FINAL

# Location Hydraulics Report

**State Road 414 Expressway Extension**
**Project Development and Environment Study**
From US 441 to SR 434
Orange County and Seminole County, Florida

CFX Project Number: 414-227

**Prepared for:**
Central Florida Expressway Authority
4974 ORL Tower Road
Orlando, FL 32807

**Submitted by:**
Jacobs Engineering Group Inc.
200 S. Orange Ave., Suite 900
Orlando, FL 32801

PPS0222211006ORL

MAY 2022

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

## PROFESSIONAL ENGINEER CERTIFICATE

I hereby certify that I am a registered professional engineer in the State of Florida practicing with Jacobs Engineering Group Inc., a corporation, authorized to operate as an engineering business, Certificate of Authorization No. 2822, by the State of Florida, Department of Business and Professional Regulation, Board of Professional Engineers, and that I have reviewed or approved the evaluation, findings, opinions, conclusions, or technical advice hereby reported for:

**Project:** Central Florida Expressway - State Road 414 Expressway Extension
Project Development and Environment Study
From US 441 to SR 434
Orange County and Seminole County, Florida
CFX Project Number: 414-227

**Prepared for:**
Central Florida Expressway Authority
4974 ORL Tower Road
Orlando, FL 32807

**Submitted by:**
Jacobs Engineering Group, Inc.
200 S. Orange Ave., Suite 900
Orlando, FL 32801

This Location Hydraulics Report includes a summary of data collection efforts and conceptual base floodplain encroachments prepared for conceptual analyses for **Central Florida Expressway's State Road 414 Expressway Extension Project Development & Environment Study**. I acknowledge that the procedures and references used to develop the results contained in this report are standard to the professional practice of transportation engineering and planning as applied through professional judgment and experience. This document is for planning purposes only and is not to replace any effort required for final design.

**Name:** Danh T. Lee P.E.

**Signature:** _____

**P.E. Number:** 68228

**Date:** _____

**Address:** Jacobs
200 S. Orange Avenue, Suite 900 Orlando, Florida 32801 United States
T +1.407.903.5001 F +1.407.903.5150
www.jacobs.com

DRAFT DOCUMENT NOT SIGNED

## Contents

**Acronyms and Abbreviations** ..... **iv**

**1. Project Overview** ..... **1-1**

1.1 Project Background and Description ..... 1-1

1.2 Purpose and Need ..... 1-4

1.3 Report Purpose ..... 1-4

1.4 Alternatives Considered ..... 1-4

1.4.1 Preferred Alternative ..... 1-4

1.4.2 No-Build Alternative ..... 1-5

**2. Methodology** ..... **2-1**

**3. Existing Conditions** ..... **3-1**

3.1 Drainage and Hydrology ..... 3-1

3.2 Existing Typical Section ..... 3-1

3.3 Posted Speeds ..... 3-2

3.4 Right-of-Way ..... 3-2

3.5 Soils ..... 3-2

3.6 Land Use ..... 3-2

3.7 Existing Cross Culverts ..... 3-3

3.8 Existing Bridges ..... 3-3

3.8.1 Overview ..... 3-3

3.8.2 Current Condition and Year of Construction ..... 3-4

3.9 Floodplains and Regulatory Floodways ..... 3-4

3.10 Coordination with Local Agencies ..... 3-5

3.10.1 Orange County ..... 3-5

3.10.2 FDOT Maintenance, Oviedo Yard ..... 3-5

3.10.3 City of Altamonte Springs ..... 3-5

3.10.4 St. Johns River Water Management District ..... 3-6

3.10.5 Environmental Look Around ..... 3-6

3.11 Field Investigation ..... 3-6

**4. Proposed Conditions** ..... **4-1**

4.1 Proposed Drainage ..... 4-1

4.2 Proposed Typical Section ..... 4-1

4.3 Proposed Cross Culverts ..... 4-1

4.4 Proposed Bridge Structures ..... 4-2

4.4.1 SR 414 Over Lake Bosse ..... 4-2

4.4.2 SR 414 Over Little Wekiva River ..... 4-3

4.5 Floodplains and Floodways....4-4
4.5.1 Floodplain Designation and Evaluation....4-5
4.5.2 Floodplain Impacts and Compensation....4-5
4.6 Bridge Hydraulic Evaluation....4-7
4.7 Water Quality....4-10
4.8 Project Classification....4-10
4.9 Risk Evaluation....4-10
**5. Recommendations and Conclusions.... 5-1**
**6. References.... 6-1**

**Appendixes**

**Appendix A Maps**
**Appendix B Correspondence**
**Appendix C Supporting Documentation**
Datum Conversion
Field Investigation
Straight Line Diagrams
USDA Soils
FEMA FIRM
Existing Bridge Plans
Conceptual Proposed Bridge Plans on Existing Bridge Plans at Maitland Boulevard Over Lake Bosse
Bridge Hydraulics Evaluation

**Tables**

**Table 3-1. Existing (2020) Corridor Posted Speed Limits.... 3-2**
**Table 3-2. Existing Bridge Structures.... 3-4**
**Table 3-3. Current Structure Condition and Year of Construction.... 3-4**
**Table 4-1. Preliminary Capacities of Piles.... 4-3**
**Table 4-2. Summary of Results.... 4-8**

**Figures**

**Figure 1-1. Regional Location Map.... 1-2**
**Figure 1-2. Project Location Map.... 1-3**
**Figure 3-1. Existing Typical Section.... 3-2**

**Figure 4-1. Proposed Typical Section** ..... **4-1**
**Figure 4-2. Locations of the Proposed and Existing Piers** ..... **4-3**
**Figure 4-3. Proposed Bridge Typical Section** ..... **4-3**
**Figure 4-4. SR 414 Over Little Wekiva River Bridge (Plan View)** ..... **4-4**
**Figure 4-5. SR 414 Over Little Wekiva River Bridge (Section View)** ..... **4-4**
**Figure 4-6. Pond E Typical Section** ..... **4-6**
**Figure 4-7. Hydraulic Results** ..... **4-9**

## Acronyms and Abbreviations

| | |
|---|---|
| cfs | cubic feet per second |
| CFX | Central Florida Expressway Authority |
| DHW | design high water |
| EB | east bound |
| ELA | Environmental Look Around |
| ESHWT | estimated seasonal high water table |
| FDEP | Florida Department of Environmental Protection |
| FDOT | Florida Department of Transportation |
| FEMA | Federal Emergency Management Agency |
| FIRM | Flood Insurance Rate Map |
| I-4 | Interstate 4 |
| mph | mile(s) per hour |
| NAVD | North American Vertical Datum of 1988 |
| NGVD | National Geodetic Vertical Datum of 1929 |
| PD&E | Project Development and Environment |
| ROW | right-of-way |
| SJRWMD | St. Johns River Water Management District |
| SR 414 | State Road 414 |
| SR 429 | State Road 429 |
| SR 434 | State Road 434 |
| TMDL | Total Maximum Daily Load |
| US 441 | U.S. Highway 441 |
| WB | west bound |
| WSE | water surface elevation |

# 1. Project Overview

## 1.1 Project Background and Description

The Central Florida Expressway Authority is conducting the State Road 414 Expressway Extension Project Development and Environment Study to evaluate alternatives for a proposed grade-separated expressway extension of the tolled SR 414 (John Land Apopka Expressway). The existing SR 414 Expressway provides regional connectivity from State Road 429 and U.S. Highway 441 in Apopka and extends south and east to SR 414 (Maitland Boulevard) just east of US 441. Figure 1-1 presents the Regional Location Map. The study limits extend along the existing SR 414 (Maitland Boulevard) corridor from US 441 (Orange Blossom Trail) to State Road 434 (Forest City Road). Figure 1-2 presents the Project Location Map. The approximate 2.8-mile-long study corridor generally runs along the boundary of Orange County and Seminole County and is located within the cities of Maitland (Orange County) and Altamonte Springs (Seminole County). Both CFX and the Florida Department of Transportation own portions of SR 414 within the project study limits. CFX owns and operates the SR 414 (John Land Apopka Expressway) from SR 429 to just east of US 441, and FDOT owns and operates SR 414 (Maitland Boulevard) from just east of US 441 to U.S. Highway 17/U.S. Highway 92. The existing SR 414 (Maitland Boulevard) is a four-lane divided urban principal arterial with three major signalized intersections at Bear Lake Road/Rose Avenue, Eden Park Road and Magnolia Homes Road, and an unsignalized intersection at Gateway Drive between the grade-separated intersections of SR 414/US 441 and SR 414/ SR 434. A minor grade-separated overpass exists over the Little Wekiva Canal and an access road between the Lake Lotus Park and Ride lot and Lake Lotus Park.

The PD&E Study is evaluating alternatives for a proposed grade-separated SR 414 Expressway Extension to provide system linkage between the western terminus of the SR 414 (John Land Apopka Expressway) and Interstate 4. The SR 414 Expressway Extension includes alternatives for a facility with up to two lanes in each direction from US 441 to SR 434. Project alternatives involve various configurations of grade-separated express lanes on SR 414 (Maitland Boulevard) to provide needed capacity between US 441 and SR 434 while maintaining the existing local access lanes. Alternatives considered include reversible, bi-directional and convertible express lanes along the project corridor to avoid right-of-way acquisition needs.

Prior to the PD&E Study, CFX completed the SR 414 Reversible Express Lanes Schematic Report that included an assessment of tolled, directional express lanes within the median of SR 414 (CFX 2019). The Report recommended a two-lane, reversible, grade-separated viaduct in the median of SR 414. The Report also found that a single lane bi-directional express lane would require a 75 percent wider bridge and was not considered viable.

The proposed improvements also include reconfiguring the existing at-grade SR 414 (Maitland Boulevard) to accommodate the SR 414 toll facility while maintaining two SR 414 local access lanes in each direction. The study will involve analysis of intersection improvements, bridge modifications at Lake Bosse and Little Wekiva Canal, stormwater management facilities, pedestrian and bicycle needs and access management modifications. The No-Build Alternative is a viable option throughout the study.

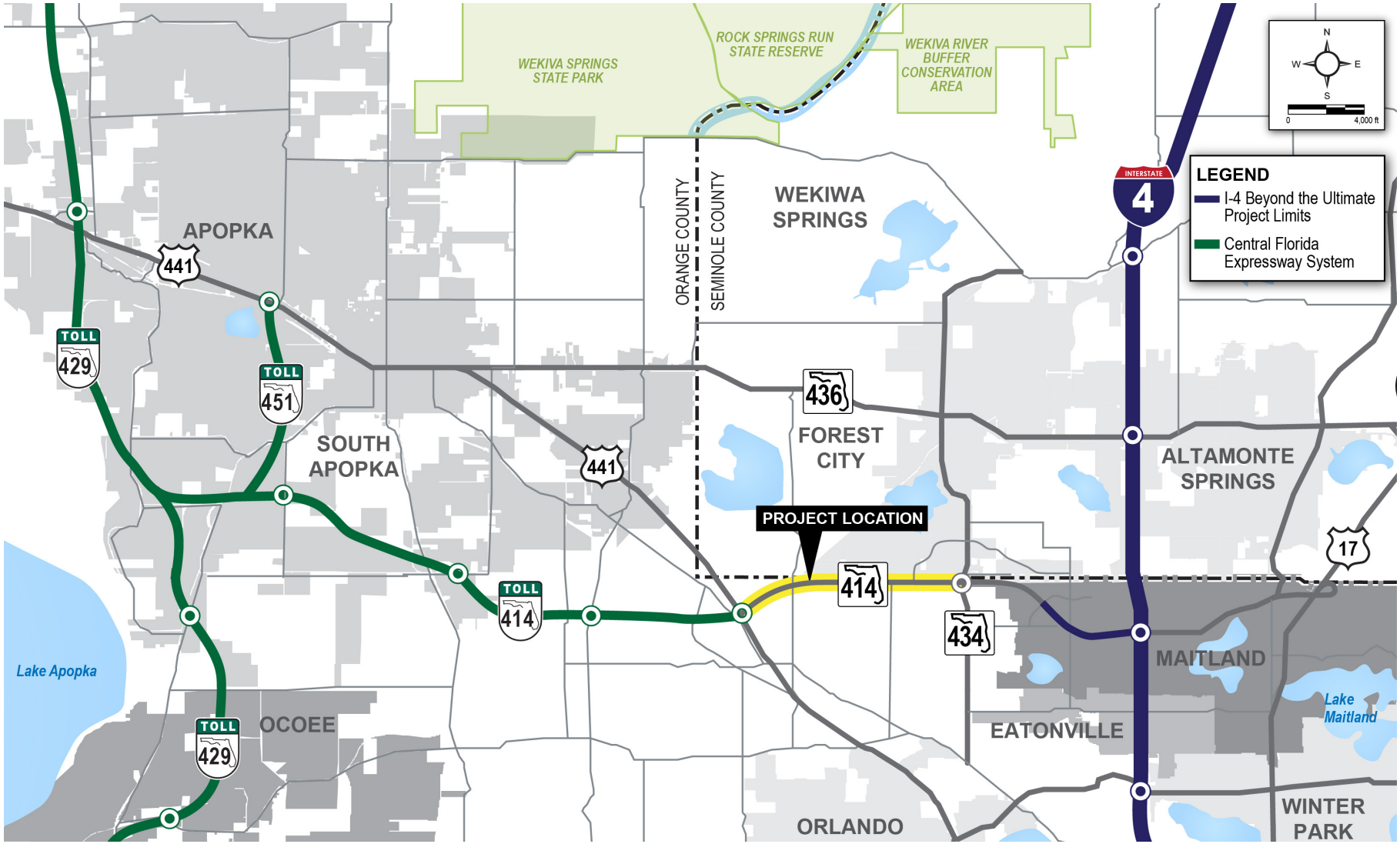



**Figure 1-1. Regional Location Map**

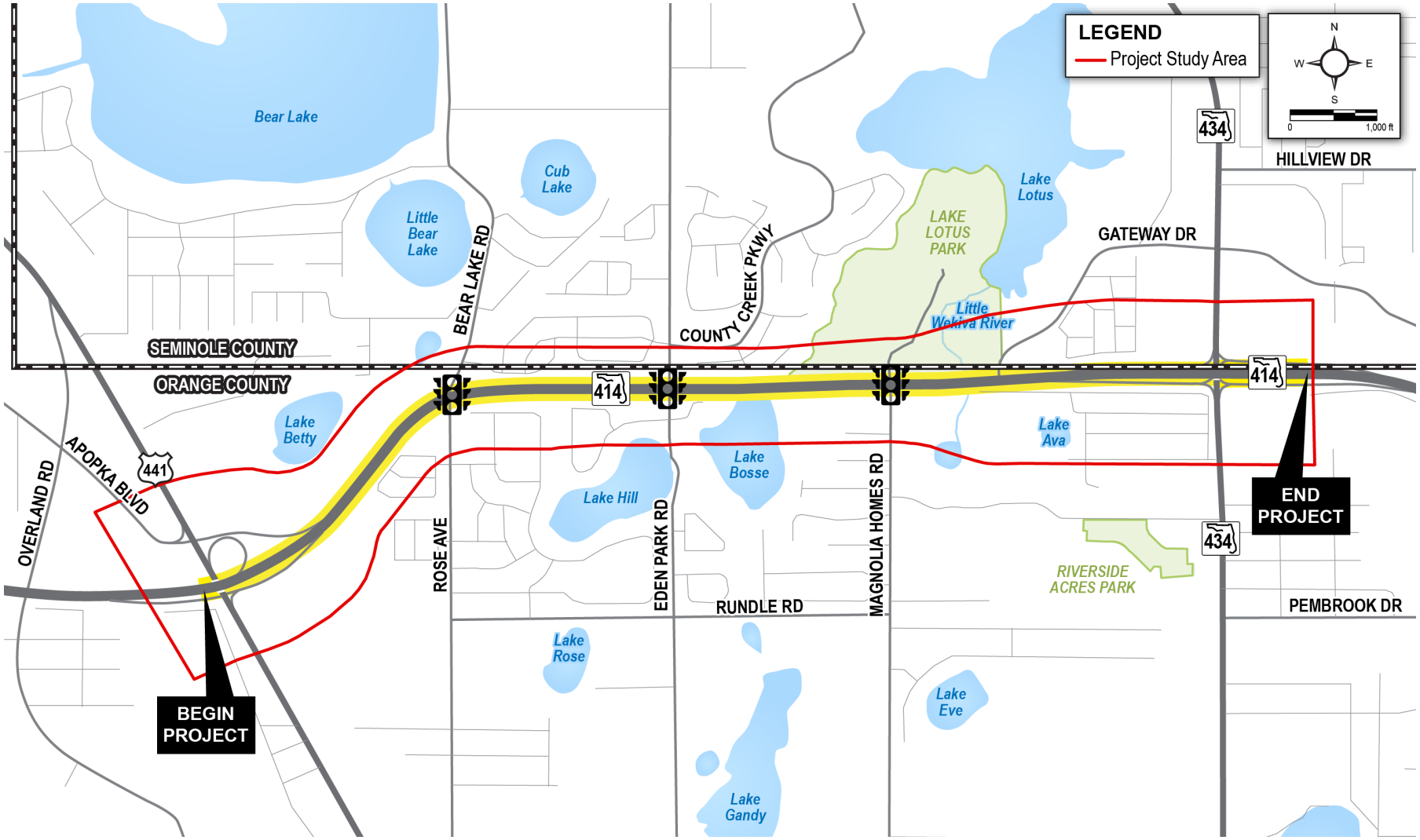



**Figure 1-2. Project Location Map**

## 1.2 Purpose and Need

The purpose of the SR 414 Expressway Extension PD&E Study is to provide needed capacity on SR 414 and improve system connectivity between SR 429 and I-4 to meet future traffic needs. The 2.8-mile-long project corridor of SR 414 is an arterial connecting two limited-access facilities. The proposed project will complete the limited-access gap between US 441 and SR 434 and provide limited-access regional connectivity between SR 429 and I-4. The proposed grade-separated SR 414 Expressway Extension will separate the through traffic from the local traffic, allowing for greater mobility and reduced congestion for both facilities. The proposed improvements are to 1) accommodate anticipated transportation demand, 2) improve safety, 3) improve system connectivity/linkage and 4) support multimodal opportunities.

## 1.3 Report Purpose

The purpose of this Location Hydraulics Report is to address base floodplain encroachments resulting from the roadway improvements evaluated in the SR 414 Expressway Extension PD&E Study. In accordance with Executive Order 11988 “Floodplain Management”, U.S. Department of Transportation Order 5650.2, “Floodplain Management Protection”, and Federal-Aid Policy Guide 23 CFR 650A, floodplains must be protected. The intent of these regulations is to avoid or minimize highway encroachments within the 100-year (base) floodplains and to avoid supporting land use development that is incompatible with natural and beneficial floodplain values.

All elevations used in calculations and maps within this document are based on the North American Vertical Datum of 1988 unless specified otherwise. Any supporting data based on the National Geodetic Vertical Datum of 1929 was converted using the following equation:

$$NGVD = NAVD + 0.97'$$

## 1.4 Alternatives Considered

Alternatives were evaluated for environmental and operational constraints. An at-grade alternative within the median of SR 414 was eliminated because while it provided uninterrupted travel along SR 414, traffic from the local cross streets would not be able to cross Maitland Boulevard. Another alternative considered included an adjacent corridor to SR 414. However, because Maitland Boulevard is mostly developed, this alternative was not viable. Finally, an alternative that included individual overpasses at each of the existing intersections was also considered. However, because of the limited spacing between each intersection, this alternative was not feasible and was, therefore, eliminated.

Viable alternatives were developed and presented for public input at the Alternatives Public Workshop held on February 10, 2021. These viable alternatives included roadway concepts for the SR 414 Expressway Extension project, including the SR 414 toll lanes and the Maitland Boulevard local access lanes. The viable alternatives were updated after the Alternatives Public Meeting to reflect ongoing alternatives refinements that avoid and minimize environmental impacts.

### 1.4.1 Preferred Alternative

As a result of the alternatives analyses conducted for the project, a Preferred Alternative was identified for further analysis and public input. The Preferred Alternative involves an elevated SR 414 Expressway Extension toll facility to serve regional traffic and at-grade Maitland Boulevard local access lanes (non-tolled) from US 441 to SR 434. The proposed SR 414 Expressway Extension typical section for the

Preferred Alternative includes the elevated SR 414 facility in the median, as four 12-foot-wide express lanes (two lanes per direction) separated by a median barrier wall. The Preferred Alternative also includes maintaining the existing Maitland Boulevard access lanes at-grade with two lanes per direction on either side and below the SR 414 Expressway Extension. The at-grade portion of the facility on Maitland Boulevard will maintain the existing pavement width (60 feet) but shifts and restripes the existing lanes to provide a 7-foot-wide buffered bike lane east of Bear Lake Road. Using these recommendations to minimize ROW and ongoing traffic analysis, the Preferred Alternative will be further evaluated as the study progresses. As part of the Preferred Alternative, operational improvements at intersections are anticipated to accommodate the elevated SR 414 Expressway Extension while maintaining local access at cross streets. In addition, impacts to environmental resources including social, cultural, natural and physical will be considered as the Preferred Alternative is further developed.

### 1.4.2 No-Build Alternative

The No-Build Alternative for the study area assumes previously programmed improvements are built including widening SR 414 to six lanes (at-grade with no elevated expressway) from US 441 to SR 434 as noted in MetroPlan Orlando's 2045 Metropolitan Transportation Plan Cost Feasible Plan, Adopted December 9, 2020. The No-Build Alternative is not funded in the FDOT 5-Year Work Program, adopted July 2020 and is no longer programmed. Consistency with local transportation plans to update this change will be coordinated during the PD&E Study. The previously programmed improvements to SR 414 do not meet the future traffic needs through the year 2045 nor the purpose and need for the project to accommodate future transportation demand or improve system connectivity. An at-grade widening of SR 414 to six lanes would result in precluding a four-lane expressway within the median (two lanes per direction) or require substantial ROW impacts. Similarly, at-grade widening of SR 414 to six lanes and a two-lane expressway within the median (one lane per direction) would result in ROW impacts and impact the ability to maximize the use of the existing median to accommodate infrastructure (such as utilities and drainage needs). Therefore, the No-Build Alternative is not the Preferred Alternative. However, the No-Build Alternative shall remain under consideration throughout the PD&E Study for public input and to provide a comparison to the Preferred Alternative.

# 2. Methodology

A Location Hydraulic Report is required for all projects requiring a Type 2 Categorical Exclusion, Environmental Assessment, Environmental Impact Statement or Project Environmental Impact Report to support the conclusions presented in these documents concerning base floodplains and regulatory floodways. For the SR 414 PD&E Study, evaluation of potential floodplain impacts and encroachments involved the following activities:

1) Determine if a project is located in or will affect the base floodplain.
2) Conduct early public involvement and interagency coordination.
3) Identify and evaluate practicable alternatives to locating in the base floodplain, including alternative sites outside of the floodplain.
4) Identify impacts (direct and indirect) of the project on the floodplain.
5) If impacts cannot be avoided, develop measures to minimize the impacts and measures to restore and preserve the floodplain, as appropriate.
6) Re-evaluate alternatives to determine if locating the project in the floodplain is still practicable.
7) Document the results in the LHR and Environmental Document, and present the findings to the public.

FDOT requires potential floodplain impacts to be assessed for all FDOT projects that involve activities or construction near or within the floodplain. Only the Preferred Alternative was analyzed in this report for potential floodplain encroachment and the resulting impacts (positive, negative and indirect impacts) are documented in Section 4 and briefly summarized in the Environmental Document. Evaluation of alternatives considered both indirect and cumulative impacts to the floodplain, as appropriate.

As part of the evaluation, FDOT and CFX drainage design standards were applied to this project, and Orange County and St. Johns River Water Management District procedures were followed. All efforts were made to minimize encroachment and to obtain results with no significant change to the flood elevations. In concert with this analysis, mitigation efforts were evaluated and are presented in this report. As a result of this process, a risk assessment and preliminary determination of impact is made as to the level of significance of the encroachment.

# 3. Existing Conditions

## 3.1 Drainage and Hydrology

The project is located within the Little Wekiva River Watershed, which is within the jurisdiction of the SJRWMD. The study area contains several surface water bodies and lakes, such as Lake Bosse and the Little Wekiva Canal. The Little Wekiva Canal is an artificial canal system that flows primarily in a northerly direction into the Little Wekiva River. The Little Wekiva River is outside of the study area north of the Little Wekiva Canal (north of Lake Lotus). The existing SR 414 roadway is located within both open and closed basins, and stormwater runoff is treated in multiple permitted stormwater treatment ponds. Portions of the stormwater treatment ponds discharge to Lake Bosse and the Little Wekiva Canal, and the remainder discharges to existing wetlands.

The study corridor has two existing bridge crossings that traverse waters: FDOT Bridge No. 770075 (MP 37.5) over Lake Bosse, and FDOT Bridge No. 770074 (MP 37.8) over the Little Wekiva Canal. Drainage along the existing SR 414 is characterized by a series of roadside ditches and closed storm sewer collection system with curb and gutter to convey runoff to existing CFX and FDOT ponds. The existing CFX ponds along the study corridor include Ponds 4A, 4B and 4C, and the existing FDOT ponds include Ponds A, B, C, D, E, F and G (Pond G was transferred to another owner). Refer to Appendix A for Existing Drainage Map.

## 3.2 Existing Typical Section

The existing SR 414 roadway between US 441 to SR 434 is a suburban arterial typical section approximately centered within the existing minimum ROW of 118 feet and has a closed drainage system with Type F curb to the outside and grassy swales in the median. The typical roadway occurs between Bear Lake Road and Gateway Drive and consists of four 11-foot-wide lanes (two lanes in each direction), 4-foot-wide inside and outside shoulders and a 46-foot-wide median. All lanes slope to the outside with the inside lane at 0.02 feet per foot and the outside lane at 0.03 feet/foot, except where superelevated. Within this section are 5-foot-wide sidewalks adjacent to SR 414 on both sides (refer to Figure 3-1). There is a 1,800-foot-long section between the US 441 Interchange and Bear Lake Road that uses the same footprint of existing pavement but is striped so that each side consists of one 14-foot-wide lane and one 12-foot-wide lane (two lanes in each direction), a 46-foot-wide median and 4-foot-wide inside shoulder but no outside shoulder. There is a 12-foot-wide shared use path on the north side from US 441 to Bear Lake Road.

The western project limit within the US 441 Interchange includes approximately 1,700 feet from the bridge over US 441 to the end of a median barrier wall. This area transitions from a barrier-separated, closed 26-foot-wide median to tie into the suburban 46-foot-wide median described above. This rural typical section includes 12-foot-wide lanes, 12-foot-wide inside shoulders and 10- to 12-foot-wide outside shoulders. There is a sidewalk on the south side and a shared use path on the north side of SR 414 within this section.

The eastern project limit includes approximately 2,500 feet between Gateway Drive and the end project at SR 434 and transitions from suburban to rural. This typical holds the 46-foot-wide median and includes 12-foot-wide lanes, 4-foot-wide paved inside shoulders and 8- to 10-foot-wide paved outside shoulders. There is no sidewalk on either side of SR 414 within this eastern section.

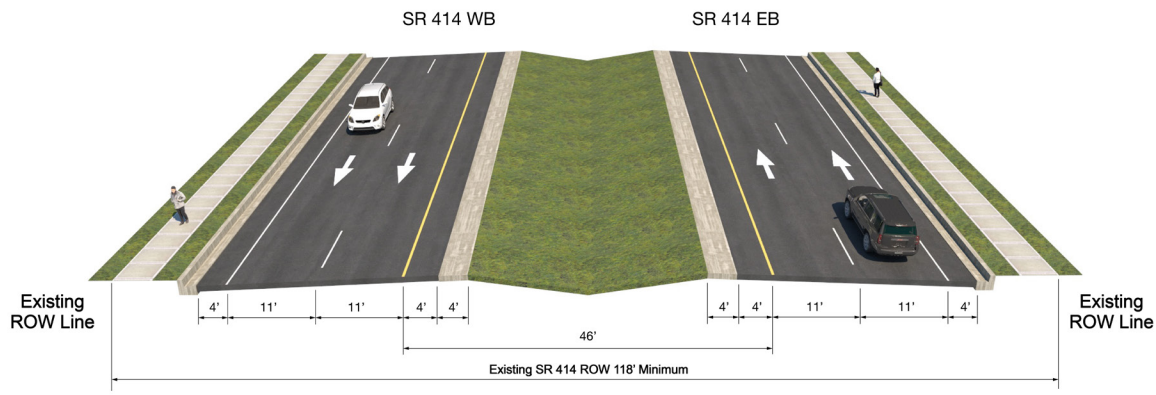



**Figure 3-1. Existing Typical Section**

## 3.3 Posted Speeds

Table 3-1 provides the existing posted speed limits along the existing SR 414 corridor.

**Table 3-1. Existing (2020) Corridor Posted Speed Limits**

| Corridor | From | To | Posted Speed |
|---|---|---|---|
| SR 414 Maitland Boulevard | US 441 (SR 500) | Gateway Drive | 50 mph |
| SR 414 Maitland Boulevard | Gateway Drive | East of SR 434 | 55 mph |

The ROW for SR 414 through the project limits is a minimum 118-foot width. The ROW widens at the limits of the project study area to accommodate the interchange footprints including ponds and ramps. Portions of the ROW are fenced and designated as limited access as indicated by the existing plans. Several neighborhoods have existing noise walls installed along the ROW also restricting access from the neighboring communities. The primary access to the ROW for pedestrian routes are at or near the intersections.

## 3.5 Soils

Near-surface soils in upland areas are moderately well-drained sands (Type A) (A-3 and A-2-4; refer to Appendix A for Soils Map) with seasonal high groundwater levels between 3.5 and 6 feet deep. However, organic soil (muck) is present within wetlands, specifically at Lake Bosse, which contains muck deposits extending to extreme depths. The SR 414 Bridge at Lake Bosse is supported on open-ended pipe piles. Because of the soft muck at some foundation locations, the piles were driven to depths greater than 400 feet to achieve bearing.

## 3.6 Land Use

Adjacent land uses and cover types along SR 414 and adjacent to the study area consist of a diverse mixture of developed properties, natural and altered uplands, wetlands and surface water. During a site visit conducted in May 2020, these areas were assessed, with a focus on the natural vegetative communities for potential use by federal- and state-listed wildlife.

The *St. Johns River Water Management District Florida Land Use Cover Classification System (FLUCCS), 2014* along with field verification was used to classify the various land uses and land covers within the study area. Refer to Appendix A for the Existing Land Use map.

Developed areas include Residential (FLUCCS 1100, 1200, 1300), Commercial (FLUCCS 1400, 1490), Light Industrial (FLUCCS 1550), Heavy Industrial (FLUCCS 1560), Parks and Zoos (FLUCCS 1850) and Roads (FLUCCS 8140). Upland areas (vegetated) include Herbaceous Upland Non-forested (FLUCCS 3100), Upland Hardwood Forests (FLUCCS 4200) and Upland Mixed Coniferous/Hardwood (FLUCCS 4340).

Wetlands and surface waters include Streams and Waterways (FLUCCS 5100), Lakes (FLUCCS 5200), Reservoirs (FLUCCS 5300), Wetland Forested Mix (FLUCCS 6300), Freshwater Marshes (FLUCCS 6410), Emergent Aquatic Vegetation (FLUCCS 6440), Mixed Scrub-Shrub Wetland (FLUCCS 6460) and Surface Water Collection Basins (FLUCCS 8370).

## 3.7 Existing Cross Culverts

There are no existing cross culverts within the project limits.

## 3.8 Existing Bridges

### 3.8.1 Overview

There are three existing bridges within the project study area (refer to Table 3-2). Bridge No. 770074 carries eastbound and westbound SR 414 over Lake Bosse, Bridge No. 770075 carries eastbound and westbound SR 414 over Little Wekiva Canal and Bridge No. 770083 at the eastern project limit carries SR 414 over SR 434.

The SR 414 bridge over Lake Bosse was constructed in 2000 and is a six-span divided structure with two 11-foot-wide lanes in each direction, a 13.5-foot-wide inside shoulder in each direction next to the 19-foot-wide raised median, 12-foot-wide outside shoulders and a 5-foot-wide barrier-separated sidewalk in each direction.

The SR 414 bridge over Little Wekiva Canal was constructed in 2000 and is a single-span divided structure that has two 11-foot-wide lanes in each direction, a 13.5-foot-wide inside shoulder in each direction next to the 19-foot-wide raised median, 8-foot-wide outside shoulders and a 5-foot-wide, barrier-separated sidewalk in each direction. The bridge spans over the Little Wekiva Canal as well as a sidewalk and tram path from the parking lot to Lake Lotus Park.

The SR 414 bridge over SR 434 was constructed in 2000 and is a divided single-span structure that has two 12-foot-wide lanes, 10-foot-wide inside and outside shoulders in each direction and a 20-foot-wide raised median. The bridge spans over SR 434 and is part of a single-point urban interchange.

**Table 3-2. Existing Bridge Structures**

| Roadway | Bridge Over | Bridge No. | Direction | Length (feet) | No. of Spans | Bridge Width (feet) | Superstructure Type |
|---|---|---|---|---|---|---|---|
| SR 414 | Lake Bosse | 770074 | EB & WB | 700 | 6 | 129 | Prestressed Concrete and Steel Plate Girders |
| SR 414 | Little Wekiva Canal | 770075 | EB & WB | 68.9 | 1 | 121 | Prestressed Concrete Beam |
| SR 414 | SR 434 | 770083 | EB & WB | 246 | 1 | 118 | Steel Plate Girders |

### 3.8.2 Current Condition and Year of Construction

Table 3-3 describes the three existing bridge structures in the SR 414 corridor. Existing bridge information was obtained from a field review, available data, and plans. The sufficiency rating is derived from a formula that methodically evaluates factors that indicate the structure's ability to remain in service. A rating of 100 percent represents an entirely sufficient bridge and a rating of 0 percent represents an entirely deficient bridge. Standard practice indicates that structures with a sufficiency rating of 80 percent or less require some rehabilitation and those less than 50 percent require replacement. A complete listing of applicable criteria is provided in the *Bridge Analysis Technical Memorandum* (CFX 2022a).

All the three bridges listed in Table 3-3 are classified as having a structural sufficiency rating of 90 percent or higher and none are listed as functionally obsolete.

**Table 3-3. Current Structure Condition and Year of Construction**

| Bridge Number | Mile Marker | Year Built/Widened | Route Carried | Intersecting Feature | Sufficiency Rating (%) | Health Index | Inspection Date |
|---|---|---|---|---|---|---|---|
| 770074 | MP 37.400 to 37.534 | 2000 | SR 414 | Lake Bosse | 92.7 | 95.11 | 2019 |
| 770075 | MP 37.805 to 37.818 | 2000 | SR 414 | Little Wekiva Canal | 96.3 | 99.82 | 2019 |
| 770083 | MP 38.359 to 38.406 | 2000 | SR 414 | SR 434 | 100 | 99.94 | 2018 |

## 3.9 Floodplains and Regulatory Floodways

The Federal Emergency Management Agency's Flood Insurance Rate Maps for Seminole County, Community Panel Numbers 12117C0145F and 12117C0140F, dated September 28, 2007, and Orange County Community Panel Numbers 12095C0140F and 12095C0145F, dated September 25, 2009, indicates that a portion of the project study area lies within the 100-year floodplain areas Zone AE and Zone A.

The Zone AE base flood elevation ranges from 63 to 65 feet and is located in the vicinities of Lake Bosse and Little Wekiva Canal. Zone A, corresponding to an unnamed wetland, is located in the vicinity of the SR 414 and US 441 Interchange and has no base elevation but includes a 1 percent chance of flooding.

Most of the study area lies in floodplain area Zone X, which is an area of minimal flood hazard. Refer to Appendix A for FEMA Floodplains Map.

Based on review of FEMA FIRM maps, there is one designated regulatory floodway located south of the Orange County-Seminole County border near the Lake Lotus Park parking lot and is identified in the FEMA Flood Insurance Study for Orange County (FEMA 2018) as the Little Wekiva River Regulatory Floodway. No impact to this regulatory floodway is expected as its limits end before the SR 414 ROW on the south side.

Several regional hydraulic models in addition to the FEMA Flood Insurance Study are available for the Little Wekiva Watershed including the Little Wekiva Watershed Model Refinement (referenced in CDM Smith and Pegasus Engineering 2016) and the Little Wekiva River Watershed Management Plan Final Report (CDM 2005).

## 3.10 Coordination with Local Agencies

Local agencies were contacted to coordinate on drainage/maintenance issues or potential improvements. Details are provided in the following text and also in Appendix B.

### 3.10.1 Orange County

Orange County Environmental Protection Division is currently designing the Little Wekiva/Lake Lotus Stormwater Project for water quality improvements to meet the requirements of the Wekiva River, Rock Springs Run, and Little Wekiva Canal Basin Management Action Plan. An ELA meeting with Orange County and other stakeholders will be held in the near future and discussion of potential Joint Use Pond with the Lake Lotus stormwater project for potential stormwater treatment credit.

### 3.10.2 FDOT Maintenance, Oviedo Yard

Based on conversations with FDOT, there are several items regarding maintenance along SR 414. Ditches at the intersection of SR 414 and US 441 fail to drain completely. At the southeast intersection of SR 434 and SR 414 a wet retention ditch overflows during storm events into adjacent Pond G. Finally, trash and debris clog at the Little Wekiva Bridge at SR 414 (Danos, pers. comm. 2021). As a part of this project, there will be improvements to the US 441 ramps and ditches as well as improvements for erosion control protection at the Little Wekiva Bridge. The project team will consider alternatives that avoid increasing water elevations at the southeast corner of SR 434.

### 3.10.3 City of Altamonte Springs

Based on conversations with Altamonte Springs's city engineer (Blackadar, pers. comm. 2021), the following is noted:

> *If mitigation ideas is needed for the project, the City of Altamonte Springs has a potential project in Lake Lotus Park that would provide bank erosion control measures and would also involve dredging of the existing delta in the lake. This project has been discussed with FDEP and FWC in the recent past. Lake Lotus is monitored as part of the City's annual NPDES permit and it is essential that there will not be any negative impacts to the water quality of this water body as part of the construction of this project. The only roads that the City of Altamonte Springs maintains in the study area are Gateway Dr and the roadways within Lake Lotus Park. There are not any known issues on Gateway*

*Dr near the study area that the City is aware of. Additionally, much of Lake Lotus Park is within a floodplain.*

Mr. Blackadar also notes:

*The City of Altamonte Springs has a 24 inch PVC reclaimed pipeline that exists in the median of SR 414 from just west of Eden Park Rd to the ramps at the US 441 interchange. This pipeline is not a typical utility in the FDOT right-of-way as it is part of the A-FIRST joint project with the City of Altamonte Springs and FDOT. The A-FIRST project provides permitted stormwater treatment for the I-4 Ultimate project and is therefore part of FDOT's stormwater infrastructure. This pipeline is an essential element of the I-4 Ultimate stormwater management system and necessary for FDOT to meet its stormwater permit requirements. During construction, the pipeline must stay in operation at all times.*

If necessary, the reclaimed pipeline is proposed to be relocated prior to any construction activities within the median.

### 3.10.4 St. Johns River Water Management District

Coordination with SJRWMD took place on February 17, 2021. The project team met with Cammie Dewey of SJRWMD to discuss design criteria, recharge criteria, Outstanding Florida Waters criteria and Total Maximum Daily Load requirements. Appendix B provides meeting minutes and summarizes discussion items.

### 3.10.5 Environmental Look Around

The ELA meeting will explore watershed-wide stormwater needs and alternative permitting approaches. The ELA will explore the following types of opportunities:

1) SJRWMD/FDEP issues: wetland rehydration, water supply needs, minimum flows and levels, flooding, TMDL, acquisition of fill from FDEP/SJRWMD lands
2) City/county issues: stormwater re-use, flooding, discharge to golf courses or parks, National Pollutant Discharge Elimination System needs and water supply needs
3) FDOT project permitting: regional treatment, stormwater re-use and joint-use facilities

## 3.11 Field Investigation

A field investigation was conducted by Jacobs staff on February 2, 2021, to confirm existing conditions. Areas of concern for maintenance include the north end of the Little Wekiva Canal Bridge where there are signs of erosion. Future improvements for this bridge should include enhanced erosion control measures to prevent further erosion. Refer to Appendix C for selected field investigation photos.

# 4. Proposed Conditions

## 4.1 Proposed Drainage

The drainage patterns in the proposed conditions will remain the same as existing conditions, with basins outfalling into the Little Wekiva River, Lake Bosse and adjacent wetlands. The proposed drainage system for the SR 414 mainline will convey stormwater via curb and gutter inlets, and closed system into existing and proposed stormwater retention facilities for water quality treatment and attenuation before outfalling into the Little Wekiva River and Lake Bosse. The proposed drainage system for the new four-lane SR 414 Expressway Extension will consist of barrier wall inlets in a closed system similarly discharging into existing and proposed stormwater retention facilities for water quality treatment and attenuation before outfalling into tributaries and waterways of the Little Wekiva River and Lake Bosse.

## 4.2 Proposed Typical Section

The recommended proposed typical section for SR 414 Expressway Extension provides four 12-foot-wide express lanes (two per direction) separated by a median barrier wall with 12-foot-wide paved shoulders (refer to Figure 4-1). SR 414 will remain with 12-foot-wide and 11-foot-wide lanes (in both directions) with 7-foot-wide shoulders.

