ref: 575

ID	STATION	OFFSET (ft)	NORTH (ft)	EAST (ft)	575 ELEV (ft)
B1&PGL	1124+59.5000	0.0000	1,464,280.3252	2,177,487.7216	949.5236
B2&PGL	1125+09.5000	0.0000	1,464,329.6129	2,177,479.3118	949.8769
B4&PGL	1126+29.5000	0.0000	1,464,447.9033	2,177,459.1282	950.9451
B3&PGL	1125+79.5000	0.0000	1,464,398.6156	2,177,467.5380	950.4622

***** End of Report *****

Filename: N:\TRA\255717\Eng\BR36\Geomath\I-575 BR36.gmd

SPAN AND GIRDER REPORT

SPAN ID: B1-B2 ROADWAY: 575 ALIGNMENT: 575align NUMBER OF GIRDERS: 6
STARTING PIER: B1 STATION: 1124+59.5000 AZM: N 80.316996 SKEW: -0.000000
ENDING PIER: B2 STATION: 1125+09.5000 AZM: N 80.316996 SKEW: 0.000000

GIRDER	END POINT DISTANCES ALONG PIER CL			LENGTH		
	START	END	AZIMUTH	CL - CL	SEAT-SEAT	RADIUS
S1-G01	1.5833	1.0833	N 350.316996	50.0000	47.5000	INFINITY
S1-G02	10.7500	10.2500	N 350.316996	50.0000	47.5000	INFINITY
S1-G03	19.9167	19.4167	N 350.316996	50.0000	47.5000	INFINITY
S1-G04	29.0833	28.5833	N 350.316996	50.0000	47.5000	INFINITY
S1-G05	38.2500	37.7500	N 350.316996	50.0000	47.5000	INFINITY
S1-G06	47.4167	46.9167	N 350.316996	50.0000	47.5000	INFINITY

***** End of Report *****

Filename: N:\TRA\255717\Eng\BR36\Geomath\I-575 BR36.gmd

SPAN AND GIRDER REPORT

SPAN ID: B2-B3 ROADWAY: 575 ALIGNMENT: 575align NUMBER OF GIRDERS: 6
STARTING PIER: B2 STATION: 1125+09.5000 AZM: N 80.316996 SKEW: 0.000000
ENDING PIER: B3 STATION: 1125+79.5000 AZM: N 80.316996 SKEW: 0.000000

GIRDER	END POINT DISTANCES ALONG PIER CL			LENGTH		
	START	END	AZIMUTH	CL - CL	SEAT-SEAT	RADIUS
S2-G01	1.0834	1.0834	N 350.316996	70.0000	68.0000	INFINITY
S2-G02	10.2500	10.2500	N 350.316996	70.0000	68.0000	INFINITY
S2-G03	19.4167	19.4167	N 350.316996	70.0000	68.0000	INFINITY
S2-G04	28.5834	28.5834	N 350.316996	70.0000	68.0000	INFINITY
S2-G05	37.7501	37.7501	N 350.316996	70.0000	68.0000	INFINITY
S2-G06	46.9167	46.9167	N 350.316996	70.0000	68.0000	INFINITY

***** End of Report *****

Filename: N:\TRA\255717\Eng\BR36\Geomath\I-575 BR36.gmd

SPAN AND GIRDER REPORT

SPAN ID: B3-B4 ROADWAY: 575 ALIGNMENT: 575align NUMBER OF GIRDERS: 6
STARTING PIER: B3 STATION: 1125+79.5000 AZM: N 80.316996 SKEW: 0.000000
ENDING PIER: B4 STATION: 1126+29.5000 AZM: N 80.316996 SKEW: 0.000000

GIRDER	END POINT DISTANCES ALONG PIER CL			LENGTH		
	START	END	AZIMUTH	CL - CL	SEAT-SEAT	RADIUS
S3-G01	1.0833	2.5833	N 350.316996	50.0000	47.5000	INFINITY
S3-G02	10.2500	11.7500	N 350.316996	50.0000	47.5000	INFINITY
S3-G03	19.4167	20.9167	N 350.316996	50.0000	47.5000	INFINITY
S3-G04	28.5833	30.0833	N 350.316996	50.0000	47.5000	INFINITY
S3-G05	37.7500	39.2500	N 350.316996	50.0000	47.5000	INFINITY
S3-G06	46.9167	48.4167	N 350.316996	50.0000	47.5000	INFINITY

***** End of Report *****

Filename: N:\TRA\255717\Eng\BR36\Geomath\I-575 BR36.gmd

DECK ELEVATIONS ALONG OFFSETS (EQUAL SPACINGS)

SPAN ID: B1-B2 ROADWAY: 575 BETWEEN PIERS : B1 - B2 SPACES = 2

OFFSET	DISTANCE	STATION	OFFSET	ELEVATION
1	50.0000			
		1124+59.5000	-58.8333	949.5775
		1124+84.5000	-58.8333	949.7473
		1125+09.5000	-58.8333	949.9307
2	50.0000			
		1124+59.5000	-57.5000	949.5913
		1124+84.5000	-57.5000	949.7612
		1125+09.5000	-57.5000	949.9446
3	50.0000			
		1124+59.5000	-55.5000	949.6122
		1124+84.5000	-55.5000	949.7821
		1125+09.5000	-55.5000	949.9655
4	50.0000			
		1124+59.5000	-32.0000	949.8570
		1124+84.5000	-32.0000	950.0269
		1125+09.5000	-32.0000	950.2103
5	50.0000			
		1124+59.5000	-26.0000	949.9195
		1124+84.5000	-26.0000	950.0894
		1125+09.5000	-26.0000	950.2728
6	50.0000			
		1124+59.5000	-22.0000	949.8361
		1124+84.5000	-22.0000	950.0060
		1125+09.5000	-22.0000	950.1894
7	50.0000			
		1124+59.5000	-20.0000	949.7945
		1124+84.5000	-20.0000	949.9644
		1125+09.5000	-20.0000	950.1478
8	50.0000			
		1124+59.5000	-14.0000	949.6695
		1124+84.5000	-14.0000	949.8394
		1125+09.5000	-14.0000	950.0228
9	50.0000			
		1124+59.5000	0.0000	949.5236
		1124+84.5000	0.0000	949.6935

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OFFSET	DISTANCE	STATION	OFFSET	ELEVATION
		1125+09.5000	0.0000	949.8769

***** End of Report *****

Filename: N:\TRA\255717\Eng\BR36\Geomath\I-575 BR36.gmd

DECK ELEVATIONS ALONG OFFSETS (EQUAL SPACINGS)

SPAN ID: B2-B3 ROADWAY: 575 BETWEEN PIERS : B2 - B3 SPACES = 2

OFFSET	DISTANCE	STATION	OFFSET	ELEVATION
1	70.0000			
		1125+09.5000	-58.8333	949.9307
		1125+44.5000	-58.8333	950.2102
		1125+79.5000	-58.8333	950.5160
2	70.0000			
		1125+09.5000	-57.5000	949.9446
		1125+44.5000	-57.5000	950.2240
		1125+79.5000	-57.5000	950.5299
3	70.0000			
		1125+09.5000	-55.5000	949.9655
		1125+44.5000	-55.5000	950.2449
		1125+79.5000	-55.5000	950.5508
4	70.0000			
		1125+09.5000	-32.0000	950.2103
		1125+44.5000	-32.0000	950.4897
		1125+79.5000	-32.0000	950.7956
5	70.0000			
		1125+09.5000	-26.0000	950.2728
		1125+44.5000	-26.0000	950.5522
		1125+79.5000	-26.0000	950.8581
6	70.0000			
		1125+09.5000	-22.0000	950.1894
		1125+44.5000	-22.0000	950.4689
		1125+79.5000	-22.0000	950.7747
7	70.0000			
		1125+09.5000	-20.0000	950.1478
		1125+44.5000	-20.0000	950.4272
		1125+79.5000	-20.0000	950.7331
8	70.0000			
		1125+09.5000	-14.0000	950.0228
		1125+44.5000	-14.0000	950.3022
		1125+79.5000	-14.0000	950.6081
9	70.0000			
		1125+09.5000	0.0000	949.8769
		1125+44.5000	0.0000	950.1564

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OFFSET	DISTANCE	STATION	OFFSET	ELEVATION
		1125+79.5000	0.0000	950.4622

***** End of Report *****

Filename: N:\TRA\255717\Eng\BR36\Geomath\I-575 BR36.gmd

DECK ELEVATIONS ALONG OFFSETS (EQUAL SPACINGS)

SPAN ID: B3-B4 ROADWAY: 575 BETWEEN PIERS : B3 - B4 SPACES = 2

OFFSET	DISTANCE	STATION	OFFSET	ELEVATION
1	50.0000			
		1125+79.5000	-58.8333	950.5160
		1126+04.5000	-58.8333	950.7507
		1126+29.5000	-58.8333	950.9989
2	50.0000			
		1125+79.5000	-57.5000	950.5299
		1126+04.5000	-57.5000	950.7646
		1126+29.5000	-57.5000	951.0128
3	50.0000			
		1125+79.5000	-55.5000	950.5508
		1126+04.5000	-55.5000	950.7855
		1126+29.5000	-55.5000	951.0336
4	50.0000			
		1125+79.5000	-32.0000	950.7956
		1126+04.5000	-32.0000	951.0303
		1126+29.5000	-32.0000	951.2784
5	50.0000			
		1125+79.5000	-26.0000	950.8581
		1126+04.5000	-26.0000	951.0928
		1126+29.5000	-26.0000	951.3410
6	50.0000			
		1125+79.5000	-22.0000	950.7747
		1126+04.5000	-22.0000	951.0094
		1126+29.5000	-22.0000	951.2576
7	50.0000			
		1125+79.5000	-20.0000	950.7331
		1126+04.5000	-20.0000	950.9678
		1126+29.5000	-20.0000	951.2160
8	50.0000			
		1125+79.5000	-14.0000	950.6081
		1126+04.5000	-14.0000	950.8428
		1126+29.5000	-14.0000	951.0910
9	50.0000			
		1125+79.5000	0.0000	950.4622
		1126+04.5000	0.0000	950.6969

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OFFSET	DISTANCE	STATION	OFFSET	ELEVATION
		1126+29.5000	0.0000	950.9451

***** End of Report *****

Filename: N:\TRA\255717\Eng\BR36\Geomath\I-575 BR36.gmd

GIRDER VERTICAL PLACEMENT

SPAN : B1-B2 ROADWAY: 575 GIRDERS COMPLETED: 6
MIN BUILD UP, in : 0.7500
DECK THICKNESS, in : 8.4996
NUMBER OF CHECK PTS: 3

GIRDER DATA

GIRDER	LENGTH (ft)	GIRDER TYPE	CAMBER (in)	TOTAL DEFL (in)	DAP START (in)	DAP END (in)
S1-G06	47.5000	AASHTO-II	1.2096	0.6528	0.0000	0.0000
S1-G05	47.5000	AASHTO-II	1.2096	0.6528	0.0000	0.0000
S1-G04	47.5000	AASHTO-II	1.2096	0.6528	0.0000	0.0000
S1-G03	47.5000	AASHTO-II	1.2096	0.6528	0.0000	0.0000
S1-G02	47.5000	AASHTO-II	1.2096	0.6528	0.0000	0.0000
S1-G01	47.5000	AASHTO-II	1.2096	0.6528	0.0000	0.0000

GIRDER	BRG TOP ELEVATION START (ft)	BRG TOP ELEVATION END (ft)	BUILD-UP THICKNESS MIN (in)	MIN LOCATION (ft)	BUILD-UP THICKNESS MAX (in)	MAX LOCATION (ft)
S1-G01	945.7996	946.1354	0.7500	23.7500 L	1.5049	47.5000 R
S1-G02	945.8951	946.2309	0.7500	23.7500 L	1.5049	0.0000 R
S1-G03	945.9905	946.3264	0.7500	23.7500 L	1.5049	0.0000 R
S1-G04	946.0860	946.4219	0.7500	23.7500 L	1.5049	47.5000 R
S1-G05	945.9341	946.2700	0.7500	23.7500 R	1.6299	0.0000 L
S1-G06	945.7996	946.1355	0.7500	23.7500 R	1.5049	0.0000 L

***** End of Report *****

Filename: N:\TRA\255717\Eng\BR36\Geomath\I-575 BR36.gmd

GIRDER VERTICAL PLACEMENT

SPAN : B2-B3 ROADWAY: 575 GIRDERS COMPLETED: 6
MIN BUILD UP, in : 0.7500
DECK THICKNESS, in : 8.3748
NUMBER OF CHECK PTS: 3

GIRDER DATA

GIRDER	LENGTH (ft)	GIRDER TYPE	CAMBER (in)	TOTAL DEFL (in)	DAP START (in)	DAP END (in)
S2-G06	68.0000	AASHTO-III	1.9176	1.0848	0.0000	0.0000
S2-G05	68.0000	AASHTO-III	1.9176	1.0848	0.0000	0.0000
S2-G04	68.0000	AASHTO-III	1.9176	1.0848	0.0000	0.0000
S2-G03	68.0000	AASHTO-III	1.9176	1.0848	0.0000	0.0000
S2-G02	68.0000	AASHTO-III	1.9176	1.0848	0.0000	0.0000
S2-G01	68.0000	AASHTO-III	1.9176	1.0848	0.0000	0.0000

GIRDER	BRG TOP ELEVATION START (ft)	BRG TOP ELEVATION END (ft)	BUILD-UP THICKNESS MIN (in)	MIN LOCATION (ft)	BUILD-UP THICKNESS MAX (in)	MAX LOCATION (ft)
S2-G01	945.3799	945.9485	0.7500	34.0000 L	1.8993	68.0000 R
S2-G02	945.4754	946.0440	0.7500	34.0000 L	1.8993	68.0000 R
S2-G03	945.5709	946.1395	0.7500	34.0000 L	1.8993	68.0000 R
S2-G04	945.6664	946.2350	0.7500	34.0000 L	1.8993	0.0000 R
S2-G05	945.5127	946.0813	0.7500	34.0000 R	2.0659	0.0000 L
S2-G06	945.3799	945.9485	0.7500	34.0000 R	1.8993	0.0000 L

***** End of Report *****

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GIRDER VERTICAL PLACEMENT

SPAN : B3-B4 ROADWAY: 575 GIRDERS COMPLETED: 6
MIN BUILD UP, in : 0.7500
DECK THICKNESS, in : 8.4996
NUMBER OF CHECK PTS: 3

GIRDER DATA

GIRDER	LENGTH (ft)	GIRDER TYPE	CAMBER (in)	TOTAL DEFL (in)	DAP START (in)	DAP END (in)
S3-G06	47.5000	AASHTO-II	1.2096	0.6528	0.0000	0.0000
S3-G05	47.5000	AASHTO-II	1.2096	0.6528	0.0000	0.0000
S3-G04	47.5000	AASHTO-II	1.2096	0.6528	0.0000	0.0000
S3-G03	47.5000	AASHTO-II	1.2096	0.6528	0.0000	0.0000
S3-G02	47.5000	AASHTO-II	1.2096	0.6528	0.0000	0.0000
S3-G01	47.5000	AASHTO-II	1.2096	0.6528	0.0000	0.0000

GIRDER	BRG TOP ELEVATION START (ft)	BRG TOP ELEVATION END (ft)	BUILD-UP THICKNESS MIN (in)	MIN LOCATION (ft)	BUILD-UP THICKNESS MAX (in)	MAX LOCATION (ft)
S3-G01	946.7375	947.1960	0.7500	23.7500 L	1.5049	0.0000 R
S3-G02	946.8330	947.2914	0.7500	23.7500 L	1.5049	0.0000 R
S3-G03	946.9285	947.3869	0.7500	23.7500 L	1.5049	0.0000 R
S3-G04	947.0239	947.4824	0.7500	23.7500 L	1.5049	47.5000 R
S3-G05	946.8720	947.3305	0.7500	23.7500 R	1.6299	47.5000 L
S3-G06	946.7375	947.1960	0.7500	23.7500 R	1.5049	47.5000 L

***** End of Report *****

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GIRDER VERTICAL GEOMETRY

SPAN ID: B1-B2 ROADWAY: 575
MIN BUILD-UP,in: 0.7500 DECK THICK,in: 8.4996

		BRG CO-ORDS		ELEVATION	DAP HEIGHT
GIRDER ID: S1-G01					
AZIMUTH, deg: N 350.316996		North	East	(ft)	(ft)
WPT-WPT LEN,ft: 47.5000	Start:	1,464,272.5670	2,177,433.3351	945.7996	0.0000
PR-PR LEN,ft: 50.0000	End:	1,464,319.3903	2,177,425.3457	946.1354	0.0000

GIRDER TYPE:AASHTO-II CAMBER,in : 1.2096 TOTAL DEFL,in: 0.6528
TOP WIDTH,in: 12.0000 BOT WIDTH,in: 18.0000 HEIGHT,in: 36.0000

DECK SLOPE ,ft/ft Start: 0.010417 End: 0.010417 Avg: 0.010417
GIRDER PITCH,ft/ft: 0.007071 ROLL,deg: 0.000000

CHECK POINT	DIST ALONG CENTERLINE WPT-WPT (ft)	FINAL DECK ELEVATION (ft)	SCREED ELEVATION (ft)	GIRDER TOP ELEVATION (ERECTED) (ft)	SCREED HT. ABOVE GIRDER (ft)
1	0.0000	949.6281	949.6281	948.7996	0.8285
2	23.7500	949.7899	949.8443	949.0683	0.7760
3	47.5000	949.9639	949.9639	949.1354	0.8285

BUILD-UP	THICKNESS,in	LOCATION,ft	SIDE
MINIMUM:	0.750	23.7500	L
MAXIMUM:	1.505	47.5000	R

		BUILD-UP		
CHECK POINT	DIST ALONG CENTERLINE END-END (ft)	LEFT (in)	CL (in)	RIGHT (in)
1	0.0000	1.3799	1.4424	1.5049
2	23.7500	0.7500	0.8125	0.8750
3	47.5000	1.3799	1.4424	1.5049

***** End of Report *****

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GIRDER VERTICAL GEOMETRY

SPAN ID: B1-B2 ROADWAY: 575
MIN BUILD-UP,in: 0.7500 DECK THICK,in: 8.4996

		BRG CO-ORDS		ELEVATION	DAP HEIGHT
GIRDER ID: S1-G02					
AZIMUTH, deg: N 350.316996		North	East	(ft)	(ft)
WPT-WPT LEN,ft: 47.5000	Start:	1,464,274.1088	2,177,442.3711	945.8951	0.0000
PR-PR LEN,ft: 50.0000	End:	1,464,320.9321	2,177,434.3818	946.2309	0.0000

GIRDER TYPE:AASHTO-II CAMBER,in : 1.2096 TOTAL DEFL,in: 0.6528
TOP WIDTH,in: 12.0000 BOT WIDTH,in: 18.0000 HEIGHT,in: 36.0000

DECK SLOPE ,ft/ft Start: 0.010417 End: 0.010417 Avg: 0.010417
GIRDER PITCH,ft/ft: 0.007071 ROLL,deg: 0.000000

CHECK POINT	DIST ALONG CENTERLINE WPT-WPT (ft)	FINAL DECK ELEVATION (ft)	SCREED ELEVATION (ft)	GIRDER TOP ELEVATION (ERECTED) (ft)	SCREED HT. ABOVE GIRDER (ft)
1	0.0000	949.7236	949.7236	948.8951	0.8285
2	23.7500	949.8854	949.9398	949.1638	0.7760
3	47.5000	950.0594	950.0594	949.2309	0.8285

BUILD-UP	THICKNESS,in	LOCATION,ft	SIDE
MINIMUM:	0.750	23.7500	L
MAXIMUM:	1.505	0.0000	R

CHECK POINT	DIST ALONG CENTERLINE END-END (ft)	BUILD-UP LEFT (in)	CL (in)	RIGHT (in)
1	0.0000	1.3799	1.4424	1.5049
2	23.7500	0.7500	0.8125	0.8750
3	47.5000	1.3799	1.4424	1.5049

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GIRDER VERTICAL GEOMETRY

SPAN ID: B1-B2 ROADWAY: 575
MIN BUILD-UP,in: 0.7500 DECK THICK,in: 8.4996

		BRG CO-ORDS		ELEVATION	DAP HEIGHT
GIRDER ID: S1-G03					
AZIMUTH, deg: N 350.316996		North	East	(ft)	(ft)
WPT-WPT LEN,ft: 47.5000	Start:	1,464,275.6506	2,177,451.4072	945.9905	0.0000
PR-PR LEN,ft: 50.0000	End:	1,464,322.4739	2,177,443.4178	946.3264	0.0000

GIRDER TYPE:AASHTO-II CAMBER,in : 1.2096 TOTAL DEFL,in: 0.6528
TOP WIDTH,in: 12.0000 BOT WIDTH,in: 18.0000 HEIGHT,in: 36.0000

DECK SLOPE ,ft/ft Start: 0.010417 End: 0.010417 Avg: 0.010417
GIRDER PITCH,ft/ft: 0.007071 ROLL,deg: 0.000000

CHECK POINT	DIST ALONG CENTERLINE WPT-WPT (ft)	FINAL DECK ELEVATION (ft)	SCREED ELEVATION (ft)	GIRDER TOP ELEVATION (ERECTED) (ft)	SCREED HT. ABOVE GIRDER (ft)
1	0.0000	949.8190	949.8190	948.9905	0.8285
2	23.7500	949.9809	950.0353	949.2593	0.7760
3	47.5000	950.1549	950.1549	949.3264	0.8285

BUILD-UP	THICKNESS,in	LOCATION,ft	SIDE
MINIMUM:	0.750	23.7500	L
MAXIMUM:	1.505	0.0000	R

CHECK POINT	DIST ALONG CENTERLINE END-END (ft)	BUILD-UP LEFT (in)	CL (in)	RIGHT (in)
1	0.0000	1.3799	1.4424	1.5049
2	23.7500	0.7500	0.8125	0.8750
3	47.5000	1.3799	1.4424	1.5049

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GIRDER VERTICAL GEOMETRY

SPAN ID: B1-B2 ROADWAY: 575
MIN BUILD-UP,in: 0.7500 DECK THICK,in: 8.4996

GIRDER ID: S1-G04 BRG CO-ORDS ELEVATION DAP HEIGHT
AZIMUTH, deg: N 350.316996 North East (ft) (ft)
WPT-WPT LEN,ft: 47.5000 Start: 1,464,277.1924 2,177,460.4433 946.0860 0.0000
PR-PR LEN,ft: 50.0000 End: 1,464,324.0157 2,177,452.4539 946.4219 0.0000

GIRDER TYPE:AASHTO-II CAMBER,in : 1.2096 TOTAL DEFL,in: 0.6528
TOP WIDTH,in: 12.0000 BOT WIDTH,in: 18.0000 HEIGHT,in: 36.0000

DECK SLOPE ,ft/ft Start: 0.010417 End: 0.010417 Avg: 0.010417
GIRDER PITCH,ft/ft: 0.007071 ROLL,deg: 0.000000

CHECK POINT	DIST ALONG CENTERLINE WPT-WPT (ft)	FINAL DECK ELEVATION (ft)	SCREED ELEVATION (ft)	GIRDER TOP ELEVATION (ERECTED) (ft)	SCREED HT. ABOVE GIRDER (ft)
1	0.0000	949.9145	949.9145	949.0860	0.8285
2	23.7500	950.0764	950.1308	949.3548	0.7760
3	47.5000	950.2504	950.2504	949.4219	0.8285

BUILD-UP	THICKNESS,in	LOCATION,ft	SIDE
MINIMUM:	0.750	23.7500	L
MAXIMUM:	1.505	47.5000	R

CHECK POINT	DIST ALONG CENTERLINE END-END (ft)	BUILD-UP LEFT (in)	BUILD-UP CL (in)	BUILD-UP RIGHT (in)
1	0.0000	1.3799	1.4424	1.5049
2	23.7500	0.7500	0.8125	0.8750
3	47.5000	1.3799	1.4424	1.5049

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GIRDER VERTICAL GEOMETRY

SPAN ID: B1-B2 ROADWAY: 575
MIN BUILD-UP,in: 0.7500 DECK THICK,in: 8.4996

		BRG CO-ORDS		ELEVATION	DAP HEIGHT
GIRDER ID: S1-G05		North	East	(ft)	(ft)
AZIMUTH, deg: N 350.316996					
WPT-WPT LEN,ft: 47.5000	Start:	1,464,278.7342	2,177,469.4794	945.9341	0.0000
PR-PR LEN,ft: 50.0000	End:	1,464,325.5575	2,177,461.4900	946.2700	0.0000

GIRDER TYPE:AASHTO-II CAMBER,in : 1.2096 TOTAL DEFL,in: 0.6528
TOP WIDTH,in: 12.0000 BOT WIDTH,in: 18.0000 HEIGHT,in: 36.0000

DECK SLOPE ,ft/ft Start: -0.020833 End: -0.020833 Avg: -0.020833
GIRDER PITCH,ft/ft: 0.007071 ROLL,deg: 0.000000

CHECK POINT	DIST ALONG CENTERLINE WPT-WPT (ft)	FINAL DECK ELEVATION (ft)	SCREED ELEVATION (ft)	GIRDER TOP ELEVATION (ERECTED) (ft)	SCREED HT. ABOVE GIRDER (ft)
1	0.0000	949.7678	949.7678	948.9341	0.8337
2	23.7500	949.9297	949.9841	949.2029	0.7812
3	47.5000	950.1037	950.1037	949.2700	0.8337

BUILD-UP	THICKNESS,in	LOCATION,ft	SIDE
MINIMUM:	0.750	23.7500	R
MAXIMUM:	1.630	0.0000	L

CHECK POINT	DIST ALONG CENTERLINE END-END (ft)	BUILD-UP LEFT (in)	CL (in)	RIGHT (in)
1	0.0000	1.6299	1.5049	1.3799
2	23.7500	1.0000	0.8750	0.7500
3	47.5000	1.6299	1.5049	1.3799

***** End of Report *****

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GIRDER VERTICAL GEOMETRY

SPAN ID: B1-B2 ROADWAY: 575
MIN BUILD-UP,in: 0.7500 DECK THICK,in: 8.4996

GIRDER ID: S1-G06 BRG CO-ORDS ELEVATION DAP HEIGHT
AZIMUTH, deg: N 350.316996 North East (ft) (ft)
WPT-WPT LEN,ft: 47.5000 Start: 1,464,280.2760 2,177,478.5154 945.7996 0.0000
PR-PR LEN,ft: 50.0000 End: 1,464,327.0993 2,177,470.5261 946.1355 0.0000

GIRDER TYPE:AASHTO-II CAMBER,in : 1.2096 TOTAL DEFL,in: 0.6528
TOP WIDTH,in: 12.0000 BOT WIDTH,in: 18.0000 HEIGHT,in: 36.0000

DECK SLOPE ,ft/ft Start: -0.010417 End: -0.010417 Avg: -0.010417
GIRDER PITCH,ft/ft: 0.007071 ROLL,deg: 0.000000

CHECK POINT	DIST ALONG CENTERLINE WPT-WPT (ft)	FINAL DECK ELEVATION (ft)	SCREED ELEVATION (ft)	GIRDER TOP ELEVATION (ERECTED) (ft)	SCREED HT. ABOVE GIRDER (ft)
1	0.0000	949.6281	949.6281	948.7996	0.8285
2	23.7500	949.7899	949.8443	949.0683	0.7760
3	47.5000	949.9640	949.9640	949.1355	0.8285

BUILD-UP	THICKNESS,in	LOCATION,ft	SIDE
MINIMUM:	0.750	23.7500	R
MAXIMUM:	1.505	0.0000	L

CHECK POINT	DIST ALONG CENTERLINE END-END (ft)	BUILD-UP LEFT (in)	CL (in)	RIGHT (in)
1	0.0000	1.5049	1.4424	1.3799
2	23.7500	0.8750	0.8125	0.7500
3	47.5000	1.5049	1.4424	1.3799

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GIRDER VERTICAL GEOMETRY

SPAN ID: B2-B3 ROADWAY: 575
MIN BUILD-UP,in: 0.7500 DECK THICK,in: 8.3748

		BRG CO-ORDS		ELEVATION	DAP HEIGHT
GIRDER ID: S2-G01					
AZIMUTH, deg: N 350.316996		North	East	(ft)	(ft)
WPT-WPT LEN,ft: 68.0000	Start:	1,464,321.3618	2,177,425.0093	945.3799	0.0000
PR-PR LEN,ft: 70.0000	End:	1,464,388.3930	2,177,413.5719	945.9485	0.0000

GIRDER TYPE:AASHTO-III CAMBER,in : 1.9176 TOTAL DEFL,in: 1.0848
TOP WIDTH,in: 16.0000 BOT WIDTH,in: 22.0000 HEIGHT,in: 45.0000

DECK SLOPE ,ft/ft Start: 0.010417 End: 0.010417 Avg: 0.010417
GIRDER PITCH,ft/ft: 0.008362 ROLL,deg: 0.000000

CHECK POINT	DIST ALONG CENTERLINE WPT-WPT (ft)	FINAL DECK ELEVATION (ft)	SCREED ELEVATION (ft)	GIRDER TOP ELEVATION (ERECTED) (ft)	SCREED HT. ABOVE GIRDER (ft)
1	0.0000	949.9792	949.9792	949.1299	0.8492
2	34.0000	950.2510	950.3414	949.5740	0.7673
3	68.0000	950.5477	950.5477	949.6985	0.8492

BUILD-UP	THICKNESS,in	LOCATION,ft	SIDE
MINIMUM:	0.750	34.0000	L
MAXIMUM:	1.899	68.0000	R

	DIST ALONG CENTERLINE	BUILD-UP		
CHECK POINT	END-END (ft)	LEFT (in)	CL (in)	RIGHT (in)
1	0.0000	1.7326	1.8160	1.8993
2	34.0000	0.7500	0.8333	0.9167
3	68.0000	1.7326	1.8160	1.8993

***** End of Report *****

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GIRDER VERTICAL GEOMETRY

SPAN ID: B2-B3 ROADWAY: 575
MIN BUILD-UP,in: 0.7500 DECK THICK,in: 8.3748

		BRG CO-ORDS		ELEVATION	DAP HEIGHT
GIRDER ID: S2-G02					
AZIMUTH, deg: N 350.316996		North	East	(ft)	(ft)
WPT-WPT LEN,ft: 68.0000	Start:	1,464,322.9036	2,177,434.0454	945.4754	0.0000
PR-PR LEN,ft: 70.0000	End:	1,464,389.9348	2,177,422.6080	946.0440	0.0000

GIRDER TYPE:AASHTO-III CAMBER,in : 1.9176 TOTAL DEFL,in: 1.0848
TOP WIDTH,in: 16.0000 BOT WIDTH,in: 22.0000 HEIGHT,in: 45.0000

DECK SLOPE ,ft/ft Start: 0.010417 End: 0.010417 Avg: 0.010417
GIRDER PITCH,ft/ft: 0.008362 ROLL,deg: 0.000000

CHECK POINT	DIST ALONG CENTERLINE WPT-WPT (ft)	FINAL DECK ELEVATION (ft)	SCREED ELEVATION (ft)	GIRDER TOP ELEVATION (ERECTED) (ft)	SCREED HT. ABOVE GIRDER (ft)
1	0.0000	950.0746	950.0746	949.2254	0.8492
2	34.0000	950.3464	950.4368	949.6695	0.7673
3	68.0000	950.6432	950.6432	949.7940	0.8492

BUILD-UP	THICKNESS,in	LOCATION,ft	SIDE
MINIMUM:	0.750	34.0000	L
MAXIMUM:	1.899	68.0000	R

		BUILD-UP		
CHECK POINT	DIST ALONG CENTERLINE END-END (ft)	LEFT (in)	CL (in)	RIGHT (in)
1	0.0000	1.7326	1.8160	1.8993
2	34.0000	0.7500	0.8333	0.9167
3	68.0000	1.7326	1.8160	1.8993

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GIRDER VERTICAL GEOMETRY

SPAN ID: B2-B3 ROADWAY: 575
MIN BUILD-UP,in: 0.7500 DECK THICK,in: 8.3748

		BRG CO-ORDS		ELEVATION	DAP HEIGHT
GIRDER ID: S2-G03		North	East	(ft)	(ft)
AZIMUTH, deg: N 350.316996					
WPT-WPT LEN,ft: 68.0000	Start:	1,464,324.4454	2,177,443.0815	945.5709	0.0000
PR-PR LEN,ft: 70.0000	End:	1,464,391.4766	2,177,431.6441	946.1395	0.0000

GIRDER TYPE:AASHTO-III CAMBER,in : 1.9176 TOTAL DEFL,in: 1.0848
TOP WIDTH,in: 16.0000 BOT WIDTH,in: 22.0000 HEIGHT,in: 45.0000

DECK SLOPE ,ft/ft Start: 0.010417 End: 0.010417 Avg: 0.010417
GIRDER PITCH,ft/ft: 0.008362 ROLL,deg: 0.000000

CHECK POINT	DIST ALONG CENTERLINE WPT-WPT (ft)	FINAL DECK ELEVATION (ft)	SCREED ELEVATION (ft)	GIRDER TOP ELEVATION (ERECTED) (ft)	SCREED HT. ABOVE GIRDER (ft)
1	0.0000	950.1701	950.1701	949.3209	0.8492
2	34.0000	950.4419	950.5323	949.7650	0.7673
3	68.0000	950.7387	950.7387	949.8895	0.8492

BUILD-UP	THICKNESS,in	LOCATION,ft	SIDE
MINIMUM:	0.750	34.0000	L
MAXIMUM:	1.899	68.0000	R

		BUILD-UP		
CHECK POINT	DIST ALONG CENTERLINE END-END (ft)	LEFT (in)	CL (in)	RIGHT (in)
1	0.0000	1.7326	1.8160	1.8993
2	34.0000	0.7500	0.8333	0.9167
3	68.0000	1.7326	1.8160	1.8993

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GIRDER VERTICAL GEOMETRY

SPAN ID: B2-B3 ROADWAY: 575
MIN BUILD-UP,in: 0.7500 DECK THICK,in: 8.3748

		BRG CO-ORDS		ELEVATION	DAP HEIGHT
GIRDER ID: S2-G04					
AZIMUTH, deg: N 350.316996		North	East	(ft)	(ft)
WPT-WPT LEN,ft: 68.0000	Start:	1,464,325.9872	2,177,452.1176	945.6664	0.0000
PR-PR LEN,ft: 70.0000	End:	1,464,393.0184	2,177,440.6802	946.2350	0.0000

GIRDER TYPE:AASHTO-III CAMBER,in : 1.9176 TOTAL DEFL,in: 1.0848
TOP WIDTH,in: 16.0000 BOT WIDTH,in: 22.0000 HEIGHT,in: 45.0000

DECK SLOPE ,ft/ft Start: 0.010417 End: 0.010417 Avg: 0.010417
GIRDER PITCH,ft/ft: 0.008362 ROLL,deg: 0.000000

CHECK POINT	DIST ALONG CENTERLINE WPT-WPT (ft)	FINAL DECK ELEVATION (ft)	SCREED ELEVATION (ft)	GIRDER TOP ELEVATION (ERECTED) (ft)	SCREED HT. ABOVE GIRDER (ft)
1	0.0000	950.2656	950.2656	949.4164	0.8492
2	34.0000	950.5374	950.6278	949.8605	0.7673
3	68.0000	950.8342	950.8342	949.9850	0.8492

BUILD-UP	THICKNESS,in	LOCATION,ft	SIDE
MINIMUM:	0.750	34.0000	L
MAXIMUM:	1.899	0.0000	R

	DIST ALONG	BUILD-UP		
CHECK POINT	CENTERLINE END-END (ft)	LEFT (in)	CL (in)	RIGHT (in)
1	0.0000	1.7326	1.8160	1.8993
2	34.0000	0.7500	0.8333	0.9167
3	68.0000	1.7326	1.8160	1.8993

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GIRDER VERTICAL GEOMETRY

SPAN ID: B2-B3 ROADWAY: 575
MIN BUILD-UP,in: 0.7500 DECK THICK,in: 8.3748

		BRG CO-ORDS		ELEVATION	DAP HEIGHT
GIRDER ID: S2-G05		North	East	(ft)	(ft)
AZIMUTH, deg: N 350.316996					
WPT-WPT LEN,ft: 68.0000	Start:	1,464,327.5290	2,177,461.1537	945.5127	0.0000
PR-PR LEN,ft: 70.0000	End:	1,464,394.5603	2,177,449.7163	946.0813	0.0000

GIRDER TYPE:AASHTO-III CAMBER,in : 1.9176 TOTAL DEFL,in: 1.0848
TOP WIDTH,in: 16.0000 BOT WIDTH,in: 22.0000 HEIGHT,in: 45.0000

DECK SLOPE ,ft/ft Start: -0.020833 End: -0.020833 Avg: -0.020833
GIRDER PITCH,ft/ft: 0.008362 ROLL,deg: 0.000000

CHECK POINT	DIST ALONG CENTERLINE WPT-WPT (ft)	FINAL DECK ELEVATION (ft)	SCREED ELEVATION (ft)	GIRDER TOP ELEVATION (ERECTED) (ft)	SCREED HT. ABOVE GIRDER (ft)
1	0.0000	950.1189	950.1189	949.2627	0.8562
2	34.0000	950.3907	950.4811	949.7068	0.7743
3	68.0000	950.6875	950.6875	949.8313	0.8562

BUILD-UP	THICKNESS,in	LOCATION,ft	SIDE
MINIMUM:	0.750	34.0000	R
MAXIMUM:	2.066	0.0000	L

	DIST ALONG	BUILD-UP		
CHECK POINT	CENTERLINE END-END (ft)	LEFT (in)	CL (in)	RIGHT (in)
1	0.0000	2.0659	1.8993	1.7326
2	34.0000	1.0833	0.9167	0.7500
3	68.0000	2.0659	1.8993	1.7326

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GIRDER VERTICAL GEOMETRY

SPAN ID: B2-B3 ROADWAY: 575
MIN BUILD-UP,in: 0.7500 DECK THICK,in: 8.3748

GIRDER ID: S2-G06 BRG CO-ORDS ELEVATION DAP HEIGHT
AZIMUTH, deg: N 350.316996 North East (ft) (ft)
WPT-WPT LEN,ft: 68.0000 Start: 1,464,329.0708 2,177,470.1897 945.3799 0.0000
PR-PR LEN,ft: 70.0000 End: 1,464,396.1021 2,177,458.7523 945.9485 0.0000

GIRDER TYPE:AASHTO-III CAMBER,in : 1.9176 TOTAL DEFL,in: 1.0848
TOP WIDTH,in: 16.0000 BOT WIDTH,in: 22.0000 HEIGHT,in: 45.0000

DECK SLOPE ,ft/ft Start: -0.010417 End: -0.010417 Avg: -0.010417
GIRDER PITCH,ft/ft: 0.008362 ROLL,deg: 0.000000

CHECK POINT	DIST ALONG CENTERLINE WPT-WPT (ft)	FINAL DECK ELEVATION (ft)	SCREED ELEVATION (ft)	GIRDER TOP ELEVATION (ERECTED) (ft)	SCREED HT. ABOVE GIRDER (ft)
1	0.0000	949.9792	949.9792	949.1299	0.8492
2	34.0000	950.2510	950.3414	949.5740	0.7673
3	68.0000	950.5478	950.5478	949.6985	0.8492

BUILD-UP	THICKNESS,in	LOCATION,ft	SIDE
MINIMUM:	0.750	34.0000	R
MAXIMUM:	1.899	0.0000	L

CHECK POINT	DIST ALONG CENTERLINE END-END (ft)	BUILD-UP LEFT (in)	CL (in)	RIGHT (in)
1	0.0000	1.8993	1.8160	1.7326
2	34.0000	0.9167	0.8333	0.7500
3	68.0000	1.8993	1.8160	1.7326

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GIRDER VERTICAL GEOMETRY

SPAN ID: B3-B4 ROADWAY: 575
MIN BUILD-UP,in: 0.7500 DECK THICK,in: 8.4996

		BRG CO-ORDS		ELEVATION	DAP HEIGHT
GIRDER ID: S3-G01					
AZIMUTH, deg: N 350.316996		North	East	(ft)	(ft)
WPT-WPT LEN,ft: 47.5000	Start:	1,464,390.3645	2,177,413.2355	946.7375	0.0000
PR-PR LEN,ft: 50.0000	End:	1,464,437.1878	2,177,405.2462	947.1960	0.0000

GIRDER TYPE:AASHTO-II CAMBER,in : 1.2096 TOTAL DEFL,in: 0.6528
TOP WIDTH,in: 12.0000 BOT WIDTH,in: 18.0000 HEIGHT,in: 36.0000

DECK SLOPE ,ft/ft Start: 0.010417 End: 0.010417 Avg: 0.010417
GIRDER PITCH,ft/ft: 0.009652 ROLL,deg: 0.000000

CHECK POINT	DIST ALONG CENTERLINE WPT-WPT (ft)	FINAL DECK ELEVATION (ft)	SCREED ELEVATION (ft)	GIRDER TOP ELEVATION (ERECTED) (ft)	SCREED HT. ABOVE GIRDER (ft)
1	0.0000	950.5660	950.5660	949.7375	0.8285
2	23.7500	950.7891	950.8435	950.0675	0.7760
3	47.5000	951.0245	951.0245	950.1960	0.8285

BUILD-UP	THICKNESS,in	LOCATION,ft	SIDE
MINIMUM:	0.750	23.7500	L
MAXIMUM:	1.505	0.0000	R

		BUILD-UP		
CHECK POINT	DIST ALONG CENTERLINE END-END (ft)	LEFT (in)	CL (in)	RIGHT (in)
1	0.0000	1.3799	1.4424	1.5049
2	23.7500	0.7500	0.8125	0.8750
3	47.5000	1.3799	1.4424	1.5049

***** End of Report *****

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GIRDER VERTICAL GEOMETRY

SPAN ID: B3-B4 ROADWAY: 575
MIN BUILD-UP,in: 0.7500 DECK THICK,in: 8.4996

		BRG CO-ORDS		ELEVATION	DAP HEIGHT
GIRDER ID: S3-G02		North	East	(ft)	(ft)
AZIMUTH, deg: N 350.316996					
WPT-WPT LEN,ft: 47.5000	Start:	1,464,391.9063	2,177,422.2716	946.8330	0.0000
PR-PR LEN,ft: 50.0000	End:	1,464,438.7296	2,177,414.2822	947.2914	0.0000

GIRDER TYPE:AASHTO-II CAMBER,in : 1.2096 TOTAL DEFL,in: 0.6528
TOP WIDTH,in: 12.0000 BOT WIDTH,in: 18.0000 HEIGHT,in: 36.0000

DECK SLOPE ,ft/ft Start: 0.010417 End: 0.010417 Avg: 0.010417
GIRDER PITCH,ft/ft: 0.009652 ROLL,deg: 0.000000

CHECK POINT	DIST ALONG CENTERLINE WPT-WPT (ft)	FINAL DECK ELEVATION (ft)	SCREED ELEVATION (ft)	GIRDER TOP ELEVATION (ERECTED) (ft)	SCREED HT. ABOVE GIRDER (ft)
1	0.0000	950.6615	950.6615	949.8330	0.8285
2	23.7500	950.8846	950.9390	950.1630	0.7760
3	47.5000	951.1199	951.1199	950.2914	0.8285

BUILD-UP	THICKNESS,in	LOCATION,ft	SIDE
MINIMUM:	0.750	23.7500	L
MAXIMUM:	1.505	0.0000	R

CHECK POINT	DIST ALONG CENTERLINE END-END (ft)	BUILD-UP LEFT (in)	CL (in)	RIGHT (in)
1	0.0000	1.3799	1.4424	1.5049
2	23.7500	0.7500	0.8125	0.8750
3	47.5000	1.3799	1.4424	1.5049

***** End of Report *****

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GIRDER VERTICAL GEOMETRY

SPAN ID: B3-B4 ROADWAY: 575
MIN BUILD-UP,in: 0.7500 DECK THICK,in: 8.4996

		BRG CO-ORDS		ELEVATION	DAP HEIGHT
GIRDER ID: S3-G03					
AZIMUTH, deg: N 350.316996		North	East	(ft)	(ft)
WPT-WPT LEN,ft: 47.5000	Start:	1,464,393.4481	2,177,431.3077	946.9285	0.0000
PR-PR LEN,ft: 50.0000	End:	1,464,440.2714	2,177,423.3183	947.3869	0.0000

GIRDER TYPE:AASHTO-II CAMBER,in : 1.2096 TOTAL DEFL,in: 0.6528
TOP WIDTH,in: 12.0000 BOT WIDTH,in: 18.0000 HEIGHT,in: 36.0000

DECK SLOPE ,ft/ft Start: 0.010417 End: 0.010417 Avg: 0.010417
GIRDER PITCH,ft/ft: 0.009652 ROLL,deg: 0.000000

CHECK POINT	DIST ALONG CENTERLINE WPT-WPT (ft)	FINAL DECK ELEVATION (ft)	SCREED ELEVATION (ft)	GIRDER TOP ELEVATION (ERECTED) (ft)	SCREED HT. ABOVE GIRDER (ft)
1	0.0000	950.7570	950.7570	949.9285	0.8285
2	23.7500	950.9801	951.0345	950.2585	0.7760
3	47.5000	951.2154	951.2154	950.3869	0.8285

BUILD-UP	THICKNESS,in	LOCATION,ft	SIDE
MINIMUM:	0.750	23.7500	L
MAXIMUM:	1.505	0.0000	R

CHECK POINT	DIST ALONG CENTERLINE END-END (ft)	BUILD-UP LEFT (in)	BUILD-UP CL (in)	BUILD-UP RIGHT (in)
1	0.0000	1.3799	1.4424	1.5049
2	23.7500	0.7500	0.8125	0.8750
3	47.5000	1.3799	1.4424	1.5049

***** End of Report *****

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GIRDER VERTICAL GEOMETRY

SPAN ID: B3-B4 ROADWAY: 575
MIN BUILD-UP,in: 0.7500 DECK THICK,in: 8.4996

		BRG CO-ORDS		ELEVATION	DAP HEIGHT
GIRDER ID: S3-G04		North	East	(ft)	(ft)
AZIMUTH, deg: N 350.316996					
WPT-WPT LEN,ft: 47.5000	Start:	1,464,394.9899	2,177,440.3437	947.0239	0.0000
PR-PR LEN,ft: 50.0000	End:	1,464,441.8132	2,177,432.3544	947.4824	0.0000

GIRDER TYPE:AASHTO-II CAMBER,in : 1.2096 TOTAL DEFL,in: 0.6528
TOP WIDTH,in: 12.0000 BOT WIDTH,in: 18.0000 HEIGHT,in: 36.0000

DECK SLOPE ,ft/ft Start: 0.010417 End: 0.010417 Avg: 0.010417
GIRDER PITCH,ft/ft: 0.009652 ROLL,deg: 0.000000

CHECK POINT	DIST ALONG CENTERLINE WPT-WPT (ft)	FINAL DECK ELEVATION (ft)	SCREED ELEVATION (ft)	GIRDER TOP ELEVATION (ERECTED) (ft)	SCREED HT. ABOVE GIRDER (ft)
1	0.0000	950.8524	950.8524	950.0239	0.8285
2	23.7500	951.0756	951.1300	950.3540	0.7760
3	47.5000	951.3109	951.3109	950.4824	0.8285

BUILD-UP	THICKNESS,in	LOCATION,ft	SIDE
MINIMUM:	0.750	23.7500	L
MAXIMUM:	1.505	47.5000	R

CHECK POINT	DIST ALONG CENTERLINE END-END (ft)	BUILD-UP LEFT (in)	BUILD-UP CL (in)	BUILD-UP RIGHT (in)
1	0.0000	1.3799	1.4424	1.5049
2	23.7500	0.7500	0.8125	0.8750
3	47.5000	1.3799	1.4424	1.5049

***** End of Report *****

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GIRDER VERTICAL GEOMETRY

SPAN ID: B3-B4 ROADWAY: 575
MIN BUILD-UP,in: 0.7500 DECK THICK,in: 8.4996

GIRDER ID: S3-G05 BRG CO-ORDS ELEVATION DAP HEIGHT
AZIMUTH, deg: N 350.316996 North East (ft) (ft)
WPT-WPT LEN,ft: 47.5000 Start: 1,464,396.5318 2,177,449.3798 946.8720 0.0000
PR-PR LEN,ft: 50.0000 End: 1,464,443.3550 2,177,441.3905 947.3305 0.0000

