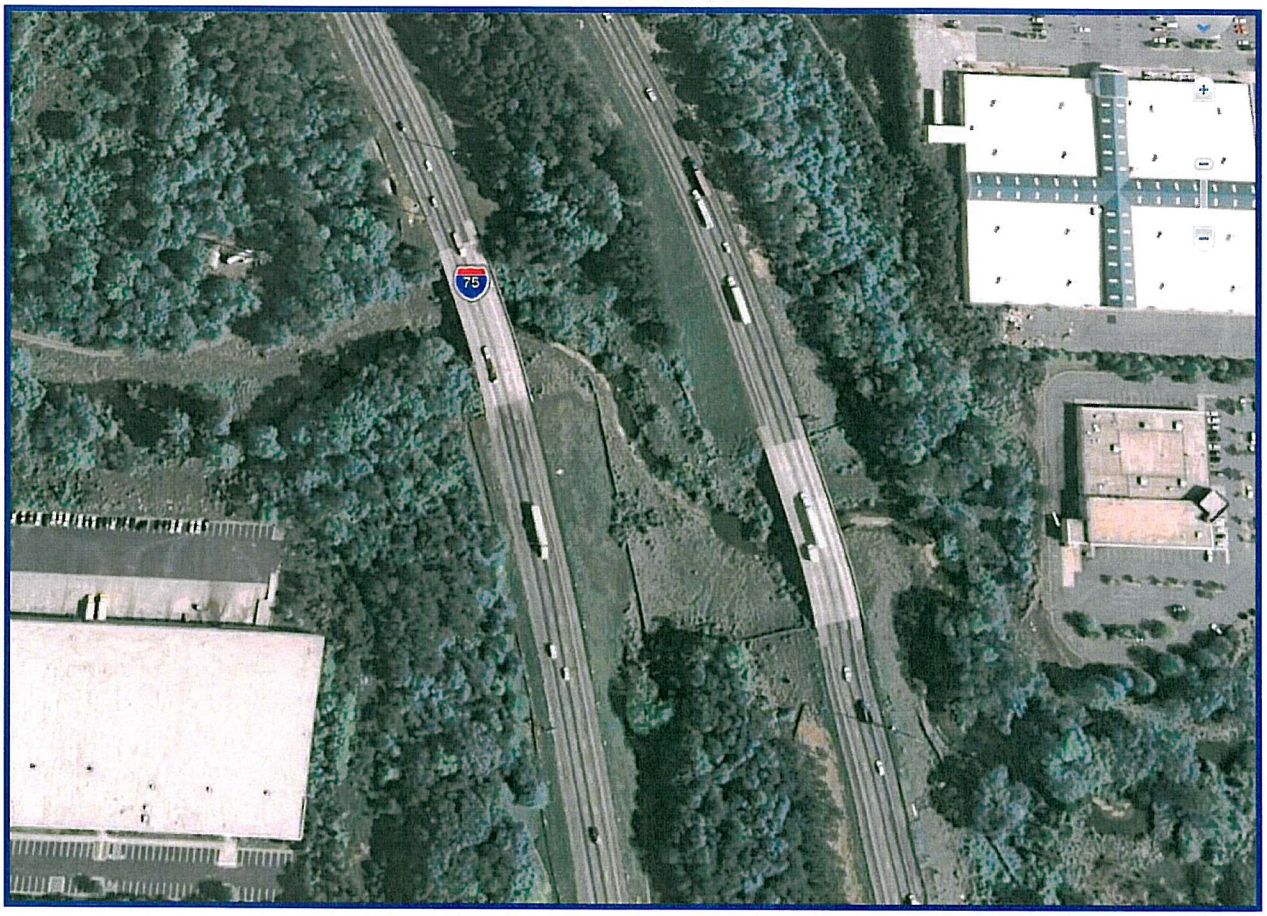
# Hydraulic and Hydrological Study for I-75 Reversible lanes over Noonday Creek

## NH000-0073-03(242)
## Cobb County, Georgia
## PI No. 714130

**November 2009**




**COMMUNITY COORDINATION ONLY REQUIRED**
**Cobb County, Community No. 130052**

GEORGIA
REGISTERED
No. 27873
PROFESSIONAL
11-18-09
ENGINEER
JOHN K. McWHORTER III

**Prepared by JBT for**
**Georgia Transportation Partners**
**Atlanta, GA**

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# Section I
# Hydraulic/Hydrologic Report

**November 2009**

**NH000-0073-03(242) Cobb County**
**I-75 Reversible lanes over Noonday Creek**
**PI# 714130**

## ***Introduction***

J.B. Trimble, Inc. (JBT) prepared this report to provide engineering calculations showing that the proposed bridge widening at the crossing of I-75 over Noonday Creek in Cobb County, Georgia will meet the Georgia Department of Transportation's (GDOT) hydraulic and hydrologic requirements. Noonday Creek is a FEMA studied waterway with a regulatory floodway. The proposed widening will not encroach vertically or horizontally on the current regulatory floodway elevation or width. Therefore, the proposed construction is consistent with the regulatory floodway due to bridging and excluding fill from the floodway. In accordance with section NS 23 CFR 650A of the Federal Policy Guide, coordination with FEMA is not required. However, since this site is located in the developing area of Cobb County, a "no-rise" was obtained and coordination will be done with the community. The design storm is the 50-year storm per the GDOT Drainage Design Manual for an Interstate. The drainage area at the proposed crossing, delineated from the United States Geological Survey (USGS) quadrangle maps for the area, is 11.0 square miles with a 50-year storm flow of 6003 cfs and a 100-year storm flow of 6889 cfs. The flows are calculated using the USGS Region 1 Urban Regression equations for Georgia and an impervious area of 25%.

The existing bridges at this crossing consist of parallel 240 ft long bridges on concrete bents with spillthrough abutments. The existing bridge widths are 60 ft gutter to gutter. The proposed construction will widen the northbound bridge to the inside by a varying width with a maximum of 50'- 5-1/2". No work is proposed for the existing southbound bridge.

Incorporated in the hydraulic models is the latest research on expanded and contracted flow for locating exit and approach sections. These locations are based on channel slope, main channel

and overbank Manning's "n" values and the ratio of the bridge opening to the floodplain width. This information is used to locate the exit and approach sections. This process is discussed in the *General Modeling Considerations* section in this report. HEC-RAS models were developed for this study and the WSPRO bridge routine was selected for the proposed model. HEC-RAS version, 4.0 was used for the study.

***Hydraulic Site Visit***

A hydraulic site visit was made at the existing crossing of I-75 over Noonday Creek on August 26, 2009. The upstream and downstream floodplains consist of some trees, underbrush and a thick layer of Kudzu. This crossing is located in a developed area of Cobb County and there are commercial developments located in the northeast, southeast and southwest quadrants. The Noonday Creek channel width varies from approximately 35-50 ft. The channel bottom of this urbanized stream has degraded, resulting in a widening of the channel and banks that are generally unstable and approximately 7 ft high.

The existing parallel 240 ft long steel beam bridges are staggered at this crossing in order to span the meandering Noonday Creek channel. The existing bents align well with the channel. However, the flood flow skew is approximately 45 degrees (see the contour plot in the Appendix). The existing abutment and intermediate bent setbacks are acceptable. The existing bridges consist of three 80 ft long steel beam spans on concrete bents with spillthrough abutments. Both bridges are built 90 degrees to the roadway centerline.

A sewer line was observed along the north bank of Noonday Creek. Two manholes were noted just upstream of the north bound bridge. A multi-conduit utility was observed attached to the downstream side of the northbound bridge (exterior bay). There are no utilities attached to the upstream side of the northbound bridge in the area of the proposed widening.

An additional site visit was made on September 21, 2009 during the excessive rainfall experienced over the Atlanta area. At this time, the water level just upstream from the northbound bridge was even with the tops of the aforementioned manholes.

***Procedure***

JBT personnel visited and photographed the site. A GDOT Hydraulic Engineering Field Report was completed. The drainage area and Manning's "n" values were determined and storm flows were calculated for this Region 1 site. HEC-RAS computer models were developed for the natural, existing and proposed conditions using survey data and proposed roadway improvements.

***General Modeling Considerations***

The FEMA discharges for this site are consistent with the USGS generated urbanized discharges for region 1. The Flood Insurance Study (FIS) for Cobb County has recently been revised (December of 2008). The 100-year FEMA flow in this FIS is 7348 cfs while the USGS flow is 6889 cfs. For the USGS flows, the urbanized equations are being used with an impervious area of 25% based on the current aerial photography. During the design of another project (NH000-0575-01(028)) the USGS was contacted along with a consultant with experience in the calculation of the FEMA flows for the Cobb County FIS in an effort to resolve the differences in the two flow sources for that project. This email exchange is included in the Appendix for reference. The USGS recommends the use of the current urban regression equations, although a proposal to revise these equations using a multi-state approach is being developed. This direction, along with the calculated impervious area and engineering judgment, were used to make the determination for the discharges to be used for this study. The GDOT Office of Bridge Hydraulics was also consulted and concurred with the approach presented in this study.

As previously stated, Noonday Creek is a FEMA studied stream with a regulatory floodway. To model the proposed construction, the existing bridge was widened in the proposed model. The results included in this study support a "no-rise" for this project.

In locating the approach and exit sections, new research detailed in the HEC-RAS Hydraulic Reference Manual, Version 3.1, dated November 2002, Appendix B is utilized. The expansion and contraction ratios used to locate the exit and approach sections are applicable to HEC-2, HEC-RAS and WSPRO models. The resulting coefficients are in the 1.2:1 to 1.5:1 range for expansion and 0.8:1 to 1.4:1 for contraction. These ranges were applied to the average floodplain constriction for both the proposed and existing conditions, yielding an expansion reach length range of 111 ft. to 139 ft. and a contraction reach length range of 74 ft. to 130 ft. The actual exit section is located at river station -630, approximately 630 ft. downstream of the roadway, and the actual approach section is located at river station 1250, approximately 460 ft. upstream of the proposed bridge. The approach and the exit sections were located at narrow floodplain constrictions in lieu of the aforementioned ratios.

As previously stated, on September 21, 2009 (approximately 1:00 pm) the water surface just upstream from the NBL bridge was observed to be even with the manholes in this area. This equates to an elevation of approximately 938.9. A review of the downstream gages at Hawkins Store Road and Shallowford Road shows the flows to be in the range of the 5-year storm. This conclusion is based on a comparison of gage flows at the time of the visit with the urbanized USGS equations using an impervious area of 25%. The HEC-RAS model results are consistent with this observed event without the need for calibration.

***Historic Drainage Patterns***

The existing channel velocities at the project site for the 50-year and 100-year storm flows are 7.37 ft/s and 7.76 ft/s, respectively. The existing backwater for the 50-year and 100-year storms 0.49 ft and 0.37 ft, respectively. The Manning's "n" values for the project site were developed using methods described in the USGS publication, *Guide for Selecting Manning's Roughness*

*Coefficients for Natural Channels and Flood Plains,* by George J. Arcement, Jr. and Verne R. Schneider.

***Proposed Drainage Patterns***

The proposed bridge widening results in a negligible change in the velocity and backwater values. The proposed channel velocities for the 50-year and 100-year storm flows are 7.37 ft/s and 7.76 ft/s, respectively. The existing backwater for the 50-year and 100-year storms 0.49 ft and 0.37 ft, respectively.

The maximum calculated contraction and local scour depth in the channel is 16.4 ft for the 100-year flood. The proposed bents are located in close proximity to the channel. Therefore, the channel scour depth was used for all of the bents to account for any local bank instability as was observed at the existing bridge. The existing bridges are founded on spread footings.

Riprap calculations were performed in accordance with the procedures outlined in Hydraulic Engineering Circular No. 23 *Bridge Scour and Stream Instability Countermeasures* the procedures detailed in the above named publication. GDOT Type I riprap 24-inches thick is specified here.

***Summary***

The appropriate hydraulic and hydrological procedures were used in this study's development. The proposed widening will not encroach vertically or horizontally on the current regulatory floodway elevations or widths for Noonday Creek. Therefore, the proposed construction is consistent with the regulatory floodway and coordination with FEMA is not required. However, since this site is located in the developing area of Cobb County, a "no-rise" certificate was obtained and coordination will be done with the community.

***References***

JBT utilized the following for this study:

- The Current Georgia Department of Transportation Drainage Manual for Highways with Supplemental guidelines for Hydraulic and Hydrological Studies.

- The United States Geological Survey (USGS) publication, *Techniques for Estimating Magnitude and Frequency of Floods in Rural Basins of Georgia*--1993, Water Resources Investigations Report 93-4016.

- Hydrologic Engineering Center (HEC) River Analysis System (HEC-RAS), Water-Surface Computational Model Version 4.0, dated March 2008.

- Hydrologic Engineering Center (HEC) River Analysis System (HEC-RAS) Users Manual Version 3.1, dated November 2002.

- Hydrologic Engineering Center (HEC) River Analysis System (HEC-RAS) Hydraulic Reference Manual Version 3.1, dated November 2002.

- Hydraulic Engineering Circular No. 18 (HEC-18) *Evaluating Scour at Bridges,* (FHWA-NHI-01-001), dated May 2001, Fourth Edition.

- Hydraulic Engineering Circular No. 20 (HEC-20) *Stream Stability at Highway Structures* (FHWA-NHI-01-002) dated March 2001, Third Edition.

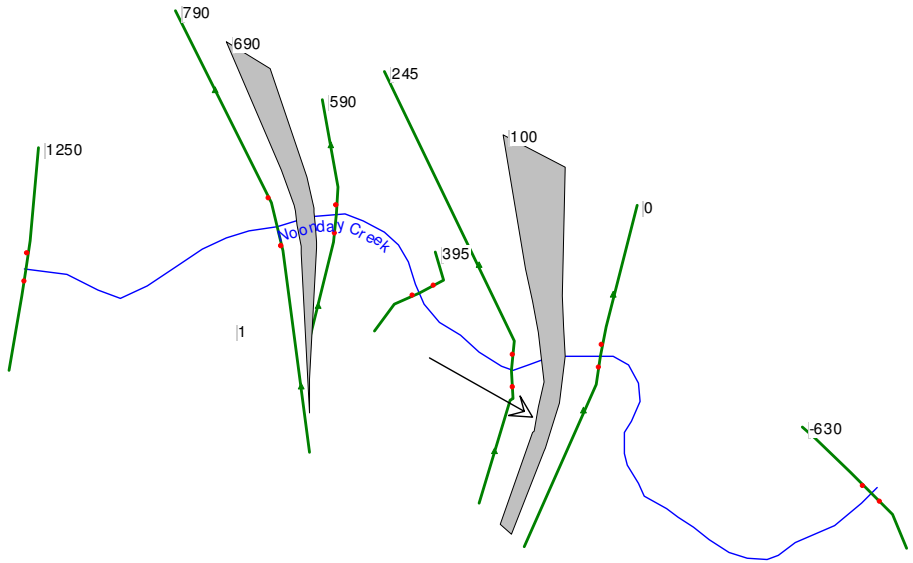
- Hydraulic Engineering Circular No. 23 (HEC-23) *Bridge Scour and Stream Instability Countermeasures* (FHWA-NHI-01-003) dated March 2001, Second Edition.

- The United States Geological Survey (USGS) publication, *Roughness Characteristics of Natural Channels,* Harry H. Barnes, Jr.—1987 (3rd Printing), Water-Supply Paper 1849.

- The United States Geological Survey (USGS) publication, *Guide for selecting Manning's Roughness Coefficients for Natural Channels and Flood Plains,* George J. Arcement, Jr., and Verne R. Schneider—1992 (2nd Printing); Water-Supply Paper 2339.

- *Computer Assisted Floodplain Hydrology & Hydraulics*, Daniel H. Hoggan, McGraw-Hill, New York, 1989.

# HEC-RAS PLOTS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Noonday Creek
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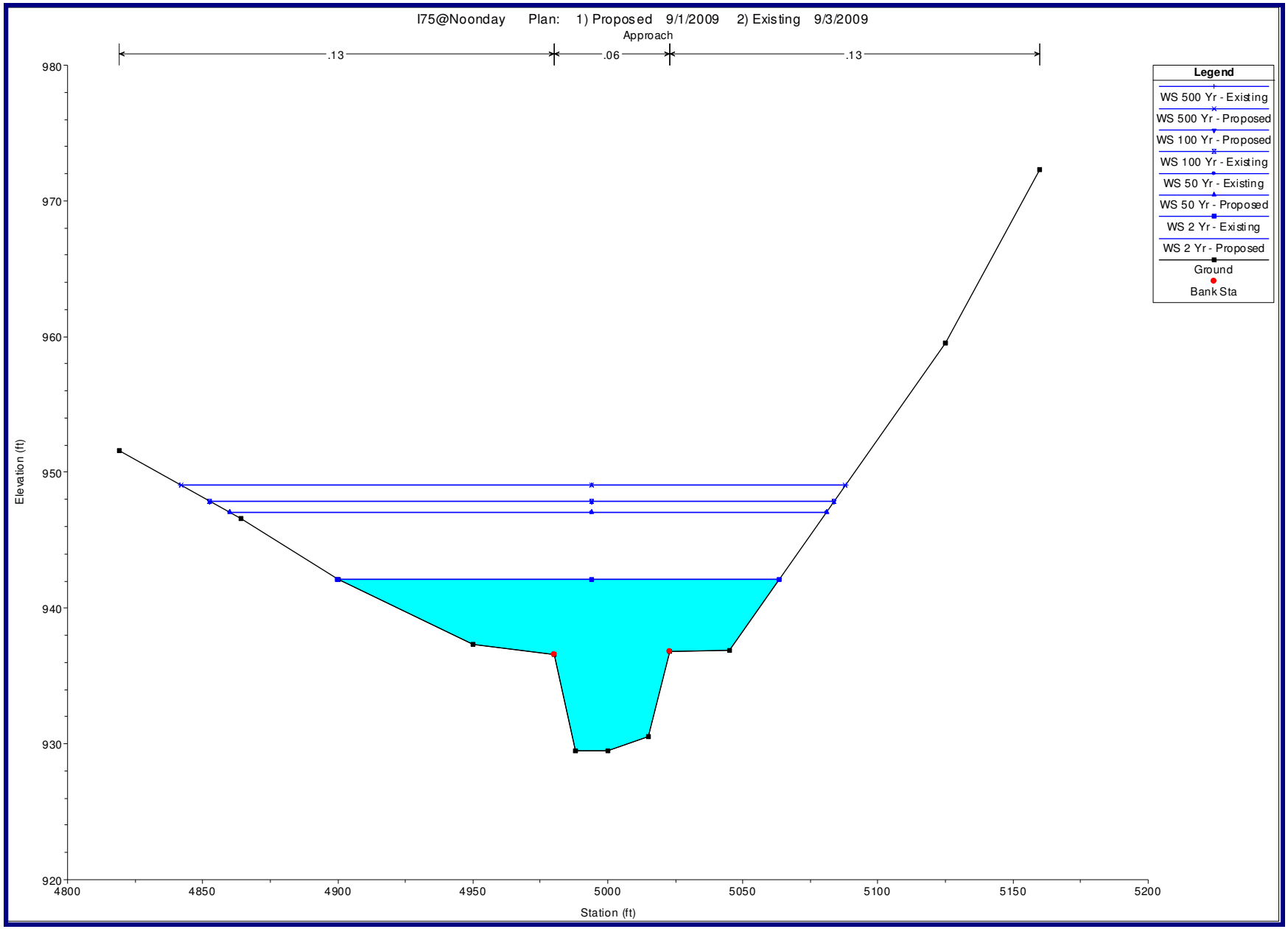
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Approach
.13
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Legend
WS 500 Yr - Existing
WS 500 Yr - Proposed
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WS 50 Yr - Existing
WS 50 Yr - Proposed
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WS 2 Yr - Proposed
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Elevation (ft)
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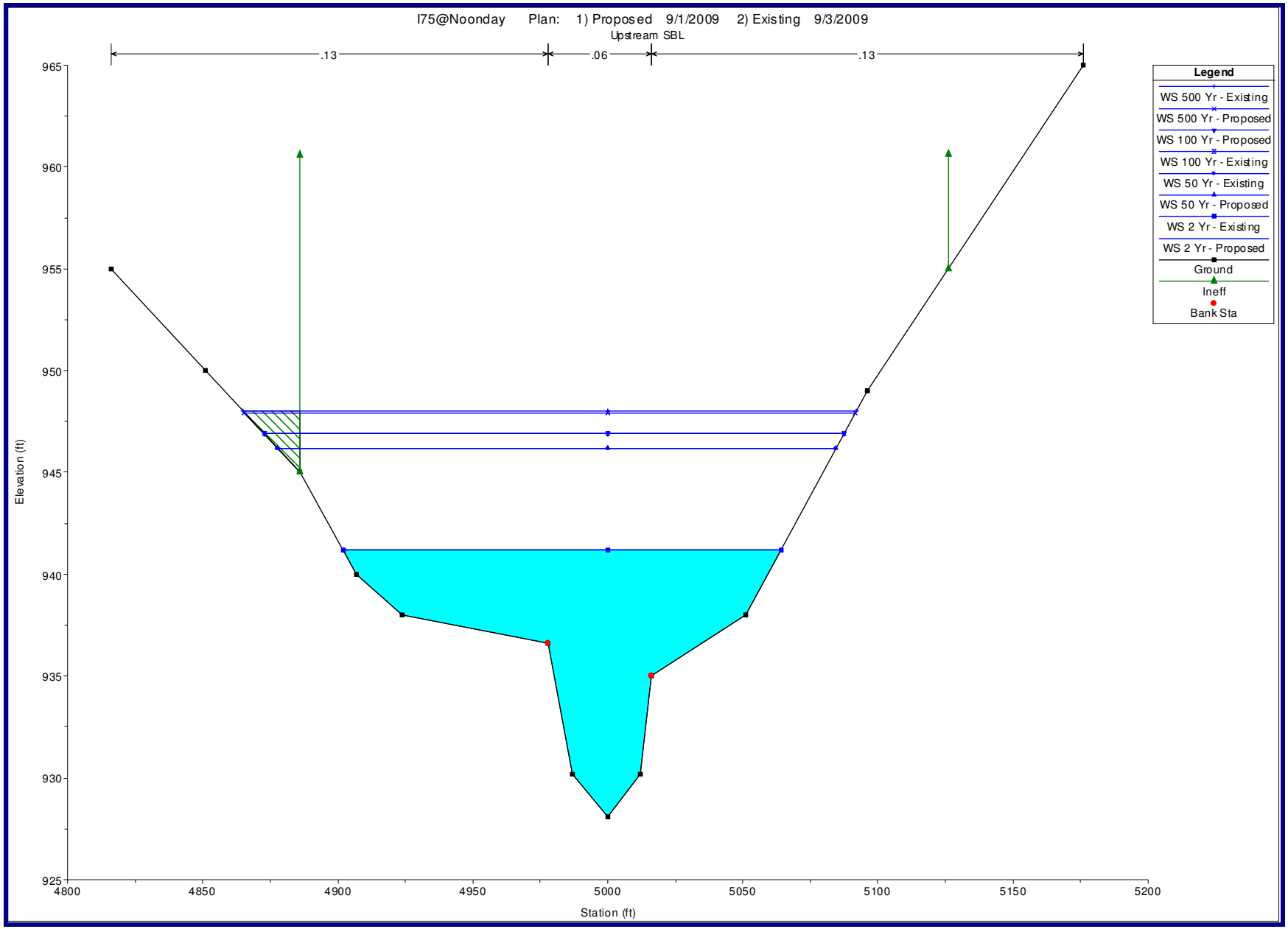
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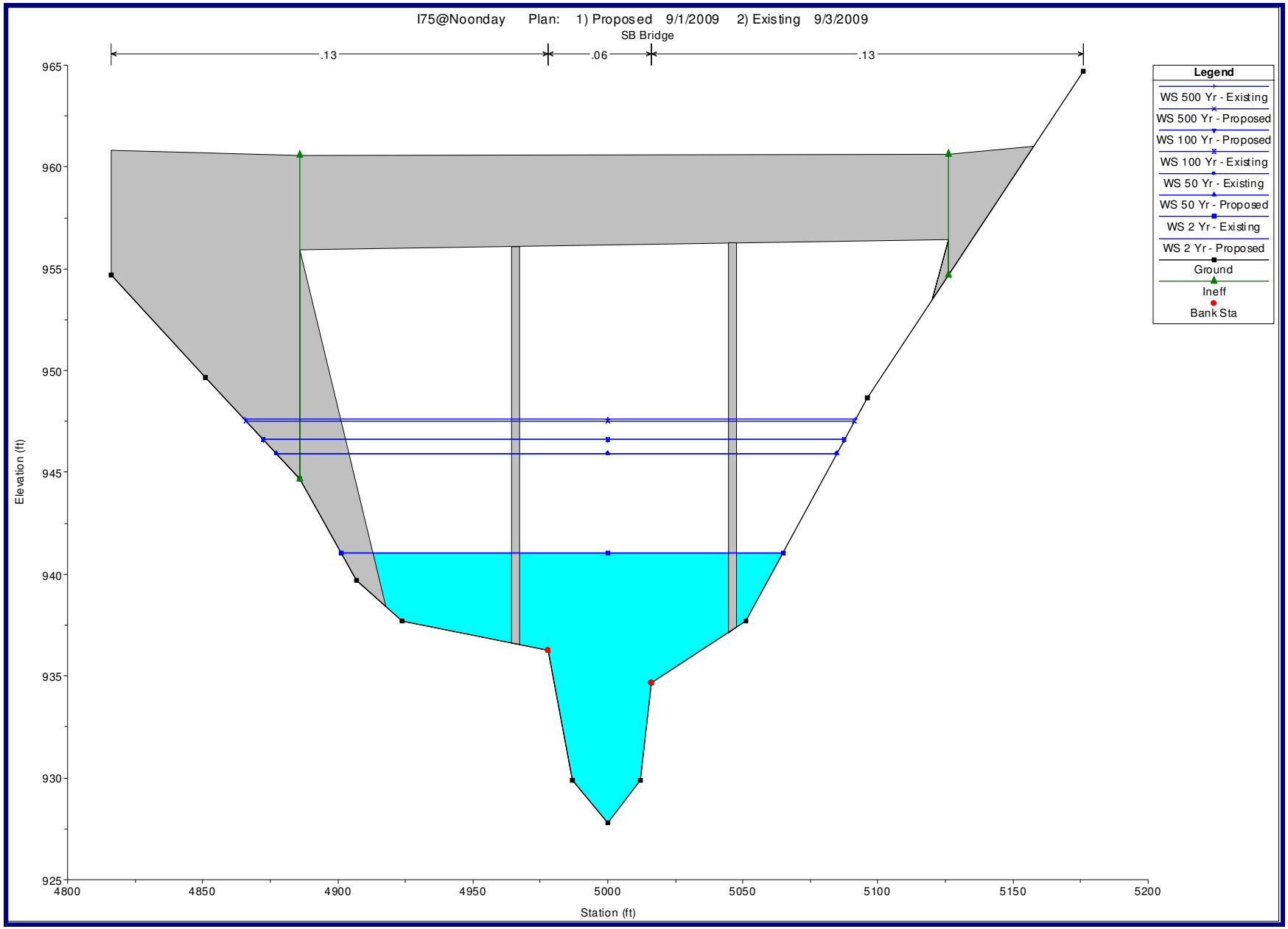
Station (ft)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Legend
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WS 500 Yr - Proposed
WS 100 Yr - Proposed
WS 100 Yr - Existing
WS 50 Yr - Existing
WS 50 Yr - Proposed
WS 2 Yr - Existing
WS 2 Yr - Proposed
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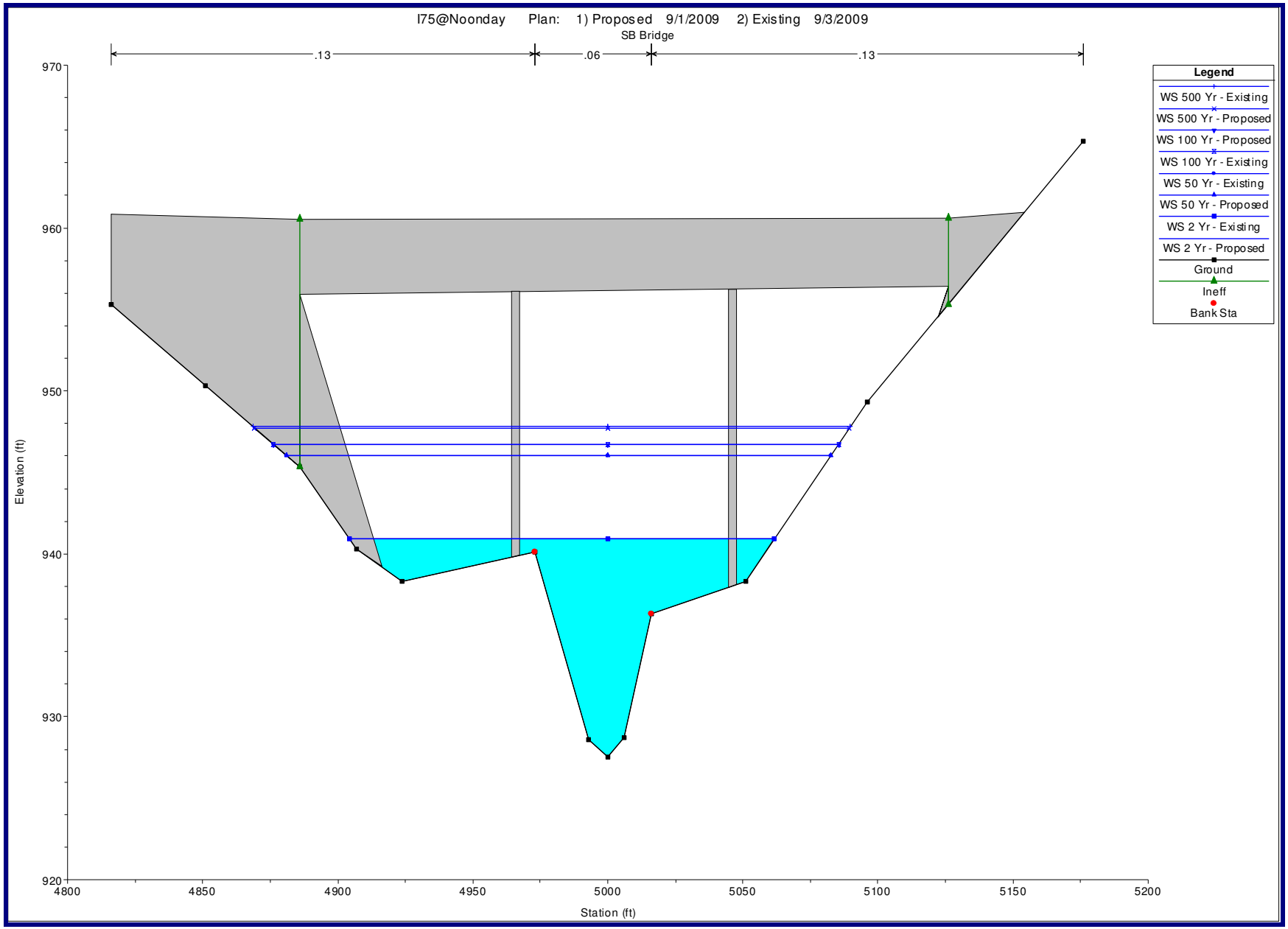
Station (ft)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WS 50 Yr - Proposed
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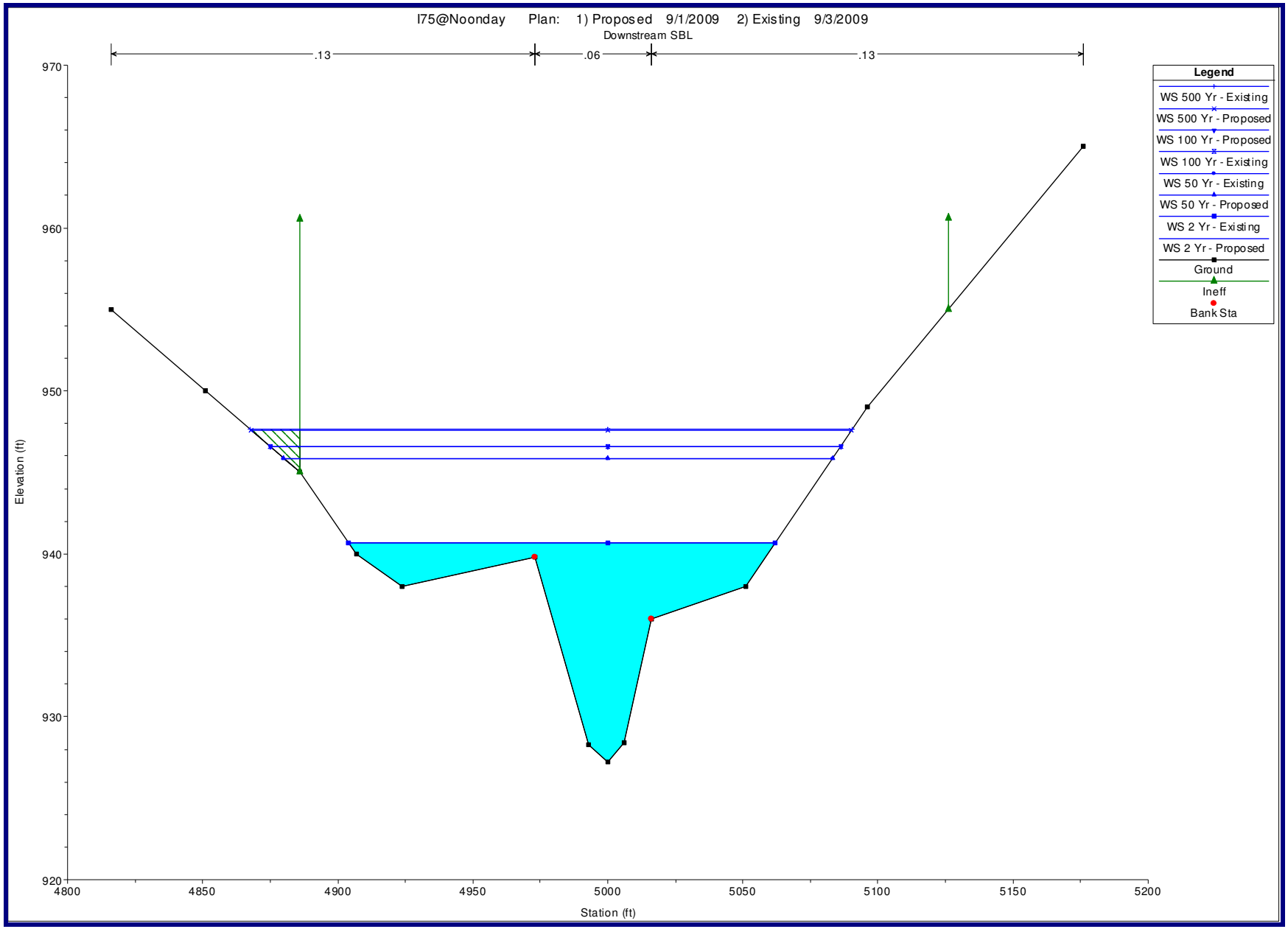
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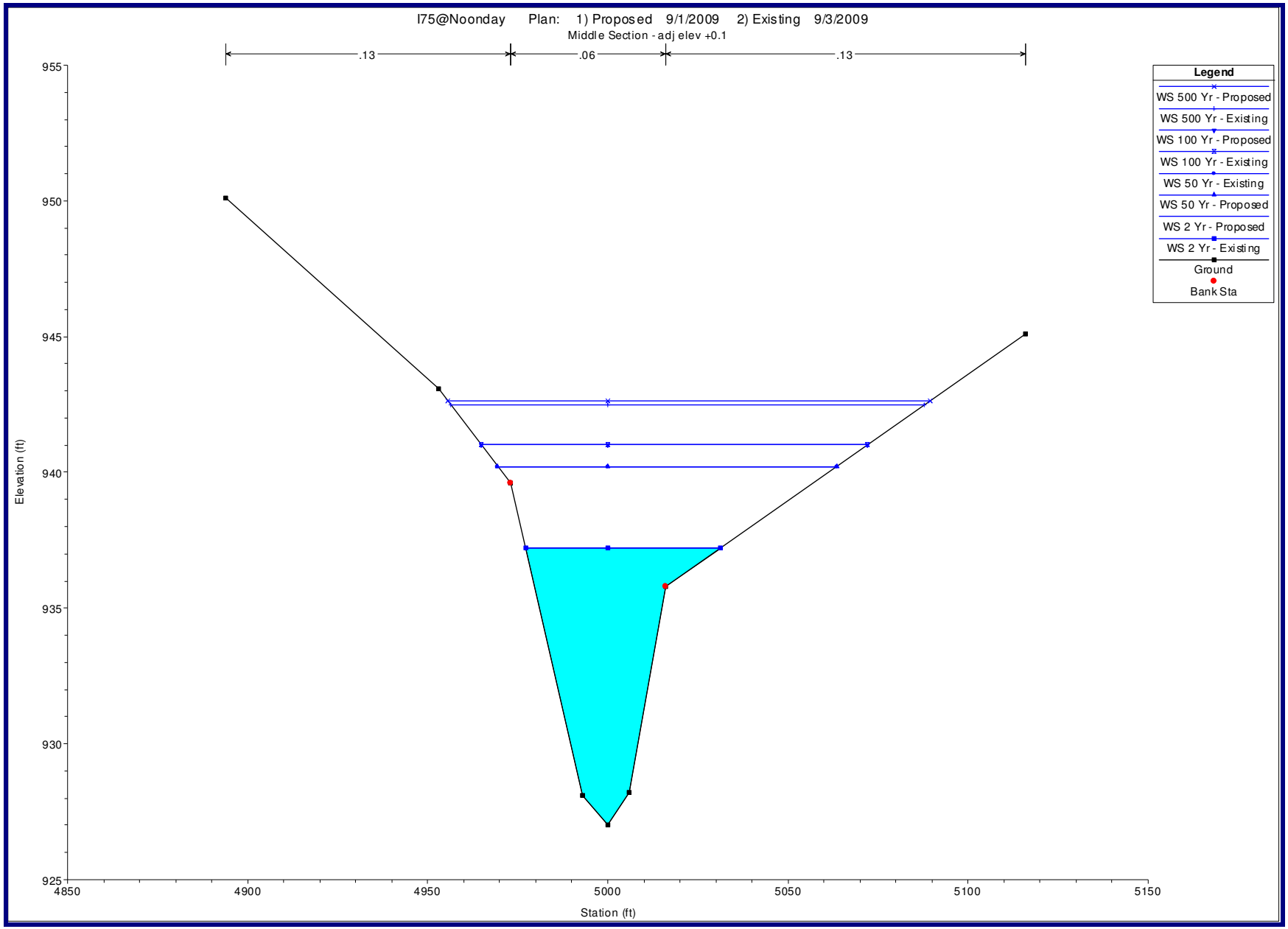
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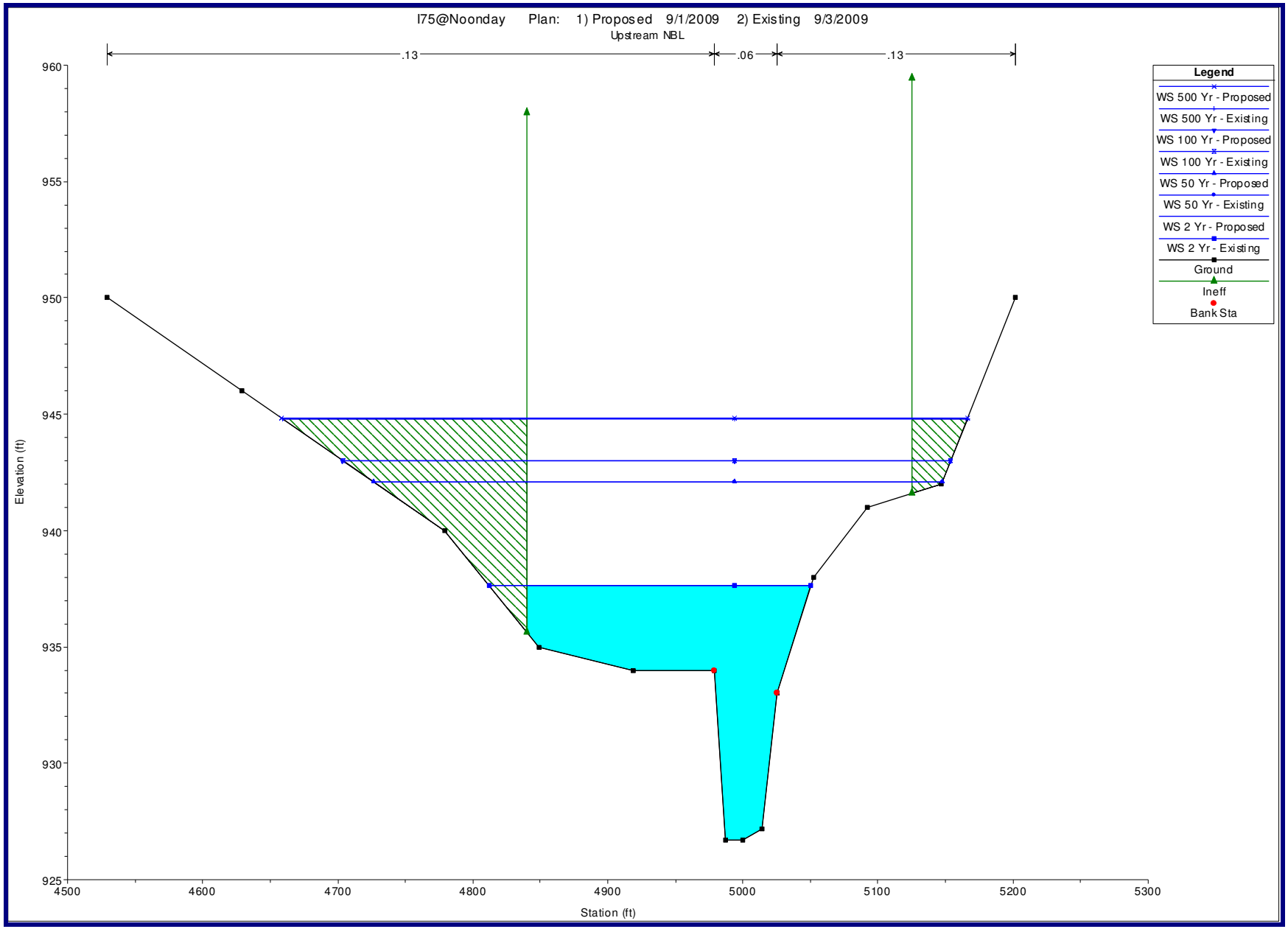
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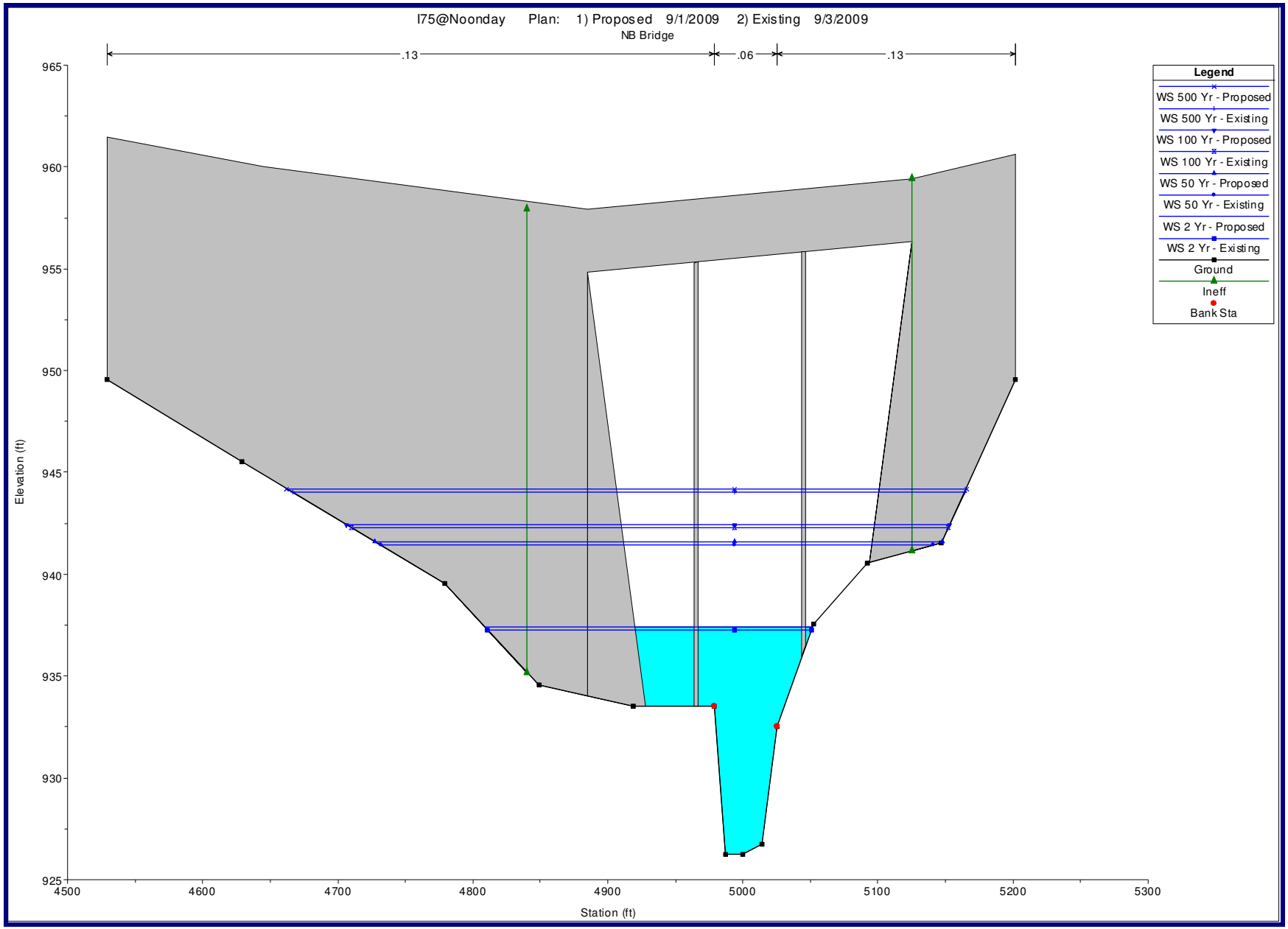
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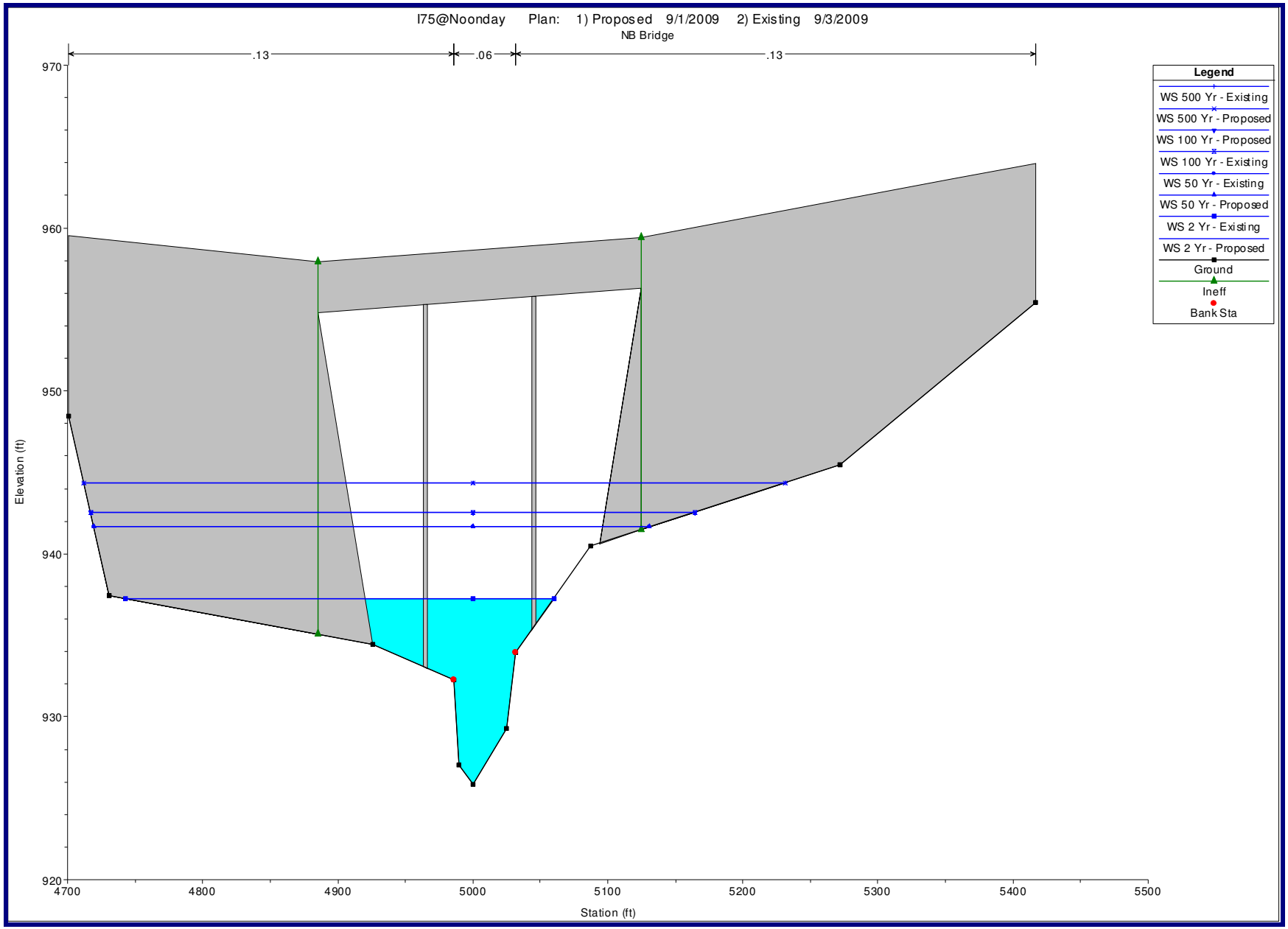
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WS 100 Yr - Existing
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WS 50 Yr - Proposed
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WS 2 Yr - Proposed
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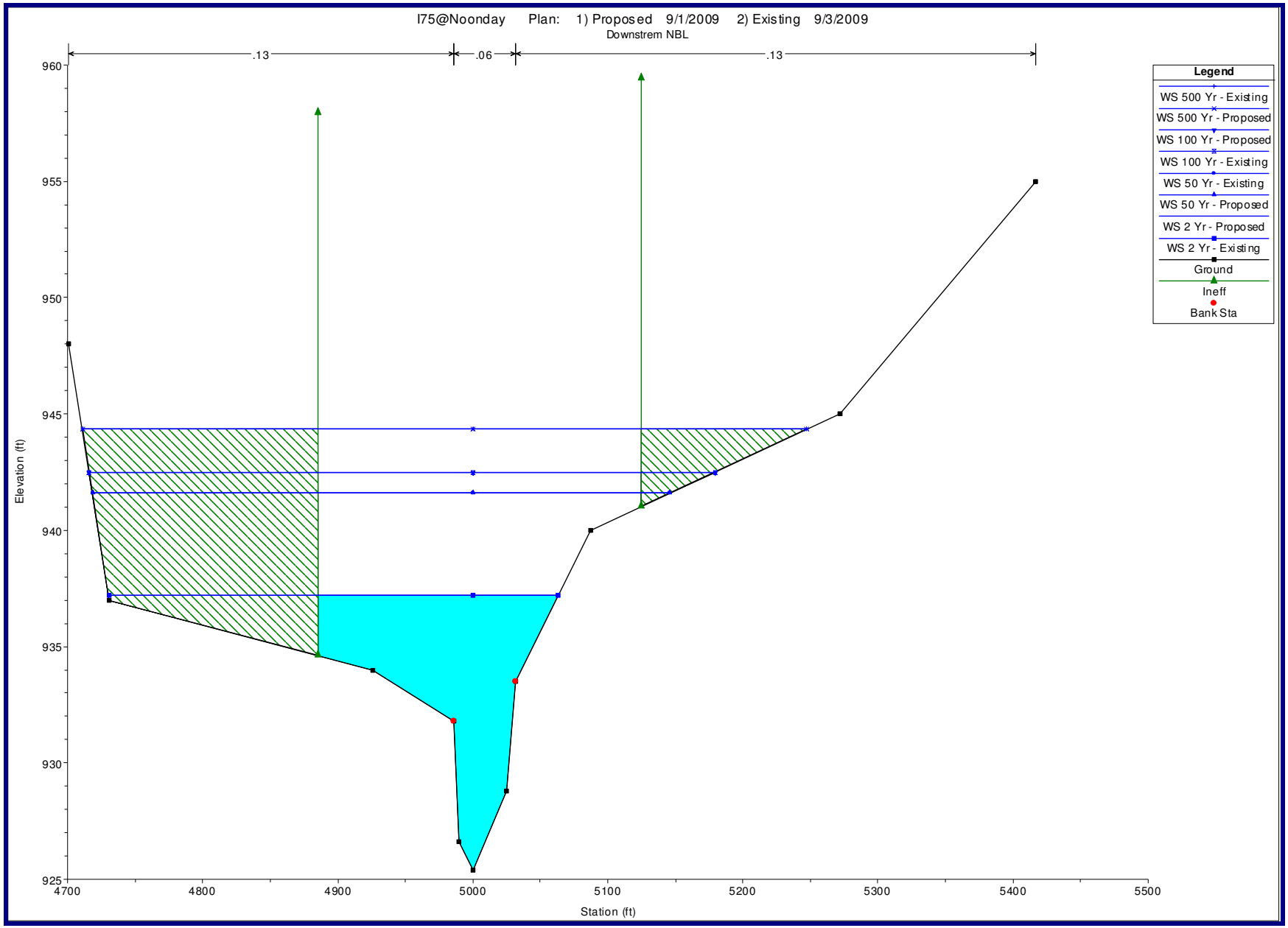
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WS 50 Yr - Proposed
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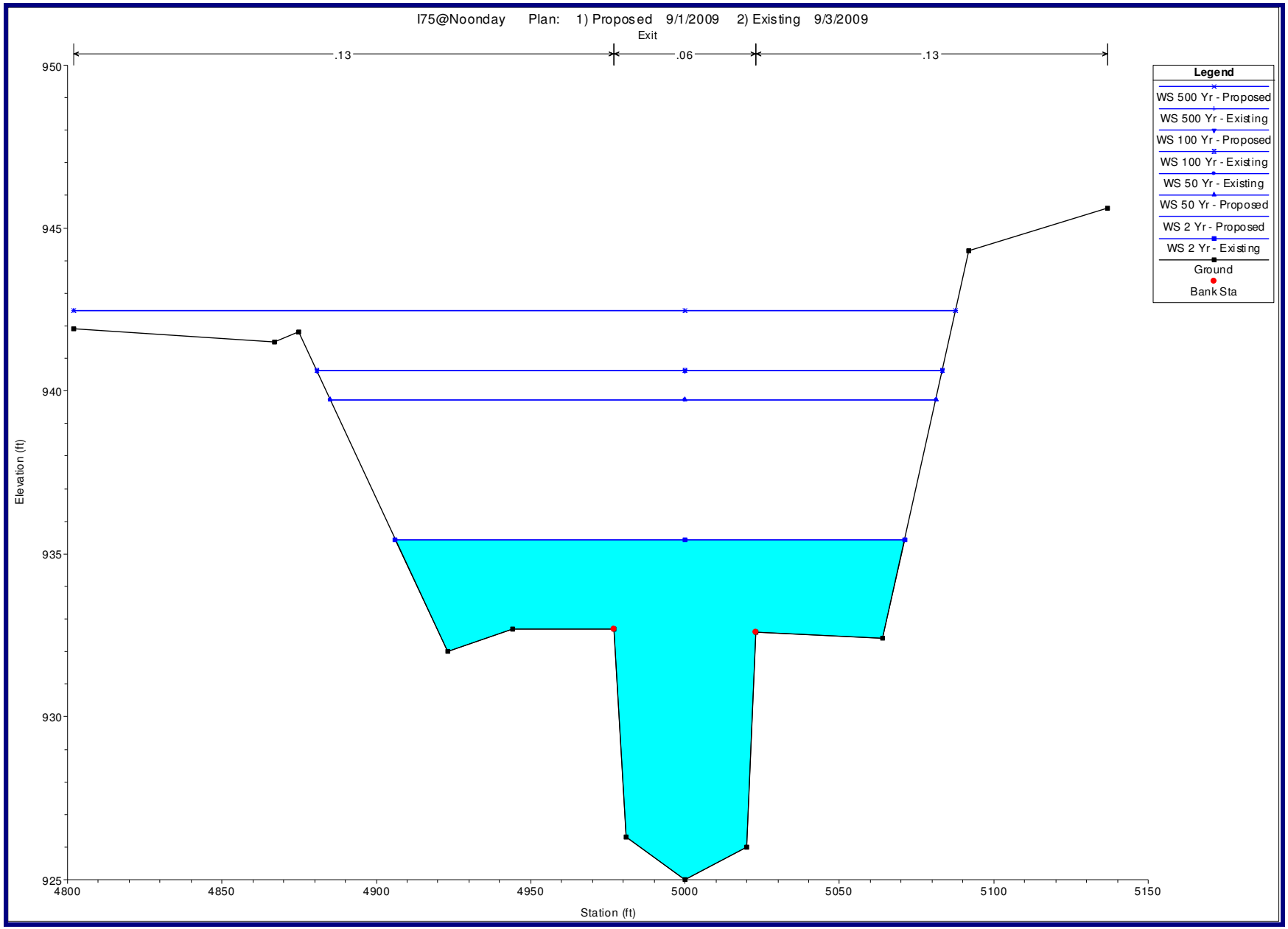
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Station (ft)

# Section II
# Hydraulic Tables

# HYDRAULIC TABLE (50-YEAR STORM)

| | ***UNCONSTRICTED SECTION*** | ***EXISTING CONDITIONS*** | ***PROPOSED CONDITIONS*** |
|---|---|---|---|
| FLOODSTAGE ELEVATION BRIDGE SECTION (ft) | 941.30 | 941.59 | 941.59 |
| FLOODSTAGE ELEVATION APPROACH SECTION (ft)* | 946.57 | 947.06 | 947.06 |
| AREA OF OPENING UNDER FLOODSTAGE ($ft^2$) | ********** | 1382 | 1382 |
| DISCHARGE THROUGH BRIDGE (cfs) | ********** | 6003 | 6003 |
| DISCHARGE OVER ROADWAY (cfs) | ********** | 0 | 0 |
| CHANNEL VELOCITY (f/s) | 5.19 | 7.37 | 7.37 |
| MEAN VELOCITY (f/s) | ********** | 4.34 | 4.34 |
| 2-YEAR FLOODSTAGE ELEVATION BRIDGE SECTION (ft) | 937.06 | 937.19 | 937.19 |
| BACKWATER HEIGHT (ft) | ********** | 0.49 | 0.49 |

* Approach Section is located upstream of the southbound bridge (Section 1250).

# HYDRAULIC TABLE (100-YEAR STORM)

| | ***UNCONSTRICTED SECTION*** | ***EXISTING CONDITIONS*** | ***PROPOSED CONDITIONS*** |
|---|---|---|---|
| FLOODSTAGE ELEVATION BRIDGE SECTION (ft) | 942.19 | 942.49 | 942.49 |
| FLOODSTAGE ELEVATION APPROACH SECTION (ft)* | 947.49 | 947.86 | 947.86 |
| AREA OF OPENING UNDER FLOODSTAGE ($ft^2$) | ********** | 1544 | 1544 |
| DISCHARGE THROUGH BRIDGE (cfs) | ********** | 6889 | 6889 |
| DISCHARGE OVER ROADWAY (cfs) | ********** | 0 | 0 |
| CHANNEL VELOCITY (f/s) | 5.27 | 7.76 | 7.76 |
| MEAN VELOCITY (f/s) | ********** | 4.46 | 4.46 |
| 2-YEAR FLOODSTAGE ELEVATION BRIDGE SECTION (ft) | 937.06 | 937.19 | 937.19 |
| BACKWATER HEIGHT (ft) | ********** | 0.37 | 0.37 |

* Approach Section is located upstream of the southbound bridge (Section 1250).

# HYDRAULIC TABLE (500-YEAR STORM)

| | ***UNCONSTRICTED SECTION*** | ***EXISTING CONDITIONS*** | ***PROPOSED CONDITIONS*** |
|---|---|---|---|
| FLOODSTAGE ELEVATION BRIDGE SECTION (ft) | 944.02 | 944.33 | 944.33 |
| FLOODSTAGE ELEVATION APPROACH SECTION (ft)* | 948.96 | 949.10 | 949.04 |
| AREA OF OPENING UNDER FLOODSTAGE ($ft^2$) | ********** | 1881 | 1881 |
| DISCHARGE THROUGH BRIDGE (cfs) | ********** | 8519 | 8519 |
| DISCHARGE OVER ROADWAY (cfs) | ********** | 0 | 0 |
| CHANNEL VELOCITY (f/s) | 5.18 | 8.18 | 8.18 |
| MEAN VELOCITY (f/s) | ********** | 4.53 | 4.53 |
| 2-YEAR FLOODSTAGE ELEVATION BRIDGE SECTION (ft) | 937.06 | 937.19 | 937.19 |
| BACKWATER HEIGHT (ft) | ********** | 0.14 | 0.08 |

* Approach Section is located upstream of the southbound bridge (Section 1250).

***NH000-0073-03(242) Cobb County***
***I-75 over Noonday Creek***

**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* | 941.59 |
| CLEARANCE | 2.36 |

| | |
|---|---|
| MINIMUM BOTTOM OF BEAM ELEVATION | 943.95 |
| 100 YEAR FLOODSTAGE ELEVATION* | 942.49 |
| CLEARANCE | 1.46 |

*Floodstage taken from proposed conditions model.

# TABLE OF 100 YR FLOODWAY ELEVATIONS

## NOONDAY CREEK COBB COUNTY, GA

| CROSS SECTION | A PUBLISHED FIS ELEVATION* | B DUPLICATE EFFECTIVE ELEVATION | C CORRECTED EFFECTIVE ELEVATION | D EXISTING ELEVATION | E PROPOSED ELEVATION | F DELTA ELEVATION (E-D) |
|---|---|---|---|---|---|---|
| **28275.58 - X** | **935.3** | **935.3** | **935.3** | **935.3** | **935.3** | **0.0** |
| 29014.22 | | 939.5 | 939.5 | 939.5 | 939.5 | 0.0 |
| **29655.01 - Y** | **941.1** | 941.1 | 941.1 | 941.1 | 941.1 | 0.0 |
| 30358.55 | | 941.4 | 941.4 | 941.4 | 941.4 | 0.0 |
| 31128.08 | | 941.3 | 941.3 | 941.3 | 941.3 | 0.0 |
| 31244.21BR D | | 942.5 | 942.5 | 942.5 | 942.5 | 0.0 |
| 31244.21BR U | | 942.8 | 942.8 | 942.8 | 942.8 | 0.0 |
| **31353.71 - Z** | **943.1** | **943.1** | **943.1** | **943.1** | **943.1** | **0.0** |
| 32008.58 | | 946.6 | 946.6 | 946.6 | 946.6 | 0.0 |
| 32395.49BR D | | 946.8 | 946.8 | 946.8 | 946.8 | 0.0 |
| 32395.49BR U | | 946.8 | 946.8 | 946.8 | 946.8 | 0.0 |
| 32499.49 | | 946.7 | 946.7 | 946.7 | 946.7 | 0.0 |
| 32836.11 | | 946.9 | 946.9 | 946.9 | 946.8 | 0.0 |
| 32909.32 | | 948.1 | 948.1 | 948.1 | 948.1 | 0.0 |
| 32976.16BR D | | 948.1 | 948.1 | 948.1 | 948.1 | 0.0 |
| 32976.16BR U | | 948.2 | 948.2 | 948.2 | 948.2 | 0.0 |
| **33046.16 - AA** | **948.2** | **948.2** | **948.2** | **948.2** | **948.2** | **0.0** |
| 33155.58 | | 948.1 | 948.1 | 948.1 | 948.1 | 0.0 |
| 34068.65 | | 950.1 | 950.1 | 950.1 | 950.1 | 0.0 |
| 34164.15 | | 950.2 | 950.2 | 950.2 | 950.2 | 0.0 |
| **34319.79 - AB** | **952.6** | **952.6** | **952.6** | **952.6** | **952.6** | **0.0** |
| 34887.32 | | 953.1 | 953.1 | 953.1 | 953.1 | 0.0 |
| **35731.12 - AC** | **953.6** | **953.6** | **953.6** | **953.6** | **953.6** | **0.0** |
| 36431.22 | | 953.9 | 953.9 | 953.9 | 953.9 | 0.0 |
| 36570.11 | | 953.9 | 953.9 | 953.9 | 953.9 | 0.0 |

**NOTES:**

**1) Bold rows indicate published cross-sections.**

**2) Hi-lighted rows indicate cross-sections within the R-O-W.**

**3) Elevations retrieved from Table 200 in Floodway Models**

*** The results are based on the latest model revision scheduled for an effective date of December '08.**

# TABLE OF 100 YR FLOOD ELEVATIONS

## NOONDAY CREEK COBB COUNTY, GA

| CROSS SECTION | A PUBLISHED FIS ELEVATION* | B DUPLICATE EFFECTIVE ELEVATION | C CORRECTED EFFECTIVE ELEVATION | D EXISTING ELEVATION | E PROPOSED ELEVATION | F DELTA ELEVATION (E-D) |
|---|---|---|---|---|---|---|
| **28275.58 - X** | **934.9** | **934.9** | **934.9** | **934.9** | **934.9** | **0.0** |
| 29014.22 | | 939.4 | 939.4 | 939.4 | 939.4 | 0.0 |
| **29655.01 - Y** | **940.9** | **940.9** | **940.9** | **940.9** | **940.9** | **0.0** |
| 30358.55 | | 941.1 | 941.1 | 941.1 | 941.1 | 0.0 |
| 31128.08 | | 940.6 | 940.6 | 940.6 | 940.6 | 0.0 |
| 31244.21BR D | | 942.2 | 942.2 | 942.2 | 942.2 | 0.0 |
| 31244.21BR U | | 942.6 | 942.6 | 942.6 | 942.6 | 0.0 |
| **31353.71 - Z** | **942.1** | **942.1** | **942.1** | **942.1** | **942.1** | **0.0** |
| 32008.58 | | 945.8 | 945.8 | 945.8 | 945.8 | 0.0 |
| 32395.49BR D | | 946.1 | 946.1 | 946.1 | 946.1 | 0.0 |
| 32395.49BR U | | 946.1 | 946.1 | 946.1 | 946.1 | 0.0 |
| 32499.49 | | 946.0 | 946.0 | 946.0 | 946.0 | 0.0 |
| 32836.11 | | 946.2 | 946.2 | 946.2 | 946.2 | 0.0 |
| 32909.32 | | 947.8 | 947.8 | 947.8 | 947.8 | 0.0 |
| 32976.16BR D | | 947.8 | 947.8 | 947.8 | 947.8 | 0.0 |
| 32976.16BR U | | 947.9 | 947.9 | 947.9 | 947.9 | 0.0 |
| **33046.16 - AA** | **947.9** | **947.9** | **947.9** | **947.9** | **947.9** | **0.0** |
| 33155.58 | | 947.8 | 947.8 | 947.8 | 947.8 | 0.0 |
| 34068.65 | | 949.7 | 949.7 | 949.7 | 949.7 | 0.0 |
| 34164.15 | | 949.8 | 949.8 | 949.8 | 949.8 | 0.0 |
| **34319.79 - AB** | **952.3** | **952.3** | **952.3** | **952.3** | **952.3** | **0.0** |
| 34887.32 | | 952.8 | 952.8 | 952.8 | 952.8 | 0.0 |
| **35731.12 - AC** | **953.1** | **953.1** | **953.1** | **953.1** | **953.1** | **0.0** |
| 36431.22 | | 953.4 | 953.4 | 953.4 | 953.4 | 0.0 |
| 36570.11 | | 953.4 | 953.4 | 953.4 | 953.4 | 0.0 |

**NOTES:**

**1) Bold rows indicate published cross-sections.**

**2) Hi-lighted rows indicate cross-sections within the R-O-W.**

**3) Elevations retrieved from Table 200 in Floodway Models**

*** The results are based on the latest model revision scheduled for an effective date of December '08.**

# Section III
# Peak Flow Summary

***NH000-0073-03(242) Cobb County***
***I-75 over Noonday Creek***
***PI # 714130***

| | |
|---|---|
| **Drainage Area (sq. mi.)** | 11.0 |
| **Region No.** | 1 |
| **Impervious Area (%)** | 25 |
| **USGS Gage No.** | N/A |
| **Drainage Area @ Gage** | |

| | FEMA Discharges @ BR |
|---|---|
| **Q2** | - |
| **Q5** | - |
| **Q10** | 4744 |
| **Q25** | 5760 |
| **Q50** | 6544 |
| **Q100** | 7348 |
| **Q500** | 8985 |

## Discharge (cfs)

| | Regional | Urbanized | Qu(w) Weighted Discharge |
|---|---|---|---|
| **Q2** | 993 | 2608 | 0 |
| **Q5** | 1625 | 3814 | 0 |
| **Q10** | 2127 | 4266 | 0 |
| **Q25** | 2841 | 5375 | 0 |
| **Q50** | 3445 | 6003 | 0 |
| **Q100** | 4097 | 6889 | 0 |
| **Q500** | 5902 | 8519 | 0 |

**Hydraulic Slope Calculation**

*Based on USGS quad*

| | |
|---|---|
| Upstream Elevation = | 940 |
| Downstream Elevation = | 920 |
| Horizontal Distance = | 7025 |

Slope = 0.00285 ft/ft
15.03 ft/mi

*NH000-0073-03(242) Cobb County*
*Hawkins Store Road over Noonday Creek (downstream of project)*
*PI # 714130*

| | |
|---|---|
| **Drainage Area (sq. mi.)** | 24.3 |
| **Region No.** | 1 |
| **Impervious Area (%)** | 25 |

| | | |
|---|---|---|
| **USGS Gage No.** | N/A | |
| **Drainage Area @ Gage** | | **FEMA Discharges** |
| **Q2** | | |
| **Q5** | | |
| **Q10** | | 8668 |
| **Q25** | | |
| **Q50** | | 12720 |
| **Q100** | | 14423 |
| **Q500** | | 17723 |

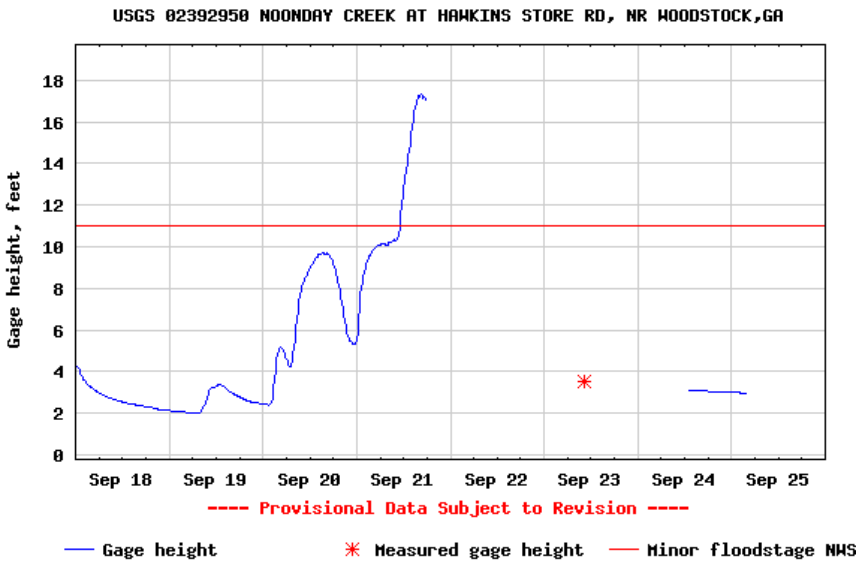
## Discharge (cfs)

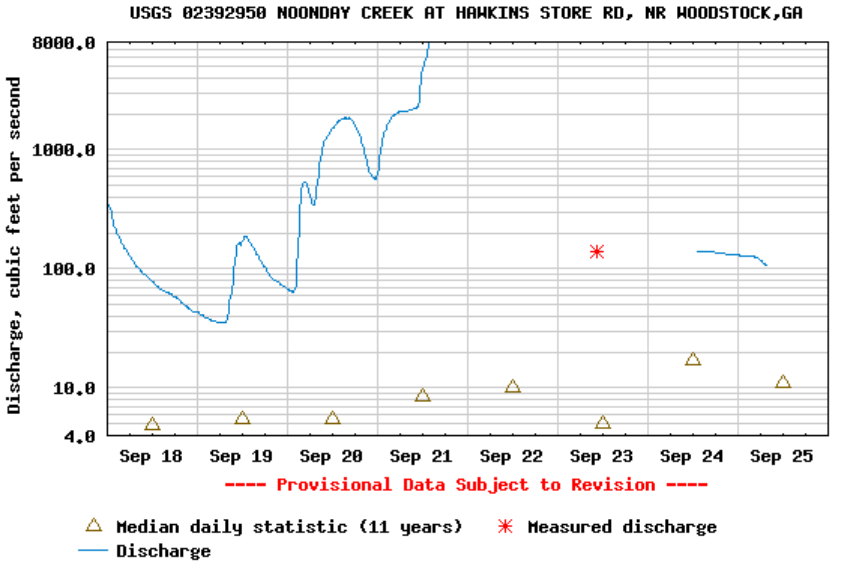
| | Regional | Urbanized | Qu(w) Weighted Discharge |
|---|---|---|---|
| **Q2** | 1668 | 4651 | 0 |
| **Q5** | 2681 | 6696 | 0 |
| **Q10** | 3473 | 7429 | 0 |
| **Q25** | 4590 | 9361 | 0 |
| **Q50** | 5520 | 10373 | 0 |
| **Q100** | 6509 | 11903 | 0 |
| **Q500** | 9221 | 14604 | 0 |

**Hydraulic Slope Calculation**
*Based on USGS quad*

| | |
|---|---|
| Upstream Elevation = | 940 |
| Downstream Elevation = | 920 |
| Horizontal Distance = | 7025 |

Slope = 0.00285 ft/ft
15.03 ft/mi



```
# ---------------------------------- WARNING ----------------------------------------
# The data you have obtained from this automated U.S. Geological Survey database
# have not received Director's approval and as such are provisional and subject to
# revision.  The data are released on the condition that neither the USGS nor the
# United States Government may be held liable for any damages resulting from its use.
#   Additional info: http://waterdata.usgs.gov/nwis/help/?provisional
#
# File-format description:  http://waterdata.usgs.gov/nwis/?tab_delimited_format_info
# Automated-retrieval info: http://waterdata.usgs.gov/nwis/?automated_retrieval_info
#
# Contact:   gs-w_support_nwisweb@usgs.gov
# retrieved: 2009-09-25 09:22:19 EDT
#
# Data for the following site(s) are contained in this file
#    USGS 02392950 NOONDAY CREEK AT HAWKINS STORE RD, NR WOODSTOCK,GA
# -----------------------------------------------------------------------------------
#
# Data provided for site 02392950
#    DD parameter   Description
#    01   00065     Gage height, feet
#    02   00060     Discharge, cubic feet per second
#
agency_cd       site_no datetime        01_00065        01_00065_cd     02_00060        02_00060
5s      15s     16d     14n     10s     14n     10s
USGS    02392950        2009-09-18 00:00        4.21            332
USGS    02392950        2009-09-18 00:15        4.26            342
USGS    02392950        2009-09-18 00:30        4.22            334
USGS    02392950        2009-09-18 00:45        4.15            319
USGS    02392950        2009-09-18 01:00        4.05            297
USGS    02392950        2009-09-18 01:15        3.92            271
USGS    02392950        2009-09-18 01:30        3.79            247
USGS    02392950        2009-09-18 01:45        3.70            232
USGS    02392950        2009-09-18 02:00        3.63            220
USGS    02392950        2009-09-18 02:15        3.57            211
USGS    02392950        2009-09-18 02:30        3.51            201
USGS    02392950        2009-09-18 02:45        3.46            194
USGS    02392950        2009-09-18 03:00        3.42            188
USGS    02392950        2009-09-18 03:15        3.37            179
USGS    02392950        2009-09-18 03:30        3.33            173
USGS    02392950        2009-09-18 03:45        3.29            168
USGS    02392950        2009-09-18 04:00        3.25            162
USGS    02392950        2009-09-18 04:15        3.21            157
USGS    02392950        2009-09-18 04:30        3.17            150
USGS    02392950        2009-09-18 04:45        3.14            147
USGS    02392950        2009-09-18 05:00        3.11            143
USGS    02392950        2009-09-18 05:15        3.08            139
USGS    02392950        2009-09-18 05:30        3.05            136
USGS    02392950        2009-09-18 05:45        3.02            132
USGS    02392950        2009-09-18 06:00        2.99            128
USGS    02392950        2009-09-18 06:15        2.96            123
USGS    02392950        2009-09-18 06:30        2.93            119
USGS    02392950        2009-09-18 06:45        2.91            117
USGS    02392950        2009-09-18 07:00        2.88            113
USGS    02392950        2009-09-18 07:15        2.86            111
USGS    02392950        2009-09-18 07:30        2.83            108
USGS    02392950        2009-09-18 07:45        2.81            105
USGS    02392950        2009-09-18 08:00        2.80            104
USGS    02392950        2009-09-18 08:15        2.77            101
USGS    02392950        2009-09-18 08:30        2.76            100
USGS    02392950        2009-09-18 08:45        2.74            97
USGS    02392950        2009-09-18 09:00        2.73            95
USGS    02392950        2009-09-18 09:15        2.72            94
USGS    02392950        2009-09-18 09:30        2.69            91
USGS    02392950        2009-09-18 09:45        2.68            90
```

| | | | | |
|---|---|---|---|---|
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| USGS | 02392950 | 2009-09-18 10:15 | 2.66 | 88 |
| USGS | 02392950 | 2009-09-18 10:30 | 2.65 | 87 |
| USGS | 02392950 | 2009-09-18 10:45 | 2.63 | 85 |
| USGS | 02392950 | 2009-09-18 11:00 | 2.61 | 83 |
| USGS | 02392950 | 2009-09-18 11:15 | 2.60 | 82 |
| USGS | 02392950 | 2009-09-18 11:30 | 2.59 | 81 |
| USGS | 02392950 | 2009-09-18 11:45 | 2.57 | 80 |
| USGS | 02392950 | 2009-09-18 12:00 | 2.56 | 79 |
| USGS | 02392950 | 2009-09-18 12:15 | 2.55 | 78 |
| USGS | 02392950 | 2009-09-18 12:30 | 2.53 | 75 |
| USGS | 02392950 | 2009-09-18 12:45 | 2.51 | 73 |
| USGS | 02392950 | 2009-09-18 13:00 | 2.50 | 72 |
| USGS | 02392950 | 2009-09-18 13:15 | 2.48 | 71 |
| USGS | 02392950 | 2009-09-18 13:30 | 2.48 | 71 |
| USGS | 02392950 | 2009-09-18 13:45 | 2.47 | 70 |
| USGS | 02392950 | 2009-09-18 14:00 | 2.45 | 68 |
| USGS | 02392950 | 2009-09-18 14:15 | 2.45 | 68 |
| USGS | 02392950 | 2009-09-18 14:30 | 2.44 | 67 |
| USGS | 02392950 | 2009-09-18 14:45 | 2.43 | 66 |
| USGS | 02392950 | 2009-09-18 15:00 | 2.43 | 66 |
| USGS | 02392950 | 2009-09-18 15:15 | 2.42 | 65 |
| USGS | 02392950 | 2009-09-18 15:30 | 2.41 | 64 |
| USGS | 02392950 | 2009-09-18 15:45 | 2.41 | 64 |
| USGS | 02392950 | 2009-09-18 16:00 | 2.39 | 63 |
| USGS | 02392950 | 2009-09-18 16:15 | 2.39 | 63 |
| USGS | 02392950 | 2009-09-18 16:30 | 2.38 | 62 |
| USGS | 02392950 | 2009-09-18 16:45 | 2.38 | 62 |
| USGS | 02392950 | 2009-09-18 17:00 | 2.37 | 61 |
| USGS | 02392950 | 2009-09-18 17:15 | 2.36 | 60 |
| USGS | 02392950 | 2009-09-18 17:30 | 2.34 | 59 |
| USGS | 02392950 | 2009-09-18 17:45 | 2.34 | 59 |
| USGS | 02392950 | 2009-09-18 18:00 | 2.34 | 59 |
| USGS | 02392950 | 2009-09-18 18:15 | 2.33 | 58 |
| USGS | 02392950 | 2009-09-18 18:30 | 2.32 | 56 |
| USGS | 02392950 | 2009-09-18 18:45 | 2.32 | 56 |
| USGS | 02392950 | 2009-09-18 19:00 | 2.30 | 55 |
| USGS | 02392950 | 2009-09-18 19:15 | 2.30 | 55 |
| USGS | 02392950 | 2009-09-18 19:30 | 2.28 | 53 |
| USGS | 02392950 | 2009-09-18 19:45 | 2.27 | 52 |
| USGS | 02392950 | 2009-09-18 20:00 | 2.26 | 52 |
| USGS | 02392950 | 2009-09-18 20:15 | 2.25 | 51 |
| USGS | 02392950 | 2009-09-18 20:30 | 2.24 | 50 |
| USGS | 02392950 | 2009-09-18 20:45 | 2.23 | 49 |
| USGS | 02392950 | 2009-09-18 21:00 | 2.22 | 49 |
| USGS | 02392950 | 2009-09-18 21:15 | 2.20 | 47 |
| USGS | 02392950 | 2009-09-18 21:30 | 2.20 | 47 |
| USGS | 02392950 | 2009-09-18 21:45 | 2.18 | 46 |
| USGS | 02392950 | 2009-09-18 22:00 | 2.19 | 46 |
| USGS | 02392950 | 2009-09-18 22:15 | 2.17 | 45 |
| USGS | 02392950 | 2009-09-18 22:30 | 2.17 | 45 |
| USGS | 02392950 | 2009-09-18 22:45 | 2.16 | 44 |
| USGS | 02392950 | 2009-09-18 23:00 | 2.16 | 44 |
| USGS | 02392950 | 2009-09-18 23:15 | 2.16 | 44 |
| USGS | 02392950 | 2009-09-18 23:30 | 2.15 | 44 |
| USGS | 02392950 | 2009-09-18 23:45 | 2.14 | 43 |
| USGS | 02392950 | 2009-09-19 00:00 | 2.14 | 43 |
| USGS | 02392950 | 2009-09-19 00:15 | 2.14 | 43 |
| USGS | 02392950 | 2009-09-19 00:30 | 2.12 | 42 |
| USGS | 02392950 | 2009-09-19 00:45 | 2.11 | 41 |
| USGS | 02392950 | 2009-09-19 01:00 | 2.11 | 41 |
| USGS | 02392950 | 2009-09-19 01:15 | 2.11 | 41 |
| USGS | 02392950 | 2009-09-19 01:30 | 2.11 | 41 |
| USGS | 02392950 | 2009-09-19 01:45 | 2.10 | 40 |

| | | | | |
|---|---|---|---|---|
| USGS | 02392950 | 2009-09-19 02:00 | 2.09 | 39 |
| USGS | 02392950 | 2009-09-19 02:15 | 2.09 | 39 |
| USGS | 02392950 | 2009-09-19 02:30 | 2.09 | 39 |
| USGS | 02392950 | 2009-09-19 02:45 | 2.08 | 39 |
| USGS | 02392950 | 2009-09-19 03:00 | 2.07 | 38 |
| USGS | 02392950 | 2009-09-19 03:15 | 2.07 | 38 |
| USGS | 02392950 | 2009-09-19 03:30 | 2.07 | 38 |
| USGS | 02392950 | 2009-09-19 03:45 | 2.06 | 37 |
| USGS | 02392950 | 2009-09-19 04:00 | 2.06 | 37 |
| USGS | 02392950 | 2009-09-19 04:15 | 2.05 | 37 |
| USGS | 02392950 | 2009-09-19 04:30 | 2.05 | 37 |
| USGS | 02392950 | 2009-09-19 04:45 | 2.05 | 37 |
| USGS | 02392950 | 2009-09-19 05:00 | 2.04 | 36 |
| USGS | 02392950 | 2009-09-19 05:15 | 2.04 | 36 |
| USGS | 02392950 | 2009-09-19 05:30 | 2.03 | 36 |
| USGS | 02392950 | 2009-09-19 05:45 | 2.02 | 35 |
| USGS | 02392950 | 2009-09-19 06:00 | 2.02 | 35 |
| USGS | 02392950 | 2009-09-19 06:15 | 2.02 | 35 |
| USGS | 02392950 | 2009-09-19 06:30 | 2.02 | 35 |
| USGS | 02392950 | 2009-09-19 06:45 | 2.02 | 35 |
| USGS | 02392950 | 2009-09-19 07:00 | 2.02 | 35 |
| USGS | 02392950 | 2009-09-19 07:15 | 2.02 | 35 |
| USGS | 02392950 | 2009-09-19 07:30 | 2.02 | 35 |
| USGS | 02392950 | 2009-09-19 07:45 | 2.03 | 36 |
| USGS | 02392950 | 2009-09-19 08:00 | 2.07 | 38 |
| USGS | 02392950 | 2009-09-19 08:15 | 2.17 | 45 |
| USGS | 02392950 | 2009-09-19 08:30 | 2.26 | 52 |
| USGS | 02392950 | 2009-09-19 08:45 | 2.33 | 58 |
| USGS | 02392950 | 2009-09-19 09:00 | 2.38 | 62 |
| USGS | 02392950 | 2009-09-19 09:15 | 2.45 | 68 |
| USGS | 02392950 | 2009-09-19 09:30 | 2.55 | 78 |
| USGS | 02392950 | 2009-09-19 09:45 | 2.72 | 94 |
| USGS | 02392950 | 2009-09-19 10:00 | 2.90 | 116 |
| USGS | 02392950 | 2009-09-19 10:15 | 3.06 | 137 |
| USGS | 02392950 | 2009-09-19 10:30 | 3.20 | 156 |
| USGS | 02392950 | 2009-09-19 10:45 | 3.25 | 162 |
| USGS | 02392950 | 2009-09-19 11:00 | 3.27 | 165 |
| USGS | 02392950 | 2009-09-19 11:15 | 3.24 | 161 |
| USGS | 02392950 | 2009-09-19 11:30 | 3.22 | 158 |
| USGS | 02392950 | 2009-09-19 11:45 | 3.25 | 162 |
| USGS | 02392950 | 2009-09-19 12:00 | 3.32 | 172 |
| USGS | 02392950 | 2009-09-19 12:15 | 3.35 | 176 |
| USGS | 02392950 | 2009-09-19 12:30 | 3.41 | 186 |
| USGS | 02392950 | 2009-09-19 12:45 | 3.41 | 186 |
| USGS | 02392950 | 2009-09-19 13:00 | 3.40 | 185 |
| USGS | 02392950 | 2009-09-19 13:15 | 3.38 | 180 |
| USGS | 02392950 | 2009-09-19 13:30 | 3.35 | 176 |
| USGS | 02392950 | 2009-09-19 13:45 | 3.33 | 173 |
| USGS | 02392950 | 2009-09-19 14:00 | 3.29 | 168 |
| USGS | 02392950 | 2009-09-19 14:15 | 3.25 | 162 |
| USGS | 02392950 | 2009-09-19 14:30 | 3.21 | 157 |
| USGS | 02392950 | 2009-09-19 14:45 | 3.18 | 153 |
| USGS | 02392950 | 2009-09-19 15:00 | 3.13 | 145 |
| USGS | 02392950 | 2009-09-19 15:15 | 3.11 | 143 |
| USGS | 02392950 | 2009-09-19 15:30 | 3.06 | 137 |
| USGS | 02392950 | 2009-09-19 15:45 | 3.03 | 133 |
| USGS | 02392950 | 2009-09-19 16:00 | 3.01 | 131 |
| USGS | 02392950 | 2009-09-19 16:15 | 2.98 | 127 |
| USGS | 02392950 | 2009-09-19 16:30 | 2.95 | 122 |
| USGS | 02392950 | 2009-09-19 16:45 | 2.92 | 118 |
| USGS | 02392950 | 2009-09-19 17:00 | 2.89 | 115 |
| USGS | 02392950 | 2009-09-19 17:15 | 2.87 | 112 |
| USGS | 02392950 | 2009-09-19 17:30 | 2.84 | 109 |
| USGS | 02392950 | 2009-09-19 17:45 | 2.81 | 105 |

| | | | | |
|---|---|---|---|---|
| USGS | 02392950 | 2009-09-19 18:00 | 2.79 | 103 |
| USGS | 02392950 | 2009-09-19 18:15 | 2.76 | 100 |
| USGS | 02392950 | 2009-09-19 18:30 | 2.74 | 97 |
| USGS | 02392950 | 2009-09-19 18:45 | 2.71 | 93 |
| USGS | 02392950 | 2009-09-19 19:00 | 2.69 | 91 |
| USGS | 02392950 | 2009-09-19 19:15 | 2.66 | 88 |
| USGS | 02392950 | 2009-09-19 19:30 | 2.64 | 86 |
| USGS | 02392950 | 2009-09-19 19:45 | 2.63 | 85 |
| USGS | 02392950 | 2009-09-19 20:00 | 2.60 | 82 |
| USGS | 02392950 | 2009-09-19 20:15 | 2.58 | 80 |
| USGS | 02392950 | 2009-09-19 20:30 | 2.58 | 80 |
| USGS | 02392950 | 2009-09-19 20:45 | 2.57 | 80 |
| USGS | 02392950 | 2009-09-19 21:00 | 2.56 | 79 |
| USGS | 02392950 | 2009-09-19 21:15 | 2.55 | 78 |
| USGS | 02392950 | 2009-09-19 21:30 | 2.54 | 77 |
| USGS | 02392950 | 2009-09-19 21:45 | 2.54 | 77 |
| USGS | 02392950 | 2009-09-19 22:00 | 2.52 | 74 |
| USGS | 02392950 | 2009-09-19 22:15 | 2.52 | 74 |
| USGS | 02392950 | 2009-09-19 22:30 | 2.51 | 73 |
| USGS | 02392950 | 2009-09-19 22:45 | 2.50 | 72 |
| USGS | 02392950 | 2009-09-19 23:00 | 2.48 | 71 |
| USGS | 02392950 | 2009-09-19 23:15 | 2.48 | 71 |
| USGS | 02392950 | 2009-09-19 23:30 | 2.47 | 70 |
| USGS | 02392950 | 2009-09-19 23:45 | 2.46 | 69 |
| USGS | 02392950 | 2009-09-20 00:00 | 2.45 | 68 |
| USGS | 02392950 | 2009-09-20 00:15 | 2.44 | 67 |
| USGS | 02392950 | 2009-09-20 00:30 | 2.42 | 65 |
| USGS | 02392950 | 2009-09-20 00:45 | 2.42 | 65 |
| USGS | 02392950 | 2009-09-20 01:00 | 2.42 | 65 |
| USGS | 02392950 | 2009-09-20 01:15 | 2.41 | 64 |
| USGS | 02392950 | 2009-09-20 01:30 | 2.41 | 64 |
| USGS | 02392950 | 2009-09-20 01:45 | 2.42 | 65 |
| USGS | 02392950 | 2009-09-20 02:00 | 2.45 | 68 |
| USGS | 02392950 | 2009-09-20 02:15 | 2.52 | 74 |
| USGS | 02392950 | 2009-09-20 02:30 | 2.75 | 98 |
| USGS | 02392950 | 2009-09-20 02:45 | 3.15 | 148 |
| USGS | 02392950 | 2009-09-20 03:00 | 3.63 | 220 |
| USGS | 02392950 | 2009-09-20 03:15 | 4.09 | 306 |
| USGS | 02392950 | 2009-09-20 03:30 | 4.51 | 397 |
| USGS | 02392950 | 2009-09-20 03:45 | 4.80 | 458 |
| USGS | 02392950 | 2009-09-20 04:00 | 5.02 | 507 |
| USGS | 02392950 | 2009-09-20 04:15 | 5.14 | 531 |
| USGS | 02392950 | 2009-09-20 04:30 | 5.17 | 537 |
| USGS | 02392950 | 2009-09-20 04:45 | 5.15 | 533 |
| USGS | 02392950 | 2009-09-20 05:00 | 5.09 | 521 |
| USGS | 02392950 | 2009-09-20 05:15 | 4.94 | 489 |
| USGS | 02392950 | 2009-09-20 05:30 | 4.83 | 465 |
| USGS | 02392950 | 2009-09-20 05:45 | 4.68 | 432 |
| USGS | 02392950 | 2009-09-20 06:00 | 4.58 | 411 |
| USGS | 02392950 | 2009-09-20 06:15 | 4.44 | 381 |
| USGS | 02392950 | 2009-09-20 06:30 | 4.33 | 357 |
| USGS | 02392950 | 2009-09-20 06:45 | 4.27 | 345 |
| USGS | 02392950 | 2009-09-20 07:00 | 4.26 | 342 |
| USGS | 02392950 | 2009-09-20 07:15 | 4.33 | 357 |
| USGS | 02392950 | 2009-09-20 07:30 | 4.49 | 393 |
| USGS | 02392950 | 2009-09-20 07:45 | 4.76 | 449 |
| USGS | 02392950 | 2009-09-20 08:00 | 5.18 | 539 |
| USGS | 02392950 | 2009-09-20 08:15 | 5.56 | 620 |
| USGS | 02392950 | 2009-09-20 08:30 | 6.09 | 739 |
| USGS | 02392950 | 2009-09-20 08:45 | 6.49 | 825 |
| USGS | 02392950 | 2009-09-20 09:00 | 6.99 | 938 |
| USGS | 02392950 | 2009-09-20 09:15 | 7.30 | 1010 |
| USGS | 02392950 | 2009-09-20 09:30 | 7.67 | 1100 |
| USGS | 02392950 | 2009-09-20 09:45 | 7.92 | 1170 |

| | | | | |
|---|---|---|---|---|
| USGS | 02392950 | 2009-09-20 10:00 | 8.06 | 1210 |
| USGS | 02392950 | 2009-09-20 10:15 | 8.18 | 1250 |
| USGS | 02392950 | 2009-09-20 10:30 | 8.33 | 1290 |
| USGS | 02392950 | 2009-09-20 10:45 | 8.39 | 1310 |
| USGS | 02392950 | 2009-09-20 11:00 | 8.55 | 1370 |
| USGS | 02392950 | 2009-09-20 11:15 | 8.61 | 1390 |
| USGS | 02392950 | 2009-09-20 11:30 | 8.80 | 1450 |
| USGS | 02392950 | 2009-09-20 11:45 | 8.87 | 1470 |
| USGS | 02392950 | 2009-09-20 12:00 | 8.98 | 1510 |
| USGS | 02392950 | 2009-09-20 12:15 | 9.05 | 1540 |
| USGS | 02392950 | 2009-09-20 12:30 | 9.13 | 1580 |
| USGS | 02392950 | 2009-09-20 12:45 | 9.18 | 1600 |
| USGS | 02392950 | 2009-09-20 13:00 | 9.28 | 1650 |
| USGS | 02392950 | 2009-09-20 13:15 | 9.37 | 1690 |
| USGS | 02392950 | 2009-09-20 13:30 | 9.42 | 1720 |
| USGS | 02392950 | 2009-09-20 13:45 | 9.47 | 1740 |
| USGS | 02392950 | 2009-09-20 14:00 | 9.53 | 1770 |
| USGS | 02392950 | 2009-09-20 14:15 | 9.62 | 1810 |
| USGS | 02392950 | 2009-09-20 14:30 | 9.66 | 1830 |
| USGS | 02392950 | 2009-09-20 14:45 | 9.65 | 1830 |
| USGS | 02392950 | 2009-09-20 15:00 | 9.66 | 1830 |
| USGS | 02392950 | 2009-09-20 15:15 | 9.72 | 1860 |
| USGS | 02392950 | 2009-09-20 15:30 | 9.63 | 1820 |
| USGS | 02392950 | 2009-09-20 15:45 | 9.72 | 1860 |
| USGS | 02392950 | 2009-09-20 16:00 | 9.68 | 1840 |
| USGS | 02392950 | 2009-09-20 16:15 | 9.69 | 1850 |
| USGS | 02392950 | 2009-09-20 16:30 | 9.65 | 1830 |
| USGS | 02392950 | 2009-09-20 16:45 | 9.63 | 1820 |
| USGS | 02392950 | 2009-09-20 17:00 | 9.55 | 1780 |
| USGS | 02392950 | 2009-09-20 17:15 | 9.53 | 1770 |
| USGS | 02392950 | 2009-09-20 17:30 | 9.41 | 1710 |
| USGS | 02392950 | 2009-09-20 17:45 | 9.28 | 1650 |
| USGS | 02392950 | 2009-09-20 18:00 | 9.16 | 1590 |
| USGS | 02392950 | 2009-09-20 18:15 | 9.03 | 1530 |
| USGS | 02392950 | 2009-09-20 18:30 | 8.85 | 1470 |
| USGS | 02392950 | 2009-09-20 18:45 | 8.66 | 1400 |
| USGS | 02392950 | 2009-09-20 19:00 | 8.57 | 1370 |
| USGS | 02392950 | 2009-09-20 19:15 | 8.35 | 1300 |
| USGS | 02392950 | 2009-09-20 19:30 | 8.13 | 1230 |
| USGS | 02392950 | 2009-09-20 19:45 | 7.87 | 1160 |
| USGS | 02392950 | 2009-09-20 20:00 | 7.57 | 1080 |
| USGS | 02392950 | 2009-09-20 20:15 | 7.31 | 1010 |
| USGS | 02392950 | 2009-09-20 20:30 | 7.00 | 940 |
| USGS | 02392950 | 2009-09-20 20:45 | 6.72 | 876 |
| USGS | 02392950 | 2009-09-20 21:00 | 6.39 | 803 |
| USGS | 02392950 | 2009-09-20 21:15 | 6.13 | 747 |
| USGS | 02392950 | 2009-09-20 21:30 | 5.91 | 699 |
| USGS | 02392950 | 2009-09-20 21:45 | 5.70 | 651 |
| USGS | 02392950 | 2009-09-20 22:00 | 5.60 | 629 |
| USGS | 02392950 | 2009-09-20 22:15 | 5.50 | 607 |
| USGS | 02392950 | 2009-09-20 22:30 | 5.45 | 596 |
| USGS | 02392950 | 2009-09-20 22:45 | 5.37 | 579 |
| USGS | 02392950 | 2009-09-20 23:00 | 5.36 | 577 |
| USGS | 02392950 | 2009-09-20 23:15 | 5.34 | 572 |
| USGS | 02392950 | 2009-09-20 23:30 | 5.32 | 568 |
| USGS | 02392950 | 2009-09-20 23:45 | 5.36 | 577 |
| USGS | 02392950 | 2009-09-21 00:00 | 5.53 | 613 |
| USGS | 02392950 | 2009-09-21 00:15 | 5.93 | 704 |
| USGS | 02392950 | 2009-09-21 00:30 | 6.49 | 825 |
| USGS | 02392950 | 2009-09-21 00:45 | 7.14 | 973 |
| USGS | 02392950 | 2009-09-21 01:00 | 7.69 | 1110 |
| USGS | 02392950 | 2009-09-21 01:15 | 8.04 | 1200 |
| USGS | 02392950 | 2009-09-21 01:30 | 8.29 | 1280 |
| USGS | 02392950 | 2009-09-21 01:45 | 8.52 | 1360 |

| | | | | |
|---|---|---|---|---|
| USGS | 02392950 | 2009-09-21 02:00 | 8.76 | 1440 |
| USGS | 02392950 | 2009-09-21 02:15 | 8.91 | 1490 |
| USGS | 02392950 | 2009-09-21 02:30 | 9.11 | 1570 |
| USGS | 02392950 | 2009-09-21 02:45 | 9.27 | 1640 |
| USGS | 02392950 | 2009-09-21 03:00 | 9.44 | 1730 |
| USGS | 02392950 | 2009-09-21 03:15 | 9.56 | 1780 |
| USGS | 02392950 | 2009-09-21 03:30 | 9.60 | 1800 |
| USGS | 02392950 | 2009-09-21 03:45 | 9.71 | 1860 |
| USGS | 02392950 | 2009-09-21 04:00 | 9.80 | 1910 |
| USGS | 02392950 | 2009-09-21 04:15 | 9.85 | 1930 |
| USGS | 02392950 | 2009-09-21 04:30 | 9.93 | 1970 |
| USGS | 02392950 | 2009-09-21 04:45 | 9.95 | 1980 |
| USGS | 02392950 | 2009-09-21 05:00 | 10.01 | 2020 |
| USGS | 02392950 | 2009-09-21 05:15 | 10.07 | 2050 |
| USGS | 02392950 | 2009-09-21 05:30 | 10.05 | 2040 |
| USGS | 02392950 | 2009-09-21 05:45 | 10.11 | 2080 |
| USGS | 02392950 | 2009-09-21 06:00 | 10.10 | 2070 |
| USGS | 02392950 | 2009-09-21 06:15 | 10.12 | 2090 |
| USGS | 02392950 | 2009-09-21 06:30 | 10.17 | 2120 |
| USGS | 02392950 | 2009-09-21 06:45 | 10.12 | 2090 |
| USGS | 02392950 | 2009-09-21 07:00 | 10.15 | 2100 |
| USGS | 02392950 | 2009-09-21 07:15 | 10.15 | 2100 |
| USGS | 02392950 | 2009-09-21 07:30 | 10.11 | 2080 |
| USGS | 02392950 | 2009-09-21 07:45 | 10.10 | 2070 |
| USGS | 02392950 | 2009-09-21 08:00 | 10.10 | 2070 |
| USGS | 02392950 | 2009-09-21 08:15 | 10.19 | 2130 |
| USGS | 02392950 | 2009-09-21 08:30 | 10.19 | 2130 |
| USGS | 02392950 | 2009-09-21 08:45 | 10.25 | 2170 |
| USGS | 02392950 | 2009-09-21 09:00 | 10.23 | 2160 |
| USGS | 02392950 | 2009-09-21 09:15 | 10.27 | 2180 |
| USGS | 02392950 | 2009-09-21 09:30 | 10.31 | 2210 |
| USGS | 02392950 | 2009-09-21 09:45 | 10.36 | 2240 |
| USGS | 02392950 | 2009-09-21 10:00 | 10.30 | 2200 |
| USGS | 02392950 | 2009-09-21 10:15 | 10.37 | 2250 |
| USGS | 02392950 | 2009-09-21 10:30 | 10.42 | 2280 |
| USGS | 02392950 | 2009-09-21 10:45 | 10.48 | 2320 |
| USGS | 02392950 | 2009-09-21 11:00 | 10.91 | 2630 |
| USGS | 02392950 | 2009-09-21 11:15 | 11.42 | 3130 |
| USGS | 02392950 | 2009-09-21 11:30 | 12.03 | 3830 |
| USGS | 02392950 | 2009-09-21 11:45 | 12.47 | 4290 |
| USGS | 02392950 | 2009-09-21 12:00 | 12.81 | 4680 |
| USGS | 02392950 | 2009-09-21 12:15 | 13.10 | 5020 |
| USGS | 02392950 | 2009-09-21 12:30 | 13.31 | 5280 |
| USGS | 02392950 | 2009-09-21 12:45 | 13.64 | 5710 |
| USGS | 02392950 | 2009-09-21 13:00 | 13.97 | 6160 |
| USGS | 02392950 | 2009-09-21 13:15 | 14.30 | 6710 |
| USGS | 02392950 | 2009-09-21 13:30 | 14.62 | 7280 |
| USGS | 02392950 | 2009-09-21 13:45 | 14.96 | 7920 |
| USGS | 02392950 | 2009-09-21 14:00 | 15.37 | |
| USGS | 02392950 | 2009-09-21 14:15 | 15.77 | |
| USGS | 02392950 | 2009-09-21 14:30 | 16.11 | |
| USGS | 02392950 | 2009-09-21 14:45 | 16.46 | |
| USGS | 02392950 | 2009-09-21 15:00 | 16.73 | |
| USGS | 02392950 | 2009-09-21 15:15 | 16.86 | |
| USGS | 02392950 | 2009-09-21 15:30 | 16.90 | |
| USGS | 02392950 | 2009-09-21 15:45 | 17.28 | |
| USGS | 02392950 | 2009-09-21 16:00 | 17.19 | |
| USGS | 02392950 | 2009-09-21 16:15 | 17.18 | |
| USGS | 02392950 | 2009-09-21 16:30 | 17.31 | |
| USGS | 02392950 | 2009-09-21 16:45 | 17.20 | |
| USGS | 02392950 | 2009-09-21 17:00 | 17.12 | |
| USGS | 02392950 | 2009-09-21 17:15 | 17.20 | |
| USGS | 02392950 | 2009-09-21 17:30 | 17.03 | |
| USGS | 02392950 | 2009-09-24 13:00 | 3.09 | 140 |