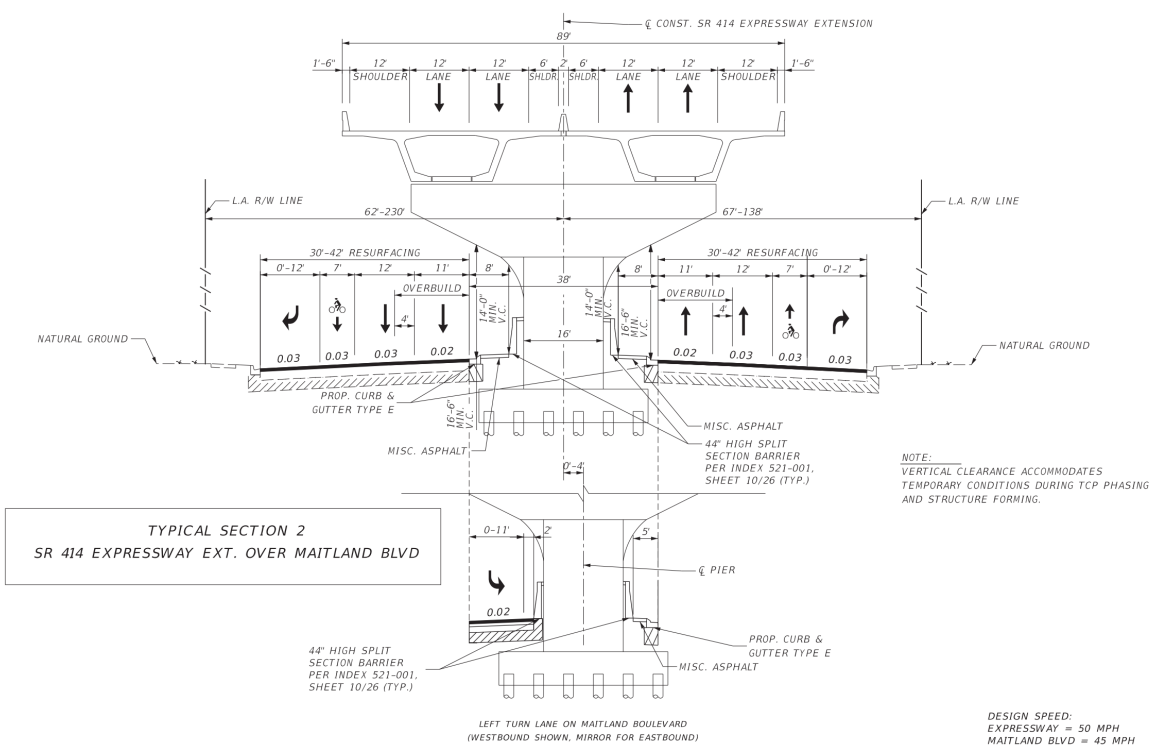



**Figure 4-1. Proposed Typical Section**

## 4.3 Proposed Cross Culverts

There are no proposed cross culverts within the project limits.

## 4.4 Proposed Bridge Structures

The SR 414 Expressway Extension project proposes to add an additional bridge over Lake Bosse, which will be an elevated bridge centered over the existing bridge.

### 4.4.1 SR 414 Over Lake Bosse

Existing SR 414 Over Lake Bosse bridge (Bridge No. 770074) was constructed in 2000 to span Lake Bosse, which includes a deep relic sinkhole that has been filled with organic material (peat/muck) over time. The bridge spans this feature using steel plate girders spanning 210 feet; the remaining spans of approximately 100 feet consist of 72-inch-wide Florida Bulb Tee Girders supporting an 8-inch-thick cast-in-place concrete deck. The substructure consists of five pile bents founded on 20inch-diameter pipe piles. The total bridge width is 129 feet with a raised median. The bridge typical included planned 5-foot-wide outside sidewalks, 8-foot-wide outside shoulders, 22-foot-wide median, one future 14-foot-wide lane and two 12-foot-wide lanes in each direction. Current existing lane configuration includes two 11-foot-wide lanes in each direction with the remaining deck striped off to accommodate future needs. According to the existing record plans' Bridge Hydraulic Recommendation Sheet, the low member EL 66.96 feet NGVD (65.99 feet NAVD) clearance is 3.15 feet above the 50-year design flood elevation of 63.81 feet NGVD (62.84 feet NAVD). The existing Bridge Hydraulic Recommendation Sheet is provided in Appendix C.

The proposed typical section for this crossing includes modification to the existing bridge by removing almost 40 feet of the structure in the median. This modification would leave the current lane configuration but would modify the inside striped shoulders and raised median to allow for viaduct piers in the median (refer to Figure 4-2 with the segmental option shown). The Lake Bosse is a non-navigable waterway for both recreational and commercial use, which allows for viaduct pier placement to avoid the existing piers. The locations of the proposed piers, as well as the existing piers, can be seen in Figure 4-2.

The alternatives for superstructure that include conventional I-beam construction (precast concrete or steel for longer spans) or segmental would require similar pier spacing given the need to span the relic sinkhole condition. The substructure will consist of hammer head piers with pile caps, as shown on Figure 4-3.

Given the environmental conditions at this site because of low pH, and a water crossing, piles would need to be concrete filled and steel reinforced. However, because the extremely aggressive condition results from pH, pipe piles with sacrificial thickness may be implemented to meet the FDOT requirement for the highly aggressive condition for steel.

Per the project's Preliminary Geotechnical Report (GEC 2020), the existing bridge geotechnical report also recommends, at a minimum, using full Pile Driving Analyzer at the piers that straddle the relic sinkhole, the 300-foot-long main span, to help avoid driving deeper than necessary in the bearing layer. The use of a higher resistance factor of 0.75 would allow a higher factored design load, reducing the number of piles. Table 4-1 lists preliminary capacities.

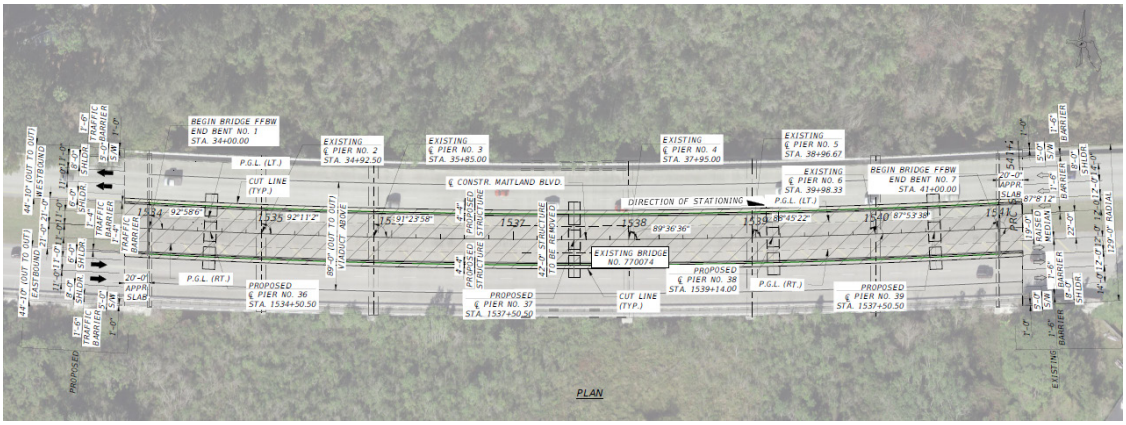



**Figure 4-2. Locations of the Proposed and Existing Piers**

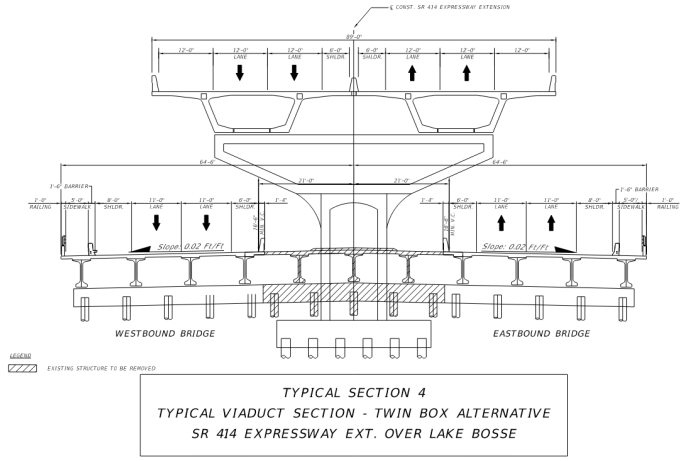



**Figure 4-3. Proposed Bridge Typical Section**

**Table 4-1. Preliminary Capacities of Piles**

| Steel Pipe Pile Size | Preliminary NBR (tons) |
|---|---|
| 20 inches | 200 |
| 24 inches | 250 |

### 4.4.2 SR 414 Over Little Wekiva River

The existing SR 414 Over Little Wekiva River bridge (Bridge No. 770075) was constructed in 2000 and consists of a single span AASHTO Type IV Prestressed Concrete Beams supporting an 8-inch-diameter cast-in-place concrete deck. The bridge is founded on 18-inch-diameter prestressed concrete pile supported end bents. Total deck width is 121 feet with two 5-foot-wide outside sidewalks, with original planned lanes of one 14-foot-wide lane and two 12-foot-wide lanes with a 4-foot-wide outside shoulders and a 22-foot-wide median. Current lane configuration includes two 11-foot-wide lanes in each direction with the remaining deck

striped off to accommodate future needs. According to the existing record plans, the minimum low member vertical clearance is 4.81 feet above the 50-year high water level elevation of 66.8 feet NGVD.

The SR 414 Over Little Wekiva span is slightly less than 69 feet allowing both viaduct alternatives to span over the bridge, including the approach slabs, with no impacts to the river. Viaduct pier columns will be protected with inside barriers on each side following the roadway barrier. Refer to Figures 4-4 and 4-5 provide the plan view and section view, respectively.

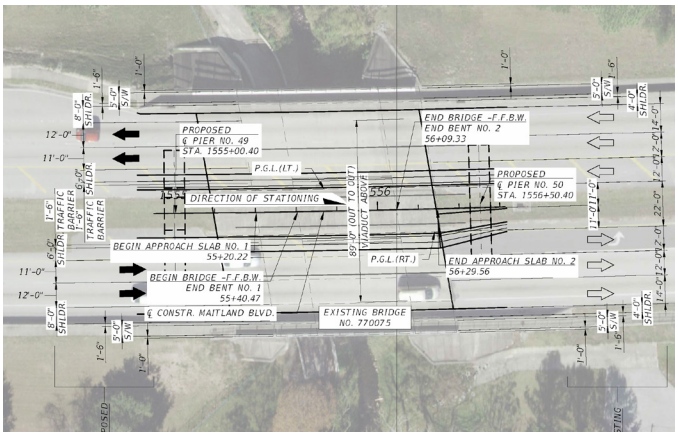



**Figure 4-4. SR 414 Over Little Wekiva River Bridge (Plan View)**

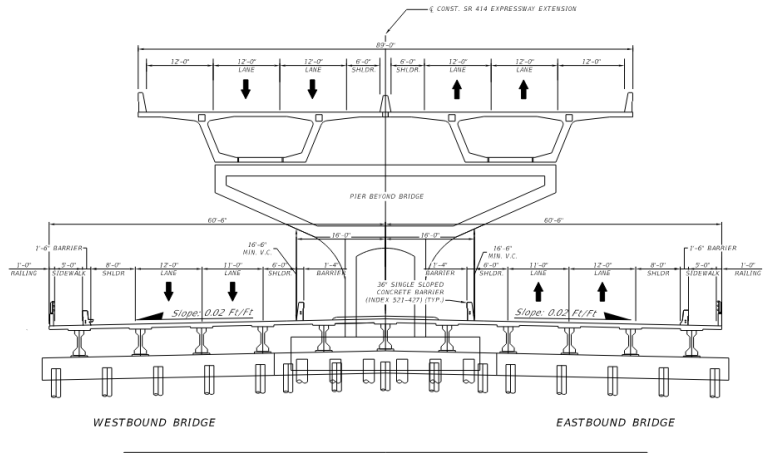



**Figure 4-5. SR 414 Over Little Wekiva River Bridge (Section View)**

## 4.5 Floodplains and Floodways

Per SJRWMD, floodways and floodplains and levels of flood flows or velocities of adjacent streams, impoundments or other water courses must not be altered so as to not adversely impact the offsite storage and conveyance capabilities of the water resource. It is presumed a system will meet this criterion if the following are met:

> *A system may not cause a net reduction in flood storage within a 10-year floodplain except for structures elevated on pilings or traversing works. Traversing works, works or other structures shall cause no more than a 1 foot increase in the 100-year flood elevation immediately upstream and no more than one-tenth*

*of a foot increase in the 100-year flood elevation 500 feet upstream. A system will not cause a net reduction in flood storage within a 10-year floodplain if compensating storage is provided outside the 10-year floodplain.*

The National Flood Insurance Program floodway standard in 44 CFR 60.3(d) restricts new development from obstructing the flow of water and increasing flood heights. This can be accomplished by using hydraulic modeling or by providing compensatory storage to offset any loss of flood storage capacity. SJRWMD allows for the "cup-for-cup" method to offset new fill put in the floodplain by excavating an additional floodable area to replace the lost flood storage area. This should be done at "hydraulically equivalent" sites. Fill added below the base flood elevation should be compensated by removal of soil between the seasonal high groundwater level and the BFE elsewhere in the floodplain.

Evaluation of potential floodplain impacts included the following activities:

- determine if the project is in or will affect the base floodplain
- identify impacts of the project on the floodplain through review and analysis of FEMA FIRM for Seminole County, Community Panel Numbers 12117C0145F and 12117C0140F, dated September 28, 2007, and Orange County Community Panel Numbers 12095C0140F and 12095C0145F, dated September 25, 2009

Refer to Appendix A for the depiction of floodplain along the proposed project corridor and Appendix C for FEMA FIRM Maps.

### 4.5.1 Floodplain Designation and Evaluation

The 100-year floodplain is identified by FEMA as being either of two floodplain zones types, defined as follows:

- Zone AE: BFE determined (quantified)
- Zone A: No BFE determined (approximated)

Areas outside Zone A or AE are not relevant in this assessment. For areas in Zone A, the BFE was approximated using accepted practices and guidelines by FEMA with 1-foot contours (NAVD) provided by Orange County Public Works dated 2007. Based on review of the FEMA Firm Maps, the BFE at Lake Bosse is 63.8 feet (NAVD) (Zone AE) and the BFE at Little Wekiva River is approximately 65.0 feet (NAVD) (Zone A).

Additionally, there is one designated regulatory floodway south of the Orange County-Seminole County border near the Lake Lotus Park parking lot and is identified in the FEMA Flood Insurance Study for Orange County (FEMA 2018) as the Little Wekiva River Regulatory Floodway. No impact to this regulatory floodway is expected as its limits end before the SR 414 ROW on the south side of the bridge. Should the regulatory floodway be impacted, a FEMA No-Rise Certification is required.

SJRWMD required floodplain criteria includes a no net reduction of floodplain storage within the 100-year floodplain, and the storage standards for the Wekiva River Hydrologic Basin must be met.

### 4.5.2 Floodplain Impacts and Compensation

Currently, the only 100-year floodplain impacts anticipated are the proposed construction of four 16-foot by 10-foot piers at the SR 414 Over Lake Bosse Bridge (refer to Appendix C for conceptual proposed bridge changes to existing bridge plans). At Lake Bosse, the estimated seasonal high water table is approximately 59.94 feet NAVD and the 100-year flood elevation is at 63.80 feet NAVD, for a total of 3.86 feet depth for any 100-year floodplain impacts. The proposed piers will result in approximately 2,470.4 cubic feet of impacts. To compensate for this impact, the existing Pond E footprint can be regraded. The existing pond berm and tie-

down slope along the northern side of the pond can be reconstructed to provide a cut area of approximately 17.6 square feet per section (refer to Figure 4-6). To provide the floodplain compensation required, approximately 141 feet of the pond tie-down slope will need to be regraded. Refer to Appendix A for preliminary conceptual depiction of proposed floodplain impact and compensation. Calculations are as follows:

Floodplain Calculations

| | | |
|---|---|---|
| | Given | |
| | 63.80 | 100-year EL (NAVD) |
| - | 59.94 | Appx. ESHWT (NAVD) |
| | 3.86 | 100-year Floodplain Impact Depth |

4 Proposed Piers 16 feet x 10 feet wide x Floodplain Impact Depth =

| | | |
|---|---|---|
| = | 2,470.4 | CF Impacts |
| **=** | **2,470.4** | **CF 100-year Floodplain Compensation Required** |

Regrade existing Pond E tie down slope for 141 ft (141 ft x 17.6 SF) =

| | | |
|---|---|---|
| **=** | **2,481.6** | **CF 100-year Floodplain Compensation Provided - OK** |

The analysis conducted for the SR 414 Expressway Extension shows nominal fill compared to the overall floodplain system the project traverses. Therefore, there will be minimal floodplain involvement with federally defined floodplains. No adverse impacts are anticipated to the floodplain, as required by the SJRWMD permitting process. The SJRWMD requires replacement of floodplain storage lost as a result of encroachments in the 10-year floodplain when the upstream contributing drainage area is greater than 5 square miles. This replacement storage is to be within the 10-year floodplain.

As a result, there will be no significant change in flood risk, and there will not be a significant change in the potential for interruption or termination of emergency service or emergency evacuation routes. Therefore, floodplain encroachment resulting from the proposed roadway extension and added bridge piers is not significant.

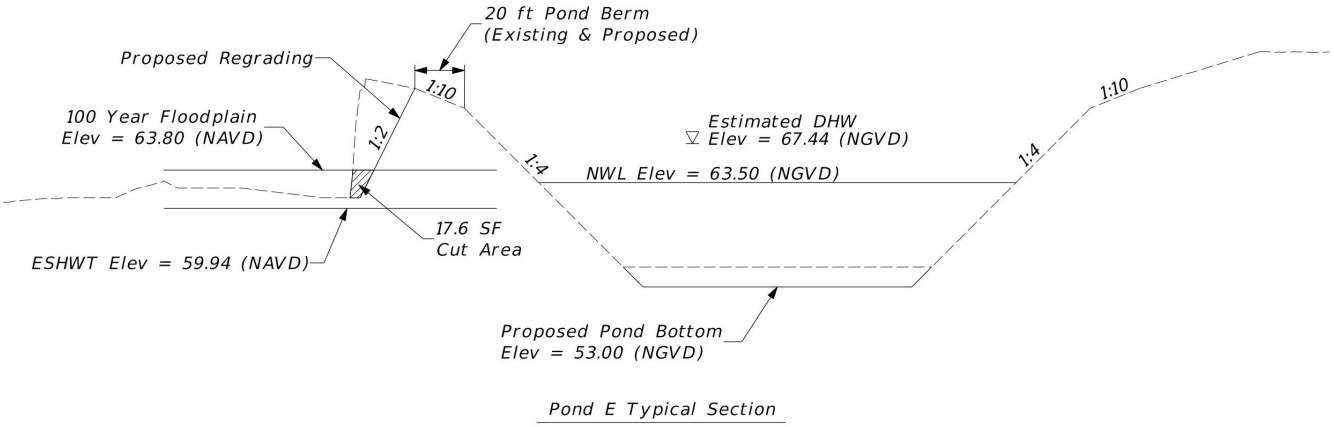



**Figure 4-6. Pond E Typical Section**

## 4.6 Bridge Hydraulic Evaluation

The project requires the median 39-foot 4-inch portion of the SR 414 bridge superstructure (three beams and deck) over Lake Bosse to be removed to accommodate a new elevated bridge. The proposed hydraulic length of the bridge, approximately 700 feet, will remain unchanged. The proposed bridge places four new sets of 20-inch-diameter piles with four bridge columns, where the longest horizontal clearance increases from 210 feet to approximately 300 feet. The required FDOT horizontal clearance of 10 feet is easily met. The elevated viaduct has low member much higher than the existing bridge; however, there is the potential for the four new bridge columns taking up of part of the channel to impact the flow underneath and upstream of the bridge. Therefore, vertical clearances and upstream water surface impacts need to be evaluated with a new hydraulic model.

The proposed bridge crossing was modeled using the one-dimensional HEC-RAS v. 5.0 hydraulic model, developed by the U.S. Army Corps of Engineers (refer to Appendix). The principal reference for the new model development is a previous HEC-RAS model for the 1994 Maitland Boulevard Extension project over Little Wekiva River that included information for the bridge over Lake Bosse.

For the development of the new existing and proposed models, most recent elevation contours based on 2009 1-foot contours from eastern Seminole County and portions of Orange County were imported into MicroStation to generate new HEC-RAS cross sections every 100 feet upstream and downstream of the Lake Bosse Bridge for up to 1,000 feet south of the bridge and 700 feet north of the bridge (refer to HEC-RAS Geometry layout in Appendix B). Contour elevations were in NAVD. The Lake Bosse Bridge length is 700 feet; therefore, the distance to the upstream boundary was set to 800 feet to maintain at least a 1:1 ratio for the contraction effect of flow. The downstream expansion effect should have a ratio of 2:1; however, the skew of the bridge caused the expansion zone to intersect the banks of the channel within 500 feet. Therefore, the downstream boundary was set to 700 feet from the bridge. There was a 300-foot-long gap in the contour data that contains a portion of the bridge footprint, as it was generated from two different county electronic sources. Although no new survey or LiDAR was collected as part of this study to correct the gap, the gap could be filled during the design phase with survey data along the ROW to allow additional HEC-RAS cross sections closer to the bridge.

Once the geometry was developed, many parameters and coefficients were adopted from the 1994 study, such as flows and stage elevations for the 10-, 25-, 50- and 100-year design storm event (refer to p. 4-16 of the Original HEC-RAS Model, which is included in Appendix C), as well as Manning's n and contraction/expansion coefficients. The downstream boundary condition was set so that the design high water (DHW) had a water surface elevation (WSE) that matches the previous Bridge Hydraulic Recommendation sheet of 63.81, 64.45 and 65.78 feet NGVD (62.84, 63.48 and 64.81 feet NAVD) for the 50-, 100- and 500-year frequency storms, respectively. The bridge dimensions were based on as-builts and converted to NAVD. The low member elevation was set to 66.96 feet NGVD (65.99 feet NAVD). Banks and ineffective flow boundaries were developed based on aerial photography and the elevations along the cross sections generated in MicroStation. The proposed condition model added the proposed piers, keeping all other parameters the same.

No effort was made to calibrate the model as part of this study because it would require stage, flow and rainfall data near the bridge, which are not available. It is assumed that the 1994 model parameters reasonably reflect existing hydraulic conditions and when integrated with recent contour data, this updated model is valid for the purpose of this study.

The results from the hydraulic model were analyzed to determine if the proposed design meets the design requirements: a 2-foot vertical clearance and no rise in the WSE upstream of the project at the ROW (1-foot maximum) and 500 feet upstream (0.1-foot maximum).

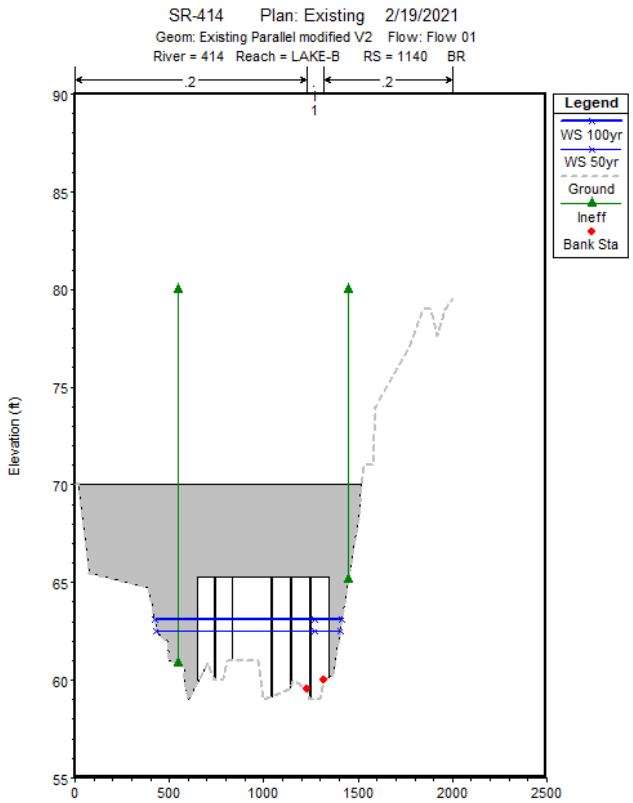
The vertical clearances to be provided by the new bridge are based on the computed WSE for a 50-year design storm event (DHW) and the elevation of the lowest bridge member. Although the proposed low member is much higher than the existing bridge low member, as it is several feet above the actual roadway surface of the existing roadway, the controlling low member is still that of the existing bridge (65.99 feet NAVD). The model results show that 50-year DHW is 62.84 feet NAVD, resulting in 3.15 feet of vertical clearance, which is unchanged from the 1994 analysis. Because FDOT requires a 2-foot clearance, the criterion is met.

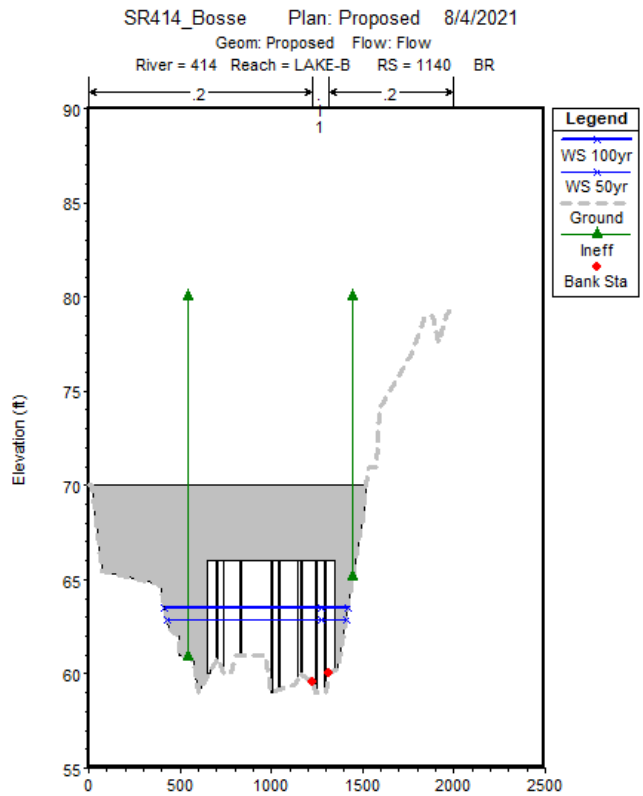
The proposed 16 feet by 10 feet bridge columns will take up hydraulic cross-sectional area along the flow path, as the proposed cross-sectional area against the water profile is in addition to the existing area of the five rows of 20-inch-diameter pile pairs. The existing and proposed WSEs were compared to evaluate any potential changes. Table 4-2 lists the data used and result of the modeling for the proposed bridge. The model result shows no rise for the 50-year design flood at the ROW upstream of bridge and 500 feet upstream of the bridge. There is a 0.01 foot rise 500 feet upstream and the remaining cross sections show no rise. There appears to be no noticeable difference downstream of the bridge. The results of the comparison indicate that the proposed bridge meets all navigational clearance and there was no discernable change in WSE resulting from the bridge columns (refer to Figure 4-7).

**Table 4-2. Summary of Results**

| Item | Value | |
|---|---|---|
| Name of River | Lake Bosse | |
| Receiving Body | Little Wekiva River | |
| Drainage Area Land Use | Urban (residential along highway corridor) | |
| Design Discharge, 50-year | 391.9 cfs | |
| Check Discharge, 100-year | 459.25 cfs | |
| | | |
| **Clearance between low member elevation and design peak stage (feet NAVD)** | **Existing** | **Proposed** |
| Bridge Low Member Elevation | 65.99 | 65.99 |
| Design High Water | 62.84 | 62.84 |
| Vertical clearance (2-foot minimum clearance is required) | 3.15 | 3.15 |

| Upstream Stage Results (feet NAVD) | ROW (RAS-STA 1200) | | | 500 Feet Upstream (RAS-STA 1700) | | |
|---|---|---|---|---|---|---|
| | Existing | Proposed | Rise | Existing | Proposed | Rise |
| 50-year | 62.84 | 62.84 | 0.00 | 62.95 | 62.95 | 0.00 |
| 100-year | 63.48 | 63.48 | 0.00 | 63.55 | 63.56 | 0.01 |



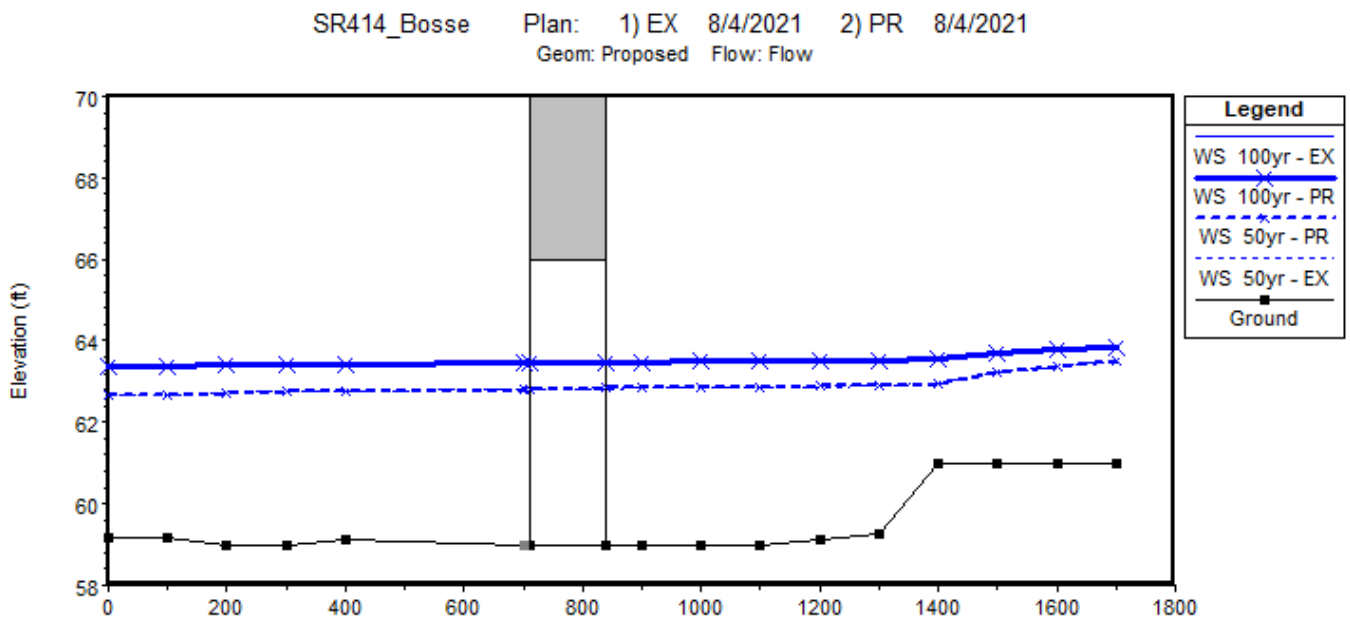




**Figure 4-7. Hydraulic Results**

## 4.7 Water Quality

The SR 414 Expressway Extension will have no adverse impact to the area's water quality. Stormwater treatment of the additional impervious areas will be treated as required by the SJRWMD Environmental Resource Permit. A Water Quality Impact Evaluation checklist will be provided as a part of this study.

## 4.8 Project Classification

There is floodplain involvement as a part of this project but the impacts on human life, transportation facilities and natural and beneficial floodplain values are not significant and can be resolved with minimal efforts. These minimal efforts to address the impacts will be applied by using FDOT's drainage design standards and following SJRWMD's design criteria and procedures to achieve results that will not increase or significantly change the flood elevations and/or limits. Therefore, the floodplain encroachment type is anticipated to be minimal.

## 4.9 Risk Evaluation

There is no history of flooding of the existing facilities and extra measures are not required to minimize any impacts resulting from the proposed improvements.

Encroachments of this project are classified as longitudinal because of roadway widening and transverse impacts resulting from addition of bridge piers. The encroachment and mitigation measures were analyzed and the impact is found to be not significant. No impact is expected to the base flood, likelihood of flood risk, over-topping and backwater conditions, as the fill within the existing floodplain is not significant when compared to the entire floodplain area.

There is no change in flood risk or floodplain associated with this project. The impacts to flood elevations and limits by drainage features, such as the proposed bridge piers, will be designed in accordance with the FDOT Drainage Manual, Topic No. 625-040-002 (FDOT 2021).

The following floodplain statement is a modified version of statement Number 3 in the FDOT PD&E Manual (FDOT 2020), tailored for this project:

> *"Modifications to existing bridge piers included in this project will result in an insignificant change in their capacity to carry floodwater. This change will cause minimal increases in flood heights and flood limits. These minimal increases will not result in any significant adverse impacts on the natural and beneficial floodplain values or any significant change in flood risks or damage. There will not be a significant change in the potential for interruption or termination of emergency service or emergency evacuation routes. Therefore, it has been determined that this encroachment is not significant."*

# 5. Recommendations and Conclusions

The proposed project will not create substantial differences in flood elevations nor cause adverse impacts to the floodplain as required by the SJRWMD permitting process. Impacts to the floodplain have been minimized to the extent practicable by limiting the total distance and area of the project within the 100-year floodplain. The SJRWMD requires replacement of floodplain storage lost as a result of encroachments. The hydraulic design will follow FDOT, SJRWMD, Orange County, and local (FEMA) design standards.

Encroachments of this project are classified as longitudinal because of roadway widening and transverse resulting from the extension/replacement of existing bridge structures. The encroachment and mitigation measures were analyzed, and the impact is found to be nominal. No impact is expected to the base flood, likelihood of flood risk, overtopping and backwater conditions. The impacts to flood elevations and limits by drainage features, such as the proposed bridge facilities, will be designed in accordance with the FDOT Drainage Manual, Topic No. 625-040-002 (FDOT 2021), as a part of the design phase and no adverse impacts to floodplains are anticipated because of the project. Several opportunities for floodplain encroachment compensation exist, including modifications to roadside ditches or other stormwater facilities. This project will not involve regulatory floodways.

Modifications to existing bridge piers included in this project will result in an insignificant change in their capacity to carry floodwater. This change will cause minimal increases in flood heights and flood limits. These minimal increases will not result in any significant adverse impacts on the natural and beneficial floodplain values or any significant change in flood risks or damage. There will not be a significant change in the potential for interruption or termination of emergency service or emergency evacuation routes. Therefore, it has been determined that this encroachment is minimal.

# 6. References

Blackadar, Brett, Division Direction of Engineering, City of Altamonte Springs. 2021. Personal communication (email) with Ricky Ly, Jacobs. February 15.

CDM Smith and Pegasus Engineering. 2016. *Preliminary Feasibility Evaluation Letter Report Little Wekiva River - LAKE LOTUS PARK REGIONAL STORMWATER TREATMENT FACILITY Orange County, Florida*. November 30. ftp://ftp.ocfl.net/divisions/CESrvcs/pub/EPD/Final%20LWR%20Lake%20Lotus%20Letter%20Report%20(11-30-16).pdf

CDM. 2005. *Little Wekiva River Watershed Management Plan Final Report*. November. http://seminole.wateratlas.usf.edu/upload/documents/Basinreport_LittleWekiva_ExecSumm.pdf

Central Florida Expressway Authority (CFX). 2022a. *Bridge Analysis Technical Memorandum*. Prepared by Jacobs.

Central Florida Expressway Authority (CFX). 2022b. *Pond Siting Report*. Prepared by Jacobs.

Central Florida Expressway Authority (CFX). 2022c. *Typical Section Technical Memorandum*. Prepared by Jacobs.

Danos, Mike, Maintenance Administrator, Florida Department of Transportation District 5 – Oviedo Maintenance Office. 2021. Personal communication (email) with Ricky Ly, Jacobs. February 15.

Federal Emergency Management Agency (FEMA). 2018. *Flood Insurance Study - Orange County, Florida and Incorporated* Areas. Number 12095CV000B. Revised June 20.

Florida Department of Transportation (FDOT). 1994. Maitland Boulevard Extension Project Over Little Wekiva River.

Florida Department of Transportation (FDOT). 2020. *Project Development & Environment Manual.* July. https://fdotwww.blob.core.windows.net/sitefinity/docs/default-source/environment/pubs/pdeman/2020/pd-e_part-1-2_pdf_finapi.pdf?sfvrsn=eb032889_2

Florida Department of Transportation (FDOT). 2021. Drainage Manual, Topic No. 625-040-002. Effective January 2021. https://fdotwww.blob.core.windows.net/sitefinity/docs/default-source/roadway/drainage/files/drainagemanual2021.pdf

Geotechnical & Environmental Consultants, Inc. (GEC). 2020. *Preliminary Geotechnical Investigation for Bridge Development Report (BDR) SR 414 Expressway Extension PD&E Study SR 414 Bridge over Lake Bosse*. Prepared for Jacobs Engineering Group. December 30.

St. Johns River Water Management District (SJRWMD). 2018. *Permit Information Manual*.