GIRDER TYPE:AASHTO-II CAMBER,in : 1.2096 TOTAL DEFL,in: 0.6528
TOP WIDTH,in: 12.0000 BOT WIDTH,in: 18.0000 HEIGHT,in: 36.0000

DECK SLOPE ,ft/ft Start: -0.020833 End: -0.020833 Avg: -0.020833
GIRDER PITCH,ft/ft: 0.009652 ROLL,deg: 0.000000

CHECK POINT	DIST ALONG CENTERLINE WPT-WPT (ft)	FINAL DECK ELEVATION (ft)	SCREED ELEVATION (ft)	GIRDER TOP ELEVATION (ERECTED) (ft)	SCREED HT. ABOVE GIRDER (ft)
1	0.0000	950.7057	950.7057	949.8720	0.8337
2	23.7500	950.9289	950.9833	950.2021	0.7812
3	47.5000	951.1642	951.1642	950.3305	0.8337

BUILD-UP	THICKNESS,in	LOCATION,ft	SIDE
MINIMUM:	0.750	23.7500	R
MAXIMUM:	1.630	47.5000	L

CHECK POINT	DIST ALONG CENTERLINE END-END (ft)	BUILD-UP LEFT (in)	CL (in)	RIGHT (in)
1	0.0000	1.6299	1.5049	1.3799
2	23.7500	1.0000	0.8750	0.7500
3	47.5000	1.6299	1.5049	1.3799

***** End of Report *****

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GIRDER VERTICAL GEOMETRY

SPAN ID: B3-B4 ROADWAY: 575
MIN BUILD-UP,in: 0.7500 DECK THICK,in: 8.4996

GIRDER ID: S3-G06		BRG CO-ORDS		ELEVATION	DAP HEIGHT
AZIMUTH, deg: N 350.316996		North	East	(ft)	(ft)
WPT-WPT LEN,ft: 47.5000	Start:	1,464,398.0736	2,177,458.4159	946.7375	0.0000
PR-PR LEN,ft: 50.0000	End:	1,464,444.8968	2,177,450.4265	947.1960	0.0000

GIRDER TYPE:AASHTO-II CAMBER,in : 1.2096 TOTAL DEFL,in: 0.6528
TOP WIDTH,in: 12.0000 BOT WIDTH,in: 18.0000 HEIGHT,in: 36.0000

DECK SLOPE ,ft/ft Start: -0.010417 End: -0.010417 Avg: -0.010417
GIRDER PITCH,ft/ft: 0.009652 ROLL,deg: 0.000000

CHECK POINT	DIST ALONG CENTERLINE WPT-WPT (ft)	FINAL DECK ELEVATION (ft)	SCREED ELEVATION (ft)	GIRDER TOP ELEVATION (ERECTED) (ft)	SCREED HT. ABOVE GIRDER (ft)
1	0.0000	950.5660	950.5660	949.7375	0.8285
2	23.7500	950.7891	950.8435	950.0675	0.7760
3	47.5000	951.0245	951.0245	950.1960	0.8285

BUILD-UP	THICKNESS,in	LOCATION,ft	SIDE
MINIMUM:	0.750	23.7500	R
MAXIMUM:	1.505	47.5000	L

CHECK POINT	DIST ALONG CENTERLINE END-END (ft)	BUILD-UP LEFT (in)	CL (in)	RIGHT (in)
1	0.0000	1.5049	1.4424	1.3799
2	23.7500	0.8750	0.8125	0.7500
3	47.5000	1.5049	1.4424	1.3799

***** End of Report *****

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PIER CAP BEAM SEAT REPORT

PIER: B1 LEFT OF PIER CL

GIRDER	WORK PT DISTANCE (ft)	GIRDER TYPE	PAD THICK (in)		DISTANCE FROM WORK PT ALONG CL (ft)	PERP TO CL (ft)	ELEVATION (ft)
S1-G01	1.5833	AASHTO-II	2.5000				
				a	-0.6667	-1.0833	945.5866
				b	-0.6667	-1.9167	945.5958
				c	0.6667	-1.9167	945.5958
				d	0.6667	-1.0833	945.5866
				BrgCtr	0.0000	-1.5000	945.5912
S1-G02	9.1667	AASHTO-II	2.5000				
				a	-0.6667	-1.0833	945.6821
				b	-0.6667	-1.9167	945.6913
				c	0.6667	-1.9167	945.6913
				d	0.6667	-1.0833	945.6821
				BrgCtr	0.0000	-1.5000	945.6867
S1-G03	9.1667	AASHTO-II	2.5000				
				a	-0.6667	-1.0833	945.7776
				b	-0.6667	-1.9167	945.7868
				c	0.6667	-1.9167	945.7868
				d	0.6667	-1.0833	945.7776
				BrgCtr	0.0000	-1.5000	945.7822
S1-G04	9.1667	AASHTO-II	2.5000				
				a	-0.6667	-1.0833	945.8731
				b	-0.6667	-1.9167	945.8823
				c	0.6667	-1.9167	945.8823
				d	0.6667	-1.0833	945.8731
				BrgCtr	0.0000	-1.5000	945.8777
S1-G05	9.1667	AASHTO-II	2.5000				
				a	-0.6667	-1.0833	945.7212
				b	-0.6667	-1.9167	945.7304
				c	0.6667	-1.9167	945.7304
				d	0.6667	-1.0833	945.7212
				BrgCtr	0.0000	-1.5000	945.7258
S1-G06	9.1667	AASHTO-II	2.5000				
				a	-0.6667	-1.0833	945.5867
				b	-0.6667	-1.9167	945.5958
				c	0.6667	-1.9167	945.5958
				d	0.6667	-1.0833	945.5867
				BrgCtr	0.0000	-1.5000	945.5912
RIGHT	1.5833						

***** End of Report *****

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PIER CAP BEAM SEAT REPORT

PIER: B2 LEFT OF PIER CL

GIRDER	WORK PT DISTANCE (ft)	GIRDER TYPE	PAD THICK (in)		DISTANCE FROM WORK PT ALONG CL (ft)	PERP TO CL (ft)	ELEVATION (ft)
S2-G01	1.0834	AASHTO-III	2.5000				
				a	-0.7500	-0.5833	945.1664
				b	-0.7500	-1.4167	945.1768
				c	0.7500	-1.4167	945.1768
				d	0.7500	-0.5833	945.1664
				BrgCtr	0.0000	-1.0000	945.1716
S2-G02	9.1667	AASHTO-III	2.5000				
				a	-0.7500	-0.5833	945.2619
				b	-0.7500	-1.4167	945.2723
				c	0.7500	-1.4167	945.2723
				d	0.7500	-0.5833	945.2619
				BrgCtr	0.0000	-1.0000	945.2671
S2-G03	9.1667	AASHTO-III	2.5000				
				a	-0.7500	-0.5833	945.3574
				b	-0.7500	-1.4167	945.3677
				c	0.7500	-1.4167	945.3677
				d	0.7500	-0.5833	945.3574
				BrgCtr	0.0000	-1.0000	945.3626
S2-G04	9.1667	AASHTO-III	2.5000				
				a	-0.7500	-0.5833	945.4529
				b	-0.7500	-1.4167	945.4632
				c	0.7500	-1.4167	945.4632
				d	0.7500	-0.5833	945.4529
				BrgCtr	0.0000	-1.0000	945.4581
S2-G05	9.1667	AASHTO-III	2.5000				
				a	-0.7500	-0.5833	945.2992
				b	-0.7500	-1.4167	945.3096
				c	0.7500	-1.4167	945.3096
				d	0.7500	-0.5833	945.2992
				BrgCtr	0.0000	-1.0000	945.3044
S2-G06	9.1666	AASHTO-III	2.5000				
				a	-0.7500	-0.5833	945.1664
				b	-0.7500	-1.4167	945.1768
				c	0.7500	-1.4167	945.1768
				d	0.7500	-0.5833	945.1664
				BrgCtr	0.0000	-1.0000	945.1716
RIGHT	1.0833						

***** End of Report *****

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PIER CAP BEAM SEAT REPORT

PIER: B2 RIGHT OF PIER CL

GIRDER	WORK PT DISTANCE (ft)	GIRDER TYPE	PAD THICK (in)		DISTANCE FROM WORK PT ALONG CL (ft)	PERP TO CL (ft)	ELEVATION (ft)
S1-G01	1.0833	AASHTO-II	2.5000				
				a	0.6667	0.5833	945.9284
				b	0.6667	1.4167	945.9258
				c	-0.6667	1.4167	945.9258
				d	-0.6667	0.5833	945.9284
				BrgCtr	0.0000	1.0000	945.9271
S1-G02	9.1667	AASHTO-II	2.5000				
				a	0.6667	0.5833	946.0239
				b	0.6667	1.4167	946.0213
				c	-0.6667	1.4167	946.0213
				d	-0.6667	0.5833	946.0239
				BrgCtr	0.0000	1.0000	946.0226
S1-G03	9.1667	AASHTO-II	2.5000				
				a	0.6667	0.5833	946.1194
				b	0.6667	1.4167	946.1168
				c	-0.6667	1.4167	946.1168
				d	-0.6667	0.5833	946.1194
				BrgCtr	0.0000	1.0000	946.1181
S1-G04	9.1667	AASHTO-II	2.5000				
				a	0.6667	0.5833	946.2149
				b	0.6667	1.4167	946.2122
				c	-0.6667	1.4167	946.2122
				d	-0.6667	0.5833	946.2149
				BrgCtr	0.0000	1.0000	946.2136
S1-G05	9.1667	AASHTO-II	2.5000				
				a	0.6667	0.5833	946.0630
				b	0.6667	1.4167	946.0603
				c	-0.6667	1.4167	946.0603
				d	-0.6667	0.5833	946.0630
				BrgCtr	0.0000	1.0000	946.0617
S1-G06	9.1667	AASHTO-II	2.5000				
				a	0.6667	0.5833	945.9284
				b	0.6667	1.4167	945.9258
				c	-0.6667	1.4167	945.9258
				d	-0.6667	0.5833	945.9284
				BrgCtr	0.0000	1.0000	945.9271
RIGHT	1.0833						

***** End of Report *****

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PIER CAP BEAM SEAT REPORT

PIER: B3 LEFT OF PIER CL

GIRDER	WORK PT DISTANCE (ft)	GIRDER TYPE	PAD THICK (in)		DISTANCE FROM WORK PT ALONG CL (ft)	PERP TO CL (ft)	ELEVATION (ft)
S3-G01	1.0833	AASHTO-II	2.5000				
				a	-0.6667	-0.5833	946.5235
				b	-0.6667	-1.4167	946.5348
				c	0.6667	-1.4167	946.5348
				d	0.6667	-0.5833	946.5235
				BrgCtr	0.0000	-1.0000	946.5291
S3-G02	9.1667	AASHTO-II	2.5000				
				a	-0.6667	-0.5833	946.6190
				b	-0.6667	-1.4167	946.6303
				c	0.6667	-1.4167	946.6303
				d	0.6667	-0.5833	946.6190
				BrgCtr	0.0000	-1.0000	946.6246
S3-G03	9.1667	AASHTO-II	2.5000				
				a	-0.6667	-0.5833	946.7145
				b	-0.6667	-1.4167	946.7258
				c	0.6667	-1.4167	946.7258
				d	0.6667	-0.5833	946.7145
				BrgCtr	0.0000	-1.0000	946.7201
S3-G04	9.1667	AASHTO-II	2.5000				
				a	-0.6667	-0.5833	946.8099
				b	-0.6667	-1.4167	946.8212
				c	0.6667	-1.4167	946.8212
				d	0.6667	-0.5833	946.8099
				BrgCtr	0.0000	-1.0000	946.8156
S3-G05	9.1667	AASHTO-II	2.5000				
				a	-0.6667	-0.5833	946.6580
				b	-0.6667	-1.4167	946.6693
				c	0.6667	-1.4167	946.6693
				d	0.6667	-0.5833	946.6580
				BrgCtr	0.0000	-1.0000	946.6637
S3-G06	9.1667	AASHTO-II	2.5000				
				a	-0.6667	-0.5833	946.5235
				b	-0.6667	-1.4167	946.5348
				c	0.6667	-1.4167	946.5348
				d	0.6667	-0.5833	946.5235
				BrgCtr	0.0000	-1.0000	946.5292
RIGHT	1.0833						

***** End of Report *****

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PIER CAP BEAM SEAT REPORT

PIER: B3 RIGHT OF PIER CL

GIRDER	WORK PT DISTANCE (ft)	GIRDER TYPE	PAD THICK (in)		DISTANCE FROM WORK PT ALONG CL (ft)	PERP TO CL (ft)	ELEVATION (ft)
S2-G01	1.0834	AASHTO-III	2.5000				
				a	0.7500	0.5833	945.7419
				b	0.7500	1.4167	945.7384
				c	-0.7500	1.4167	945.7384
				d	-0.7500	0.5833	945.7419
				BrgCtr	0.0000	1.0000	945.7402
S2-G02	9.1667	AASHTO-III	2.5000				
				a	0.7500	0.5833	945.8374
				b	0.7500	1.4167	945.8339
				c	-0.7500	1.4167	945.8339
				d	-0.7500	0.5833	945.8374
				BrgCtr	0.0000	1.0000	945.8357
S2-G03	9.1667	AASHTO-III	2.5000				
				a	0.7500	0.5833	945.9329
				b	0.7500	1.4167	945.9294
				c	-0.7500	1.4167	945.9294
				d	-0.7500	0.5833	945.9329
				BrgCtr	0.0000	1.0000	945.9312
S2-G04	9.1667	AASHTO-III	2.5000				
				a	0.7500	0.5833	946.0284
				b	0.7500	1.4167	946.0249
				c	-0.7500	1.4167	946.0249
				d	-0.7500	0.5833	946.0284
				BrgCtr	0.0000	1.0000	946.0266
S2-G05	9.1667	AASHTO-III	2.5000				
				a	0.7500	0.5833	945.8748
				b	0.7500	1.4167	945.8712
				c	-0.7500	1.4167	945.8712
				d	-0.7500	0.5833	945.8748
				BrgCtr	0.0000	1.0000	945.8730
S2-G06	9.1666	AASHTO-III	2.5000				
				a	0.7500	0.5833	945.7420
				b	0.7500	1.4167	945.7384
				c	-0.7500	1.4167	945.7384
				d	-0.7500	0.5833	945.7420
				BrgCtr	0.0000	1.0000	945.7402
RIGHT	1.0833						

***** End of Report *****

Filename: N:\TRA\255717\Eng\BR36\Geomath\I-575 BR36.gmd

PIER CAP BEAM SEAT REPORT

PIER: B4 RIGHT OF PIER CL

GIRDER	WORK PT DISTANCE (ft)	GIRDER TYPE	PAD THICK (in)		DISTANCE FROM WORK PT ALONG CL (ft)	PERP TO CL (ft)	ELEVATION (ft)
S3-G01	2.5833	AASHTO-II	2.5000				
				a	0.6667	1.0833	946.9900
				b	0.6667	1.9167	946.9852
				c	-0.6667	1.9167	946.9852
				d	-0.6667	1.0833	946.9900
				BrgCtr	0.0000	1.5000	946.9876
S3-G02	9.1667	AASHTO-II	2.5000				
				a	0.6667	1.0833	947.0855
				b	0.6667	1.9167	947.0807
				c	-0.6667	1.9167	947.0807
				d	-0.6667	1.0833	947.0855
				BrgCtr	0.0000	1.5000	947.0831
S3-G03	9.1667	AASHTO-II	2.5000				
				a	0.6667	1.0833	947.1810
				b	0.6667	1.9167	947.1762
				c	-0.6667	1.9167	947.1762
				d	-0.6667	1.0833	947.1810
				BrgCtr	0.0000	1.5000	947.1786
S3-G04	9.1667	AASHTO-II	2.5000				
				a	0.6667	1.0833	947.2765
				b	0.6667	1.9167	947.2717
				c	-0.6667	1.9167	947.2717
				d	-0.6667	1.0833	947.2765
				BrgCtr	0.0000	1.5000	947.2741
S3-G05	9.1667	AASHTO-II	2.5000				
				a	0.6667	1.0833	947.1246
				b	0.6667	1.9167	947.1198
				c	-0.6667	1.9167	947.1198
				d	-0.6667	1.0833	947.1246
				BrgCtr	0.0000	1.5000	947.1222
S3-G06	9.1667	AASHTO-II	2.5000				
				a	0.6667	1.0833	946.9900
				b	0.6667	1.9167	946.9852
				c	-0.6667	1.9167	946.9852
				d	-0.6667	1.0833	946.9900
				BrgCtr	0.0000	1.5000	946.9876
RIGHT	1.5833						

***** End of Report *****

CALCULATION COVER SHEET

PROJECT	JOB NO.	CALC NO.	SHEET
I-75 / I-575 NORTHWEST CORRIDOR	NH000-0575-01(028)	BR#36	1
SUBJECT	DISCIPLINE		
Slab Design	STRUCTURAL		

CALCULATION STATUS DESIGNATION	PRELIMINARY	CONFIRMED	SUPSEDED	VOIDED	INCOMPLETE
	☐	☐	☐	☐	X

COMPUTER PROGRAM/TYPE	SCP	MAINFRAME	PC	PROGRAM	VERSION/RELEASE NO.
	(X) YES ( ) NO	( )	(X)	Excel	2003

Note 1: Georgia Department of Transportation (GDOT) terminated Contract Number TOURDPPI60072 for its convenience prior the completion of all work under that contract and directed that the work with respect to these calculations be discontinued.
(a) These calculations were not completed at the time of GDOT's direction and the information contained herein is not complete and/or has not been fully verified or checked. These calculations are a work-in-progress and are presented only as such.
(b) Any user is cautioned that the use of these calculations and any related information or calculations, without access to factors and without proper regard for their purpose, could lead to erroneous conclusions.
(c) If any such calculations or any information contained herein is used in future work efforts or any follow on design work activity, a complete confirmation of the information contained herein should be performed prior to any such use.
(d) GTP has no responsibility for the use of this information not under its direct control.

Slab Design calculations are included for spans 1&3, and span 2.

NO.	REASON FOR REVISION	TOTAL NO. OF SHEETS	LAST SHEET NO.	BY	CHECKED	APPROVED/ ACCEPTED	DATE
A	As per GDOT's termination for convenience direction	8	8	JCR			11/30/09

RECORD OF REVISIONS

CALCULATION SHEET

PROJECT: I-75 / I-575 NORTHWEST CORRIDOR
JOB NUMBER NH000-0575-01(028)
CALC NO. BR#36

SUBJECT: Slab Design
BY: JCR DATE: 11/30/2009

SHEET NO.
SHEET REV.

Sufficient sample calculations representative of the scope and conditions in the design calculation were performed and the results compared to demonstrate the computer program adequacy.

BRIDGE: **I-575 over Noonday Creek South**
COUNTY: **COBB**
P.I. NO: **713640**
PROJECT: **NH000-0575-01(028)**

J.B. TRIMBLE, INC.

JBT

Spans 1 & 3 - Tp2 @ 9'-2"

JOB NO: **255717**
DESIGNED BY: **WBN**
CHECKED BY: **JCR**

✓ JCR
10-5-09

PRELIMINARY INFORMATION

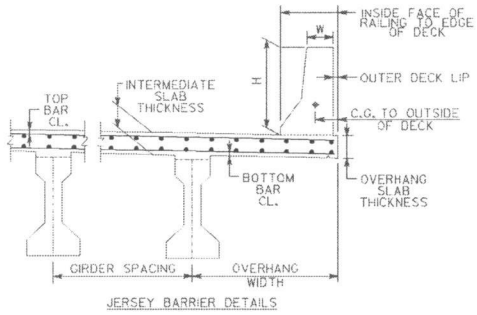
Georgia County	North of Fall Line?	ADT?	Standard Loading	BARRIER TYPE:	FENCING OPTION:
Cobb	Y	>= 2000	HS-20	None	None

INTERIOR BEAM TYPE: PSC-Type II (TB, PSC, BULB-T)

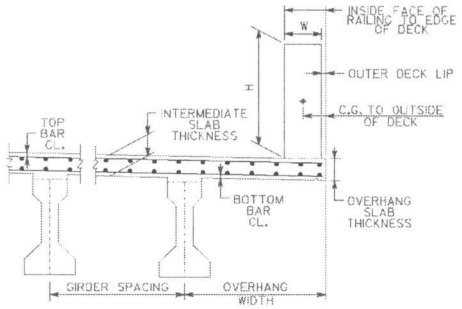
FASCIA BEAM TYPE: PSC-Type II (TB, PSC, BULB-T)

INTERIOR BEAM TOP FLANGE WIDTH =	**12 in.**
FASCIA BEAM TOP FLANGE WIDTH =	**12 in.**
INTERMEDIATE SLAB THICKNESS =	**8.500 in.**
OVERHANG SLAB THICKNESS =	**8.500 in.**
GIRDER SPACING =	**9.167 ft.**
NUMBER OF GIRDERS =	**6**
OVERHANG WIDTH =	**2.375 ft.**
CONCRETE STRENGTH, f'c =	**3500 psi.**
STEEL STRENGTH, fy =	**60000 psi.**
RAILING HEIGHT (H) =	**0.000 ft.**
RAILING WIDTH (W) =	**0.000 ft.**
OUTER DECK LIP =	**0.000 in.**
NSIDE FACE OF RAILING TO EDGE OF DECK =	**0.000 ft.**
C.G. FROM OUTSIDE =	**0.000 in.**
TOP BAR CLEARANCE =	**2.750 in.**
BOTTOM BAR CLEARANCE =	**1.000 in.**
GROOVED DEPTH =	**0.250 in.**
DESIGN SPEED =	**65.00 mph** (IF CENTRIFUGAL CONSIDERED)
RADIUS =	**0.000 ft.** (IF CENTRIFUGAL CONSIDERED)
WHEEL LOAD =	**16 kips**
IMPACT FACTOR =	**1.30**
FUTURE WEARING SURFACE =	**30.00 psf**
RAILING LOAD =	**10.00 kip** AT TOP OF PARAPET

DECK SLOPE = 1.0417 %



JERSEY BARRIER DETAILS



PARAPET DETAILS

INTERMEDIATE SLAB DESIGN

EFFECTIVE SPAN LENGTH = 8.167 ft. *AASHTO 3.24.1.2*

DEAD LOAD

SLAB D.L. = 0.106 kips / ft. / lf.
ADDITIONAL D.L. = 0.030 kips / ft. / lf.

TOTAL D.L.= 0.136 kips / ft. / lf.

DEAD LOAD MOMENT = 1.3 * (WT DL) * (SPAN)^2 / 10 = 1.181 kip-ft. / lf.

LIVE LOAD

WHEEL LOAD = 16.00 kips

CONT. FACTOR = 0.80
IMPACT = 1.30

LIVE LOAD MOMENT = 2.17 * ((S + 2)/32) * P(LL + I) * 0.8 = 11.472 kip-ft. / lf. *AASHTO 3.24.3.1*

CENTRIFUGAL LOAD *AASHTO 3.10.1*

C = 6.68 * S^2/ R = 0.000 FRACTION OF LIVE LOAD

CENTRIFUGAL FORCE MOMENT = 1.3 * ((S + 2)/32) * P (LL+ I) * 0.8 * C = 0.000 kip-ft. / lf. *AASHTO TABLE 3.22.1A*

TOTAL DESIGN MOMENT (∅ Mu) = 12.654 kip-ft. / lf. = 151.85 k-in. / lf.

FLEXURE STRENGTH *AASHTO 8.16.3.2*

∅ Mn > Mu ∅ = 0.90

∅ Mn = ∅ * [As * fy * (d - a/2)] where a = As * fy / [0.85 * f'c * b]

a = 1.681 As

d_{top} = 5.438 in. USE **5 BAR** As = 0.31 in.^2 / lf.

d_{bot} = 6.938 in. USE **5 BAR** As = 0.31 in.^2 / lf.

TOP STEEL

293.625 As - 45.38 As^2 = 151.85 k-in. / lf.

TOP BAR = NO.	5	SPACED AT	5.750 in.	As =	0.65 in.^2 / lf.

∅ Mn = 170.97 k-in. / lf. ≥ ∅ Mu = 151.85 k-in. / lf. OK

BOTTOM STEEL

374.625 As - 45.38 As^2 = 151.85 k-in. / lf.

BOT BAR = NO.	5	SPACED AT	5.750 in.	As =	0.65 in.^2 / lf.

∅ Mn = 223.37 k-in. / lf. ≥ ∅ Mu = 151.85 k-in. / lf. OK

BRIDGE: **I-575 over Noonday Creek South**
COUNTY: **COBB**
P.I. NO: **713640**
PROJECT: **NH000-0575-01(028)**

J.B. TRIMBLE, INC.

JOB NO: **255717**
DESIGNED BY: **WBN**
CHECKED BY: **JCR**

Span 2 - Tp3 @ 9'-2"

✓ JCR 10-5-09

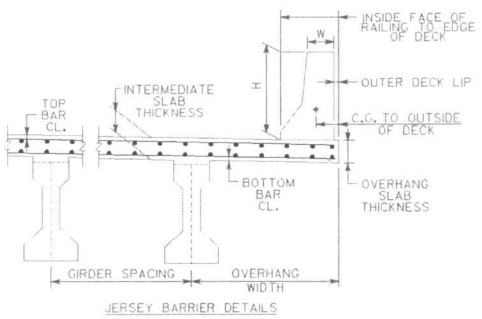
PRELIMINARY INFORMATION

Georgia County	North of Fall Line?	ADT?	Standard Loading	BARRIER TYPE:	FENCING OPTION:
Cobb	Y	>= 2000	HS-20	None	None

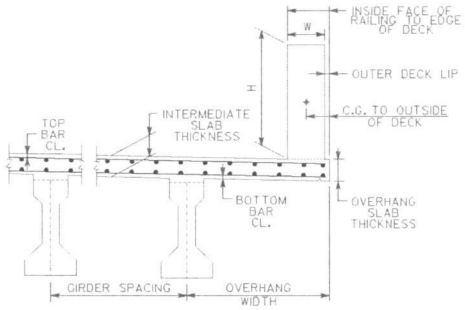
INTERIOR BEAM TYPE: PSC-Type III (TB, PSC, BULB-T) ✓

FASCIA BEAM TYPE: PSC-Type III (TB, PSC, BULB-T) ✓

INTERIOR BEAM TOP FLANGE WIDTH =	**16 in.**	✓
FASCIA BEAM TOP FLANGE WIDTH =	**16 in.**	
INTERMEDIATE SLAB THICKNESS =	**8.375 in.**	✓
OVERHANG SLAB THICKNESS =	**8.375 in.**	
GIRDER SPACING =	**9.167 ft.**	✓
NUMBER OF GIRDERS =	**6**	
OVERHANG WIDTH =	**2.375 ft.**	
CONCRETE STRENGTH, f'c =	**3500 psi.**	
STEEL STRENGTH, fy =	**60000 psi.**	
RAILING HEIGHT (H) =	**0.000 ft.**	
RAILING WIDTH (W) =	**0.000 ft.**	
OUTER DECK LIP =	**0.000 in.**	
INSIDE FACE OF RAILING TO EDGE OF DECK =	**0.000 ft.**	
C.G. FROM OUTSIDE =	**0.000 in.**	
TOP BAR CLEARANCE =	**2.750 in.**	
BOTTOM BAR CLEARANCE =	**1.000 in.**	
GROOVED DEPTH =	**0.250 in.**	
DESIGN SPEED =	**65.00 mph**	(IF CENTRIFUGAL CONSIDERED)
RADIUS =	**0.000 ft.**	(IF CENTRIFUGAL CONSIDERED)
WHEEL LOAD =	**16 kips**	
IMPACT FACTOR =	**1.30**	
FUTURE WEARING SURFACE =	**30.00 psf**	
RAILING LOAD =	**10.00 kip**	AT TOP OF PARAPET



JERSEY BARRIER DETAILS



PARAPET DETAILS

DECK SLOPE = 1.0417 %

INTERMEDIATE SLAB DESIGN

EFFECTIVE SPAN LENGTH = 7.833 ft. *AASHTO 3.24.1.2*

DEAD LOAD

SLAB D.L. = 0.105 kips / ft. / lf.
ADDITIONAL D.L. = 0.030 kips / ft. / lf.

TOTAL D.L.= 0.135 kips / ft. / lf.

DEAD LOAD MOMENT = 1.3 * (WT DL) * (SPAN)^2 / 10 = 1.074 kip-ft. / lf.

LIVE LOAD

WHEEL LOAD = 16.00 kips

CONT. FACTOR = 0.80
IMPACT = 1.30

LIVE LOAD MOMENT = 2.17 * ((S + 2)/32) * P(LL + I) * 0.8 = 11.096 kip-ft. / lf. *AASHTO 3.24.3.1*

CENTRIFUGAL LOAD *AASHTO 3.10.1*

C = 6.68 * S^2/ R = 0.000 FRACTION OF LIVE LOAD

CENTRIFUGAL FORCE MOMENT = 1.3 * ((S + 2)/32) * P (LL+ I) * 0.8 * C = 0.000 kip-ft. / lf. *AASHTO TABLE 3.22.1A*

TOTAL DESIGN MOMENT (∅ Mu) = 12.170 kip-ft. / lf. = 146.04 k-in. / lf.

FLEXURE STRENGTH *AASHTO 8.16.3.2*

∅ Mn > Mu ∅ = 0.90

∅ Mn = ∅ * [As * fy * (d - a/2)] where a = As * fy / [0.85 * f'c * b]

a = 1.681 As

d_{top} = 5.313 in. USE **5 BAR** As = 0.31 in.^2 / lf.

d_{bot} = 6.813 in. USE **5 BAR** As = 0.31 in.^2 / lf.

TOP STEEL

286.875 As - 45.38 As^2 = 146.04 k-in. / lf.

TOP BAR = NO.	5	SPACED AT	5.875 in.	As =	0.63 in.^2 / lf.

∅ Mn = 163.45 k-in. / lf. ≥ ∅ Mu = 146.04 k-in. / lf. OK

BOTTOM STEEL

367.875 As - 45.38 As^2 = 146.04 k-in. / lf.

BOT BAR = NO.	5	SPACED AT	5.875 in.	As =	0.63 in.^2 / lf.

∅ Mn = 214.74 k-in. / lf. ≥ ∅ Mu = 146.04 k-in. / lf. OK

SERVICE LOAD DESIGN OF BRIDGE SLAB

Georgia Department of Transportation 13-MAY-04
Office of Bridge and Structural Design 07:49:26
October 2003

WHEEL LOAD (Kips)	fc (ksi)	fs (ksi)	n	SLAB COVER (in)	FUTURE PAVING (kips/ft^2)	CONTINUITY FACTOR
16.00	1.400	24.000	9	2.750	0.030	0.8

	EFFECTIVE SPAN LENGTH (ft-in)	SLAB THICKNESS MINIMUM (in)	SLAB THICKNESS ACTUAL (in)	SIZE AND SPACING OF MAIN REINFORCEMENT (in)	DISTRUBUTION REINFORCEMENT MIDDLE HALF	DISTRUBUTION REINFORCEMENT OUTER QUARTERS
	6 - 6	7.8889	8.000	# 5 at 6.500	7 -# 4	4 -# 4
	6 - 7	7.9167	8.000	# 5 at 6.375	7 -# 4	4 -# 4
	6 - 8	7.9445	8.000	# 5 at 6.375	7 -# 4	4 -# 4
	6 - 9	7.9722	8.000	# 5 at 6.250	7 -# 4	4 -# 4
	6 - 10	7.9998	8.000	# 5 at 6.250	7 -# 4	4 -# 4
	6 - 11	8.0309	8.125	# 5 at 6.250	7 -# 4	4 -# 4
	7 - 0	8.0585	8.125	# 5 at 6.250	7 -# 4	4 -# 4
	7 - 1	8.0860	8.125	# 5 at 6.125	8 -# 4	4 -# 4
	7 - 2	8.1134	8.125	# 5 at 6.125	8 -# 4	4 -# 4
	7 - 3	8.1446	8.250	# 5 at 6.125	8 -# 4	4 -# 4
	7 - 4	8.1719	8.250	# 5 at 6.125	8 -# 4	4 -# 4
	7 - 5	8.1992	8.250	# 5 at 6.000	8 -# 4	4 -# 4
	7 - 6	8.2265	8.250	# 5 at 6.000	8 -# 4	4 -# 4
	7 - 7	8.2577	8.375	# 5 at 6.000	8 -# 4	4 -# 4
	7 - 8	8.2849	8.375	# 5 at 6.000	8 -# 4	4 -# 4
	7 - 9	8.3121	8.375	# 5 at 5.875	9 -# 4	6 -# 4
SPAN 2	7 - 10	8.3392	8.375	# 5 at 5.875	9 -# 4	6 -# 4
	7 - 11	8.3662	8.375	# 5 at 5.750	9 -# 4	6 -# 4
	8 - 0	8.3976	8.500	# 5 at 5.875	9 -# 4	6 -# 4
	8 - 1	8.4246	8.500	# 5 at 5.750	9 -# 4	6 -# 4
SPANS 1 & 3	8 - 2	8.4515	8.500	# 5 at 5.750	9 -# 4	6 -# 4
	8 - 3	8.4784	8.500	# 5 at 5.625	9 -# 4	6 -# 4
	8 - 4	8.5099	8.625	# 5 at 5.750	9 -# 4	6 -# 4
	8 - 5	8.5367	8.625	# 5 at 5.625	10 -# 4	6 -# 4
	8 - 6	8.5636	8.625	# 5 at 5.625	10 -# 4	6 -# 4
	8 - 7	8.5903	8.625	# 5 at 5.500	10 -# 4	6 -# 4
	8 - 8	8.6170	8.625	# 5 at 5.500	10 -# 4	6 -# 4
	8 - 9	8.6487	8.750	# 5 at 5.625	10 -# 4	6 -# 4
	8 - 10	8.6754	8.750	# 5 at 5.500	10 -# 4	6 -# 4
	8 - 11	8.7020	8.750	# 5 at 5.500	11 -# 4	6 -# 4
	9 - 0	8.7286	8.750	# 5 at 5.375	11 -# 4	6 -# 4
	9 - 1	8.7605	8.875	# 5 at 5.500	11 -# 4	6 -# 4
	9 - 2	8.7871	8.875	# 5 at 5.375	11 -# 4	6 -# 4
	9 - 3	8.8136	8.875	# 5 at 5.375	11 -# 4	6 -# 4
	9 - 4	8.8401	8.875	# 5 at 5.375	11 -# 4	6 -# 4
	9 - 5	8.8665	8.875	# 5 at 5.250	12 -# 4	6 -# 4

SECTION IV – CONCRETE AND REINFORCING STEEL

BRIDGE DECK DESIGN No. 4.01

When designing bridge decks, the following criteria shall be applied:

For cast-in-place decks north of the fall line:

1. Specify Class AA concrete except for post-tensioned concrete boxes which shall have Class AA as a minimum, but may require a higher 28-day strength.
2. **Specify 2 ¾" (70 mm) cover to top bar reinforcement for bridge decks on interstate routes, state routes and routes with design year ADT equal to or greater than 2000.**
3. Specify 2 ½" (65 mm) cover to top bar reinforcement for bridge decks on all other routes.

For cast-in-place decks south of the fall line:

1. Specify Class AA concrete except for post-tensioned concrete boxes which shall have Class AA as a minimum, but may require a higher 28-day strength.
2. Specify 2 ¼" (60 mm) cover to top bar reinforcement for bridge decks on interstate routes, state routes and routes with design year ADT equal to or greater than 2000.
3. Specify 2" (50 mm) cover to top bar reinforcement for bridge decks on all other routes.

For bridge decks of precast concrete elements, specify 2" cover to top bar reinforcement statewide.

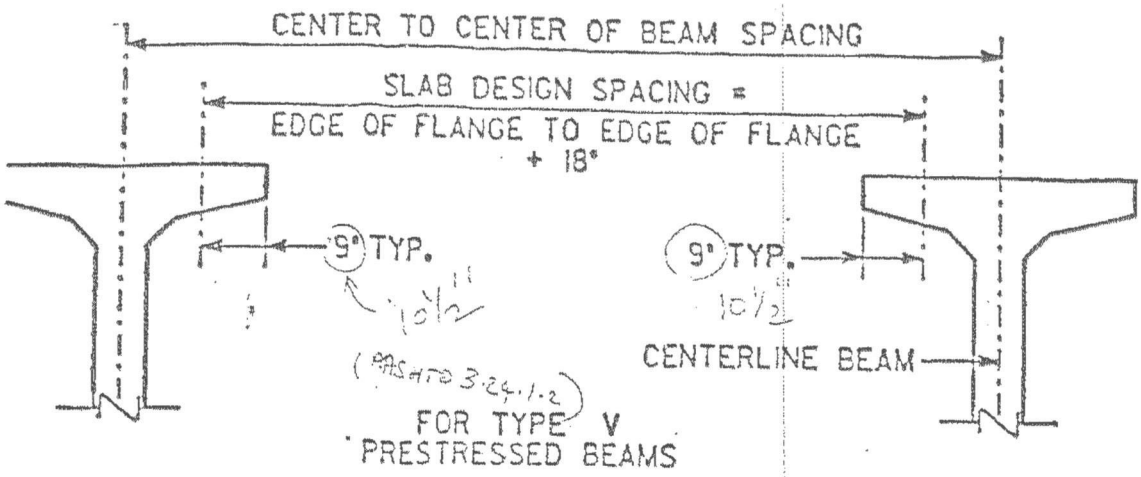
Note that ¼" of concrete thickness may be planed off of the top of cast-in-place decks on interstate routes, state routes and routes with design year ADT equal to or greater than 2000. Therefore, reduce slab thickness accordingly for strength calculations of composite slabs on steel or PSC beams and post-tensioned boxes.

Deck slabs shall be designed by the Service Load method with f_c = 1400 psi (10 MPa), as a rule.

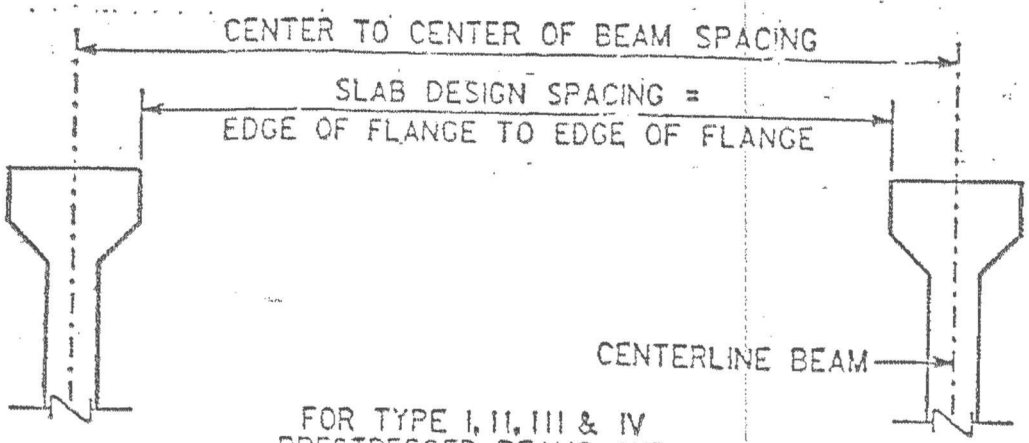
The minimum 28 day strength (f'_c) for the deck concrete shall be 3500 psi (25 MPa). Slabs shall be designed so that the main slab reinforcement is the same in the bottom of the slab as in the top. To achieve this, the effective depth shall be taken as the distance from the bottom of the slab to the centroid of the top main reinforcing steel for both positive and negative moment. Positive and negative moments shall be assumed to be equal and shall be calculated in accordance with the AASHTO Specifications.

See Fig. 4-01 for a location map of the fall line for Georgia.

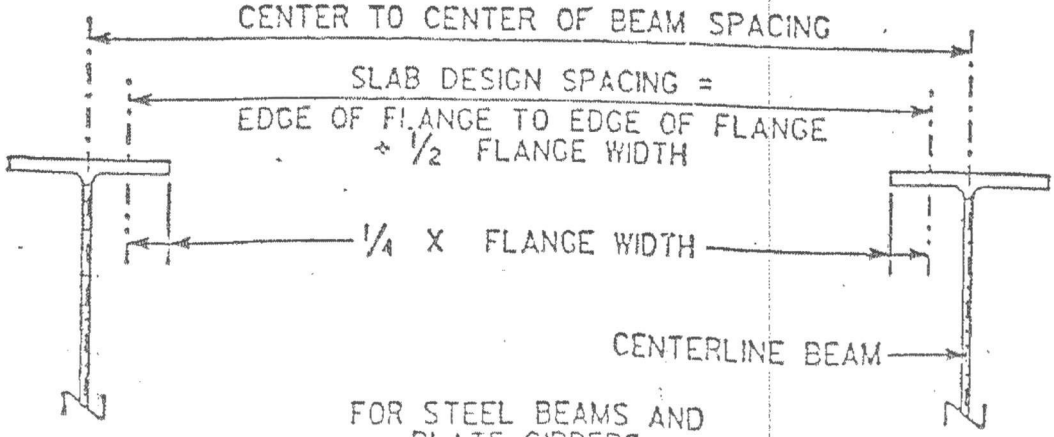
FALL LINE MAP
Figure 4-01



FOR TYPE V
PRESTRESSED BEAMS



FOR TYPE I, II, III & IV
PRESTRESSED BEAMS AND
CONCRETE T-BEAMS



FOR STEEL BEAMS AND
PLATE GIRDERS

FIG. NO. 1 (cont'd)

CALCULATION COVER SHEET

PROJECT	JOB NO.	CALC NO.	SHEET
I-75 / I-575 NORTHWEST CORRIDOR	NH000-0575-01(028)	BR#36	1
SUBJECT	DISCIPLINE		
Beam Design Input	STRUCTURAL		

CALCULATION STATUS DESIGNATION	PRELIMINARY	CONFIRMED	SUPSEDED	VOIDED	INCOMPLETE
	☐	☐	☐	☐	X

COMPUTER PROGRAM/TYPE	SCP	MAINFRAME	PC	PROGRAM	VERSION/RELEASE NO.
	(X) YES ( ) NO	( )	(X)	Excel	2003

Note 1: Georgia Department of Transportation (GDOT) terminated Contract Number TOURDPPI60072 for its convenience prior the completion of all work under that contract and directed that the work with respect to these calculations be discontinued.
(a) These calculations were not completed at the time of GDOT's direction and the information contained herein is not complete and/or has not been fully verified or checked. These calculations are a work-in-progress and are presented only as such.
(b) Any user is cautioned that the use of these calculations and any related information or calculations, without access to factors and without proper regard for their purpose, could lead to erroneous conclusions.
(c) If any such calculations or any information contained herein is used in future work efforts or any follow on design work activity, a complete confirmation of the information contained herein should be performed prior to any such use.
(d) GTP has no responsibility for the use of this information not under its direct control.

Beam Design Input calculations are included for spans 1&3, and span 2.

NO.	REASON FOR REVISION	TOTAL NO. OF SHEETS	LAST SHEET NO.	BY	CHECKED	APPROVED/ ACCEPTED	DATE
A	As per GDOT's termination for convenience direction	11	11	JCR			11/30/09

RECORD OF REVISIONS

CALCULATION SHEET

PROJECT: I-75 / I-575 NORTHWEST CORRIDOR
JOB NUMBER NH000-0575-01(028)
CALC NO. BR#36

SUBJECT: Beam Design Input - Spans 1&3 SHEET NO.
BY: JCR DATE: 11/30/2009 SHEET REV.

Sufficient sample calculations representative of the scope and conditions in the design calculation were performed and the results compared to demonstrate the computer program adequacy.

BRIDGE: **I-575 over Noonday Creek South**
COUNTY: **COBB**
P.I. NO: **713640**
PROJECT: **NH000-0575-01(028)**

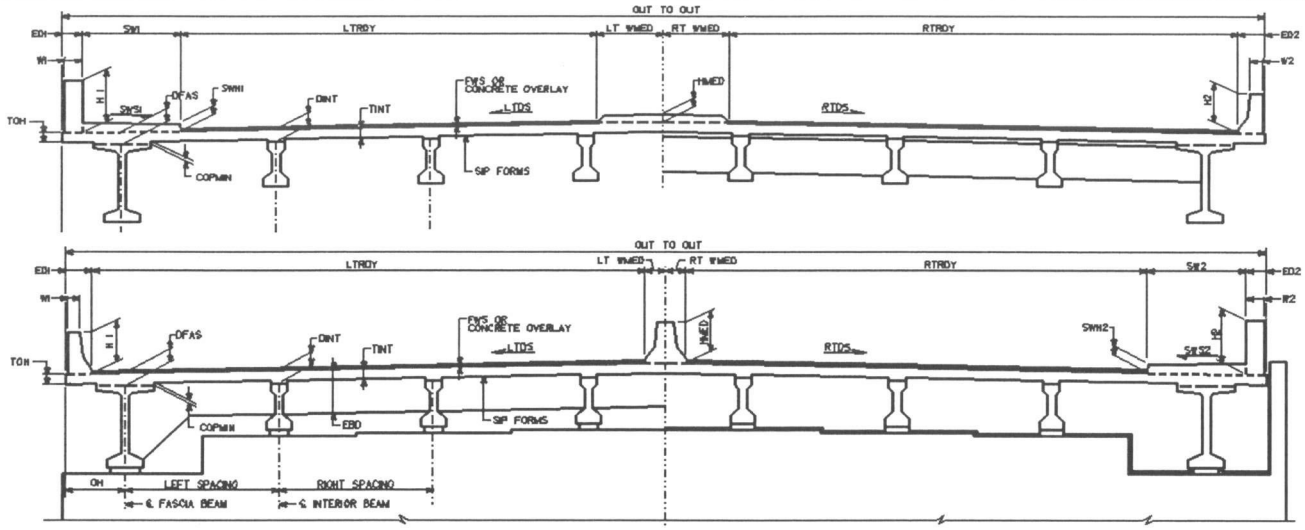
J.B. TRIMBLE, INC.
JBT

JOB NO: **255717**
DESIGNED BY: **WBN**
CHECKED BY: **JCR**

✓ JCR
10-5-09

Description: Type II at 9.167ft
Design Span Length: 47.583 ft.
Span No.: 1 Center

TYPICAL DECK SECTIONS:



SECTION THRU EDGE BEAM

SECTION THRU ENDWALL

Description: Type II at 9.167ft
Design Span Length: 47.583 ft.
Span No.: 1 Center

NON-COMPOSITE DEAD LOADS PER BEAM:

SLAB:

D_{INT} =	10 in. ✓
T_{INT} =	8.5 in. ✓
INTEGRAL WEARING SURFACE THICKNESS =	0.25 in. ✓
DESIGN T_{INT} =	8.25 in. ✓
INT. COP_{MIN} =	0.75 in. ✓
INT. COP_{MAX} =	1.5 in. ✓
INT. COP. DEPTH DESIGN METHOD:	Average Coping
INT. COP_{WIDTH} =	12 in. ✓
AVG. INT. COP DEPTH =	1.125 in. ✓
SIP FORMS:	Yes
SLAB $CONC._{WEIGHT}$ =	0.150 k/ft^3 ✓
BEAM $CONC._{WEIGHT}$ =	0.150 k/ft^3 ✓

INT. $SLAB_{WEIGHT}$ =	0.974 klf
INTEGRAL WEARING $SURFACE_{WEIGHT}$ =	0.029 klf
INT. COP_{WEIGHT} =	0.014 klf ✓
INT. SIP_{WEIGHT} =	0.131 klf ✓
INT. $BEAM_{WEIGHT}$ =	0.384 klf ✓
NON-COMPOSITE DEAD LOAD PER BEAM =	1.503 klf ✓

INTERIOR BEAM PROPERTIES:

INT. BEAM TYPE: Type II ✓

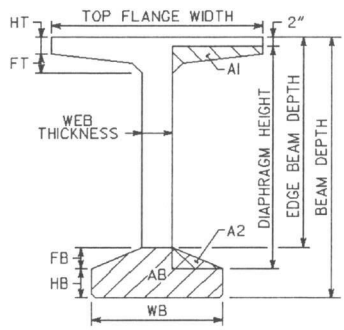
Top Flange Width =	12 in.
Beam Depth =	36 in.
Web Thickness =	6 in.
H_T =	6 in.
F_T =	3 in.
H_B =	6 in.
W_B =	18 in.
F_B =	6 in.
E.B. Depth (no coping) =	24 in.
Diaphragm Height =	28 in.
Cross Sectional Area =	369 in^2 ✓
A1 =	16.5 in^2
A2 =	18 in^2
AB =	180 in^2
INT. $BEAM_{WEIGHT}$ =	0.384 klf ✓

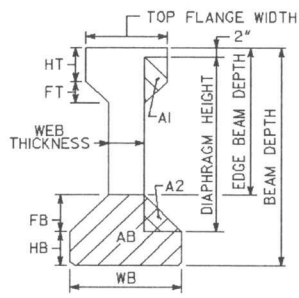
CONCRETE STRENGTHS:

$f'_{C\ BEAM}$ =	5500 psi
$f'_{Ci\ BEAM}$ =	5300 psi
$f'_{C\ SLAB}$ =	3500 psi
SIT =	0.218 k / in^2
SFB =	0.445 k / in^2

TYPE OF STRANDS = 0.5 in. dia. low-relax
DRAPED STRANDS ? No ✓

0.167 sq. in.
RB_{FPU} = 0.75
RT_{FPU} = 0.75





DEFINITION OF BEAM AREAS FOR EB. & DIAPH. CALCS

BRIDGE: **I-575 over Noonday Creek South**
COUNTY: **COBB**
P.I. NO: **713640**
PROJECT: **NH000-0575-01(028)**
Description: Type II at 9.167ft
Design Span Length: 47.583 ft.
Span No.: 1 Center

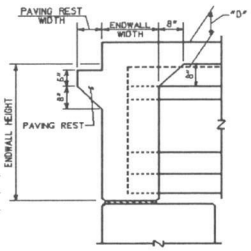
J.B. TRIMBLE, INC.