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|---|---|---|---|---|
| USGS | 02392950 | 2009-09-24 13:15 | 3.09 | 140 |
| USGS | 02392950 | 2009-09-24 13:30 | 3.09 | 140 |
| USGS | 02392950 | 2009-09-24 13:45 | 3.09 | 140 |
| USGS | 02392950 | 2009-09-24 14:00 | 3.08 | 139 |
| USGS | 02392950 | 2009-09-24 14:15 | 3.08 | 139 |
| USGS | 02392950 | 2009-09-24 14:30 | 3.08 | 139 |
| USGS | 02392950 | 2009-09-24 14:45 | 3.08 | 139 |
| USGS | 02392950 | 2009-09-24 15:00 | 3.07 | 138 |
| USGS | 02392950 | 2009-09-24 15:15 | 3.07 | 138 |
| USGS | 02392950 | 2009-09-24 15:30 | 3.07 | 138 |
| USGS | 02392950 | 2009-09-24 15:45 | 3.07 | 138 |
| USGS | 02392950 | 2009-09-24 16:00 | 3.07 | 138 |
| USGS | 02392950 | 2009-09-24 16:15 | 3.07 | 138 |
| USGS | 02392950 | 2009-09-24 16:30 | 3.07 | 138 |
| USGS | 02392950 | 2009-09-24 16:45 | 3.07 | 138 |
| USGS | 02392950 | 2009-09-24 17:00 | 3.07 | 138 |
| USGS | 02392950 | 2009-09-24 17:15 | 3.07 | 138 |
| USGS | 02392950 | 2009-09-24 17:30 | 3.07 | 138 |
| USGS | 02392950 | 2009-09-24 17:45 | 3.07 | 138 |
| USGS | 02392950 | 2009-09-24 18:00 | 3.06 | 137 |
| USGS | 02392950 | 2009-09-24 18:15 | 3.06 | 137 |
| USGS | 02392950 | 2009-09-24 18:30 | 3.06 | 137 |
| USGS | 02392950 | 2009-09-24 18:45 | 3.05 | 136 |
| USGS | 02392950 | 2009-09-24 19:00 | 3.05 | 136 |
| USGS | 02392950 | 2009-09-24 19:15 | 3.05 | 136 |
| USGS | 02392950 | 2009-09-24 19:30 | 3.05 | 136 |
| USGS | 02392950 | 2009-09-24 19:45 | 3.05 | 136 |
| USGS | 02392950 | 2009-09-24 20:00 | 3.04 | 134 |
| USGS | 02392950 | 2009-09-24 20:15 | 3.04 | 134 |
| USGS | 02392950 | 2009-09-24 20:30 | 3.04 | 134 |
| USGS | 02392950 | 2009-09-24 20:45 | 3.03 | 133 |
| USGS | 02392950 | 2009-09-24 21:00 | 3.03 | 133 |
| USGS | 02392950 | 2009-09-24 21:15 | 3.03 | 133 |
| USGS | 02392950 | 2009-09-24 21:30 | 3.03 | 133 |
| USGS | 02392950 | 2009-09-24 21:45 | 3.02 | 132 |
| USGS | 02392950 | 2009-09-24 22:00 | 3.02 | 132 |
| USGS | 02392950 | 2009-09-24 22:15 | 3.02 | 132 |
| USGS | 02392950 | 2009-09-24 22:30 | 3.02 | 132 |
| USGS | 02392950 | 2009-09-24 22:45 | 3.02 | 132 |
| USGS | 02392950 | 2009-09-24 23:00 | 3.02 | 132 |
| USGS | 02392950 | 2009-09-24 23:15 | 3.02 | 132 |
| USGS | 02392950 | 2009-09-24 23:30 | 3.01 | 131 |
| USGS | 02392950 | 2009-09-24 23:45 | 3.01 | 131 |
| USGS | 02392950 | 2009-09-25 00:00 | 3.01 | 131 |
| USGS | 02392950 | 2009-09-25 00:15 | 3.00 | 129 |
| USGS | 02392950 | 2009-09-25 00:30 | 3.01 | 131 |
| USGS | 02392950 | 2009-09-25 00:45 | 3.00 | 129 |
| USGS | 02392950 | 2009-09-25 01:00 | 3.00 | 129 |
| USGS | 02392950 | 2009-09-25 01:15 | 3.00 | 129 |
| USGS | 02392950 | 2009-09-25 01:30 | 3.00 | 129 |
| USGS | 02392950 | 2009-09-25 01:45 | 3.00 | 129 |
| USGS | 02392950 | 2009-09-25 02:00 | 3.00 | 129 |
| USGS | 02392950 | 2009-09-25 02:15 | 2.99 | 128 |
| USGS | 02392950 | 2009-09-25 02:30 | 2.99 | 128 |
| USGS | 02392950 | 2009-09-25 02:45 | 2.99 | 128 |
| USGS | 02392950 | 2009-09-25 03:00 | 2.99 | 128 |
| USGS | 02392950 | 2009-09-25 03:15 | 2.99 | 128 |
| USGS | 02392950 | 2009-09-25 03:30 | 2.98 | 127 |
| USGS | 02392950 | 2009-09-25 03:45 | 2.98 | 127 |
| USGS | 02392950 | 2009-09-25 04:00 | 2.98 | 127 |
| USGS | 02392950 | 2009-09-25 04:15 | 2.98 | 127 |
| USGS | 02392950 | 2009-09-25 04:30 | 2.97 | 126 |
| USGS | 02392950 | 2009-09-25 04:45 | 2.97 | 126 |
| USGS | 02392950 | 2009-09-25 05:00 | 2.96 | 123 |

| | | | | |
|---|---|---|---|---|
| USGS | 02392950 | 2009-09-25 05:15 | 2.96 | 123 |
| USGS | 02392950 | 2009-09-25 05:30 | 2.95 | 122 |
| USGS | 02392950 | 2009-09-25 05:45 | 2.94 | 121 |
| USGS | 02392950 | 2009-09-25 06:00 | 2.92 | 118 |
| USGS | 02392950 | 2009-09-25 06:15 | 2.90 | 116 |
| USGS | 02392950 | 2009-09-25 06:30 | 2.88 | 113 |
| USGS | 02392950 | 2009-09-25 06:45 | 2.87 | 112 |
| USGS | 02392950 | 2009-09-25 07:00 | 2.85 | 110 |
| USGS | 02392950 | 2009-09-25 07:15 | 2.84 | 109 |
| USGS | 02392950 | 2009-09-25 07:30 | 2.83 | 108 |
| USGS | 02392950 | 2009-09-25 08:00 | 2.81 | 105 |

*NH000-0073-03(242) Cobb County*
*Shallowford Road over Noonday Creek (downstream of project)*
*PI # 714130*

| | |
|---|---|
| **Drainage Area (sq. mi.)** | 33.6 |
| **Region No.** | 1 |
| **Impervious Area (%)** | 25 |
| **USGS Gage No.** | N/A |
| **Drainage Area @ Gage** | |

| | FEMA Discharges |
|---|---|
| **Q2** | |
| **Q5** | |
| **Q10** | 9842 |
| **Q25** | |
| **Q50** | 14758 |
| **Q100** | 16834 |
| **Q500** | 21406 |

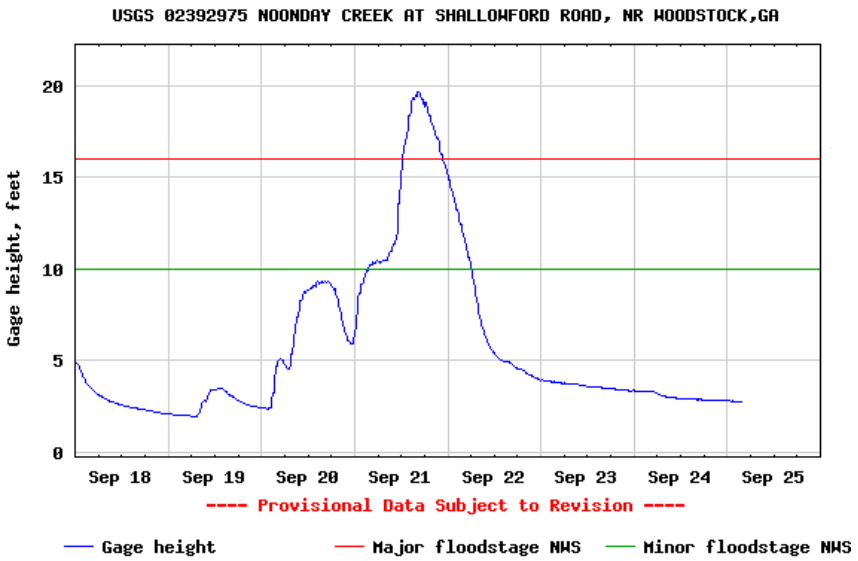
## Discharge (cfs)

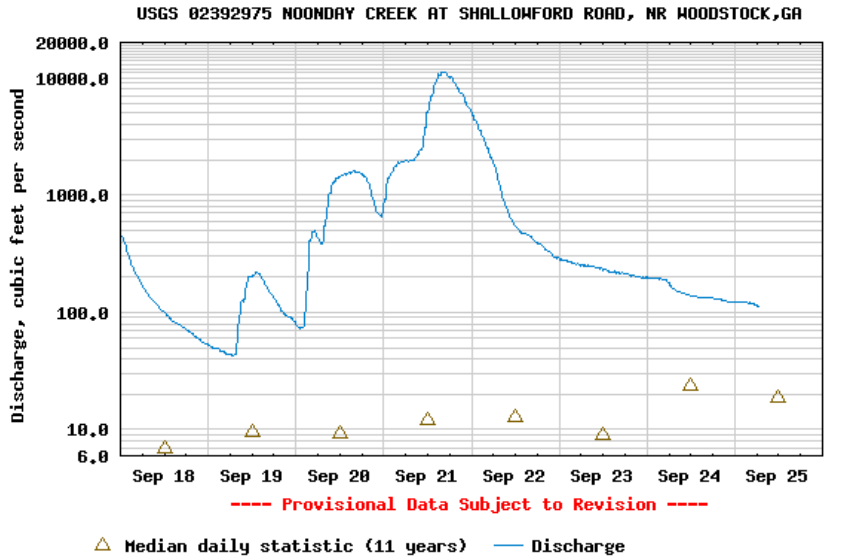
| | Regional | Urbanized | Qu(w) Weighted Discharge |
|---|---|---|---|
| **Q2** | 2062 | 5893 | 0 |
| **Q5** | 3291 | 8428 | 0 |
| **Q10** | 4245 | 9321 | 0 |
| **Q25** | 5584 | 11745 | 0 |
| **Q50** | 6694 | 12972 | 0 |
| **Q100** | 7865 | 14886 | 0 |
| **Q500** | 11067 | 18204 | 0 |

**Hydraulic Slope Calculation**
*Based on USGS quad*

| | |
|---|---|
| Upstream Elevation = | 940 |
| Downstream Elevation = | 920 |
| Horizontal Distance = | 7025 |

Slope = 0.00285 ft/ft
15.03 ft/mi



```
# ---------------------------------- WARNING ----------------------------------------
# The data you have obtained from this automated U.S. Geological Survey database
# have not received Director's approval and as such are provisional and subject to
# revision.  The data are released on the condition that neither the USGS nor the
# United States Government may be held liable for any damages resulting from its use.
# Additional info: http://waterdata.usgs.gov/ga/nwis/help/?provisional
#
# File-format description:  http://waterdata.usgs.gov/nwis/?tab_delimited_format_info
# Automated-retrieval info: http://waterdata.usgs.gov/nwis/?automated_retrieval_info
#
# Contact:   gs-w_support_nwisweb@usgs.gov
# retrieved: 2009-09-25 08:12:49 EDT
#
# Data for the following site(s) are contained in this file
#    USGS 02392975 NOONDAY CREEK AT SHALLOWFORD ROAD, NR WOODSTOCK,GA
# -----------------------------------------------------------------------------------
#
# Data provided for site 02392975
#    DD parameter   Description
#    01   00065     Gage height, feet
#    02   00060     Discharge, cubic feet per second
#    13   00045     Precipitation, total, inches
#
```

| agency_cd | site_no | datetime | 01_00065 | 01_00065_cd | 02_00060 | 02_00060 |
|---|---|---|---|---|---|---|
| 5s | 15s | 16d 14n 10s | 14n 10s | 14n 10s | | |
| USGS | 02392975 | 2009-09-18 00:00 | 4.86 | 442 | 0.00 | |
| USGS | 02392975 | 2009-09-18 00:15 | 4.89 | 448 | 0.00 | |
| USGS | 02392975 | 2009-09-18 00:30 | 4.87 | 444 | 0.00 | |
| USGS | 02392975 | 2009-09-18 00:45 | 4.79 | 429 | 0.00 | |
| USGS | 02392975 | 2009-09-18 01:00 | 4.69 | 411 | 0.00 | |
| USGS | 02392975 | 2009-09-18 01:15 | 4.55 | 386 | 0.00 | |
| USGS | 02392975 | 2009-09-18 01:30 | 4.42 | 363 | 0.00 | |
| USGS | 02392975 | 2009-09-18 01:45 | 4.27 | 337 | 0.00 | |
| USGS | 02392975 | 2009-09-18 02:00 | 4.14 | 315 | 0.00 | |
| USGS | 02392975 | 2009-09-18 02:15 | 4.04 | 299 | 0.00 | |
| USGS | 02392975 | 2009-09-18 02:30 | 3.94 | 283 | 0.00 | |
| USGS | 02392975 | 2009-09-18 02:45 | 3.84 | 267 | 0.00 | |
| USGS | 02392975 | 2009-09-18 03:00 | 3.75 | 253 | 0.00 | |
| USGS | 02392975 | 2009-09-18 03:15 | 3.71 | 247 | 0.00 | |
| USGS | 02392975 | 2009-09-18 03:30 | 3.65 | 238 | 0.00 | |
| USGS | 02392975 | 2009-09-18 03:45 | 3.58 | 228 | 0.00 | |
| USGS | 02392975 | 2009-09-18 04:00 | 3.54 | 222 | 0.00 | |
| USGS | 02392975 | 2009-09-18 04:15 | 3.48 | 213 | 0.00 | |
| USGS | 02392975 | 2009-09-18 04:30 | 3.42 | 205 | 0.00 | |
| USGS | 02392975 | 2009-09-18 04:45 | 3.38 | 200 | 0.00 | |
| USGS | 02392975 | 2009-09-18 05:00 | 3.35 | 197 | 0.00 | |
| USGS | 02392975 | 2009-09-18 05:15 | 3.27 | 186 | 0.00 | |
| USGS | 02392975 | 2009-09-18 05:30 | 3.23 | 180 | 0.00 | |
| USGS | 02392975 | 2009-09-18 05:45 | 3.19 | 174 | 0.00 | |
| USGS | 02392975 | 2009-09-18 06:00 | 3.17 | 171 | 0.00 | |
| USGS | 02392975 | 2009-09-18 06:15 | 3.12 | 166 | 0.00 | |
| USGS | 02392975 | 2009-09-18 06:30 | 3.08 | 160 | 0.00 | |
| USGS | 02392975 | 2009-09-18 06:45 | 3.05 | 156 | 0.00 | |
| USGS | 02392975 | 2009-09-18 07:00 | 3.01 | 151 | 0.00 | |
| USGS | 02392975 | 2009-09-18 07:15 | 2.98 | 147 | 0.00 | |
| USGS | 02392975 | 2009-09-18 07:30 | 2.96 | 144 | 0.00 | |
| USGS | 02392975 | 2009-09-18 07:45 | 2.91 | 138 | 0.00 | |
| USGS | 02392975 | 2009-09-18 08:00 | 2.89 | 135 | 0.00 | |
| USGS | 02392975 | 2009-09-18 08:15 | 2.86 | 133 | 0.00 | |
| USGS | 02392975 | 2009-09-18 08:30 | 2.84 | 130 | 0.00 | |
| USGS | 02392975 | 2009-09-18 08:45 | 2.81 | 127 | 0.00 | |
| USGS | 02392975 | 2009-09-18 09:00 | 2.80 | 126 | 0.00 | |
| USGS | 02392975 | 2009-09-18 09:15 | 2.79 | 124 | 0.00 | |
| USGS | 02392975 | 2009-09-18 09:30 | 2.77 | 122 | 0.00 | |

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|---|---|---|---|---|---|
| USGS | 02392975 | 2009-09-18 09:45 | 2.75 | 119 | 0.00 |
| USGS | 02392975 | 2009-09-18 10:00 | 2.73 | 117 | 0.00 |
| USGS | 02392975 | 2009-09-18 10:15 | 2.71 | 114 | 0.00 |
| USGS | 02392975 | 2009-09-18 10:30 | 2.70 | 113 | 0.00 |
| USGS | 02392975 | 2009-09-18 10:45 | 2.67 | 109 | 0.00 |
| USGS | 02392975 | 2009-09-18 11:00 | 2.65 | 106 | 0.00 |
| USGS | 02392975 | 2009-09-18 11:15 | 2.62 | 104 | 0.00 |
| USGS | 02392975 | 2009-09-18 11:30 | 2.62 | 104 | 0.00 |
| USGS | 02392975 | 2009-09-18 11:45 | 2.61 | 103 | 0.00 |
| USGS | 02392975 | 2009-09-18 12:00 | 2.60 | 101 | 0.00 |
| USGS | 02392975 | 2009-09-18 12:15 | 2.58 | 99 | 0.00 |
| USGS | 02392975 | 2009-09-18 12:30 | 2.55 | 96 | 0.00 |
| USGS | 02392975 | 2009-09-18 12:45 | 2.54 | 94 | 0.00 |
| USGS | 02392975 | 2009-09-18 13:00 | 2.53 | 93 | 0.00 |
| USGS | 02392975 | 2009-09-18 13:15 | 2.52 | 92 | 0.00 |
| USGS | 02392975 | 2009-09-18 13:30 | 2.49 | 89 | 0.00 |
| USGS | 02392975 | 2009-09-18 13:45 | 2.48 | 88 | 0.00 |
| USGS | 02392975 | 2009-09-18 14:00 | 2.47 | 87 | 0.00 |
| USGS | 02392975 | 2009-09-18 14:15 | 2.45 | 84 | 0.00 |
| USGS | 02392975 | 2009-09-18 14:30 | 2.45 | 84 | 0.00 |
| USGS | 02392975 | 2009-09-18 14:45 | 2.44 | 83 | 0.00 |
| USGS | 02392975 | 2009-09-18 15:00 | 2.43 | 82 | 0.00 |
| USGS | 02392975 | 2009-09-18 15:15 | 2.42 | 81 | 0.00 |
| USGS | 02392975 | 2009-09-18 15:30 | 2.42 | 81 | 0.00 |
| USGS | 02392975 | 2009-09-18 15:45 | 2.41 | 80 | 0.00 |
| USGS | 02392975 | 2009-09-18 16:00 | 2.40 | 79 | 0.00 |
| USGS | 02392975 | 2009-09-18 16:15 | 2.39 | 78 | 0.00 |
| USGS | 02392975 | 2009-09-18 16:30 | 2.37 | 77 | 0.00 |
| USGS | 02392975 | 2009-09-18 16:45 | 2.36 | 76 | 0.00 |
| USGS | 02392975 | 2009-09-18 17:00 | 2.35 | 75 | 0.00 |
| USGS | 02392975 | 2009-09-18 17:15 | 2.35 | 75 | 0.00 |
| USGS | 02392975 | 2009-09-18 17:30 | 2.34 | 74 | 0.00 |
| USGS | 02392975 | 2009-09-18 17:45 | 2.33 | 73 | 0.00 |
| USGS | 02392975 | 2009-09-18 18:00 | 2.32 | 72 | 0.00 |
| USGS | 02392975 | 2009-09-18 18:15 | 2.31 | 71 | 0.00 |
| USGS | 02392975 | 2009-09-18 18:30 | 2.30 | 70 | 0.00 |
| USGS | 02392975 | 2009-09-18 18:45 | 2.29 | 69 | 0.00 |
| USGS | 02392975 | 2009-09-18 19:00 | 2.29 | 69 | 0.00 |
| USGS | 02392975 | 2009-09-18 19:15 | 2.28 | 68 | 0.00 |
| USGS | 02392975 | 2009-09-18 19:30 | 2.27 | 67 | 0.00 |
| USGS | 02392975 | 2009-09-18 19:45 | 2.26 | 66 | 0.00 |
| USGS | 02392975 | 2009-09-18 20:00 | 2.25 | 65 | 0.00 |
| USGS | 02392975 | 2009-09-18 20:15 | 2.23 | 63 | 0.00 |
| USGS | 02392975 | 2009-09-18 20:30 | 2.22 | 62 | 0.00 |
| USGS | 02392975 | 2009-09-18 20:45 | 2.21 | 61 | 0.00 |
| USGS | 02392975 | 2009-09-18 21:00 | 2.19 | 60 | 0.00 |
| USGS | 02392975 | 2009-09-18 21:15 | 2.19 | 60 | 0.00 |
| USGS | 02392975 | 2009-09-18 21:30 | 2.18 | 59 | 0.00 |
| USGS | 02392975 | 2009-09-18 21:45 | 2.17 | 58 | 0.00 |
| USGS | 02392975 | 2009-09-18 22:00 | 2.16 | 57 | 0.00 |
| USGS | 02392975 | 2009-09-18 22:15 | 2.14 | 55 | 0.00 |
| USGS | 02392975 | 2009-09-18 22:30 | 2.14 | 55 | 0.00 |
| USGS | 02392975 | 2009-09-18 22:45 | 2.14 | 55 | 0.00 |
| USGS | 02392975 | 2009-09-18 23:00 | 2.12 | 54 | 0.00 |
| USGS | 02392975 | 2009-09-18 23:15 | 2.12 | 54 | 0.00 |
| USGS | 02392975 | 2009-09-18 23:30 | 2.11 | 54 | 0.00 |
| USGS | 02392975 | 2009-09-18 23:45 | 2.10 | 53 | 0.00 |
| USGS | 02392975 | 2009-09-19 00:00 | 2.11 | 54 | 0.00 |
| USGS | 02392975 | 2009-09-19 00:15 | 2.10 | 53 | 0.00 |
| USGS | 02392975 | 2009-09-19 00:30 | 2.09 | 52 | 0.00 |
| USGS | 02392975 | 2009-09-19 00:45 | 2.08 | 51 | 0.00 |
| USGS | 02392975 | 2009-09-19 01:00 | 2.08 | 51 | 0.00 |
| USGS | 02392975 | 2009-09-19 01:15 | 2.07 | 50 | 0.00 |
| USGS | 02392975 | 2009-09-19 01:30 | 2.07 | 50 | 0.00 |

| | | | | | |
|---|---|---|---|---|---|
| USGS | 02392975 | 2009-09-19 01:45 | 2.06 | 50 | 0.00 |
| USGS | 02392975 | 2009-09-19 02:00 | 2.06 | 50 | 0.00 |
| USGS | 02392975 | 2009-09-19 02:15 | 2.05 | 49 | 0.00 |
| USGS | 02392975 | 2009-09-19 02:30 | 2.05 | 49 | 0.00 |
| USGS | 02392975 | 2009-09-19 02:45 | 2.05 | 49 | 0.00 |
| USGS | 02392975 | 2009-09-19 03:00 | 2.04 | 48 | 0.00 |
| USGS | 02392975 | 2009-09-19 03:15 | 2.03 | 47 | 0.00 |
| USGS | 02392975 | 2009-09-19 03:30 | 2.03 | 47 | 0.00 |
| USGS | 02392975 | 2009-09-19 03:45 | 2.03 | 47 | 0.00 |
| USGS | 02392975 | 2009-09-19 04:00 | 2.02 | 46 | 0.00 |
| USGS | 02392975 | 2009-09-19 04:15 | 2.01 | 45 | 0.00 |
| USGS | 02392975 | 2009-09-19 04:30 | 2.02 | 46 | 0.00 |
| USGS | 02392975 | 2009-09-19 04:45 | 2.01 | 45 | 0.00 |
| USGS | 02392975 | 2009-09-19 05:00 | 2.00 | 44 | 0.00 |
| USGS | 02392975 | 2009-09-19 05:15 | 2.00 | 44 | 0.00 |
| USGS | 02392975 | 2009-09-19 05:30 | 2.00 | 44 | 0.00 |
| USGS | 02392975 | 2009-09-19 05:45 | 1.99 | 44 | 0.00 |
| USGS | 02392975 | 2009-09-19 06:00 | 1.99 | 44 | 0.00 |
| USGS | 02392975 | 2009-09-19 06:15 | 1.99 | 44 | 0.00 |
| USGS | 02392975 | 2009-09-19 06:30 | 1.98 | 43 | 0.00 |
| USGS | 02392975 | 2009-09-19 06:45 | 1.98 | 43 | 0.01 |
| USGS | 02392975 | 2009-09-19 07:00 | 1.98 | 43 | 0.11 |
| USGS | 02392975 | 2009-09-19 07:15 | 1.99 | 44 | 0.03 |
| USGS | 02392975 | 2009-09-19 07:30 | 2.00 | 44 | 0.00 |
| USGS | 02392975 | 2009-09-19 07:45 | 2.08 | 51 | 0.00 |
| USGS | 02392975 | 2009-09-19 08:00 | 2.18 | 59 | 0.01 |
| USGS | 02392975 | 2009-09-19 08:15 | 2.32 | 72 | 0.05 |
| USGS | 02392975 | 2009-09-19 08:30 | 2.47 | 87 | 0.20 |
| USGS | 02392975 | 2009-09-19 08:45 | 2.63 | 104 | 0.08 |
| USGS | 02392975 | 2009-09-19 09:00 | 2.76 | 121 | 0.00 |
| USGS | 02392975 | 2009-09-19 09:15 | 2.81 | 127 | 0.00 |
| USGS | 02392975 | 2009-09-19 09:30 | 2.82 | 128 | 0.01 |
| USGS | 02392975 | 2009-09-19 09:45 | 2.79 | 124 | 0.02 |
| USGS | 02392975 | 2009-09-19 10:00 | 2.89 | 135 | 0.01 |
| USGS | 02392975 | 2009-09-19 10:15 | 3.00 | 149 | 0.00 |
| USGS | 02392975 | 2009-09-19 10:30 | 3.16 | 170 | 0.00 |
| USGS | 02392975 | 2009-09-19 10:45 | 3.30 | 190 | 0.01 |
| USGS | 02392975 | 2009-09-19 11:00 | 3.39 | 201 | 0.00 |
| USGS | 02392975 | 2009-09-19 11:15 | 3.41 | 204 | 0.00 |
| USGS | 02392975 | 2009-09-19 11:30 | 3.40 | 202 | 0.00 |
| USGS | 02392975 | 2009-09-19 11:45 | 3.39 | 201 | 0.01 |
| USGS | 02392975 | 2009-09-19 12:00 | 3.40 | 202 | 0.02 |
| USGS | 02392975 | 2009-09-19 12:15 | 3.42 | 205 | 0.02 |
| USGS | 02392975 | 2009-09-19 12:30 | 3.44 | 208 | 0.01 |
| USGS | 02392975 | 2009-09-19 12:45 | 3.49 | 215 | 0.00 |
| USGS | 02392975 | 2009-09-19 13:00 | 3.52 | 219 | 0.00 |
| USGS | 02392975 | 2009-09-19 13:15 | 3.53 | 221 | 0.00 |
| USGS | 02392975 | 2009-09-19 13:30 | 3.51 | 218 | 0.00 |
| USGS | 02392975 | 2009-09-19 13:45 | 3.50 | 216 | 0.00 |
| USGS | 02392975 | 2009-09-19 14:00 | 3.47 | 212 | 0.00 |
| USGS | 02392975 | 2009-09-19 14:15 | 3.42 | 205 | 0.00 |
| USGS | 02392975 | 2009-09-19 14:30 | 3.38 | 200 | 0.00 |
| USGS | 02392975 | 2009-09-19 14:45 | 3.33 | 194 | 0.01 |
| USGS | 02392975 | 2009-09-19 15:00 | 3.30 | 190 | 0.00 |
| USGS | 02392975 | 2009-09-19 15:15 | 3.24 | 181 | 0.00 |
| USGS | 02392975 | 2009-09-19 15:30 | 3.20 | 176 | 0.00 |
| USGS | 02392975 | 2009-09-19 15:45 | 3.16 | 170 | 0.00 |
| USGS | 02392975 | 2009-09-19 16:00 | 3.11 | 164 | 0.00 |
| USGS | 02392975 | 2009-09-19 16:15 | 3.09 | 161 | 0.00 |
| USGS | 02392975 | 2009-09-19 16:30 | 3.05 | 156 | 0.00 |
| USGS | 02392975 | 2009-09-19 16:45 | 3.02 | 152 | 0.00 |
| USGS | 02392975 | 2009-09-19 17:00 | 2.98 | 147 | 0.00 |
| USGS | 02392975 | 2009-09-19 17:15 | 2.95 | 143 | 0.00 |
| USGS | 02392975 | 2009-09-19 17:30 | 2.93 | 140 | 0.00 |

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|---|---|---|---|---|---|
| USGS | 02392975 | 2009-09-19 17:45 | 2.87 | 134 | 0.00 |
| USGS | 02392975 | 2009-09-19 18:00 | 2.85 | 132 | 0.00 |
| USGS | 02392975 | 2009-09-19 18:15 | 2.83 | 129 | 0.00 |
| USGS | 02392975 | 2009-09-19 18:30 | 2.78 | 123 | 0.00 |
| USGS | 02392975 | 2009-09-19 18:45 | 2.76 | 121 | 0.00 |
| USGS | 02392975 | 2009-09-19 19:00 | 2.73 | 117 | 0.00 |
| USGS | 02392975 | 2009-09-19 19:15 | 2.71 | 114 | 0.00 |
| USGS | 02392975 | 2009-09-19 19:30 | 2.69 | 111 | 0.00 |
| USGS | 02392975 | 2009-09-19 19:45 | 2.66 | 108 | 0.00 |
| USGS | 02392975 | 2009-09-19 20:00 | 2.62 | 104 | 0.00 |
| USGS | 02392975 | 2009-09-19 20:15 | 2.61 | 103 | 0.00 |
| USGS | 02392975 | 2009-09-19 20:30 | 2.58 | 99 | 0.00 |
| USGS | 02392975 | 2009-09-19 20:45 | 2.57 | 98 | 0.00 |
| USGS | 02392975 | 2009-09-19 21:00 | 2.57 | 98 | 0.00 |
| USGS | 02392975 | 2009-09-19 21:15 | 2.54 | 94 | 0.00 |
| USGS | 02392975 | 2009-09-19 21:30 | 2.53 | 93 | 0.00 |
| USGS | 02392975 | 2009-09-19 21:45 | 2.52 | 92 | 0.00 |
| USGS | 02392975 | 2009-09-19 22:00 | 2.52 | 92 | 0.00 |
| USGS | 02392975 | 2009-09-19 22:15 | 2.51 | 91 | 0.00 |
| USGS | 02392975 | 2009-09-19 22:30 | 2.49 | 89 | 0.01 |
| USGS | 02392975 | 2009-09-19 22:45 | 2.50 | 90 | 0.00 |
| USGS | 02392975 | 2009-09-19 23:00 | 2.47 | 87 | 0.00 |
| USGS | 02392975 | 2009-09-19 23:15 | 2.46 | 86 | 0.00 |
| USGS | 02392975 | 2009-09-19 23:30 | 2.45 | 84 | 0.00 |
| USGS | 02392975 | 2009-09-19 23:45 | 2.44 | 83 | 0.00 |
| USGS | 02392975 | 2009-09-20 00:00 | 2.43 | 78 | 0.00 |
| USGS | 02392975 | 2009-09-20 00:15 | 2.42 | 77 | 0.00 |
| USGS | 02392975 | 2009-09-20 00:30 | 2.41 | 76 | 0.00 |
| USGS | 02392975 | 2009-09-20 00:45 | 2.40 | 75 | 0.00 |
| USGS | 02392975 | 2009-09-20 01:00 | 2.40 | 75 | 0.01 |
| USGS | 02392975 | 2009-09-20 01:15 | 2.37 | 72 | 0.05 |
| USGS | 02392975 | 2009-09-20 01:30 | 2.39 | 74 | 0.06 |
| USGS | 02392975 | 2009-09-20 01:45 | 2.39 | 74 | 0.02 |
| USGS | 02392975 | 2009-09-20 02:00 | 2.40 | 75 | 0.00 |
| USGS | 02392975 | 2009-09-20 02:15 | 2.42 | 77 | 0.00 |
| USGS | 02392975 | 2009-09-20 02:30 | 2.47 | 82 | 0.00 |
| USGS | 02392975 | 2009-09-20 02:45 | 2.80 | 122 | 0.00 |
| USGS | 02392975 | 2009-09-20 03:00 | 3.26 | 183 | 0.00 |
| USGS | 02392975 | 2009-09-20 03:15 | 3.26 | 183 | |
| USGS | 02392975 | 2009-09-20 03:30 | 3.82 | 264 | 0.00 |
| USGS | 02392975 | 2009-09-20 03:45 | 4.69 | 411 | 0.00 |
| USGS | 02392975 | 2009-09-20 04:00 | 4.69 | 411 | 0.00 |
| USGS | 02392975 | 2009-09-20 04:15 | 4.90 | 450 | 0.00 |
| USGS | 02392975 | 2009-09-20 04:30 | 5.05 | 479 | 0.00 |
| USGS | 02392975 | 2009-09-20 04:45 | 5.11 | 491 | 0.00 |
| USGS | 02392975 | 2009-09-20 05:00 | 5.12 | 493 | 0.00 |
| USGS | 02392975 | 2009-09-20 05:15 | 5.06 | 481 | 0.00 |
| USGS | 02392975 | 2009-09-20 05:30 | 5.00 | 469 | 0.00 |
| USGS | 02392975 | 2009-09-20 05:45 | 4.90 | 450 | 0.03 |
| USGS | 02392975 | 2009-09-20 06:00 | 4.80 | 431 | 0.14 |
| USGS | 02392975 | 2009-09-20 06:15 | 4.71 | 414 | 0.10 |
| USGS | 02392975 | 2009-09-20 06:30 | 4.64 | 402 | 0.01 |
| USGS | 02392975 | 2009-09-20 06:45 | 4.58 | 391 | 0.01 |
| USGS | 02392975 | 2009-09-20 07:00 | 4.52 | 380 | 0.16 |
| USGS | 02392975 | 2009-09-20 07:15 | 4.56 | 387 | 0.11 |
| USGS | 02392975 | 2009-09-20 07:30 | 4.73 | 418 | 0.04 |
| USGS | 02392975 | 2009-09-20 07:45 | 5.36 | 542 | |
| USGS | 02392975 | 2009-09-20 08:00 | 5.36 | 542 | |
| USGS | 02392975 | 2009-09-20 08:15 | 6.05 | 692 | 0.41 |
| USGS | 02392975 | 2009-09-20 08:30 | 6.05 | 692 | 0.00 |
| USGS | 02392975 | 2009-09-20 08:45 | 6.84 | 886 | 0.03 |
| USGS | 02392975 | 2009-09-20 09:00 | 7.17 | 971 | 0.05 |
| USGS | 02392975 | 2009-09-20 09:15 | 7.42 | 1040 | 0.36 |
| USGS | 02392975 | 2009-09-20 09:30 | 7.42 | 1040 | 0.00 |

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|---|---|---|---|---|---|
| USGS | 02392975 | 2009-09-20 09:45 | 7.87 | 1160 | 0.14 |
| USGS | 02392975 | 2009-09-20 10:00 | 8.28 | 1270 | 0.12 |
| USGS | 02392975 | 2009-09-20 10:15 | 8.28 | 1270 | 0.00 |
| USGS | 02392975 | 2009-09-20 10:30 | 8.38 | 1300 | 0.05 |
| USGS | 02392975 | 2009-09-20 10:45 | 8.44 | 1320 | 0.14 |
| USGS | 02392975 | 2009-09-20 11:00 | 8.76 | 1410 | 0.19 |
| USGS | 02392975 | 2009-09-20 11:15 | 8.76 | 1410 | 0.00 |
| USGS | 02392975 | 2009-09-20 11:30 | 8.69 | 1390 | 0.01 |
| USGS | 02392975 | 2009-09-20 11:45 | 8.82 | 1430 | 0.00 |
| USGS | 02392975 | 2009-09-20 12:00 | 8.89 | 1450 | 0.01 |
| USGS | 02392975 | 2009-09-20 12:15 | 8.85 | 1440 | 0.03 |
| USGS | 02392975 | 2009-09-20 12:30 | 8.95 | 1470 | 0.01 |
| USGS | 02392975 | 2009-09-20 12:45 | 8.96 | 1470 | 0.00 |
| USGS | 02392975 | 2009-09-20 13:00 | 9.03 | 1490 | 0.03 |
| USGS | 02392975 | 2009-09-20 13:15 | 9.08 | 1510 | 0.00 |
| USGS | 02392975 | 2009-09-20 13:30 | 9.02 | 1490 | 0.01 |
| USGS | 02392975 | 2009-09-20 13:45 | 9.10 | 1510 | 0.03 |
| USGS | 02392975 | 2009-09-20 14:00 | 9.04 | 1500 | 0.01 |
| USGS | 02392975 | 2009-09-20 14:15 | 9.14 | 1530 | 0.00 |
| USGS | 02392975 | 2009-09-20 14:30 | 9.31 | 1580 | 0.00 |
| USGS | 02392975 | 2009-09-20 14:45 | 9.18 | 1540 | 0.04 |
| USGS | 02392975 | 2009-09-20 15:00 | 9.26 | 1560 | 0.00 |
| USGS | 02392975 | 2009-09-20 15:15 | 9.29 | 1570 | 0.00 |
| USGS | 02392975 | 2009-09-20 15:30 | 9.26 | 1560 | 0.02 |
| USGS | 02392975 | 2009-09-20 15:45 | 9.34 | 1590 | 0.00 |
| USGS | 02392975 | 2009-09-20 16:00 | 9.29 | 1570 | 0.00 |
| USGS | 02392975 | 2009-09-20 16:15 | 9.35 | 1590 | 0.00 |
| USGS | 02392975 | 2009-09-20 16:30 | 9.33 | 1580 | 0.00 |
| USGS | 02392975 | 2009-09-20 16:45 | 9.27 | 1570 | 0.00 |
| USGS | 02392975 | 2009-09-20 17:00 | 9.30 | 1580 | 0.00 |
| USGS | 02392975 | 2009-09-20 17:15 | 9.31 | 1580 | 0.00 |
| USGS | 02392975 | 2009-09-20 17:30 | 9.27 | 1570 | 0.00 |
| USGS | 02392975 | 2009-09-20 17:45 | 9.15 | 1530 | 0.00 |
| USGS | 02392975 | 2009-09-20 18:00 | 9.10 | 1510 | 0.00 |
| USGS | 02392975 | 2009-09-20 18:15 | 9.02 | 1490 | 0.00 |
| USGS | 02392975 | 2009-09-20 18:30 | 8.96 | 1470 | 0.00 |
| USGS | 02392975 | 2009-09-20 18:45 | 8.82 | 1430 | 0.01 |
| USGS | 02392975 | 2009-09-20 19:00 | 8.90 | 1450 | 0.00 |
| USGS | 02392975 | 2009-09-20 19:15 | 8.67 | 1380 | 0.00 |
| USGS | 02392975 | 2009-09-20 19:30 | 8.45 | 1320 | 0.01 |
| USGS | 02392975 | 2009-09-20 19:45 | 8.27 | 1270 | 0.00 |
| USGS | 02392975 | 2009-09-20 20:00 | 8.00 | 1190 | 0.01 |
| USGS | 02392975 | 2009-09-20 20:15 | 7.78 | 1130 | 0.00 |
| USGS | 02392975 | 2009-09-20 20:30 | 7.52 | 1060 | 0.00 |
| USGS | 02392975 | 2009-09-20 20:45 | 7.29 | 1000 | 0.01 |
| USGS | 02392975 | 2009-09-20 21:00 | 6.99 | 925 | 0.00 |
| USGS | 02392975 | 2009-09-20 21:15 | 6.76 | 865 | 0.03 |
| USGS | 02392975 | 2009-09-20 21:30 | 6.58 | 819 | 0.01 |
| USGS | 02392975 | 2009-09-20 21:45 | 6.48 | 794 | 0.01 |
| USGS | 02392975 | 2009-09-20 22:00 | 6.25 | 738 | 0.05 |
| USGS | 02392975 | 2009-09-20 22:15 | 6.09 | 701 | 0.04 |
| USGS | 02392975 | 2009-09-20 22:30 | 6.08 | 699 | 0.04 |
| USGS | 02392975 | 2009-09-20 22:45 | 6.05 | 692 | 0.04 |
| USGS | 02392975 | 2009-09-20 23:00 | 5.94 | 667 | 0.03 |
| USGS | 02392975 | 2009-09-20 23:15 | 5.90 | 657 | 0.05 |
| USGS | 02392975 | 2009-09-20 23:30 | 5.94 | 667 | 0.04 |
| USGS | 02392975 | 2009-09-20 23:45 | 6.09 | 701 | 0.44 |
| USGS | 02392975 | 2009-09-21 00:00 | 6.41 | 777 | 0.24 |
| USGS | 02392975 | 2009-09-21 00:15 | 6.97 | 920 | 0.24 |
| USGS | 02392975 | 2009-09-21 00:30 | 6.97 | 920 | 0.00 |
| USGS | 02392975 | 2009-09-21 00:45 | 8.06 | 1210 | 0.13 |
| USGS | 02392975 | 2009-09-21 01:00 | 8.45 | 1320 | 0.11 |
| USGS | 02392975 | 2009-09-21 01:15 | 8.70 | 1390 | 0.07 |
| USGS | 02392975 | 2009-09-21 01:30 | 8.70 | 1390 | 0.00 |

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|---|---|---|---|---|---|
| USGS | 02392975 | 2009-09-21 01:45 | 9.14 | 1530 | 0.07 |
| USGS | 02392975 | 2009-09-21 02:00 | 9.14 | 1530 | 0.00 |
| USGS | 02392975 | 2009-09-21 02:15 | 9.29 | 1570 | 0.02 |
| USGS | 02392975 | 2009-09-21 02:30 | 9.45 | 1620 | 0.03 |
| USGS | 02392975 | 2009-09-21 02:45 | 9.59 | 1670 | 0.04 |
| USGS | 02392975 | 2009-09-21 03:00 | 9.87 | 1770 | 0.10 |
| USGS | 02392975 | 2009-09-21 03:15 | 9.87 | 1770 | 0.00 |
| USGS | 02392975 | 2009-09-21 03:30 | 9.91 | 1780 | 0.01 |
| USGS | 02392975 | 2009-09-21 03:45 | 10.22 | 1900 | 0.03 |
| USGS | 02392975 | 2009-09-21 04:00 | 10.21 | 1900 | 0.00 |
| USGS | 02392975 | 2009-09-21 04:15 | 10.20 | 1890 | 0.00 |
| USGS | 02392975 | 2009-09-21 04:30 | 10.20 | 1890 | 0.00 |
| USGS | 02392975 | 2009-09-21 04:45 | 10.36 | 1950 | 0.00 |
| USGS | 02392975 | 2009-09-21 05:00 | 10.34 | 1950 | 0.00 |
| USGS | 02392975 | 2009-09-21 05:15 | 10.34 | 1950 | 0.00 |
| USGS | 02392975 | 2009-09-21 05:30 | 10.34 | 1950 | 0.00 |
| USGS | 02392975 | 2009-09-21 05:45 | 10.46 | 1990 | 0.01 |
| USGS | 02392975 | 2009-09-21 06:00 | 10.39 | 1970 | 0.04 |
| USGS | 02392975 | 2009-09-21 06:15 | 10.37 | 1960 | 0.06 |
| USGS | 02392975 | 2009-09-21 06:30 | 10.37 | 1960 | 0.00 |
| USGS | 02392975 | 2009-09-21 06:45 | 10.34 | 1950 | 0.04 |
| USGS | 02392975 | 2009-09-21 07:00 | 10.42 | 1980 | 0.02 |
| USGS | 02392975 | 2009-09-21 07:15 | 10.44 | 1980 | 0.02 |
| USGS | 02392975 | 2009-09-21 07:30 | 10.44 | 1980 | 0.00 |
| USGS | 02392975 | 2009-09-21 07:45 | 10.44 | 1980 | 0.08 |
| USGS | 02392975 | 2009-09-21 08:00 | 10.44 | 1980 | 0.00 |
| USGS | 02392975 | 2009-09-21 08:15 | 10.47 | 2000 | 0.67 |
| USGS | 02392975 | 2009-09-21 08:30 | 10.47 | 2000 | 0.00 |
| USGS | 02392975 | 2009-09-21 08:45 | 10.79 | 2120 | 0.13 |
| USGS | 02392975 | 2009-09-21 09:00 | 10.84 | 2140 | 0.01 |
| USGS | 02392975 | 2009-09-21 09:15 | 11.00 | 2210 | 0.01 |
| USGS | 02392975 | 2009-09-21 09:30 | 11.00 | 2210 | 0.00 |
| USGS | 02392975 | 2009-09-21 09:45 | 11.13 | 2270 | 0.13 |
| USGS | 02392975 | 2009-09-21 10:00 | 11.40 | 2410 | 0.04 |
| USGS | 02392975 | 2009-09-21 10:15 | 11.40 | 2410 | 0.00 |
| USGS | 02392975 | 2009-09-21 10:30 | 11.40 | 2410 | 0.66 |
| USGS | 02392975 | 2009-09-21 10:45 | 11.74 | 2580 | 0.00 |
| USGS | 02392975 | 2009-09-21 11:00 | 12.00 | 2720 | |
| USGS | 02392975 | 2009-09-21 11:15 | 13.56 | 3730 | |
| USGS | 02392975 | 2009-09-21 11:30 | 13.56 | 3730 | |
| USGS | 02392975 | 2009-09-21 11:45 | 15.10 | 5050 | 5.53 |
| USGS | 02392975 | 2009-09-21 12:00 | 15.10 | 5050 | 0.00 |
| USGS | 02392975 | 2009-09-21 12:15 | 15.63 | 5590 | 0.12 |
| USGS | 02392975 | 2009-09-21 12:30 | 15.94 | 5910 | 0.15 |
| USGS | 02392975 | 2009-09-21 12:45 | 16.65 | 6740 | 0.32 |
| USGS | 02392975 | 2009-09-21 13:00 | 16.92 | 7070 | 0.18 |
| USGS | 02392975 | 2009-09-21 13:15 | 16.92 | 7070 | 0.00 |
| USGS | 02392975 | 2009-09-21 13:30 | 17.31 | 7580 | 0.00 |
| USGS | 02392975 | 2009-09-21 13:45 | 17.71 | 8110 | 0.00 |
| USGS | 02392975 | 2009-09-21 14:00 | 18.36 | 9090 | 0.14 |
| USGS | 02392975 | 2009-09-21 14:15 | 18.36 | 9090 | 0.00 |
| USGS | 02392975 | 2009-09-21 14:30 | 18.56 | 9410 | 0.04 |
| USGS | 02392975 | 2009-09-21 14:45 | 19.01 | 10200 | 0.08 |
| USGS | 02392975 | 2009-09-21 15:00 | 19.31 | 10700 | 0.03 |
| USGS | 02392975 | 2009-09-21 15:15 | 19.26 | 10600 | 0.01 |
| USGS | 02392975 | 2009-09-21 15:30 | 19.26 | 10600 | 0.00 |
| USGS | 02392975 | 2009-09-21 15:45 | 19.46 | 11000 | 0.20 |
| USGS | 02392975 | 2009-09-21 16:00 | 19.45 | 11000 | 0.01 |
| USGS | 02392975 | 2009-09-21 16:15 | 19.66 | 11300 | 0.01 |
| USGS | 02392975 | 2009-09-21 16:30 | 19.66 | 11300 | 0.00 |
| USGS | 02392975 | 2009-09-21 16:45 | 19.56 | 11200 | 0.00 |
| USGS | 02392975 | 2009-09-21 17:00 | 19.53 | 11100 | 0.00 |
| USGS | 02392975 | 2009-09-21 17:15 | 19.25 | 10600 | 0.00 |
| USGS | 02392975 | 2009-09-21 17:30 | 19.25 | 10600 | 0.00 |

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|---|---|---|---|---|---|
| USGS | 02392975 | 2009-09-21 17:45 | 19.11 | 10300 | 0.00 |
| USGS | 02392975 | 2009-09-21 18:00 | 18.87 | 9930 | 0.00 |
| USGS | 02392975 | 2009-09-21 18:15 | 19.05 | 10200 | 0.00 |
| USGS | 02392975 | 2009-09-21 18:30 | 19.05 | 10200 | 0.00 |
| USGS | 02392975 | 2009-09-21 18:45 | 18.70 | 9640 | 0.00 |
| USGS | 02392975 | 2009-09-21 19:00 | 18.56 | 9410 | 0.00 |
| USGS | 02392975 | 2009-09-21 19:15 | 18.34 | 9050 | 0.00 |
| USGS | 02392975 | 2009-09-21 19:30 | 18.34 | 9050 | 0.00 |
| USGS | 02392975 | 2009-09-21 19:45 | 18.03 | 8570 | 0.00 |
| USGS | 02392975 | 2009-09-21 20:00 | 17.83 | 8280 | 0.00 |
| USGS | 02392975 | 2009-09-21 20:15 | 17.76 | 8180 | 0.00 |
| USGS | 02392975 | 2009-09-21 20:30 | 17.76 | 8180 | 0.00 |
| USGS | 02392975 | 2009-09-21 20:45 | 17.34 | 7620 | 0.00 |
| USGS | 02392975 | 2009-09-21 21:00 | 17.17 | 7390 | 0.00 |
| USGS | 02392975 | 2009-09-21 21:15 | 17.10 | 7300 | 0.00 |
| USGS | 02392975 | 2009-09-21 21:30 | 17.10 | 7300 | 0.00 |
| USGS | 02392975 | 2009-09-21 21:45 | 16.85 | 6990 | 0.00 |
| USGS | 02392975 | 2009-09-21 22:00 | 16.46 | 6510 | 0.00 |
| USGS | 02392975 | 2009-09-21 22:15 | 16.28 | 6300 | 0.00 |
| USGS | 02392975 | 2009-09-21 22:30 | 16.28 | 6300 | 0.00 |
| USGS | 02392975 | 2009-09-21 22:45 | 15.90 | 5870 | 0.00 |
| USGS | 02392975 | 2009-09-21 23:00 | 15.79 | 5750 | 0.00 |
| USGS | 02392975 | 2009-09-21 23:15 | 15.61 | 5560 | 0.00 |
| USGS | 02392975 | 2009-09-21 23:30 | 15.61 | 5560 | 0.00 |
| USGS | 02392975 | 2009-09-21 23:45 | 15.26 | 5210 | 0.00 |
| USGS | 02392975 | 2009-09-22 00:00 | 15.04 | 4990 | 0.00 |
| USGS | 02392975 | 2009-09-22 00:15 | 14.83 | 4790 | 0.00 |
| USGS | 02392975 | 2009-09-22 00:30 | 14.83 | 4790 | 0.00 |
| USGS | 02392975 | 2009-09-22 00:45 | 14.43 | 4420 | 0.00 |
| USGS | 02392975 | 2009-09-22 01:00 | 14.32 | 4330 | 0.00 |
| USGS | 02392975 | 2009-09-22 01:15 | 14.10 | 4140 | 0.00 |
| USGS | 02392975 | 2009-09-22 01:30 | 14.10 | 4140 | 0.00 |
| USGS | 02392975 | 2009-09-22 01:45 | 13.72 | 3840 | 0.00 |
| USGS | 02392975 | 2009-09-22 02:00 | 13.51 | 3690 | 0.01 |
| USGS | 02392975 | 2009-09-22 02:15 | 13.26 | 3520 | 0.00 |
| USGS | 02392975 | 2009-09-22 02:30 | 13.26 | 3520 | 0.00 |
| USGS | 02392975 | 2009-09-22 02:45 | 12.90 | 3280 | 0.00 |
| USGS | 02392975 | 2009-09-22 03:00 | 12.70 | 3150 | 0.01 |
| USGS | 02392975 | 2009-09-22 03:15 | 12.43 | 2980 | 0.01 |
| USGS | 02392975 | 2009-09-22 03:30 | 12.43 | 2980 | 0.00 |
| USGS | 02392975 | 2009-09-22 03:45 | 12.06 | 2760 | 0.00 |
| USGS | 02392975 | 2009-09-22 04:00 | 11.86 | 2640 | 0.00 |
| USGS | 02392975 | 2009-09-22 04:15 | 11.54 | 2480 | 0.00 |
| USGS | 02392975 | 2009-09-22 04:30 | 11.54 | 2480 | 0.00 |
| USGS | 02392975 | 2009-09-22 04:45 | 11.23 | 2320 | 0.01 |
| USGS | 02392975 | 2009-09-22 05:00 | 10.83 | 2140 | 0.00 |
| USGS | 02392975 | 2009-09-22 05:15 | 10.67 | 2080 | 0.00 |
| USGS | 02392975 | 2009-09-22 05:30 | 10.67 | 2080 | 0.00 |
| USGS | 02392975 | 2009-09-22 05:45 | 10.17 | 1880 | 0.00 |
| USGS | 02392975 | 2009-09-22 06:00 | 10.17 | 1880 | 0.00 |
| USGS | 02392975 | 2009-09-22 06:15 | 9.82 | 1750 | 0.00 |
| USGS | 02392975 | 2009-09-22 06:30 | 9.58 | 1660 | 0.00 |
| USGS | 02392975 | 2009-09-22 06:45 | 9.25 | 1560 | 0.00 |
| USGS | 02392975 | 2009-09-22 07:00 | 8.92 | 1460 | 0.00 |
| USGS | 02392975 | 2009-09-22 07:15 | 8.60 | 1360 | 0.00 |
| USGS | 02392975 | 2009-09-22 07:30 | 8.25 | 1260 | 0.00 |
| USGS | 02392975 | 2009-09-22 07:45 | 7.97 | 1180 | 0.00 |
| USGS | 02392975 | 2009-09-22 08:00 | 7.61 | 1090 | 0.00 |
| USGS | 02392975 | 2009-09-22 08:15 | 7.39 | 1030 | 0.00 |
| USGS | 02392975 | 2009-09-22 08:30 | 7.18 | 973 | 0.00 |
| USGS | 02392975 | 2009-09-22 08:45 | 6.91 | 904 | 0.00 |
| USGS | 02392975 | 2009-09-22 09:00 | 6.73 | 857 | 0.00 |
| USGS | 02392975 | 2009-09-22 09:15 | 6.55 | 812 | 0.00 |
| USGS | 02392975 | 2009-09-22 09:30 | 6.38 | 770 | 0.00 |

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|---|---|---|---|---|---|
| USGS | 02392975 | 2009-09-22 09:45 | 6.26 | 741 | 0.00 |
| USGS | 02392975 | 2009-09-22 10:00 | 6.10 | 703 | 0.00 |
| USGS | 02392975 | 2009-09-22 10:15 | 5.99 | 678 | 0.00 |
| USGS | 02392975 | 2009-09-22 10:30 | 5.86 | 649 | 0.00 |
| USGS | 02392975 | 2009-09-22 10:45 | 5.80 | 635 | 0.00 |
| USGS | 02392975 | 2009-09-22 11:00 | 5.70 | 613 | 0.00 |
| USGS | 02392975 | 2009-09-22 11:15 | 5.64 | 600 | 0.00 |
| USGS | 02392975 | 2009-09-22 11:30 | 5.56 | 583 | 0.00 |
| USGS | 02392975 | 2009-09-22 11:45 | 5.47 | 564 | 0.00 |
| USGS | 02392975 | 2009-09-22 12:00 | 5.41 | 552 | 0.00 |
| USGS | 02392975 | 2009-09-22 12:15 | 5.33 | 535 | 0.00 |
| USGS | 02392975 | 2009-09-22 12:30 | 5.28 | 525 | 0.00 |
| USGS | 02392975 | 2009-09-22 12:45 | 5.20 | 509 | 0.00 |
| USGS | 02392975 | 2009-09-22 13:00 | 5.18 | 505 | 0.00 |
| USGS | 02392975 | 2009-09-22 13:15 | 5.10 | 489 | 0.00 |
| USGS | 02392975 | 2009-09-22 13:30 | 5.07 | 483 | 0.00 |
| USGS | 02392975 | 2009-09-22 13:45 | 5.04 | 477 | 0.00 |
| USGS | 02392975 | 2009-09-22 14:00 | 5.00 | 469 | 0.00 |
| USGS | 02392975 | 2009-09-22 14:15 | 4.98 | 465 | 0.00 |
| USGS | 02392975 | 2009-09-22 14:30 | 4.99 | 467 | 0.00 |
| USGS | 02392975 | 2009-09-22 14:45 | 4.98 | 465 | 0.00 |
| USGS | 02392975 | 2009-09-22 15:00 | 4.98 | 465 | 0.00 |
| USGS | 02392975 | 2009-09-22 15:15 | 4.95 | 459 | 0.00 |
| USGS | 02392975 | 2009-09-22 15:30 | 4.92 | 454 | 0.00 |
| USGS | 02392975 | 2009-09-22 15:45 | 4.92 | 454 | 0.00 |
| USGS | 02392975 | 2009-09-22 16:00 | 4.85 | 440 | 0.00 |
| USGS | 02392975 | 2009-09-22 16:15 | 4.84 | 438 | 0.00 |
| USGS | 02392975 | 2009-09-22 16:30 | 4.83 | 437 | 0.00 |
| USGS | 02392975 | 2009-09-22 16:45 | 4.77 | 425 | 0.00 |
| USGS | 02392975 | 2009-09-22 17:00 | 4.70 | 413 | 0.00 |
| USGS | 02392975 | 2009-09-22 17:15 | 4.64 | 402 | 0.00 |
| USGS | 02392975 | 2009-09-22 17:30 | 4.62 | 398 | 0.00 |
| USGS | 02392975 | 2009-09-22 17:45 | 4.58 | 391 | 0.00 |
| USGS | 02392975 | 2009-09-22 18:00 | 4.60 | 395 | 0.00 |
| USGS | 02392975 | 2009-09-22 18:15 | 4.56 | 387 | 0.00 |
| USGS | 02392975 | 2009-09-22 18:30 | 4.53 | 382 | 0.00 |
| USGS | 02392975 | 2009-09-22 18:45 | 4.54 | 384 | 0.00 |
| USGS | 02392975 | 2009-09-22 19:00 | 4.51 | 379 | 0.00 |
| USGS | 02392975 | 2009-09-22 19:15 | 4.47 | 372 | 0.00 |
| USGS | 02392975 | 2009-09-22 19:30 | 4.44 | 366 | 0.00 |
| USGS | 02392975 | 2009-09-22 19:45 | 4.43 | 364 | 0.00 |
| USGS | 02392975 | 2009-09-22 20:00 | 4.36 | 352 | 0.00 |
| USGS | 02392975 | 2009-09-22 20:15 | 4.32 | 345 | 0.00 |
| USGS | 02392975 | 2009-09-22 20:30 | 4.27 | 337 | 0.00 |
| USGS | 02392975 | 2009-09-22 20:45 | 4.24 | 332 | 0.00 |
| USGS | 02392975 | 2009-09-22 21:00 | 4.26 | 335 | 0.00 |
| USGS | 02392975 | 2009-09-22 21:15 | 4.25 | 333 | 0.00 |
| USGS | 02392975 | 2009-09-22 21:30 | 4.22 | 328 | 0.00 |
| USGS | 02392975 | 2009-09-22 21:45 | 4.18 | 322 | 0.00 |
| USGS | 02392975 | 2009-09-22 22:00 | 4.11 | 310 | 0.00 |
| USGS | 02392975 | 2009-09-22 22:15 | 4.07 | 304 | 0.00 |
| USGS | 02392975 | 2009-09-22 22:30 | 4.03 | 297 | 0.00 |
| USGS | 02392975 | 2009-09-22 22:45 | 4.03 | 297 | 0.00 |
| USGS | 02392975 | 2009-09-22 23:00 | 4.03 | 297 | 0.00 |
| USGS | 02392975 | 2009-09-22 23:15 | 4.01 | 294 | 0.00 |
| USGS | 02392975 | 2009-09-22 23:30 | 3.97 | 288 | 0.00 |
| USGS | 02392975 | 2009-09-22 23:45 | 3.99 | 291 | 0.00 |
| USGS | 02392975 | 2009-09-23 00:00 | 3.92 | 280 | 0.00 |
| USGS | 02392975 | 2009-09-23 00:15 | 3.96 | 286 | 0.00 |
| USGS | 02392975 | 2009-09-23 00:30 | 3.94 | 283 | 0.00 |
| USGS | 02392975 | 2009-09-23 00:45 | 3.92 | 280 | 0.00 |
| USGS | 02392975 | 2009-09-23 01:00 | 3.92 | 280 | 0.00 |
| USGS | 02392975 | 2009-09-23 01:15 | 3.93 | 282 | 0.00 |
| USGS | 02392975 | 2009-09-23 01:30 | 3.91 | 279 | 0.00 |

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|---|---|---|---|---|---|
| USGS | 02392975 | 2009-09-23 01:45 | 3.90 | 277 | 0.00 |
| USGS | 02392975 | 2009-09-23 02:00 | 3.90 | 277 | 0.00 |
| USGS | 02392975 | 2009-09-23 02:15 | 3.87 | 272 | 0.00 |
| USGS | 02392975 | 2009-09-23 02:30 | 3.84 | 267 | 0.00 |
| USGS | 02392975 | 2009-09-23 02:45 | 3.87 | 272 | 0.00 |
| USGS | 02392975 | 2009-09-23 03:00 | 3.84 | 267 | 0.00 |
| USGS | 02392975 | 2009-09-23 03:15 | 3.86 | 271 | 0.00 |
| USGS | 02392975 | 2009-09-23 03:30 | 3.83 | 266 | 0.00 |
| USGS | 02392975 | 2009-09-23 03:45 | 3.82 | 264 | 0.00 |
| USGS | 02392975 | 2009-09-23 04:00 | 3.83 | 266 | 0.00 |
| USGS | 02392975 | 2009-09-23 04:15 | 3.81 | 263 | 0.00 |
| USGS | 02392975 | 2009-09-23 04:30 | 3.78 | 258 | 0.00 |
| USGS | 02392975 | 2009-09-23 04:45 | 3.78 | 258 | 0.00 |
| USGS | 02392975 | 2009-09-23 05:00 | 3.81 | 263 | 0.00 |
| USGS | 02392975 | 2009-09-23 05:15 | 3.78 | 258 | 0.00 |
| USGS | 02392975 | 2009-09-23 05:30 | 3.77 | 256 | 0.00 |
| USGS | 02392975 | 2009-09-23 05:45 | 3.72 | 249 | 0.00 |
| USGS | 02392975 | 2009-09-23 06:00 | 3.78 | 258 | 0.00 |
| USGS | 02392975 | 2009-09-23 06:15 | 3.77 | 256 | 0.00 |
| USGS | 02392975 | 2009-09-23 06:30 | 3.72 | 249 | 0.00 |
| USGS | 02392975 | 2009-09-23 06:45 | 3.74 | 252 | 0.00 |
| USGS | 02392975 | 2009-09-23 07:00 | 3.75 | 253 | 0.00 |
| USGS | 02392975 | 2009-09-23 07:15 | 3.72 | 249 | 0.00 |
| USGS | 02392975 | 2009-09-23 07:30 | 3.73 | 250 | 0.00 |
| USGS | 02392975 | 2009-09-23 07:45 | 3.74 | 252 | 0.00 |
| USGS | 02392975 | 2009-09-23 08:00 | 3.71 | 247 | 0.00 |
| USGS | 02392975 | 2009-09-23 08:15 | 3.71 | 247 | 0.00 |
| USGS | 02392975 | 2009-09-23 08:30 | 3.70 | 246 | 0.00 |
| USGS | 02392975 | 2009-09-23 08:45 | 3.70 | 246 | 0.00 |
| USGS | 02392975 | 2009-09-23 09:00 | 3.70 | 246 | 0.00 |
| USGS | 02392975 | 2009-09-23 09:15 | 3.70 | 246 | 0.00 |
| USGS | 02392975 | 2009-09-23 09:30 | 3.71 | 247 | 0.00 |
| USGS | 02392975 | 2009-09-23 09:45 | 3.68 | 243 | 0.00 |
| USGS | 02392975 | 2009-09-23 10:00 | 3.68 | 243 | 0.00 |
| USGS | 02392975 | 2009-09-23 10:15 | 3.67 | 241 | 0.00 |
| USGS | 02392975 | 2009-09-23 10:30 | 3.65 | 238 | 0.00 |
| USGS | 02392975 | 2009-09-23 10:45 | 3.67 | 241 | 0.00 |
| USGS | 02392975 | 2009-09-23 11:00 | 3.66 | 240 | 0.00 |
| USGS | 02392975 | 2009-09-23 11:15 | 3.63 | 235 | 0.00 |
| USGS | 02392975 | 2009-09-23 11:30 | 3.65 | 238 | 0.00 |
| USGS | 02392975 | 2009-09-23 11:45 | 3.58 | 228 | 0.00 |
| USGS | 02392975 | 2009-09-23 12:00 | 3.61 | 232 | 0.00 |
| USGS | 02392975 | 2009-09-23 12:15 | 3.60 | 231 | 0.00 |
| USGS | 02392975 | 2009-09-23 12:30 | 3.60 | 231 | 0.00 |
| USGS | 02392975 | 2009-09-23 12:45 | 3.60 | 231 | 0.00 |
| USGS | 02392975 | 2009-09-23 13:00 | 3.58 | 228 | 0.00 |
| USGS | 02392975 | 2009-09-23 13:15 | 3.59 | 229 | 0.00 |
| USGS | 02392975 | 2009-09-23 13:30 | 3.58 | 228 | 0.00 |
| USGS | 02392975 | 2009-09-23 13:45 | 3.55 | 223 | 0.00 |
| USGS | 02392975 | 2009-09-23 14:00 | 3.55 | 223 | 0.00 |
| USGS | 02392975 | 2009-09-23 14:15 | 3.55 | 223 | 0.00 |
| USGS | 02392975 | 2009-09-23 14:30 | 3.55 | 223 | 0.00 |
| USGS | 02392975 | 2009-09-23 14:45 | 3.54 | 222 | 0.00 |
| USGS | 02392975 | 2009-09-23 15:00 | 3.55 | 223 | 0.00 |
| USGS | 02392975 | 2009-09-23 15:15 | 3.56 | 225 | 0.00 |
| USGS | 02392975 | 2009-09-23 15:30 | 3.55 | 223 | 0.00 |
| USGS | 02392975 | 2009-09-23 15:45 | 3.50 | 216 | 0.00 |
| USGS | 02392975 | 2009-09-23 16:00 | 3.53 | 221 | 0.00 |
| USGS | 02392975 | 2009-09-23 16:15 | 3.52 | 219 | 0.00 |
| USGS | 02392975 | 2009-09-23 16:30 | 3.50 | 216 | 0.00 |
| USGS | 02392975 | 2009-09-23 16:45 | 3.49 | 215 | 0.00 |
| USGS | 02392975 | 2009-09-23 17:00 | 3.51 | 218 | 0.00 |
| USGS | 02392975 | 2009-09-23 17:15 | 3.51 | 218 | 0.00 |
| USGS | 02392975 | 2009-09-23 17:30 | 3.47 | 212 | 0.00 |

| | | | | | |
|---|---|---|---|---|---|
| USGS | 02392975 | 2009-09-23 17:45 | 3.47 | 212 | 0.00 |
| USGS | 02392975 | 2009-09-23 18:00 | 3.49 | 215 | 0.00 |
| USGS | 02392975 | 2009-09-23 18:15 | 3.48 | 213 | 0.00 |
| USGS | 02392975 | 2009-09-23 18:30 | 3.47 | 212 | 0.00 |
| USGS | 02392975 | 2009-09-23 18:45 | 3.48 | 213 | 0.00 |
| USGS | 02392975 | 2009-09-23 19:00 | 3.46 | 211 | 0.00 |
| USGS | 02392975 | 2009-09-23 19:15 | 3.44 | 208 | 0.00 |
| USGS | 02392975 | 2009-09-23 19:30 | 3.41 | 204 | 0.00 |
| USGS | 02392975 | 2009-09-23 19:45 | 3.44 | 208 | 0.00 |
| USGS | 02392975 | 2009-09-23 20:00 | 3.44 | 208 | 0.00 |
| USGS | 02392975 | 2009-09-23 20:15 | 3.42 | 205 | 0.00 |
| USGS | 02392975 | 2009-09-23 20:30 | 3.43 | 206 | 0.00 |
| USGS | 02392975 | 2009-09-23 20:45 | 3.41 | 204 | 0.00 |
| USGS | 02392975 | 2009-09-23 21:00 | 3.39 | 201 | 0.00 |
| USGS | 02392975 | 2009-09-23 21:15 | 3.40 | 202 | 0.00 |
| USGS | 02392975 | 2009-09-23 21:30 | 3.39 | 201 | 0.00 |
| USGS | 02392975 | 2009-09-23 21:45 | 3.40 | 202 | 0.00 |
| USGS | 02392975 | 2009-09-23 22:00 | 3.40 | 202 | 0.00 |
| USGS | 02392975 | 2009-09-23 22:15 | 3.39 | 201 | 0.00 |
| USGS | 02392975 | 2009-09-23 22:30 | 3.37 | 198 | 0.00 |
| USGS | 02392975 | 2009-09-23 22:45 | 3.38 | 200 | 0.00 |
| USGS | 02392975 | 2009-09-23 23:00 | 3.37 | 198 | 0.00 |
| USGS | 02392975 | 2009-09-23 23:15 | 3.37 | 198 | 0.00 |
| USGS | 02392975 | 2009-09-23 23:30 | 3.36 | 197 | 0.00 |
| USGS | 02392975 | 2009-09-23 23:45 | 3.38 | 200 | 0.00 |
| USGS | 02392975 | 2009-09-24 00:00 | 3.39 | 201 | 0.00 |
| USGS | 02392975 | 2009-09-24 00:15 | 3.36 | 197 | 0.00 |
| USGS | 02392975 | 2009-09-24 00:30 | 3.36 | 197 | 0.00 |
| USGS | 02392975 | 2009-09-24 00:45 | 3.36 | 197 | 0.00 |
| USGS | 02392975 | 2009-09-24 01:00 | 3.35 | 196 | 0.00 |
| USGS | 02392975 | 2009-09-24 01:15 | 3.35 | 196 | 0.00 |
| USGS | 02392975 | 2009-09-24 01:30 | 3.34 | 194 | 0.00 |
| USGS | 02392975 | 2009-09-24 01:45 | 3.35 | 196 | 0.00 |
| USGS | 02392975 | 2009-09-24 02:00 | 3.34 | 194 | 0.00 |
| USGS | 02392975 | 2009-09-24 02:15 | 3.34 | 194 | 0.00 |
| USGS | 02392975 | 2009-09-24 02:30 | 3.34 | 194 | 0.00 |
| USGS | 02392975 | 2009-09-24 02:45 | 3.34 | 194 | 0.00 |
| USGS | 02392975 | 2009-09-24 03:00 | 3.33 | 193 | 0.00 |
| USGS | 02392975 | 2009-09-24 03:15 | 3.34 | 194 | 0.00 |
| USGS | 02392975 | 2009-09-24 03:30 | 3.31 | 190 | 0.00 |
| USGS | 02392975 | 2009-09-24 03:45 | 3.35 | 196 | 0.00 |
| USGS | 02392975 | 2009-09-24 04:00 | 3.32 | 192 | 0.00 |
| USGS | 02392975 | 2009-09-24 04:15 | 3.32 | 192 | 0.00 |
| USGS | 02392975 | 2009-09-24 04:30 | 3.31 | 190 | 0.00 |
| USGS | 02392975 | 2009-09-24 04:45 | 3.31 | 190 | 0.00 |
| USGS | 02392975 | 2009-09-24 05:00 | 3.32 | 192 | 0.00 |
| USGS | 02392975 | 2009-09-24 05:15 | 3.31 | 190 | 0.00 |
| USGS | 02392975 | 2009-09-24 05:30 | 3.29 | 187 | 0.00 |
| USGS | 02392975 | 2009-09-24 05:45 | 3.25 | 181 | 0.00 |
| USGS | 02392975 | 2009-09-24 06:00 | 3.22 | 177 | 0.00 |
| USGS | 02392975 | 2009-09-24 06:15 | 3.17 | 170 | 0.00 |
| USGS | 02392975 | 2009-09-24 06:30 | 3.15 | 167 | 0.00 |
| USGS | 02392975 | 2009-09-24 06:45 | 3.13 | 164 | 0.00 |
| USGS | 02392975 | 2009-09-24 07:00 | 3.11 | 161 | 0.00 |
| USGS | 02392975 | 2009-09-24 07:15 | 3.10 | 160 | 0.00 |
| USGS | 02392975 | 2009-09-24 07:30 | 3.09 | 159 | 0.00 |
| USGS | 02392975 | 2009-09-24 07:45 | 3.07 | 156 | 0.00 |
| USGS | 02392975 | 2009-09-24 08:00 | 3.06 | 155 | 0.00 |
| USGS | 02392975 | 2009-09-24 08:15 | 3.04 | 152 | 0.00 |
| USGS | 02392975 | 2009-09-24 08:30 | 3.04 | 152 | 0.00 |
| USGS | 02392975 | 2009-09-24 08:45 | 3.03 | 151 | 0.00 |
| USGS | 02392975 | 2009-09-24 09:00 | 3.02 | 149 | 0.00 |
| USGS | 02392975 | 2009-09-24 09:15 | 3.01 | 148 | 0.00 |
| USGS | 02392975 | 2009-09-24 09:30 | 3.01 | 148 | 0.00 |

| | | | | | |
|---|---|---|---|---|---|
| USGS | 02392975 | 2009-09-24 09:45 | 3.00 | 147 | 0.00 |
| USGS | 02392975 | 2009-09-24 10:00 | 3.00 | 147 | 0.00 |
| USGS | 02392975 | 2009-09-24 10:15 | 2.98 | 144 | 0.00 |
| USGS | 02392975 | 2009-09-24 10:30 | 2.97 | 143 | 0.00 |
| USGS | 02392975 | 2009-09-24 10:45 | 2.97 | 143 | 0.00 |
| USGS | 02392975 | 2009-09-24 11:00 | 2.96 | 141 | 0.00 |
| USGS | 02392975 | 2009-09-24 11:15 | 2.95 | 140 | 0.00 |
| USGS | 02392975 | 2009-09-24 11:30 | 2.96 | 141 | 0.00 |
| USGS | 02392975 | 2009-09-24 11:45 | 2.94 | 139 | 0.00 |
| USGS | 02392975 | 2009-09-24 12:00 | 2.94 | 139 | 0.00 |
| USGS | 02392975 | 2009-09-24 12:15 | 2.93 | 138 | 0.00 |
| USGS | 02392975 | 2009-09-24 12:30 | 2.93 | 138 | 0.00 |
| USGS | 02392975 | 2009-09-24 12:45 | 2.93 | 138 | 0.00 |
| USGS | 02392975 | 2009-09-24 13:00 | 2.92 | 136 | 0.00 |
| USGS | 02392975 | 2009-09-24 13:15 | 2.92 | 136 | 0.00 |
| USGS | 02392975 | 2009-09-24 13:30 | 2.92 | 136 | 0.00 |
| USGS | 02392975 | 2009-09-24 13:45 | 2.91 | 135 | 0.00 |
| USGS | 02392975 | 2009-09-24 14:00 | 2.91 | 135 | 0.00 |
| USGS | 02392975 | 2009-09-24 14:15 | 2.91 | 135 | 0.00 |
| USGS | 02392975 | 2009-09-24 14:30 | 2.90 | 134 | 0.00 |
| USGS | 02392975 | 2009-09-24 14:45 | 2.90 | 134 | 0.00 |
| USGS | 02392975 | 2009-09-24 15:00 | 2.90 | 134 | 0.00 |
| USGS | 02392975 | 2009-09-24 15:15 | 2.89 | 133 | 0.00 |
| USGS | 02392975 | 2009-09-24 15:30 | 2.89 | 133 | 0.00 |
| USGS | 02392975 | 2009-09-24 15:45 | 2.89 | 133 | 0.00 |
| USGS | 02392975 | 2009-09-24 16:00 | 2.89 | 133 | 0.00 |
| USGS | 02392975 | 2009-09-24 16:15 | 2.88 | 132 | 0.00 |
| USGS | 02392975 | 2009-09-24 16:30 | 2.88 | 132 | 0.00 |
| USGS | 02392975 | 2009-09-24 16:45 | 2.89 | 133 | 0.00 |
| USGS | 02392975 | 2009-09-24 17:00 | 2.89 | 133 | 0.00 |
| USGS | 02392975 | 2009-09-24 17:15 | 2.88 | 132 | 0.00 |
| USGS | 02392975 | 2009-09-24 17:30 | 2.89 | 133 | 0.00 |
| USGS | 02392975 | 2009-09-24 17:45 | 2.88 | 132 | 0.00 |
| USGS | 02392975 | 2009-09-24 18:00 | 2.88 | 132 | 0.00 |
| USGS | 02392975 | 2009-09-24 18:15 | 2.87 | 130 | 0.00 |
| USGS | 02392975 | 2009-09-24 18:30 | 2.87 | 130 | 0.00 |
| USGS | 02392975 | 2009-09-24 18:45 | 2.87 | 130 | 0.00 |
| USGS | 02392975 | 2009-09-24 19:00 | 2.86 | 129 | 0.00 |
| USGS | 02392975 | 2009-09-24 19:15 | 2.86 | 129 | 0.00 |
| USGS | 02392975 | 2009-09-24 19:30 | 2.86 | 129 | 0.00 |
| USGS | 02392975 | 2009-09-24 19:45 | 2.85 | 128 | 0.00 |
| USGS | 02392975 | 2009-09-24 20:00 | 2.85 | 128 | 0.00 |
| USGS | 02392975 | 2009-09-24 20:15 | 2.85 | 128 | 0.00 |
| USGS | 02392975 | 2009-09-24 20:30 | 2.84 | 127 | 0.00 |
| USGS | 02392975 | 2009-09-24 20:45 | 2.84 | 127 | 0.00 |
| USGS | 02392975 | 2009-09-24 21:00 | 2.84 | 127 | 0.00 |
| USGS | 02392975 | 2009-09-24 21:15 | 2.84 | 127 | 0.00 |
| USGS | 02392975 | 2009-09-24 21:30 | 2.83 | 126 | 0.00 |
| USGS | 02392975 | 2009-09-24 21:45 | 2.83 | 126 | 0.00 |
| USGS | 02392975 | 2009-09-24 22:00 | 2.82 | 124 | 0.00 |
| USGS | 02392975 | 2009-09-24 22:15 | 2.82 | 124 | 0.00 |
| USGS | 02392975 | 2009-09-24 22:30 | 2.82 | 124 | 0.00 |
| USGS | 02392975 | 2009-09-24 22:45 | 2.81 | 123 | 0.00 |
| USGS | 02392975 | 2009-09-24 23:00 | 2.82 | 124 | 0.00 |
| USGS | 02392975 | 2009-09-24 23:15 | 2.82 | 124 | 0.00 |
| USGS | 02392975 | 2009-09-24 23:30 | 2.82 | 124 | 0.00 |
| USGS | 02392975 | 2009-09-24 23:45 | 2.81 | 123 | 0.00 |
| USGS | 02392975 | 2009-09-25 00:00 | 2.81 | 123 | 0.00 |
| USGS | 02392975 | 2009-09-25 00:15 | 2.81 | 123 | 0.00 |
| USGS | 02392975 | 2009-09-25 00:30 | 2.81 | 123 | 0.00 |
| USGS | 02392975 | 2009-09-25 00:45 | 2.81 | 123 | 0.00 |
| USGS | 02392975 | 2009-09-25 01:00 | 2.80 | 122 | 0.00 |
| USGS | 02392975 | 2009-09-25 01:15 | 2.81 | 123 | 0.00 |
| USGS | 02392975 | 2009-09-25 01:30 | 2.80 | 122 | 0.00 |

| | | | | | |
|---|---|---|---|---|---|
| USGS | 02392975 | 2009-09-25 01:45 | 2.80 | 122 | 0.00 |
| USGS | 02392975 | 2009-09-25 02:00 | 2.80 | 122 | 0.00 |
| USGS | 02392975 | 2009-09-25 02:15 | 2.79 | 121 | 0.00 |
| USGS | 02392975 | 2009-09-25 02:30 | 2.80 | 122 | 0.00 |
| USGS | 02392975 | 2009-09-25 02:45 | 2.79 | 121 | 0.00 |
| USGS | 02392975 | 2009-09-25 03:00 | 2.79 | 121 | 0.00 |
| USGS | 02392975 | 2009-09-25 03:15 | 2.79 | 121 | 0.00 |
| USGS | 02392975 | 2009-09-25 03:30 | 2.79 | 121 | 0.00 |
| USGS | 02392975 | 2009-09-25 03:45 | 2.78 | 119 | 0.00 |
| USGS | 02392975 | 2009-09-25 04:00 | 2.79 | 121 | 0.00 |
| USGS | 02392975 | 2009-09-25 04:15 | 2.78 | 119 | 0.00 |
| USGS | 02392975 | 2009-09-25 04:30 | 2.78 | 119 | 0.00 |
| USGS | 02392975 | 2009-09-25 04:45 | 2.77 | 118 | 0.00 |
| USGS | 02392975 | 2009-09-25 05:00 | 2.77 | 118 | 0.00 |
| USGS | 02392975 | 2009-09-25 05:15 | 2.77 | 118 | 0.00 |
| USGS | 02392975 | 2009-09-25 05:30 | 2.76 | 117 | 0.00 |
| USGS | 02392975 | 2009-09-25 05:45 | 2.76 | 117 | 0.00 |
| USGS | 02392975 | 2009-09-25 06:00 | 2.75 | 115 | 0.00 |
| USGS | 02392975 | 2009-09-25 06:15 | 2.73 | 113 | 0.00 |
| USGS | 02392975 | 2009-09-25 06:30 | 2.72 | 111 | 0.00 |

# Expansion and Contraction Reach Length Computation

## *I-75 over Noonday Creek*

**Expansion Reach Length Computation**

| | |
|---|---|
| b - bridge opening width | 170 |
| B - floodplain width | 500 |
| **b/B** | **0.34** |
| (B-b)/2 avg. obs. Length | 165 |
| n(ob) | 0.12 |
| n(mc) | 0.06 |
| **n(ob)/n(mc)** | **2.18** |
| S (ft/ft) | 0.0029 |
| **S (ft/mile)** | **15.05** |

**Ranges of Expansion Ratios**

| | | n(ob)/n(mc)=1 | n(ob)/n(mc)=2 | n(ob)/n(mc)=4 |
|---|---|---|---|---|
| **b/B=0.10** | **S=1 ft/mile** | 1.4-3.6 | 1.3-3.0 | 1.2-2.1 |
| | **5 ft/mile** | 1.0-2.5 | 0.8-2.0 | 0.8-2.0 |
| | **10 ft/mile** | 1.0-2.2 | 0.8-2.0 | 0.8-2.0 |
| **b/B=0.25** | **S=1 ft/mile** | 1.6-3.0 | 1.4-2.5 | 1.2-2.0 |
| | **5 ft/mile** | 1.5-2.5 | 1.3-2.0 | 1.3-2.0 |
| | **10 ft/mile** | 1.5-2.0 | 1.3-2.0 | 1.3-2.0 |
| **b/B=0.50** | **S=1 ft/mile** | 1.4-2.6 | 1.3-1.9 | 1.2-1.4 |
| | **5 ft/mile** | 1.3-2.1 | 1.2-1.6 | 1.0-1.4 |
| | **10 ft/mile** | 1.3-2.0 | 1.2-1.5 | 1.0-1.4 |

| | | |
|---|---|---|
| Er-Exp. rate from chart | 1.3 | 2.0 |
| **Exp. Reach Length** | **214.5** | **330** |

**Contraction Reach Length Computation**

**Ranges of Contraction Ratios**

| | n(ob)/n(mc)=1 | n(ob)/n(mc)=2 | n(ob)/n(mc)=4 |
|---|---|---|---|
| **S=1 ft/mile** | 1.0-2.3 | 0.8-1.7 | 0.7-1.3 |
| **5 ft/mile** | 1.0-1.9 | 0.8-1.5 | 0.7-1.2 |
| **10 ft/mile** | 1.0-1.9 | 0.8-1.4 | 0.7-1.2 |

| | | |
|---|---|---|
| Cr-Contr. rate from chart | 0.8 | 1.4 |
| **Contr. Reach Length** | **132** | **231** |

Reference : Hydrologic Engineering Center (HEC) Research Document No. 42 ***Flow Transitions in Bridge Backwater Analysis***, John H. Hunt and Gary Brunner, dated September 1995.

# Section IV
# Hydraulic Engineering Field Data

# HYDRAULIC ENGINEERING FIELD REPORT

## I. Hydraulic and Hydrologic Data Required for all Bridge Stream Crossing Projects.
**See Appendix A of the Georgia DOT Drainage Manual for required survey information.**

### A. Project Location

| | | | |
|---|---|---|---|
| Location Description: | **I-75 over Noonday Creek** | Date: | **08-27-2009** |
| Reported by: | **HMM Personnel** | HMMoject No.: | **255717** |
| Client: | **PBS&J** | Project No.: | **NH000-0073-03(242)** |
| County: | **Cobb** | GDOT District: | **7** |
| Stream Name: | **Noonday Creek** | Route: | **I-75** |

### B. Site Location

Floodplain Description:

a) Flat, rolling, mountainous etc.: **Rolling**
b) Wooded, heavily vegetated, pasture, swampy etc.: **Vegetated**

Stream Channel Description:

a) Banks stable, unstable etc.: **Well-defined; some instability at banks upstream and downstream**
b) Stream meandering, straight etc.: **Meandering, particularly downstream of NB bridge**
c) Debris: **No debris witnessed**
d) Is there any fill in the upstream or downstream floodplains that will affect the natural drainage or limit floodplain width at this site? **Yes. Development exists upstream and downstream.**

### C. Required Existing Bridge Data at Project Site

| | |
|---|---|
| Bridge ID #: | **067-0083-0** |
| Date Built: | **1975** |
| Skew angle of bridge or bents : | **90°** |

Substructure Description:

| | | |
|---|---|---|
| a) | column type (concrete, steel, pile, etc.): | **Concrete** |
| b) | size of column: | **3'x3'** |
| c) | number of columns per bent: | **3** |
| d) | height of curb, parapet or barrier: | **2.67'** |
| | spurdike length: | **n/a** |
| | spurdike elevation: | **n/a** |
| | spurdike location: | **n/a** |
| e) | scour problems at intermediate bents: | **None observed** |
| f) | scour problems at abutments: | **None observed** |

## D. Normal Water Surface Data

a) Water Surface elevation 500 ft upstream of the survey centerline: **Not Obtained**
b) Water Surface elevation at the roadway centerline: **Not Obtained**
c) Water Surface elevation 500 ft downstream of the survey centerline: **Not Obtained**
d) Is site affected by tides: **No**
e) Normal high tide: **N/A** Normal low tide: **N/A**

## E. Historical Flood Data

a) Extreme high-water elevation at Site: **938.8** Date: **N/A**
b) Highest tide elevation observed at Site: **N/A** Date: **N/A**
c) Location where taken (upstream, downstream, centerline): **N/A**
c) Source of high-water information: **Existing bridge plans**
e) Are there any houses that have been flooded: **No**
f) House location and floor elevation: **No**
g) Number of times house has been flooded, elevations and dates of floods: **No**
h) Additional houses that may be flooded? (with floor elevations within 2 ft of the flood of record): **No**

## F. Miscellaneous Information

a) Are water surface elevations at the site affected by other factors such as high-water from other stream, reservoirs etc.: **No**

b) Length, width, and elevations of dam and spillway if applicable: **N/A**

Note: if the project site is affected by the above factors, additional floodplain cross sections may be required. The Engineer should be contacted during the survey phase to identify the additional cross sections required.

## G. Upstream and Downstream Stream Crossings

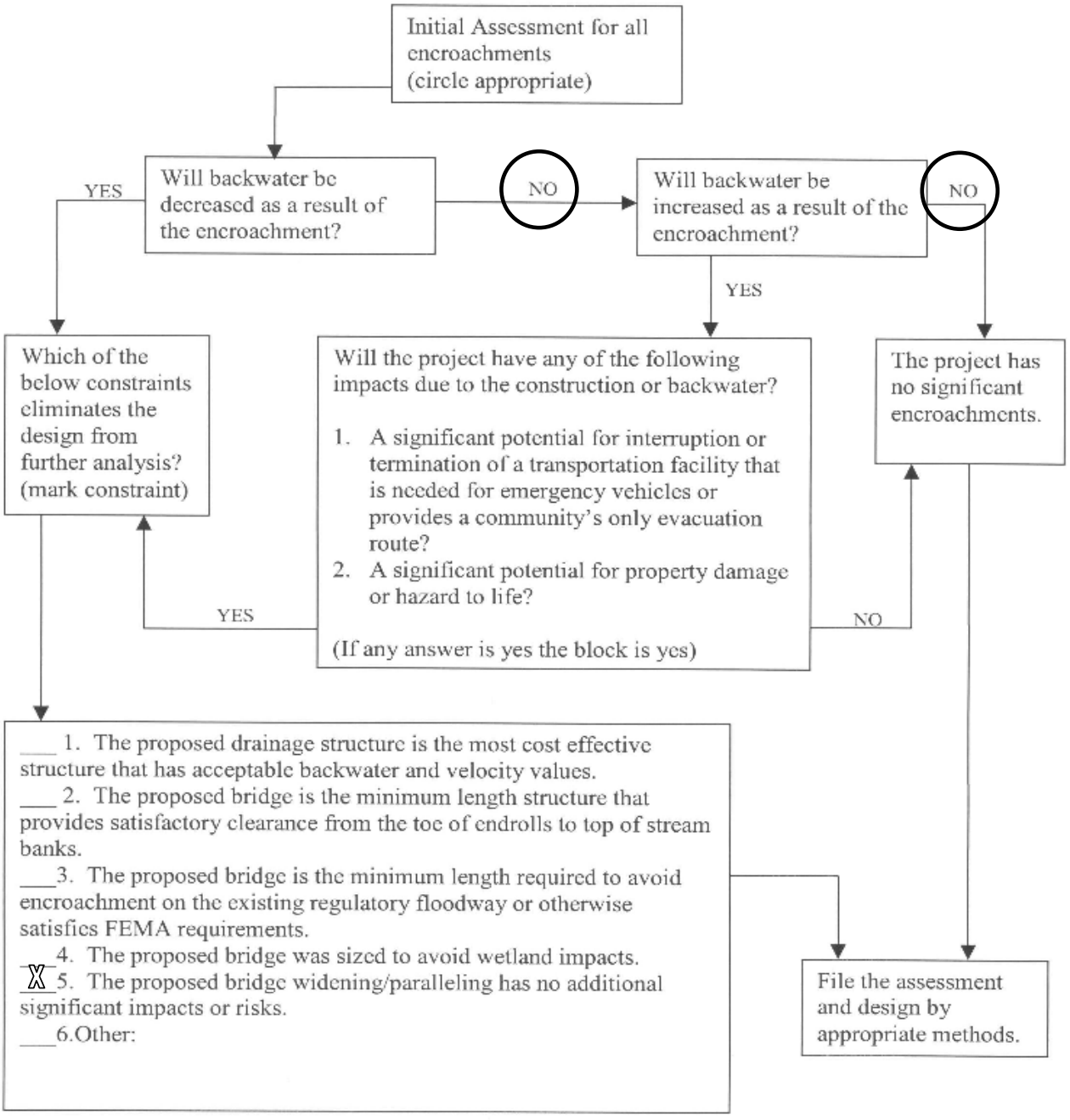
The below information is required for all bridges or box culverts within 1 mile upstream and downstream of the project site. Additional survey information is required for all hydraulic structures within 2000 ft of the project site.