# Appendix A
# Maps

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

# SR 414 Expressway Extension
# Project Development and Environment (PD&E) Study

**CFX Project No. 414-227**

## Base Map

County Boundary

Seminole Wekiva Trail

Study Area

Parcel Lines

0 1,000 Feet

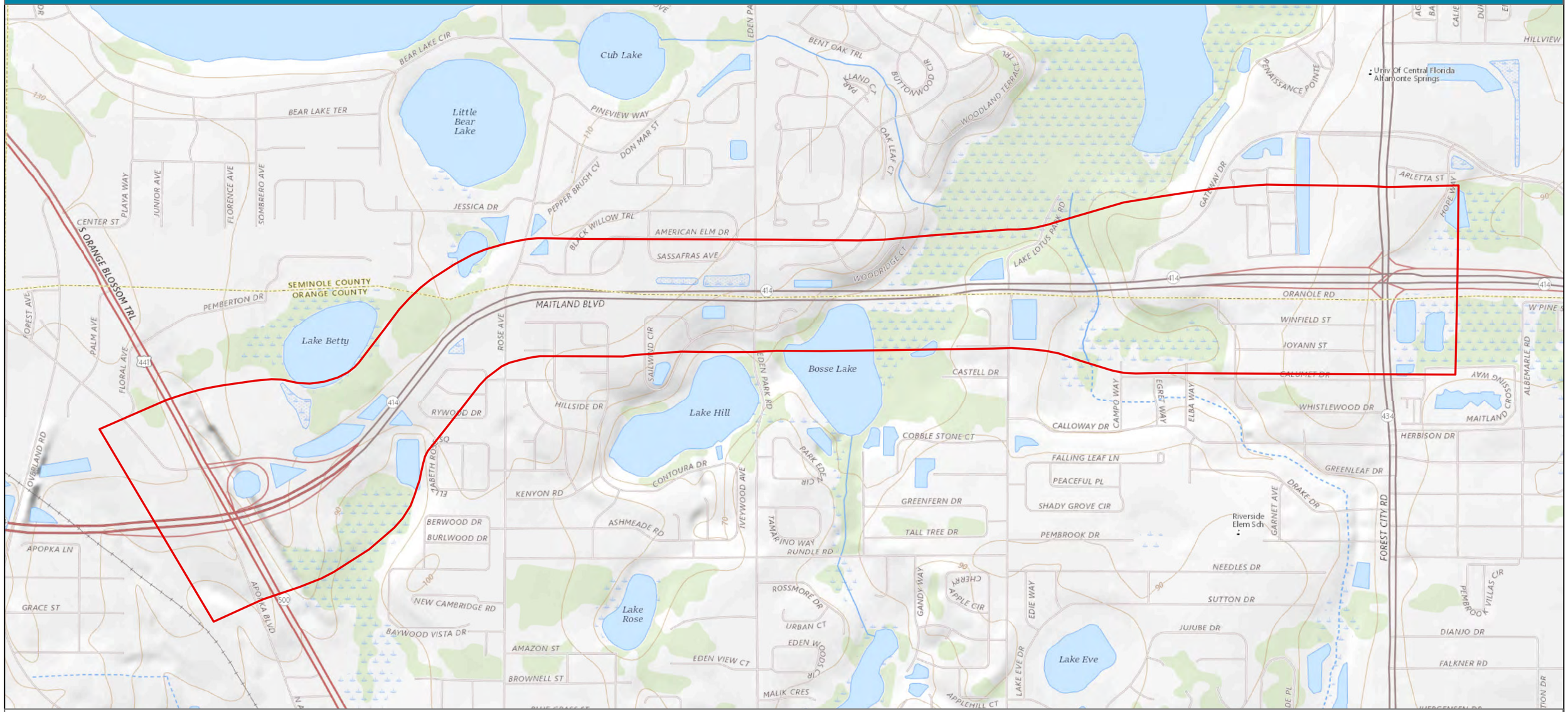
Data Sources: FDOT, LABINS, Seminole County, Orange County, FGDL, Rails-to-Trails Conservancy

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

# SR 414 Expressway Extension
# Project Development and Environment (PD&E) Study

**CFX Project No. 414-227**

## USGS Topo




## Legend

Study Area

0 1,000 Feet

Data Sources:
USGS, ESRI

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

# SR 414 Expressway Extension
# Project Development and Environment (PD&E) Study

**CFX Project No. 414-227**

# Existing Ponds and Floodplains Map

County Boundary
Rail
Study Area
Existing Lake
FDOT Ponds
CFX Ponds

**Flood Hazard Areas - Flood Zones**

A - Areas with a 1% annual chance of flooding (no base elevation)
AE - Areas where base flood elevations are provided
Regulatory Floodway

N

0 1,000 Feet

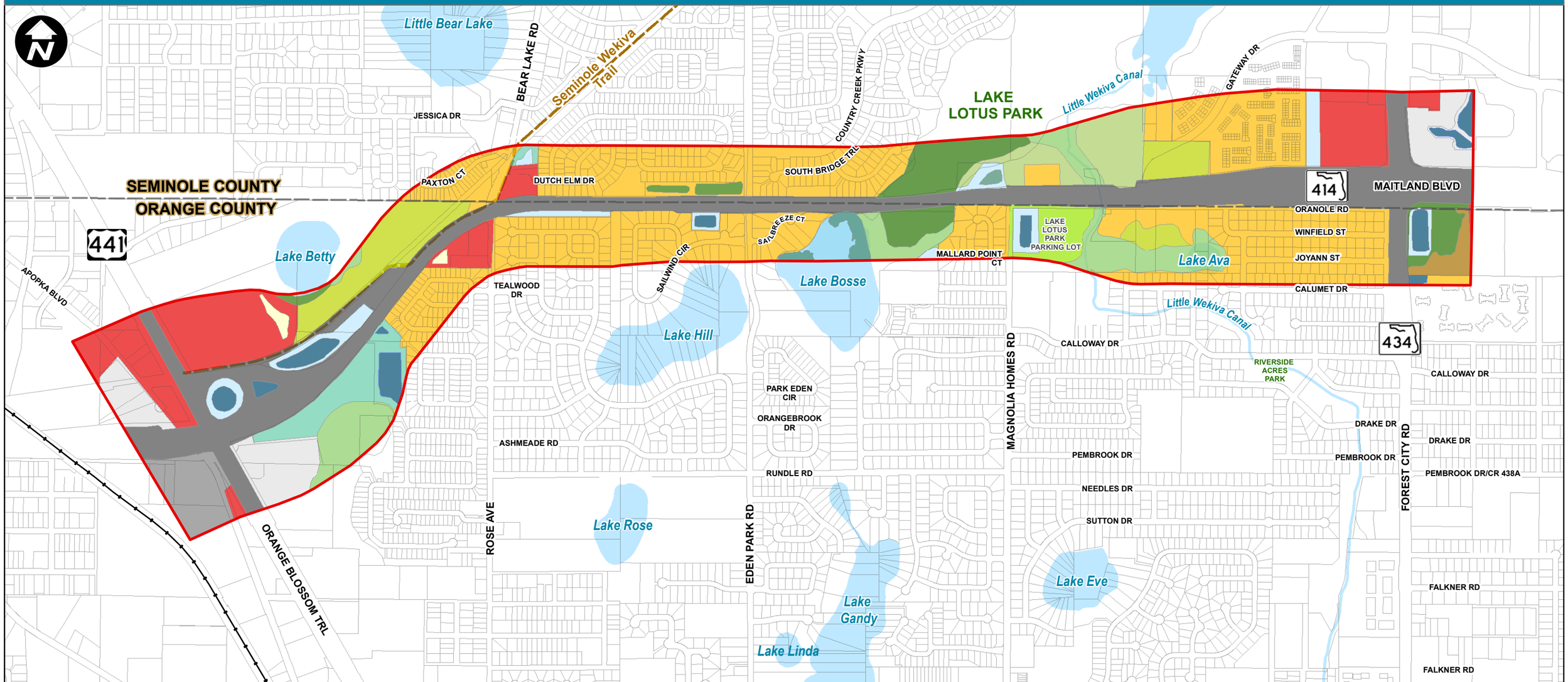
Data Sources: FDOT, Seminole County, Orange County, FGDL, ESRI Rails-to-Trails Conservancy, FEMA

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

# SR 414 Expressway Extension
# Project Development and Environment (PD&E) Study

**CFX Project No. 414-227**

## Land Use/Land Cover




County Boundary
Seminole Wekiva Trail
Rail
Study Area
Parcel Lines

**Existing Land Use**

- Residential
- Commercial
- Light Industrial
- Heavy Industrial
- Parks and Zoos
- Herbacious Upland Non-forested
- Upland Hardwood Forests
- Upland Mixed Coniferous/Hardwood
- Streams and Waterways
- Lakes
- Reservoirs
- Wetland Forested Mix
- Freshwater Marshes
- Wet Prairies
- Emergent Aquatic Vegetation
- Mixed Scrub-Shrub Wetland
- Disturbed Land
- Roads
- Surface Water Collection Basin

0 1,000 Feet

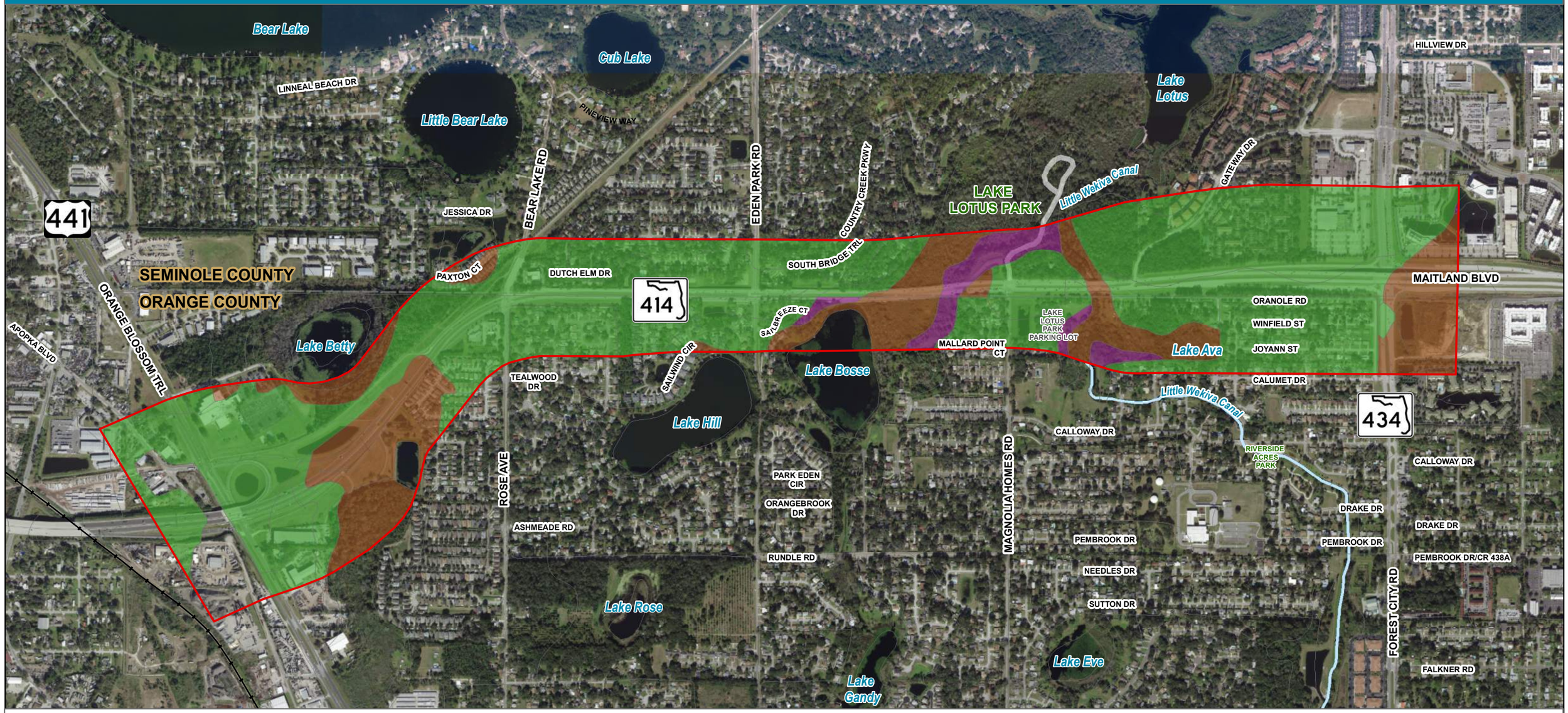
Data Sources: FDOT, Seminole County, Orange County, FGDL, Rails-to-Trails Conservancy, USFWS St. Johns River WMD

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

# SR 414 Expressway Extension
# Project Development and Environment (PD&E) Study

**CFX Project No. 414-227**

# Hydrologic Soils Map




County Boundary
Rail
Study Area

Hydrologic Soils Group
- A
- A/D
- B/D

0 1,000 Feet

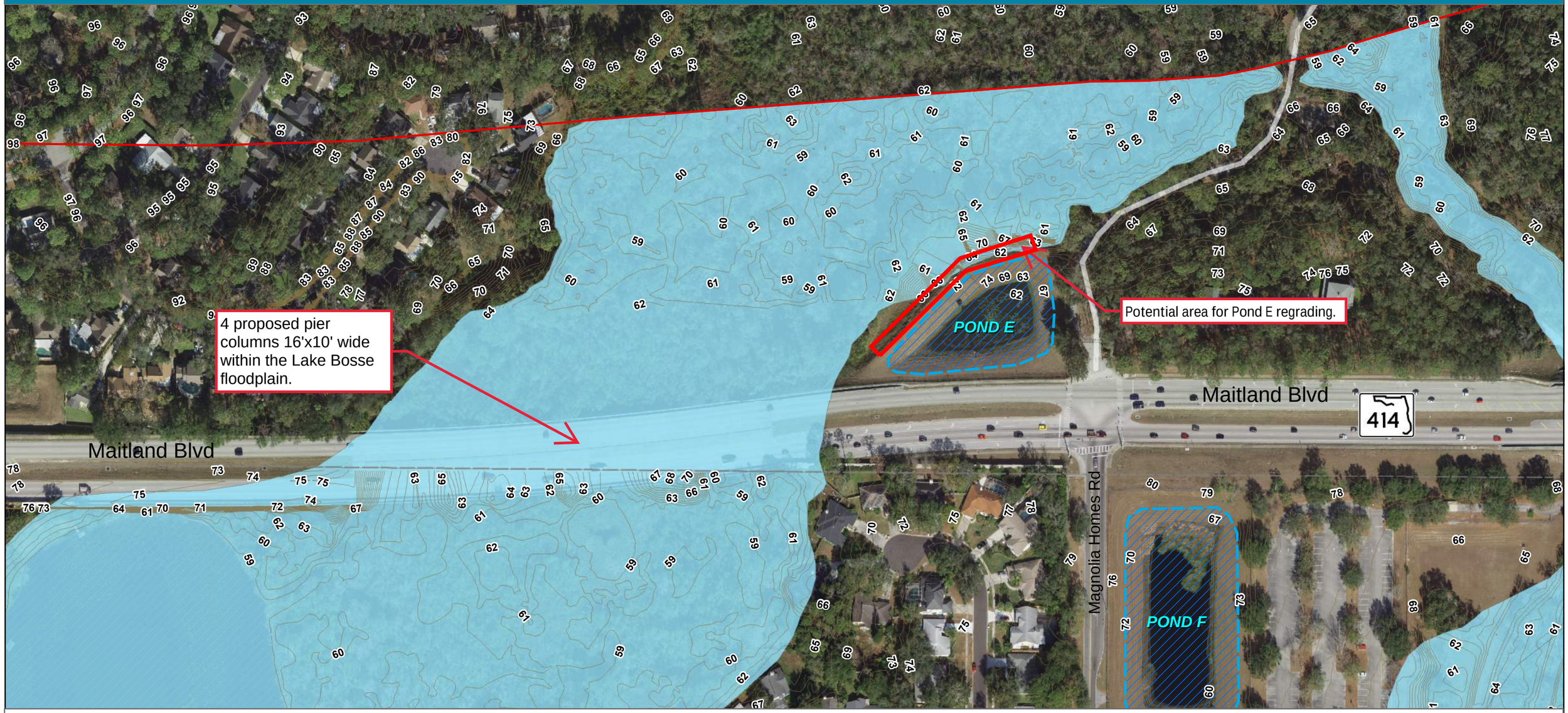
Data Sources: FDOT, Seminole County, Orange County, FGDL, ESRI Rails-to-Trails Conservancy, FEMA

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

# SR 414 Expressway Extension
## Project Development and Environment (PD&E) Study

CFX Project No. 414-227

# Proposed Conditions Floodplain Impacts and Compensation Map




County Boundary
Rail
Study Area
Existing Lake
FDOT Ponds
Contours (1 ft)

**Flood Hazard Areas - Flood Zones**

A - Areas with a 1% annual chance of flooding (no base elevation)

AE - Areas where base flood elevations are provided

0 175 Feet

Data Sources: FDOT, Seminole County, Orange County, FGDL, ESRI Rails-to-Trails Conservancy, FEMA

# Appendix B
# Correspondence

Jacobs

# Meeting Minutes

200 S. Orange Ave, Suite 900
Orlando, FL 32801

www.jacobs.com

| | | | |
|---|---|---|---|
| Subject | CFX Project No. 414-227 and Little Wekiva/Lake Lotus Stormwater Project - Coordination with Orange County EPD | | |
| Project | SR 414 Maitland Blvd PDE | | |
| Project No. | CFX Project No. 414-227 | File | Lake Lotus Stormwater Project - Coordination with Orange County EPD.docx |
| Prepared by | Ricky Ly, PE | Phone No. | 407-432-9563 |
| Location | Online WebEx Meeting | Date/Time | August 27, 2020 |
| Participants | Emily Lawson, Orange County Environmental Protection Division - Emily.Lawson@ocfl.net<br>Julia Bortles, Orange County Environmental Protection Division - Julie.Bortles@ocfl.net<br>Danh Lee, Jacobs – danh.lee@jacobs.com<br>Ricky Ly, Jacobs – ricky.ly@jacobs.com | | |

## Notes

Orange County

- Currently working on finalizing contract documents to start design

FDOT

- Orange County stated that FDOT has entered into discussions with the City of Altamonte Springs regarding the current use of the existing FDOT Pond F – Jacobs will confirm status with FDOT
- City of Altamonte Springs uses parking lot and pathway for tram to Lake Lotus Park underneath SR 414 adjacent to Little Wekiva River
- Orange County, FDOT, and City of Altamonte Springs working on an agreement regarding Lake Lotus Stormwater Treatment Facility
- FDOT Contacts
    - Leslie Primo, RW Acquisition
    - Karen Snyder, Drainage / PDE
- Jacobs to get together with FDOT regarding rights/compensation  treatment credits

Orange County

- Asks about volume coming in to new pond from CFX SR 414 PDE project as it may effect their calculations
- Orange County currently working on agreement wording, will reach out to FDOT / CFX (Jacobs) to coordinate
- Credits Agreements
    - Orange County wants this project for BMAP Credits for the Little Wekiva River basin

- Calling it a percentage in case calculations are edited during design

Timeline / Schedule

- Orange County has an internal meeting next week, will get back next week to Jacobs

Action Items

- Jacobs to reach out to FDOT regarding agreements / credits
- Orange County to let Jacobs know about the schedule/timeline
- Jacobs to provide volume calculations for Orange County when available

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

# SR 414 Expressway Extension PD&E Study from US 441 to SR 434 Drainage discussion on Stormwater Design Criteria and Approach Draft Meeting Summary

| | |
|---|---|
| **PREPARED BY:** | Danh Lee, PE |
| **MEETING DATE:** | 01/28/2021 |
| **MEETING TIME:** | 10:00 a.m. – 11:00 a.m. |
| **LOCATION:** | MS Teams Videoconference |
| **ATTENDEES:** | Ferrell Hickson (FDOT), Sunserea Dalton (Jacobs), Kristen Bridges (Jacobs), Clayton Lee (Dewberry) Carnot Evans (Dewberry) |

I. **Project Overview**
   a. Last FDOT coordinate meeting was in December.
   b. Alternatives public workshop scheduled for the end of February.
   c. Barrier within the median will be continuous.
   d. Secondary drainage system, for the proposed elevated section, will be connected to the existing surface system.
      i. Existing pipe capacities will be evaluated during the design phase of the SR 414 project.

II. **Basin Stormwater Requirements**
   a. Water Management Districts are currently working on modifying the Statewide Environmental Resource Permit (SWERP) rules again.
      i. Targeted completion date may be by the end of this year.
   b. Recharge standards
      i. Verify if existing permits account for current recharge standards.
         1. Projects may have been permitted before standards were established.
      ii. Verify with SJRWMD if current approach to meet recharge standards are permittable.
         1. The current approach, for wet detention basins, is to provide 3 inches over DCIA that replaces any open grass areas (i.e. existing median and any grassed infield area at the Interchanges). Thus, post-development

recharge is equal to or greater than pre-development recharge.

2. If current approach is not acceptable, we may need to provide recharge, per Basin, to meet current standards.

c. Outstanding Florida Springs
   i. Based on previous discussion with SJRWMD, Outstanding Florida Springs is not considered an OFW, in which an additional 50% of treatment volume will be required. But we should still verify that with Cammie Dewey.
d. Closed Basins / Chapter 14-86 F.A.C.
   i. Preliminary pond sizing needs to account for 100 YR / 240 HR Design storm.
   ii. If volumetric analysis is not sufficient, ICPR modeling may be required during design phase.

III. **Stormwater Basins / Ponds**

a. Pond Design High Water Elevation / Freeboard
   i. FDOT is acceptable to using the outside berm elevation to measure the 1 ft of freeboard within the pond, only if the pond(s) is currently permitted as such.
b. Basin A / Pond 4A
   i. Need to consider the proposed improvements/trail projects in our study and during the design phase.
   ii. Trail improvements/connection is supposed to run south, along the east side of US 441.
   iii. The existing loop ramp radius is supposed to be tighten up to allow space for the trail improvements.
c. Pond B1
   i. Need to verify if there's an existing easement for the transmission poles. If so, the preference is to not have any proposed pond area within the easement.
d. Pond C / dry retention
   i. Verify if existing pond is "dry" or not. FDOT/CFX prefer dry retention. May need to elevate the pond bottom to maintain "dry" conditions.
e. Basin G / Maitland West
   i. The completion of the Maitland West project is currently on hold.
   ii. There have been some ponding issues due to the incompletion of a proposed, north to south, ditch that conveys runoff from our study limits to the ultimate outfall location. This issue has

recently been resolved by removal of excess dirt that may have been the cause of the ponding issues.

iii. Special attention should be provided for the design high water elevation of the proposed perimeter swale which will capture and provide stormwater treatment and attenuation for the runoff from our study limits. The adjacent existing edge of pavement elevation(s) along SR 434 and the EB on ramp to SR 414 are low and should be compared to the swale design stages.

iv. The site also contains karst area(s) and has been know for sinkhole activity. Additional soil borings should be considered for any roadway/bridge improvements within the study limits in the vicinity of this site.

v. Exfiltration trenches are not an option for stormwater treatment within this area. FDOT does not recommend any exfiltration trenches within any karst areas.

IV. **Bridges**

a. Lake Bosse

i. Hydraulic calculation will consider removal of the existing piers and the replacement of the proposed piers. Pre-post channel capacity comparison.

b. Little Wekiva

ii. The proposed structure will span entire limits of river crossing. Hydraulic calculation will verify vertical clearance requirements.

V. **FEMA 100 YR Floodplains**

a. SJRWMD requires consideration of the 10 YR floodplain impacts.

b. FEMA requires consideration of the 100 YR floodplain impacts.

c. De minimis approach.

c. Mitigation for the minimal impacts should consider:

i. "Scrape down" adjacent to existing Pond E.

ii. Reduced discharge (pre-post) from proposed stormwater treatment ponds.

VI. **ELA / Lake Lotus Park Regional Pond**

a. Orange County will acquire FDOT ROW for the proposed regional pond.

b. Existing Pond F will remain.

c. CFX needs to confirm use of Pond F for our proposed study limits with FDOT.

d. City of Altamonte Springs wants rights over existing parking lot and bus loop.

e. FDOT will maintain rights over Park and Ride, south of Pond F. The City will provide maintenance for this area.
f. FDOT will maintain an easement over any pipes and drainage structure associated with Pond F.
g. Orange County will have rights over the rest of the "green" areas.
h. The Park provides mitigation for existing SR 414 / Maitland Blvd. This should remain intact.
i. If a "joint-use" agreement is made for the regional pond, it should be between CFX and Orange County.
j. If the regional pond provides any stormwater treatment, attenuation, and/or recharge for our study limits then an easement should be acquired over the proposed pond.
k. Jacobs had a preliminary discussion with Orange County on August 27, 2020 regarding the regional pond. Orange County staff included Emily Lawson and Julia Bortles.
l. Jacobs should continue the discussion of the regional pond use and application with Leslie Primo (FDOT, RW Acquisition). Altamonte Springs and Orange County.

VII. **Maintenance**

a. FDOT would normally transfer the maintenance of stormwater ponds to CFX after completion of the design/construction for the study limits. The ponds will then be providing stormwater treatment for CFX's roadway improvements. However, maintenance agreements have not been discussed and these will need to continue if project progresses to design phase.
b. Maintenance agreement for roadway, existing versus proposed elevated sections, will need to be determined.

VIII. **Action Items**

| Action Item | Due Date | Person Responsible | Completion Date | Notes |
|---|---|---|---|---|
| Jacobs to set up "pre app" with SJRWMD | | | | |
| Jacobs to set up meeting with FDOT, Orange County and Altamonte Springs for Lake Lotus Park Regional Pond following SJRWMD meeting | | | | |

## Ly, Ricky/ORL

**From:** Brett Blackadar <BBlackadar@altamonte.org>
**Sent:** Monday, February 15, 2021 11:55 AM
**To:** Ly, Ricky/ORL
**Cc:** Danielle Marshall; Deanna K. Teminsky; April Davis
**Subject:** [EXTERNAL] RE: SR 414 from SR 441 to SR 434 in Maitland - Existing Maintenance / Drainage Issues - City of Altamonte Springs
**Attachments:** RE: CFX SR 414 Expressway Extension PD&E Study PAG presentation

Ricky,

I am on the Project Advisory Group (PAG) for this study so you can direct any future correspondence to me.

I have attached the comments from 12/22/2020 that we had sent the project team regarding this study. The last two comments do address water quality/mitigation issues in the vicinity of Lake Lotus Park.

The only roads that we maintain in your study area are Gateway Dr and the roadways within Lake Lotus Park. There are not any know issues on Gateway Dr near the study area that we are aware of. As for Lake Lotus Park, much of the park is currently in the flood plain, which I am sure that you already are aware of.

Please let me know if you need anything else.

**BRETT BLACKADAR**, PE, PMP, PTOE
Division Director of Engineering/
City Engineer
BBlackadar@altamonte.org

P: (407) 571-8338
F: (407) 571-8350

950 Calabria Drive
Altamonte Springs, FL 32714
www.Altamonte.org

*Information provided in this email is subject to disclosure to the public pursuant to Florida Sunshine Law. Email sent on the City system is considered public and is only withheld from disclosure if deemed confidential pursuant to state law.*

*Persons with disabilities needing documents in an alternate format should contact (407) 571-8122 (Voice), (407) 571-8126 (TTY) or CityClerk@altamonte.org (Email).*

---

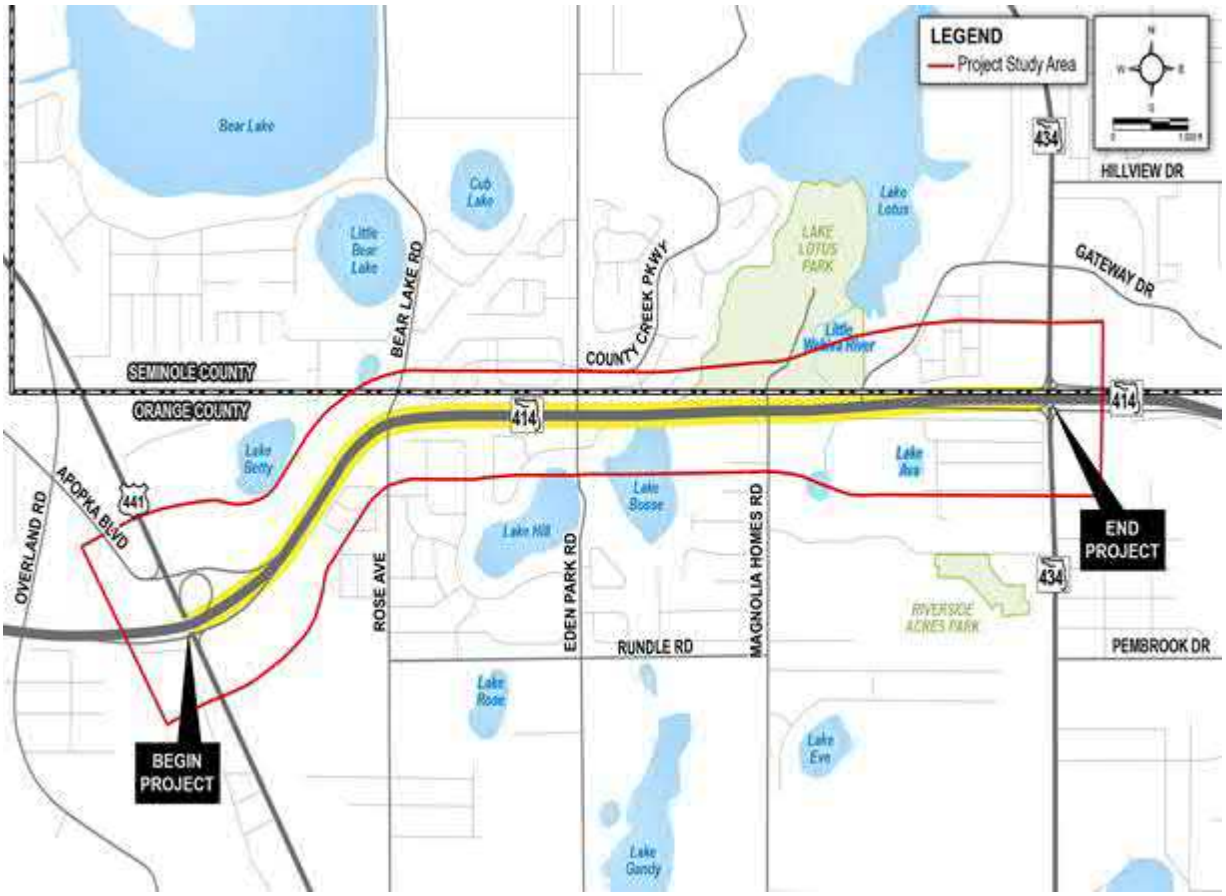
**From:** Ly, Ricky/ORL <Ricky.Ly@jacobs.com>
**Sent:** Monday, February 15, 2021 10:31 AM
**To:** Deanna K. Teminsky <DKTeminsky@altamonte.org>
**Cc:** Lee, Danh <Danh.Lee@jacobs.com>
**Subject:** SR 414 from SR 441 to SR 434 in Maitland - Existing Maintenance / Drainage Issues - City of Altamonte Springs

Good morning City of Altamonte Public Works,

I hope this e-mail finds you well. The Central Florida Expressway Authority is conducting the State Road 414 Expressway Extension Project Development and Environment Study to evaluate alternatives for a proposed grade-separated expressway extension of the tolled SR 414 (John Land Apopka Expressway).

The study limits extend along the existing SR 414 (Maitland Boulevard) corridor from US 441 (Orange Blossom Trail) to State Road 434 (Forest City Road). (See below figure for project study area location map).

We are reaching out to document any known drainage or maintenance issues in the vicinity that your office may have encountered or are aware of as part of the PDE study process. Your assistance and feedback in this effort is greatly appreciated – let us know if you have any questions – thank you!




Very truly yours,

**Ricky Q. Ly, PE (FL) | Jacobs** | Project Manager | Drainage
People and Places Solutions
407.432.9563 mobile | Ricky.Ly@jacobs.com
200 S. Orange Ave., Suite 900, Orlando FL 32801, United States
www.jacobs.com

NOTICE - This communication may contain confidential and privileged information that is for the sole use of the intended recipient. Any viewing, copying or distribution of, or reliance on this message by unintended recipients is strictly prohibited. If you have received this message in error, please notify us immediately by replying to the message and deleting it from your computer.

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

# SR 414 Expressway Extension PD&E Study
## from US 441 to SR 434
## Drainage discussion on Stormwater Design Criteria and Approach
## Draft Meeting Summary

**PREPARED BY:** Danh Lee, PE

**MEETING DATE:** 02/17/2021

**MEETING TIME:** 3:00 p.m. – 4:00 p.m.

**LOCATION:** MS Teams Videoconference

**Attendees:**
Cammie Dewey, SJRWMD
Carnot Evans, CFX / Dewberry
Clayton Lee, CFX / Dewberry
Nicole Gough, CFX
Danh Lee, Jacobs
Sunserea Dalton, Jacobs
Jessica Dean, Jacobs
Ricky Ly, Jacobs

I. **Introductions**
   a. Meeting purpose: Follow up on items discussed during 1/28 FDOT drainage meeting and coordination with SJRWMD
   b. Sunserea Dalton provides a summary of the project and notes that Cammie Dewey is on the Project Advisory Group (PAG)

II. **Project Overview**
   a. Study Limits
      i. SR 414 from Interchange at US 441 to Interchange at SR 434
      ii. Typical Section
      iii. Important notes – Approach is to maximize existing ponds as there is no proposed ROW for this project

III. **Permitting**
   a. SWERP rule modification update
   b. Verification that existing permits include recharge standards

IV. **Drainage design criteria will adhere to the requirements set forth by**
   a. SJRWMD
   b. FDEP

c. CFX
d. FDOT
e. Orange County

V. **Follow-Items from 1/28 FDOT Drainage Meeting**

a. Verify approach to meet recharge standards
   i. Wet detention basins: Provide 3 inches over DCIA that replaces open grass areas
      1. Need to provide recharge per basin?
      2. Cammie Dewey notes that the soils maps provided by Orange County in 1989 and Seminole County in 1990 should be used to confirm recharge area. Danh to check soils map.
      3. Danh Lee notes that in the Jamal and Associates Geotechnical report that there is a confining layer in some areas where the water moves horizontally
b. Verify Outstanding Florida Springs Considerations
   i. Assume that Outstanding Florida Springs are not considered an OFW
   ii. Cammie Dewey to check on OFS status. Need to check with FDEP regarding infiltration vs surface runoff.
c. SJRWMD requirement for consideration of the 10 year floodplain impacts

VI. **Basin Stormwater Requirements**

a. Wekiva River Hydrologic Basin and Wekiva Recharge Protection Basin
   i. Recharge standards, for Type A soils
   ii. Storage standards, no net reduction within 100-year floodplain
   iii. Drawdown limits, within Water Quantity Protection Zone
b. Springs Priority Focus Area of Wekiva Springs and Rocks Springs
   ii. Outstanding Florida Springs
   iii. Wekiva Springs and Rock Springs BMAP
      1. BMP for pollutant loading analysis
      2. No net increase in post-development
c. Closed Basins
   i. 25 YR / 96 HR Design Storm
   ii. Chapter 14-86 F.A.C.
d. Open Basins
   i. 25 YR / 24 HR Design Storm

VII. **Stormwater Ponds Water Quality**

a. Dry Retention calculated by the greater of:

i. Off-Line Dry Retention
   1. 0.5 inch runoff from total basin area.
   2. 1.25 inches runoff from DCIA.

ii. On-Line Dry Retention
   1. Additional 0.5 inch runoff from total basin area over the volume specified for off-line treatment.

b. Wet Detention calculated by the greater of:
   i. 1.0 inch over total basin area.
   ii. 2.5 inches over DCIA.

c. Wekiva Recharge
   i. 3.0 inches over DCIA.

VIII. **Stormwater Ponds Water Quantity**

a. Closed Basins
   i. The entire post-development runoff volume from the 100 YR / 24 HR storm shall be retained (Orange County).
   ii. The difference in runoff volumes of the pre-development and post-development from the 25 YR / 96 HR storm shall be detained within 14 days following storm event (SJRWMD).
   iii. The entire post-development runoff volume from the 100 YR / 24 HR storm shall be available within 14 days after the rainfall event has ended.

b. Basin A and B are “closed” basins.

c. Cammie notes the orifice should be sized as small as possible to give receiving basin time to recover for closed basins.

IX. **Stormwater Ponds Recovery**

a. Dry Retention
   i. The total required treatment volume (PAV) shall be available within 72 hours after the rainfall event has ended.
   ii. Closed Basin
      1. ½ of PAV shall be available in 7 days (168 hours) and the entire PAV must be available in 30 days (720 hours).

b. Wet Detention
   i. Recovery of ½ PAV within 24 – 30 hours.

X. **Bridge**

a. Bosse Lake

i. Hydraulic calculation will consider removal of the existing piers and the replacement of the proposed piers. Pre-post channel capacity comparison.

b. Little Wekiva

ii. Proposed structure will span entire limits of crossing. Hydraulic calculation will verify vertical clearance requirements.

XI. **FEMA 100 YR Floodplains**

a. De minimis approach

b. Cup for cup

XII. **ELA**

a. Lake Lotus Park Regional Pond

XIII. **Other Discussion Items**

a. Basin G – plan is to stay away from existing Pond G and use proposed dry swales on north side of SR 414. Cammie Dewey concurs this is a good approach.

XIV. **Action Items**

| Action Item | Due Date | Person Responsible | Completion Date | Notes |
|---|---|---|---|---|
| Check OFS Status | 3/15/2021 | Cammie Dewey, SJRWMD | | |
| Check Soils Maps from Orange County / Seminole County | 3/15/2021 | Danh Lee, Jacobs | | |
| Once treatment volumes are better quantified get back with SJRWMD on basin treatment approach in a few weeks | 3/15/2021 | Danh Lee, Jacobs | | |

## Ly, Ricky/ORL

**From:** Danos, Mike <Mike.Danos@dot.state.fl.us>
**Sent:** Thursday, February 18, 2021 12:41 PM
**To:** Ly, Ricky/ORL
**Cc:** Lee, Danh; Fulton, James
**Subject:** [EXTERNAL] RE: SR 414 from SR 441 to SR 434 in Maitland - Existing Maintenance / Drainage Issues

Ricky,

The most significant drainage issue we've had in this area would be the trash and debris clogging the drainage at the bridge.
There are some other drainage weak points at each end of project. Ditches on US 441 are always wet and are a challenge to maintain. The wet retention ditch at SR 434 (southeast corner) handles a lot of water in the rainy season, spilling into the pond next to it, keeping that outfall flowing.

More general maintenance issues include the back slopes between the sidewalk and the subdivision walls located eastbound between Rose and US 441. I am also including the maintenance of the sound-walls and a mystery minor depression at middle of Rose and Maitland.

It was good talking with you today. It's been quite a while since you been with us here at Oviedo. Best regards stay well.

Mike Danos
FDOT Oviedo Operations
Maintenance Program Manager
(407) 278-2762 - Office
(407) 335-3900 - Cell

---

**From:** Ly, Ricky/ORL <Ricky.Ly@jacobs.com>
**Sent:** Monday, February 15, 2021 10:22 AM
**To:** Danos, Mike <Mike.Danos@dot.state.fl.us>
**Cc:** Lee, Danh <Danh.Lee@jacobs.com>
**Subject:** SR 414 from SR 441 to SR 434 in Maitland - Existing Maintenance / Drainage Issues

**EXTERNAL SENDER:** Use caution with links and attachments.

Good morning Mr. Mike Danos,

I hope this e-mail finds you well. The Central Florida Expressway Authority is conducting the State Road 414 Expressway Extension Project Development and Environment Study to evaluate alternatives for a proposed grade-separated expressway extension of the tolled SR 414 (John Land Apopka Expressway).

The study limits extend along the existing SR 414 (Maitland Boulevard) corridor from US 441 (Orange Blossom Trail) to State Road 434 (Forest City Road). (See below figure for project study area location map).

We are reaching out to document any known drainage or maintenance issues your office may have encountered or are aware of as part of the PDE study process. Your assistance and feedback in this effort is greatly appreciated – let us know if you have any questions – thank you!

Very truly yours,

**Ricky Q. Ly, PE (FL) | Jacobs** | Project Manager | Drainage
People and Places Solutions
407.432.9563 mobile | Ricky.Ly@jacobs.com
200 S. Orange Ave., Suite 900, Orlando FL 32801, United States
www.jacobs.com

NOTICE - This communication may contain confidential and privileged information that is for the sole use of the intended recipient. Any viewing, copying or distribution of, or reliance on this message by unintended recipients is strictly prohibited. If you have received this message in error, please notify us immediately by replying to the message and deleting it from your computer.

# SR 414 Expressway Extension PD&E Study
## from US 441 to SR 434
## Drainage discussion on FDEP Criteria
## DRAFT Minutes

| | |
|---|---|
| PREPARED BY: | Ricky Ly, PE |
| MEETING DATE: | 03/04/2021 |
| MEETING TIME: | 11:00 a.m. – 12:00 p.m. |
| LOCATION: | MS Teams Videoconference |

Attendees:
Leo Angelero, FDEP
Daniel Shideler, FDEP
Danh Lee, Jacobs
Ricky Ly, Jacobs

I. Introductions
   a. Meeting purpose: Discuss FDEP requirements for SR 414 PDE project corridor
   b. Danh Lee provides a screen share of the project location and scope – elevated SR 414 expressway extension

II. Project Overview
   a. Study Limits
      i. SR 414 from Interchange at US 441 to Interchange at SR 434
      ii. Typical Section
      iii. Important notes – Approach is to maximize existing ponds as there is no proposed ROW for this project

III. Special Basin Stormwater Requirements
   a. Wekiva River Hydrologic Basin and Wekiva Recharge Protection Basin
      i. Recharge standards, for Type A soils
      ii. Storage standards, no net reduction within 100-year floodplain
      iii. Drawdown limits, within Water Quantity Protection Zone
   b. BMAP - Springs Priority Focus Area of Wekiva Springs and Rocks Springs
      i. Outstanding Florida Springs
         1. Question – Is Outstanding Florida Springs the same as Outstanding Florida Waters and should 50% additional treatment be provided?

2. Use FDEP direct map to verify if SR 414 is outside of Outstanding Florida Waters and/or Springs
3. The map will shows where OFW and TMDL criteria should be applied
4. Due to the distance – you do not have to add for OFS and is not direct discharge – Leo
5. Surface Discharge vs Infiltration Discharge through the Soil?
    a. SJRWMD / Cammie Dewey said TMDL Loadings they are starting to look at ground discharge into aquifer, and it might be incorporated into new SWERP Rules – what is the opinion of FDEP on the requirements – look at surface discharge and infiltration through the soil TMDL?
    b. What is the requirement?
    c. If it is in the rules, go by the rules, if not then you are not required until it is written
    d. There are special basin requirements that fall in specific drainage basin areas and you have to meet
    e. There is another criteria specified to Wekiva that if you are in the area well drained then you have to demonstrate 3" of recovery on that soil – Wekiva Recharge Protection Basin – yes we are in this area
    f. We can only base design on current rules and will not know until end of year if there are going to be any additional changes

ii. Wekiva Springs and Rock Springs BMAP

1. BMP for pollutant loading analysis
2. No net increase in post-development
3. Need to meet treatment requirements if verified impaired – Leo Angelero
4. Danh – there is a BMAP with requirements – we will make sure our post loading is equal or less than the pre loading / existing condition (current condition preferred not the historic - Leo).
5. Danh – We use BMPTrains with existing ponds along corridor to route through and with proposed ponds to make sure post loading is less than or equal to the pre condition.