JOB NO: **255717**
DESIGNED BY: **WBN**
CHECKED BY: **JCR**

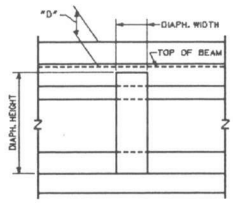
EW., DIAPH., EDGE BEAM DIMENSIONS & CALCS:

SPAN TYPE:	End Span
	Endwall 1:
EW. TYPE:	Expansion
INT. EW. WIDTH =	1.50 ft.
INT. EW. HEIGHT =	3.38 ft.
BM. EMBED. FOR EW. =	7 in.
PAV. REST WIDTH =	8 in.
INT. EW. WEIGHT =	7.806 kips
DIAPH. WIDTH =	10 in.
DIAPH. HEIGHT =	28 in.
INT. DIAPH. WEIGHT =	2.468 kips
INT. EB. HEIGHT =	25.5 in.
INT. EB. WIDTH =	12 in.
BM. EMBED. FOR EB. =	0 in.
INT. EB. WEIGHT =	2.922 kips

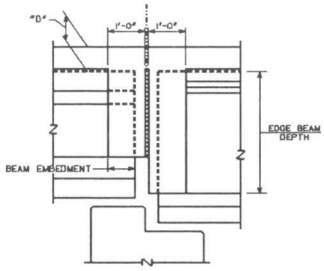
DIAPHRAGMS
1



SECTION AT ENDWALL



SECTION THRU DIAPHRAGM



SECTION THRU EDGE BEAM

INT. P-LOADS:	LOAD	POSITION	REACTION	MOMENT
EW. =	7.806 kips	0.00 ft.	7.806 kips	0.000 k-ft.
DIAPH. =	2.468 kips	23.79 ft.	1.234 kips	29.358 k-ft.
DIAPH. =	N/A	N/A	N/A	N/A
DIAPH. =	N/A	N/A	N/A	N/A
EB. =	2.922 kips	47.58 ft.	0.000 kips	0.000 k-ft.
	TOTAL POINT DEAD LOAD PER BEAM =		9.040 kips	29.358 k-ft.

DECK SECTION DIMENSIONS & CALCS:

LEFT BARRIER
BARRIER TYPE: None
FENCING OPTION: None
ED_1 = 0.000 ft.
W_1 = 0 ft.
H_1 = 0 ft.
LTDS = 1.0417 %

MEDIAN
MEDIAN TYPE: HOV Barrier

RIGHT BARRIER
BARRIER TYPE: None
FENCING OPTION: None
ED_2 = 0.000 ft.
W_2 = 0 ft.
H_2 = 0 ft.
RTDS = 1.0417 %

IS MEDIAN BARRIER CENTERED? No
OFFSET TO LEFT OR RIGHT? Right
OFFSET DISTANCE = 15.5 ft.

BRIDGE TYPE = Bridge Widening
SPAN LENGTH = 47.583 ft.
SKEW ANGLE = 90.0000 degrees

LEFT SPACING = 9.1667 ft.
RIGHT SPACING = 9.1667 ft.
LEFT OVERHANG = 0 ft.
RIGHT OVERHANG = 3.9167 ft.
LEFT OFFSET TO BARRIER = 1.5 in.
RIGHT OFFSET TO BARRIER = 1.5 in.
SPACING TO SET BEAM = 3.9167 ft.
NO. OF NEW BEAMS = 6 beams
NO. OF BEAMS IN EXISTING BRIDGE = 14 beams
NO. OF SET BEAMS W/ COMP. LOADS = 0 beams
TOTAL NO. OF BEAMS SUPPORTING WIDENING = 6 beams
NO. OF NEW BAYS = 6 bays

WIDENED BRIDGE OUT TO OUT = 53.667 ft.
EXISTING BRIDGE OUT TO OUT = 84.083 ft.
FINISHED BRIDGE OUT TO OUT = 137.750 ft.

NOTE: BRIDGE WIDENING IS TO ONE SIDE ONLY !

Ignore Median only for RDWY Width Calculations = Yes Width of Median = 2 ft.

LT RDWY = 83.375 ft.
RT RDWY = 52.375 ft.

TOTAL WIDENED RDWY WIDTH = 137.750 ft. Including median width

Description: Type II at 9.167ft
Design Span Length: 47.583 ft.
Span No.: 1 Center

SUPERIMPOSED DEAD LOADS:

LEFT BARRIER
BARRIER WEIGHT = 0.000 klf
FENCING WEIGHT = 0.000 klf

MEDIAN
MEDIAN WEIGHT = 0.472 klf

RIGHT BARRIER
BARRIER WEIGHT = 0.000 klf
FENCING WEIGHT = 0.000 klf

NOTE: BARRIER WEIGHT INCLUDES SIDEWALK WEIGHT, IF PRESENT

FWS DESIGN METHOD: Avg. Beam Sp.

WEIGHT OF FWS = 30 lb/sf

DECK OVERLAY: No
AVG. THICKNESS = 0 in.

OUT TO OUT DIST. GREATER THAN 66'-5, DISTRIBUTE BARRIER DL et. al. ONTO OUTER BEAMS!

BEAM ON CENTERLINE ? No

DIST. MEDIAN AND/OR BARR. TO ALL BEAMS ? No

OVERRIDE NO. OF BM. TO DIST. LT BARRIER ? No
NO. OF BEAMS DIST. TO LT BARRIER = 0 beams

OVERRIDE NO. OF BM. TO DIST. MED. BARRIER ? Yes
NO. OF BEAMS DIST. TO MED. BARRIER = 4 beams ✓

OVERRIDE NO. OF BM. TO DIST. RT BARRIER ? No
NO. OF BEAMS DIST. TO RT BARRIER = 0 beams

BEAMS SUPPORTING LT BARRIER

BEAMS SUPPORTING MED BARRIER
BM 13 - BM 15

BEAMS SUPPORTING RT BARRIER

SUPERIMPOSED LOADS PER BRIDGE:

FWS WEIGHT = 4.133 klf per bridge
DECK OVERLAY WT. = 0.000 klf per bridge
UTILITY WEIGHT TO SUPERSTRUCTURE = 0.000 klf per bridge
TOTAL SUPERIMPOSED DEAD LOAD = 4.604 klf per bridge

SUPERIMPOSED LOADS PER BEAM:

FWS WEIGHT = 0.275 klf per beam ✓
DECK OVERLAY WT. = 0.000 klf per beam
UTILITY WEIGHT TO SUPERSTRUCTURE = 0.000 klf per beam

LT BARRIER DEAD LOAD = 0.000 klf per beam
MED. BARRIER DEAD LOAD = 0.118 klf per beam ✓
RT BARRIER DEAD LOAD = 0.000 klf per beam

MEDIAN BARRIER LOADING GOVERNS DESIGN

CONTROLLING SUPERIMPOSED DEAD LOAD = 0.393 klf per beam

DOUBLED LOADING CASES

	BARRIER ONLY	RAISED MEDIAN	MED. BAR.
WITHOUT OVERRIDE	0.000 klf per beam	0.000 klf per beam	0.000 klf per beam
WITH OVERRIDE	0.000 klf per beam	0.236 klf per beam	0.000 klf per beam

BRIDGE: **I-575 over Noonday Creek South**
COUNTY: **COBB**
P.I. NO: **713640**
PROJECT: **NH000-0575-01(028)**

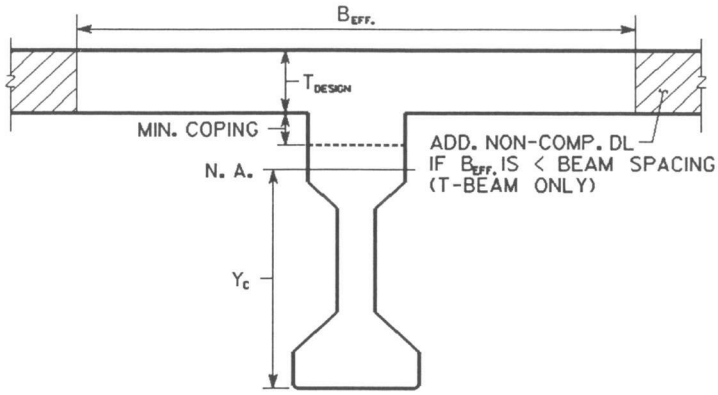
J.B. TRIMBLE, INC.

JOB NO: **255717**
DESIGNED BY: **WBN**
CHECKED BY: **JCR**

COMPOSITE SECTION MODULUS CALC:

SPAN LENGTH = **47.583 ft.**

BEAM MOMENT OF INERTIA =	50,979 in^4
BEAM Y_{BN} =	15.83 in.
INT. COP_{MIN} =	0.75 in.
DESIGN T_{INT} =	8.25 in.
E_{BM} =	4.5 x 10^6 psi
E_{SLAB} =	3.59 x 10^6 psi
modular ratio =	1.25



AASHTO 8.10.1.1 - Compression Flange Width

wBM FLANGE =	12.00	in.
B_{eff} = Bm Spacing =	**110.00**	**in. CONTROLS**
B_{eff} = ¼ Span Length =	**142.75**	in.
B_{eff} = WBM FLANGE + 2[6 tSLAB] =	**111.00**	in.

Add. Non-Comp. DL (WDLNC) = 0.000 klf (T-Beam Only)

Y_C =	32.45 in.
COMPOSITE MOM. OF INERTIA =	208,512 in^4

COMPOSITE SECTION MODULI:

SECTION MOD. AT TOP OF SLAB =	16,608 in^3
SECTION MOD. AT TOP OF BEAM =	58,660 in^3
SECTION MOD. AT BOT. OF BEAM =	6,427 in^3

Description: Type II at 9.167ft
Design Span Length: 47.583 ft.
Span No.: 1 Center

DISTRIBUTION & DEFLECTION FACTOR CALCS:

DISTRIBUTION FACTOR CALCS:

MOMENT	1.667	WHEEL
	0.833	AXLE
SHEAR	1.909	WHEEL
	0.955	AXLE

DEFLECTION FACTOR CALCS:

ALLOW USER TO DEFINE NO. OF LANES ?	Yes		
USER DEFINED NO. OF LANES =	11		9.1667 ft.
			9.1667 ft.
ALLOW USER TO DEFINE NO. OF BEAMS ?	Yes		
USER DEFINED NO. OF BEAMS =	20	-> 20 beams will be used for DFD calcs.	
REDUCTION FACTOR =	0.75		
DFD =	0.825		

(ASHTO 8.7.3) =

LIVE LOAD CALCS:

LEFT SIDEWALK LIVE LOAD:

		REACTION	MOMENT
SW_1 =	0 ft.	0.00 kips	0.000 k-ft.
LEFT SW. LL. =	0.060 kips / ft^2		
SW LL PER BEAM =	0.000 klf		

IMPACT FACTOR: 1.29

RIGHT SIDEWALK LIVE LOAD:

		REACTION	MOMENT
SW_2 =	0 ft.	0.00 kips	0.000 k-ft.
RIGHT SW. LL. =	0.060 kips / ft^2		
SW LL PER BEAM =	0.000 klf		

HS 20 LOADING:

			REACTION	R x DF x I
MIDSPAN:	575.000 k-ft.	TRUCK:	57.853 kips	67.207 kips
MAX:	583.253 k-ft.	LANE:	41.200 kips	48.374 kips

	REACTION	MOMENT
TOTAL LL+I =	67.207 kips	617.991 k-ft.
	MAX TOTAL LL+I =	**626.860 k-ft.**

BRIDGE: **I-575 over Noonday Creek South**
COUNTY: **COBB**
P.I. NO: **713640**
PROJECT: **NH000-0575-01(028)**

J.B. TRIMBLE, INC.

JOB NO: **255717**
DESIGNED BY: **WBN**
CHECKED BY: **JCR**

SUMMARY OF DEAD & LIVE LOADINGS:

NON-COMPOSITE DEAD LOADS PER BEAM:

INT. SLAB $_{WEIGHT}$ =	0.974 klf
INT. COP$_{WEIGHT}$ =	0.014 klf
INT. SIP$_{WEIGHT}$ =	0.131 klf
INT. BEAM$_{WEIGHT}$ =	0.384 klf
TOTAL N-COMP. DL =	**1.503 klf**

SUPERIMPOSED DEAD LOADS PER BEAM:

LEFT BARRIER WEIGHT =	#DIV/0!
LEFT FENCING WEIGHT =	#DIV/0!
MEDIAN WEIGHT =	0.118 klf
RIGHT BARRIER WEIGHT =	#DIV/0!
RIGHT FENCING WEIGHT =	#DIV/0!
FWS WEIGHT =	0.275 klf
DECK OVERLAY WT. =	0.000 klf
UTILITY WEIGHT =	0.000 klf
TOTAL SUPERIMPOSED DL =	**0.393 klf**

LOADING RESULTS

	LOADING	REACTION	MOMENT
TOTAL N-COMP. DL =	1.503 klf	35.760 kips	425.400 k-ft
TOTAL SUPERIMPOSED DL =	0.393 klf	9.350 kips	111.228 k-ft
TOTAL POINT DL =		9.040 kips	29.358 k-ft
TOTAL DL =	**1.896 klf**	**54.151 kips**	**565.986 k-ft**
LEFT SW LL =	0.000 klf	0.000 kips	0.000 k-ft
RIGHT SW LL =	0.000 klf	0.000 kips	0.000 k-ft
TOTAL SW LL =	**0.000 klf**	**0.000 kips**	**0.000 k-ft**
MAX OF TRUCK OR LANE LL+I =		**67.207 kips**	**617.991 k-ft**
TOTAL DL + SW LL + (LL + I) =		**121.358 kips**	**1183.977 k-ft.**

Description: Type II at 9.167ft
Design Span Length: 47.583 ft.
Span No.: 1 Center

SUMMARY OF PROGRAM INPUT:

SIMPLE SPAN PROGRAM INPUT:

INTERIOR BEAM

LENGTH =	47.583 ft.	$f'_{C\ BEAM}$ =	5500 psi
Moment Dist. Factor (DFM) =	1.667	$f'_{CI\ BEAM}$ =	5300 psi
End Shear Dist. Factor (DFV) =	1.909	SIT =	0.218 k / in^2
LL Deflection Dist. Factor (DFD) =	0.825	SFB =	0.445 k / in^2
Non- Composite DL (W_{DLNC}) =	1.119 klf	E_{BM} =	4.5 x 10^6 psi
Composite DL (W_{DLC}) =	0.393 klf	E_{SLAB} =	3.59 x 10^6 psi
Sidewalk LL (W_{swk}) =	0.000 klf		
Effective Concrete Width (W_f) =	110.00 in.		
Concrete Slab Thickness (T_f) =	8.250 in.		
Minimum Coping (Df) =	0.750 in.		

P-LOADS:	P1	P2	P3	P4	P5
X	0.000 ft.	23.792 ft.	47.583 ft.	N/A	N/A
LOAD	7.806 kips	2.468 kips	2.922 kips	N/A	N/A

CALCULATION SHEET

PROJECT: I-75 / I-575 NORTHWEST CORRIDOR
JOB NUMBER NH000-0575-01(028)
CALC NO. BR#36

SUBJECT: Beam Design Input - Span 2 SHEET NO.
BY: JCR DATE: 11/30/2009 SHEET REV.

Sufficient sample calculations representative of the scope and conditions in the design calculation were performed and the results compared to demonstrate the computer program adequacy.

BRIDGE: **I-575 over Noonday Creek South**
COUNTY: **COBB**
P.I. NO: **713640**
PROJECT: **NH000-0575-01(028)**

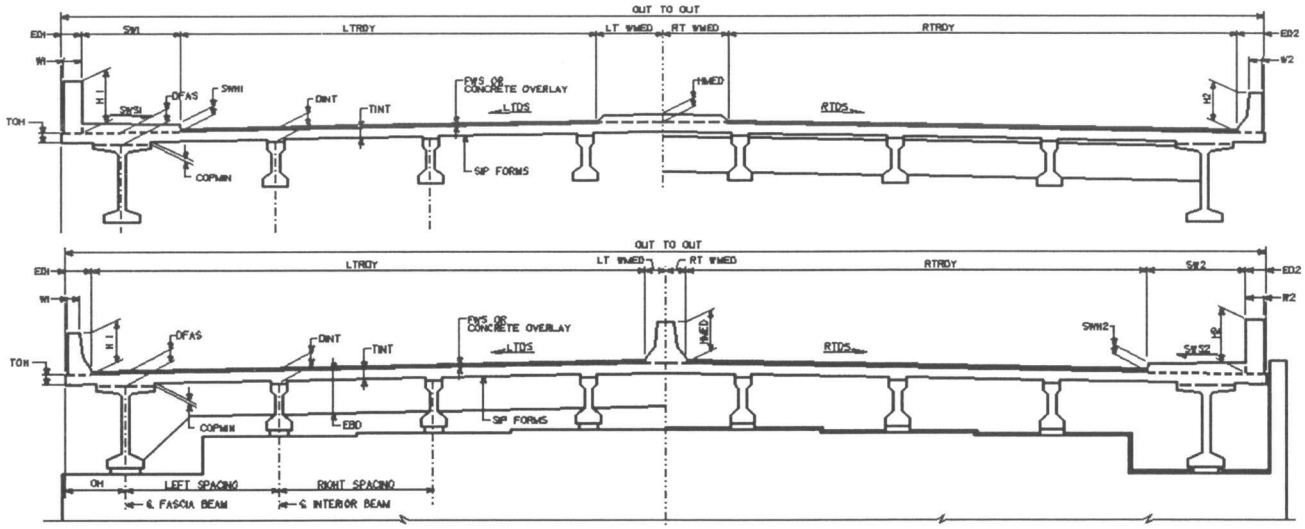
J.B. TRIMBLE, INC.

JOB NO: **255717**
DESIGNED BY: **WBN**
CHECKED BY: **JCR**

✓ JCR
10-5-09

Description: Type III at 9.167ft
Design Span Length: 68.167 ft.
Span No.: 2 Center

TYPICAL DECK SECTIONS:



SECTION THRU EDGE BEAM **SECTION THRU ENDWALL**

Description: Type III at 9.167ft
Design Span Length: 68.167 ft.
Span No.: 2 Center

NON-COMPOSITE DEAD LOADS PER BEAM:

SLAB:

D_{INT} =	10.25 in.
T_{INT} =	8.375 in. ✓
INTEGRAL WEARING SURFACE THICKNESS =	0.25 in. ✓
DESIGN T_{INT} =	8.125 in. ✓
INT. COP_{MIN} =	0.75 in. ✓
INT. COP_{MAX} =	1.875 in.
INT. COP. DEPTH DESIGN METHOD:	Average Coping
INT. COP_{WIDTH} =	16 in. ✓
AVG. INT. COP DEPTH =	1.3125 in. ✓
SIP FORMS:	Yes
SLAB $CONC._{WEIGHT}$ =	0.150 k/ft^3 ✓
BEAM $CONC._{WEIGHT}$ =	0.150 k/ft^3 ✓

INT. $SLAB_{WEIGHT}$ =	0.960 klf ✓
INTEGRAL WEARING $SURFACE_{WEIGHT}$ =	0.029 klf ✓
INT. COP_{WEIGHT} =	0.022 klf ✓
INT. SIP_{WEIGHT} =	0.125 klf ✓
INT. $BEAM_{WEIGHT}$ =	0.583 klf ✓
NON-COMPOSITE DEAD LOAD PER BEAM =	1.690 klf ✓

INTERIOR BEAM PROPERTIES:

INT. BEAM TYPE: Type III ✓

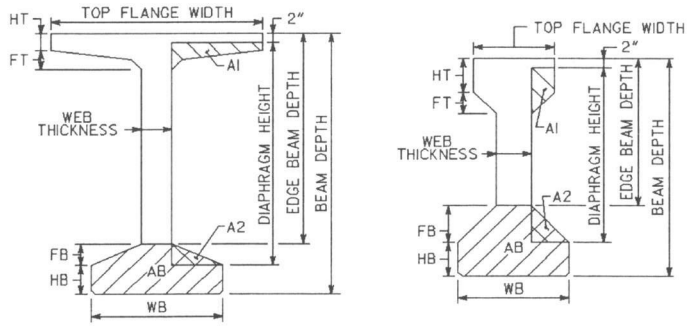
Top Flange Width =	16 in.
Beam Depth =	45 in.
Web Thickness =	7 in.
H_T =	7 in.
F_T =	4.5 in.
H_B =	7 in.
W_B =	22 in.
F_B =	7.5 in.
E.B. Depth (no coping) =	30.5 in.
Diaphragm Height =	36 in.
Cross Sectional Area =	559.5 in^2
A1 =	32.625 in^2
A2 =	28.125 in^2
AB =	262.75 in^2
INT. $BEAM_{WEIGHT}$ =	0.583 klf

CONCRETE STRENGTHS:

$f'_{C\ BEAM}$ =	5500 psi
$f'_{CI\ BEAM}$ =	5000 psi
$f'_{C\ SLAB}$ =	3500 psi
SIT =	0.212 k / in^2
SFB =	0.445 k / in^2

TYPE OF STRANDS = 0.5 in. dia. low-relax — 0.167 sq. in.
DRAPED STRANDS ? Yes

RB_{FPU} =	0.75
RT_{FPU} =	0.75



DEFINITION OF BEAM AREAS FOR EB. & DIAPH. CALCS

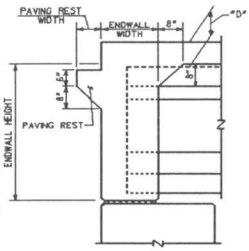
BRIDGE: **I-575 over Noonday Creek South**
COUNTY: **COBB**
P.I. NO: **713640**
PROJECT: **NH000-0575-01(028)**
Description: Type III at 9.167ft
Design Span Length: 68.167 ft.
Span No.: 2 Center

J.B. TRIMBLE, INC.

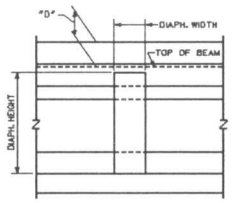
JOB NO: **255717**
DESIGNED BY: **WBN**
CHECKED BY: **JCR**

EW., DIAPH., EDGE BEAM DIMENSIONS & CALCS:

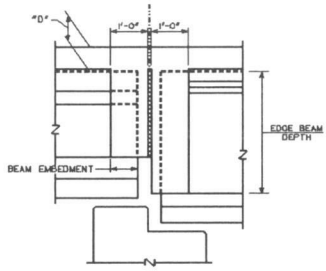
SPAN TYPE: Intermediate Span



SECTION AT ENDWALL



SECTION THRU DIAPHRAGM



SECTION THRU EDGE BEAM

		# DIAPHRAGMS
DIAPH. WIDTH =	10 in.	
DIAPH. HEIGHT =	36 in.	1
INT. DIAPH. WEIGHT =	3.113 kips	
INT. EB. HEIGHT =	32.375 in.	
INT. EB. WIDTH =	12 in.	
BM. EMBED. FOR EB. =	0 in.	
INT. EB. WEIGHT =	3.710 kips	

INT. P-LOADS:	LOAD	POSITION	REACTION	MOMENT
EB. =	3.710 kips	0.00 ft.	3.710 kips	0.000 k-ft.
DIAPH. =	3.113 kips	34.08 ft.	1.557 kips	53.056 k-ft.
DIAPH. =	N/A	N/A	N/A	N/A
DIAPH. =	N/A	N/A	N/A	N/A
EB. =	3.710 kips	68.17 ft.	0.000 kips	0.000 k-ft.
	TOTAL POINT DEAD LOAD PER BEAM =		5.266 kips	53.056 k-ft.

DECK SECTION DIMENSIONS & CALCS:

LEFT BARRIER
BARRIER TYPE: None
FENCING OPTION: None
ED_1 = 0.000 ft.
W_1 = 0 ft.
H_1 = 0 ft.
LTDS = 1.0417 %

MEDIAN
MEDIAN TYPE: HOV Barrier

RIGHT BARRIER
BARRIER TYPE: None
FENCING OPTION: None
ED_2 = 0.000 ft.
W_2 = 0 ft.
H_2 = 0 ft.
RTDS = 1.0417 %

IS MEDIAN BARRIER CENTERED? No
OFFSET TO LEFT OR RIGHT? Right
OFFSET DISTANCE = 15.5 ft.

BRIDGE TYPE = Bridge Widening
SPAN LENGTH = 68.167 ft.
SKEW ANGLE = 90.0000 degrees

LEFT SPACING = 9.1667 ft.
RIGHT SPACING = 9.1667 ft.
LEFT OVERHANG = 0 ft.
RIGHT OVERHANG = 3.9167 ft.
LEFT OFFSET TO BARRIER = 1.5 in.
RIGHT OFFSET TO BARRIER = 1.5 in.
SPACING TO SET BEAM = 3.9167 ft.
NO. OF NEW BEAMS = 6 beams
NO. OF BEAMS IN EXISTING BRIDGE = 14 beams
NO. OF SET BEAMS W/ COMP. LOADS = 0 beams
TOTAL NO. OF BEAMS SUPPORTING WIDENING = 6 beams
NO. OF NEW BAYS = 6 bays

WIDENED BRIDGE OUT TO OUT = 53.667 ft.
EXISTING BRIDGE OUT TO OUT = 84.083 ft.
FINISHED BRIDGE OUT TO OUT = 137.750 ft.

NOTE: BRIDGE WIDENING IS TO ONE SIDE ONLY !

Ignore Median only for RDWY Width Calculations = Yes Width of Median = 4 ft.

LT RDWY = 83.375 ft.
RT RDWY = 52.375 ft.

TOTAL WIDENED RDWY WIDTH = 139.750 ft. Including median width

Description: Type III at 9.167ft
Design Span Length: 68.167 ft.
Span No.: 2 Center

SUPERIMPOSED DEAD LOADS:

LEFT BARRIER
BARRIER WEIGHT = 0.000 klf
FENCING WEIGHT = 0.000 klf

MEDIAN
MEDIAN WEIGHT = 0.472 klf ✓

RIGHT BARRIER
BARRIER WEIGHT = 0.000 klf
FENCING WEIGHT = 0.000 klf

NOTE: BARRIER WEIGHT INCLUDES SIDEWALK WEIGHT, IF PRESENT

FWS DESIGN METHOD: Avg. Beam Sp.

WEIGHT OF FWS = 30 lb/sf

DECK OVERLAY: No
AVG. THICKNESS = 0 in.

OUT TO OUT DIST. GREATER THAN 66'-5, DISTRIBUTE BARRIER DL et. al. ONTO OUTER BEAMS!

BEAM ON CENTERLINE ? No

DIST. MEDIAN AND/OR BARR. TO ALL BEAMS ? No

OVERRIDE NO. OF BM. TO DIST. LT BARRIER ? No
NO. OF BEAMS DIST. TO LT BARRIER = 0 beams

OVERRIDE NO. OF BM. TO DIST. MED. BARRIER ? Yes
NO. OF BEAMS DIST. TO MED. BARRIER = 4 beams ✓

OVERRIDE NO. OF BM. TO DIST. RT BARRIER ? No
NO. OF BEAMS DIST. TO RT BARRIER = 0 beams

BEAMS SUPPORTING LT BARRIER

BEAMS SUPPORTING MED BARRIER
BM 13 - BM 15

BEAMS SUPPORTING RT BARRIER

SUPERIMPOSED LOADS PER BRIDGE:
FWS WEIGHT = 4.193 klf per bridge
DECK OVERLAY WT. = 0.000 klf per bridge
UTILITY WEIGHT TO SUPERSTRUCTURE = 0.000 klf per bridge
TOTAL SUPERIMPOSED DEAD LOAD = 4.664 klf per bridge

SUPERIMPOSED LOADS PER BEAM:
FWS WEIGHT = 0.275 klf per beam
DECK OVERLAY WT. = 0.000 klf per beam
UTILITY WEIGHT TO SUPERSTRUCTURE = 0.000 klf per beam

LT BARRIER DEAD LOAD = 0.000 klf per beam
MED. BARRIER DEAD LOAD = 0.118 klf per beam
RT BARRIER DEAD LOAD = 0.000 klf per beam

MEDIAN BARRIER LOADING GOVERNS DESIGN

CONTROLLING SUPERIMPOSED DEAD LOAD = 0.393 klf per beam

DOUBLED LOADING CASES

	BARRIER ONLY	RAISED MEDIAN	MED. BAR.
WITHOUT OVERRIDE	0.000 klf per beam	0.000 klf per beam	0.000 klf per beam
WITH OVERRIDE	0.000 klf per beam	0.236 klf per beam	0.000 klf per beam

BRIDGE: **I-575 over Noonday Creek South**
COUNTY: **COBB**
P.I. NO: **713640**
PROJECT: **NH000-0575-01(028)**

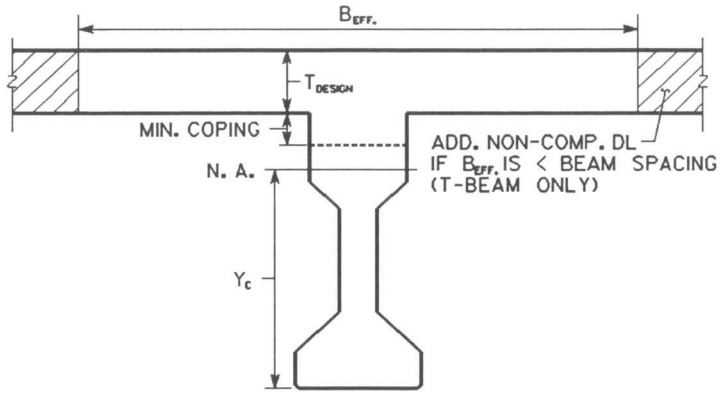
J.B. TRIMBLE, INC.

JOB NO: **255717**
DESIGNED BY: **WBN**
CHECKED BY: **JCR**

COMPOSITE SECTION MODULUS CALC:

SPAN LENGTH = **68.167 ft.**

BEAM MOMENT OF INERTIA =	125,390 in^4
BEAM Y_{BN} =	20.27 in.
INT. COP_{MIN} =	0.75 in.
DESIGN T_{INT} =	8.125 in.
E_{BM} =	4.5 x 10^6 psi
E_{SLAB} =	3.59 x 10^6 psi
modular ratio =	1.25



AASHTO 8.10.1.1 - Compression Flange Width

wBM FLANGE =	16.00	in.
B_{eff} = Bm Spacing =	**110.00**	**in. CONTROLS**
B_{eff} = ¼ Span Length =	**204.50**	in.
B_{eff} = WBM FLANGE + 2[6 tSLAB] =	**113.50**	in.
Add. Non-Comp. DL (WDLNC) =	0.000 klf	(T-Beam Only)
Y_C =	36.89 in.	
COMPOSITE MOM. OF INERTIA =	403,617 in^4	

COMPOSITE SECTION MODULI:

SECTION MOD. AT TOP OF SLAB =	23,759 in^3
SECTION MOD. AT TOP OF BEAM =	49,750 in^3
SECTION MOD. AT BOT. OF BEAM =	10,942 in^3

Description: Type III at 9.167ft
Design Span Length: 68.167 ft.
Span No.: 2 Center

DISTRIBUTION & DEFLECTION FACTOR CALCS:

DISTRIBUTION FACTOR CALCS:

MOMENT	1.667	WHEEL
	0.833	AXLE
SHEAR	1.909	WHEEL
	0.955	AXLE

DEFLECTION FACTOR CALCS:

ALLOW USER TO DEFINE NO. OF LANES ?	Yes	
USER DEFINED NO. OF LANES =	11	9.1667 ft.
		9.1667 ft.
ALLOW USER TO DEFINE NO. OF BEAMS ?	Yes	
USER DEFINED NO. OF BEAMS =	20	-> 20 beams will be used for DFD calcs.
REDUCTION FACTOR =	0.75	
DFD =	0.825	

(ASHTO 8.7.3) =

LIVE LOAD CALCS:

LEFT SIDEWALK LIVE LOAD:

		REACTION	MOMENT
SW_1 =	0 ft.	0.00 kips	0.000 k-ft.
LEFT SW. LL. =	0.060 kips / ft^2		
SW LL PER BEAM =	0.000 klf		

IMPACT FACTOR: 1.26

RIGHT SIDEWALK LIVE LOAD:

		REACTION	MOMENT
SW_2 =	0 ft.	0.00 kips	0.000 k-ft.
RIGHT SW. LL. =	0.060 kips / ft^2		
SW LL PER BEAM =	0.000 klf		

HS 20 LOADING:

			REACTION	R x DF x I
MIDSPAN:	944.000 k-ft.	TRUCK:	62.118 kips	70.072 kips
MAX:	949.765 k-ft.	LANE:	47.760 kips	54.125 kips

	REACTION	MOMENT
TOTAL LL+I =	70.072 kips	990.294 k-ft.
	MAX TOTAL LL+I =	**996.341 k-ft.**

BRIDGE: **I-575 over Noonday Creek South**
COUNTY: **COBB**
P.I. NO: **713640**
PROJECT: **NH000-0575-01(028)**

J.B. TRIMBLE, INC.

JOB NO: **255717**
DESIGNED BY: **WBN**
CHECKED BY: **JCR**

SUMMARY OF DEAD & LIVE LOADINGS:

NON-COMPOSITE DEAD LOADS PER BEAM:

INT. SLAB $_{WEIGHT}$ =	0.960 klf
INT. COP$_{WEIGHT}$ =	0.022 klf
INT. SIP$_{WEIGHT}$ =	0.125 klf
INT. BEAM$_{WEIGHT}$ =	0.583 klf
TOTAL N-COMP. DL =	**1.690 klf**

SUPERIMPOSED DEAD LOADS PER BEAM:

LEFT BARRIER WEIGHT =	#DIV/0!
LEFT FENCING WEIGHT =	#DIV/0!
MEDIAN WEIGHT =	0.118 klf
RIGHT BARRIER WEIGHT =	#DIV/0!
RIGHT FENCING WEIGHT =	#DIV/0!
FWS WEIGHT =	0.275 klf
DECK OVERLAY WT. =	0.000 klf
UTILITY WEIGHT =	0.000 klf
TOTAL SUPERIMPOSED DL =	**0.393 klf**

LOADING RESULTS

	LOADING	REACTION	MOMENT
TOTAL N-COMP. DL =	1.690 klf	57.589 kips	981.417 k-ft
TOTAL SUPERIMPOSED DL =	0.393 klf	13.395 kips	228.269 k-ft
TOTAL POINT DL =		5.266 kips	53.056 k-ft
TOTAL DL =	**2.083 klf**	**76.250 kips**	**1262.742 k-ft**
LEFT SW LL =	0.000 klf	0.000 kips	0.000 k-ft
RIGHT SW LL =	0.000 klf	0.000 kips	0.000 k-ft
TOTAL SW LL =	**0.000 klf**	**0.000 kips**	**0.000 k-ft**
MAX OF TRUCK OR LANE LL+I =		**70.072 kips**	**990.294 k-ft**
TOTAL DL + SW LL + (LL + I) =		**146.322 kips**	**2253.036 k-ft.**

Description: Type III at 9.167ft
Design Span Length: 68.167 ft.
Span No.: 2 Center

SUMMARY OF PROGRAM INPUT:

SIMPLE SPAN PROGRAM INPUT:

INTERIOR BEAM

LENGTH =	68.167 ft.	$f'_{C\ BEAM}$ =	5500 psi
Moment Dist. Factor (DFM) =	1.667	$f'_{CI\ BEAM}$ =	5000 psi
End Shear Dist. Factor (DFV) =	1.909	SIT =	0.212 k / in^2
LL Deflection Dist. Factor (DFD) =	0.825	SFB =	0.445 k / in^2
Non- Composite DL (W_{DLNC}) =	1.107 klf	E_{BM} =	4.5 x 10^6 psi
Composite DL (W_{DLC}) =	0.393 klf	E_{SLAB} =	3.59 x 10^6 psi
Sidewalk LL (W_{swk}) =	0.000 klf		
Effective Concrete Width (W_f) =	110.00 in.		
Concrete Slab Thickness (T_f) =	8.125 in.		
Minimum Coping (Df) =	0.750 in.		

P-LOADS:	P1	P2	P3	P4	P5
X	0.000 ft.	34.083 ft.	68.167 ft.	N/A	N/A
LOAD	3.710 kips	3.113 kips	3.710 kips	N/A	N/A

CALCULATION COVER SHEET

PROJECT	JOB NO.	CALC NO.	SHEET
I-75 / I-575 NORTHWEST CORRIDOR	NH000-0575-01(028)	BR#36	1
SUBJECT	DISCIPLINE		
Beam Design Output	STRUCTURAL		

CALCULATION STATUS DESIGNATION	PRELIMINARY	CONFIRMED	SUPSEDED	VOIDED	INCOMPLETE
	☐	☐	☐	☐	X

COMPUTER PROGRAM/TYPE	SCP	MAINFRAME	PC	PROGRAM	VERSION/RELEASE NO.
	(X) YES ( ) NO	( )	(X)	GDOT BRPSBM1	06/26/2008

Note 1: Georgia Department of Transportation (GDOT) terminated Contract Number TOURDPPI60072 for its convenience the completion of all work under that contract and directed that the work with respect to these calculations be discontinued.
(a) These calculations were not completed at the time of GDOT's direction and the information contained herein is not and/or has not been fully verified or checked. These calculations are a work-in-progress and are presented only as such.
(b) Any user is cautioned that the use of these calculations and any related information or calculations, without access to factors and without proper regard for their purpose, could lead to erroneous conclusions.
(c) If any such calculations or any information contained herein is used in future work efforts or any follow on design work a complete confirmation of the information contained herein should be performed prior to any such use.
(d) GTP has no responsibility for the use of this information not under its direct control.

Beam design ouptput is included for spans 1&3, and span 2.

NO.	REASON FOR REVISION	TOTAL NO. OF SHEETS	LAST SHEET NO.	BY	CHECKED	APPROVED/ ACCEPTED	DATE
A	As per GDOT's termination for convenience direction	15	15	JCR			11/30/09

RECORD OF REVISIONS

CALCULATION SHEET

PROJECT: I-75 / I-575 NORTHWEST CORRIDOR
JOB NUMBER NH000-0575-01(028)
CALC NO. BR#36

SUBJECT: Beam Design Output - Spans 1&3 SHEET NO.
BY: JCR DATE: 11/30/2009 SHEET REV.

Sufficient sample calculations representative of the scope and conditions in the design calculation were performed and the results compared to demonstrate the computer program adequacy.

GEORGIA DEPARTMENT OF TRANSPORTATION
PRECONSTUCTION DIVISION - OFFICE OF BRIDGE & STRUCTURAL DESIGN
THE ANALYSIS OR DESIGN OF SIMPLE SPAN PRESTRESSED BEAMS
REVISED: JUNE 26, 2008

PROB. NO. INT.

10-5-09 JCR

255717 I-575 over Noonday Creek South Span 1 or 3

SPAN DATA

D/A	LL CLASS	LL SK.	LENGTH	DFM	DFV	DFD	WDLNC	WDLC	WSWK	F'C	F'CI	NPL	SIT	SFB	SFTE
D	HS20	0 0 0	47.583	1.667	1.909	0.825	1.119	0.393	0.000	5.500	5.300	3	-0.218	-0.445	-0.001

BEAM DATA

BEAM DIMENSIONS								*	COMPOSITE SLAB			*	(E X 1,000,000)		*	STIRRUP	DECK	
WT	HT	FT	WS	HB	WB	FB	DB	*	WF	TF	DF	*	E BEAM	E SLAB	*	SIZE	PANEL	FSY
12.00	6.00	3.00	6.00	6.00	18.00	6.00	36.00		110.00	8.250	0.750		4.50	3.59		5	0	60.

STRAND DATA

TYPE	NST	XDIST	ACTUAL NO. OR MAX. NO. OF STRANDS PER ROW																		ASB	AST	DIAM	TCL	BCL	SPAC.
0	2	0.5830	6	6	4	4	2	2	2	2	2	2	2	2	2	2	2	2	2	2	0.1670	0.1670	0.500	2.50	3.00	2.00

RBFPU	BFPU	IBLOSS	FBLOSS	RTFPU	TFPU	ITLOSS	FTLOSS	WTC	LOW LAX	ITLENGTH	FTLENGTH	DLENGTH
.75	270.00	0.00	0.00	.75	270.00	0.00	0.00	.150	1	0.00	0.00	0.00

DEBONDING DATA

DEBOND ACT. # AND LENGTH OR MAX. # AND LENGTH OF STRANDS DEBONDED PER ROW

0 0 .00

0 .00 0 .00

DRAPE DATA

DRAPED	MAX RAISE	HOLD DOWN PT.	ACT. # OR MAX. # OF STRANDS DRAPED PER ROW																				
0	0.00	.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

P-LOADS

XP1	P1	XP2	P2	XP3	P3	XP4	P4	XP5	P5
0.000	7.806	23.792	2.468	47.583	2.922				

MOMENTS AT SPAN TWENTIETH POINTS - KIP-FEET

LOADS	BRNG	0.05 L	0.10 L	0.15 L	0.20 L	0.25 L	0.30 L	0.35 L	0.40 L	0.45 L	0.50 L
UNIFORM D.L. BEAM	0.000	20.669	39.163	55.480	69.622	81.589	91.379	98.994	104.434	107.697	108.785
UNIFORM D.L. NON-C.	0.000	60.172	114.011	161.515	202.686	237.523	266.025	288.194	304.029	313.530	316.697
CONCENTRATED P-LOADS	0.000	2.936	5.872	8.807	11.743	14.679	17.615	20.551	23.486	26.422	29.358
UNIFORM D.L. COMP.	0.000	21.133	40.041	56.725	71.185	83.419	93.430	101.216	106.777	110.114	111.226
LIVE LOAD + IMPACT	0.000	138.816	259.218	361.205	444.779	509.938	556.683	591.033	619.009	628.571	619.718
TOTAL D.L. + L.L.	0.000	243.726	458.304	643.734	800.015	927.148	1025.132	1099.988	1157.735	1186.334	1185.784

STRESSES AT SPAN TWENTIETH POINTS - KIPS PER SQ.IN.