### Upstream Structure

| | |
|---|---|
| Distance and direction from proposed structure: | **500 ft** |
| Railroad or highway structure: | **Highway** |
| Route # if highway bridge: | **I-75 Southbound** |
| Length of bridge or culvert size | **240' long** |
| | |
| Substructure Information: | |
| a) column type (concrete, steel, pile ): | **Concrete** |
| b) column size: | **3'x'3** |
| c) number of columns of bent: | **3** |
| d) length of over flow bridge or culvert size: | **N/A** |

### Downstream Structure

| | |
|---|---|
| Distance and direction from proposed structure: | **1000 ft** |
| Railroad or highway structure: | **Highway** |
| Route # if highway bridge: | **George Busbee Parkway** |
| Length of bridge or culvert size | **220' long** |
| | |
| Substructure Information: | |
| a) column type (concrete, steel, pile ): | **Piles** |
| b) column size: | |
| c) number of columns of bent: | |
| d) length of over flow bridge or culvert size: | **N/A** |




**Risk Assessment**

NH000-0073-03(242) Cobb County

I-75 over Noonday Creek

PI # 714130

# BRIDGE INVENTORY DATA LISTING GEO[illegible]A DEPARTMENT OF TRANSPORTATION

**Structure ID:** 067-0083-0 **Cobb** SUFF. RATING 86.30

## Location & Geography

| | | |
|---|---|---|
| * | Structure I.D.No: | 067-0083-0 |
| | 200 Bridge Information | 06 |
| * | 6A Feature Int: | NOONDAY CREEK |
| * | 6B Critical Bridge: | 0 |
| * | 7A Route Number Carried: | SR00401 |
| * | 7B Facility Carried: | I-75 (NBL) |
| * | 9 Location: | 2.5 MI E OF KENNESAW |
| | 2 DOT District: | 7 |
| | 207 Year Photo: | 2009 |
| * | 91 Inspection Frequency: | 24 Date: 04/08/2009 |
| | 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: | 00075 |
| | Direction: | 0 |
| * | 16 Latitude: | 34-01.2600 MMS Prefix: SR |
| * | 17 Longitude: | 84-34.2010 MMS Suffix: 00 MP: 270.25 |
| | 98 Border Bridge: | 000 %Shared: 00 |
| | 99 ID Number: | 000000000000000 |
| * | 100 STRAHNET: | 1 |
| | 12 Base Highway Network: | 1 |
| | 13A LRS Inventory Route: | 671040100 |
| | 13B Sub Inventory Route: | 0 |
| * | 101 Parallel Structure: | R |
| * | 102 Direction of Traffic: | 1 |
| * | 264 Road Inventory Mile Post: | 012.62 |
| * | 208 Inspection Area: | 09 Initials: JMC |
| | Engineer's Initial: | sgm |

* Location I.D. No.: 067-00401D-270.25N

| | | |
|---|---|---|
| * | 104 Highway System: | 1 |
| * | 26 Functional Classification: | 11 |
| * | 204 Federal Route Type: | I No.: 00007 |
| | 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: | 11 |
| | 27 Year Constructed: | 1975 |
| | 106 Year Reconstructed: | 0000 |
| | 33 Bridge Median: | 1 |
| | 34 Skew: | 15 |
| | 35 Structure Flared: | 0 |
| | 38 Navigation Control: | 0 |
| | 213 Special Steel Design: | 0 |
| | 267 Type of Paint: | 5 |
| * | 42 Type of Service on: | 1 |
| | | 5 |
| | 214 Movable Bridge: | 0 |
| | 203 Type Bridge: | O-O-M-O |
| | 259 Pile Encasement: | 3 |
| * | 43 Structure Type Main: | 3 02 |
| | 45 No. Spans Main: | 003 |
| | 44 Structure Type Appr: | 0 00 |
| | 46 No. Spans Appr: | 0000 |
| | 226 Bridge Curve Horz: | 1 Vert: 0 |
| | 111 Pier Protection: | 0 |
| | 107 Deck Structure Type: | 1 |
| | 108 Wearing Surface Type: | 1 |
| | M[illegible] | 0 |
| | F | 0 |

## Signs & Attachments

| | | |
|---|---|---|
| | 225 Expansion Joint Type: | 15 |
| | 242 Deck Drains: | 1 |
| | 243 Parapet Location: | 3 |
| | Height: | 2.10 |
| | Width: | 1.30 |
| | 238 Curb: | 0.00 0 |
| | 239 Handrail: | 7 7 |
| * | 240 Median Barrier Rail: | 0 |
| | 241 Bridge Median Height: | 0.00 |
| | Width: | 0.00 |
| * | 230 Guardrail Loc Dir Rear: | 3 |
| | Fwrd: | 2 |
| | 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: | 0 |
| | 235 Hazard Boards: | 0 |
| | 237 Utilities Gas: | 00 |
| | W | 00 |
| | Ele | 22 |
| | Telephone: | 00 |
| | Se | 00 |
| | 247 Lighting Street: | 0 |
| | Naviagtion: | 0 |
| | Aerial: | 0 |
| * | 248 County Continuity No.: | 00 |

# BRIDGE INVENTORY DATA LISTING GEO[illegible]A DEPARTMENT OF TRANSPORTATION

**Structure ID:** 067-0083-0 **Cobb** SUFF. RATING 86.30

## Programming Data

201 Project No.: I-75-3 (40) 284 CT.5
202 Plans Available: 4
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: 216240 Year: 2027

## Hydraulic Data

215 Waterway Data
Highwater Elev.: 0000.0 Year: 1900
Avg. Streambed Elev.: 0000.0 Freq.: 00
Drainage Area: 00011
Area Of Opening: 000975
113 Scour Critical: 5
216 Water Depth: 02.2 Br. Height: 30.8
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.: 067-00401D-270.25N

## Measurements

* 29 ADT: 144160 Year: 2007
109 % Trucks: 0
* 28 Lanes On: 03 Under: 00
210 No. Tracks On: 00 Under: 00
* 48 Max. Span Length: 0082
* 49 Structure Length: 245
51 Br. Rwdy. Width: 58.90
52 Deck Width: 61.30
* 47 Tot. Horz. Cl: 58.90
50 Curb/Sdewlk Width: 0.00/0.00
32 Approach Rdwy Width: 060
* 229 Shoulder Width:
Rear Lt: 14.00 Type: 1 Rt: 10.00
Fwrd Lt: 14.00 Type: 1 Rt: 10.00
Pavement Width:
Rear: 36.00 Type: 1
Fwrd: 36.00 Type: 1
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 0.00
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: 7.00
Deck Thick Approach: 0.00
246 Overlay Thickness: 0.00
212 Year Last Painted: Sup: 1994 Sub: 0000

## Ratings

65 Inventory Rating Method: 1
63 Inventory Rating Method: 1
66 Inventory Type: 2 Rating: 34
64 Operating Type: 2 Rating: 58
231 Calculated Loads
H-Modified: 21 0
HS-Modified: 30 0
Type 3: 33 0
Type 3s2: 40 0
Timber: 37 0
Piggyback: 40 0
261 H Inventory Rating: 37
262 H Operating Rating: 63
67 Structural Evaluation: 7
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 DEPARTMEN_ OF TRANSPORTATION

*Bridge Component Report*

**District:** 7 **Inspection Date:** 4/8/2009 **Inspection Area:** 09

**Bridge Inspector:** Jerry Cooper **Over:** NOONDAY CREEK

**Location ID:** 067-00401D-270.25N **County:** Cobb

**Structure ID:** 067-0083-0 **Road Name:** I-75 (NBL)

## SubStructure Data

| Bent# | Type | Foundation | Col | #Cols | Piling | #Piles | Sway | CAP | Remarks |
|---|---|---|---|---|---|---|---|---|---|
| 1 | A | DP | | 0 | | 0 | | C | CAP ON STEEL PILE |
| 2 | B | SF | C | 3 | | 0 | | C | |
| 3 | B | SF | C | 3 | | 0 | | C | |
| 4 | A | DP | | 0 | | 0 | | C | CAP ON STEEL PILE |

## SuperStructure Data

| Span# | Beam Type | Spacing | Length | #Beams | Remarks |
|---|---|---|---|---|---|
| 1 | Steel Beams | 8.50 | 81.50 | 8 | W36 X 194 |
| 2 | Steel Beams | 8.50 | 82.00 | 8 | W36 X 194 |
| 3 | Steel Beams | 8.50 | 81.50 | 8 | W36 X 194 |

## Bearing Data

| Span# | Rear Type Bearing | FWD Type Bearing | Remarks |
|---|---|---|---|
| 1 | 02 - Fixed Plate | 01 - Sliding Plate | GOOD |
| 2 | 02 - Fixed Plate | 01 - Sliding Plate | GOOD |
| 3 | 01 - Sliding Plate | 02 - Fixed Plate | GOOD |

# GEORGIA DEPARTMENT OF TRANSPORTATION

*Deficiency Report*

**District:** 7 **Inspection Date:** 4/8/2009 **Inspection Area:** 09

**Bridge Inspector:** Jerry Cooper **Over:** NOONDAY CREEK

**Location ID:** 067-00401D-270.25N **County:** Cobb

**Structure ID:** 067-0083-0 **Asst. District Engineer:** Shun Pringle

**EVALUATION & DEFICIENCIES**

I-75 (NBL) Over NOONDAY CREEK-------2.5 MI E OF KENNESAW

| Item | Units | Work | P | Date Reported | Location | Date Completed | Complete |
|---|---|---|---|---|---|---|---|
| 800 | LIN. FT. | 240 | B | 5/29/2001 | | 12/14/2001 | 199.00 |
| 845 | HOURS | 20 | B | 3/15/2005 | | | *** |
| 845 | HOURS | 56 | B | 3/21/2007 | | 7/10/2007 | 111.00 |

**Comments:**

# GEORGIA DEPARTMENT OF TRANSPORTATION

*Bridge Inspection Report*

**District:** 7 **Inspection Date:** 4/8/2009 **Inspection Area:** 09
**Bridge Inspector:** Jerry Cooper **Over:** NOONDAY CREEK **Bridge Status:** 06
**Location ID:** 067-00401D-270.25N **County:** Cobb
**Structure ID:** 067-0083-0 **Road Name:** I-75 (NBL)

## EVALUATION & DEFICIENCIES

**SubStructure:** **Year Painted:** 0000

Concrete Caps At Both Abutments, Founded On Steel H-Piles.
Minor cracking in both abutment caps.
Minor settlement at both abutments.
1 pile exposed at abutment 1 less than 1'.
Bent 2 And 3 Have Concrete Caps On 3 Concrete Columns, Founded On Spread Footings.
Very minor spalls on column 3 at bent 2.
Minor cracking bent 3, right side.
Bent #3 = H-37 Calculated 2004 by Central Office (Load Factor)

**SuperStructure:** **Year Painted:** 1994

3 Span Steel Beam, ( 8 W36 X 194 Beams Per Span).
Square End Cover Plates, (Welded).
Minor section loss on various bearings, but all have been cleaned and painted.
Span #2 = H-44 Calculated 2004 by Central Office (Load Factor).

**Deck:**

7.0" Concrete Slab.
Minor transverse cracking on the top with some very minor cracking on the bottom.
The joint in the parapet at bents 2 and 3 are jammed.
Appears that the joint in the handrail was constructed smaller then the deck joint.
(This condition caused the spall noted below).
Minor spall in the left outside handrail parapet at bent 3.
Inside at bent 2 crack spall.
Minor settlement of both approach slabs, overlaid with asphalt.
Deck: H-32 Calculated 2004 by Central Office (Load Factor).

**General:**

Built in 1975 Project # I-75-3 (40) 284CT. 5
This structure is in Good Condition with some minor cracking and spalls.
Hand tools and ladder used.
Calculations for this structure were determined by the Central Office. - February, 2004.

**Condition Rating**

| Component | Material | Rating |
|---|---|---|
| Substructure | Concrete | 7 |
| Superstructure | Steel | 8 |
| Deck | Concrete | 7 |

Temp Shored: **No**

| Truck Type | Gross/H-Mod | HSMod | Tand | 3-S-2 | Log | Piggy |
|---|---|---|---|---|---|---|
| Calculated Posting | 21 | 30 | 33 | 40 | 37 | 40 |
| 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 DEPARTMENT OF TRANSPORTATION

*Waterway Report*

**District:** 7 **Inspection Date:** 4/8/2009 **Inspection Area:** 09

**Bridge Inspector:** Jerry Cooper **Over:** NOONDAY CREEK

**Location ID:** 067-00401D-270.25N **County:** Cobb **Skew:** 15

**Structure ID:** 067-0083-0 **Road Name:** I-75 (NBL)

| **Span #:** | 1 | 2 | 3 |
|---|---|---|---|
| **Length:** | **81.5** | **82.0** | **81.5** |

Upstream -

| Upstream + | | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|
| 08/18/1997 | BDH DEM | | 23.80 | 26.00 | 6.10 |
| 04/20/1999 | DEM | | 23.80 | 26.00 | 6.10 |
| 08/05/2003 | JMC-WBR | | 24.00 | 26.00 | 6.00 |
| 03/15/2005 | JMC-WBR | | 24.10 | 25.90 | 6.00 |
| 03/21/2007 | JMC-WBR | | 24.40 | 26.20 | 6.00 |
| 04/08/2009 | JMC-WBR | | 24.20 | 26.10 | 6.00 |

Downstream -

| Downstream + | | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|
| 08/18/1997 | BDH DEM | | 25.40 | 26.70 | 6.40 |
| 04/20/1999 | DEM | | 25.40 | 26.70 | 6.40 |
| 08/05/2003 | JMC-WBR | | 25.50 | 26.80 | 6.50 |
| 03/15/2005 | JMC-WBR | | 25.70 | 26.60 | 6.60 |
| 03/21/2007 | JMC-WBR | | 26.20 | 26.50 | 6.60 |
| 04/08/2009 | JMC-WBR | | 26.40 | 26.20 | 6.60 |

# GEORGIA DEPARTMENT OF TRANSPORTATION

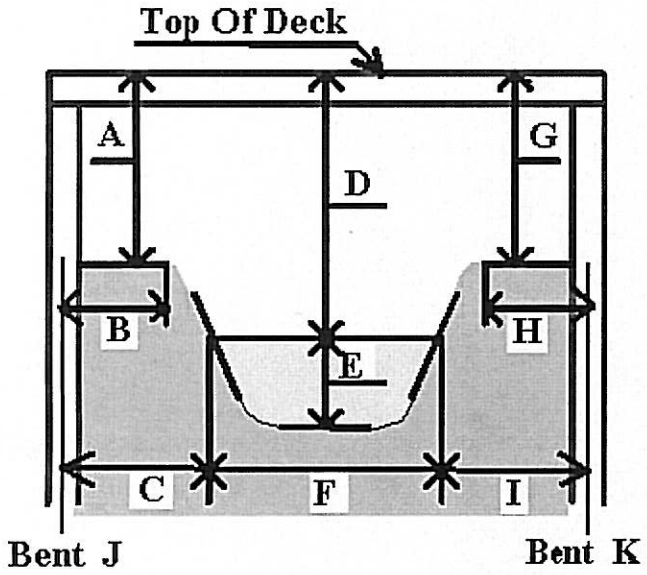
*Waterway Report*

**District:** 7 **Inspection Date:** 4/8/2009 **Inspection Area:** 09

**Bridge Inspector:** Jerry Cooper **Over:** NOONDAY CREEK

**Location ID:** 067-00401D-270.25N **County:** Cobb **Skew:** 15

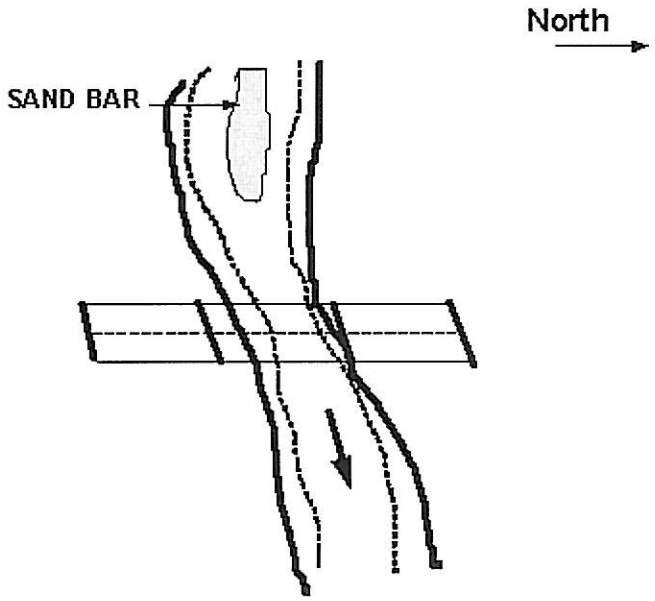
**Structure ID:** 067-0083-0 **Road Name:** I-75 (NBL)




**Side view at the Channel.**

B, C, H, & I are measured to center of bent or B.F.P.R.

| | |
|---|---|
| A: | 24 |
| B: | 16 |
| C: | 32 |
| D: | 30.8 |
| E: | 02.2 |
| F: | 23 |
| G: | 25 |
| H: | 21 |
| I: | 27 |
| J: | 2 |
| K: | 3 |




**Location of Bridge Height** + 28' from bent #2

**Scour Condition:** 8 **Waterway Adequacy:** 9 **Channel Protection:** 8

15 = SubStructure
0 = Channel Skew
15 = Stream Angle

**Comments:**

Bridge is super elevated downstream side is the high side.

# Section V
# HEC-RAS Computer Model Output

# HEC-RAS FULL VALLEY MODEL

HEC-RAS Plan: Full V River: Noonday Creek Reach: 1

| Reach | River Sta | Profile | Q Total | Min Ch El | W.S. Elev | Crit W.S. | E.G. Elev | E.G. Slope | Vel Chnl | Flow Area | Top Width | Froude # Chl |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft) | (ft) | (ft/ft) | (ft/s) | (sq ft) | (ft) | |
| 1 | -630 | 2 Yr | 2608.00 | 925.00 | 935.43 | 930.66 | 935.80 | 0.002855 | 5.26 | 741.11 | 164.93 | 0.30 |
| 1 | -630 | 50 Yr | 6003.00 | 925.00 | 939.73 | 934.81 | 940.25 | 0.002852 | 6.77 | 1517.70 | 196.12 | 0.32 |
| 1 | -630 | 100 Yr | 6889.00 | 925.00 | 940.63 | 935.40 | 941.18 | 0.002852 | 7.07 | 1695.83 | 202.60 | 0.33 |
| 1 | -630 | 500 Yr | 8519.00 | 925.00 | 942.46 | 936.30 | 943.10 | 0.002850 | 7.65 | 2135.43 | 285.68 | 0.33 |
| | | | | | | | | | | | | |
| 1 | 0 | 2 Yr | 2608.00 | 925.40 | 937.06 | | 937.35 | 0.002132 | 4.80 | 1040.62 | 331.31 | 0.28 |
| 1 | 0 | 50 Yr | 6003.00 | 925.40 | 941.30 | | 941.54 | 0.001519 | 5.19 | 2570.19 | 415.92 | 0.25 |
| 1 | 0 | 100 Yr | 6889.00 | 925.40 | 942.19 | | 942.43 | 0.001440 | 5.27 | 2957.23 | 451.38 | 0.24 |
| 1 | 0 | 500 Yr | 8519.00 | 925.40 | 944.02 | | 944.23 | 0.001188 | 5.18 | 3847.52 | 523.91 | 0.23 |
| | | | | | | | | | | | | |
| 1 | 245 | 2 Yr | 2608.00 | 926.70 | 937.59 | | 937.87 | 0.002104 | 4.76 | 966.23 | 237.03 | 0.27 |
| 1 | 245 | 50 Yr | 6003.00 | 926.70 | 941.65 | | 942.01 | 0.002074 | 6.00 | 2166.29 | 390.20 | 0.29 |
| 1 | 245 | 100 Yr | 6889.00 | 926.70 | 942.52 | | 942.88 | 0.002002 | 6.15 | 2529.49 | 434.66 | 0.29 |
| 1 | 245 | 500 Yr | 8519.00 | 926.70 | 944.29 | | 944.61 | 0.001675 | 6.08 | 3346.32 | 490.92 | 0.27 |
| | | | | | | | | | | | | |
| 1 | 395 | 2 Yr | 2608.00 | 927.00 | 937.33 | | 938.93 | 0.016526 | 10.20 | 266.59 | 55.46 | 0.70 |
| 1 | 395 | 50 Yr | 6003.00 | 927.00 | 940.27 | 940.22 | 943.62 | 0.024397 | 15.09 | 484.86 | 94.89 | 0.90 |
| 1 | 395 | 100 Yr | 6889.00 | 927.00 | 941.02 | 941.02 | 944.57 | 0.023518 | 15.65 | 561.05 | 107.30 | 0.89 |
| 1 | 395 | 500 Yr | 8519.00 | 927.00 | 942.69 | | 946.11 | 0.019073 | 15.70 | 763.34 | 134.82 | 0.83 |
| | | | | | | | | | | | | |
| 1 | 590 | 2 Yr | 2608.00 | 927.20 | 940.05 | | 940.66 | 0.005006 | 6.61 | 546.94 | 152.56 | 0.40 |
| 1 | 590 | 50 Yr | 6003.00 | 927.20 | 944.71 | | 945.40 | 0.003774 | 7.72 | 1349.42 | 191.26 | 0.38 |
| 1 | 590 | 100 Yr | 6889.00 | 927.20 | 945.61 | | 946.33 | 0.003717 | 8.02 | 1525.66 | 200.45 | 0.38 |
| 1 | 590 | 500 Yr | 8519.00 | 927.20 | 946.99 | | 947.78 | 0.003786 | 8.61 | 1811.02 | 215.66 | 0.39 |
| | | | | | | | | | | | | |
| 1 | 790 | 2 Yr | 2608.00 | 928.10 | 940.99 | | 941.35 | 0.002314 | 5.28 | 808.89 | 160.41 | 0.29 |
| 1 | 790 | 50 Yr | 6003.00 | 928.10 | 945.51 | | 946.02 | 0.002466 | 6.92 | 1618.62 | 199.30 | 0.32 |
| 1 | 790 | 100 Yr | 6889.00 | 928.10 | 946.41 | | 946.96 | 0.002521 | 7.28 | 1801.75 | 209.24 | 0.32 |
| 1 | 790 | 500 Yr | 8519.00 | 928.10 | 947.81 | | 948.43 | 0.002664 | 7.91 | 2105.14 | 224.75 | 0.34 |
| | | | | | | | | | | | | |
| 1 | 1250 | 2 Yr | 2608.00 | 929.50 | 941.97 | | 942.24 | 0.001662 | 4.61 | 888.77 | 161.54 | 0.25 |
| 1 | 1250 | 50 Yr | 6003.00 | 929.50 | 946.57 | | 947.00 | 0.001905 | 6.24 | 1755.93 | 214.97 | 0.28 |
| 1 | 1250 | 100 Yr | 6889.00 | 929.50 | 947.49 | | 947.96 | 0.001948 | 6.56 | 1959.80 | 226.52 | 0.29 |
| 1 | 1250 | 500 Yr | 8519.00 | 929.50 | 948.96 | | 949.48 | 0.002046 | 7.12 | 2305.18 | 244.90 | 0.30 |

HEC-RAS Version 4.0.0 March 2008
U.S. Army Corps of Engineers
Hydrologic Engineering Center
609 Second Street
Davis, California

```
X     X  XXXXXX    XXXX        XXXX       XX      XXXX
X     X  X        X    X      X   X     X  X    X
X     X  X        X           X   X    X    X   X
XXXXXXX  XXXX     X       XXX  XXXX     XXXXXX    XXXX
X     X  X        X           X  X     X    X        X
X     X  X        X    X      X   X    X    X        X
X     X  XXXXXX    XXXX       X    X   X    X   XXXXX
```

PROJECT DATA
Project Title: I75@Noonday
Project File : I75@Noonday.prj
Run Date and Time: 9/3/2009 2:42:13 PM

Project in English units

PLAN DATA

Plan Title: Full Valley
Plan File : n:\TRA\255717\Hydraulics\I75@Noonday\HECRAS\Preliminary 2\I75@Noonday.p01

Geometry Title: Full Valley
Geometry File : n:\TRA\255717\Hydraulics\I75@Noonday\HECRAS\Preliminary 2\I75@Noonday.g01

Flow Title : Urban 25%
Flow File : n:\TRA\255717\Hydraulics\I75@Noonday\HECRAS\Preliminary 2\I75@Noonday.f01

Plan Summary Information:
Number of: Cross Sections = 7 Multiple Openings = 0
Culverts = 0 Inline Structures = 0
Bridges = 0 Lateral Structures = 0

Computational Information
Water surface calculation tolerance = 0.01
Critical depth calculation tolerance = 0.01
Maximum number of iterations = 20
Maximum difference tolerance = 0.3
Flow tolerance factor = 0.001

Computation Options
Critical depth computed only where necessary
Conveyance Calculation Method: At breaks in n values only
Friction Slope Method: Average Conveyance
Computational Flow Regime: Subcritical Flow

FLOW DATA

Flow Title: Urban 25%
Flow File : n:\TRA\255717\Hydraulics\I75@Noonday\HECRAS\Preliminary 2\I75@Noonday.f01

Flow Data (cfs)

| River | Reach | RS | 2 Yr | 5 Yr | 10 Yr | 25 Yr | 50 Yr | 100 Yr | 500 Yr |
|---|---|---|---|---|---|---|---|---|---|
| Noonday Creek | 1 | 1250 | 2608 | 3814 | 4266 | 5375 | 6003 | 6889 | 8519 |

Boundary Conditions

| River | Reach | Profile | Upstream | Downstream |
|---|---|---|---|---|
| Noonday Creek | 1 | 2 Yr | Normal S = 0.00285 | Normal S = 0.00285 |
| Noonday Creek | 1 | 5 Yr | Normal S = 0.00285 | Normal S = 0.00285 |
| Noonday Creek | 1 | 10 Yr | Normal S = 0.00285 | Normal S = 0.00285 |
| Noonday Creek | 1 | 25 Yr | Normal S = 0.00285 | Normal S = 0.00285 |
| Noonday Creek | 1 | 50 Yr | Normal S = 0.00285 | Normal S = 0.00285 |
| Noonday Creek | 1 | 100 Yr | Normal S = 0.00285 | Normal S = 0.00285 |
| Noonday Creek | 1 | 500 Yr | Normal S = 0.00285 | Normal S = 0.00285 |

GEOMETRY DATA

Geometry Title: Full Valley
Geometry File : n:\TRA\255717\Hydraulics\I75@Noonday\HECRAS\Preliminary 2\I75@Noonday.g01

CROSS SECTION

RIVER: Noonday Creek
REACH: 1 RS: 1250

INPUT
Description: Approach
Station Elevation Data num= 12

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 4819 | 951.6 | 4864 | 946.6 | 4900 | 942.1 | 4950 | 937.3 | 4980 | 936.6 |
| 4988 | 929.5 | 5000 | 929.5 | 5015 | 930.5 | 5023 | 936.8 | 5045 | 936.9 |
| 5125 | 959.5 | 5160 | 972.3 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 4819 | .13 | 4980 | .06 | 5023 | .13 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 4980 | 5023 | 400 | 460 | .1 | .3 |

CROSS SECTION

RIVER: Noonday Creek
REACH: 1 RS: 790

INPUT
Description: Upstream SBL
Station Elevation Data num= 13

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 4816 | 955 | 4851 | 950 | 4886 | 945 | 4907 | 940 | 4924 | 938 |
| 4978 | 936.6 | 4987 | 930.2 | 5000 | 928.1 | 5012 | 930.2 | 5016 | 935 |
| 5051 | 938 | 5096 | 949 | 5176 | 965 | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 4816 | .13 | 4978 | .06 | 5016 | .13 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 4978 | 5016 | 200 | 200 | .1 | .3 |

CROSS SECTION

RIVER: Noonday Creek
REACH: 1 RS: 590

INPUT
Description: Downstream SBL
Station Elevation Data num= 13

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 4816 | 955 | 4851 | 950 | 4886 | 945 | 4907 | 940 | 4924 | 938 |
| 4973 | 939.8 | 4993 | 928.3 | 5000 | 927.2 | 5006 | 928.4 | 5016 | 936 |
| 5051 | 938 | 5096 | 949 | 5176 | 965 | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 4816 | .13 | 4973 | .06 | 5016 | .13 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 4973 | 5016 | 140 | 195 | 235 | .1 | .3 |

CROSS SECTION

RIVER: Noonday Creek
REACH: 1 RS: 395

INPUT
Description: Middle Section - adj elev +0.1
Station Elevation Data num= 8

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 4894 | 950.1 | 4953 | 943.1 | 4973 | 939.6 | 4993 | 928.1 | 5000 | 927 |
| 5006 | 928.2 | 5016 | 935.8 | 5116 | 945.1 | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 4894 | .13 | 4973 | .06 | 5016 | .13 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 4973 | 5016 | 95 | 150 | 190 | .1 | .3 |

CROSS SECTION

RIVER: Noonday Creek
REACH: 1 RS: 245

INPUT
Description: Upstream NBL
Station Elevation Data num= 14

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 4529 | 950 | 4629 | 946 | 4779 | 940 | 4849 | 935 | 4919 | 934 |
| 4979 | 934 | 4987 | 926.7 | 5000 | 926.7 | 5014 | 927.2 | 5025 | 933 |
| 5052 | 938 | 5092 | 941 | 5147 | 942 | 5202 | 950 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 4529 | .13 | 4979 | .06 | 5025 | .13 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 4979 | 5025 | 245 | 245 | 245 | .1 | .3 |

CROSS SECTION

RIVER: Noonday Creek
REACH: 1 RS: 0

INPUT
Description: Downstrem NBL
Station Elevation Data num= 11

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 4701 | 948 | 4731 | 937 | 4926 | 934 | 4986 | 931.8 | 4990 | 926.6 |
| 5000 | 925.4 | 5025 | 928.8 | 5032 | 933.5 | 5087 | 940 | 5272 | 945 |
| 5417 | 955 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 4701 | .13 | 4986 | .06 | 5032 | .13 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 4986 | 5032 | 600 | 630 | 650 | .1 | .3 |

CROSS SECTION

RIVER: Noonday Creek
REACH: 1 RS: -630

INPUT
Description: Exit
Station Elevation Data num= 13

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 4802 | 941.9 | 4867 | 941.5 | 4875 | 941.8 | 4923 | 932 | 4944 | 932.7 |
| 4977 | 932.7 | 4981 | 926.3 | 5000 | 925 | 5020 | 926 | 5023 | 932.6 |
| 5064 | 932.4 | 5092 | 944.3 | 5137 | 945.6 | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 4802 | .13 | 4977 | .06 | 5023 | .13 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 4977 | 5023 | 0 | 0 | .1 | .3 |

SUMMARY OF MANNING'S N VALUES

River:Noonday Creek

| Reach | River Sta. | n1 | n2 | n3 |
|---|---|---|---|---|
| 1 | 1250 | .13 | .06 | .13 |
| 1 | 790 | .13 | .06 | .13 |
| 1 | 590 | .13 | .06 | .13 |
| 1 | 395 | .13 | .06 | .13 |
| 1 | 245 | .13 | .06 | .13 |
| 1 | 0 | .13 | .06 | .13 |
| 1 | -630 | .13 | .06 | .13 |

SUMMARY OF REACH LENGTHS

River: Noonday Creek

| Reach | River Sta. | Left | Channel | Right |
|---|---|---|---|---|
| 1 | 1250 | 400 | 460 | 480 |
| 1 | 790 | 200 | 200 | 200 |
| 1 | 590 | 140 | 195 | 235 |
| 1 | 395 | 95 | 150 | 190 |
| 1 | 245 | 245 | 245 | 245 |
| 1 | 0 | 600 | 630 | 650 |
| 1 | -630 | 0 | 0 | 0 |

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: Noonday Creek

| Reach | River Sta. | Contr. | Expan. |
|---|---|---|---|
| 1 | 1250 | .1 | .3 |
| 1 | 790 | .1 | .3 |
| 1 | 590 | .1 | .3 |
| 1 | 395 | .1 | .3 |
| 1 | 245 | .1 | .3 |
| 1 | 0 | .1 | .3 |
| 1 | -630 | .1 | .3 |

# HEC-RAS EXISTING BRIDGE MODEL

HEC-RAS Plan: Existing River: Noonday Creek Reach: 1

| Reach | River Sta | Profile | Q Total | Min Ch El | W.S. Elev | Crit W.S. | E.G. Elev | E.G. Slope | Vel Chnl | Flow Area | Top Width | Froude # Chl |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft) | (ft) | (ft/ft) | (ft/s) | (sq ft) | (ft) | |
| 1 | -630 | 2 Yr | 2608.00 | 925.00 | 935.43 | 930.66 | 935.80 | 0.002855 | 5.26 | 741.11 | 164.93 | 0.30 |
| 1 | -630 | 5 Yr | 3814.00 | 925.00 | 937.18 | 932.05 | 937.61 | 0.002854 | 5.90 | 1040.91 | 177.62 | 0.31 |
| 1 | -630 | 10 Yr | 4266.00 | 925.00 | 937.76 | 933.40 | 938.21 | 0.002853 | 6.10 | 1145.01 | 181.82 | 0.32 |
| 1 | -630 | 25 Yr | 5375.00 | 925.00 | 939.06 | 934.38 | 939.56 | 0.002850 | 6.55 | 1387.44 | 191.25 | 0.32 |
| 1 | -630 | 50 Yr | 6003.00 | 925.00 | 939.73 | 934.81 | 940.25 | 0.002852 | 6.77 | 1517.70 | 196.12 | 0.32 |
| 1 | -630 | 100 Yr | 6889.00 | 925.00 | 940.63 | 935.40 | 941.18 | 0.002852 | 7.07 | 1695.83 | 202.60 | 0.33 |
| 1 | -630 | 500 Yr | 8519.00 | 925.00 | 942.46 | 936.30 | 943.10 | 0.002850 | 7.65 | 2135.43 | 285.68 | 0.33 |
| | | | | | | | | | | | | |
| 1 | 0 | 2 Yr | 2608.00 | 925.40 | 937.19 | 932.26 | 937.39 | 0.002076 | 4.78 | 871.08 | 332.73 | 0.27 |
| 1 | 0 | 5 Yr | 3814.00 | 925.40 | 938.98 | 933.89 | 939.20 | 0.002069 | 5.35 | 1203.26 | 352.74 | 0.28 |
| 1 | 0 | 10 Yr | 4266.00 | 925.40 | 939.57 | 934.82 | 939.80 | 0.002067 | 5.53 | 1318.99 | 359.35 | 0.28 |
| 1 | 0 | 25 Yr | 5375.00 | 925.40 | 940.91 | 935.66 | 941.16 | 0.002085 | 5.97 | 1603.47 | 400.14 | 0.29 |
| 1 | 0 | 50 Yr | 6003.00 | 925.40 | 941.59 | 936.09 | 941.85 | 0.002064 | 6.14 | 1767.39 | 427.32 | 0.29 |
| 1 | 0 | 100 Yr | 6889.00 | 925.40 | 942.49 | 936.62 | 942.77 | 0.002031 | 6.35 | 1984.55 | 463.27 | 0.29 |
| 1 | 0 | 500 Yr | 8519.00 | 925.40 | 944.33 | 937.48 | 944.64 | 0.001823 | 6.50 | 2425.89 | 536.32 | 0.28 |
| | | | | | | | | | | | | |
| 1 | 100 | | Bridge | | | | | | | | | |
| | | | | | | | | | | | | |
| 1 | 245 | 2 Yr | 2608.00 | 926.70 | 937.65 | 932.78 | 937.92 | 0.002024 | 4.68 | 951.79 | 238.15 | 0.27 |
| 1 | 245 | 5 Yr | 3814.00 | 926.70 | 939.45 | 935.07 | 939.75 | 0.001913 | 5.12 | 1348.79 | 284.76 | 0.27 |
| 1 | 245 | 10 Yr | 4266.00 | 926.70 | 940.05 | 935.56 | 940.35 | 0.001882 | 5.26 | 1489.39 | 301.66 | 0.27 |
| 1 | 245 | 25 Yr | 5375.00 | 926.70 | 941.39 | 936.37 | 941.72 | 0.001838 | 5.58 | 1825.76 | 369.49 | 0.27 |
| 1 | 245 | 50 Yr | 6003.00 | 926.70 | 942.08 | 936.77 | 942.41 | 0.001804 | 5.72 | 2020.13 | 420.54 | 0.27 |
| 1 | 245 | 100 Yr | 6889.00 | 926.70 | 942.99 | 937.23 | 943.32 | 0.001749 | 5.88 | 2279.73 | 449.58 | 0.27 |
| 1 | 245 | 500 Yr | 8519.00 | 926.70 | 944.80 | 937.93 | 945.12 | 0.001550 | 5.97 | 2795.07 | 507.21 | 0.26 |
| | | | | | | | | | | | | |
| 1 | 395 | 2 Yr | 2608.00 | 927.00 | 937.23 | 935.81 | 938.89 | 0.017321 | 10.37 | 261.13 | 54.21 | 0.72 |
| 1 | 395 | 5 Yr | 3814.00 | 927.00 | 938.45 | 937.67 | 940.83 | 0.021297 | 12.50 | 336.98 | 69.53 | 0.82 |
| 1 | 395 | 10 Yr | 4266.00 | 927.00 | 938.81 | 938.31 | 941.46 | 0.022854 | 13.23 | 362.81 | 74.02 | 0.85 |
| 1 | 395 | 25 Yr | 5375.00 | 927.00 | 939.68 | 939.60 | 942.89 | 0.025273 | 14.66 | 432.13 | 85.25 | 0.90 |
| 1 | 395 | 50 Yr | 6003.00 | 927.00 | 940.22 | 940.22 | 943.62 | 0.024936 | 15.19 | 480.03 | 94.05 | 0.91 |
| 1 | 395 | 100 Yr | 6889.00 | 927.00 | 941.02 | 941.02 | 944.57 | 0.023518 | 15.65 | 561.05 | 107.30 | 0.89 |
| 1 | 395 | 500 Yr | 8519.00 | 927.00 | 942.49 | 942.38 | 946.10 | 0.020541 | 16.10 | 736.03 | 131.44 | 0.86 |
| | | | | | | | | | | | | |
| 1 | 590 | 2 Yr | 2608.00 | 927.20 | 940.70 | 935.99 | 940.79 | 0.003609 | 5.91 | 649.00 | 158.01 | 0.35 |
| 1 | 590 | 5 Yr | 3814.00 | 927.20 | 942.94 | 938.09 | 942.84 | 0.002907 | 6.15 | 1023.17 | 176.55 | 0.32 |
| 1 | 590 | 10 Yr | 4266.00 | 927.20 | 943.67 | 938.81 | 943.53 | 0.002751 | 6.24 | 1155.01 | 182.64 | 0.32 |
| 1 | 590 | 25 Yr | 5375.00 | 927.20 | 945.20 | 940.15 | 945.05 | 0.002569 | 6.53 | 1443.72 | 195.87 | 0.31 |

HEC-RAS Plan: Existing River: Noonday Creek Reach: 1 (Continued)

| Reach | River Sta | Profile | Q Total | Min Ch El | W.S. Elev | Crit W.S. | E.G. Elev | E.G. Slope | Vel Chnl | Flow Area | Top Width | Froude # Chl |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft) | (ft) | (ft/ft) | (ft/s) | (sq ft) | (ft) | |
| 1 | 590 | 50 Yr | 6003.00 | 927.20 | 945.86 | 940.62 | 945.81 | 0.002587 | 6.77 | 1572.19 | 203.15 | 0.32 |
| 1 | 590 | 100 Yr | 6889.00 | 927.20 | 946.59 | 941.24 | 946.75 | 0.002723 | 7.18 | 1716.71 | 211.22 | 0.33 |
| 1 | 590 | 500 Yr | 8519.00 | 927.20 | 947.65 | 942.14 | 948.24 | 0.003067 | 7.97 | 1931.20 | 222.98 | 0.35 |
| | | | | | | | | | | | | |
| 1 | 690 | | Bridge | | | | | | | | | |
| | | | | | | | | | | | | |
| 1 | 790 | 2 Yr | 2608.00 | 928.10 | 941.20 | 935.78 | 941.53 | 0.002118 | 5.12 | 842.46 | 162.14 | 0.28 |
| 1 | 790 | 5 Yr | 3814.00 | 928.10 | 943.31 | 937.95 | 943.67 | 0.002014 | 5.63 | 1202.95 | 179.63 | 0.28 |
| 1 | 790 | 10 Yr | 4266.00 | 928.10 | 944.02 | 938.55 | 944.39 | 0.001981 | 5.79 | 1331.85 | 185.48 | 0.28 |
| 1 | 790 | 25 Yr | 5375.00 | 928.10 | 945.51 | 939.54 | 945.91 | 0.001958 | 6.17 | 1617.64 | 199.30 | 0.28 |
| 1 | 790 | 50 Yr | 6003.00 | 928.10 | 946.17 | 940.07 | 946.60 | 0.002006 | 6.43 | 1747.18 | 206.59 | 0.29 |
| 1 | 790 | 100 Yr | 6889.00 | 928.10 | 946.91 | 940.67 | 947.39 | 0.002138 | 6.84 | 1895.80 | 214.83 | 0.30 |
| 1 | 790 | 500 Yr | 8519.00 | 928.10 | 948.01 | 941.61 | 948.59 | 0.002438 | 7.63 | 2120.05 | 227.04 | 0.32 |
| | | | | | | | | | | | | |
| 1 | 1250 | 2 Yr | 2608.00 | 929.50 | 942.11 | 935.85 | 942.36 | 0.001531 | 4.46 | 911.71 | 163.49 | 0.24 |
| 1 | 1250 | 5 Yr | 3814.00 | 929.50 | 944.19 | 937.84 | 944.48 | 0.001520 | 4.99 | 1276.82 | 187.50 | 0.24 |
| 1 | 1250 | 10 Yr | 4266.00 | 929.50 | 944.88 | 938.35 | 945.19 | 0.001509 | 5.14 | 1410.14 | 195.53 | 0.24 |
| 1 | 1250 | 25 Yr | 5375.00 | 929.50 | 946.38 | 939.41 | 946.71 | 0.001514 | 5.52 | 1714.57 | 212.74 | 0.25 |
| 1 | 1250 | 50 Yr | 6003.00 | 929.50 | 947.06 | 939.91 | 947.41 | 0.001551 | 5.75 | 1862.14 | 221.05 | 0.25 |
| 1 | 1250 | 100 Yr | 6889.00 | 929.50 | 947.86 | 940.57 | 948.25 | 0.001635 | 6.10 | 2043.91 | 231.13 | 0.26 |
| 1 | 1250 | 500 Yr | 8519.00 | 929.50 | 949.10 | 941.64 | 949.55 | 0.001810 | 6.73 | 2339.59 | 246.65 | 0.28 |

HEC-RAS Plan: Existing River: Noonday Creek Reach: 1

| Reach | River Sta | Profile | E.G. Elev | W.S. Elev | Crit W.S. | Frctn Loss | C & E Loss | Top Width | Q Left | Q Channel | Q Right | Vel Chnl | Vel Total | Flow Area |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (ft) | (ft) | (ft) | (ft) | (ft) | (ft) | (cfs) | (cfs) | (cfs) | (ft/s) | (ft/s) | (sq ft) |
| 1 | -630 | 2 Yr | 935.80 | 935.43 | 930.66 | | | 164.93 | 210.96 | 2242.48 | 154.55 | 5.26 | 3.52 | 741.11 |
| 1 | -630 | 5 Yr | 937.61 | 937.18 | 932.05 | | | 177.62 | 480.12 | 2991.00 | 342.88 | 5.90 | 3.66 | 1040.91 |
| 1 | -630 | 10 Yr | 938.21 | 937.76 | 933.40 | | | 181.82 | 590.45 | 3256.74 | 418.81 | 6.10 | 3.73 | 1145.01 |
| 1 | -630 | 25 Yr | 939.56 | 939.06 | 934.38 | | | 191.25 | 876.50 | 3885.41 | 613.09 | 6.55 | 3.87 | 1387.44 |
| 1 | -630 | 50 Yr | 940.25 | 939.73 | 934.81 | | | 196.12 | 1046.11 | 4230.03 | 726.87 | 6.77 | 3.96 | 1517.70 |
| 1 | -630 | 100 Yr | 941.18 | 940.63 | 935.40 | | | 202.60 | 1293.66 | 4704.04 | 891.30 | 7.07 | 4.06 | 1695.83 |
| 1 | -630 | 500 Yr | 943.10 | 942.46 | 936.30 | | | 285.68 | 1501.27 | 5739.81 | 1277.93 | 7.65 | 3.99 | 2135.43 |
| | | | | | | | | | | | | | | |
| 1 | 0 | 2 Yr | 937.39 | 937.19 | 932.26 | 1.53 | 0.00 | 332.73 | 468.44 | 2094.67 | 44.89 | 4.78 | 2.99 | 871.08 |
| 1 | 0 | 5 Yr | 939.20 | 938.98 | 933.89 | 1.52 | 0.00 | 352.74 | 900.25 | 2785.19 | 128.56 | 5.35 | 3.17 | 1203.26 |
| 1 | 0 | 10 Yr | 939.80 | 939.57 | 934.82 | 1.52 | 0.00 | 359.35 | 1066.64 | 3030.48 | 168.88 | 5.53 | 3.23 | 1318.99 |
| 1 | 0 | 25 Yr | 941.16 | 940.91 | 935.66 | 1.52 | 0.00 | 400.14 | 1491.21 | 3634.63 | 249.16 | 5.97 | 3.35 | 1603.47 |
| 1 | 0 | 50 Yr | 941.85 | 941.59 | 936.09 | 1.52 | 0.00 | 427.32 | 1718.06 | 3932.44 | 352.50 | 6.14 | 3.40 | 1767.39 |
| 1 | 0 | 100 Yr | 942.77 | 942.49 | 936.62 | 1.50 | 0.00 | 463.27 | 2032.78 | 4332.60 | 523.62 | 6.35 | 3.47 | 1984.55 |
| 1 | 0 | 500 Yr | 944.64 | 944.33 | 937.48 | 1.43 | 0.00 | 536.32 | 2623.77 | 4987.28 | 907.95 | 6.50 | 3.51 | 2425.89 |
| | | | | | | | | | | | | | | |
| 1 | 100 BR D | 2 Yr | 937.50 | 937.28 | 932.73 | 0.17 | 0.00 | 133.98 | 305.21 | 2266.30 | 36.48 | 5.38 | 3.76 | 693.39 |
| 1 | 100 BR D | 5 Yr | 939.31 | 939.05 | 934.42 | 0.17 | 0.00 | 152.57 | 572.79 | 3132.06 | 109.15 | 6.23 | 4.02 | 948.08 |
| 1 | 100 BR D | 10 Yr | 939.90 | 939.64 | 934.94 | 0.17 | 0.00 | 158.73 | 676.37 | 3444.33 | 145.31 | 6.50 | 4.10 | 1039.69 |
| 1 | 100 BR D | 25 Yr | 941.26 | 940.97 | 935.89 | 0.18 | 0.00 | 175.62 | 935.06 | 4188.20 | 251.74 | 7.08 | 4.26 | 1262.23 |
| 1 | 100 BR D | 50 Yr | 941.95 | 941.65 | 936.36 | 0.18 | 0.00 | 178.33 | 1080.17 | 4590.81 | 332.03 | 7.37 | 4.34 | 1382.16 |
| 1 | 100 BR D | 100 Yr | 942.86 | 942.55 | 936.98 | 0.18 | 0.00 | 181.92 | 1286.15 | 5149.08 | 453.78 | 7.76 | 4.46 | 1543.62 |
| 1 | 100 BR D | 500 Yr | 944.69 | 944.37 | 938.00 | 0.16 | 0.00 | 189.20 | 1682.56 | 6114.22 | 722.22 | 8.18 | 4.53 | 1881.44 |
| | | | | | | | | | | | | | | |
| 1 | 100 BR U | 2 Yr | 937.66 | 937.27 | 932.34 | 0.16 | 0.00 | 124.44 | 234.88 | 2309.22 | 63.90 | 5.28 | 3.78 | 689.18 |
| 1 | 100 BR U | 5 Yr | 939.48 | 938.97 | 934.15 | 0.17 | 0.00 | 148.31 | 456.16 | 3210.34 | 147.50 | 6.23 | 4.15 | 918.98 |
| 1 | 100 BR U | 10 Yr | 940.08 | 939.53 | 934.67 | 0.18 | 0.00 | 156.89 | 543.04 | 3534.93 | 188.02 | 6.53 | 4.25 | 1004.36 |
| 1 | 100 BR U | 25 Yr | 941.44 | 940.79 | 935.69 | 0.18 | 0.00 | 174.88 | 761.25 | 4301.58 | 312.17 | 7.18 | 4.42 | 1215.15 |
| 1 | 100 BR U | 50 Yr | 942.13 | 941.44 | 936.20 | 0.19 | 0.00 | 177.46 | 885.04 | 4717.81 | 400.16 | 7.50 | 4.52 | 1328.61 |
| 1 | 100 BR U | 100 Yr | 943.05 | 942.29 | 936.81 | 0.19 | 0.00 | 180.87 | 1061.56 | 5293.15 | 534.29 | 7.92 | 4.65 | 1481.30 |
| 1 | 100 BR U | 500 Yr | 944.87 | 944.05 | 937.84 | 0.18 | 0.00 | 187.91 | 1407.00 | 6279.50 | 832.51 | 8.38 | 4.72 | 1806.05 |
| | | | | | | | | | | | | | | |
| 1 | 245 | 2 Yr | 937.92 | 937.65 | 932.78 | 0.26 | 0.00 | 238.15 | 525.30 | 2030.69 | 52.01 | 4.68 | 2.74 | 951.79 |
| 1 | 245 | 5 Yr | 939.75 | 939.45 | 935.07 | 0.27 | 0.00 | 284.76 | 1055.73 | 2644.69 | 113.58 | 5.12 | 2.83 | 1348.79 |
| 1 | 245 | 10 Yr | 940.35 | 940.05 | 935.56 | 0.27 | 0.00 | 301.66 | 1258.86 | 2860.19 | 146.96 | 5.26 | 2.86 | 1489.39 |
| 1 | 245 | 25 Yr | 941.72 | 941.39 | 936.37 | 0.27 | 0.00 | 369.49 | 1768.02 | 3380.87 | 226.11 | 5.58 | 2.94 | 1825.76 |
| 1 | 245 | 50 Yr | 942.41 | 942.08 | 936.77 | 0.27 | 0.00 | 420.54 | 2044.63 | 3645.45 | 312.92 | 5.72 | 2.97 | 2020.13 |
| 1 | 245 | 100 Yr | 943.32 | 942.99 | 937.23 | 0.27 | 0.00 | 449.58 | 2422.95 | 3990.77 | 475.28 | 5.88 | 3.02 | 2279.73 |
| 1 | 245 | 500 Yr | 945.12 | 944.80 | 937.93 | 0.25 | 0.00 | 507.21 | 3129.25 | 4554.17 | 835.58 | 5.97 | 3.05 | 2795.07 |
| | | | | | | | | | | | | | | |
| 1 | 395 | 2 Yr | 938.89 | 937.23 | 935.81 | 0.97 | 0.00 | 54.21 | | 2594.90 | 13.10 | 10.37 | 9.99 | 261.13 |
| 1 | 395 | 5 Yr | 940.83 | 938.45 | 937.67 | 1.08 | 0.00 | 69.53 | | 3738.05 | 75.95 | 12.50 | 11.32 | 336.98 |
| 1 | 395 | 10 Yr | 941.46 | 938.81 | 938.31 | 1.11 | 0.00 | 74.02 | | 4155.54 | 110.46 | 13.23 | 11.76 | 362.81 |
| 1 | 395 | 25 Yr | 942.89 | 939.68 | 939.60 | 1.17 | 0.00 | 85.25 | 0.00 | 5146.18 | 228.81 | 14.66 | 12.44 | 432.13 |
| 1 | 395 | 50 Yr | 943.62 | 940.22 | 940.22 | 1.17 | 0.00 | 94.05 | 0.89 | 5681.60 | 320.50 | 15.19 | 12.51 | 480.03 |

HEC-RAS Plan: Existing River: Noonday Creek Reach: 1 (Continued)

| Reach | River Sta | Profile | E.G. Elev | W.S. Elev | Crit W.S. | Frctn Loss | C & E Loss | Top Width | Q Left | Q Channel | Q Right | Vel Chnl | Vel Total | Flow Area |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (ft) | (ft) | (ft) | (ft) | (ft) | (ft) | (cfs) | (cfs) | (cfs) | (ft/s) | (ft/s) | (sq ft) |
| 1 | 395 | 100 Yr | 944.57 | 941.02 | 941.02 | 1.10 | 0.00 | 107.30 | 8.01 | 6394.71 | 486.28 | 15.65 | 12.28 | 561.05 |
| 1 | 395 | 500 Yr | 946.10 | 942.49 | 942.38 | 0.97 | 0.00 | 131.44 | 49.44 | 7590.64 | 878.92 | 16.10 | 11.57 | 736.03 |
| | | | | | | | | | | | | | | |
| 1 | 590 | 2 Yr | 940.79 | 940.70 | 935.99 | 1.55 | 0.52 | 158.01 | 116.17 | 2280.28 | 211.55 | 5.91 | 4.02 | 649.00 |
| 1 | 590 | 5 Yr | 942.84 | 942.94 | 938.09 | 1.53 | 0.79 | 176.55 | 408.96 | 2964.71 | 440.33 | 6.15 | 3.73 | 1023.17 |
| 1 | 590 | 10 Yr | 943.53 | 943.67 | 938.81 | 1.54 | 0.88 | 182.64 | 530.35 | 3205.32 | 530.33 | 6.24 | 3.69 | 1155.01 |
| 1 | 590 | 25 Yr | 945.05 | 945.20 | 940.15 | 1.57 | 0.97 | 195.87 | 836.40 | 3785.51 | 753.09 | 6.53 | 3.72 | 1443.72 |
| 1 | 590 | 50 Yr | 945.81 | 945.86 | 940.62 | 1.56 | 0.90 | 203.15 | 1015.79 | 4112.50 | 874.71 | 6.77 | 3.82 | 1572.19 |
| 1 | 590 | 100 Yr | 946.75 | 946.59 | 941.24 | 1.56 | 0.71 | 211.22 | 1258.41 | 4586.75 | 1043.84 | 7.18 | 4.01 | 1716.71 |
| 1 | 590 | 500 Yr | 948.24 | 947.65 | 942.14 | 1.54 | 0.31 | 222.98 | 1700.63 | 5460.58 | 1357.80 | 7.97 | 4.41 | 1931.20 |
| | | | | | | | | | | | | | | |
| 1 | 690 BR D | 2 Yr | 941.21 | 940.93 | 936.35 | 0.26 | 0.00 | 142.43 | 102.14 | 2311.13 | 194.73 | 6.04 | 4.25 | 614.00 |
| 1 | 690 BR D | 5 Yr | 943.37 | 943.11 | 938.41 | 0.22 | 0.00 | 155.31 | 337.63 | 3076.59 | 399.78 | 6.46 | 4.06 | 938.69 |
| 1 | 690 BR D | 10 Yr | 944.09 | 943.84 | 939.08 | 0.21 | 0.00 | 159.58 | 433.10 | 3352.04 | 480.86 | 6.61 | 4.05 | 1052.26 |
| 1 | 690 BR D | 25 Yr | 945.61 | 945.35 | 940.40 | 0.20 | 0.00 | 168.50 | 667.05 | 4024.79 | 683.16 | 7.04 | 4.13 | 1300.12 |
| 1 | 690 BR D | 50 Yr | 946.28 | 946.00 | 940.89 | 0.20 | 0.00 | 172.38 | 793.96 | 4412.87 | 796.18 | 7.35 | 4.25 | 1411.76 |
| 1 | 690 BR D | 100 Yr | 947.05 | 946.74 | 941.49 | 0.21 | 0.00 | 176.71 | 967.42 | 4967.95 | 953.63 | 7.86 | 4.47 | 1539.72 |
| 1 | 690 BR D | 500 Yr | 948.19 | 947.81 | 942.46 | 0.24 | 0.00 | 183.07 | 1285.34 | 5987.08 | 1246.58 | 8.83 | 4.91 | 1733.46 |
| | | | | | | | | | | | | | | |
| 1 | 690 BR U | 2 Yr | 941.38 | 941.05 | 935.46 | 0.17 | 0.00 | 145.73 | 262.93 | 2110.61 | 234.47 | 5.12 | 3.16 | 825.71 |
| 1 | 690 BR U | 5 Yr | 943.53 | 943.13 | 937.58 | 0.16 | 0.00 | 158.01 | 525.61 | 2855.11 | 433.28 | 5.81 | 3.34 | 1141.36 |
| 1 | 690 BR U | 10 Yr | 944.25 | 943.82 | 938.19 | 0.16 | 0.00 | 162.11 | 628.73 | 3124.03 | 513.24 | 6.03 | 3.41 | 1252.52 |
| 1 | 690 BR U | 25 Yr | 945.77 | 945.28 | 939.20 | 0.16 | 0.00 | 170.73 | 882.14 | 3777.92 | 714.94 | 6.59 | 3.60 | 1495.09 |
| 1 | 690 BR U | 50 Yr | 946.44 | 945.91 | 939.68 | 0.16 | 0.00 | 174.44 | 1021.67 | 4152.76 | 828.57 | 6.96 | 3.74 | 1603.59 |
| 1 | 690 BR U | 100 Yr | 947.22 | 946.60 | 940.28 | 0.18 | 0.00 | 178.55 | 1214.24 | 4687.48 | 987.28 | 7.52 | 3.99 | 1726.41 |
| 1 | 690 BR U | 500 Yr | 948.39 | 947.61 | 941.28 | 0.21 | 0.00 | 184.48 | 1567.11 | 5669.67 | 1282.21 | 8.57 | 4.46 | 1908.39 |
| | | | | | | | | | | | | | | |
| 1 | 790 | 2 Yr | 941.53 | 941.20 | 935.78 | 0.15 | 0.00 | 162.14 | 292.16 | 2077.58 | 238.26 | 5.12 | 3.10 | 842.46 |
| 1 | 790 | 5 Yr | 943.67 | 943.31 | 937.95 | 0.14 | 0.00 | 179.63 | 625.06 | 2736.08 | 452.86 | 5.63 | 3.17 | 1202.95 |
| 1 | 790 | 10 Yr | 944.39 | 944.02 | 938.55 | 0.14 | 0.00 | 185.48 | 758.86 | 2967.85 | 539.29 | 5.79 | 3.20 | 1331.85 |
| 1 | 790 | 25 Yr | 945.91 | 945.51 | 939.54 | 0.15 | 0.00 | 199.30 | 1104.92 | 3514.92 | 755.16 | 6.17 | 3.32 | 1617.64 |
| 1 | 790 | 50 Yr | 946.60 | 946.17 | 940.07 | 0.15 | 0.00 | 206.59 | 1306.79 | 3821.18 | 875.03 | 6.43 | 3.44 | 1747.18 |
| 1 | 790 | 100 Yr | 947.39 | 946.91 | 940.67 | 0.16 | 0.00 | 214.83 | 1583.59 | 4262.31 | 1043.11 | 6.84 | 3.63 | 1895.80 |
| 1 | 790 | 500 Yr | 948.59 | 948.01 | 941.61 | 0.19 | 0.00 | 227.04 | 2090.40 | 5071.66 | 1356.95 | 7.63 | 4.02 | 2120.05 |
| | | | | | | | | | | | | | | |
| 1 | 1250 | 2 Yr | 942.36 | 942.11 | 935.85 | 0.83 | 0.00 | 163.49 | 302.86 | 2109.17 | 195.96 | 4.46 | 2.86 | 911.71 |
| 1 | 1250 | 5 Yr | 944.48 | 944.19 | 937.84 | 0.81 | 0.00 | 187.50 | 641.02 | 2804.73 | 368.25 | 4.99 | 2.99 | 1276.82 |
| 1 | 1250 | 10 Yr | 945.19 | 944.88 | 938.35 | 0.80 | 0.00 | 195.53 | 781.02 | 3047.33 | 437.65 | 5.14 | 3.03 | 1410.14 |
| 1 | 1250 | 25 Yr | 946.71 | 946.38 | 939.41 | 0.79 | 0.00 | 212.74 | 1139.29 | 3622.65 | 613.07 | 5.52 | 3.13 | 1714.57 |
| 1 | 1250 | 50 Yr | 947.41 | 947.06 | 939.91 | 0.81 | 0.00 | 221.05 | 1347.09 | 3943.67 | 712.25 | 5.75 | 3.22 | 1862.14 |
| 1 | 1250 | 100 Yr | 948.25 | 947.86 | 940.57 | 0.86 | 0.00 | 231.13 | 1642.56 | 4394.69 | 851.76 | 6.10 | 3.37 | 2043.91 |
| 1 | 1250 | 500 Yr | 949.55 | 949.10 | 941.64 | 0.97 | 0.00 | 246.65 | 2199.84 | 5206.43 | 1112.72 | 6.73 | 3.64 | 2339.59 |

Plan: Existing  Noonday Creek  1  RS: 100  Profile: 50 Yr

| E.G. US. (ft) | 942.41 | Element | Inside BR US | Inside BR DS |
|---|---|---|---|---|
| W.S. US. (ft) | 942.08 | E.G. Elev (ft) | 942.13 | 941.95 |
| Q Total (cfs) | 6003.00 | W.S. Elev (ft) | 941.44 | 941.65 |
| Q Bridge (cfs) | 6003.00 | Crit W.S. (ft) | 936.20 | 936.36 |
| Q Weir (cfs) | | Max Chl Dpth (ft) | 15.20 | 15.79 |
| Weir Sta Lft (ft) | | Vel Total (ft/s) | 4.52 | 4.34 |
| Weir Sta Rgt (ft) | | Flow Area (sq ft) | 1328.61 | 1382.16 |
| Weir Submerg | | Froude # Chl | 0.36 | 0.35 |
| Weir Max Depth (ft) | | Specif Force (cu ft) | 7913.32 | 7792.39 |
| Min El Weir Flow (ft) | 957.94 | Hydr Depth (ft) | 7.49 | 7.75 |
| Min El Prs (ft) | 956.32 | W.P. Total (ft) | 210.50 | 214.52 |
| Delta EG (ft) | 0.56 | Conv. Total (cfs) | 106785.6 | 107866.4 |
| Delta WS (ft) | 0.49 | Top Width (ft) | 177.46 | 178.33 |
| BR Open Area (sq ft) | 4235.47 | Frctn Loss (ft) | 0.19 | 0.18 |
| BR Open Vel (ft/s) | 4.52 | C & E Loss (ft) | 0.00 | 0.00 |
| Coef of Q | 1.00 | Shear Total (lb/sq ft) | 1.25 | 1.25 |
| Br Sel Method | WSPRO | Power Total (lb/ft s) | 5.63 | 5.41 |

Plan: Existing  Noonday Creek  1  RS: 100  Profile: 100 Yr

| E.G. US. (ft) | 943.32 | Element | Inside BR US | Inside BR DS |
|---|---|---|---|---|
| W.S. US. (ft) | 942.99 | E.G. Elev (ft) | 943.05 | 942.86 |
| Q Total (cfs) | 6889.00 | W.S. Elev (ft) | 942.29 | 942.55 |
| Q Bridge (cfs) | 6889.00 | Crit W.S. (ft) | 936.81 | 936.98 |
| Q Weir (cfs) | | Max Chl Dpth (ft) | 16.05 | 16.69 |
| Weir Sta Lft (ft) | | Vel Total (ft/s) | 4.65 | 4.46 |
| Weir Sta Rgt (ft) | | Flow Area (sq ft) | 1481.30 | 1543.62 |
| Weir Submerg | | Froude # Chl | 0.37 | 0.36 |
| Weir Max Depth (ft) | | Specif Force (cu ft) | 9337.80 | 9248.62 |
| Min El Weir Flow (ft) | 957.94 | Hydr Depth (ft) | 8.19 | 8.49 |
| Min El Prs (ft) | 956.32 | W.P. Total (ft) | 217.72 | 222.11 |
| Delta EG (ft) | 0.56 | Conv. Total (cfs) | 120808.6 | 122817.2 |
| Delta WS (ft) | 0.50 | Top Width (ft) | 180.87 | 181.92 |
| BR Open Area (sq ft) | 4235.47 | Frctn Loss (ft) | 0.19 | 0.18 |
| BR Open Vel (ft/s) | 4.65 | C & E Loss (ft) | 0.00 | 0.00 |
| Coef of Q | 1.00 | Shear Total (lb/sq ft) | 1.38 | 1.37 |
| Br Sel Method | WSPRO | Power Total (lb/ft s) | 6.42 | 6.09 |

Plan: Existing  Noonday Creek  1  RS: 100  Profile: 500 Yr

| E.G. US. (ft) | 945.12 | Element | Inside BR US | Inside BR DS |
|---|---|---|---|---|
| W.S. US. (ft) | 944.80 | E.G. Elev (ft) | 944.87 | 944.69 |
| Q Total (cfs) | 8519.00 | W.S. Elev (ft) | 944.05 | 944.37 |
| Q Bridge (cfs) | 8519.00 | Crit W.S. (ft) | 937.84 | 938.00 |
| Q Weir (cfs) | | Max Chl Dpth (ft) | 17.81 | 18.51 |
| Weir Sta Lft (ft) | | Vel Total (ft/s) | 4.72 | 4.53 |
| Weir Sta Rgt (ft) | | Flow Area (sq ft) | 1806.05 | 1881.44 |
| Weir Submerg | | Froude # Chl | 0.37 | 0.36 |
| Weir Max Depth (ft) | | Specif Force (cu ft) | 12613.30 | 12607.49 |
| Min El Weir Flow (ft) | 957.94 | Hydr Depth (ft) | 9.61 | 9.94 |
| Min El Prs (ft) | 956.32 | W.P. Total (ft) | 232.64 | 237.54 |
| Delta EG (ft) | 0.49 | Conv. Total (cfs) | 152393.5 | 155914.9 |
| Delta WS (ft) | 0.47 | Top Width (ft) | 187.91 | 189.20 |
| BR Open Area (sq ft) | 4235.47 | Frctn Loss (ft) | 0.18 | 0.16 |
| BR Open Vel (ft/s) | 4.72 | C & E Loss (ft) | 0.00 | 0.00 |

Plan: Existing  Noonday Creek  1  RS: 100  Profile: 500 Yr (Continued)

| | | | | |
|---|---|---|---|---|
| Coef of Q | 1.00 | Shear Total (lb/sq ft) | 1.51 | 1.48 |
| Br Sel Method | WSPRO | Power Total (lb/ft s) | 7.14 | 6.68 |

HEC-RAS Version 4.0.0 March 2008
U.S. Army Corps of Engineers
Hydrologic Engineering Center
609 Second Street
Davis, California

```
X     X  XXXXXX    XXXX        XXXX       XX      XXXX
X     X  X        X    X      X   X     X  X    X
X     X  X        X           X   X    X    X   X
XXXXXXX  XXXX     X       XXX  XXXX     XXXXXX    XXXX
X     X  X        X           X  X     X    X        X
X     X  X        X    X      X   X    X    X        X
X     X  XXXXXX    XXXX       X    X   X    X   XXXXX
```

PROJECT DATA
Project Title: I75@Noonday
Project File : I75@Noonday.prj
Run Date and Time: 9/18/2009 11:24:58 AM

Project in English units

PLAN DATA

Plan Title: Existing
Plan File : n:\TRA\255717\Hydraulics\I75@Noonday\HECRAS\Preliminary 2\I75@Noonday.p03

Geometry Title: Existing
Geometry File : n:\TRA\255717\Hydraulics\I75@Noonday\HECRAS\Preliminary 2\I75@Noonday.g03

Flow Title : Urban 25%
Flow File : n:\TRA\255717\Hydraulics\I75@Noonday\HECRAS\Preliminary 2\I75@Noonday.f01

Plan Summary Information:
Number of: Cross Sections = 7 Multiple Openings = 0
Culverts = 0 Inline Structures = 0
Bridges = 2 Lateral Structures = 0

Computational Information
Water surface calculation tolerance = 0.01
Critical depth calculation tolerance = 0.01
Maximum number of iterations = 20
Maximum difference tolerance = 0.3
Flow tolerance factor = 0.001

Computation Options
Critical depth computed only where necessary
Conveyance Calculation Method: At breaks in n values only
Friction Slope Method: Average Conveyance
Computational Flow Regime: Subcritical Flow

FLOW DATA

Flow Title: Urban 25%
Flow File : n:\TRA\255717\Hydraulics\I75@Noonday\HECRAS\Preliminary 2\I75@Noonday.f01

Flow Data (cfs)

| River | Reach | RS | 2 Yr | 5 Yr | 10 Yr | 25 Yr | 50 Yr | 100 Yr | 500 Yr |
|---|---|---|---|---|---|---|---|---|---|
| Noonday Creek | 1 | 1250 | 2608 | 3814 | 4266 | 5375 | 6003 | 6889 | 8519 |

Boundary Conditions

| River | Reach | Profile | Upstream | Downstream |
|---|---|---|---|---|
| Noonday Creek | 1 | 2 Yr | Normal S = 0.00285 | Normal S = 0.00285 |
| Noonday Creek | 1 | 5 Yr | Normal S = 0.00285 | Normal S = 0.00285 |
| Noonday Creek | 1 | 10 Yr | Normal S = 0.00285 | Normal S = 0.00285 |
| Noonday Creek | 1 | 25 Yr | Normal S = 0.00285 | Normal S = 0.00285 |
| Noonday Creek | 1 | 50 Yr | Normal S = 0.00285 | Normal S = 0.00285 |
| Noonday Creek | 1 | 100 Yr | Normal S = 0.00285 | Normal S = 0.00285 |
| Noonday Creek | 1 | 500 Yr | Normal S = 0.00285 | Normal S = 0.00285 |

GEOMETRY DATA

Geometry Title: Existing
Geometry File : n:\TRA\255717\Hydraulics\I75@Noonday\HECRAS\Preliminary 2\I75@Noonday.g03

CROSS SECTION

RIVER: Noonday Creek
REACH: 1 RS: 1250

INPUT
Description: Approach
Station Elevation Data num= 12

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 4819 | 951.6 | 4864 | 946.6 | 4900 | 942.1 | 4950 | 937.3 | 4980 | 936.6 |
| 4988 | 929.5 | 5000 | 929.5 | 5015 | 930.5 | 5023 | 936.8 | 5045 | 936.9 |
| 5125 | 959.5 | 5160 | 972.3 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 4819 | .13 | 4980 | .06 | 5023 | .13 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 4980 | 5023 | 400 | 460 | .3 | .5 |

CROSS SECTION

RIVER: Noonday Creek
REACH: 1 RS: 790

INPUT
Description: Upstream SBL
Station Elevation Data num= 13

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 4816 | 955 | 4851 | 950 | 4886 | 945 | 4907 | 940 | 4924 | 938 |
| 4978 | 936.6 | 4987 | 930.2 | 5000 | 928.1 | 5012 | 930.2 | 5016 | 935 |
| 5051 | 938 | 5096 | 949 | 5176 | 965 | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 4816 | .13 | 4978 | .06 | 5016 | .13 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 4978 | 5016 | 200 | 200 | .3 | .5 |

Ineffective Flow num= 2

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 4816 | 4886 | 960.56 | T |
| 5126 | 5176 | 960.62 | T |

BRIDGE

RIVER: Noonday Creek
REACH: 1 RS: 690

```
INPUT
Description: SB Bridge
Distance from Upstream XS =      70
Deck/Roadway Width        =      60
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
    num=       6
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
    4771     961       0    4886  960.56       0    4886  960.56  955.93
    5126  960.62  956.43    5126  960.62       0    5476     965       0

Upstream Bridge Cross Section Data
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    4816  954.68    4851  949.68    4886  944.68    4907  939.68    4924  937.68
    4978  936.28    4987  929.88    5000  927.78    5012  929.88    5016  934.68
    5051  937.68    5096  948.68    5176  964.68

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    4816     .13    4978     .06    5016     .13

Bank Sta: Left   Right    Coeff Contr.   Expan.
          4978    5016             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
    4816    4886  960.56       T
    5126    5176  960.62       T

Downstream  Deck/Roadway Coordinates
    num=       6
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
    4771     961       0    4886  960.56       0    4886  960.56  955.93
    5126  960.62  956.43    5126  960.62       0    5476     965       0

Downstream Bridge Cross Section Data
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    4816  955.32    4851  950.32    4886  945.32    4907  940.32    4924  938.32
    4973  940.12    4993  928.62    5000  927.52    5006  928.72    5016  936.32
    5051  938.32    5096  949.32    5176  965.32

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    4816     .13    4973     .06    5016     .13

Bank Sta: Left   Right    Coeff Contr.   Expan.
          4973    5016             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
    4816    4886  960.56       T
    5126    5176  960.62       T

Upstream Embankment side slope              =       2 horiz. to 1.0 vertical
Downstream Embankment side slope            =       2 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .98
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Abutments =  2

Abutment Data
Upstream     num=       2
     Sta    Elev     Sta    Elev
    4886  955.93    4926  933.93
Downstream     num=       2
     Sta    Elev     Sta    Elev
    4886  955.93    4926  933.93

Abutment Data
Upstream     num=       2
     Sta    Elev     Sta    Elev
    5086  936.43    5126  956.43
Downstream     num=       2
```

```
     Sta    Elev     Sta    Elev
    5086  936.43    5126  956.43

Number of Piers =  2

Pier Data
Pier Station     Upstream=    4966    Downstream=    4966
Upstream     num=       2
    Width   Elev    Width   Elev
       3       0       3     957
Downstream     num=       2
    Width   Elev    Width   Elev
       3       0       3     957

Pier Data
Pier Station     Upstream=    5046    Downstream=    5046
Upstream     num=       2
    Width   Elev    Width   Elev
       3       0       3     957
Downstream     num=       2
    Width   Elev    Width   Elev
       3       0       3     957

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       W.S. Pro Method

  W.S.Pro Data
    Left Embankment
       El of the top of the embankment = 960.56
       El of the toe of the abutment   = 939.54
    Right Embankment
       El of the top of the embankment = 960.62
       El of the toe of the abutment   = 937.82
    Abtument Type                      = 3 Sloping abutments and sloping embankments
    Slope of abutments                 = 2
    Top with of embankment             = 60
    Centroid station of bridge opening =
    Wing Wall Type                     = No wing walls present
       Width                           =
       Angle                           =
       Radius                          =
    Guide Banks Type                   = No Guide Bank present
       Length                          =
       Offset                          =
       Angle                           =

Selected Low Flow Methods = W.S.Pro Method

High Flow Method
       Pressure and Weir flow
           Submerged Inlet Cd          =
           Submerged Inlet + Outlet Cd =      .8
           Max Low Cord                =

Additional Bridge Parameters
       Add Friction component to Momentum
       Do not add Weight component to Momentum
       Class B flow critical depth computations use critical depth
           inside the bridge at the upstream end
       Criteria to check for pressure flow = Upstream energy grade line

CROSS SECTION


RIVER: Noonday Creek
REACH: 1                 RS: 590

INPUT
Description: Downstream SBL
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    4816     955    4851     950    4886     945    4907     940    4924     938
    4973   939.8    4993   928.3    5000   927.2    5006   928.4    5016     936
    5051     938    5096     949    5176     965
```

```
Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    4816     .13    4973     .06    5016     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          4973    5016              140     195     235             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
    4816    4886  960.56       T
    5126    5176  960.62       T

CROSS SECTION


RIVER: Noonday Creek
REACH: 1                  RS: 395

INPUT
Description: Middle Section - adj elev +0.1
Station Elevation Data    num=       8
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    4894   950.1    4953   943.1    4973   939.6    4993   928.1    5000     927
    5006   928.2    5016   935.8    5116   945.1

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    4894     .13    4973     .06    5016     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          4973    5016               95     150     190             .5       .7

CROSS SECTION


RIVER: Noonday Creek
REACH: 1                  RS: 245

INPUT
Description: Upstream NBL
Station Elevation Data    num=      14
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    4529     950    4629     946    4779     940    4849     935    4919     934
    4979     934    4987   926.7    5000   926.7    5014   927.2    5025     933
    5052     938    5092     941    5147     942    5202     950

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    4529     .13    4979     .06    5025     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          4979    5025              245     245     245             .5       .7
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
    4529    4840  957.93       T
    5125    5202  959.44       T

BRIDGE


RIVER: Noonday Creek
REACH: 1                  RS: 100

INPUT
Description: NB Bridge
Distance from Upstream XS =     115
Deck/Roadway Width        =      60
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
    num=       8
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
    4405     963            4645     960       0    4885  957.93       0
    4885  957.93  954.82    5125  959.44  956.32    5125  959.44       0
    5355     963       0    5585  966.56

Upstream Bridge Cross Section Data
Station Elevation Data    num=      14
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
```

```
    4529  949.54    4629  945.54    4779  939.54    4849  934.54    4919  933.54
    4979  933.54    4987  926.24    5000  926.24    5014  926.74    5025  932.54
    5052  937.54    5092  940.54    5147  941.54    5202  949.54

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    4529     .13    4979     .06    5025     .13

Bank Sta: Left   Right    Coeff Contr.   Expan.
          4979    5025            .5       .7
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
    4529    4840  957.93       T
    5125    5202  959.44       T

Downstream  Deck/Roadway Coordinates
    num=       8
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
    4405     963            4645     960       0    4885  957.93       0
    4885  957.93  954.82    5125  959.44  956.32    5125  959.44       0
    5355     963       0    5585  966.56

Downstream Bridge Cross Section Data
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    4701  948.46    4731  937.46    4926  934.46    4986  932.26    4990  927.06
    5000  925.86    5025  929.26    5032  933.96    5087  940.46    5272  945.46
    5417  955.46

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    4701     .13    4986     .06    5032     .13

Bank Sta: Left   Right    Coeff Contr.   Expan.
          4986    5032            .5       .7
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
    4701    4885  957.93       T
    5125    5417  959.44       T

Upstream Embankment side slope              =       2 horiz. to 1.0 vertical
Downstream Embankment side slope            =       2 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .98
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Abutments =  2

Abutment Data
Upstream     num=       2
     Sta    Elev     Sta    Elev
    4885  954.82    4945  924.82
Downstream     num=       2
     Sta    Elev     Sta    Elev
    4885  954.82    4945  924.82

Abutment Data
Upstream     num=       2
     Sta    Elev     Sta    Elev
    5065  926.32    5125  956.32
Downstream     num=       2
     Sta    Elev     Sta    Elev
    5065  926.32    5125  956.32

Number of Piers =  2

Pier Data
Pier Station     Upstream=    4965    Downstream=    4965
Upstream     num=       2
    Width   Elev    Width   Elev
       3       0       3     958
Downstream     num=       2
    Width   Elev    Width   Elev
       3       0       3     958
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Pier Data
Pier Station     Upstream=    5045    Downstream=    5045
Upstream     num=       2
    Width   Elev    Width   Elev
       3       0       3     958
Downstream     num=       2
    Width   Elev    Width   Elev
       3       0       3     958

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       W.S. Pro Method

  W.S.Pro Data
    Left Embankment
       El of the top of the embankment = 957.93
       El of the toe of the abutment   = 933.82
    Right Embankment
       El of the top of the embankment = 959.44
       El of the toe of the abutment   = 941.18
    Abtument Type                      = 3 Sloping abutments and sloping embankments
    Slope of abutments                 = 2
    Top with of embankment             = 60
    Centroid station of bridge opening =
    Wing Wall Type                     = No wing walls present
       Width                           =
       Angle                           =
       Radius                          =
    Guide Banks Type                   = No Guide Bank present
       Length                          =
       Offset                          =
       Angle                           =

Selected Low Flow Methods = W.S.Pro Method

High Flow Method
       Pressure and Weir flow
           Submerged Inlet Cd          =
           Submerged Inlet + Outlet Cd =      .8
           Max Low Cord                =

Additional Bridge Parameters
       Add Friction component to Momentum
       Do not add Weight component to Momentum
       Class B flow critical depth computations use critical depth
           inside the bridge at the upstream end
       Criteria to check for pressure flow = Upstream energy grade line

CROSS SECTION


RIVER: Noonday Creek
REACH: 1                 RS: 0

INPUT
Description: Downstrem NBL
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    4701     948    4731     937    4926     934    4986   931.8    4990   926.6
    5000   925.4    5025   928.8    5032   933.5    5087     940    5272     945
    5417     955

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    4701     .13    4986     .06    5032     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          4986    5032              600     630     650             .5       .7
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
    4701    4885  957.93       T
    5125    5417  959.44       T

CROSS SECTION
```

RIVER: Noonday Creek
REACH: 1 RS: -630

INPUT
Description: Exit
Station Elevation Data num= 13

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 4802 | 941.9 | 4867 | 941.5 | 4875 | 941.8 | 4923 | 932 | 4944 | 932.7 |
| 4977 | 932.7 | 4981 | 926.3 | 5000 | 925 | 5020 | 926 | 5023 | 932.6 |
| 5064 | 932.4 | 5092 | 944.3 | 5137 | 945.6 | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 4802 | .13 | 4977 | .06 | 5023 | .13 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 4977 | 5023 | 0 | 0 | .1 | .3 |

SUMMARY OF MANNING'S N VALUES

River:Noonday Creek

| Reach | River Sta. | n1 | n2 | n3 |
|---|---|---|---|---|
| 1 | 1250 | .13 | .06 | .13 |
| 1 | 790 | .13 | .06 | .13 |
| 1 | 690 | Bridge | | |
| 1 | 590 | .13 | .06 | .13 |
| 1 | 395 | .13 | .06 | .13 |
| 1 | 245 | .13 | .06 | .13 |
| 1 | 100 | Bridge | | |
| 1 | 0 | .13 | .06 | .13 |
| 1 | -630 | .13 | .06 | .13 |

SUMMARY OF REACH LENGTHS

River: Noonday Creek

| Reach | River Sta. | Left | Channel | Right |
|---|---|---|---|---|
| 1 | 1250 | 400 | 460 | 480 |
| 1 | 790 | 200 | 200 | 200 |
| 1 | 690 | Bridge | | |
| 1 | 590 | 140 | 195 | 235 |
| 1 | 395 | 95 | 150 | 190 |
| 1 | 245 | 245 | 245 | 245 |
| 1 | 100 | Bridge | | |
| 1 | 0 | 600 | 630 | 650 |
| 1 | -630 | 0 | 0 | 0 |

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: Noonday Creek

| Reach | River Sta. | Contr. | Expan. |
|---|---|---|---|
| 1 | 1250 | .3 | .5 |
| 1 | 790 | .3 | .5 |
| 1 | 690 | Bridge | |
| 1 | 590 | .3 | .5 |
| 1 | 395 | .5 | .7 |
| 1 | 245 | .5 | .7 |
| 1 | 100 | Bridge | |
| 1 | 0 | .5 | .7 |
| 1 | -630 | .1 | .3 |

# HEC-RAS PROPOSED BRIDGE MODEL

HEC-RAS Plan: Proposed River: Noonday Creek Reach: 1

| Reach | River Sta | Profile | Q Total | Min Ch El | W.S. Elev | Crit W.S. | E.G. Elev | E.G. Slope | Vel Chnl | Flow Area | Top Width | Froude # Chl |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft) | (ft) | (ft/ft) | (ft/s) | (sq ft) | (ft) | |
| 1 | -630 | 2 Yr | 2608.00 | 925.00 | 935.43 | 930.66 | 935.80 | 0.002855 | 5.26 | 741.11 | 164.93 | 0.30 |
| 1 | -630 | 50 Yr | 6003.00 | 925.00 | 939.73 | 934.81 | 940.25 | 0.002852 | 6.77 | 1517.70 | 196.12 | 0.32 |
| 1 | -630 | 100 Yr | 6889.00 | 925.00 | 940.63 | 935.40 | 941.18 | 0.002852 | 7.07 | 1695.83 | 202.60 | 0.33 |
| 1 | -630 | 500 Yr | 8519.00 | 925.00 | 942.46 | 936.30 | 943.10 | 0.002850 | 7.65 | 2135.43 | 285.68 | 0.33 |
| | | | | | | | | | | | | |
| 1 | 0 | 2 Yr | 2608.00 | 925.40 | 937.19 | 932.26 | 937.39 | 0.002076 | 4.78 | 871.09 | 332.73 | 0.27 |
| 1 | 0 | 50 Yr | 6003.00 | 925.40 | 941.59 | 936.09 | 941.85 | 0.002064 | 6.14 | 1767.39 | 427.32 | 0.29 |
| 1 | 0 | 100 Yr | 6889.00 | 925.40 | 942.49 | 936.62 | 942.77 | 0.002031 | 6.35 | 1984.55 | 463.27 | 0.29 |
| 1 | 0 | 500 Yr | 8519.00 | 925.40 | 944.33 | 937.48 | 944.64 | 0.001823 | 6.50 | 2425.86 | 536.32 | 0.28 |
| | | | | | | | | | | | | |
| 1 | 100 | | Bridge | | | | | | | | | |
| | | | | | | | | | | | | |
| 1 | 245 | 2 Yr | 2608.00 | 926.70 | 937.65 | 932.78 | 937.92 | 0.002017 | 4.68 | 953.17 | 238.28 | 0.27 |
| 1 | 245 | 50 Yr | 6003.00 | 926.70 | 942.10 | 936.77 | 942.43 | 0.001790 | 5.70 | 2026.74 | 421.28 | 0.27 |
| 1 | 245 | 100 Yr | 6889.00 | 926.70 | 943.02 | 937.23 | 943.35 | 0.001734 | 5.86 | 2287.38 | 450.43 | 0.27 |
| 1 | 245 | 500 Yr | 8519.00 | 926.70 | 944.83 | 937.93 | 945.15 | 0.001536 | 5.95 | 2803.84 | 508.19 | 0.26 |
| | | | | | | | | | | | | |
| 1 | 395 | 2 Yr | 2608.00 | 927.00 | 937.23 | 935.81 | 938.89 | 0.017267 | 10.36 | 261.49 | 54.29 | 0.72 |
| 1 | 395 | 50 Yr | 6003.00 | 927.00 | 940.22 | 940.22 | 943.62 | 0.024936 | 15.19 | 480.03 | 94.05 | 0.91 |
| 1 | 395 | 100 Yr | 6889.00 | 927.00 | 941.02 | 941.02 | 944.57 | 0.023518 | 15.65 | 561.05 | 107.30 | 0.89 |
| 1 | 395 | 500 Yr | 8519.00 | 927.00 | 942.64 | 942.38 | 946.10 | 0.019485 | 15.82 | 755.35 | 133.84 | 0.84 |
| | | | | | | | | | | | | |
| 1 | 590 | 2 Yr | 2608.00 | 927.20 | 940.70 | 935.99 | 940.79 | 0.003612 | 5.91 | 648.70 | 157.99 | 0.35 |
| 1 | 590 | 50 Yr | 6003.00 | 927.20 | 945.86 | 940.62 | 945.81 | 0.002587 | 6.77 | 1572.19 | 203.15 | 0.32 |
| 1 | 590 | 100 Yr | 6889.00 | 927.20 | 946.59 | 941.24 | 946.75 | 0.002723 | 7.18 | 1716.71 | 211.22 | 0.33 |
| 1 | 590 | 500 Yr | 8519.00 | 927.20 | 947.56 | 942.14 | 948.20 | 0.003144 | 8.04 | 1912.99 | 221.99 | 0.36 |
| | | | | | | | | | | | | |
| 1 | 690 | | Bridge | | | | | | | | | |
| | | | | | | | | | | | | |
| 1 | 790 | 2 Yr | 2608.00 | 928.10 | 941.20 | 935.78 | 941.53 | 0.002119 | 5.12 | 842.23 | 162.13 | 0.28 |
| 1 | 790 | 50 Yr | 6003.00 | 928.10 | 946.17 | 940.07 | 946.60 | 0.002006 | 6.43 | 1747.18 | 206.59 | 0.29 |
| 1 | 790 | 100 Yr | 6889.00 | 928.10 | 946.91 | 940.67 | 947.39 | 0.002138 | 6.84 | 1895.80 | 214.83 | 0.30 |
| 1 | 790 | 500 Yr | 8519.00 | 928.10 | 947.93 | 941.61 | 948.52 | 0.002488 | 7.68 | 2103.82 | 226.17 | 0.32 |
| | | | | | | | | | | | | |
| 1 | 1250 | 2 Yr | 2608.00 | 929.50 | 942.11 | 935.85 | 942.36 | 0.001531 | 4.46 | 911.56 | 163.48 | 0.24 |
| 1 | 1250 | 50 Yr | 6003.00 | 929.50 | 947.06 | 939.91 | 947.41 | 0.001551 | 5.75 | 1862.14 | 221.05 | 0.25 |
| 1 | 1250 | 100 Yr | 6889.00 | 929.50 | 947.86 | 940.57 | 948.25 | 0.001635 | 6.10 | 2043.91 | 231.13 | 0.26 |
| 1 | 1250 | 500 Yr | 8519.00 | 929.50 | 949.04 | 941.64 | 949.50 | 0.001836 | 6.77 | 2325.34 | 245.93 | 0.28 |

HEC-RAS Plan: Proposed River: Noonday Creek Reach: 1

| Reach | River Sta | Profile | E.G. Elev | W.S. Elev | Crit W.S. | Frctn Loss | C & E Loss | Top Width | Q Left | Q Channel | Q Right | Vel Chnl | Vel Total | Flow Area |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (ft) | (ft) | (ft) | (ft) | (ft) | (ft) | (cfs) | (cfs) | (cfs) | (ft/s) | (ft/s) | (sq ft) |
| 1 | -630 | 2 Yr | 935.80 | 935.43 | 930.66 | | | 164.93 | 210.96 | 2242.48 | 154.55 | 5.26 | 3.52 | 741.11 |
| 1 | -630 | 50 Yr | 940.25 | 939.73 | 934.81 | | | 196.12 | 1046.11 | 4230.03 | 726.87 | 6.77 | 3.96 | 1517.70 |
| 1 | -630 | 100 Yr | 941.18 | 940.63 | 935.40 | | | 202.60 | 1293.66 | 4704.04 | 891.30 | 7.07 | 4.06 | 1695.83 |
| 1 | -630 | 500 Yr | 943.10 | 942.46 | 936.30 | | | 285.68 | 1501.27 | 5739.81 | 1277.93 | 7.65 | 3.99 | 2135.43 |
| | | | | | | | | | | | | | | |
| 1 | 0 | 2 Yr | 937.39 | 937.19 | 932.26 | 1.53 | 0.00 | 332.73 | 468.45 | 2094.66 | 44.89 | 4.78 | 2.99 | 871.09 |
| 1 | 0 | 50 Yr | 941.85 | 941.59 | 936.09 | 1.52 | 0.00 | 427.32 | 1718.06 | 3932.44 | 352.50 | 6.14 | 3.40 | 1767.39 |
| 1 | 0 | 100 Yr | 942.77 | 942.49 | 936.62 | 1.50 | 0.00 | 463.27 | 2032.78 | 4332.60 | 523.62 | 6.35 | 3.47 | 1984.55 |
| 1 | 0 | 500 Yr | 944.64 | 944.33 | 937.48 | 1.43 | 0.00 | 536.32 | 2623.76 | 4987.30 | 907.94 | 6.50 | 3.51 | 2425.86 |
| | | | | | | | | | | | | | | |
| 1 | 100 BR D | 2 Yr | 937.50 | 937.28 | 932.73 | 0.17 | 0.00 | 133.98 | 305.21 | 2266.30 | 36.48 | 5.38 | 3.76 | 693.39 |
| 1 | 100 BR D | 50 Yr | 941.95 | 941.65 | 936.36 | 0.18 | 0.00 | 178.33 | 1080.17 | 4590.81 | 332.03 | 7.37 | 4.34 | 1382.16 |
| 1 | 100 BR D | 100 Yr | 942.86 | 942.55 | 936.98 | 0.18 | 0.00 | 181.92 | 1286.15 | 5149.08 | 453.78 | 7.76 | 4.46 | 1543.62 |
| 1 | 100 BR D | 500 Yr | 944.69 | 944.37 | 938.00 | 0.16 | 0.00 | 189.20 | 1682.55 | 6114.23 | 722.21 | 8.18 | 4.53 | 1881.42 |
| | | | | | | | | | | | | | | |
| 1 | 100 BR U | 2 Yr | 937.77 | 937.40 | 932.34 | 0.27 | 0.00 | 125.38 | 241.57 | 2299.86 | 66.57 | 5.19 | 3.70 | 705.01 |
| 1 | 100 BR U | 50 Yr | 942.27 | 941.59 | 936.20 | 0.32 | 0.00 | 178.09 | 892.90 | 4697.59 | 412.51 | 7.38 | 4.43 | 1356.56 |
| 1 | 100 BR U | 100 Yr | 943.19 | 942.45 | 936.81 | 0.33 | 0.00 | 181.52 | 1069.51 | 5271.49 | 548.00 | 7.80 | 4.56 | 1510.61 |
| 1 | 100 BR U | 500 Yr | 945.00 | 944.20 | 937.84 | 0.31 | 0.00 | 188.53 | 1414.11 | 6258.69 | 846.20 | 8.28 | 4.64 | 1835.06 |
| | | | | | | | | | | | | | | |
| 1 | 245 | 2 Yr | 937.92 | 937.65 | 932.78 | 0.15 | 0.00 | 238.28 | 526.17 | 2029.71 | 52.12 | 4.68 | 2.74 | 953.17 |
| 1 | 245 | 50 Yr | 942.43 | 942.10 | 936.77 | 0.16 | 0.00 | 421.28 | 2046.55 | 3640.86 | 315.59 | 5.70 | 2.96 | 2026.74 |
| 1 | 245 | 100 Yr | 943.35 | 943.02 | 937.23 | 0.16 | 0.00 | 450.43 | 2424.93 | 3985.51 | 478.56 | 5.86 | 3.01 | 2287.38 |
| 1 | 245 | 500 Yr | 945.15 | 944.83 | 937.93 | 0.15 | 0.00 | 508.19 | 3131.05 | 4548.58 | 839.36 | 5.95 | 3.04 | 2803.84 |
| | | | | | | | | | | | | | | |
| 1 | 395 | 2 Yr | 938.89 | 937.23 | 935.81 | 0.97 | 0.00 | 54.29 | | 2594.76 | 13.24 | 10.36 | 9.97 | 261.49 |
| 1 | 395 | 50 Yr | 943.62 | 940.22 | 940.22 | 1.17 | 0.00 | 94.05 | 0.89 | 5681.60 | 320.50 | 15.19 | 12.51 | 480.03 |
| 1 | 395 | 100 Yr | 944.57 | 941.02 | 941.02 | 1.10 | 0.00 | 107.30 | 8.01 | 6394.71 | 486.28 | 15.65 | 12.28 | 561.05 |
| 1 | 395 | 500 Yr | 946.10 | 942.64 | 942.38 | 0.94 | 0.00 | 133.84 | 54.90 | 7557.44 | 906.66 | 15.82 | 11.28 | 755.35 |
| | | | | | | | | | | | | | | |
| 1 | 590 | 2 Yr | 940.79 | 940.70 | 935.99 | 1.54 | 0.52 | 157.99 | 116.02 | 2280.52 | 211.46 | 5.91 | 4.02 | 648.70 |
| 1 | 590 | 50 Yr | 945.81 | 945.86 | 940.62 | 1.56 | 0.90 | 203.15 | 1015.79 | 4112.50 | 874.71 | 6.77 | 3.82 | 1572.19 |
| 1 | 590 | 100 Yr | 946.75 | 946.59 | 941.24 | 1.56 | 0.71 | 211.22 | 1258.41 | 4586.75 | 1043.84 | 7.18 | 4.01 | 1716.71 |
| 1 | 590 | 500 Yr | 948.20 | 947.56 | 942.14 | 1.52 | 0.24 | 221.99 | 1689.41 | 5477.22 | 1352.37 | 8.04 | 4.45 | 1912.99 |
| | | | | | | | | | | | | | | |
| 1 | 690 BR D | 2 Yr | 941.21 | 940.93 | 936.35 | 0.26 | 0.00 | 142.42 | 102.03 | 2311.32 | 194.65 | 6.05 | 4.25 | 613.76 |
| 1 | 690 BR D | 50 Yr | 946.28 | 946.00 | 940.89 | 0.20 | 0.00 | 172.38 | 793.96 | 4412.87 | 796.18 | 7.35 | 4.25 | 1411.76 |
| 1 | 690 BR D | 100 Yr | 947.05 | 946.74 | 941.49 | 0.21 | 0.00 | 176.71 | 967.42 | 4967.95 | 953.63 | 7.86 | 4.47 | 1539.72 |
| 1 | 690 BR D | 500 Yr | 948.11 | 947.73 | 942.46 | 0.24 | 0.00 | 182.57 | 1278.86 | 5998.64 | 1241.50 | 8.89 | 4.96 | 1718.02 |
| | | | | | | | | | | | | | | |
| 1 | 690 BR U | 2 Yr | 941.38 | 941.05 | 935.46 | 0.17 | 0.00 | 145.72 | 262.84 | 2110.74 | 234.41 | 5.12 | 3.16 | 825.49 |
| 1 | 690 BR U | 50 Yr | 946.44 | 945.91 | 939.68 | 0.16 | 0.00 | 174.44 | 1021.67 | 4152.76 | 828.57 | 6.96 | 3.74 | 1603.59 |
| 1 | 690 BR U | 100 Yr | 947.22 | 946.60 | 940.28 | 0.18 | 0.00 | 178.55 | 1214.24 | 4687.48 | 987.28 | 7.52 | 3.99 | 1726.41 |
| 1 | 690 BR U | 500 Yr | 948.32 | 947.52 | 941.28 | 0.21 | 0.00 | 183.97 | 1561.90 | 5679.96 | 1277.15 | 8.63 | 4.50 | 1892.68 |
| | | | | | | | | | | | | | | |

HEC-RAS Plan: Proposed River: Noonday Creek Reach: 1 (Continued)

| Reach | River Sta | Profile | E.G. Elev | W.S. Elev | Crit W.S. | Frctn Loss | C & E Loss | Top Width | Q Left | Q Channel | Q Right | Vel Chnl | Vel Total | Flow Area |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (ft) | (ft) | (ft) | (ft) | (ft) | (ft) | (cfs) | (cfs) | (cfs) | (ft/s) | (ft/s) | (sq ft) |
| 1 | 790 | 2 Yr | 941.53 | 941.20 | 935.78 | 0.15 | 0.00 | 162.13 | 292.05 | 2077.75 | 238.20 | 5.12 | 3.10 | 842.23 |
| 1 | 790 | 50 Yr | 946.60 | 946.17 | 940.07 | 0.15 | 0.00 | 206.59 | 1306.79 | 3821.18 | 875.03 | 6.43 | 3.44 | 1747.18 |
| 1 | 790 | 100 Yr | 947.39 | 946.91 | 940.67 | 0.16 | 0.00 | 214.83 | 1583.59 | 4262.31 | 1043.11 | 6.84 | 3.63 | 1895.80 |
| 1 | 790 | 500 Yr | 948.52 | 947.93 | 941.61 | 0.20 | 0.00 | 226.17 | 2081.70 | 5085.01 | 1352.30 | 7.68 | 4.05 | 2103.82 |
| | | | | | | | | | | | | | | |
| 1 | 1250 | 2 Yr | 942.36 | 942.11 | 935.85 | 0.83 | 0.00 | 163.48 | 302.80 | 2109.27 | 195.94 | 4.46 | 2.86 | 911.56 |
| 1 | 1250 | 50 Yr | 947.41 | 947.06 | 939.91 | 0.81 | 0.00 | 221.05 | 1347.09 | 3943.67 | 712.25 | 5.75 | 3.22 | 1862.14 |
| 1 | 1250 | 100 Yr | 948.25 | 947.86 | 940.57 | 0.86 | 0.00 | 231.13 | 1642.56 | 4394.69 | 851.76 | 6.10 | 3.37 | 2043.91 |
| 1 | 1250 | 500 Yr | 949.50 | 949.04 | 941.64 | 0.99 | 0.00 | 245.93 | 2192.33 | 5216.57 | 1110.09 | 6.77 | 3.66 | 2325.34 |

Plan: Proposed  Noonday Creek  1  RS: 100  Profile: 50 Yr

| E.G. US. (ft) | 942.43 | Element | Inside BR US | Inside BR DS |
|---|---|---|---|---|
| W.S. US. (ft) | 942.10 | E.G. Elev (ft) | 942.27 | 941.95 |
| Q Total (cfs) | 6003.00 | W.S. Elev (ft) | 941.59 | 941.65 |
| Q Bridge (cfs) | 6003.00 | Crit W.S. (ft) | 936.20 | 936.36 |
| Q Weir (cfs) | | Max Chl Dpth (ft) | 15.35 | 15.79 |
| Weir Sta Lft (ft) | | Vel Total (ft/s) | 4.43 | 4.34 |
| Weir Sta Rgt (ft) | | Flow Area (sq ft) | 1356.56 | 1382.16 |
| Weir Submerg | | Froude # Chl | 0.35 | 0.35 |
| Weir Max Depth (ft) | | Specif Force (cu ft) | 8102.75 | 7792.39 |
| Min El Weir Flow (ft) | 957.94 | Hydr Depth (ft) | 7.62 | 7.75 |
| Min El Prs (ft) | 956.32 | W.P. Total (ft) | 211.83 | 214.52 |
| Delta EG (ft) | 0.58 | Conv. Total (cfs) | 109308.6 | 107866.4 |
| Delta WS (ft) | 0.51 | Top Width (ft) | 178.09 | 178.33 |
| BR Open Area (sq ft) | 4235.47 | Frctn Loss (ft) | 0.32 | 0.18 |
| BR Open Vel (ft/s) | 4.43 | C & E Loss (ft) | 0.00 | 0.00 |
| Coef of Q | 1.00 | Shear Total (lb/sq ft) | 1.21 | 1.25 |
| Br Sel Method | WSPRO | Power Total (lb/ft s) | 5.34 | 5.41 |