IV. FDEP Requirements

a. Leo – recommends look at previous permits associated with Maitland Blvd and make sure any additional special requirements to follow that, make sure to follow TMDL requirements is followed, discussion regarding discharge into ground / soil / infiltration these rules are not in

place yet then if not in place then it should not be asked for but if you do this we will not say no. If not in the rule we will not be asking for it

b. Danh – is there a map or tentative map in which we can define where we will be in those boundaries for future requirements?
    a. Leo – no map yet that he knows of

a. Permitting History – only FDEP permit was for US 441 interchange which included three infield wet ponds - rest of ponds permitted by SJRWMD. Permitted in 1995/1996 – we are looking for original permit requirements and making sure we meet these.

b. TMDLs are in the BMAP
    i. We are taking care of TN and TP per reduction requirements
    ii. Any other nutrients need to be looked at?
        1. See layers to see what else is happening
        2. Check FDEP Map Direct for Verified Impaired requirements
    iii. Leo – CFX usually provides extra to meet FDEP requirements etc

V. Other Discussion Items

VI. Action Items

| Action Item | Due Date | Person Responsible | Completion Date | Notes |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |

# Appendix C
# Supporting Documentation

# Datum Conversion

**Questions concerning the VERTCON process may be mailed to NGS**

---

**Latitude: 28.640**

**Longitude: 081.429**

**NGVD 29 height: 100.00 ft**

**Datum shift(NAVD 88 minus NGVD 29): -0.971 feet**

**Converted to NAVD 88 height: 99.029 feet**

---

# Field Investigation

**Field Investigation**

**February 2, 2021**

Erosion shown at Little Wekiva Canal Bridge near Lake Lotus Park Entrance

Looking Downstream at north end of Lake Bosse Bridge

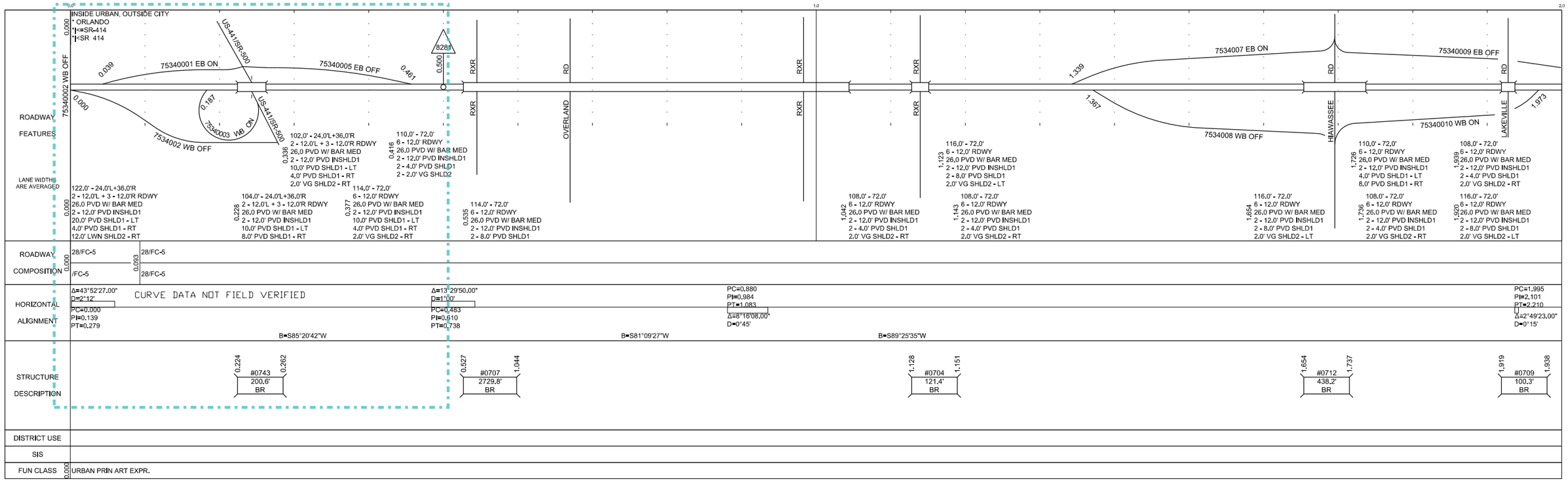
# Straight Line Diagrams

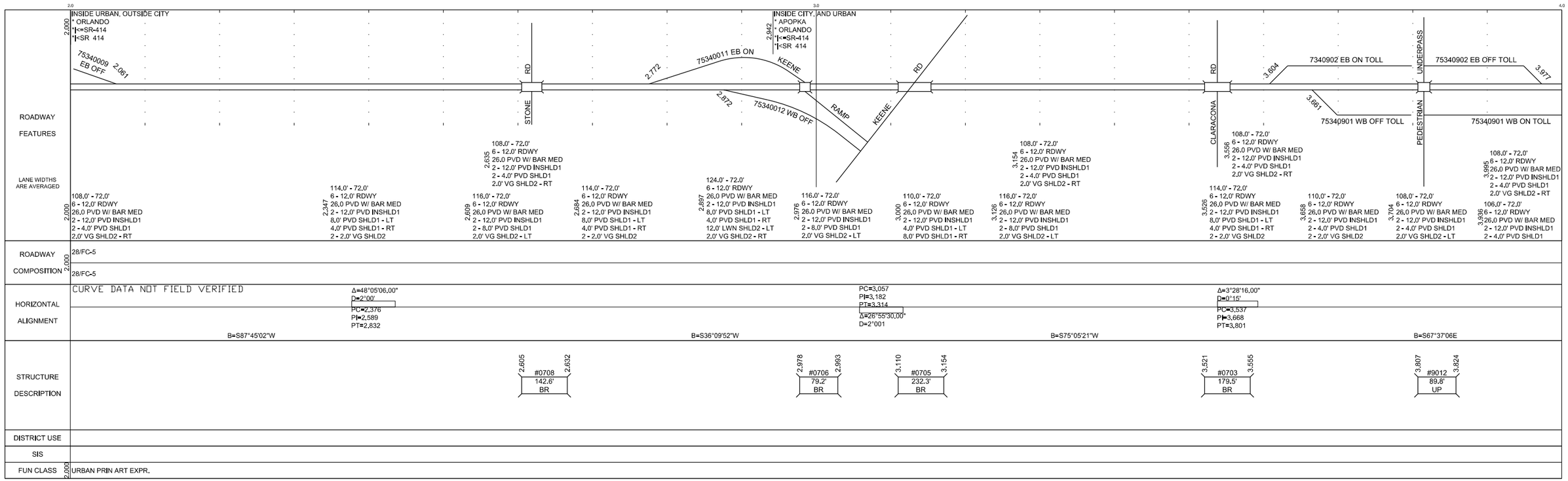
| | 5 YR INV | SLD REV | BMP | EMP | INV | SLD REV |
|---|---|---|---|---|---|---|
| DATE | 10/30/2019 | 12/5/2019 | | | | |
| BY | HNTB | HNTB | | | | |

FLORIDA DEPARTMENT OF TRANSPORTATION

# STRAIGHT LINE DIAGRAM OF ROAD INVENTORY

| SECTION STATUS | INT. or US ROUTE NO. | STATE ROAD NO. | COUNTY | DISTRICT | ROADWAY ID | SHEET NO: |
|---|---|---|---|---|---|---|
| 02 | | SR 414/SR 429 | ORANGE | 05 | 75340000 | 1 OF 3 |




Version: 1.4.2.27 11/06/2019

| | 5 YR INV | SLD REV | BMP | EMP | INV | SLD REV |
|---|---|---|---|---|---|---|
| DATE | 06/16/2014 | 07/02/2014 | 035.959 | 036.781 | | 12/23/2014 MR |
| BY | Kim Auerbach | Michael Register | | | | |

FLORIDA DEPARTMENT OF TRANSPORTATION

# STRAIGHT LINE DIAGRAM OF ROAD INVENTORY

| SECTION STATUS | INT. or US ROUTE NO. | STATE ROAD NO. | COUNTY | DISTRICT | ROADWAY ID | SHEET NO: |
|---|---|---|---|---|---|---|
| 12 | | SR 414 | ORANGE | 05 | 75011002 | 1 OF 1 |

36.0

**ROADWAY FEATURES**

LANE WIDTHS ARE AVERAGED

DELETED
(MP 35.959 TO MP 36.206)

75340002 WB OFF 36.206

36.206 INSIDE URBAN, OUTSIDE CITY
* ORLANDO
*|<=MAITLAND BLVD
*|<SR 414

Begin Project

ROSE AVE 36.655

BEAR LK RD 36.655

SEMINOLE CO LINE

36.206
98.0' - 48.0'
4 - 12.0' RDWY
46.0 VEG MED
2 - 4.0' PVD INSHLD1
2 - 2.0' C&G SHLD1

END MP: 036.781
NET ROADWAY ID LENGTH: 0.575
STATE MAINTAINED LENGTH: 0.575

**ROADWAY COMPOSITION**

36.206
28/FC-3
28/FC-3

**HORIZONTAL ALIGNMENT**

CURVE DATA NOT FIELD VERIFIED

Δ=38°38'32.00"
D=4°01'
PC=36.067
PI=36.162
PT=36.250
B=N38°10'09"E

PC=36.486
PI=36.631
PT=36.756
Δ=52°01'18.33"
D=3°39'

**STRUCTURE DESCRIPTION**

**SIS**

**FUN CLASS**

36.206 URBAN PRIN ART OTHER

**SPEED LIMIT**

36.206 50MPH

**AC MAN CLS**

36.206 ACCESS CLASS03 — ACCESS CLASS03 036.781

**NHS**

36.206 NHS/MAP-21 PRINCIPAL ARTERIALS — NHS/MAP-21 PRINCIPAL ARTERIALS 036.781

Version: 1.4.2.24 11/22/2014

| | 5 YR INV | SLD REV | BMP | EMP | INV | SLD REV |
|---|---|---|---|---|---|---|
| DATE | 01/09/2020 | 01/10/2020 | | | | |
| BY | HNTB | HNTB | | | | |

FLORIDA DEPARTMENT OF TRANSPORTATION

# STRAIGHT LINE DIAGRAM OF ROAD INVENTORY

| SECTION STATUS | INT. or US ROUTE NO. | STATE ROAD NO. | COUNTY | DISTRICT | ROADWAY ID | SHEET NO: |
|---|---|---|---|---|---|---|
| 02 | | SR 414 | SEMINOLE | 05 | 77002000 | 1 OF 1 |

37.0

**ROADWAY FEATURES**

36.781 INSIDE URBAN, OUTSIDE CITY
* ORLANDO
*1<=MAITLAND BLVD
*1<SR 414

ORANGE CO LINE 36.797 0290

EDEN PARK RD 37.144

BOSSE LAKE

LAKE LOTUS PARK RD 37.642

MAGNOLIA HOMES RD 37.642

LANE WIDTHS ARE AVERAGED

36.781 100.0' - 44.0'
4 - 11.0' RDWY
44.0 VEG MED
2 - 4.0' PVD INSHLD1
2 - 4.0' PVD SHLD1
2 - 2.0' C&G SHLD2

37.240 108.0' - 44.0'
4 - 11.0' RDWY
44.0 VEG MED
2 - 4.0' PVD INSHLD1
4.0' PVD SHLD1 - LT
12.0' PVD SHLD1 - RT
2 - 2.0' C&G SHLD2

37.380 116.0' - 44.0'
4 - 11.0' RDWY
44.0 VEG MED
2 - 4.0' PVD INSHLD1
2 - 12.0' PVD SHLD1
2 - 2.0' C&G SHLD2

37.580 100.0' - 44.0'
4 - 11.0' RDWY
44.0 VEG MED
2 - 4.0' PVD INSHLD1
2 - 4.0' PVD SHLD1
2 - 2.0' C&G SHLD2

37.545 108.0' - 44.0'
4 - 11.0' RDWY
44.0 VEG MED
2 - 4.0' PVD INSHLD1
12.0' PVD SHLD1 - LT
4.0' PVD SHLD1 - RT
2 - 2.0' C&G SHLD2

**ROADWAY COMPOSITION**

36.781 28/FC-9.5

28/FC-9.5

**HORIZONTAL ALIGNMENT**

CURVE DATA NOT FIELD VERIFIED

Δ=1°00'00.00" D=0°06'40.00" PC=36.781 PI=36.866 PT=36.951

B=S89°48'33"E

D=0°09'53.00" PC=36.977 PI=37.078 PT=37.160

Δ=1°25'02.00" D=0°09'53.00" PC=36.977 PI=37.078 PT=37.160

Δ=7°43'27.00" D=0°50'53.00" PC=37.200 PI=37.286 PT=37.372

B=N89°27'56"W

PC=37.372 PI=37.421 PT=37.469

Δ=8°22'17.00" D=1°38'13.00"

B=S89°34'44"E

Δ=5°24'33.00" D=0°45'33.00" PC=37.611 PI=37.679 PT=37.748

**STRUCTURE DESCRIPTION**

37.400 #0074 707.5' BR 37.534

**DISTRICT USE**

**SIS**

**FUN CLASS**

36.781 URBAN PRIN ART OTHER

38.0

**ROADWAY FEATURES**

37.781 INSIDE URBAN, OUTSIDE CITY
* ORLANDO
*1<=MAITLAND BLVD
*1<SR 414

LITTLE WEKIVA RIVER

GATEWAY DR 37.887

37.919 0291

37.950 INSIDE CITY, AND URBAN
* ALTAMONTE SPRING
* ORLANDO
*1<=MAITLAND BLVD
*1<SR 414

38.090 77002001 WB ON

38.063 77002002 EB OFF

SR-434

SR-434

ORANGE CO LINE

End Project

LANE WIDTHS ARE AVERAGED

37.781 100.0' - 44.0'
4 - 11.0' RDWY
44.0 VEG MED
2 - 4.0' PVD INSHLD1
2 - 4.0' PVD SHLD1
2 - 2.0' C&G SHLD2

37.875 124.0' - 48.0'
4 - 12.0' RDWY
44.0 VEG MED
2 - 4.0' PVD INSHLD1
4.0' PVD SHLD1 - LT
8.0' PVD SHLD1 - RT
2 - 10.0' LWN SHLD2

38.089 128.0' - 48.0'
4 - 12.0' RDWY
44.0 VEG MED
2 - 4.0' PVD INSHLD1
2 - 8.0' PVD SHLD1
2 - 10.0' LWN SHLD2

END MP: 038.442
NET ROADWAY ID LENGTH: 1.661
STATE MAINTAINED LENGTH: 1.661

**ROADWAY COMPOSITION**

37.781 28/FC-9.5

28/FC-9.5

**HORIZONTAL ALIGNMENT**

CURVE DATA NOT FIELD VERIFIED

B=S89°15'03"E

**STRUCTURE DESCRIPTION**

37.805 #0075 68.6' BR 37.818

38.234 1 - 18" X 195' CC

38.252 1 - 18" X 102' CC

38.310 1 - 18" X 102' CC

38.348 1 - 18" X 102' CC

38.359 #0083 248.2' BR 38.406

38.413 1 - 18" X 102' CC

**DISTRICT USE**

**SIS**

**FUN CLASS**

37.781 URBAN PRIN ART OTHER

Version: 1.4.2.27 01/09/2020

| | 5 YR INV | SLD REV | BMP | EMP | INV | SLD REV |
|---|---|---|---|---|---|---|
| DATE | 08/18/2014 | 08/26/2014 | 038.442 | 040.000 | | 12/23/2014 MR |
| BY | Kim Auerbach | Michael Register | | | | |

FLORIDA DEPARTMENT OF TRANSPORTATION

# STRAIGHT LINE DIAGRAM OF ROAD INVENTORY

| SECTION STATUS | INT. or US ROUTE NO. | STATE ROAD NO. | COUNTY | DISTRICT | ROADWAY ID | SHEET NO: |
|---|---|---|---|---|---|---|
| 02 | | SR 414 | ORANGE | 05 | 75011001 | 1 OF 1 |

## ROADWAY FEATURES

38.442 INSIDE CITY, AND URBAN
* MAITLAND, ORLANDO
*|<=MAITLAND BLVD
*|<SR 414

END OF BRIDGE 770083

75011004 WB OFF 38.668

75011003 EB ON 38.828

0643 39.064

MAITLAND SUMMIT BLVD 39.255

## LANE WIDTHS ARE AVERAGED

38.442 110.0' - 48.0'
4 - 12.0' RDWY
46.0 VEG MED
2 - 4.0' PVD INSHLD1
2 - 8.0' PVD SHLD1
2 - 8.0' PVD SHLD1

38.626 114.0' - 48.0'
4 - 12.0' RDWY
46.0 VEG MED
2 - 4.0' PVD INSHLD1
2 - 8.0' PVD SHLD1
2 - 2.0' VG SHLD2

38.662 112.0' - 48.0'
4 - 12.0' RDWY
46.0 VEG MED
2 - 4.0' PVD INSHLD1
2 - 8.0' PVD SHLD1
2.0' LWN SHLD2 - RT

38.925 114.0' - 48.0'
4 - 12.0' RDWY
46.0 VEG MED
2 - 4.0' PVD INSHLD1
2 - 8.0' PVD SHLD1
2 - 2.0' LWN SHLD2

39.000 126.0' - 24.0'L+36.0'R
2 - 12.0'L + 3 - 12.0'R RDWY
46.0 VEG MED
2 - 4.0' PVD INSHLD1
2 - 8.0' PVD SHLD1
2 - 2.0' LWN SHLD2

39.457 138.0' - 72.0'
6 - 12.0' RDWY
46.0 VEG MED
2 - 4.0' PVD INSHLD1
2 - 8.0' PVD SHLD1
2 - 2.0' LWN SHLD2

## ROADWAY COMPOSITION

38.442 28/FC-3
28/FC-3

39.113 28/FC-4
28/FC-4

## HORIZONTAL ALIGNMENT

CURVE DATA NOT FIELD VERIFIED

PC=38.691
PI=38.845
PT=38.982
Δ=46°09'00.00"
D=3°00'

B=S89°15'03"E

B=S43°06'03"E

## STRUCTURE DESCRIPTION

38.471 1 - 18" X 106' CC
38.514 2 - 36" X 246' CC
38.528 1 - 18" X 106' CC
38.574 1 - 18" X 103' CC
38.608 1 - 18" X 57' CC - LT, 1 - 30" X 53' CC - RT
38.674 1 - 18" X 135' CC
38.749 1 - 18" X 87' CC
38.825 1 - 18" X 92' CC
38.901 1 - 18" X 84' CC
38.996 2 - 36" X 184' CC
39.108 1 - 18" X 84' CC
39.222 1 - 18" X 84' CC
39.316 1 - 18" X 68' CC
39.411 1 - 18" X 83' CC

| | |
|---|---|
| SIS | |
| FUN CLASS | 38.442 URBAN PRIN ART OTHER |
| SPEED LIMIT | 38.442 55MPH |
| AC MAN CLS | 38.442 ACCESS CLASS03 |
| NHS | 38.442 NHS/MAP-21 PRINCIPAL ARTERIALS |

## ROADWAY FEATURES

39.500 INSIDE CITY, AND URBAN
* MAITLAND
* ORLANDO
*|<=MAITLAND BLVD
*|<SR 414

KELLER RD 39.595

0592 39.784

LAKE DESTINY DR 40.000

## LANE WIDTHS ARE AVERAGED

39.500 138.0' - 72.0'
6 - 12.0' RDWY
46.0 VEG MED
2 - 4.0' PVD INSHLD1
2 - 8.0' PVD SHLD1
2 - 2.0' LWN SHLD2

39.910 120.0' - 72.0'
6 - 12.0' RDWY
28.0 TFSP MED
2 - 4.0' PVD INSHLD1
2 - 8.0' PVD SHLD1
2 - 2.0' LWN SHLD2

END MP: 040.000
NET ROADWAY ID LENGTH: 1.558
STATE MAINTAINED LENGTH: 1.558

## ROADWAY COMPOSITION

39.500 28/FC-4
28/FC-4

39.783 28/FC-9.5
28/FC-9.5

## HORIZONTAL ALIGNMENT

CURVE DATA NOT FIELD VERIFIED

Δ=46°49'00.00"
D=3°00'
PC=39.595
PI=39.752
PT=39.891

B=S43°06'03"E

B=S89°55'03"E

## STRUCTURE DESCRIPTION

39.544 1 - 18" X 81' CC
39.638 1 - 18" X 82' CC
39.695 1 - 18" X 86' CC
39.809 1 - 18" X 74' CC
39.884 2 - 36" X 150' CC
39.922 1 - 18" X 62' CC

| | |
|---|---|
| SIS | |
| FUN CLASS | 39.500 URBAN PRIN ART OTHER |
| SPEED LIMIT | 39.500 55MPH; 39.900 45MPH |
| AC MAN CLS | 39.500 ACCESS CLASS03; 40.000 ACCESS CLASS03 |
| NHS | 39.500 NHS/MAP-21 PRINCIPAL ARTERIALS; 40.000 NHS/MAP-21 PRINCIPAL ARTERIALS |

Version: 1.4.2.24 11/22/2014

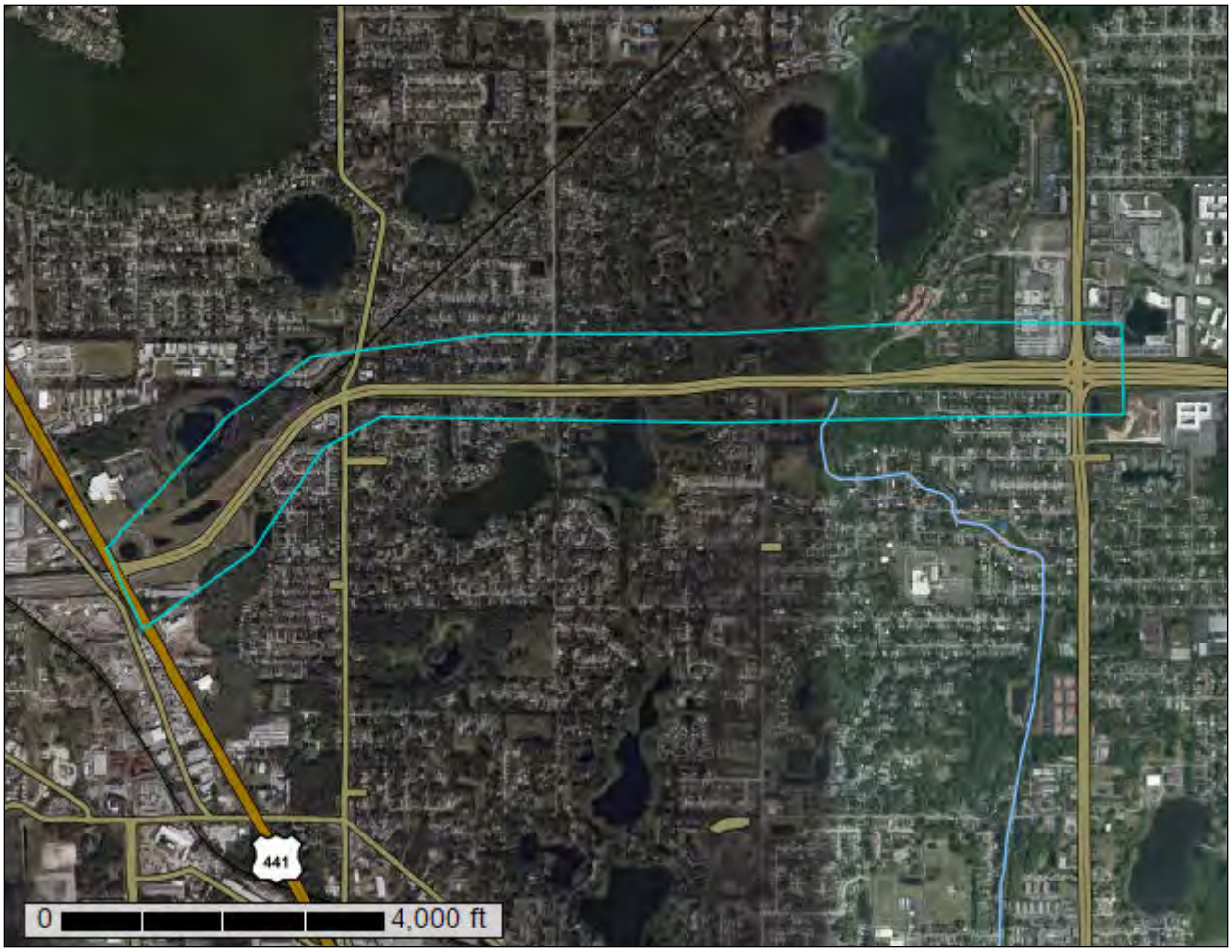
# USDA Soils

United States Department of Agriculture

Natural Resources Conservation Service

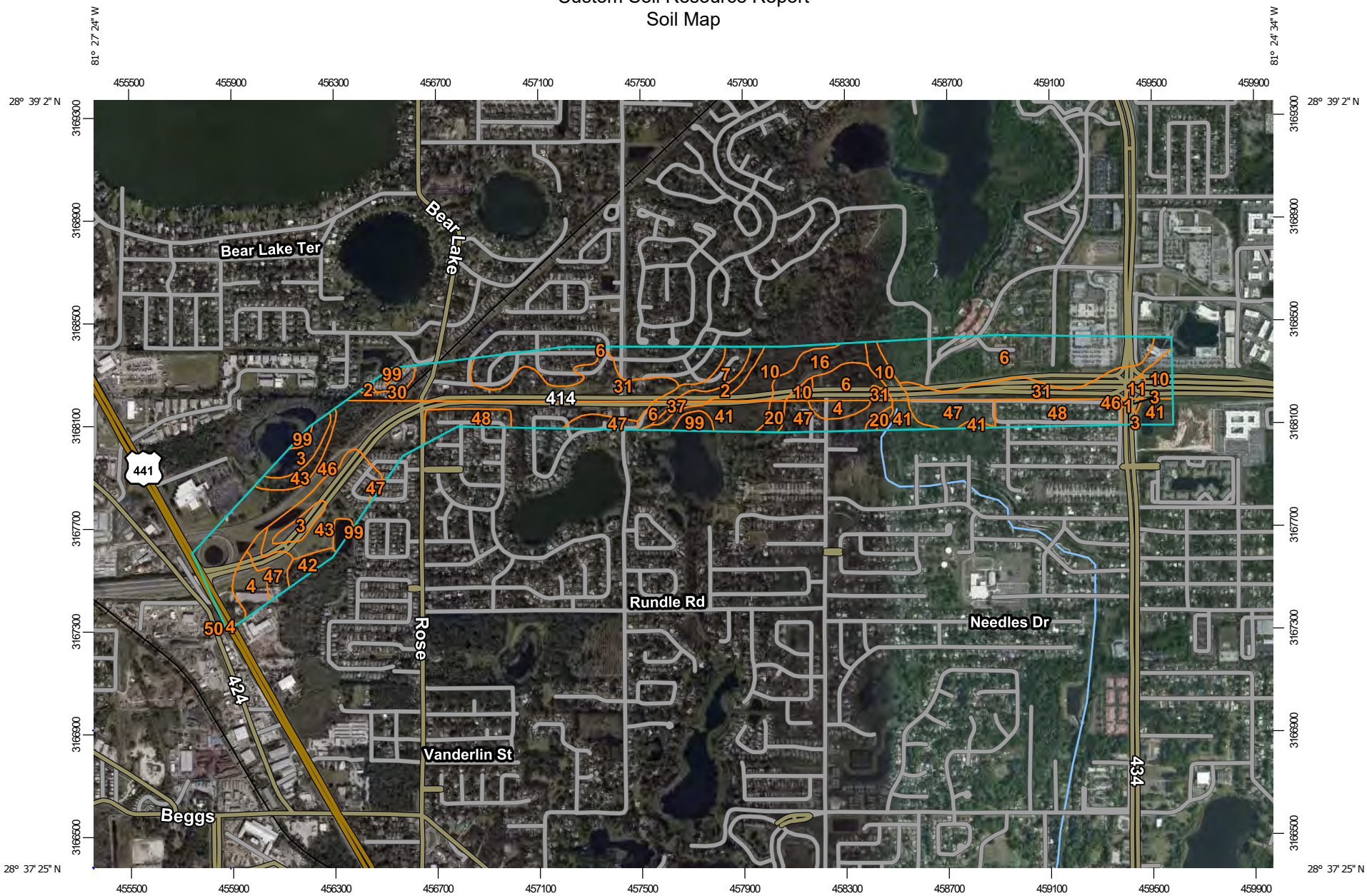
A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

# Custom Soil Resource Report for Orange County, Florida, and Seminole County, Florida




April 22, 2020

# Custom Soil Resource Report
## Soil Map




Map Scale: 1:21,100 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 300 600 1200 1800

Feet: 0 1000 2000 4000 6000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

## MAP LEGEND

**Area of Interest (AOI)**

Area of Interest (AOI)

**Soils**

Soil Map Unit Polygons

Soil Map Unit Lines

Soil Map Unit Points

**Special Point Features**

Blowout

Borrow Pit

Clay Spot

Closed Depression

Gravel Pit

Gravelly Spot

Landfill

Lava Flow

Marsh or swamp

Mine or Quarry

Miscellaneous Water

Perennial Water

Rock Outcrop

Saline Spot

Sandy Spot

Severely Eroded Spot

Sinkhole

Slide or Slip

Sodic Spot

Spoil Area

Stony Spot

Very Stony Spot

Wet Spot

Other

Special Line Features

**Water Features**

Streams and Canals

**Transportation**

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

**Background**

Aerial Photography

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Orange County, Florida
Survey Area Data: Version 16, Sep 17, 2019

Soil Survey Area: Seminole County, Florida
Survey Area Data: Version 18, Sep 17, 2019

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Dec 22, 2018—Mar 11, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

## MAP LEGEND

## MAP INFORMATION

imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

# Map Unit Legend

| Map Unit Symbol | Map Unit Name | Acres in AOI | Percent of AOI |
|---|---|---|---|
| 1 | Arents, nearly level | 0.9 | 0.3% |
| 3 | Basinger fine sand, frequently ponded, 0 to 1 percent slopes | 9.0 | 2.6% |
| 4 | Candler fine sand, 0 to 5 percent slopes | 9.3 | 2.7% |
| 6 | Candler-Apopka fine sands, 5 to 12 percent slopes | 1.8 | 0.5% |
| 20 | Immokalee fine sand | 3.1 | 0.9% |
| 37 | St. Johns fine sand | 1.4 | 0.4% |
| 41 | Samsula-Hontoon-Basinger association, depressional | 15.5 | 4.6% |
| 42 | Sanibel muck | 3.2 | 0.9% |
| 43 | Seffner fine sand, 0 to 2 percent slopes | 23.5 | 6.9% |
| 46 | Tavares fine sand, 0 to 5 percent slopes | 57.4 | 16.8% |
| 47 | Tavares-Millhopper complex, 0 to 5 percent slopes | 24.6 | 7.2% |
| 48 | Tavares fine sand-Urban land complex, 0 to 5 percent slopes | 19.6 | 5.8% |
| 50 | Urban land, 0 to 2 percent slopes | 0.0 | 0.0% |
| 99 | Water | 4.6 | 1.4% |
| **Subtotals for Soil Survey Area** | | **173.9** | **51.1%** |
| **Totals for Area of Interest** | | **340.5** | **100.0%** |

| Map Unit Symbol | Map Unit Name | Acres in AOI | Percent of AOI |
|---|---|---|---|
| 2 | Adamsville-Sparr fine sands | 4.0 | 1.2% |
| 6 | Astatula-Apopka fine sands, 0 to 5 percent slopes | 79.2 | 23.3% |
| 7 | Astatula-Apopka fine sands, 5 to 8 percent | 5.3 | 1.6% |
| 10 | Basinger, Samsula, and Hontoon soils, depressional | 17.8 | 5.2% |
| 11 | Basinger and Smyrna fine sands, depressional | 1.2 | 0.4% |
| 16 | Immokalee sand, 0 to 2 percent slopes | 8.6 | 2.5% |
| 30 | Seffner fine sand, 0 to 2 percent slopes | 2.4 | 0.7% |

| Map Unit Symbol | Map Unit Name | Acres in AOI | Percent of AOI |
|---|---|---|---|
| 31 | Tavares-Millhopper complex, 0 to 5 percent slopes | 47.3 | 13.9% |
| 99 | Water | 0.6 | 0.2% |
| **Subtotals for Soil Survey Area** | | **166.5** | **48.9%** |
| **Totals for Area of Interest** | | **340.5** | **100.0%** |

# Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

# FEMA FIRM

# NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

**Coastal Base Flood Elevations** shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was State Plane Florida East FIPS Zone 0901. The **horizontal datum** was NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov/ or contact the National Geodetic Survey at the following address:

Spatial Reference System Division
National Geodetic Survey, NOAA
Silver Spring Metro Center
1315 East-West Highway
Silver Spring, Maryland 20910
(301) 713-3191

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713-3242** or visit its website at http://www.ngs.noaa.gov/.

**Base map** information shown on this FIRM was provided in digital format by Seminole County, Florida. This information was photogrammetrically compiled at a scale of 1:12000 from aerial photography dated March 2004.

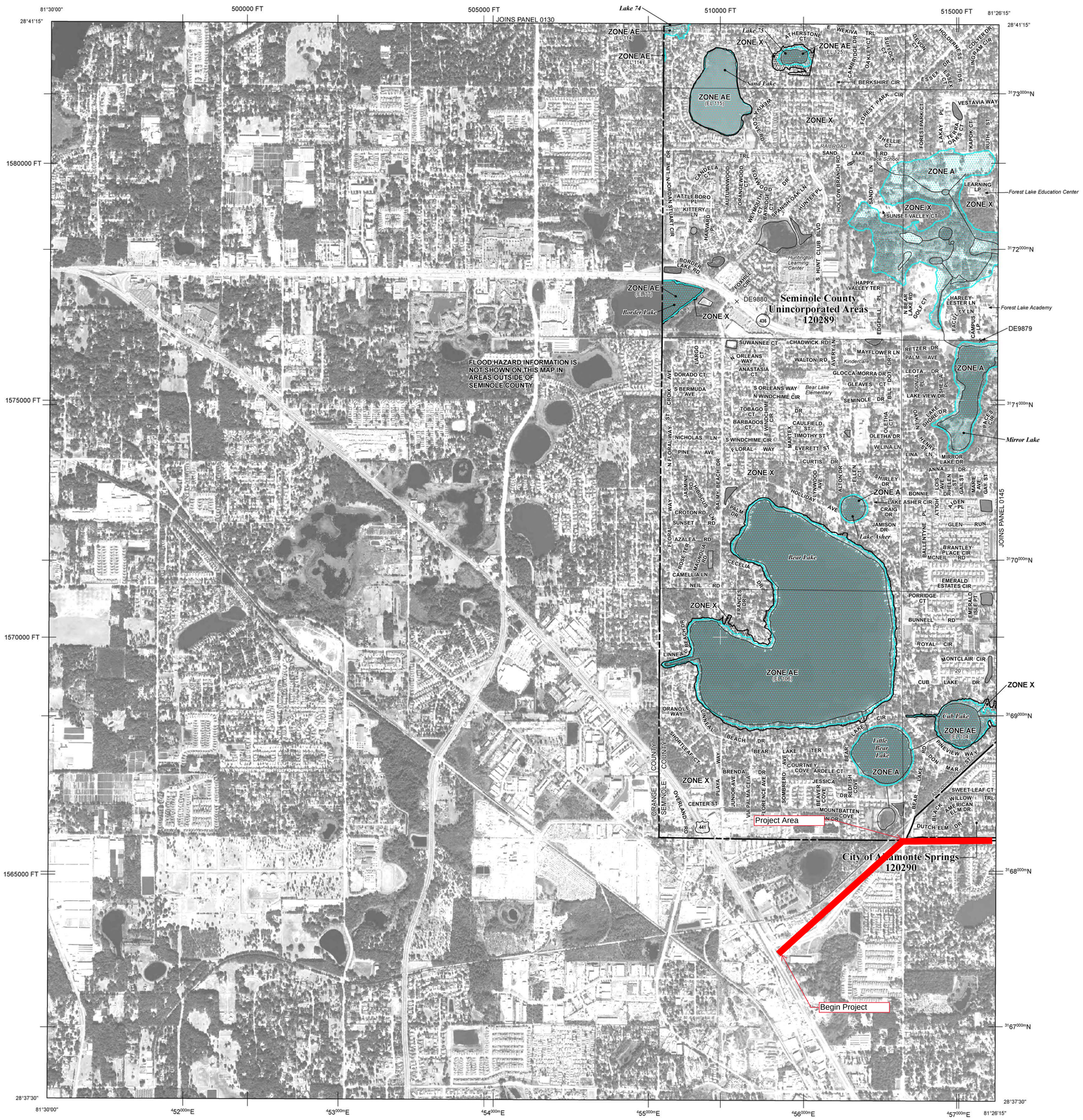
This map reflects more detailed and up-to-date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables *in the Flood Insurance Study report (which contains authoritative hydraulic data)* may reflect stream channel distances that differ from what is shown on this map.

**Corporate limits** shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact the **FEMA Map Service Center** at 1-800-358-9616 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, *a Flood Insurance Study report*, and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1-800-358-9620 and its website at http://www.msc.fema.gov/.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMA MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/.




# LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD EVENT

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

| | |
|---|---|
| **ZONE A** | No Base Flood Elevations determined. |
| **ZONE AE** | Base Flood Elevations determined. |
| **ZONE AH** | Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined. |
| **ZONE AO** | Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined. |
| **ZONE AR** | Special Flood Hazard Area formerly protected from the 1% annual chance flood event by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood. |
| **ZONE A99** | Areas to be protected from 1% annual chance flood event by a Federal flood protection system under construction; no Base Flood Elevations determined. |
| **ZONE V** | Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined. |
| **ZONE VE** | Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined. |

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

| | |
|---|---|
| **ZONE X** | Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood. |

OTHER AREAS

| | |
|---|---|
| **ZONE X** | Areas determined to be outside the 0.2% annual chance floodplain. |
| **ZONE D** | Areas in which flood hazards are undetermined, but possible. |

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

1% annual chance floodplain boundary
0.2% annual chance floodplain boundary
Floodway boundary
Zone D boundary
CBRS and OPA boundary
Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.

| | |
|---|---|
| 513 | Base Flood Elevation line and value; elevation in feet* |
| (EL 987) | Base Flood Elevation value where uniform within zone; elevation in feet* |

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

| | |
|---|---|
| A — A | Cross section line |
| 23 - - - - - 23 | Transect line |
| 97°07'30", 32°22'30" | Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere |
| 4275000mE | 1000-meter Universal Transverse Mercator grid ticks, zone 17 |
| 6000000 FT | 5000-foot grid values: Florida State Plane coordinate system, East Zone (FIPSZONE = 901), Transverse Mercator projection |
| DX5510 × | Bench mark (see explanation in Notes to Users section of this FIRM panel) |
| ● M1.5 | River Mile |

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
APRIL 17, 1995

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
SEPTEMBER 28, 2007 - to update corporate limits, to change Base Flood Elevations and Special Flood Hazard Areas, to add Base Flood Elevations and Special Flood Hazard Areas, to delete Special Flood Hazard Areas, to change zone designations, to update map format, to update roads and road names, to incorporate previously issued Letters of Map Revision, and to reflect updated topographic information.

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

N

**MAP SCALE 1" = 1000'**

500 0 500 1,000 1,500 2,000 FEET
300 0 300 600 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

**PANEL 0140F**

# FIRM
## FLOOD INSURANCE RATE MAP
## SEMINOLE COUNTY, FLORIDA
### AND INCORPORATED AREAS

**PANEL 140 OF 330**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| ALTAMONTE SPRINGS, CITY OF | 120290 | 0140 | F |
| SEMINOLE COUNTY | 120289 | 0140 | F |

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**
**12117C0140F**

**MAP REVISED**
**SEPTEMBER 28, 2007**

Federal Emergency Management Agency

# NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

**Coastal Base Flood Elevations** shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was State Plane Florida East FIPS Zone 0901. The **horizontal datum** was NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov/ or contact the National Geodetic Survey at the following address:

Spatial Reference System Division
National Geodetic Survey, NOAA
Silver Spring Metro Center
1315 East-West Highway
Silver Spring, Maryland 20910
(301) 713-3191

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713-3242** or visit its website at http://www.ngs.noaa.gov/.

**Base map** information shown on this FIRM was provided in digital format by Orange County, Florida.

This map reflects more detailed and up-to-date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables *in the Flood Insurance Study report (which contains authoritative hydraulic data)* may reflect stream channel distances that differ from what is shown on this map.

**Corporate limits** shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

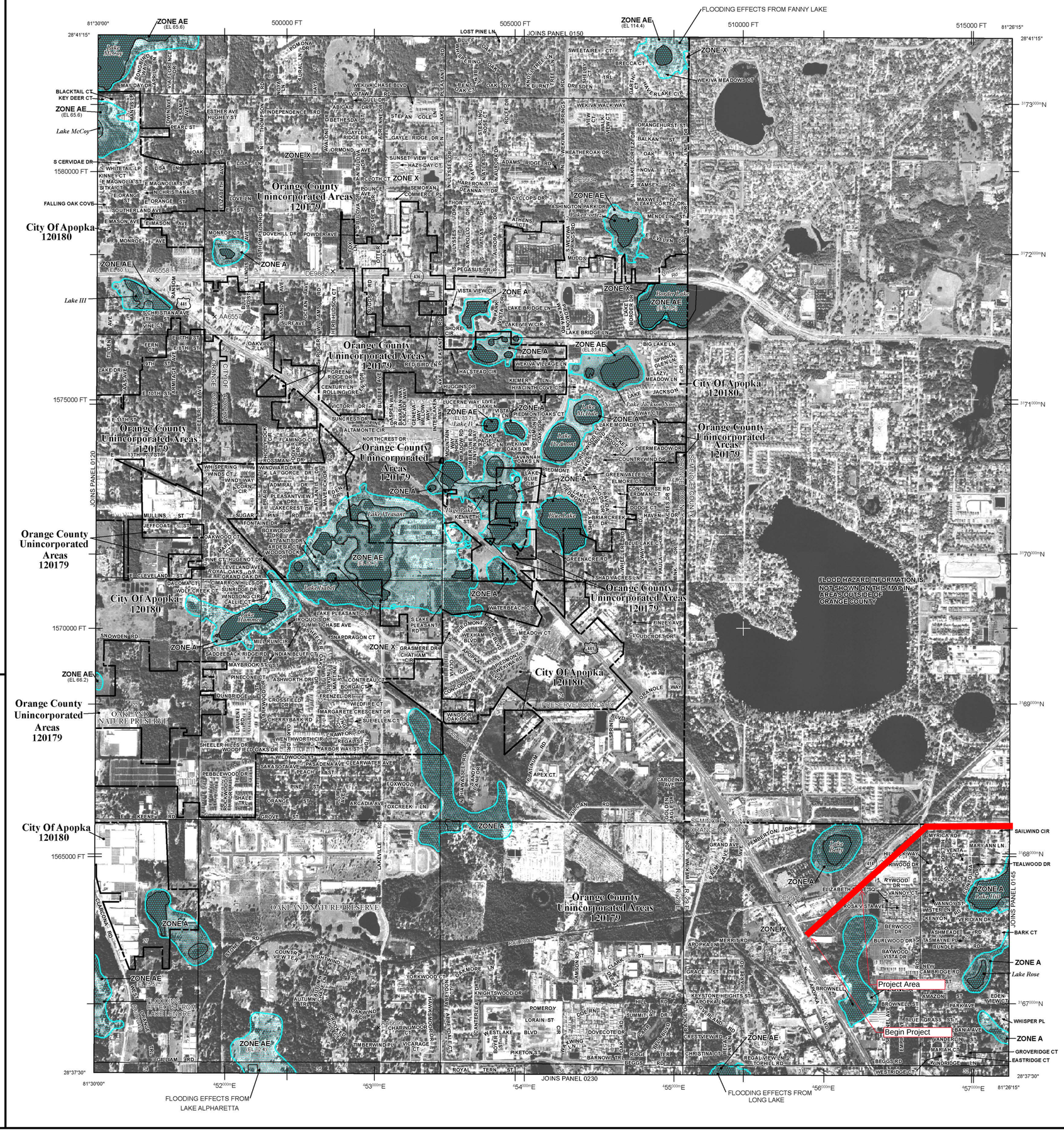
Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact the **FEMA Map Service Center** at 1-800-358-9616 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, *a Flood Insurance Study report*, and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1-800-358-9620 and its website at http://www.msc.fema.gov/.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMA MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/business/nfip/.