LOADS		BRNG	0.05 L	0.10 L	0.15 L	0.20 L	0.25 L	0.30 L	0.35 L	0.40 L	0.45 L	0.50 L
UNIFORM D.L. BEAM	TOP	0.000	0.098	0.186	0.263	0.331	0.387	0.434	0.470	0.496	0.511	0.517
	BOT	0.000	-0.077	-0.146	-0.207	-0.259	-0.304	-0.340	-0.369	-0.389	-0.401	-0.405
TOTAL NONCOMP. D.L.	TOP	0.000	0.398	0.755	1.072	1.349	1.585	1.781	1.936	2.051	2.125	2.160
	BOT	0.000	-0.312	-0.593	-0.841	-1.058	-1.244	-1.397	-1.519	-1.609	-1.668	-1.695
TOTAL COMP.D.L.+L.L.	TOP	0.000	0.033	0.062	0.086	0.106	0.122	0.134	0.143	0.150	0.152	0.151
	BOT	0.000	-0.299	-0.559	-0.780	-0.963	-1.108	-1.214	-1.292	-1.355	-1.379	-1.364
TOTAL COMP.+NONCOMP.	TOP	0.000	0.431	0.817	1.158	1.455	1.707	1.915	2.079	2.201	2.278	2.310
	BOT	0.000	-0.611	-1.151	-1.622	-2.022	-2.351	-2.611	-2.811	-2.964	-3.047	-3.059

SHEARS AT SPAN TWENTIETH POINTS - KIPS

LOADS	BRNG	0.05 L	0.10 L	0.15 L	0.20 L	0.25 L	0.30 L	0.35 L	0.40 L	0.45 L	0.50 L
UNIFORM D.L. BEAM	9.145	8.230	7.316	6.401	5.487	4.572	3.658	2.743	1.829	0.914	0.000
UNIFORM D.L. NON-C.	26.623	23.960	21.298	18.636	15.974	13.311	10.649	7.987	5.325	2.662	0.000
CONCENTRATED P-LOADS	9.040	1.234	1.234	1.234	1.234	1.234	1.234	1.234	1.234	1.234	1.234
UNIFORM D.L. COMP.	9.350	8.415	7.480	6.545	5.610	4.675	3.740	2.805	1.870	0.935	0.000
LIVE LOAD + IMPACT	67.211	58.530	54.824	51.011	47.110	43.209	39.308	35.408	31.507	27.939	24.472
TOTAL D.L. + L.L.	121.368	100.370	92.152	83.827	75.414	67.002	58.589	50.177	41.764	33.685	25.706

BEAM PROPERTIES

* NON-COMPOSITE BEAM PROPERTIES *							* COMPOSITE BEAM PROPERTIES *						
I	YT	YB	ST	SB	A	W	* I	YT	YB	ST	SB	A	QS
50978.7	20.171	15.829	2527.4	3220.5	369.00	0.384	* 208408.6	3.581	32.419	58204.2	6428.5	1092.98	6121.74

STRAND AND MISC. DATA

MAX # STRDS *	ACT # STRDS *	MIN # STRDS *	E @ C.L. *	E @ END *	PS *	ASE *	NS(EACT-EEND) *	BPI *	BPF *	TPI *	TPF
22	20	18	7.779	7.779	0.91%	1.25	0.000	563.982	475.561	62.665	52.840

MOMENTS(K-FT.) AND SHEARS(KIPS), STIRRUP SPACING, STRESSES(KSI) AT SPAN TWENTIETH POINTS

LOADS	BRNG	0.05 L	0.10 L	0.15 L	0.20 L	0.25 L	0.30 L	0.35 L	0.40 L	0.45 L	0.50 L
ULT. MOMENT REQD.	0.000	437.156	820.460	1149.911	1425.509	1647.255	1815.148	1942.233	2041.551	2087.016	2078.629
ULT. MOMENT FURN.	242.407	1210.387	2144.857	2644.867	2644.867	2644.867	2644.867	2644.867	2644.867	2644.867	2644.867
1.2*CRACKING MOMENT	819.518	1998.487	1908.518	1828.721	1759.095	1699.641	1650.359	1611.248	1582.309	1563.543	1554.948
DIST. TO N.A.(IN.)	0.192	0.971	1.740	2.158	2.158	2.158	2.158	2.158	2.158	2.158	2.158
MAX STEEL RATIO	0.004	0.022	0.040	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050
ULT. COMP. SHEAR	157.780	137.757	128.511	119.033	109.366	99.699	90.031	80.364	70.697	61.751	53.023
ULT. TOTAL SHEAR	216.030	181.209	167.314	153.186	138.869	124.552	110.235	95.917	81.600	68.005	54.627
BEAM SHEAR CAPACITY	59.210	84.813	103.600	120.177	134.544	104.700	80.600	62.866	48.912	37.951	28.710
MIN. STIRRUP AREA	0.979	0.631	0.445	0.271	0.107	0.182	0.227	0.237	0.226	0.204	0.173
STRP.(#5) SPAC.(IN.)	7.602*	11.796	12.000	24.000	24.000	24.000	24.000	24.000	24.000	24.000	24.000
PRESTRESS STRESS TOP	-0.052	-0.231	-0.231	-0.231	-0.231	-0.231	-0.231	-0.231	-0.231	-0.231	-0.231
BOT	0.719	3.212	3.212	3.212	3.212	3.212	3.212	3.212	3.212	3.212	3.212
INITIAL STRESSES TOP	-0.052	-0.132	-0.045	0.033	0.100	0.157	0.203	0.239	0.265	0.281	0.286
BOT	0.719	3.135	3.066	3.005	2.952	2.908	2.871	2.843	2.823	2.811	2.807
FINAL STRESSES TOP	-0.052	0.236	0.622	0.964	1.261	1.513	1.720	1.884	2.006	2.083	2.116
BOT	0.719	2.098	1.557	1.087	0.687	0.357	0.097	-0.103	-0.256	-0.339	-0.351
FINAL # TOP STRANDS	0.531	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000
FINAL # BOT STRANDS	4.776	18.000	18.000	18.000	18.000	18.000	18.000	18.000	18.000	18.000	18.000
DEVELOP. # TOP STRDS	0.175	0.891	1.606	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000
DEVELOP. # BOT STRDS	1.578	8.018	14.458	18.000	18.000	18.000	18.000	18.000	18.000	18.000	18.000

* - FOR "ASE" REQUIREMENTS WITHIN A MAXIMUM DISTANCE OF 6.987" (D/4) FROM THE END OF BEAM USE EITHER
3 LOCATIONS OF 2-#5 STIRRUPS AT A MAXIMUM SPACING OF 2.494" OR
2 LOCATIONS OF 2-#6 STIRRUPS AT A MAXIMUM SPACING OF 4.987" USING 2" CL. FROM END OF BEAM

DEFLECTIONS(INCHES) AT CENTER LINE OF SPAN

BEAM	WDLNC	P-LOADS	WDLC	INITIAL	FINAL	SIDEWALK	TRUCK	LANE	MILITARY	RAILROAD	PRESTR.	CAMBER
0.193	0.563	0.042	0.048	-0.673	0.116	0.000	0.129	0.081	0.105	0.000	-0.866	-1.210

MAXIMUM, ACTUAL AND MINIMUM ECCENTRICITIES(INCHES)AT SPAN TWENTIETH POINTS

ITEM	BRNG	0.05 L	0.10 L	0.15 L	0.20 L	0.25 L	0.30 L	0.35 L	0.40 L	0.45 L	0.50 L
MAX ECC, SIT= -218	10.779	8.124	8.478	8.791	9.062	9.291	9.478	9.624	9.728	9.791	9.812
MAX ECC, SIB= 3180	64.320	8.011	8.365	8.678	8.949	9.178	9.365	9.511	9.615	9.678	9.698
INITIAL ECCENTRICITY	7.779	7.779	7.779	7.779	7.779	7.779	7.779	7.779	7.779	7.779	7.779
FINAL ECCENTRICITY	7.779	7.779	7.779	7.779	7.779	7.779	7.779	7.779	7.779	7.779	7.779
MIN ECC, SFT= 2200	-32.810	-1.613	0.234	1.867	3.286	4.492	5.484	6.269	6.852	7.221	7.377
MIN ECC, SFB= -445	-18.950	-7.718	-4.423	-1.557	0.881	2.891	4.473	5.696	6.627	7.130	7.206

```
*  SPAN  * * * * * * * * * * * * * * * * * * * * ECCENTRICITY PLOT (INCHES) * * * * * * * * * * * * * * * * * * * * *
                                                  1    1    1    1    1    1    1    1    1    1    2    2    2    2    2
* POINTS *0....1....2....3....4....5....6....7....8....9....0....1....2....3....4....5....6....7....8....9....0....1....2....3....4
* 0.00 L *                                      +              *
* 0.05 L *                                      +*
* 0.10 L * *                                    +  *
* 0.15 L *         *                            +   *
* 0.20 L *               *                      +     *
* 0.25 L *                     *                +      *
* 0.30 L *                           *          +       *
* 0.35 L *                                 *    +        *
* 0.40 L *                                   *  +        *
* 0.45 L *                                    * +        *
* 0.50 L *                                     *+        *
*  *  *  *      * = MAX. AND MIN. ECCENTRICITY, + = ACTUAL ECCENTRICITY, HOLD-DOWN POINT IS  0.00 FEET FROM CENTER LINE OF SPAN
```

STRAND ARRANGEMENT (TOP STRANDS NOT SHOWN)= 2

```
        + +
      + + + +
    + + + + + +
    + + + + + +
```

```
*  SPAN  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *STRAND ARRANGEMENT (INCHES) *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *
                                 1 1 1 1 1 1 1 1 1 1 2 2 2 2 2 2 2 2 2 2 3 3 3 3 3 3 3 3 3 3 4 4 4 4 4 4 4 4 4 4 5 5 5 5 5 5 5 5 5 5 6
* POINTS *0.1.2.3.4.5.6.7.8.9.0.1.2.3.4.5.6.7.8.9.0.1.2.3.4.5.6.7.8.9.0.1.2.3.4.5.6.7.8.9.0.1.2.3.4.5.6.7.8.9.0.1.2.3.4.5.6.7.8.9.0

*  END   *      +   +   +   +

*  BRNG  *      +   +   +   +


* 0.05 L *      +   +   +   +


* 0.10 L *      +   +   +   +


* 0.15 L *      +   +   +   +


* 0.20 L *      +   +   +   +


* 0.25 L *      +   +   +   +


* 0.30 L *      +   +   +   +


* 0.35 L *      +   +   +   +


* 0.40 L *      +   +   +   +


* 0.45 L *      +   +   +   +


* 0.50 L *      +   +   +   +
```

FINAL STRAND ARRANGEMENT AT END

ROW	TOTAL #STRDS	VER DIST-STRAIGHT STRDS	#RAISED STRDS	VER DIST-RAISED STRDS	#DEB 1	DEB LENGTH 1	#DEB 2	DEB LENGTH 2
1	6	3.000	0	0.000	0	0.00L	0	0.00L
2	6	5.000	0	0.000	0	0.00L	0	0.00L
3	4	7.000	0	0.000	0	0.00L	0	0.00L
4	2	9.000	0	0.000	0	0.00L	0	0.00L
TOP	2	33.500						

INITIAL TRANSFER LENGTH = 2.606 FT

FINAL TRANSFER LENGTH = 2.197 FT

DEVELOPMENT LENGTH = 6.650 FT

LOSSES (KSI)

TOP STRANDS INITIAL LOSSES= 14.881 TOP STRANDS ADDITIONAL LOSSES= 29.415 TOP STRANDS FINAL LOSSES= 44.296

BOT STRANDS INITIAL LOSSES= 14.881 BOT STRANDS ADDITIONAL LOSSES= 29.415 BOT STRANDS FINAL LOSSES= 44.296

TOTAL LOSSES FOR ALL STRANDS= 44.296

CALCULATION SHEET

PROJECT: I-75 / I-575 NORTHWEST CORRIDOR
JOB NUMBER NH000-0575-01(028)
CALC NO. BR#36

SUBJECT: Beam Design Output - Span 2 SHEET NO.
BY: JCR DATE: 11/30/2009 SHEET REV.

Sufficient sample calculations representative of the scope and conditions in the design calculation were performed and the results compared to demonstrate the computer program adequacy.

GEORGIA DEPARTMENT OF TRANSPORTATION
PRECONSTUCTION DIVISION - OFFICE OF BRIDGE & STRUCTURAL DESIGN
THE ANALYSIS OR DESIGN OF SIMPLE SPAN PRESTRESSED BEAMS
REVISED: JUNE 26, 2008

PROB. NO. INT.

10-5-2009 JCR

255717 I-575 over Noonday Creek South Span 2

SPAN DATA

D/A	LL CLASS	LL SK.	LENGTH	DFM	DFV	DFD	WDLNC	WDLC	WSWK	F'C	F'CI	NPL	SIT	SFB	SFTE
D	HS20	0 0 0	68.166	1.667	1.909	0.825	1.107	0.393	0.000	5.500	5.000	3	-0.212	-0.445	-0.001

BEAM DATA

BEAM DIMENSIONS								*	COMPOSITE SLAB			*	(E X 1,000,000)		*	STIRRUP	DECK	
WT	HT	FT	WS	HB	WB	FB	DB	*	WF	TF	DF	*	E BEAM	E SLAB	*	SIZE	PANEL	FSY
16.00	7.00	4.50	7.00	7.00	22.00	7.50	45.00		110.00	8.125	0.750		4.50	3.59		5	0	60.

STRAND DATA

TYPE	NST	XDIST	ACTUAL NO. OR MAX. NO. OF STRANDS PER ROW																	ASB	AST	DIAM	TCL	BCL	SPAC.
0	2	0.5830	10	10	8	6	4	2	2	2	2	2	2	2	2	2	2	2	2	0.1670	0.1670	0.500	2.50	3.00	2.00

RBFPU	BFPU	IBLOSS	FBLOSS	RTFPU	TFPU	ITLOSS	FTLOSS	WTC	LOW LAX	ITLENGTH	FTLENGTH	DLENGTH
.75	270.00	0.00	0.00	.75	270.00	0.00	0.00	.150	1	0.00	0.00	0.00

DEBONDING DATA

DEBOND ACT. # AND LENGTH OR MAX. # AND LENGTH OF STRANDS DEBONDED PER ROW

0 0 .00

0 .00 0 .00

DRAPE DATA

DRAPED	MAX RAISE	HOLD DOWN PT.	ACT. # OR MAX. # OF STRANDS DRAPED PER ROW																			
1	0.00	.50	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	0	0	0	0

P-LOADS

XP1	P1	XP2	P2	XP3	P3	XP4	P4	XP5	P5
0.000	3.710	34.083	3.113	68.167	3.710				

MOMENTS AT SPAN TWENTIETH POINTS - KIP-FEET

LOADS	BRNG	0.05 L	0.10 L	0.15 L	0.20 L	0.25 L	0.30 L	0.35 L	0.40 L	0.45 L	0.50 L
UNIFORM D.L. BEAM	0.000	64.317	121.864	172.641	216.648	253.884	284.350	308.046	324.972	335.127	338.512
UNIFORM D.L. NON-C.	0.000	122.165	231.471	327.917	411.503	482.230	540.098	585.106	617.255	636.544	642.974
CONCENTRATED P-LOADS	0.000	5.305	10.610	15.915	21.219	26.524	31.829	37.134	42.439	47.744	53.048
UNIFORM D.L. COMP.	0.000	43.370	82.175	116.415	146.089	171.198	191.742	207.721	219.134	225.982	228.264
LIVE LOAD + IMPACT	0.000	209.354	392.960	550.817	682.926	789.287	869.899	930.639	977.383	998.378	993.624
TOTAL D.L. + L.L.	0.000	444.511	839.079	1183.704	1478.385	1723.124	1917.919	2068.646	2181.182	2243.774	2256.423

STRESSES AT SPAN TWENTIETH POINTS - KIPS PER SQ.IN.

LOADS		BRNG	0.05 L	0.10 L	0.15 L	0.20 L	0.25 L	0.30 L	0.35 L	0.40 L	0.45 L	0.50 L
UNIFORM D.L. BEAM	TOP	0.000	0.152	0.288	0.409	0.513	0.601	0.673	0.729	0.769	0.793	0.801
	BOT	0.000	-0.125	-0.236	-0.335	-0.420	-0.493	-0.552	-0.598	-0.631	-0.650	-0.657
TOTAL NONCOMP. D.L.	TOP	0.000	0.454	0.861	1.222	1.537	1.805	2.026	2.201	2.330	2.412	2.448
	BOT	0.000	-0.372	-0.706	-1.002	-1.260	-1.480	-1.661	-1.805	-1.910	-1.978	-2.007
TOTAL COMP.D.L.+L.L.	TOP	0.000	0.062	0.116	0.162	0.202	0.234	0.259	0.277	0.291	0.298	0.298
	BOT	0.000	-0.277	-0.521	-0.732	-0.909	-1.054	-1.165	-1.249	-1.312	-1.343	-1.340
TOTAL COMP.+NONCOMP.	TOP	0.000	0.515	0.977	1.385	1.739	2.039	2.285	2.479	2.621	2.710	2.746
	BOT	0.000	-0.649	-1.227	-1.734	-2.169	-2.533	-2.826	-3.054	-3.223	-3.321	-3.347

SHEARS AT SPAN TWENTIETH POINTS - KIPS

LOADS	BRNG	0.05 L	0.10 L	0.15 L	0.20 L	0.25 L	0.30 L	0.35 L	0.40 L	0.45 L	0.50 L
UNIFORM D.L. BEAM	19.864	17.878	15.891	13.905	11.918	9.932	7.946	5.959	3.973	1.986	0.000
UNIFORM D.L. NON-C.	37.730	33.957	30.184	26.411	22.638	18.865	15.092	11.319	7.546	3.773	0.000
CONCENTRATED P-LOADS	5.266	1.556	1.556	1.556	1.556	1.556	1.556	1.556	1.556	1.556	1.556
UNIFORM D.L. COMP.	13.395	12.055	10.716	9.376	8.037	6.697	5.358	4.018	2.679	1.339	0.000
LIVE LOAD + IMPACT	70.076	61.652	58.081	54.489	50.875	47.237	43.574	39.884	36.127	32.227	28.326
TOTAL D.L. + L.L.	146.331	127.098	116.428	105.738	95.025	84.288	73.526	62.737	51.882	40.882	29.882

BEAM PROPERTIES

* * * * * NON-COMPOSITE BEAM PROPERTIES *							* * * * * * * * * * COMPOSITE BEAM PROPERTIES * * * * * * *						
I	YT	YB	ST	SB	A	W	* I	YT	YB	ST	SB	A	QS
125390.3	24.727	20.273	5071.1	6185.0	559.50	0.583	* 402857.6	8.175	36.825	49277.7	10939.9	1272.51	9260.45

STRAND AND MISC. DATA

MAX # STRDS *	ACT # STRDS *	MIN # STRDS *	E @ C.L. *	E @ END *	PS *	ASE *	NS(EACT-EEND) *	BPI *	BPF *	TPI *	TPF
30	30	28	12.907	8.907	0.90%	1.86	120.000	868.414	727.163	62.030	51.940

MOMENTS(K-FT.) AND SHEARS(KIPS), STIRRUP SPACING, STRESSES(KSI) AT SPAN TWENTIETH POINTS

LOADS	BRNG	0.05 L	0.10 L	0.15 L	0.20 L	0.25 L	0.30 L	0.35 L	0.40 L	0.45 L	0.50 L
ULT. MOMENT REQD.	0.000	759.312	1431.381	2016.208	2513.793	2924.135	3247.236	3495.825	3682.634	3782.200	3794.524
ULT. MOMENT FURN.	416.225	2785.410	4593.051	4637.305	4681.561	4725.817	4770.076	4814.335	4858.595	4902.857	4947.120
1.2*CRACKING MOMENT	1353.502	3245.814	3141.187	3054.669	2986.260	2935.961	2903.771	2889.690	2893.718	2915.856	2956.103
DIST. TO N.A.(IN.)	0.287	1.941	3.220	3.221	3.222	3.222	3.223	3.224	3.224	3.225	3.225
MAX STEEL RATIO	0.006	0.038	0.063	0.063	0.062	0.061	0.061	0.060	0.060	0.059	0.059
ULT. COMP. SHEAR	169.247	149.252	139.775	130.251	120.679	111.055	101.377	91.641	81.760	71.567	61.374
ULT. TOTAL SHEAR	250.966	218.660	201.696	184.685	167.625	150.514	133.349	116.126	98.758	81.077	63.397
BEAM SHEAR CAPACITY	91.804	151.373	172.632	191.841	164.037	123.573	96.117	75.793	59.661	46.236	41.045
MIN. STIRRUP AREA	0.879	0.426	0.237	0.070	0.101	0.196	0.232	0.235	0.219	0.190	0.126
STRP.(#5) SPAC.(IN.)	8.468*	12.000	24.000	24.000	24.000	24.000	24.000	24.000	24.000	24.000	24.000
PRESTRESS STRESS TOP	0.004	-0.056	-0.128	-0.200	-0.272	-0.344	-0.417	-0.489	-0.561	-0.633	-0.705
BOT	0.681	3.072	3.131	3.191	3.250	3.309	3.368	3.427	3.486	3.545	3.605
INITIAL STRESSES TOP	0.004	0.096	0.160	0.208	0.240	0.256	0.256	0.240	0.208	0.160	0.096
BOT	0.681	2.947	2.895	2.856	2.829	2.816	2.816	2.829	2.856	2.895	2.948
FINAL STRESSES TOP	0.004	0.469	0.870	1.217	1.511	1.750	1.936	2.069	2.152	2.180	2.155
BOT	0.681	1.923	1.395	0.938	0.552	0.237	-0.006	-0.184	-0.304	-0.352	-0.329
FINAL # TOP STRANDS	0.540	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000
FINAL # BOT STRANDS	7.558	28.000	28.000	28.000	28.000	28.000	28.000	28.000	28.000	28.000	28.000
DEVELOP. # TOP STRDS	0.174	1.194	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000
DEVELOP. # BOT STRDS	2.442	16.717	28.000	28.000	28.000	28.000	28.000	28.000	28.000	28.000	28.000

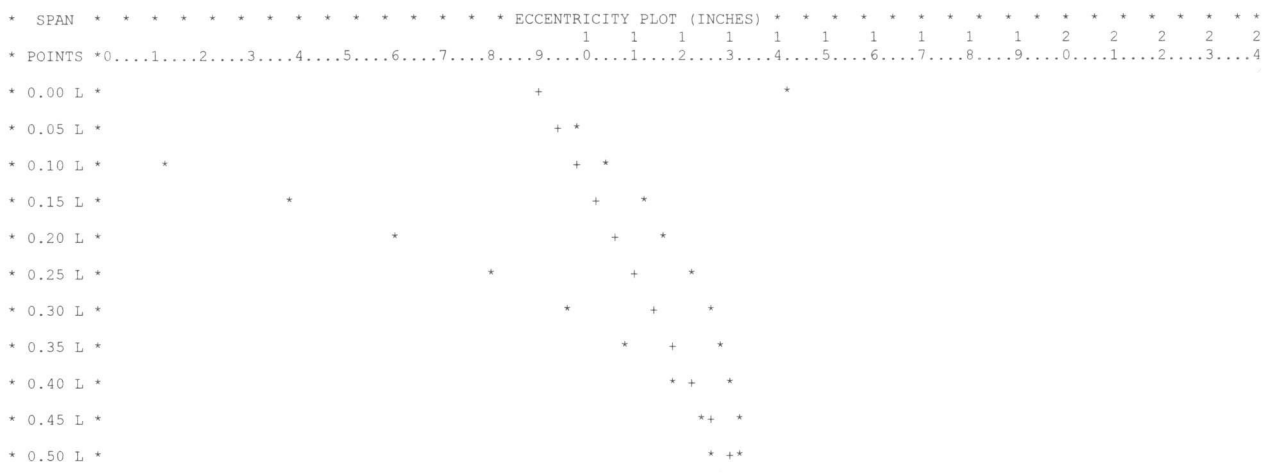
* - FOR "ASE" REQUIREMENTS WITHIN A MAXIMUM DISTANCE OF 8.408" (D/4) FROM THE END OF BEAM USE EITHER
4 LOCATIONS OF 2-#5 STIRRUPS AT A MAXIMUM SPACING OF 2.136" OR
3 LOCATIONS OF 2-#6 STIRRUPS AT A MAXIMUM SPACING OF 3.204" USING 2" CL. FROM END OF BEAM

DEFLECTIONS(INCHES) AT CENTER LINE OF SPAN

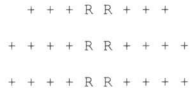
BEAM	WDLNC	P-LOADS	WDLC	INITIAL	FINAL	SIDEWALK	TRUCK	LANE	MILITARY	RAILROAD	PRESTR.	CAMBER
0.502	0.953	0.063	0.105	-1.104	0.279	0.000	0.212	0.148	0.156	0.000	-1.605	-1.946

MAXIMUM, ACTUAL AND MINIMUM ECCENTRICITIES(INCHES)AT SPAN TWENTIETH POINTS

ITEM	BRNG	0.05 L	0.10 L	0.15 L	0.20 L	0.25 L	0.30 L	0.35 L	0.40 L	0.45 L	0.50 L
MAX ECC, SIT= -212	14.176	11.049	11.791	12.446	13.013	13.493	13.886	14.192	14.410	14.541	14.585
MAX ECC, SIB= 3000	77.176	9.717	10.459	11.114	11.682	12.162	12.555	12.860	13.079	13.210	13.253
INITIAL ECCENTRICITY	8.974	9.367	9.761	10.154	10.547	10.940	11.334	11.727	12.120	12.514	12.907
FINAL ECCENTRICITY	8.974	9.367	9.761	10.154	10.547	10.940	11.334	11.727	12.120	12.514	12.907
MIN ECC, SFT= 2200	-43.986	-1.901	1.103	3.757	6.060	8.013	9.615	10.877	11.807	12.386	12.615
MIN ECC, SFB= -445	-24.142	-9.432	-4.844	-0.822	2.634	5.523	7.846	9.654	10.998	11.776	11.987



STRAND ARRANGEMENT (TOP STRANDS NOT SHOWN)= 2



```
*  SPAN  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *STRAND ARRANGEMENT (INCHES) *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *
                                1 1 1 1 1 1 1 1 1 1 1 2 2 2 2 2 2 2 2 2 2 3 3 3 3 3 3 3 3 3 3 4 4 4 4 4 4 4 4 4 4 5 5 5 5 5 5 5 5 5 6
* POINTS *0.1.2.3.4.5.6.7.8.9.0.1.2.3.4.5.6.7.8.9.0.1.2.3.4.5.6.7.8.9.0.1.2.3.4.5.6.7.8.9.0.1.2.3.4.5.6.7.8.9.0.1.2.3.4.5.6.7.8.9.0

*  END   *      +   +   +                           R   R   R
*  BRNG  *      +   +   +                         R   R   R

* 0.05 L *      +   +   +                       R   R   R

* 0.10 L *      +   +   +                     R   R   R

* 0.15 L *      +   +   +                 R   R   R

* 0.20 L *      +   +   +             R   R   R

* 0.25 L *      +   +   +          R   R   R

* 0.30 L *      +   +   +      R   R   R

* 0.35 L *      +   +   +  R   R   R

* 0.40 L *      +   +  R   R   R

* 0.45 L *      +  R   R   R

* 0.50 L *      R   R   R
```

FINAL STRAND ARRANGEMENT AT END

ROW	TOTAL #STRDS	VER DIST-STRAIGHT STRDS	#RAISED STRDS	VER DIST-RAISED STRDS	#DEB 1	DEB LENGTH 1	#DEB 2	DEB LENGTH 2
1	10	3.000	2	23.000	0	0.00L	0	0.00L
2	10	5.000	2	25.000	0	0.00L	0	0.00L
3	8	7.000	2	27.000	0	0.00L	0	0.00L
TOP	2	42.500						

INITIAL TRANSFER LENGTH = 2.579 FT

FINAL TRANSFER LENGTH = 2.160 FT

DEVELOPMENT LENGTH = 6.685 FT

LOSSES (KSI)

TOP STRANDS INITIAL LOSSES= 16.783 TOP STRANDS ADDITIONAL LOSSES= 30.208 TOP STRANDS FINAL LOSSES= 46.990

BOT STRANDS INITIAL LOSSES= 16.783 BOT STRANDS ADDITIONAL LOSSES= 30.208 BOT STRANDS FINAL LOSSES= 46.990

TOTAL LOSSES FOR ALL STRANDS= 46.990

CALCULATION COVER SHEET

PROJECT	JOB NO.	CALC NO.	SHEET
I-75 / I-575 NORTHWEST CORRIDOR	NH000-0575-01(028)	BR#36	1
SUBJECT	DISCIPLINE		
Substructure Design Input	STRUCTURAL		

CALCULATION STATUS DESIGNATION	PRELIMINARY	CONFIRMED	SUPSEDED	VOIDED	INCOMPLETE
	☐	☐	☐	☐	X

COMPUTER PROGRAM/TYPE	SCP	MAINFRAME	PC	PROGRAM	VERSION/RELEASE NO.
	(X) YES ( ) NO	( )	(X)	Excel	2003

Note 1: Georgia Department of Transportation (GDOT) terminated Contract Number TOURDPPI60072 for its convenience prior the completion of all work under that contract and directed that the work with respect to these calculations be discontinued.
(a) These calculations were not completed at the time of GDOT's direction and the information contained herein is not complete and/or has not been fully verified or checked. These calculations are a work-in-progress and are presented only as such.
(b) Any user is cautioned that the use of these calculations and any related information or calculations, without access to factors and without proper regard for their purpose, could lead to erroneous conclusions.
(c) If any such calculations or any information contained herein is used in future work efforts or any follow on design work activity, a complete confirmation of the information contained herein should be performed prior to any such use.
(d) GTP has no responsibility for the use of this information not under its direct control.

Substructure Design Input calculations are included for bents 1&3.

NO.	REASON FOR REVISION	TOTAL NO. OF SHEETS	LAST SHEET NO.	BY	CHECKED	APPROVED/ ACCEPTED	DATE
A	As per GDOT's termination for convenience direction	7	7	JCR			11/30/09

RECORD OF REVISIONS

CALCULATION SHEET

PROJECT: I-75 / I-575 NORTHWEST CORRIDOR
JOB NUMBER NH000-0575-01(028)
CALC NO. BR#36

SUBJECT: Bent Design Input - Bent 1 SHEET NO.
BY: JCR DATE: 11/30/2009 SHEET REV.

Sufficient sample calculations representative of the scope and conditions in the design calculation were performed and the results compared to demonstrate the computer program adequacy.

BRIDGE: **I-575 over Noonday Creek South**
COUNTY: **COBB**
P.I. NO: **713640**
PROJECT: **NH000-0575-01(028)**

J.B. TRIMBLE, INC.

JOB NO: **255717**
DESIGNED BY: **WBN**
CHECKED BY: **JCR**

END BENT REACTIONS: BENTS 1 & 4

APPROACH SLAB LENGTH =	30.00	feet	CAP DEPTH =	2.00	ft
			CAP WIDTH =	3.00	ft
SKEW =	90.00	degrees			
BEAM SPACING =	9.167	feet			
SPACING ALONG SKEW =	9.167	feet			
DEAD LOAD REACTION =	54.151	kips			
DL OF APPROACH =	11.45	kips			
WEIGHT OF CAP =	8.25	kips			
TOTAL DL =	73.85	kips			
LIVE LOAD =	52.11	kips	Pile Type:	**Steel HP**	

TOTAL PILE REACTION =	**125.96**	**kips =**	**63**	**tons**	**Use-->**	**HP12x53**

CALCULATION SHEET

PROJECT: I-75 / I-575 NORTHWEST CORRIDOR
JOB NUMBER NH000-0575-01(028)
CALC NO. BR#36

SUBJECT: Bent Design Input - Bent 3 SHEET NO.
BY: JCR DATE: 11/30/2009 SHEET REV.

Sufficient sample calculations representative of the scope and conditions in the design calculation were performed and the results compared to demonstrate the computer program adequacy.

BRIDGE: **I-575 over Noonday Creek South**
COUNTY: **COBB**
P.I. NO: **713640**
PROJECT: **NH000-0575-01(028)**

J.B. TRIMBLE, INC.

JOB NO: **255717**
DESIGNED BY: **WBN**
CHECKED BY: **JCR**

PIER DESIGN CALCULATIONS

BENT 3

GENERAL REQUIREMENTS:

Live Load cases: See GDOT Program BRLLCA
Skew Angle: 90.0000 ° FROM CL BRIDGE
0.0000 ° FROM CL BENT

Is Bent Fix "F" or Exp. "E"? E (F = Fix, E = Exp)

Concrete Strength:	3500	psi	
Rebar Strength:	60000	psi	
Ec =	3587	ksi	AASHTO 8.7.1
Es =	29000	ksi	AASHTO 8.7.2
Allowable Steel Stress:	24000	psi	AASHTO 8.15.2.2
n = Ec/Es =	8		AASHTO 8.15.3.4
Cap Bar size:	11	#	
Stirup Size:	5	#	
Max bars / row in top of cap:	10	bars	
Max bars / row in bot of cap:	12	bars	
Column Steel Ratios:	1	% min.	
	8	% max.	

Impact Factor

	Length (ft)	Impact
LEFT SPAN	70.00	1.2564
RIGHT SPAN	50.00	1.2857
Avg. Impact =		1.2711

Soil Weight 0.120 kcf

Columns:
TYPE C (S-SQUARE or RECTANGULAR, C-CIRCULAR, P-PILES)
CLEAR 2.5

Allow. Soil Press. : 99.999

WIND ON SUPERSTRUCTURE

AASHTO 3.15.2.1.1

	Left Span	Rigtht Span		TOTAL	
Parapet Height =	32	32	in.		
Beam Height =	45	36	in.		
'D' or 'H' Dimension =	10.25	10	in.		
Beam + Coping + Slab =	4.60	3.83	ft.		
Total Height =	7.27	6.50	ft.		
Span Lengths =	70.00	50.00	ft.		
Wind Force Area =	254.5	162.5	$ft.^2$	417	$ft.^2$

Height of Cap = 3.50 3.50 ft.

Wind Force Arm = 5.235 ft.

WIND ON SUBSTRUCTURE:

AASHTO 3.15.2.2

Wind Force = 0.040 ksf PARA. & PERP.
Length of Cap = 48.00 ft.
Width of Cap = 4.00 ft.
CG of Cap ELEV = 944.09
Ground Line ELEV= 919.21
Depth to Point of Fixity = 10.00
Pt. of Fixity ELEV = 909.21
Bot. Cap to Pt. of Fixity = 33.13 ft.
Design Height of Column = 34.88 ft. CG Cap to Pt. of Fixity
Exposed Height of Column = 23.13 ft.
Width of Column = 4.00 ft.
Depth of Column = 4.00 ft.
No. of Columns = 2 columns

	PARA.	PERP.	
M_{CAP} =	19.53	234.39	k-ft.
M_{COL} =	79.81	159.62	k-ft.
M_{TOTAL} =	99.34	394.01	k-ft.
P_T =	2.85	11.30	kips

For Bent 3
2 yr Flood Elev. = 926.5
2 yr Flood Elev. + 1' = 927.5
Ground Line Elev. - 1' = 918.21

For Top of Caisson on Plans, use: 927.5
For Column Height on Plans, use: 14.84 ft.
For Caisson Height on Plans, use: 34.50 ft.

For Similar Bent 2 (Boring Used: BB-2)
CG of Cap Elev. = 943.52
Ground Line Elev.= 928.72
Ground Line Elev. - 1' = 927.72
Rock Elev. From BFI = 916
Bottom of Caisson Elev. = 909

For Top of Caisson Elev. on Plans, use: 928
For Column Height on Plans, use: 13.77 ft.
For Caisson Height on Plans, use: 19.00 ft.

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PIER DESIGN CALCULATIONS

BENT 3

WIND ON LIVE LOAD — AASHTO 3.15.2.1.2

Length =	60.00	ft.			
APT = APL =	12.354	ft.	Use-->	12.354	ft.

TRACTION & CENT. FORCES: For One lane — AASHTO 3.9 & 3.10

			(SPEED)	65	mph	D	0 (degrees)
LF =	**0.00**	k	CF =	0.000	k		

TEMPERATURE FORCE: — AASHTO 3.16

Friction Force due to Temperature:

Δ = Temp. Deflection = ALPHA x Length x Change in Temp.

T_{RISE} =	30	° T_{FALL} =	40	° (Fahrenheit)
Material (C or S):	C	ALPHA =	0.000006	/° (Fahrenheit)

Force in Pad = Fs = [G x L x W x Deflection] / (Telas)

	LEFT	RIGHT	
Expansion Length =	120.00	50.00	ft
Δ =	0.346	0.144	in
G = Shear Modulus of Pad =	200	200	psi
L= Length of Pad =	10.00	10.00	in
W = Width of Pad =	18.00	16.00	in
Telas = Bearing Elastomer Depth =	2.375	2.375	in
Fs =	5.24	1.94	KIPS /pad
No. of Beams =	6	6	
Total Temperature Force =	31.43	11.64	kips @ top of seat
	33.01	12.23	kips @ center of cap
P_L =	33.01	12.23	kips
P_T =	0.00	0.00	kips

Difference =	P_L =	20.78	kips	AT CL CAP	
	P_T =	0.00	kips	AT CL CAP	
	P_L =	21.97	kips	AT CL CAP ----->	Use Total Lateral Force
	P_T =	0.00	kips	AT CL CAP	= PL + Equiv. Lateral Force from MDL due to eccentricity

Expansion of Concrete Cap =	**0.00018**	in/in	
Contraction of Concrete Cap =	**0.00044**	in/in	which includes 0.0002 for creep

STREAM FORCE: — AASHTO 3.18.1

100 yr Flood ELEV. =	931.04	ft.	
Design Height of Column =	34.88	ft.	
Bottom of Stream ELEV =	919.21	ft.	
Pt. of Fixity ELEV =	909.21		
V_{AVG} =	13.27	FPS @ 100 yr. Flood	
K =	0.7	for circular end piers	
$P_{AVG} = K * (V_{AVG})^2$ =	123.27	psf	AASHTO Eq. (3-4)
$P_{MAX} = 2 * P_{AVG}$ =	246.53	psf	
Piers Aligned with stream flow:			
P_S =	5.833	kips	
M =	104.33	k-ft.	
$P_{CL\ CAP}$ =	2.991	k	

BRIDGE: **I-575 over Noonday Creek South**
COUNTY: **COBB**
P.I. NO: **713640**
PROJECT: **NH000-0575-01(028)**

J.B. TRIMBLE, INC.

JOB NO: **255717**
DESIGNED BY: **WBN**
CHECKED BY: **JCR**

PIER DESIGN CALCULATIONS

BENT 3

DEAD LOAD: AASHTO 3.3

LENGTH = 48.00 feet
SKEW = 90.00 degrees

SPAN 2

BEAM	BEAM SPACING	DISTANCE BETWEEN	DISTANCE ALONG	R dl	Add'l DL	DL
1		1.083	1.083	76.250	0.000	76.250
2	9.167	9.167	10.250	76.250	0.000	76.250
3	9.167	9.167	19.417	76.250	0.000	76.250
4	9.167	9.167	28.583	76.250	0.000	76.250
5	9.167	9.167	37.750	76.250	0.000	76.250
6	9.167	9.167	46.917	76.250	0.000	76.250
		1.083	48.000			
TOTAL		48.000				457.502
				CL Brg to CL Bent =		1.0000

SPAN 3

BEAM	BEAM SPACING	DISTANCE BETWEEN	DISTANCE ALONG	R dl	Add'l DL	DL	L step	H pedastal	Wt pedastal
1		1.083	1.083	49.266	1.275	50.541	5.6666	0.75	1.275
2	9.167	9.167	10.250	49.266	2.063	51.329	9.1667	0.75	2.063
3	9.167	9.167	19.417	49.266	2.063	51.329	9.1667	0.75	2.063
4	9.167	9.167	28.583	49.266	2.063	51.329	9.1667	0.75	2.063
5	9.167	9.167	37.750	49.266	2.063	51.329	9.1667	0.75	2.063
6	9.167	9.167	46.917	49.266	1.275	50.541	5.6666	0.75	1.275
		1.083	48.000						
TOTAL		48.000				306.399			
				CL Brg to CL Bent =		1.0000			
						763.901			

COMBINED LOADS

COLUMN = 2.000 FT - checking ¼ points on column

	POINT	MEMBER	DISTANCE BETWEEN	DISTANCE ALONG	R dl	Add'l DL	DL	CHECK POINT
9.00	G1	1	7.917	1.083	125.517	1.275	126.792	1
	EC	1	6.917	8.000				2
30.00	EC	2	1.000	10.000				3
	G2	2	0.250	10.250	125.517	2.063	127.579	4
	G3	2	9.167	19.417	125.517	2.063	127.579	5
	DUMMY AT ℄ BT	2	4.583	24.000				6
	G4	2	4.583	28.583	125.517	2.063	127.579	7
	G5	2	9.167	37.750	125.517	2.063	127.579	8
	EC	2	0.250	38.000				9
9.00	EC	3	1.000	40.000				10
	G6	3	6.917	46.917	125.517	1.275	126.792	11
				1.083				
			48.000					

ADDITIONAL DL MOMENT DUE TO ECCENTRICITY:

M_{DL} = 151.10 KIP-FT

(EQUIV. LONG FORCE) $F_{EL} = M_{DL} / H_{DESIGN\ OF\ COLUMN}$ = 4.33 KIP

(TOTAL LONG FORCE) $F_L = F_{EL} + P_{L\ TEMP}$ = 26.31 KIP

LIVE LOADS: AASHTO 3.4

	LEFT	RIGHT			
Span Lengths =	70.00	50.00	ft.		
LIVE LOAD REACTION		63.36	KIPS	AXLE LOAD NO IMPACT	VERIFY !!!!
		64.40	KIPS	LANE LOAD NO IMPACT	
AVERAGE IMPACT		1.2711			
P-LOAD FOR BRLLCA INPUT		40.928	KIPS		

CALCULATION COVER SHEET

PROJECT	JOB NO.	CALC NO.	SHEET
I-75 / I-575 NORTHWEST CORRIDOR	NH000-0575-01(028)	BR#36	1
SUBJECT	DISCIPLINE		
Live Load Case Output	STRUCTURAL		

CALCULATION STATUS DESIGNATION	PRELIMINARY	CONFIRMED	SUPSEDED	VOIDED	INCOMPLETE
	☐	☐	☐	☐	X

COMPUTER PROGRAM/TYPE	SCP	MAINFRAME	PC	PROGRAM	VERSION/RELEASE NO.
	X YES ◯ NO	◯	X	GDOT BRLLCA	06/26/2008

Note 1: Georgia Department of Transportation (GDOT) terminated Contract Number TOURDPPI60072 for its convenience the completion of all work under that contract and directed that the work with respect to these calculations be discontinued.
(a) These calculations were not completed at the time of GDOT's direction and the information contained herein is not and/or has not been fully verified or checked. These calculations are a work-in-progress and are presented only as such.
(b) Any user is cautioned that the use of these calculations and any related information or calculations, without access to factors and without proper regard for their purpose, could lead to erroneous conclusions.
(c) If any such calculations or any information contained herein is used in future work efforts or any follow on design work a complete confirmation of the information contained herein should be performed prior to any such use.
(d) GTP has no responsibility for the use of this information not under its direct control.

Live Load Case ouptput is included for bent 3.

NO.	REASON FOR REVISION	TOTAL NO. OF SHEETS	LAST SHEET NO.	BY	CHECKED	APPROVED/ ACCEPTED	DATE
A	As per GDOT's termination for convenience direction	4	4	JCR			11/30/09

RECORD OF REVISIONS

CALCULATION SHEET

PROJECT: I-75 / I-575 NORTHWEST CORRIDOR
JOB NUMBER NH000-0575-01(028)
CALC NO. BR#36

SUBJECT: Live Load Case Output - Bent 3 SHEET NO.
BY: JCR DATE: 11/30/2009 SHEET REV.

Sufficient sample calculations representative of the scope and conditions in the design calculation were performed and the results compared to demonstrate the computer program adequacy.

GEORGIA DEPARTMENT OF TRANSPORTATION
PRECONSTUCTION DIVISION - OFFICE OF BRIDGE & STRUCTURAL DESIGN
SUMMARY OF THE LIVE LOAD CASE PROGRAM
REVISED: JUNE 26, 2008

✓ JCR 10-16-09

I-575 OVER NOONDAY CRK SOUTH - BENT 3

BRIDGE WIDTH	X1	X2	CENTER LINE DISTANCE	# OF BEAMS	REACTION FORCE	MAXIMUM # OF TRUCKS	# OF COLUMNS	COLUMN WIDTH	SKEW ANGLE
137.750	3.625	3.625	68.875	20	40.928	11	0	0.000	0

D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14	D15	D16	D17	D18	D19	D20
2.375	6.500	6.500	6.500	6.500	6.500	6.500	4.750	9.167	9.167	9.167	9.167	9.167	4.750	6.500	6.500	6.500	6.500	6.500	6.500

	NO. OF TRUCKS	BEAM 1	BEAM 2	BEAM 3	BEAM 4	BEAM 5	BEAM 6	BEAM 7	BEAM 8	BEAM 9	BEAM 10
		BEAM 11	BEAM 12	BEAM 13	BEAM 14	BEAM 15	BEAM 16	BEAM 17	BEAM 18	BEAM 19	BEAM 20
LL CASE 1	1	33.057	44.076	4.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
LL CASE 2	2	33.057	55.095	48.799	26.761	0.000	0.000	0.000	0.000	0.000	0.000
		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
LL CASE 3	3	33.057	55.095	48.799	56.670	44.076	7.871	0.000	0.000	0.000	0.000
		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
LL CASE 4	4	33.057	55.095	48.799	56.670	51.947	51.947	29.909	0.000	0.000	0.000
		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
LL CASE 5	5	33.057	55.095	48.799	56.670	51.947	51.947	51.450	44.688	15.626	0.000
		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
LL CASE 6	~~6~~ 2	33.057	55.095	48.799	56.670	51.947	51.947	51.450	52.131	70.694	19.346
		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
LL CASE 7	~~7~~ 3	33.057	55.095	48.799	56.670	51.947	51.947	51.450	52.131	74.418	74.413
		23.065	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
LL CASE 8	~~8~~ 4	33.057	55.095	48.799	56.670	51.947	51.947	51.450	52.131	74.418	74.418
		78.132	26.784	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
LL CASE 9	~~9~~ 5	33.057	55.095	48.799	56.670	51.947	51.947	51.450	52.131	74.418	74.418
		78.132	74.422	34.218	0.000	0.000	0.000	0.000	0.000	0.000	0.000
LL CASE 10	~~10~~ 6	33.057	55.095	48.799	56.670	51.947	51.947	51.450	52.131	74.418	74.418
		78.132	74.422	60.799	36.920	18.355	0.000	0.000	0.000	0.000	0.000
LL CASE 11	11	33.057	55.095	48.799	56.670	51.947	51.947	51.450	52.131	74.418	74.418
		78.132	74.422	60.799	36.920	57.205	43.006	0.000	0.000	0.000	0.000
LL CASE 12	1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.832	44.076	30.948
LL CASE 13	2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		0.000	0.000	0.000	0.000	0.000	0.000	28.870	50.908	52.986	30.948
LL CASE 14	3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		0.000	0.000	0.000	0.000	9.980	44.076	56.670	50.908	52.986	30.948
LL CASE 15	4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		0.000	0.000	0.000	32.018	54.056	49.838	56.670	50.908	52.986	30.948
LL CASE 16	~~5~~ 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		0.000	17.122	46.079	50.673	54.056	49.838	56.670	50.908	52.986	30.948
LL CASE 17	~~6~~ 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		20.841	72.190	52.026	50.673	54.056	49.838	56.670	50.908	52.986	30.948
LL CASE 18	~~7~~ 3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	24.560
		75.909	74.418	52.026	50.673	54.056	49.838	56.670	50.908	52.986	30.948
LL CASE 19	~~8~~ 4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	29.771	76.646
		75.909	74.418	52.026	50.673	54.056	49.838	56.670	50.908	52.986	30.948
LL CASE 20	~~9~~ 5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	37.209	74.418	76.646
		75.909	74.418	52.026	50.673	54.056	49.838	56.670	50.908	52.986	30.948
LL CASE 21	~~10~~ 6	0.000	0.000	0.000	0.000	0.000	20.464	37.697	60.904	74.418	76.646
		75.909	74.418	52.026	50.673	54.056	49.838	56.670	50.908	52.986	30.948
LL CASE 22	11	0.000	0.000	0.000	1.574	44.076	56.670	37.697	60.904	74.418	76.646
		75.909	74.418	52.026	50.673	54.056	49.838	56.670	50.908	52.986	30.948
LL CASE 23	1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	13.394	55.068
		13.394	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
LL CASE 24	2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	17.113	68.462	64.743
		13.394	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
LL CASE 25	3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	17.113	68.462	74.418
		68.462	17.113	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

ok

LL CASE 26	4	0.000	0.000	0.000	0.000	0.000	0.000	40.204	52.809	74.418	74.418	
		68.462	17.113	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
LL CASE 27	5	0.000	0.000	0.000	0.000	0.000	0.000	40.204	52.809	74.418	74.418	
		74.418	72.181	20.832	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
LL CASE 28	6	0.000	0.000	0.000	0.000	21.509	44.076	56.475	52.809	74.418	74.418	
		74.418	72.181	20.832	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
LL CASE 29	~~7~~ 6	0.000	0.000	0.000	0.000	21.509	44.076	56.475	52.809	74.418	74.418	
		74.418	74.418	59.524	36.212	4.716	0.000	0.000	0.000	0.000	0.000	0.000
LL CASE 30	8	0.000	0.000	2.619	44.076	56.670	44.076	56.475	52.809	74.418	74.418	
		74.418	74.418	59.524	36.212	4.716	0.000	0.000	0.000	0.000	0.000	0.000
LL CASE 31	9	0.000	0.000	2.619	44.076	56.670	44.076	56.475	52.809	74.418	74.418	
		74.418	74.418	59.524	47.237	48.792	26.754	0.000	0.000	0.000	0.000	0.000
LL CASE 32	10	0.000	24.658	46.696	57.198	56.670	44.076	56.475	52.809	74.418	74.418	
		74.418	74.418	59.524	47.237	48.792	26.754	0.000	0.000	0.000	0.000	0.000
LL CASE 33	11	0.000	24.658	46.696	57.198	56.670	44.076	56.475	52.809	74.418	74.418	
		74.418	74.418	59.524	47.237	48.792	56.670	44.076	7.864	0.000	0.000	
LL CASE 34	2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	16.002	67.350	
		65.854	14.506	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
LL CASE 35	3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	19.721	71.069	74.418	
		65.854	14.506	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
LL CASE 36	4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	19.721	71.069	74.418	
		74.418	69.574	18.225	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
LL CASE 37	5	0.000	0.000	0.000	0.000	0.000	3.148	37.780	57.300	74.418	74.418	
		74.418	69.574	18.225	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
LL CASE 38	6	0.000	0.000	0.000	0.000	0.000	3.148	37.780	57.300	74.418	74.418	
		74.418	74.418	54.309	39.889	1.039	0.000	0.000	0.000	0.000	0.000	0.000
LL CASE 39	~~9~~ 7	0.000	0.000	0.000	0.000	25.186	47.225	50.373	57.300	74.418	74.418	
		74.418	74.418	54.309	39.889	1.039	0.000	0.000	0.000	0.000	0.000	0.000
LL CASE 40	8	0.000	0.000	0.000	0.000	25.186	47.225	50.373	57.300	74.418	74.418	
		74.418	74.418	54.309	54.592	45.115	23.077	0.000	0.000	0.000	0.000	0.000
LL CASE 41	~~9~~ 6	0.000	0.000	6.297	44.076	56.670	47.225	50.373	57.300	74.418	74.418	
		74.418	74.418	54.309	54.592	45.115	23.077	0.000	0.000	0.000	0.000	0.000
LL CASE 42	10	0.000	0.000	6.297	44.076	56.670	47.225	50.373	57.300	74.418	74.418	
		74.418	74.418	54.309	54.592	45.115	56.670	44.076	4.187	0.000	0.000	
LL CASE 43	11	0.000	28.335	50.373	53.521	56.670	47.225	50.373	57.300	74.418	74.418	
		74.418	74.418	54.309	54.592	45.115	56.670	44.076	4.187	0.000	0.000	
LL CASE 44	2	33.057	44.076	4.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
		0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.832	44.076	30.948	
LL CASE 45	3	33.057	55.095	48.799	26.761	0.000	0.000	0.000	0.000	0.000	0.000	
		0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.832	44.076	30.948	
LL CASE 46	4	33.057	55.095	48.799	26.761	0.000	0.000	0.000	0.000	0.000	0.000	
		0.000	0.000	0.000	0.000	0.000	0.000	28.870	50.908	52.986	30.948	
LL CASE 47	5	33.057	55.095	48.799	56.670	44.076	7.871	0.000	0.000	0.000	0.000	
		0.000	0.000	0.000	0.000	0.000	0.000	28.870	50.908	52.986	30.948	
LL CASE 48	6	33.057	55.095	48.799	56.670	44.076	7.871	0.000	0.000	0.000	0.000	
		0.000	0.000	0.000	0.000	9.980	44.076	56.670	50.908	52.986	30.948	
LL CASE 49	7	33.057	55.095	48.799	56.670	51.947	51.947	29.909	0.000	0.000	0.000	
		0.000	0.000	0.000	0.000	9.980	44.076	56.670	50.908	52.986	30.948	
LL CASE 50	8	33.057	55.095	48.799	56.670	51.947	51.947	29.909	0.000	0.000	0.000	
		0.000	0.000	0.000	32.018	54.056	49.838	56.670	50.908	52.986	30.948	
LL CASE 51	9	33.057	55.095	48.799	56.670	51.947	51.947	51.450	44.688	15.626	0.000	
		0.000	0.000	0.000	32.018	54.056	49.838	56.670	50.908	52.986	30.948	
LL CASE 52	~~10~~ 2	33.057	55.095	48.799	56.670	51.947	51.947	51.450	44.688	15.626	0.000	
		0.000	17.122	46.079	50.673	54.056	49.838	56.670	50.908	52.986	30.948	
LL CASE 53	~~11~~ 3	33.057	55.095	48.799	56.670	51.947	51.947	51.450	52.131	70.694	19.346	
		0.000	17.122	46.079	50.673	54.056	49.838	56.670	50.908	52.986	30.948	

CALCULATION COVER SHEET

PROJECT	JOB NO.	CALC NO.	SHEET
I-75 / I-575 NORTHWEST CORRIDOR	NH000-0575-01(028)	BR#36	1
SUBJECT	DISCIPLINE		
Intermediate Bent Design Output	STRUCTURAL		

CALCULATION STATUS DESIGNATION	PRELIMINARY	CONFIRMED	SUPSEDED	VOIDED	INCOMPLETE
	☐	☐	☐	☐	X

COMPUTER PROGRAM/TYPE	SCP	MAINFRAME	PC	PROGRAM	VERSION/RELEASE NO.
	(X) YES ( ) NO	( )	(X)	GDOT BRPIER	06/26/2008

Note 1: Georgia Department of Transportation (GDOT) terminated Contract Number TOURDPPI60072 for its convenience the completion of all work under that contract and directed that the work with respect to these calculations be discontinued.
(a) These calculations were not completed at the time of GDOT's direction and the information contained herein is not and/or has not been fully verified or checked. These calculations are a work-in-progress and are presented only as such.
(b) Any user is cautioned that the use of these calculations and any related information or calculations, without access to factors and without proper regard for their purpose, could lead to erroneous conclusions.
(c) If any such calculations or any information contained herein is used in future work efforts or any follow on design work a complete confirmation of the information contained herein should be performed prior to any such use.
(d) GTP has no responsibility for the use of this information not under its direct control.