Plan: Proposed  Noonday Creek  1  RS: 100  Profile: 100 Yr

| E.G. US. (ft) | 943.35 | Element | Inside BR US | Inside BR DS |
|---|---|---|---|---|
| W.S. US. (ft) | 943.02 | E.G. Elev (ft) | 943.19 | 942.86 |
| Q Total (cfs) | 6889.00 | W.S. Elev (ft) | 942.45 | 942.55 |
| Q Bridge (cfs) | 6889.00 | Crit W.S. (ft) | 936.81 | 936.98 |
| Q Weir (cfs) | | Max Chl Dpth (ft) | 16.21 | 16.69 |
| Weir Sta Lft (ft) | | Vel Total (ft/s) | 4.56 | 4.46 |
| Weir Sta Rgt (ft) | | Flow Area (sq ft) | 1510.61 | 1543.62 |
| Weir Submerg | | Froude # Chl | 0.36 | 0.36 |
| Weir Max Depth (ft) | | Specif Force (cu ft) | 9554.90 | 9248.62 |
| Min El Weir Flow (ft) | 957.94 | Hydr Depth (ft) | 8.32 | 8.49 |
| Min El Prs (ft) | 956.32 | W.P. Total (ft) | 219.09 | 222.11 |
| Delta EG (ft) | 0.58 | Conv. Total (cfs) | 123564.9 | 122817.2 |
| Delta WS (ft) | 0.52 | Top Width (ft) | 181.52 | 181.92 |
| BR Open Area (sq ft) | 4235.47 | Frctn Loss (ft) | 0.33 | 0.18 |
| BR Open Vel (ft/s) | 4.56 | C & E Loss (ft) | 0.00 | 0.00 |
| Coef of Q | 1.00 | Shear Total (lb/sq ft) | 1.34 | 1.37 |
| Br Sel Method | WSPRO | Power Total (lb/ft s) | 6.10 | 6.09 |

Plan: Proposed  Noonday Creek  1  RS: 100  Profile: 500 Yr

| E.G. US. (ft) | 945.15 | Element | Inside BR US | Inside BR DS |
|---|---|---|---|---|
| W.S. US. (ft) | 944.83 | E.G. Elev (ft) | 945.00 | 944.69 |
| Q Total (cfs) | 8519.00 | W.S. Elev (ft) | 944.20 | 944.37 |
| Q Bridge (cfs) | 8519.00 | Crit W.S. (ft) | 937.84 | 938.00 |
| Q Weir (cfs) | | Max Chl Dpth (ft) | 17.96 | 18.51 |
| Weir Sta Lft (ft) | | Vel Total (ft/s) | 4.64 | 4.53 |
| Weir Sta Rgt (ft) | | Flow Area (sq ft) | 1835.06 | 1881.42 |
| Weir Submerg | | Froude # Chl | 0.36 | 0.36 |
| Weir Max Depth (ft) | | Specif Force (cu ft) | 12867.59 | 12607.28 |
| Min El Weir Flow (ft) | 957.94 | Hydr Depth (ft) | 9.73 | 9.94 |
| Min El Prs (ft) | 956.32 | W.P. Total (ft) | 233.94 | 237.54 |
| Delta EG (ft) | 0.52 | Conv. Total (cfs) | 155320.3 | 155912.7 |
| Delta WS (ft) | 0.50 | Top Width (ft) | 188.53 | 189.20 |
| BR Open Area (sq ft) | 4235.47 | Frctn Loss (ft) | 0.31 | 0.16 |
| BR Open Vel (ft/s) | 4.64 | C & E Loss (ft) | 0.00 | 0.00 |

Plan: Proposed  Noonday Creek  1  RS: 100  Profile: 500 Yr (Continued)

| | | | | |
|---|---|---|---|---|
| Coef of Q | 1.00 | Shear Total (lb/sq ft) | 1.47 | 1.48 |
| Br Sel Method | WSPRO | Power Total (lb/ft s) | 6.84 | 6.68 |

HEC-RAS Version 4.0.0 March 2008
U.S. Army Corps of Engineers
Hydrologic Engineering Center
609 Second Street
Davis, California

```
X     X  XXXXXX    XXXX        XXXX       XX      XXXX
X     X  X        X    X      X   X     X  X    X
X     X  X        X           X   X    X    X   X
XXXXXXX  XXXX     X       XXX  XXXX     XXXXXX    XXXX
X     X  X        X           X  X     X    X        X
X     X  X        X    X      X   X    X    X        X
X     X  XXXXXX    XXXX       X    X   X    X   XXXXX
```

PROJECT DATA
Project Title: I75@Noonday
Project File : I75@Noonday.prj
Run Date and Time: 9/18/2009 11:25:30 AM

Project in English units

PLAN DATA

Plan Title: Proposed
Plan File : n:\TRA\255717\Hydraulics\I75@Noonday\HECRAS\Preliminary 2\I75@Noonday.p02

Geometry Title: Proposed
Geometry File : n:\TRA\255717\Hydraulics\I75@Noonday\HECRAS\Preliminary 2\I75@Noonday.g02

Flow Title : Urban 25%
Flow File : n:\TRA\255717\Hydraulics\I75@Noonday\HECRAS\Preliminary 2\I75@Noonday.f01

Plan Summary Information:
Number of: Cross Sections = 7 Multiple Openings = 0
Culverts = 0 Inline Structures = 0
Bridges = 2 Lateral Structures = 0

Computational Information
Water surface calculation tolerance = 0.01
Critical depth calculation tolerance = 0.01
Maximum number of iterations = 20
Maximum difference tolerance = 0.3
Flow tolerance factor = 0.001

Computation Options
Critical depth computed only where necessary
Conveyance Calculation Method: At breaks in n values only
Friction Slope Method: Average Conveyance
Computational Flow Regime: Subcritical Flow

FLOW DATA

Flow Title: Urban 25%
Flow File : n:\TRA\255717\Hydraulics\I75@Noonday\HECRAS\Preliminary 2\I75@Noonday.f01

Flow Data (cfs)

| River | Reach | RS | 2 Yr | 5 Yr | 10 Yr | 25 Yr | 50 Yr | 100 Yr | 500 Yr |
|---|---|---|---|---|---|---|---|---|---|
| Noonday Creek | 1 | 1250 | 2608 | 3814 | 4266 | 5375 | 6003 | 6889 | 8519 |

Boundary Conditions

| River | Reach | Profile | Upstream | Downstream |
|---|---|---|---|---|
| Noonday Creek | 1 | 2 Yr | Normal S = 0.00285 | Normal S = 0.00285 |
| Noonday Creek | 1 | 5 Yr | Normal S = 0.00285 | Normal S = 0.00285 |
| Noonday Creek | 1 | 10 Yr | Normal S = 0.00285 | Normal S = 0.00285 |
| Noonday Creek | 1 | 25 Yr | Normal S = 0.00285 | Normal S = 0.00285 |
| Noonday Creek | 1 | 50 Yr | Normal S = 0.00285 | Normal S = 0.00285 |
| Noonday Creek | 1 | 100 Yr | Normal S = 0.00285 | Normal S = 0.00285 |
| Noonday Creek | 1 | 500 Yr | Normal S = 0.00285 | Normal S = 0.00285 |

GEOMETRY DATA

Geometry Title: Proposed
Geometry File : n:\TRA\255717\Hydraulics\I75@Noonday\HECRAS\Preliminary 2\I75@Noonday.g02

CROSS SECTION

RIVER: Noonday Creek
REACH: 1 RS: 1250

INPUT
Description: Approach
Station Elevation Data num= 12

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 4819 | 951.6 | 4864 | 946.6 | 4900 | 942.1 | 4950 | 937.3 | 4980 | 936.6 |
| 4988 | 929.5 | 5000 | 929.5 | 5015 | 930.5 | 5023 | 936.8 | 5045 | 936.9 |
| 5125 | 959.5 | 5160 | 972.3 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 4819 | .13 | 4980 | .06 | 5023 | .13 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 4980 | 5023 | 400 | 460 | .3 | .5 |

CROSS SECTION

RIVER: Noonday Creek
REACH: 1 RS: 790

INPUT
Description: Upstream SBL
Station Elevation Data num= 13

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 4816 | 955 | 4851 | 950 | 4886 | 945 | 4907 | 940 | 4924 | 938 |
| 4978 | 936.6 | 4987 | 930.2 | 5000 | 928.1 | 5012 | 930.2 | 5016 | 935 |
| 5051 | 938 | 5096 | 949 | 5176 | 965 | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 4816 | .13 | 4978 | .06 | 5016 | .13 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 4978 | 5016 | 200 | 200 | .3 | .5 |

Ineffective Flow num= 2

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 4816 | 4886 | 960.56 | T |
| 5126 | 5176 | 960.62 | T |

BRIDGE

RIVER: Noonday Creek
REACH: 1 RS: 690

```
INPUT
Description: SB Bridge
Distance from Upstream XS =      70
Deck/Roadway Width        =      60
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
    num=       6
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
    4771     961       0    4886  960.56       0    4886  960.56  955.93
    5126  960.62  956.43    5126  960.62       0    5476     965       0

Upstream Bridge Cross Section Data
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    4816  954.68    4851  949.68    4886  944.68    4907  939.68    4924  937.68
    4978  936.28    4987  929.88    5000  927.78    5012  929.88    5016  934.68
    5051  937.68    5096  948.68    5176  964.68

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    4816     .13    4978     .06    5016     .13

Bank Sta: Left   Right    Coeff Contr.   Expan.
          4978    5016             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
    4816    4886  960.56       T
    5126    5176  960.62       T

Downstream  Deck/Roadway Coordinates
    num=       6
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
    4771     961       0    4886  960.56       0    4886  960.56  955.93
    5126  960.62  956.43    5126  960.62       0    5476     965       0

Downstream Bridge Cross Section Data
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    4816  955.32    4851  950.32    4886  945.32    4907  940.32    4924  938.32
    4973  940.12    4993  928.62    5000  927.52    5006  928.72    5016  936.32
    5051  938.32    5096  949.32    5176  965.32

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    4816     .13    4973     .06    5016     .13

Bank Sta: Left   Right    Coeff Contr.   Expan.
          4973    5016             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
    4816    4886  960.56       T
    5126    5176  960.62       T

Upstream Embankment side slope              =       2 horiz. to 1.0 vertical
Downstream Embankment side slope            =       2 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .98
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Abutments =  2

Abutment Data
Upstream     num=       2
     Sta    Elev     Sta    Elev
    4886  955.93    4926  933.93
Downstream     num=       2
     Sta    Elev     Sta    Elev
    4886  955.93    4926  933.93

Abutment Data
Upstream     num=       2
     Sta    Elev     Sta    Elev
    5086  936.43    5126  956.43
Downstream     num=       2
```

```
     Sta    Elev     Sta    Elev
    5086  936.43    5126  956.43

Number of Piers =  2

Pier Data
Pier Station     Upstream=    4966    Downstream=    4966
Upstream     num=       2
    Width   Elev    Width   Elev
       3       0       3     957
Downstream     num=       2
    Width   Elev    Width   Elev
       3       0       3     957

Pier Data
Pier Station     Upstream=    5046    Downstream=    5046
Upstream     num=       2
    Width   Elev    Width   Elev
       3       0       3     957
Downstream     num=       2
    Width   Elev    Width   Elev
       3       0       3     957

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       W.S. Pro Method

  W.S.Pro Data
    Left Embankment
       El of the top of the embankment = 960.56
       El of the toe of the abutment   = 939.54
    Right Embankment
       El of the top of the embankment = 960.62
       El of the toe of the abutment   = 937.82
    Abtument Type                      = 3 Sloping abutments and sloping embankments
    Slope of abutments                 = 2
    Top with of embankment             = 60
    Centroid station of bridge opening =
    Wing Wall Type                     = No wing walls present
       Width                           =
       Angle                           =
       Radius                          =
    Guide Banks Type                   = No Guide Bank present
       Length                          =
       Offset                          =
       Angle                           =

Selected Low Flow Methods = W.S.Pro Method

High Flow Method
       Pressure and Weir flow
           Submerged Inlet Cd          =
           Submerged Inlet + Outlet Cd =      .8
           Max Low Cord                =

Additional Bridge Parameters
       Add Friction component to Momentum
       Do not add Weight component to Momentum
       Class B flow critical depth computations use critical depth
           inside the bridge at the upstream end
       Criteria to check for pressure flow = Upstream energy grade line

CROSS SECTION


RIVER: Noonday Creek
REACH: 1                 RS: 590

INPUT
Description: Downstream SBL
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    4816     955    4851     950    4886     945    4907     940    4924     938
    4973   939.8    4993   928.3    5000   927.2    5006   928.4    5016     936
    5051     938    5096     949    5176     965
```

```
Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    4816     .13    4973     .06    5016     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          4973    5016              140     195     235             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
    4816    4886  960.56       T
    5126    5176  960.62       T

CROSS SECTION


RIVER: Noonday Creek
REACH: 1                  RS: 395

INPUT
Description: Middle Section - adj elev +0.1
Station Elevation Data    num=       8
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    4894   950.1    4953   943.1    4973   939.6    4993   928.1    5000     927
    5006   928.2    5016   935.8    5116   945.1

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    4894     .13    4973     .06    5016     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          4973    5016               95     150     190             .5       .7

CROSS SECTION


RIVER: Noonday Creek
REACH: 1                  RS: 245

INPUT
Description: Upstream NBL
Station Elevation Data    num=      14
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    4529     950    4629     946    4779     940    4849     935    4919     934
    4979     934    4987   926.7    5000   926.7    5014   927.2    5025     933
    5052     938    5092     941    5147     942    5202     950

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    4529     .13    4979     .06    5025     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          4979    5025              245     245     245             .5       .7
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
    4529    4840  957.93       T
    5125    5202  959.44       T

BRIDGE


RIVER: Noonday Creek
REACH: 1                  RS: 100

INPUT
Description: NB Bridge
Distance from Upstream XS =      70
Deck/Roadway Width        =     105
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
    num=       8
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
    4405     963            4645     960       0    4885  957.93       0
    4885  957.93  954.82    5125  959.44  956.32    5125  959.44       0
    5355     963       0    5585  966.56

Upstream Bridge Cross Section Data
Station Elevation Data    num=      14
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
```

```
    4529  949.54    4629  945.54    4779  939.54    4849  934.54    4919  933.54
    4979  933.54    4987  926.24    5000  926.24    5014  926.74    5025  932.54
    5052  937.54    5092  940.54    5147  941.54    5202  949.54

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    4529     .13    4979     .06    5025     .13

Bank Sta: Left   Right    Coeff Contr.   Expan.
          4979    5025            .5       .7
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
    4529    4840  957.93       T
    5125    5202  959.44       T

Downstream  Deck/Roadway Coordinates
    num=       8
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
    4405     963            4645     960       0    4885  957.93       0
    4885  957.93  954.82    5125  959.44  956.32    5125  959.44       0
    5355     963       0    5585  966.56

Downstream Bridge Cross Section Data
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    4701  948.46    4731  937.46    4926  934.46    4986  932.26    4990  927.06
    5000  925.86    5025  929.26    5032  933.96    5087  940.46    5272  945.46
    5417  955.46

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    4701     .13    4986     .06    5032     .13

Bank Sta: Left   Right    Coeff Contr.   Expan.
          4986    5032            .5       .7
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
    4701    4885  957.93       T
    5125    5417  959.44       T

Upstream Embankment side slope              =       2 horiz. to 1.0 vertical
Downstream Embankment side slope            =       2 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .98
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Abutments =  2

Abutment Data
Upstream     num=       2
     Sta    Elev     Sta    Elev
    4885  954.82    4945  924.82
Downstream     num=       2
     Sta    Elev     Sta    Elev
    4885  954.82    4945  924.82

Abutment Data
Upstream     num=       2
     Sta    Elev     Sta    Elev
    5065  926.32    5125  956.32
Downstream     num=       2
     Sta    Elev     Sta    Elev
    5065  926.32    5125  956.32

Number of Piers =  2

Pier Data
Pier Station     Upstream=    4965    Downstream=    4965
Upstream     num=       2
    Width   Elev    Width   Elev
       3       0       3     958
Downstream     num=       2
    Width   Elev    Width   Elev
       3       0       3     958
```

```
Pier Data
Pier Station     Upstream=    5045    Downstream=    5045
Upstream     num=       2
    Width   Elev    Width   Elev
       3       0       3     958
Downstream     num=       2
    Width   Elev    Width   Elev
       3       0       3     958

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       W.S. Pro Method

  W.S.Pro Data
    Left Embankment
       El of the top of the embankment = 957.93
       El of the toe of the abutment   = 933.82
    Right Embankment
       El of the top of the embankment = 959.44
       El of the toe of the abutment   = 941.18
    Abtument Type                      = 3 Sloping abutments and sloping embankments
    Slope of abutments                 = 2
    Top with of embankment             = 60
    Centroid station of bridge opening =
    Wing Wall Type                     = No wing walls present
       Width                           =
       Angle                           =
       Radius                          =
    Guide Banks Type                   = No Guide Bank present
       Length                          =
       Offset                          =
       Angle                           =

Selected Low Flow Methods = W.S.Pro Method

High Flow Method
       Pressure and Weir flow
           Submerged Inlet Cd          =
           Submerged Inlet + Outlet Cd =      .8
           Max Low Cord                =

Additional Bridge Parameters
       Add Friction component to Momentum
       Do not add Weight component to Momentum
       Class B flow critical depth computations use critical depth
           inside the bridge at the upstream end
       Criteria to check for pressure flow = Upstream energy grade line

CROSS SECTION


RIVER: Noonday Creek
REACH: 1                 RS: 0

INPUT
Description: Downstrem NBL
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    4701     948    4731     937    4926     934    4986   931.8    4990   926.6
    5000   925.4    5025   928.8    5032   933.5    5087     940    5272     945
    5417     955

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    4701     .13    4986     .06    5032     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          4986    5032              600     630     650             .5       .7
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
    4701    4885  957.93       T
    5125    5417  959.44       T

CROSS SECTION
```

RIVER: Noonday Creek
REACH: 1 RS: -630

INPUT
Description: Exit
Station Elevation Data num= 13

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 4802 | 941.9 | 4867 | 941.5 | 4875 | 941.8 | 4923 | 932 | 4944 | 932.7 |
| 4977 | 932.7 | 4981 | 926.3 | 5000 | 925 | 5020 | 926 | 5023 | 932.6 |
| 5064 | 932.4 | 5092 | 944.3 | 5137 | 945.6 | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 4802 | .13 | 4977 | .06 | 5023 | .13 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 4977 | 5023 | 0 | 0 | .1 | .3 |

SUMMARY OF MANNING'S N VALUES

River:Noonday Creek

| Reach | River Sta. | n1 | n2 | n3 |
|---|---|---|---|---|
| 1 | 1250 | .13 | .06 | .13 |
| 1 | 790 | .13 | .06 | .13 |
| 1 | 690 | Bridge | | |
| 1 | 590 | .13 | .06 | .13 |
| 1 | 395 | .13 | .06 | .13 |
| 1 | 245 | .13 | .06 | .13 |
| 1 | 100 | Bridge | | |
| 1 | 0 | .13 | .06 | .13 |
| 1 | -630 | .13 | .06 | .13 |

SUMMARY OF REACH LENGTHS

River: Noonday Creek

| Reach | River Sta. | Left | Channel | Right |
|---|---|---|---|---|
| 1 | 1250 | 400 | 460 | 480 |
| 1 | 790 | 200 | 200 | 200 |
| 1 | 690 | Bridge | | |
| 1 | 590 | 140 | 195 | 235 |
| 1 | 395 | 95 | 150 | 190 |
| 1 | 245 | 245 | 245 | 245 |
| 1 | 100 | Bridge | | |
| 1 | 0 | 600 | 630 | 650 |
| 1 | -630 | 0 | 0 | 0 |

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: Noonday Creek

| Reach | River Sta. | Contr. | Expan. |
|---|---|---|---|
| 1 | 1250 | .3 | .5 |
| 1 | 790 | .3 | .5 |
| 1 | 690 | Bridge | |
| 1 | 590 | .3 | .5 |
| 1 | 395 | .5 | .7 |
| 1 | 245 | .5 | .7 |
| 1 | 100 | Bridge | |
| 1 | 0 | .5 | .7 |
| 1 | -630 | .1 | .3 |

# Section VI
# FEMA HEC-2 Computer Model Output

# DUPLICATE EFFECTIVE (DE)MODEL FLOODWAY

HEC-RAS Plan: FW River: RIVER-1 Reach: Reach-1

| Reach | River Sta | Profile | W.S. Elev | Prof Delta WS | E.G. Elev | Top Wdth Act | Q Left | Q Channel | Q Right | Enc Sta L | Ch Sta L | Ch Sta R | Enc Sta R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (ft) | (ft) | (ft) | (ft) | (cfs) | (cfs) | (cfs) | (ft) | (ft) | (ft) | (ft) |
| Reach-1 | 203.92 | Natural | 893.21 | | 894.29 | 340.19 | 3218.68 | 13578.56 | 111.75 | | 1947.70 | 2057.80 | |
| Reach-1 | 203.92 | Floodway | 893.21 | -0.01 | 894.29 | 290.00 | 3213.37 | 13584.33 | 111.31 | 1790.00 | 1947.70 | 2057.80 | 2080.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 776.77 NEW | Natural | 894.66 | | 894.84 | 839.76 | 4319.40 | 6299.09 | 6290.51 | | 990.80 | 1057.56 | |
| Reach-1 | 776.77 NEW | Floodway | 894.65 | 0.00 | 894.94 | 590.00 | 5246.90 | 7363.54 | 4298.55 | 724.00 | 990.80 | 1057.56 | 1314.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 1621.49 | Natural | 894.97 | | 895.67 | 928.32 | 1314.46 | 7660.29 | 7934.25 | | 1974.98 | 2023.08 | |
| Reach-1 | 1621.49 | Floodway | 894.96 | 0.00 | 896.15 | 600.00 | 1635.12 | 9153.26 | 6120.61 | 1800.00 | 1974.98 | 2023.08 | 2400.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 3153.49 | Natural | 897.84 | | 899.14 | 441.64 | 3493.10 | 12720.85 | 695.05 | | 1954.50 | 2041.10 | |
| Reach-1 | 3153.49 | Floodway | 898.59 | 0.75 | 899.77 | 330.00 | 3388.07 | 12742.21 | 778.71 | 1765.00 | 1954.50 | 2041.10 | 2095.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 4576.80 | Natural | 901.63 | | 902.45 | 343.98 | 1204.04 | 9750.79 | 5879.17 | | 970.00 | 1030.00 | |
| Reach-1 | 4576.80 | Floodway | 901.92 | 0.29 | 902.78 | 225.00 | 1216.74 | 9956.63 | 5660.64 | 930.00 | 970.00 | 1030.00 | 1155.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 4753.78 | Natural | 901.97 | | 903.21 | 172.13 | 296.63 | 16327.63 | 209.74 | | 938.80 | 1064.20 | |
| Reach-1 | 4753.78 | Floodway | 902.27 | 0.30 | 903.50 | 140.00 | 180.62 | 16556.91 | 96.47 | 930.00 | 938.80 | 1064.20 | 1070.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 4858.98 BR D | Natural | 902.38 | | 903.91 | 119.40 | | 17271.00 | | | 938.80 | 1064.20 | |
| Reach-1 | 4858.98 BR D | Floodway | 902.69 | 0.30 | 904.15 | 119.40 | | 17271.00 | | 930.00 | 938.80 | 1064.20 | 1070.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 4858.98 BR U | Natural | 902.79 | | 904.23 | 119.40 | | 17271.00 | | | 938.80 | 1064.20 | |
| Reach-1 | 4858.98 BR U | Floodway | 903.06 | 0.27 | 904.46 | 119.40 | | 17271.00 | | 857.80 | 938.80 | 1064.20 | 1145.20 |
| | | | | | | | | | | | | | |
| Reach-1 | 4958.98 | Natural | 904.22 | | 904.70 | 287.40 | 4468.73 | 9243.17 | 3559.10 | | 975.00 | 1040.00 | |
| Reach-1 | 4958.98 | Floodway | 904.41 | 0.19 | 904.91 | 287.40 | 4392.20 | 9398.81 | 3480.00 | 857.80 | 975.00 | 1040.00 | 1145.20 |
| | | | | | | | | | | | | | |
| Reach-1 | 5486.69 NEW | Natural | 904.98 | | 905.02 | 1320.08 | 5923.16 | 3122.35 | 8225.49 | | 934.25 | 985.00 | |
| Reach-1 | 5486.69 NEW | Floodway | 905.19 | 0.22 | 905.32 | 610.00 | 5030.40 | 4548.25 | 7692.35 | 700.00 | 934.25 | 985.00 | 1310.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 5940.21 | Natural | 905.05 | | 905.10 | 1796.48 | 7448.19 | 4232.39 | 5590.43 | | 1968.00 | 2043.00 | |
| Reach-1 | 5940.21 | Floodway | 905.35 | 0.30 | 905.47 | 736.00 | 5216.93 | 5738.93 | 6315.14 | 1670.00 | 1968.00 | 2043.00 | 2406.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 7286.45 | Natural | 905.32 | | 905.59 | 697.23 | 4399.64 | 6463.77 | 6407.59 | | 1965.50 | 2023.80 | |
| Reach-1 | 7286.45 | Floodway | 905.79 | 0.47 | 906.24 | 460.00 | 5142.20 | 7950.74 | 4178.07 | 1735.00 | 1965.50 | 2023.80 | 2195.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 8445.73 | Natural | 906.06 | | 907.26 | 385.56 | 2217.95 | 11359.20 | 3693.84 | | 1961.40 | 2026.30 | |
| Reach-1 | 8445.73 | Floodway | 906.93 | 0.87 | 907.99 | 290.00 | 2449.53 | 11234.63 | 3586.85 | 1875.00 | 1961.40 | 2026.30 | 2165.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 9055.09 | Natural | 907.50 | | 908.46 | 197.00 | 3474.21 | 10285.70 | 3511.09 | | 972.00 | 1028.00 | |
| Reach-1 | 9055.09 | Floodway | 908.06 | 0.56 | 909.02 | 197.00 | 3363.22 | 10540.85 | 3366.94 | 903.00 | 972.00 | 1028.00 | 1100.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 9202.15 BR D | Natural | 905.98 | | 910.36 | 50.00 | | 14423.00 | | | 972.00 | 1028.00 | |
| Reach-1 | 9202.15 BR D | Floodway | 906.69 | 0.71 | 910.73 | 50.00 | | 14423.00 | | 903.00 | 972.00 | 1028.00 | 1100.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 9202.15 BR U | Natural | 907.31 | | 911.08 | 50.00 | | 14423.00 | | | 972.00 | 1028.00 | |
| Reach-1 | 9202.15 BR U | Floodway | 907.77 | 0.46 | 911.36 | 50.00 | | 14423.00 | | 903.00 | 972.00 | 1028.00 | 1090.00 |

HEC-RAS Plan: FW River: RIVER-1 Reach: Reach-1 (Continued)

| Reach | River Sta | Profile | W.S. Elev | Prof Delta WS | E.G. Elev | Top Wdth Act | Q Left | Q Channel | Q Right | Enc Sta L | Ch Sta L | Ch Sta R | Enc Sta R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (ft) | (ft) | (ft) | (ft) | (cfs) | (cfs) | (cfs) | (ft) | (ft) | (ft) | (ft) |
| Reach-1 | 9298.15 | Natural | 911.07 | | 912.11 | 194.69 | 3368.99 | 9355.54 | 1698.47 | | 980.00 | 1028.00 | |
| Reach-1 | 9298.15 | Floodway | 911.29 | 0.21 | 912.33 | 187.00 | 3195.78 | 9451.92 | 1775.30 | 903.00 | 980.00 | 1028.00 | 1090.00 |
| Reach-1 | 10400.82 | Natural | 912.93 | | 913.25 | 466.18 | 4685.10 | 6560.65 | 3177.26 | | 1980.00 | 2030.00 | |
| Reach-1 | 10400.82 | Floodway | 913.12 | 0.18 | 913.50 | 285.00 | 3925.44 | 7017.25 | 3480.31 | 1865.00 | 1980.00 | 2030.00 | 2150.00 |
| Reach-1 | 10946.58 NEW | Natural | 912.91 | | 913.91 | 285.89 | 2256.55 | 7443.31 | 4723.14 | | 291.88 | 325.08 | |
| Reach-1 | 10946.58 NEW | Floodway | 913.14 | 0.24 | 914.18 | 215.00 | 1883.86 | 7561.21 | 4977.93 | 235.00 | 291.88 | 325.08 | 450.00 |
| Reach-1 | 11699.91 | Natural | 914.24 | | 914.46 | 545.28 | 5486.30 | 8251.12 | 685.58 | | 1927.10 | 2018.10 | |
| Reach-1 | 11699.91 | Floodway | 914.49 | 0.25 | 914.78 | 297.00 | 4474.39 | 9173.72 | 774.89 | 1773.00 | 1927.10 | 2018.10 | 2070.00 |
| Reach-1 | 12336.76 NEW | Natural | 914.55 | | 914.57 | 1244.73 | 7104.38 | 2702.02 | 4616.60 | | 1262.92 | 1321.01 | |
| Reach-1 | 12336.76 NEW | Floodway | 914.88 | 0.33 | 915.01 | 470.00 | 6797.25 | 4958.02 | 2667.73 | 972.00 | 1262.92 | 1321.01 | 1442.00 |
| Reach-1 | 13462.07 | Natural | 914.66 | | 914.71 | 813.10 | 5038.36 | 2469.30 | 6915.34 | | 1978.30 | 2022.20 | |
| Reach-1 | 13462.07 | Floodway | 915.22 | 0.55 | 915.29 | 520.00 | 5100.03 | 3105.07 | 6217.90 | 1760.00 | 1978.30 | 2022.20 | 2280.00 |
| Reach-1 | 14756.18 | Natural | 914.85 | | 914.88 | 1480.52 | 5541.58 | 2073.37 | 6808.05 | | 1970.20 | 2021.00 | |
| Reach-1 | 14756.18 | Floodway | 915.52 | 0.67 | 915.60 | 680.00 | 4187.40 | 3405.07 | 6830.54 | 1666.00 | 1970.20 | 2021.00 | 2346.00 |
| Reach-1 | 16295.42 | Natural | 915.13 | | 915.17 | 1304.41 | 5255.01 | 2807.90 | 6360.09 | | 1965.00 | 2030.00 | |
| Reach-1 | 16295.42 | Floodway | 916.00 | 0.87 | 916.04 | 750.00 | 4562.77 | 2833.33 | 7026.90 | 1660.00 | 1965.00 | 2030.00 | 2410.00 |
| Reach-1 | 17413.80 | Natural | 915.59 | | 915.63 | 1897.15 | 5158.67 | 2815.72 | 6448.62 | | 1970.00 | 2040.00 | |
| Reach-1 | 17413.80 | Floodway | 916.49 | 0.91 | 916.65 | 700.00 | 4553.14 | 4730.10 | 5139.76 | 1655.00 | 1970.00 | 2040.00 | 2355.00 |
| Reach-1 | 17515.47 | Natural | 915.64 | | 915.68 | 1898.79 | 5265.64 | 2827.87 | 6558.50 | | 1970.00 | 2040.00 | |
| Reach-1 | 17515.47 | Floodway | 916.61 | 0.97 | 916.77 | 700.00 | 4654.13 | 4753.21 | 5244.66 | 1655.00 | 1970.00 | 2040.00 | 2355.00 |
| Reach-1 | 17641.44BR D | Natural | 918.15 | | 918.17 | 1494.10 | 4430.40 | 6421.11 | 3783.50 | | 1949.60 | 2050.40 | |
| Reach-1 | 17641.44BR D | Floodway | 918.23 | 0.08 | 918.90 | 700.00 | 4557.76 | 6911.21 | 3171.28 | 1655.00 | 1949.60 | 2050.40 | 2355.00 |
| Reach-1 | 17641.44BR U | Natural | 918.15 | | 918.17 | 1494.10 | 4430.40 | 6421.11 | 3783.50 | | 1949.60 | 2050.40 | |
| Reach-1 | 17641.44BR U | Floodway | 918.69 | 0.53 | 918.90 | 550.00 | 4832.45 | 6716.62 | 3091.18 | 1648.00 | 1949.60 | 2050.40 | 2198.00 |
| Reach-1 | 17748.44 NEW | Natural | 918.15 | | 918.17 | 1802.78 | 7812.77 | 1744.54 | 5094.69 | | 1967.33 | 2029.17 | |
| Reach-1 | 17748.44 NEW | Floodway | 918.69 | 0.53 | 918.90 | 550.00 | 6696.83 | 4609.30 | 3345.87 | 1648.00 | 1967.33 | 2029.17 | 2198.00 |
| Reach-1 | 17813.61 | Natural | 918.12 | | 918.28 | 1252.38 | 8560.92 | 4090.99 | 2000.08 | | 1980.00 | 2027.00 | |
| Reach-1 | 17813.61 | Floodway | 918.72 | 0.60 | 919.13 | 530.00 | 5765.47 | 5828.48 | 3058.05 | 1654.00 | 1980.00 | 2027.00 | 2184.00 |
| Reach-1 | 18146.32 | Natural | 918.51 | | 918.75 | 627.74 | 9171.43 | 5170.71 | 309.86 | | 1972.00 | 2028.00 | |
| Reach-1 | 18146.32 | Floodway | 919.45 | 0.93 | 919.76 | 400.00 | 8280.93 | 5984.26 | 386.81 | 1650.00 | 1972.00 | 2028.00 | 2050.00 |
| Reach-1 | 18651.90 | Natural | 919.04 | | 919.70 | 518.83 | 2087.53 | 7117.65 | 5446.83 | | 1980.00 | 2030.00 | |

HEC-RAS Plan: FW River: RIVER-1 Reach: Reach-1 (Continued)

| Reach | River Sta | Profile | W.S. Elev | Prof Delta WS | E.G. Elev | Top Width Act | Q Left | Q Channel | Q Right | Enc Sta L | Ch Sta L | Ch Sta R | Enc Sta R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (ft) | (ft) | (ft) | (ft) | (cfs) | (cfs) | (cfs) | (ft) | (ft) | (ft) | (ft) |
| Reach-1 | 18651.90 | Floodway | 920.05 | 1.00 | 920.63 | 390.00 | 2667.03 | 7069.48 | 4915.49 | 1795.00 | 1980.00 | 2030.00 | 2185.00 |
| Reach-1 | 20340.54 | Natural | 922.07 | | 922.33 | 769.63 | 3718.54 | 4870.16 | 6063.30 | | 1967.10 | 2022.10 | |
| Reach-1 | 20340.54 | Floodway | 922.86 | 0.79 | 923.30 | 400.00 | 1949.49 | 6066.54 | 6635.97 | 1895.00 | 1967.10 | 2022.10 | 2295.00 |
| Reach-1 | 20788.78 NEW | Natural | 922.69 | | 923.13 | 516.55 | 1300.58 | 5672.85 | 7678.57 | | 673.37 | 725.69 | |
| Reach-1 | 20788.78 NEW | Floodway | 923.66 | 0.97 | 924.13 | 370.00 | 1655.37 | 6096.97 | 6899.66 | 600.00 | 673.37 | 725.69 | 970.00 |
| Reach-1 | 21440.00 | Natural | 923.73 | | 923.90 | 721.73 | 10105.46 | 4351.59 | 194.95 | | 1975.00 | 2030.00 | |
| Reach-1 | 21440.00 | Floodway | 924.67 | 0.94 | 924.90 | 437.00 | 9475.94 | 4908.56 | 267.50 | 1623.00 | 1975.00 | 2030.00 | 2060.00 |
| Reach-1 | 22221.01 NEW | Natural | 924.25 | | 924.31 | 1144.61 | 5271.26 | 2911.43 | 2927.31 | | 988.66 | 1050.16 | |
| Reach-1 | 22221.01 NEW | Floodway | 925.23 | 0.98 | 925.30 | 800.00 | 6029.48 | 3133.54 | 1946.98 | 500.00 | 988.66 | 1050.16 | 1300.00 |
| Reach-1 | 23217.98 | Natural | 923.97 | | 926.33 | 150.66 | 2488.08 | 8123.30 | 498.62 | | 980.00 | 1020.00 | |
| Reach-1 | 23217.98 | Floodway | 924.96 | 1.00 | 927.13 | 100.00 | 2384.77 | 8226.74 | 498.49 | 935.00 | 980.00 | 1020.00 | 1035.00 |
| Reach-1 | 23378.74BR D | Natural | 925.64 | | 927.61 | 120.60 | 2914.64 | 8382.44 | 619.92 | | 980.00 | 1020.00 | |
| Reach-1 | 23378.74BR D | Floodway | 926.44 | 0.81 | 928.25 | 100.00 | 2894.27 | 8358.25 | 664.48 | 935.00 | 980.00 | 1020.00 | 1035.00 |
| Reach-1 | 23378.74BR U | Natural | 926.52 | | 927.92 | 146.88 | 2092.56 | 8777.83 | 1046.61 | | 980.00 | 1028.00 | |
| Reach-1 | 23378.74BR U | Floodway | 927.31 | 0.79 | 928.53 | 145.78 | 2136.70 | 8643.95 | 1136.35 | 870.00 | 980.00 | 1028.00 | 1070.00 |
| Reach-1 | 23477.24 | Natural | 927.63 | | 928.28 | 227.41 | 4009.69 | 6998.17 | 909.14 | | 980.00 | 1028.00 | |
| Reach-1 | 23477.24 | Floodway | 928.10 | 0.47 | 928.82 | 200.00 | 3533.00 | 7373.31 | 1010.69 | 870.00 | 980.00 | 1028.00 | 1070.00 |
| Reach-1 | 24584.31 | Natural | 929.08 | | 929.36 | 361.31 | 4482.29 | 7108.54 | 326.17 | | 557.00 | 635.19 | |
| Reach-1 | 24584.31 | Floodway | 929.60 | 0.52 | 929.96 | 260.00 | 3714.58 | 7852.94 | 349.48 | 400.00 | 557.00 | 635.19 | 660.00 |
| Reach-1 | 24776.87 NEW | Natural | 929.22 | | 929.52 | 383.27 | 2871.79 | 4521.22 | 4523.99 | | 641.15 | 683.91 | |
| Reach-1 | 24776.87 NEW | Floodway | 929.86 | 0.65 | 930.14 | 375.00 | 2982.05 | 4461.02 | 4473.93 | 505.00 | 641.15 | 683.91 | 880.00 |
| Reach-1 | 24842.55BR D | Natural | 929.13 | | 929.66 | 342.80 | 3703.69 | 5694.58 | 2518.74 | | 650.00 | 695.00 | |
| Reach-1 | 24842.55BR D | Floodway | 929.79 | 0.66 | 930.26 | 325.00 | 3674.77 | 5619.84 | 2622.39 | 505.00 | 650.00 | 695.00 | 880.00 |
| Reach-1 | 24842.55BR U | Natural | 929.25 | | 929.77 | 343.35 | 3708.80 | 5673.81 | 2534.39 | | 650.00 | 695.00 | |
| Reach-1 | 24842.55BR U | Floodway | 929.90 | 0.65 | 930.35 | 345.43 | 3731.70 | 5564.77 | 2620.52 | 450.00 | 650.00 | 695.00 | 880.00 |
| Reach-1 | 24942.55 NEW | Natural | 929.69 | | 929.91 | 430.00 | 4004.05 | 4007.60 | 3905.35 | | 642.06 | 683.63 | |
| Reach-1 | 24942.55 NEW | Floodway | 930.27 | 0.58 | 930.47 | 430.00 | 4007.32 | 4003.00 | 3906.69 | 450.00 | 642.06 | 683.63 | 880.00 |
| Reach-1 | 26158.34 | Natural | 930.71 | | 931.03 | 488.67 | 1174.78 | 7647.13 | 3095.09 | | 1975.20 | 2077.70 | |
| Reach-1 | 26158.34 | Floodway | 931.19 | 0.48 | 931.54 | 345.00 | 1121.40 | 8004.47 | 2791.13 | 1900.00 | 1975.20 | 2077.70 | 2245.00 |
| Reach-1 | 27163.80 | Natural | 931.75 | | 932.27 | 577.53 | 1405.09 | 5475.63 | 5036.28 | | 970.00 | 1020.00 | |
| Reach-1 | 27163.80 | Floodway | 932.17 | 0.42 | 933.02 | 313.00 | 1807.49 | 6637.58 | 3471.93 | 862.00 | 970.00 | 1020.00 | 1175.00 |

HEC-RAS Plan: FW River: RIVER-1 Reach: Reach-1 (Continued)

| Reach | River Sta | Profile | W.S. Elev | Prof Delta WS | E.G. Elev | Top Wdth Act | Q Left | Q Channel | Q Right | Enc Sta L | Ch Sta L | Ch Sta R | Enc Sta R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (ft) | (ft) | (ft) | (ft) | (cfs) | (cfs) | (cfs) | (ft) | (ft) | (ft) | (ft) |
| Reach-1 | 27924.79 | Natural | 933.39 | | 935.22 | 115.96 | | 11917.00 | | | 910.00 | 1073.00 | |
| Reach-1 | 27924.79 | Floodway | 934.30 | 0.91 | 935.82 | 115.90 | | 11917.00 | | 934.40 | 910.00 | 1073.00 | 1050.30 |
| | | | | | | | | | | | | | |
| Reach-1 | 28138.58BR D | Natural | 934.59 | | 936.02 | 121.53 | | 11917.00 | | | 910.00 | 1073.00 | |
| Reach-1 | 28138.58BR D | Floodway | 935.11 | 0.52 | 936.42 | 115.90 | | 11917.00 | | 934.40 | 910.00 | 1073.00 | 1050.30 |
| | | | | | | | | | | | | | |
| Reach-1 | 28138.58BR U | Natural | 935.37 | | 936.60 | 125.16 | | 11917.00 | | | 910.00 | 1073.00 | |
| Reach-1 | 28138.58BR U | Floodway | 935.77 | 0.40 | 936.91 | 127.02 | | 11917.00 | | 900.00 | 910.00 | 1073.00 | 1075.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 28275.58 | Natural | 934.88 | | 937.63 | 245.39 | 1913.32 | 8886.01 | 1117.68 | | 982.00 | 1020.00 | |
| Reach-1 | 28275.58 | Floodway | 935.26 | 0.38 | 937.91 | 175.00 | 1785.69 | 8918.79 | 1212.52 | 900.00 | 982.00 | 1020.00 | 1075.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 29014.22 | Natural | 939.35 | | 940.48 | 259.80 | 4644.36 | 5639.33 | 1633.31 | | 989.00 | 1015.00 | |
| Reach-1 | 29014.22 | Floodway | 939.46 | 0.11 | 940.68 | 195.00 | 4330.96 | 5784.89 | 1801.16 | 880.00 | 989.00 | 1015.00 | 1075.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 29655.01 | Natural | 940.86 | | 940.96 | 739.58 | 742.54 | 4116.67 | 7057.79 | | 1968.90 | 2031.70 | |
| Reach-1 | 29655.01 | Floodway | 941.11 | 0.25 | 941.28 | 500.00 | 976.64 | 5057.29 | 5883.08 | 1860.00 | 1968.90 | 2031.70 | 2360.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 30358.55 NEW | Natural | 941.05 | | 941.08 | 859.26 | 6832.24 | 2427.05 | 2657.71 | | 818.99 | 872.40 | |
| Reach-1 | 30358.55 NEW | Floodway | 941.40 | 0.35 | 941.50 | 416.00 | 6251.35 | 3668.71 | 1996.94 | 530.00 | 818.99 | 872.40 | 946.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 31128.08 | Natural | 940.63 | | 942.13 | 238.13 | 3825.69 | 6323.38 | 1767.93 | | 989.00 | 1020.00 | |
| Reach-1 | 31128.08 | Floodway | 941.29 | 0.67 | 942.76 | 200.00 | 3558.12 | 6429.73 | 1929.15 | 883.00 | 989.00 | 1020.00 | 1083.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 31244.21BR D | Natural | 942.18 | | 942.71 | 24.60 | | 11917.00 | | | 913.00 | 1133.00 | |
| Reach-1 | 31244.21BR D | Floodway | 942.50 | 0.32 | 943.28 | 0.13 | | 11917.00 | | 883.00 | 913.00 | 1133.00 | 1083.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 31244.21BR U | Natural | 942.59 | | 943.12 | | | 11917.00 | | | 913.00 | 1133.00 | |
| Reach-1 | 31244.21BR U | Floodway | 942.82 | 0.24 | 944.50 | | | 11917.00 | | 945.00 | 913.00 | 1133.00 | 1045.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 31353.71 | Natural | 942.10 | | 944.21 | 151.46 | 1878.08 | 8493.62 | 1545.30 | | 980.00 | 1018.00 | |
| Reach-1 | 31353.71 | Floodway | 943.09 | 0.98 | 945.12 | 100.00 | 1796.20 | 8704.25 | 1416.56 | 945.00 | 980.00 | 1018.00 | 1045.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 32008.58 | Natural | 945.83 | | 946.04 | 262.24 | 2640.06 | 4124.20 | 583.74 | | 980.00 | 1028.00 | |
| Reach-1 | 32008.58 | Floodway | 946.57 | 0.74 | 946.77 | 190.00 | 2641.28 | 4113.30 | 593.42 | 870.00 | 980.00 | 1028.00 | 1060.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 32395.49BR D | Natural | 946.08 | | 946.23 | 196.97 | | 7348.00 | | | 880.00 | 1121.00 | |
| Reach-1 | 32395.49BR D | Floodway | 946.77 | 0.70 | 946.92 | 166.35 | | 7348.00 | | 870.00 | 880.00 | 1121.00 | 1060.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 32395.49BR U | Natural | 946.10 | | 946.25 | 197.12 | | 7348.00 | | | 880.00 | 1121.00 | |
| Reach-1 | 32395.49BR U | Floodway | 946.79 | 0.69 | 946.94 | 165.00 | | 7348.00 | | 918.00 | 880.00 | 1121.00 | 1083.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 32499.49 | Natural | 945.97 | | 946.46 | 227.00 | 1497.60 | 4692.74 | 1157.66 | | 985.00 | 1021.00 | |
| Reach-1 | 32499.49 | Floodway | 946.69 | 0.72 | 947.11 | 165.00 | 1553.91 | 4580.74 | 1213.34 | 918.00 | 985.00 | 1021.00 | 1083.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 32836.11 | Natural | 946.16 | | 947.55 | 124.55 | 840.46 | 5524.57 | 982.97 | | 990.00 | 1020.00 | |
| Reach-1 | 32836.11 | Floodway | 946.85 | 0.69 | 948.01 | 115.00 | 952.91 | 5328.87 | 1066.22 | 945.00 | 990.00 | 1020.00 | 1060.00 |

HEC-RAS Plan: FW River: RIVER-1 Reach: Reach-1 (Continued)

| Reach | River Sta | Profile | W.S. Elev | Prof Delta WS | E.G. Elev | Top Wdth Act | Q Left | Q Channel | Q Right | Enc Sta L | Ch Sta L | Ch Sta R | Enc Sta R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (ft) | (ft) | (ft) | (ft) | (cfs) | (cfs) | (cfs) | (ft) | (ft) | (ft) | (ft) |
| Reach-1 | 32909.32 | Natural | 947.77 | | 948.02 | 184.54 | | 7348.00 | | | 891.00 | 1109.00 | |
| Reach-1 | 32909.32 | Floodway | 948.09 | 0.32 | 948.40 | 130.00 | | 7348.00 | | 930.00 | 891.00 | 1109.00 | 1060.00 |
| Reach-1 | 32976.16BR D | Natural | 947.80 | | 948.05 | 184.77 | | 7348.00 | | | 891.00 | 1109.00 | |
| Reach-1 | 32976.16BR D | Floodway | 948.12 | 0.32 | 948.43 | 130.00 | | 7348.00 | | 930.00 | 891.00 | 1109.00 | 1060.00 |
| Reach-1 | 32976.16BR U | Natural | 947.86 | | 948.11 | 185.18 | | 7348.00 | | | 891.00 | 1109.00 | |
| Reach-1 | 32976.16BR U | Floodway | 948.15 | 0.29 | 948.50 | 120.00 | | 7348.00 | | 932.00 | 891.00 | 1109.00 | 1052.00 |
| Reach-1 | 33046.16 | Natural | 947.90 | | 948.15 | 185.42 | | 7348.00 | | | 891.00 | 1109.00 | |
| Reach-1 | 33046.16 | Floodway | 948.19 | 0.29 | 948.54 | 120.00 | | 7348.00 | | 932.00 | 891.00 | 1109.00 | 1052.00 |
| Reach-1 | 33155.58 | Natural | 947.79 | | 948.54 | 168.41 | 1924.96 | 4708.75 | 714.29 | | 982.00 | 1015.00 | |
| Reach-1 | 33155.58 | Floodway | 948.11 | 0.31 | 948.95 | 110.00 | 1757.29 | 4947.93 | 642.79 | 930.00 | 982.00 | 1015.00 | 1040.00 |
| Reach-1 | 34068.65 | Natural | 949.68 | | 950.18 | 264.51 | 922.46 | 4776.00 | 1649.54 | | 980.00 | 1020.00 | |
| Reach-1 | 34068.65 | Floodway | 950.08 | 0.40 | 950.67 | 120.00 | 813.72 | 5119.36 | 1414.92 | 950.00 | 980.00 | 1020.00 | 1070.00 |
| Reach-1 | 34164.15 | Natural | 949.79 | | 950.40 | 99.00 | 498.88 | 7630.60 | 404.52 | | 967.00 | 1030.00 | |
| Reach-1 | 34164.15 | Floodway | 950.23 | 0.44 | 950.84 | 99.00 | 405.45 | 7787.36 | 341.19 | 948.50 | 967.00 | 1030.00 | 1047.50 |
| Reach-1 | 34250.29 | | Culvert | | | | | | | | | | |
| Reach-1 | 34319.79 | Natural | 952.31 | | 952.54 | 334.79 | 2853.50 | 3890.83 | 1789.67 | | 985.00 | 1022.00 | |
| Reach-1 | 34319.79 | Floodway | 952.60 | 0.29 | 952.86 | 223.00 | 2899.80 | 4033.80 | 1600.40 | 855.00 | 985.00 | 1022.00 | 1078.00 |
| Reach-1 | 34887.32 NEW | Natural | 952.79 | | 952.84 | 686.41 | 5599.83 | 2102.08 | 832.09 | | 481.60 | 514.97 | |
| Reach-1 | 34887.32 NEW | Floodway | 953.10 | 0.31 | 953.25 | 262.00 | 4285.83 | 3000.10 | 1248.07 | 328.00 | 481.60 | 514.97 | 590.00 |
| Reach-1 | 35731.12 | Natural | 953.08 | | 953.18 | 579.96 | 3787.01 | 2676.89 | 2070.10 | | 1971.90 | 2009.50 | |
| Reach-1 | 35731.12 | Floodway | 953.60 | 0.52 | 953.71 | 390.00 | 3742.67 | 2782.72 | 2008.61 | 1740.00 | 1971.90 | 2009.50 | 2130.00 |
| Reach-1 | 36431.22 | Natural | 953.36 | | 953.42 | 494.22 | 2519.54 | 1996.72 | 963.74 | | 980.00 | 1020.00 | |
| Reach-1 | 36431.22 | Floodway | 953.88 | 0.52 | 953.94 | 320.00 | 2376.22 | 2065.72 | 1038.06 | 800.00 | 980.00 | 1020.00 | 1120.00 |
| Reach-1 | 36570.11 | Natural | 953.39 | | 953.45 | 543.51 | 1265.93 | 3002.29 | 1211.78 | | 962.00 | 1044.00 | |
| Reach-1 | 36570.11 | Floodway | 953.91 | 0.52 | 953.98 | 360.00 | 1074.64 | 3173.21 | 1232.15 | 820.00 | 962.00 | 1044.00 | 1180.00 |
| Reach-1 | 36665.49 | | Culvert | | | | | | | | | | |
| Reach-1 | 36721.49 | Natural | 954.08 | | 954.26 | 445.67 | 409.57 | 4637.51 | 432.92 | | 952.00 | 1040.00 | |
| Reach-1 | 36721.49 | Floodway | 954.90 | 0.82 | 955.09 | 180.00 | 264.25 | 4881.69 | 334.06 | 915.00 | 952.00 | 1040.00 | 1095.00 |
| Reach-1 | 36788.68 | Natural | 954.16 | | 954.30 | 368.80 | 732.63 | 1708.44 | 3054.93 | | 990.00 | 1012.00 | |
| Reach-1 | 36788.68 | Floodway | 954.96 | 0.80 | 955.13 | 180.00 | 935.62 | 1814.34 | 2746.04 | 940.00 | 990.00 | 1012.00 | 1120.00 |

HEC-RAS Plan: FW River: RIVER-1 Reach: Reach-1 (Continued)

| Reach | River Sta | Profile | W.S. Elev | Prof Delta WS | E.G. Elev | Top Wdth Act | Q Left | Q Channel | Q Right | Enc Sta L | Ch Sta L | Ch Sta R | Enc Sta R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (ft) | (ft) | (ft) | (ft) | (cfs) | (cfs) | (cfs) | (ft) | (ft) | (ft) | (ft) |
| Reach-1 | 37048.76 NEW | Natural | 954.27 | | 954.61 | 168.82 | 171.40 | 2031.41 | 3293.19 | | 153.22 | 174.49 | |
| Reach-1 | 37048.76 NEW | Floodway | 955.05 | 0.78 | 955.43 | 135.00 | 205.78 | 2211.82 | 3078.40 | 138.00 | 153.22 | 174.49 | 273.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 37465.78 | Natural | 954.83 | | 955.29 | 204.35 | 979.67 | 2615.95 | 1900.38 | | 1992.00 | 2018.00 | |
| Reach-1 | 37465.78 | Floodway | 955.59 | 0.75 | 956.13 | 125.00 | 1167.41 | 2857.96 | 1470.63 | 1945.00 | 1992.00 | 2018.00 | 2070.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 37884.34 NEW | Natural | 955.36 | | 955.60 | 217.78 | 628.73 | 1619.99 | 3247.28 | | 155.62 | 172.96 | |
| Reach-1 | 37884.34 NEW | Floodway | 956.17 | 0.80 | 956.44 | 170.00 | 704.27 | 1748.87 | 3042.86 | 120.00 | 155.62 | 172.96 | 290.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 38162.53 | Natural | 955.77 | | 955.79 | 729.36 | 396.79 | 812.97 | 4286.25 | | 1990.00 | 2016.00 | |
| Reach-1 | 38162.53 | Floodway | 956.61 | 0.83 | 956.63 | 470.00 | 481.75 | 916.39 | 4097.87 | 1930.00 | 1990.00 | 2016.00 | 2400.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 39108.84 NEW | Natural | 955.93 | | 956.19 | 345.09 | 1422.27 | 2188.70 | 1885.03 | | 296.65 | 329.21 | |
| Reach-1 | 39108.84 NEW | Floodway | 956.74 | 0.81 | 957.04 | 230.00 | 1642.58 | 2429.02 | 1424.41 | 200.00 | 296.65 | 329.21 | 430.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 39458.26 | Natural | 955.84 | | 957.47 | 123.71 | 1106.66 | 4016.97 | 372.37 | | 980.00 | 1012.00 | |
| Reach-1 | 39458.26 | Floodway | 956.77 | 0.92 | 958.17 | 100.00 | 990.22 | 4029.60 | 476.18 | 945.00 | 980.00 | 1012.00 | 1045.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 39777.89 NEW | Natural | 957.97 | | 958.20 | 176.62 | 483.47 | 4783.91 | 228.62 | | 945.74 | 1033.93 | |
| Reach-1 | 39777.89 NEW | Floodway | 958.53 | 0.56 | 958.80 | 110.00 | 56.90 | 5231.65 | 207.45 | 940.00 | 945.74 | 1033.93 | 1050.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 40471.23 | | Culvert | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Reach-1 | 41077.23 NEW | Natural | 959.93 | | 960.06 | 184.34 | 230.28 | 5239.28 | 26.44 | | 947.86 | 1061.88 | |
| Reach-1 | 41077.23 NEW | Floodway | 960.49 | 0.56 | 960.63 | 130.00 | 38.04 | 5432.64 | 25.32 | 940.00 | 947.86 | 1061.88 | 1070.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 41289.88 | Natural | 960.03 | | 960.15 | 527.21 | 3428.12 | 1580.99 | 486.90 | | 923.00 | 948.00 | |
| Reach-1 | 41289.88 | Floodway | 960.56 | 0.53 | 960.71 | 380.00 | 3191.01 | 1734.74 | 570.25 | 605.00 | 923.00 | 948.00 | 985.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 42211.00 | Natural | 960.66 | | 960.74 | 717.49 | 1073.75 | 1463.93 | 2958.32 | | 1982.90 | 2017.60 | |
| Reach-1 | 42211.00 | Floodway | 961.24 | 0.57 | 961.34 | 390.00 | 1353.47 | 1647.28 | 2495.26 | 1850.00 | 1982.90 | 2017.60 | 2240.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 42778.44 | Natural | 961.11 | | 961.28 | 562.48 | 3435.08 | 1675.35 | 385.57 | | 1986.00 | 2014.00 | |
| Reach-1 | 42778.44 | Floodway | 961.69 | 0.58 | 962.00 | 300.00 | 2836.62 | 2113.56 | 545.82 | 1760.00 | 1986.00 | 2014.00 | 2060.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 43468.18 | Natural | 962.16 | | 962.26 | 744.03 | 3145.22 | 1138.96 | 1211.82 | | 1985.00 | 2009.00 | |
| Reach-1 | 43468.18 | Floodway | 963.00 | 0.85 | 963.16 | 400.00 | 3137.52 | 1341.76 | 1016.72 | 1700.00 | 1985.00 | 2009.00 | 2100.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 44309.29 | Natural | 963.54 | | 964.26 | 574.21 | 690.69 | 2230.15 | 1393.17 | | 985.00 | 1015.00 | |
| Reach-1 | 44309.29 | Floodway | 964.31 | 0.77 | 965.25 | 150.00 | 689.66 | 2572.49 | 1051.85 | 930.00 | 985.00 | 1015.00 | 1080.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 44436.54 NEW | Natural | 965.10 | | 966.82 | 184.00 | 587.05 | 2585.15 | 1559.80 | | 994.06 | 1016.95 | |
| Reach-1 | 44436.54 NEW | Floodway | 965.10 | -0.01 | 966.86 | 184.00 | 585.23 | 2613.29 | 1533.47 | 907.00 | 994.06 | 1016.95 | 1091.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 44531.77BR D | Natural | 969.82 | | 969.84 | 203.87 | 22.15 | 4704.32 | 7.65 | | 969.00 | 1032.00 | |
| Reach-1 | 44531.77BR D | Floodway | 969.81 | -0.02 | 969.83 | 179.98 | 19.35 | 4708.45 | 5.58 | 907.00 | 969.00 | 1032.00 | 1091.00 |
| | | | | | | | | | | | | | |

HEC-RAS Plan: FW River: RIVER-1 Reach: Reach-1 (Continued)

| Reach | River Sta | Profile | W.S. Elev | Prof Delta WS | E.G. Elev | Top Width Act | Q Left | Q Channel | Q Right | Enc Sta L | Ch Sta L | Ch Sta R | Enc Sta R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (ft) | (ft) | (ft) | (ft) | (cfs) | (cfs) | (cfs) | (ft) | (ft) | (ft) | (ft) |
| Reach-1 | 44531.77BR U | Natural | 969.82 | | 969.84 | 203.87 | 22.15 | 4704.32 | 7.65 | | 969.00 | 1032.00 | |
| Reach-1 | 44531.77BR U | Floodway | 969.81 | -0.02 | 969.83 | 189.63 | 18.63 | 4709.17 | 5.58 | 670.00 | 969.00 | 1032.00 | 1280.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 44631.27 NEW | Natural | 969.82 | | 969.83 | 686.58 | 1826.62 | 959.94 | 1945.44 | | 978.99 | 1021.09 | |
| Reach-1 | 44631.27 NEW | Floodway | 969.81 | -0.02 | 969.82 | 610.00 | 1777.19 | 1026.10 | 1928.71 | 670.00 | 978.99 | 1021.09 | 1280.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 44700.35 | Natural | 969.83 | | 969.86 | 660.01 | 1682.00 | 1023.88 | 2026.13 | | 985.00 | 1015.00 | |
| Reach-1 | 44700.35 | Floodway | 969.81 | -0.01 | 969.85 | 580.00 | 1746.67 | 1012.59 | 1972.74 | 700.00 | 985.00 | 1015.00 | 1280.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 45406.89 | Natural | 969.95 | | 969.96 | 720.94 | 1950.43 | 727.78 | 87.79 | | 977.00 | 1019.00 | |
| Reach-1 | 45406.89 | Floodway | 969.93 | -0.02 | 969.95 | 608.00 | 1969.11 | 730.12 | 66.77 | 430.00 | 977.00 | 1019.00 | 1038.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 45689.70 NEW | Natural | 969.91 | | 970.14 | 121.00 | 914.21 | 725.59 | 1126.20 | | 1995.75 | 2005.59 | |
| Reach-1 | 45689.70 NEW | Floodway | 969.89 | -0.02 | 970.13 | 121.00 | 915.76 | 756.08 | 1094.16 | 1939.00 | 1995.75 | 2005.59 | 2060.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 45777 BR D | Natural | 967.40 | | 970.14 | | 0.62 | 2764.77 | 0.61 | | 1978.50 | 2021.50 | |
| Reach-1 | 45777 BR D | Floodway | 967.40 | 0.00 | 970.13 | | 0.62 | 2764.77 | 0.61 | 1939.00 | 1978.50 | 2021.50 | 2060.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 45777 BR U | Natural | 967.40 | | 971.33 | 40.00 | | 2766.00 | | | 1978.50 | 2021.50 | |
| Reach-1 | 45777 BR U | Floodway | 967.40 | 0.00 | 971.31 | 40.00 | | 2766.00 | | 1935.00 | 1978.50 | 2021.50 | 2060.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 45868.71 NEW | Natural | 971.06 | | 971.34 | 121.00 | 724.16 | 1309.36 | 732.49 | | 1987.98 | 2014.36 | |
| Reach-1 | 45868.71 NEW | Floodway | 971.02 | -0.04 | 971.32 | 121.00 | 738.00 | 1338.47 | 689.54 | 1935.00 | 1987.98 | 2014.36 | 2060.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 46058.02 | Natural | 971.43 | | 971.43 | 1274.48 | 1833.52 | 356.53 | 575.95 | | 1005.50 | 1040.36 | |
| Reach-1 | 46058.02 | Floodway | 971.45 | 0.02 | 971.50 | 300.00 | 970.51 | 1018.65 | 776.85 | 853.00 | 1005.50 | 1040.36 | 1153.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 46186.37 | Natural | 971.36 | | 971.49 | 425.37 | 1588.00 | 1008.56 | 479.44 | | 397.11 | 425.64 | |
| Reach-1 | 46186.37 | Floodway | 971.45 | 0.09 | 971.62 | 240.00 | 1609.49 | 1128.45 | 338.06 | 240.00 | 397.11 | 425.64 | 480.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 46509.26 | Natural | 971.75 | | 972.38 | 262.25 | 249.82 | 2408.10 | 418.08 | | 980.00 | 1020.00 | |
| Reach-1 | 46509.26 | Floodway | 971.92 | 0.18 | 972.52 | 170.00 | 286.02 | 2395.47 | 394.52 | 909.00 | 980.00 | 1020.00 | 1079.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 46728.27BR D | Natural | 973.27 | | 973.81 | 229.70 | 1810.76 | 597.55 | 665.29 | | 992.00 | 1009.00 | |
| Reach-1 | 46728.27BR D | Floodway | 973.43 | 0.15 | 974.46 | 170.00 | 1531.91 | 455.53 | 1089.22 | 909.00 | 992.00 | 1009.00 | 1079.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 46728.27BR U | Natural | 973.32 | | 973.81 | 228.22 | 1799.10 | 612.18 | 662.32 | | 992.00 | 1009.00 | |
| Reach-1 | 46728.27BR U | Floodway | 974.13 | 0.81 | 974.54 | 130.00 | 1528.69 | 441.65 | 1106.32 | 925.00 | 992.00 | 1009.00 | 1055.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 46822.27 | Natural | 973.32 | | 973.81 | 228.26 | 688.97 | 2124.28 | 262.75 | | 988.00 | 1022.00 | |
| Reach-1 | 46822.27 | Floodway | 974.13 | 0.81 | 974.54 | 130.00 | 680.81 | 2091.52 | 303.67 | 925.00 | 988.00 | 1022.00 | 1055.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 47675.67 | Natural | 975.77 | | 976.56 | 292.45 | 1126.82 | 1715.95 | 233.23 | | 990.00 | 1010.00 | |
| Reach-1 | 47675.67 | Floodway | 976.05 | 0.27 | 976.86 | 130.00 | 1068.24 | 1748.57 | 259.19 | 900.00 | 990.00 | 1010.00 | 1030.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 47926.60BR D | Natural | 976.05 | | 976.58 | 366.30 | 2614.09 | 259.12 | 103.64 | | 992.00 | 1009.00 | |
| Reach-1 | 47926.60BR D | Floodway | 976.59 | 0.54 | 976.92 | 130.00 | 2538.80 | 376.61 | 98.81 | 900.00 | 992.00 | 1009.00 | 1030.00 |

HEC-RAS Plan: FW River: RIVER-1 Reach: Reach-1 (Continued)

| Reach | River Sta | Profile | W.S. Elev | Prof Delta WS | E.G. Elev | Top Wdth Act | Q Left | Q Channel | Q Right | Enc Sta L | Ch Sta L | Ch Sta R | Enc Sta R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (ft) | (ft) | (ft) | (ft) | (cfs) | (cfs) | (cfs) | (ft) | (ft) | (ft) | (ft) |
| Reach-1 | 47926.60BR U | Natural | 976.17 | | 976.58 | 410.12 | 2701.04 | 173.10 | 102.71 | | 992.00 | 1009.00 | |
| Reach-1 | 47926.60BR U | Floodway | 976.59 | 0.43 | 976.92 | 218.59 | 2687.81 | 240.92 | 85.49 | 820.00 | 992.00 | 1009.00 | 1080.00 |
| Reach-1 | 48121.10 | Natural | 976.17 | | 976.58 | 376.93 | 760.73 | 2084.78 | 230.49 | | 980.00 | 1020.00 | |
| Reach-1 | 48121.10 | Floodway | 976.59 | 0.43 | 976.92 | 260.00 | 842.81 | 1973.68 | 259.51 | 820.00 | 980.00 | 1020.00 | 1080.00 |
| Reach-1 | 48220.77 | Natural | 976.39 | | 977.10 | 175.86 | 548.66 | 2301.98 | 225.37 | | 980.00 | 1020.00 | |
| Reach-1 | 48220.77 | Floodway | 976.75 | 0.36 | 977.35 | 167.00 | 578.01 | 2232.91 | 265.08 | 899.00 | 980.00 | 1020.00 | 1066.00 |
| Reach-1 | 48358.25BR D | Natural | 975.74 | | 979.03 | 32.00 | | 3076.00 | | | 980.00 | 1020.00 | |
| Reach-1 | 48358.25BR D | Floodway | 975.78 | 0.05 | 979.03 | 32.00 | | 3076.00 | | 899.00 | 980.00 | 1020.00 | 1066.00 |
| Reach-1 | 48358.25BR U | Natural | 980.41 | | 981.40 | 38.00 | | 3076.00 | | | 980.00 | 1026.00 | |
| Reach-1 | 48358.25BR U | Floodway | 980.39 | -0.02 | 981.38 | 38.00 | | 3076.00 | | 899.00 | 980.00 | 1026.00 | 1107.00 |
| Reach-1 | 48524.75 | Natural | 981.67 | | 981.74 | 208.00 | 805.63 | 1449.88 | 820.49 | | 980.00 | 1026.00 | |
| Reach-1 | 48524.75 | Floodway | 981.65 | -0.02 | 981.72 | 208.00 | 783.00 | 1500.03 | 792.97 | 899.00 | 980.00 | 1026.00 | 1107.00 |
| Reach-1 | 48778.94 | Natural | 981.78 | | 981.80 | 519.75 | 810.70 | 1060.55 | 1204.75 | | 980.00 | 1026.00 | |
| Reach-1 | 48778.94 | Floodway | 981.74 | -0.03 | 981.80 | 250.00 | 690.01 | 1360.67 | 1025.32 | 900.00 | 980.00 | 1026.00 | 1150.00 |
| Reach-1 | 49005.34 NEW | Natural | 981.81 | | 981.85 | 396.63 | 69.67 | 852.29 | 1512.03 | | 986.57 | 1016.40 | |
| Reach-1 | 49005.34 NEW | Floodway | 981.81 | -0.01 | 981.86 | 233.00 | 85.51 | 984.96 | 1363.53 | 967.00 | 986.57 | 1016.40 | 1200.00 |
| Reach-1 | 49069 | | Culvert | | | | | | | | | | |
| Reach-1 | 49133.73 NEW | Natural | 982.36 | | 982.39 | 368.50 | 53.21 | 1268.27 | 1112.53 | | 980.14 | 1037.69 | |
| Reach-1 | 49133.73 NEW | Floodway | 982.40 | 0.05 | 982.46 | 185.00 | 25.99 | 1557.13 | 850.87 | 974.00 | 980.14 | 1037.69 | 1159.00 |
| Reach-1 | 49234.85 | Natural | 982.37 | | 982.40 | 344.69 | 146.15 | 912.85 | 1375.00 | | 980.00 | 1020.00 | |
| Reach-1 | 49234.85 | Floodway | 982.42 | 0.05 | 982.48 | 195.00 | 166.33 | 1155.47 | 1112.20 | 945.00 | 980.00 | 1020.00 | 1140.00 |
| Reach-1 | 49847.50 NEW | Natural | 982.52 | | 982.59 | 260.52 | 285.74 | 514.03 | 1634.23 | | 278.08 | 294.74 | |
| Reach-1 | 49847.50 NEW | Floodway | 982.65 | 0.13 | 982.72 | 220.00 | 299.83 | 522.37 | 1611.79 | 230.00 | 278.08 | 294.74 | 450.00 |
| Reach-1 | 50185.30 | Natural | 982.79 | | 982.89 | 338.68 | 747.39 | 974.57 | 712.05 | | 374.16 | 407.90 | |
| Reach-1 | 50185.30 | Floodway | 982.91 | 0.13 | 983.10 | 200.00 | 382.53 | 1199.03 | 852.43 | 331.00 | 374.16 | 407.90 | 531.00 |
| Reach-1 | 51158.38 AD | Natural | 984.42 | | 985.02 | 305.21 | 518.39 | 1883.87 | 31.74 | | 745.43 | 789.74 | |
| Reach-1 | 51158.38 AD | Floodway | 985.06 | 0.64 | 985.67 | 116.00 | 369.84 | 2011.25 | 52.92 | 688.00 | 745.43 | 789.74 | 804.00 |
| Reach-1 | 51636.08 NEW | Natural | 986.76 | | 987.15 | 276.19 | 603.57 | 1771.70 | 58.73 | | 329.93 | 377.67 | |
| Reach-1 | 51636.08 NEW | Floodway | 987.15 | 0.39 | 987.61 | 150.00 | 413.92 | 1945.38 | 74.70 | 245.00 | 329.93 | 377.67 | 395.00 |
| Reach-1 | 52150.00 | Natural | 989.12 | | 989.94 | 226.72 | 1040.75 | 1266.31 | 126.94 | | 1984.00 | 2008.00 | |
| Reach-1 | 52150.00 | Floodway | 989.41 | 0.29 | 990.43 | 150.00 | 836.77 | 1413.18 | 184.05 | 1900.00 | 1984.00 | 2008.00 | 2050.00 |

HEC-RAS Plan: FW River: RIVER-1 Reach: Reach-1 (Continued)

| Reach | River Sta | Profile | W.S. Elev | Prof Delta WS | E.G. Elev | Top Wdth Act | Q Left | Q Channel | Q Right | Enc Sta L | Ch Sta L | Ch Sta R | Enc Sta R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (ft) | (ft) | (ft) | (ft) | (cfs) | (cfs) | (cfs) | (ft) | (ft) | (ft) | (ft) |
| Reach-1 | 53057.03 | Natural | 993.30 | | 993.51 | 359.83 | 439.57 | 1181.86 | 812.57 | | 985.00 | 1020.00 | |
| Reach-1 | 53057.03 | Floodway | 993.83 | 0.54 | 994.11 | 150.00 | 409.71 | 1359.83 | 664.46 | 940.00 | 985.00 | 1020.00 | 1090.00 |
| Reach-1 | 53908.67 | Natural | 994.86 | | 994.95 | 286.32 | 93.11 | 488.66 | 165.24 | | 979.00 | 1020.00 | |
| Reach-1 | 53908.67 | Floodway | 995.48 | 0.62 | 995.65 | 60.00 | 30.94 | 673.56 | 42.50 | 970.00 | 979.00 | 1020.00 | 1030.00 |
| Reach-1 | 54001.22 NEW | Natural | 997.28 | | 998.40 | 67.00 | 29.35 | 652.27 | 65.38 | | 991.57 | 1008.72 | |
| Reach-1 | 54001.22 NEW | Floodway | 997.29 | 0.00 | 998.41 | 67.00 | 29.48 | 653.91 | 63.60 | 966.00 | 991.57 | 1008.72 | 1033.00 |
| Reach-1 | 54194.68 | | Culvert | | | | | | | | | | |
| Reach-1 | 54469.68 AF | Natural | 1014.62 | | 1014.63 | 67.00 | 66.20 | 603.92 | 76.88 | | 977.57 | 1019.12 | |
| Reach-1 | 54469.68 AF | Floodway | 1014.62 | 0.00 | 1014.63 | 67.00 | 40.19 | 656.48 | 50.33 | 966.00 | 977.57 | 1019.12 | 1033.00 |
| Reach-1 | 54818.60 | Natural | 1014.63 | | 1014.63 | 489.84 | 835.88 | 707.88 | 917.24 | | 1980.00 | 2020.00 | |
| Reach-1 | 54818.60 | Floodway | 1014.63 | 0.00 | 1014.63 | 360.00 | 834.91 | 718.28 | 907.81 | 1835.00 | 1980.00 | 2020.00 | 2195.00 |
| Reach-1 | 54941.18 | | Culvert | | | | | | | | | | |
| Reach-1 | 55057.68 | Natural | 1014.66 | | 1014.66 | 837.95 | 1295.49 | 266.37 | 899.14 | | 1990.00 | 2010.00 | |
| Reach-1 | 55057.68 | Floodway | 1014.64 | -0.02 | 1014.65 | 240.00 | 695.13 | 498.91 | 1266.95 | 1914.00 | 1990.00 | 2010.00 | 2154.00 |
| Reach-1 | 55096.61 | Natural | 1014.66 | | 1014.66 | 800.81 | 1233.71 | 620.67 | 606.61 | | 1977.10 | 2026.90 | |
| Reach-1 | 55096.61 | Floodway | 1014.64 | -0.02 | 1014.66 | 160.00 | 598.12 | 1302.86 | 560.02 | 1920.00 | 1977.10 | 2026.90 | 2080.00 |
| Reach-1 | 55342.61 | Natural | 1014.66 | | 1014.67 | 766.09 | 1148.86 | 690.22 | 621.92 | | 1977.10 | 2026.90 | |
| Reach-1 | 55342.61 | Floodway | 1014.67 | 0.01 | 1014.68 | 260.00 | 767.29 | 955.27 | 738.44 | 1872.00 | 1977.10 | 2026.90 | 2132.00 |
| Reach-1 | 55522.33 | | Culvert | | | | | | | | | | |
| Reach-1 | 55668.33 | Natural | 1014.67 | | 1014.68 | 755.26 | 1148.21 | 565.12 | 747.67 | | 1977.10 | 2011.70 | |
| Reach-1 | 55668.33 | Floodway | 1014.69 | 0.02 | 1014.70 | 319.00 | 1034.17 | 672.46 | 754.37 | 1805.00 | 1977.10 | 2011.70 | 2124.00 |
| Reach-1 | 55788.73 | Natural | 1014.68 | | 1014.70 | 317.78 | 1161.60 | 1241.44 | 57.96 | | 1972.00 | 2028.00 | |
| Reach-1 | 55788.73 | Floodway | 1014.70 | 0.02 | 1014.72 | 220.00 | 1106.99 | 1292.90 | 61.11 | 1828.00 | 1972.00 | 2028.00 | 2048.00 |
| Reach-1 | 56569.00 NEW | Natural | 1014.77 | | 1014.93 | 122.66 | 729.53 | 1496.94 | 234.52 | | 438.96 | 473.32 | |
| Reach-1 | 56569.00 NEW | Floodway | 1014.80 | 0.03 | 1014.96 | 120.00 | 687.41 | 1525.89 | 247.71 | 390.00 | 438.96 | 473.32 | 510.00 |
| Reach-1 | 56629.59 | | Culvert | | | | | | | | | | |
| Reach-1 | 56726.59 NEW | Natural | 1018.40 | | 1018.42 | 409.63 | 1172.71 | 889.39 | 398.90 | | 436.30 | 474.36 | |
| Reach-1 | 56726.59 NEW | Floodway | 1018.86 | 0.46 | 1018.95 | 115.00 | 610.89 | 1550.69 | 299.42 | 390.00 | 436.30 | 474.36 | 505.00 |
| Reach-1 | 56849.09 | Natural | 1018.43 | | 1018.44 | 477.11 | 1853.95 | 425.99 | 181.06 | | 1990.00 | 2010.00 | |
| Reach-1 | 56849.09 | Floodway | 1018.98 | 0.56 | 1019.00 | 310.00 | 1786.59 | 458.73 | 215.69 | 1756.00 | 1990.00 | 2010.00 | 2066.00 |

HEC-RAS Plan: FW River: RIVER-1 Reach: Reach-1 (Continued)

| Reach | River Sta | Profile | W.S. Elev | Prof Delta WS | E.G. Elev | Top Wdth Act | Q Left | Q Channel | Q Right | Enc Sta L | Ch Sta L | Ch Sta R | Enc Sta R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (ft) | (ft) | (ft) | (ft) | (cfs) | (cfs) | (cfs) | (ft) | (ft) | (ft) | (ft) |
| | | | | | | | | | | | | | |
| Reach-1 | 57643.30 | Natural | 1018.69 | | 1018.82 | 378.92 | 1002.39 | 952.83 | 505.78 | | 1986.00 | 2011.00 | |
| Reach-1 | 57643.30 | Floodway | 1019.22 | 0.53 | 1019.39 | 150.00 | 959.81 | 1061.93 | 439.26 | 1910.00 | 1986.00 | 2011.00 | 2060.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 57934.79 | Natural | 1019.18 | | 1019.57 | 375.44 | 420.60 | 1505.29 | 535.10 | | 990.00 | 1020.00 | |
| Reach-1 | 57934.79 | Floodway | 1019.71 | 0.53 | 1020.10 | 130.00 | 392.05 | 1568.62 | 500.33 | 935.00 | 990.00 | 1020.00 | 1065.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 58289.38 NEW | Natural | 1020.64 | | 1021.71 | 92.49 | 237.00 | 2136.26 | 87.75 | | 990.16 | 1024.66 | |
| Reach-1 | 58289.38 NEW | Floodway | 1020.98 | 0.35 | 1021.91 | 85.00 | 255.33 | 2100.13 | 105.54 | 951.00 | 990.16 | 1024.66 | 1036.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 58351.73BR D | Natural | 1022.98 | | 1023.15 | 347.91 | 645.19 | 1315.79 | 499.85 | | 990.00 | 1013.00 | |
| Reach-1 | 58351.73BR D | Floodway | 1023.41 | 0.42 | 1023.92 | 85.00 | 424.25 | 1657.44 | 376.89 | 951.00 | 990.00 | 1013.00 | 1036.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 58351.73BR U | Natural | 1022.98 | | 1023.15 | 376.66 | 631.27 | 1315.89 | 513.67 | | 990.00 | 1013.00 | |
| Reach-1 | 58351.73BR U | Floodway | 1023.41 | 0.42 | 1023.92 | 101.00 | 413.85 | 1618.96 | 425.78 | 951.00 | 990.00 | 1013.00 | 1052.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 58415.23 | Natural | 1022.98 | | 1023.15 | 418.54 | 918.72 | 985.51 | 556.77 | | 993.10 | 1012.70 | |
| Reach-1 | 58415.23 | Floodway | 1023.41 | 0.42 | 1023.92 | 101.00 | 514.43 | 1489.17 | 457.41 | 951.00 | 993.10 | 1012.70 | 1052.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 58519.71 | Natural | 1023.03 | | 1023.90 | 142.20 | 376.76 | 1422.36 | 661.88 | | 294.42 | 311.84 | |
| Reach-1 | 58519.71 | Floodway | 1023.88 | 0.85 | 1024.50 | 100.00 | 426.10 | 1332.89 | 702.01 | 260.00 | 294.42 | 311.84 | 360.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 58693.98 NEW | Natural | 1025.03 | | 1025.36 | 273.78 | 632.02 | 677.16 | 1151.82 | | 363.74 | 373.51 | |
| Reach-1 | 58693.98 NEW | Floodway | 1025.18 | 0.15 | 1026.02 | 100.00 | 635.25 | 946.14 | 879.61 | 330.00 | 363.74 | 373.51 | 430.00 |

# CORRECTED EFFECTIVE (CE) – EXISTING CONDITIONS MODEL FLOODWAY

HEC-RAS Plan: CE FW River: RIVER-1 Reach: Reach-1

| Reach | River Sta | Profile | W.S. Elev | Prof Delta WS | E.G. Elev | Top Wdth Act | Q Left | Q Channel | Q Right | Enc Sta L | Ch Sta L | Ch Sta R | Enc Sta R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (ft) | (ft) | (ft) | (ft) | (cfs) | (cfs) | (cfs) | (ft) | (ft) | (ft) | (ft) |
| Reach-1 | 203.92 | Natural | 893.21 | | 894.29 | 340.19 | 3218.68 | 13578.56 | 111.75 | | 1947.70 | 2057.80 | |
| Reach-1 | 203.92 | Floodway | 893.21 | -0.01 | 894.29 | 290.00 | 3213.37 | 13584.33 | 111.31 | 1790.00 | 1947.70 | 2057.80 | 2080.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 776.77 NEW | Natural | 894.66 | | 894.84 | 839.76 | 4319.40 | 6299.09 | 6290.52 | | 990.80 | 1057.56 | |
| Reach-1 | 776.77 NEW | Floodway | 894.65 | 0.00 | 894.94 | 590.00 | 5246.90 | 7363.54 | 4298.55 | 724.00 | 990.80 | 1057.56 | 1314.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 1621.49 | Natural | 894.97 | | 895.67 | 928.32 | 1314.46 | 7660.29 | 7934.25 | | 1974.98 | 2023.08 | |
| Reach-1 | 1621.49 | Floodway | 894.96 | 0.00 | 896.15 | 600.00 | 1635.12 | 9153.26 | 6120.61 | 1800.00 | 1974.98 | 2023.08 | 2400.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 3153.49 | Natural | 897.84 | | 899.14 | 441.64 | 3493.10 | 12720.85 | 695.05 | | 1954.50 | 2041.10 | |
| Reach-1 | 3153.49 | Floodway | 898.59 | 0.75 | 899.77 | 330.00 | 3388.07 | 12742.21 | 778.71 | 1765.00 | 1954.50 | 2041.10 | 2095.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 4576.80 | Natural | 901.63 | | 902.45 | 343.98 | 1204.04 | 9750.79 | 5879.17 | | 970.00 | 1030.00 | |
| Reach-1 | 4576.80 | Floodway | 901.92 | 0.29 | 902.78 | 225.00 | 1216.74 | 9956.63 | 5660.64 | 930.00 | 970.00 | 1030.00 | 1155.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 4753.78 | Natural | 901.97 | | 903.21 | 172.13 | 296.63 | 16327.63 | 209.74 | | 938.80 | 1064.20 | |
| Reach-1 | 4753.78 | Floodway | 902.27 | 0.30 | 903.50 | 140.00 | 180.62 | 16556.91 | 96.47 | 930.00 | 938.80 | 1064.20 | 1070.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 4858.98 BR D | Natural | 902.38 | | 903.91 | 119.40 | | 17271.00 | | | 938.80 | 1064.20 | |
| Reach-1 | 4858.98 BR D | Floodway | 902.69 | 0.30 | 904.15 | 119.40 | | 17271.00 | | 930.00 | 938.80 | 1064.20 | 1070.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 4858.98 BR U | Natural | 902.79 | | 904.23 | 119.40 | | 17271.00 | | | 938.80 | 1064.20 | |
| Reach-1 | 4858.98 BR U | Floodway | 903.06 | 0.27 | 904.46 | 119.40 | | 17271.00 | | 857.80 | 938.80 | 1064.20 | 1145.20 |
| | | | | | | | | | | | | | |
| Reach-1 | 4958.98 | Natural | 904.22 | | 904.70 | 287.40 | 4468.73 | 9243.17 | 3559.10 | | 975.00 | 1040.00 | |
| Reach-1 | 4958.98 | Floodway | 904.41 | 0.19 | 904.91 | 287.40 | 4392.20 | 9398.81 | 3480.00 | 857.80 | 975.00 | 1040.00 | 1145.20 |
| | | | | | | | | | | | | | |
| Reach-1 | 5486.69 NEW | Natural | 904.98 | | 905.02 | 1320.08 | 5923.16 | 3122.35 | 8225.49 | | 934.25 | 985.00 | |
| Reach-1 | 5486.69 NEW | Floodway | 905.19 | 0.22 | 905.32 | 610.00 | 5030.40 | 4548.25 | 7692.35 | 700.00 | 934.25 | 985.00 | 1310.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 5940.21 | Natural | 905.05 | | 905.10 | 1796.48 | 7448.19 | 4232.39 | 5590.43 | | 1968.00 | 2043.00 | |
| Reach-1 | 5940.21 | Floodway | 905.35 | 0.30 | 905.47 | 736.00 | 5216.93 | 5738.93 | 6315.14 | 1670.00 | 1968.00 | 2043.00 | 2406.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 7286.45 | Natural | 905.32 | | 905.59 | 697.23 | 4399.64 | 6463.77 | 6407.59 | | 1965.50 | 2023.80 | |
| Reach-1 | 7286.45 | Floodway | 905.79 | 0.47 | 906.24 | 460.00 | 5142.20 | 7950.74 | 4178.07 | 1735.00 | 1965.50 | 2023.80 | 2195.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 8445.73 | Natural | 906.06 | | 907.26 | 385.56 | 2217.95 | 11359.20 | 3693.84 | | 1961.40 | 2026.30 | |
| Reach-1 | 8445.73 | Floodway | 906.93 | 0.87 | 907.99 | 290.00 | 2449.53 | 11234.63 | 3586.85 | 1875.00 | 1961.40 | 2026.30 | 2165.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 9055.09 | Natural | 907.50 | | 908.46 | 197.00 | 3474.21 | 10285.70 | 3511.09 | | 972.00 | 1028.00 | |
| Reach-1 | 9055.09 | Floodway | 908.06 | 0.56 | 909.02 | 197.00 | 3363.22 | 10540.85 | 3366.94 | 903.00 | 972.00 | 1028.00 | 1100.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 9202.15 BR D | Natural | 905.98 | | 910.36 | 50.00 | | 14423.00 | | | 972.00 | 1028.00 | |
| Reach-1 | 9202.15 BR D | Floodway | 906.69 | 0.71 | 910.73 | 50.00 | | 14423.00 | | 903.00 | 972.00 | 1028.00 | 1100.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 9202.15 BR U | Natural | 907.31 | | 911.08 | 50.00 | | 14423.00 | | | 972.00 | 1028.00 | |
| Reach-1 | 9202.15 BR U | Floodway | 907.77 | 0.46 | 911.36 | 50.00 | | 14423.00 | | 903.00 | 972.00 | 1028.00 | 1090.00 |

HEC-RAS Plan: CE FW River: RIVER-1 Reach: Reach-1 (Continued)

| Reach | River Sta | Profile | W.S. Elev | Prof Delta WS | E.G. Elev | Top Wdth Act | Q Left | Q Channel | Q Right | Enc Sta L | Ch Sta L | Ch Sta R | Enc Sta R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (ft) | (ft) | (ft) | (ft) | (cfs) | (cfs) | (cfs) | (ft) | (ft) | (ft) | (ft) |
| Reach-1 | 9298.15 | Natural | 911.07 | | 912.11 | 194.69 | 3368.99 | 9355.54 | 1698.47 | | 980.00 | 1028.00 | |
| Reach-1 | 9298.15 | Floodway | 911.29 | 0.21 | 912.33 | 187.00 | 3195.78 | 9451.92 | 1775.30 | 903.00 | 980.00 | 1028.00 | 1090.00 |
| Reach-1 | 10400.82 | Natural | 912.93 | | 913.25 | 466.18 | 4685.10 | 6560.65 | 3177.26 | | 1980.00 | 2030.00 | |
| Reach-1 | 10400.82 | Floodway | 913.12 | 0.18 | 913.50 | 285.00 | 3925.44 | 7017.25 | 3480.31 | 1865.00 | 1980.00 | 2030.00 | 2150.00 |
| Reach-1 | 10946.58 NEW | Natural | 912.91 | | 913.91 | 285.89 | 2256.55 | 7443.31 | 4723.14 | | 291.88 | 325.08 | |
| Reach-1 | 10946.58 NEW | Floodway | 913.14 | 0.24 | 914.18 | 215.00 | 1883.86 | 7561.21 | 4977.93 | 235.00 | 291.88 | 325.08 | 450.00 |
| Reach-1 | 11699.91 | Natural | 914.24 | | 914.46 | 545.28 | 5486.30 | 8251.12 | 685.58 | | 1927.10 | 2018.10 | |
| Reach-1 | 11699.91 | Floodway | 914.49 | 0.25 | 914.78 | 297.00 | 4474.39 | 9173.72 | 774.89 | 1773.00 | 1927.10 | 2018.10 | 2070.00 |
| Reach-1 | 12336.76 NEW | Natural | 914.55 | | 914.57 | 1244.73 | 7104.38 | 2702.02 | 4616.60 | | 1262.92 | 1321.01 | |
| Reach-1 | 12336.76 NEW | Floodway | 914.88 | 0.33 | 915.01 | 470.00 | 6797.25 | 4958.02 | 2667.73 | 972.00 | 1262.92 | 1321.01 | 1442.00 |
| Reach-1 | 13462.07 | Natural | 914.66 | | 914.71 | 813.10 | 5038.36 | 2469.30 | 6915.34 | | 1978.30 | 2022.20 | |
| Reach-1 | 13462.07 | Floodway | 915.22 | 0.55 | 915.29 | 520.00 | 5100.03 | 3105.07 | 6217.90 | 1760.00 | 1978.30 | 2022.20 | 2280.00 |
| Reach-1 | 14756.18 | Natural | 914.85 | | 914.88 | 1480.52 | 5541.58 | 2073.37 | 6808.05 | | 1970.20 | 2021.00 | |
| Reach-1 | 14756.18 | Floodway | 915.52 | 0.67 | 915.60 | 680.00 | 4187.40 | 3405.07 | 6830.54 | 1666.00 | 1970.20 | 2021.00 | 2346.00 |
| Reach-1 | 16295.42 | Natural | 915.13 | | 915.17 | 1304.41 | 5255.01 | 2807.90 | 6360.09 | | 1965.00 | 2030.00 | |
| Reach-1 | 16295.42 | Floodway | 916.00 | 0.87 | 916.04 | 750.00 | 4562.77 | 2833.33 | 7026.90 | 1660.00 | 1965.00 | 2030.00 | 2410.00 |
| Reach-1 | 17413.80 | Natural | 915.59 | | 915.63 | 1897.15 | 5158.67 | 2815.72 | 6448.62 | | 1970.00 | 2040.00 | |
| Reach-1 | 17413.80 | Floodway | 916.49 | 0.91 | 916.65 | 700.00 | 4553.14 | 4730.10 | 5139.76 | 1655.00 | 1970.00 | 2040.00 | 2355.00 |
| Reach-1 | 17515.47 | Natural | 915.64 | | 915.68 | 1898.79 | 5265.64 | 2827.87 | 6558.50 | | 1970.00 | 2040.00 | |
| Reach-1 | 17515.47 | Floodway | 916.61 | 0.97 | 916.77 | 700.00 | 4654.13 | 4753.21 | 5244.66 | 1655.00 | 1970.00 | 2040.00 | 2355.00 |
| Reach-1 | 17641.44BR D | Natural | 918.15 | | 918.17 | 1494.10 | 3222.62 | 8710.82 | 2701.57 | | 1949.60 | 2050.40 | |
| Reach-1 | 17641.44BR D | Floodway | 918.23 | 0.08 | 918.90 | 700.00 | 3524.67 | 8922.10 | 2193.49 | 1655.00 | 1949.60 | 2050.40 | 2355.00 |
| Reach-1 | 17641.44BR U | Natural | 918.15 | | 918.17 | 1494.10 | 3222.62 | 8710.82 | 2701.57 | | 1949.60 | 2050.40 | |
| Reach-1 | 17641.44BR U | Floodway | 918.69 | 0.53 | 918.90 | 550.00 | 3524.67 | 8922.10 | 2193.49 | 1648.00 | 1949.60 | 2050.40 | 2198.00 |
| Reach-1 | 17748.44 NEW | Natural | 918.15 | | 918.17 | 1802.78 | 7812.77 | 1744.54 | 5094.69 | | 1967.33 | 2029.17 | |
| Reach-1 | 17748.44 NEW | Floodway | 918.69 | 0.53 | 918.90 | 550.00 | 6696.83 | 4609.30 | 3345.87 | 1648.00 | 1967.33 | 2029.17 | 2198.00 |
| Reach-1 | 17813.61 | Natural | 918.12 | | 918.28 | 1252.38 | 8560.92 | 4090.99 | 2000.08 | | 1980.00 | 2027.00 | |
| Reach-1 | 17813.61 | Floodway | 918.72 | 0.60 | 919.13 | 530.00 | 5765.47 | 5828.48 | 3058.05 | 1654.00 | 1980.00 | 2027.00 | 2184.00 |
| Reach-1 | 18146.32 | Natural | 918.51 | | 918.75 | 627.74 | 9171.43 | 5170.71 | 309.86 | | 1972.00 | 2028.00 | |
| Reach-1 | 18146.32 | Floodway | 919.45 | 0.93 | 919.76 | 400.00 | 8280.93 | 5984.26 | 386.81 | 1650.00 | 1972.00 | 2028.00 | 2050.00 |
| Reach-1 | 18651.90 | Natural | 919.04 | | 919.70 | 518.83 | 2087.53 | 7117.65 | 5446.83 | | 1980.00 | 2030.00 | |

HEC-RAS Plan: CE FW River: RIVER-1 Reach: Reach-1 (Continued)

| Reach | River Sta | Profile | W.S. Elev | Prof Delta WS | E.G. Elev | Top Wdth Act | Q Left | Q Channel | Q Right | Enc Sta L | Ch Sta L | Ch Sta R | Enc Sta R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (ft) | (ft) | (ft) | (ft) | (cfs) | (cfs) | (cfs) | (ft) | (ft) | (ft) | (ft) |
| Reach-1 | 18651.90 | Floodway | 920.05 | 1.00 | 920.63 | 390.00 | 2667.03 | 7069.48 | 4915.49 | 1795.00 | 1980.00 | 2030.00 | 2185.00 |
| Reach-1 | 20340.54 | Natural | 922.07 | | 922.33 | 769.63 | 3718.54 | 4870.16 | 6063.30 | | 1967.10 | 2022.10 | |
| Reach-1 | 20340.54 | Floodway | 922.86 | 0.79 | 923.30 | 400.00 | 1949.49 | 6066.54 | 6635.97 | 1895.00 | 1967.10 | 2022.10 | 2295.00 |
| Reach-1 | 20788.78 NEW | Natural | 922.69 | | 923.13 | 516.55 | 1300.58 | 5672.85 | 7678.57 | | 673.37 | 725.69 | |
| Reach-1 | 20788.78 NEW | Floodway | 923.66 | 0.97 | 924.13 | 370.00 | 1655.37 | 6096.97 | 6899.66 | 600.00 | 673.37 | 725.69 | 970.00 |
| Reach-1 | 21440.00 | Natural | 923.73 | | 923.90 | 721.73 | 10105.46 | 4351.59 | 194.95 | | 1975.00 | 2030.00 | |
| Reach-1 | 21440.00 | Floodway | 924.67 | 0.94 | 924.90 | 437.00 | 9475.94 | 4908.56 | 267.50 | 1623.00 | 1975.00 | 2030.00 | 2060.00 |
| Reach-1 | 22221.01 NEW | Natural | 924.25 | | 924.31 | 1144.61 | 5271.26 | 2911.43 | 2927.31 | | 988.66 | 1050.16 | |
| Reach-1 | 22221.01 NEW | Floodway | 925.23 | 0.98 | 925.30 | 800.00 | 6029.48 | 3133.54 | 1946.98 | 500.00 | 988.66 | 1050.16 | 1300.00 |
| Reach-1 | 23217.96 | Natural | 923.97 | | 926.33 | 150.66 | 2488.08 | 8123.30 | 498.62 | | 980.00 | 1020.00 | |
| Reach-1 | 23217.96 | Floodway | 924.96 | 1.00 | 927.13 | 100.00 | 2384.77 | 8226.74 | 498.49 | 935.00 | 980.00 | 1020.00 | 1035.00 |
| Reach-1 | 23378.74BR D | Natural | 925.64 | | 927.61 | 120.60 | 2914.64 | 8382.44 | 619.92 | | 980.00 | 1020.00 | |
| Reach-1 | 23378.74BR D | Floodway | 926.44 | 0.81 | 928.25 | 100.00 | 2894.27 | 8358.25 | 664.48 | 935.00 | 980.00 | 1020.00 | 1035.00 |
| Reach-1 | 23378.74BR U | Natural | 926.52 | | 927.92 | 146.88 | 2092.56 | 8777.83 | 1046.61 | | 980.00 | 1028.00 | |
| Reach-1 | 23378.74BR U | Floodway | 927.31 | 0.79 | 928.53 | 145.78 | 2136.70 | 8643.95 | 1136.35 | 870.00 | 980.00 | 1028.00 | 1070.00 |
| Reach-1 | 23477.24 | Natural | 927.63 | | 928.28 | 227.41 | 4009.69 | 6998.17 | 909.14 | | 980.00 | 1028.00 | |
| Reach-1 | 23477.24 | Floodway | 928.10 | 0.47 | 928.82 | 200.00 | 3533.00 | 7373.31 | 1010.69 | 870.00 | 980.00 | 1028.00 | 1070.00 |
| Reach-1 | 24584.31 | Natural | 929.08 | | 929.36 | 361.31 | 4482.29 | 7108.54 | 326.17 | | 557.00 | 635.19 | |
| Reach-1 | 24584.31 | Floodway | 929.60 | 0.52 | 929.96 | 260.00 | 3714.58 | 7852.94 | 349.48 | 400.00 | 557.00 | 635.19 | 660.00 |
| Reach-1 | 24776.87 NEW | Natural | 929.22 | | 929.52 | 383.27 | 2871.79 | 4521.22 | 4523.99 | | 641.15 | 683.91 | |
| Reach-1 | 24776.87 NEW | Floodway | 929.86 | 0.65 | 930.14 | 375.00 | 2982.05 | 4461.02 | 4473.93 | 505.00 | 641.15 | 683.91 | 880.00 |
| Reach-1 | 24842.55BR D | Natural | 929.13 | | 929.66 | 342.80 | 3703.69 | 5694.58 | 2518.74 | | 650.00 | 695.00 | |
| Reach-1 | 24842.55BR D | Floodway | 929.79 | 0.66 | 930.26 | 325.00 | 3674.77 | 5619.84 | 2622.39 | 505.00 | 650.00 | 695.00 | 880.00 |
| Reach-1 | 24842.55BR U | Natural | 929.25 | | 929.77 | 343.35 | 3708.80 | 5673.81 | 2534.39 | | 650.00 | 695.00 | |
| Reach-1 | 24842.55BR U | Floodway | 929.90 | 0.65 | 930.35 | 345.43 | 3731.70 | 5564.77 | 2620.52 | 450.00 | 650.00 | 695.00 | 880.00 |
| Reach-1 | 24942.55 NEW | Natural | 929.69 | | 929.91 | 430.00 | 4004.05 | 4007.60 | 3905.35 | | 642.06 | 683.63 | |
| Reach-1 | 24942.55 NEW | Floodway | 930.27 | 0.58 | 930.47 | 430.00 | 4007.32 | 4003.00 | 3906.69 | 450.00 | 642.06 | 683.63 | 880.00 |
| Reach-1 | 26158.34 | Natural | 930.71 | | 931.03 | 488.67 | 1174.78 | 7647.13 | 3095.09 | | 1975.20 | 2077.70 | |
| Reach-1 | 26158.34 | Floodway | 931.19 | 0.48 | 931.54 | 345.00 | 1121.40 | 8004.47 | 2791.13 | 1900.00 | 1975.20 | 2077.70 | 2245.00 |
| Reach-1 | 27163.80 | Natural | 931.75 | | 932.27 | 577.53 | 1405.09 | 5475.63 | 5036.28 | | 970.00 | 1020.00 | |
| Reach-1 | 27163.80 | Floodway | 932.17 | 0.42 | 933.02 | 313.00 | 1807.49 | 6637.58 | 3471.93 | 862.00 | 970.00 | 1020.00 | 1175.00 |