**NGVD29 to NAVD88 Vertical Datum Conversion Table (feet)**

| Watershed Name | Minimum Conversion | Maximum Conversion | Average Conversion | Maximum Offset |
|---|---|---|---|---|
| Big Econlockhatchee River | -1.03 | -1.15 | -1.09 | 0.06 |
| Boggy Creek | -0.91 | -1.01 | -0.96 | 0.05 |
| Cypress Creek | -0.87 | -0.91 | -0.89 | 0.02 |
| Howell Branch | -0.96 | -1.05 | -0.98 | 0.07 |
| Lake Apopka | -0.87 | -0.97 | -0.91 | 0.06 |
| Lake Hart | -0.97 | -1.07 | -1.02 | 0.05 |
| Little Econlockhatchee River | -0.92 | -1.07 | -1.01 | 0.09 |
| Little Wekiva River | -0.91 | -1.02 | -0.95 | 0.07 |
| Reedy Creek | -0.88 | -0.89 | -0.88 | 0.02 |
| Shingle Creek | -0.88 | -0.95 | -0.91 | 0.04 |
| St. Johns River | -1.08 | -1.33 | -1.19 | 0.14 |
| Wekiva River | -0.88 | -1.01 | -0.94 | 0.07 |




# LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD EVENT

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

| | |
|---|---|
| ZONE A | No Base Flood Elevations determined. |
| ZONE AE | Base Flood Elevations determined. |
| ZONE AH | Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined. |
| ZONE AO | Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined. |
| ZONE AR | Area of special flood hazard formerly protected from the 1% annual chance flood event by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood. |
| ZONE A99 | Areas to be protected from 1% annual chance flood event by a Federal flood protection system under construction; no Base Flood Elevations determined. |
| ZONE V | Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined. |
| ZONE VE | Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined. |

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

| | |
|---|---|
| ZONE X | Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood. |

OTHER AREAS

| | |
|---|---|
| ZONE X | Areas determined to be outside the 0.2% annual chance floodplain. |
| ZONE D | Areas in which flood hazards are undetermined, but possible. |

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

1% annual chance floodplain boundary
0.2% annual chance floodplain boundary
Floodway boundary
Zone D boundary
CBRS and OPA boundary
Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.

| | |
|---|---|
| 513 | Base Flood Elevation line and value; elevation in feet* |
| (EL 987) | Base Flood Elevation value where uniform within zone; elevation in feet* |

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

| | |
|---|---|
| A — A | Cross section line |
| 23 - - - - - 23 | Transect line |
| 97°07'30", 32°22'30" | Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere |
| 4275000mE | 1000-meter Universal Transverse Mercator grid ticks, zone 17 |
| 6000000 FT | 5000-foot grid values: Florida State Plane coordinate system, East Zone (FIPSZONE = 901), Transverse Mercator projection |
| DX5510 × | Bench mark (see explanation in Notes to Users section of this FIRM panel) |
| ● M1.5 | River Mile |

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
DECEMBER 6, 2000

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
SEPTEMBER 25, 2009 - to update corporate limits, to change Base Flood Elevations, to add Base Flood Elevations, to add Special Flood Hazard Areas, to change Special Flood Hazard Areas, to delete Special Flood Hazard Areas, to update map format, to add roads and road names, to incorporate previously issued Letters of Map Revision, to reflect updated topographic information, and to incorporate previously issued Letters of Map Amendment.

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

**MAP SCALE 1" = 1000'**

500 0 500 1,000 1,500 2,000 FEET
300 0 300 600 METERS

NFIP
NATIONAL FLOOD INSURANCE PROGRAM

**PANEL 0140F**

# FIRM
## FLOOD INSURANCE RATE MAP
## ORANGE COUNTY, FLORIDA
## AND INCORPORATED AREAS

**PANEL 140 OF 750**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| APOPKA, CITY OF | 120180 | 0140 | F |
| ORANGE COUNTY | 120179 | 0140 | F |

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**
**12095C0140F**

**MAP REVISED**
**SEPTEMBER 25, 2009**

Federal Emergency Management Agency

# NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

**Coastal Base Flood Elevations** shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was State Plane Florida East FIPS Zone 0901. The **horizontal datum** was NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov/ or contact the National Geodetic Survey at the following address:

Spatial Reference System Division
National Geodetic Survey, NOAA
Silver Spring Metro Center
1315 East-West Highway
Silver Spring, Maryland 20910
(301) 713-3191

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713-3242** or visit its website at http://www.ngs.noaa.gov/.

**Base map** information shown on this FIRM was provided in digital format by Seminole County, Florida. This information was photogrammetrically compiled at a scale of 1:12000 from aerial photography dated March 2004.

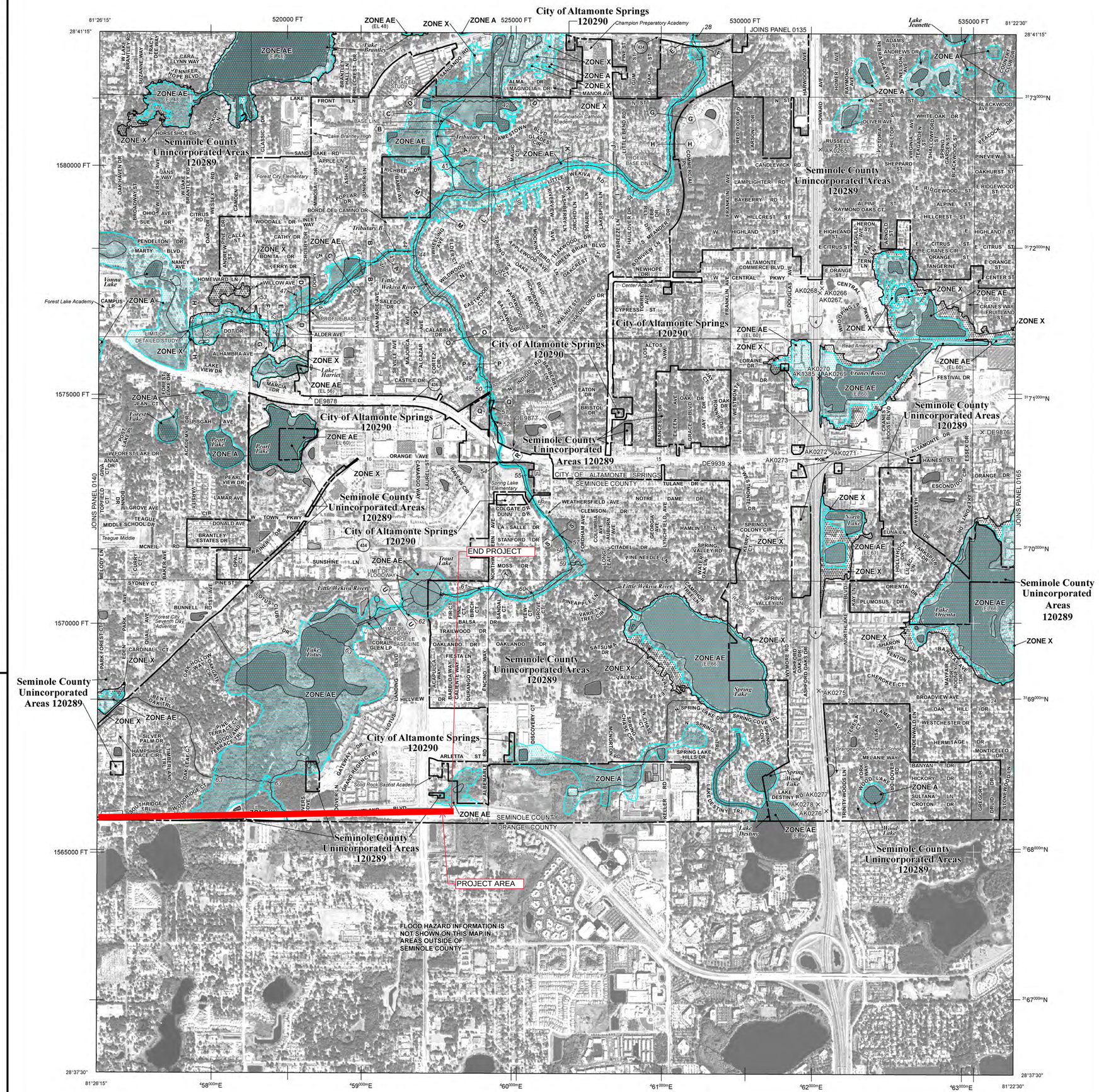
This map reflects more detailed and up-to-date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables *in the Flood Insurance Study report (which contains authoritative hydraulic data)* may reflect stream channel distances that differ from what is shown on this map.

**Corporate limits** shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact the **FEMA Map Service Center** at 1-800-358-9616 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, *a Flood Insurance Study report*, and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1-800-358-9620 and its website at http://www.msc.fema.gov/.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMA MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/.




# LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD EVENT

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

| | |
|---|---|
| ZONE A | No Base Flood Elevations determined. |
| ZONE AE | Base Flood Elevations determined. |
| ZONE AH | Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined. |
| ZONE AO | Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined. |
| ZONE AR | Special Flood Hazard Area formerly protected from the 1% annual chance flood event by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood. |
| ZONE A99 | Areas to be protected from 1% annual chance flood event by a Federal flood protection system under construction; no Base Flood Elevations determined. |
| ZONE V | Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined. |
| ZONE VE | Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined. |

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

| | |
|---|---|
| ZONE X | Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood. |

OTHER AREAS

| | |
|---|---|
| ZONE X | Areas determined to be outside the 0.2% annual chance floodplain. |
| ZONE D | Areas in which flood hazards are undetermined, but possible. |

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

1% annual chance floodplain boundary
0.2% annual chance floodplain boundary
Floodway boundary
Zone D boundary
CBRS and OPA boundary
Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.

| | |
|---|---|
| 513 | Base Flood Elevation line and value; elevation in feet* |
| (EL 987) | Base Flood Elevation value where uniform within zone; elevation in feet* |

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

| | |
|---|---|
| A — A | Cross section line |
| 23 - - - - - 23 | Transect line |
| 97°07'30", 32°22'30" | Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere |
| 4275000mE | 1000-meter Universal Transverse Mercator grid ticks, zone 17 |
| 6000000 FT | 5000-foot grid values: Florida State Plane coordinate system, East Zone (FIPSZONE = 901), Transverse Mercator projection |
| DX5510 × | Bench mark (see explanation in Notes to Users section of this FIRM panel) |
| ● M1.5 | River Mile |

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
APRIL 17, 1995

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
SEPTEMBER 28, 2007 - to update corporate limits, to change Base Flood Elevations and Special Flood Hazard Areas, to add Base Flood Elevations and Special Flood Hazard Areas, to delete Special Flood Hazard Areas, to change zone designations, to update map format, to update roads and road names, to incorporate previously issued Letters of Map Revision, and to reflect updated topographic information.

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 1000'

500 0 500 1,000 1,500 2,000 FEET
300 0 300 600 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0145F

# FIRM

## FLOOD INSURANCE RATE MAP

## SEMINOLE COUNTY, FLORIDA

AND INCORPORATED AREAS

PANEL 145 OF 330

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| ALTAMONTE SPRINGS, CITY OF | 120290 | 0145 | F |
| SEMINOLE COUNTY | 120289 | 0145 | F |

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
12117C0145F

MAP REVISED
SEPTEMBER 28, 2007

Federal Emergency Management Agency

# NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

**Coastal Base Flood Elevations** shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was State Plane Florida East FIPS Zone 0901. The **horizontal datum** was NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov/ or contact the National Geodetic Survey at the following address:

Spatial Reference System Division
National Geodetic Survey, NOAA
Silver Spring Metro Center
1315 East-West Highway
Silver Spring, Maryland 20910
(301) 713-3191

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713-3242** or visit its website at http://www.ngs.noaa.gov/.

**Base map** information shown on this FIRM was provided in digital format by Orange County, Florida.

This map reflects more detailed and up-to-date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables *in the Flood Insurance Study report (which contains authoritative hydraulic data)* may reflect stream channel distances that differ from what is shown on this map.

**Corporate limits** shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

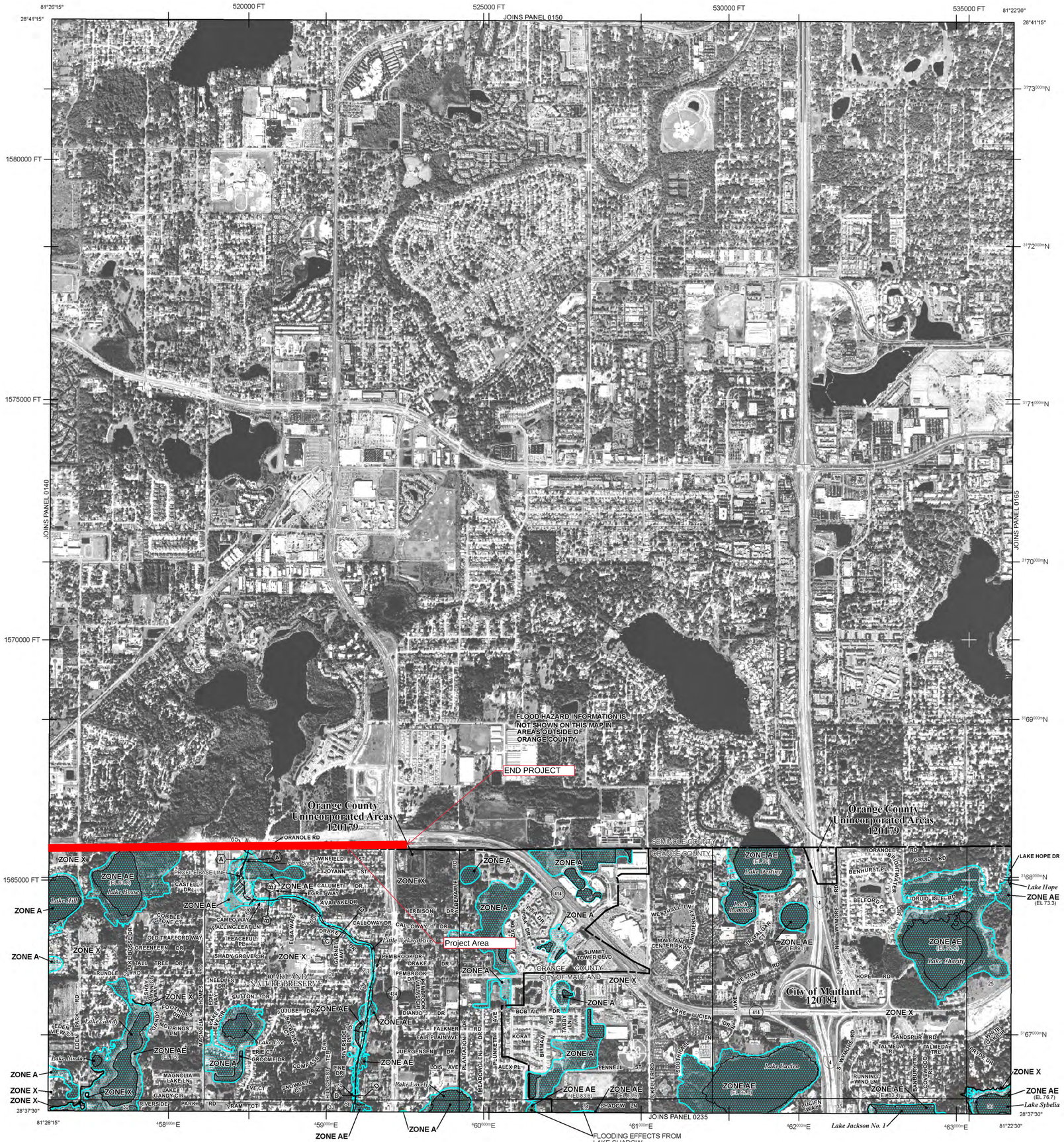
Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact the **FEMA Map Service Center** at 1-800-358-9616 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, *a Flood Insurance Study report*, and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1-800-358-9620 and its website at http://www.msc.fema.gov/.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMA MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/business/nfip/.

**NGVD29 to NAVD88 Vertical Datum Conversion Table (feet)**

| Watershed Name | Minimum Conversion | Maximum Conversion | Average Conversion | Maximum Offset |
|---|---|---|---|---|
| Big Econlockhatchee River | -1.03 | -1.15 | -1.09 | 0.06 |
| Boggy Creek | -0.91 | -1.01 | -0.96 | 0.05 |
| Cypress Creek | -0.87 | -0.91 | -0.89 | 0.02 |
| Howell Branch | -0.96 | -1.05 | -0.98 | 0.07 |
| Lake Apopka | -0.87 | -0.97 | -0.91 | 0.06 |
| Lake Hart | -0.97 | -1.07 | -1.02 | 0.05 |
| Little Econlockhatchee River | -0.92 | -1.07 | -1.01 | 0.09 |
| Little Wekiva River | -0.91 | -1.02 | -0.95 | 0.07 |
| Reedy Creek | -0.88 | -0.89 | -0.88 | 0.02 |
| Shingle Creek | -0.88 | -0.95 | -0.91 | 0.04 |
| St. Johns River | -1.08 | -1.33 | -1.19 | 0.14 |
| Wekiva River | -0.88 | -1.01 | -0.94 | 0.07 |




# LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD EVENT

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

| | |
|---|---|
| **ZONE A** | No Base Flood Elevations determined. |
| **ZONE AE** | Base Flood Elevations determined. |
| **ZONE AH** | Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined. |
| **ZONE AO** | Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined. |
| **ZONE AR** | Area of special flood hazard formerly protected from the 1% annual chance flood event by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood. |
| **ZONE A99** | Areas to be protected from 1% annual chance flood event by a Federal flood protection system under construction; no Base Flood Elevations determined. |
| **ZONE V** | Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined. |
| **ZONE VE** | Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined. |

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

**ZONE X** Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

**ZONE X** Areas determined to be outside the 0.2% annual chance floodplain.

**ZONE D** Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

1% annual chance floodplain boundary
0.2% annual chance floodplain boundary
Floodway boundary
Zone D boundary
CBRS and OPA boundary
Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.

| | |
|---|---|
| 513 | Base Flood Elevation line and value; elevation in feet* |
| (EL 987) | Base Flood Elevation value where uniform within zone; elevation in feet* |

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

| | |
|---|---|
| A — A | Cross section line |
| 23 - - - - 23 | Transect line |
| 97°07'30", 32°22'30" | Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere |
| 4275000mE | 1000-meter Universal Transverse Mercator grid ticks, zone 17 |
| 6000000 FT | 5000-foot grid values: Florida State Plane coordinate system, East Zone (FIPSZONE = 901), Transverse Mercator projection |
| DX5510 × | Bench mark (see explanation in Notes to Users section of this FIRM panel) |
| ● M1.5 | River Mile |

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
DECEMBER 6, 2000

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
SEPTEMBER 25, 2009 - to update corporate limits, to change Base Flood Elevations, to add Base Flood Elevations, to add Special Flood Hazard Areas, to change Special Flood Hazard Areas, to delete Special Flood Hazard Areas, to update map format, to add roads and road names, to incorporate previously issued Letters of Map Revision, to reflect updated topographic information, and to incorporate previously issued Letters of Map Amendment.

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

**MAP SCALE 1" = 1000'**

500 0 500 1,000 1,500 2,000 FEET
300 0 300 600 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

**PANEL 0145F**

# FIRM
## FLOOD INSURANCE RATE MAP
## ORANGE COUNTY, FLORIDA
## AND INCORPORATED AREAS

**PANEL 145 OF 750**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| MAITLAND, CITY OF | 120184 | 0145 | F |
| ORANGE COUNTY | 120179 | 0145 | F |

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.

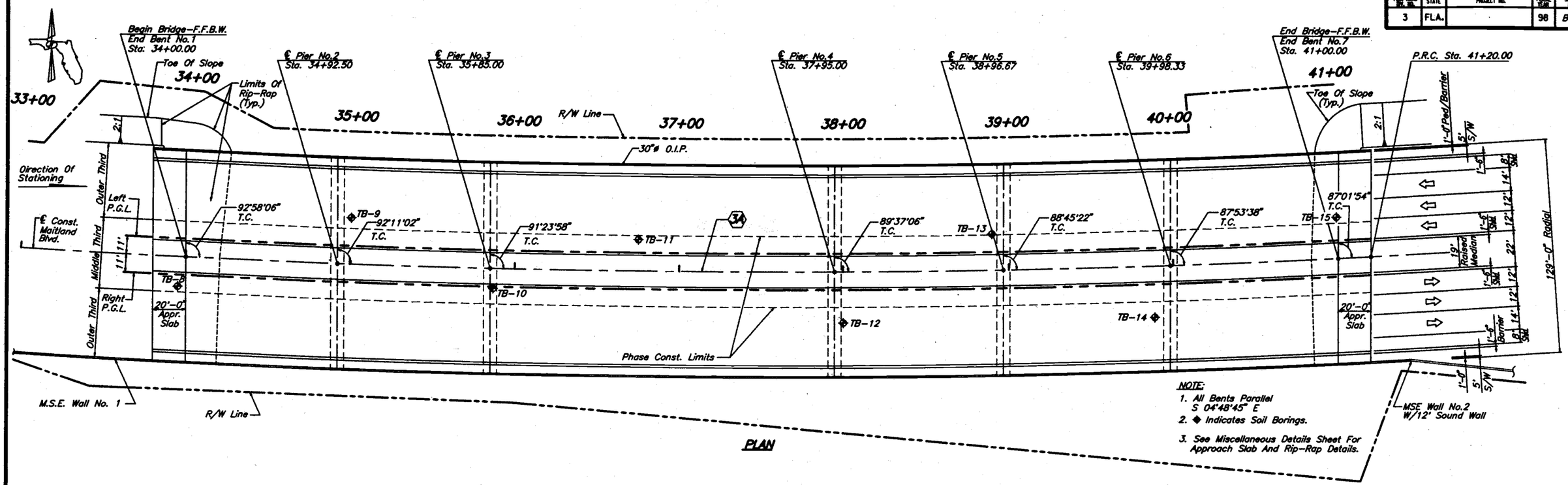
**MAP NUMBER**
**12095C0145F**

**MAP REVISED**
**SEPTEMBER 25, 2009**

Federal Emergency Management Agency

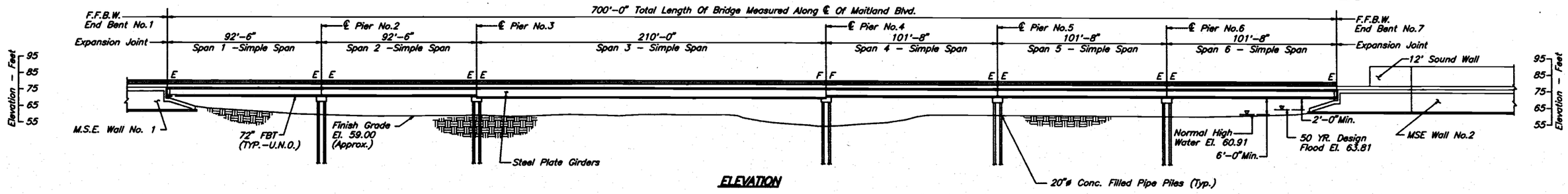
# Existing Bridge Plans

| FED. ROAD DIV. NO. | STATE | PROJECT NO. | FISCAL YEAR | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | | 98 | B-1 |




**PLAN**

NOTE:
1. All Bents Parallel S 04°48'45" E
2. ◆ Indicates Soil Borings.
3. See Miscellaneous Details Sheet For Approach Slab And Rip-Rap Details.



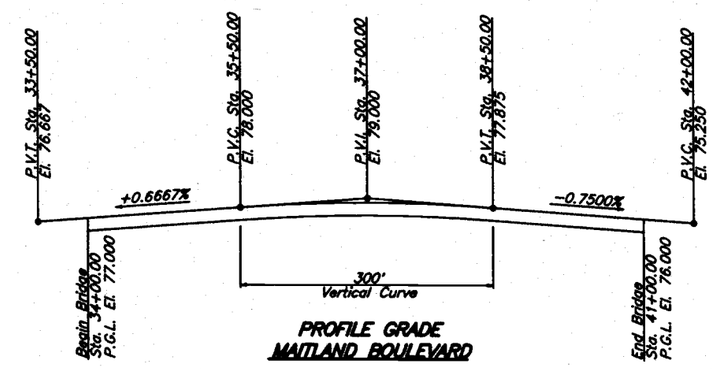

**ELEVATION**

## CURVE DATA (3A)

Δ = 07°43'27" Lt.
D = 00°50'53"
T = 456.077'
L = 910.773'
R = 6755.800'
e = Normal/Crown
P.C. Sta. = 32+08.39 (Back)
32+09.23 (Ahead)
P.I. Sta. = 36+65.30
P.R.C. Sta. = 41+20.00

## TRAFFIC DATA MAITLAND BLVD.

Est. 1998 2-Way ADT 34,818 EST
Est. 2008 2-Way ADT 37,952 EST
K = 9.0%
D = 55%
T = 5% (24 HR)
Design Speed = 45 MPH




**PROFILE GRADE MAITLAND BOULEVARD**

REVISIONS

| Date | By | Description | Date | By | Description |
|---|---|---|---|---|---|
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JLA | 7/94 |
| Checked by | MKA | 7/94 |
| Designed by | MKA | 7/94 |
| Checked by | PM | 7/94 |
| Approved by | Peeter Mannik, P.E. | |

ENGINEER OF RECORD:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

LOGO:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
ENGINEERS - SURVEYORS
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR414 | SEMINOLE | 77002-3503 |

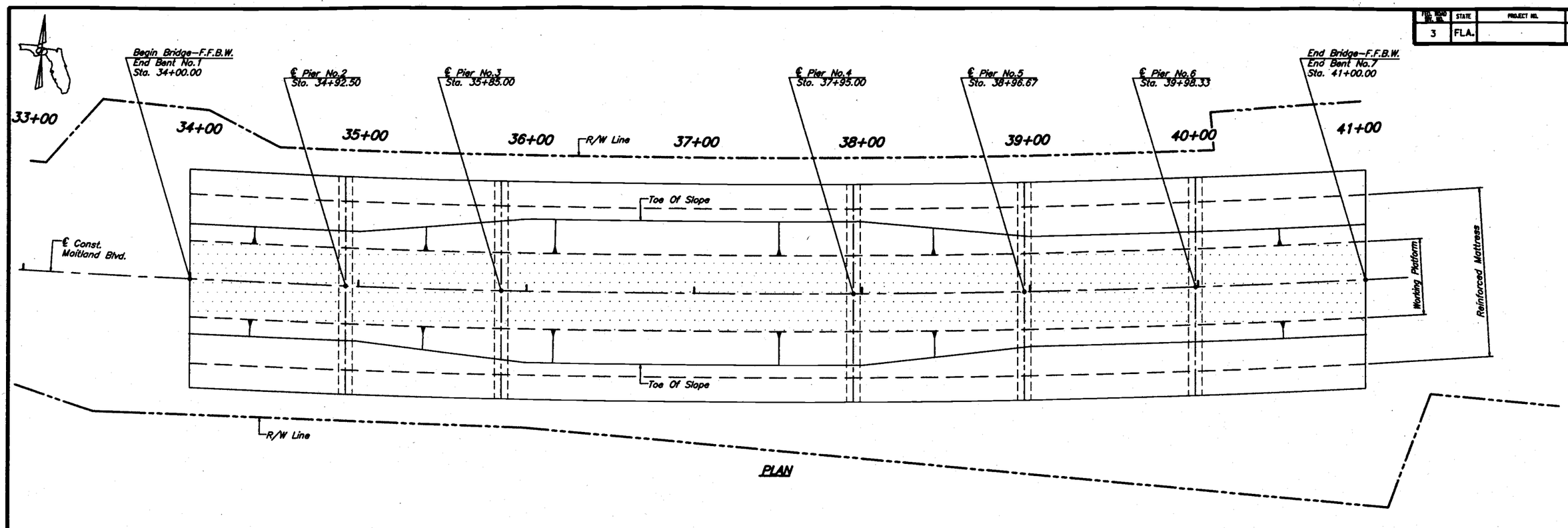
SHEET TITLE: GENERAL PLAN AND ELEVATION

PROJECT NAME: MAITLAND BOULEVARD OVER LAKE BOSSE BRIDGE NO. 77002-3503

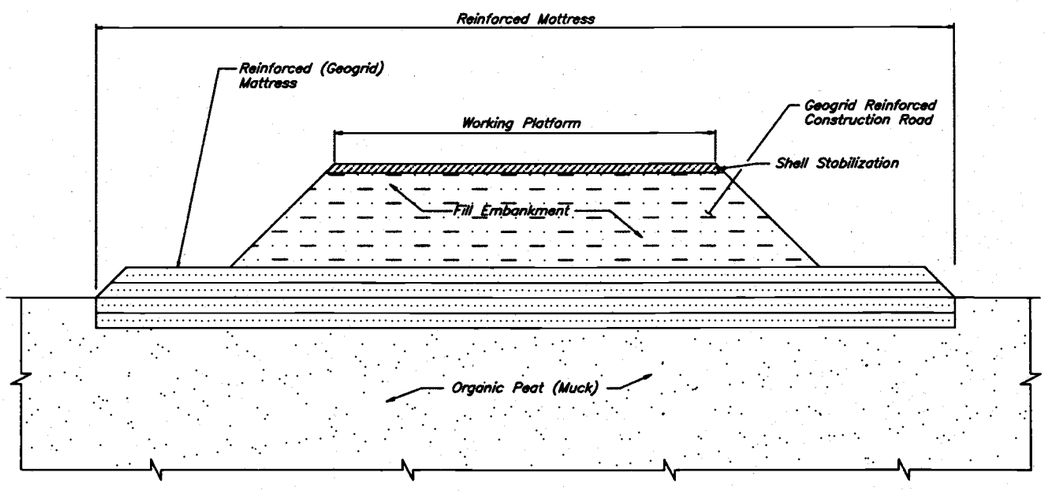
Drawing No.

Index No.

| FED. ROAD DIV. NO. | STATE | PROJECT NO. | FISCAL YEAR | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | | 98 | B-2 |




PLAN




SCHEMATIC TEMPORARY CONSTRUCTION ROAD TYPICAL SECTION

## GENERAL NOTES

1. Work This Sheet With Construction Sequence Sheet. For Surcharge, Inclinometer Monitoring & Other General Temporary Construction Road Requirements Refer To Technical Special Provisions.
2. This Temporary Construction Road Is A Concept And Not a Required procedure In Construction. Alternate Methods Can Be Considered And Submitted By The Contractor.
   For The Temporary Construction Road Shown The Contractor Shall Submit Geogrid Design & Materials; Haul Road Maintenance Procedure; Construction Sequencing; Construction Loads; Anticipated Settlements; And Plans And Design Calculations Signed And Sealed By A Profesional Engineer Registered In Florida.
3. During Operation, Cranes Should Be Positioned On A Timber Cribbage/Mattress To Distribute Track Pressures.
4. Remove Construction Road Approximately To Original Contours.
5. Payment For The Temporary Construction Road, Shall Be Included Under Pay Item 110-1-1 Clearing And Grubbing (LS/Acres). The Total Estimated Area Of The Temporary Construction Road Is _____ Acres.
   The Cost Of Fill Material, Geogrid Reinforcement, Temporary Construction Road Removal , Drainage Structures (As Required) And Other Incidentals Not Specifically Covered Shall Be Included In The Unit Cost For Clearing And Grubbing.
6. The Contractor Shall Provide And Maintain Drainage Pipes Under The Temporary Construction Road To Maintain Existing Water Flow. Remove Pipes With Temporary Construction Road Removal.

REVISIONS

| Date | By | Description | Date | By | Description |
|---|---|---|---|---|---|
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JDS | 10/94 |
| Checked by | MKA | 10/94 |
| Designed by | MKA | 10/94 |
| Checked by | PM | 10/94 |
| Approved by | Peeter Monnik,P.E. | |

ENGINEER OF RECORD:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

LOGO:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
ENGINEERS - SURVEYORS
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR414 | SEMINOLE | 77002-3503 |

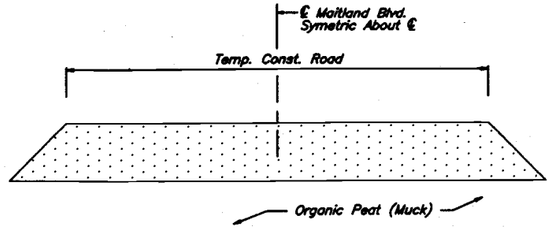
SHEET TITLE: TEMPORARY CONSTRUCTION ROAD

PROJECT NAME: MAITLAND BOULEVARD OVER LAKE BOSSE

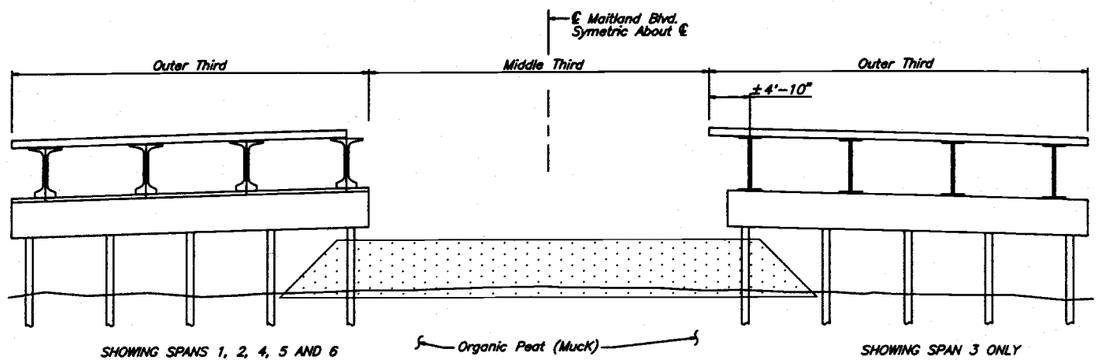
Drawing No.

Index No.

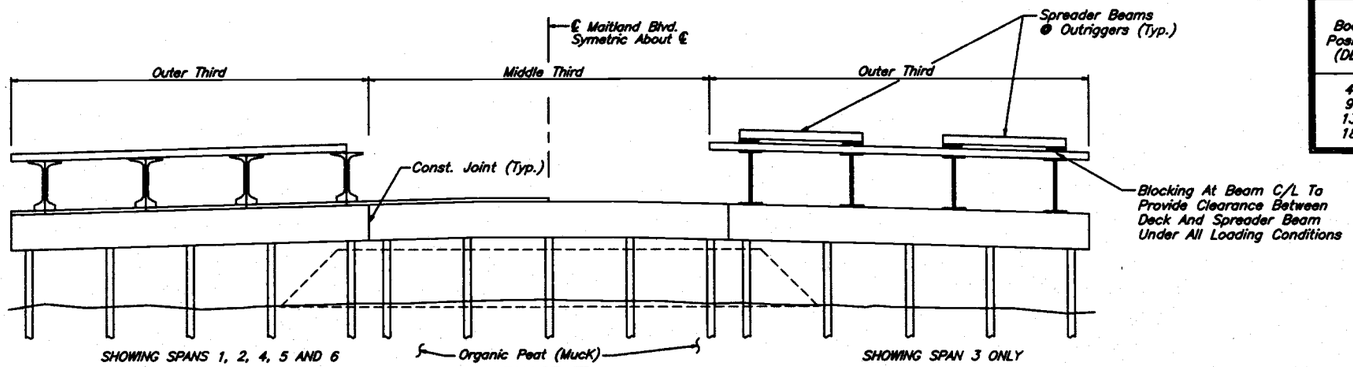
| FED. ROAD DIV. NO. | STATE | PROJECT NO. | FISCAL YEAR | SHEET NO. |
|---|---|---|---|---|
| 3 | | | 98 | B-3 |



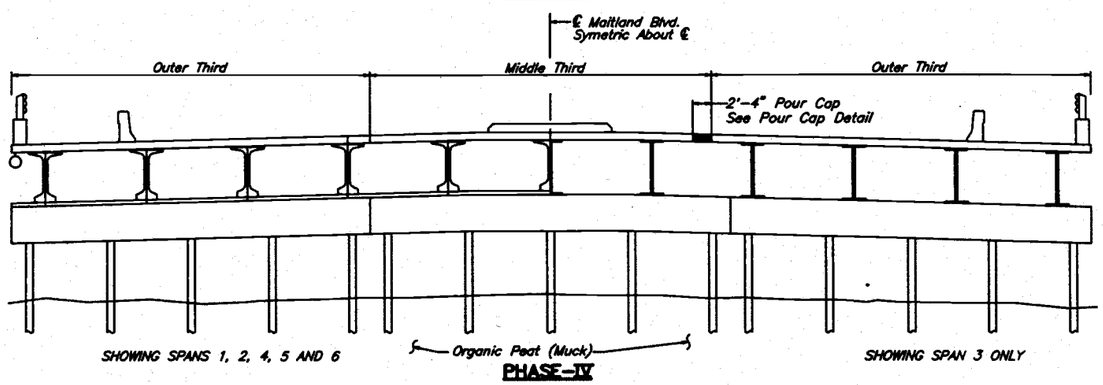

**PHASE I**




**PHASE-II**




**PHASE-III**




**PHASE-IV**

## CONSTRUCTION SEQUENCE NOTES

### PHASE-I

*Construct Temporary Construction Road. See Temporary Construction Road Sheet For Additional Information.*

### PHASE-II

*Construct Outer Thirds Of Bridge Except Traffic Barrier, Pedestrian Rails & 30"ø D.I.P. From Haul Road.*

### PHASE-III

*Construct Middle Third Of Substructure And Remove Temporary Construction Road. Construction Of Pier Caps And Removal Of Temporary Construction Road May Be Performed From The Adjacent Completed Bridge (Outer Thirds).*

### PHASE-IV

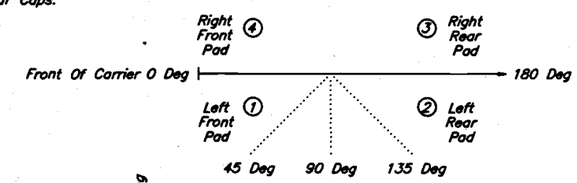
*Construct Remainder Of Bridge (Middle Third Including Span 3 Pour Caps) From Adjacent Completed Bridge (Outer Thirds). See Crane Placement Detail For Crane Outrigger Locations. Construct Pipe, Barriers And Raised Median After Closure Of Pour Cap Is Complete.*

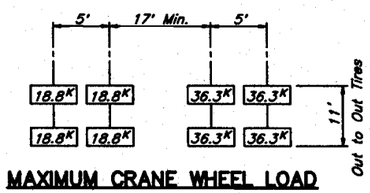
## GENERAL NOTES

1. *The Contractor Shall Choose At His Option, Scheme I, Scheme II (See Sht. B-4) Or Provide An Alternate Construction Sequence. The Contractor Is Required To Submit Signed And Sealed Shop Drawings For The Option. Or Alternate Selected For Approval By The Engineer.*
2. *Contract Plans Reflect A Design To Accomodate Scheme I Construction Sequence Which Requires Placement Of Cranes On Outer Thirds Of Bridge Deck.*
3. *The Design Has Been Checked To Accomodate Crane Loads. Crane Outriggers Shall Be Placed As Shown On The Crane Placement Details. Maximum Allowable Crane Outrigger Loads Are Provided In Chart Below. Should The Contractor Choose To Vary The Placement Of The Cranes From The Crane Placement Detail And/Or Exceed The Maximum Allowable Crane Outrigger Load, Redesign Of The Superstructure Is Required. The Contractor Shall Submit Signed And Sealed Calculations And Drawings Which Reflect The Requirements For The Actual Construction Loads For His Proposed Erection Equipment And Erection Scheme.*
4. *For All Phases Of Construction, Proposed Crane Placement And Loads Shall Be Submitted To The Engineer For Approval.*
5. *Spreader Beams Are Required To Distribute Outrigger Loads To The ℄ Of Beams.*
6. *Adjustment To Superstructure Deflection (By Loading Adjacent Spans) May Be Required To Provide The Necessary Concrete Cover (2" Clr. To Reinforcement) At The Pour Caps.*

**OUTRIGGER REACTIONS**

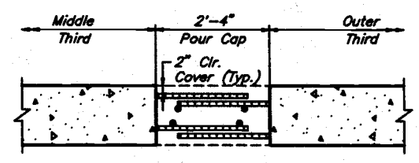
| | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| Boom Position (DEG) | Left Front Pad (KIPS) | Left Rear Pad (KIPS) | Right Rear Pad (KIPS) | Right Front Pad (KIPS) |
| 45 | 167 | 37 | 21 | 68 |
| 90 | 129 | 103 | 24 | 37 |
| 135 | 67 | 142 | 47 | 37 |
| 180 | 37 | 110 | 110 | 37 |



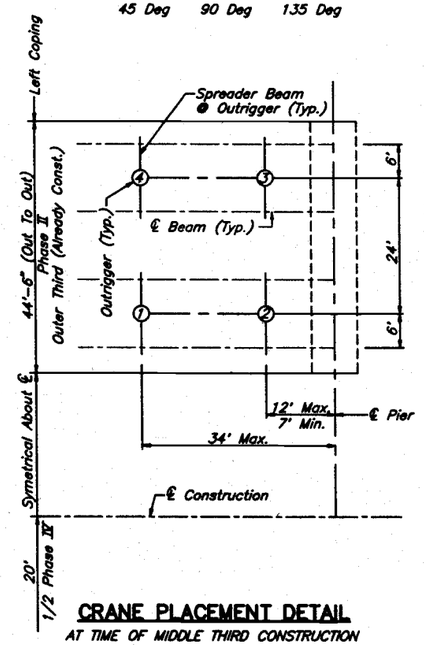

**MAXIMUM CRANE WHEEL LOAD**

*When Positioning The Crane On The Spans. Do Not Place Any Crane Wheels on The Cantilevered Portion Of Deck Slab.*




**POUR CAP DETAIL**

*(@ Span 3 Only)*
*(See Note No. 6)*




**CRANE PLACEMENT DETAIL**

*AT TIME OF MIDDLE THIRD CONSTRUCTION WHEN CRANE IS POSITIONED FOR LIFTING*

**SCHEME I**

| REVISIONS | | | | | |
|---|---|---|---|---|---|
| Date | By | Description | Date | By | Description |
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JLA | 9/94 |
| Checked by | MKA | 9/94 |
| Designed by | MKA | 9/94 |
| Checked by | PM | 9/94 |
| Approved by | Peeter Mannik, P.E. | |

ENGINEER OF RECORD:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

LOGO:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
ENGINEERS - SURVEYORS
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR414 | SEMINOLE | 77002-3503 |

SHEET TITLE: CONSTRUCTION SEQUENCE

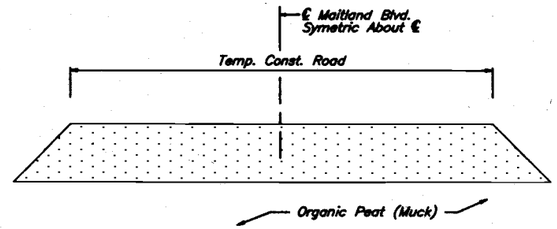
PROJECT NAME: MAITLAND BOULEVARD OVER LAKE BOSSE

Drawing No. 1 OF 2

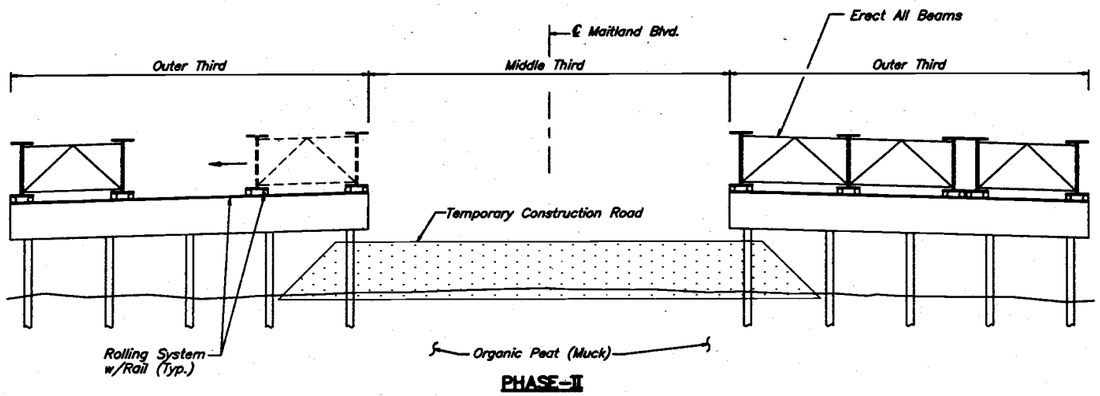
Index No.