Intermediate bent design ouptput is included for bent 3.

NO.	REASON FOR REVISION	TOTAL NO. OF SHEETS	LAST SHEET NO.	BY	CHECKED	APPROVED/ ACCEPTED	DATE
A	As per GDOT's termination for convenience direction	11	11	JCR			11/30/09

RECORD OF REVISIONS

CALCULATION SHEET

PROJECT: I-75 / I-575 NORTHWEST CORRIDOR
JOB NUMBER NH000-0575-01(028)
CALC NO. BR#36

SUBJECT: Bent Design Output - Bent 3 SHEET NO.
BY: JCR DATE: 11/30/2009 SHEET REV.

Sufficient sample calculations representative of the scope and conditions in the design calculation were performed and the results compared to demonstrate the computer program adequacy.

THE ANALYSIS AND DESIGN OF PIERS FOR BRIDGES - V 4.2.07 - AASHTO SPECS 1984 INTERIM
REVISED: JUNE 30, 2008
I-575 OVER NOONDAY CRK SOUTH - BENT 3

DESIGN DATA

DESIGN OPTIONS	NO. CAN	NO. COL	NO. LLC	SKEW ANG D M S	F'C PSI	FC PSI	N	FY PSI	FS PSI	EC KSI	ES KSI	CONC. STRAIN	Z FACT	* * * CAP REINFORCING STEEL * * * MAIN SIZE	STR SIZ	MAX TOP	MAX BOT	MIN SIZE	MIN NO.	TOP CL.	MIN S.SP	CAP DEPTH INCR.	BOT CL.
D D D L	2	2	25	0-00-00	3500.	1400.	8.	60000.	24000.	3587.	29000.	0.0030	170.	11	5	10	12	6	4	2.00	4.00	3.00	2.00

COLUMN REINFORCING STEEL MIN.P	MAX.P	CL.SP.	CLEAR	R MODE	KL COEF	OC	OF	CM	BD1	BD2	IMPACT %	SOIL WT KCF	ALL.S.P. KSF	MIN PL SP	MAX PL SP	EDGE DIST	PILE DEPTH	REBAR CLEAR	ALL.PILE CAPACITY	ALL.PILE UPLIFT	I P
1.00	8.00	2.25	2.500	1	2.00	0.70	0.90	0.00	1.00	0.00	27.11	0.120	99.999	2.50	5.00	1.250	1.000	3.000	0.000	0.000	P

CAP DATA

CN	C	L	A	DE	BC	BE	DH	LH	XB1	XB2	XB3	XB4	XB5	XB6	XB7	XB8
11	C	9.000	0.000	3.500	4.000	4.000	0.000	0.000	7.917	6.917						
12	C	30.000	0.000	3.500	4.000		0.000	0.000	1.000	0.250	9.167	4.583	4.583	9.167	0.250	
13	C	9.000	0.000	3.500	4.000	4.000	0.000	0.000	1.000	6.917						

COLUMN DATA

CN	P	I	T	S	HT	A	DT	BT	DB	BB	DL	FLEX	ND	NB	SZ	ND	NB	SZ	ND	NB	SZ	ND	NB	SZ	SLOPE	EP	AP
21	0	C	R		34.880	0.000	4.000	0.000	0.000	0.000	1.750	0.000	15	0	11	0	0	0	25	0	11	0	0	0	0.000	0.000	0.000
22	0	C	R		34.880	0.000	4.000	0.000	0.000	0.000	1.750	0.000	15	0	11	0	0	0	25	0	11	0	0	0	0.000	0.000	0.000

FOOTING DATA

CN	S/P	B	D	T	DEL.B	DEL.D	DEL.T	R.B/D	R.D/B	S.HT.	NP	SYM.	BP	DP	SET.
31	S	6.000	6.000	3.000	0.500	0.500	0.250	1.000	1.000	0.000	0	0	0.000	0.000	0.000
32	S	6.000	6.000	3.000	0.500	0.500	0.250	1.000	1.000	0.000	0	0	0.000	0.000	0.000

NOTE: Half of the wind on the super is assumed to be transmitted to the Exist. Structure.

GROUP II WIND

SUPERSTRUCTURE AREA* TRANS.	LONG.	STD. WIND	WIND ON SUPERSTRUCTURE INTENSITIES FT1 FL1	FT2 FL2	FT3 FL3	FT4 FL4	FT5 FL5	* WIND FORCE ARM APT	APL	* WIND ON PIER PT	PL
208.	208.	1	50 0	44 6	41 12	33 16	17 19	5.235	5.235	2.848	11.296

GROUP III WIND

STD. WIND	WIND ON SUPERSTRUCTURE INTENSITIES FT1 FL1	FT2 FL2	FT3 FL3	FT4 FL4	FT5 FL5	* STD. WIND	WIND ON LIVE LOAD INTENSITIES FT1 FL1	FT2 FL2	FT3 FL3	FT4 FL4	FT5 FL5	* LENGTHS OF LL TRANS.	LONGI.	* WIND ON LL ARMS APT	APL
1	50 0	44 6	41 12	33 16	17 19	1	100 0	88 12	82 24	66 32	34 38	60.0	60.0	12.354	12.354

MISCELLANEOUS FORCES

CENTRI. FT	TRACTION FORCE AND ARMS FL	APT	APL	EXPANSION COEFFICIENT	SHRINKAGE COEFFICIENT	STREAM FLOW PT	PL
0.000	0.000	12.354	12.354	0.00018000	0.00044000	2.991	26.307

DEAD LOAD SUPERSTRUCTURE AND LIVE LOAD CASES

I.D.	NL	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12
D L	0	126.792	0.000	0.000	127.579	127.579	0.000	127.579	127.579	0.000	0.000	126.792	
LL 1	2	52.131	0.000	0.000	70.694	19.345	0.000	0.000	0.000	0.000	0.000	0.000	
LL 2	3	52.131	0.000	0.000	74.417	74.413	0.000	23.064	0.000	0.000	0.000	0.000	
LL 3	4	52.131	0.000	0.000	74.417	74.417	0.000	78.132	26.783	0.000	0.000	0.000	
LL 4	5	52.131	0.000	0.000	74.417	74.417	0.000	78.132	74.422	0.000	0.000	34.217	
LL 5	6	52.131	0.000	0.000	74.417	74.417	0.000	78.132	74.422	0.000	0.000	60.799	
LL 6	1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	17.122	0.000	0.000	46.079	
LL 7	2	0.000	0.000	0.000	0.000	0.000	0.000	20.841	72.189	0.000	0.000	52.026	
LL 8	3	0.000	0.000	0.000	0.000	24.560	0.000	75.908	74.417	0.000	0.000	52.026	
LL 9	4	0.000	0.000	0.000	29.770	76.645	0.000	75.908	74.417	0.000	0.000	52.026	
LL10	5	37.208	0.000	0.000	74.417	76.645	0.000	75.908	74.417	0.000	0.000	52.026	
LL11	6	60.904	0.000	0.000	74.417	76.645	0.000	75.908	74.417	0.000	0.000	52.026	
LL12	1	0.000	0.000	0.000	13.394	55.067	0.000	13.394	0.000	0.000	0.000	0.000	
LL13	2	17.113	0.000	0.000	68.461	64.742	0.000	13.394	0.000	0.000	0.000	0.000	
LL14	3	17.113	0.000	0.000	68.461	74.417	0.000	68.461	17.113	0.000	0.000	0.000	
LL15	4	52.809	0.000	0.000	74.417	74.417	0.000	68.461	17.113	0.000	0.000	0.000	
LL16	5	52.809	0.000	0.000	74.417	74.417	0.000	74.417	72.180	0.000	0.000	20.832	
LL17	6	52.809	0.000	0.000	74.417	74.417	0.000	74.417	74.417	0.000	0.000	59.523	
LL18	2	0.000	0.000	0.000	16.001	67.350	0.000	65.854	14.505	0.000	0.000	0.000	
LL19	3	19.720	0.000	0.000	71.069	74.417	0.000	65.854	14.505	0.000	0.000	0.000	
LL20	4	19.720	0.000	0.000	71.069	74.417	0.000	74.417	69.573	0.000	0.000	18.224	
LL21	5	57.300	0.000	0.000	74.417	74.417	0.000	74.417	69.573	0.000	0.000	18.224	
LL22	6	57.300	0.000	0.000	74.417	74.417	0.000	74.417	74.417	0.000	0.000	54.308	
LL23	6	57.300	0.000	0.000	74.417	74.417	0.000	74.417	74.417	0.000	0.000	54.591	
LL24	2	44.688	0.000	0.000	15.626	0.000	0.000	0.000	17.122	0.000	0.000	46.079	
LL25	3	52.131	0.000	0.000	70.694	19.345	0.000	0.000	17.122	0.000	0.000	46.079	

MEMBER PROPERTIES

COLUMN PROPERTIES

CN	KT KTM	COTB COBT	COTBM COBTM	TLR TRL	TRC TCR	TLC TCL	DFC DFL	KL PDF	FKBR FKUBR	PCBR PCUBR	PCL FLU	UFMT UFMB	EITTB EILTB	PSIT PSIB	RGTB RGL
1	744367.3	0.5000	0.5000	0.5314	1.0000	0.4686	0.4686	0.010661	19.1	60711.9	4369.2	32011.2	342134.7	0.6	12.3
	744367.3	0.5000	0.3010	0.0000	1.0000	0.0000	0.0000	0.5000	38.7	14836.4	33.1	32011.2	342134.7	0.0	12.3
2	744367.3	0.5000	0.5000	0.0000	0.4686	1.0000	0.4686	0.010661	19.1	60711.9	4369.2	32011.2	342134.7	0.6	12.3
	744367.3	0.5000	0.3010	0.5314	0.0000	1.0000	0.5314	0.5000	38.7	14836.4	33.1	32011.2	342134.7	0.0	12.3

CAP PROPERTIES

CN	CO K	KML KMR	COMLR COMRL	FMWT UFEM	FMLP1 FMRP1	FMLP2 FMRP2	FMLP3 FMRP3	FMLP4 FMRP4	FMLP5 FMRP5	FMLP6 FMRP6	FMLP7 FMRP7	FMLP8 FMRP8
2	0.5000	844163.8	0.2510	157.5000	0.9344	1.1480	4.4387	3.7500	2.3611	0.0499	0.0322	
	984272.8	844163.8	0.2510	49213.6	0.0322	0.0499	2.3611	3.7500	4.4387	1.1480	0.9344	

COLUMN MOMENTS(KIP-FEET), SHEARS(KIPS), REACTIONS(KIPS)

		TRANSVERSE						*	LONGITUDINAL			
LOAD	COL	PC	MT	V	MB	RF	ML	MR	MT	V	MB	MF
UNIT F.AT CL.CAP	1	0.516	7.744	0.500	9.696	0.516	0.000	-7.744	0.875	0.500	17.440	17.440
	2	-0.516	7.744	0.500	9.696	-0.516	-7.744	0.000	0.875	0.500	17.440	17.440
EXPANSION OF CAP	1	0.000	34.400	2.718	60.415	0.000	0.000	-34.400	0.000	0.000	0.000	0.000
	2	0.000	-34.400	-2.718	-60.415	0.000	34.400	0.000	0.000	0.000	0.000	0.000
SHRINKAGE OF CAP	1	0.000	-84.088	-6.645	-147.681	0.000	0.000	84.088	0.000	0.000	0.000	0.000
	2	0.000	84.088	6.645	147.681	0.000	-84.088	0.000	0.000	0.000	0.000	0.000
DEAD LOAD TOTAL	1	432.350 494.799	53.570	2.304	26.785	494.799	1088.862	-1142.432	0.000	0.000	0.000	0.000
	2	432.350 494.799	-53.570	-2.304	-26.785	494.799	1142.432	-1088.862	0.000	0.000	0.000	0.000
STREAM FLOW	1	1.544	23.162	1.495	29.001	1.544	0.000	-23.162	23.019	13.153	458.794	458.794
	2	-1.544	23.162	1.495	29.001	-1.544	-23.162	0.000	23.019	13.153	458.794	458.794
WIND ON SUBSTR.	1	1.470	22.055	1.424	27.614	1.470	0.000	-22.055	-9.884	-5.648	-197.002	-197.002
	2	-1.470	22.055	1.424	27.614	-1.470	-22.055	0.000	-9.884	-5.648	-197.002	-197.002
GROUP 2 WIND 1 1	1	8.654	102.592	6.624	128.454	8.654	0.000	-102.592	-9.884	-5.648	-197.002	-197.002
	2	-8.654	102.592	6.624	128.454	-8.654	-102.592	0.000	-9.884	-5.648	-197.002	-197.002
GROUP 2 WIND 1 2	1	8.654	102.592	6.624	128.454	8.654	0.000	-102.592	9.884	5.648	197.002	197.002
	2	-8.654	102.592	6.624	128.454	-8.654	-102.592	0.000	9.884	5.648	197.002	197.002
GROUP 2 WIND 2 1	1	7.792	92.927	6.000	116.353	7.792	0.000	-92.927	-14.243	-6.272	-222.034	-222.034
	2	-7.792	92.927	6.000	116.353	-7.792	-92.927	0.000	-14.243	-6.272	-222.034	-222.034
GROUP 2 WIND 2 2	1	7.792	92.927	6.000	116.353	7.792	0.000	-92.927	14.243	6.272	222.034	222.034
	2	-7.792	92.927	6.000	116.353	-7.792	-92.927	0.000	14.243	6.272	222.034	222.034
GROUP 2 WIND 3 1	1	7.361	88.095	5.688	110.303	7.361	0.000	-88.095	-18.601	-6.896	-247.066	-247.066
	2	-7.361	88.095	5.688	110.303	-7.361	-88.095	0.000	-18.601	-6.896	-247.066	-247.066
GROUP 2 WIND 3 2	1	7.361	88.095	5.688	110.303	7.361	0.000	-88.095	18.601	6.896	247.066	247.066
	2	-7.361	88.095	5.688	110.303	-7.361	-88.095	0.000	18.601	6.896	247.066	247.066
GROUP 2 WIND 4 1	1	6.212	75.209	4.856	94.168	6.212	0.000	-75.209	-21.507	-7.312	-263.754	-263.754
	2	-6.212	75.209	4.856	94.168	-6.212	-75.209	0.000	-21.507	-7.312	-263.754	-263.754
GROUP 2 WIND 4 2	1	6.212	75.209	4.856	94.168	6.212	0.000	-75.209	21.507	7.312	263.754	263.754
	2	-6.212	75.209	4.856	94.168	-6.212	-75.209	0.000	21.507	7.312	263.754	263.754
GROUP 2 WIND 5 1	1	3.913	49.437	3.192	61.900	3.913	0.000	-49.437	-23.686	-7.624	-276.269	-276.269
	2	-3.913	49.437	3.192	61.900	-3.913	-49.437	0.000	-23.686	-7.624	-276.269	-276.269
GROUP 2 WIND 5 2	1	3.913	49.437	3.192	61.900	3.913	0.000	-49.437	23.686	7.624	276.269	276.269
	2	-3.913	49.437	3.192	61.900	-3.913	-49.437	0.000	23.686	7.624	276.269	276.269
GROUP 3 WIND 1 1	1	8.165	77.241	4.987	96.712	8.165	0.000	-77.241	-2.965	-1.694	-59.101	-59.101
	2	-8.165	77.241	4.987	96.712	-8.165	-77.241	0.000	-2.965	-1.694	-59.101	-59.101

COLUMN MOMENTS(KIP-FEET), SHEARS(KIPS), REACTIONS(KIPS)

		TRANSVERSE						*	LONGITUDINAL			
LOAD	COL	PC	MT	V	MB	RF	ML	MR	MT	V	MB	MF
GROUP 3 WIND 1 2	1	8.165	77.241	4.987	96.712	8.165	0.000	-77.241	2.965	1.694	59.101	59.101
	2	-8.165	77.241	4.987	96.712	-8.165	-77.241	0.000	2.965	1.694	59.101	59.101
GROUP 3 WIND 2 1	1	7.238	68.766	4.440	86.101	7.238	0.000	-68.766	-9.350	-2.242	-83.614	-83.614
	2	-7.238	68.766	4.440	86.101	-7.238	-68.766	0.000	-9.350	-2.242	-83.614	-83.614
GROUP 3 WIND 2 2	1	7.238	68.766	4.440	86.101	7.238	0.000	-68.766	9.350	2.242	83.614	83.614
	2	-7.238	68.766	4.440	86.101	-7.238	-68.766	0.000	9.350	2.242	83.614	83.614
GROUP 3 WIND 3 1	1	6.774	64.529	4.166	80.795	6.774	0.000	-64.529	-15.735	-2.789	-108.128	-108.128
	2	-6.774	64.529	4.166	80.795	-6.774	-64.529	0.000	-15.735	-2.789	-108.128	-108.128
GROUP 3 WIND 3 2	1	6.774	64.529	4.166	80.795	6.774	0.000	-64.529	15.735	2.789	108.128	108.128
	2	-6.774	64.529	4.166	80.795	-6.774	-64.529	0.000	15.735	2.789	108.128	108.128
GROUP 3 WIND 4 1	1	5.539	53.229	3.437	66.647	5.539	0.000	-53.229	-19.992	-3.154	-124.471	-124.471
	2	-5.539	53.229	3.437	66.647	-5.539	-53.229	0.000	-19.992	-3.154	-124.471	-124.471
GROUP 3 WIND 4 2	1	5.539	53.229	3.437	66.647	5.539	0.000	-53.229	19.992	3.154	124.471	124.471
	2	-5.539	53.229	3.437	66.647	-5.539	-53.229	0.000	19.992	3.154	124.471	124.471
GROUP 3 WIND 5 1	1	3.067	30.629	1.978	38.350	3.067	0.000	-30.629	-23.184	-3.427	-136.728	-136.728
	2	-3.067	30.629	1.978	38.350	-3.067	-30.629	0.000	-23.184	-3.427	-136.728	-136.728
GROUP 3 WIND 5 2	1	3.067	30.629	1.978	38.350	3.067	0.000	-30.629	23.184	3.427	136.728	136.728
	2	-3.067	30.629	1.978	38.350	-3.067	-30.629	0.000	23.184	3.427	136.728	136.728
LIVE LOAD LL 1	1	145.164	-75.648	-2.543	-13.067	145.164	412.721	-337.073	0.000	0.000	0.000	0.000
	2	-2.994	42.639	2.543	46.077	-2.994	-42.639	0.000	0.000	0.000	0.000	0.000
LIVE LOAD LL 2	1	173.656	80.604	3.952	57.251	173.656	371.449	-452.053	0.000	0.000	0.000	0.000
	2	27.967	-103.203	-3.952	-34.652	27.967	103.203	0.000	0.000	0.000	0.000	0.000
LIVE LOAD LL 3	1	159.491	152.915	7.241	99.636	159.491	309.541	-462.456	0.000	0.000	0.000	0.000
	2	69.919	-183.820	-7.241	-68.731	69.919	183.820	0.000	0.000	0.000	0.000	0.000
LIVE LOAD LL 4	1	154.819	113.819	5.165	66.325	154.819	309.541	-423.360	0.000	0.000	0.000	0.000
	2	135.983	-126.374	-5.165	-53.771	135.983	329.546	-203.172	0.000	0.000	0.000	0.000
LIVE LOAD LL 5	1	150.146	75.144	3.122	33.737	150.146	309.541	-384.685	0.000	0.000	0.000	0.000
	2	160.592	-70.031	-3.122	-38.850	160.592	431.041	-361.009	0.000	0.000	0.000	0.000
LIVE LOAD LL 6	1	-10.156	-84.267	-4.457	-71.181	-10.156	0.000	84.267	0.000	0.000	0.000	0.000
	2	73.357	122.997	4.457	32.451	73.357	241.810	-364.807	0.000	0.000	0.000	0.000
LIVE LOAD LL 7	1	-2.406	-39.100	-2.378	-43.839	-2.406	0.000	39.100	0.000	0.000	0.000	0.000
	2	147.462	71.485	2.378	11.454	147.462	340.405	-411.890	0.000	0.000	0.000	0.000
LIVE LOAD LL 8	1	29.335	108.896	4.199	37.562	29.335	0.000	-108.896	0.000	0.000	0.000	0.000
	2	174.885	-86.381	-4.199	-60.077	174.885	457.081	-370.701	0.000	0.000	0.000	0.000
LIVE LOAD LL 9	1	71.737	184.665	7.284	69.389	71.737	0.000	-184.665	0.000	0.000	0.000	0.000
	2	159.838	-154.073	-7.284	-99.980	159.838	462.991	-308.917	0.000	0.000	0.000	0.000

COLUMN MOMENTS(KIP-FEET), SHEARS(KIPS), REACTIONS(KIPS)

		TRANSVERSE						*	LONGITUDINAL		
LOAD	COL	PC	MT	V	MB	RF	ML	MR	MT	V	MB	MF
LIVE LOAD LL10	1	138.410	119.932	4.943	52.483	138.410	220.932	-340.863	0.000	0.000	0.000	0.000
	2	154.555	-109.954	-4.943	-62.460	154.555	418.872	-308.917	0.000	0.000	0.000	0.000
LIVE LOAD LL11	1	160.347	69.706	3.122	39.182	160.347	361.633	-431.339	0.000	0.000	0.000	0.000
	2	150.390	-75.478	-3.122	-33.410	150.390	384.396	-308.917	0.000	0.000	0.000	0.000
LIVE LOAD LL12	1	53.811	150.620	6.234	66.807	53.811	0.000	-150.620	0.000	0.000	0.000	0.000
	2	28.044	-139.282	-6.234	-78.144	28.044	139.282	0.000	0.000	0.000	0.000	0.000
LIVE LOAD LL13	1	134.323	146.424	6.185	69.319	134.323	135.484	-281.908	0.000	0.000	0.000	0.000
	2	29.387	-141.233	-6.185	-74.510	29.387	141.233	0.000	0.000	0.000	0.000	0.000
LIVE LOAD LL14	1	144.045	250.897	10.934	130.490	144.045	121.935	-372.833	0.000	0.000	0.000	0.000
	2	76.963	-257.619	-10.934	-123.768	76.963	257.619	0.000	0.000	0.000	0.000	0.000
LIVE LOAD LL15	1	157.383	135.306	6.438	89.236	157.383	313.567	-448.873	0.000	0.000	0.000	0.000
	2	58.029	-164.084	-6.438	-60.459	58.029	164.084	0.000	0.000	0.000	0.000	0.000
LIVE LOAD LL16	1	156.790	125.974	5.870	78.772	156.790	313.567	-439.541	0.000	0.000	0.000	0.000
	2	120.014	-147.021	-5.870	-57.725	120.014	270.716	-123.695	0.000	0.000	0.000	0.000
LIVE LOAD LL17	1	150.052	70.184	2.922	31.745	150.052	313.567	-383.750	0.000	0.000	0.000	0.000
	2	157.448	-65.721	-2.922	-36.207	157.448	419.154	-353.433	0.000	0.000	0.000	0.000
LIVE LOAD LL18	1	82.787	283.899	12.198	141.551	82.787	0.000	-283.899	0.000	0.000	0.000	0.000
	2	80.923	-283.367	-12.198	-142.083	80.923	283.367	0.000	0.000	0.000	0.000	0.000
LIVE LOAD LL19	1	148.316	240.025	10.487	125.772	148.316	140.511	-380.536	0.000	0.000	0.000	0.000
	2	72.693	-247.704	-10.487	-118.093	72.693	247.704	0.000	0.000	0.000	0.000	0.000
LIVE LOAD LL20	1	124.125	198.258	8.544	99.771	124.125	117.092	-315.351	0.000	0.000	0.000	0.000
	2	121.440	-199.115	-8.544	-98.915	121.440	307.324	-108.210	0.000	0.000	0.000	0.000
LIVE LOAD LL21	1	161.332	119.665	5.695	78.976	161.332	340.233	-459.898	0.000	0.000	0.000	0.000
	2	114.929	-145.190	-5.695	-53.451	114.929	253.399	-108.210	0.000	0.000	0.000	0.000
LIVE LOAD LL22	1	155.126	68.252	2.978	35.617	155.126	340.233	-408.485	0.000	0.000	0.000	0.000
	2	151.831	-70.241	-2.978	-33.629	151.831	392.708	-322.467	0.000	0.000	0.000	0.000
LIVE LOAD LL23	1	155.077	67.840	2.956	35.271	155.077	340.233	-408.073	0.000	0.000	0.000	0.000
	2	152.093	-69.641	-2.956	-33.470	152.093	393.788	-324.148	0.000	0.000	0.000	0.000
LIVE LOAD LL24	1	60.044	-203.965	-8.794	-102.769	60.044	353.795	-149.830	0.000	0.000	0.000	0.000
	2	63.471	205.013	8.794	101.720	63.471	159.794	-364.807	0.000	0.000	0.000	0.000
LIVE LOAD LL25	1	121.508	-143.924	-6.300	-75.823	121.508	371.449	-227.525	0.000	0.000	0.000	0.000
	2	63.326	149.072	6.300	70.675	63.326	179.254	-328.327	0.000	0.000	0.000	0.000

CAP ANALYSIS AND DESIGN DATA

CAP MOMENTS AND SHEARS

	MOMENTS (KIP-FEET)							**	SHEARS (KIPS)					
POINT	D.L.TOT.	G1 MAX.+	G1 MAX.-	G2 MAX.+	G2 MAX.-	G3 MAX.+	G3 MAX.-		DL T.LT	DL T.RT	G1 + LT	G1 + RT	G1 - LT	G1 - RT
P 1	-1.601	-1.601	-1.601	-1.601	-1.601	-1.601	-1.601		-2.957	-167.786	-2.957	-167.786	-2.957	-280.963
P 2	-1227.486	-1227.486	-2010.327	-1227.486	-1227.486	-1227.486	-1696.254		-186.670	-186.670	-186.670	-186.670	-299.846	-299.846
C 1L	-1415.521	-1415.521	-2311.539	-1415.521	-1415.521	-1415.521	-1952.058		-189.400		-189.400		-302.576	
C 1R	-1485.162	-1302.218	-2519.264	-1351.793	-1648.641	-1275.201	-2216.878			372.655		658.126		350.607
P 3	-1113.871	-952.976	-1884.594	-989.393	-1266.452	-923.807	-1680.376		369.925	369.925	655.396	655.396	347.877	347.877
P 4	-1021.475	-866.092	-1726.354	-899.220	-1171.332	-836.386	-1546.677		369.243	203.390	654.713	350.917	347.195	181.342
P 5	728.296	1665.758	430.119	769.045	678.348	1320.330	515.376		178.364	12.512	325.891	33.552	156.316	-22.210
P 6	756.966	1688.815	465.304	756.966	756.966	1314.960	582.318		0.000	0.000	21.040	21.040	-34.721	-34.721
P 7	728.296	1663.733	433.949	778.244	687.547	1322.808	521.361		-12.512	-178.364	8.528	-169.856	-47.233	-322.558
P 8	-1021.476	-909.432	-1698.759	-871.620	-1143.731	-851.264	-1519.080		-203.390	-369.243	-194.882	-360.735	-347.584	-647.264
P 9	-1113.872	-999.701	-1856.729	-961.291	-1238.350	-940.512	-1652.416		-369.925	-369.925	-361.418	-361.418	-647.946	-647.946
C 2L	-1485.162	-1362.483	-2490.314	-1321.682	-1618.531	-1299.208	-2187.463		-372.655		-364.148		-650.676	
C 2R	-1415.521	-1415.521	-2309.734	-1415.521	-1415.521	-1415.521	-1950.978			189.400		302.348		189.400
P10	-1227.486	-1227.486	-2008.751	-1227.486	-1227.486	-1227.486	-1695.309		186.670	186.670	299.618	299.618	186.670	186.670
P11	-1.601	-1.601	-1.601	-1.601	-1.601	-1.601	-1.601		167.786	2.957	280.735	2.957	167.786	2.957

			CAP DESIGN DATA											
PT.	M+ UNF. K-FT.	M- UNF. K-FT.	TOP REINFORCE. AS	NO.SIZE	BOT.REINFORCE. AS	NO.SIZE	LEFT STIRRUPS M.SP.	AV/IN	BAR&SPAC	RIGHT STIRRUPS M.SP.	AV/IN	BAR&SPAC	D IN.	FC PSI	PS %	FS/FF RATIO	FS/FZ RATIO
P 1	-1.232	-1.232	1.76	4 # 11	1.76	4 # 11	0.00	0.000	#5@ 0.00	18.98	0.050	#5@12.29	42.00		0.10	0.000	0.003
P 2	-944.220	-1304.810	12.20	8 # 11	1.76	4 # 11	19.50	0.056	#5@11.05	19.50	0.056	#5@11.05	42.00		0.71	0.658	0.991
C 1	-1058.165	-1628.050	15.89	11 # 11	1.76	4 # 11	19.14	0.060	#5@10.27	9.57	0.243	D#5@ 5.11	42.00		0.95	0.717	0.967
P 3	-782.713	-1220.505	11.40	8 # 11	1.76	4 # 11	9.75	0.235	D#5@ 5.28	9.75	0.235	D#5@ 5.28	42.00		0.67	0.727	0.927
P 4	-714.178	-1118.948	10.39	7 # 11	1.76	4 # 11	9.75	0.235	D#5@ 5.29	19.50	0.082	#5@ 7.58	42.00		0.60	0.777	1.010
P 5	992.039	420.043	1.76	4 # 11	10.01	7 # 11	19.50	0.069	#5@ 8.96	0.00	0.000	#5@ 0.00	42.00		0.58	0.924	0.896
P 6	1011.508	447.937	1.76	4 # 11	10.16	7 # 11	0.00	0.000	#5@ 0.00	0.00	0.000	#5@ 0.00	42.00		0.59	0.924	0.913
P 7	993.945	424.646	1.76	4 # 11	10.00	7 # 11	0.00	0.000	#5@ 0.00	19.50	0.068	#5@ 9.18	42.00		0.58	0.922	0.897
P 8	-725.623	-1097.719	10.22	7 # 11	1.76	4 # 11	19.50	0.080	#5@ 7.74	9.75	0.231	D#5@ 5.37	42.00		0.59	0.719	0.991
P 9	-795.562	-1198.997	11.22	8 # 11	1.76	4 # 11	9.75	0.231	D#5@ 5.37	9.75	0.231	D#5@ 5.37	42.00		0.65	0.675	0.911
C 2	-1076.631	-1605.423	15.69	11 # 11	1.76	4 # 11	9.57	0.239	D#5@ 5.19	19.14	0.060	#5@10.29	42.00		0.93	0.671	0.954
P10	-944.220	-1304.084	12.19	8 # 11	1.76	4 # 11	19.50	0.056	#5@11.08	19.50	0.056	#5@11.08	42.00		0.71	0.656	0.991
P11	-1.232	-1.232	1.76	4 # 11	1.76	4 # 11	18.98	0.050	#5@12.32	0.00	0.000	#5@ 0.00	42.00		0.10	0.000	0.003

NOTE: *** FS/FZ RATIO EXCEEDS 1.0! ***

COLUMN ANALYSIS AND DESIGN OUTPUT

CRITICAL COLUMN LOADS

CN	T B	GR	LLC	WC	R	E S	C F	S F	PF	MTF	MLF	PM	MTM	MLM	PU	MTU	MLU	PU/PM	B	D
1	T	1	LL18	0.0				S	743.8	716.1	29.9	743.8	780.8	200.1	2118.6	2225.6	570.3	2.850	48.00	48.00
1	B	2		5.2				S	650.3	153.0	955.6	650.3	163.8	1193.5	1287.6	324.4	2363.1	1.980	48.00	48.00
2	T	1	LL18	0.0				S	735.7	-654.7	29.9	735.7	713.8	197.2	2239.3	2174.9	600.8	3.045	48.00	48.00
2	B	2		5.2				S	636.1	83.4	955.6	636.1	136.2	1186.7	1274.7	271.7	2366.6	1.996	48.00	48.00

COLUMN DESIGN DATA

CN	T B	B FACE 1 NO.SIZE	B FACE 2 NO.SIZE	D FACE 3 NO.SIZE	D FACE 4 NO.SIZE	AS	PS	BD12	BD	SUMPU	SUMPC	DEL.T	DEL.L	CM	R	PHIC
1	T	15 # 11	0 # 0	0 # 0	0 # 0	23.40	1.293	1.00	0.094	1561.	18844.	1.090	1.345	1.000	1	0.70
1	B	15 # 11	0 # 0	0 # 0	0 # 0	23.40	1.293	1.00	0.326	1205.	18217.	1.071	1.249	1.000	1	0.70
2	T	15 # 11	0 # 0	0 # 0	0 # 0	23.40	1.293	1.00	0.110	1561.	18844.	1.090	1.340	1.000	1	0.70
2	B	15 # 11	0 # 0	0 # 0	0 # 0	23.40	1.293	1.00	0.000	1205.	18217.	1.071	1.242	1.000	1	0.70

FOOTING 1 DESIGN LOADS

F	G	LLID	WC	ES	C	S	P	MT	VT	ML	VL	P4	P3	P2	P1	MTF	VBF	VPF	LOAD
1	1	LL14	0.0			S	609.666	158.445	12.401	458.794	13.153	25.788	-1.916	8.975	36.678	16.300	0.000	0.000	MAX.P1
1	1	LL14	0.0			S	891.271	295.395	23.614	596.432	17.100	33.157	-2.859	17.517	53.533	25.278	0.000	0.000	MAX.MT
1	1	LL 2	0.0			S	941.844	170.304	11.689	596.432	17.100	39.035	3.050	14.460	50.445	23.424	0.000	0.000	MAX.VT
1	1	LL 2	0.0			S	941.844	170.304	11.689	596.432	17.100	39.035	3.050	14.460	50.445	23.424	0.000	0.000	MAX.VP
1	2		5.2			S	650.332	152.991	9.089	955.583	27.011	44.580	-27.073	-13.151	58.502	34.710	0.000	0.000	MAX.ML
1	1	LL 2	0.0			S	941.844	170.304	11.689	596.432	17.100	39.035	3.050	14.460	50.445	31.419	0.000	0.000	MAX.VL
1	2		4.2			S	502.554	149.954	8.655	722.548	20.465	32.391	-21.127	-7.744	45.774	13.300	0.000	0.000	MAX.P3

FOOTING 1 ANALYSIS/DESIGN RESULTS

FOOTING SIZE			* BAR REINFORCEMENT STEEL				* SECTION CAPACITIES				
B	D	T	P1/PA	AS	NO.SIZE	SPAC. PLACEMENT	MT.	VB	VP	DS	FC
6.000	6.000	3.000	0.367	0.23	7 # 4	@10.250 TOP TRAN	33.657	38.922	77.844	32.250	0.000
				0.32	10 # 4	@ 7.125 BOT.LONG	48.705	39.525	79.051	32.750	0.000

FOOTING 2 DESIGN LOADS

F	G	LLID	WC	ES	C	S	P	MT	VT	ML	VL	P4	P3	P2	P1	MTF	VBF	VPF	LOAD
2	2		4.2			S	487.043	96.384	4.048	722.548	20.465	34.707	-19.686	-11.259	43.134	11.236	0.000	0.000	MAX.P1
2	1	LL 9	0.0			S	914.228	-167.882	-13.491	596.432	17.100	38.185	2.200	13.775	49.760	22.899	0.000	0.000	MAX.MT
2	1	LL 8	0.0			S	939.928	-99.728	-8.222	596.432	17.100	41.231	5.246	12.157	48.142	21.920	0.000	0.000	MAX.VT
2	1	LL 8	0.0			S	939.928	-99.728	-8.222	596.432	17.100	41.231	5.246	12.157	48.142	21.920	0.000	0.000	MAX.VP
2	2		5.2			S	636.144	83.350	3.099	955.583	27.011	47.782	-24.732	-17.472	55.042	34.569	0.000	0.000	MAX.ML
2	1	LL 8	0.0			S	939.928	-99.728	-8.222	596.432	17.100	41.231	5.246	12.157	48.142	31.379	0.000	0.000	MAX.VL
2	2		4.2			S	487.043	96.384	4.048	722.548	20.465	34.707	-19.686	-11.259	43.134	11.236	0.000	0.000	MAX.P3

FOOTING 2 ANALYSIS/DESIGN RESULTS

FOOTING SIZE			* BAR REINFORCEMENT STEEL				* SECTION CAPACITIES				
B	D	T	P1/PA	AS	NO.SIZE	SPAC. PLACEMENT	MT.	VB	VP	DS	FC
6.000	6.000	3.000	0.345	0.21	7 # 4	@10.250 TOP TRAN	33.657	38.922	77.844	32.250	0.000
				0.31	10 # 4	@ 7.125 BOT.LONG	48.705	39.525	79.051	32.750	0.000

CALCULATION COVER SHEET

PROJECT	JOB NO.	CALC NO.	SHEET
I-75 / I-575 NORTHWEST CORRIDOR	NH000-0575-01(028)	BR#36	1
SUBJECT	DISCIPLINE		
Caisson Lateral Stability Design Input	STRUCTURAL		

CALCULATION STATUS DESIGNATION	PRELIMINARY	CONFIRMED	SUPSEDED	VOIDED	INCOMPLETE
	☐	☐	☐	☐	X

COMPUTER PROGRAM/TYPE	SCP	MAINFRAME	PC	PROGRAM	VERSION/RELEASE NO.
	(X) YES ( ) NO	( )	(X)	Excel	2003

Note 1: Georgia Department of Transportation (GDOT) terminated Contract Number TOURDPPI60072 for its convenience prior the completion of all work under that contract and directed that the work with respect to these calculations be discontinued.
(a) These calculations were not completed at the time of GDOT's direction and the information contained herein is not complete and/or has not been fully verified or checked. These calculations are a work-in-progress and are presented only as such.
(b) Any user is cautioned that the use of these calculations and any related information or calculations, without access to factors and without proper regard for their purpose, could lead to erroneous conclusions.
(c) If any such calculations or any information contained herein is used in future work efforts or any follow on design work activity, a complete confirmation of the information contained herein should be performed prior to any such use.
(d) GTP has no responsibility for the use of this information not under its direct control.

Caisson lateral stability design input calculations are included for bent 3.

NO.	REASON FOR REVISION	TOTAL NO. OF SHEETS	LAST SHEET NO.	BY	CHECKED	APPROVED/ ACCEPTED	DATE
A	As per GDOT's termination for convenience direction	3	3	JCR			11/30/09

RECORD OF REVISIONS

CALCULATION SHEET

PROJECT: I-75 / I-575 NORTHWEST CORRIDOR
JOB NUMBER NH000-0575-01(028)
CALC NO. BR#36

SUBJECT: Caisson Lateral Stability Design Input - Bent 3 SHEET NO.
BY: JCR DATE: 11/30/2009 SHEET REV.

Sufficient sample calculations representative of the scope and conditions in the design calculation were performed and the results compared to demonstrate the computer program adequacy.

BRIDGE: I-575 over Noonday Creek South
COUNTY: COBB
P.I. NO: 713640
PROJECT: NH000-0575-01(028)

J.B. TRIMBLE, INC.

JOB NO: 255717
DESIGNED BY: WBN
CHECKED BY: JCR

LPILE ANALYSIS - BENT 3

PILE PROPERTIES

Concrete Weight =	150	lbs/ft^3	DIAMETER	Use =	4.50	ft.
f'c =	3500	lbs/in^2			54	in.
Ec	3586616	lbs/in^2		Area =	2290.2	in^2
fy	60000	lbs/in^2		Moment of Inertia (I) =	417393	in^4
Es	29000000	lbs/in^2				
Ground Slope	0	degrees		Ground Elev. =	919.21	ft.
				Top of Rock Elev. =	900	ft.
				Depth of Socket =	7	ft.
				Bot. of Caisson Elev. =	893	

Depth of Caisson (ft.)	Weight of Caisson (k)
26.21	63
314.52 (in.)	

Dmain-rebar	Amain-rebar [in^2]
1.41	1.56
Dstirrup [in]	# main rebar
0.5	15
Clear Cover [in]	
5	
Cover from main rebar center [in]	
6.205	

SOIL PROPERTIES - OBTAINED FROM HOLE NO. BB-3

			INPUT				Lateral Subgrade Modulus	Uniaxial Comp. Strength	Unit Weight	Effective	Cohesion	Internal Angle of Friction	Strain
Soil		Submerged	LAYER (ft)			N	K(pci)	UCS (psi)	γ (pcf)	γ' (pcf)	c (psf)	ϕ	e (in/in)
Loose	Sand	YES	0	to	2.21	6	20	N/A	100	37.6	0	28	0
Very Loose	Sand	YES	2.21	to	6.21	1	20	N/A	85	22.6	0	25	0
Loose	Sand	YES	6.21	to	12.21	8	20	N/A	100	37.6	0	29	0
Medium Dense	Sand	YES	12.21	to	18.21	13	60	N/A	120	57.6	0	31	0
Very Dense	Sand	YES	18.21	to	19.21	50	125	N/A	130	67.6	0	37	0
	Rock	YES	19.21	to	50	N/A	N/A	3000	145	145	0	40	0

SOIL LAYERS

		ADJUSTED UNITS								
		LAYER (in.)			γ (pci)	K(pci)	UCS (psi)	c (psi)	ϕ	e (in/in)
Loose	Sand	0	to	26.52	0.022	20	N/A	0.00	28	0
Very Loose	Sand	26.52	to	74.52	0.013	20	N/A	0.00	25	0
Loose	Sand	74.52	to	146.52	0.022	20	N/A	0.00	29	0
Medium Dense	Sand	146.52	to	218.52	0.033	60	N/A	0.00	31	0
Very Dense	Sand	218.52	to	230.52	0.039	125	N/A	0.00	37	0
	Rock	230.52	to	600	0.084	N/A	3000	0.00	40	0

SERVICE LOADS

CASE	P (k)	Weight of Cssn (k)	P_{TOT} (lbs)	Trans V (kips)	Long V (kips)	Resultant V(lbs)	Trans M(kip-ft)	Long M(kip-ft)	Resultant M(lbs-in)
1	502.554	62.528	565082	8.655	20.465	22220	149.954	722.548	8855332
2	487.043	62.528	549571	4.048	20.465	20862	96.384	722.548	8747378

FACTORED LOADS [GROUP II LOADING CONTROLS]

CASE	P (lbs)	Weight of Cssn (lbs)	P_{TOT} (lbs)	Trans V (kips)	Long V (kips)	Resultant V(lbs)	Trans M(kip-ft)	Long M(kip-ft)	Resultant M(lbs-in)
1	653320	81286	734606	11.252	26.605	28886	194.940	939.312	11511931
2	633156	81286	714442	5.262	26.605	27120	125.299	939.312	11371592

[4.6.5.1] Axial Capacity in Soil

			Service Load	
For compression,	(bearing) [ksf]	Qt [k]	P_{TOT} (k)	
Qt = (Area)*(bearing)	100	1590	565	OK

CALCULATION COVER SHEET

PROJECT	JOB NO.	CALC NO.	SHEET
I-75 / I-575 NORTHWEST CORRIDOR	NH000-0575-01(028)	BR#36	1
SUBJECT		DISCIPLINE	
Caisson Lateral Stability Design Output		STRUCTURAL	

CALCULATION STATUS DESIGNATION	PRELIMINARY	CONFIRMED	SUPSEDED	VOIDED	INCOMPLETE
	☐	☐	☐	☐	X

COMPUTER PROGRAM/TYPE	SCP	MAINFRAME	PC	PROGRAM	VERSION/RELEASE NO.
	X YES ◯ NO	◯	X	LPILE	4.0

Note 1: Georgia Department of Transportation (GDOT) terminated Contract Number TOURDPPI60072 for its convenience the completion of all work under that contract and directed that the work with respect to these calculations be discontinued.
(a) These calculations were not completed at the time of GDOT's direction and the information contained herein is not and/or has not been fully verified or checked. These calculations are a work-in-progress and are presented only as such.
(b) Any user is cautioned that the use of these calculations and any related information or calculations, without access to factors and without proper regard for their purpose, could lead to erroneous conclusions.
(c) If any such calculations or any information contained herein is used in future work efforts or any follow on design work a complete confirmation of the information contained herein should be performed prior to any such use.
(d) GTP has no responsibility for the use of this information not under its direct control.

Caisson lateral stability design ouptput is included for bent 3.

NO.	REASON FOR REVISION	TOTAL NO. OF SHEETS	LAST SHEET NO.	BY	CHECKED	APPROVED/ ACCEPTED	DATE
A	As per GDOT's termination for convenience direction	13	13	JCR			11/30/09

RECORD OF REVISIONS

CALCULATION SHEET

PROJECT: I-75 / I-575 NORTHWEST CORRIDOR
JOB NUMBER NH000-0575-01(028)
CALC NO. BR#36

SUBJECT: Caisson Lateral Stability Design Output - Bent 3 SHEET NO.
BY: JCR DATE: 11/30/2009 SHEET REV.

Sufficient sample calculations representative of the scope and conditions in the design calculation were performed and the results compared to demonstrate the computer program adequacy.

LPILE Plus for Windows, Version 4.0 (4.0.10)

Analysis of Individual Piles and Drilled Shafts
Subjected to Lateral Loading Using the p-y Method

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This program is licensed to:

HMM
HMMG

Path to file locations: N:\TRA\255717\Eng\BR36\Substructure\LPILE\
Name of input data file: B3.lpd
Name of output file: B3.lpo
Name of plot output file: B3.lpp
Name of runtime file: B3.lpr

Time and Date of Analysis

Date: October 31, 2009 Time: 16: 9: 4

Problem Title

I-575 over Noonday Ck South [BENT 3] [BB-3 BORING]

Program Options

Units Used in Computations - US Customary Units, inches, pounds

Basic Program Options:

Analysis Type 4:
- Computation of Nonlinear Bending Stiffness and Ultimate Bending Moment Capacity with Pile Response Using User-specified Constant EI

Computation Options:
- Only internally-generated p-y curves used in analysis
- Analysis does not use p-y multipliers (individual pile or shaft action only)
- Analysis assumes no shear resistance at pile tip
- Analysis includes automatic computation of pile-top deflection vs. pile embedment length
- No computation of foundation stiffness matrix elements
- Output pile response for full length of pile
- Analysis assumes no soil movements acting on pile
- No additional p-y curves to be computed at user-specified depths

Solution Control Parameters:

- Number of pile increments = 100
- Maximum number of iterations allowed = 100
- Deflection tolerance for convergence = 1.0000E-05 in
- Maximum allowable deflection = 1.0000E+00 in

Printing Options:
- Values of pile-head deflection, bending moment, shear force, and soil reaction are printed for full length of pile.
- Printing Increment (spacing of output points) = 10

Pile Structural Properties and Geometry

Pile Length = 314.52 in
Depth of ground surface below top of pile = .00 in
Slope angle of ground surface = .00 deg.