HEC-RAS Plan: CE FW River: RIVER-1 Reach: Reach-1 (Continued)

| Reach | River Sta | Profile | W.S. Elev | Prof Delta WS | E.G. Elev | Top Wdth Act | Q Left | Q Channel | Q Right | Enc Sta L | Ch Sta L | Ch Sta R | Enc Sta R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (ft) | (ft) | (ft) | (ft) | (cfs) | (cfs) | (cfs) | (ft) | (ft) | (ft) | (ft) |
| Reach-1 | 27924.79 | Natural | 933.39 | | 935.22 | 115.96 | | 11917.00 | | | 910.00 | 1073.00 | |
| Reach-1 | 27924.79 | Floodway | 934.30 | 0.91 | 935.82 | 115.90 | | 11917.00 | | 934.40 | 910.00 | 1073.00 | 1050.30 |
| | | | | | | | | | | | | | |
| Reach-1 | 28138.58BR D | Natural | 934.59 | | 936.02 | 121.53 | | 11917.00 | | | 910.00 | 1073.00 | |
| Reach-1 | 28138.58BR D | Floodway | 935.11 | 0.52 | 936.42 | 115.90 | | 11917.00 | | 934.40 | 910.00 | 1073.00 | 1050.30 |
| | | | | | | | | | | | | | |
| Reach-1 | 28138.58BR U | Natural | 935.37 | | 936.60 | 125.16 | | 11917.00 | | | 910.00 | 1073.00 | |
| Reach-1 | 28138.58BR U | Floodway | 935.77 | 0.40 | 936.91 | 127.02 | | 11917.00 | | 900.00 | 910.00 | 1073.00 | 1075.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 28275.58 | Natural | 934.88 | | 937.63 | 245.39 | 1913.32 | 8886.01 | 1117.68 | | 982.00 | 1020.00 | |
| Reach-1 | 28275.58 | Floodway | 935.26 | 0.38 | 937.91 | 175.00 | 1785.69 | 8918.79 | 1212.52 | 900.00 | 982.00 | 1020.00 | 1075.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 29014.22 | Natural | 939.35 | | 940.48 | 259.80 | 4644.36 | 5639.33 | 1633.31 | | 989.00 | 1015.00 | |
| Reach-1 | 29014.22 | Floodway | 939.46 | 0.11 | 940.68 | 195.00 | 4330.96 | 5784.89 | 1801.16 | 880.00 | 989.00 | 1015.00 | 1075.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 29655.01 | Natural | 940.86 | | 940.96 | 739.58 | 742.54 | 4116.67 | 7057.79 | | 1968.90 | 2031.70 | |
| Reach-1 | 29655.01 | Floodway | 941.11 | 0.25 | 941.28 | 500.00 | 976.64 | 5057.29 | 5883.08 | 1860.00 | 1968.90 | 2031.70 | 2360.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 30358.55 NEW | Natural | 941.05 | | 941.08 | 859.26 | 6832.24 | 2427.05 | 2657.71 | | 818.99 | 872.40 | |
| Reach-1 | 30358.55 NEW | Floodway | 941.40 | 0.35 | 941.50 | 416.00 | 6251.35 | 3668.71 | 1996.94 | 530.00 | 818.99 | 872.40 | 946.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 31128.08 | Natural | 940.63 | | 942.13 | 238.13 | 3825.69 | 6323.38 | 1767.93 | | 989.00 | 1020.00 | |
| Reach-1 | 31128.08 | Floodway | 941.29 | 0.67 | 942.76 | 200.00 | 3558.12 | 6429.73 | 1929.15 | 883.00 | 989.00 | 1020.00 | 1083.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 31244.21BR D | Natural | 942.18 | | 942.71 | 24.60 | | 11917.00 | | | 913.00 | 1133.00 | |
| Reach-1 | 31244.21BR D | Floodway | 942.50 | 0.32 | 943.28 | 0.13 | | 11917.00 | | 883.00 | 913.00 | 1133.00 | 1083.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 31244.21BR U | Natural | 942.59 | | 943.12 | | | 11917.00 | | | 913.00 | 1133.00 | |
| Reach-1 | 31244.21BR U | Floodway | 942.82 | 0.24 | 944.50 | | | 11917.00 | | 945.00 | 913.00 | 1133.00 | 1045.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 31353.71 | Natural | 942.10 | | 944.21 | 151.46 | 1878.08 | 8493.62 | 1545.30 | | 980.00 | 1018.00 | |
| Reach-1 | 31353.71 | Floodway | 943.09 | 0.98 | 945.12 | 100.00 | 1796.20 | 8704.25 | 1416.56 | 945.00 | 980.00 | 1018.00 | 1045.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 32008.58 | Natural | 945.83 | | 946.04 | 262.24 | 2640.05 | 4124.21 | 583.74 | | 980.00 | 1028.00 | |
| Reach-1 | 32008.58 | Floodway | 946.57 | 0.74 | 946.77 | 190.00 | 2641.28 | 4113.30 | 593.42 | 870.00 | 980.00 | 1028.00 | 1060.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 32395.49BR D | Natural | 946.10 | | 946.26 | 191.14 | | 7348.00 | | | 880.00 | 1121.00 | |
| Reach-1 | 32395.49BR D | Floodway | 946.80 | 0.70 | 946.96 | 160.40 | | 7348.00 | | 870.00 | 880.00 | 1121.00 | 1060.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 32395.49BR U | Natural | 946.14 | | 946.30 | 191.35 | | 7348.00 | | | 880.00 | 1121.00 | |
| Reach-1 | 32395.49BR U | Floodway | 946.83 | 0.69 | 946.99 | 159.00 | | 7348.00 | | 918.00 | 880.00 | 1121.00 | 1083.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 32499.49 | Natural | 946.02 | | 946.51 | 227.87 | 1499.01 | 4685.29 | 1163.70 | | 985.00 | 1021.00 | |
| Reach-1 | 32499.49 | Floodway | 946.74 | 0.71 | 947.16 | 165.00 | 1556.80 | 4574.74 | 1216.46 | 918.00 | 985.00 | 1021.00 | 1083.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 32836.11 | Natural | 946.21 | | 947.58 | 125.06 | 844.75 | 5515.13 | 988.12 | | 990.00 | 1020.00 | |
| Reach-1 | 32836.11 | Floodway | 946.90 | 0.69 | 948.05 | 115.00 | 958.47 | 5318.76 | 1070.78 | 945.00 | 990.00 | 1020.00 | 1060.00 |

HEC-RAS Plan: CE FW River: RIVER-1 Reach: Reach-1 (Continued)

| Reach | River Sta | Profile | W.S. Elev | Prof Delta WS | E.G. Elev | Top Width Act | Q Left | Q Channel | Q Right | Enc Sta L | Ch Sta L | Ch Sta R | Enc Sta R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (ft) | (ft) | (ft) | (ft) | (cfs) | (cfs) | (cfs) | (ft) | (ft) | (ft) | (ft) |
| Reach-1 | 32909.32 | Natural | 947.80 | | 948.05 | 184.75 | | 7348.00 | | | 891.00 | 1109.00 | |
| Reach-1 | 32909.32 | Floodway | 948.12 | 0.32 | 948.43 | 130.00 | | 7348.00 | | 930.00 | 891.00 | 1109.00 | 1060.00 |
| Reach-1 | 32976.16BR D | Natural | 947.83 | | 948.10 | 178.94 | | 7348.00 | | | 891.00 | 1109.00 | |
| Reach-1 | 32976.16BR D | Floodway | 948.15 | 0.32 | 948.48 | 124.00 | | 7348.00 | | 930.00 | 891.00 | 1109.00 | 1060.00 |
| Reach-1 | 32976.16BR U | Natural | 947.92 | | 948.18 | 179.53 | | 7348.00 | | | 891.00 | 1109.00 | |
| Reach-1 | 32976.16BR U | Floodway | 948.21 | 0.30 | 948.59 | 114.00 | | 7348.00 | | 932.00 | 891.00 | 1109.00 | 1052.00 |
| Reach-1 | 33046.16 | Natural | 947.98 | | 948.23 | 185.98 | | 7348.00 | | | 891.00 | 1109.00 | |
| Reach-1 | 33046.16 | Floodway | 948.31 | 0.32 | 948.64 | 120.00 | | 7348.00 | | 932.00 | 891.00 | 1109.00 | 1052.00 |
| Reach-1 | 33155.58 | Natural | 947.88 | | 948.61 | 169.06 | 1933.68 | 4693.94 | 720.39 | | 982.00 | 1015.00 | |
| Reach-1 | 33155.58 | Floodway | 948.22 | 0.34 | 949.04 | 110.00 | 1764.79 | 4936.78 | 646.43 | 930.00 | 982.00 | 1015.00 | 1040.00 |
| Reach-1 | 34068.65 | Natural | 949.73 | | 950.22 | 265.47 | 927.61 | 4765.06 | 1655.33 | | 980.00 | 1020.00 | |
| Reach-1 | 34068.65 | Floodway | 950.15 | 0.42 | 950.73 | 120.00 | 815.77 | 5113.12 | 1419.10 | 950.00 | 980.00 | 1020.00 | 1070.00 |
| Reach-1 | 34164.15 | Natural | 949.83 | | 950.44 | 99.00 | 500.63 | 7627.13 | 406.24 | | 967.00 | 1030.00 | |
| Reach-1 | 34164.15 | Floodway | 950.30 | 0.47 | 950.90 | 99.00 | 406.89 | 7784.42 | 342.69 | 948.50 | 967.00 | 1030.00 | 1047.50 |
| Reach-1 | 34250.29 | | Culvert | | | | | | | | | | |
| Reach-1 | 34319.79 | Natural | 952.34 | | 952.57 | 335.48 | 2855.75 | 3887.74 | 1790.51 | | 985.00 | 1022.00 | |
| Reach-1 | 34319.79 | Floodway | 952.64 | 0.31 | 952.90 | 223.00 | 2903.77 | 4029.10 | 1601.13 | 855.00 | 985.00 | 1022.00 | 1078.00 |
| Reach-1 | 34887.32 NEW | Natural | 952.81 | | 952.87 | 687.11 | 5601.74 | 2099.53 | 832.73 | | 481.60 | 514.97 | |
| Reach-1 | 34887.32 NEW | Floodway | 953.13 | 0.32 | 953.29 | 262.00 | 4286.00 | 2997.74 | 1250.26 | 328.00 | 481.60 | 514.97 | 590.00 |
| Reach-1 | 35731.12 | Natural | 953.10 | | 953.20 | 580.40 | 3788.93 | 2673.59 | 2071.48 | | 1971.90 | 2009.50 | |
| Reach-1 | 35731.12 | Floodway | 953.63 | 0.53 | 953.74 | 390.00 | 3744.80 | 2779.34 | 2009.86 | 1740.00 | 1971.90 | 2009.50 | 2130.00 |
| Reach-1 | 36431.22 | Natural | 953.38 | | 953.44 | 494.89 | 2520.13 | 1995.30 | 964.57 | | 980.00 | 1020.00 | |
| Reach-1 | 36431.22 | Floodway | 953.91 | 0.53 | 953.97 | 320.00 | 2377.08 | 2063.90 | 1039.02 | 800.00 | 980.00 | 1020.00 | 1120.00 |
| Reach-1 | 36570.11 | Natural | 953.41 | | 953.47 | 543.82 | 1268.05 | 2999.15 | 1212.80 | | 962.00 | 1044.00 | |
| Reach-1 | 36570.11 | Floodway | 953.94 | 0.53 | 954.01 | 360.00 | 1076.30 | 3170.40 | 1233.30 | 820.00 | 962.00 | 1044.00 | 1180.00 |
| Reach-1 | 36665.49 | | Culvert | | | | | | | | | | |
| Reach-1 | 36721.49 | Natural | 954.09 | | 954.27 | 446.02 | 410.62 | 4634.93 | 434.45 | | 952.00 | 1040.00 | |
| Reach-1 | 36721.49 | Floodway | 954.92 | 0.83 | 955.10 | 180.00 | 264.69 | 4880.51 | 334.80 | 915.00 | 952.00 | 1040.00 | 1095.00 |
| Reach-1 | 36788.68 | Natural | 954.17 | | 954.31 | 369.34 | 733.37 | 1707.63 | 3054.99 | | 990.00 | 1012.00 | |
| Reach-1 | 36788.68 | Floodway | 954.98 | 0.81 | 955.14 | 180.00 | 936.11 | 1813.67 | 2746.22 | 940.00 | 990.00 | 1012.00 | 1120.00 |

HEC-RAS Plan: CE FW River: RIVER-1 Reach: Reach-1 (Continued)

| Reach | River Sta | Profile | W.S. Elev | Prof Delta WS | E.G. Elev | Top Wdth Act | Q Left | Q Channel | Q Right | Enc Sta L | Ch Sta L | Ch Sta R | Enc Sta R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (ft) | (ft) | (ft) | (ft) | (cfs) | (cfs) | (cfs) | (ft) | (ft) | (ft) | (ft) |
| Reach-1 | 37048.76 NEW | Natural | 954.28 | | 954.61 | 168.86 | 171.59 | 2030.70 | 3293.70 | | 153.22 | 174.49 | |
| Reach-1 | 37048.76 NEW | Floodway | 955.07 | 0.79 | 955.45 | 135.00 | 206.05 | 2211.01 | 3078.94 | 138.00 | 153.22 | 174.49 | 273.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 37465.78 | Natural | 954.84 | | 955.30 | 204.43 | 980.06 | 2614.91 | 1901.04 | | 1992.00 | 2018.00 | |
| Reach-1 | 37465.78 | Floodway | 955.60 | 0.76 | 956.14 | 125.00 | 1168.07 | 2857.04 | 1470.89 | 1945.00 | 1992.00 | 2018.00 | 2070.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 37684.34 NEW | Natural | 955.37 | | 955.61 | 217.81 | 628.93 | 1619.42 | 3247.66 | | 155.62 | 172.96 | |
| Reach-1 | 37684.34 NEW | Floodway | 956.18 | 0.81 | 956.45 | 170.00 | 704.52 | 1748.17 | 3043.31 | 120.00 | 155.62 | 172.96 | 290.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 38162.53 | Natural | 955.78 | | 955.80 | 729.45 | 396.83 | 812.66 | 4286.51 | | 1990.00 | 2016.00 | |
| Reach-1 | 38162.53 | Floodway | 956.62 | 0.84 | 956.64 | 470.00 | 481.89 | 916.04 | 4098.07 | 1930.00 | 1990.00 | 2016.00 | 2400.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 39106.84 NEW | Natural | 955.94 | | 956.19 | 345.16 | 1422.60 | 2187.61 | 1885.78 | | 296.65 | 329.21 | |
| Reach-1 | 39106.84 NEW | Floodway | 956.75 | 0.81 | 957.05 | 230.00 | 1643.14 | 2427.73 | 1425.14 | 200.00 | 296.65 | 329.21 | 430.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 39458.26 | Natural | 955.85 | | 957.47 | 123.75 | 1107.18 | 4016.12 | 372.70 | | 980.00 | 1012.00 | |
| Reach-1 | 39458.26 | Floodway | 956.77 | 0.93 | 958.17 | 100.00 | 990.59 | 4028.57 | 476.84 | 945.00 | 980.00 | 1012.00 | 1045.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 39777.89 NEW | Natural | 957.98 | | 958.20 | 176.63 | 483.55 | 4783.82 | 228.64 | | 945.74 | 1033.93 | |
| Reach-1 | 39777.89 NEW | Floodway | 958.54 | 0.56 | 958.80 | 110.00 | 56.89 | 5231.65 | 207.46 | 940.00 | 945.74 | 1033.93 | 1050.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 40471.23 | | Culvert | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Reach-1 | 41077.23 NEW | Natural | 959.93 | | 960.07 | 184.34 | 230.35 | 5239.20 | 26.45 | | 947.86 | 1061.88 | |
| Reach-1 | 41077.23 NEW | Floodway | 960.49 | 0.56 | 960.63 | 130.00 | 38.05 | 5432.61 | 25.34 | 940.00 | 947.86 | 1061.88 | 1070.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 41269.88 | Natural | 960.03 | | 960.15 | 527.23 | 3428.45 | 1580.69 | 486.86 | | 923.00 | 948.00 | |
| Reach-1 | 41269.88 | Floodway | 960.56 | 0.54 | 960.71 | 380.00 | 3191.80 | 1734.02 | 570.18 | 605.00 | 923.00 | 948.00 | 985.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 42211.00 | Natural | 960.67 | | 960.74 | 717.53 | 1073.83 | 1463.75 | 2958.43 | | 1982.90 | 2017.60 | |
| Reach-1 | 42211.00 | Floodway | 961.24 | 0.57 | 961.34 | 390.00 | 1353.66 | 1646.95 | 2495.38 | 1850.00 | 1982.90 | 2017.60 | 2240.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 42778.44 | Natural | 961.11 | | 961.28 | 562.49 | 3435.30 | 1675.13 | 385.58 | | 1986.00 | 2014.00 | |
| Reach-1 | 42778.44 | Floodway | 961.70 | 0.58 | 962.00 | 300.00 | 2837.09 | 2113.04 | 545.87 | 1760.00 | 1986.00 | 2014.00 | 2060.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 43468.18 | Natural | 962.16 | | 962.26 | 744.04 | 3145.27 | 1138.88 | 1211.85 | | 1985.00 | 2009.00 | |
| Reach-1 | 43468.18 | Floodway | 963.01 | 0.85 | 963.16 | 400.00 | 3137.69 | 1341.58 | 1016.73 | 1700.00 | 1985.00 | 2009.00 | 2100.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 44309.29 | Natural | 963.54 | | 964.26 | 574.21 | 690.69 | 2230.15 | 1393.17 | | 985.00 | 1015.00 | |
| Reach-1 | 44309.29 | Floodway | 964.31 | 0.77 | 965.25 | 150.00 | 689.69 | 2572.44 | 1051.88 | 930.00 | 985.00 | 1015.00 | 1080.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 44436.54 NEW | Natural | 965.10 | | 966.82 | 184.00 | 587.05 | 2585.15 | 1559.80 | | 994.06 | 1016.95 | |
| Reach-1 | 44436.54 NEW | Floodway | 965.10 | -0.01 | 966.86 | 184.00 | 585.25 | 2613.28 | 1533.48 | 907.00 | 994.06 | 1016.95 | 1091.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 44531.77BR D | Natural | 969.82 | | 969.84 | 203.87 | 9.27 | 4721.30 | 3.55 | | 969.00 | 1032.00 | |
| Reach-1 | 44531.77BR D | Floodway | 969.81 | -0.02 | 969.83 | 180.01 | 8.07 | 4722.53 | 2.78 | 907.00 | 969.00 | 1032.00 | 1091.00 |
| | | | | | | | | | | | | | |

HEC-RAS Plan: CE FW River: RIVER-1 Reach: Reach-1 (Continued)

| Reach | River Sta | Profile | W.S. Elev | Prof Delta WS | E.G. Elev | Top Wdth Act | Q Left | Q Channel | Q Right | Enc Sta L | Ch Sta L | Ch Sta R | Enc Sta R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (ft) | (ft) | (ft) | (ft) | (cfs) | (cfs) | (cfs) | (ft) | (ft) | (ft) | (ft) |
| Reach-1 | 44531.77BR U | Natural | 969.82 | | 969.84 | 203.87 | 9.27 | 4721.30 | 3.55 | | 969.00 | 1032.00 | |
| Reach-1 | 44531.77BR U | Floodway | 969.81 | -0.02 | 969.83 | 189.68 | 8.07 | 4722.53 | 2.78 | 670.00 | 969.00 | 1032.00 | 1280.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 44631.27 NEW | Natural | 969.82 | | 969.83 | 686.58 | 1826.62 | 959.94 | 1945.44 | | 978.99 | 1021.09 | |
| Reach-1 | 44631.27 NEW | Floodway | 969.81 | -0.02 | 969.82 | 610.00 | 1777.19 | 1026.10 | 1928.71 | 670.00 | 978.99 | 1021.09 | 1280.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 44700.35 | Natural | 969.83 | | 969.86 | 660.01 | 1682.00 | 1023.88 | 2026.13 | | 985.00 | 1015.00 | |
| Reach-1 | 44700.35 | Floodway | 969.81 | -0.01 | 969.85 | 580.00 | 1746.67 | 1012.59 | 1972.74 | 700.00 | 985.00 | 1015.00 | 1280.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 45408.89 | Natural | 969.95 | | 969.96 | 720.94 | 1950.43 | 727.78 | 87.79 | | 977.00 | 1019.00 | |
| Reach-1 | 45408.89 | Floodway | 969.93 | -0.02 | 969.95 | 608.00 | 1969.11 | 730.12 | 66.77 | 430.00 | 977.00 | 1019.00 | 1038.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 45689.70 NEW | Natural | 969.91 | | 970.14 | 121.00 | 914.21 | 725.59 | 1126.20 | | 1995.75 | 2005.59 | |
| Reach-1 | 45689.70 NEW | Floodway | 969.89 | -0.02 | 970.13 | 121.00 | 915.76 | 756.08 | 1094.16 | 1939.00 | 1995.75 | 2005.59 | 2060.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 45777 BR D | Natural | 967.40 | | 970.14 | | 0.62 | 2764.77 | 0.61 | | 1978.50 | 2021.50 | |
| Reach-1 | 45777 BR D | Floodway | 967.40 | 0.00 | 970.13 | | 0.62 | 2764.77 | 0.61 | 1939.00 | 1978.50 | 2021.50 | 2060.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 45777 BR U | Natural | 967.40 | | 971.33 | 40.00 | | 2766.00 | | | 1978.50 | 2021.50 | |
| Reach-1 | 45777 BR U | Floodway | 967.40 | 0.00 | 971.31 | 40.00 | | 2766.00 | | 1935.00 | 1978.50 | 2021.50 | 2060.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 45868.71 NEW | Natural | 971.06 | | 971.34 | 121.00 | 724.16 | 1309.36 | 732.49 | | 1987.98 | 2014.36 | |
| Reach-1 | 45868.71 NEW | Floodway | 971.02 | -0.04 | 971.32 | 121.00 | 738.00 | 1338.47 | 689.54 | 1935.00 | 1987.98 | 2014.36 | 2060.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 46058.02 | Natural | 971.43 | | 971.43 | 1274.48 | 1833.52 | 356.53 | 575.95 | | 1005.50 | 1040.36 | |
| Reach-1 | 46058.02 | Floodway | 971.45 | 0.02 | 971.50 | 300.00 | 970.51 | 1018.64 | 776.85 | 853.00 | 1005.50 | 1040.36 | 1153.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 46186.37 | Natural | 971.36 | | 971.49 | 425.37 | 1588.00 | 1008.56 | 479.44 | | 397.11 | 425.64 | |
| Reach-1 | 46186.37 | Floodway | 971.45 | 0.09 | 971.62 | 240.00 | 1609.50 | 1128.44 | 338.06 | 240.00 | 397.11 | 425.64 | 480.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 46509.26 | Natural | 971.75 | | 972.38 | 262.25 | 249.82 | 2408.10 | 418.08 | | 980.00 | 1020.00 | |
| Reach-1 | 46509.26 | Floodway | 971.92 | 0.18 | 972.52 | 170.00 | 286.02 | 2395.46 | 394.52 | 909.00 | 980.00 | 1020.00 | 1079.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 46728.27BR D | Natural | 973.27 | | 973.81 | 229.70 | 1438.24 | 1094.11 | 541.24 | | 992.00 | 1009.00 | |
| Reach-1 | 46728.27BR D | Floodway | 973.43 | 0.15 | 974.46 | 170.00 | 1166.54 | 987.74 | 921.96 | 909.00 | 992.00 | 1009.00 | 1079.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 46728.27BR U | Natural | 973.32 | | 973.81 | 228.22 | 1437.67 | 1094.89 | 541.04 | | 992.00 | 1009.00 | |
| Reach-1 | 46728.27BR U | Floodway | 974.13 | 0.81 | 974.54 | 130.00 | 1165.90 | 988.62 | 921.73 | 925.00 | 992.00 | 1009.00 | 1055.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 46822.27 | Natural | 973.32 | | 973.81 | 228.25 | 688.96 | 2124.29 | 262.75 | | 988.00 | 1022.00 | |
| Reach-1 | 46822.27 | Floodway | 974.13 | 0.81 | 974.54 | 130.00 | 680.78 | 2091.57 | 303.65 | 925.00 | 988.00 | 1022.00 | 1055.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 47675.67 | Natural | 975.77 | | 976.56 | 292.29 | 1126.13 | 1716.64 | 233.23 | | 990.00 | 1010.00 | |
| Reach-1 | 47675.67 | Floodway | 976.05 | 0.28 | 976.86 | 130.00 | 1068.23 | 1748.59 | 259.19 | 900.00 | 990.00 | 1010.00 | 1030.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 47928.60BR D | Natural | 976.05 | | 976.58 | 366.30 | 2278.11 | 627.65 | 97.84 | | 992.00 | 1009.00 | |
| Reach-1 | 47928.60BR D | Floodway | 976.60 | 0.55 | 976.92 | 130.00 | 2300.54 | 680.50 | 78.87 | 900.00 | 992.00 | 1009.00 | 1030.00 |

HEC-RAS Plan: CE FW River: RIVER-1 Reach: Reach-1 (Continued)

| Reach | River Sta | Profile | W.S. Elev | Prof Delta WS | E.G. Elev | Top Wdth Act | Q Left | Q Channel | Q Right | Enc Sta L | Ch Sta L | Ch Sta R | Enc Sta R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (ft) | (ft) | (ft) | (ft) | (cfs) | (cfs) | (cfs) | (ft) | (ft) | (ft) | (ft) |
| Reach-1 | 47926.60BR U | Natural | 976.17 | | 976.58 | 410.06 | 2278.11 | 627.71 | 97.78 | | 992.00 | 1009.00 | |
| Reach-1 | 47926.60BR U | Floodway | 976.60 | 0.43 | 976.92 | 218.67 | 2300.54 | 680.56 | 78.82 | 820.00 | 992.00 | 1009.00 | 1080.00 |
| Reach-1 | 48121.10 | Natural | 976.17 | | 976.58 | 376.88 | 760.48 | 2085.09 | 230.44 | | 980.00 | 1020.00 | |
| Reach-1 | 48121.10 | Floodway | 976.60 | 0.43 | 976.92 | 260.00 | 843.36 | 1972.91 | 259.73 | 820.00 | 980.00 | 1020.00 | 1080.00 |
| Reach-1 | 48220.77 | Natural | 976.39 | | 977.10 | 175.85 | 548.56 | 2302.13 | 225.32 | | 980.00 | 1020.00 | |
| Reach-1 | 48220.77 | Floodway | 976.76 | 0.37 | 977.35 | 167.00 | 578.35 | 2232.36 | 265.29 | 899.00 | 980.00 | 1020.00 | 1066.00 |
| Reach-1 | 48358.25BR D | Natural | 975.74 | | 979.03 | 32.00 | | 3076.00 | | | 980.00 | 1020.00 | |
| Reach-1 | 48358.25BR D | Floodway | 975.79 | 0.05 | 979.03 | 32.00 | | 3076.00 | | 899.00 | 980.00 | 1020.00 | 1066.00 |
| Reach-1 | 48358.25BR U | Natural | 980.41 | | 981.40 | 38.00 | | 3076.00 | | | 980.00 | 1026.00 | |
| Reach-1 | 48358.25BR U | Floodway | 980.39 | -0.03 | 981.38 | 38.00 | | 3076.00 | | 899.00 | 980.00 | 1026.00 | 1107.00 |
| Reach-1 | 48524.75 | Natural | 981.67 | | 981.74 | 208.00 | 805.63 | 1449.87 | 820.50 | | 980.00 | 1026.00 | |
| Reach-1 | 48524.75 | Floodway | 981.65 | -0.02 | 981.72 | 208.00 | 782.98 | 1500.06 | 792.96 | 899.00 | 980.00 | 1026.00 | 1107.00 |
| Reach-1 | 48778.94 | Natural | 981.78 | | 981.80 | 519.75 | 810.71 | 1060.54 | 1204.75 | | 980.00 | 1026.00 | |
| Reach-1 | 48778.94 | Floodway | 981.74 | -0.04 | 981.80 | 250.00 | 690.00 | 1360.71 | 1025.29 | 900.00 | 980.00 | 1026.00 | 1150.00 |
| Reach-1 | 49005.34 NEW | Natural | 981.81 | | 981.85 | 396.64 | 69.68 | 852.29 | 1512.04 | | 986.57 | 1016.40 | |
| Reach-1 | 49005.34 NEW | Floodway | 981.81 | -0.01 | 981.86 | 233.00 | 85.50 | 985.02 | 1363.48 | 967.00 | 986.57 | 1016.40 | 1200.00 |
| Reach-1 | 49069 | | Culvert | | | | | | | | | | |
| Reach-1 | 49133.73 NEW | Natural | 982.36 | | 982.39 | 368.51 | 53.20 | 1268.26 | 1112.53 | | 980.14 | 1037.69 | |
| Reach-1 | 49133.73 NEW | Floodway | 982.40 | 0.04 | 982.46 | 185.00 | 25.99 | 1557.15 | 850.85 | 974.00 | 980.14 | 1037.69 | 1159.00 |
| Reach-1 | 49234.85 | Natural | 982.37 | | 982.40 | 344.69 | 146.15 | 912.85 | 1375.00 | | 980.00 | 1020.00 | |
| Reach-1 | 49234.85 | Floodway | 982.42 | 0.05 | 982.48 | 195.00 | 166.31 | 1155.50 | 1112.19 | 945.00 | 980.00 | 1020.00 | 1140.00 |
| Reach-1 | 49847.50 NEW | Natural | 982.52 | | 982.59 | 260.52 | 285.74 | 514.03 | 1634.23 | | 278.08 | 294.74 | |
| Reach-1 | 49847.50 NEW | Floodway | 982.65 | 0.13 | 982.72 | 220.00 | 299.81 | 522.40 | 1611.79 | 230.00 | 278.08 | 294.74 | 450.00 |
| Reach-1 | 50185.30 | Natural | 982.79 | | 982.89 | 338.69 | 747.39 | 974.56 | 712.05 | | 374.16 | 407.90 | |
| Reach-1 | 50185.30 | Floodway | 982.91 | 0.13 | 983.10 | 200.00 | 382.53 | 1199.09 | 852.38 | 331.00 | 374.16 | 407.90 | 531.00 |
| Reach-1 | 51158.38 AD | Natural | 984.42 | | 985.02 | 305.20 | 518.31 | 1883.96 | 31.73 | | 745.43 | 789.74 | |
| Reach-1 | 51158.38 AD | Floodway | 985.06 | 0.64 | 985.67 | 116.00 | 369.84 | 2011.25 | 52.92 | 688.00 | 745.43 | 789.74 | 804.00 |
| Reach-1 | 51636.08 NEW | Natural | 986.76 | | 987.15 | 276.19 | 603.58 | 1771.69 | 58.73 | | 329.93 | 377.67 | |
| Reach-1 | 51636.08 NEW | Floodway | 987.15 | 0.39 | 987.61 | 150.00 | 413.92 | 1945.38 | 74.70 | 245.00 | 329.93 | 377.67 | 395.00 |
| Reach-1 | 52150.00 | Natural | 989.12 | | 989.94 | 226.72 | 1040.75 | 1266.31 | 126.94 | | 1984.00 | 2008.00 | |
| Reach-1 | 52150.00 | Floodway | 989.41 | 0.29 | 990.43 | 150.00 | 836.77 | 1413.18 | 184.05 | 1900.00 | 1984.00 | 2008.00 | 2050.00 |

HEC-RAS Plan: CE FW River: RIVER-1 Reach: Reach-1 (Continued)

| Reach | River Sta | Profile | W.S. Elev | Prof Delta WS | E.G. Elev | Top Width Act | Q Left | Q Channel | Q Right | Enc Sta L | Ch Sta L | Ch Sta R | Enc Sta R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (ft) | (ft) | (ft) | (ft) | (cfs) | (cfs) | (cfs) | (ft) | (ft) | (ft) | (ft) |
| Reach-1 | 53057.03 | Natural | 993.30 | | 993.51 | 359.83 | 439.57 | 1181.86 | 812.57 | | 985.00 | 1020.00 | |
| Reach-1 | 53057.03 | Floodway | 993.83 | 0.54 | 994.11 | 150.00 | 409.71 | 1359.83 | 664.46 | 940.00 | 985.00 | 1020.00 | 1090.00 |
| Reach-1 | 53908.67 | Natural | 994.86 | | 994.95 | 286.31 | 93.10 | 488.67 | 165.23 | | 979.00 | 1020.00 | |
| Reach-1 | 53908.67 | Floodway | 995.48 | 0.62 | 995.65 | 60.00 | 30.93 | 673.57 | 42.50 | 970.00 | 979.00 | 1020.00 | 1030.00 |
| Reach-1 | 54001.22 NEW | Natural | 997.28 | | 998.40 | 67.00 | 29.34 | 652.28 | 65.38 | | 991.57 | 1008.72 | |
| Reach-1 | 54001.22 NEW | Floodway | 997.27 | -0.02 | 998.41 | 67.00 | 28.54 | 655.81 | 62.66 | 966.00 | 991.57 | 1008.72 | 1033.00 |
| Reach-1 | 54194.68 | | Culvert | | | | | | | | | | |
| Reach-1 | 54469.68 AF | Natural | 1014.62 | | 1014.63 | 67.00 | 66.20 | 603.92 | 76.88 | | 977.57 | 1019.12 | |
| Reach-1 | 54469.68 AF | Floodway | 1014.62 | 0.00 | 1014.63 | 67.00 | 40.19 | 656.48 | 50.33 | 966.00 | 977.57 | 1019.12 | 1033.00 |
| Reach-1 | 54818.60 | Natural | 1014.63 | | 1014.63 | 489.84 | 835.88 | 707.88 | 917.24 | | 1980.00 | 2020.00 | |
| Reach-1 | 54818.60 | Floodway | 1014.63 | 0.00 | 1014.63 | 360.00 | 834.91 | 718.28 | 907.81 | 1835.00 | 1980.00 | 2020.00 | 2195.00 |
| Reach-1 | 54941.18 | | Culvert | | | | | | | | | | |
| Reach-1 | 55057.68 | Natural | 1014.66 | | 1014.66 | 837.95 | 1295.49 | 266.37 | 899.14 | | 1990.00 | 2010.00 | |
| Reach-1 | 55057.68 | Floodway | 1014.64 | -0.02 | 1014.65 | 240.00 | 695.13 | 498.91 | 1266.95 | 1914.00 | 1990.00 | 2010.00 | 2154.00 |
| Reach-1 | 55096.61 | Natural | 1014.66 | | 1014.66 | 800.81 | 1233.71 | 620.67 | 606.61 | | 1977.10 | 2026.90 | |
| Reach-1 | 55096.61 | Floodway | 1014.64 | -0.02 | 1014.66 | 160.00 | 598.12 | 1302.86 | 560.02 | 1920.00 | 1977.10 | 2026.90 | 2080.00 |
| Reach-1 | 55342.61 | Natural | 1014.66 | | 1014.67 | 766.09 | 1148.86 | 690.22 | 621.92 | | 1977.10 | 2026.90 | |
| Reach-1 | 55342.61 | Floodway | 1014.67 | 0.01 | 1014.68 | 260.00 | 767.29 | 955.27 | 738.44 | 1872.00 | 1977.10 | 2026.90 | 2132.00 |
| Reach-1 | 55522.33 | | Culvert | | | | | | | | | | |
| Reach-1 | 55668.33 | Natural | 1014.67 | | 1014.68 | 755.26 | 1148.21 | 565.12 | 747.67 | | 1977.10 | 2011.70 | |
| Reach-1 | 55668.33 | Floodway | 1014.69 | 0.02 | 1014.70 | 319.00 | 1034.17 | 672.46 | 754.37 | 1805.00 | 1977.10 | 2011.70 | 2124.00 |
| Reach-1 | 55788.73 | Natural | 1014.68 | | 1014.70 | 317.78 | 1161.60 | 1241.44 | 57.96 | | 1972.00 | 2028.00 | |
| Reach-1 | 55788.73 | Floodway | 1014.70 | 0.02 | 1014.72 | 220.00 | 1106.99 | 1292.90 | 61.11 | 1828.00 | 1972.00 | 2028.00 | 2048.00 |
| Reach-1 | 56569.00 NEW | Natural | 1014.77 | | 1014.93 | 122.66 | 729.53 | 1496.94 | 234.52 | | 438.96 | 473.32 | |
| Reach-1 | 56569.00 NEW | Floodway | 1014.80 | 0.03 | 1014.96 | 120.00 | 687.41 | 1525.89 | 247.71 | 390.00 | 438.96 | 473.32 | 510.00 |
| Reach-1 | 56629.59 | | Culvert | | | | | | | | | | |
| Reach-1 | 56726.59 NEW | Natural | 1018.40 | | 1018.42 | 409.63 | 1172.71 | 889.39 | 398.90 | | 436.30 | 474.36 | |
| Reach-1 | 56726.59 NEW | Floodway | 1018.86 | 0.46 | 1018.95 | 115.00 | 610.89 | 1550.69 | 299.42 | 390.00 | 436.30 | 474.36 | 505.00 |
| Reach-1 | 56849.09 | Natural | 1018.43 | | 1018.44 | 477.11 | 1853.95 | 425.99 | 181.06 | | 1990.00 | 2010.00 | |
| Reach-1 | 56849.09 | Floodway | 1018.98 | 0.56 | 1019.00 | 310.00 | 1786.59 | 458.73 | 215.69 | 1756.00 | 1990.00 | 2010.00 | 2066.00 |

HEC-RAS Plan: CE FW River: RIVER-1 Reach: Reach-1 (Continued)

| Reach | River Sta | Profile | W.S. Elev | Prof Delta WS | E.G. Elev | Top Wdth Act | Q Left | Q Channel | Q Right | Enc Sta L | Ch Sta L | Ch Sta R | Enc Sta R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (ft) | (ft) | (ft) | (ft) | (cfs) | (cfs) | (cfs) | (ft) | (ft) | (ft) | (ft) |
| | | | | | | | | | | | | | |
| Reach-1 | 57643.30 | Natural | 1018.69 | | 1018.82 | 378.92 | 1002.39 | 952.83 | 505.78 | | 1986.00 | 2011.00 | |
| Reach-1 | 57643.30 | Floodway | 1019.22 | 0.53 | 1019.39 | 150.00 | 959.81 | 1061.93 | 439.26 | 1910.00 | 1986.00 | 2011.00 | 2060.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 57934.79 | Natural | 1019.18 | | 1019.57 | 375.44 | 420.60 | 1505.29 | 535.10 | | 990.00 | 1020.00 | |
| Reach-1 | 57934.79 | Floodway | 1019.71 | 0.53 | 1020.10 | 130.00 | 392.05 | 1568.62 | 500.33 | 935.00 | 990.00 | 1020.00 | 1065.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 58289.38 NEW | Natural | 1020.64 | | 1021.71 | 92.49 | 237.00 | 2136.26 | 87.75 | | 990.16 | 1024.66 | |
| Reach-1 | 58289.38 NEW | Floodway | 1020.98 | 0.35 | 1021.91 | 85.00 | 255.33 | 2100.13 | 105.54 | 951.00 | 990.16 | 1024.66 | 1036.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 58351.73BR D | Natural | 1022.98 | | 1023.15 | 347.91 | 444.32 | 1668.48 | 348.11 | | 990.00 | 1013.00 | |
| Reach-1 | 58351.73BR D | Floodway | 1023.41 | 0.42 | 1023.92 | 85.00 | 282.78 | 1885.94 | 289.87 | 951.00 | 990.00 | 1013.00 | 1036.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 58351.73BR U | Natural | 1022.98 | | 1023.15 | 376.66 | 444.32 | 1668.48 | 348.11 | | 990.00 | 1013.00 | |
| Reach-1 | 58351.73BR U | Floodway | 1023.41 | 0.42 | 1023.92 | 101.00 | 282.78 | 1885.94 | 289.87 | 951.00 | 990.00 | 1013.00 | 1052.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 58415.23 | Natural | 1022.98 | | 1023.15 | 418.54 | 918.73 | 985.50 | 556.78 | | 993.10 | 1012.70 | |
| Reach-1 | 58415.23 | Floodway | 1023.41 | 0.42 | 1023.92 | 101.00 | 514.43 | 1489.17 | 457.41 | 951.00 | 993.10 | 1012.70 | 1052.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 58519.71 | Natural | 1023.03 | | 1023.90 | 142.20 | 376.76 | 1422.35 | 661.88 | | 294.42 | 311.84 | |
| Reach-1 | 58519.71 | Floodway | 1023.88 | 0.85 | 1024.50 | 100.00 | 426.10 | 1332.89 | 702.01 | 260.00 | 294.42 | 311.84 | 360.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 58693.98 NEW | Natural | 1025.03 | | 1025.36 | 273.78 | 632.02 | 677.16 | 1151.82 | | 363.74 | 373.51 | |
| Reach-1 | 58693.98 NEW | Floodway | 1025.18 | 0.15 | 1026.02 | 100.00 | 635.25 | 946.14 | 879.61 | 330.00 | 363.74 | 373.51 | 430.00 |

# PROPOSED CONDITIONS MODEL
# FLOODWAY

HEC-RAS Plan: Prop FW River: RIVER-1 Reach: Reach-1

| Reach | River Sta | Profile | W.S. Elev | Prof Delta WS | E.G. Elev | Top Wdth Act | Q Left | Q Channel | Q Right | Enc Sta L | Ch Sta L | Ch Sta R | Enc Sta R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (ft) | (ft) | (ft) | (ft) | (cfs) | (cfs) | (cfs) | (ft) | (ft) | (ft) | (ft) |
| Reach-1 | 203.92 | Natural | 893.21 | | 894.29 | 340.19 | 3218.68 | 13578.56 | 111.75 | | 1947.70 | 2057.80 | |
| Reach-1 | 203.92 | Floodway | 893.21 | -0.01 | 894.29 | 290.00 | 3213.37 | 13584.33 | 111.31 | 1790.00 | 1947.70 | 2057.80 | 2080.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 776.77 NEW | Natural | 894.66 | | 894.84 | 839.76 | 4319.40 | 6299.09 | 6290.52 | | 990.80 | 1057.56 | |
| Reach-1 | 776.77 NEW | Floodway | 894.65 | 0.00 | 894.94 | 590.00 | 5246.90 | 7363.54 | 4298.55 | 724.00 | 990.80 | 1057.56 | 1314.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 1621.49 | Natural | 894.97 | | 895.67 | 928.32 | 1314.46 | 7660.29 | 7934.25 | | 1974.98 | 2023.08 | |
| Reach-1 | 1621.49 | Floodway | 894.96 | 0.00 | 896.15 | 600.00 | 1635.12 | 9153.26 | 6120.61 | 1800.00 | 1974.98 | 2023.08 | 2400.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 3153.49 | Natural | 897.84 | | 899.14 | 441.64 | 3493.10 | 12720.85 | 695.05 | | 1954.50 | 2041.10 | |
| Reach-1 | 3153.49 | Floodway | 898.59 | 0.75 | 899.77 | 330.00 | 3388.07 | 12742.21 | 778.71 | 1765.00 | 1954.50 | 2041.10 | 2095.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 4576.80 | Natural | 901.63 | | 902.45 | 343.98 | 1204.04 | 9750.79 | 5879.17 | | 970.00 | 1030.00 | |
| Reach-1 | 4576.80 | Floodway | 901.92 | 0.29 | 902.78 | 225.00 | 1216.74 | 9956.63 | 5660.64 | 930.00 | 970.00 | 1030.00 | 1155.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 4753.78 | Natural | 901.97 | | 903.21 | 172.13 | 296.63 | 16327.63 | 209.74 | | 938.80 | 1064.20 | |
| Reach-1 | 4753.78 | Floodway | 902.27 | 0.30 | 903.50 | 140.00 | 180.62 | 16556.91 | 96.47 | 930.00 | 938.80 | 1064.20 | 1070.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 4858.98 BR D | Natural | 902.38 | | 903.91 | 119.40 | | 17271.00 | | | 938.80 | 1064.20 | |
| Reach-1 | 4858.98 BR D | Floodway | 902.69 | 0.30 | 904.15 | 119.40 | | 17271.00 | | 930.00 | 938.80 | 1064.20 | 1070.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 4858.98 BR U | Natural | 902.79 | | 904.23 | 119.40 | | 17271.00 | | | 938.80 | 1064.20 | |
| Reach-1 | 4858.98 BR U | Floodway | 903.06 | 0.27 | 904.46 | 119.40 | | 17271.00 | | 857.80 | 938.80 | 1064.20 | 1145.20 |
| | | | | | | | | | | | | | |
| Reach-1 | 4958.98 | Natural | 904.22 | | 904.70 | 287.40 | 4468.73 | 9243.17 | 3559.10 | | 975.00 | 1040.00 | |
| Reach-1 | 4958.98 | Floodway | 904.41 | 0.19 | 904.91 | 287.40 | 4392.20 | 9398.81 | 3480.00 | 857.80 | 975.00 | 1040.00 | 1145.20 |
| | | | | | | | | | | | | | |
| Reach-1 | 5486.69 NEW | Natural | 904.98 | | 905.02 | 1320.08 | 5923.16 | 3122.35 | 8225.49 | | 934.25 | 985.00 | |
| Reach-1 | 5486.69 NEW | Floodway | 905.19 | 0.22 | 905.32 | 610.00 | 5030.40 | 4548.25 | 7692.35 | 700.00 | 934.25 | 985.00 | 1310.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 5940.21 | Natural | 905.05 | | 905.10 | 1796.48 | 7448.19 | 4232.39 | 5590.43 | | 1968.00 | 2043.00 | |
| Reach-1 | 5940.21 | Floodway | 905.35 | 0.30 | 905.47 | 736.00 | 5216.93 | 5738.93 | 6315.14 | 1670.00 | 1968.00 | 2043.00 | 2406.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 7286.45 | Natural | 905.32 | | 905.59 | 697.23 | 4399.64 | 6463.77 | 6407.59 | | 1965.50 | 2023.80 | |
| Reach-1 | 7286.45 | Floodway | 905.79 | 0.47 | 906.24 | 460.00 | 5142.20 | 7950.74 | 4178.07 | 1735.00 | 1965.50 | 2023.80 | 2195.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 8445.73 | Natural | 906.06 | | 907.26 | 385.56 | 2217.95 | 11359.20 | 3693.84 | | 1961.40 | 2026.30 | |
| Reach-1 | 8445.73 | Floodway | 906.93 | 0.87 | 907.99 | 290.00 | 2449.53 | 11234.63 | 3586.85 | 1875.00 | 1961.40 | 2026.30 | 2165.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 9055.09 | Natural | 907.50 | | 908.46 | 197.00 | 3474.21 | 10285.70 | 3511.09 | | 972.00 | 1028.00 | |
| Reach-1 | 9055.09 | Floodway | 908.06 | 0.56 | 909.02 | 197.00 | 3363.22 | 10540.85 | 3366.94 | 903.00 | 972.00 | 1028.00 | 1100.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 9202.15 BR D | Natural | 905.98 | | 910.36 | 50.00 | | 14423.00 | | | 972.00 | 1028.00 | |
| Reach-1 | 9202.15 BR D | Floodway | 906.69 | 0.71 | 910.73 | 50.00 | | 14423.00 | | 903.00 | 972.00 | 1028.00 | 1100.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 9202.15 BR U | Natural | 907.31 | | 911.08 | 50.00 | | 14423.00 | | | 972.00 | 1028.00 | |
| Reach-1 | 9202.15 BR U | Floodway | 907.77 | 0.46 | 911.36 | 50.00 | | 14423.00 | | 903.00 | 972.00 | 1028.00 | 1090.00 |

HEC-RAS Plan: Prop FW River: RIVER-1 Reach: Reach-1 (Continued)

| Reach | River Sta | Profile | W.S. Elev | Prof Delta WS | E.G. Elev | Top Wdth Act | Q Left | Q Channel | Q Right | Enc Sta L | Ch Sta L | Ch Sta R | Enc Sta R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (ft) | (ft) | (ft) | (ft) | (cfs) | (cfs) | (cfs) | (ft) | (ft) | (ft) | (ft) |
| Reach-1 | 9298.15 | Natural | 911.07 | | 912.11 | 194.69 | 3368.99 | 9355.54 | 1698.47 | | 980.00 | 1028.00 | |
| Reach-1 | 9298.15 | Floodway | 911.29 | 0.21 | 912.33 | 187.00 | 3195.78 | 9451.92 | 1775.30 | 903.00 | 980.00 | 1028.00 | 1090.00 |
| Reach-1 | 10400.82 | Natural | 912.93 | | 913.25 | 466.18 | 4685.10 | 6560.65 | 3177.26 | | 1980.00 | 2030.00 | |
| Reach-1 | 10400.82 | Floodway | 913.12 | 0.18 | 913.50 | 285.00 | 3925.44 | 7017.25 | 3480.31 | 1865.00 | 1980.00 | 2030.00 | 2150.00 |
| Reach-1 | 10946.58 NEW | Natural | 912.91 | | 913.91 | 285.89 | 2256.55 | 7443.31 | 4723.14 | | 291.88 | 325.08 | |
| Reach-1 | 10946.58 NEW | Floodway | 913.14 | 0.24 | 914.18 | 215.00 | 1883.86 | 7561.21 | 4977.93 | 235.00 | 291.88 | 325.08 | 450.00 |
| Reach-1 | 11699.91 | Natural | 914.24 | | 914.46 | 545.28 | 5486.30 | 8251.12 | 685.58 | | 1927.10 | 2018.10 | |
| Reach-1 | 11699.91 | Floodway | 914.49 | 0.25 | 914.78 | 297.00 | 4474.39 | 9173.72 | 774.89 | 1773.00 | 1927.10 | 2018.10 | 2070.00 |
| Reach-1 | 12336.76 NEW | Natural | 914.55 | | 914.57 | 1244.73 | 7104.38 | 2702.02 | 4616.60 | | 1262.92 | 1321.01 | |
| Reach-1 | 12336.76 NEW | Floodway | 914.88 | 0.33 | 915.01 | 470.00 | 6797.25 | 4958.02 | 2667.73 | 972.00 | 1262.92 | 1321.01 | 1442.00 |
| Reach-1 | 13462.07 | Natural | 914.66 | | 914.71 | 813.10 | 5038.36 | 2469.30 | 6915.34 | | 1978.30 | 2022.20 | |
| Reach-1 | 13462.07 | Floodway | 915.22 | 0.55 | 915.29 | 520.00 | 5100.03 | 3105.07 | 6217.90 | 1760.00 | 1978.30 | 2022.20 | 2280.00 |
| Reach-1 | 14756.18 | Natural | 914.85 | | 914.88 | 1480.52 | 5541.58 | 2073.37 | 6808.05 | | 1970.20 | 2021.00 | |
| Reach-1 | 14756.18 | Floodway | 915.52 | 0.67 | 915.60 | 680.00 | 4187.40 | 3405.07 | 6830.54 | 1666.00 | 1970.20 | 2021.00 | 2346.00 |
| Reach-1 | 16295.42 | Natural | 915.13 | | 915.17 | 1304.41 | 5255.01 | 2807.90 | 6360.09 | | 1965.00 | 2030.00 | |
| Reach-1 | 16295.42 | Floodway | 916.00 | 0.87 | 916.04 | 750.00 | 4562.77 | 2833.33 | 7026.90 | 1660.00 | 1965.00 | 2030.00 | 2410.00 |
| Reach-1 | 17413.80 | Natural | 915.59 | | 915.63 | 1897.15 | 5158.67 | 2815.72 | 6448.62 | | 1970.00 | 2040.00 | |
| Reach-1 | 17413.80 | Floodway | 916.49 | 0.91 | 916.65 | 700.00 | 4553.14 | 4730.10 | 5139.76 | 1655.00 | 1970.00 | 2040.00 | 2355.00 |
| Reach-1 | 17515.47 | Natural | 915.64 | | 915.68 | 1898.79 | 5265.64 | 2827.87 | 6558.50 | | 1970.00 | 2040.00 | |
| Reach-1 | 17515.47 | Floodway | 916.61 | 0.97 | 916.77 | 700.00 | 4654.13 | 4753.21 | 5244.66 | 1655.00 | 1970.00 | 2040.00 | 2355.00 |
| Reach-1 | 17641.44BR D | Natural | 918.15 | | 918.17 | 1494.10 | 3222.62 | 8710.82 | 2701.57 | | 1949.60 | 2050.40 | |
| Reach-1 | 17641.44BR D | Floodway | 918.23 | 0.08 | 918.90 | 700.00 | 3524.67 | 8922.10 | 2193.49 | 1655.00 | 1949.60 | 2050.40 | 2355.00 |
| Reach-1 | 17641.44BR U | Natural | 918.15 | | 918.17 | 1494.10 | 3222.62 | 8710.82 | 2701.57 | | 1949.60 | 2050.40 | |
| Reach-1 | 17641.44BR U | Floodway | 918.69 | 0.53 | 918.90 | 550.00 | 3524.67 | 8922.10 | 2193.49 | 1648.00 | 1949.60 | 2050.40 | 2198.00 |
| Reach-1 | 17748.44 NEW | Natural | 918.15 | | 918.17 | 1802.78 | 7812.77 | 1744.54 | 5094.69 | | 1967.33 | 2029.17 | |
| Reach-1 | 17748.44 NEW | Floodway | 918.69 | 0.53 | 918.90 | 550.00 | 6696.83 | 4609.30 | 3345.87 | 1648.00 | 1967.33 | 2029.17 | 2198.00 |
| Reach-1 | 17813.61 | Natural | 918.12 | | 918.28 | 1252.38 | 8560.92 | 4090.99 | 2000.08 | | 1980.00 | 2027.00 | |
| Reach-1 | 17813.61 | Floodway | 918.72 | 0.60 | 919.13 | 530.00 | 5765.47 | 5828.48 | 3058.05 | 1654.00 | 1980.00 | 2027.00 | 2184.00 |
| Reach-1 | 18146.32 | Natural | 918.51 | | 918.75 | 627.74 | 9171.43 | 5170.71 | 309.86 | | 1972.00 | 2028.00 | |
| Reach-1 | 18146.32 | Floodway | 919.45 | 0.93 | 919.76 | 400.00 | 8280.93 | 5984.26 | 386.81 | 1650.00 | 1972.00 | 2028.00 | 2050.00 |
| Reach-1 | 18651.90 | Natural | 919.04 | | 919.70 | 518.83 | 2087.53 | 7117.65 | 5446.83 | | 1980.00 | 2030.00 | |

HEC-RAS Plan: Prop FW River: RIVER-1 Reach: Reach-1 (Continued)

| Reach | River Sta | Profile | W.S. Elev | Prof Delta WS | E.G. Elev | Top Wdth Act | Q Left | Q Channel | Q Right | Enc Sta L | Ch Sta L | Ch Sta R | Enc Sta R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (ft) | (ft) | (ft) | (ft) | (cfs) | (cfs) | (cfs) | (ft) | (ft) | (ft) | (ft) |
| Reach-1 | 18651.90 | Floodway | 920.05 | 1.00 | 920.63 | 390.00 | 2667.03 | 7069.48 | 4915.49 | 1795.00 | 1980.00 | 2030.00 | 2185.00 |
| Reach-1 | 20340.54 | Natural | 922.07 | | 922.33 | 769.63 | 3718.54 | 4870.16 | 6063.30 | | 1967.10 | 2022.10 | |
| Reach-1 | 20340.54 | Floodway | 922.86 | 0.79 | 923.30 | 400.00 | 1949.49 | 6066.54 | 6635.97 | 1895.00 | 1967.10 | 2022.10 | 2295.00 |
| Reach-1 | 20788.78 NEW | Natural | 922.69 | | 923.13 | 516.55 | 1300.58 | 5672.85 | 7678.57 | | 673.37 | 725.69 | |
| Reach-1 | 20788.78 NEW | Floodway | 923.66 | 0.97 | 924.13 | 370.00 | 1655.37 | 6096.97 | 6899.66 | 600.00 | 673.37 | 725.69 | 970.00 |
| Reach-1 | 21440.00 | Natural | 923.73 | | 923.90 | 721.73 | 10105.46 | 4351.59 | 194.95 | | 1975.00 | 2030.00 | |
| Reach-1 | 21440.00 | Floodway | 924.67 | 0.94 | 924.90 | 437.00 | 9475.94 | 4908.56 | 267.50 | 1623.00 | 1975.00 | 2030.00 | 2060.00 |
| Reach-1 | 22221.01 NEW | Natural | 924.25 | | 924.31 | 1144.61 | 5271.26 | 2911.43 | 2927.31 | | 988.66 | 1050.16 | |
| Reach-1 | 22221.01 NEW | Floodway | 925.23 | 0.98 | 925.30 | 800.00 | 6029.48 | 3133.54 | 1946.98 | 500.00 | 988.66 | 1050.16 | 1300.00 |
| Reach-1 | 23217.98 | Natural | 923.97 | | 926.33 | 150.66 | 2488.08 | 8123.30 | 498.62 | | 980.00 | 1020.00 | |
| Reach-1 | 23217.98 | Floodway | 924.96 | 1.00 | 927.13 | 100.00 | 2384.77 | 8226.74 | 498.49 | 935.00 | 980.00 | 1020.00 | 1035.00 |
| Reach-1 | 23378.74BR D | Natural | 925.64 | | 927.61 | 120.60 | 2914.64 | 8382.44 | 619.92 | | 980.00 | 1020.00 | |
| Reach-1 | 23378.74BR D | Floodway | 926.44 | 0.81 | 928.25 | 100.00 | 2894.27 | 8358.25 | 664.48 | 935.00 | 980.00 | 1020.00 | 1035.00 |
| Reach-1 | 23378.74BR U | Natural | 926.52 | | 927.92 | 146.88 | 2092.56 | 8777.83 | 1046.61 | | 980.00 | 1028.00 | |
| Reach-1 | 23378.74BR U | Floodway | 927.31 | 0.79 | 928.53 | 145.78 | 2136.70 | 8643.95 | 1136.35 | 870.00 | 980.00 | 1028.00 | 1070.00 |
| Reach-1 | 23477.24 | Natural | 927.63 | | 928.28 | 227.41 | 4009.69 | 6998.17 | 909.14 | | 980.00 | 1028.00 | |
| Reach-1 | 23477.24 | Floodway | 928.10 | 0.47 | 928.82 | 200.00 | 3533.00 | 7373.31 | 1010.69 | 870.00 | 980.00 | 1028.00 | 1070.00 |
| Reach-1 | 24584.31 | Natural | 929.08 | | 929.36 | 361.31 | 4482.29 | 7108.54 | 326.17 | | 557.00 | 635.19 | |
| Reach-1 | 24584.31 | Floodway | 929.60 | 0.52 | 929.96 | 260.00 | 3714.58 | 7852.94 | 349.48 | 400.00 | 557.00 | 635.19 | 660.00 |
| Reach-1 | 24776.87 NEW | Natural | 929.22 | | 929.52 | 383.27 | 2871.79 | 4521.22 | 4523.99 | | 641.15 | 683.91 | |
| Reach-1 | 24776.87 NEW | Floodway | 929.86 | 0.65 | 930.14 | 375.00 | 2982.05 | 4461.02 | 4473.93 | 505.00 | 641.15 | 683.91 | 880.00 |
| Reach-1 | 24842.55BR D | Natural | 929.13 | | 929.66 | 342.80 | 3703.69 | 5694.58 | 2518.74 | | 650.00 | 695.00 | |
| Reach-1 | 24842.55BR D | Floodway | 929.79 | 0.66 | 930.26 | 325.00 | 3674.77 | 5619.84 | 2622.39 | 505.00 | 650.00 | 695.00 | 880.00 |
| Reach-1 | 24842.55BR U | Natural | 929.25 | | 929.77 | 343.35 | 3708.80 | 5673.81 | 2534.39 | | 650.00 | 695.00 | |
| Reach-1 | 24842.55BR U | Floodway | 929.90 | 0.65 | 930.35 | 345.43 | 3731.70 | 5564.77 | 2620.52 | 450.00 | 650.00 | 695.00 | 880.00 |
| Reach-1 | 24942.55 NEW | Natural | 929.69 | | 929.91 | 430.00 | 4004.05 | 4007.60 | 3905.35 | | 642.06 | 683.63 | |
| Reach-1 | 24942.55 NEW | Floodway | 930.27 | 0.58 | 930.47 | 430.00 | 4007.32 | 4003.00 | 3906.69 | 450.00 | 642.06 | 683.63 | 880.00 |
| Reach-1 | 26158.34 | Natural | 930.71 | | 931.03 | 488.67 | 1174.78 | 7647.13 | 3095.09 | | 1975.20 | 2077.70 | |
| Reach-1 | 26158.34 | Floodway | 931.19 | 0.48 | 931.54 | 345.00 | 1121.40 | 8004.47 | 2791.13 | 1900.00 | 1975.20 | 2077.70 | 2245.00 |
| Reach-1 | 27163.80 | Natural | 931.75 | | 932.27 | 577.53 | 1405.09 | 5475.63 | 5036.28 | | 970.00 | 1020.00 | |
| Reach-1 | 27163.80 | Floodway | 932.17 | 0.42 | 933.02 | 313.00 | 1807.49 | 6637.58 | 3471.93 | 862.00 | 970.00 | 1020.00 | 1175.00 |

HEC-RAS Plan: Prop FW River: RIVER-1 Reach: Reach-1 (Continued)

| Reach | River Sta | Profile | W.S. Elev | Prof Delta WS | E.G. Elev | Top Width Act | Q Left | Q Channel | Q Right | Enc Sta L | Ch Sta L | Ch Sta R | Enc Sta R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (ft) | (ft) | (ft) | (ft) | (cfs) | (cfs) | (cfs) | (ft) | (ft) | (ft) | (ft) |
| Reach-1 | 27924.79 | Natural | 933.39 | | 935.22 | 115.96 | | 11917.00 | | | 910.00 | 1073.00 | |
| Reach-1 | 27924.79 | Floodway | 934.30 | 0.91 | 935.62 | 115.90 | | 11917.00 | | 934.40 | 910.00 | 1073.00 | 1050.30 |
| | | | | | | | | | | | | | |
| Reach-1 | 28138.58BR D | Natural | 934.59 | | 936.02 | 121.53 | | 11917.00 | | | 910.00 | 1073.00 | |
| Reach-1 | 28138.58BR D | Floodway | 935.11 | 0.52 | 936.42 | 115.90 | | 11917.00 | | 934.40 | 910.00 | 1073.00 | 1050.30 |
| | | | | | | | | | | | | | |
| Reach-1 | 28138.58BR U | Natural | 935.37 | | 936.60 | 125.16 | | 11917.00 | | | 910.00 | 1073.00 | |
| Reach-1 | 28138.58BR U | Floodway | 935.77 | 0.40 | 936.91 | 127.02 | | 11917.00 | | 900.00 | 910.00 | 1073.00 | 1075.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 28275.58 | Natural | 934.88 | | 937.63 | 245.39 | 1913.32 | 8886.01 | 1117.68 | | 982.00 | 1020.00 | |
| Reach-1 | 28275.58 | Floodway | 935.26 | 0.38 | 937.91 | 175.00 | 1785.69 | 8918.79 | 1212.52 | 900.00 | 982.00 | 1020.00 | 1075.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 29014.22 | Natural | 939.35 | | 940.48 | 259.80 | 4644.36 | 5639.33 | 1633.31 | | 989.00 | 1015.00 | |
| Reach-1 | 29014.22 | Floodway | 939.46 | 0.11 | 940.68 | 195.00 | 4330.96 | 5784.89 | 1801.16 | 880.00 | 989.00 | 1015.00 | 1075.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 29655.01 | Natural | 940.86 | | 940.96 | 739.58 | 742.54 | 4116.67 | 7057.79 | | 1968.90 | 2031.70 | |
| Reach-1 | 29655.01 | Floodway | 941.11 | 0.25 | 941.28 | 500.00 | 976.64 | 5057.29 | 5883.08 | 1860.00 | 1968.90 | 2031.70 | 2360.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 30358.55 NEW | Natural | 941.05 | | 941.08 | 859.26 | 6832.24 | 2427.05 | 2657.71 | | 818.99 | 872.40 | |
| Reach-1 | 30358.55 NEW | Floodway | 941.40 | 0.35 | 941.50 | 416.00 | 6251.35 | 3668.71 | 1996.94 | 530.00 | 818.99 | 872.40 | 946.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 31128.08 | Natural | 940.63 | | 942.13 | 238.13 | 3825.69 | 6323.38 | 1767.93 | | 989.00 | 1020.00 | |
| Reach-1 | 31128.08 | Floodway | 941.29 | 0.67 | 942.76 | 200.00 | 3558.12 | 6429.73 | 1929.15 | 883.00 | 989.00 | 1020.00 | 1083.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 31244.21BR D | Natural | 942.18 | | 942.71 | 24.60 | | 11917.00 | | | 913.00 | 1133.00 | |
| Reach-1 | 31244.21BR D | Floodway | 942.50 | 0.32 | 943.28 | 0.13 | | 11917.00 | | 883.00 | 913.00 | 1133.00 | 1083.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 31244.21BR U | Natural | 942.59 | | 943.12 | | | 11917.00 | | | 913.00 | 1133.00 | |
| Reach-1 | 31244.21BR U | Floodway | 942.82 | 0.24 | 944.50 | | | 11917.00 | | 945.00 | 913.00 | 1133.00 | 1045.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 31353.71 | Natural | 942.10 | | 944.21 | 151.46 | 1878.08 | 8493.62 | 1545.30 | | 980.00 | 1018.00 | |
| Reach-1 | 31353.71 | Floodway | 943.09 | 0.98 | 945.12 | 100.00 | 1796.20 | 8704.25 | 1416.56 | 945.00 | 980.00 | 1018.00 | 1045.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 32008.58 | Natural | 945.83 | | 946.04 | 262.24 | 2640.05 | 4124.21 | 583.74 | | 980.00 | 1028.00 | |
| Reach-1 | 32008.58 | Floodway | 946.57 | 0.74 | 946.77 | 190.00 | 2641.28 | 4113.30 | 593.42 | 870.00 | 980.00 | 1028.00 | 1060.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 32395.49BR D | Natural | 946.10 | | 946.26 | 191.14 | | 7348.00 | | | 880.00 | 1121.00 | |
| Reach-1 | 32395.49BR D | Floodway | 946.80 | 0.70 | 946.96 | 160.40 | | 7348.00 | | 870.00 | 880.00 | 1121.00 | 1060.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 32395.49BR U | Natural | 946.16 | | 946.32 | 191.50 | | 7348.00 | | | 880.00 | 1121.00 | |
| Reach-1 | 32395.49BR U | Floodway | 946.85 | 0.69 | 947.01 | 159.00 | | 7348.00 | | 918.00 | 880.00 | 1121.00 | 1083.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 32499.49 | Natural | 946.01 | | 946.50 | 227.74 | 1498.79 | 4686.47 | 1162.74 | | 985.00 | 1021.00 | |
| Reach-1 | 32499.49 | Floodway | 946.73 | 0.72 | 947.15 | 165.00 | 1556.39 | 4575.60 | 1216.02 | 918.00 | 985.00 | 1021.00 | 1083.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 32836.11 | Natural | 946.20 | | 947.58 | 124.98 | 844.07 | 5516.63 | 987.30 | | 990.00 | 1020.00 | |
| Reach-1 | 32836.11 | Floodway | 946.89 | 0.69 | 948.04 | 115.00 | 957.68 | 5320.20 | 1070.13 | 945.00 | 990.00 | 1020.00 | 1060.00 |

HEC-RAS Plan: Prop FW River: RIVER-1 Reach: Reach-1 (Continued)

| Reach | River Sta | Profile | W.S. Elev | Prof Delta WS | E.G. Elev | Top Wdth Act | Q Left | Q Channel | Q Right | Enc Sta L | Ch Sta L | Ch Sta R | Enc Sta R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (ft) | (ft) | (ft) | (ft) | (cfs) | (cfs) | (cfs) | (ft) | (ft) | (ft) | (ft) |
| Reach-1 | 32909.32 | Natural | 947.79 | | 948.05 | 184.72 | | 7348.00 | | | 891.00 | 1109.00 | |
| Reach-1 | 32909.32 | Floodway | 948.12 | 0.32 | 948.43 | 130.00 | | 7348.00 | | 930.00 | 891.00 | 1109.00 | 1060.00 |
| Reach-1 | 32976.16BR D | Natural | 947.82 | | 948.09 | 178.91 | | 7348.00 | | | 891.00 | 1109.00 | |
| Reach-1 | 32976.16BR D | Floodway | 948.14 | 0.32 | 948.48 | 124.00 | | 7348.00 | | 930.00 | 891.00 | 1109.00 | 1060.00 |
| Reach-1 | 32976.16BR U | Natural | 947.91 | | 948.18 | 179.49 | | 7348.00 | | | 891.00 | 1109.00 | |
| Reach-1 | 32976.16BR U | Floodway | 948.21 | 0.30 | 948.58 | 114.00 | | 7348.00 | | 932.00 | 891.00 | 1109.00 | 1052.00 |
| Reach-1 | 33046.16 | Natural | 947.98 | | 948.22 | 185.94 | | 7348.00 | | | 891.00 | 1109.00 | |
| Reach-1 | 33046.16 | Floodway | 948.30 | 0.32 | 948.64 | 120.00 | | 7348.00 | | 932.00 | 891.00 | 1109.00 | 1052.00 |
| Reach-1 | 33155.58 | Natural | 947.87 | | 948.61 | 169.02 | 1933.18 | 4694.79 | 720.03 | | 982.00 | 1015.00 | |
| Reach-1 | 33155.58 | Floodway | 948.22 | 0.34 | 949.04 | 110.00 | 1764.48 | 4937.25 | 646.27 | 930.00 | 982.00 | 1015.00 | 1040.00 |
| Reach-1 | 34068.65 | Natural | 949.73 | | 950.22 | 265.42 | 927.31 | 4765.70 | 1654.99 | | 980.00 | 1020.00 | |
| Reach-1 | 34068.65 | Floodway | 950.15 | 0.42 | 950.73 | 120.00 | 815.69 | 5113.39 | 1418.93 | 950.00 | 980.00 | 1020.00 | 1070.00 |
| Reach-1 | 34164.15 | Natural | 949.83 | | 950.43 | 99.00 | 500.53 | 7627.33 | 406.14 | | 967.00 | 1030.00 | |
| Reach-1 | 34164.15 | Floodway | 950.29 | 0.47 | 950.90 | 99.00 | 406.83 | 7784.55 | 342.62 | 948.50 | 967.00 | 1030.00 | 1047.50 |
| Reach-1 | 34250.29 | | Culvert | | | | | | | | | | |
| Reach-1 | 34319.79 | Natural | 952.33 | | 952.56 | 335.44 | 2855.63 | 3887.91 | 1790.46 | | 985.00 | 1022.00 | |
| Reach-1 | 34319.79 | Floodway | 952.64 | 0.31 | 952.90 | 223.00 | 2903.61 | 4029.29 | 1601.10 | 855.00 | 985.00 | 1022.00 | 1078.00 |
| Reach-1 | 34887.32 NEW | Natural | 952.81 | | 952.87 | 687.07 | 5601.64 | 2099.67 | 832.69 | | 481.60 | 514.97 | |
| Reach-1 | 34887.32 NEW | Floodway | 953.13 | 0.32 | 953.29 | 262.00 | 4285.99 | 2997.84 | 1250.17 | 328.00 | 481.60 | 514.97 | 590.00 |
| Reach-1 | 35731.12 | Natural | 953.10 | | 953.20 | 580.38 | 3788.82 | 2673.78 | 2071.40 | | 1971.90 | 2009.50 | |
| Reach-1 | 35731.12 | Floodway | 953.63 | 0.53 | 953.74 | 390.00 | 3744.71 | 2779.48 | 2009.81 | 1740.00 | 1971.90 | 2009.50 | 2130.00 |
| Reach-1 | 36431.22 | Natural | 953.38 | | 953.44 | 494.86 | 2520.09 | 1995.38 | 964.53 | | 980.00 | 1020.00 | |
| Reach-1 | 36431.22 | Floodway | 953.91 | 0.53 | 953.97 | 320.00 | 2377.05 | 2063.97 | 1038.98 | 800.00 | 980.00 | 1020.00 | 1120.00 |
| Reach-1 | 36570.11 | Natural | 953.41 | | 953.47 | 543.80 | 1267.93 | 2999.33 | 1212.74 | | 962.00 | 1044.00 | |
| Reach-1 | 36570.11 | Floodway | 953.94 | 0.53 | 954.01 | 360.00 | 1076.23 | 3170.52 | 1233.26 | 820.00 | 962.00 | 1044.00 | 1180.00 |
| Reach-1 | 36665.49 | | Culvert | | | | | | | | | | |
| Reach-1 | 36721.49 | Natural | 954.09 | | 954.27 | 446.00 | 410.57 | 4635.06 | 434.38 | | 952.00 | 1040.00 | |
| Reach-1 | 36721.49 | Floodway | 954.92 | 0.83 | 955.10 | 180.00 | 264.67 | 4880.55 | 334.78 | 915.00 | 952.00 | 1040.00 | 1095.00 |
| Reach-1 | 36788.68 | Natural | 954.17 | | 954.31 | 369.31 | 733.34 | 1707.68 | 3054.99 | | 990.00 | 1012.00 | |
| Reach-1 | 36788.68 | Floodway | 954.98 | 0.81 | 955.14 | 180.00 | 936.09 | 1813.70 | 2746.21 | 940.00 | 990.00 | 1012.00 | 1120.00 |

HEC-RAS Plan: Prop FW River: RIVER-1 Reach: Reach-1 (Continued)

| Reach | River Sta | Profile | W.S. Elev | Prof Delta WS | E.G. Elev | Top Wdth Act | Q Left | Q Channel | Q Right | Enc Sta L | Ch Sta L | Ch Sta R | Enc Sta R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (ft) | (ft) | (ft) | (ft) | (cfs) | (cfs) | (cfs) | (ft) | (ft) | (ft) | (ft) |
| Reach-1 | 37048.76 NEW | Natural | 954.28 | | 954.61 | 168.86 | 171.59 | 2030.74 | 3293.68 | | 153.22 | 174.49 | |
| Reach-1 | 37048.76 NEW | Floodway | 955.07 | 0.79 | 955.44 | 135.00 | 206.04 | 2211.04 | 3078.92 | 138.00 | 153.22 | 174.49 | 273.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 37465.78 | Natural | 954.84 | | 955.30 | 204.43 | 980.04 | 2614.95 | 1901.01 | | 1992.00 | 2018.00 | |
| Reach-1 | 37465.78 | Floodway | 955.60 | 0.76 | 956.14 | 125.00 | 1168.05 | 2857.07 | 1470.88 | 1945.00 | 1992.00 | 2018.00 | 2070.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 37664.34 NEW | Natural | 955.37 | | 955.61 | 217.81 | 628.92 | 1619.44 | 3247.64 | | 155.62 | 172.96 | |
| Reach-1 | 37664.34 NEW | Floodway | 956.18 | 0.81 | 956.45 | 170.00 | 704.51 | 1748.19 | 3043.30 | 120.00 | 155.62 | 172.96 | 290.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 38162.53 | Natural | 955.78 | | 955.80 | 729.44 | 396.83 | 812.67 | 4286.50 | | 1990.00 | 2016.00 | |
| Reach-1 | 38162.53 | Floodway | 956.62 | 0.84 | 956.64 | 470.00 | 481.88 | 916.06 | 4098.06 | 1930.00 | 1990.00 | 2016.00 | 2400.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 39106.84 NEW | Natural | 955.94 | | 956.19 | 345.15 | 1422.59 | 2187.67 | 1885.75 | | 296.65 | 329.21 | |
| Reach-1 | 39106.84 NEW | Floodway | 956.75 | 0.81 | 957.05 | 230.00 | 1643.12 | 2427.77 | 1425.11 | 200.00 | 296.65 | 329.21 | 430.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 39458.26 | Natural | 955.85 | | 957.47 | 123.75 | 1107.15 | 4016.16 | 372.69 | | 980.00 | 1012.00 | |
| Reach-1 | 39458.26 | Floodway | 956.77 | 0.93 | 958.17 | 100.00 | 990.58 | 4028.60 | 476.82 | 945.00 | 980.00 | 1012.00 | 1045.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 39777.89 NEW | Natural | 957.98 | | 958.20 | 176.63 | 483.54 | 4783.82 | 228.64 | | 945.74 | 1033.93 | |
| Reach-1 | 39777.89 NEW | Floodway | 958.54 | 0.56 | 958.80 | 110.00 | 56.89 | 5231.65 | 207.46 | 940.00 | 945.74 | 1033.93 | 1050.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 40471.23 | | Culvert | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Reach-1 | 41077.23 NEW | Natural | 959.93 | | 960.07 | 184.34 | 230.35 | 5239.21 | 26.45 | | 947.86 | 1061.88 | |
| Reach-1 | 41077.23 NEW | Floodway | 960.49 | 0.56 | 960.63 | 130.00 | 38.05 | 5432.61 | 25.34 | 940.00 | 947.86 | 1061.88 | 1070.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 41269.88 | Natural | 960.03 | | 960.15 | 527.23 | 3428.44 | 1580.71 | 486.86 | | 923.00 | 948.00 | |
| Reach-1 | 41269.88 | Floodway | 960.56 | 0.54 | 960.71 | 380.00 | 3191.77 | 1734.05 | 570.18 | 605.00 | 923.00 | 948.00 | 985.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 42211.00 | Natural | 960.67 | | 960.74 | 717.53 | 1073.83 | 1463.75 | 2958.42 | | 1982.90 | 2017.60 | |
| Reach-1 | 42211.00 | Floodway | 961.24 | 0.57 | 961.34 | 390.00 | 1353.65 | 1646.97 | 2495.38 | 1850.00 | 1982.90 | 2017.60 | 2240.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 42778.44 | Natural | 961.11 | | 961.28 | 562.49 | 3435.28 | 1675.14 | 385.58 | | 1986.00 | 2014.00 | |
| Reach-1 | 42778.44 | Floodway | 961.69 | 0.58 | 962.00 | 300.00 | 2837.07 | 2113.06 | 545.87 | 1760.00 | 1986.00 | 2014.00 | 2060.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 43468.18 | Natural | 962.16 | | 962.26 | 744.04 | 3145.27 | 1138.88 | 1211.85 | | 1985.00 | 2009.00 | |
| Reach-1 | 43468.18 | Floodway | 963.01 | 0.85 | 963.16 | 400.00 | 3137.68 | 1341.58 | 1016.73 | 1700.00 | 1985.00 | 2009.00 | 2100.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 44309.29 | Natural | 963.54 | | 964.26 | 574.21 | 690.69 | 2230.15 | 1393.17 | | 985.00 | 1015.00 | |
| Reach-1 | 44309.29 | Floodway | 964.31 | 0.77 | 965.25 | 150.00 | 689.69 | 2572.44 | 1051.88 | 930.00 | 985.00 | 1015.00 | 1080.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 44436.54 NEW | Natural | 965.10 | | 966.82 | 184.00 | 587.05 | 2585.15 | 1559.80 | | 994.06 | 1016.95 | |
| Reach-1 | 44436.54 NEW | Floodway | 965.10 | -0.01 | 966.86 | 184.00 | 585.25 | 2613.28 | 1533.48 | 907.00 | 994.06 | 1016.95 | 1091.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 44531.77BR D | Natural | 969.82 | | 969.84 | 203.87 | 9.27 | 4721.30 | 3.55 | | 969.00 | 1032.00 | |
| Reach-1 | 44531.77BR D | Floodway | 969.81 | -0.02 | 969.83 | 180.01 | 8.07 | 4722.53 | 2.78 | 907.00 | 969.00 | 1032.00 | 1091.00 |
| | | | | | | | | | | | | | |

HEC-RAS Plan: Prop FW River: RIVER-1 Reach: Reach-1 (Continued)

| Reach | River Sta | Profile | W.S. Elev | Prof Delta WS | E.G. Elev | Top Wdth Act | Q Left | Q Channel | Q Right | Enc Sta L | Ch Sta L | Ch Sta R | Enc Sta R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (ft) | (ft) | (ft) | (ft) | (cfs) | (cfs) | (cfs) | (ft) | (ft) | (ft) | (ft) |
| Reach-1 | 44531.77BR U | Natural | 969.82 | | 969.84 | 203.87 | 9.27 | 4721.30 | 3.55 | | 969.00 | 1032.00 | |
| Reach-1 | 44531.77BR U | Floodway | 969.81 | -0.02 | 969.83 | 189.68 | 8.07 | 4722.53 | 2.78 | 670.00 | 969.00 | 1032.00 | 1280.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 44631.27 NEW | Natural | 969.82 | | 969.83 | 686.58 | 1826.62 | 959.94 | 1945.44 | | 978.99 | 1021.09 | |
| Reach-1 | 44631.27 NEW | Floodway | 969.81 | -0.02 | 969.82 | 610.00 | 1777.19 | 1026.10 | 1928.71 | 670.00 | 978.99 | 1021.09 | 1280.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 44700.35 | Natural | 969.83 | | 969.86 | 660.01 | 1682.00 | 1023.88 | 2026.13 | | 985.00 | 1015.00 | |
| Reach-1 | 44700.35 | Floodway | 969.81 | -0.01 | 969.85 | 580.00 | 1746.67 | 1012.59 | 1972.74 | 700.00 | 985.00 | 1015.00 | 1280.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 45406.89 | Natural | 969.95 | | 969.96 | 720.94 | 1950.43 | 727.78 | 87.79 | | 977.00 | 1019.00 | |
| Reach-1 | 45406.89 | Floodway | 969.93 | -0.02 | 969.95 | 608.00 | 1969.11 | 730.12 | 66.77 | 430.00 | 977.00 | 1019.00 | 1038.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 45689.70 NEW | Natural | 969.91 | | 970.14 | 121.00 | 914.21 | 725.59 | 1126.20 | | 1995.75 | 2005.59 | |
| Reach-1 | 45689.70 NEW | Floodway | 969.89 | -0.02 | 970.13 | 121.00 | 915.76 | 756.08 | 1094.16 | 1939.00 | 1995.75 | 2005.59 | 2060.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 45777 BR D | Natural | 967.40 | | 970.14 | | 0.62 | 2764.77 | 0.61 | | 1978.50 | 2021.50 | |
| Reach-1 | 45777 BR D | Floodway | 967.40 | 0.00 | 970.13 | | 0.62 | 2764.77 | 0.61 | 1939.00 | 1978.50 | 2021.50 | 2060.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 45777 BR U | Natural | 967.40 | | 971.33 | 40.00 | | 2766.00 | | | 1978.50 | 2021.50 | |
| Reach-1 | 45777 BR U | Floodway | 967.40 | 0.00 | 971.31 | 40.00 | | 2766.00 | | 1935.00 | 1978.50 | 2021.50 | 2060.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 45868.71 NEW | Natural | 971.06 | | 971.34 | 121.00 | 724.16 | 1309.36 | 732.49 | | 1987.98 | 2014.36 | |
| Reach-1 | 45868.71 NEW | Floodway | 971.02 | -0.04 | 971.32 | 121.00 | 738.00 | 1338.47 | 689.54 | 1935.00 | 1987.98 | 2014.36 | 2060.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 46058.02 | Natural | 971.43 | | 971.43 | 1274.48 | 1833.52 | 356.53 | 575.95 | | 1005.50 | 1040.36 | |
| Reach-1 | 46058.02 | Floodway | 971.45 | 0.02 | 971.50 | 300.00 | 970.51 | 1018.64 | 776.85 | 853.00 | 1005.50 | 1040.36 | 1153.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 46186.37 | Natural | 971.36 | | 971.49 | 425.37 | 1588.00 | 1008.56 | 479.44 | | 397.11 | 425.64 | |
| Reach-1 | 46186.37 | Floodway | 971.45 | 0.09 | 971.62 | 240.00 | 1609.50 | 1128.44 | 338.06 | 240.00 | 397.11 | 425.64 | 480.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 46509.26 | Natural | 971.75 | | 972.38 | 262.25 | 249.82 | 2408.10 | 418.08 | | 980.00 | 1020.00 | |
| Reach-1 | 46509.26 | Floodway | 971.92 | 0.18 | 972.52 | 170.00 | 286.02 | 2395.46 | 394.52 | 909.00 | 980.00 | 1020.00 | 1079.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 46728.27BR D | Natural | 973.27 | | 973.81 | 229.70 | 1438.24 | 1094.11 | 541.24 | | 992.00 | 1009.00 | |
| Reach-1 | 46728.27BR D | Floodway | 973.43 | 0.15 | 974.46 | 170.00 | 1166.54 | 987.74 | 921.96 | 909.00 | 992.00 | 1009.00 | 1079.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 46728.27BR U | Natural | 973.32 | | 973.81 | 228.22 | 1437.67 | 1094.89 | 541.04 | | 992.00 | 1009.00 | |
| Reach-1 | 46728.27BR U | Floodway | 974.13 | 0.81 | 974.54 | 130.00 | 1165.90 | 988.62 | 921.73 | 925.00 | 992.00 | 1009.00 | 1055.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 46822.27 | Natural | 973.32 | | 973.81 | 228.25 | 688.96 | 2124.29 | 262.75 | | 988.00 | 1022.00 | |
| Reach-1 | 46822.27 | Floodway | 974.13 | 0.81 | 974.54 | 130.00 | 680.78 | 2091.57 | 303.65 | 925.00 | 988.00 | 1022.00 | 1055.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 47675.67 | Natural | 975.77 | | 976.56 | 292.29 | 1126.13 | 1716.64 | 233.23 | | 990.00 | 1010.00 | |
| Reach-1 | 47675.67 | Floodway | 976.05 | 0.28 | 976.86 | 130.00 | 1068.23 | 1748.59 | 259.19 | 900.00 | 990.00 | 1010.00 | 1030.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 47926.60BR D | Natural | 976.05 | | 976.58 | 366.30 | 2278.11 | 627.65 | 97.84 | | 992.00 | 1009.00 | |
| Reach-1 | 47926.60BR D | Floodway | 976.60 | 0.55 | 976.92 | 130.00 | 2300.54 | 680.50 | 78.87 | 900.00 | 992.00 | 1009.00 | 1030.00 |

HEC-RAS Plan: Prop FW River: RIVER-1 Reach: Reach-1 (Continued)

| Reach | River Sta | Profile | W.S. Elev | Prof Delta WS | E.G. Elev | Top Wdth Act | Q Left | Q Channel | Q Right | Enc Sta L | Ch Sta L | Ch Sta R | Enc Sta R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (ft) | (ft) | (ft) | (ft) | (cfs) | (cfs) | (cfs) | (ft) | (ft) | (ft) | (ft) |
| Reach-1 | 47926.60BR U | Natural | 976.17 | | 976.58 | 410.06 | 2278.11 | 627.71 | 97.78 | | 992.00 | 1009.00 | |
| Reach-1 | 47926.60BR U | Floodway | 976.60 | 0.43 | 976.92 | 218.67 | 2300.54 | 680.56 | 78.82 | 820.00 | 992.00 | 1009.00 | 1080.00 |
| Reach-1 | 48121.10 | Natural | 976.17 | | 976.58 | 376.88 | 760.48 | 2085.09 | 230.44 | | 980.00 | 1020.00 | |
| Reach-1 | 48121.10 | Floodway | 976.60 | 0.43 | 976.92 | 260.00 | 843.36 | 1972.91 | 259.73 | 820.00 | 980.00 | 1020.00 | 1080.00 |
| Reach-1 | 48220.77 | Natural | 976.39 | | 977.10 | 175.85 | 548.56 | 2302.13 | 225.32 | | 980.00 | 1020.00 | |
| Reach-1 | 48220.77 | Floodway | 976.76 | 0.37 | 977.35 | 167.00 | 578.35 | 2232.36 | 265.29 | 899.00 | 980.00 | 1020.00 | 1066.00 |
| Reach-1 | 48358.25BR D | Natural | 975.74 | | 979.03 | 32.00 | | 3076.00 | | | 980.00 | 1020.00 | |
| Reach-1 | 48358.25BR D | Floodway | 975.79 | 0.05 | 979.03 | 32.00 | | 3076.00 | | 899.00 | 980.00 | 1020.00 | 1066.00 |
| Reach-1 | 48358.25BR U | Natural | 980.41 | | 981.40 | 38.00 | | 3076.00 | | | 980.00 | 1026.00 | |
| Reach-1 | 48358.25BR U | Floodway | 980.39 | -0.03 | 981.38 | 38.00 | | 3076.00 | | 899.00 | 980.00 | 1026.00 | 1107.00 |
| Reach-1 | 48524.75 | Natural | 981.67 | | 981.74 | 208.00 | 805.63 | 1449.87 | 820.50 | | 980.00 | 1026.00 | |
| Reach-1 | 48524.75 | Floodway | 981.65 | -0.02 | 981.72 | 208.00 | 782.98 | 1500.06 | 792.96 | 899.00 | 980.00 | 1026.00 | 1107.00 |
| Reach-1 | 48778.94 | Natural | 981.78 | | 981.80 | 519.75 | 810.71 | 1060.54 | 1204.75 | | 980.00 | 1026.00 | |
| Reach-1 | 48778.94 | Floodway | 981.74 | -0.04 | 981.80 | 250.00 | 690.00 | 1360.71 | 1025.29 | 900.00 | 980.00 | 1026.00 | 1150.00 |
| Reach-1 | 49005.34 NEW | Natural | 981.81 | | 981.85 | 396.64 | 69.68 | 852.29 | 1512.04 | | 986.57 | 1016.40 | |
| Reach-1 | 49005.34 NEW | Floodway | 981.81 | -0.01 | 981.86 | 233.00 | 85.50 | 985.02 | 1363.48 | 967.00 | 986.57 | 1016.40 | 1200.00 |
| Reach-1 | 49069 | | Culvert | | | | | | | | | | |
| Reach-1 | 49133.73 NEW | Natural | 982.36 | | 982.39 | 368.51 | 53.20 | 1268.26 | 1112.53 | | 980.14 | 1037.69 | |
| Reach-1 | 49133.73 NEW | Floodway | 982.40 | 0.04 | 982.46 | 185.00 | 25.99 | 1557.15 | 850.85 | 974.00 | 980.14 | 1037.69 | 1159.00 |
| Reach-1 | 49234.85 | Natural | 982.37 | | 982.40 | 344.69 | 146.15 | 912.85 | 1375.00 | | 980.00 | 1020.00 | |
| Reach-1 | 49234.85 | Floodway | 982.42 | 0.05 | 982.48 | 195.00 | 166.31 | 1155.50 | 1112.19 | 945.00 | 980.00 | 1020.00 | 1140.00 |
| Reach-1 | 49847.50 NEW | Natural | 982.52 | | 982.59 | 260.52 | 285.74 | 514.03 | 1634.23 | | 278.08 | 294.74 | |
| Reach-1 | 49847.50 NEW | Floodway | 982.65 | 0.13 | 982.72 | 220.00 | 299.81 | 522.40 | 1611.79 | 230.00 | 278.08 | 294.74 | 450.00 |
| Reach-1 | 50185.30 | Natural | 982.79 | | 982.89 | 338.69 | 747.39 | 974.56 | 712.05 | | 374.16 | 407.90 | |
| Reach-1 | 50185.30 | Floodway | 982.91 | 0.13 | 983.10 | 200.00 | 382.53 | 1199.09 | 852.38 | 331.00 | 374.16 | 407.90 | 531.00 |
| Reach-1 | 51158.38 AD | Natural | 984.42 | | 985.02 | 305.20 | 518.31 | 1883.96 | 31.73 | | 745.43 | 789.74 | |
| Reach-1 | 51158.38 AD | Floodway | 985.06 | 0.64 | 985.67 | 116.00 | 369.84 | 2011.25 | 52.92 | 688.00 | 745.43 | 789.74 | 804.00 |
| Reach-1 | 51636.08 NEW | Natural | 986.76 | | 987.15 | 276.19 | 603.58 | 1771.69 | 58.73 | | 329.93 | 377.67 | |
| Reach-1 | 51636.08 NEW | Floodway | 987.15 | 0.39 | 987.61 | 150.00 | 413.92 | 1945.38 | 74.70 | 245.00 | 329.93 | 377.67 | 395.00 |
| Reach-1 | 52150.00 | Natural | 989.12 | | 989.94 | 226.72 | 1040.75 | 1266.31 | 126.94 | | 1984.00 | 2008.00 | |
| Reach-1 | 52150.00 | Floodway | 989.41 | 0.29 | 990.43 | 150.00 | 836.77 | 1413.18 | 184.05 | 1900.00 | 1984.00 | 2008.00 | 2050.00 |

HEC-RAS Plan: Prop FW River: RIVER-1 Reach: Reach-1 (Continued)

| Reach | River Sta | Profile | W.S. Elev | Prof Delta WS | E.G. Elev | Top Wdth Act | Q Left | Q Channel | Q Right | Enc Sta L | Ch Sta L | Ch Sta R | Enc Sta R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (ft) | (ft) | (ft) | (ft) | (cfs) | (cfs) | (cfs) | (ft) | (ft) | (ft) | (ft) |
| Reach-1 | 53057.03 | Natural | 993.30 | | 993.51 | 359.83 | 439.57 | 1181.86 | 812.57 | | 985.00 | 1020.00 | |
| Reach-1 | 53057.03 | Floodway | 993.83 | 0.54 | 994.11 | 150.00 | 409.71 | 1359.83 | 664.46 | 940.00 | 985.00 | 1020.00 | 1090.00 |
| Reach-1 | 53908.67 | Natural | 994.86 | | 994.95 | 286.31 | 93.10 | 488.67 | 165.23 | | 979.00 | 1020.00 | |
| Reach-1 | 53908.67 | Floodway | 995.48 | 0.62 | 995.65 | 60.00 | 30.93 | 673.57 | 42.50 | 970.00 | 979.00 | 1020.00 | 1030.00 |
| Reach-1 | 54001.22 NEW | Natural | 997.28 | | 998.40 | 67.00 | 29.34 | 652.28 | 65.38 | | 991.57 | 1008.72 | |
| Reach-1 | 54001.22 NEW | Floodway | 997.27 | -0.02 | 998.41 | 67.00 | 28.54 | 655.81 | 62.66 | 966.00 | 991.57 | 1008.72 | 1033.00 |
| Reach-1 | 54194.68 | | Culvert | | | | | | | | | | |
| Reach-1 | 54469.68 AF | Natural | 1014.62 | | 1014.63 | 67.00 | 66.20 | 603.92 | 76.88 | | 977.57 | 1019.12 | |
| Reach-1 | 54469.68 AF | Floodway | 1014.62 | 0.00 | 1014.63 | 67.00 | 40.19 | 656.48 | 50.33 | 966.00 | 977.57 | 1019.12 | 1033.00 |
| Reach-1 | 54818.60 | Natural | 1014.63 | | 1014.63 | 489.84 | 835.88 | 707.88 | 917.24 | | 1980.00 | 2020.00 | |
| Reach-1 | 54818.60 | Floodway | 1014.63 | 0.00 | 1014.63 | 360.00 | 834.91 | 718.28 | 907.81 | 1835.00 | 1980.00 | 2020.00 | 2195.00 |
| Reach-1 | 54941.18 | | Culvert | | | | | | | | | | |
| Reach-1 | 55057.68 | Natural | 1014.66 | | 1014.66 | 837.95 | 1295.49 | 266.37 | 899.14 | | 1990.00 | 2010.00 | |
| Reach-1 | 55057.68 | Floodway | 1014.64 | -0.02 | 1014.65 | 240.00 | 695.13 | 498.91 | 1266.95 | 1914.00 | 1990.00 | 2010.00 | 2154.00 |
| Reach-1 | 55096.61 | Natural | 1014.66 | | 1014.66 | 800.81 | 1233.71 | 620.67 | 606.61 | | 1977.10 | 2026.90 | |
| Reach-1 | 55096.61 | Floodway | 1014.64 | -0.02 | 1014.66 | 160.00 | 598.12 | 1302.86 | 560.02 | 1920.00 | 1977.10 | 2026.90 | 2080.00 |
| Reach-1 | 55342.61 | Natural | 1014.66 | | 1014.67 | 766.09 | 1148.86 | 690.22 | 621.92 | | 1977.10 | 2026.90 | |
| Reach-1 | 55342.61 | Floodway | 1014.67 | 0.01 | 1014.68 | 260.00 | 767.29 | 955.27 | 738.44 | 1872.00 | 1977.10 | 2026.90 | 2132.00 |
| Reach-1 | 55522.33 | | Culvert | | | | | | | | | | |
| Reach-1 | 55668.33 | Natural | 1014.67 | | 1014.68 | 755.26 | 1148.21 | 565.12 | 747.67 | | 1977.10 | 2011.70 | |
| Reach-1 | 55668.33 | Floodway | 1014.69 | 0.02 | 1014.70 | 319.00 | 1034.17 | 672.46 | 754.37 | 1805.00 | 1977.10 | 2011.70 | 2124.00 |
| Reach-1 | 55788.73 | Natural | 1014.68 | | 1014.70 | 317.78 | 1161.60 | 1241.44 | 57.96 | | 1972.00 | 2028.00 | |
| Reach-1 | 55788.73 | Floodway | 1014.70 | 0.02 | 1014.72 | 220.00 | 1106.99 | 1292.90 | 61.11 | 1828.00 | 1972.00 | 2028.00 | 2048.00 |
| Reach-1 | 56569.00 NEW | Natural | 1014.77 | | 1014.93 | 122.66 | 729.53 | 1496.94 | 234.52 | | 438.96 | 473.32 | |
| Reach-1 | 56569.00 NEW | Floodway | 1014.80 | 0.03 | 1014.96 | 120.00 | 687.41 | 1525.89 | 247.71 | 390.00 | 438.96 | 473.32 | 510.00 |
| Reach-1 | 56629.59 | | Culvert | | | | | | | | | | |
| Reach-1 | 56726.59 NEW | Natural | 1018.40 | | 1018.42 | 409.63 | 1172.71 | 889.39 | 398.90 | | 436.30 | 474.36 | |
| Reach-1 | 56726.59 NEW | Floodway | 1018.86 | 0.46 | 1018.95 | 115.00 | 610.89 | 1550.69 | 299.42 | 390.00 | 436.30 | 474.36 | 505.00 |
| Reach-1 | 56849.09 | Natural | 1018.43 | | 1018.44 | 477.11 | 1853.95 | 425.99 | 181.06 | | 1990.00 | 2010.00 | |
| Reach-1 | 56849.09 | Floodway | 1018.98 | 0.56 | 1019.00 | 310.00 | 1786.59 | 458.73 | 215.69 | 1756.00 | 1990.00 | 2010.00 | 2066.00 |