A.S. 07/13/98 07:14AM C:\USR\USRPCOLORS

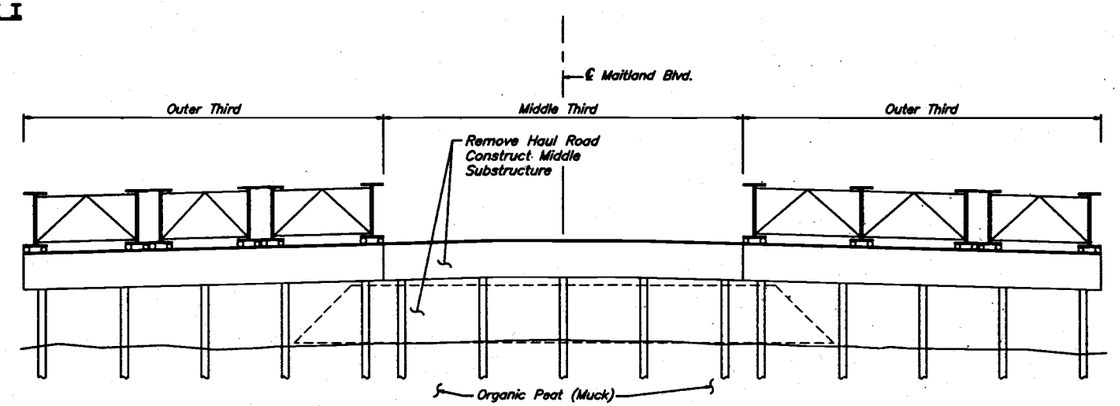
| FED. ROAD DIV. NO. | STATE | PROJECT NO. | FISCAL YEAR | SHEET NO. |
|---|---|---|---|---|
| 3 | | | 98 | B-4 |



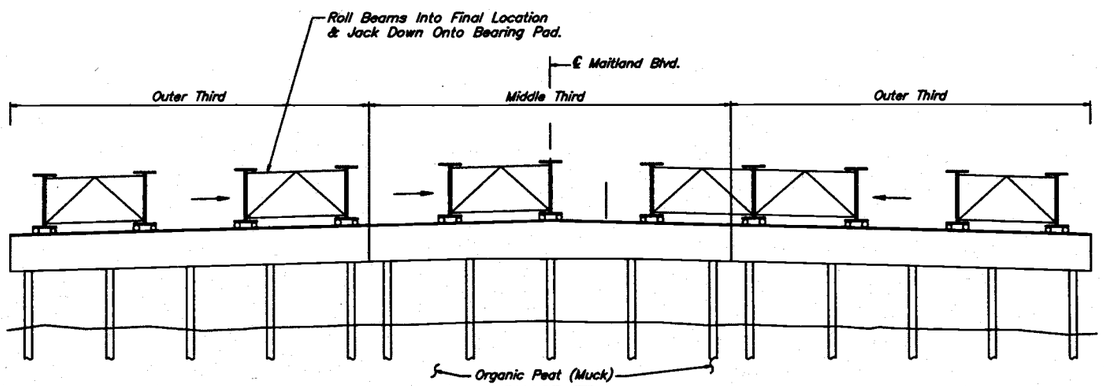

**PHASE I**



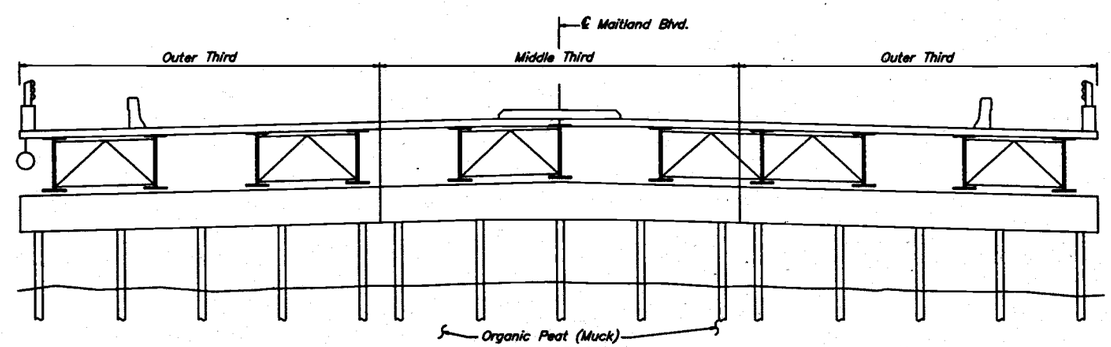

**PHASE-II**




**PHASE-III**




**PHASE-IV**




**PHASE-V**

**PHASE-I**

Construct Temporary Construction Road. See Temporary Construction Road Sheet For Additional Information.

**PHASE-II**

1. Construct Outer Thirds Of Substructures From Temporary Construction Road
2. Erect All Beams. Place Beam On Rolling System And Roll Beams To Pier Edge Or Closest To A Previously Erected Beam.

**PHASE-III**

Starting From A Bridge End, Construct Middle-Third Substructure. After The Completion Of One Substructure Unit Remove The Temporary Construction Road From The Completed Substructure To The Next Proposed Substructure Unit. Follow This Process Until The Middle-Third Substructures And Haul Road Removal Is Complete.

**PHASE-IV**

Roll Girders Into Final Design Position. By Use Of Jacks, Remove Rolling Devices And Lower Girders Onto Bearing Pads.

**PHASE-V**

Complete Bridge Construction.

**NOTE:**

1. Longitudinal Construction Joint At The Steel Girder Span Is Not Permitted. Longitudinal Contruction Joint At The Concrete Girder Spans Will Be Permitted Along The ℄ Construction Only.
2. Erection Of Steel Girder Span Is Shown. Erection Of Concrete Girder Spans Is Similar. Contractor To Provide Temporary Bracing At Concrete Girder Ends, Similar To The Steel Girder Bracing.
3. The Contractor Shall Submit Signed & Sealed Shop Drawings For The Proposed Rolling System.

**SCHEME II**

REVISIONS

| Date | By | Description | Date | By | Description |
|---|---|---|---|---|---|
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JLA | 9/94 |
| Checked by | MKA | 9/94 |
| Designed by | MKA | 9/94 |
| Checked by | PM | 9/94 |
| Approved by | Peeter Mannik, P.E. | |

ENGINEER OF RECORD:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

LOGO:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
ENGINEERS - SURVEYORS
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR414 | SEMINOLE | 77002-3503 |

SHEET TITLE: CONSTRUCTION SEQUENCE

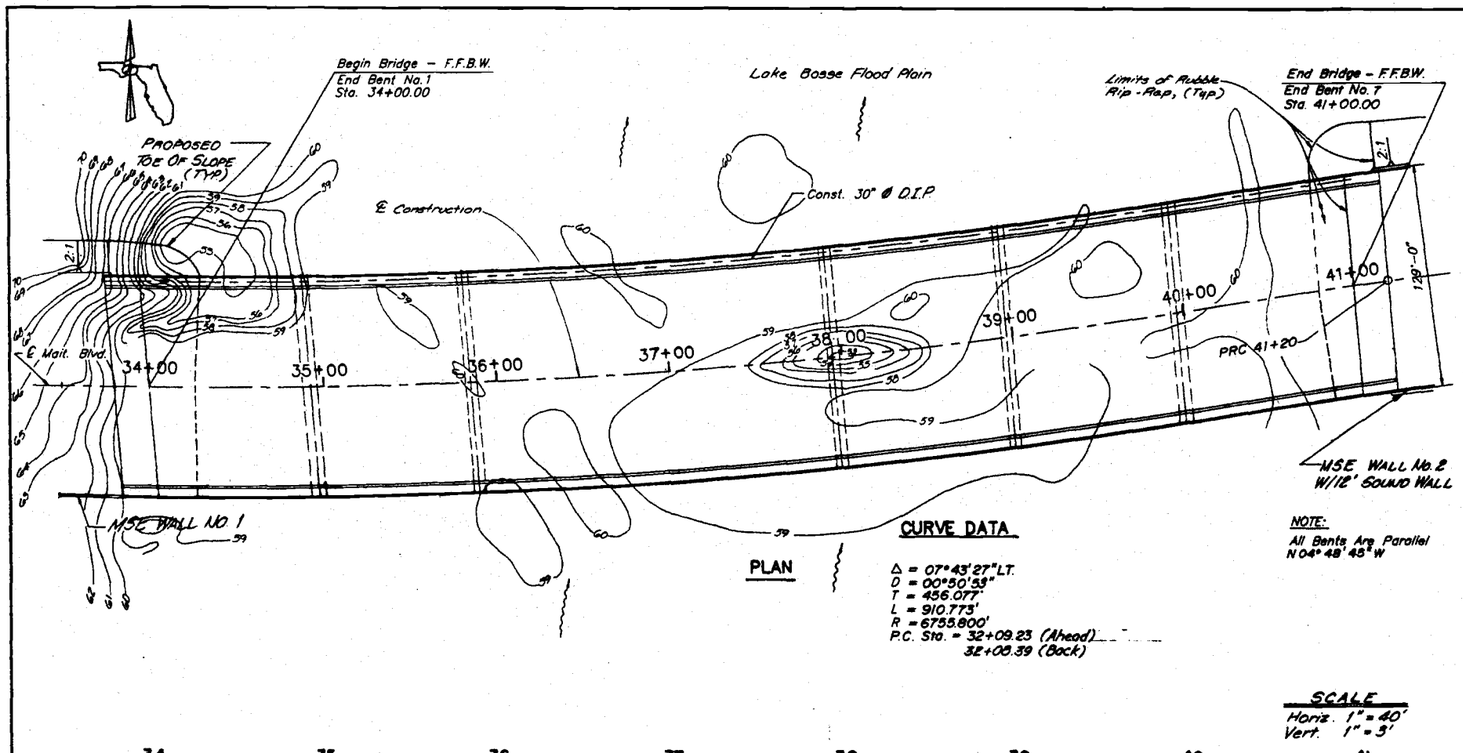
PROJECT NAME: MAITLAND BOULEVARD OVER LAKE BOSSE

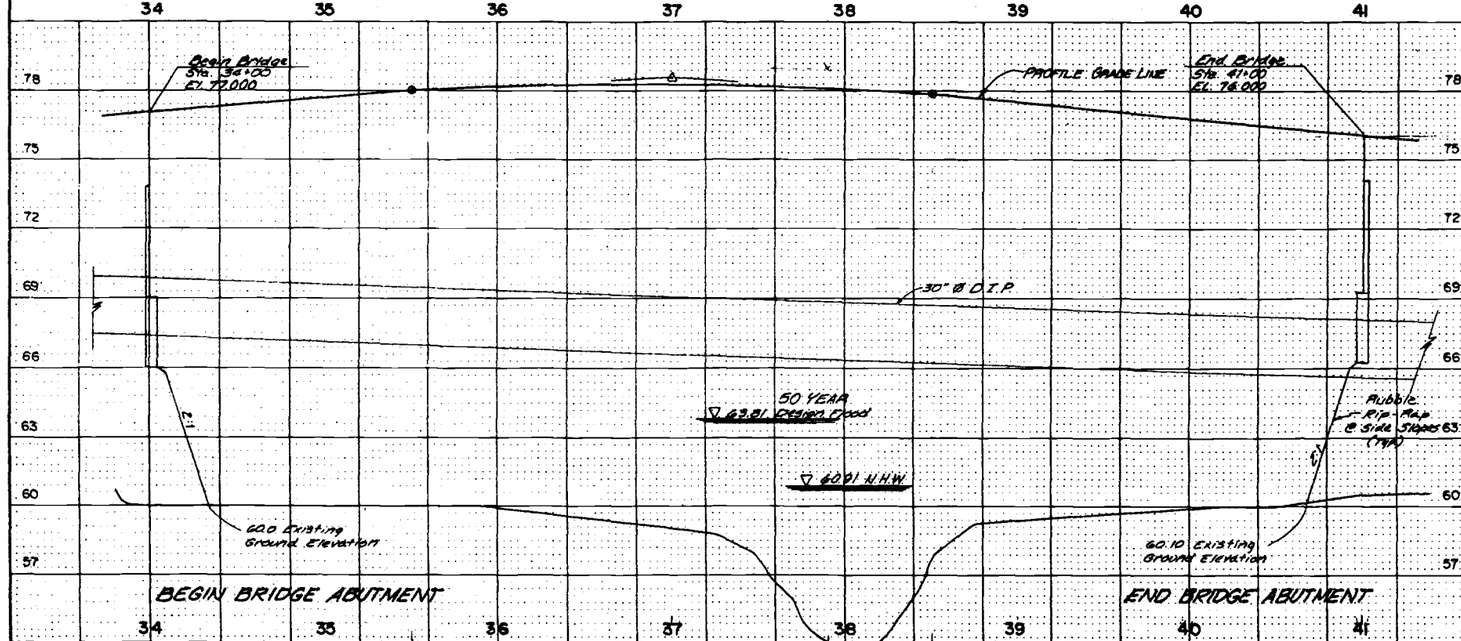
Drawing No. 2 OF 2

Index No.

JA 07/13/98 07:14AM C:\JOB\JLBSPECCOLONS

| STATE PROJ. NO. | SHEET NO. |
|---|---|
| 77002-3503 | 8-5 |






| (REFERENCE) | EXISTING STRUCTURES (1) | (2) | (3) | (4) | ASSUMED CONFIGURATION |
|---|---|---|---|---|---|
| FOUNDATION | N/A | N/A | N/A | N/A | 20" Ø Conc. Filled Pipe Piles |
| OVERALL LENGTH | | | | | 700' |
| SPAN LENGTH | | | | | Varies |
| TYPE CONSTRUCTION | | | | | Hybrid Beams |
| AREA OF OPENING @ H.W. | | | | | N/A |
| ROADWAY WIDTH | | | | | 129' |
| ELEV. LOW MEMBER | | | | | 66.96 |

## HYDRAULIC DESIGN DATA

NOTE: The hydraulic data is shown for informational purposes only to indicate the flood discharges and water surface elevations which may be anticipated in any given year. This data was generated using highly variable factors determined by a study of the watershed. Many judgements and assumptions are required to establish these factors. The resultant hydraulic data is sensitive to changes, particularly antecedent conditions, urbanization, channelization and land use. Users of this data are cautioned against the assumption of precision which cannot be obtained.

DEFINITIONS:
Design Flood: The flood utilized to assure a desired level of hydraulic performance.
Base Flood: The flood having a 1% chance of being exceeded in any year. (100 Year Frequency)
Overtopping Flood: The flood which causes flow over the highway, over a watershed divide or thru emergency relief structures.
Greatest Flood: The most severe flood which can be predicted where overtopping is not practicable.

WATER SURFACE ELEVATIONS: N.H.W. (Non-Tidal) N/A M.H.W. N/A M.L.W. N/A

| FLOOD DATA: | MAX. EVENT OF RECORD | DESIGN FLOOD | BASE FLOOD | ☐ OVERTOPPING FLOOD ☒ GREATEST FLOOD |
|---|---|---|---|---|
| STAGE ELEV. NGVD (FT.) | Not Available | 63.81 | 64.45 | 65.70 |
| DISCHARGE (CFS) | Not Available | 392 | 459 | 579 |
| AVERAGE VELOCITY (FPS) | Not Available | 0.12 | 0.12 | 0.13 |
| EXCEEDANCE PROB. (%) | Not Available | 2.0 | 1.0 | 0.2 |
| FREQUENCY (YR.) | Not Available | 50 | 100 | 500 |

## HYDRAULIC RECOMMENDATIONS

1. BEGIN BRIDGE STATION 34+00 END BRIDGE STATION 41+00 SKEW ANGLE Varies
2. CHANNEL SECTION: ℄ STATION * See Remarks BOTTOM WIDTH N/A ELEV. N/A SIDE SLOPE N/A
3. LIMITS OF CHANNEL EXCAVATION: RT. N/A LT. N/A
4. CLEARANCE: NAVAGATION: HORIZ. N/A VERT. N/A ABOVE EL. N/A DRIFT: HORIZ. 650' VERT. 3.15' ABOVE EL. 63.81
5. SCOUR PREDICTION: No Contraction Scour Is Predicted. 3.5 Feet Of Pier Scour Is Predicted For The 50 Yr. 100 Yr. & 500 Yr. Storm Events. Abutment Scour Will Be Prevented Through The Use Of Rubble Rip-Rap.
6. SLOPE PROTECTION: Rubble Rip-Rap At Spill Through Abutments.
7. DECK DRAINAGE: Runoff Will Be Directed To Inlets At Either End Of The Bridge Via Curb And Gutter Construction.
8. OTHER:

REMARKS: The Bridge Spans A Shallow Flood Plain With No Defined Channel.

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

| | NAME | DATE | | NAME | DATE |
|---|---|---|---|---|---|
| DESIGNED BY | M.K.A. | 7-92 | DRAWN BY | D.A.G. | 7-92 |
| CHECKED BY | J.O.C. | 7-92 | CHECKED BY | M.K.A. | 7-92 |
| SUPERVISED BY: | | | | | |

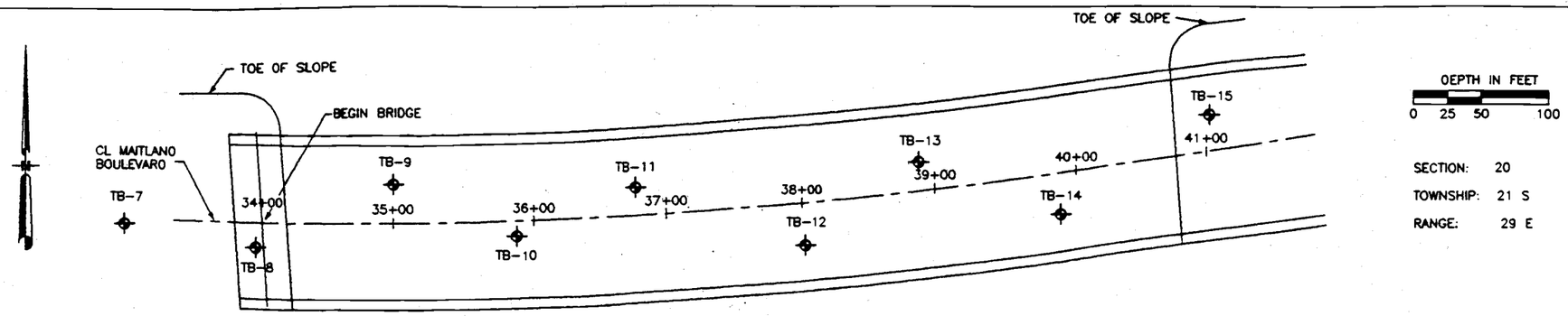
FLORIDA DEPARTMENT OF TRANSPORTATION

APPROVED BY:

DATE:

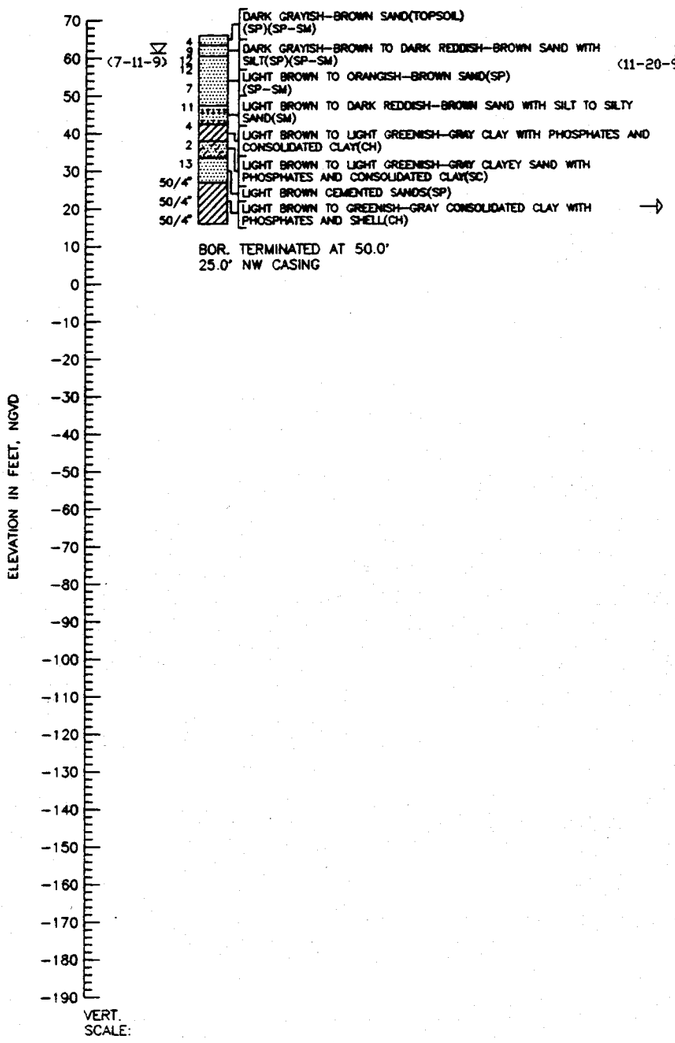
# BRIDGE HYDRAULIC RECOMMENDATIONS

| FED. ROAD DIST. NO. | STATE | PROJECT NO. | FOLIO TOTAL | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | | | B-6 |



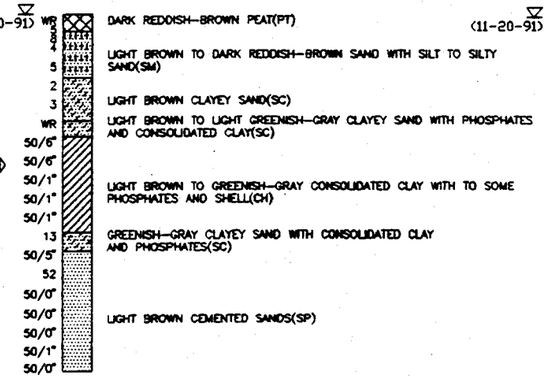

SECTION: 20
TOWNSHIP: 21 S
RANGE: 29 E

BOR. NO.: TB-7
* STA. 33+00, 25.0' RT.
ELEV. 66.0'



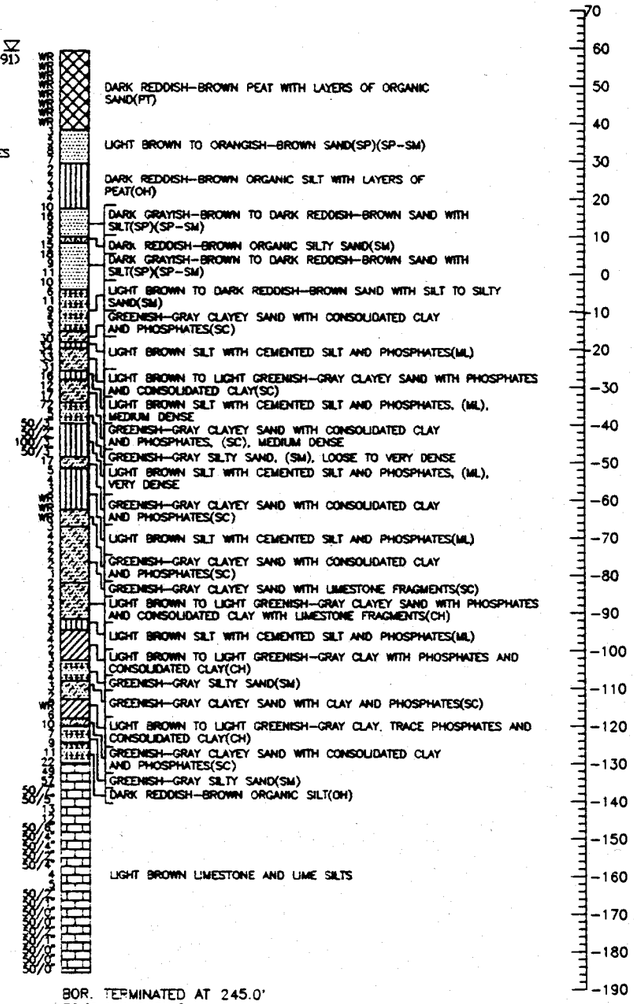

BOR. TERMINATED AT 50.0'
25.0' NW CASING

BOR. NO.: TB-8
STA. 33+96, 18.0' RT.
ELEV. 60.1'




BOR. TERMINATED AT 95.0'
40.0' NW CASING

BOR. NO.: TB-9
STA. 35+00, 28.0' LT.
ELEV. 59.9'




BOR. TERMINATED AT 245.0'
30.0' NW CASING

VERT. SCALE:

LEGEND

- SAND
- SILT
- SILTY SAND
- CLAYEY SAND
- CLAY
- MUCK
- LIMESTONE
- (SP) UNIFIED SOIL CLASSIFICATION GROUP SYMBOL
- (7-8-91) WATER (WITH DATE OF READING)
- N STANDARD PENETRATION RESISTANCE IN BLOWS PER FOOT UNLESS OTHERWISE NOTED
- WR FELL UNDER WEIGHT OF ROD
- CIRCULATION LOSS
- LOCATION OF STANDARD PENETRATION TEST BORING
- * SURVEY DATA TO BE CONSIDERED APPROXIMATE

STANDARD PENETRATION TEST DATA

| | |
|---|---|
| SPOON INSIDE DIA. | 1 3/8 IN. |
| SPOON OUTSIDE DIA. | 2 IN. |
| AVG. HAMMER DROP | 30 IN. |
| HAMMER WEIGHT | 140 LBS. |

NOTE: STRATA BOUNDARIES ARE APPROXIMATE AND MAY VARY BETWEEN OR AWAY FROM BORING LOCATIONS.

GRANULAR MATERIALS

| RELATIVE DENSITY | SPT (BLOWS/FT.) |
|---|---|
| VERY LOOSE | LESS THAN 4 |
| LOOSE | 4-10 |
| MEDIUM DENSE | 10-30 |
| DENSE | 30-50 |
| VERY DENSE | GREATER THAN 50 |

SILTS AND CLAYS

| CONSISTENCY | SPT (BLOWS/FT.) |
|---|---|
| VERY SOFT | LESS THAN 2 |
| SOFT | 2-4 |
| FIRM | 4-8 |
| STIFF | 8-15 |
| VERY STIFF | 15-30 |
| HARD | GREATER THAN 30 |

ENVIRONMENTAL CLASSIFICATION:

SUPERSTRUCTURE: EXTREMELY AGGRESSIVE

SUBSTRUCTURE:
CONCRETE: EXTREMELY AGGRESSIVE
STEEL: EXTREMELY AGGRESSIVE

REVISIONS

| Date | By | Description | Date | By | Description |
|---|---|---|---|---|---|
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | DJW | 1-1-92 |
| Checked by | GK | 1-1-92 |
| Designed by | N/A | N/A |
| Checked by | N/A | N/A |
| Approved by | JWC | |

ENGINEER OF RECORD:
JAY W. CASPER, P.E. #38330
PSI
1675 LEE ROAD
WINTER PARK, FLORIDA 32789

LOGO: PSI Environmental Geotechnical Construction
Consulting • Engineering • Testing

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
GEOTECHNICAL DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR 414 | SEMINOLE | 77002-3503 |

SHEET TITLE: REPORT OF SPT BORING FOR STRUCTURE

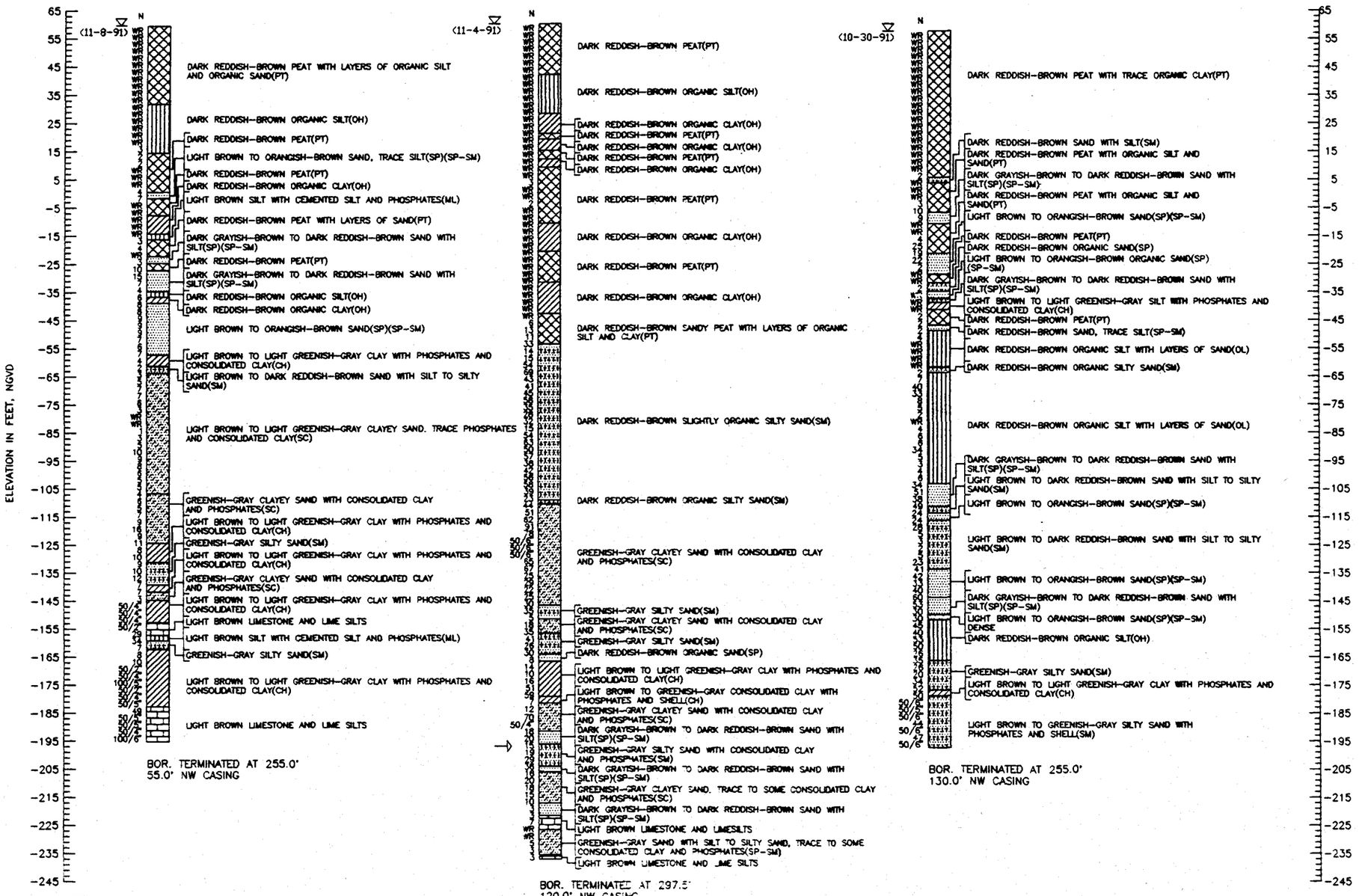
PROJECT NAME: MAITLAND BOULEVARD EXTENSION
S.R. 414 ; LAKE BOSSE BRIDGE

Drawing No.

Index No.

PSI PROJECT No. 754-05260
FIGURE: 3

| FED. ROAD DIST. NO. | STATE | PROJECT NO. | FISCAL YEAR | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | | | B-7 |




VERT. SCALE: 1" = 20'

## LEGEND

- SAND
- SILT
- SILTY SAND
- CLAYEY SAND
- CLAY
- MUCK
- LIMESTONE
- (SP) UNIFIED SOIL CLASSIFICATION GROUP SYMBOL
- (7-8-91) WATER (WITH DATE OF READING)
- N STANDARD PENETRATION RESISTANCE IN BLOWS PER FOOT UNLESS OTHERWISE NOTED
- WR FELL UNDER WEIGHT OF ROD
- CIRCULATION LOSS
- LOCATION OF STANDARD PENETRATION TEST BORING

### STANDARD PENETRATION TEST DATA

| | |
|---|---|
| SPOON INSIDE DIA. | 1 3/8 IN. |
| SPOON OUTSIDE DIA. | 2 IN. |
| AVG. HAMMER DROP | 30 IN. |
| HAMMER WEIGHT | 140 LBS. |

NOTE: STRATA BOUNDARIES ARE APPROXIMATE AND MAY VARY BETWEEN OR AWAY FROM BORING LOCATIONS.

### GRANULAR MATERIALS

| RELATIVE DENSITY | SPT (BLOWS/FT.) |
|---|---|
| VERY LOOSE | LESS THAN 4 |
| LOOSE | 4-10 |
| MEDIUM DENSE | 10-30 |
| DENSE | 30-50 |
| VERY DENSE | GREATER THAN 50 |

### SILTS AND CLAYS

| CONSISTENCY | SPT (BLOWS/FT.) |
|---|---|
| VERY SOFT | LESS THAN 2 |
| SOFT | 2-4 |
| FIRM | 4-8 |
| STIFF | 8-15 |
| VERY STIFF | 15-30 |
| HARD | GREATER THAN 30 |

### ENVIRONMENTAL CLASSIFICATION:

SUPERSTRUCTURE: EXTREMELY AGGRESSIVE

SUBSTRUCTURE:
CONCRETE: EXTREMELY AGGRESSIVE
STEEL: EXTREMELY AGGRESSIVE

REVISIONS

| Date | By | Description | Date | By | Description |
|---|---|---|---|---|---|
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | DJW | 1-1-92 |
| Checked by | GK | 1-1-92 |
| Designed by | N/A | N/A |
| Checked by | N/A | N/A |
| Approved by | JWC | |

ENGINEER OF RECORD:
JAY W. CASPER, P.E. #36330
PSI
1675 LEE ROAD
WINTER PARK, FLORIDA 32789

LOGO: PSI Environmental Geotechnical Construction — Consulting • Engineering • Testing

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
GEOTECHNICAL DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR 414 | SEMINOLE | 77002-3503 |

SHEET TITLE: REPORT OF SPT BORING FOR STRUCTURE

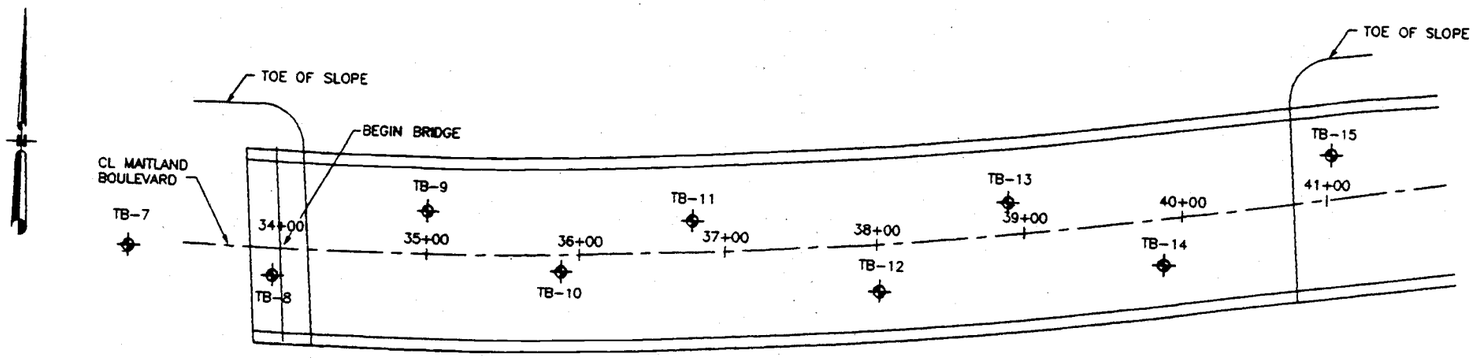
PROJECT NAME: MAITLAND BOULEVARD EXTENSION
S.R. 414 ; LAKE BOSSE BRIDGE

Drawing No.

Index No.

PSI PROJECT No. 754-05250
FIGURE: 4

| FED. ROAD DIV. NO. | STATE | PROJECT NO. | FISCAL YEAR | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | | | B-8 |



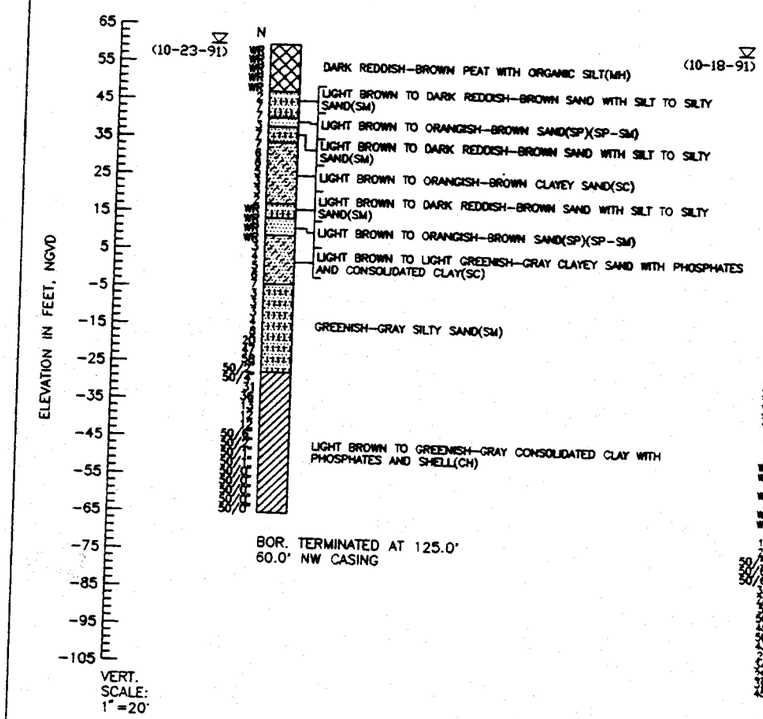

DEPTH IN FEET
0 25 50 100

SECTION: 20
TOWNSHIP: 21 S
RANGE: 29 E

LEGEND

- SILT
- SAND
- SILTY SAND
- CLAYEY SAND
- CLAY
- MUCK
- LIMESTONE
- (SP) UNIFIED SOIL CLASSIFICATION GROUP SYMBOL
- (7-8-91) WATER (WITH DATE OF READING)
- N STANDARD PENETRATION RESISTANCE IN BLOWS PER FOOT UNLESS OTHERWISE NOTED
- WR FELL UNDER WEIGHT OF ROD
- CIRCULATION LOSS
- LOCATION OF STANDARD PENETRATION TEST BORING

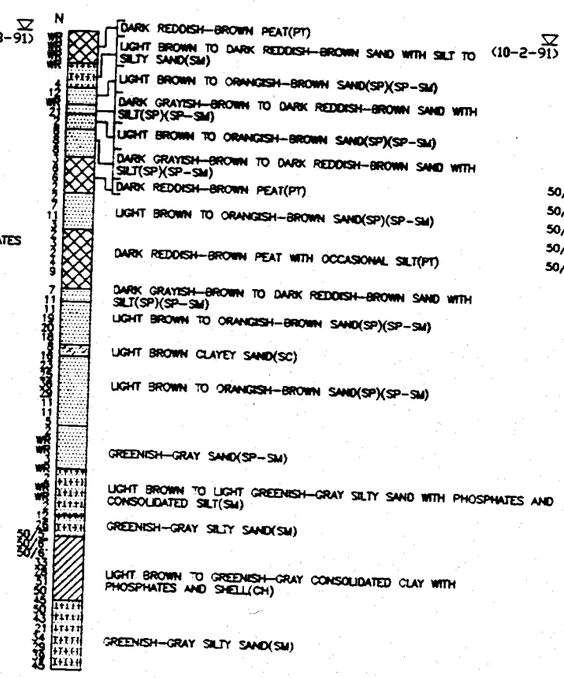
BOR. NO.: TB-13
STA. 38+90, 22.0' LT.
ELEV. 60.0'




BOR. TERMINATED AT 125.0'
60.0' NW CASING

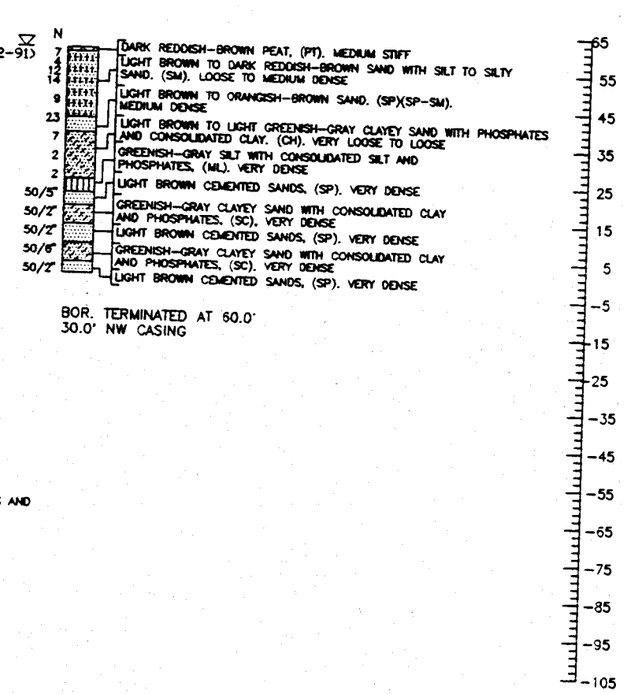
VERT. SCALE: 1"=20'

BOR. NO.: TB-14
STA. 39+88. 31.0' RT.
ELEV. 60.0'




BOR. TERMINATED AT 170.0'
50.0' NW CASING

BOR. NO.: TB-15
STA. 41+00. 25.0' LT.
ELEV. 60.5'




BOR. TERMINATED AT 60.0'
30.0' NW CASING

STANDARD PENETRATION TEST DATA

| | |
|---|---|
| SPOON INSIDE DIA. | 1 3/8 IN. |
| SPOON OUTSIDE DIA. | 2 IN. |
| AVG. HAMMER DROP | 30 IN. |
| HAMMER WEIGHT | 140 LBS. |

NOTE: STRATA BOUNDARIES ARE APPROXIMATE AND MAY VARY BETWEEN OR AWAY FROM BORING LOCATIONS.