Structural properties of pile defined using 2 points

Point	Depth X in	Pile Diameter in	Moment of Inertia in**4	Pile Area Sq.in	Modulus of Elasticity lbs/Sq.in
1	0.0000	54.000	417393.0000	2290.2000	3586616.000
2	314.5200	54.000	417393.0000	2290.2000	3586616.000

Please note that because this analysis makes computations of ultimate moment capacity and pile response using nonlinear bending stiffness that the above values of moment of inertia and modulus of are not used for any computations other than total stress due to combined axial loading and bending.

Soil and Rock Layering Information

The soil profile is modelled using 6 layers

Layer 1 is sand, p-y criteria by Reese et al., 1974
Distance from top of pile to top of layer = .000 in
Distance from top of pile to bottom of layer = 26.520 in
p-y subgrade modulus k for top of soil layer = 20.000 lbs/in**3
p-y subgrade modulus k for bottom of layer = 20.000 lbs/in**3

Layer 2 is sand, p-y criteria by Reese et al., 1974
Distance from top of pile to top of layer = 26.520 in
Distance from top of pile to bottom of layer = 74.520 in
p-y subgrade modulus k for top of soil layer = 20.000 lbs/in**3
p-y subgrade modulus k for bottom of layer = 20.000 lbs/in**3

Layer 3 is sand, p-y criteria by Reese et al., 1974
Distance from top of pile to top of layer = 74.520 in
Distance from top of pile to bottom of layer = 146.520 in
p-y subgrade modulus k for top of soil layer = 20.000 lbs/in**3
p-y subgrade modulus k for bottom of layer = 20.000 lbs/in**3

Layer 4 is sand, p-y criteria by Reese et al., 1974
Distance from top of pile to top of layer = 146.520 in
Distance from top of pile to bottom of layer = 218.520 in
p-y subgrade modulus k for top of soil layer = 60.000 lbs/in**3

p-y subgrade modulus k for bottom of layer = 60.000 lbs/in**3

Layer 5 is sand, p-y criteria by Reese et al., 1974
Distance from top of pile to top of layer = 218.520 in
Distance from top of pile to bottom of layer = 230.520 in
p-y subgrade modulus k for top of soil layer = 125.000 lbs/in**3
p-y subgrade modulus k for bottom of layer = 125.000 lbs/in**3

Layer 6 is strong rock (vuggy limestone)
Distance from top of pile to top of layer = 230.520 in
Distance from top of pile to bottom of layer = 600.000 in

(Depth of lowest layer extends 285.48 in below pile tip)

Effective Unit Weight of Soil vs. Depth

Distribution of effective unit weight of soil with depth
is defined using 12 points

Point No.	Depth X in	Eff. Unit Weight lbs/in**3
1	.00	.02200
2	26.52	.02200
3	26.52	.01300
4	74.52	.01300
5	74.52	.02200
6	146.52	.02200
7	146.52	.03300
8	218.52	.03300
9	218.52	.03900
10	230.52	.03900
11	230.52	.08400
12	600.00	.08400

**** WARNING - POSSIBLE INPUT DATA ERROR ****

Values entered for effective unit weights of soil were outside
the limits of 0.011574 pci (20 pcf) or 0.0810019 pci (140 pcf)
This data may be erroneous. Please check your data.

Shear Strength of Soils

Distribution of shear strength parameters with depth
defined using 12 points

Point No.	Depth X in	Cohesion c lbs/in**2	Angle of Friction Deg.	E50 or k_rm	RQD %
1	.000	.00000	28.00	------	------
2	26.520	.00000	28.00	------	------
3	26.520	.00000	25.00	------	------
4	74.520	.00000	25.00	------	------
5	74.520	.00000	29.00	------	------

6	146.520	.00000	29.00	------	------
7	146.520	.00000	31.00	------	------
8	218.520	.00000	31.00	------	------
9	218.520	.00000	37.00	------	------
10	230.520	.00000	37.00	------	------
11	230.520	3000.00000	.00	------	------
12	600.000	3000.00000	.00	------	------

Notes:

(1) Cohesion = uniaxial compressive strength for rock materials.
(2) Values of E50 are reported for clay strata.
(3) Default values will be generated for E50 when input values are 0.
(4) RQD and k_rm are reported only for weak rock strata.

Loading Type

Static loading criteria was used for computation of p-y curves

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Pile-head Loading and Pile-head Fixity Conditions

Number of loads specified = 2

Load Case Number 1

Pile-head boundary conditions are Shear and Moment (BC Type 1)
Shear force at pile head = 22220.000 lbs
Bending moment at pile head = 8855332.000 in-lbs
Axial load at pile head = 502554.000 lbs

Non-zero moment at pile head for this load case indicates the pile-head may rotate under the applied pile-head loading, but is not a free-head (zero moment) condition.

Load Case Number 2

Pile-head boundary conditions are Shear and Moment (BC Type 1)
Shear force at pile head = 20862.000 lbs
Bending moment at pile head = 8747378.000 in-lbs
Axial load at pile head = 487043.000 lbs

Non-zero moment at pile head for this load case indicates the pile-head may rotate under the applied pile-head loading, but is not a free-head (zero moment) condition.

Computations of Ultimate Moment Capacity and Nonlinear Bending Stiffness

---

Pile Description:

The sectional shape is a circular drilled shaft (bored pile).

Outside Diameter = 54.0000 In

Material Properties:

Compressive Strength of Concrete = 3.500 Kip/In**2
Yield Stress of Reinforcement = 60. Kip/In**2
Modulus of Elasticity of Reinforcement = 29000. Kip/In**2
Number of Reinforcing Bars = 15
Area of Single Bar = 1.56000 In**2
Number of Rows of Reinforcing Bars = 15
Cover Thickness (edge to bar center) = 6.205 In

Ultimate Axial Squash Load Capacity = 8147.79 Kip

Distribution and Area of Steel Reinforcement

Row Number	Area of Reinforcement In**2	Distance to Centroidal Axis In
1	1.560000	20.6811
2	1.560000	19.7772
3	1.560000	18.0090
4	1.560000	15.4537
5	1.560000	12.2230
6	1.560000	8.4581
7	1.560000	4.3235
8	1.560000	.0000
9	1.560000	-4.3235
10	1.560000	-8.4581
11	1.560000	-12.2230
12	1.560000	-15.4537
13	1.560000	-18.0090
14	1.560000	-19.7772
15	1.560000	-20.6811

Axial Thrust Force = 507319.00 lbs

Bending Moment in-lbs	Bending Stiffness lb-in2	Bending Curvature rad/in	Maximum Strain in/in	Neutral Axis Position inches
1520489.902	1.52049E+12	.00000100	.00008820	88.200
7573115.391	1.51462E+12	.00000500	.00019764	39.528
8556609.803	9.50734E+11	.00000900	.00027103	30.115
10245043.190	7.88080E+11	.00001300	.00034380	26.446
11750106.314	6.91183E+11	.00001700	.00041283	24.284
13150552.119	6.26217E+11	.00002100	.00047907	22.813
14506367.066	5.80255E+11	.00002500	.00054426	21.770
15829828.291	5.45856E+11	.00002900	.00060876	20.992
17131128.742	5.19125E+11	.00003300	.00067305	20.396
18404665.195	4.97423E+11	.00003700	.00073650	19.905
19670364.636	4.79765E+11	.00004100	.00080074	19.530
20911960.173	4.64710E+11	.00004500	.00086414	19.203
22141794.207	4.51873E+11	.00004900	.00092793	18.937
23365025.976	4.40850E+11	.00005300	.00099305	18.737
24565742.950	4.30978E+11	.00005700	.00105706	18.545
25754099.388	4.22198E+11	.00006100	.00112151	18.385
26929679.845	4.14303E+11	.00006500	.00118643	18.253
28091503.881	4.07123E+11	.00006900	.00125181	18.142
29061110.231	3.98097E+11	.00007300	.00131512	18.015

29825204.949	3.87340E+11	.00007700	.00137775	17.893
30426881.566	3.75641E+11	.00008100	.00143579	17.726
30961734.231	3.64256E+11	.00008500	.00149311	17.566
31403916.487	3.52853E+11	.00008900	.00154917	17.406
31839037.118	3.42355E+11	.00009300	.00160559	17.264
32181666.363	3.31770E+11	.00009700	.00166048	17.118
32503236.896	3.21814E+11	.00010100	.00171824	17.012
34198655.495	2.61058E+11	.00013100	.00212221	16.200
34899159.345	2.16765E+11	.00016100	.00250941	15.586
35411668.065	1.85401E+11	.00019100	.00290732	15.222
35686293.315	1.61476E+11	.00022100	.00328399	14.860
35933375.395	1.43161E+11	.00025100	.00366799	14.613
35933375.395	1.27877E+11	.00028100	.00405401	14.427

Ultimate Moment Capacity at a Concrete Strain of 0.003 = 35479.239 In-Kip

Axial Thrust Force = 482279.00 lbs

Bending Moment in-lbs	Bending Stiffness lb-in2	Bending Curvature rad/in	Maximum Strain in/in	Neutral Axis Position inches
1522981.440	1.52298E+12	.00000100	.00008514	85.139
7576320.587	1.51526E+12	.00000500	.00019450	38.900
8351893.081	9.27988E+11	.00000900	.00026586	29.540
10007851.215	7.69835E+11	.00001300	.00033784	25.987
11483918.230	6.75525E+11	.00001700	.00040580	23.870
12887730.465	6.13701E+11	.00002100	.00047209	22.481
14236581.717	5.69463E+11	.00002500	.00053682	21.473
15548907.669	5.36169E+11	.00002900	.00060044	20.705
16846421.630	5.10498E+11	.00003300	.00066419	20.127
18129572.417	4.89988E+11	.00003700	.00072826	19.683
19385370.447	4.72814E+11	.00004100	.00079118	19.297
20629737.159	4.58439E+11	.00004500	.00085448	18.988
21868250.508	4.46291E+11	.00004900	.00091908	18.757
23084135.822	4.35550E+11	.00005300	.00098254	18.539
24288068.102	4.26106E+11	.00005700	.00104643	18.358
25479425.817	4.17696E+11	.00006100	.00111076	18.209
26657945.621	4.10122E+11	.00006500	.00117553	18.085
27853145.540	4.03669E+11	.00006900	.00124200	18.000
28772451.458	3.94143E+11	.00007300	.00130519	17.879
29508527.426	3.83228E+11	.00007700	.00136478	17.724
30112916.098	3.71764E+11	.00008100	.00142268	17.564
30633059.602	3.60389E+11	.00008500	.00147952	17.406
31078044.714	3.49192E+11	.00008900	.00153545	17.252
31515465.788	3.38876E+11	.00009300	.00159172	17.115
31860400.390	3.28458E+11	.00009700	.00164905	17.001
32161339.756	3.18429E+11	.00010100	.00170233	16.855
33774401.785	2.57820E+11	.00013100	.00210345	16.057
34548916.720	2.14590E+11	.00016100	.00248719	15.448
35047667.220	1.83496E+11	.00019100	.00287833	15.070
35329051.830	1.59860E+11	.00022100	.00325344	14.721
35584139.975	1.41769E+11	.00025100	.00363541	14.484
35584139.975	1.26634E+11	.00028100	.00404179	14.384

Ultimate Moment Capacity at a Concrete Strain of 0.003 = 35138.939 In-Kip

Computed Values of Load Distribution and Deflection
for Lateral Loading for Load Case Number 1

Pile-head boundary conditions are Shear and Moment (BC Type 1)
Specified shear force at pile head = 22220.000 lbs
Specified bending moment at pile head = 8855332.000 in-lbs
Specified axial load at pile head = 502554.000 lbs

Non-zero moment for this load case indicates the pile-head may rotate under the applied pile-head loading, but is not a free-head (zero moment)condition.

Depth X in	Deflect. y in	Moment M lbs-in	Shear V lbs	Slope S Rad.	Total Stress lbs/in**2	Flx. Rig. EI lbs-in**2	Soil Res p lbs/in
0.000	.249845	8.86E+06	2.22E+04	-.001839	792.3	1.50E+12	0.000
31.452	.194995	9.56E+06	2.01E+04	-.001646	837.8	1.50E+12	-118.740
62.904	.146455	1.01E+07	1.55E+04	-.001439	875.9	1.50E+12	-171.836
94.356	.104613	1.06E+07	9717.5	-.001221	903.1	1.50E+12	-189.036
125.808	.069743	1.08E+07	3998.0	-9.96E-04	918.0	1.50E+12	-169.897
157.260	.042000	1.08E+07	-3085.9	-7.68E-04	921.2	1.50E+12	-345.479
188.712	.021409	1.06E+07	-1.20E+04	-5.42E-04	905.9	1.50E+12	-216.506
220.164	.007818	1.02E+07	-1.69E+04	-3.24E-04	876.4	1.50E+12	-145.450
251.616	8.81E-04	7.61E+06	-1.75E+05	-1.26E-04	711.7	1.50E+12	-2643.796
283.068	-.001191	2.23E+06	-1.35E+05	-2.52E-05	363.6	1.50E+12	3571.740
314.520	-.001605	0.0	0.0	-9.21E-06	219.4	1.50E+12	4816.102

Please note that because this analysis makes computations of ultimate moment capacity and pile response using nonlinear bending stiffness that the above values of total stress due to combined axial stress and bending may not be representative of actual conditions.

Output Verification:

Computed forces and moments are within specified convergence limits.

Output Summary for Load Case No. 1:

Pile-head deflection = ✓.24984459 in
Computed slope at pile head = -.00183944
Maximum bending moment = 10858860.693 lbs-in
Maximum shear force = -184827.450 lbs
Depth of maximum bending moment = 150.970 in
Depth of maximum shear force = 261.052 in
Number of iterations = 5
Number of zero deflection points = 1

Computed Values of Load Distribution and Deflection
for Lateral Loading for Load Case Number 2

Pile-head boundary conditions are Shear and Moment (BC Type 1)
Specified shear force at pile head = 20862.000 lbs
Specified bending moment at pile head = 8747378.000 in-lbs
Specified axial load at pile head = 487043.000 lbs

Non-zero moment for this load case indicates the pile-head may rotate under the applied pile-head loading, but is not a free-head (zero moment)condition.

Depth X in	Deflect. y in	Moment M lbs-in	Shear V lbs	Slope S Rad.	Total Stress lbs/in**2	Flx. Rig. EI lbs-in**2	Soil Res p lbs/in
0.000	.242613	8.75E+06	2.09E+04	-.001793	778.5	1.50E+12	0.000
31.452	.189182	9.41E+06	1.88E+04	-.001602	821.2	1.50E+12	-117.713
62.904	.141961	9.96E+06	1.42E+04	-.001399	856.6	1.50E+12	-170.233
94.356	.101310	1.03E+07	8584.0	-.001185	881.2	1.50E+12	-183.067
125.808	.067477	1.05E+07	3047.6	-9.66E-04	894.0	1.50E+12	-164.377
157.260	.040595	1.06E+07	-3866.1	-7.44E-04	895.3	1.50E+12	-333.920
188.712	.020670	1.03E+07	-1.24E+04	-5.24E-04	878.7	1.50E+12	-209.031
220.164	.007537	9.83E+06	-1.72E+04	-3.13E-04	848.4	1.50E+12	-140.220
251.616	8.44E-04	7.35E+06	-1.69E+05	-1.22E-04	688.0	1.50E+12	-2531.009
283.068	-.001151	2.15E+06	-1.31E+05	-2.42E-05	351.7	1.50E+12	3453.114
314.520	-.001547	0.0	0.0	-8.75E-06	212.7	1.50E+12	4641.180

Please note that because this analysis makes computations of ultimate moment capacity and pile response using nonlinear bending stiffness that the above values of total stress due to combined axial stress and bending may not be representative of actual conditions.

Output Verification:

Computed forces and moments are within specified convergence limits.

Output Summary for Load Case No. 2:

Pile-head deflection	=	.24261273 in
Computed slope at pile head	=	-.00179304
Maximum bending moment	=	10571193.189 lbs-in
Maximum shear force	=	-178603.980 lbs
Depth of maximum bending moment	=	147.824 in
Depth of maximum shear force	=	261.052 in
Number of iterations	=	5
Number of zero deflection points	=	1

Summary of Pile-head Response

Definition of symbols for pile-head boundary conditions:

y = pile-head displacment, in
M = pile-head moment, lbs-in
V = pile-head shear force, lbs
S = pile-head slope, radians
R = rotational stiffness of pile-head, in-lbs/rad

BC Type	Boundary Condition 1	Boundary Condition 2	Axial Load lbs	Pile Head Deflection in	Maximum Moment in-lbs	Maximum Shear lbs
1	V= 22220.000	M= 8.86E+06	502554.0000	.2498	1.086E+07	-184827.4504

1 V= 20862.000 M= 8.75E+06 487043.0000 .2426 1.057E+07-178603.9798

Pile-head Deflection vs. Pile Length

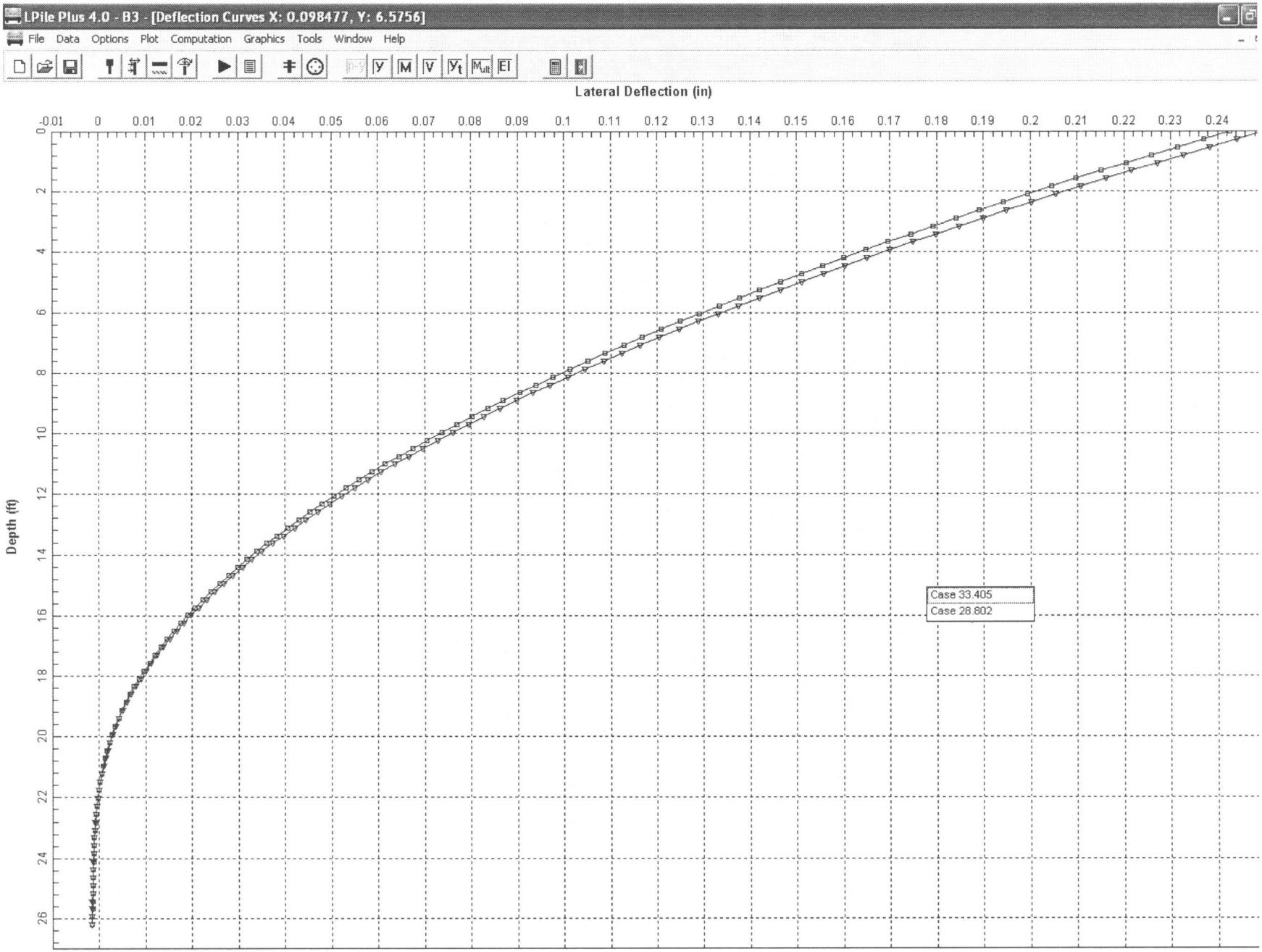
Boundary Condition Type 1, Shear and Moment

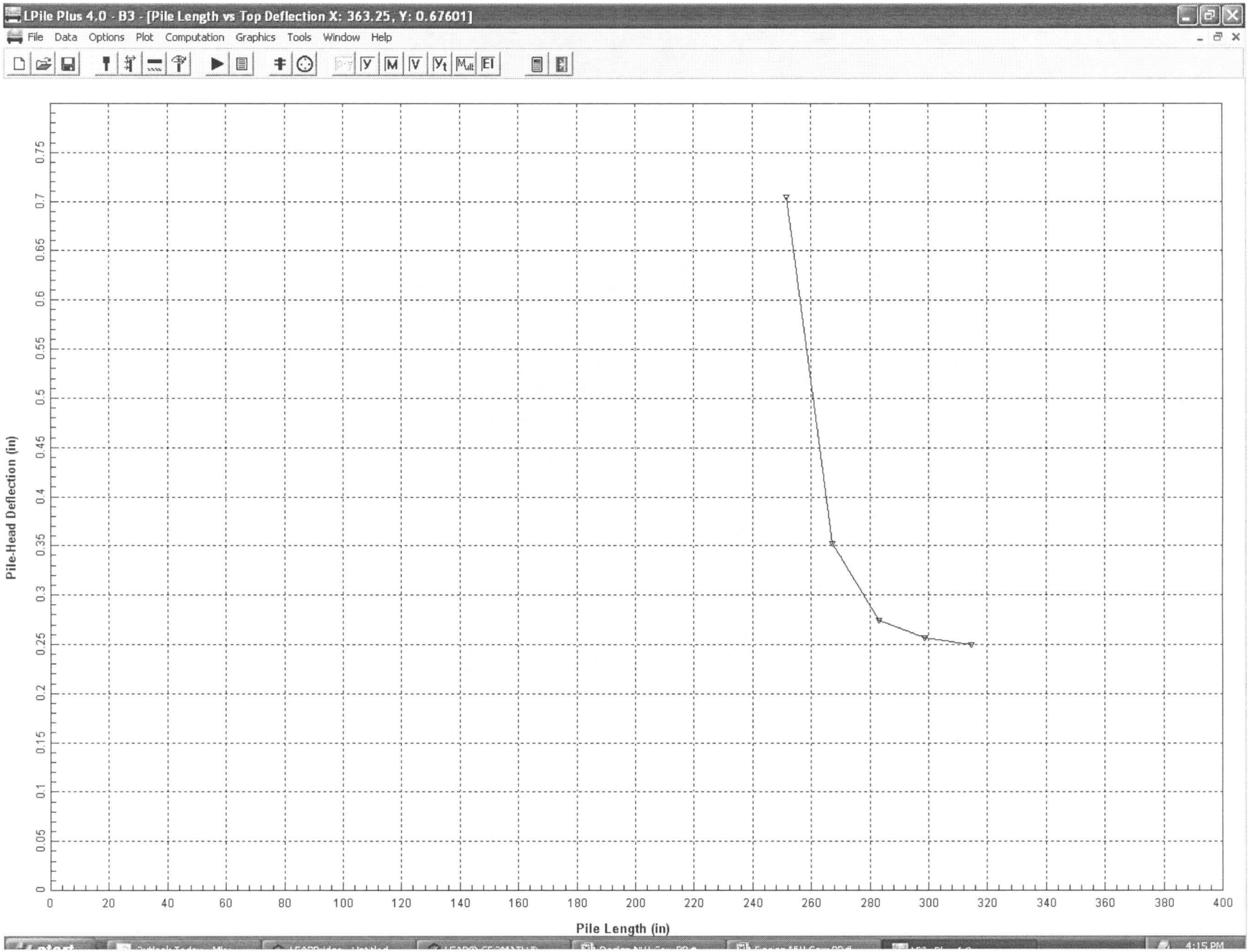
Shear = 22220. lbs
Moment = 8855332. in-lbs
Axial Load = 502554. lbs

MIN. SOCKET OF 7'

Pile Length in	Pile Head Deflection in	Maximum Moment in-lbs	Maximum Shear lbs
314.520	.24984459	10858860.693	-184827.450
298.794	.25658972	10830568.867	-215762.623
283.068	.27466293	10756848.434	-264075.685
267.342	.35275135	10599240.169	-332779.468
251.616	.70422215	10469217.009	-405843.725

The analysis ended normally.


LPile Plus 4.0 - B3 - [Deflection Curves X: 0.098477, Y: 6.5756]
File Data Options Plot Computation Graphics Tools Window Help
Lateral Deflection (in)
-0.01 0 0.01 0.02 0.03 0.04 0.05 0.06 0.07 0.08 0.09 0.1 0.11 0.12 0.13 0.14 0.15 0.16 0.17 0.18 0.19 0.2 0.21 0.22 0.23 0.24
Depth (ft)
0 2 4 6 8 10 12 14 16 18 20 22 24 26
Case 33.405
Case 28.802


LPile Plus 4.0 - B3 - [Pile Length vs Top Deflection X: 363.25, Y: 0.67601]
File Data Options Plot Computation Graphics Tools Window Help
Pile-Head Deflection (in)
0 0.05 0.1 0.15 0.2 0.25 0.3 0.35 0.4 0.45 0.5 0.55 0.6 0.65 0.7 0.75
Pile Length (in)
0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300 320 340 360 380 400
4:15 PM

CALCULATION COVER SHEET

PROJECT	JOB NO.	CALC NO.	SHEET
I-75 / I-575 NORTHWEST CORRIDOR	NH000-0575-01(028)	BR#36	1
SUBJECT	DISCIPLINE		
Caisson Structural Design Input	STRUCTURAL		

CALCULATION STATUS DESIGNATION	PRELIMINARY	CONFIRMED	SUPSEDED	VOIDED	INCOMPLETE
	☐	☐	☐	☐	X

COMPUTER PROGRAM/TYPE	SCP	MAINFRAME	PC	PROGRAM	VERSION/RELEASE NO.
	(X) YES ( ) NO	( )	(X)	Excel	2003

Note 1: Georgia Department of Transportation (GDOT) terminated Contract Number TOURDPPI60072 for its convenience prior the completion of all work under that contract and directed that the work with respect to these calculations be discontinued.
(a) These calculations were not completed at the time of GDOT's direction and the information contained herein is not complete and/or has not been fully verified or checked. These calculations are a work-in-progress and are presented only as such.
(b) Any user is cautioned that the use of these calculations and any related information or calculations, without access to factors and without proper regard for their purpose, could lead to erroneous conclusions.
(c) If any such calculations or any information contained herein is used in future work efforts or any follow on design work activity, a complete confirmation of the information contained herein should be performed prior to any such use.
(d) GTP has no responsibility for the use of this information not under its direct control.

Caisson structural design input calculations are included for bent 3.

NO.	REASON FOR REVISION	TOTAL NO. OF SHEETS	LAST SHEET NO.	BY	CHECKED	APPROVED/ ACCEPTED	DATE
A	As per GDOT's termination for convenience direction	3	3	JCR			11/30/09

RECORD OF REVISIONS

CALCULATION SHEET

PROJECT: I-75 / I-575 NORTHWEST CORRIDOR
JOB NUMBER NH000-0575-01(028)
CALC NO. BR#36

SUBJECT: Caisson Structural Design Input - Bent 3 SHEET NO.
BY: JCR DATE: 11/30/2009 SHEET REV.

Sufficient sample calculations representative of the scope and conditions in the design calculation were performed and the results compared to demonstrate the computer program adequacy.

BRIDGE: **I-575 over Noonday Creek South**
COUNTY: **COBB**
P.I. NO: **713640**
PROJECT: **NH000-0575-01(028)**

JOB NO: **255717**
DESIGNED BY: **WBN**
CHECKED BY: **JCR**

PCA COL ANALYSIS - BENT 3 - 54" caisson w/ 15-#11

GENERAL INFORMATION

RUN OPTION	**Investigation**
COLUMN	**Nonslender**
UNITS	**in-lb**
CODE	**ACI 318-89**
RUN AXIS	**About X-Axis**

MATERIAL PROPERTIES

f'c	**3.5**	ksi
Ec	**3586.6**	ksi
fc	**2.975**	ksi
β1	**0.85**	
ε u	**0.003**	in/in
fy	**60**	ksi
Es	**29000**	ksi
ε rup	**0**	in/in

REINFORCEMENT

CONFINEMENT

TYPE	**Tied**
TIE SIZES	**#4 ties with #11 bars**

ALL SIDES EQUAL

NO. OF BARS	**15**	
BAR SIZE	**#11**	
CLEAR COVER	**5**	in
COVER TO	**Transverse Bars**	

LOADS

NOTE: GROUP II LOADING CONTROLS

FACTORED

BENT	3	3
LOAD CASE	1	2
LOAD [k]	**503**	**487**
X-MOMENT [ft-k]	**1176**	**1145**

NOTE: FOR THIS CAISSON THE SHEAR CAPACITY OF THE CONCRETE IS LESS THAN TWICE THE MAXIMUM FACTORED SHEAR. THEREFORE, THE STIRRUP SPACING NEEDS TO BE CALCULATED.

[AASHTO 8.16.6]

BENT	3	3
LOAD CASE	1	2
V_U [k]	**240**	**232**

ΦV_C [k] **260**

$V_C = 2(f'c)^{0.5}$(diameter of caisson)[(diameter of caisson)-(cover from main rebar center)] * [1lb / 1000 k]

[AASHTO 8.19.1.2 & 8.19.3]

Minimum Shear Reinforcement

A_V is area of stirrup per spacing, s

$A_V = (50 * b_W * s) / f_Y$

Maximum spacing is 12 in. per GDOT

$A_V =$ 0.54 in^2 per foot

#4 stirrup used, s = 8 in. ← Considers two legs of reinforcement

$\Phi V_S = \Phi(A_V * f_Y * d) / s =$ 121 kips

ΦVn = ΦVc + ΦVs = 380.57 kips

CALCULATION COVER SHEET

PROJECT	JOB NO.	CALC NO.	SHEET
I-75 / I-575 NORTHWEST CORRIDOR	NH000-0575-01(028)	BR#36	1
SUBJECT	DISCIPLINE		
Caisson Structural Design Output	STRUCTURAL		

CALCULATION STATUS DESIGNATION	PRELIMINARY	CONFIRMED	SUPSEDED	VOIDED	INCOMPLETE
	☐	☐	☐	☐	X

COMPUTER PROGRAM/TYPE	SCP	MAINFRAME	PC	PROGRAM	VERSION/RELEASE NO.
	X YES ◯ NO	◯	X	LPILE	4.0

Note 1: Georgia Department of Transportation (GDOT) terminated Contract Number TOURDPPI60072 for its convenience the completion of all work under that contract and directed that the work with respect to these calculations be discontinued.
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Caisson structural design ouptput is included for bent 3.

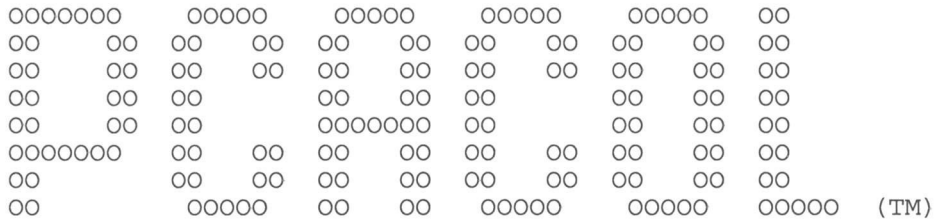
A	As per GDOT's termination for convenience direction	6	6	JCR			11/30/09
NO.	REASON FOR REVISION	TOTAL NO. OF SHEETS	LAST SHEET NO.	BY	CHECKED	APPROVED/ ACCEPTED	DATE
RECORD OF REVISIONS							

CALCULATION SHEET

PROJECT: I-75 / I-575 NORTHWEST CORRIDOR
JOB NUMBER NH000-0575-01(028)
CALC NO. BR#36

SUBJECT: Caisson Structural Design Output - Bent 3 SHEET NO.
BY: JCR DATE: 11/30/2009 SHEET REV.

Sufficient sample calculations representative of the scope and conditions in the design calculation were performed and the results compared to demonstrate the computer program adequacy.



==========
Computer program for the Strength Design of Reinforced Concrete Sections
==========

Licensee stated above acknowledges that Portland Cement Association (PCA) is not and cannot be responsible for either the accuracy or adequacy of the material supplied as input for processing by the CACOL(tm) computer program. Furthermore, PCA neither makes any warranty expressed nor implied with respect to the correctness of the output prepared by the PCACOL(tm) program. Although PCA has endeavored to produce PCACOL(tm) error free, the program is not and can't be certified infallible. The final and only responsibility for analysis, design and engineering documents is the licensees. Accordingly, PCA disclaims all responsibility in contract, negligence or other tort for any analysis, design or engineering documents prepared in connection with the use of the PCACOL(tm) program.

General Information:
==========
File Name: N:\TRA\255717\ENG\BR36\SUBSTR~1\PCACOL~1\B3.COL
Project: I-575 O/ NOONDAY SOUTH Code: ACI 318-89
Column: BENT 3 Units: US in-lbs
Engineer: JCR Date: 10/31/09 Time: 8:00:00

Run Option: Investigation Short (nonslender) column
Run Axis: X-axis Column Type: Structural

Material Properties:
==========
f'c = 3.5 ksi fy = 60 ksi
Ec = 3586.62 ksi Es = 29000 ksi
fc = 2.975 ksi erup = 0 in/in
eu = 0.003 in/in
Stress Profile: Block Beta1 = 0.85

Geometry:
==========
Circular: Diameter = 54 in

Gross section area, Ag = 2290.22 in^2
Ix = 417393 in^4 Xo = 0 in
Iy = 417393 in^4 Yo = 0 in

Reinforcement:
==========
Rebar Database: ASTM

Size	Diam	Area	Size	Diam	Area	Size	Diam	Area
3	0.38	0.11	4	0.50	0.20	5	0.63	0.31
6	0.75	0.44	7	0.88	0.60	8	1.00	0.79
9	1.13	1.00	10	1.27	1.27	11	1.41	1.56
14	1.69	2.25	18	2.26	4.00			

Confinement: Tied; phi(c) = 0.7, phi(b) = 0.9, a = 0.8
#4 ties with #11 bars, #4 with larger bars.

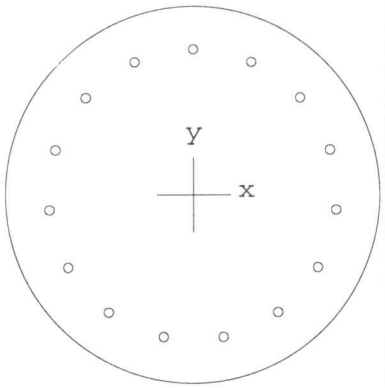
Layout: Circular
Pattern: All Sides Equal [Cover to transverse reinforcement (ties)]

Total steel area, As = 23.40 in^2 at 1.02%

15-#11 Cover = 5 in

Pt.	Applied Loads P (kips)	Mx (ft-k)	Computed Strength P (kips)	Mx (ft-k)	Computed/ Applied Ray length
1	503	1176	1168	2801	2.373
2	487	1145	1160	2796	2.433

Program completed as requested!



54.0 inch diam.

f'c = 3.5 ksi

fy = 60.0 ksi

Confinement: Tied

clr cover = 5.50 in

spacing = 7.24 in

-#11 at 1.02%

As = 23 in^2

Ix = 417393 in^4

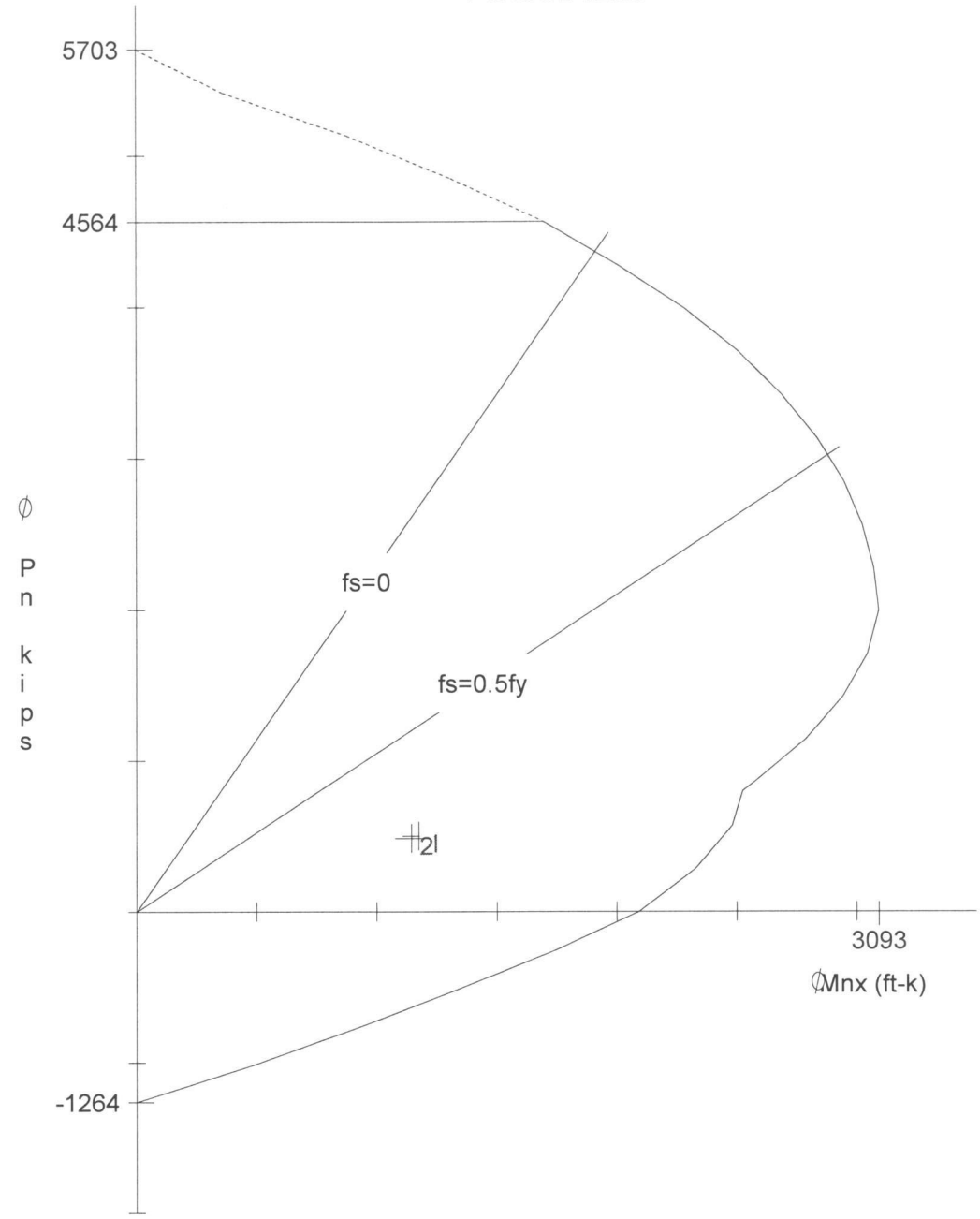
Iy = 417393 in^4

Xo = 0.00 in

Yo = 0.00 in

© 1993 PCA

PCACOL V2.30



Licensed To: Licensee name not yet specified.

File name: N:\TRA\255717\ENG\BR36\SUBSTR~1\PCACOL~1\B3.COL

Project: I-575 O/ NOONDAY SOUTH

Column Id: BENT 3

Engineer: JCR

Date: 10/31/09 Time: 8:00:00

Code: ACI 318-89

Units: in-lb

X-axis slenderness is not considered.

Material Properties:

Ec = 3587 ksi eu = 0.003 in/in

fc = 2.97 ksi Es = 29000 ksi

Beta1 = 0.85

Stress Profile: Block

phi(c) = 0.70, phi(b) = 0.90

CALCULATION COVER SHEET

PROJECT	JOB NO.	CALC NO.	SHEET
I-75 / I-575 NORTHWEST CORRIDOR	NH000-0575-01(028)	BR#36	1
SUBJECT	DISCIPLINE		
References for Design	STRUCTURAL		

CALCULATION STATUS DESIGNATION	PRELIMINARY	CONFIRMED	SUPSEDED	VOIDED	INCOMPLETE
	☐	☐	☐	☐	X

COMPUTER PROGRAM/TYPE	SCP	MAINFRAME	PC	PROGRAM	VERSION/RELEASE NO.
	◯ YES ◯ NO	◯	◯	NONE	

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Included Reference Information:

- Roadway information
- Bridge Survey Shots
- Existing Bridge Plans
- Existing Bridge Maintenance Reports
- Hydraulic Information
- BFI

NO.	REASON FOR REVISION	TOTAL NO. OF SHEETS	LAST SHEET NO.	BY	CHECKED	APPROVED/ ACCEPTED	DATE
A	As per GDOT's termination for convenience direction	39	39	JCR			11/30/09

RECORD OF REVISIONS

CALCULATION SHEET

PROJECT: I-75 / I-575 NORTHWEST CORRIDOR
JOB NUMBER NH000-0575-01(028)
CALC NO. BR#36

SUBJECT: Roadway Information
BY: JCR DATE: 11/30/2009

SHEET NO.
SHEET REV.

Chord:		4414.0315		
Middle Ordinate:		211.8886		
External:		215.8310		
Tangent Direction:		N 12°29'10.6370" E		
Radial Direction:		S 77°30'49.3629" E		
Chord Direction:		N 1°31'05.9930" E		
Radial Direction:		N 80°33'01.3493" E		
Tangent Direction:		N 9°26'58.6508" W		

Element: Linear

PT	( )	1113+37.2862	1463173.5218	2177673.0317
PI	( )	1114+55.3595	1463289.9928	2177653.6464
Tangential Direction:		N 9°26'58.6508" W		
Tangential Length:		118.0733		

Element: Linear

PI	( )	1114+55.3595	1463289.9928	2177653.6464
PI	( )	1121+71.1302	1463995.7223	2177534.1743
Tangential Direction:		N 9°36'30.3830" W		
Tangential Length:		715.7707		

Element: Linear

PI	( )	1121+71.1302	1463995.7223	2177534.1743
PI	( )	1124+28.9373	1464250.1979	2177492.8622
Tangential Direction:		N 9°13'15.8537" W		
Tangential Length:		257.8071		

Element: Linear

PI	( )	1124+28.9373	1464250.1979	2177492.8622
PI	( )	1126+81.1261	1464498.7939	2177450.4448
Tangential Direction:		N 9°40'58.7678" W		
Tangential Length:		252.1889		

BR#36 575 @ Noonday South

Element: Linear

PI	( )	1126+81.1261	1464498.7939	2177450.4448
PI	( )	1131+56.0807	1464967.2430	2177372.1042
Tangential Direction:		N 9°29'38.2356" W		
Tangential Length:		474.9545		

Element: Linear

PI	( )	1131+56.0807	1464967.2430	2177372.1042
PI	( )	1153+67.4751	1467148.7660	2177009.8572
Tangential Direction:		N 9°25'41.0585" W		
Tangential Length:		2211.3944		

BR#37 575 @ Big Sharty

Element: Linear

PI	( )	1153+67.4751	1467148.7660	2177009.8572
PI	( )	1162+59.8641	1468028.9379	2176862.6992
Tangential Direction:		N 9°29'29.8448" W		
Tangential Length:		892.3889		

Element: Linear

J. B. Trimble, Inc.

PROJECT:	NW Corridor
COUNTY:	COBB
BRIDGE:	36
DESCRIPTION:	I-575 over Noonday Creek South

VERTICAL GRADE DATA FOR NEW ALIGNMENT, ADJUSTED FOR SURVEY DIFF.:

PVC =	1116+43.5	PVI =	1121+43.5	PVT =	1126+43.5
PVI EL. =	951.3900	PVI EL. =	945.84	PVI EL. =	951.0900
		VC Length (ft) =	1000		

ELEVATION COMPARISON, ADJUSTED FOR SURVEY DIFF.

BENT 1R LEFT SIDE		BENT 1R RIGHT SIDE	
Geomath Rdy EL. =	949.596	Geomath Rdy EL. =	949.164
Survey EL. =	949.635	Survey EL. =	949.236
DIFFERENCE =	-0.039	DIFFERENCE =	-0.072

BENT 2R LEFT SIDE		BENT 2R RIGHT SIDE	
Geomath Rdy EL. =	949.940	Geomath Rdy EL. =	949.523
Survey EL. =	949.960	Survey EL. =	949.502
DIFFERENCE =	-0.020	DIFFERENCE =	0.021

BENT 3R LEFT SIDE		BENT 3R RIGHT SIDE	
Geomath Rdy EL. =	950.521	Geomath Rdy EL. =	950.100
Survey EL. =	950.462	Survey EL. =	949.939
DIFFERENCE =	0.059	DIFFERENCE =	0.161

BENT 4R LEFT SIDE		BENT 4R RIGHT SIDE	
Geomath Rdy EL. =	951.007	Geomath Rdy EL. =	950.568
Survey EL. =	951.037	Survey EL. =	950.609
DIFFERENCE =	-0.030	DIFFERENCE =	-0.041

Mean EL. Difference =	0.005

CALCULATION SHEET

PROJECT: I-75 / I-575 NORTHWEST CORRIDOR
JOB NUMBER NH000-0575-01(028)
CALC NO. BR#36

SUBJECT: Bridge Survey Shots
BY: JCR DATE: 11/30/2009

SHEET NO.
SHEET REV.

Noonday South, Br. 4

SVXO10860,1464446.601,2177453.098,951.037 BT 4 RT, In
SVXO10861,1464397.572,2177461.919,950.462 BT 3 RT, In
SVXO10862,1464328.709,2177473.446,949.960 BT 2 RT, In
SVXO10863,1464279.291,2177480.936,949.635 BT 1 RT, In
SVXO10864,1464270.464,2177429.293,949.596 BT 1 LT, In
SVXO10865,1464319.772,2177420.372,949.899 BT 2 LT, In
SVXO10866,1464388.407,2177408.885,950.401 BT 3 LT, In
SVXO10868,1464437.954,2177401.154,951.006 BT 4 LT, In
SVXO10872,1464431.025,2177360.339,950.596 BT 4 LT, OUT
SVXO10871,1464381.847,2177369.034,950.032 BT 3 LT, OUT
SVXO10870,1464313.437,2177380.520,949.506 BT 2 LT, OUT
SVXO10869,1464263.777,2177388.069,949.181 BT 1 LT, OUT
SVXO10873,1464285.927,2177521.676,949.236 BT 1 RT, Out
SVXO10874,1464335.334,2177512.829,949.502 BT 2 RT, Out
SVXO10875,1464404.008,2177501.577,949.939 BT 3 RT, Out
SVXO10876,1464452.839,2177493.993,950.609 BT 4 RT, Out

CALCULATION SHEET

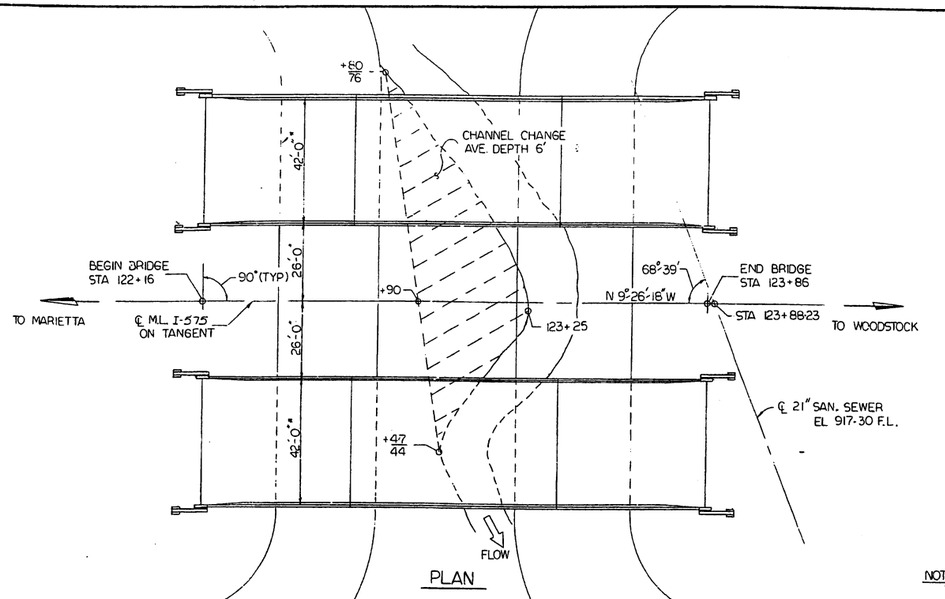
PROJECT: I-75 / I-575 NORTHWEST CORRIDOR
JOB NUMBER NH000-0575-01(028)
CALC NO. BR#36

SUBJECT: Existing Bridge Plans
BY: JCR DATE: 11/30/2009

SHEET NO.
SHEET REV.