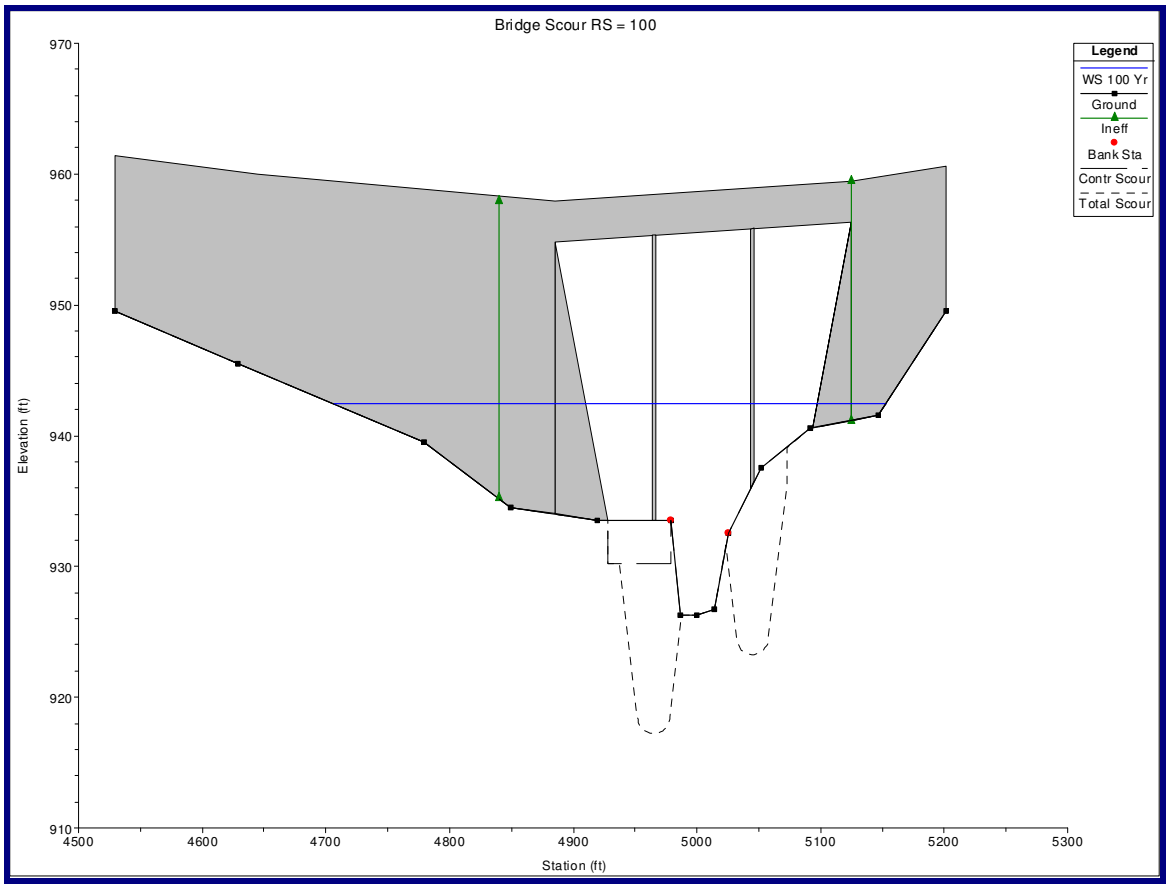
HEC-RAS Plan: Prop FW River: RIVER-1 Reach: Reach-1 (Continued)

| Reach | River Sta | Profile | W.S. Elev | Prof Delta WS | E.G. Elev | Top Wdth Act | Q Left | Q Channel | Q Right | Enc Sta L | Ch Sta L | Ch Sta R | Enc Sta R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (ft) | (ft) | (ft) | (ft) | (cfs) | (cfs) | (cfs) | (ft) | (ft) | (ft) | (ft) |
| | | | | | | | | | | | | | |
| Reach-1 | 57643.30 | Natural | 1018.69 | | 1018.82 | 378.92 | 1002.39 | 952.83 | 505.78 | | 1986.00 | 2011.00 | |
| Reach-1 | 57643.30 | Floodway | 1019.22 | 0.53 | 1019.39 | 150.00 | 959.81 | 1061.93 | 439.26 | 1910.00 | 1986.00 | 2011.00 | 2060.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 57934.79 | Natural | 1019.18 | | 1019.57 | 375.44 | 420.60 | 1505.29 | 535.10 | | 990.00 | 1020.00 | |
| Reach-1 | 57934.79 | Floodway | 1019.71 | 0.53 | 1020.10 | 130.00 | 392.05 | 1568.62 | 500.33 | 935.00 | 990.00 | 1020.00 | 1065.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 58289.38 NEW | Natural | 1020.64 | | 1021.71 | 92.49 | 237.00 | 2136.26 | 87.75 | | 990.16 | 1024.66 | |
| Reach-1 | 58289.38 NEW | Floodway | 1020.98 | 0.35 | 1021.91 | 85.00 | 255.33 | 2100.13 | 105.54 | 951.00 | 990.16 | 1024.66 | 1036.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 58351.73BR D | Natural | 1022.98 | | 1023.15 | 347.91 | 444.32 | 1668.48 | 348.11 | | 990.00 | 1013.00 | |
| Reach-1 | 58351.73BR D | Floodway | 1023.41 | 0.42 | 1023.92 | 85.00 | 282.78 | 1885.94 | 289.87 | 951.00 | 990.00 | 1013.00 | 1036.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 58351.73BR U | Natural | 1022.98 | | 1023.15 | 376.66 | 444.32 | 1668.48 | 348.11 | | 990.00 | 1013.00 | |
| Reach-1 | 58351.73BR U | Floodway | 1023.41 | 0.42 | 1023.92 | 101.00 | 282.78 | 1885.94 | 289.87 | 951.00 | 990.00 | 1013.00 | 1052.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 58415.23 | Natural | 1022.98 | | 1023.15 | 418.54 | 918.73 | 985.50 | 556.78 | | 993.10 | 1012.70 | |
| Reach-1 | 58415.23 | Floodway | 1023.41 | 0.42 | 1023.92 | 101.00 | 514.43 | 1489.17 | 457.41 | 951.00 | 993.10 | 1012.70 | 1052.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 58519.71 | Natural | 1023.03 | | 1023.90 | 142.20 | 376.76 | 1422.35 | 661.88 | | 294.42 | 311.84 | |
| Reach-1 | 58519.71 | Floodway | 1023.88 | 0.85 | 1024.50 | 100.00 | 426.10 | 1332.89 | 702.01 | 260.00 | 294.42 | 311.84 | 360.00 |
| | | | | | | | | | | | | | |
| Reach-1 | 58693.98 NEW | Natural | 1025.03 | | 1025.36 | 273.78 | 632.02 | 677.16 | 1151.82 | | 363.74 | 373.51 | |
| Reach-1 | 58693.98 NEW | Floodway | 1025.18 | 0.15 | 1026.02 | 100.00 | 635.25 | 946.14 | 879.61 | 330.00 | 363.74 | 373.51 | 430.00 |

# Section VII
# Scour Summary and Additional Calculations

# PROPOSED MODEL BRIDGE SCOUR

**Proposed 100-yr**




Hydraulic Design Data
Contraction Scour

| | Left | Channel | Right |
|---|---|---|---|
| Input Data | | | |
| Average Depth (ft): | 0.71 | 9.50 | 2.61 |
| Approach Velocity (ft/s): | 1.38 | 15.65 | 3.31 |
| Br Average Depth (ft): | 7.71 | 14.69 | 4.68 |
| BR Opening Flow (cfs): | 1069.51 | 5271.49 | 548.00 |
| BR Top WD (ft): | 66.26 | 46.00 | 69.26 |
| Grain Size D50 (mm): | 0.37 | 0.37 | 0.37 |
| Approach Flow (cfs): | 8.01 | 6394.71 | 486.28 |
| Approach Top WD (ft): | 8.13 | 43.00 | 56.17 |
| K1 Coefficient: | 0.690 | 0.690 | 0.690 |
| Results | | | |
| Scour Depth Ys (ft): | 3.36 | 0.00 | 0.00 |
| Critical Velocity (ft/s): | 1.13 | 1.74 | 1.40 |
| Equation: | Live | Live | Live |

Pier Scour

All piers have the same scour depth

Input Data

| | |
|---|---|
| Pier Shape: | Square nose |
| Pier Width (ft): | 3.00 |
| Grain Size D50 (mm): | 0.37000 |
| Depth Upstream (ft): | 14.79 |
| Velocity Upstream (ft/s): | 5.86 |
| K1 Nose Shape: | 1.00 |
| Pier Angle: | 30.00 |
| Pier Length (ft): | 12.00 |
| K2 Angle Coef: | 1.98 |
| K3 Bed Cond Coef: | 1.10 |
| Grain Size D90 (mm): | 0.47000 |
| K4 Armouring Coef: | 1.00 |

Set K1 value to 1.0 because angle > 5 degrees

Results

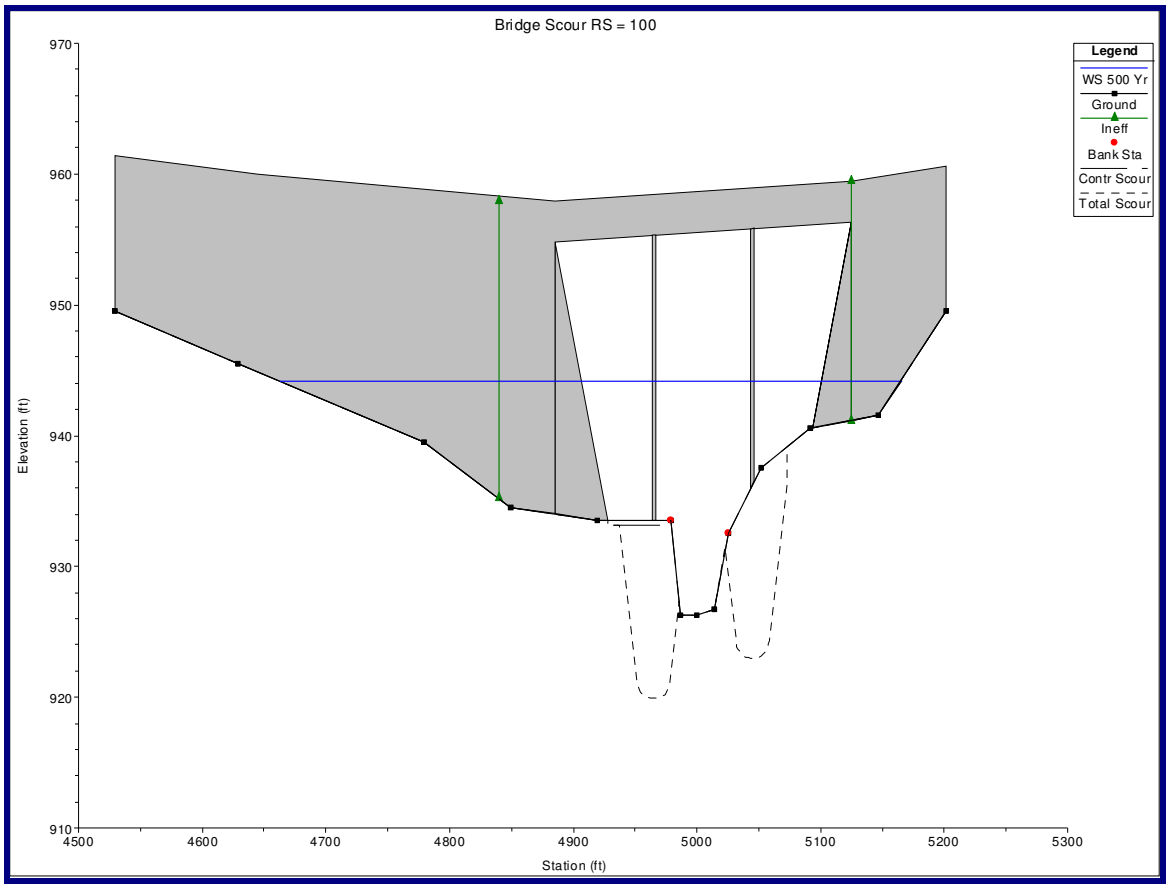
| | |
|---|---|
| Scour Depth Ys (ft): | 12.97 |
| Froude #: | 0.27 |
| Equation: | CSU equation |

Combined Scour Depths

Pier Scour + Contraction Scour (ft):

| | |
|---|---|
| Left Bank: | 16.3 |
| Right Bank: | 13.0 |

**Proposed 500-yr**




Hydraulic Design Data
Contraction Scour

| | Left | Channel | Right |
|---|---|---|---|
| Input Data | | | |
| Average Depth (ft): | 1.52 | 11.11 | 3.42 |
| Approach Velocity (ft/s): | 2.09 | 15.82 | 3.61 |
| Br Average Depth (ft): | 9.03 | 16.44 | 6.17 |
| BR Opening Flow (cfs): | 1414.11 | 6258.69 | 846.20 |
| BR Top WD (ft): | 69.77 | 46.00 | 72.77 |
| Grain Size D50 (mm): | 0.37 | 0.37 | 0.37 |
| Approach Flow (cfs): | 54.90 | 7557.44 | 906.66 |
| Approach Top WD (ft): | 17.34 | 43.00 | 73.50 |
| K1 Coefficient: | 0.690 | 0.690 | 0.690 |
| Results | | | |
| Scour Depth Ys (ft): | 0.38 | 0.00 | 0.00 **Use 1 ft Min.** |
| Critical Velocity (ft/s): | 1.28 | 1.79 | 1.47 |
| Equation: | Live | Live | Live |

Pier Scour

All piers have the same scour depth

Input Data

| | |
|---|---|
| Pier Shape: | Square nose |
| Pier Width (ft): | 3.00 |
| Grain Size D50 (mm): | 0.37000 |
| Depth Upstream (ft): | 16.61 |
| Velocity Upstream (ft/s): | 5.95 |
| K1 Nose Shape: | 1.00 |
| Pier Angle: | 30.00 |
| Pier Length (ft): | 12.00 |
| K2 Angle Coef: | 1.98 |
| K3 Bed Cond Coef: | 1.10 |
| Grain Size D90 (mm): | 0.47000 |
| K4 Armouring Coef: | 1.00 |

Set K1 value to 1.0 because angle > 5 degrees

Results

| | |
|---|---|
| Scour Depth Ys (ft): | 13.27 |
| Froude #: | 0.26 |
| Equation: | CSU equation |

Combined Scour Depths

Pier Scour + Contraction Scour (ft): 14.3

# RIPRAP CALCULATIONS

***NH000-0073-03(242) Cobb County***
***I-75 over Noonday Creek***
***PI # 714130***

ENDROLL RIPRAP CALCULATIONS (100 YEAR STORM)
METHOD IN HEC-18,"EVALUATING SCOUR AT BRIDGES"

| | | |
|---|---|---|
| BRIDGE ABUTMENT LOCATION | 839+37 | 841+79.25 |
| SET BACK LENGTH = | 66 | 52 |
| MAIN CHANNEL AREA @ BRIDGE = | 664 | 664 |
| TOP WIDTH OF MAIN CHANNEL @ BRIDGE = | 46 | 46 |
| AVERAGE DEPTH OF MAIN CHANNEL @ BR = | 14.4 | 14.4 |
| SET BACK RATIO = | 4.583 | 3.611 |
| CHARACTERISTIC AVG VELOCITY CALCULATIONS (SEE PAGES 120,121) | | |
| DISCHARGE @ ABUTMENT = | 454 | 1286 |
| AREA @ ABUTMENT = | 289 | 590 |
| AVERAGE VELOCITY, V = | 1.57 | 2.18 |
| AREA OF OVERBANK FLOW @ BRIDGE = | 289 | 590 |
| LENGTH OF OVERBANK FLOW @ BRIDGE = | 66 | 52 |
| AVERAGE DEPTH OF OVERBANK FLOW = | 4.38 | 11.35 |
| FROUDE NUMBER = | 0.132 | 0.114 |
| IF FROUDE NUMBER <= 0.80, THEN D50 = | 0.041 | 0.080 |
| IF FROUDE NUMBER > 0.80, THEN D50 = | 0.919 | 2.284 |
| MEDIAN STONE DIAMETER REQUIRED, D50 = | 0.041 | 0.080 |
| TYPE OF RIPRAP REQUIRED = | TYPE 3 | TYPE 3 |

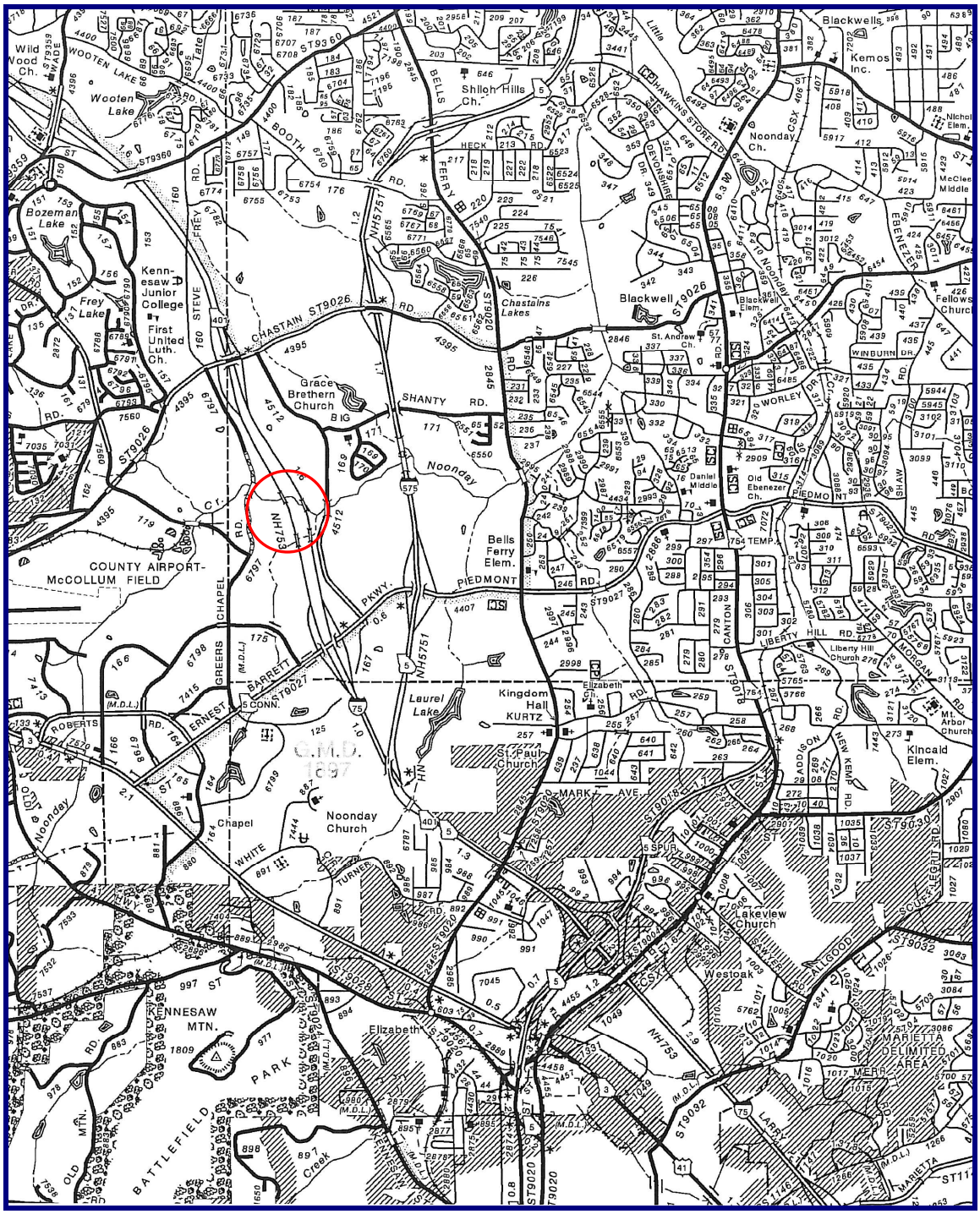
Note : Type I Riprap will be used at this site.

HEC-RAS Plan: Proposed River: Noonday Creek Reach: 1 Profile: 100 Yr

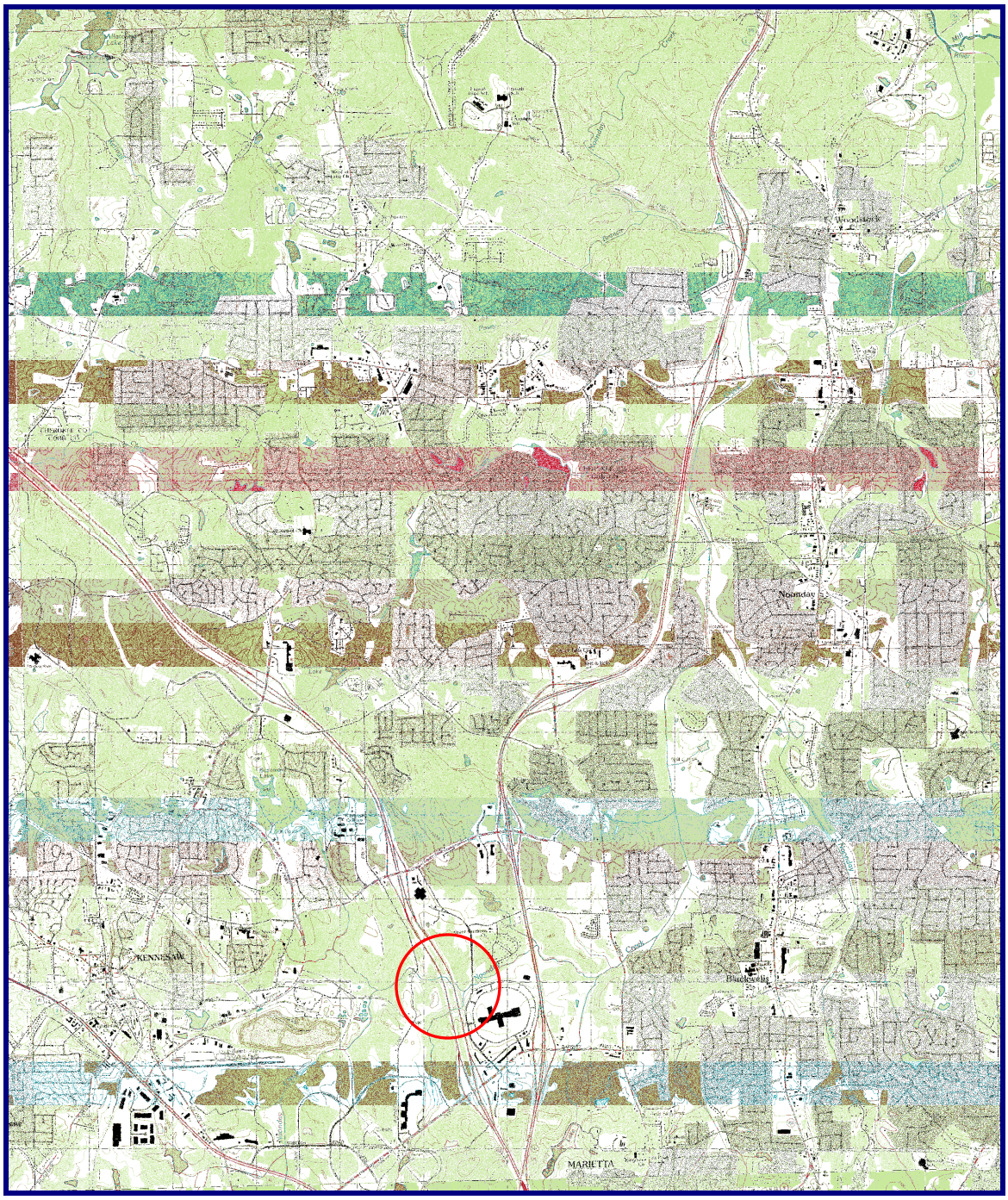
| Reach | River Sta | Profile | W.S. Elev | Hydr Depth L | Hydr Depth C | Hydr Depth R | Top W Left | Top W Chnl | Top W Right | Q Left | Q Channel | Q Right | Flow Area L | Flow Area Ch | Flow Area R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (ft) | (ft) | (ft) | (ft) | (ft) | (ft) | (ft) | (cfs) | (cfs) | (cfs) | (sq ft) | (sq ft) | (sq ft) |
| 1 | -630 | 100 Yr | 940.63 | 6.42 | 14.47 | 6.84 | 96.25 | 46.00 | 60.35 | 1293.66 | 4704.04 | 891.30 | 617.55 | 665.53 | 412.75 |
| 1 | 0 | 100 Yr | 942.49 | 9.02 | 14.83 | 4.21 | 269.98 | 46.00 | 147.28 | 2032.78 | 4332.60 | 523.62 | 910.98 | 682.38 | 391.19 |
| 1 | 100 BR D | 100 Yr | 942.55 | 8.04 | 14.43 | 4.63 | 73.46 | 46.00 | 62.46 | 1286.15 | 5149.08 | 453.78 | 590.48 | 663.74 | 289.40 |
| 1 | 100 BR U | 100 Yr | 942.45 | 7.71 | 14.69 | 4.68 | 66.26 | 46.00 | 69.26 | 1069.51 | 5271.49 | 548.00 | 510.93 | 675.52 | 324.16 |
| 1 | 245 | 100 Yr | 943.02 | 8.68 | 14.79 | 4.00 | 275.44 | 46.00 | 129.00 | 2424.93 | 3985.51 | 478.56 | 1206.53 | 680.50 | 400.35 |
| 1 | 395 | 100 Yr | 941.02 | 0.71 | 9.50 | 2.61 | 8.13 | 43.00 | 56.17 | 8.01 | 6394.71 | 486.28 | 5.79 | 408.56 | 146.70 |
| 1 | 590 | 100 Yr | 946.59 | 6.80 | 14.86 | 6.93 | 98.10 | 43.00 | 70.12 | 1258.41 | 4586.75 | 1043.84 | 591.33 | 639.12 | 486.26 |
| 1 | 690 BR D | 100 Yr | 946.74 | 6.83 | 14.69 | 6.75 | 67.28 | 43.00 | 66.43 | 967.42 | 4967.95 | 953.63 | 459.65 | 631.80 | 448.27 |
| 1 | 690 BR U | 100 Yr | 946.60 | 8.37 | 16.40 | 7.29 | 72.04 | 38.00 | 68.51 | 1214.24 | 4687.48 | 987.28 | 603.34 | 623.37 | 499.70 |
| 1 | 790 | 100 Yr | 946.91 | 8.11 | 16.39 | 7.37 | 105.38 | 38.00 | 71.45 | 1583.59 | 4262.31 | 1043.11 | 746.12 | 622.87 | 526.81 |
| 1 | 1250 | 100 Yr | 947.86 | 6.82 | 16.75 | 7.48 | 127.34 | 43.00 | 60.79 | 1642.56 | 4394.69 | 851.76 | 868.75 | 720.36 | 454.60 |

# Section VIII
# Appendix

# LOCATION MAPS




**NH000-0073-03(242) Cobb County**
**I-75 over Noonday Creek**
**PI# 714130**




**NH000-0073-03(242) Cobb County**
**I-75 over Noonday Creek**
**PI# 714130**

**NH000-0073-03(242) Cobb County**
**I-75 over Noonday Creek**
**PI# 714130**

# PROJECT PHOTOGRAPHS

Looking south along the upstream side of the northbound bridge.

Looking south along the upstream side of the northbound bridge.

Looking north along the upstream side of the northbound bridge.

Looking north along the upstream side of the northbound bridge. (flooding Sept. ’09)

Looking north along the upstream side of the northbound bridge.

Looking east at the northern end of the northbound bridge. Note Manholes.

Looking at the northwest corner of the northbound bridge (upstream).

Looking at the southwest corner of the northbound bridge (upstream).

Looking upstream from the northbound bridge.

Looking downstream from the northbound bridge.

Looking downstream from the northbound bridge.

Looking upstream from the downstream structure on George Busbee Parkway.

Looking downstream from the downstream bridge on George Busbee Parkway.

Looking north along the upstream side of the downstream bridge.

Looking south along George Busbee Parkway (downstream bridge).

# FEMA DATA

## TABLE 2 - SUMMARY OF DISCHARGES (continued)

| Flooding Source and Location | Drainage Area (square miles) | Peak Discharges (cubic feet per second) 10-Percent-Annual-Chance | 2-Percent-Annual-Chance | 1-Percent-Annual-Chance | | 0.2-Percent-Annual-Chance |
|---|---|---|---|---|---|---|
| | | | | Existing | Future | |
| MUD CREEK (continued) | | | | | | |
| At Villa Rica Road | 6.80 | 2,728 | 4,177 | 4,628 | 5,154 | 5,960 |
| At West Sandtown Road Southwest | 5.30 | 1,869 | 3,101 | 3,485 | 3,815 | 4,327 |
| At Old Dallas Road Southwest | 4.40 | 1,869 | 3,101 | 3,485 | 3,815 | 4,327 |
| At Burnt Hickory Road Southwest | 1.50 | 908 | 1,402 | 1,608 | 1,828 | 2,049 |
| NICKAJACK CREEK | | | | | | |
| At confluence with Chattahoochee River | 35.9 | 10,520 | 17,320 | 20,640 | 21,650 | 28,910 |
| Approximately 190 feet upstream of Old Cooper Lake Road Southeast | 20.78 | 8,160 | 13,690 | 16,298 | 16,970 | 23,060 |
| Approximately 220 feet upstream of Concord Road | 14.56 | 6,370 | 10,100 | 11,840 | 12,250 | 16,400 |
| Approximately 1,330 feet upstream of Hurt Road Southeast | 8.44 | 5,160 | 7,810 | 8,880 | 9,020 | 11,720 |
| Approximately 250 feet upstream of Church Road Southeast | 5.99 | 4,770 | 6,970 | 7,830 | 7,950 | 10,250 |
| Approximately 550 feet upstream of Smyrna Powder Springs Road Southeast | 2.68 | 2,520 | 3,940 | 4,580 | 4,700 | 6,170 |
| Approximately 220 feet upstream of South Cobb Drive Southeast/State Highway 280 | 0.62 | 440 | 650 | 740 | 740 | 970 |
| NOONDAY CREEK | | | | | | |
| At Shallowford Road Northeast (Downstream) | 34.40 | 9,842 | 14,758 | 16,834 | 16,834 | 21406 |
| At Hawkins Store Road Northeast (Upstream) | 25.20 | 8,668 | 12,720 | 14,423 | 14,423 | 17,723 |
| At New Chastain Road Northeast | 22.40 | 8,843 | 12,834 | 14,652 | 14,652 | 17,605 |
| At Bells Ferry Road Northeast | 17.60 | 6,430 | 9,681 | 11,110 | 11,110 | 12,936 |
| At Barrett Lakes Boulevard Northwest | 10.80 | 5,365 | 7,471 | 8,534 | 8,534 | 10,964 |
| At Duncan Road | 7.80 | 3,507 | 4,917 | 5,480 | 5,480 | 6,451 |
| At Roberts Boulevard Northwest | 5.80 | 2,804 | 4,290 | 4,732 | 4,732 | 5,823 |

| FLOODING SOURCE | | FLOODWAY | | | BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD) | | | |
|---|---|---|---|---|---|---|---|---|
| CROSS SECTION | DISTANCE[1] | WIDTH (FEET) | SECTION AREA (SQUARE FEET) | MEAN VELOCITY (FEET PER SECOND) | REGULATORY | WITHOUT FLOODWAY | WITH FLOODWAY | INCREASE |
| Noonday Creek | | | | | | | | |
| A | 3,153 | 330 | 2,919 | 5.8 | 897.8 | 897.8 | 898.6 | 0.8 |
| B | 4,577 | 225 | 3,026 | 5.6 | 901.6 | 901.6 | 901.9 | 0.3 |
| C | 4,754 | 140 | 1,950 | 8.6 | 902.0 | 902.0 | 902.3 | 0.3 |
| D | 4,959 | 287 | 4,129 | 4.2 | 904.2 | 904.2 | 904.4 | 0.2 |
| E | 5,487 | 610 | 8,290 | 2.1 | 905.0 | 905.0 | 905.2 | 0.2 |
| F | 5,940 | 736 | 9,115 | 1.9 | 905.1 | 905.1 | 905.4 | 0.3 |
| G | 7,286 | 460 | 5,008 | 3.5 | 905.3 | 905.3 | 905.8 | 0.5 |
| H | 8,446 | 290 | 3,171 | 5.5 | 906.1 | 906.1 | 906.9 | 0.8 |
| I | 9,298 | 187 | 2,565 | 5.6 | 911.1 | 911.1 | 911.3 | 0.2 |
| J | 10,401 | 285 | 4,318 | 3.3 | 912.9 | 912.9 | 913.1 | 0.2 |
| K | 11,700 | 297 | 4,642 | 3.1 | 914.2 | 914.2 | 914.5 | 0.3 |
| L | 13,462 | 520 | 8,347 | 1.7 | 914.7 | 914.7 | 915.2 | 0.5 |
| M | 14,756 | 680 | 8,455 | 1.7 | 914.9 | 914.9 | 915.5 | 0.6 |
| N | 16,295 | 750 | 10,243 | 1.4 | 915.1 | 915.1 | 916.0 | 0.9 |
| O | 17,748 | 550 | 5,140 | 2.9 | 918.2 | 918.2 | 918.7 | 0.5 |
| P | 18,652 | 390 | 3,760 | 3.9 | 919.0 | 919.0 | 920.0 | 1.0 |
| Q | 20,341 | 400 | 3,886 | 3.8 | 922.1 | 922.1 | 922.9 | 0.8 |
| R | 22,221 | 800 | 7,381 | 1.5 | 924.3 | 924.3 | 925.2 | 0.9 |
| S | 23,477 | 200 | 2,520 | 4.7 | 927.6 | 927.6 | 928.1 | 0.5 |
| T | 24,584 | 260 | 3,414 | 3.5 | 929.1 | 929.1 | 929.6 | 0.5 |
| U | 24,943 | 430 | 4,820 | 2.5 | 929.7 | 929.7 | 930.3 | 0.6 |
| V | 26,158 | 345 | 3,525 | 3.4 | 930.7 | 930.7 | 931.2 | 0.5 |
| W | 27,925 | 116 | 1,206 | 9.9 | 933.4 | 933.4 | 934.3 | 0.9 |
| X | 28,276 | 175 | 1,446 | 8.2 | 934.9 | 934.9 | 935.3 | 0.4 |
| Y | 29,655 | 500 | 5,332 | 2.2 | 940.9 | 940.9 | 941.1 | 0.2 |
| Z | 31,354 | 100 | 1,323 | 9.0 | 942.1 | 942.1 | 943.1 | 1.0 |

[1]1,965 feet below county boundary

TABLE 6

FEDERAL EMERGENCY MANAGEMENT AGENCY

**COBB COUNTY, GA AND INCORPORATED AREAS**

**FLOODWAY DATA**

**NOONDAY CREEK**

| FLOODING SOURCE | | FLOODWAY | | | BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD) | | | |
|---|---|---|---|---|---|---|---|---|
| CROSS SECTION | DISTANCE[1] | WIDTH (FEET) | SECTION AREA (SQUARE FEET) | MEAN VELOCITY (FEET PER SECOND) | REGULATORY | WITHOUT FLOODWAY | WITH FLOODWAY | INCREASE |
| Noonday Creek (continued) | | | | | | | | |
| AA | 33,046 | 120 | 1,562 | 4.7 | 947.9 | 947.9 | 948.2 | 0.3 |
| AB | 34,320 | 223 | 2,873 | 3.0 | 952.3 | 952.3 | 952.6 | 0.3 |
| AC | 35,731 | 390 | 4,580 | 1.9 | 953.1 | 953.1 | 953.6 | 0.5 |
| AD | 37,049 | 135 | 1,504 | 3.7 | 954.3 | 954.3 | 955.1 | 0.8 |
| AE | 38,163 | 470 | 5,097 | 1.1 | 955.8 | 955.8 | 956.6 | 0.8 |
| AF | 39,458 | 100 | 782 | 7.0 | 955.8 | 955.8 | 956.8 | 1.0 |
| AG | 41,077 | 130 | 1,918 | 2.9 | 959.9 | 959.9 | 960.5 | 0.6 |
| AH | 42,778 | 300 | 1,892 | 2.9 | 961.1 | 961.1 | 961.7 | 0.6 |
| AI | 44,309 | 150 | 832 | 5.2 | 963.5 | 963.5 | 964.3 | 0.8 |
| AJ | 45,690 | 121 | 878 | 3.2 | 969.9 | 969.9 | 969.9 | 0.0 |
| AK | 45,869 | 121 | 870 | 3.3 | 971.1 | 971.1 | 971.0 | 0.0 |
| AL | 46,822 | 130 | 813 | 3.8 | 973.3 | 973.3 | 974.1 | 0.8 |
| AM | 48,221 | 167 | 733 | 4.2 | 976.4 | 976.4 | 976.8 | 0.4 |
| AN | 49,848 | 220 | 1,407 | 1.7 | 982.5 | 982.5 | 982.7 | 0.2 |
| AO | 51,158 | 116 | 486 | 5.0 | 984.4 | 984.4 | 985.1 | 0.7 |
| AP | 52,150 | 150 | 458 | 5.3 | 989.1 | 989.1 | 989.4 | 0.3 |
| AQ | 53,909 | 60 | 261 | 2.9 | 994.9 | 994.9 | 995.5 | 0.6 |
| AR | 54,470 | 67 | 1,195 | 0.6 | 1,014.6 | 1,014.6 | 1,014.6 | 0.0 |
| AS | 55,789 | 220 | 2,507 | 1.0 | 1,014.7 | 1,014.7 | 1,014.7 | 0.0 |
| AT | 57,643 | 150 | 962 | 2.6 | 1,018.7 | 1,018.7 | 1,019.2 | 0.5 |
| AU | 58,694 | 100 | 497 | 5.0 | 1,025.0 | 1,025.0 | 1,025.2 | 0.2 |

[1]1,965 feet below county boundary

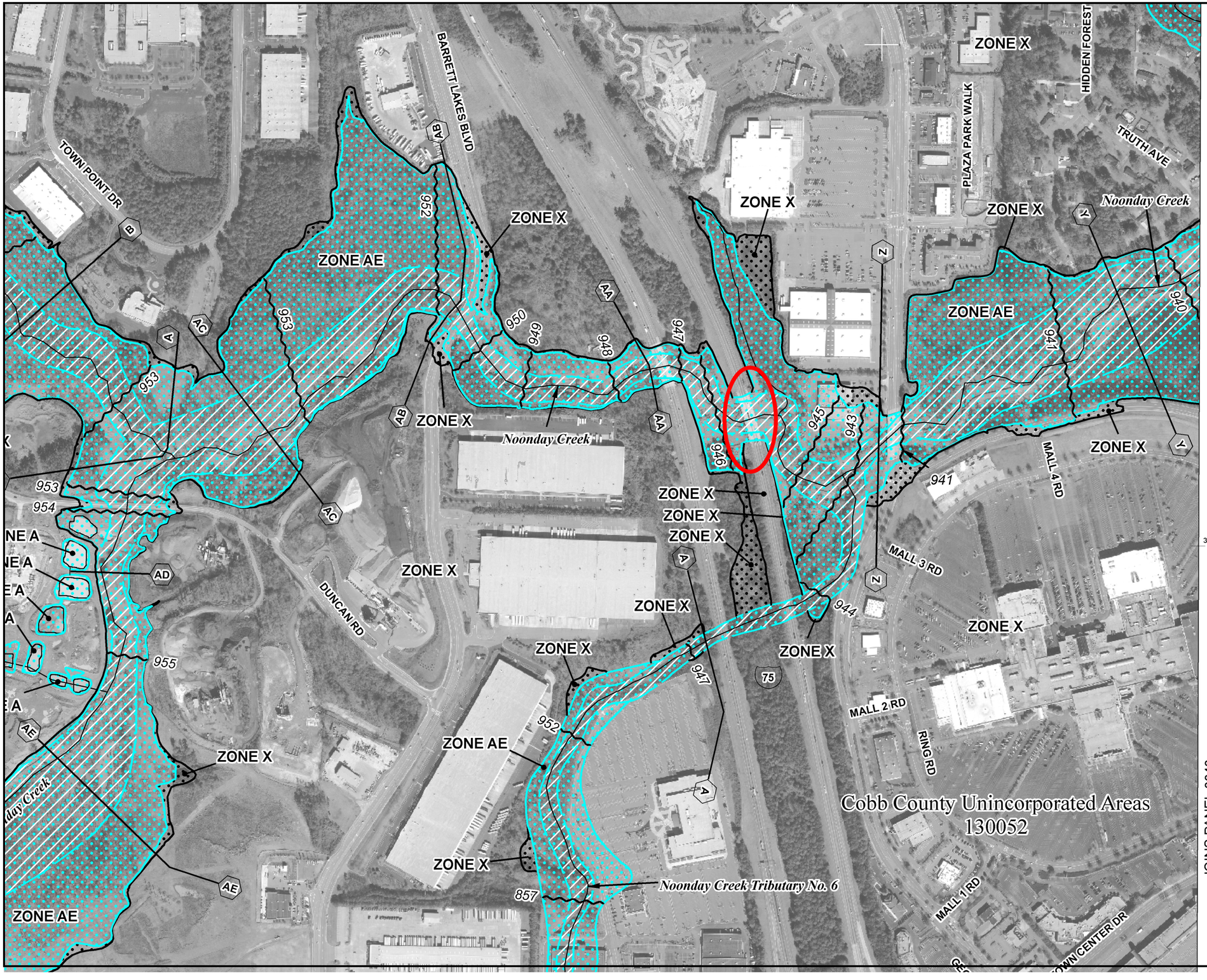
TABLE 6

FEDERAL EMERGENCY MANAGEMENT AGENCY

**COBB COUNTY, GA AND INCORPORATED AREAS**

**FLOODWAY DATA**

**NOONDAY CREEK**




dional Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'

500 0 500 1000

FEET

METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0039G

# FIRM

## FLOOD INSURANCE RATE MAP

**COBB COUNTY, GEORGIA**
**AND INCORPORATED AREAS**

**PANEL 39 OF 252**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| COBB COUNTY | 130052 | 0039 | G |
| KENNESAW, CITY OF | 130055 | 0039 | G |

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

**MAP NUMBER**
**13067C0039G**

**MAP REVISED**
**DECEMBER 16, 2008**

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

# FLOOD PROFILES

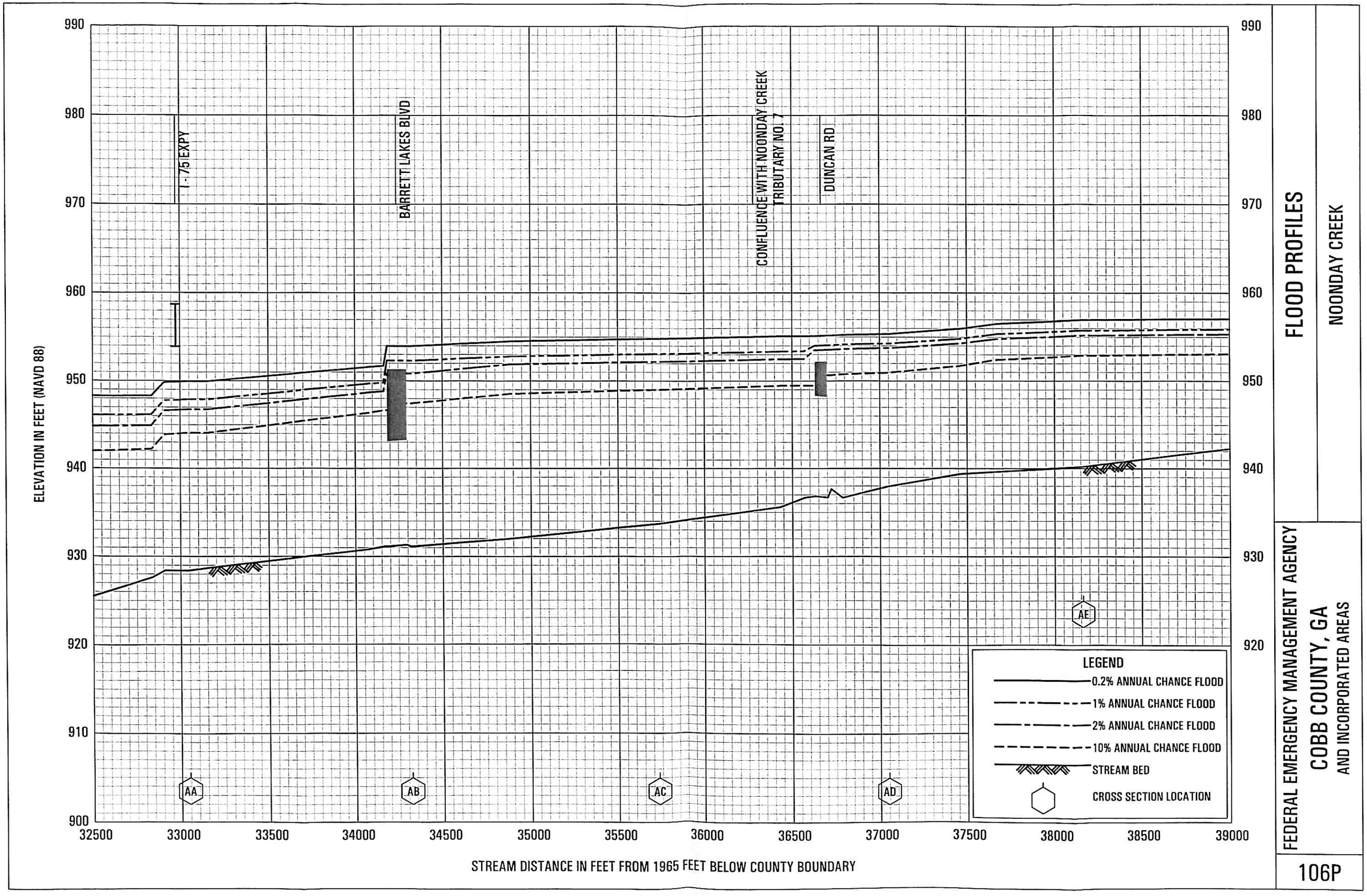
## NOONDAY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

COBB COUNTY, GA

AND INCORPORATED AREAS

105P




# FLOOD PROFILES

## NOONDAY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

COBB COUNTY, GA

AND INCORPORATED AREAS

106P

# MISCELLANEOUS PROJECT DATA

## John McWhorter

**From:** Crampton, Sam [scrampton@Dewberry.com]
**Sent:** Tuesday, April 29, 2008 6:09 PM
**To:** John McWhorter
**Subject:** RE: Cobb and Cherokee FEMA models

Thanks for the surveys. I will keep them handy for any updates we do. I will take a look at the USGS comments. The problem we find with the regression flows is that they are out of date and do not do well for urbanized area or for future flows. I certainly would not rule out the models over estimating. Unfortunately there has not been the funding for us to revise the hydrology completely on any studies except Pitner Creek and so they are all old HEC1 models that have simply had the curve numbers updated.

The next few weeks is really busy but after that we could meet for lunch.

Sam Crampton
Water Resources Engineer
Dewberry
2872 Woodcock Blvd, Suite 230
Atlanta, Ga 30341
678-530-0022 x203
678-530-0044 (fax)

---

**From:** John McWhorter [mailto:jmcwhorter@JBTrimble.com]
**Sent:** Tuesday, April 29, 2008 2:45 PM
**To:** Crampton, Sam
**Cc:** Robbie Frizzell; Beck, Susan
**Subject:** RE: Cobb and Cherokee FEMA models

Sam,

Here are the recent bridge surveys for the I-575 over Noonday Creek crossings. Hopefully this will be of use to you.

I noticed that there is a large difference between the FEMA discharges and the USGS regression flows. Since we will model the proposed construction with the FEMA model and our own HEC-RAS model using the project survey and our calculated discharges, I'm in the process of trying to resolve this difference. I presented this info to the USGS and asked for guidance. I've attached that email exchange here with hopes that you would read this over and comment as well.

Our May calendar is pretty full but Robbie and I want to take you to lunch soon to talk about projects and to say thanks for all your help over the past year or so.

Thanks again for you help!

John

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**From:** Crampton, Sam [mailto:scrampton@Dewberry.com]
**Sent:** Friday, April 18, 2008 8:41 AM
**To:** John McWhorter
**Subject:** RE: Cobb and Cherokee FEMA models

I hope you got some sleep, I see the email was sent at 2:52AM!

I have the new model for Noonday which will become effective Dec26 08. We have a project in the vicinity of I-575 and 75 on Noonday Creek and will likely be making a FEMA submnittal. I know that the bridge survey in that area is very old and poor quality and really does need to be updated. If you have existing conditions survey for any of them structures around there, please could you provide us with them to update the model.

**DEC08 Hydrology** HEC1 model that will become effective for Noonday Creek in DEC 08
**DEC08 Model** RAS model for Noonday creek that will become effective in DEC08
**Effective 92 Models** These should be the Noonday and Tate models that went effective in 92. Check carefully to ensure that they are the models if you need to use them.
**Incomplete Tate Revisions** This model is one that we tried to use (performed by another consultant) but we found problems with

it and had to stick with the effective data for Tate Creek. We made some changes to this but gave up half way through because it would have cost too much to redo the model (I think it was mainly hydrology issues). There may be things you could use from this.

The zip with these files in can be downloaded from our ftp.
ftp.dewberry.com
Login: CobbGA
Pswd: S4RRWQ

Sam Crampton
Water Resources Engineer
Dewberry
2872 Woodcock Blvd, Suite 230
Atlanta, Ga 30341
678-530-0022 x203
678-530-0044 (fax)

---

**From:** John McWhorter [mailto:jmcwhorter@JBTrimble.com]
**Sent:** Friday, April 18, 2008 2:52 AM
**To:** Crampton, Sam
**Cc:** Robbie Frizzell
**Subject:** Cobb and Cherokee FEMA models

Sam,

Once again, I'm coming to you for some FEMA models. We are working on costing plans for a major construction project along I-575 in Cobb and Cherokee Counties. The floodways encountered along this corridor are Noonday Creek, Tate Creek and Little River. I've requested the data through Michael Baker also, but the Cobb County data has an effective date of August 18, 1992. I know there is a preliminary revised DFIRM for Cobb County. We want to get the latest data, especially if the revised effective data is imminent.

Any information you can provide along these streams in Cobb and Cherokee Counties will be much appreciated.

Thanks,

John McWhorter, P.E.
J.B. Trimble, Inc.
770-200-1713 direct
770-952-1022 office
770-952-1041 fax
jmcwhorter@jbtrimble.com

## John McWhorter

**From:** Anthony J Gotvald [agotvald@usgs.gov]
**Sent:** Monday, April 28, 2008 9:57 AM
**To:** John McWhorter
**Cc:** Garrick L. Edwards; Larry Cook; Robbie Frizzell; Curtis, Steven; Beck, Susan
**Subject:** RE: Noonday Creek Discharges - I-575

John,

Do you know of any websites that explain the FEMA modeling in general. I am not very familiar with the FEMA modeling and would like to learn more. I am more familiar with the HEC modeling, and I would not mind looking at the HEC-1 model if it is not too much trouble to put it on an ftp site. As a rule of thumb, the rural equations can be used for sites that have impervious area less than 10 percent. 10-15% is kind of a grey area, and anything above 15% is definitely affected by urbanization and the urban equations should be used. If there is anyway you can calculate the impervious area for these sites, then I strongly recommend doing so. With the information that is available, I would recommend using the urban equations for both the 12.8 and 43.2 sq. mi sites. The impervious area is more than likely greater than 10 % and is only going to increase, so the urban equations would be more applicable. Of course, the 43.2 sq miles is out of the range of the urban equations, but if the impervious area is above 10% then this site is beyond the limitations of the rural equations as well. We are actually in the process of putting together a proposal to update the urban equations. We plan to use a multi-state approach where we would pool together urban sites from VA, TN, NC, SC, GA, AL, and FL. This way the ranges in drainage areas would increase for the urban equations. We are finishing up a similar multi-state approach for the rural equations. The new rural equations will be out at the end of the calendar year. As for the 2005 peaks for both 02392975 and 02392950, keep in mind those peaks have an accuracy of +/- 5 percent. So this is the reason for the slight difference (-2 percent). These sites are very close together and there is no major inflows between them, so the values of the two peaks are almost the same value if you consider the 10 percent uncertainty range.

Tony Gotvald, Hydrologist
USGS Georgia Water Science Center
3039 Amwiler Road, Suite 130
Atlanta, GA 30360
(770) 903-9310

**"John McWhorter" <jmcwhorter@JBTrimble.com>**

04/26/2008 09:57 PM

To "Anthony J Gotvald" <agotvald@usgs.gov>
cc "Garrick L. Edwards" <gledwards@JBTrimble.com>, "Larry Cook" <lcook@JBTrimble.com>, "Robbie Frizzell" <rfrizzell@JBTrimble.com>, "Curtis, Steven" <sacurtis@bechtel.com>, "Beck, Susan" <sbeck@dot.ga.gov>
Subject RE: Noonday Creek Discharges - I-575

Thanks Tony. I agree that the FEMA flows seem high for the 12.8 square mile area. Since they are in the regulatory model, we are probably stuck with them for the FEMA modeling. However, for projects that are reviewed by GDOT, we develop a separate HEC-RAS model using the project survey and our calculated discharges.

Using an impervious area of 15% for the Southern Noonday Creek crossing (12.8 sq mi) the Q100 = 7012 cfs, which equates to about 60% of the FEMA flow. For the northern Noonday crossing (43.2 sq mi), the 15% impervious area generates a Q100 = 16232 cfs, which is much greater than the FEMA flow. As you know, this drainage area size is outside of the range of use for the urban equations. Although Tim Stamey once told me that the urban equations could be used outside of their recommended range (standard error just won't apply), they may be excessive in this case. The rural equations here produce a Q100 = 9108 cfs.

Based on a 15% impervious area at the Hawkins Store Road gage (02392950), the 2005 event (6470 cfs) produced a 10 year storm along Noonday Creek (10 yr @ 15% imp = 6674 cfs). An interesting point to note is that the downstream Shallowford Road gage (02392975, DA = 33.6 sq mi) recorded a lower discharge for the same flood event in 2005.

Would you agree that using 15% +/- impervious and the urban equations for the 12.8 square mile site and just the rural equations for the 43.2 square mile site is a reasonable approach to the discharges for these sites?

There is a HEC-1 model. I can provide this to you if you would like. It's probably too big for email (5 meg) so let me know and I'll post it to our ftp site.

I really appreciate your help with this. This is a hot project and determining reasonable discharges for these sites is critical. This is particularly the case with the northern Noonday crossing since that bridge will likely be jacked to address a clearance issue.

Thanks again,

John

---

**From:** Anthony J Gotvald [mailto:agotvald@usgs.gov]
**Sent:** Fri 4/25/2008 2:44 PM
**To:** John McWhorter
**Cc:** Garrick L. Edwards; Larry Cook; Robbie Frizzell; Curtis, Steven; Beck, Susan
**Subject:** Re: Noonday Creek Discharges - I-575

John,

The Q100 values of 11,917 and 12,874 cfs at the I-575 crossing seem high for a drainage area of only 12.8 square miles. Are the data used for these FEMA analyses available? It would be interesting to see the data that were used in the analysis. I am a little confused on the study dates you mentioned. Cherokee County had a study done in 1988 and then 2006, and Cobb County had a study done in 1992 and then in 2008. Is this correct? Do any of these recent studies include the large event that occurred in July of 2005? I would estimate that the % impervious area for the Noonday Creek watershed is somewhere between 5-15%. Between the rural and urban equations, the urban equations would serve as a better estimate of the Q100 for this site. However, these FEMA studies may have additional information that would lead to a better estimate of the Q100 for this site.

Tony Gotvald, Hydrologist
USGS Georgia Water Science Center
3039 Amwiler Road, Suite 130
Atlanta, GA 30360
(770) 903-9310

**"John McWhorter" <jmcwhorter@JBTrimble.com>**

04/25/2008 11:38 AM

To <agotvald@usgs.gov>
cc "Robbie Frizzell" <rfrizzell@JBTrimble.com>, "Beck, Susan" <sbeck@dot.ga.gov>, "Garrick L. Edwards" <gledwards@JBTrimble.com>, "Larry Cook" <lcook@JBTrimble.com>, "Curtis, Steven" <sacurtis@bechtel.com>
Subject Noonday Creek Discharges - I-575

Tony,

We are working on plans to widen I-575 over two crossings of Noonday Creek, which flows from south to north in Cobb and Cherokee Counties. The southern crossing is in Cobb County and the northern crossing is in Cherokee county. Since Noonday Creek is a FEMA studied stream, I was comparing discharges between the regression equations and FEMA and due to the large differences, I would like to get your comments.

The Cherokee County FEMA study is dated September 29, 2006. It appears that the discharges used for Noonday Creek in this study remain unchanged from the original study done in 1988. There is a "preliminary" study for Cobb County that is slated for a December 2008 effective date. This study includes new hydrology for Noonday Creek and the discharges are ~2.5 times the rural regression equations. This area is certainly urbanized and the use of the urban regression equations is easily warranted. However, even an impervious area of 100% will not approach the FEMA flows. At the southern (Cobb County) crossing of I-575 over Noonday Creek, the drainage area is 12.8 square miles. The USGS rural Q100 = 4468 cfs and the Dec. '08 FEMA flow is 11917 cfs. With an impervious area of 100%, the USGS urban regression Q100 = 9681cfs. For reference, the previous 100 year FEMA flow from the 1992 study = 12874 cfs.

There are gages on Noonday Creek at Shallowford Road (02392975) and Hawkins Store Road (02392950), which are in the area at 33.6 and 24.3 square miles, respectively. However, these gages only have about seven years of record.

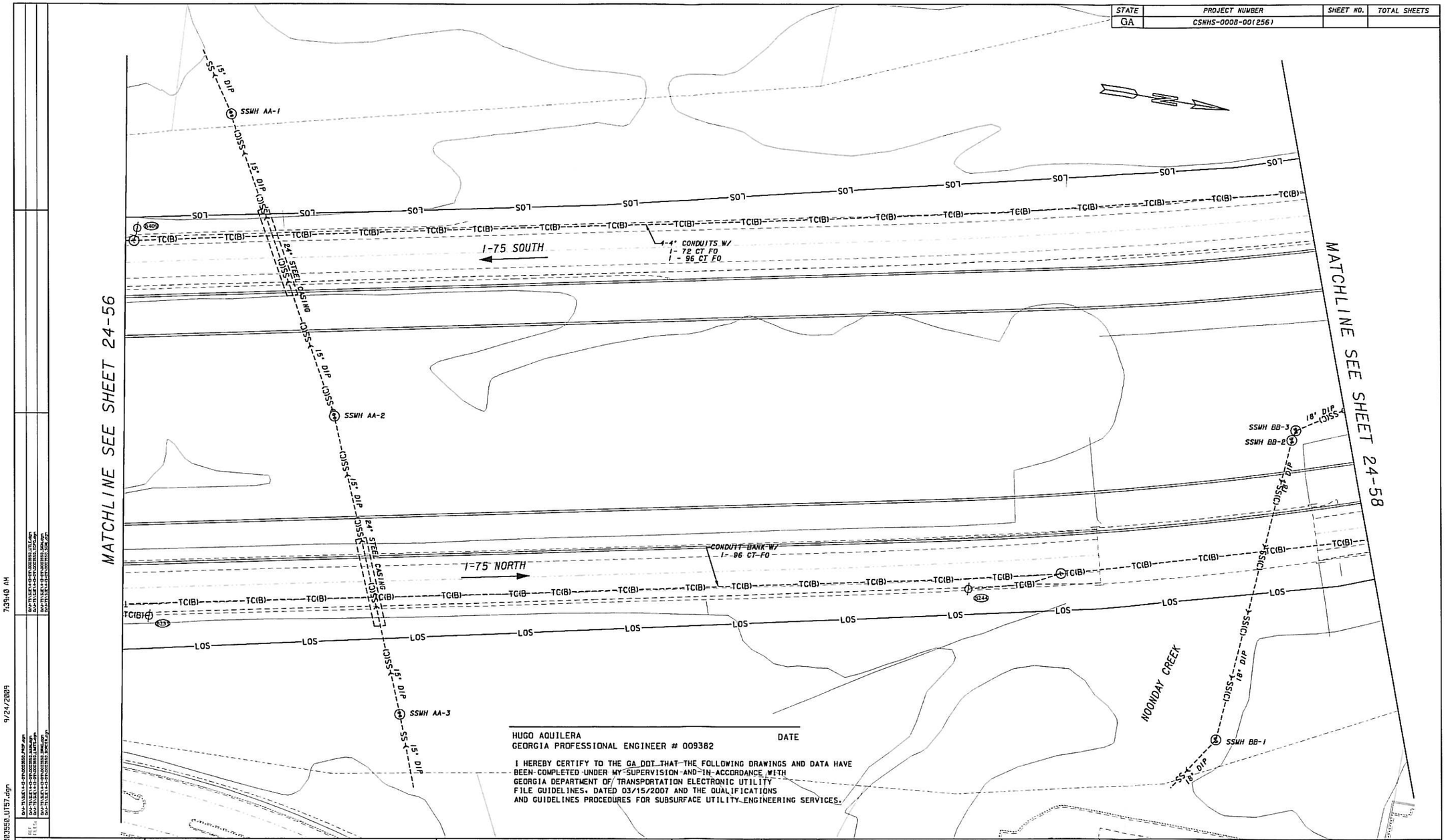
The northern I-575 crossing over Noonday Creek in Cherokee County has a drainage area of 43.2 square miles. The current 2006 Flood Insurance Study for Cherokee County has a 100 year discharge of 9372 cfs at the confluence with Little River (drainage area 49.3 square miles). The 100 year rural discharge is 9108 cfs at the bridge site (43.2 sq mi) and 9839 cfs at the confluence (49.2 sq mi). In this case, the discharges correlate fairly well between USGS and FEMA except that some urbanization should be considered.

As you can see, the downstream crossing has ~3.4 times the drainage area (43.2 vs. 12.8) and approximately 75% of the discharge based on the FEMA flows. There appears to be some storage available between the two I-575 crossings over Noonday Creek that could partially explain the reduction.  If you would, please comment on this issue and provide your recommendations for the discharge calculations for both the north and south crossings of I-575 over Noonday Creek. I've attached an excerpt from the quad map for your use.

Thank you for your time.

John McWhorter, P.E.
J.B. Trimble, Inc.
770-200-1713 direct
770-952-1022 office
770-952-1041 fax
jmcwhorter@jbtrimble.com

| STATE | PROJECT NUMBER | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| GA | CSNHS-0008-00(256) | | |




HUGO AQUILERA DATE
GEORGIA PROFESSIONAL ENGINEER # 009382

I HEREBY CERTIFY TO THE GA DOT THAT THE FOLLOWING DRAWINGS AND DATA HAVE BEEN COMPLETED UNDER MY SUPERVISION AND IN ACCORDANCE WITH GEORGIA DEPARTMENT OF TRANSPORTATION ELECTRONIC UTILITY FILE GUIDELINES, DATED 03/15/2007 AND THE QUALIFICATIONS AND GUIDELINES PROCEDURES FOR SUBSURFACE UTILITY ENGINEERING SERVICES.

D:\I-75\SUE\4-13-09\0803550.UT57.dgn 9/24/2009 7:39:40 AM


PHOENIX SOLUTIONS, INC.
LOGANVILLE, GEORGIA
(770)466-0466 FAX (770)466-0471


GTP Georgia Transportation Partners

SCALE IN FEET
0 50 100 200

NORTHWEST I-75/I-575 CORRIDOR

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

PBS&J

| REVISIONS |
|---|
| REV A 12/18/08 |
| REV B 02/23/09 |
| REV C 04/01/09 |

GEORGIA
DEPARTMENT OF TRANSPORTATION

# UTILITY PLANS

PROJECT CSNHS-0008-00(256)
P. I. 0008256

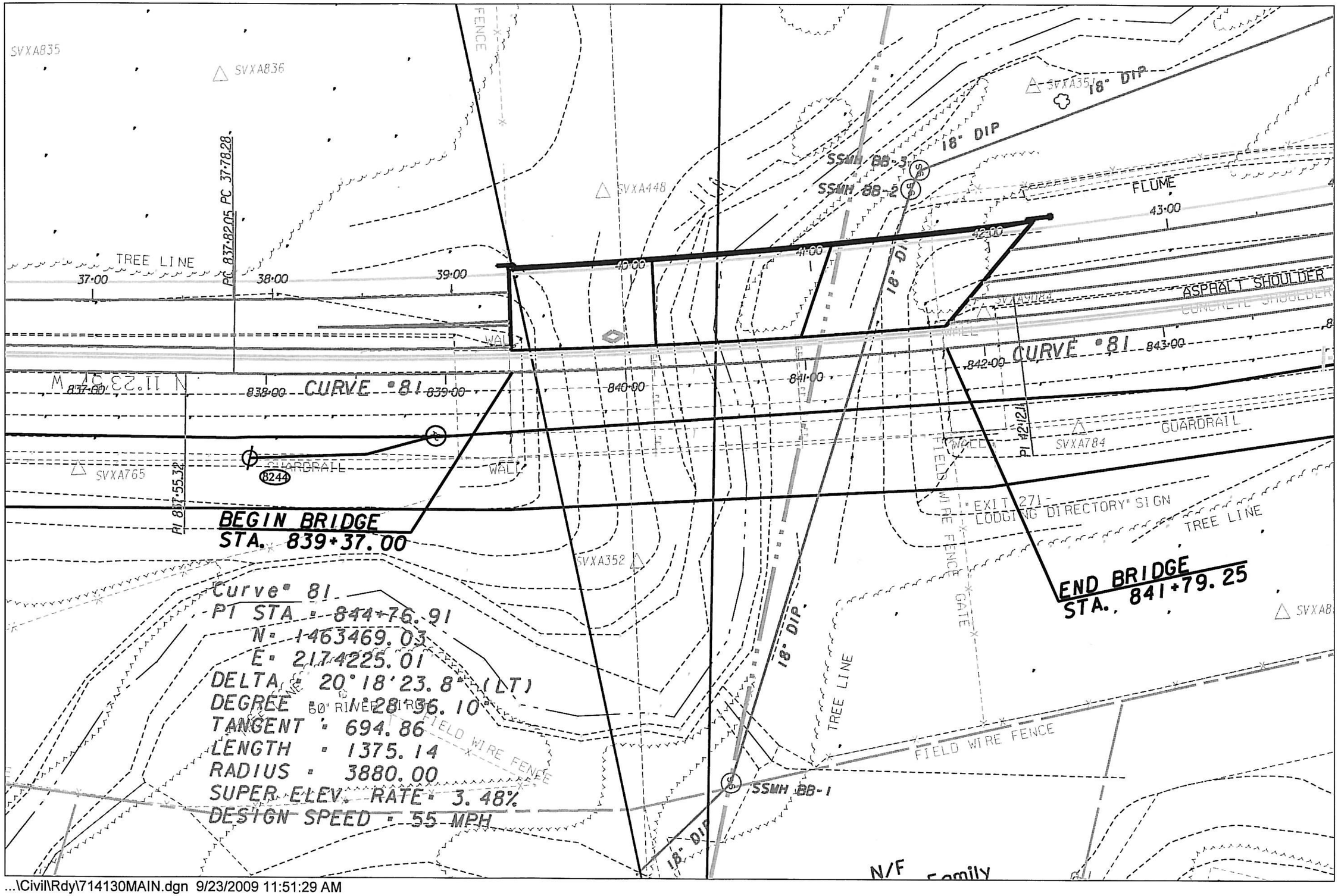
DRAWING No. 24-57

# SANITARY SEWER DATA

| MANHOLE NUMBER | TOP ELEVATION | INVERT IN | INVERT OUT | MATERIAL | MISC. |
|---|---|---|---|---|---|
| Z-2 | 1018.84 | 981.53 | 981.35 | 15" DIP | TO SSMH Z-1 |
| Z-1 | 983.61 | 973.81 | 973.67 | 15" DIP | TO SSMH OUTSIDE LOS |
| | | | | | |
| AA-3 | 941.20 | 929.60 | 929.48 | 15" DIP | TO SSMH AA-2 |
| AA-2 | 943.48 | 928.98 | 928.80 | 15" DIP | TO SSMH AA-1 |
| AA-1 | 943.14 | 926.64 | 926.46 | 15" DIP | TO SSMH OUTSIDE LOS |
| | | | | | |
| BB-6 | 952.56 | 945.96 | 945.77 | 18" DIP | TO SSMH BB-5 |
| BB-5 | 950.02 | 944.22 | 944.09 | 18" DIP | TO SSMH BB-4 |
| BB-4 | 948.93 | 943.33 | 943.21 | 18" DIP | TO SSMH BB-3 |
| BB-3 | 938.93 | 933.33 | 933.19 | 18" DIP | TO SSMH BB-2 |
| BB-2 | 938.79 | 932.09 | 931.94 | 18" DIP | TO SSMH BB-1 |
| BB-1 | 940.56 | 930.76 | 930.58 | 18" DIP | TO SSMH OUTSIDE LOS |
| | | | | | |
| CC-5 | 1065.50 | 1055.57 | 1055.25 | 8" DIP | TO SSMH CC-4 |
| CC-4 | 1063.98 | 1054.60 | 1054.38 | 8" DIP | TO SSMH CC-3 |
| CC-3 | 1063.02 | 1053.87 | 1053.79 | 8" DIP | TO SSMH CC-2 |
| CC-2 | 1061.86 | 1052.74 | 1052.36 | 8" DIP | TO SSMH CC-1 |
| CC-1 | 1060.97 | 1051.22 | 1051.12 | 8" DIP | TO SSMH OUTSIDE LOS |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

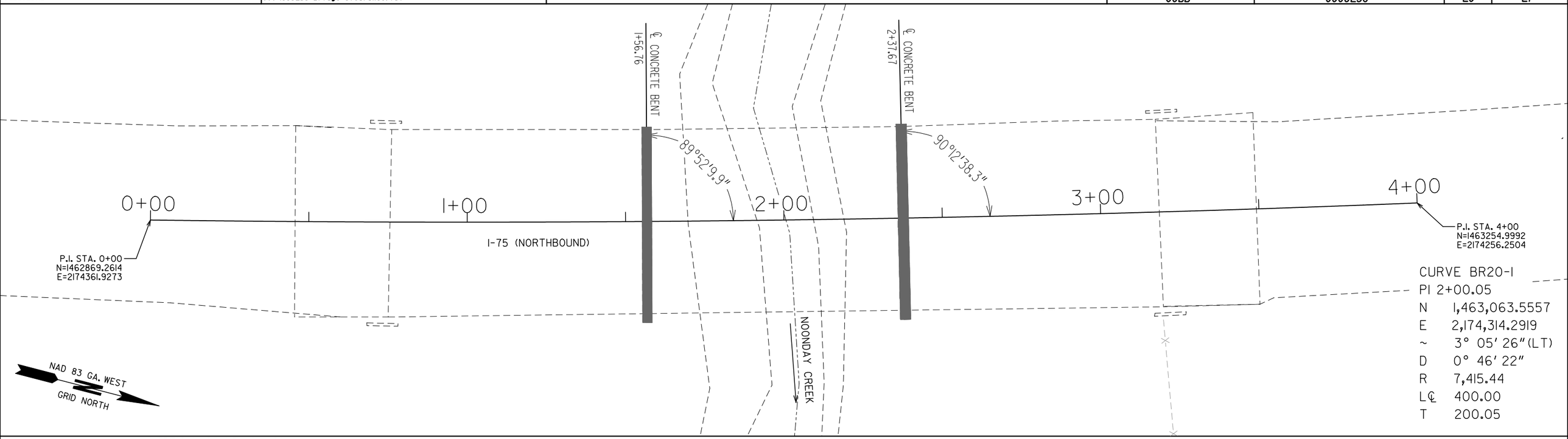
HUGO AQUILERA DATE
GEORGIA PROFESSIONAL ENGINEER # 009382

I HEREBY CERTIFY TO THE GA DOT THAT THE FOLLOWING DRAWINGS AND DATA HAVE BEEN COMPLETED UNDER MY SUPERVISION AND IN ACCORDANCE WITH GEORGIA DEPARTMENT OF TRANSPORTATION ELECTRONIC UTILITY FILE GUIDELINES, DATED 03/15/2007 AND THE QUALIFICATIONS AND GUIDELINES PROCEDURES FOR SUBSURFACE UTILITY ENGINEERING SERVICES.



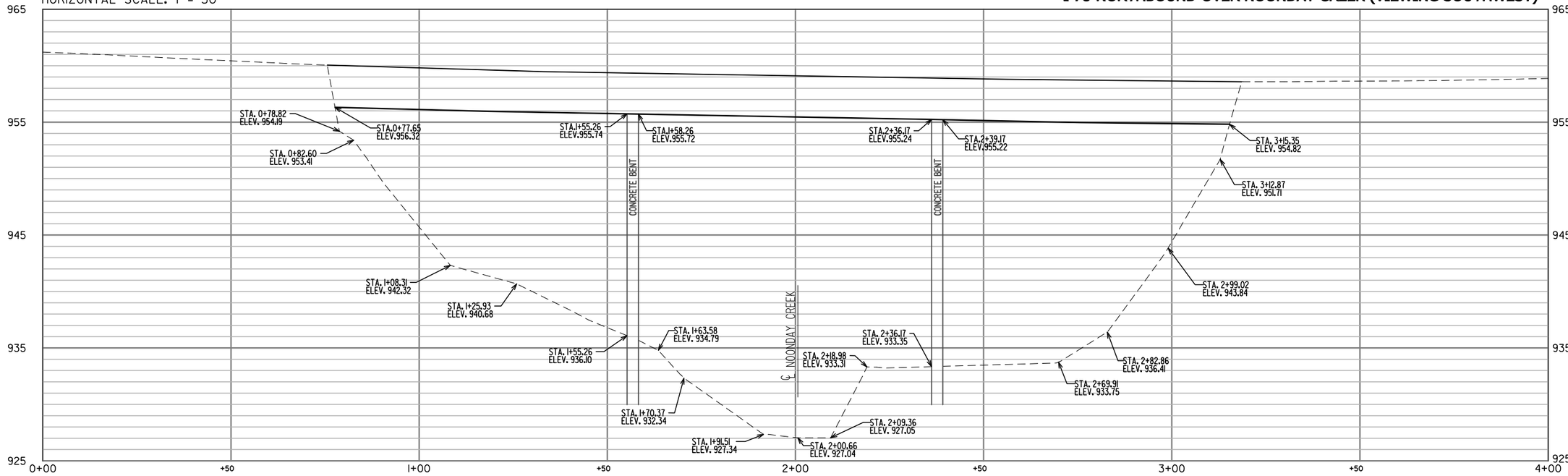

...\Civil\Rdy\714130MAIN.dgn 9/23/2009 11:51:29 AM

| 8/18/2008 9:47:26 AM JLELJEDAL | ...\008256 Bridge Clearance.tbl | w:\0165-0020 I-75 northwest corridor\drawings\bridge clearance\008256-Bridge Clearance 20.dgn | COUNTY | PROJECT NUMBER | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|
| | | | COBB | 0008256 | 20 | 27 |




VERTICAL SCALE: 1" = 10'
HORIZONTAL SCALE: 1" = 30'

**I-75 NORTHBOUND OVER NOONDAY CREEK (VIEWING SOUTHWEST)**




VERTICAL DATUM: NAVD 88

**NOTE: THIS PROFILE INDICATES ELEVATIONS ALONG THE CENTERLINE OF I-75 NORTHBOUND OVER NOONDAY CREEK.**

| P. I. NO. 0008256 | LONG JOB NO. 0165-0020 |
|---|---|
| DRAWN BY VCH | DATE 8/18/2008 |
| CHECKED BY JGL | SCALE 1" = 30' |


LONG ENGINEERING, INC.
1780 Corporate Drive
Suite 400
Norcross, Georgia 30093
Tel 770.931.8005
Fax 770.931.8555
www.longeng.com


SCALE IN FEET
0 15 30 60

REVISION DATES

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

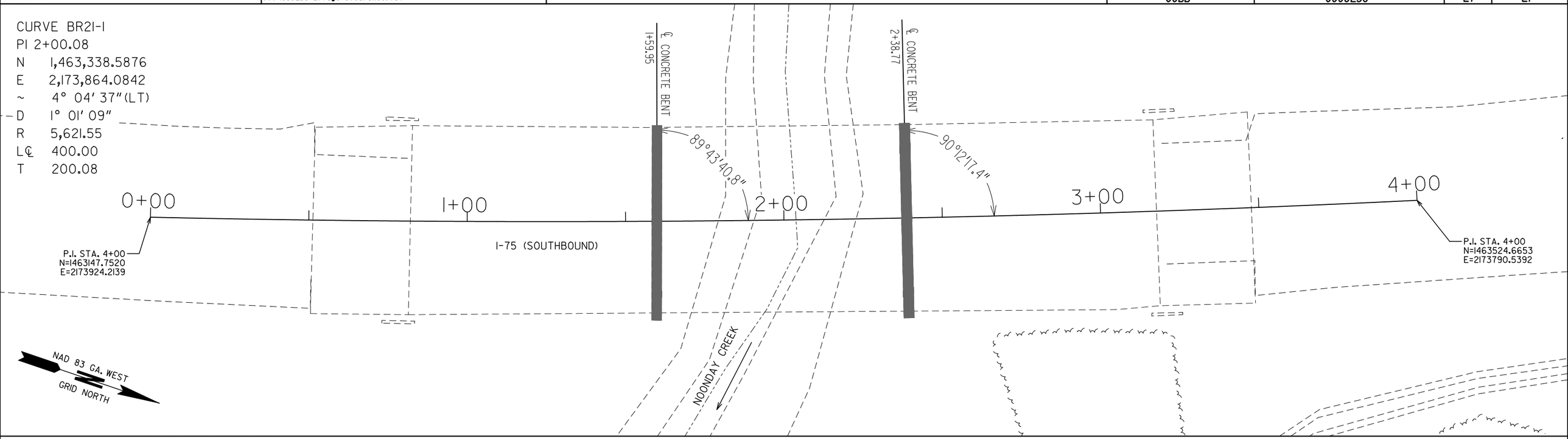
# BRIDGE CLEARANCE

I-75 FROM CANTON ROAD
TO 2000' PAST WOODSTOCK ROAD
I-75(NB) OVER
NOONDAY CREEK

DRAWING No. 20

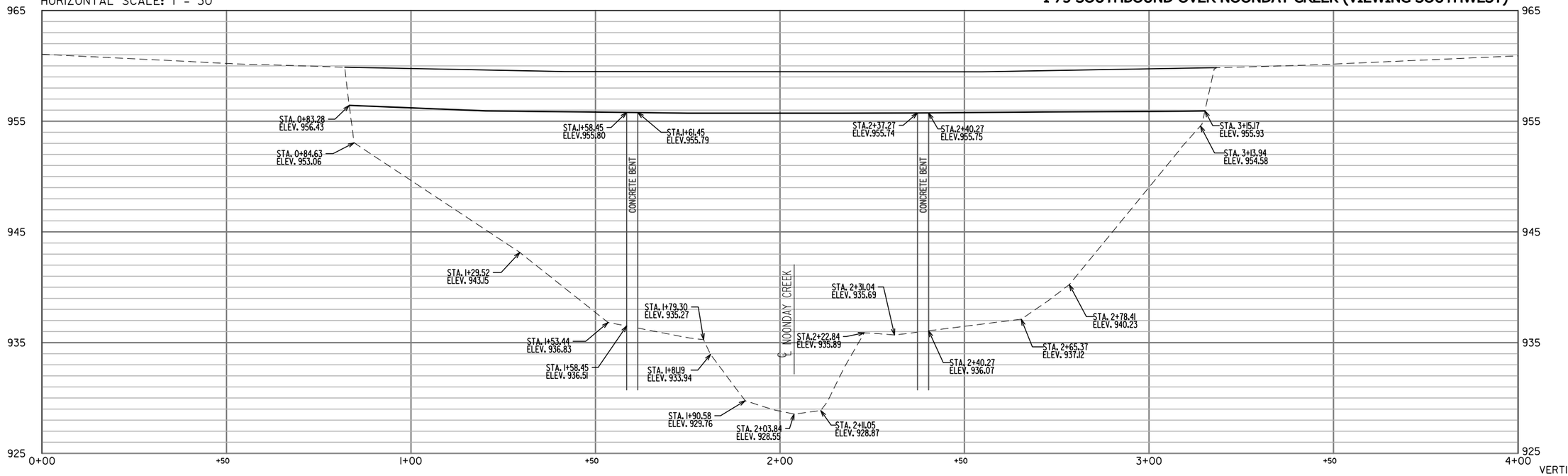
| 8/18/2008 9:47:28 AM | ...\008256 Bridge Clearance.tbl | w:\0165-0020 I-75 northwest corridor\drawings\bridge clearance\008256-Bridge Clearance 21.dgn | COUNTY | PROJECT NUMBER | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|
| JLELJEDAL | | | COBB | 0008256 | 21 | 27 |

CURVE BR2I-I
PI 2+00.08
N 1,463,338.5876
E 2,173,864.0842
~ 4° 04′ 37″(LT)
D 1° 01′ 09″
R 5,621.55
LC 400.00
T 200.08




VERTICAL SCALE: 1" = 10′
HORIZONTAL SCALE: 1" = 30′

## I-75 SOUTHBOUND OVER NOONDAY CREEK (VIEWING SOUTHWEST)




VERTICAL DATUM: NAVD 88

**NOTE: THIS PROFILE INDICATES ELEVATIONS ALONG THE CENTERLINE OF I-75 SOUTHBOUND OVER NOONDAY CREEK.**

| P. I. NO. 0008256 | LONG JOB NO. 0165-0020 |
|---|---|
| DRAWN BY VCH | DATE 8/18/2008 |
| CHECKED BY JGL | SCALE 1" = 30′ |


LONG ENGINEERING, INC.
1780 Corporate Drive
Suite 400
Norcross, Georgia 30093
Tel 770.931.8005
Fax 770.931.8555
www.longeng.com


SCALE IN FEET
0 15 30 60

REVISION DATES

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

# BRIDGE CLEARANCE

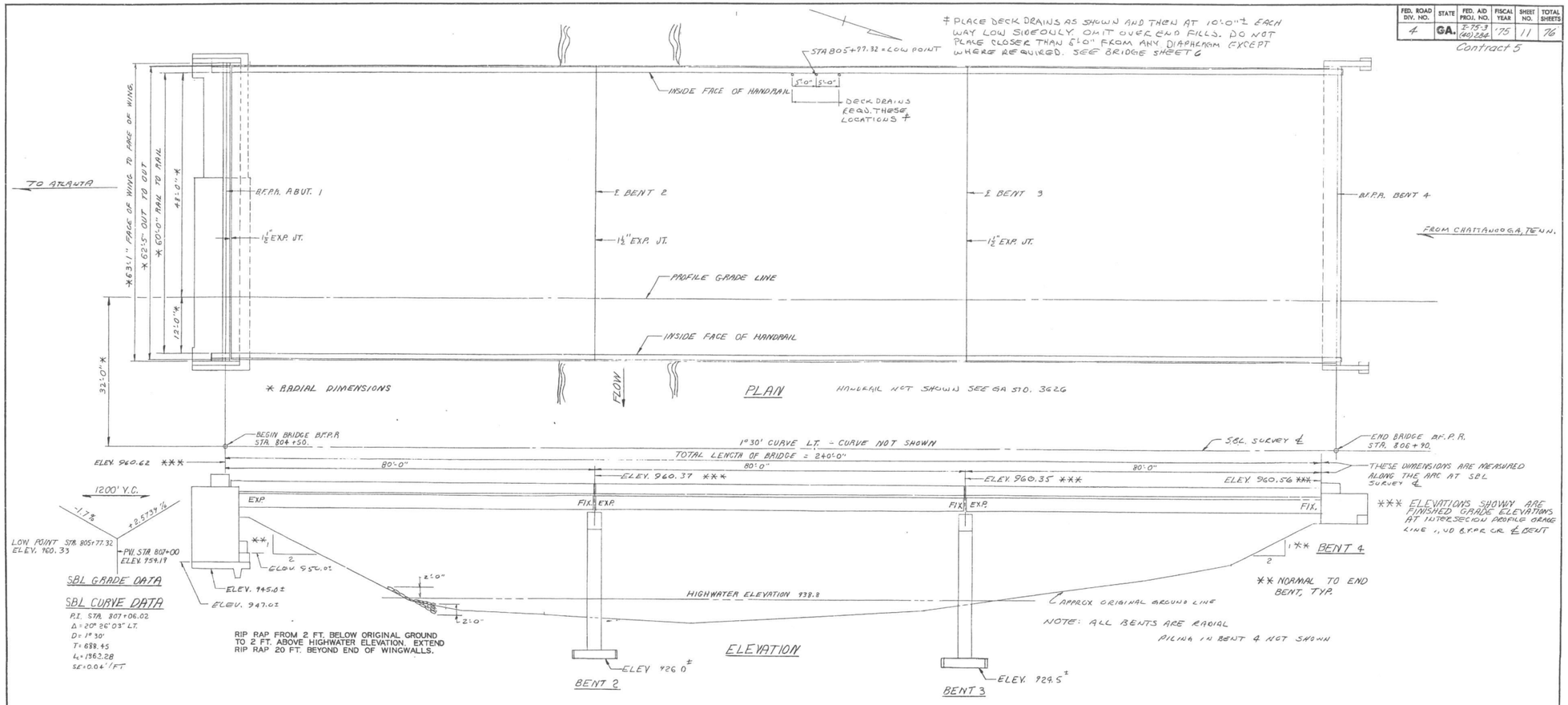
I-75 FROM CANTON ROAD
TO 2000′ PAST WOODSTOCK ROAD
I-75(SB) OVER
NOONDAY CREEK

DRAWING No. 21

| FED. ROAD DIV. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| 4 | GA. | I-75-3 (40)234 | '75 | 11 | 76 |

Contract 5

‡ PLACE DECK DRAINS AS SHOWN AND THEN AT 10'-0"± EACH WAY LOW SIDE ONLY. OMIT OVER END FILLS. DO NOT PLACE CLOSER THAN 5'-0" FROM ANY DIAPHRAGM EXCEPT WHERE REQUIRED. SEE BRIDGE SHEET 6




## SBL BRIDGE CONSISTS OF

3 - COMPOSITE ROLLED BEAM SIMPLE SPANS ---------- SPECIAL DESIGN
1 - CONCRETE ABUTMENT ---------- SPECIAL DESIGN
1 - STEEL H PILE END BENT ---------- SPECIAL DESIGN
2 - CONCRETE INTERMEDIATE BENTS ---------- SPECIAL DESIGN
ALUMINUM HANDRAILING ---------- GA. STD. NO.3626(8-29-74)
BAR BENDING DETAILS ---------- GA. STD. NO.3901
TYPICAL FILL DETAIL AT END OF BRIDGE ---------- GA. STD. NO.9037(9-1-70)
END POST AND END POST GUARDRAIL ATTACHMENT DETAIL ------- GA. STD. NO.9053
L = 4'-0", W = 1'-1", H = 3'-2¾"

## DRAINAGE DATA

DRAINAGE AREA = 10.6 SQ.MI.
$Q_{50}$ = 2300 cfs
AREA OF OPENING UNDER HIGH WATER = 975 SQ.FT.

## GENERAL NOTES

SPECIFICATIONS - GEORGIA STANDARD DATED 1972.

END BENT EXCAVATION - EXCAVATION FOR END BENT NO. 1 LT. SHALL BE PAID FOR AS CU YD BR EXCAV, STREAM CROSS.

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 EACH OF BENT 4 LT. AND BENT 1 RT.

PLAN DRIVING OBJECTIVE - SEE SUBSTRUCTURE DETAILS.

## UTILITIES

NONE

## SUMMARY OF QUANTITIES

| LT. | RT. | |
|---|---|---|
| 510 | 299 | CU YD BR EXCAV, STREAM CROSS |
| 77 | 154 | CU YD BR BKFILL |
| LUMP | —— | SUPERSTR CONC (CL AA) - BR NO 1 LT |
| —— | LUMP | SUPERSTR CONC (CL AA) - BR NO 1 RT |
| 271 | 198 | CU YD CL A CONC |
| LUMP | —— | STR STEEL - BR NO 1 LT |
| —— | LUMP | STR STEEL - BR NO 1 RT |
| 51,141 | 41,152 | LB BAR REINF STEEL |
| LUMP | —— | SUPERSTR REINF STEEL - BR NO 1 LT |
| —— | LUMP | SUPERSTR REINF STEEL - BR NO 1 RT |
| 467 | 474 | LIN FT ALUM HANDRAIL, STD 3626 |
| 245 | 504 | LIN FT PILING IN PLACE, STEEL H, 12 BP 53 |
| 1 | 1 | EACH LOAD TEST, STEEL H, 12 BP 53 (IF REQD) |
| 359 | 438 | SQ YD STN PLAIN RIP RAP |

## DESIGN DATA

SPECIFICATIONS - A.A.S.H.O., 1969, INT. '970, 1971
TYPICAL HS20-44 AND/OR MILITARY LOADING - IMPACT ALLOWED
FUTURE PAVING ALLOWANCE = 15 LBS. PER SQ. FT.

BRIDGE NO. 1 LT

GEORGIA
DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION - BRIDGE DESIGN

# PLAN AND ELEVATION
# SBL I-75 OVER NOONDAY CREEK
COBB CO. I-75-3(40)234 (1 LT)
SCALE: 1"=10'-0" MAR. 1973

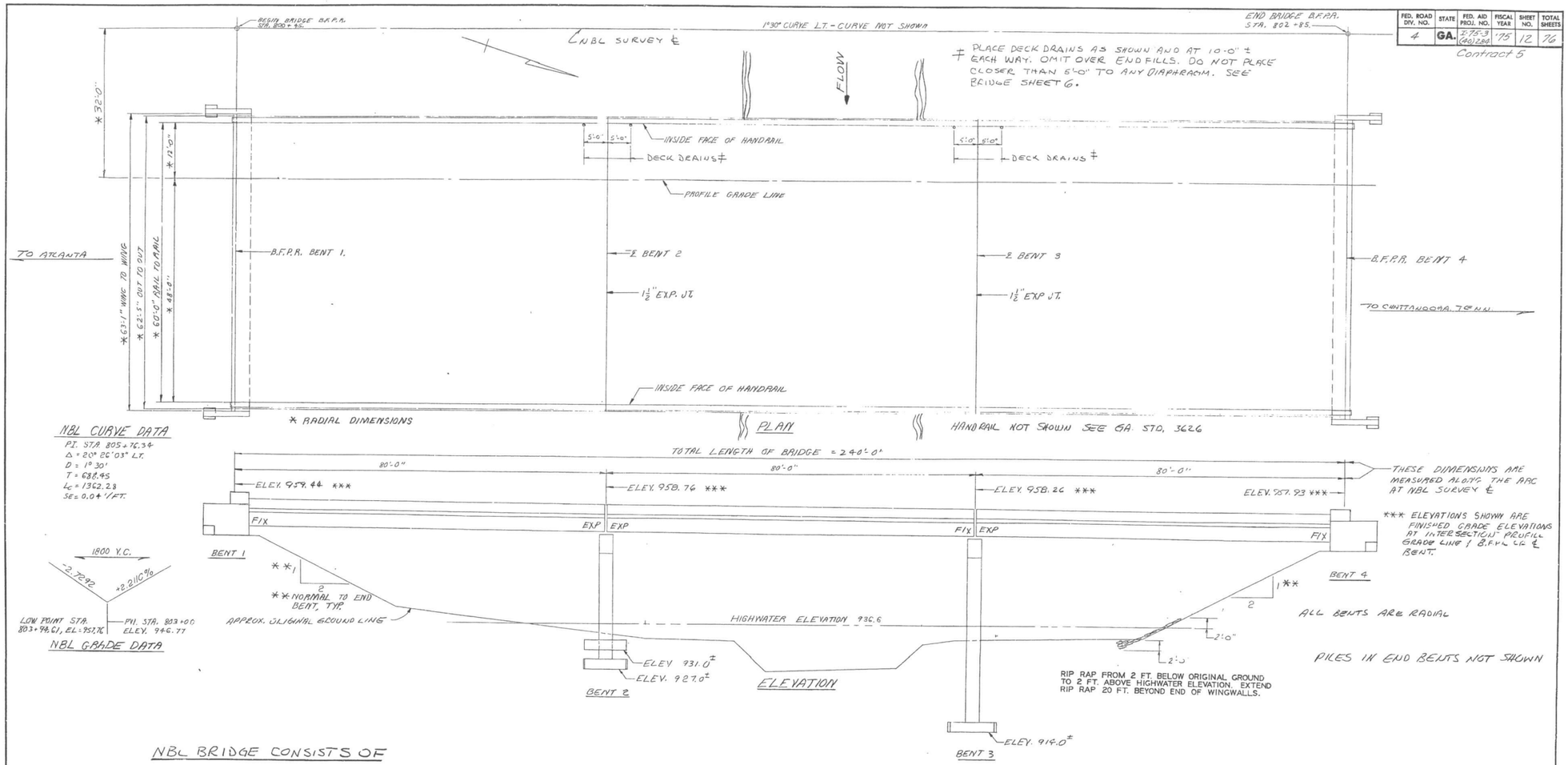
BRIDGE SHEET 1 OF 24

| BY | REVISIONS | DATE |
|---|---|---|
| | | |

DESIGNED HJL TRACED REVIEWED LAP
DRAWN HHM CHECKED CDE APPROVED

| FED. ROAD DIV. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| 4 | GA. | I-75-3 (40) 284 | '75 | 12 | 76 |

Contract 5




## NBL BRIDGE CONSISTS OF

3 - COMPOSITE ROLLED BEAM SIMPLE SPANS ---------- SPECIAL DESIGN
2 - STEEL H PILE END BENTS ---------- SPECIAL DESIGN
2 - CONCRETE INTERMEDIATE BENTS ---------- SPECIAL DESIGN
ALUMINUM HANDRAIL ---------- GA. STD. NO.3626(8-29-74)
BAR BENDING DETAILS ---------- GA. STD. NO.3901
TYPICAL FILL DETAIL AT END OF BRIDGE ---------- GA. STD. NO.9037(9-1-70)
END POST AND END POST GUARDRAIL ATTACHMENT DETAIL ---------- GA. STD. NO.9053
L = 4'-0"; W = 1'-1"; H = 3'-2"

NOTE: FOR GENERAL NOTES, SUMMARY OF QUANTITIES, DESIGN DATA AND OTHER NOTES, SEE PLAN AND ELEVATION SHEET, BRIDGE NO. 1 LT.

BRIDGE NO. 1 RT.

GEORGIA
DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION-BRIDGE DESIGN

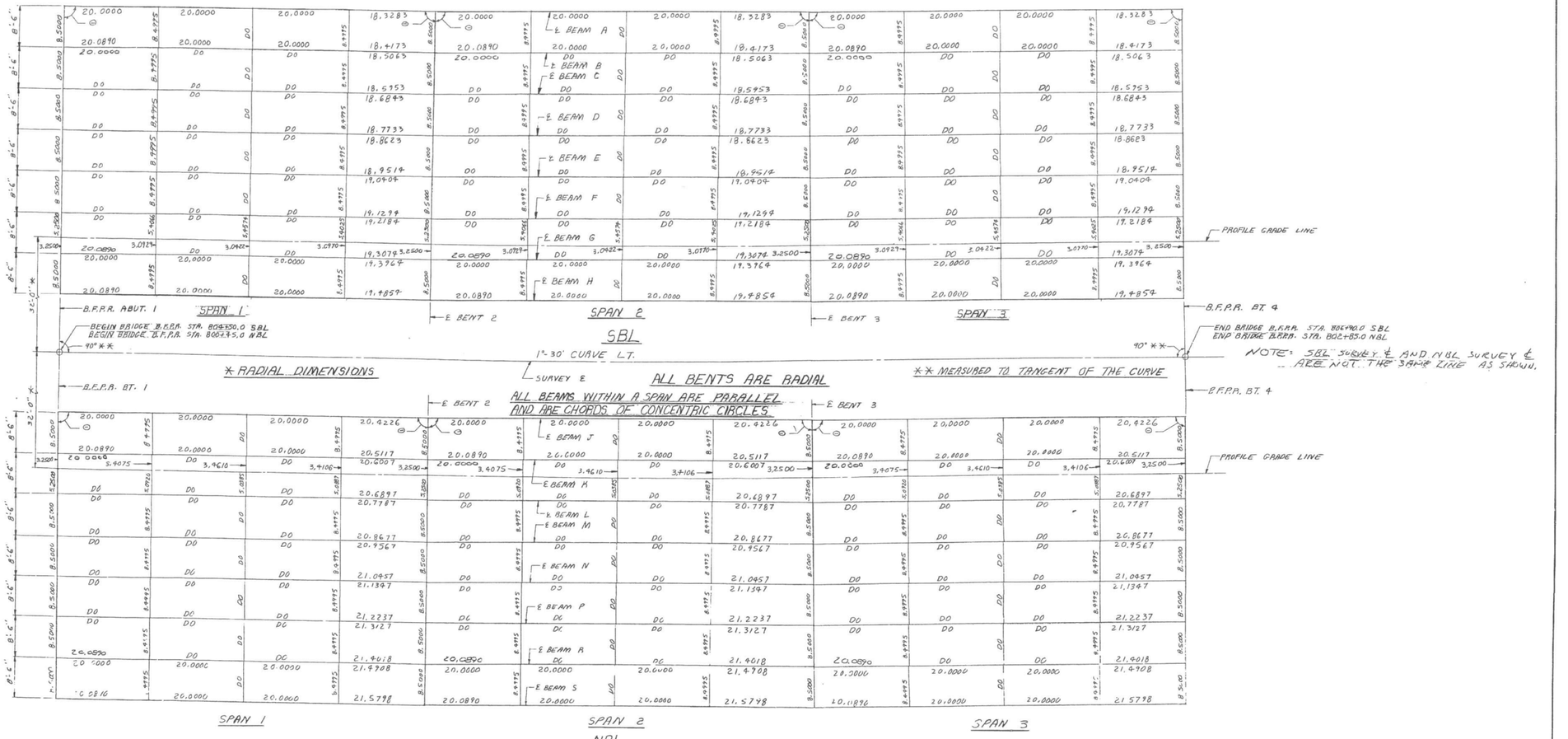
PLAN AND ELEVATION
NBL I-75 OVER NOONDAY CREEK
COBB CO.
SCALE: 1" = 10'-0"
MAR. 1973

BRIDGE SHEET 2 OF 24

DESIGNED HJL | TRACED | REVIEWED LRP
DRAWN KHM | CHECKED CDE | APPROVED

| FED. ROAD DIV. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| 4 | GA. | I-75-3 (40)234 | '75 | 13 | 76 |

Contract 5




* RADIAL DIMENSIONS

ALL BENTS ARE RADIAL

ALL BEAMS WITHIN A SPAN ARE PARALLEL AND ARE CHORDS OF CONCENTRIC CIRCLES

** MEASURED TO TANGENT OF THE CURVE

NOTE: SBL SURVEY ℄ AND NBL SURVEY ℄ ARE NOT THE SAME LINE AS SHOWN.

NOTE: Δ = 89°-24'-00" MEASURED BETWEEN ℄ BEAM AND B.E.P.R. OR ℄ BENT, AT ALL BEAMS LT. AND RIGHT BRIDGE.

BRIDGE NO. 1 LT & RT.