GRANULAR MATERIALS

| RELATIVE DENSITY | SPT (BLOWS/FT.) |
|---|---|
| VERY LOOSE | LESS THAN 4 |
| LOOSE | 4-10 |
| MEDIUM DENSE | 10-30 |
| DENSE | 30-50 |
| VERY DENSE | GREATER THAN 50 |

SILTS AND CLAYS

| CONSISTENCY | SPT (BLOWS/FT.) |
|---|---|
| VERY SOFT | LESS THAN 2 |
| SOFT | 2-4 |
| FIRM | 4-8 |
| STIFF | 8-15 |
| VERY STIFF | 15-30 |
| HARD | GREATER THAN 30 |

ENVIRONMENTAL CLASSIFICATION:

SUPERSTRUCTURE: EXTREMELY AGGRESSIVE

SUBSTRUCTURE:
CONCRETE: EXTREMELY AGGRESSIVE
STEEL: EXTREMELY AGGRESSIVE

REVISIONS

| Date | By | Description | Date | By | Description |
|---|---|---|---|---|---|
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | DJW | 1-1-92 |
| Checked by | JK | 1-1-92 |
| Designed by | N/A | N/A |
| Checked by | N/A | N/A |
| Approved by | JWC | |

ENGINEER OF RECORD:
JAY W. CASPER, P.E. #36330
PSI
1675 LEE ROAD
WINTER PARK, FLORIDA 32789

LOGO: PSI Environmental Geotechnical Construction
Consulting • Engineering • Testing

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
GEOTECHNICAL DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR 414 | SEMINOLE | 77002-3503 |

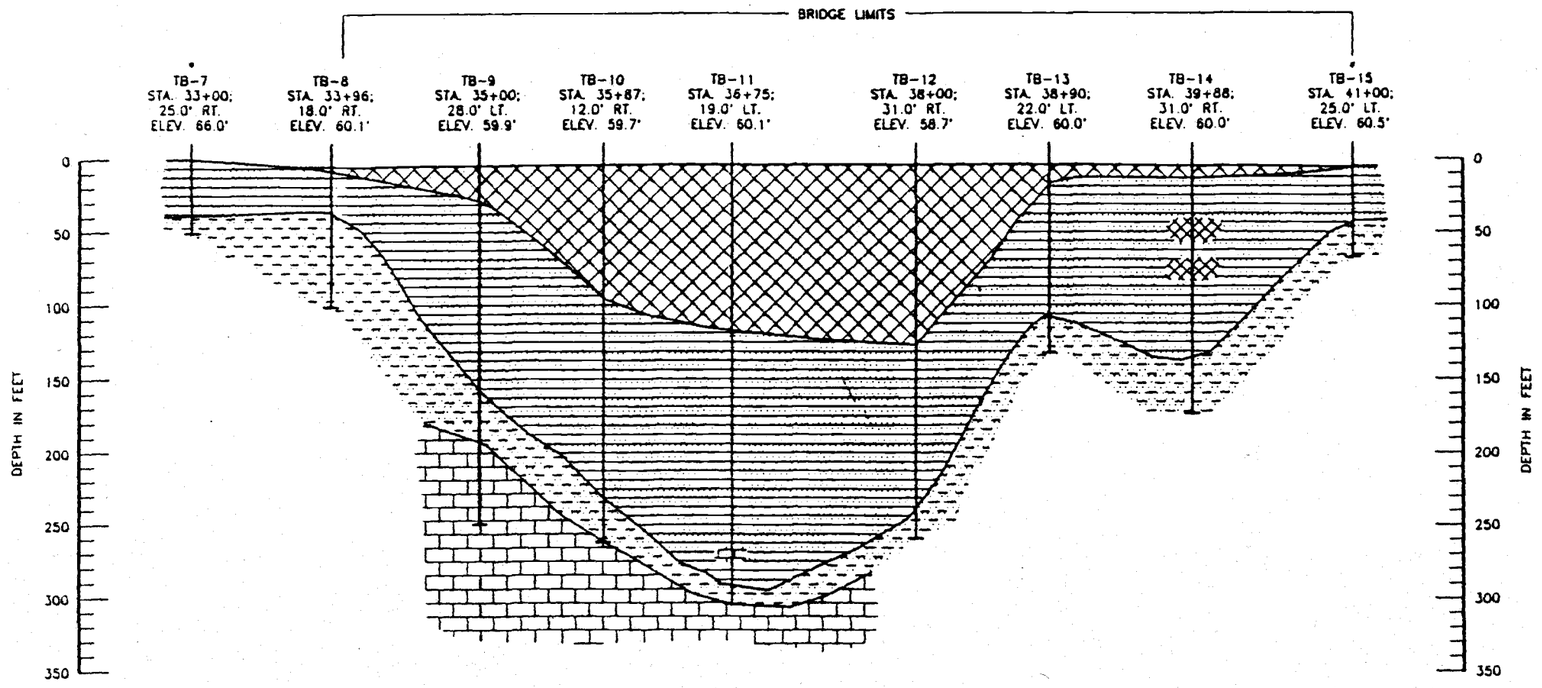
SHEET TITLE: REPORT OF SPT BORING FOR STRUCTURE

Drawing No.

PROJECT NAME: MAITLAND BOULEVARD EXTENSION
S.R. 414 : LAKE BOSSE BRIDGE

Index No.

| FED. ROAD DIV. NO. | STATE | PROJECT NO. | FISCAL YEAR | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | | | B-9 |




LEGEND

- PEAT
- SAND, SILT AND CLAY
- CONSOLIDATED SAND, SILT AND CLAY
- LIMESTONE

• SURVEY DATA TO BE CONSIDERED APPROXIMATE

SCALE:
HORIZONTAL 1" = 50' (APPROXIMATE)
VERTICAL 1" = 50'

NOTE: THIS GENERALIZED SOIL PROFILE IS BASED ON THE RESULTS OF THE STANDARD PENETRATION TEST (SPT) BORINGS AND SHOULD BE VIEWED AS AN APPROXIMATION OF THE ACTUAL CONDITIONS. SUBSOIL CONDITIONS BETWEEN THE BORINGS CAN AND MAY VARY FROM THOSE NOTED ABOVE.

REVISIONS

| Date | By | Description | Date | By | Description |
|---|---|---|---|---|---|
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | DJW | 1-1-92 |
| Checked by | JK | 1-1-92 |
| Designed by | N/A | N/A |
| Checked by | N/A | N/A |
| Approved by | WC | |

ENGINEER OF RECORD:

LOGO: PSI Environmental Geotechnical Construction — Consulting • Engineering • Testing

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR 414 | SEMINOLE | 77002-3503 |

SHEET TITLE: GENERALIZED SUBSURFACE SOIL CONDITIONS

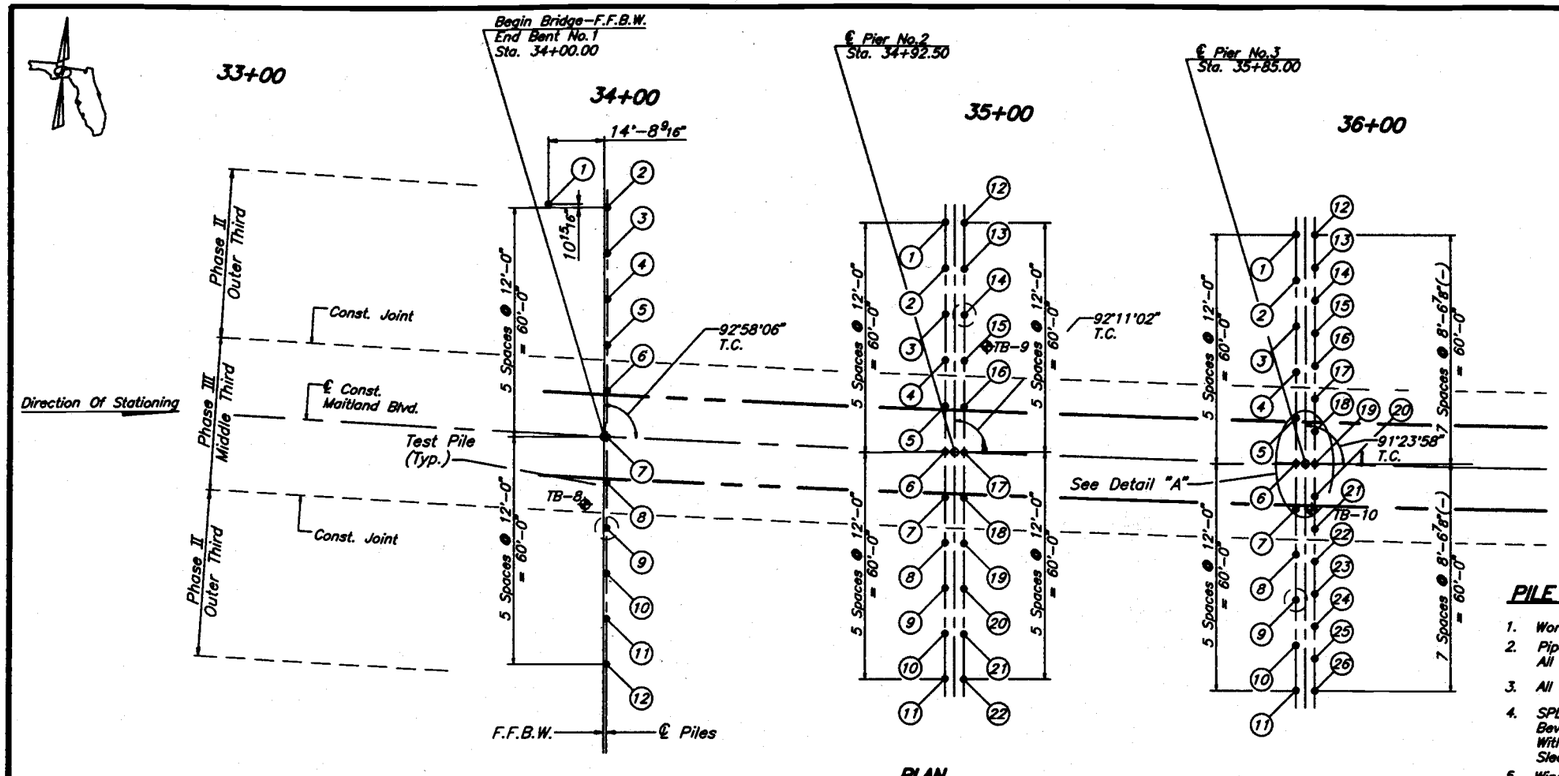
PROJECT NAME: MAITLAND BOULEVARD EXTENSION
S.R. 414 ; LAKE BOSSE BRIDGE

Drawing No.

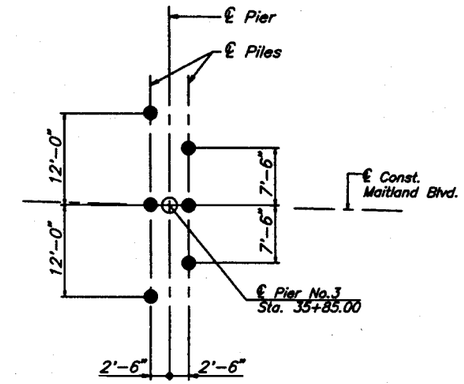
Index No.

PSI PROJECT No. 754-35260
FIGURE 3

| FED. ROAD DIV. NO. | STATE | PROJECT NO. | FISCAL YEAR | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | | 98 | B-10 |




PLAN




## DETAIL "A"

Pier No. 3 Shown
Pier No. 4 Opposite Hand

## LEGEND

- (1) Pile Number
- ● Proposed Piles
- (◉) Test Pile
- ✦ Test Boring

## CURVE DATA

Δ = 07°43'27" Lt.
D = 00°50'53"
T = 456.077'
L = 910.773'
R = 6755.800'
e = NORMAL/CROWN
P.C. Sta. = 32+09.23 (Ahead)
P.R.C. Sta. = 41+20.00

## PILE CUT-OFF ELEVATIONS

| PILE NO. | LOCATION | | |
|---|---|---|---|
| | END BENT NO.1 | PIER NO.2 | PIER NO.3 |
| 1 | 66.60 | 66.20 | 64.70 |
| 2 | 66.60 | 66.40 | 65.00 |
| 3 | 66.80 | 66.70 | 65.20 |
| 4 | 67.10 | 66.90 | 65.50 |
| 5 | 67.30 | 67.20 | 65.70 |
| 6 | 67.60 | 67.40 | 66.00 |
| 7 | 67.80 | 67.20 | 65.70 |
| 8 | 67.60 | 66.90 | 65.50 |
| 9 | 67.30 | 66.70 | 65.20 |
| 10 | 67.10 | 66.40 | 65.00 |
| 11 | 66.80 | 66.20 | 64.70 |
| 12 | 66.60 | 66.20 | 64.70 |
| 13 | – | 66.40 | 64.90 |
| 14 | – | 66.70 | 65.10 |
| 15 | – | 66.90 | 65.20 |
| 16 | – | 67.20 | 65.40 |
| 17 | – | 67.40 | 65.60 |
| 18 | – | 67.20 | 65.80 |
| 19 | – | 66.90 | 66.00 |
| 20 | – | 66.70 | 65.80 |
| 21 | – | 66.40 | 65.60 |
| 22 | – | 66.20 | 65.40 |
| 23 | – | – | 65.30 |
| 24 | – | – | 65.10 |
| 25 | – | – | 64.90 |
| 26 | – | – | 64.70 |
| 27 | – | – | – |
| 28 | – | – | – |

## PILE INSTALLATION TABLE

| Pier Or Bent | Pile Size (In.) | Design Load (Tons) | Total Scour Resistance * (Tons) | Min. Tip Elevation (Ft.) | Scour Elevation (Ft.) | Required Preform Elevation (Ft.) | Required Jet Elevation (Ft.) | Net Scour Resistance ** (Tons) | Anticipated Tip Elevation |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 20 | 130 | NA | +30 | NA | NA | NA | NA | -25 |
| 2 | 20 | 130 | NA | -140 | NA | NA | NA | NA | -150 |
| 3 | 20 | 130 | NA | -155 | NA | NA | NA | NA | -180 |
| 4 | 20 | 130 | NA | -115 | NA | NA | NA | NA | -150 |
| 5 | 20 | 130 | NA | -25 | NA | NA | NA | NA | -160 |
| 6 | 20 | 130 | NA | -75 | NA | NA | NA | NA | -100 |
| 7 | 20 | 130 | NA | 17 | NA | NA | NA | NA | -10 |

* Total Side Friction Resistance From Ground Line To The Scour Elevation. For This Project Anticipated Scour Is Minimal, Therefore Neglected.

** Net Side Friction Resistance From The Required Preformed Or Jetting Elevation To The Scour Elevation.

## PILE NOTES :

1. Work The Foundation Layout Sheet With Construction Sequence Sheet.
2. Pipe Piles Shall Be 20" Outside Diameter With A 0.5" Minimum Wall Thickness And Shall Be New And Straight. All Steel Shall Conform To ASTM A-252, Grade 2. Ends Of Pipe Sections Shall Be Perpindicular To The Longitudinal Axis.
3. All Locating Dimensions Are Measured To The F.F.B.W. Or C/L Of Pier (See Detail "A" And Detail "B")
4. SPLICES: The Ends Of All Pile Sections To Be Spliced Shall Be Beveled And Fully Butt-Welded As Shown On The Plans In Accordance With AWS/AASHTO Welding Code. All Splices Shall Be Watertight. Splice Sleeve Shall Conform To ASTM A-709 Grade 36 Steel.
5. Wingwall Piles Are To Be Driven To 40 Tons Minimum Bearing. Minimum Tip Elevation For Wingwall Piles Shall Be El. 30.0 @ Endbent No. 1 and El. 17.0 @ Endbent No. 7.
6. PAYMENT: Furnishing Steel Pipe piles Shall Be Paid For Per Linear Foot, Item No. 455-7-9 And Shall Include The Cost Of Concrete And Corrosion Protection. The Cost Of Driving piles Shall Be Paid For Per Linear Foot, Item No. 455-8-9. Payment For Splices Shall Be Included In The Contract unit Price Bid Item For Item No. 455-17-40. Payment Of Polyethylene Sheeting Shall Be Included Under The Pay Item No. 459-71.
7. All Piles Are Plumb.
8. Test Piles Shall Not Be Driven Until Approval Of The Engineer Is Obtained.
9. Drive One Test Pile In The Position Of A Permanent Plumb Pile At Each End Bent, And At Each Pier Drive. Drive The Test Pile 15 Feet Below The Anticipated Tip Elevtion. (See Pile Installation Table)
10. The Portion Of The Piles Within The MSE Embankment (Above Existing Grade) Shall Be Wrapped With Two Independent Sheets Of 6 Mil Polyethylene In Accordance With F.D.O.T. Supplemental Specification 459.
11. All Piles And Pile Driving Operations Shall Be In Accordance With F.D.O.T. Supplemental Specification Section 455 And Technical Special Provisions.
12. Piling Shall Be Filled With Class IV Concrete f'c=5,500 PSI. The Pipe Pile Shall Be Clean And Free Of Water Before Placing Concrete. Cost Of Furnishing And Placing Concrete Shall Be Included In The Contract Unit Price For Pile Driven.
13. CORRISION PROTECTION: The Outside Surface Of Piles Shall Be Shop Coated From a Point No Less Than 4' Below The Mud Line Up To The Point Where The Pile Enters The Cap. Piles Shall Be Shop Coated With A Two Coat System Consisting Of An Inorganic Zinc primer And a Single Coat Of High Build Coal Tar Epoxy With a Minimum Thickness Of 12 Mils. Both Coats Are To Be Applied In Accordance With The Manufacturer's Specifications And Section 560 And 561 Of The Standard Specifications.
14. PILE POINTS: All Steel Pipe Piles Shall Be Equipped With A 3/4" Steel End Plate Which Shall Be Shop Welded To Produce A Watertight Joint. Each Plate Shall Conform To ASTM A-709 Grade 36 Steel.
15. PILE CUT-OFF: Steel Pipe Piles Shall Be Cut Off At The Required Elevations Along A Plane Normal To The Axis Of The Pile. Methods Used In Cutting Off Piles Shall Meet With The Approval Of The Engineer.
16. MILL TEST REPORTS: Notarized Mill Test Report Shall Be Required For All Steel Pipe Piles.
17. SHOP DRAWINGS: The Contractor Shall Submit Shop Drawings For Steel Pipe Piles, End Plate And Splice Details For The Engineers Approval Prior To Fabrication.
18. Negative Skin Friction Allowances Exceed Potentioal Scour Effects.
19. Downdrag Forces = 13 Tons/Pile.

REVISIONS

| Date | By | Description | Date | By | Description |
|---|---|---|---|---|---|
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JLA | 9/94 |
| Checked by | MKA | 9/94 |
| Designed by | MKA | 9/94 |
| Checked by | PM | 9/94 |
| Approved by | Peeter Mannik, P.E. | |

ENGINEER OF RECORD:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

LOGO:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
ENGINEERS - SURVEYORS
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR414 | SEMINOLE | 77002-3503 |

SHEET TITLE: FOUNDATION LAYOUT

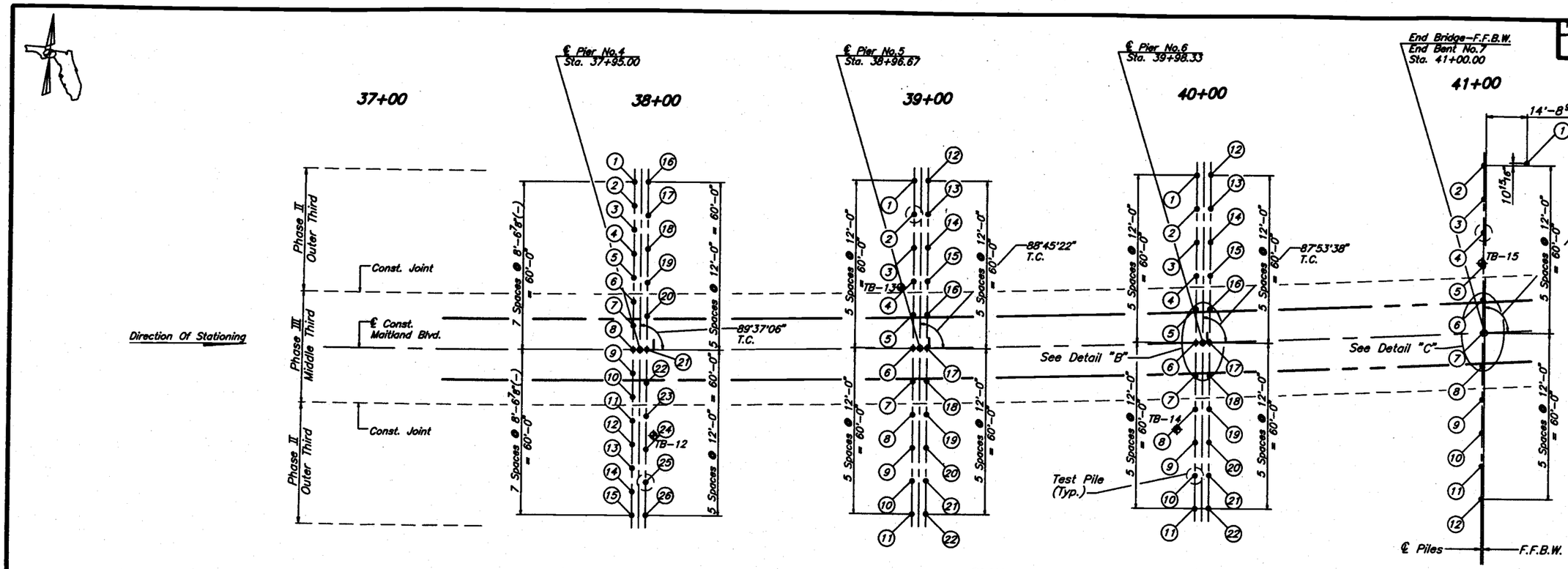
PROJECT NAME: MAITLAND BOULEVARD OVER LAKE BOSSE

Drawing No. 1 OF 2

Index No.

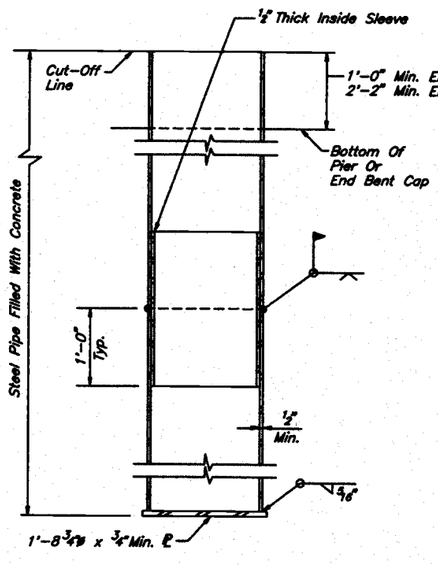
JA 07/19/96 10:07AM C:\APR\LABPRO.DGN

| FED. ROAD DIV. NO. | STATE | PROJECT NO. | FISCAL YEAR | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | | 98 | B-11 |

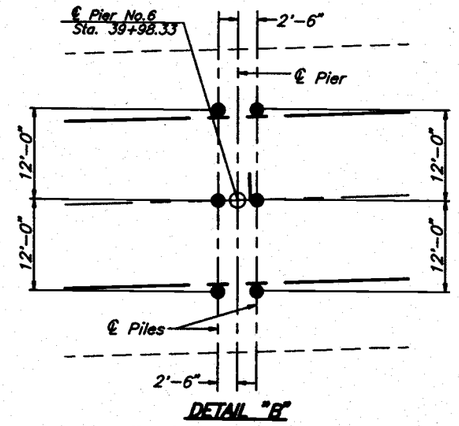



PLAN

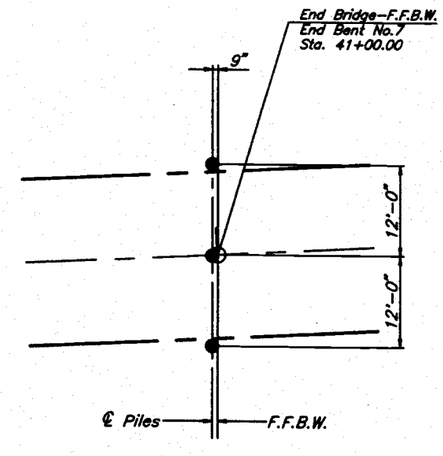
| PILE CUT-OFF ELEVATIONS | | | | |
|---|---|---|---|---|
| PILE NO. | LOCATION | | | |
| | PIER NO.4 | PIER NO.5 | PIER NO.6 | END BENT NO.7 |
| 1 | 64.70 | 66.00 | 65.20 | 65.50 |
| 2 | 64.90 | 66.30 | 65.50 | 65.50 |
| 3 | 65.10 | 66.50 | 65.70 | 65.70 |
| 4 | 65.30 | 66.80 | 66.00 | 66.00 |
| 5 | 65.40 | 67.00 | 66.20 | 66.20 |
| 6 | 65.60 | 67.20 | 66.50 | 66.50 |
| 7 | 65.80 | 67.00 | 66.20 | 66.70 |
| 8 | 66.00 | 66.80 | 66.00 | 66.50 |
| 9 | 65.80 | 66.50 | 65.80 | 66.30 |
| 10 | 65.60 | 66.30 | 65.50 | 66.00 |
| 11 | 65.40 | 66.00 | 65.30 | 65.80 |
| 12 | 65.30 | 66.00 | 65.20 | 65.50 |
| 13 | 65.10 | 66.30 | 65.50 | – |
| 14 | 64.90 | 66.50 | 65.70 | – |
| 15 | 64.70 | 66.80 | 66.00 | – |
| 16 | 64.70 | 67.00 | 66.20 | – |
| 17 | 65.00 | 67.20 | 66.50 | – |
| 18 | 65.20 | 67.00 | 66.20 | – |
| 19 | 65.50 | 66.80 | 66.00 | – |
| 20 | 65.70 | 66.50 | 65.80 | – |
| 21 | 66.00 | 66.30 | 65.50 | – |
| 22 | 65.70 | 66.00 | 65.30 | – |
| 23 | 65.50 | – | – | – |
| 24 | 65.20 | – | – | – |
| 25 | 65.00 | – | – | – |
| 26 | 64.70 | – | – | – |




LONG SECTION OF STEEL PIPE PILE -20"ø




DETAIL "B"
Typ. @ Pier Nos. 2, 5 and 6




DETAIL "C"
End Bent No. 7 Shown
End Bent No. 1 Opp. Hand

## CURVE DATA

Δ = 07°43'27" Lt.
D = 00°50'53"
T = 456.077'
L = 910.773'
R = 6755.800'
e = NORMAL/CROWN
P.C. Sta. = 32+09.23 (Ahead)
P.R.C. Sta. = 41+20.00

## LEGEND

(1) Pile Number
● Proposed Piles
(◉) Test Pile
◆ Test Boring

| REVISIONS | | | | | |
|---|---|---|---|---|---|
| Date | By | Description | Date | By | Description |
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JLA | 9/94 |
| Checked by | MKA | 9/94 |
| Designed by | MKA | 9/94 |
| Checked by | PM | 9/94 |
| Approved by | Peeter Mannik, P.E. | |

ENGINEER OF RECORD: DYER, RIDDLE, MILLS AND PRECOURT, INC.
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

LOGO: DYER, RIDDLE, MILLS AND PRECOURT, INC.
ENGINEERS - SURVEYORS
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR414 | SEMINOLE | 77002-3503 |

SHEET TITLE: FOUNDATION LAYOUT

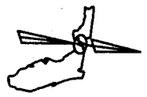
Drawing No. 2 OF 2

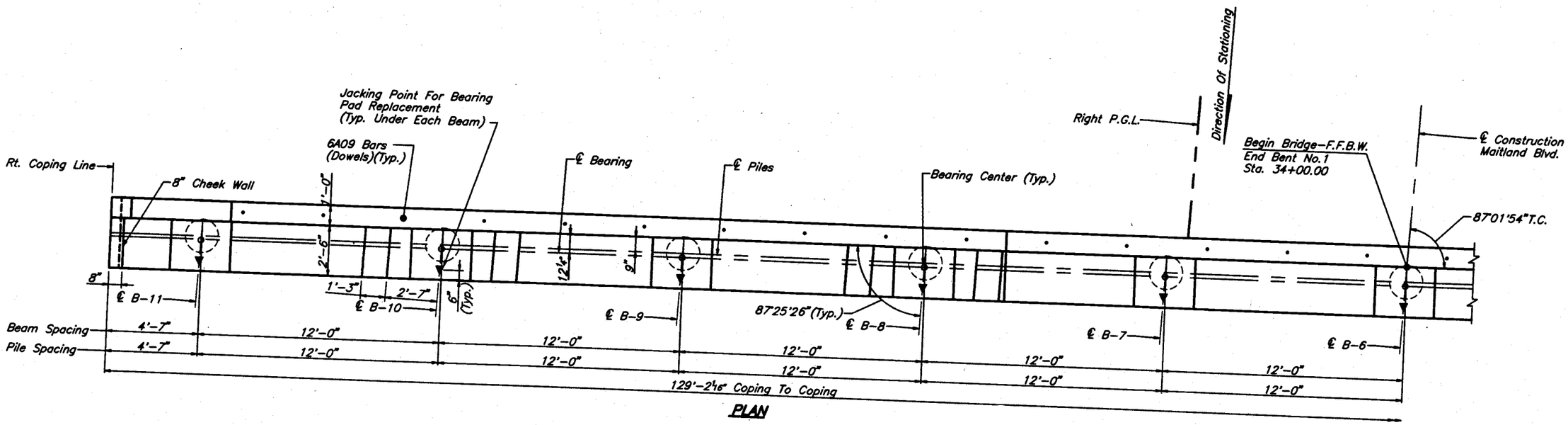
PROJECT NAME: MAITLAND BOULEVARD OVER LAKE BOSSE

Index No.

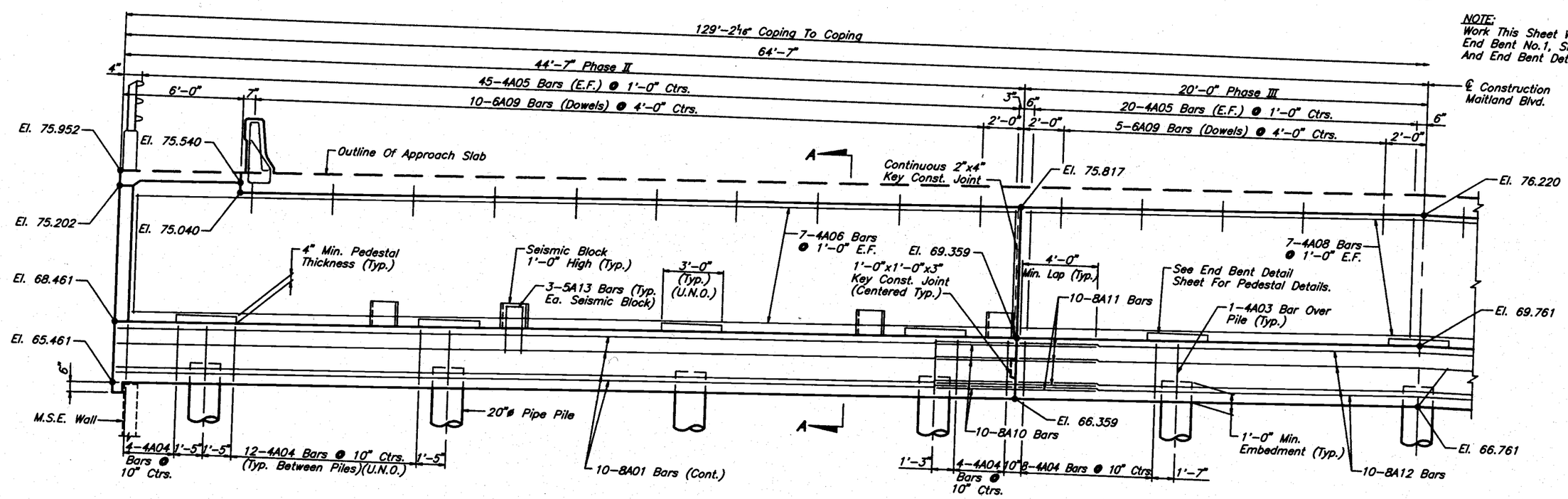
JA 07/21/98 11:43AM C:\USR\JA\BRFMLD.DGN

| FED. ROAD DIV. NO. | STATE | PROJECT NO. | FISCAL YEAR | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | | 98 | B-12 |






PLAN




ELEVATION

NOTE:
Work This Sheet With End Bent No.1, Sheet 2 Of 2, And End Bent Detail Sheet.

REVISIONS

| Date | By | Description | Date | By | Description |
|---|---|---|---|---|---|
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JLA | 9/94 |
| Checked by | MKA | 9/94 |
| Designed by | MKA | 9/94 |
| Checked by | PM | 9/94 |
| Approved by | Peeter Mannik, P.E. | |

ENGINEER OF RECORD: DYER, RIDDLE, MILLS AND PRECOURT, INC. 1505 EAST COLONIAL DRIVE ORLANDO, FLORIDA 32803

LOGO: DYER, RIDDLE, MILLS AND PRECOURT, INC. ENGINEERS - SURVEYORS 1505 EAST COLONIAL DRIVE ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR 414 | SEMINOLE | 77002-3503 |

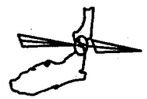
SHEET TITLE: END BENT NO. 1

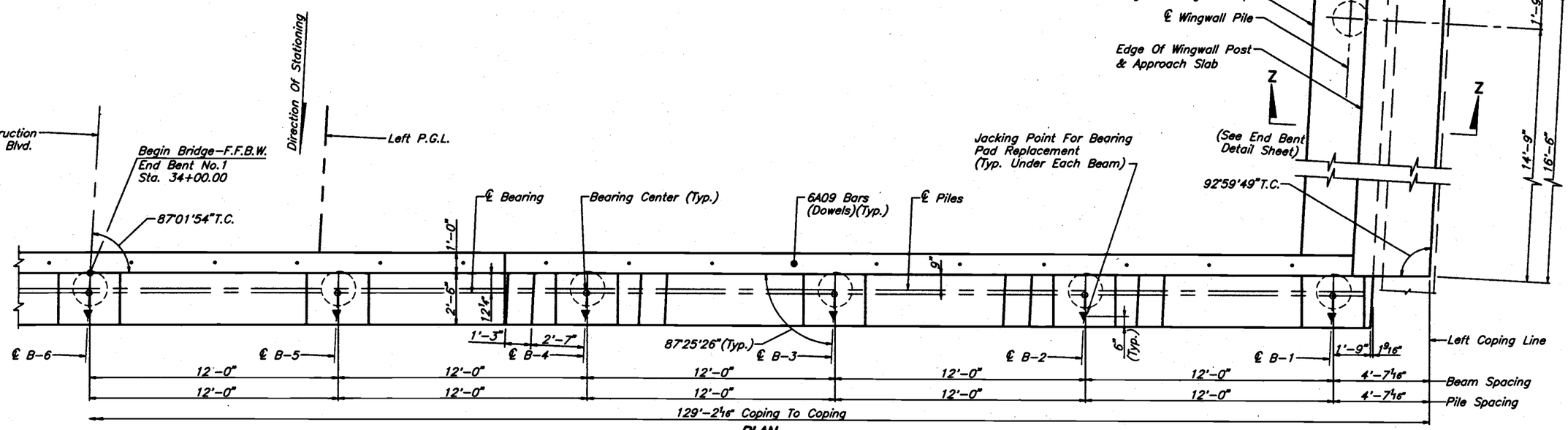
PROJECT NAME: MAITLAND BOULEVARD OVER LAKE BOSSE

Drawing No. 1 Of 2

Index No.

| FED. ROAD DIV. NO. | STATE | PROJECT NO. | FISCAL YEAR | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | | 98 | B-13 |






NOTE:
Work This Sheet With End Bent No.1, Sheet 1 Of 2, And End Bent Detail Sheet.

| REVISIONS | | | | | |
|---|---|---|---|---|---|
| Date | By | Description | Date | By | Description |
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JLA | 9/94 |
| Checked by | MKA | 9/94 |
| Designed by | MKA | 9/94 |
| Checked by | PM | 9/94 |
| Approved by | Peeter Mannik, P.E. | |

ENGINEER OF RECORD:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

LOGO:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
ENGINEERS - SURVEYORS
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR 414 | SEMINOLE | 77002-3503 |

SHEET TITLE: END BENT NO. 1

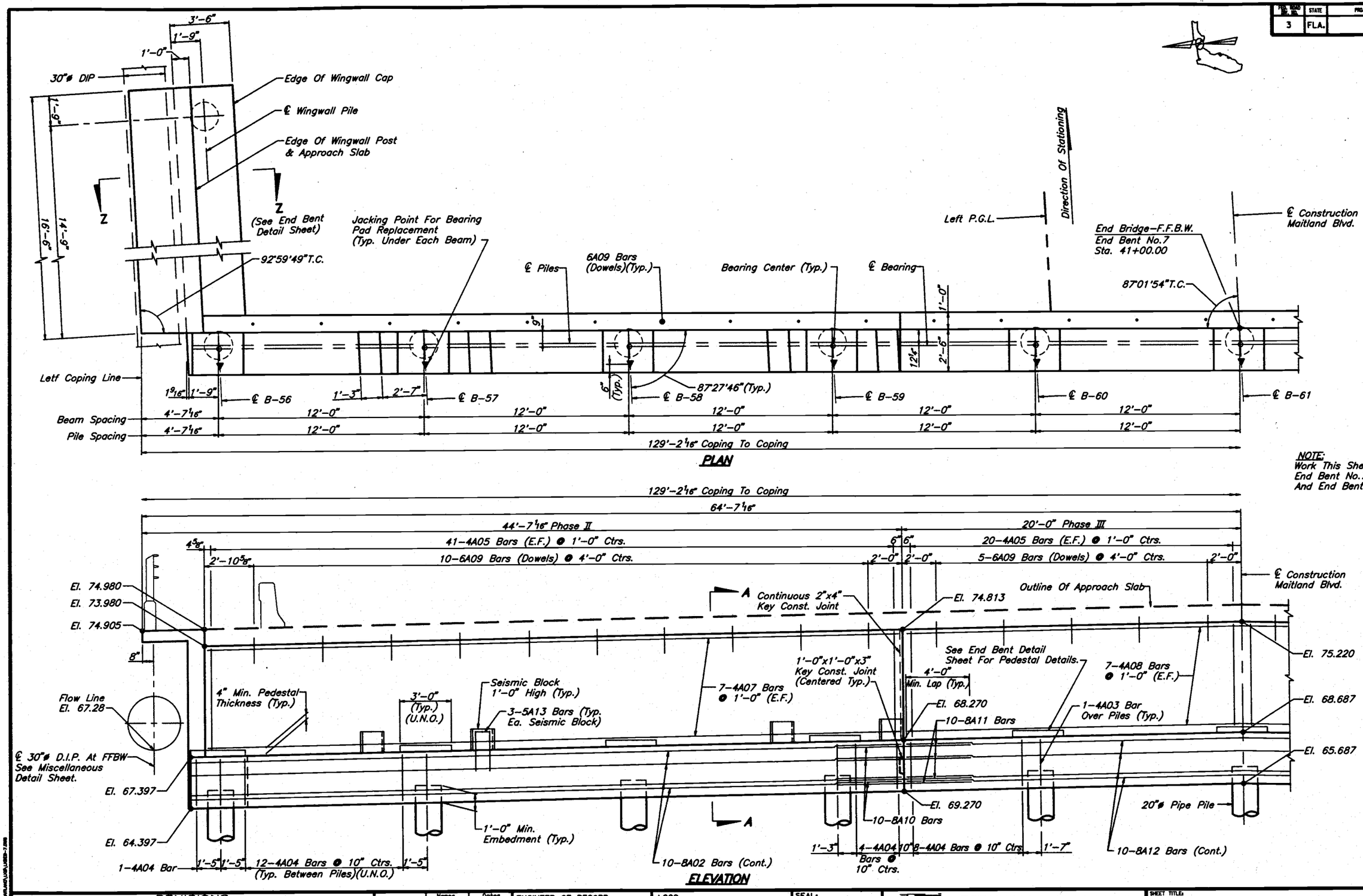
PROJECT NAME: MAITLAND BOULEVARD OVER LAKE BOSSE

Drawing No. 2 Of 2

Index No.