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	I-575-1(2)00	187	437

Rev. 11-18-77



N

PVI STA 119+00
EL 945.77
-1.11% +1.05%
1000' VC

GRADE DATA

NOTE: ALL BENTS ARE PARALLEL
END BENT PILES NOT SHOWN
* INSIDE FACE TOP OF BARRIER IN FACE TOP OF BARRIER.
** RIP RAP FROM 2 FT. BELOW TO 1 FT ABOVE HIGHWATER ELEV. RIP RAP 20 FT. BEYOND F

BRIDGE CONSISTS OF

1 - 50'-0" - 70'-0" - 50'-0" PSC BEAM CONTINUOUS UNIT (SIMPLE SPAN FOR DEAD LOAD - CONTINUOUS FOR LIVE LOAD) ---------- SPECIAL DESIGN

1 - STEEL H PILE END BENT ---------- SPECIAL DESIGN

1 - STEEL H PILE END ABUTMENT ---------- SPECIAL DESIGN

2 - CONCRETE INTERMEDIATE BENTS ---------- SPECIAL DESIGN

END POST & END POST GUARDRAIL ATTACHMENT DETAILS ------ GA. STD. NO.3053(2-1-75)
L = 4'-0"; W = 1'-1"; H = 2'-8"

BAR BENDING DETAILS ---------- GA. STD. NO.3901

TYPICAL FILL DETAILS AT END OF BRIDGE ---------- GA. STD. NO.9037(9-1-70)

REINFORCED CONCRETE APPROACH SLAB ---------- GA. STD. NO.9017H(5-12-76)

GENERAL NOTES

SPECIFICATIONS - GEORGIA STANDARD DATED 1972.

WAITING PERIOD - NO WORK SHALL BE STARTED AT BENTS 1 AND 4 UNTIL THE COMPLETED END FILLS HAVE BEEN IN PLACE FOR AN ESTIMATED PERIOD OF 30 DAYS.

CHAMFER - ALL EXPOSED EDGES SHALL BE CHAMFERED 3/4 INCH UNLESS OTHERWISE NOTED.

PROTECTIVE SURFACE TREATMENT - PER SECTION 500.13C WILL BE REQUIRED AT THIS SITE.

REINFORCEMENT - ALL REINFORCEMENT SHALL BE PLACED AND TIED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. WELDING OF REINFORCEMENT WILL NOT BE PERMITTED, EXCEPT AS SHOWN ON THE PLANS.

DRIVING DATA PILES - ONE REQUIRED AT BENTS 1 AND 4.

PLAN DRIVING OBJECTIVE - SEE SUBSTRUCTURE DETAILS.

STONE DUMPED RIP RAP SHALL BE TYPE I. SEE SPEC. PROV. SECT. 805 - RIP RAP AND CURBING STONE, DATED APRIL 22, 1974.

APPROACH SLAB - THE VOLUME OF CONCRETE, PREFORMED ELASTIC SEAL, AND LBS. BAR REINF. STEEL IN THE APPROACH SLAB ARE TO BE CONSTRUCTED AND PAID FOR AS ROADWAY ITEMS. GP. STD. NO.9017-H SHOWN FOR INFORMATION PURPOSE AT BRIDGE ENDS ONLY.

⚠ Pilot Holes - 15"ϕ Pilot Holes will be required at Bent 1 Rt.

SUMMARY OF QUANTITIES

195	195	CU YD BR EXCAV, STREAM CROSS
LUMP	---	SUPERSTR CONC (CL AA) - BR NO 3 LT
---	LUMP	SUPERSTR CONC (CL AA) - BR NO 3 RT
116	116	CU YD CL A CONC
LUMP	---	PSC BEAMS, AASHO TYPE 3-12, BR NO 3 LT
---	LUMP	PSC BEAMS, AASHO TYPE 3-12, BR NO 3 RT
LUMP	---	PSC BEAMS, AASHO TYPE 3-20, BR NO 3 LT
---	LUMP	PSC BEAMS, AASHO TYPE 3-20, BR NO 3 RT
29,661	29,661	LB BAR REINF STEEL
LUMP	---	SUPERSTR REINF STEEL - BR NO 3 LT
---	LUMP	SUPERSTR REINF STEEL - BR NO 3 RT
524	569	LIN FT PILING IN PLACE, STEEL H, 14 BP 73
1	1	EACH LOAD TEST, STEEL H, 14 BP 73 (IF REQD)
	3,000	SQ YD STN DUMPED RIP RAP, 12 IN
LUMP	---	EPOXY COATED SUPERSTRUCTURE REINFORCEMENT STEEL - BR NO 3LT.
---	LUMP	EPOXY COATED SUPERSTRUCTURE REINFORCEMENT STEEL - BR NO 3RT.
---	⚠ 108	Lin. Ft. Pilot Holes

DESIGN DATA

SPECIFICATIONS - A.A.S.H.T.O., 1973; INT. '74, '75, '76

TYPICAL HS20-44 AND/OR MILITARY LOADING - IMPACT ALLOWED

FUTURE PAVING ALLOWANCE = 15 LBS. PER SQ. FT.

CONCRETE: f'c = 3,000 PSI (ALLOWABLE fc = 1,200 PSI)

REINFORCING STEEL: GRADE 40 (fy = 40,000 PSI)
ALLOWABLE fs = 20,000 PSI

UTILITIES

NONE

BRIDGE NO. 3 LT. ℄ RT.

GEORGIA
DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION-BRIDGE DESIGN

PLAN AND ELEVATION
I-575 OVER NOONDAY CREEK
COBB CO. NOONDAY ℄ I-575-1(2)00 CT.I

SCALE 1" = 20-0"

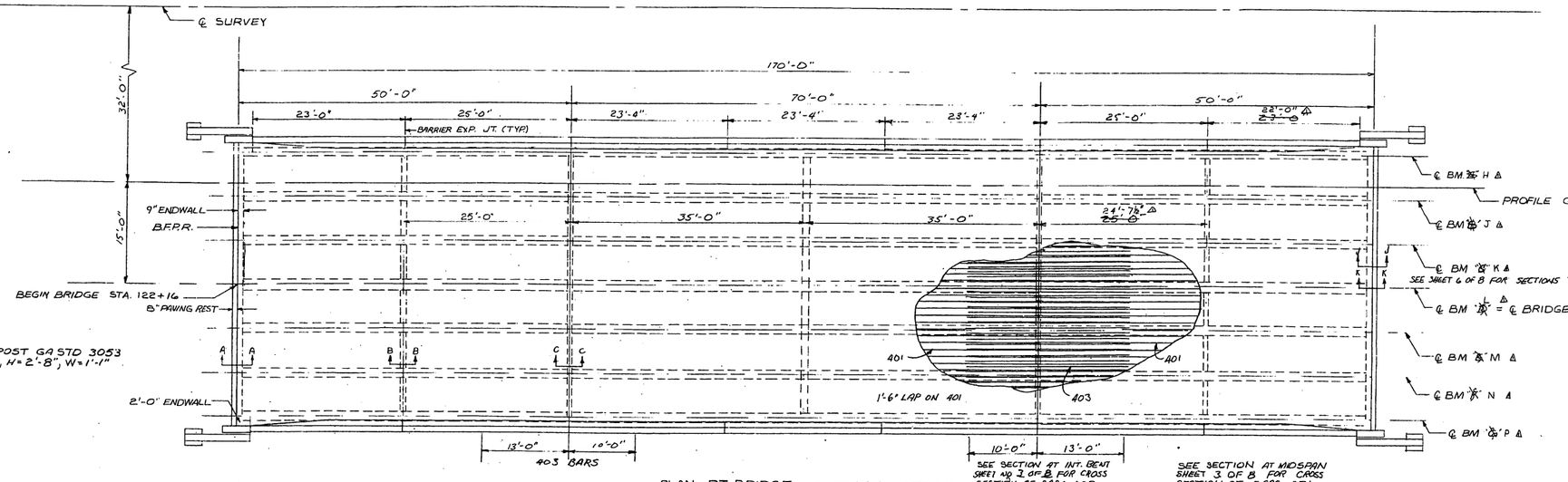
BY	REVISIONS	DATE
JWK	⚠ 4 LIN FT PILOT HOLES ADDED	11/10/77
JWK	⚠ 104 PILOT HOLES NOTE	11/16/77

DESIGNED EGV
DRAWN JWK
TRACED
CHECKED
REVIEWED
APPROVED

BRIDGE SHEET 1 OF 8

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	GA.	I-575-1(2)00	188	437

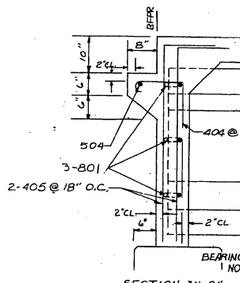
Rev. 4-27-78
Rev 10-5-79



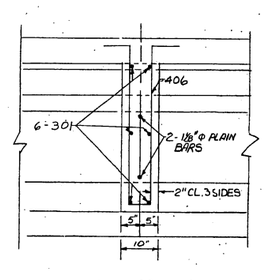
PLAN - RT BRIDGE LT. BRIDGE SYMMETRICAL ABOUT ℄ SURVEY.
SCALE 1/8" = 1'-0"

SEE SECTION AT INT. BENT SHEET NO 3 OF 8 FOR CROSS SECTION OF BARS 403.

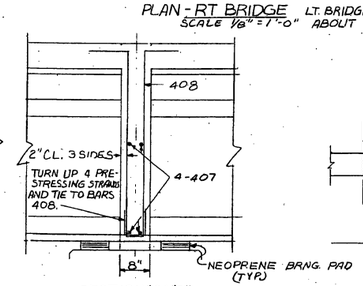
SEE SECTION AT MIDSPAN SHEET 3 OF 8 FOR CROSS SECTION OF BARS 401.



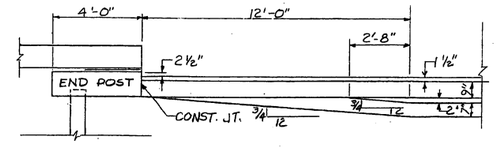
SECTION "A-A"
SCALE 3/4" = 1'-0"



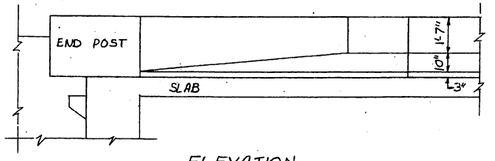
SECTION "B-B"
SCALE 3/4" = 1'-0"



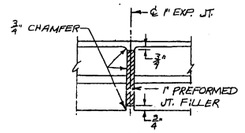
SECTION "C-C"
SCALE 3/4" = 1'-0"



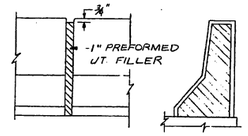
PLAN
BARRIER TAPER DETAIL



ELEVATION
BARRIER TAPER DETAIL

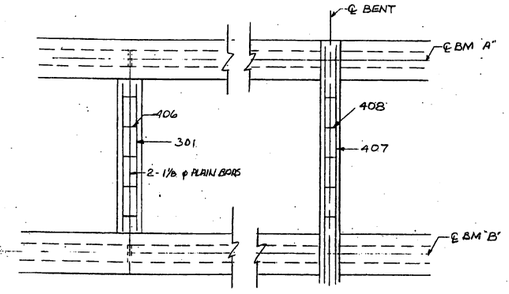


PLAN



ELEVATION SIDE ELEV.

DETAILS OF 1" EXPANSION JOINT IN BARRIER



PLAN VIEW OF DIAPHRAGMS
SCALE: ½" = 1'-0"

QUANTITIES				
ITEM \ SPAN	SPAN 1	SPAN 2	SPAN 3	TOTAL
CU YDS. CLASS "A-A" CONCRETE	71.26	84.61	65.12	220.99
LBS. BAR REINF. STEEL	~~9000~~ 8002	~~9100~~ 9108	~~7064~~ 7259	~~24,164~~ 24,669 Δ
LBS. BAR REINF. STEEL EPOXY COATED	6987	8571	6987	22545

BRIDGE NO 3 LT & RT

GEORGIA
DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION - BRIDGE DESIGN

DECK PLAN
I-575 OVER NOONDAY CREEK
COBB COUNTY I-575-1(2)00 C.T.I
SCALE : AS SHOWN FEBRUARY, 1977

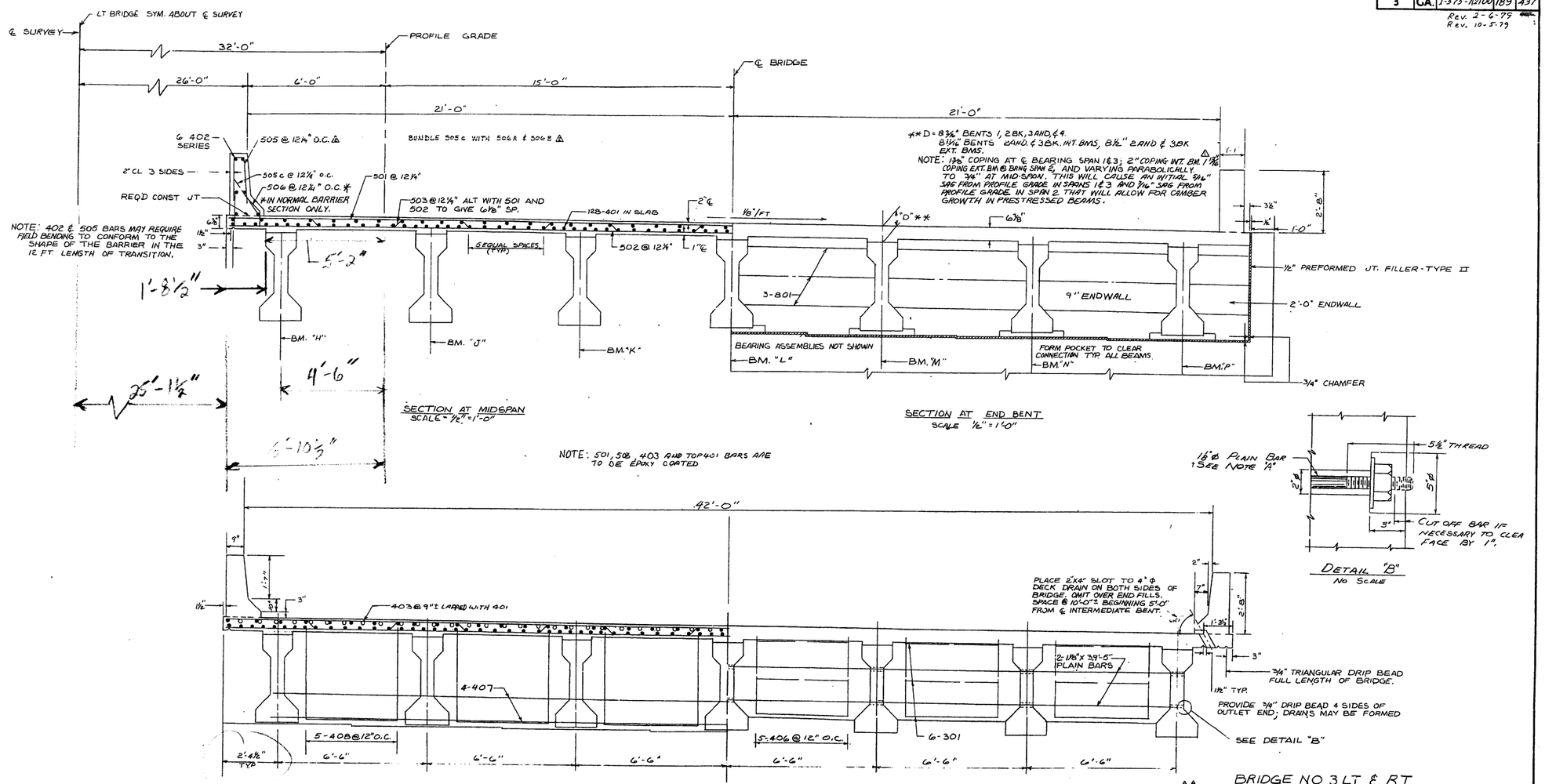
REVISIONS	DATE
DES. DIM. & BEAMS	12-22-77
REV. DIM. & BEAMS	10-5-77
REV. BM. CONST. REQ. SHEET BM.	
SHEET BM. CONST. REQ.	

BRIDGE SHEET NO. 2 OF 8

DESIGNED BDM
DRAWN RHS
TRACED
CHECKED BDM
REVIEWED LRP
APPROVED

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.		SHEET NO.	TOTAL SHEETS
3	GA.	I-575-1(2)00		189	437

Rev. 2-6-79
Rev. 10-5-79



BRIDGE NO 3 LT & RT

† NOTE "A"
PAINT ENTIRE BAR, NUTS, AND WASHERS IN ACCORDANCE WITH SECTION 535.04C USING TWO COATS OF PAINT IF NUT SHALL BE BROUGHT TO A SNUG FIT AGAINST OUTSIDE OF BEAM BEFORE DIAPHRAGM IS POURED. AFTER DIAPHRAGMS HAVE BEEN POURED A MINIMUM OF 5 DAYS AND CONCRETE HAS REACHED A MINIMUM STRENGTH OF 1500 P.S.I. NUTS SHALL BE FULLY TORQUED TO 180 FT-LB AFTER WHICH THE RECESS SHALL BE GROUTED AND DRESSED TO ASSURE A NEAT APPEARANCE.

BY	REVISIONS	DATE
E.D.M.	CHANGED CODING	2-6-79
D.E.M.	ADDED NOTE & 506C BAR	10-5-79

GEORGIA
DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION - BRIDGE DESIGN

SUPERSTRUCTURE

I-575 OVER NOONDAY CREEK

COBB, COUNTY I-575-1(2)00 CT 1

SCALE: AS NOTED AUGUST, 1976

BRIDGE SHEET 3 OF 8

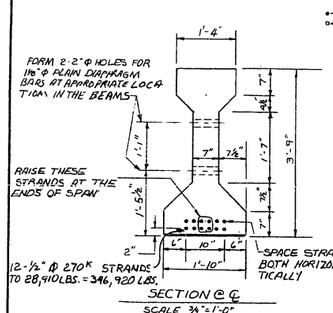
DESIGNED BDM	TRACED	REVIEWED LRP
DRAWN RHS	CHECKED BDM	APPROVED

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	I-575-1(2)00	190	437

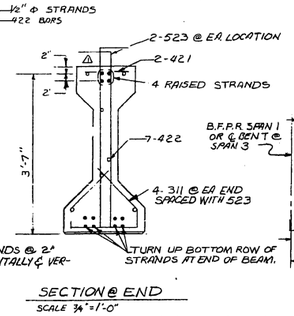
Rev. 10/11/77 Rev. 4-27-78

NOTE: TYPE 3 RUBBED FINISHED OR APPROVED COATING, REQ'D BY STD. SPECIFICATION'S SECTION 500.13 SHALL NOT BE REQ'D FOR PSC BEAMS.

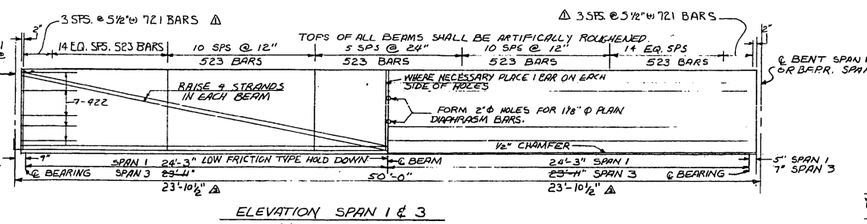
COVER EXPOSED PRESTRESSED STRANDS WITH MIN. ½" EPOXY MORTAR AT BEAM ENDS, EXCEPT WHERE STRA. 5 EXTEND INTO END DIAPHRAGM'S.



SECTION @ ℄
SCALE ¾"=1'-0"

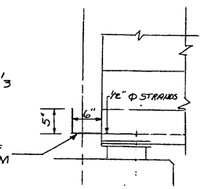


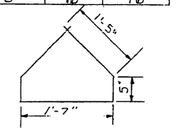
SECTION @ END
SCALE ¾"=1'-0"



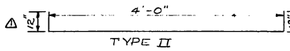
ELEVATION SPAN 1 ℄ 3
SCALE ¼"=1'-0" HORZ.

BAR DETAILS				
BAR	TYPE	LENGTH	NO. PER BEAM SPAN 1 & 3	NO. PER BEAM SPAN 2
421	I	10"	4	4
523	II	△ #4 @ 6'-0"	44	84 △
311	III	5'-3"	8	8
422	I	4'-6"	14	14
721	II	6'-0"	16	16 △





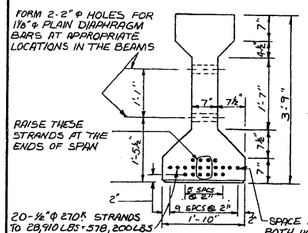
TYPE III



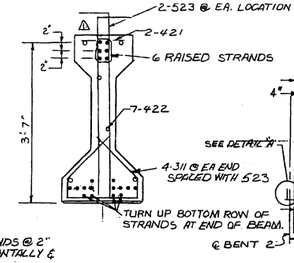
TYPE II

LENGTH
TYPE I

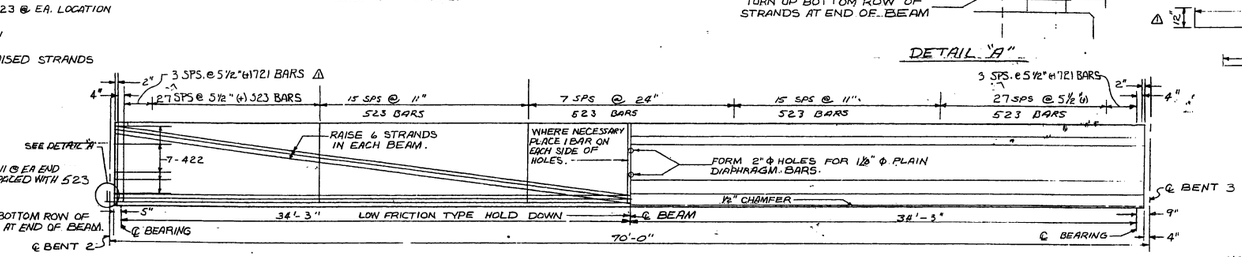
DETAIL "A"



SECTION @ ℄
SCALE ¾"=1'-0"



SECTION @ END
SCALE ¾"=1'-0"



ELEVATION SPAN 2
SCALE ¼"=1'-0" HORZ.

NOTES

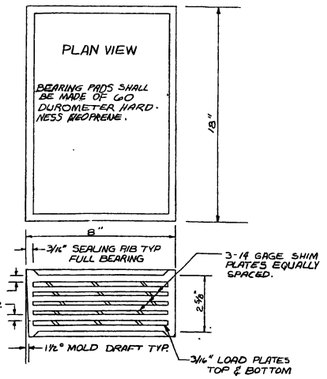
ALL COMPONENTS OF BEARING ASSEMBLIES EXCEPT SHIM PLATES SHALL BE A-36 STEEL. 14 GA. SHIM P.'S SHALL BE HOT ROLLED PLATE, ASTM A-570.

AFTER ALL WELDING AND ERECTION IS COMPLETE, THE EXPOSED GALVANIZED SURFACES SHALL BE REPAIRED IN ACCORDANCE WITH SEC. 445.

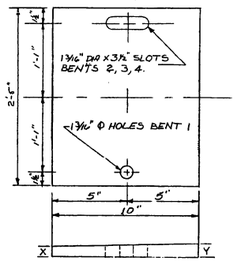
NEOPRENE PADS SHALL BE BONDED TO THE BASE PLATES WITH EITHER H.B. FULLER Co.'s NO 934 SYNTHETIC RUBBER CONTACT BONDING CEMENT OR MINNESOTA MINING AND MFG. CO 3M SCOTCH RUBBER ADHESIVE 1711 OR EQUAL. BONDING SHALL BE IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.

PLATES SHALL BE GALVANIZED AS PER A 123. ANCHOR BOLTS NUTS AND WASHERS SHALL BE GALVANIZED AS PER ASTM A 153.

PSC BEAMS SHALL BE CAST 1" LONGER THAN SHOWN AT THE TIME OF STRAND RELEASE. CONCRETE MUST HAVE A MINIMUM STRENGTH OF 4500 PSI.

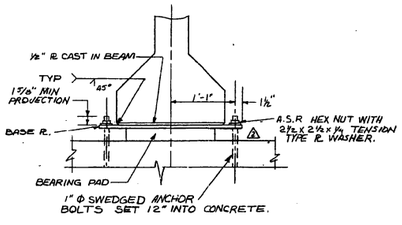


BEARING PAD DETAILS
NO SCALE

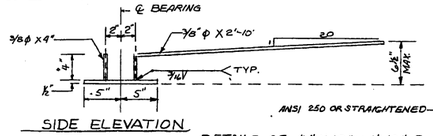


BASE PLATE DETAILS
NO SCALE

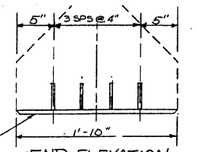
X & Y DIMENSIONS								
BEAM		P	N	M	L	K	J	H
BT 1	X	½"						→
	Y	5/16"						→
BT 2BK	X	¾"	⅞"	⅞"	13/16"	13/16"	⅞"	⅝"
	Y	9/16"	15/16"	15/16"	⅞"	1"	15/16"	11/16"
BT 2AH	X	½"						→
	Y	5/8"						→
BT 3BK	X	½"						→
	Y	5/8"						→
BT 3AH	X	1"	1 1/16"	1 3/16"	1 3/16"	1 1/8"	1 1/16"	15/16"
	Y	1/8	15/16"	15/16"	13/16"	1 1/4"	1 3/16"	1/16
BT 4	X	½"						→
	Y	5/8"						→



FRONT ELEVATION
SCALE 1"=1'-0"

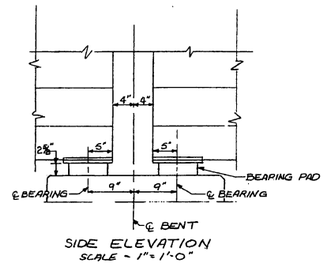


SIDE ELEVATION



END ELEVATION

DETAILS OF ½" X 10" X 1'-10" R (A-36 STEEL)
SCALE 1½"=1'-0"



SIDE ELEVATION
SCALE = 1"=1'-0"

ESTIMATED QUANTITIES PER BEAM			
ITEM	SPAN 1	SPAN 2	SPAN 3
CU. YDS. CLASS AAA CONC.	7.11	7.02	9.99
LBS. BAR REINF. STEEL	471.0	661.0	471.0
LIN FT. ½" Φ 270K PRETEN STEEL	4144.0	9,707.0	4095.0
LBS. STRUCTURAL STEEL	1498.0	1407.0	1765.0

NOTE AT THE OPTION OF THE CONTRACTOR, ⅞"Φ X 6" WELDED STUDS MAY BE USED IN LIEU OF NO 3 BARS WELDED TO PLATES CAST INTO GIRDERS. BASE PLATES MAY BE ATTACHED TO PLATES CAST INTO GIRDERS BY 3-¾"Φ X 1⅜" LONG HS. FH MACHINE SCREWS IN LIEU OF WELDED OR PINTLES. STUDS SHALL SHALL CONFORM TO SECTION 512 OF THE STANDARD SPECIFICATIONS. STUDS SHALL BE GALVANIZED, ASTM A-123.

BRIDGE NO 3 LT & RT

GEORGIA
DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION - BRIDGE DESIGN

PRESTRESSED BEAM DETAILS
I-575 OVER NOONDAY CREEK
COBB COUNTY I-575-1(2)00 CT 1
SCALE: AS SHOWN MARCH 1977

BY	REVISIONS	DATE
BDM	SHIELDED REINF. OR THIS	10-24-77
BDM	APPROVED HES NOT BARS	11/10/77
BDM	REV. DIMENSIONS	4-27-78

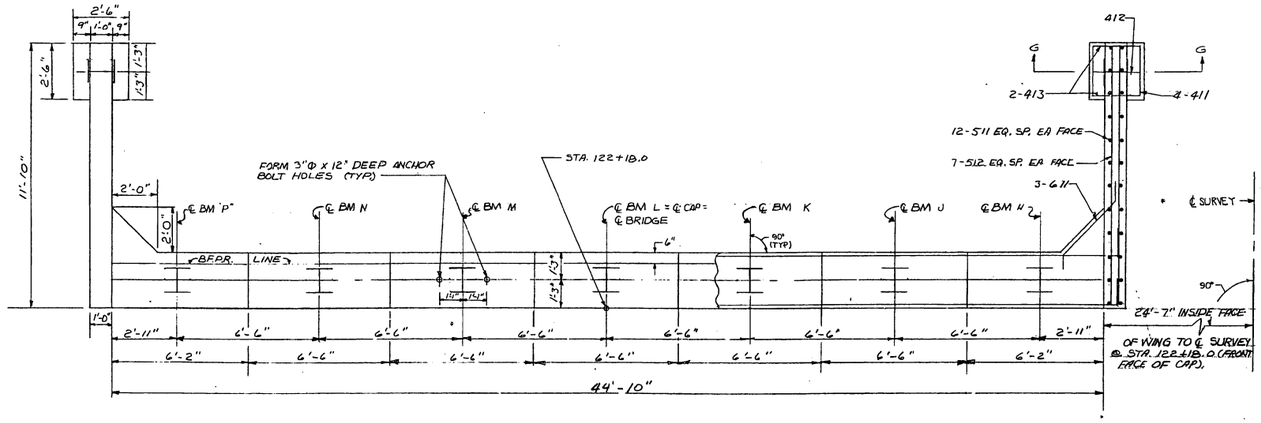
BRIDGE SHEET 4 OF 8

DESIGNED BDM | TRACED | REVIEWED LRP
DRAWN TRHS | CHECKED BDM | APPROVED

FORM NO. BT-2

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	I-575-1(2)00	191	437

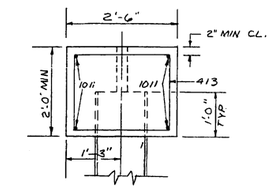
REV. 11-18-77



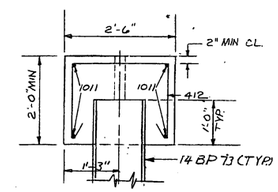
BENT 1 RT. BRIDGE LOOKING BACK
LT. BRIDGE SYMMETRICAL ABOUT ℄ OF SURVEY.

PLAN
SCALE 3/8" = 1'-0"

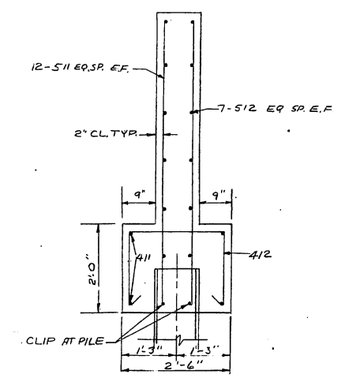
NOTE: BAR REINFORCEMENT SYMMETRICAL ABOUT ℄ BENT. MAINTAIN 2" CL. TO REINFORCEMENT EXCEPT WHERE NOTED. POUR CAP AND WINGS MONOLITHICALLY.



SECTION E-E
SCALE 3/4" = 1'-0"



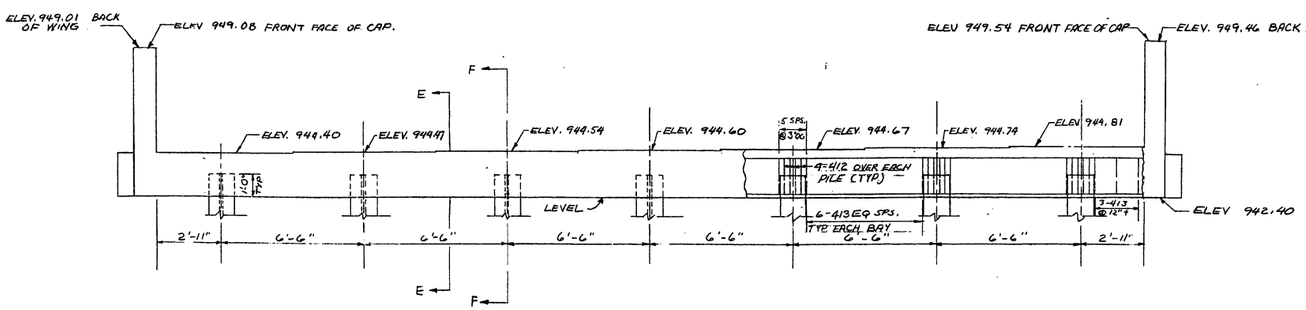
SECTION F-F
SCALE 3/4" = 1'-0"



SECTION G-G
SCALE 3/4" = 1'-0"

QUANTITIES	
ITEM \ BENT	1 LT OR RT
CU. YDS. "A" CONC.	16.01
LBS BAR REINF. STEEL	1990

PLAN DRIVING OBJECTIVE
△ DRIVE ALL PILES TO A DRIVING RESISTANCE OF 83 TONS AFTER A MINIMUM TIP ELEVATION OF 930 IS ACHIEVED.



BENT 1 LOOKING BACK
ELEVATION
SCALE 3/8" = 1'-0"

BRIDGE NO. 3 LT & RT

GEORGIA
DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION - BRIDGE DESIGN

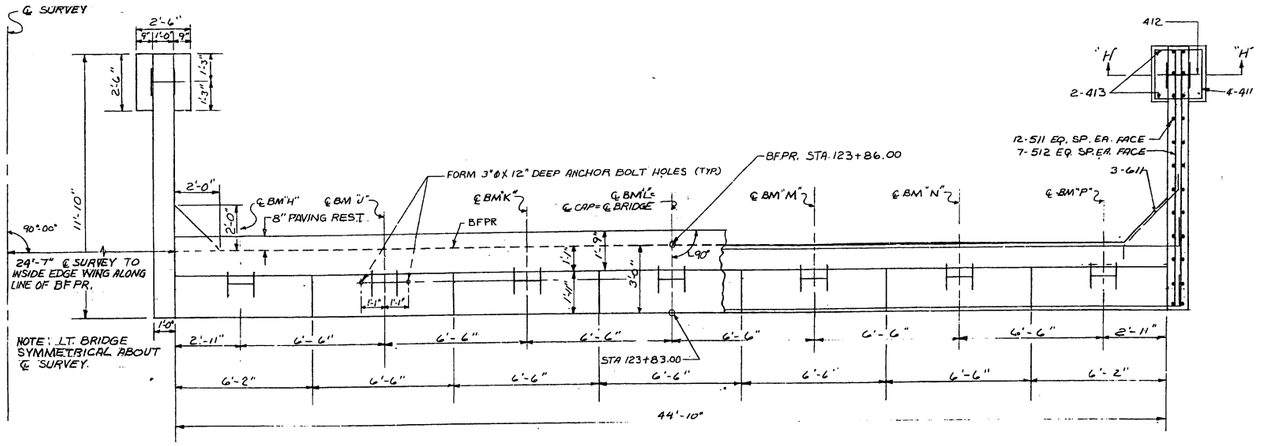
END BENT 1
I-575 OVER NOONDAY CREEK
COBB COUNTY, I-575-1(2)00
SCALE AS SHOWN MARCH 1977

BY	REVISIONS	DATE
JWM	Revised Note	11/10/77

BRIDGE SHEET 5 OF 8

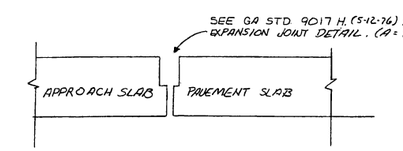
DESIGNED BDM | TRACED | REVIEWED LRP
DRAWN RHB | CHECKED BDM | APPROVED

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	I-575-1(2)00	192	437

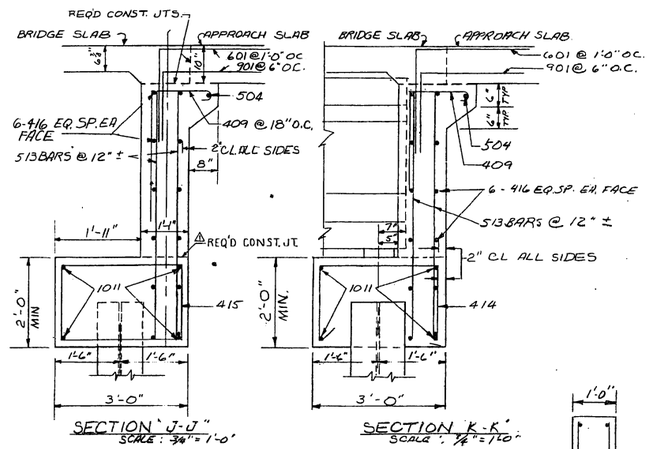


PLAN BENT 4 RT BRIDGE LOOKING AHEAD.
SCALE 3/8" = 1'-0"

NOTE: BAR REINFORCEMENT SYMMETRICAL ABOUT ℄ BENT. MAINTAIN 2" CL TO REINFORCEMENT EXCEPT WHERE NOTED. POUR CAP, WINGS AND BACKWALL MONOLITHICALLY.



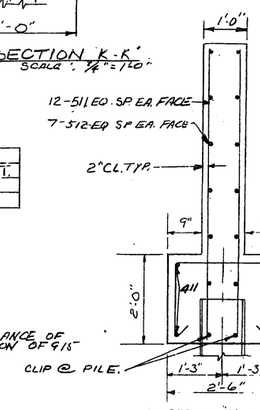
PLACEMENT OF EXPANSION JOINT



SECTION "J-J"
SCALE: 3/4" = 1'-0"

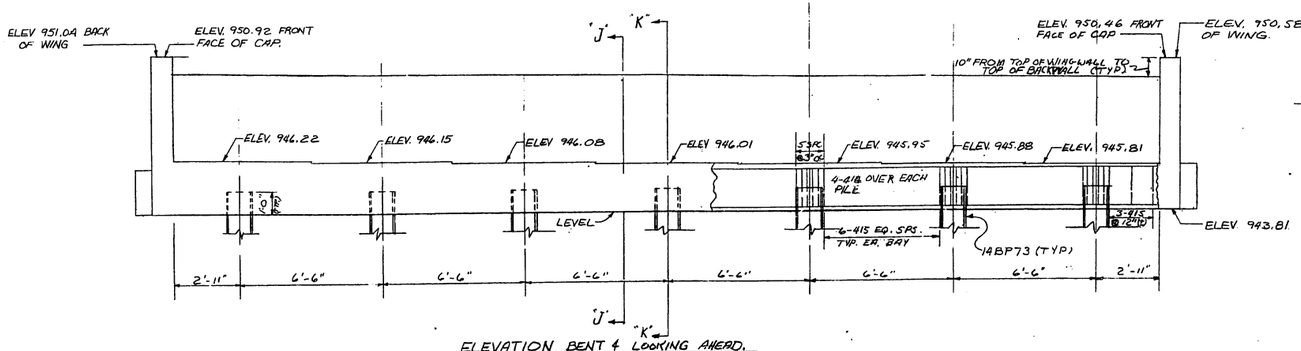
SECTION "K-K"
SCALE: 1/4" = 1'-0"

QUANTITES	
ITEM \ BENT	4 LT OR RT.
CU. YDS "A" CONC.	25.07
LBS. BAR REINF. STEEL	4,953



SECTION "H-H"
SCALE 3/4" = 1'-0"

PLAN DRIVING OBJECTIVE.
DRIVE ALL PILES TO A DRIVING RESISTANCE OF 83 TONS AFTER A MINIMUM TIP ELEVATION OF 915 IS ACHIEVED



ELEVATION BENT 4 LOOKING AHEAD.
SCALE 3/8" = 1'-0"

BRIDGE NO. 3LT & 3RT.

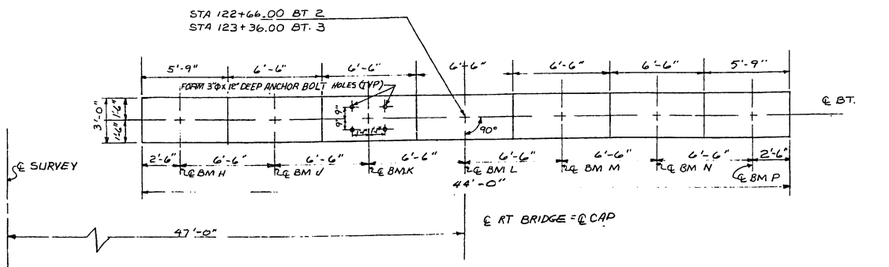
GEORGIA
DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION - BRIDGE DESIGN

END BENT 4
I-575 OVER NOONDA
COBB COUNTY I-575-1(2)00 CT 1
SCALE AS SHOWN APRIL 1977

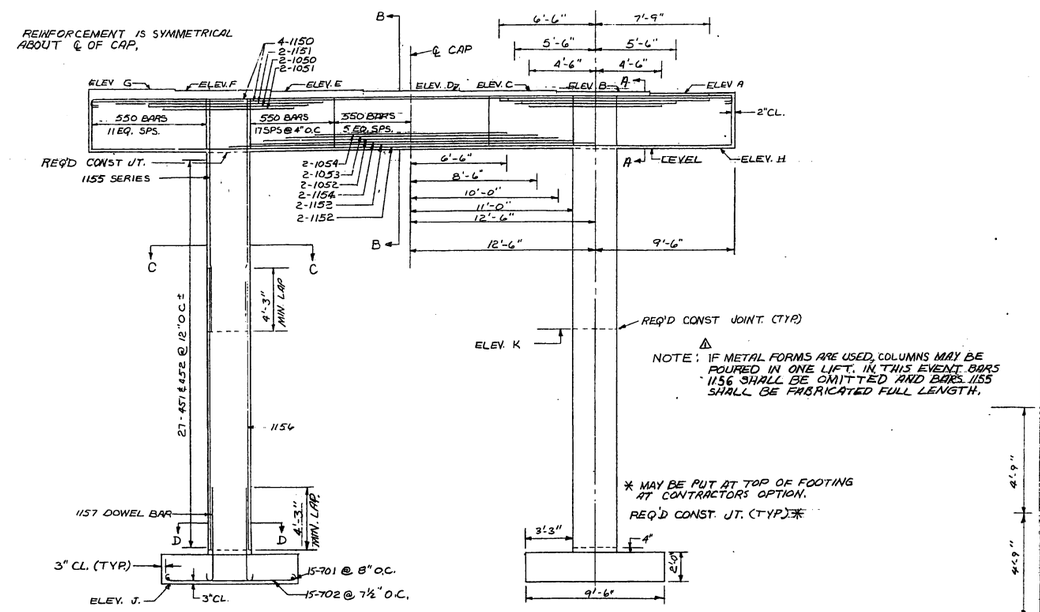
DESIGNED BDM TRACED REVIEWED LRP
DRAWN RMS CHECKED BDM APPROVED

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	I-575-1(2)00	193	437

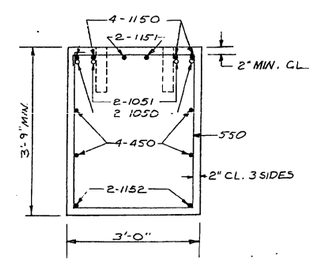
REV. 11-18-77



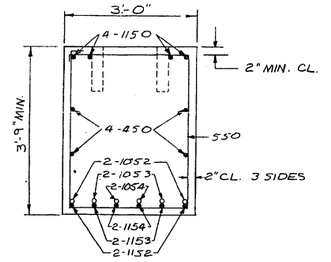
PLAN RT. BRIDGE - LT. BRIDGE IS SYMMETRICAL ABOUT ℄ SURVEY
SCALE 1/4" = 1'-0"



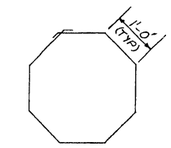
ELEVATION
SCALE 1/4" = 1'-0"



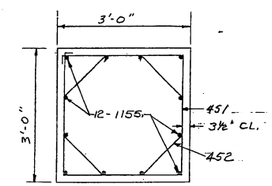
SECTION "A-A"
SCALE 3/4" = 1'-0"



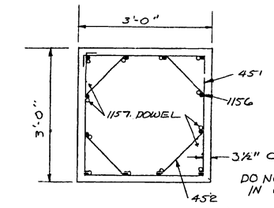
SECTION "B-B"
SCALE 3/4" = 1'-0"



TYPE 9.9 BARS

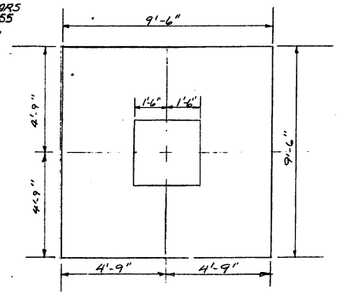


SECTION "C-C"
SCALE 3/4" = 1'-0"



DO NOT PUT DOWEL BARS IN CORNERS.

SECTION "D-D"
SCALE 3/4" = 1'-0"



FOOTING PLAN
SCALE 3/8" = 1'-0"

QUANTITIES		
ITEM \ BENT	2	3
CU. YDS. "A" CONC.	49.95	50.34
LBS. BAR REINF. STEEL	11322	11396

NOTE: SOIL MAXIMUM DESIGN BEARING CAPACITY = 4 Tons/Sq FT.

ELEVATIONS										
BENT	A	B	C	D	E	F	G	H	J	K
2	944.73	944.78	944.85	944.92	944.98	945.05	945.14	940.98	913.00±	928.50
3	945.30	945.35	945.42	945.49	945.56	945.62	945.71	941.55	913.00±	928.50

BRIDGE NO. 3 LT. & RT.

GEORGIA
DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION - BRIDGE DESIGN

INTERMEDIATE BENTS
I-575 OVER NOONDAY CREEK
COBB COUNTY I-575-1(2)00 CT. 1
SCALE: AS SHOWN MARCH 1977

REVISIONS: DATE 11/18/77 — REVISED NOTE

BRIDGE SHEET 2 OF 5 — DESIGNED BDM — DRAWN EHS — TRACED — CHECKED BDM — REVIEWED LRP — APPROVED

CALCULATION SHEET

PROJECT: I-75 / I-575 NORTHWEST CORRIDOR
JOB NUMBER NH000-0575-01(028)
CALC NO. BR#36

SUBJECT: Existing Bridge Maintenance Reports
BY: JCR DATE: 11/30/2009

SHEET NO.
SHEET REV.