GEORGIA
DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION - BRIDGE DESIGN

BEAM CHORD LAYOUT
I-75 OVER NOONDAY CREEK
COBB CO. I-75-3(40)234 CT. 5
SCALE: 1"=10'-0" AUG. 1974

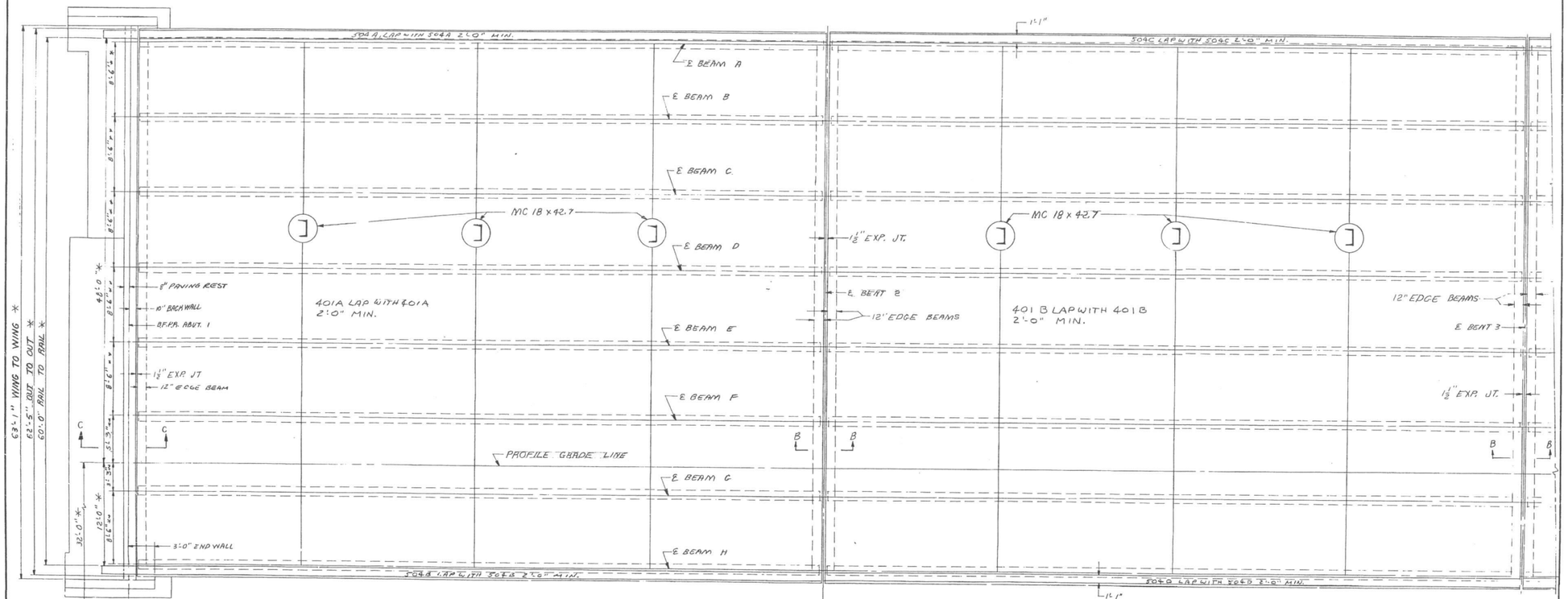
DATE | REVISIONS | BY

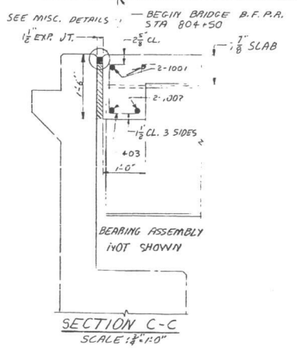
DESIGNED JL | TRACED | REVIEWED LAP
DRAWN MHM | CHECKED JPT | APPROVED

BRIDGE SHEET 3 OF 24

| FED. ROAD DIV. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| 4 | GA. | I-75-3 (40) 284 | '75 | 14 | 76 |

Contract 5

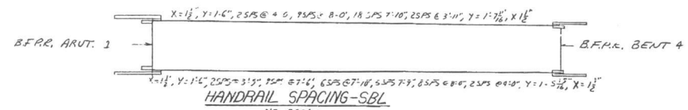



SECTION C-C
SCALE: ¼" = 1'-0"

* RADIAL DIMENSIONS

** RADIAL DIMENSIONS TRUE ONLY AT B.F.P.R. OR ℄ BENT, VARY ELSEWHERE.




HANDRAIL SPACING-SBL
NO SCALE

NOTE: ESTIMATE [illegible] DEFLECTION [illegible] SPANS, DUE TO WEIGHT OF SLAB [illegible], PARAPET AND HANDRAIL = 2 1/16"

BRIDGE NO. 1 LT

GEORGIA
DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION - BRIDGE DESIGN

SUPERSTRUCTURE DETAILS SH. NO. 1
SBL I-75 OVER NOONDAY CREEK
COBB CO I-75-3 (40) 284 CT 5
SCALE: 3/16" = 1'-0" (UNLESS NOTED) JULY 1973

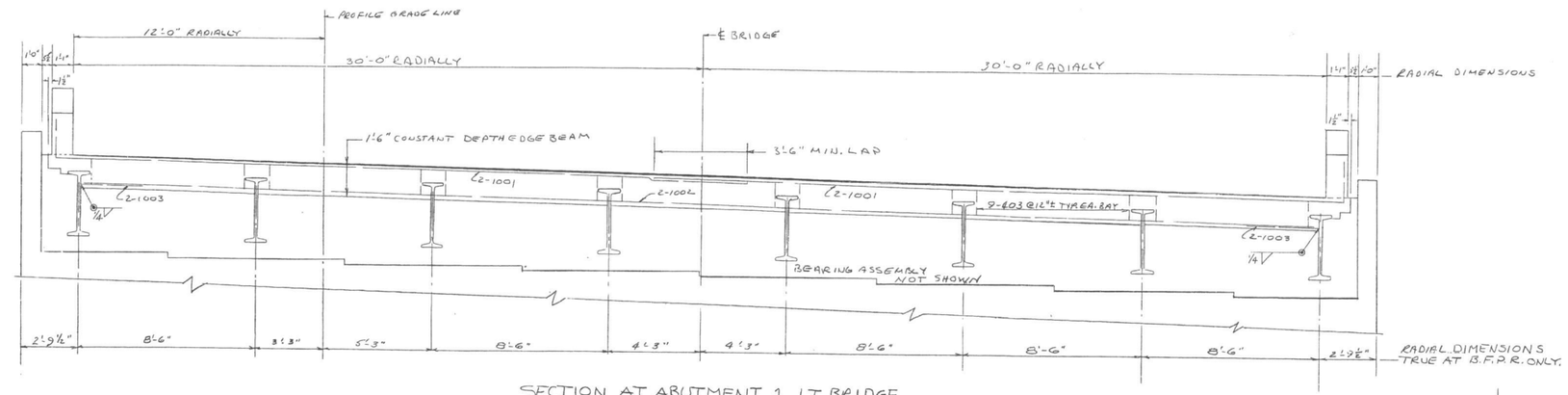
| BY | REVISIONS | DATE |
|---|---|---|
| | | |

BRIDGE SHEET 4 OF 24

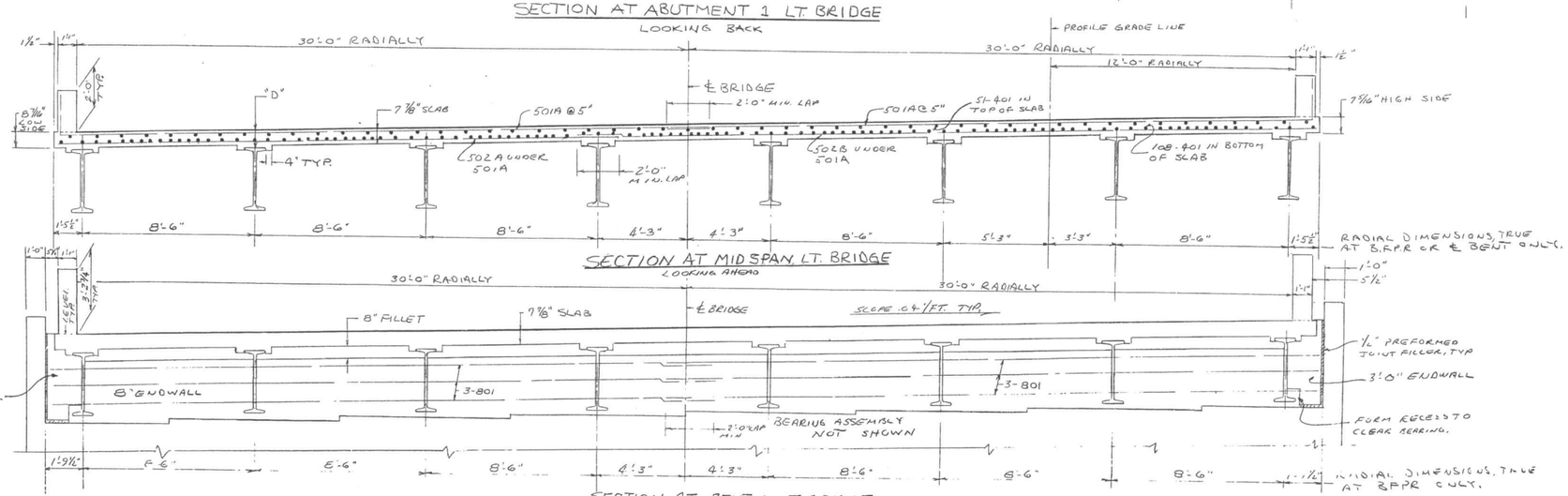
DESIGNED HJL | TRACED | REVIEWED LRP
DRAWN KHM | CHECKED CDE | APPROVED

| FED. ROAD DIV. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| 4 | GA. | I-75-3 (40)284 | 175 | 15 | 76 |

Contract 5



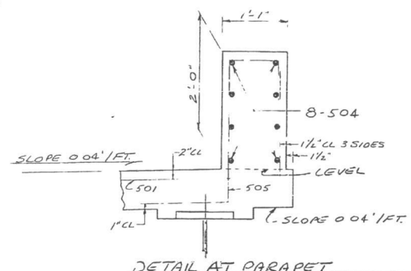

## SECTION AT ABUTMENT 1 LT. BRIDGE
LOOKING BACK




## SECTION AT MID SPAN LT. BRIDGE
LOOKING AHEAD




## SECTION AT BENT 4 LT. BRIDGE
LOOKING AHEAD




## DETAIL AT PARAPET
SCALE 1"=1'-0"

"D" = 8¼" AND IS TRUE AT ℄ BEARINGS ONLY, VARY COPING BETWEEN ℄ BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTION AND VERTICAL CURVE. MAINTAIN CONSTANT 7⅞" SLAB BETWEEN COPINGS.

BRIDGE No. 1 LT.

GEORGIA
DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION - BRIDGE DESIGN

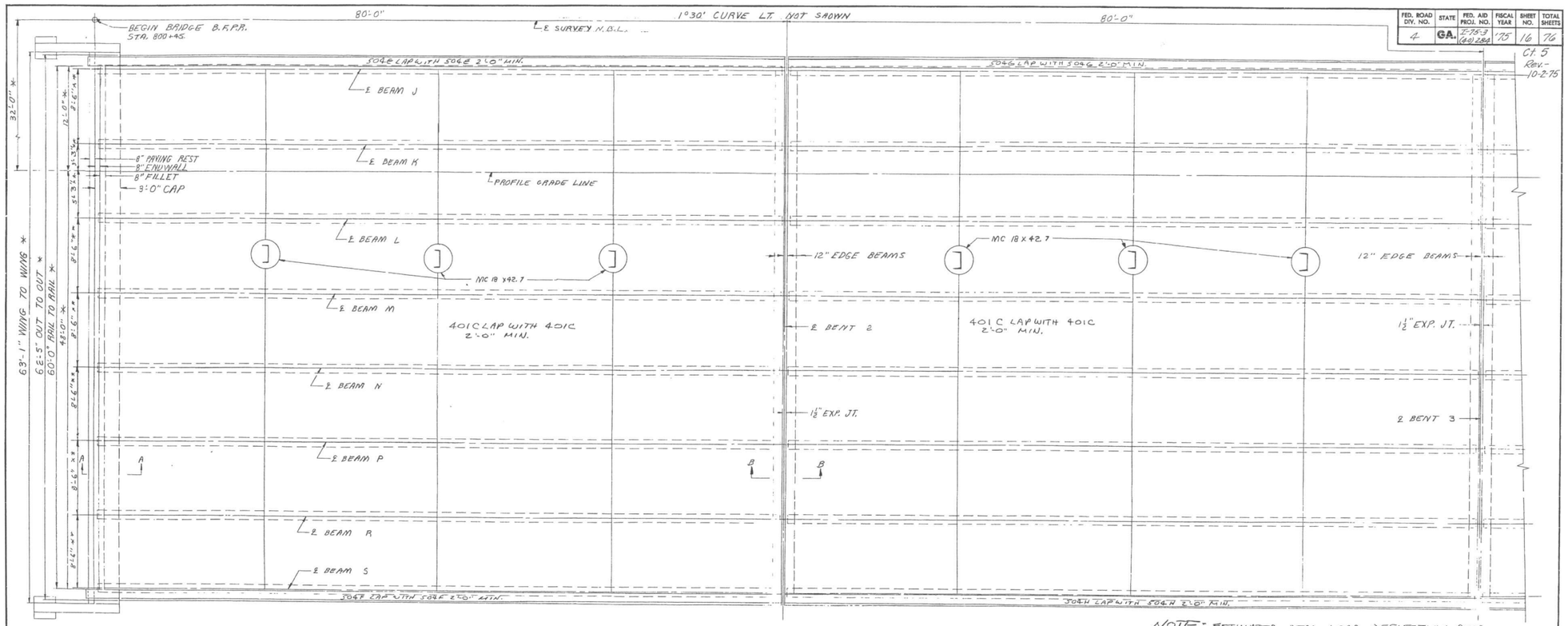
SUPERSTRUCTURE DETAILS SHEET 2
SBL I-75 OVER NOONDAY CREEK
COBB COUNTY I-75-3 (40) 284 CT. 5
SCALE: ⅜"=1'-0" UN. SEPTEMBER 1974

DESIGNED H.J.L. TRACED REVIEWED L.R.P.
DRAWN C.D.E. CHECKED J.P.T. APPROVED

BRIDGE SHEET 5 OF 24

| FED. ROAD DIV. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| 4 | GA. | I-75-3 (49) 284 | 175 | 16 | 76 |

Ct. 5
Rev.- 10-2-75

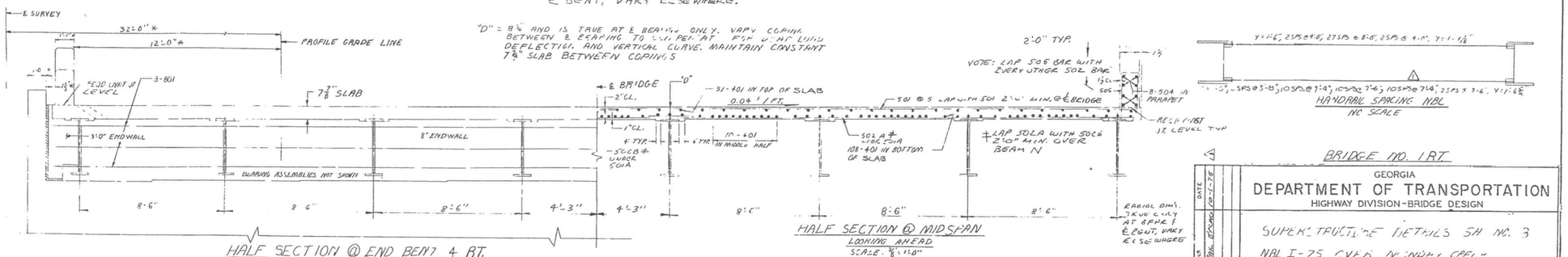



SPAN 1 NBL

* RADIAL DIMENSIONS
** RADIAL DIMENSIONS, TRUE ONLY AT BRG'S OR ℄ BENT, VARY ELSEWHERE.

NOTE: ESTIMATED DEAD LOAD DEFLECTION DUE TO WEIGHT OF SLAB, CORING, PARAPET AND HAND RAIL = 2⅛" ALL SPANS

SPAN 2 NBL




HALF SECTION @ END BENT 4 RT.
LOOKING AHEAD
SCALE: ⅜" = 1'-0"
BENT 1 RT. ℄ 4 LT. SIMILAR

HALF SECTION @ MIDSPAN
LOOKING AHEAD
SCALE: ⅜" = 1'-0"

NOTE: 501 & 502 BARS ARE PLACED RADIALLY. SPACING SHOWN IS MEASURED ALONG RIGHT GUTTER LINE.




HANDRAIL SPACING NBL
NO SCALE

BRIDGE NO. 1 RT.

GEORGIA
DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION - BRIDGE DESIGN

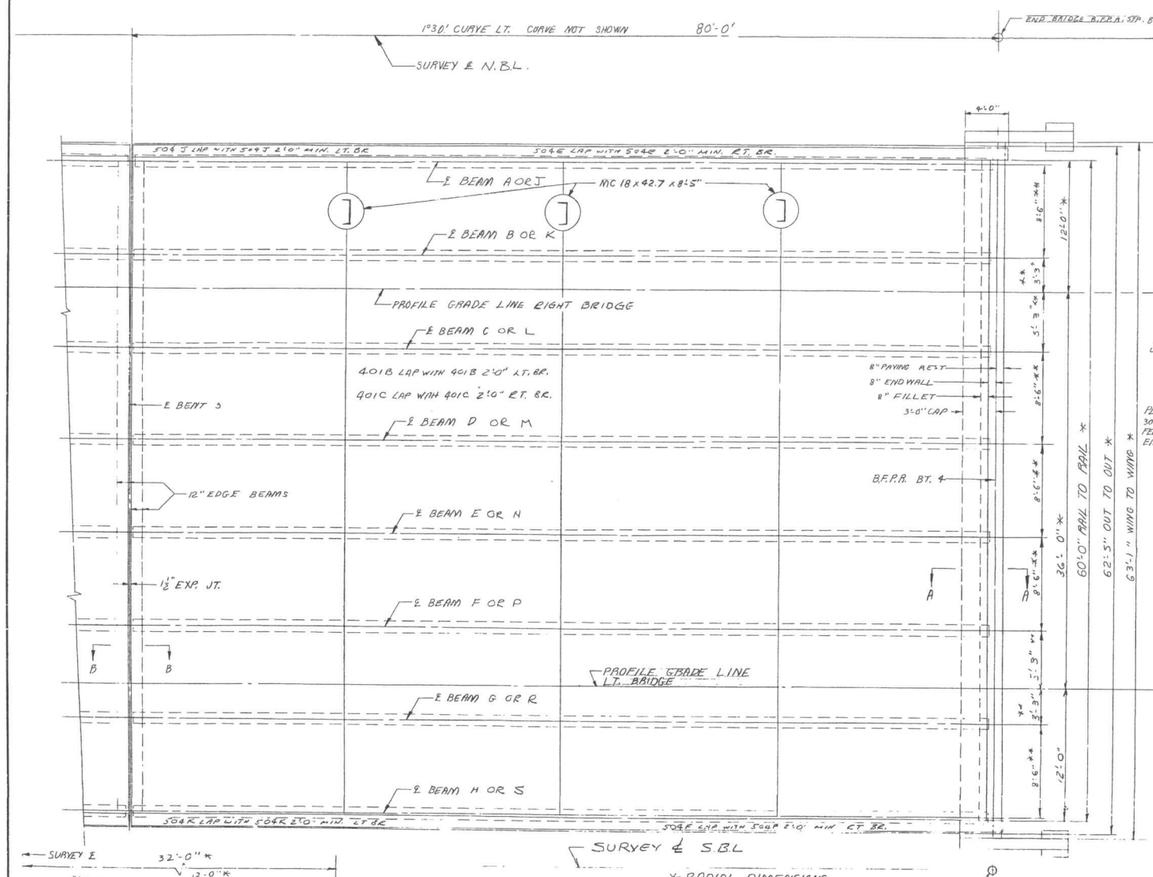
SUPERSTRUCTURE DETAILS SH NO. 3
NBL I-75 OVER NORFOLK SOUTH
COBB CO. I-75-3(49)284 CT.5
SCALE: 1/16" = 1'-0" (UNLESS NOTED) JULY 1973

| BY | REVISIONS | DATE |
|---|---|---|
| CDE | REVISE HANDRAIL DETAIL | 10-1-75 |

| BRIDGE SHEET | DESIGNED | TRACED | REVIEWED |
|---|---|---|---|
| 6 OF 24 | DRAWN SHM | CHECKED CDE | APPROVED |

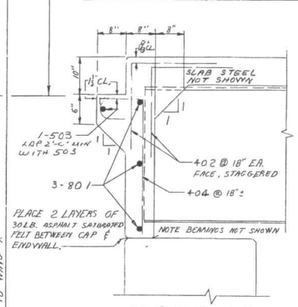
| FED. ROAD DIV. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| 4 | GA. | I-75-3 (36) 284 | '75 | 17 | 76 |

Contract 5

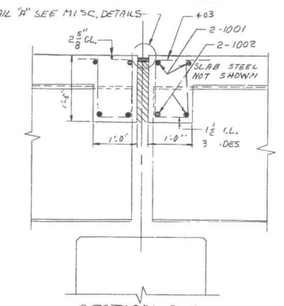



## TABLE OF QUANTITIES

| | ITEM / SPAN | SPAN 1 | SPAN 2 | SPAN 3 | TOTAL |
|---|---|---|---|---|---|
| AT ABUTS. LT. BRIDGE | CU. YDS. CLASS "AA" CONCRETE | 137.60 | 138.99 | 145.89 | 422.48 |
| | LBS. STRUCTURAL STEEL | 139,582 | 138,040 | 137,341 | 419,963 |
| | LBS. BAR REINFORCEMENT STEEL | 39,722 | 40,268 | 40,217 | 120,207 |
| | | | | | |
| AT ABUTS. RT. BRIDGE | CU. YDS. CLASS "AA" CONCRETE | 149.46 | 142.51 | 149.46 | 441.43 |
| | LBS. STRUCTURAL STEEL | 140,623 | 141,284 | 140,577 | 422,504 |
| | LBS. BAR REINFORCEMENT STEEL | 41,204 | 41,259 | 41,209 | 123,677 |
| | | | | | |

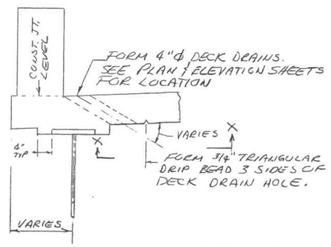



SECTION A-A
SCALE: ½"=1'-0"

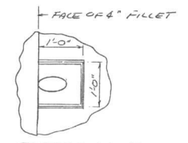



SECTION B-B
SCALE: ½"=1'-0"

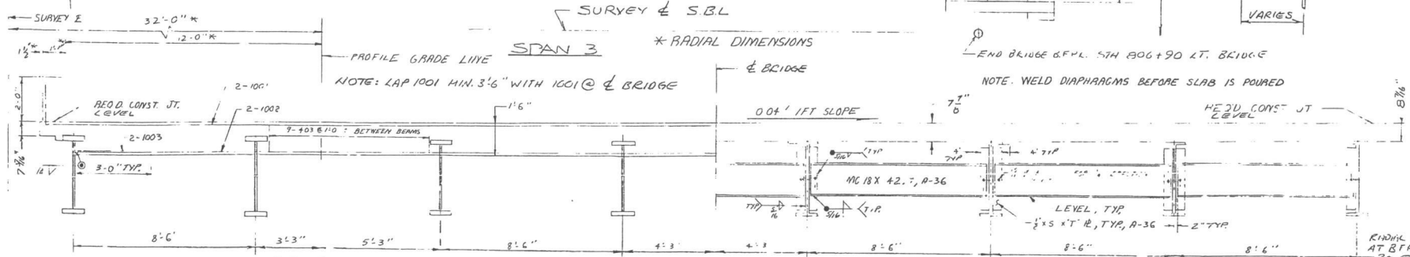
** RADIAL DIMENSIONS, TRUE AT B.F.P.R. & ℄ BENTS ONLY.




DECK DRAIN DETAILS
SCALE ¾"=1'-0"




SECTION X-X




HALF SECTION @ EDGE BEAM
LOOKING AHEAD, AT. B.R.
SCALE: ½"=1'-0"
LT. BR. SIMILAR

NOTE: SUPPLY 1⅝"ϕ HOLES IN WEBS OF INTERIOR BEAMS FOR 1001 BARS.

HALF SECTION @ DIAPHRAGM
LOOKING AHEAD
SCALE: ½"=1'-0"

BRIDGE NO 1 LT. & RT.

GEORGIA
DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION - BRIDGE DESIGN

SUPERSTRUCTURE DETAILS SH. NO. =
I-75 OVER NOONDAY CREEK
COBB CO
I-75-3 (36) [illegible]
SCALE: ¾"=1'-0" (UNLESS NOTED)
JULY 1973

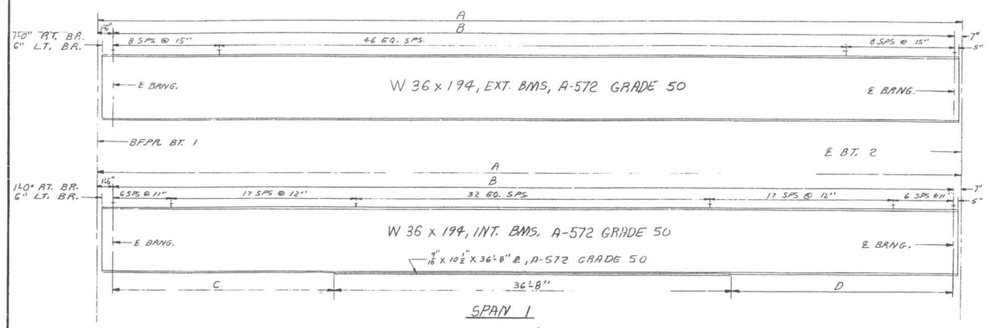
| DATE | REVISIONS | BY |
|---|---|---|
| | | |

BRIDGE SHEET NO. 7 OF 24

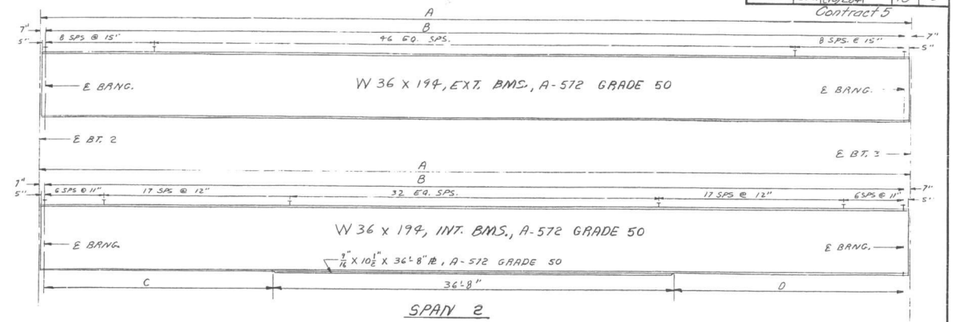
| DESIGNED | HJL | TRACED | | REVIEWED | LRP |
|---|---|---|---|---|---|
| DRAWN | MHM | CHECKED | SDE | APPROVED | |

| FED. ROAD DIV. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| 4 | GA. | I-75-3 (40)284 | 175 | 18 | 76 |

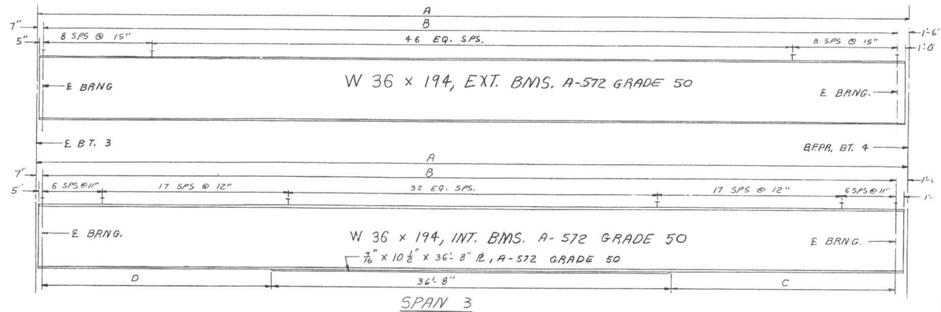
Contract 5




SPAN 1



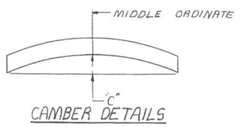

SPAN 2




SPAN 3

TABLE OF LETTERED DIM.

| SPAN | DIM. \ BEAM | A | B | C | D | E | F | G | H | J | K | L | M | N | P | R | S |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | A | 78'-3 15/16" | 78'-6 1/16" | 78'-8 3/16" | 78'-10 3/8" | 79'-0 1/2" | 79'-2 5/8" | 79'-4 3/8" | 79'-6 7/8" | 80'-5 1/16" | 80'-7 3/16" | 80'-9 3/8" | 80'-11 1/2" | 81'-1 5/8" | 81'-3 3/8" | 81'-5 5/8" | 81'-8" |
| | B | 76'-2 3/16" | 76'-5 1/16" | 76'-7 7/16" | 76'-9 5/8" | 76'-11 7/8" | 77'-1 7/8" | 77'-3 5/8" | 77'-5 7/8" | 78'-4 7/16" | 78'-6 1/2" | 78'-8 5/8" | 78'-10 3/4" | 77'-0 7/8" | 77'-2 1/2" | 77'-4 1/2" | 77'-7" |
| | C | 19'-9 7/16" | 19'-10 1/2" | 19'-11 3/4" | 20'-0 1/4" | 20'-1 3/4" | 20'-2 1/2" | 20'-3 3/8" | 20'-4 1/2" | 20'-10 1/16" | 20'-11 1/4" | 21'-0 3/4" | 21'-1 1/2" | 21'-2 5/8" | 21'-3 3/8" | 21'-4 3/4" | 21'-5 1/2" |
| | D | 19'-9 7/16" | 19'-10 1/2" | 19'-11 3/4" | 20'-0 1/4" | 20'-1 3/4" | 20'-2 1/2" | 20'-3 3/8" | 20'-4 1/2" | 20'-10" | 20'-11 1/8" | 21'-0 3/16" | 21'-1 1/8" | 21'-2 1/16" | 21'-3 1/16" | 21'-4 1/16" | 21'-5 1/16" |
| 2 | A | 78'-3 1/16" | 78'-6 1/16" | 78'-8 1/16" | 78'-10 1/8" | 79'-0 1/16" | 79'-2 1/16" | 79'-4 1/16" | 79'-6 1/16" | 80'-5 1/16" | 80'-7 1/16" | 80'-9 1/16" | 80'-11 1/16" | 81'-1 1/16" | 81'-3 1/16" | 81'-5 1/16" | 81'-8" |
| | B | 77'-1 13/16" | 77'-4 3/4" | 77'-6 15/16" | 77'-9 1/8" | 77'-11 3/16" | 78'-1 3/16" | 78'-3 1/8" | 78'-5 3/16" | 79'-3 1/4" | 79'-5 1/4" | 79'-7 3/8" | 79'-9 3/8" | 79'-11 3/8" | 80'-1 3/8" | 80'-3 3/8" | 80'-6" |
| | C | 20'-3" | 20'-4" | 20'-5 1/16" | 20'-6 1/16" | 20'-7 1/16" | 20'-8 1/16" | 20'-9 1/16" | 20'-10 1/16" | 21'-3 1/2" | 21'-4 1/2" | 21'-5 1/2" | 21'-6 1/2" | 21'-7 1/2" | 21'-8 1/2" | 21'-9 1/2" | 21'-11" |
| | D | 20'-2 15/16" | 20'-4 1/16" | 20'-5 1/16" | 20'-6 1/16" | 20'-7 1/16" | 20'-8 1/16" | 20'-9 1/16" | 20'-10 1/16" | 21'-3 1/2" | 21'-4 1/2" | 21'-5 1/2" | 21'-6 1/2" | 21'-7 1/2" | 21'-8 1/2" | 21'-9 1/2" | 21'-11" |
| 3 | A | 78'-3 1/16" | 78'-6 1/16" | 78'-8 1/16" | 78'-10 1/8" | 79'-0 1/16" | 79'-2 1/16" | 79'-4 1/16" | 79'-6 1/16" | 80'-5 1/16" | 80'-7 1/16" | 80'-9 1/16" | 80'-11 1/16" | 81'-1 1/16" | 81'-3 1/16" | 81'-5 1/16" | 81'-8" |
| | B | 76'-2 3/16" | 76'-5 1/16" | 76'-7 7/16" | 76'-9 5/8" | 76'-11 7/8" | 77'-1 7/8" | 77'-3 5/8" | 77'-5 7/8" | 78'-4 7/16" | 78'-6 1/2" | 78'-8 5/8" | 78'-10 3/4" | 79'-0 7/8" | 79'-2 1/2" | 79'-4 1/2" | 79'-7" |
| | C | 19'-9 7/16" | 19'-10 1/2" | 19'-11 3/4" | 20'-0 1/4" | 20'-1 3/4" | 20'-2 1/2" | 20'-3 3/8" | 20'-4 1/2" | 20'-10 1/16" | 20'-11 1/4" | 21'-0 3/4" | 21'-1 1/2" | 21'-2 5/8" | 21'-3 3/8" | 21'-4 3/4" | 21'-5 1/2" |
| | D | 19'-9 7/16" | 19'-10 1/2" | 19'-11 3/4" | 20'-0 1/4" | 20'-1 3/4" | 20'-2 1/2" | 20'-3 3/8" | 20'-4 1/2" | 20'-10" | 20'-11 1/8" | 21'-0 3/16" | 21'-1 1/8" | 21'-2 1/16" | 21'-3 1/16" | 21'-4 1/16" | 21'-5 1/16" |




CAMBER DETAILS

| TABLE OF "C" | | |
|---|---|---|
| LT. BR. | INT. | 1 3/16" |
| | EXT. | 1 3/16 |
| RT. BR. | INT. | 2 1/2" |
| | EXT. | 1 3/16" |

NOTE: CAMBER INCLUDES WEIGHT OF BEAM, SLAB, COPING, PARAPET & HANDRAIL.

NOTE: FOR FURTHER DETAILS OF COVER PLATES AND SHEAR CONNECTORS SEE MISC. DETAILS.
COVER PL WELD = 5/16 ; TERMINAL WELD = 5/16 ; N = 3

## STEEL NOTE

ALL ROLLED BEAMS AND COVER PLATES ARE MAIN LOAD CARRYING MEMBER COMPONENTS SUBJECT TO TENSILE STRESS AND SHALL MEET THE CHARPY V-NOTCH TEST REQUIREMENTS AS SPECIFIED BY SPECIAL PROVISION MODIFYING SECTION 851 OF THE STANDARD SPECIFICATIONS. ALL ROLLED BEAMS AND COVER PLATES SHALL BE ASTM DESIGNATION A-572, GRADE 50.

ALL DIAPHRAGMS AND DIAPHRAGM CONNECTOR PLATES SHALL BE ASTM DESIGNATION A-36.

BRIDGE NO. 1 LT. & RT.

GEORGIA
DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION - BRIDGE DESIGN

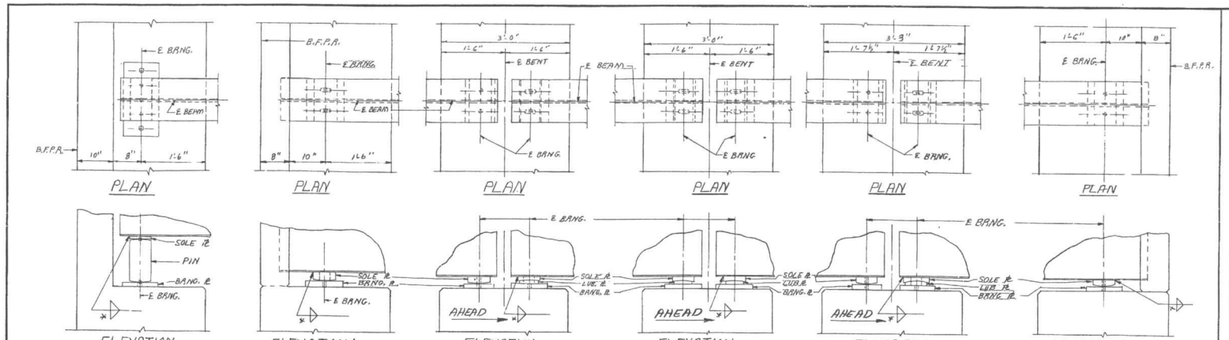
STRUCTURAL STEEL DETAILS
I-75 OVER NOONDAY CREEK
COBB CO. I-75-3(40)284 CT. 5
NO SCALE JULY 1974

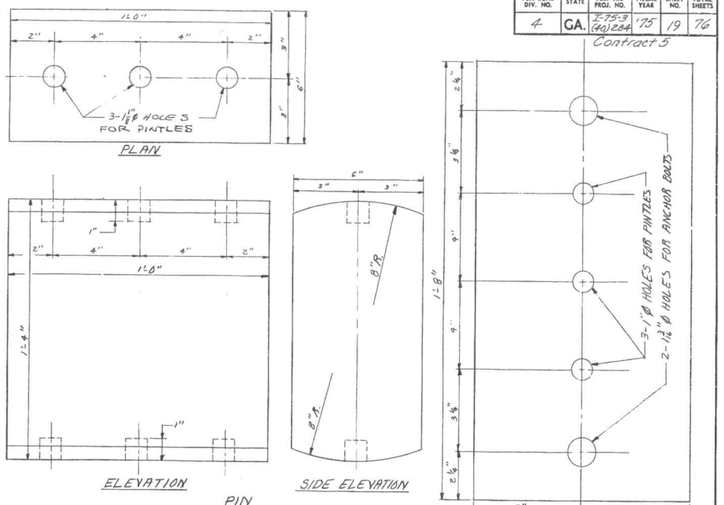
| BRIDGE SHEET | DESIGNED HJL | TRACED | REVIEWED LAP |
|---|---|---|---|
| 8 OF 24 | DRAWN KHM | CHECKED JPT | APPROVED |

DATE | REVISIONS | BY

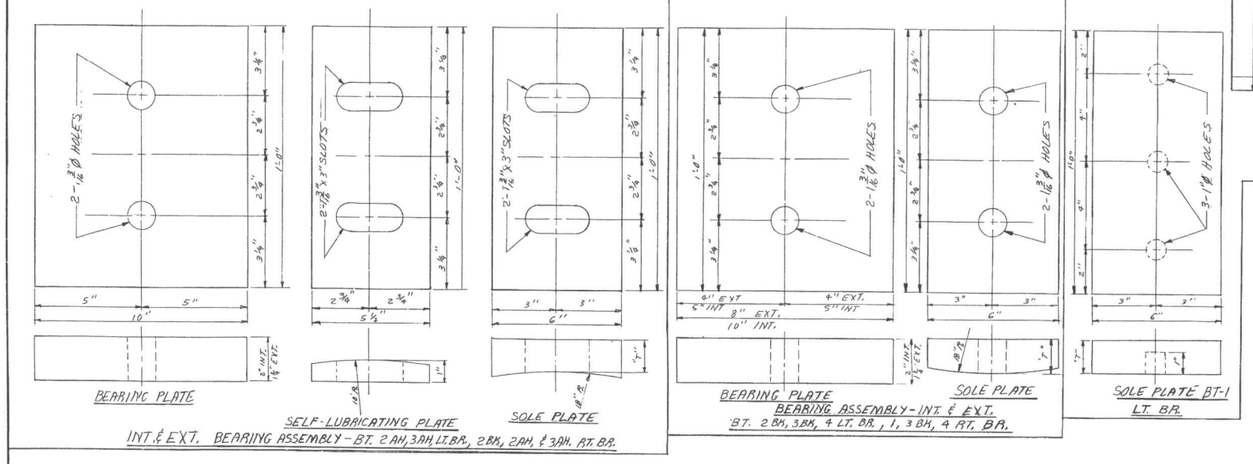
| FED. ROAD DIV. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| 4 | GA. | I-75-3 (40) 284 | 175 | 19 | 76 |

Contract 5




NOTE: FOR FURTHER DETAILS OF PINTLES, SEE MISC. DETAILS.




## TABLE OF "T" DIMENSIONS

| BENT \ BEAM | A | B | C | D | E | F | G | H | J | K | L | M | N | P | R | S |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 1/2" | 1 1/2" | 1 1/2" | 1 1/2" | 1 1/2" | 1 1/2" | 1 1/2" | 1 1/2" | 1 7/8" | 1 1/2" | 1 1/2" | 1 7/8" | 1 1/2" | 1 1/2" | 1 1/2" | 1 1/2" |
| 2 BK | 2 1/2" | 2 1/2" | 2 1/2" | 2 1/2" | 2 1/2" | 2 1/2" | 2 1/2" | 2 1/2" | 1 5/8" | 1 5/8" | 1 5/8" | 1 5/8" | 1 5/8" | 1 5/8" | 1 5/8" | 1 5/8 |
| 2 AH | 1 1/2" | 1 1/2" | 1 1/2" | 1 1/2" | 1 1/2" | 1 1/2" | 1 1/2" | 1 1/2" | 1 7/8" | 1 1/2" | 1 1/2" | 1 1/2" | 1 1/2" | 1 1/2" | 1 1/2" | 1 7/8" |
| 3 BK | 2 1/2" | 2 1/2" | 2 1/2" | 2 1/2" | 2 1/2" | 2 1/2" | 2 1/2" | 2 1/2" | 2 1/4" | 2 1/4" | 2 1/4" | 2 1/4" | 2 1/4" | 2 1/4" | 2 1/4" | 2 1/4" |
| 3 AH | 1 1/2" | 1 1/2" | 1 1/2" | 1 1/2" | 1 1/2" | 1 1/2" | 1 1/2" | 1 1/2" | 1 1/2" | 1 1/2" | 1 1/2" | 1 1/2" | 1 1/2" | 1 1/2" | 1 1/2" | 1 1/2" |
| 4 | 1 7/16" | 1 1/4" | 1 1/16" | 1 7/16" | 1 1/4" | 1 1/16" | 1 9/16" | 1 1/16" | 1 9/16" | 1 1/2" | 1 1/2" | 1 1/2" | 1 1/2" | 1 1/2" | 1 1/2" | 1 7/16 |

ANCHOR BOLT NOTE

ALL ANCHOR BOLTS SHALL BE 1" Ø SMEDGED WITH ASA HEX. NUT AND 1/8" X 3" PLATE WASHER.

STEEL NOTE

ALL STEEL COMPONENTS OF BEARING ASSEMBLIES SHALL BE ASTM DESIGNATION A-36.

WELDING NOTE

* ALL WELDS, SOLE PLATE TO FLANGE, SHALL BE A.S.H.O. MIN. FILLET WELDS.

BRIDGE NO. 1 LT. & RT.

GEORGIA
DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION - BRIDGE DESIGN

BEARING DETAILS

N.B.L. & S.B.L. I-75 OVER NOONDAY CREEK

COBB CO. I-75-3(32), 284 CT. 5

SCALE: 3/8" = 1'-0" (UNLESS NOTED) JULY 1979

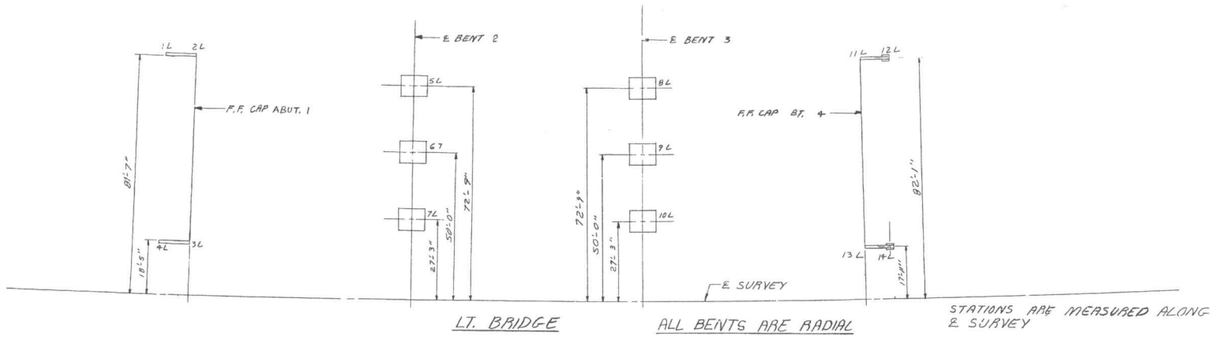
DATE | REVISIONS | BY

BRIDGE SHEET 9 OF 24

DESIGNED HJL | DRAWN HHM | TRACED | CHECKED CDE | REVIEWED CAP | APPROVED

| FED. ROAD DIV. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| 4 | GA. | I-75-3 (66) 269 | 1975 | 20 | 76 |

Contract 5




LT. BRIDGE

ALL BENTS ARE RADIAL

STATIONS ARE MEASURED ALONG E SURVEY

| TABLE OF STATIONS | |
|---|---|
| POINT | STA. |
| 1L | 804+92.39 |
| 2L | 804+53.07 |
| 3L | 804+53.01 |
| 4L | 804+92.46 |
| 5L | 805+30.0 |
| 6L | 805+30.0 |
| 7L | 805+30.6 |
| 8L | 806+10.0 |
| 9L | 806+10.0 |
| 10L | 806+10.0 |
| 11L | 806+86.93 |
| 12L | 806+75.88 |
| 13L | 806+86.99 |
| 14L | 806+75.78 |

NOTE: STATIONS AT INTERMEDIATE BENTS ARE GIVEN AT E COLUMN AT E BENT. STATIONS AT ABUTMENT 1 ARE GIVEN AT INSIDE FACE OF WING AT F.F. CAP AND AT END OF WING. STATIONS AT BENT 4 ARE GIVEN AT INTERSECTION OF F.F. CAP AND INSIDE FACE OF WING AND AT E WING PILE.

BRIDGE NO. 11.1.

GEORGIA
DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION - BRIDGE DESIGN

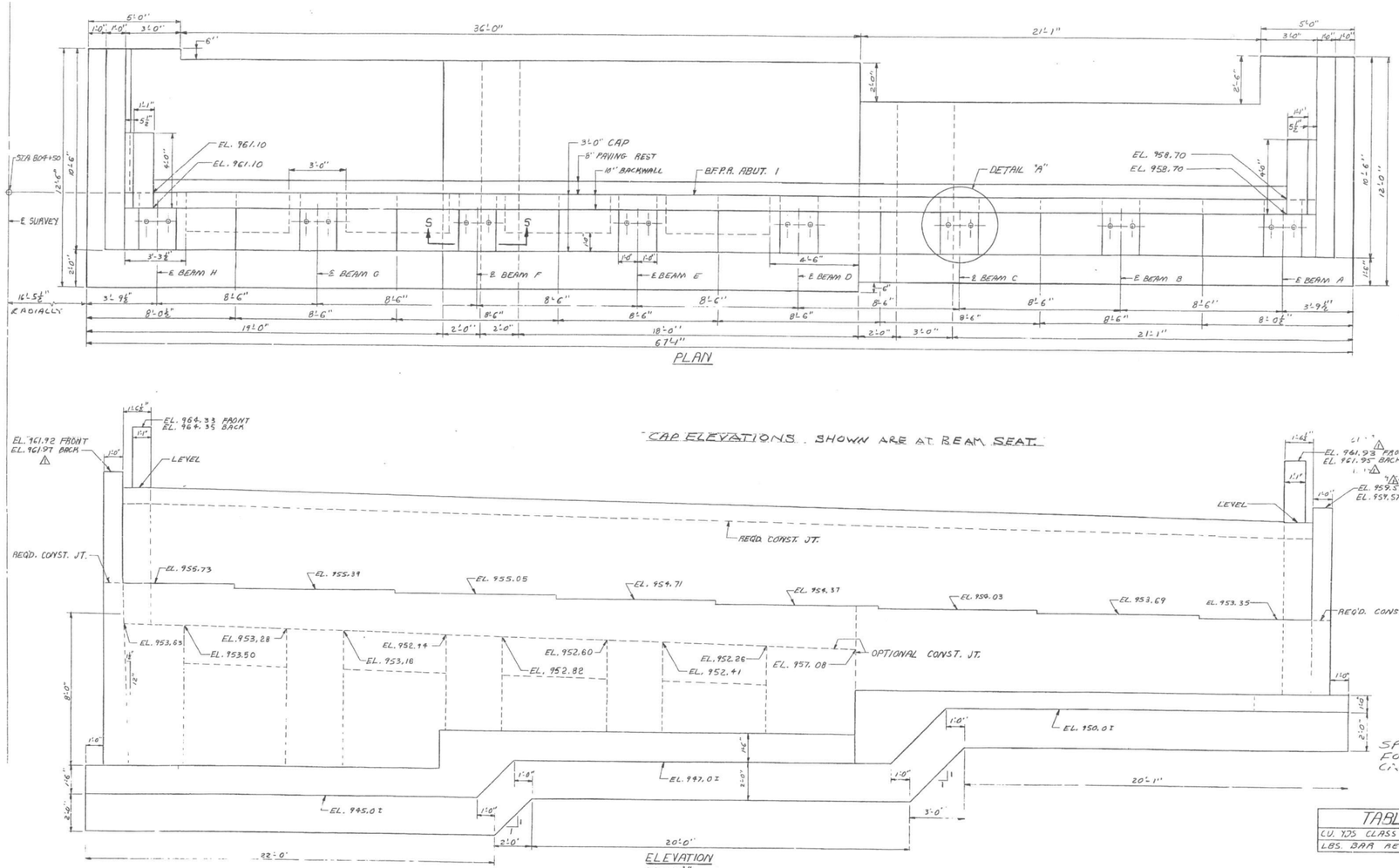
SUBSTRUCTURE UNIT SHEET 1
SBL I-75 OVER NOONDAY CREEK
COBB CO. I-75-3(66)269 Cr.5
SCALE: 1"=20'-0" FEB. 1975

DESIGNED H.V.L. TRACED
DRAWN H.A.M. CHECKED J.P.T. REVIEWED L.A.P. APPROVED

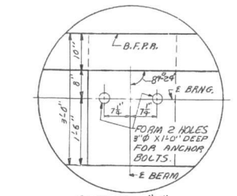
BRIDGE SHEET 10 OF 24

| FED. ROAD DIV. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| 4 | GA. | I-75-3 (40)284 | 75 | 21 | 76 |

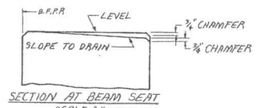
Contract 5
Rev. 6-10-75




PLAN

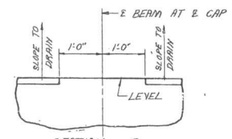



DETAIL "A"
SCALE: ¼"=1'-0"




SECTION AT BEAM SEAT
SCALE: ¾"=1'-0"

CAP ELEVATIONS SHOWN ARE AT BEAM SEAT.




SECTION -S
SCALE: ¾"=1'-0"




ELEVATION
SCALE: ⅜"=1'-0"
LOOKING BACK

SPREAD FOOTING PROPORTIONED FOR AN ALLOWABLE SOIL BEARING CAPACITY OF 3 TONS PER SQ. FT.

KEY EXCAVATION SHALL BE DONE AS NEAR PLANS AS PRACTICAL. KEY SHALL BE POURED AGAINST UNDISTURBED SOIL AND WITHOUT FORMS.

EXCAVATION FOR SPREAD FOOTING SHALL BE DONE WITH CARE TO PREVENT UNDERCUTTING. FOOTING SHALL BE POURED AGAINST UNDISTURBED SOIL.

| TABLE OF QUANTITIES | |
|---|---|
| CU. YDS CLASS "A" CONCRETE | 104.80 |
| LBS. BAR REINFORCEMENT STEEL | 14,739 |

BRIDGE NO. 1 LT.

GEORGIA
DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION - BRIDGE DESIGN

ABUTMENT 1 LT. DETAILS SH. NO. 1
SBL I-75 OVER NOONDAY CREEK
COBB CO. I-75-3(40)284 CTS
SCALE: AS SHOWN AUG. 1974

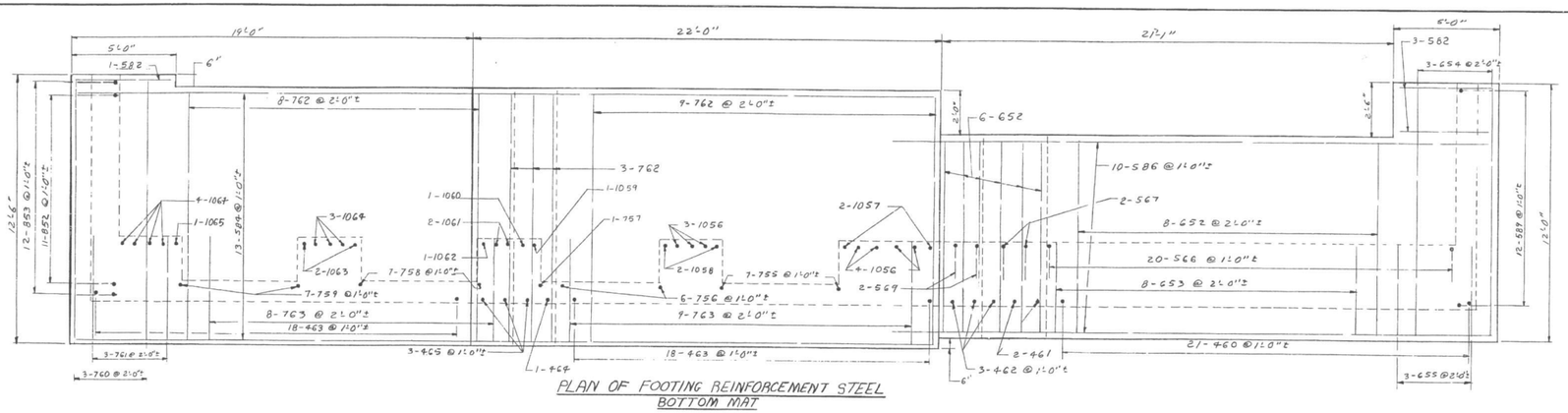
| REVISIONS | BY | DATE |
|---|---|---|
| ELEVATION CHANGE | H.J.L. | 6-6-75 |

BRIDGE SHEET 11 OF 24

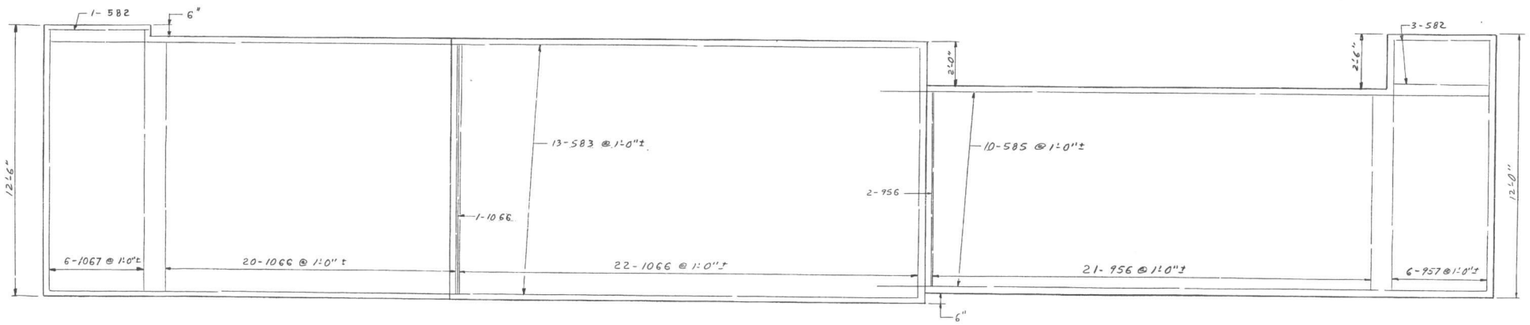
DESIGNED HJL | TRACED | REVIEWED LRP
DRAWN KHM | CHECKED CDE | APPROVED

| FED. ROAD DIV. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| 4 | GA. | I-75-3 (90)288 | 175 | 22 | 76 |

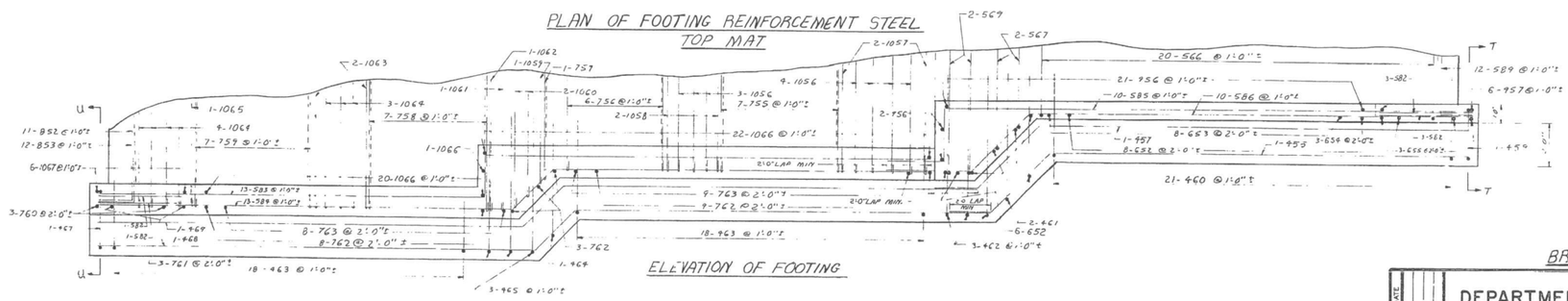
Contract 5




PLAN OF FOOTING REINFORCEMENT STEEL
BOTTOM MAT




PLAN OF FOOTING REINFORCEMENT STEEL
TOP MAT




ELEVATION OF FOOTING

BRIDGE NO. 1 L.T.

GEORGIA
DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION - BRIDGE DESIGN

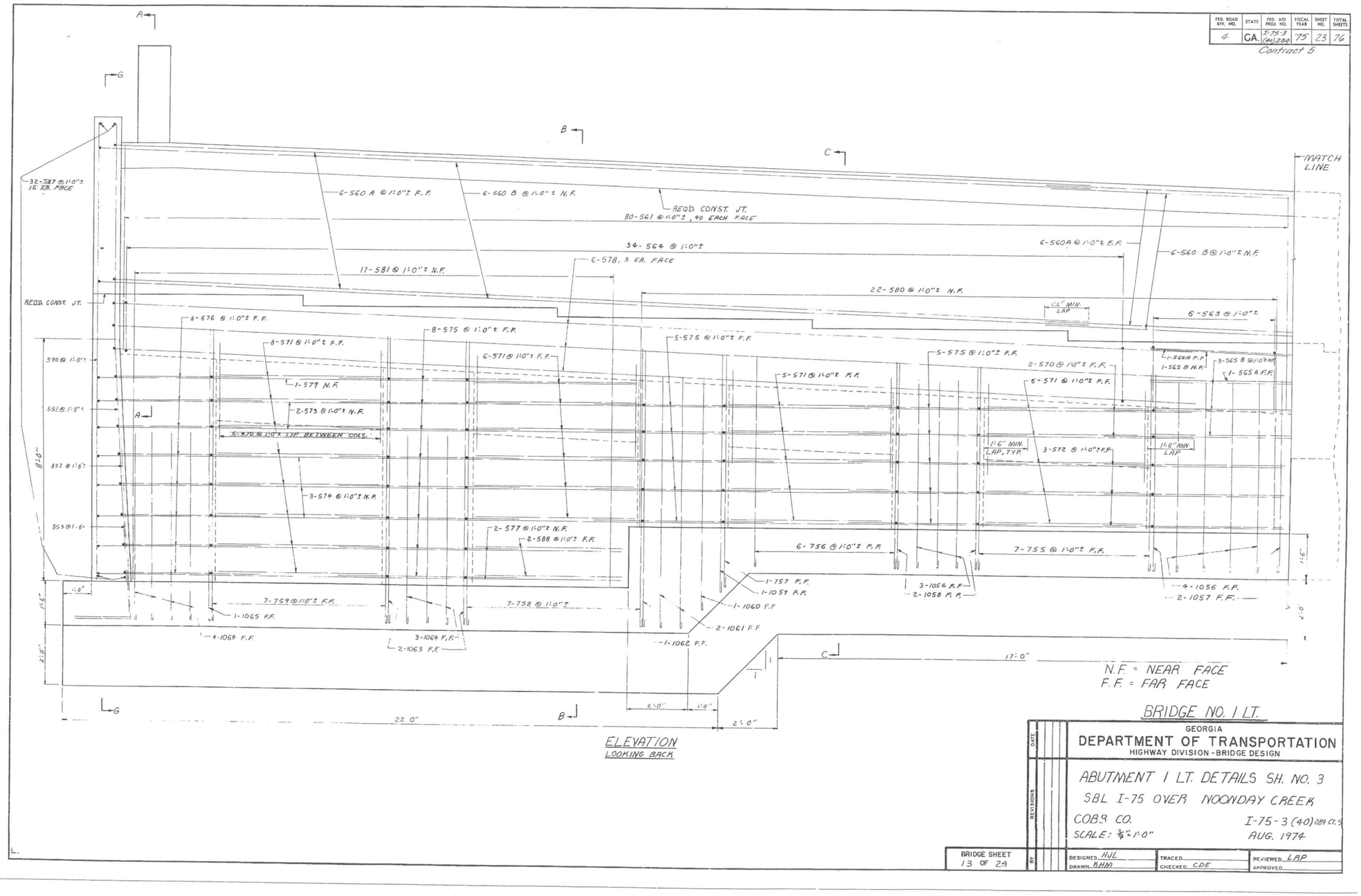
ABUTMENT 1 LT. DETAILS SH. NO. 2
SBL I-75 OVER NOONDAY CREEK
COBB CO — I-75-3(90)288 CTS
SCALE: 1/8" = 1'-0" — AUG. 1974

| BRIDGE SHEET | REVISIONS | BY | DATE |
|---|---|---|---|
| 12 OF 24 | | | |

DESIGNED HJL — TRACED — REVIEWED LRP
DRAWN KHM — CHECKED CDE — APPROVED

| FED. ROAD DIV. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| 4 | GA. | I-75-3 (40)284 | '75 | 23 | 76 |

Contract 5




ELEVATION
LOOKING BACK

BRIDGE NO. 1 LT.

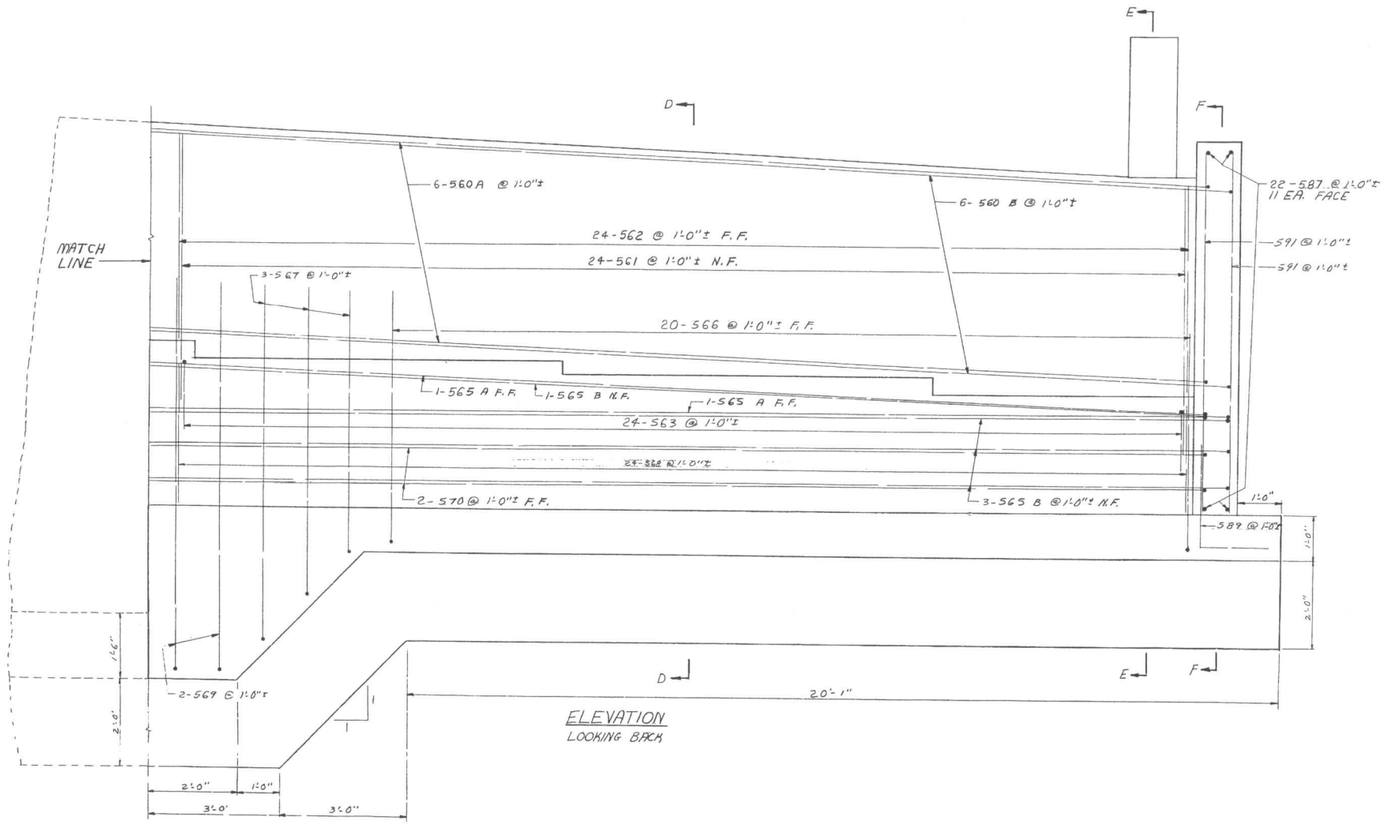
GEORGIA
DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION - BRIDGE DESIGN

ABUTMENT 1 LT. DETAILS SH. NO. 3
SBL I-75 OVER NOONDAY CREEK
COBB CO. I-75-3 (40) 284 Ct. 5
SCALE: 3/8"=1'-0" AUG. 1974

| BRIDGE SHEET | DATE | REVISIONS | BY | DESIGNED HJL | TRACED | REVIEWED LAP |
|---|---|---|---|---|---|---|
| 13 OF 24 | | | | DRAWN BHM | CHECKED CDE | APPROVED |

| FED. ROAD DIV. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| 4 | GA. | I-75-3 (40)284 | '75 | 24 | 76 |

Contract 5




ELEVATION
LOOKING BACK

N.F. = NEAR FACE
F.F. = FAR FACE

BRIDGE NO. 1 LT.

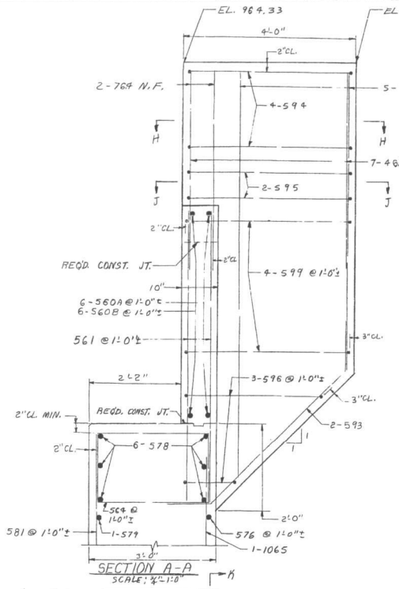
GEORGIA
DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION - BRIDGE DESIGN

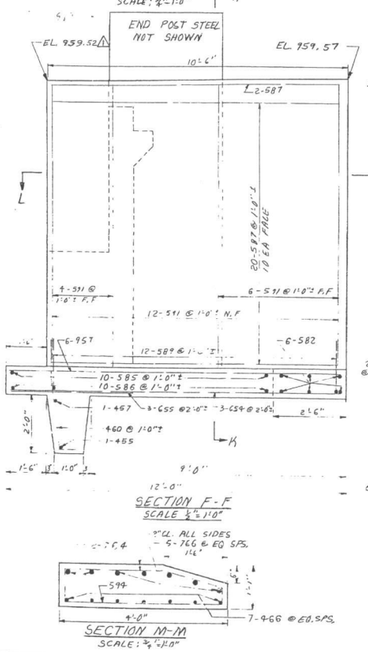
ABUTMENT 1 LT. DETAILS SH. NO. 4
SBL I-75 OVER NOONDAY CREEK
COBB CO. I-75-3 (40) 284 CT. 5
SCALE: 3/4" = 1'-0" AUG. 1974

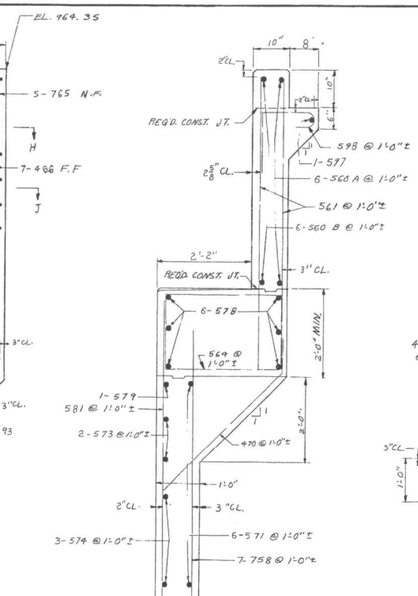
| BRIDGE SHEET | DATE | REVISIONS | BY | | | |
|---|---|---|---|---|---|---|
| 14 OF 24 | | | | DESIGNED HJL | TRACED | REVIEWED LRP |
| | | | | DRAWN KHM | CHECKED CDE | APPROVED |

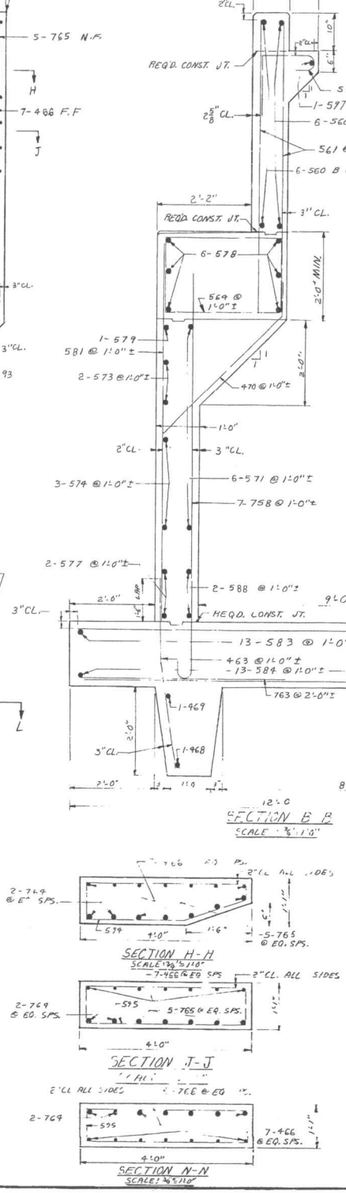
| FED. ROAD DIV. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| 4 | GA. | I-75-3 (40)284 | '75 | 25 | 76 |

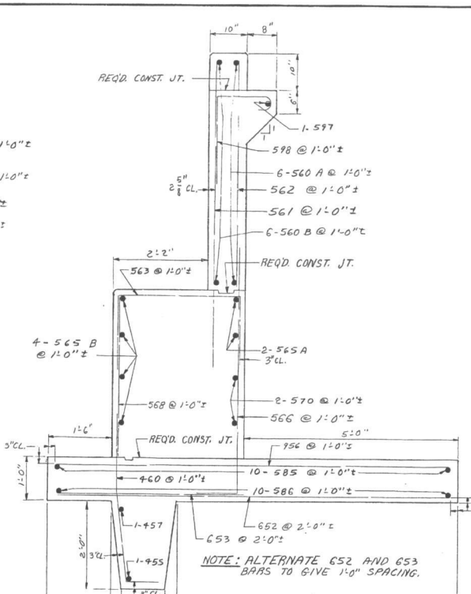
Contract 5
Rev. 6-10-75

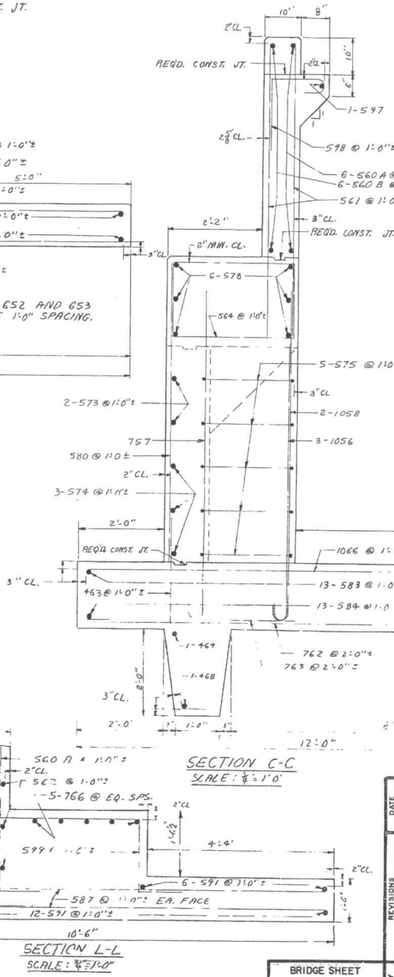


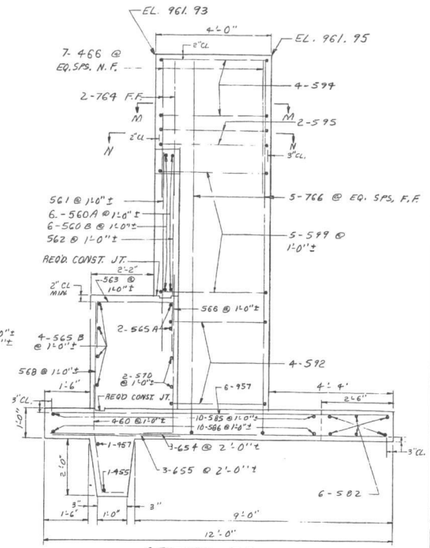



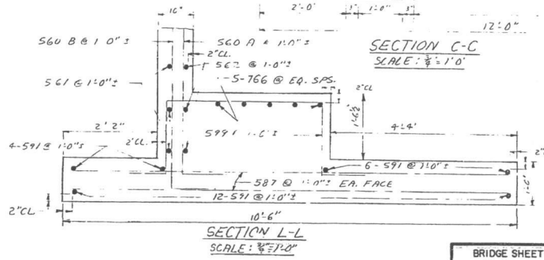




BRIDGE NO. 1 LT.

GEORGIA
DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION - BRIDGE DESIGN

ABUTMENT 1 LT. DETAILS SH. NO. 5
SBL I-75 OVER NOONDAY CREEK
COBB CO. I-75-3(40)284 C75
SCALE: AS SHOWN JULY 1974

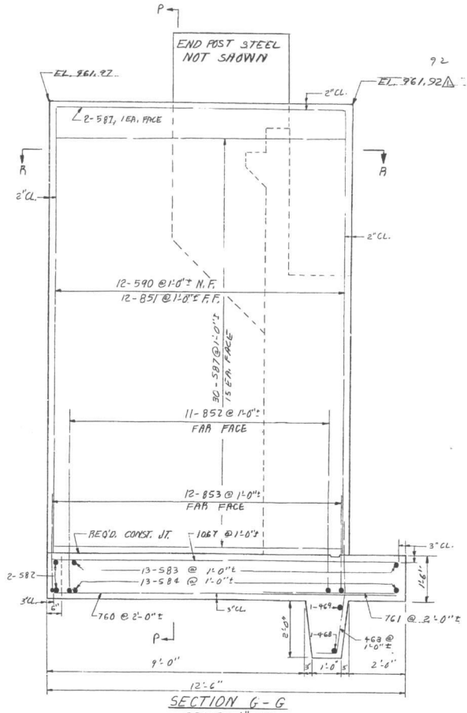
| BRIDGE SHEET |
|---|
| 15 OF 24 |

| REVISIONS | BY | DATE |
|---|---|---|
| ELEVATION CHANGED | | 6-6-75 |

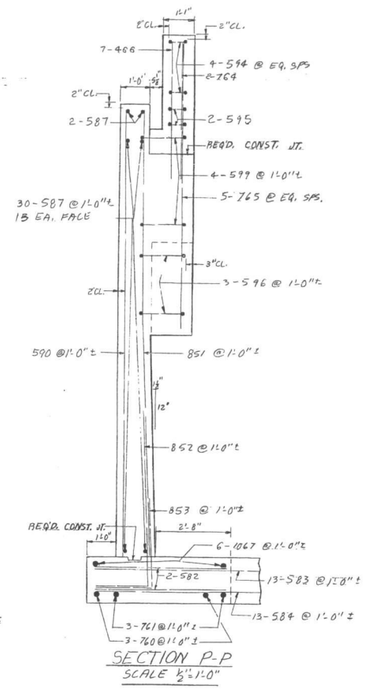
DESIGNED H.J.L. TRACED
DRAWN A.H.M. CHECKED C.D.E.
REVIEWED L.A.P.
APPROVED

| FED. ROAD DIV. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| 4 | GA. | I-75-3 (40)284 | '75 | 26 | 76 |

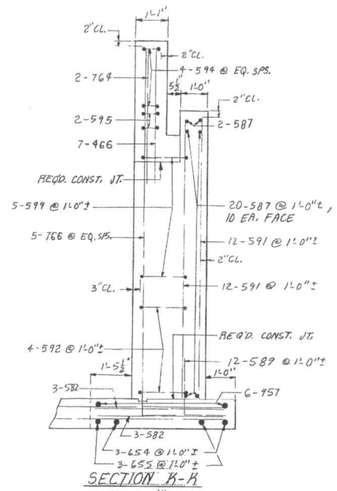
Contract 5
Rev. 6-10-75



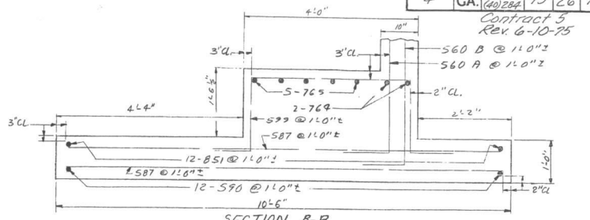

SECTION G-G
SCALE: ½"=1'-0"



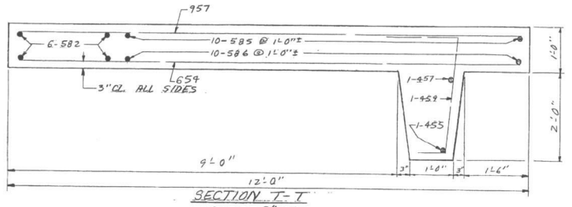

SECTION P-P
SCALE ½"=1'-0"



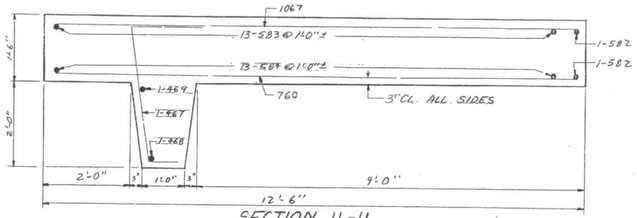

SECTION K-K
SCALE 1½"=1'-0"




SECTION A-A
SCALE: ⅜"=1'-0"




SECTION T-T
SCALE ¾"=1'-0"




SECTION U-U
SCALE ¾"=1'-0"

BRIDGE NO. 1 LT.

GEORGIA
DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION - BRIDGE DESIGN

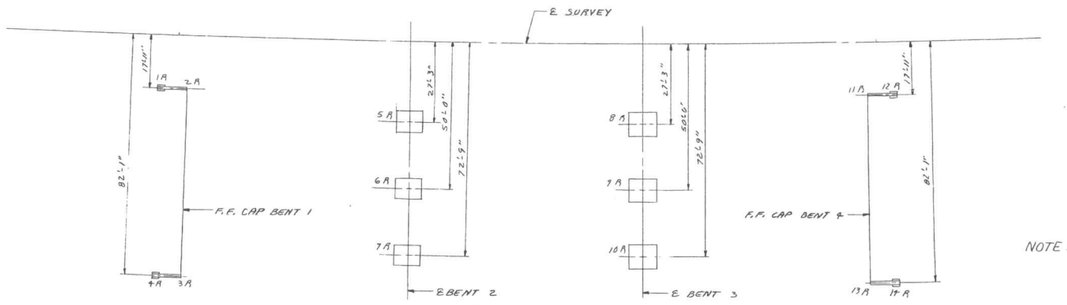
ABUTMENT 1 LT. DETAILS SH. NO. 6
SBL I-75 OVER NOONDAY CREEK
COBB CO. I-75-3(40)284 CT. 5
SCALE: AS SHOWN AUG. 1974

| BRIDGE SHEET | BY | REVISIONS | DATE |
|---|---|---|---|
| 16 OF 24 | HJL | ELEVATION CHANGE | 12-6-74 |

DESIGNED HJL | TRACED | REVIEWED LAP
DRAWN MHM | CHECKED CDE | APPROVED

| FED. ROAD DIV. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| 4 | GA. | I-75-3 (40)284 | '75 | 27 | 76 |

Contract 5




RT. BRIDGE

ALL BENTS AND DIMENSIONS ARE RADIAL

STATIONS ARE MEASURED ALONG E SURVEY

| TABLE OF STATIONS | |
|---|---|
| POINT | STATION |
| 1A | 800+37.28 |
| 2A | 800+47.99 |
| 3A | 800+67.98 |
| 4A | 800+37.37 |
| 5A | 801+25.00 |
| 6A | 801+25.00 |
| 7A | 801+25.00 |
| 8A | 802+05.00 |
| 9A | 802+05.00 |
| 10A | 802+05.00 |
| 11A | 802+82.01 |
| 12A | 802+70.71 |
| 13A | 802+82.06 |
| 14A | 802+92.63 |

NOTE: STATIONS FOR INTERMEDIATE BENTS ARE GIVEN AT THE INTERSECTION OF ℄ COL AND ℄ BENT. STATIONS AT END BENTS ARE AT FRONT FACE OF CAP @ INSIDE FACE OF WING AND AT ℄ WING PILE.

BRIDGE NO. 1 RT.

GEORGIA
DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION - BRIDGE DESIGN

SUBSTRUCTURE LAYOUT SHEET 2
NBL I-75 OVER NOONDAY CREEK
COBB CO. I-75-3(40)284 CT. 5
SCALE: 1"=20'-0" FEB, 1975

DESIGNED NJC DRAWN KAM TRACED JPT CHECKED JPT REVIEWED LAP APPROVED

BRIDGE SHEET 17 OF 24

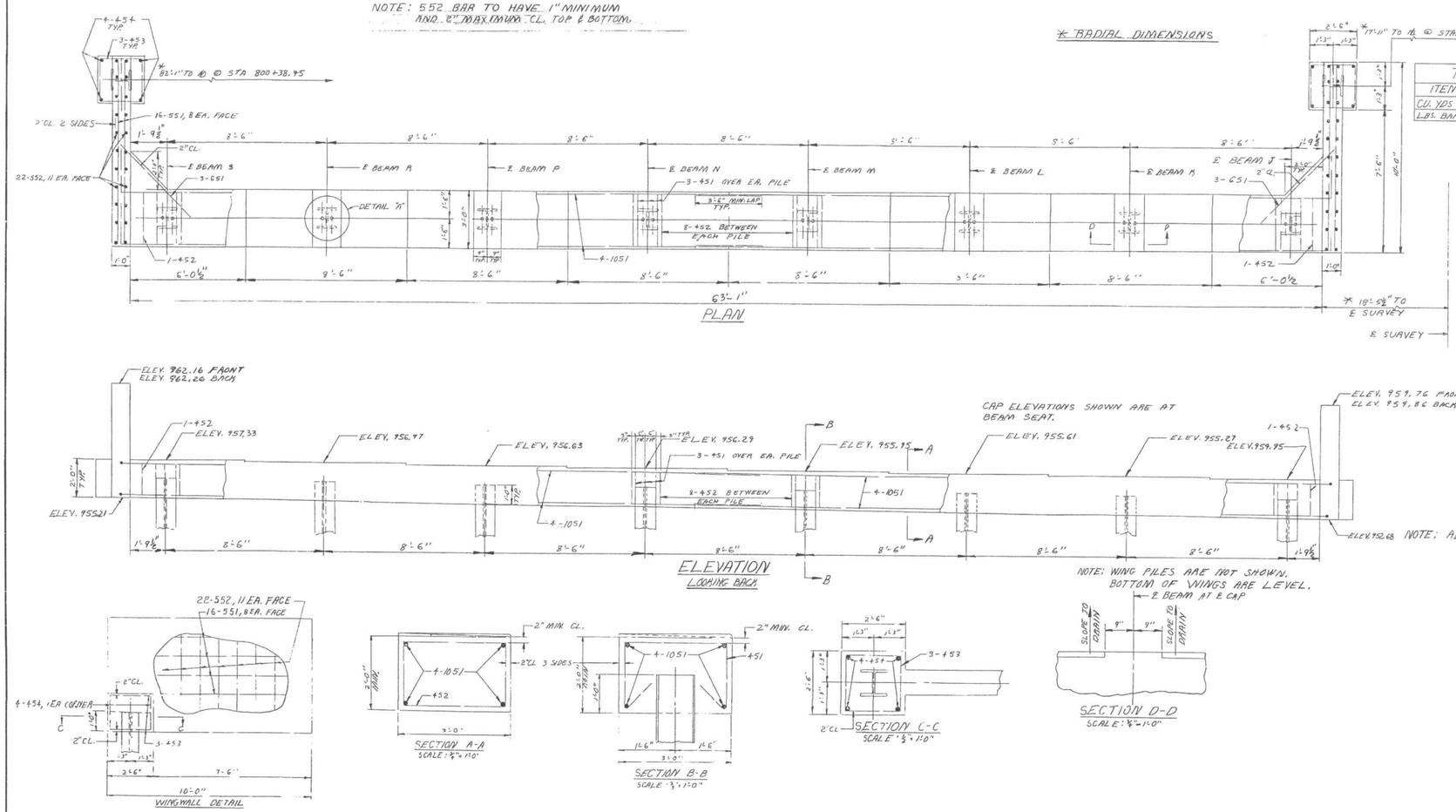
| FED. ROAD DIV. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| 4 | GA. | I-75-3 (40)284 | '75 | 28 | 76 |

Contract 5

NOTE: 552 BAR TO HAVE 1" MINIMUM AND 2" MAXIMUM CL. TOP & BOTTOM.

* RADIAL DIMENSIONS

| TABLE OF QUANTITES | |
|---|---|
| ITEM \ BENT | 1 RT |
| CU. YDS OF CLASS "A" CONCRETE | 21.37 |
| LBS. BAR REINFORCEMENT STEEL | 2442 |




PLAN DRAWING OBJECTIVE
P.D.O. SHALL BE PRACTICAL REFUSAL AFTER A MINIMUM TIP ELEVATION OF 140.0 ACHIEVED.

BRIDGE: NO 1 RT

GEORGIA
DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION-BRIDGE DESIGN

END BENT 1 RT.
N.B.L. I-75 OVER NOONDAY CREEK
COBB CO. I-75-3(40)284 CT.5
SCALE: 3/8"=1'-0" (UNLESS NOTED) MAR. 1973

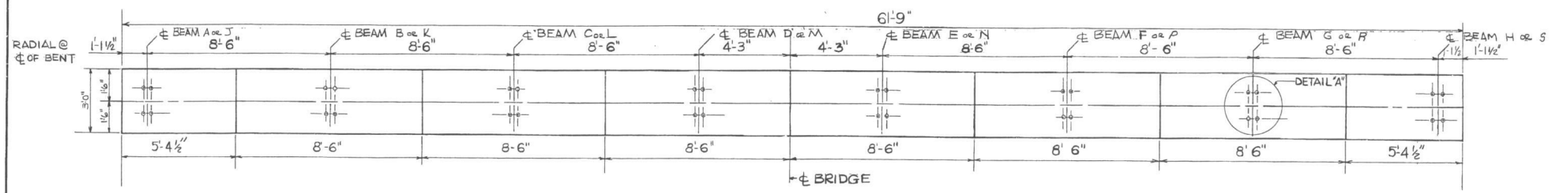
BRIDGE SHEET 18 OF 24

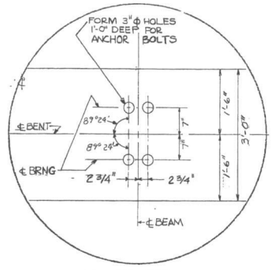
DESIGNED JJL | TRACED | REVIEWED LRP
DRAWN KHM | CHECKED CDE | APPROVED

| | A | B | C | D | E | F | G | H | J | K | L | M | N | P | Q | R | S | T | U | V | W | X |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RT BR | 954.20 | 954.52 | 954.86 | 955.20 | 955.54 | 955.88 | 956.22 | 956.58 | 953.18 | 951.92 | 951.80 | 951.01 | 950.89 | 950.10 | 949.78 | 950.71 | 931± | 927± | 927± | 943± | 939± | 939± |
| LT BR | 954.38 | 954.70 | 955.04 | 955.38 | 955.72 | 956.06 | 956.40 | 956.76 | 953.36 | 952.10 | 951.98 | 951.17 | 951.07 | 950.28 | 950.16 | 950.89 | 926± | 926± | 926± | 938± | 938± | 938± |

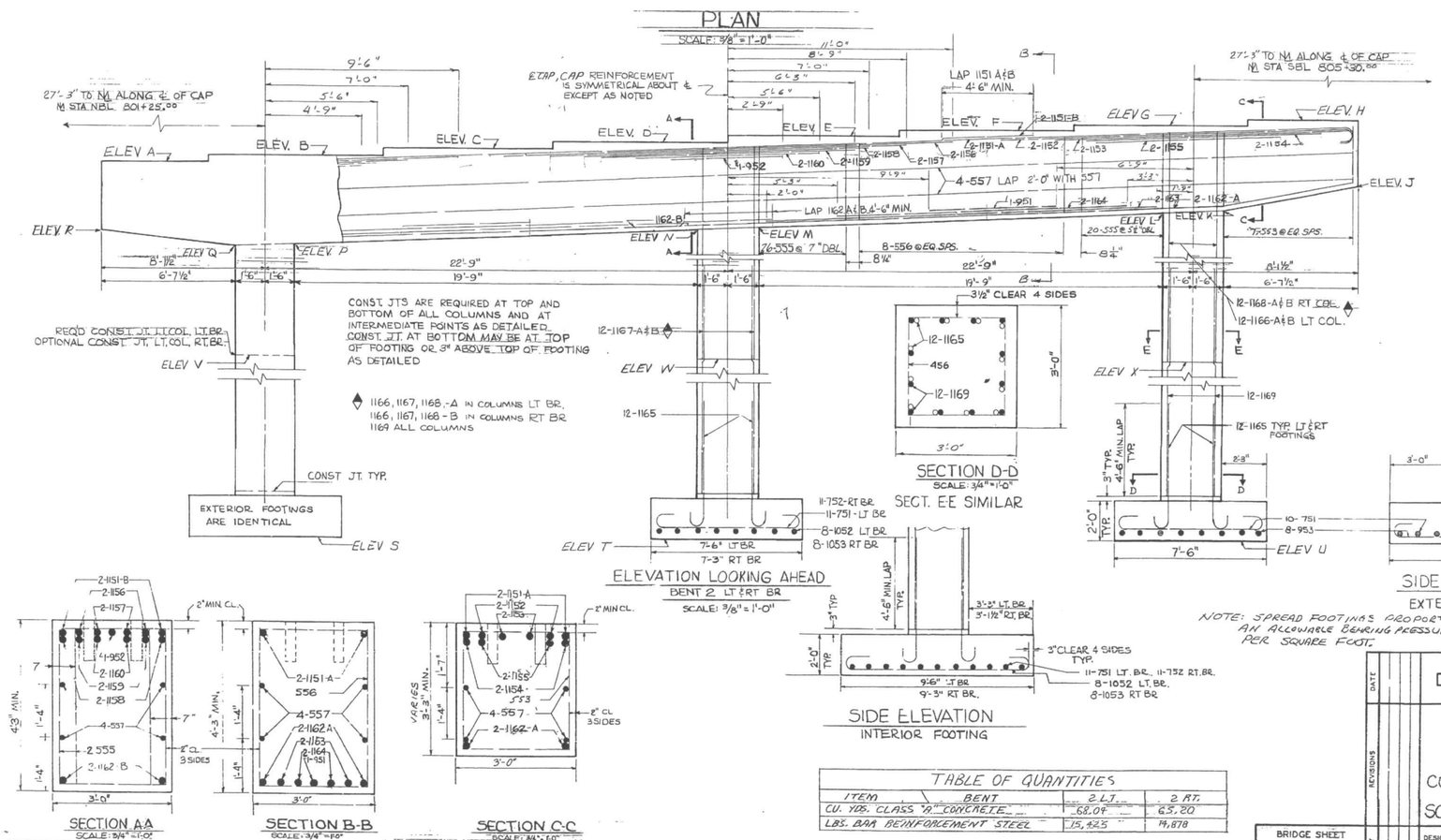
| FED. ROAD DIV. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| 4 | GA. | I-75-3 (90) 284 | '75 | 29 | 76 |

Contract 5




DETAIL "A"
SCALE: 3/4" = 1'-0"







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




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




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

| TABLE OF QUANTITIES | | |
|---|---|---|
| ITEM \ BENT | 2 LT | 2 RT |
| CU. YDS. CLASS "A" CONCRETE | 68.04 | 63.20 |
| LBS. BAR REINFORCEMENT STEEL | 15,425 | 14,878 |

BR. NO. 1 LT. & RT.

GEORGIA
DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION - BRIDGE DESIGN

INTERMEDIATE BENT 2LT & 2RT
I-75 OVER NOONDAY CREEK
COBB COUNTY I-75-3 (90) 284 CT. 5
SCALE AS SHOWN AUG, 1973

BRIDGE SHEET 19 OF 24

| DATE | REVISIONS | BY |
|---|---|---|

DESIGNED HJL | TRACED | REVIEWED L.R.P.
DRAWN W.J.M. | CHECKED C.D.E. | APPROVED

| FED. ROAD DIV. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| 4 | GA. | I-75-3 (40)284 | '75 | 30 | 76 |

Contract 5

## TABLE OF ELEVATIONS

| BENT \ ELEV. | A | B | C | D | E | F | G | H | J | M | L | M | N | P | Q | R | S | T |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 RT | 953.70 | 954.02 | 954.36 | 954.70 | 955.04 | 955.38 | 955.72 | 956.08 | 952.68 | 951.42 | 951.29 | 950.51 | 950.38 | 949.60 | 949.47 | 950.21 | 949.02 | 931.50 |
| 3 LT | 954.36 | 954.68 | 955.02 | 955.36 | 955.70 | 956.04 | 956.38 | 956.74 | 953.34 | 952.08 | 951.95 | 951.17 | 951.04 | 950.26 | 950.13 | 950.87 | 949.51 | 942.00 |

## TABLE OF QUANTITIES

| ITEM \ BENT | 3 LT. | 3 RT. |
|---|---|---|
| CU. YDS. 'CLASS 'A' CONCRETE | 76.81 | 89.67 |
| LBS. BAR REINFORCEMENT STEEL | 18,535 | 21,387 |

RADIAL @ ℄ OF BENT

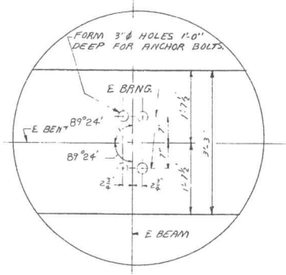
℄ BEAM A OR J 8'-6" | ℄ BEAM B OR K 8'-6" | ℄ BEAM C OR L 8'-6" | ℄ BEAM D OR M 4'-3" | 4'-3" | ℄ BEAM E OR N 8'-6" | ℄ BEAM F OR P 8'-6" | ℄ BEAM G OR R 8'-6"

61'-9"

1'-1½" | 5'-4½" | 8'-6" | 8'-6" | 8'-6" | 8'-6" | 8'-6" | 8'-6" | 5'-4½" | 1'-1½"

DETAIL "A"

1'-7½" | 3'-3" | 1'-7½"




DETAIL "A"
SCALE: ¾"=1'-0"

PLAN

℄ CAP, CAP REINFORCEMENT IS SYMMETRICAL ABOUT THIS LINE.

27'-3" TO ℄ ALONG ℄ OF CAP
℄ STA. NBL = 802+05.0

27'-3" TO ℄ ALONG ℄ OF CAP
℄ STA SBL = 806+10.0

11'-0" | 10'-0" | 7'-6" | 6'-3" | 5'-3" | 10'-0" | 7'-3" | 5'-9" | 5'-0"

ELEV. A | ELEV. B | ELEV. C | ELEV. D | ELEV. E | ELEV. F | ELEV. G | ELEV. H | ELEV J | ELEV. K | ELEV. L | ELEV. M | ELEV. N | ELEV. P | ELEV. R

Z-1151B | Z-1178 | Z-1175 | Z-1176 | Z-1177 | Z-1151A | Z-1170 | Z-1171 | Z-1172 | Z-1173 | Z-1174 | Z-1162A | Z-1162B | Z-1179 | Z-1180 | 4-#5 | 1-#5

1'-6" LAP | 4'-6" MIN CAP | 4'-0" | 2'-0" | 11'-3" | 6'-6" | 7-5SL@EQ. SPCS. | 8-5S9 @ EQ. SPS. B | 20-5S8@7½" | 20-5S8@9" | 19'-6" | 22'-9" | 6'-1½" | 6'-6" | 8'-7½" | 6'-6" MIN CAP

16-1181 A&B CENT COL

16-1183 A&B RT COL
16-1161 A&B LT COL

1183, 1167, 1181 -A IN COLUMNS IN LT BR
1183, 1161, 1181 -B IN COLUMNS IN RT BR
1165 & 1182 ALL COLUMNS

CONSTRUCTION JOINTS ARE REQUIRED AT TOP, BOTTOM AND AT INTERMEDIATE POINTS OF ALL COLUMNS. CONSTRUCTION JOINT AT BOTTOM OF COLUMN MAY BE AT TOP OF FOOTING OR 3" ABOVE TOP OF FOOTING AS DETAILED.

3'-3" | 3½" CL 4 SIDES | 16-1165 | 458 | 16-1182 | 3'-3"

SECTION D-D
SCALE: 3/4"=1'-0"
SECT. EE SIMILAR

16-1165 TYP. | 2'-3" TYP. | D | E | ELEV T | EL T

3'-7½" TYP. | CONST JT | ELEV S | 153

9-1055 LT BR | 11-754 RT BR | 11-754 LT BR | 11-753 LT BR | 2'-0" TYP. | 7'-9" LT BR | 8'-0" RT BR

ELEVATION
LOOKING AHEAD
SCALE: ⅜"=1'-0"

7'-9" LT & RT BR | 2-10½" LT BR | 3'-3" RT BR | 9'-0" LT BR | 9'-9" RT BR

SIDE ELEVATION
EXTERIOR FOOTING

- 10 - 153 EXT FOOTINGS LT BR
- 11 - 153 EXT FOOTINGS RT BR

25-#5S @ 4" CTS. CL. LT. BR.
26-#5S @ 4" CTS. COL. LT. BR.
21-#7S @ 4" CTS. RT. COL LT BR.
35-#7S @ 4" CTS. COL. RT. BR.
37-#7S @ 4" CTS. CL. RT. BR.
37-#7S @ 4" CTS. COL. RT. BR.

NOTE: SPREAD FOOTINGS ARE PROPORTIONED FOR AN ALLOWABLE BEARING PRESSURE OF 5 TONS PER SQUARE FOOT.

3'-1½" LT BR | 3'-4½" RT BR | 3" TYP. | 4'-6" MIN | TYP. | 3" CL 4 SIDES TYP. | 9-1055 LT BR | 11-754 RT BR | 11-753 LT BR | 9'-6" LT BR | 10'-0" RT BR | 3" CL. TYP.

SIDE ELEVATION
INTERIOR FOOTING

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

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

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

BR. NO. 1 LT. & RT.

GEORGIA
DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION - BRIDGE DESIGN

INTERMEDIATE BENT 3 LT & RT.
I-75 OVER NOONDAY CREEK
COBB COUNTY | I-75-3 (40) 284 OF S
SCALE: AS SHOWN | AUG. 1973

BRIDGE SHEET 20 OF 24

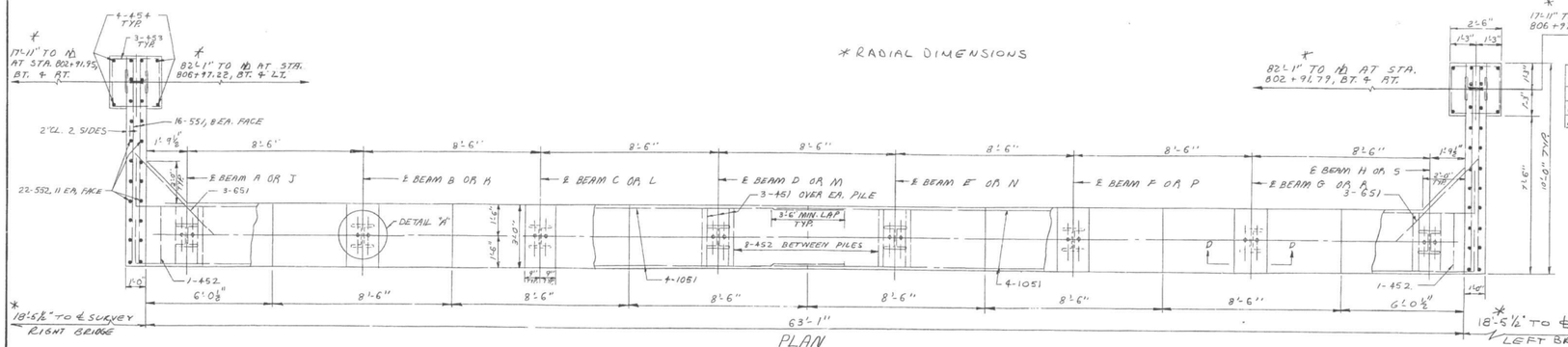
| DESIGNED TJT | TRACED | REVIEWED LRP |
|---|---|---|
| DRAWN WJM | CHECKED CDE | APPROVED |

REVISIONS | DATE | BY

| FED. ROAD DIV. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| 4 | GA. | I-75-3 (46)284 | 1975 | 31 | 76 |

Contract 5

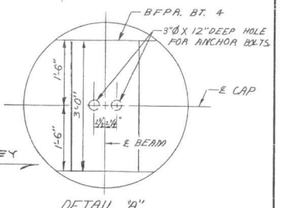
* RADIAL DIMENSIONS



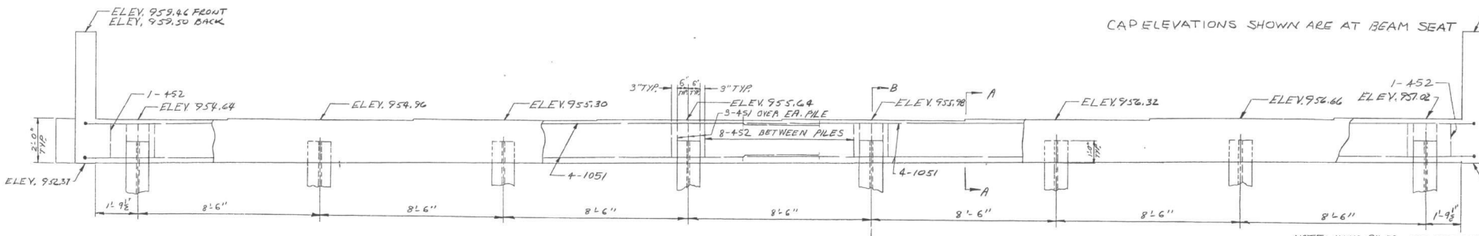

PLAN

LEFT BRIDGE SHOWN, RIGHT BRIDGE SIMILAR, SEE ELEVATION VIEW AT BOTTOM OF SHEET FOR BATTER PILES REQD.

| TABLE OF QUANTITES | | | |
|---|---|---|---|
| ITEM | BENT | + RT | + LT |
| CU YDS OF CLASS "A" CONCRETE | | 21.33 | 21.35 |
| LBS. BAR REINFORCEMENT STEEL | | 2445 | 2442 |




DETAIL "A"
SCALE: 3/4"=1'-0"

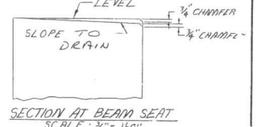



ELEVATION BENT 4 LT.
LOOKING AHEAD

CAP ELEVATIONS SHOWN ARE AT BEAM SEAT

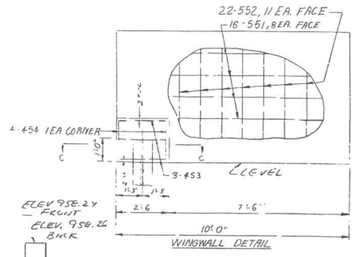
ELEV. 961.86 FRONT
ELEV. 961.90 BACK

NOTE: WING PILES ARE NOT SHOWN. BOTTOM OF WINGS ARE LEVEL.

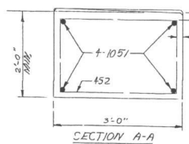



SECTION AT BEAM SEAT
SCALE: 3/4"=1'-0"

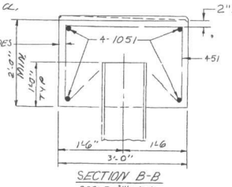
NOTE: ALL PILES ARE 12 BP 53



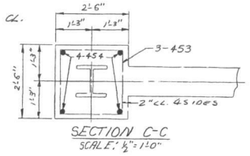

WINGWALL DETAIL



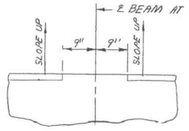

SECTION A-A
SCALE: 3/8"=1'-0"



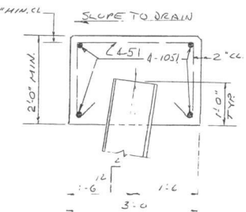

SECTION B-B
SCALE: 3/8"=1'-0"



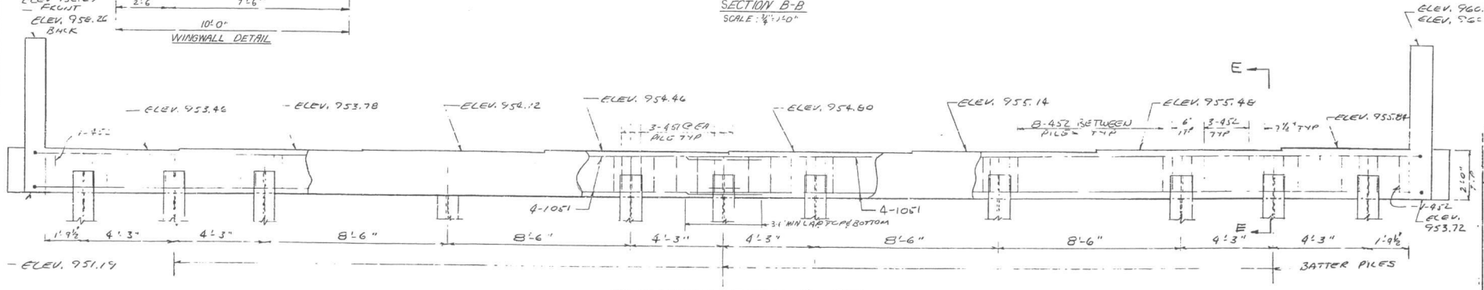

SECTION C-C
SCALE: 1/2"=1'-0"




SECTION D-D
SCALE: 3/8"=1'-0"




SECTION E E AT 4 LT. ONLY
SCALE: 1/4"=1'-0"




ELEVATION BENT 4 RT.
LOOKING AHEAD

PLAN DRIVING OBJECTIVE

P.D.O. SHALL BE PRACTICAL REFUSAL AT OR A MIN TIP ELEVATION OF 940.0 AT BT & LT. AND 933.0 AT BT & RT IS ACHIEVED.

BRIDGE: 1 LT. & 1 RT.

GEORGIA
DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION-BRIDGE DESIGN

END BENTS 4 LT. & 4 RT.
I-75 OVER NOONDAY CREEK
COBB CO. I-75-3(46)284 CT. 5
SCALE: 3/8"=1'-0" (UNLESS NOTED) MAR. 1973

| BRIDGE SHEET 21 OF 24 | DESIGNED HJL | TRACED | REVIEWED LBP |
|---|---|---|---|
| | DRAWN KAM | CHECKED CDE | APPROVED |

DATE | REVISIONS | BY

| LOCATION | NO. OF LOC. | MARK | LENGTH FT. | LENGTH IN. | NO. BARS REQ'D | TYPE | AG | B FT. | B IN. | C FT. | C IN. | D FT. | D IN. | E FT. | E IN. | F FT. | F IN. | H FT. | H IN. | J FT. | J IN. | K FT. | K IN. | N | Θ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SPAN ONE LEFT | 1 | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 401A | VARY | | 318 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 403 | 3 | 10 | 126 | 31 | 4 | 4 | 0 | 9 | 1 | 1 7/8 | 1 | 1 7/8 | | | | | | | | | | | |
| | | 501 | 34 | 0 | 378 | 3 | | 81 | 11 | 1/2 | 2 | 0 | | | | | | | | | | | | | |
| | | 502A | 36 | 4 | 149 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 502B | 27 | 10 | 149 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 504A | 39 | 7 | 16 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 504H | 40 | 2 | 16 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 505 | 6 | 3 | 149 | 14 | | 0 | 10 | 2 | 5 3/8 | 2 | 0 | 1 | 0 | 0 | 0 | | | | | | | | |
| | | 1001 | 34 | 0 | 8 | 1 | | 36 | 8 1/2 | 2 | 0 | | | | | | | | | | | | | | |
| | | 1002 | 59 | 2 | 4 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 1003 | 3 | 0 | 8 | 1 | | | | | | | | | | | | | | | | | | | |
| SPAN TWO LEFT | 1 | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 401A | VARY | | 318 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 403 | 3 | 10 | 126 | 31 | | | | | | | | | | | | | | | | | | | |
| | | 501 | 34 | 0 | 396 | 3 | | | | | | | | | | | | | | | | | | | |
| | | 502A | 36 | 4 | 192 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 502B | 27 | 10 | 192 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 504C | 40 | 0 | 16 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 504D | 40 | 8 | 16 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 505 | 6 | 3 | 192 | 14 | | | | | | | | | | | | | | | | | | | |
| | | 1001 | 34 | 0 | 8 | 3 | | | | | | | | | | | | | | | | | | | |
| | | 1002 | 59 | 2 | 4 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 1003 | 3 | 0 | 8 | 1 | | | | | | | | | | | | | | | | | | | |
| SPAN THREE LEFT | 1 | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 401B | VARY | | 419 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 432 | 6 | 0 | 85 | 3 | | 3 | 0 | | | 3 | 0 | | | | | | | | | | | | |
| | | 403 | 3 | 10 | 63 | 31 | | | | | | | | | | | | | | | | | | | |
| | | 404 | 4 | 0 | 43 | 21 | 2 | 1 | 0 | | | 3 | 6 | | | | | | | | | | | 90 | |
| | | 501 | 34 | 0 | 384 | 3 | | | | | | | | | | | | | | | | | | | |
| | | 502A | 36 | 4 | 192 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 502B | 27 | 10 | 192 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 503 | 32 | 6 | 2 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 504J | 39 | 6 | 16 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 504K | 41 | 2 | 16 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 505 | 6 | 3 | 192 | 14 | | | | | | | | | | | | | | | | | | | |
| | | 1001 | 34 | 0 | 8 | 3 | | | | | | | | | | | | | | | | | | | |
| | | 1002 | 59 | 2 | 4 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 1003 | 3 | 0 | 8 | 1 | | | | | | | | | | | | | | | | | | | |

| LOCATION | NO. OF LOC. | MARK | LENGTH FT. | LENGTH IN. | NO. BARS REQ'D | TYPE | AG | B FT. | B IN. | C FT. | C IN. | D FT. | D IN. | E FT. | E IN. | F FT. | F IN. | H FT. | H IN. | J FT. | J IN. | K FT. | K IN. | N | Θ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 801 | 12 | 6 | 6 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 1001 | 34 | 9 | 4 | 3 | | | | | | | | | | | | | | | | | | | |
| | | 1002 | 59 | 2 | 2 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 1003 | 3 | 0 | 4 | 1 | | | | | | | | | | | | | | | | | | | |
| SPAN TWO RIGHT | 1 | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 401C | VARY | | 318 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 403 | 3 | 10 | 126 | 31 | | | | | | | | | | | | | | | | | | | |
| | | 501 | 34 | 0 | 394 | 3 | | | | | | | | | | | | | | | | | | | |
| | | 502A | 36 | 4 | 197 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 502B | 27 | 10 | 197 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 504G | 41 | 1 | 16 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 504H | 41 | 8 | 16 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 505 | 6 | 3 | 148 | 14 | | | | | | | | | | | | | | | | | | | |
| | | 1001 | 34 | 5 | 8 | 3 | | | | | | | | | | | | | | | | | | | |
| | | 1002 | 59 | 2 | 4 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 1003 | 3 | 0 | 8 | 1 | | | | | | | | | | | | | | | | | | | |

| FED. ROAD DIV. No. | STATE | FED. AID PROJ. No. | STATE AID PROJ. No. | FISCAL YEAR | SHEET No. | TOTAL SHEETS |
|---|---|---|---|---|---|---|
| 4 | GA. | I-753 (4)(26)3 | | '75 | 32 | 76 |

Contract 5

BRIDGE NO. 1 LT. & RT.

STATE HIGHWAY DEPARTMENT OF GEORGIA
BRIDGE DIVISION

BAR REINFORCEMENT STEEL SH. NO. 1

I-75 OVER NOONDAY CREEK

COBB COUNTY I-75-3(90)284 CT. 5

NO SCALE SEPT. 1974

| BY | REVISIONS | DATE |
|---|---|---|
| | | |

DESIGNED ____ TRACED ____ REVIEWED ____
DRAWN ____ CHECKED ____ APPROVED ____

BRIDGE SHEET 22 OF 24

| FED. ROAD DIV. No. | STATE | FED. AID PROJ. No. | STATE AID PROJ. No. | FISCAL YEAR | SHEET No. | TOTAL SHEETS |
|---|---|---|---|---|---|---|
| 4 | GA. | I-75-3 (69)269 | | '75 | 33 | 76 |

Contract 5

| LOCATION | NO. OF LOC. | MARK | LENGTH FT. | LENGTH IN. | NO. BARS REQ'D | TYPE | AG | B FT. | B IN. | C FT. | C IN. | D FT. | D IN. | E FT. | E IN. | F FT. | F IN. | H FT. | H IN. | J FT. | J IN. | K FT. | K IN. | N | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ABUTMENT 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 455 | 26 | 4 | 1 | 34 | 6 | 20 | 1 | 3 | 0 | 2 | 0 | 3 | 0 | | | | | | | | | | |
| | | 457 | 27 | 1 | 1 | 34 | 6 | 20 | 10 | 3 | 0 | 2 | 0 | 3 | 0 | | | | | | | | | | |
| | | 459 | 3 | 6 | 1 | 8 | | 2 | 6 | 0 | 6 | 0 | 6 | | | | | | | | | | | 83 | 83 |
| | | 460 | 5 | 0 | 21 | 6 | | 2 | 0 | 2 | 6 | 0 | 0 | 0 | 6 | | | | | | | | | 83 | 7 |
| | | 461 | VARY | | 2 | 6 | | 2 | 6 | VARIES | | 0 | 0 | 0 | 6 | | | | | | | | | 83 | 7 |
| | | 462 | 7 | 6 | 3 | 6 | | 2 | 0 | 5 | 0 | 0 | 0 | 0 | 6 | | | | | | | | | 83 | 7 |
| | | 463 | 5 | 0 | 36 | 6 | | 2 | 0 | 2 | 6 | 0 | 0 | 0 | 6 | | | | | | | | | 83 | 7 |
| | | 464 | 5 | 9 | 1 | 6 | | 2 | 9 | 2 | 6 | 0 | 0 | 0 | 6 | | | | | | | | | 83 | 7 |
| | | 465 | 6 | 6 | 3 | 6 | | 2 | 0 | 4 | 0 | 0 | 0 | 0 | 6 | | | | | | | | | 83 | 7 |
| | | 466 | 4 | 9 | 14 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 467 | 4 | 0 | 1 | 8 | | 3 | 0 | 0 | 6 | 0 | 6 | | | | | | | | | | | 83 | 83 |
| | | 468 | 44 | 4 | 1 | 34 | 6 | 21 | 6 | 2 | 0 | 20 | 0 | 2 | 0 | | | | | | | | | | |
| | | 469 | 43 | 10 | 1 | 34 | 6 | 21 | 0 | 2 | 0 | 20 | 0 | 2 | 0 | | | | | | | | | | |
| | | 470 | 6'10" | | 24 | 4 | | 3'10" | | 1'0" | | | | | | | | | | | | | | 45 | |
| | | 560A | 34 | 7 | 12 | 3 | | 32 | 6 1/2 | 2 | 0 | | | | | | | | | | | | | | |
| | | 560B | 35 | 1 | 12 | 3 | | 33 | 0 1/2 | 2 | 0 | | | | | | | | | | | | | | |
| | | 561 | 6 | 10 | 104 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 562 | 5 | 2 | 24 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 563 | 5 | 8 | 30 | 2 | | 2 | 8 | 1 | 6 | 1 | 6 | | | | | | | | | | | | |
| | | 564 | 9 | 8 | 34 | 25 | 4 4 | 2 | 8 | 1 | 8 | | | | | | | | | | | | | | |
| | | 565A | 30 | 9 | 2 | 3 | | 28 | 9 | 2 | 0 | | | | | | | | | | | | | | |
| | | 565B | 31 | 3 | 4 | 3 | | 29 | 3 | 2 | 0 | | | | | | | | | | | | | | |
| | | 566 | VARY | | 20 | 3 | | VARIES | | 2 | 0 | | | | | | | | | | | | | | |
| | | 567 | VARY | | 3 | 3 | | VARIES | | 2 | 0 | | | | | | | | | | | | | | |
| | | 568 | VARY | | 24 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 569 | 10 | 8 | 2 | 3 | | 8 | 8 | 2 | 0 | | | | | | | | | | | | | | |
| | | 570 | 34 | 7 | 2 | 48 | | 0 | 0 | 1 | 9 | 28 | 9 1/2 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | | | | |
| | | 571 | 5 | 2 | 24 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 572 | 8 | 0 | 3 | 34 | 6 | 4 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | | | | | | | | | | |
| | | 573 | 38 | 10 | 2 | 3 | | 36 | 10 | 2 | 0 | | | | | | | | | | | | | | |
| | | 574 | 41 | 6 | 3 | 3 | | 39 | 6 | 2 | 0 | | | | | | | | | | | | | | |
| | | 575 | 11 | 0 | 18 | 14 | | 2 | 6 | 2 | 0 | 2 | 3 | 2 | 0 | 2 | 3 | | | | | | | | |
| | | 576 | 9 | 7 | 8 | 48 | | 3 | 3 1/2 | 2 | 3 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | | | | |
| | | 577 | 19 | 6 | 2 | 3 | | 17 | 6 | 2 | 0 | | | | | | | | | | | | | | |
| | | 578 | 38 | 4 | 6 | 3 | | 36 | 4 | 2 | 0 | | | | | | | | | | | | | | |
| | | 579 | 19 | 10 | 1 | 3 | | 17 | 9 1/2 | 2 | 0 | | | | | | | | | | | | | | |
| | | 580 | VARY | | 22 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 581 | VARY | | 17 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 582 | 4 | 0 | 8 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 583 | 42 | 0 | 13 | 34 | 6 | 19 | 0 | 0 | 0 | 21 | 6 | 2 | 0 | | | | | | | | | | |
| | | 584 | 41 | 4 | 13 | 34 | 6 | 18 | 0 | 2 | 0 | 20 | 6 | 2 | 0 | | | | | | | | | | |
| | | 585 | 39 | 6 | 13 | 34 | 6 | 25 | 7 | 0 | 0 | 2 | 3 | 2 | 0 | | | | | | | | | | |
| | | 586 | 24 | 4 | 13 | 34 | 6 | 21 | 1 | 3 | 0 | 4 | 0 | 3 | 0 | | | | | | | | | | |
| | | 587 | 13 | 0 | 54 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 588 | 5 | 0 | 2 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 589 | 4 | 3 | 12 | 3 | | 1 | 6 | 2 | 4 | | | | | | | | | | | | | | |
| | | 590 | VARY | | 1 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 591 | VARY | | 22 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 592 | 7 | 11 | 4 | 30 | 3 3 | 3 | 7 | 1 | 6 1/2 | 1 | 6 1/2 | | | | | | | | | | | | |
| | | 593 | 7 | 5 | 2 | 6 | | 4 | 3 3/4 | 1 | 6 | 0 | 0 | 1 | 6 | | | | | | | | | 45 | 45 |
| | | 594 | 4 | 6 | 5 | 30 | 4 4 | 3 | 8 | 1 | 4 | 2 | 4 | 0 | 5 | 0 | 4 | 0 | 9 | | | | | | |
| | | 595 | 4 | 10 | 4 | 25 | 4 4 | 0 | 9 | 3 | 6 | | | | | | | | | | | | | | |
| | | 596 | VARY | | 3 | 30 | 3 3 | VARIES | | 1 | 6 1/2 | 1 | 6 1/2 | | | | | | | | | | | | |
| | | 597 | 32 | 5 | 2 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 598 | 4 | | 64 | 21 | 2 | 1 | 1 3/8 | 2 | 0 | | | | | | | | | | | | | 90 | |
| | | 599 | 0 | 5 | 9 | 30 | 3 3 | 3 | 8 | 1 | 6 1/2 | 1 | 6 1/2 | | | | | | | | | | | | |
| | | 652 | 9 | 0 | 14 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 653 | 4 | 3 | 8 | 1 | | | | | | | | | | | | | | | | | | | |

| LOCATION | NO. OF LOC. | MARK | LENGTH FT. | LENGTH IN. | NO. BARS REQ'D | TYPE | AG | B FT. | B IN. | C FT. | C IN. | D FT. | D IN. | E FT. | E IN. | F FT. | F IN. | H FT. | H IN. | J FT. | J IN. | K FT. | K IN. | N | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 654 | 14 | 6 | 3 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 655 | 4 | 3 | 3 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 755 | 7 | 0 | 7 | 9 | 2 | 6 | 3 | | | | | | | | | | | | | | | | |
| | | 756 | 7 | 4 | 6 | 9 | 2 | 6 | 7 | | | | | | | | | | | | | | | | |
| | | 757 | 7 | 7 | 1 | 9 | 2 | 6 | 10 | | | | | | | | | | | | | | | | |
| | | 758 | 9 | 8 | 7 | 9 | 2 | 8 | 11 | | | | | | | | | | | | | | | | |
| | | 759 | 10 | 0 | 7 | 9 | 2 | 9 | 3 | | | | | | | | | | | | | | | | |
| | | 760 | 12 | 0 | 3 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 761 | 4 | 9 | 3 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 762 | 11 | 6 | 20 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 763 | 4 | 9 | 17 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 764 | 6 | 0 | 4 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 765 | VARY | | 5 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 766 | 13 | 5 | 5 | 3 | | 11 | 5 | 2 | 0 | | | | | | | | | | | | | | |
| | | 851 | VARY | | 12 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 852 | 8 | 4 | 11 | 5 | | 6 | 6 | 1 | 10 | | | | | | | | | | | | | 87 | |
| | | 853 | 5 | 1 | 12 | 5 | | 3 | 3 | 1 | 10 | | | | | | | | | | | | | 87 | |
| | | 956 | 9 | 0 | 21 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 957 | 11 | 6 | 6 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 1056 | 7 | 4 | 7 | 9 | 2 | 6 | 3 | | | | | | | | | | | | | | | | |
| | | 1057 | 7 | 11 | 2 | 9 | 2 | 6 | 10 | | | | | | | | | | | | | | | | |
| | | 1058 | 8 | 2 | 2 | 9 | 2 | 7 | 1 | | | | | | | | | | | | | | | | |
| | | 1059 | 9 | 1 | 1 | 9 | 2 | 8 | 0 | | | | | | | | | | | | | | | | |
| | | 1060 | 8 | 10 | 1 | 9 | 2 | 7 | 9 | | | | | | | | | | | | | | | | |
| | | 1061 | 9 | 4 | 2 | 9 | 2 | 8 | 3 | | | | | | | | | | | | | | | | |
| | | 1062 | 10 | 2 | 1 | 9 | 2 | 9 | 1 | | | | | | | | | | | | | | | | |
| | | 1063 | 11 | 1 | 2 | 9 | 2 | 10 | 0 | | | | | | | | | | | | | | | | |
| | | 1064 | 7 | 4 | 7 | 9 | 2 | 6 | 3 | | | | | | | | | | | | | | | | |
| | | 1065 | 11 | 1 | 1 | 9 | 2 | 10 | 0 | | | | | | | | | | | | | | | | |
| | | 1066 | 11 | 6 | 42 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 1067 | 12 | 0 | 6 | 1 | | | | | | | | | | | | | | | | | | | |
| BENT 2 LT | 1 | 456 | 10 | 5 | 72 | 25 | 4 4 | 2 | 5 | 2 | 5 | | | | | | | | | | | | | | |
| | | 553 | VARY | | 14 | 25 | 4 4 | VARIES | | 2 | 8 | | | | | | | | | | | | | | |
| | | 555 | 13 | 4 | 92 | 25 | 4 4 | 3 | 11 | 2 | 3 | | | | | | | | | | | | | | |
| | | 556 | 14 | 2 | 16 | 25 | 4 4 | 3 | 11 | 2 | 8 | | | | | | | | | | | | | | |
| | | 557 | 31 | 9 | 8 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 751 | 8 | 6 | 31 | 10 | 2 2 | 7 | 0 | | | | | | | | | | | | | | | | |
| | | 551 | 0 | 3 | 2 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 952 | 5 | 6 | 1 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 953 | 10 | 6 | 16 | 10 | 2 2 | 8 | 6 | | | | | | | | | | | | | | | | |
| | | 1052 | 11 | 2 | 8 | 10 | 2 2 | 9 | 0 | | | | | | | | | | | | | | | | |
| | | 1151A | 22 | 9 | 2 | 9 | 2 | 21 | 7 | | | | | | | | | | | | | | | | |
| | | 1151B | 45 | 6 | 2 | 9 | 2 | 44 | 4 | | | | | | | | | | | | | | | | |
| | | 1152 | 18 | 8 | 4 | 9 | 2 | 17 | 5 1/2 | | | | | | | | | | | | | | | | |
| | | 1153 | 14 | 8 | 4 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 1154 | 11 | 6 | 4 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 1155 | 9 | 0 | 4 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 1156 | 22 | 0 | 2 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 1157 | 17 | 6 | 2 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 1158 | 12 | 0 | 2 | 1 | | | | | | | | | | | | | | | | | | | |

BRIDGE NO 1 LT & RT.

STATE HIGHWAY DEPARTMENT OF GEORGIA
BRIDGE DIVISION

BAR REINFORCEMENT STEEL SH. NO. 2
I-75 OVER NOONDAY CREEK
COBB CO. I-75-3(69)269 CT. 5
NO SCALE SEPT. 1974

DESIGNED ____ TRACED ____ REVIEWED ____
DRAWN ____ CHECKED ____ APPROVED ____

BRIDGE SHEET 23 OF 24

| FED. ROAD DIV. No. | STATE | FED. AID PROJ. No. | STATE AID PROJ. No. | FISCAL YEAR | SHEET No. | TOTAL SHEETS |
|---|---|---|---|---|---|---|
| 4 | GA. | I-75-3(40)284 Contract 5 | | '75 | 34 | 76 |

| LOCATION | NO. OF LOC. | MARK | LENGTH FT. | LENGTH IN. | NO. BARS REQ'D | TYPE | AG | B FT. | B IN. | C FT. | C IN. | D FT. | D IN. | E FT. | E IN. | F FT. | F IN. | H FT. | H IN. | J FT. | J IN. | K FT. | K IN. | N | Θ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1159 | 12- | 6 | 2 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 1160 | 11- | 0 | 2 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 1162A | 33- | 0 | 2 | 24 | | 26- | 6 | 6- | 6 3/8 | 0- | 0 | 1- | 0 | 0- | 0 | | | | | | | | |
| | | 1162B | 33- | 0 | 2 | 24 | | 26- | 6 | 6- | 6 3/8 | 0- | 0 | 1- | 0 | 0- | 0 | | | | | | | | |
| | | 1163 | 19- | 0 | 4 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 1164 | 14- | 3 | 4 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 1165 | 7- | 8 | 36 | 9 | 2 | 6- | 6 | | | | | | | | | | | | | | | | |
| | | 1166A | 15- | 4 | 12 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 1167A | 16- | 3 | 12 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 1168A | 17- | 2 | 12 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 1169 | 14- | 3 | 36 | 1 | | | | | | | | | | | | | | | | | | | |
| BENT 3 LEFT | 1 | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 458 | 11- | 5 | 78 | 25 | 4 | 4 | 2- 6 | | 2- 8 | | | | | | | | | | | | | | |
| | | 554 | VARY | | 14 | 25 | 4 | 4 | VARIES | | 2-11 | | | | | | | | | | | | | | |
| | | 557 | 31- | 9 | 8 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 558 | 13- | 7 | 88 | 25 | 4 | 4 | 3-11 | | 2- 4 1/2 | | | | | | | | | | | | | | |
| | | 559 | 14- | 8 | 16 | 25 | 4 | 4 | 3-11 | | 2-11 | | | | | | | | | | | | | | |
| | | 753 | 8- | 4 | 31 | 10 | 2 | 2 | 7- 3 | | | | | | | | | | | | | | | | |
| | | 952 | 5- | 6 | 2 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 954 | 10- | 6 | 16 | 10 | 2 | 2 | 8- 6 | | | | | | | | | | | | | | | | |
| | | 1054 | 11- | 2 | 9 | 10 | 2 | 2 | 9- 0 | | | | | | | | | | | | | | | | |
| | | 1151A | 22- | 9 | 2 | 9 | | | | | | | | | | | | | | | | | | | |
| | | 1151B | 45- | 6 | 2 | 9 | | | | | | | | | | | | | | | | | | | |
| | | 1161A | 11- | 4 | 16 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 1162A | 33- | 0 | 2 | 24 | | | | | | | | | | | | | | | | | | | |
| | | 1162B | 33- | 0 | 2 | 24 | | | | | | | | | | | | | | | | | | | |
| | | 1165 | 7- | 8 | 48 | 9 | | | | | | | | | | | | | | | | | | | |
| | | 1170 | 19- | 2 | 4 | 9 | 2 | 17-11 1/2 | | | | | | | | | | | | | | | | | |
| | | 1171 | 16- | 5 | 4 | 9 | 2 | 15- 2 1/2 | | | | | | | | | | | | | | | | | |
| | | 1172 | 12- | 3 | 4 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 1173 | 9- | 6 | 4 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 1174 | 22- | 0 | 2 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 1175 | 20- | 0 | 2 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 1176 | 15- | 0 | 3 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 1177 | 12- | 6 | 2 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 1178 | 10- | 6 | 2 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 1179 | 19- | 3 | 4 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 1180 | 14- | 3 | 4 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 1181A | 12- | 2 | 16 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 1182 | 19- | 9 | 48 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 1183A | 14- | 1 | 16 | 1 | | | | | | | | | | | | | | | | | | | |
| BENT 4 LEFT | 1 | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 451 | 6- | 9 | 24 | 32 | 5 | 5 | 1- 8 | | 1- 6 | | 1- 4 | | | | | | | | | | | | |
| | | 452 | 9- | 5 | 58 | 25 | 4 | 4 | 2- 3 | | 1- 6 | | | | | | | | | | | | | | |
| | | 453 | 9- | 5 | 6 | 25 | 4 | 4 | 2- 2 | | 2- 2 | | | | | | | | | | | | | | |
| | | 454 | 1- | 8 | 8 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 551 | 9- | 8 | 32 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 552 | 6- | 8 | 44 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 651 | 6- | 0 | 6 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 1051 | 36- | 0 | 8 | 3 | | | | | | | | | | | | | | | | | | | |
| BENT 1 RIGHT | 1 | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 451 | 6- | 9 | 24 | 32 | | | | | | | | | | | | | | | | | | | |

| LOCATION | NO. OF LOC. | MARK | LENGTH FT. | LENGTH IN. | NO. BARS REQ'D | TYPE | AG | B FT. | B IN. | C FT. | C IN. | D FT. | D IN. | E FT. | E IN. | F FT. | F IN. | H FT. | H IN. | J FT. | J IN. | K FT. | K IN. | N | Θ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 452 | 9- | 5 | 58 | 25 | | | | | | | | | | | | | | | | | | | |
| | | 453 | 9- | 5 | 6 | 25 | | | | | | | | | | | | | | | | | | | |
| | | 454 | 1- | 8 | 8 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 551 | 9- | 8 | 32 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 552 | 6- | 8 | 44 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 651 | 6- | 0 | 6 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 1051 | 36- | 0 | 8 | 3 | | | | | | | | | | | | | | | | | | | |
| BENT 2 RIGHT | 1 | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 456 | 10- | 5 | 65 | 25 | | | | | | | | | | | | | | | | | | | |
| | | 553 | VARY | | 14 | 25 | 4 | 4 | VARIES | | 2- 8 | | | | | | | | | | | | | | |
| | | 555 | 13- | 4 | 92 | 25 | | | | | | | | | | | | | | | | | | | |
| | | 556 | 14- | 2 | 16 | 25 | | | | | | | | | | | | | | | | | | | |
| | | 557 | 31- | 9 | 8 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 751 | 8- | 6 | 20 | 10 | | | | | | | | | | | | | | | | | | | |
| | | 752 | 8- | 3 | 11 | 10 | 2 | 2 | 6- 9 | | | | | | | | | | | | | | | | |
| | | 951 | 6- | 3 | 2 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 952 | 5- | 6 | 1 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 953 | 10- | 6 | 16 | 10 | | | | | | | | | | | | | | | | | | | |
| | | 1053 | 10-11 | | 8 | 10 | 2 | 2 | 8- 9 | | | | | | | | | | | | | | | | |
| | | 1151A | 22- | 9 | 2 | 9 | | | | | | | | | | | | | | | | | | | |
| | | 1151B | 45- | 6 | 2 | 9 | | | | | | | | | | | | | | | | | | | |
| | | 1152 | 18- | 8 | 4 | 9 | | | | | | | | | | | | | | | | | | | |
| | | 1153 | 14- | 8 | 4 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 1154 | 11- | 6 | 4 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 1155 | 9- | 0 | 4 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 1156 | 22- | 0 | 2 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 1157 | 17- | 6 | 2 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 1158 | 14- | 0 | 2 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 1159 | 12- | 6 | 2 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 1160 | 11- | 0 | 2 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 1162A | 33- | 0 | 2 | 24 | | | | | | | | | | | | | | | | | | | |
| | | 1162B | 33- | 0 | 2 | 24 | | | | | | | | | | | | | | | | | | | |
| | | 1163 | 19- | 0 | 4 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 1164 | 14- | 3 | 4 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 1165 | 7- | 8 | 36 | 9 | | | | | | | | | | | | | | | | | | | |
| | | 1166A | 15- | 4 | 12 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 1167B | 15- | 1 | 12 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 1168B | 15-11 | | 12 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 1169 | 14- | 3 | 36 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 458 | 11- | 5 | 108 | 25 | | | | | | | | | | | | | | | | | | | |
| | | 554 | VARY | | 14 | 25 | 4 | 4 | VARIES | | 2-11 | | | | | | | | | | | | | | |
| | | 557 | 31- | 9 | 8 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 558 | 13- | 7 | 88 | 25 | | | | | | | | | | | | | | | | | | | |
| | | 559 | 14- | 6 | 16 | 25 | | | | | | | | | | | | | | | | | | | |
| | | 753 | 8- | 9 | 22 | 10 | | | | | | | | | | | | | | | | | | | |
| | | 754 | 9- | 0 | 11 | 10 | 2 | 2 | 7- 6 | | | | | | | | | | | | | | | | |
| | | 952 | 5- | 6 | 2 | 1 | | | | | | | | | | | | | | | | | | | |
| | | 955 | 11- | 3 | 16 | 10 | 2 | 2 | 9- 3 | | | | | | | | | | | | | | | | |

| LOCATION | NO. OF LOC. | MARK | LENGTH FT. | LENGTH IN. | NO. BARS REQ'D | TYPE | AG | B FT. | B IN. |
|---|---|---|---|---|---|---|---|---|---|
| | | 1055 | 11- | 8 | 9 | 10 | 2 | 2 | 9- 6 |
| | | 1151A | 22- | 9 | 2 | 9 | | | |
| | | 1151B | 45- | 6 | 2 | 9 | | | |
| | | 1161B | 21- | 3 | 16 | 1 | | | |
| | | 1162A | 33- | 0 | 2 | 24 | | | |
| | | 1162B | 33- | 0 | 2 | 24 | | | |
| | | 1165 | 7- | 8 | 48 | 9 | | | |
| | | 1170 | 19- | 2 | 4 | 9 | | | |
| | | 1171 | 16- | 5 | 4 | 9 | | | |
| | | 1172 | 12- | 3 | 4 | 1 | | | |
| | | 1173 | 9- | 6 | 4 | 1 | | | |
| | | 1174 | 22- | 0 | 2 | 1 | | | |
| | | 1175 | 20- | 0 | 2 | 1 | | | |
| | | 1176 | 15- | 0 | 3 | 1 | | | |
| | | 1177 | 12- | 6 | 2 | 1 | | | |
| | | 1178 | 10- | 6 | 2 | 1 | | | |
| | | 1179 | 19- | 3 | 4 | 1 | | | |
| | | 1180 | 14- | 3 | 4 | 1 | | | |
| | | 1181B | 22- | 1 | 16 | 1 | | | |
| | | 1182 | 19- | 9 | 48 | 1 | | | |
| | | 1183B | 22-11 | | 16 | 1 | | | |
| BENT 4 RIGHT | 1 | | | | | | | | |
| | | 451 | 6- | 9 | 33 | 32 | | | |
| | | 454 | 9- | 5 | 52 | 25 | | | |
| | | 455 | 9- | 5 | 6 | 25 | | | |
| | | 454 | 1- | 6 | 8 | 1 | | | |
| | | 551 | 9- | 8 | 32 | 1 | | | |
| | | 552 | 6- | 8 | 44 | 1 | | | |
| | | 651 | 6- | 0 | 6 | 1 | | | |
| | | 1051 | 36- | 0 | 8 | 3 | | | |

BRIDGE NO. 1 LT. & RT.

STATE HIGHWAY DEPARTMENT OF GEORGIA
BRIDGE DIVISION

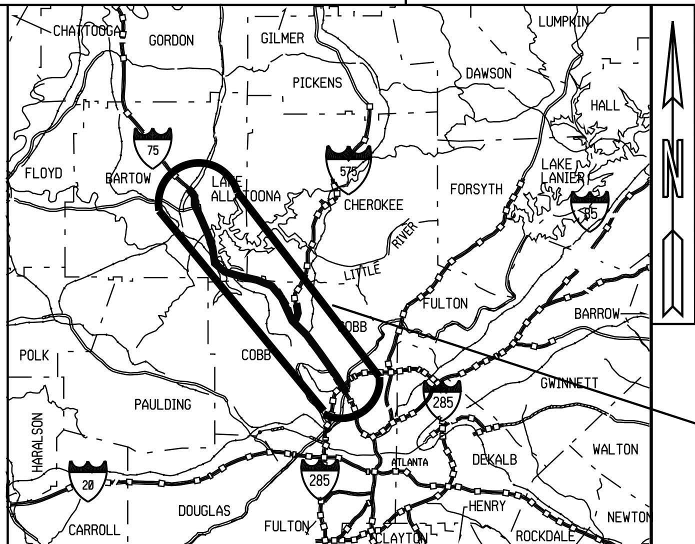
BAR REINFORCEMENT STEEL SH. NO. 3
I-75 OVER NOONDAY CREEK
COBB CO. I-75-3(40) CT. 5
NO SCALE SEPT. 1974

DESIGNED ____ TRACED ____ REVIEWED ____
DRAWN ____ CHECKED ____ APPROVED ____

BRIDGE SHEET 24 OF 24

# ROADWAY PLAN AND PROFILE

| 10/1/2009<br>USER:22950 | W:\TransDesign\IPLOT\colortables\oCE600.tbl<br>W:\TransDesign\IPLOT\pentables\HP5sl_hs.pen | O:\I75\dgn\714130CV01.dgn[0-61, 64, 65]<br>GRWCOV | STATE | PROJECT NUMBER | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|
| | | | GA | NH000-0074-03(242) | | |




I-575 PROJECT NH000-0073-03(242),PI 714130
COBB COUNTY

LOCATION SKETCH

# DEPARTMENT OF TRANSPORTATION
# STATE OF GEORGIA

## PLAN AND PROFILE OF PROPOSED

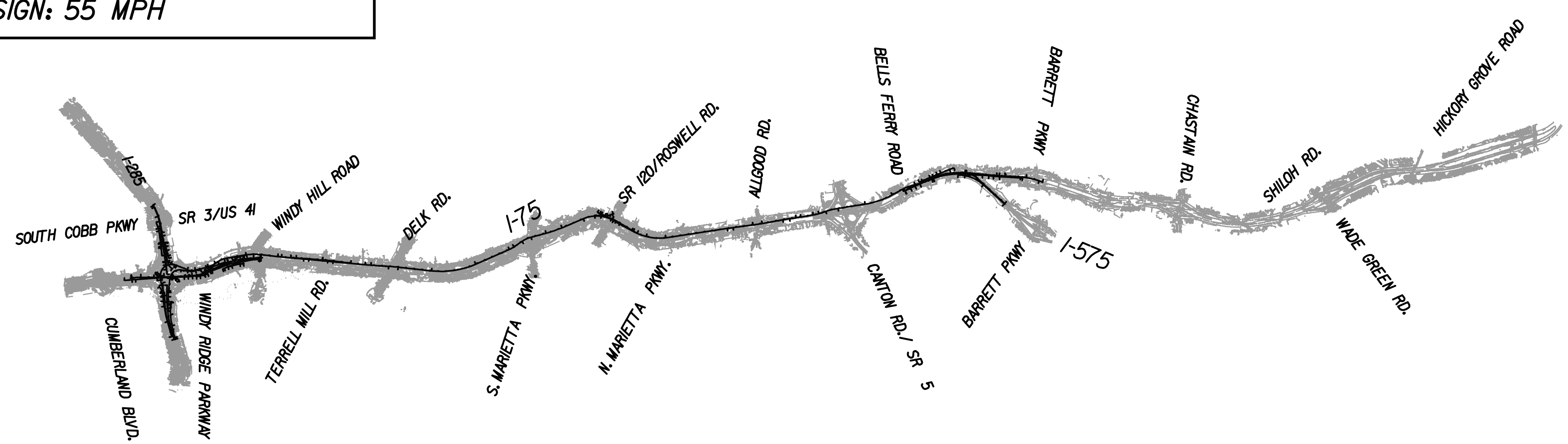
## I-75 REVERSIBLE LANES
## NH000-0073-03(242)
## COBB COUNTY

## FEDERAL AID PROJECT

FEDERAL ROUTE * I-75
STATE ROUTE * 417
P.I.NO. 714130

NOTE :
ALL REFERENCES IN THIS DOCUMENT,WHICH INCLUDES ALL PAPERS,WRITINGS, DOCUMENTS,DRAWINGS,OR PHOTOGRAPHS USED,OR TO BE USED IN CONNECTION WITH THIS DOCUMENT,TO "STATE HIGHWAY DEPARTMENT OF GEORGIA","STATE HIGHWAY DEPARTMENT",GEORGIA STATE HIGHWAY DEPARTMENT","HIGHWAY DEPARTMENT",OR "DEPARTMENT" WHEN THE CONTEXT THEREOF MEANS THE STATE HIGHWAY DEPARTMENT OF GEORGIA,AND SHALL BE DEEMED TO MEAN THE DEPARTMENT OF TRANSPORTATION.

DESIGN DATA:
TRAFFIC A.D.T.:
TRAFFIC A.D.T.:
TRAFFIC D.H.V.:
DIRECTIONAL DIST:
% TRUCKS:
24 HR.TRUCKS %:
SPEED DESIGN: 55 MPH




PREPARED BY: ______________________
DESIGN

RECOMMENDED FOR SUBMISSION BY: ______________________
DESIGN

SUBMITTED BY: ______________________
STATE DESIGN ENGINEER

| | |
|---|---|
| DATE | CHIEF ENGINEER |

| PLANS COMPLETED | |
|---|---|
| REVISIONS: | REVISED FIRST UTILITY SUBMISSION 9/25/09 |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |

THIS PROJECT HAS BEEN PREPARED USING THE HORIZONTAL GEORGIA COORDINATE SYSTEM OF 1984 (NAD 1983)/94 WEST ZONE,AND THE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988.

PBSJ
GTP GEORGIA TRANSPORTATION PARTNERS
NORTHWEST I-75/I-575 CORRIDOR

SCALE IN FEET
0 5000 10000 20000

| LENGTH OF PROJECT | COUNTY No.067/057<br>Project No.<br>MILES |
|---|---|
| NET LENGTH OF ROADWAY<br>NET LENGTH OF BRIDGES<br>NET LENGTH OF PROJECT<br>NET LENGTH OF EXCEPTIONS<br>GROSS LENGTH OF PROJECT | |

LOCATION & DESIGN
APPROVAL DATE:

FUNCTIONAL CLASS:
INTERSTATE PRINCIPAL ARTERIAL

THIS PROJECT IS 100% IN COBB COUNTY AND IS:
% IN CONG. DIST. NO. II ,
% IN CONG. DIST. NO. 6

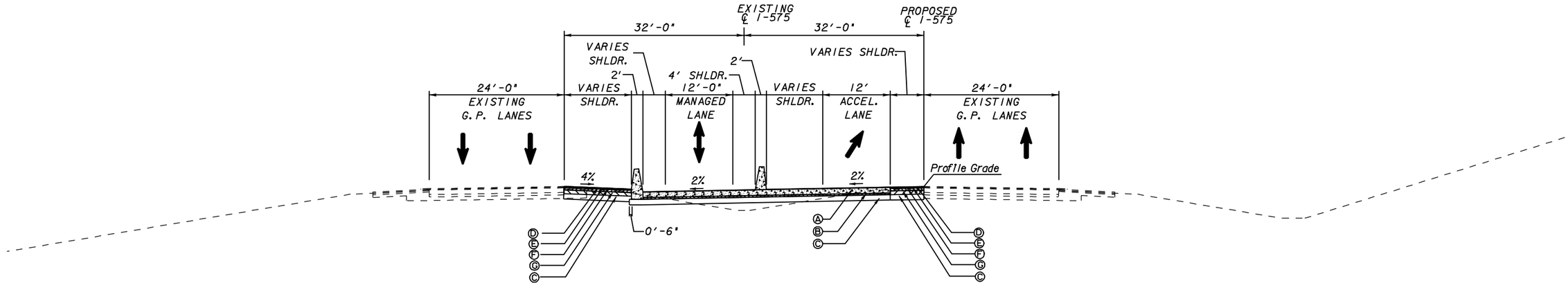
PROJECT DESIGNATION: EXEMPT

DESIGNED IN ENGLISH UNITS.

THE DATA,TOGETHER WITH ALL OTHER INFORMATION SHOWN ON THESE PLANS OR IN ANYWAY INDICATED THEREBY,WHETHER BY DRAWINGS OR NOTES,OR IN ANY OTHER MANNER,ARE BASED UPON FIELD INVESTIGATIONS AND ARE BELIEVED TO BE INDICATIVE OF ACTUAL CONDITIONS. HOWEVER, THE SAME ARE SHOWN AS INFORMATION ONLY,ARE NOT GUARANTEED,AND DO NOT BIND THE DEPARTMENT OF TRANSPORTATION IN ANY WAY.THE ATTENTION OF BIDDER IS SPECIFICALLY DIRECTED TO SUBSECTIONS 102.04,102.05,AND 104.03 OF THE SPECIFICATIONS.

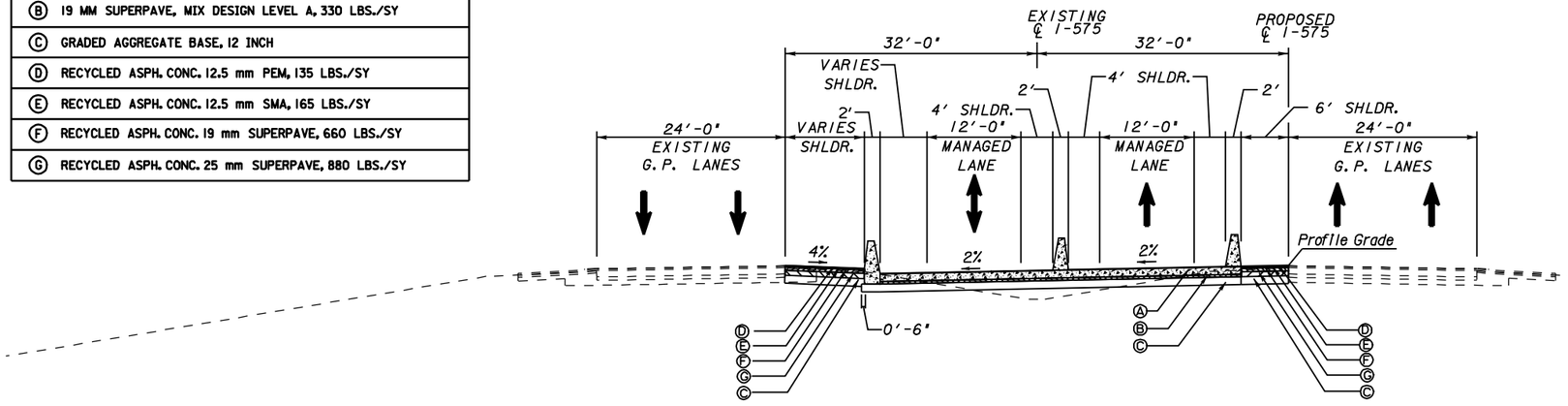
*C:TOPO3.dgn
*C:TOPO2.dgn
O:\I75\dgn\STATEMAP.dgn
575d_hal.dgn
*C:TOPO_N.dgn
*C:TOPO1.dgn
O:\I75\dgn\BORDER_CV.dgn
CONCOV
3/1/2007

| STATE | PROJECT NUMBER | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| GA | NH-000-0073-03(242) | | |




TS-10 - I-575 TANGENT SECTION
ONE-LANE REVERSIBLE
APPLIES TO: STA. 1112+53 TO STA. 1118+00
APPLIES TO: STA. 1326+72 TO STA. 1332+00

| PAVEMENT MATERIAL SCHEDULE |
|---|
| (A) PLAIN PORTLAND CEMENT CONTRETE WITH DOWELS, 12 INCH |
| (B) 19 MM SUPERPAVE, MIX DESIGN LEVEL A, 330 LBS./SY |
| (C) GRADED AGGREGATE BASE, 12 INCH |
| (D) RECYCLED ASPH. CONC. 12.5 mm PEM, 135 LBS./SY |
| (E) RECYCLED ASPH. CONC. 12.5 mm SMA, 165 LBS./SY |
| (F) RECYCLED ASPH. CONC. 19 mm SUPERPAVE, 660 LBS./SY |
| (G) RECYCLED ASPH. CONC. 25 mm SUPERPAVE, 880 LBS./SY |




TS- 09 - I-575 TANGENT SECTION
ONE-LANE REVERSIBLE
APPLIES TO: STA. 1109+53 TO STA. 1112+53
APPLIES TO: STA. 1325+79 TO STA. 1326+72

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REF FILES

| | | |
|---|---|---|
| MINDY SANDERS | 9/23/09 | DRAWN BY |
| STEVE LINLEY | 9/23/09 | CHECKED BY |
| STEVE LINLEY | 9/23/09 | SUPERVISOR |
| LARRY COOK | 9/23/09 | APPROVED |

TRACKING

| NO | DATE | DESCRIPTION | ORIG | CHKR | SUPV | APPR |
|---|---|---|---|---|---|---|
| A | 6/30/09 | PROGRESS DRAWINGS (ROLL PLOTS) | CEC | PCT | MRM | RHM |
| B | 9/25/09 | 50% SUBMITTAL | MHS | SJL | SJL | LFC |

GTP Georgia Transportation Partners

SCALE IN FEET
0 10 20 40

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA


JBT J.B. TRIMBLE, INC.
2550 Heritage Court SE
Suite 250
Atlanta, Georgia 30339

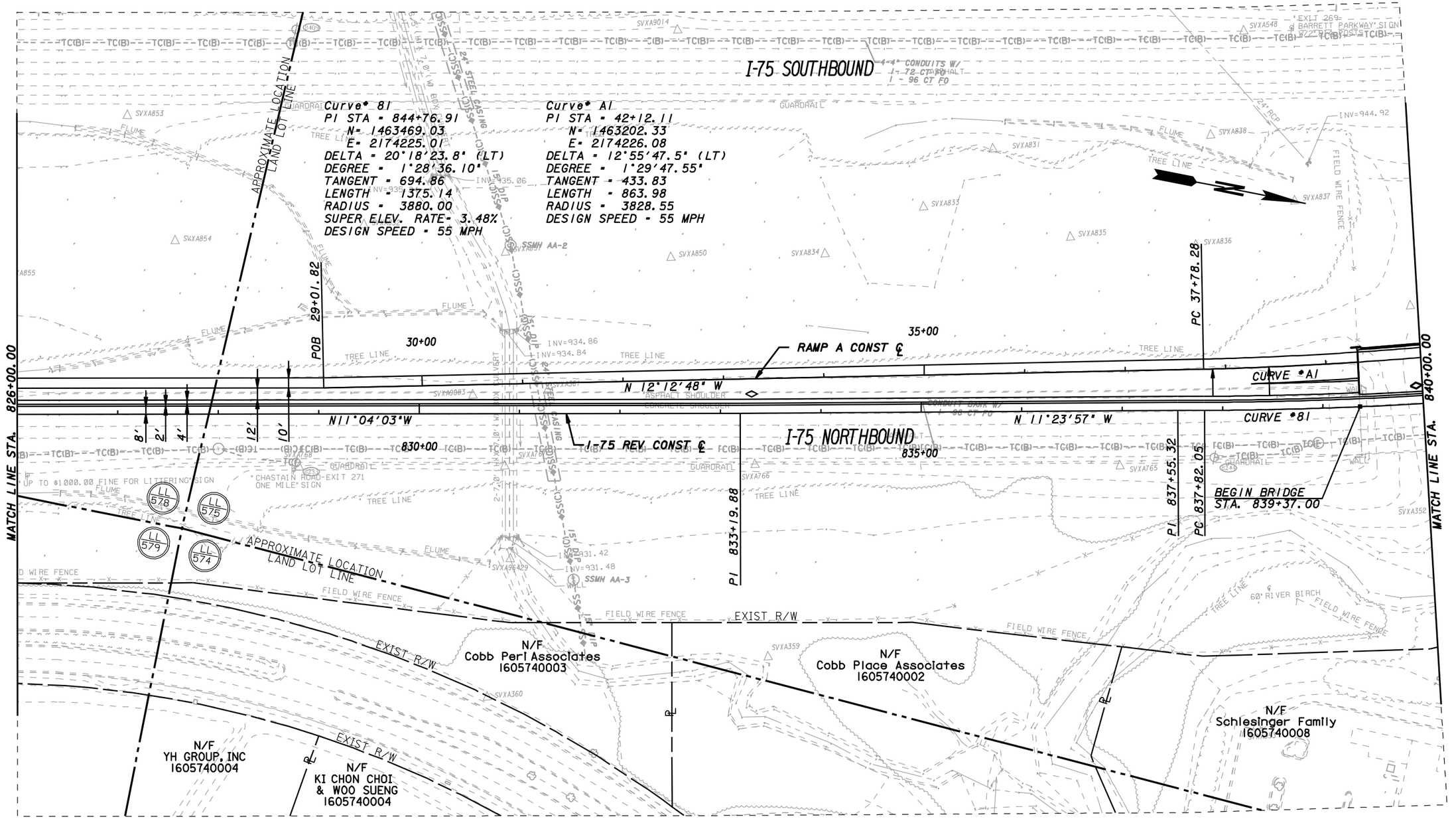

I-75 / I-575 NORTHWEST CORRIDOR

# TYPICAL SECTIONS

I-575 REVERSIBLE MANAGED LANES

DRAWING No. 05-05

| STATE | PROJECT NUMBER | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| GA | NH000-0073-03(242) | | |




| | | |
|---|---|---|
| MINDY SANDERS | ****9/23/09 | DRAWN BY |
| STEVE LINLEY | 9/23/09 | CHECKED BY |
| STEVE LINLEY | 9/23/09 | SUPERVISOR |
| LARRY COOK | 9/23/09 | APPROVED |

TRACKING

| NO | DATE | DESCRIPTION | ORIG | CHKR | SUPV | APPR |
|---|---|---|---|---|---|---|
| | **** | **** | MHS | SJL | SJL | LFC |
| A | 6/30/09 | PROGRESS DRAWINGS (ROLL PLOTS) | CEC | PCT | MRM | RHM |
| B | 9/25/09 | 50% SUBMITTAL | MHS | SJL | SJL | LFC |

GTP Georgia Transportation Partners

SCALE IN FEET
0 50 100 200

NORTHWEST I-75/I-575 CORRIDOR

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA


JBT J.B. TRIMBLE, INC.
2550 Heritage Court SE
Suite 250
Atlanta, Georgia 30339


I-75 / I-575 NORTHWEST CORRIDOR

# CONSTRUCTION PLAN

I-75 REVERSIBLE

DRAWING No. 13-46

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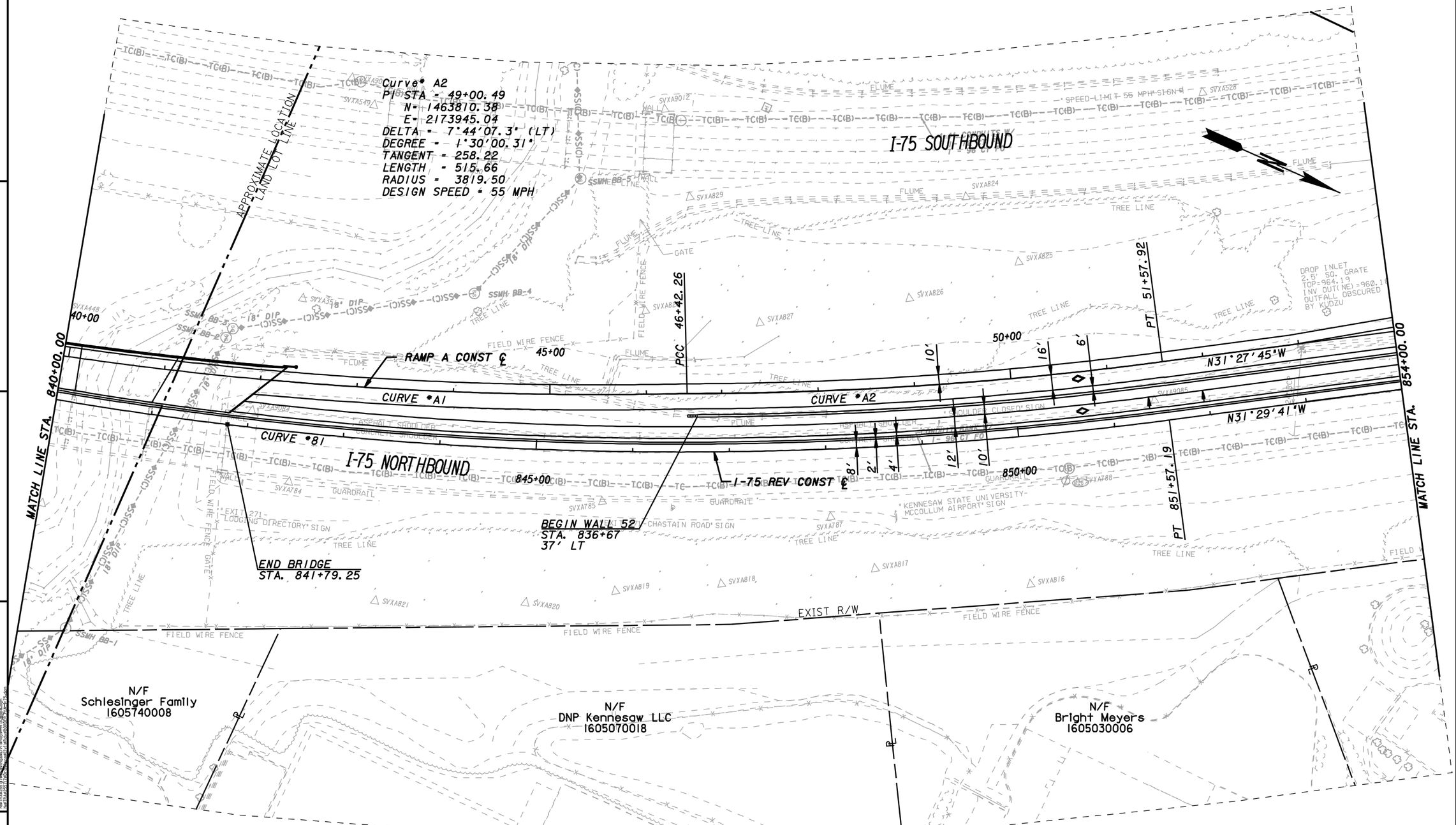
| STATE | PROJECT NUMBER | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| GA | NH000-0073-03(242) | | |




| | | |
|---|---|---|
| MINDY SANDERS | ****9/23/09 | DRAWN BY / DATE |
| STEVE LINLEY | 9/23/09 | CHECKED BY / DATE |
| STEVE LINLEY | 9/23/09 | SUPERVISOR / DATE |
| LARRY COOK | 9/23/09 | APPROVED / DATE |

TRACKING

| NO | DATE | DESCRIPTION | ORIG | CHKR | SUPV | APPR |
|---|---|---|---|---|---|---|
| | **** | **** | MHS | SJL | SJL | LFC |
| A | 6/30/09 | PROGRESS DRAWINGS (ROLL PLOTS) | CEC | PCT | MRM | RHM |
| B | 9/25/09 | 50% SUBMITTAL | MHS | SJL | SJL | LFC |

GTP Georgia Transportation Partners

SCALE IN FEET
0 50 100 200

NORTHWEST I-75/I-575 CORRIDOR

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

JBT J.B. TRIMBLE, INC.
2550 Heritage Court SE
Suite 250
Atlanta, Georgia 30339

I-75 / I-575 NORTHWEST CORRIDOR

**CONSTRUCTION PLAN**

I-75 REVERSIBLE

DRAWING No. 13-47

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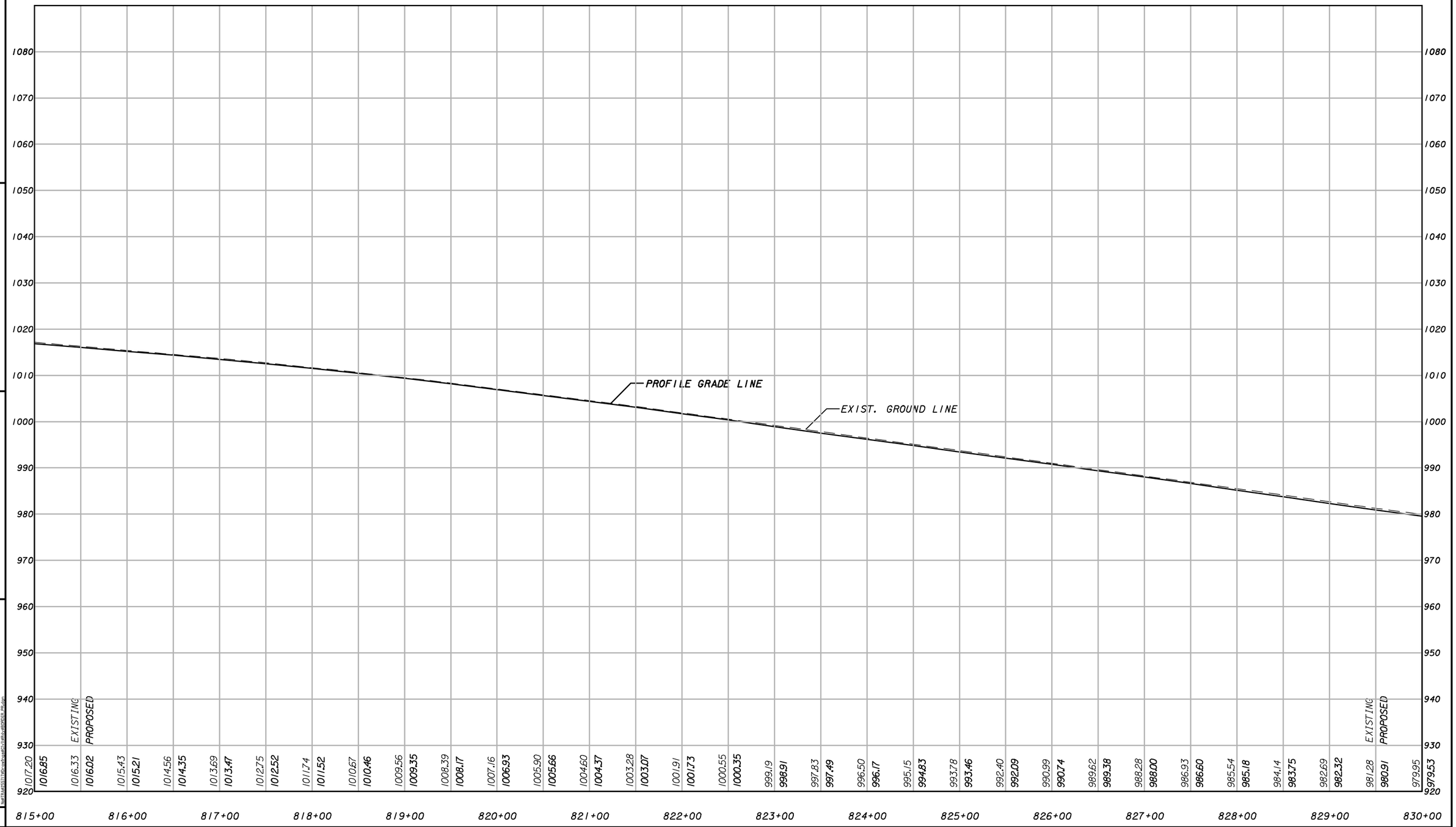
| STATE | PROJECT NUMBER | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| GA | NH000-0073-03(242) | | |

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| DRAWN BY | DATE |
|---|---|
| CHECKED BY | DATE |
| SUPERVISOR | DATE |
| APPROVED | DATE |

REVISIONS

| NO | DATE | DESCRIPTION | ORIG | CHKR | SUPV | APPR |
|---|---|---|---|---|---|---|
| A | 6/30/09 | PROGRESS DRAWINGS (ROLL PLOTS) | | | | |
| B | 9/25/09 | 50% SUBMISSION | | | | |

Georgia Transportation Partners

SCALE: 1" = 50' HORIZ.
1" = 10' VERT.

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA


J.B. TRIMBLE, INC.
2550 Heritage Court SE
Suite 250
Atlanta, Georgia 30339

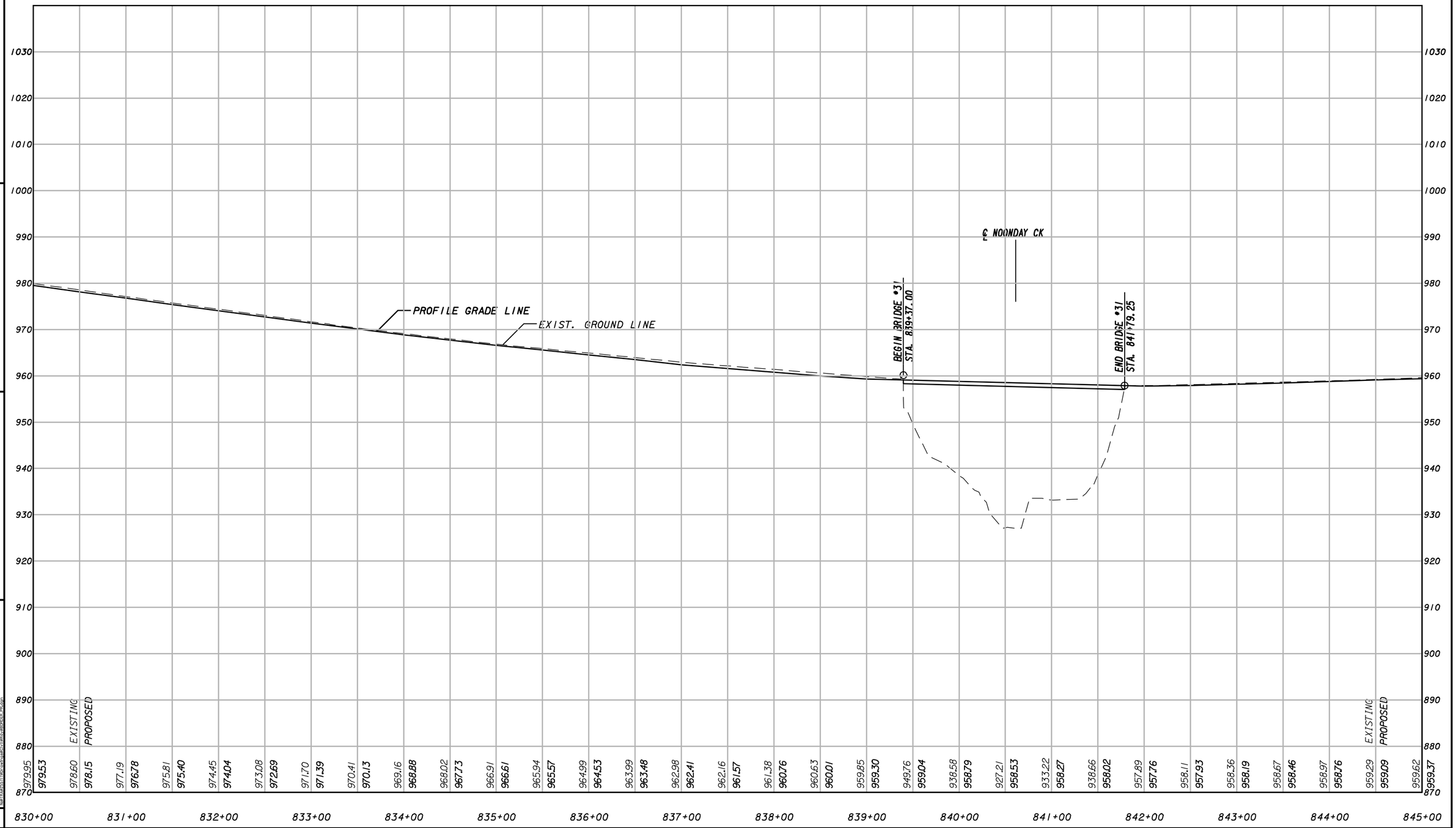

I-75 / I-575 NORTHWEST CORRIDOR

# MAINLINE PROFILE

I-75 REVERSIBLE MANAGED LANES

DRAWING No. 15-

| STATE | PROJECT NUMBER | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| GA | NH000-0073-03(242) | | |




| REVISIONS | | | | | | |
|---|---|---|---|---|---|---|
| NO | DATE | DESCRIPTION | ORIG | CHKR | SUPV | APPR |
| A | 6/30/09 | PROGRESS DRAWINGS (ROLL PLOTS) | | | | |
| B | 9/25/09 | 50% SUBMISSION | | | | |

DRAWN BY ____ DATE ____
CHECKED BY ____ DATE ____
SUPERVISOR ____ DATE ____
APPROVED ____ DATE ____

Georgia Transportation Partners

SCALE: 1" = 50' HORIZ.
1" = 10' VERT.

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA


J.B. TRIMBLE, INC.
2550 Heritage Court SE
Suite 250
Atlanta, Georgia 30339


I-75 / I-575 NORTHWEST CORRIDOR

# MAINLINE PROFILE

I-75 REVERSIBLE MANAGED LANES

DRAWING No. 15-

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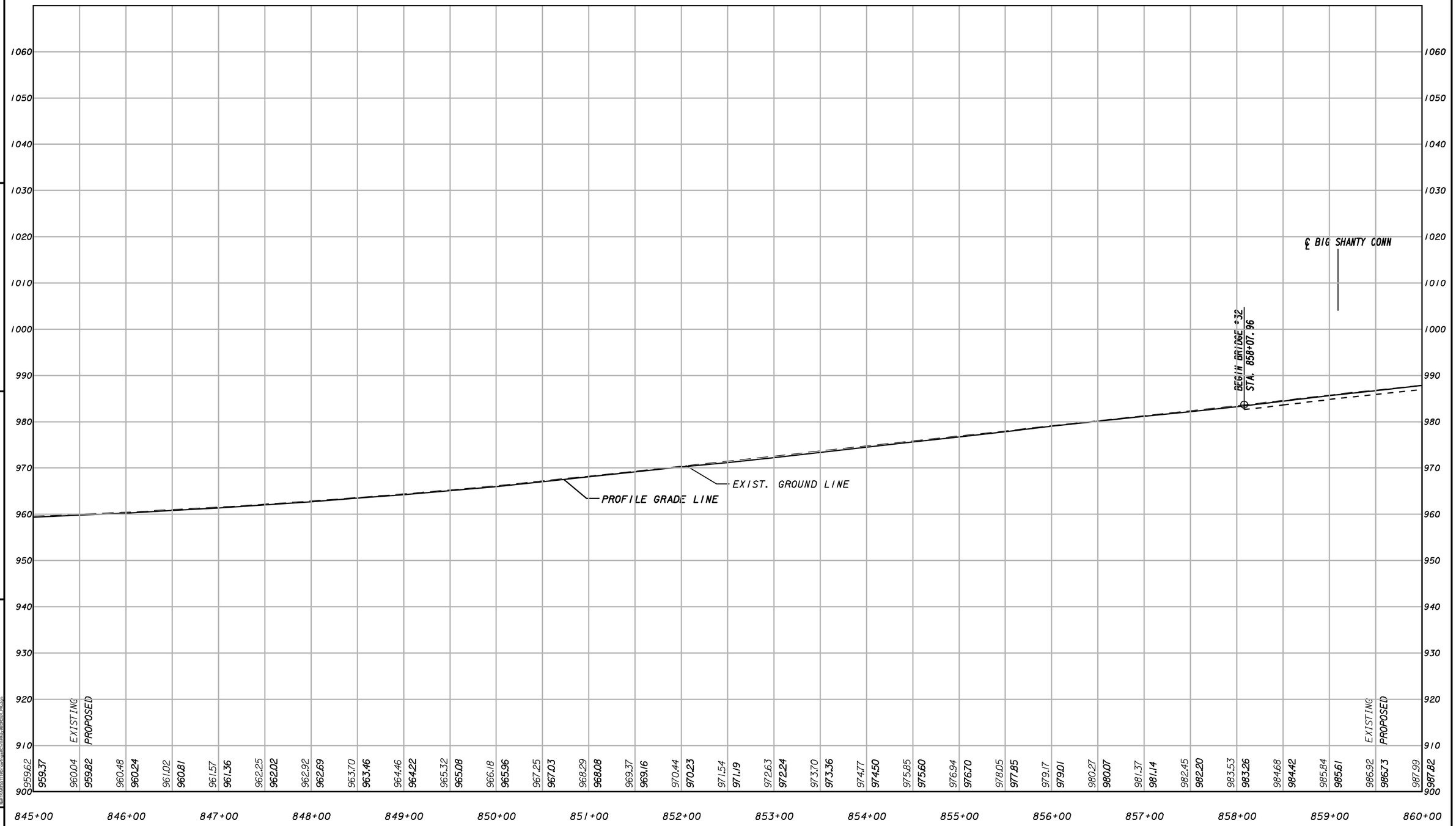
| STATE | PROJECT NUMBER | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| GA | NH000-0073-03(242) | | |




| REVISIONS | | | | | | |
|---|---|---|---|---|---|---|
| NO | DATE | DESCRIPTION | ORIG | CHKR | SUPV | APPR |
| A | 6/30/09 | PROGRESS DRAWINGS (ROLL PLOTS) | | | | |
| B | 9/25/09 | 50% SUBMISSION | | | | |

DRAWN BY ____ DATE ____
CHECKED BY ____ DATE ____
SUPERVISOR ____ DATE ____
APPROVED ____ DATE ____

Georgia Transportation Partners

SCALE: 1" = 50' HORIZ.
1" = 10' VERT.

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

J.B. TRIMBLE, INC.
2550 Heritage Court SE
Suite 250
Atlanta, Georgia 30339

I-75 / I-575 NORTHWEST CORRIDOR

# MAINLINE PROFILE

I-75 REVERSIBLE MANAGED LANES

DRAWING No. 15-

REF FILES:

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| STATE | PROJECT NUMBER | SHEET NO. | TOTAL SHEETS |
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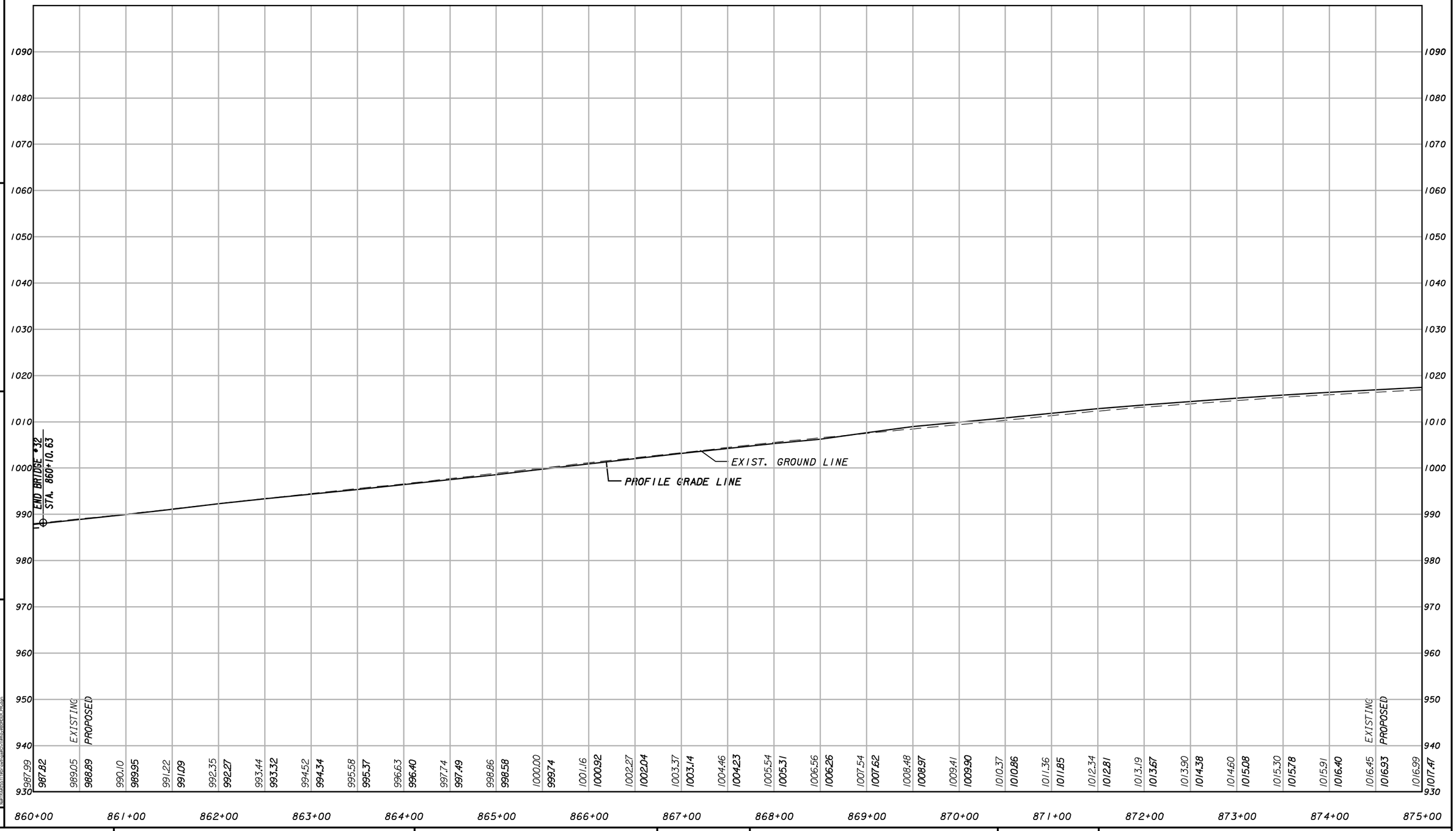
| GA | NH000-0073-03(242) | | |

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| REVISIONS | | | | | | |
|---|---|---|---|---|---|---|
| NO | DATE | DESCRIPTION | ORIG | CHKR | SUPV | APPR |
| A | 6/30/09 | PROGRESS DRAWINGS (ROLL PLOTS) | | | | |
| B | 9/25/09 | 50% SUBMISSION | | | | |

DRAWN BY ____ DATE ____
CHECKED BY ____ DATE ____
SUPERVISOR ____ DATE ____
APPROVED ____ DATE ____

GTP Georgia Transportation Partners

SCALE: 1" = 50' HORIZ.
1" = 10' VERT.

NORTHWEST I-75/I-575 CORRIDOR

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA


JBT J.B. TRIMBLE, INC.
2550 Heritage Court SE
Suite 250
Atlanta, Georgia 30339


I-75 / I-575 NORTHWEST CORRIDOR

# MAINLINE PROFILE

I-75 REVERSIBLE MANAGED LANES

DRAWING No. 15-

# PRELIMINARY BRIDGE PLAN AND ELEVATION SECTION

| STATE | PROJECT NUMBER | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| GA | NH000-0073-03(242) | | |

P.I. STA. = 844+76.91
Δ = 20°-18'-24"
D = 1°-28'-36"
T = 694.86 FT
L = 1375.14 FT
R = 3880.00 FT

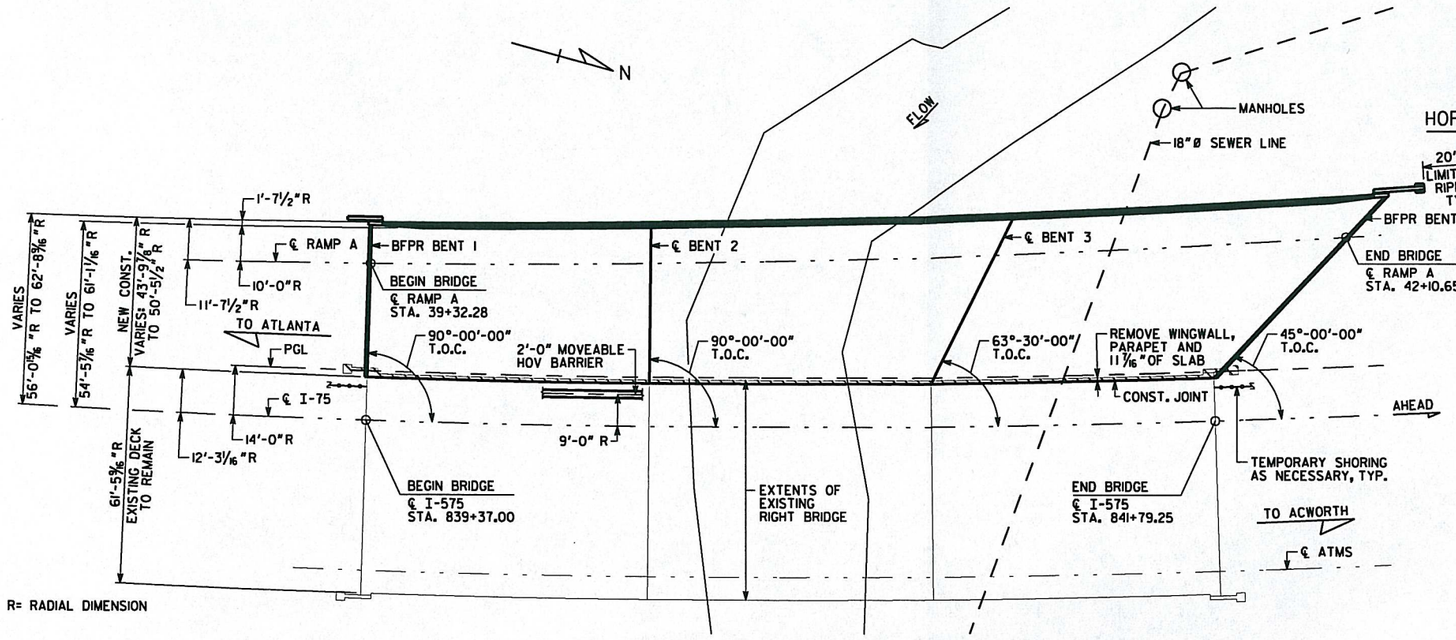
℄ I-75
HORIZONTAL CURVE DATA

-2.7292% +2.2110%
P.V.I.
STA. 841+93.13
EL. 946.07
1800 FT V.C.

I-75
GRADE DATA

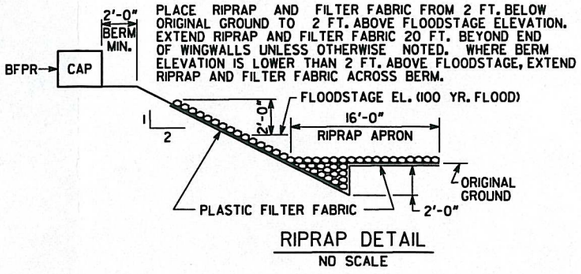
P.I. STA. = 42+12.11
Δ = 12°-55'-47.5"
D = 1°-29'-47.55"
T = 433.83 FT
L = 863.98 FT
R = 3828.55 FT

℄ RAMP AI
HORIZONTAL CURVE DATA




R= RADIAL DIMENSION

PLAN
SCALE: 1"= 20'-0"




RIPRAP DETAIL
NO SCALE

## DESIGN DATA

SPECIFICATIONS ---------- AASHTO 17TH EDITION, 2002
(DESIGNED FOR SEISMIC PERFORMANCE CATEGORY B)
TYPICAL HS20-44 AND/OR MILITARY LOADING --- IMPACT ALLOWED
FUTURE PAVING ALLOWANCE ---------- 30 LBS PER SQ FT

## WIDENED BRIDGE CONSISTS OF

1 - 80'-9" W BEAM COMPOSITE SIMPLE SPAN ---------- SPECIAL DESIGN
2 - 80'-9" PLATE GIRDER COMPOSITE SIMPLE SPANS (TRAPEZOID) --- SPECIAL DESIGN
2 - PILE END BENTS ---------- SPECIAL DESIGN
2 - CONCRETE INTERMEDIATE BENTS ---------- SPECIAL DESIGN

24" TYPE I RIP RAP

## EXISTING UTILITIES ON BRIDGE

4 - 4 INCH DIAMETER ATMS ----- GEORGIA DEPARTMENT OF TRANSPORTATION

## EXISTING UTILITIES UNDER BRIDGE

18" STEEL SANITARY SEWER

## DRAINAGE DATA

DRAINAGE AREA ---------- 11.0 SQ MI

| FLOOD FREQUENCY | DISCHARGE THRU BRIDGE | MEAN VELOCITY | AREA OF OPENING UNDER FLOODSTAGE | BACKWATER |
|---|---|---|---|---|
| 50 YEAR | 6003 CFS | 4.34 FPS | 1382 SQ FT | 0.49 FT |
| 100 YEAR | 6889 CFS | 4.46 FPS | 1544 SQ FT | 0.37 FT |
| 500 YEAR | 8519 CFS | 4.53 FPS | 1881 SQ FT | 0.08 FT |

| THEORETICAL SCOUR DEPTHS (FT) | | | | | | |
|---|---|---|---|---|---|---|
| | 100 YEAR STORM | | | 500 YEAR STORM | | |
| BENT LOCATION | GENERAL | LOCAL | TOTAL | GENERAL | LOCAL | TOTAL |
| BENT 2 | 1.0 | 13.0 | 14.0 | 1.0 | 13.3 | 14.3 |
| BENT 3 | 3.4 | 13.0 | 16.4 | 1.0 | 13.3 | 14.3 |

EXISTING RIGHT BRIDGE SERIAL NO. 067-0083-0
EXISTING RIGHT BRIDGE I.D. NO. 067-0040ID-270.25N
PROJECT P.I. NO. 714130

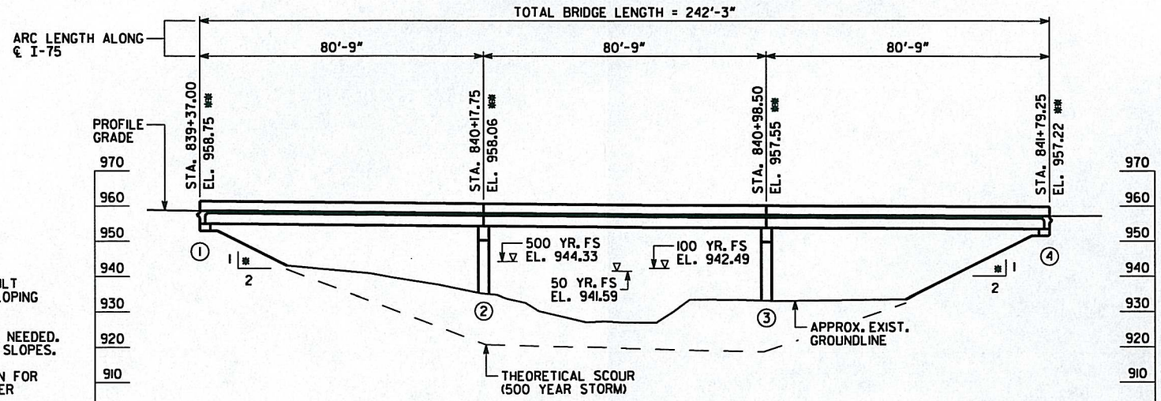
BRIDGE NO. 31

| BERM ELEVATIONS ⊛ | | |
|---|---|---|
| BENT | LEFT | RIGHT |
| 1 | 951.12 | 952.56 |
| 4 | 948.49 | 950.31 |

⊛NOTE: FOR BRIDGE ENDROLL STAKING PURPOSES ONLY.

NOTES:

1. * SLOPE NORMAL TO END BENTS.
2. ** STATIONS ARE ALONG ℄ I-75 AT THE INTERSECTION OF ℄ I-75 AND BFPR OR ℄ BENT. ELEVATIONS ARE ALONG PGL.
3. END BENT PILES NOT SHOWN.
4. THE PROPOSED BRIDGE DECK IS TO BE BUILT ON A CONSTANT CROSS SLOPE OF 4%, SLOPING DOWN TO THE LEFT.
5. REPAIR AND REPLACE EXISTING RIPRAP AS NEEDED. EXTEND APRON ACROSS TOE OF EXISTING SLOPES.
6. THE MINIMUM BOTTOM OF BEAM ELEVATION FOR THE PROPOSED BRIDGE SHALL BE NO LOWER THAN ELEVATION 943.59
7. THE PROPOSED BRIDGE BOTTOM OF BEAM ELEVATION IS 950.74




ELEVATION
SCALE: 1"= 20'-0"

| REVISIONS | | | | | | |
|---|---|---|---|---|---|---|
| NO | DATE | DESCRIPTION | ORIG | CHKR | SUPV | APPR |
| A | 6/30/09 | Progress Drawings (SO 11 Revision 2) | AEM | JCR | GLE | SJL |
| B | 9/25/09 | 50% SUBMISSION | AEM | JCR | GLE | SJL |
| C | 11/20/09 | HYDRAULIC STUDY SUBMISSION | AEM | JCR | GLE | SJL |

| | |
|---|---|
| ABBAS ESHAGIEH-MEYBODI (DRAWN BY) | 11/20/09 (DATE) |
| JOHN ROSSLOW (CHECKED BY) | 11/20/09 (DATE) |
| GARRICK EDWARDS (SUPERVISOR) | 11/20/09 (DATE) |
| STEPHEN LINLEY (APPROVED) | 11/20/09 (DATE) |

GTP Georgia Transportation Partners

NORTHWEST I-75/I-575 CORRIDOR

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

JBT J.B. Trimble, Inc.
2550 Heritage Ct. SE Suite 250
Atlanta GA 30339-3062
(770) 952-1022

GEORGIA REGISTERED No. 21873 PROFESSIONAL ENGINEER — 11-12-09

BRIDGE SHEET
1 OF 2

I-75 / I-575 NORTHWEST CORRIDOR

**I-75 REV OVER NOONDAY CREEK**
PLAN AND ELEVATION

COBB COUNTY NH000-0073-03(242)

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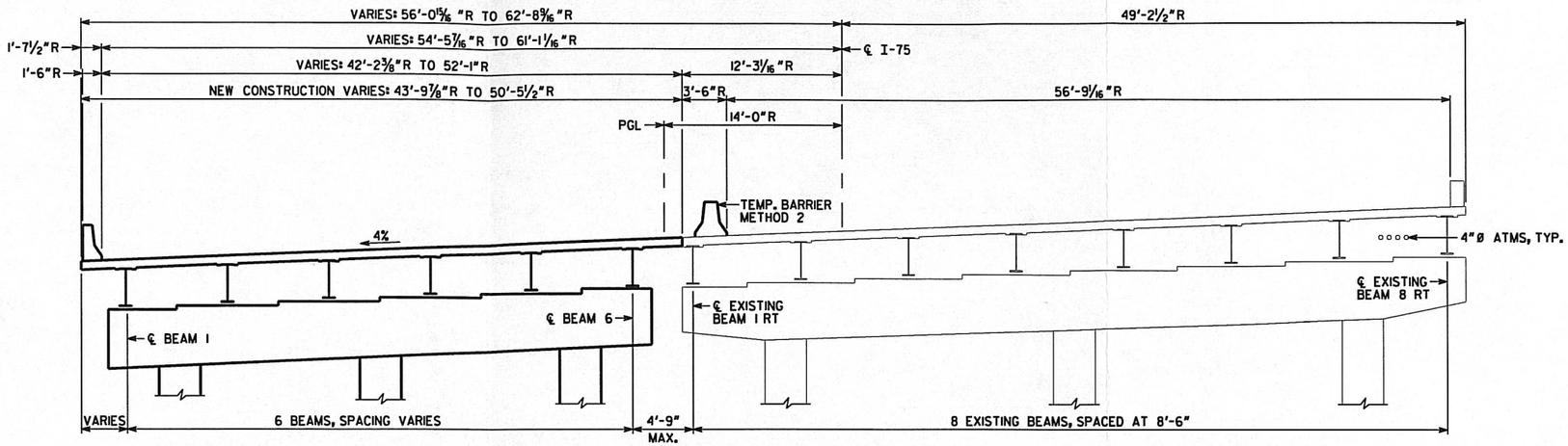
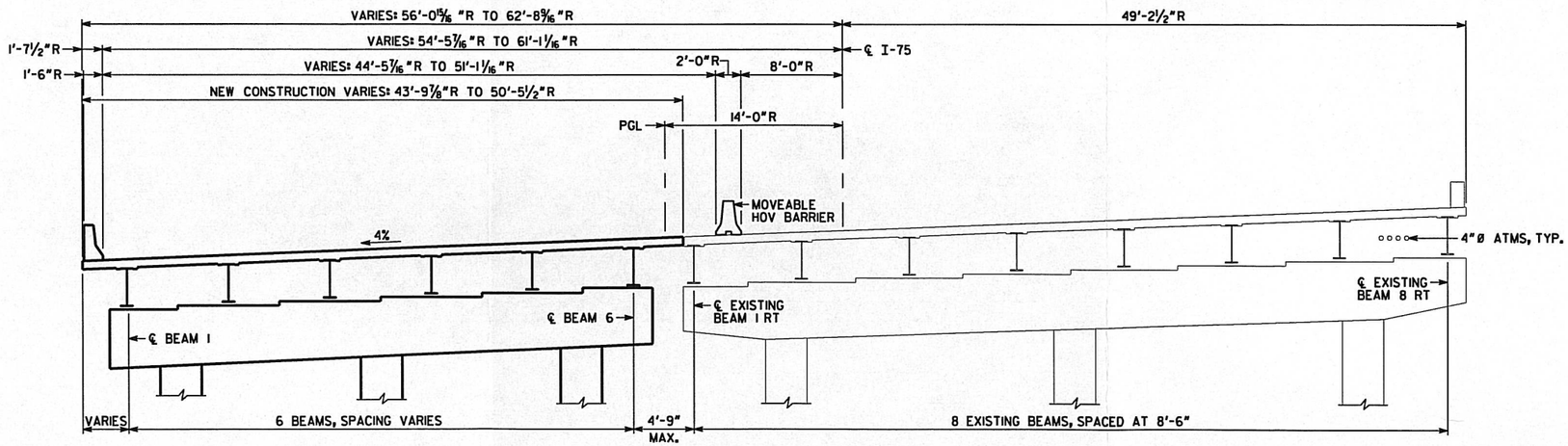
| STATE | PROJECT NUMBER | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| GA | NH000-0073-03(242) | | |

R = RADIAL DIMENSION




TYPICAL SECTION
(LOOKING AHEAD, RIGHT BRIDGE)




TYPICAL SECTION
(LOOKING AHEAD, RIGHT BRIDGE)

## CONSTRUCTION SEQUENCE

1. PLACE TEMPORARY BARRIER. MAINTAIN THREE 12'-0" LANES OF TRAFFIC IN EACH DIRECTION ON EXISTING BRIDGES.
2. REMOVE PORTIONS OF EXISTING NORTH BOUND BRIDGE AS NECESSARY FOR NEW CONSTRUCTION.
3. CONSTRUCT NEW SUBSTRUCTURE.
4. CONSTRUCT NEW SUPERSTRUCTURE.

BRIDGE NO. 31

| | |
|---|---|
| ABBAS ESHAGIEH-MEYBODI | 11/20/09 |
| DRAWN BY | DATE |
| JOHN ROSSLOW | 11/20/09 |
| CHECKED BY | DATE |
| GARRICK EDWARDS | 11/20/09 |
| SUPERVISOR | DATE |
| STEPHEN LINLEY | 11/20/09 |
| APPROVED | DATE |

REVISIONS

| NO | DATE | DESCRIPTION | ORIG | CHKR | SUPV | APPR |
|---|---|---|---|---|---|---|
| A | 6/30/09 | Progress Drawings (SO 11 Revision 2) | AEM | JCR | GLE | SJL |
| B | 9/25/09 | 50% SUBMISSION | AEM | JCR | GLE | SJL |
| C | 11/20/09 | HYDRAULIC STUDY SUBMISSION | AEM | JCR | GLE | SJL |

GTP Georgia Transportation Partners

NORTHWEST I-75/I-575 CORRIDOR

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

JBT J.B. Trimble, Inc.
2550 Heritage Ct, SE Suite 250
Atlanta GA 30339-3062
(770) 952-1022

BRIDGE SHEET
2 OF 2

I-75 / I-575 NORTHWEST CORRIDOR

# I-75 REV OVER NOONDAY CREEK
## CONSTRUCTION SEQUENCE

COBB COUNTY NH000-0073-03(242)

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