BRIDGE INVENTORY DATA LISTING GEOI A DEPARTMENT OF TRANSPORTATION

Structure ID: 067-0113-0 **Cobb** SUFF. RATING 67.09

Location & Geography

*	Structure I.D.No:	067-0113-0	
	200 Bridge Information	06	
*	6A Feature Int:	NOONDAY CREEK	
*	6B Critical Bridge:	0	
*	7A Route Number Carried:	SR00417	
*	7B Facility Carried:	I-575 (NBL)	
*	9 Location:	3 MI E OF KENNESAW	
	2 DOT District:	7	
	207 Year Photo:	2003	
*	91 Inspection Frequency:	24 Date: 03/09/2005	
	92A Fract Crit Insp Freq:	00 Date: 02/01/1901	
	92B Underwater Insp Freq:	00 Date: 02/01/1901	
	92C Other Spc. Insp Freq:	00 Date: 02/01/1901	
*	4 Place Code:	00000	
*	5 Inventory Route (O/U):	1	
	Type:	1	
	Designation:	1	
	Number:	00575	
	Direction:	0	
*	16 Latitude:	34-01.5 MMS Prefix: SR	
*	17 Longitude:	084-33.6 MMS Suffix: 00 MP: 1.93	
	98 Border Bridge:	000 %Shared: 00	
	99 ID Number:	000000000000000	
*	100 STRAHNET:	1	
	12 Base Highway Network:	1	
	13A LRS Inventory Route:	671041700	
	13B Sub Inventory Route:	0	
*	101 Parallel Structure:	R	
*	102 Direction of Traffic:	1	
*	264 Road Inventory Mile Post:	018.84	
*	208 Inspection Area:	09 Initials: JMC	
	Engineer's Initial:	jal	

* Location I.D. No.: 067-00417D-001.98N

*	104 Highway System:	1	
*	26 Functional Classification:	11	
*	204 Federal Route Type:	I No.: 05751	
	105 Federal Lands Highway:	0	
*	110 Truck Route:	1	
	206 School Bus Route:	0	
	217 Benchmark Elevation:	0000.00	
	218 Datum:	0	
*	19 Bypass Length:	01	
*	20 Toll:	3	
*	21 Maintenance:	01	
*	22 Owner:	01	
*	31 Design Load:	6	
	37 Historical Significance:	5	
	205 Congressional District:	06	
	27 Year Constructed:	1980	
	106 Year Reconstructed:	0000	
	33 Bridge Median:	1	
	34 Skew:	00	
	35 Structure Flared:	0	
	38 Navigation Control:	0	
	213 Special Steel Design:	0	
	267 Type of Paint:	0	
*	42 Type of Service on:	1	
		5	
	214 Movable Bridge:	0	
	203 Type Bridge:	O-O-O-O	
	259 Pile Encasement:	3	
*	43 Structure Type Main:	5 02	
	45 No. Spans Main:	003	
	44 Structure Type Appr:	0 00	
	46 No. Spans Appr:	0000	
	226 Bridge Curve Horz:	0 Vert: 0	
	111 Pier Protection:	0	
	107 Deck Structure Type:	1	
	108 Wearing Surface Type:	1	
	M	0	
	F	0	

Signs & Attachments

	225 Expansion Joint Type:	02	
	242 Deck Drains:	1	
	243 Parapet Location:	0	
	Height:	0.00	
	Width:	0.00	
	238 Curb:	0.00	0
	239 Handrail:	9	9
*	240 Median Barrier Rail:	0	
	241 Bridge Median Height:	0.00	
	Width:	0.00	
*	230 Guardrail Loc Dir Rear:	6	
	Fwrd:	5	
	Oppo Dir Rear:	0	
	Fwrd:	0	
	244 Approach Slab:	3	
	224 Retaining Wall:	0	
	233 Posted Speed Limit:	65	
	236 Warning Sign:	0	
	234 Delineator:	1	
	235 Hazard Boards:	0	
	237 Utilities Gas:	00	
	W	00	
	Ele	00	
	Telephone:	00	
	Se	00	
	247 Lighting Street:	0	
	Naviagtion:	0	
	Aerial:	0	
*	248 County Continuity No.:	01	

Programming Data

201 Project No.: I-575-1 (2) 00 CT.1
202 Plans Available: 1
249 Prop. Proj. No. 0000000000000000
250 Approval Status: 0000
251 P.I. No.: 0000000
252 Contract Date: 02/01/1901
260 Seismic No.: 00000
75 Type Work: 00 0
94 Bridge Imp. Cost: $ 0
95 Roadway Imp. Cost: $ 0
96 Total Imp Cost: $ 0
76 Imp. Length: 000000
97 Imp. Year: 0000
114 Future ADT: 111855 Year: 2024

Hydraulic Data

215 Waterway Data
Highwater Elev.: 0000.0 Year: 1900
Avg. Streambed Elev.: 0000.0 Freq.: 00
Drainage Area: 00000
Area Of Opening: 000000
113 Scour Critical: 5
216 Water Depth: 01.2 Br. Height: 30.6
222 Slope Protection: 1
221 Spur Dikes Rear: 0 Fwrd: 0
219 Fender System: 0
220 Dolphin: 0
223 Culvert Cover: 000
Type: 0
No. Barrels: 0
Width: 0.00 Height: 0.00
Length: 0 Apron: 0
* 265 U/W Insp. Area: 0 Diver: ZZZ

* Location I.D. No.: 067-00417D-001.98N

Measurements

* 29 ADT: 074570 Year: 2004
109 % Trucks: 11
* 28 Lanes On: 02 Under: 00
210 No. Tracks On: 00 Under: 00
* 48 Max. Span Length: 0070
* 49 Structure Length: 170
51 Br. Rwdy. Width: 40.50
52 Deck Width: 43.70
* 47 Tot. Horz. Cl: 40.50
50 Curb/Sdewlk Width: 0.00/0.00
32 Approach Rdwy Width: 038
* 229 Shoulder Width:
Rear Lt: 4.00 Type: 2 Rt: 10.00
Fwrd Lt: 4.00 Type: 2 Rt: 10.00
Pavement Width:
Rear: 24.00 Type: 2
Fwrd: 24.00 Type: 2
Intersection Rear: 0 Fwrd: 0
36 Safety Features Br. Rail: 1
Transition: 1
App. G. Rail: 1
App. Rail End: 1
53 Minimum Cl.Over: 99 ' 99 "
Under: N 00 ' 00 "
* 228 Min. Vertical Cl
Act. Odm Dir: 99 ' 99 "
Oppo. Dir: 99 ' 99 "
Posted Odm. Dir: 00 ' 00 "
Oppo. Dir: 00 ' 00 "
55 Lateral Undercl. Rt: N 99.90
56 Lateral Undercl. Lt: 0.00
* 10 Max Min Vert Cl: 99 ' 99 " Dir: 0
39 Nav Vert Cl: 000 Horz: 0000
116 Nav Vert Cl Closed: 000
245 Deck Thickness Main: 6.90
Deck Thick Approach: 0.00
246 Overlay Thickness: 0.00
212 Year Last Painted: Sup: 0000 Sub: 0000

Ratings

65 Inventory Rating Method: 1
63 Inventory Rating Method: 1
66 Inventory Type: 2 Rating: 18
64 Operating Type: 2 Rating: 58
231 Calculated Loads
H-Modified: 17 0
HS-Modified: 19 0
Type 3: 17 0
Type 3s2: 27 0
Timber: 21 0
Piggyback: 35 0
261 H Inventory Rating: 14
262 H Operating Rating: 54
67 Structural Evaluation: 4
58 Deck Condition: 6
59 Superstructure Condition: 8
* 227 Collision Damage: 0
60A Substructure Condition: 7
60B Scour Condition: 8
60C Underwater Condition: N
71 Waterway Adequacy: 9
61 Channel Protection Cond: 8
68 Deck Geometry: 7
69 UnderClr. Horz/Vert: N
72 Appr. Alignment: 8
62 Culvert: N

Posting Data

70 Bridge Posting Required: 5
41 Struct Open, Posted, Cl: A
* 103 Temporary Structure: 0
232 Posted Loads H-Modified: 00
HS-Modified: 00
Type 3: 00
Type3s2: 00
Timber: 00
Piggyback: 00
253 Notification Date 02/01/1901
253 Fed Notify Date: 02/01/1901 0

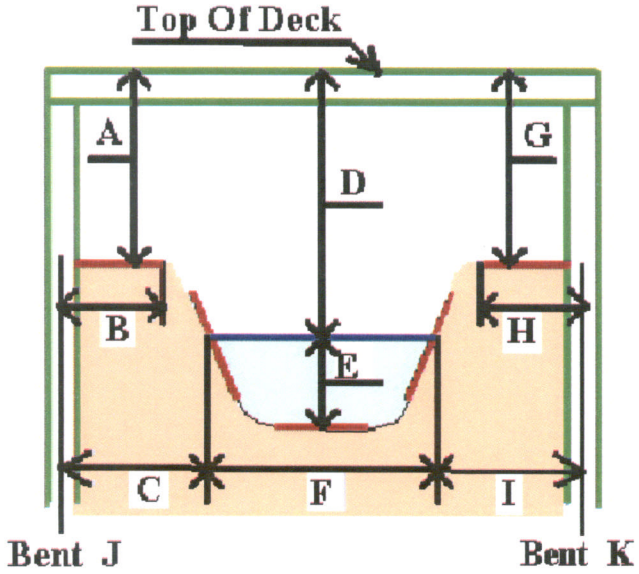
GEORGIA DEPARTMEN . OF TRANSPORTATION

Waterway Report

District: 7
Bridge Inspector: Jerry Cooper
Location ID: 067-00417D-001.98N
Structure ID: 067-0113-0

Inspection Date: 3/9/2005
Over: NOONDAY CREEK
County: Cobb
Road Name: I-575 (NBL)

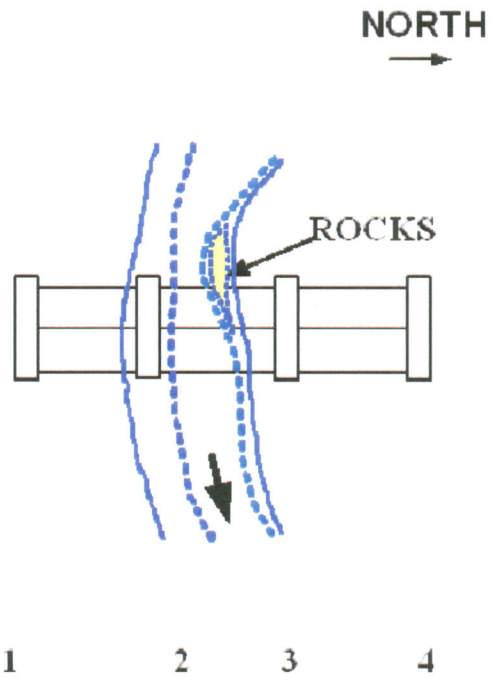
Inspection Area: 09
Skew: 00



Side view at the Channel.

B, C, H, & I are measured to center of bent or B.F.P.R.

A:	20
B:	21
C:	42
D:	30.6
E:	01.2
F:	28
G:	24
H:	39
I:	50
J:	2
K:	4



Location of Bridge Height -5' from bent #3

Scour Condition: 8 **Waterway Adequacy:** 9 **Channel Protection:** 8

0 = SubStructure
0 = Channel Skew
0 = Stream Angle

Comments:
No comments are required.

GEORGIA DEPARTMEN . OF TRANSPORTATION

Waterway Report

District: 7
Bridge Inspector: Jerry Cooper
Location ID: 067-00417D-001.98N
Structure ID: 067-0113-0

Inspection Date: 3/9/2005
Over: NOONDAY CREEK
County: Cobb
Road Name: I-575 (NBL)

Inspection Area: 09
Skew: 00

Span #:	1	2	3
Length:	**50.0**	**70.0**	**50.0**

Upstream -

Upstream +		1	2	3	4
06/01/1997	BDH DEM		20.30	31.90	7.30
06/22/1999	JMC DEM		20.30	32.00	7.30
05/30/2001	JMC-WBR		21.00	32.00	0.00
07/02/2003	JMC-WBR		20.50	31.40	7.00
03/09/2005	JLM/WBR		20.60	31.60	7.00

Downstream -

Downstream +		1	2	3	4
06/01/1997	BDH DEM		18.60	31.30	7.20
06/22/1999	JMC DEM		18.70	31.00	7.20
05/30/2001	JMC-WBR		18.70	31.00	0.00
07/02/2003	JMC-WBR		18.60	31.00	7.00
03/09/2005	JLM/WBR		18.70	31.20	7.00

GEORGIA DEPARTMEN. OF TRANSPORTATION

Bridge Component Report

District: 7
Bridge Inspector: Jerry Cooper
Location ID: 067-00417D-001.98N
Structure ID: 067-0113-0

Inspection Date: 3/9/2005
Over: NOONDAY CREEK
County: Cobb
Road Name: I-575 (NBL)

Inspection Area: 09

SubStructure Data

Bent#	Type	Foundation	Col	#Cols	Piling	#Piles	Sway	CAP	Remarks
1	A	PF		0		0		C	ONLY CAP EXPOSED
2	B	SF	C	2		0		C	
3	B	SF	C	2		0		C	
4	A	PF		0		0		C	ONLY CAP EXPOSED

SuperStructure Data

Span#	Beam Type	Spacing	Length	#Beams	Remarks
1	PSC "I" Beam	6.50	50.00	7	Type 3
2	PSC "I" Beam	6.50	70.00	7	Type 3
3	PSC "I" Beam	6.50	50.00	7	Type 3

Bearing Data

Span#	Rear Type Bearing	FWD Type Bearing	Remarks
1	03 - Elastomeric	03 - Elastomeric	
2	03 - Elastomeric	03 - Elastomeric	
3	03 - Elastomeric	03 - Elastomeric	

BRIDGE INVENTORY DATA LISTING GEOI A DEPARTMENT OF TRANSPORTATION

Structure ID: 067-0114-0 **Cobb** SUFF. RATING 67.09

Location & Geography

*	Structure I.D.No:	067-0114-0	
	200 Bridge Information	06	
*	6A Feature Int:	NOONDAY CREEK	
*	6B Critical Bridge:	0	
*	7A Route Number Carried:	SR00417	
*	7B Facility Carried:	I-575 (SBL)	
*	9 Location:	3 MI E OF KENNESAW	
	2 DOT District:	7	
	207 Year Photo:	2003	
*	91 Inspection Frequency:	24 Date: 03/09/2005	
	92A Fract Crit Insp Freq:	00 Date: 02/01/1901	
	92B Underwater Insp Freq:	00 Date: 02/01/1901	
	92C Other Spc. Insp Freq:	00 Date: 02/01/1901	
*	4 Place Code:	00000	
*	5 Inventory Route (O/U):	1	
	Type:	1	
	Designation:	1	
	Number:	00575	
	Direction:	0	
*	16 Latitude: 34-01.5	MMS Prefix: SR	
*	17 Longitude: 084-33.6	MMS Suffix: 00 MP:	1.94
	98 Border Bridge: 000	%Shared: 00	
	99 ID Number: 000000000000000		
*	100 STRAHNET: 1		
	12 Base Highway Network:	1	
	13A LRS Inventory Route:	671041700	
	13B Sub Inventory Route:	0	
*	101 Parallel Structure:	L	
*	102 Direction of Traffic:	1	
*	264 Road Inventory Mile Post:	018.85	
*	208 Inspection Area: 09	Initials: JMC	
	Engineer's Initial: jal		

* Location I.D. No.: 067-00417D-001.99N

*	104 Highway System:	1	
*	26 Functional Classification:	11	
*	204 Federal Route Type:	I No.:	05751
	105 Federal Lands Highway:	0	
*	110 Truck Route:	1	
	206 School Bus Route:	0	
	217 Benchmark Elevation:	0000.00	
	218 Datum:	0	
*	19 Bypass Length:	01	
*	20 Toll:	3	
*	21 Maintenance:	01	
*	22 Owner:	01	
*	31 Design Load:	6	
	37 Historical Significance:	5	
	205 Congressional District:	06	
	27 Year Constructed:	1980	
	106 Year Reconstructed:	0000	
	33 Bridge Median:	1	
	34 Skew:	00	
	35 Structure Flared:	0	
	38 Navigation Control:	0	
	213 Special Steel Design:	0	
	267 Type of Paint:	0	
*	42 Type of Service on:	1	
		5	
	214 Movable Bridge:	0	
	203 Type Bridge:	O-O-O-O	
	259 Pile Encasement:	3	
*	43 Structure Type Main:	5 02	
	45 No. Spans Main:	003	
	44 Structure Type Appr:	0 00	
	46 No. Spans Appr:	0000	
	226 Bridge Curve Horz:	0 Vert:	0
	111 Pier Protection:	0	
	107 Deck Structure Type:	1	
	108 Wearing Surface Type:	1	
	M	0	
	F	0	

Signs & Attachments

	225 Expansion Joint Type:	02	
	242 Deck Drains:	1	
	243 Parapet Location:	0	
	Height:		0.00
	Width:		0.00
	238 Curb:		0.00 0
	239 Handrail:	9 9	
*	240 Median Barrier Rail:	0	
	241 Bridge Median Height:		0.00
	Width:		0.00
*	230 Guardrail Loc Dir Rear:	6	
	Fwrd:	0	
	Oppo Dir Rear:	0	
	Fwrd:	0	
	244 Approach Slab:	3	
	224 Retaining Wall:	0	
	233 Posted Speed Limit:	65	
	236 Warning Sign:	0	
	234 Delineator:	1	
	235 Hazard Boards:	0	
	237 Utilities Gas:	00	
	W	00	
	Ele	00	
	Telephone:	00	
	Se	00	
	247 Lighting Street:	0	
	Naviagtion:	0	
	Aerial:	0	
*	248 County Continuity No.:	01	

Programming Data

201 Project No.: I-575-1 (2) 00 CT.1
202 Plans Available: 1
249 Prop. Proj. No. 0000000000000000
250 Approval Status: 0000
251 P.I. No.: 0000000
252 Contract Date: 02/01/1901
260 Seismic No.: 00000
75 Type Work: 00 0
94 Bridge Imp. Cost: $ 0
95 Roadway Imp. Cost: $ 0
96 Total Imp Cost: $ 0
76 Imp. Length: 000000
97 Imp. Year: 0000
114 Future ADT: 111855 Year: 2024

Hydraulic Data

215 Waterway Data
Highwater Elev.: 0000.0 Year: 1900
Avg. Streambed Elev.: 0000.0 Freq.: 00
Drainage Area: 00000
Area Of Opening: 000000
113 Scour Critical: 5
216 Water Depth: 01.0 Br. Height: 31.0
222 Slope Protection: 1
221 Spur Dikes Rear: 0 Fwrd: 0
219 Fender System: 0
220 Dolphin: 0
223 Culvert Cover: 000
Type: 0
No. Barrels: 0
Width: 0.00 Height: 0.00
Length: 0 Apron: 0
* 265 U/W Insp. Area: 0 Diver: ZZZ

* Location I.D. No.: 067-00417D-001.99N

Measurements

* 29 ADT: 074570 Year: 2004
109 % Trucks: 11
* 28 Lanes On: 02 Under: 00
210 No. Tracks On: 00 Under: 00
* 48 Max. Span Length: 0070
* 49 Structure Length: 170
51 Br. Rwdy. Width: 40.50
52 Deck Width: 43.70
* 47 Tot. Horz. Cl: 40.50
50 Curb/Sdewlk Width: 0.00/0.00
32 Approach Rdwy Width: 038
* 229 Shoulder Width:
Rear Lt: 4.00 Type: 2 Rt: 10.00
Fwrd Lt: 4.00 Type: 2 Rt: 10.00
Pavement Width:
Rear: 24.00 Type: 2
Fwrd: 24.00 Type: 2
Intersection Rear: 0 Fwrd: 0
36 Safety Features Br. Rail: 1
Transition: 1
App. G. Rail: 1
App. Rail End: 1
53 Minimum Cl.Over: 99 ' 99 "
Under: N 00 ' 00 "
* 228 Min. Vertical Cl
Act. Odm Dir: 99 ' 99 "
Oppo. Dir: 99 ' 99 "
Posted Odm. Dir: 00 ' 00 "
Oppo. Dir: 00 ' 00 "
55 Lateral Undercl. Rt: N 99.90
56 Lateral Undercl. Lt: 0.00
* 10 Max Min Vert Cl: 99 ' 99 " Dir: 0
39 Nav Vert Cl: 000 Horz: 0000
116 Nav Vert Cl Closed: 000
245 Deck Thickness Main: 6.90
Deck Thick Approach: 0.00
246 Overlay Thickness: 0.00
212 Year Last Painted: Sup: 0000 Sub: 0000

Ratings

65 Inventory Rating Method: 1
63 Inventory Rating Method: 1
66 Inventory Type: 2 Rating: 18
64 Operating Type: 2 Rating: 58
231 Calculated Loads
H-Modified: 17 0
HS-Modified: 19 0
Type 3: 17 0
Type 3s2: 27 0
Timber: 21 0
Piggyback: 35 0
261 H Inventory Rating: 14
262 H Operating Rating: 54
67 Structural Evaluation: 4
58 Deck Condition: 7
59 Superstructure Condition: 8
* 227 Collision Damage: 0
60A Substructure Condition: 7
60B Scour Condition: 8
60C Underwater Condition: N
71 Waterway Adequacy: 9
61 Channel Protection Cond: 8
68 Deck Geometry: 7
69 UnderClr. Horz/Vert: N
72 Appr. Alignment: 8
62 Culvert: N

Posting Data

70 Bridge Posting Required: 5
41 Struct Open, Posted, Cl: A
* 103 Temporary Structure: 0
232 Posted Loads H-Modified: 00
HS-Modified: 00
Type 3: 00
Type3s2: 00
Timber: 00
Piggyback: 00
253 Notification Date 02/01/1901
253 Fed Notify Date: 02/01/1901 0

GEORGIA DEPARTMENT OF TRANSPORTATION

Bridge Inspection Report

District: 7 **Inspection Date:** 3/9/2005 **Inspection Area:** 09
Bridge Inspector: Jerry Cooper **Over:** NOONDAY CREEK **Bridge Status:** 06
Location ID: 067-00417D-001.99N **County:** Cobb
Structure ID: 067-0114-0 **Road Name:** I-575 (SBL)

EVALUATION & DEFICIENCIES

SubStructure: **Year Painted:** 0000

Concrete Caps At Both Abutments.
Abutments are founded on steel piling.
Minor cracking in both abutment caps.
Bents 2 And 3 Has Concrete Caps On 2 Concrete Columns And Founded On Spread Footings.
Very minor cracking in the caps at bent #2 and #3.
Bent #3 = H-32 Calculated 2004 by Central Office (Load Factor)

SuperStructure: **Year Painted:** 0000

3 Span P.S.C. "I" Beam (7 Type III Beams Per Span).
Neoprene Bearings.
All beams are in good condition at this time.
Span #2 = H-14 Calculated 2004 by Central Office (Load Factor).

Deck:

6 7/8" Concrete Slab Poured Continuous.
Metal S.I.P. Deck Forms.
Minor transverse cracking noted in the deck surface.
Deck: H-32 Calculated 2004 by Central Office (Load Factor).

General:

Built in 1980 Project # I-575-1 (2) 00 CT.1
Calculations for this structure were determined by the Central Office. - February, 2004
Hand tools and ladder used.

Condition Rating

Component	Material	Rating
Substructure	Concrete	7
Superstructure	Concrete	8
Deck	Concrete	7

Temp Shored: **No**

Truck Type	Gross/H-Mod	HSMod	Tand	3-S-2	Log	Piggy
Calculated Posting	17	19	17	27	21	35
Posting Required	No	No	No	No	No	No
Existing Posting	00	00	00	00	00	00

Not a School Bus Route.

Structure Does Not Require Posting

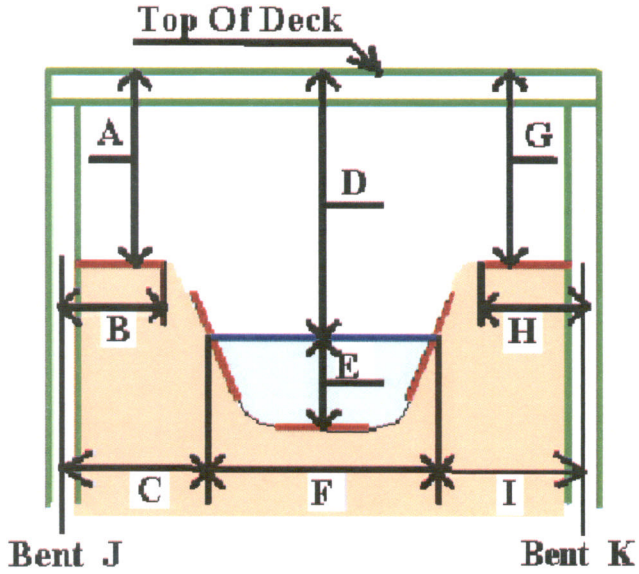
GEORGIA DEPARTMEN . OF TRANSPORTATION

Waterway Report

District: 7
Bridge Inspector: Jerry Cooper
Location ID: 067-00417D-001.99N
Structure ID: 067-0114-0

Inspection Date: 3/9/2005
Over: NOONDAY CREEK
County: Cobb
Road Name: I-575 (SBL)

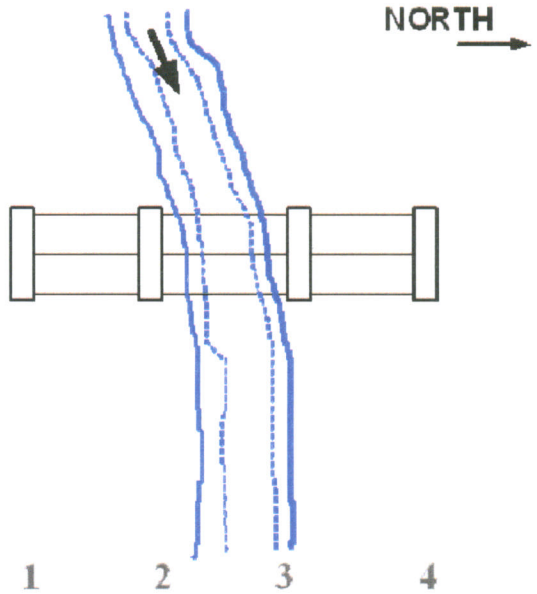
Inspection Area: 09
Skew: 00



Side view at the Channel.

B, C, H, & I are measured to center of bent or B.F.P.R.

A:	24
B:	11
C:	17
D:	31.0
E:	01.0
F:	33
G:	28
H:	15
I:	20
J:	2
K:	3



Location of Bridge Height -20' from bent #3

Scour Condition: 8 **Waterway Adequacy:** 9 **Channel Protection:** 8

0 = **SubStructure**
30 = **Channel Skew**

30 = **Stream Angle**

Comments:
No comments are required.

GEORGIA DEPARTMENT OF TRANSPORTATION

Waterway Report

District: 7
Bridge Inspector: Jerry Cooper
Location ID: 067-00417D-001.99N
Structure ID: 067-0114-0

Inspection Date: 3/9/2005
Over: NOONDAY CREEK
County: Cobb
Road Name: I-575 (SBL)

Inspection Area: 09
Skew: 00

Span #:	1	2	3
Length:	**50.0**	**70.0**	**50.0**

Upstream -

Upstream +		1	2	3	4
06/25/1997	BDH DEM		24.70	27.10	5.90
06/22/1999	JMC DEM		24.70	25.80	5.90
05/30/2001	JMC-WBR		24.70	25.80	0.00
07/02/2003	JMC-WBR		24.70	26.10	6.00
03/09/2005	JMC/WBR		24.80	26.20	6.00

Downstream -

Downstream +		1	2	3	4
06/25/1997	BDH DEM		21.20	26.20	6.10
06/22/1999	JMC DEM		22.00	25.80	6.10
05/30/2001	JMC-WBR		22.00	25.80	0.00
07/02/2003	JMC-WBR		22.00	25.80	6.00
03/09/2005	JMC/WBR		22.10	25.90	6.00

GEORGIA DEPARTMEN JF TRANSPORTATION

Bridge Component Report

District: 7
Bridge Inspector: Jerry Cooper
Location ID: 067-00417D-001.99N
Structure ID: 067-0114-0

Inspection Date: 3/9/2005
Over: NOONDAY CREEK
County: Cobb
Road Name: I-575 (SBL)

Inspection Area: 09

SubStructure Data

Bent#	Type	Foundation	Col	#Cols	Piling	#Piles	Sway	CAP	Remarks
1	A	DP		0		0		C	ONLY CAP EXPOSED
2	B	SF	C	2		0		C	
3	B	SF	C	2		0		C	
4	A	DP		0		0		C	ONLY CAP EXPOSED

SuperStructure Data

Span#	Beam Type	Spacing	Length	#Beams	Remarks
1	PSC "I" Beam	6.50	50.00	7	Type 3
2	PSC "I" Beam	6.50	70.00	7	Type 3
3	PSC "I" Beam	6.50	50.00	7	Type 3

Bearing Data

Span#	Rear Type Bearing	FWD Type Bearing	Remarks
1	03 - Elastomeric	03 - Elastomeric	
2	03 - Elastomeric	03 - Elastomeric	
3	03 - Elastomeric	03 - Elastomeric	

CALCULATION SHEET

PROJECT: I-75 / I-575 NORTHWEST CORRIDOR
JOB NUMBER NH000-0575-01(028)
CALC NO. BR#36

SUBJECT: Hydraulic Information
BY: JCR DATE: 11/30/2009

SHEET NO.
SHEET REV.

HYDRAULIC TABLE (50-YEAR STORM)

	UNCONSTRICTED SECTION	*EXISTING CONDITIONS*	*PROPOSED CONDITIONS*
FLOODSTAGE ELEVATION BRIDGE SECTION (ft)	928.94	930.36	930.32
FLOODSTAGE ELEVATION APPROACH SECTION (ft)	929.86	933.31	933.34
AREA OF OPENING UNDER FLOODSTAGE (ft^2)	**********	518	508
DISCHARGE THROUGH BRIDGE (cfs)	**********	6665	6665
DISCHARGE OVER ROADWAY (cfs)	**********	0	0
CHANNEL VELOCITY (f/s)	4.53	15.51	15.73
MEAN VELOCITY (f/s)	**********	12.87	13.11
2-YEAR FLOODSTAGE ELEVATION BRIDGE SECTION (ft)	926.02	926.50	926.55
BACKWATER HEIGHT (ft)	**********	3.45	3.48

HYDRAULIC TABLE (100-YEAR STORM)

	UNCONSTRICTED SECTION	*EXISTING CONDITIONS*	*PROPOSED CONDITIONS*
FLOODSTAGE ELEVATION BRIDGE SECTION (ft)	929.46	931.04	930.96
FLOODSTAGE ELEVATION APPROACH SECTION (ft)	930.31	934.25	934.27
AREA OF OPENING UNDER FLOODSTAGE (ft^2)	**********	576	576
DISCHARGE THROUGH BRIDGE (cfs)	**********	7649	7649
DISCHARGE OVER ROADWAY (cfs)	**********	0	0
CHANNEL VELOCITY (f/s)	4.58	16.40	16.40
MEAN VELOCITY (f/s)	**********	13.27	13.27
2-YEAR FLOODSTAGE ELEVATION BRIDGE SECTION (ft)	926.02	926.50	926.55
BACKWATER HEIGHT (ft)	**********	3.94	3.96

HYDRAULIC TABLE (500-YEAR STORM)

	UNCONSTRICTED SECTION	*EXISTING CONDITIONS*	*PROPOSED CONDITIONS*
FLOODSTAGE ELEVATION BRIDGE SECTION (ft)	930.30	932.09	932.01
FLOODSTAGE ELEVATION APPROACH SECTION (ft)	931.06	935.81	935.82
AREA OF OPENING UNDER FLOODSTAGE (ft^2)	**********	699	699
DISCHARGE THROUGH BRIDGE (cfs)	**********	9444	9444
DISCHARGE OVER ROADWAY (cfs)	**********	0	0
CHANNEL VELOCITY (f/s)	4.70	17.49	17.49
MEAN VELOCITY (f/s)	**********	13.50	13.50
2-YEAR FLOODSTAGE ELEVATION BRIDGE SECTION (ft)	926.02	926.50	926.55
BACKWATER HEIGHT (ft)	**********	4.75	4.76

NH000-0575-01(028) Cobb County
I-575 over Noonday Creek - South

Proposed widened bridges

MIN PROFILE GRADE ELEVATION	949.85
DEPTH OF CROSS SLOPE	0.84
DEPTH OF SLAB AND BEAM	5.06
BOTTOM OF BEAM ELEVATION	943.95

MINIMUM BOTTOM OF BEAM ELEVATION	943.95
50 YEAR FLOODSTAGE ELEVATION*	930.32
CLEARANCE	13.63

MINIMUM BOTTOM OF BEAM ELEVATION	943.95
100 YEAR FLOODSTAGE ELEVATION*	930.96
CLEARANCE	12.99

*Floodstage taken from proposed conditions model.

CALCULATION SHEET

PROJECT: I-75 / I-575 NORTHWEST CORRIDOR
JOB NUMBER NH000-0575-01(028)
CALC NO. BR#36

SUBJECT: Bridge Foundation Investigation
BY: JCR DATE: 11/30/2009

SHEET NO.
SHEET REV.

Preliminary Foundation Recommendations
Bridge 36: I-575 over Noonday Creek (South)
Northwest Corridor Project
GDOT Project No. NH000-0073-03(242), PI No. 714130
Cobb County, Georgia

WILLMER ENGINEERING INC.
Project No. ATL-171-3463BFI3

Document No.: ATL-171-3463BFI3-36
Revision: A
Issue Date: October 14, 2009
Document Status: Issued for Review

Prepared For

GEORGIA TRANSPORTATION PARTNERS
Atlanta, Georgia

Prepared By

WILLMER ENGINEERING INC.
3772 Pleasantdale Road
Suite 165
Atlanta, Georgia 30340-4270

770.939.0089

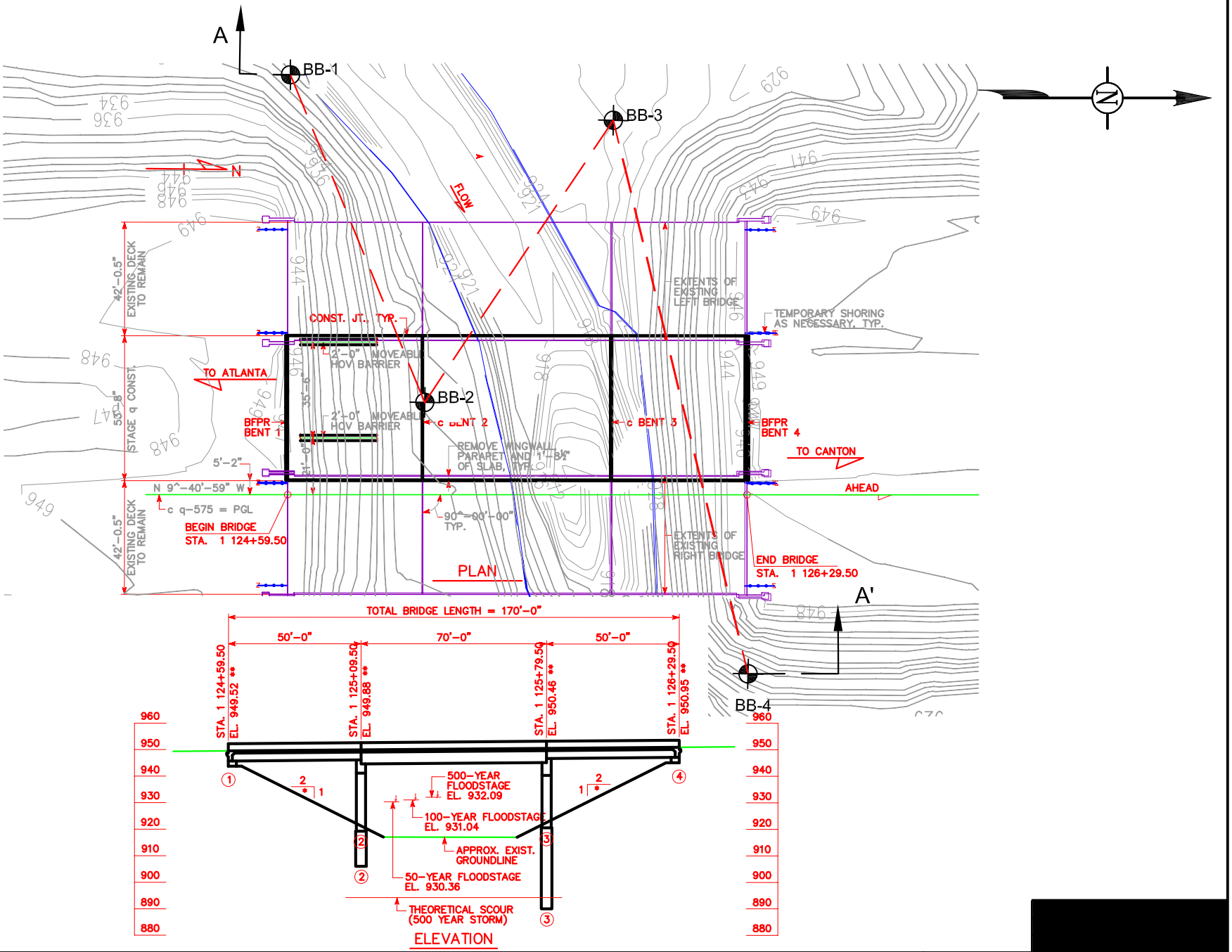
PWR AND AUGER REFUSAL ELEVATIONS (feet)			
Bent No.	**Reference Boring No.**	**Top of PWR**	**Auger Refusal**
1	BB-1	909	905
2	BB-2	917	916
3	BB-3	901	900
4	BB-4	891	890

MAXIMUM PILE DESIGN LOADS			
Pile Type	**Load Transfer (%)**		**Design Load**
	Friction	**End Bearing**	
H-Piles	20	80	HP 10x42 = 55 Tons
			HP 12x53 = 70 Tons
			HP 14x73 = 96 Tons
			HP 14x89 = 117 Tons

FOUNDATION RECOMMENDATIONS						
Bent No.	**Drilled Shaft**			**Spread Footing Bearing (ksf)**	**Pile Footing (Type)**	**Pile Bent (Type)**
	Skin Friction (ksf)		**End Bearing (ksf)**			
	PWR	**Rock**				
1						H
2			100			
3			100	20 ksf on rock (ALT)*		
4						H

ELEVATIONS (feet)					
Bent No.	**Reference Boring No.**	**Bottom of Drilled Shaft**	**Bottom of Spread Footing**	**H-Pile**	
				Minimum Tip	**Estimated Tip**
1	BB-1			908±	906±
2	BB-2	909 or below			
3	BB-3	893 or below*	(ALT)*		
4	BB-4			890±	890±

* The drilled shaft recommendation for this bent is based on boring BB-3 which is located about 80 feet west of this bent location. Since Bents 2 and 3 of the existing bridges are supported on spread footings, shallow rock may be encountered at this bent location. Borings should be performed at this location during the design/build phase to determine the depth to rock. Spread footings should be used in lieu of drilled shafts if rock is encountered within 10 feet below final grade. Bottom elevations of spread footings will depend on the depth to rock.



LEGEND:

BB - 1 BORING LOCATION

SCALE: 1" = 50'	
DATE: 10/14/2009	
DRAWN BY: JK	
REVIEWED BY: DK	

WILLMER ENGINEERING INC.

GEOTECHNICAL ENGINEERING ¤ CONSTRUCTION SERVICES
ENVIRONMENTAL SERVICES AND ENGINEERING
3772 PLEASANTDALE ROAD - SUITE 165
ATLANTA, GA 30340-4270

FIGURE 2 - BORING LOCATION PLAN
I-575 OVER NOONDAY CREEK (SOUTH)
NORTHWEST CORRIDOR PROJECT
COBB COUNTY, GEORGIA
WILLMER PROJECT No. ATL-171-3463BFI3

P:\3463-Northwest Corridor - PSP - Cobb County\CADD\Br36_PE.dwg

WILLMER ENGINEERING INC. WE

Project: **I-575 Over Noonday Creek (South)**
Location: **Cobb County, Georgia**
Project Number: **171-3463BFI3-36; GDOT Proj. # : NH000-0073-03(242); PI # : 714130**

HOLE No. BB-1

Sheet 1 of 1
Location: **BENT -1**

Azimuth: **--** Angle from Horizontal: **90** Surface Elevation (ft): **931.43** Station: **ST 1124+60.5, 155' LT. of CL**

Drilling Equipment: **CME 550** Drilling Method: **HSA Auto Hammer**

Core Boxes: **--** Samples: **6** Overburden (ft): **26** Rock (ft): **--** Total Depth (ft): **26.0**

Logged By: **MK** Date Drilled: **9/25/07**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION		ELEVATION (feet)	N-VALUE
		SS			FILL : Loose orange brown clayey medium to fine **SAND** with rock fragments (slightly micaceous)	**FILL**	931.4	
5		SS					930	9
								9
					ALLUVIUM : Very loose tan and brown coarse to fine **SAND**	**SP**	925	
10		SS						1
					Loose gray coarse to fine **SAND** (slightly micaceous)	**SM**	920	
15		SS						6
					RESIDUUM : Dense gray, black and brown silty medium to fine **SAND**	**SM**	915	
20		SS						48
					PARTIALLY WEATHERED ROCK : Sampled as very dense gray, black and brown silty medium to fine **SAND**	**PWR**	910	
25		SS						50/4"

Auger refusal encountered @ 26 feet below existing ground surface.

Groundwater was encountered @ 9 feet below existing ground surface @ time of boring and 24 hours after completion of boring.

STANDARD PENETRATION TEST DATA (blows/foot)
5 10 20 40 60 80

SAMPLER TYPE
SS - Split Spoon
ST - Shelby Tube
NQ - Rock Core, 1-7/8"
NX - Rock Core, 2-1/8"
CU - Cuttings
CT - Continuous Tube

DRILLING METHOD
HSA - Hollow Stem Auger
CFA - Continuous Flight Augers
DC - Driving Casing
RW - Rotary Wash
RC - Rock Core

Hole No. **BB-1**

SPTN 171-3099B.GPJ 11/14/07

WILLMER ENGINEERING INC. WE

Project: **I-575 Over Noonday Creek (South)**
Location: **Cobb County, Georgia**
Project Number: **171-3463BFI3-36; GDOT Proj. # : NH000-0073-03(242); PI # : 714130**

HOLE No. BB-2

Sheet 1 of 1
Location: **BENT -2**

Azimuth: **--** Angle from Horizontal: **90** Surface Elevation (ft): **928.72** Station: **ST 1125+10, 34' LT. of CL**

Drilling Equipment: **CME 550** Drilling Method: **HSA Auto Hammer**

Core Boxes: **1** Samples: **4** Overburden (ft): **13** Rock (ft): **7** Total Depth (ft): **20.0**

Logged By: **MK** Date Drilled: **9/24/07**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION	ELEVATION (feet)
					TOPSOIL - 1 inch	SM 928.7
		SS			RESIDUUM : Medium dense brown and orange silty medium to fine **SAND**	SM
5		SS			(slightly micaceous)	925
					Medium dense black and brown silty medium to fine **SAND** (micaceous)	
10		SS				920
		SS			PARTIALLY WEATHERED ROCK : No recovery	PWR
		NQ	100	100	ROCK CORE : Very hard gray, black and white **GNEISS**	915
15						
		NQ	100	100		910
20						

Auger refusal encountered @ 13 feet below existing ground surface.

Coring terminated @ 20 feet below existing ground surface.

Groundwater was encountered @ 12 feet below existing ground surface @ time of boring and 24 hours after completion of boring.

STANDARD PENETRATION TEST DATA (blows/foot)

5 10 20 40 60 80

N-VALUE: 14, 16, 16, 50/0"

SAMPLER TYPE

SS - Split Spoon
ST - Shelby Tube
NQ - Rock Core, 1-7/8"
NX - Rock Core, 2-1/8"
CU - Cuttings
CT - Continuous Tube

DRILLING METHOD

HSA - Hollow Stem Auger
CFA - Continuous Flight Augers
DC - Driving Casing
RW - Rotary Wash
RC - Rock Core

Hole No. **BB-2**

SPTN 171-3099B.GPJ 11/14/07

WILLMER ENGINEERING INC. WE

Project: **I-575 Over Noonday Creek (South)**
Location: **Cobb County, Georgia**
Project Number: **171-3463BFI3-36; GDOT Proj. # : NH000-0073-03(242); PI # : 714130**

HOLE No. BB-3

Sheet 1 of 1
Location: **BENT -3**

Azimuth: **--** Angle from Horizontal: **90** Surface Elevation (ft): **924.76** Station: **ST 1125+80, 138' LT.of CL**

Drilling Equipment: **CME 550** Drilling Method: **HSA Auto Hammer**

Core Boxes: **--** Samples: **7** Overburden (ft): **25** Rock (ft): **--** Total Depth (ft): **25.0**

Logged By: **MK** Date Drilled: **9/25/07**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION		ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot)	N-VALUE
					TOPSOIL - 1 inch	FILL	924.8		
		SS			FILL : Medium dense brown silty medium to fine **SAND**				16
		SS			ALLUVIUM : Loose brown and gray clayey medium to fine **SAND**	SC	920		6
5									
		SS			Very loose black, tan and brown silty medium to fine **SAND**	SM	915		1
10									
		SS			Loose gray and tan silty coarse to fine **SAND** with fine gravel (slightly micaceous)	SM	910		8
15									
		SS			RESIDUUM : Medium dense white, brown and black medium to fine **SAND** with silt (micaceous)	SM	905		13
20									
		SS			PARTIALLY WEATHERED ROCK : Sampled as very dense brown, black and white silty medium to fine **SAND** with rock fragments (slightly micaceous)	PWR	900		50/5"
25		SS							50/0"

Auger refusal encountered @ 25 feet below existing ground surface.

Groundwater was encountered @ 8 feet below existing ground surface @ time of boring and 24 hours after completion of boring.

STANDARD PENETRATION TEST DATA (blows/foot): 5 10 20 40 60 80

SAMPLER TYPE

SS - Split Spoon
ST - Shelby Tube
NQ - Rock Core, 1-7/8"
NX - Rock Core, 2-1/8"
CU - Cuttings
CT - Continuous Tube

DRILLING METHOD

HSA - Hollow Stem Auger
CFA - Continuous Flight Augers
DC - Driving Casing
RW - Rotary Wash
RC - Rock Core

Hole No. **BB-3**

SPTN 171-3099B.GPJ 11/14/07

WILLMER ENGINEERING INC. WE

Project: **I-575 Over Noonday Creek (South)**
Location: **Cobb County, Georgia**
Project Number: **171-3463BFI3-36; GDOT Proj. # : NH000-0073-03(242); PI # : 714130**

HOLE No. BB-4

Sheet 1 of 1
Location: **BENT -4**

Azimuth: **--** Angle from Horizontal: **90** Surface Elevation (ft): **923.44** Station: **ST 1126+30, 66' RT. of CL**
Drilling Equipment: **CME 550** Drilling Method: **HSA Auto Hammer**
Core Boxes: **--** Samples: **8** Overburden (ft): **33** Rock (ft): **--** Total Depth (ft): **33.0**
Logged By: **PT** Date Drilled: **10/8/07**

VERTICAL DEPTH (ft)	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION		ELEVATION (feet)
						923.4
	SS			FILL : Stiff reddish brown medium to fine sandy **CLAY**	**FILL**	
5	SS					920
				Stiff reddish brown medium to fine sandy **SILT** with organic odor (micaceous)	**FILL**	
10	SS					915
				ALLUVIUM: Very loose gray silty medium to fine **SAND**	**SM**	
15	SS					910
				Loose gray silty coarse to fine **SAND** (slightly micaceous)	**SM**	
20	SS					905
				RESIDUUM : Medium dense gray and white silty medium to fine **SAND** (slightly micaceous)	**SM**	
25	SS					900
30	SS					895
				PARTIALLY WEATHERED ROCK : No recovery	**PWR**	
	SS					

Auger refusal encountered @ 33 feet below existing ground surface.

Groundwater was encountered @ 12 feet below existing ground surface @ time of boring and 24 hours after completion of boring.

Hole caved in to 15 feet below the existing ground surface @ 24 hours after completion of boring.

STANDARD PENETRATION TEST DATA (blows/foot)

5 10 20 40 60 80

Bottom of MSE Wall

N-VALUE
10
11
13
4
5
11
16
50/0"

SAMPLER TYPE

SS - Split Spoon
ST - Shelby Tube
NQ - Rock Core, 1-7/8"
NX - Rock Core, 2-1/8"
CU - Cuttings
CT - Continuous Tube

DRILLING METHOD

HSA - Hollow Stem Auger
CFA - Continuous Flight Augers
DC - Driving Casing
RW - Rotary Wash
RC - Rock Core

Hole No. **BB-4**

SPTN 171-3099B.GPJ 11/14/07