JOB 96/99/96 10:41:40 C:\WINNAPD\LIBT\LIBBB-1.DWG

| FED. ROAD DIV. NO. | STATE | PROJECT NO. | FISCAL YEAR | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | | 98 | B-14 |




**NOTE:**
Work This Sheet With End Bent No.7, Sheet 2 Of 2, And End Bent Detail Sheet.

| REVISIONS | | | | | |
|---|---|---|---|---|---|
| Date | By | Description | Date | By | Description |
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JLA | 9/94 |
| Checked by | MKA | 9/94 |
| Designed by | MKA | 9/94 |
| Checked by | PM | 9/94 |
| Approved by | Peeter Mannik, P.E. | |

ENGINEER OF RECORD:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

LOGO:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
ENGINEERS - SURVEYORS
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR 414 | SEMINOLE | 77002-3503 |

SHEET TITLE: END BENT NO. 7

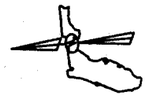
PROJECT NAME: MAITLAND BOULEVARD OVER LAKE BOSSE

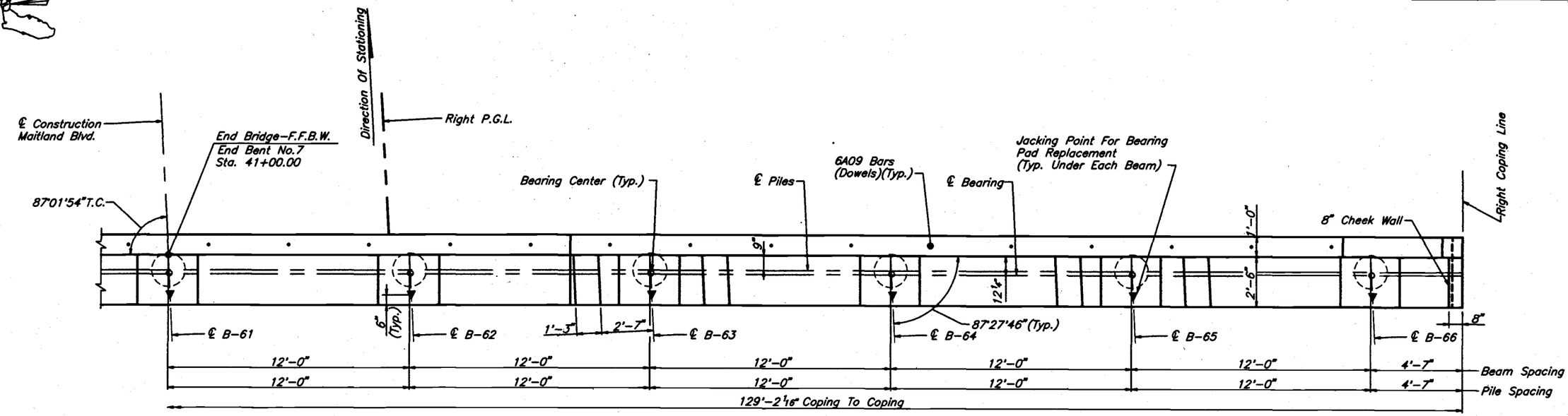
Drawing No. 1 Of 2

Index No.

JOB 06/30/98 10:44AM C:\MYLAND\JLA\LUSER-7.DGN

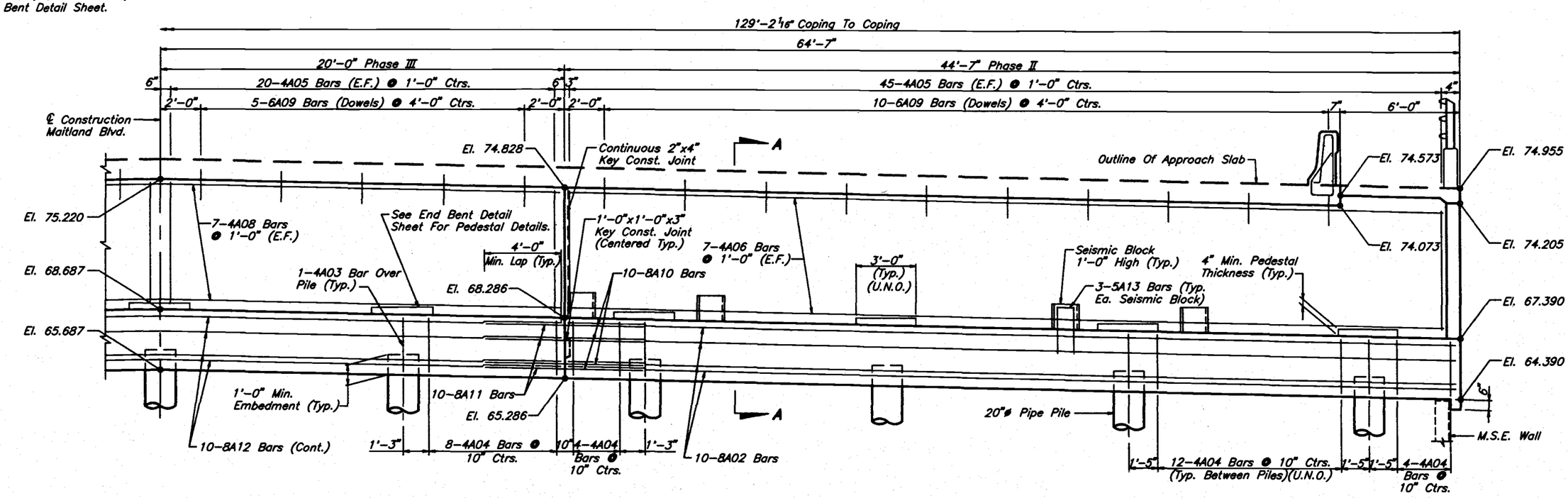
| FED. ROAD DIV. NO. | STATE | PROJECT NO. | FISCAL YEAR | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | | 98 | B-15 |






**PLAN**

NOTE:
Work This Sheet With
End Bent No.7, Sheet 1 Of 2,
And End Bent Detail Sheet.




**ELEVATION**

REVISIONS

| Date | By | Description | Date | By | Description |
|---|---|---|---|---|---|
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JLA | 9/94 |
| Checked by | MKA | 9/94 |
| Designed by | MKA | 9/94 |
| Checked by | PM | 9/94 |
| Approved by | Peeter Mannik, P.E. | |

ENGINEER OF RECORD:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

LOGO:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
ENGINEERS - SURVEYORS
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR 414 | SEMINOLE | 77002-3503 |

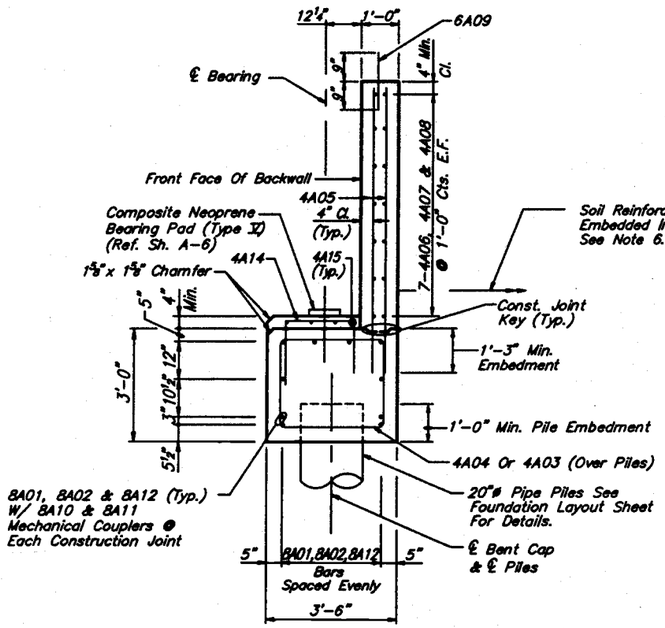
SHEET TITLE: END BENT NO. 7

PROJECT NAME: MAITLAND BOULEVARD OVER LAKE BOSSE

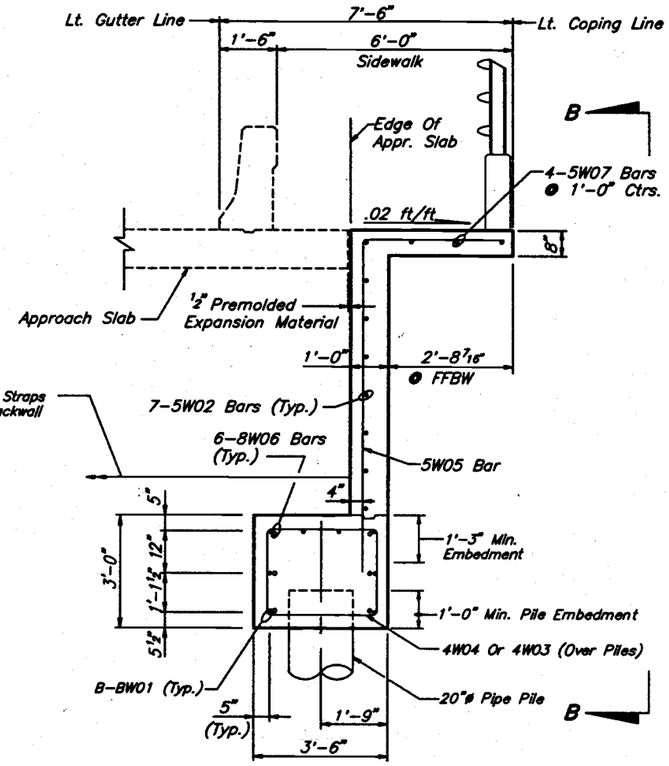
Drawing No. 2 Of 2

Index No.

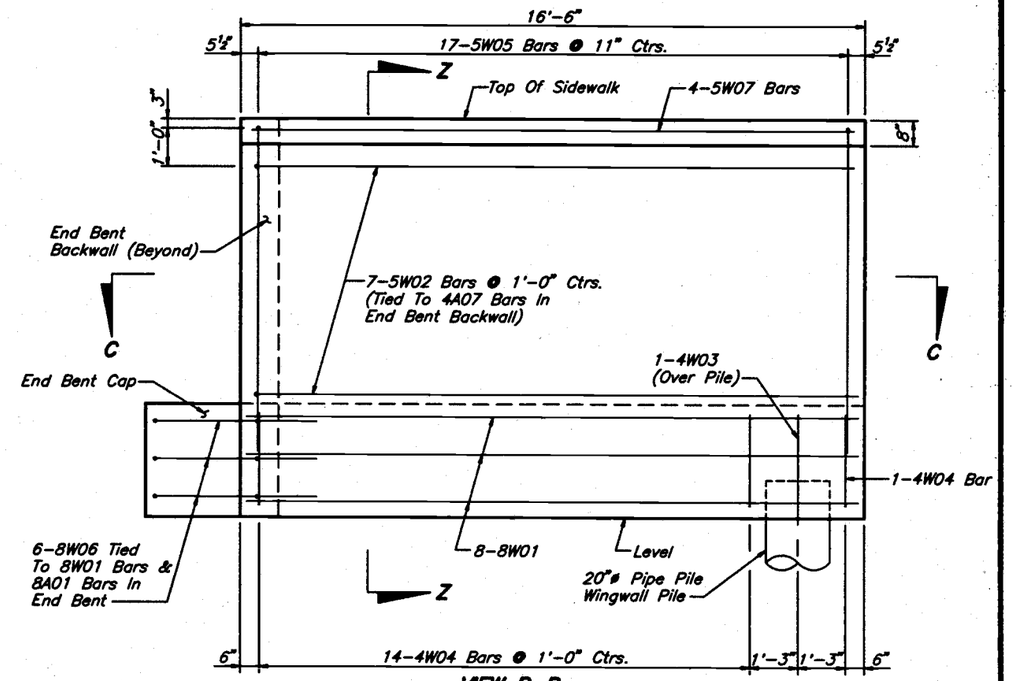
| FED. ROAD DIV. NO. | STATE | PROJECT NO. | FISCAL YEAR | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | | 96 | B-16 |



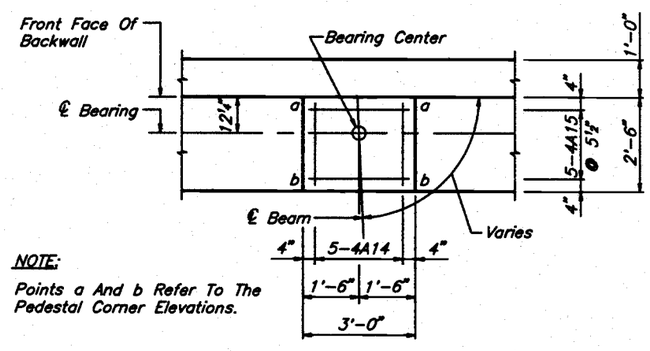

SECTION A-A




SECTION Z-Z



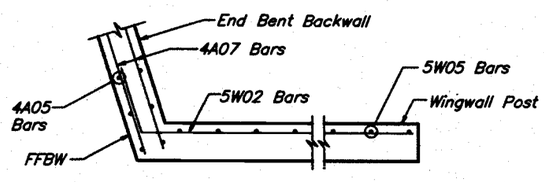

VIEW B-B




NOTE:

Points a And b Refer To The Pedestal Corner Elevations.

PEDESTAL DETAIL




SECTION C-C

| UNFACTORED JACKING LOADS | | |
|---|---|---|
| Dead Load (Tons) | Live Load & Impact (Tons) | Total (Tons) |
| 75 | 24 | 99 |

Jacks Should Be Equipped To Lift All Beams At The Same Substructure Unit Simultaneously. For Additional Jacking Notes See General Notes Sheet A-2.

| PEDESTAL ELEVATIONS | | |
|---|---|---|
| END BENT NO. 1 | | |
| BEAM MARK | Pt. a | Pt. b |
| B-1 | 68.959 | 68.975 |
| B-2 | 69.203 | 69.219 |
| B-3 | 69.446 | 69.463 |
| B-4 | 69.690 | 69.707 |
| B-5 | 69.934 | 69.951 |
| B-6 | 70.178 | 70.195 |
| B-7 | 69.942 | 69.959 |
| B-8 | 69.707 | 69.724 |
| B-9 | 69.471 | 69.488 |
| B-10 | 69.236 | 69.252 |
| B-11 | 69.000 | 69.017 |

| PEDESTAL ELEVATIONS | | |
|---|---|---|
| END BENT NO. 7 | | |
| BEAM MARK | Pt. a | Pt. b |
| B-56 | 67.882 | 67.901 |
| B-57 | 68.126 | 68.145 |
| B-58 | 68.371 | 68.390 |
| B-59 | 68.615 | 68.634 |
| B-60 | 68.860 | 68.878 |
| B-61 | 69.104 | 69.123 |
| B-62 | 68.869 | 68.888 |
| B-63 | 68.634 | 68.653 |
| B-64 | 68.399 | 68.418 |
| B-65 | 68.164 | 68.183 |
| B-66 | 67.929 | 67.947 |

NOTES:

1. Work this sheet with end bent sheets.
2. Soil reinforcing straps are to resist a lateral force of 3.0 kips per foot of backwall @ 4'-0" measured from the bottom of the end bent cap.

REVISIONS

| Date | By | Description | Date | By | Description |
|---|---|---|---|---|---|
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JLA | 7/94 |
| Checked by | MKA | 7/94 |
| Designed by | MKA | 7/94 |
| Checked by | PM | 7/94 |
| Approved by | Peeter Mannik, P.E. | |

ENGINEER OF RECORD: DYER, RIDDLE, MILLS AND PRECOURT, INC. 1505 EAST COLONIAL DRIVE ORLANDO, FLORIDA 32803

LOGO: DYER, RIDDLE, MILLS AND PRECOURT, INC. ENGINEERS - SURVEYORS 1505 EAST COLONIAL DRIVE ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| | SEMINOLE | 77002-3503 |

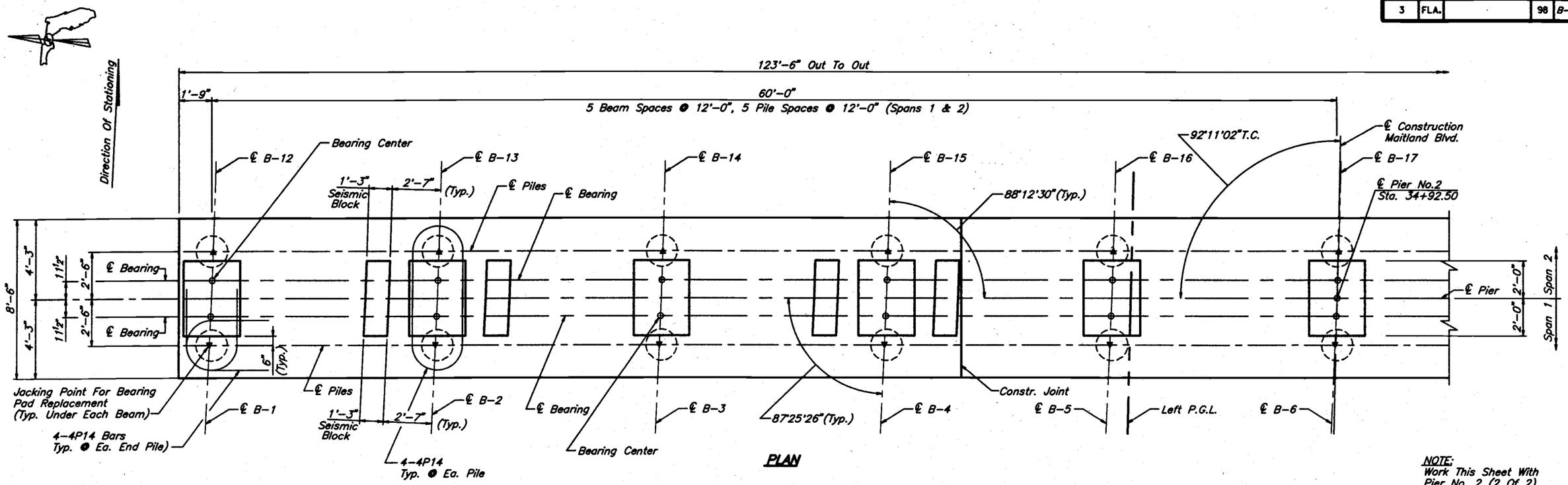
SHEET TITLE: END BENT DETAILS

Drawing No.

PROJECT NAME: MAITLAND BOULEVARD OVER LAKE BOSSE

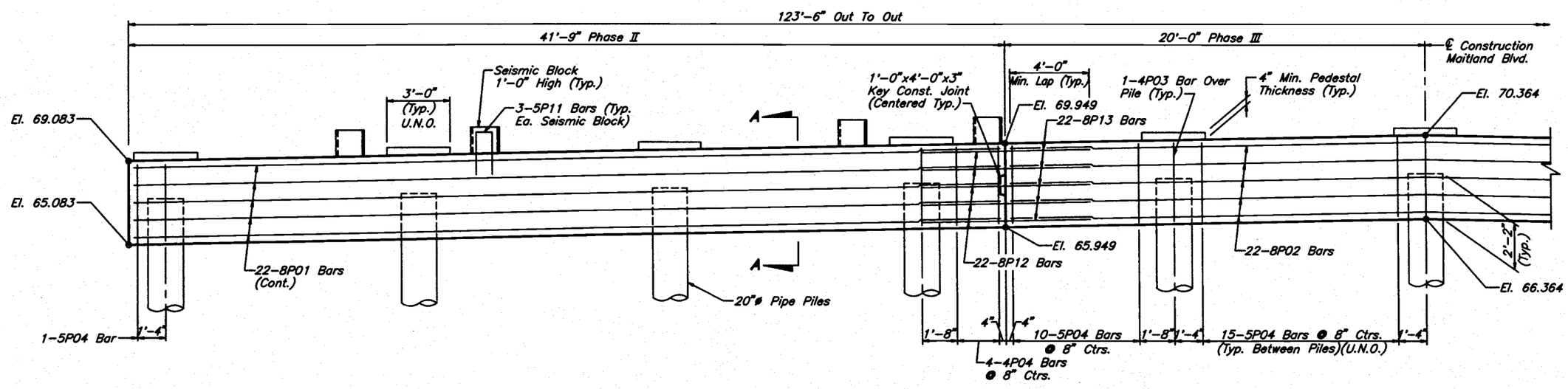
Index No.

| FED. ROAD DIV. NO. | STATE | PROJECT NO. | FISCAL YEAR | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | | 98 | B-17 |




**PLAN**

**NOTE:**
Work This Sheet With Pier No. 2 (2 Of 2) And Pier Detail Sheet.




**ELEVATION**

| REVISIONS | | | | | |
|---|---|---|---|---|---|
| Date | By | Description | Date | By | Description |
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JLA | 9/94 |
| Checked by | MKA | 9/94 |
| Designed by | MKA | 9/94 |
| Checked by | PM | 9/94 |
| Approved by | Peeter Mannik, P.E. | |

ENGINEER OF RECORD:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

LOGO:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
ENGINEERS - SURVEYORS
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR 414 | SEMINOLE | 77002-3503 |

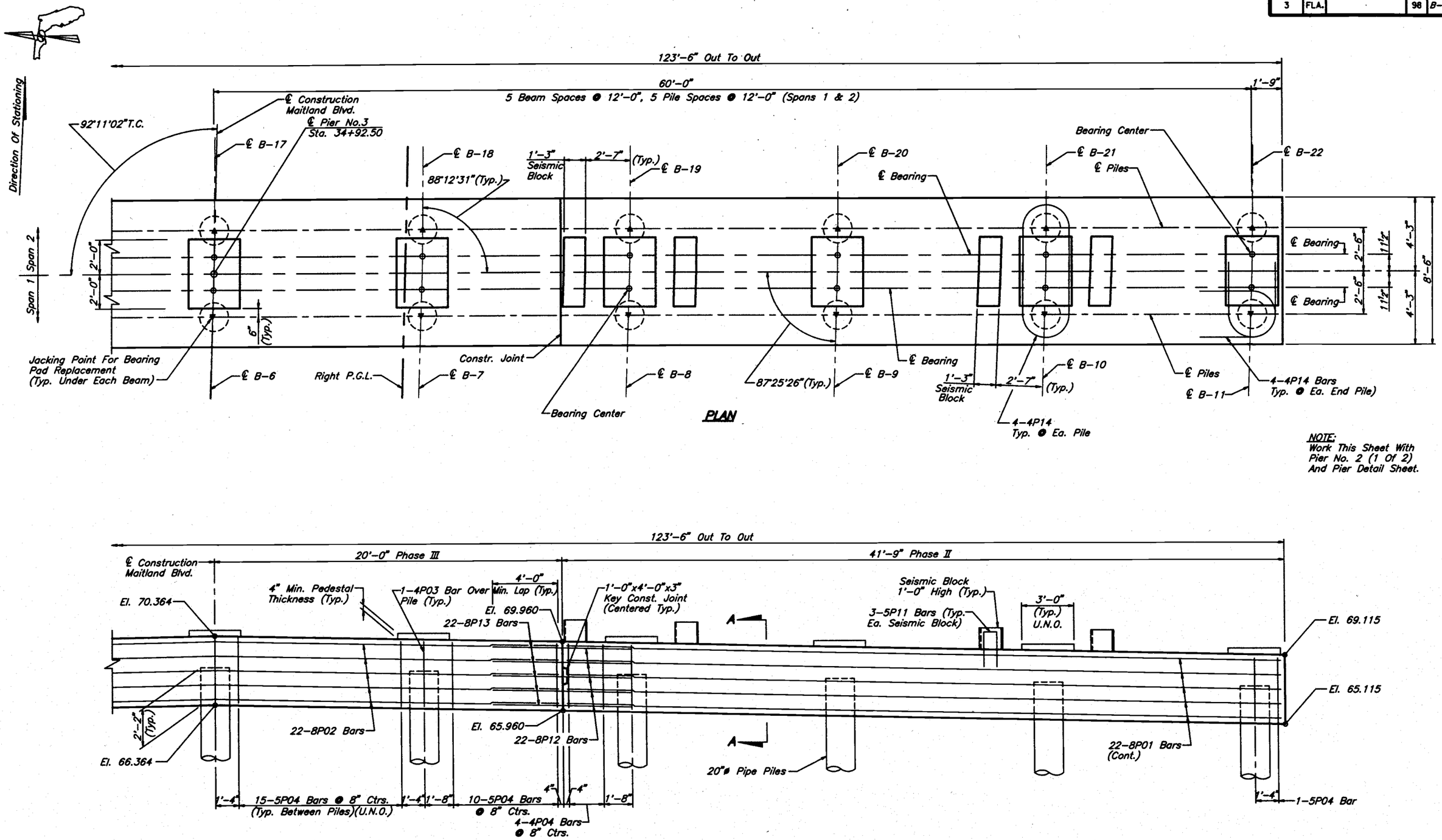
SHEET TITLE: PIER NO. 2

PROJECT NAME: MAITLAND BOULEVARD OVER LAKE BOSSE

Drawing No. 1 Of 2

Index No.

| FED. ROAD DIV. NO. | STATE | PROJECT NO. | FISCAL YEAR | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | | 98 | B-18 |




NOTE:
Work This Sheet With Pier No. 2 (1 Of 2) And Pier Detail Sheet.

| REVISIONS | | | | | |
|---|---|---|---|---|---|
| Date | By | Description | Date | By | Description |
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JLA | 9/94 |
| Checked by | MKA | 9/94 |
| Designed by | MKA | 9/94 |
| Checked by | PM | 9/94 |
| Approved by | Peeter Mannik, P.E. | |

ENGINEER OF RECORD:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

LOGO:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
ENGINEERS - SURVEYORS
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR 414 | SEMINOLE | 77002-3503 |

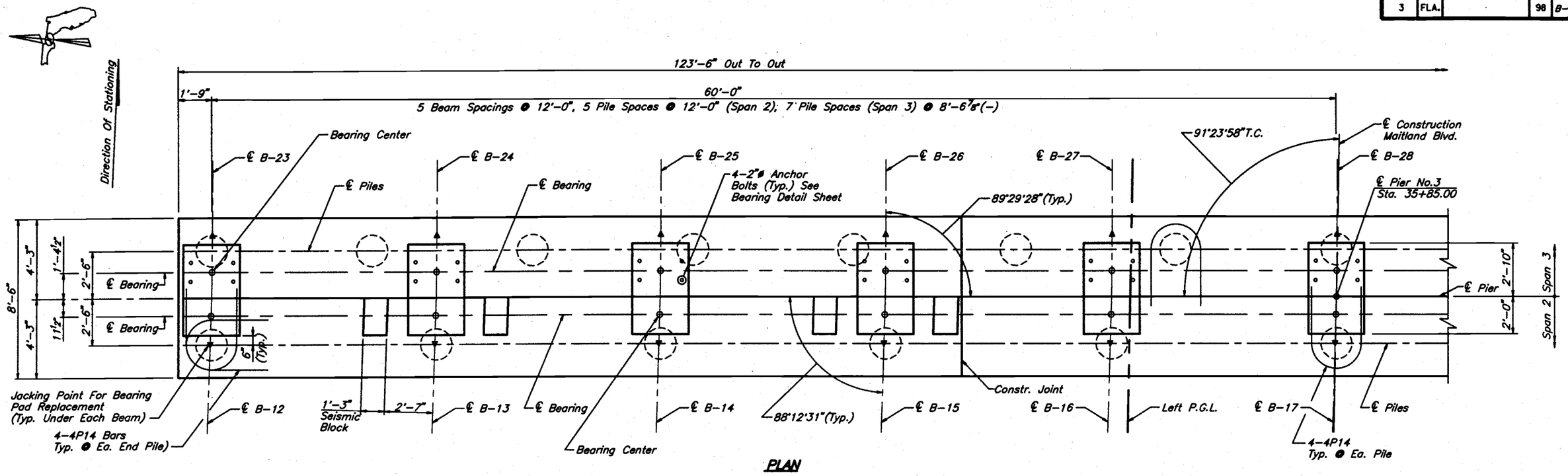
SHEET TITLE: PIER NO. 2

PROJECT NAME: MAITLAND BOULEVARD OVER LAKE BOSSE

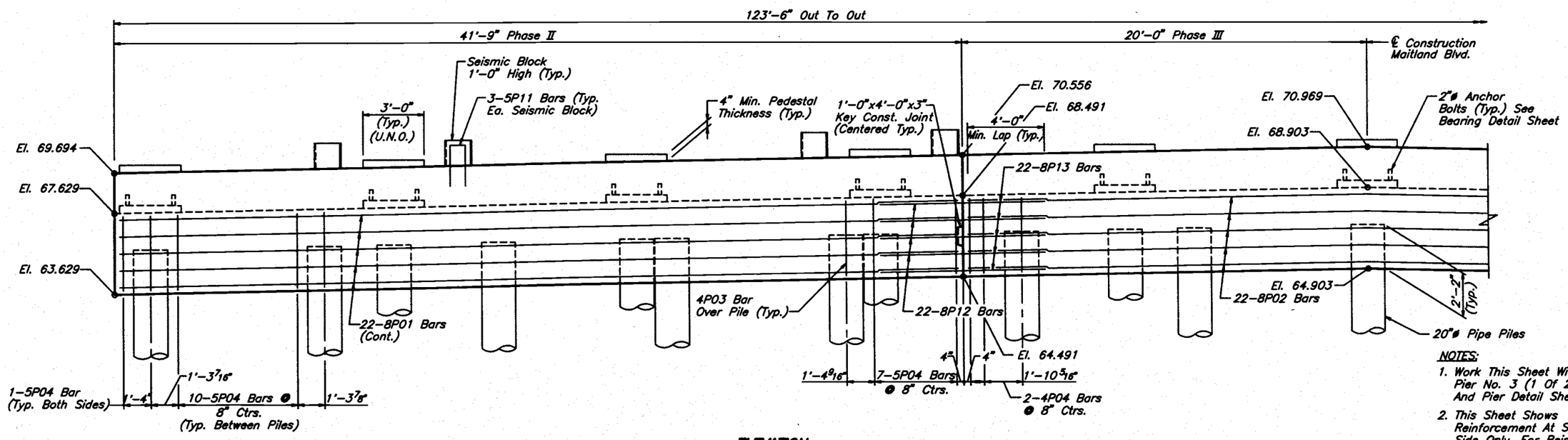
Drawing No. 2 Of 2

Index No.

| FED. ROAD DIV. NO. | STATE | PROJECT NO. | FISCAL YEAR | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | | 98 | B-19 |




PLAN




ELEVATION

NOTES:

1. Work This Sheet With Pier No. 3 (1 Of 2) And Pier Detail Sheet.
2. This Sheet Shows Reinforcement At Span No.3 Side Only. For Reinforcement At Span No.2 See Sheet Pier No.3 (2 Of 2)

| REVISIONS | | | | | |
|---|---|---|---|---|---|
| Date | By | Description | Date | By | Description |
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JLA | 9/94 |
| Checked by | MKA | 9/94 |
| Designed by | MKA | 9/94 |
| Checked by | PM | 9/94 |
| Approved by | Peeter Mannik, P.E. | |

ENGINEER OF RECORD:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

LOGO:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
ENGINEERS - SURVEYORS
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR 414 | SEMINOLE | 77002-3503 |

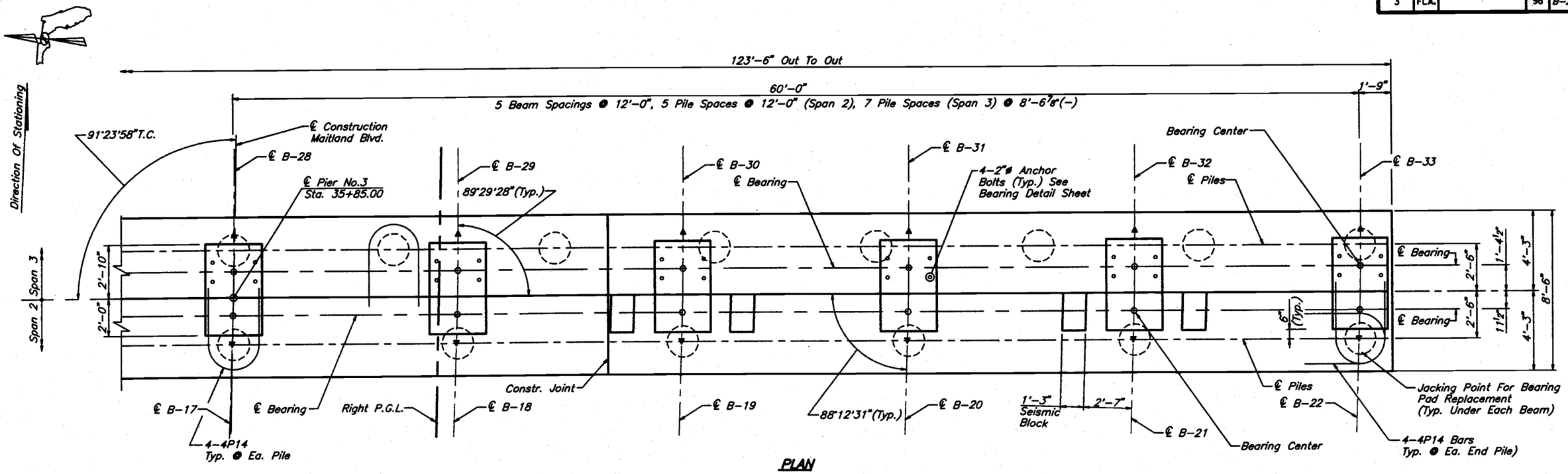
SHEET TITLE: PIER NO. 3

PROJECT NAME: MAITLAND BOULEVARD OVER LAKE BOSSE

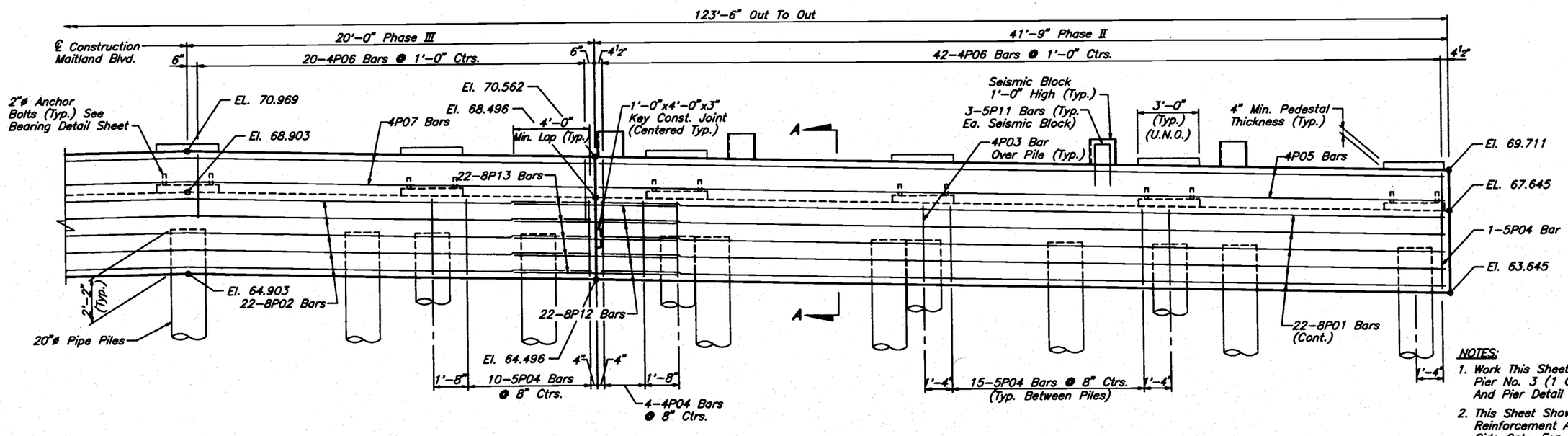
Drawing No. 1 Of 2

Index No.

| FED. ROAD DIV. NO. | STATE | PROJECT NO. | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | | 98 | B-20 |




PLAN




ELEVATION

NOTES:

1. Work This Sheet With Pier No. 3 (1 Of 2) And Pier Detail Sheet.
2. This Sheet Shows Reinforcement At Span No.2 Side Only. For Reinforcement At Span No.3 See Sheet Pier No.3 (1 Of 2)

| REVISIONS | | | | | |
|---|---|---|---|---|---|
| Date | By | Description | Date | By | Description |
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JLA | 9/94 |
| Checked by | MKA | 9/94 |
| Designed by | MKA | 9/94 |
| Checked by | PM | 9/94 |
| Approved by | Peeter Mannik, P.E. | |

ENGINEER OF RECORD:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

LOGO:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
ENGINEERS - SURVEYORS
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR 414 | SEMINOLE | 77002-3503 |

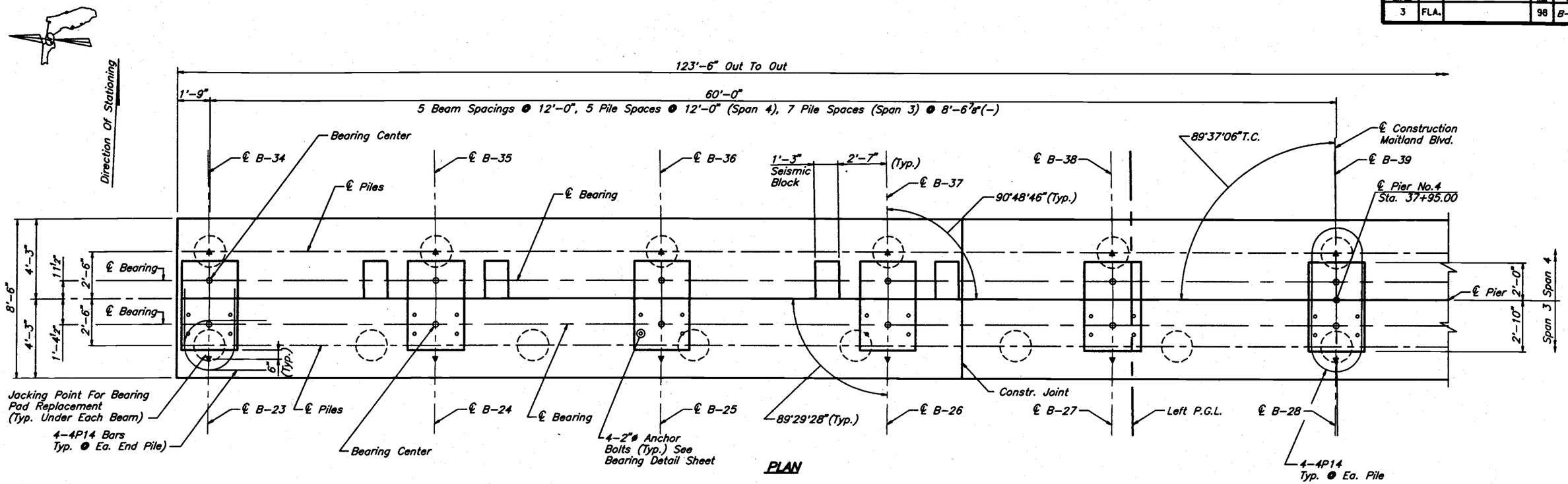
SHEET TITLE: PIER NO. 3

PROJECT NAME: MAITLAND BOULEVARD OVER LAKE BOSSE

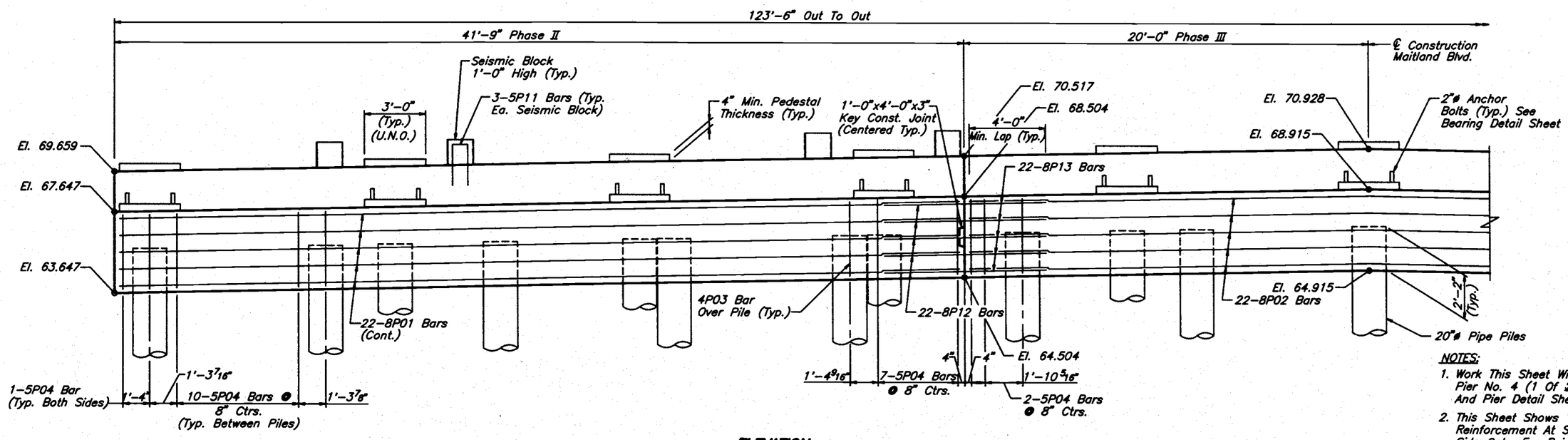
Drawing No. 2 Of 2

Index No.

| FED. ROAD DIV. NO. | STATE | PROJECT NO. | FISCAL YEAR | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | | 98 | B-21 |




PLAN




ELEVATION

NOTES:

1. Work This Sheet With Pier No. 4 (1 Of 2) And Pier Detail Sheet.
2. This Sheet Shows Reinforcement At Span No.3 Side Only. For Reinforcement At Span No.4 See Sheet Pier No.4 (2 Of 2)

| REVISIONS | | | | | |
|---|---|---|---|---|---|
| Date | By | Description | Date | By | Description |
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JLA | 9/94 |
| Checked by | MKA | 9/94 |
| Designed by | MKA | 9/94 |
| Checked by | PM | 9/94 |
| Approved by | Peeter Mannik, P.E. | |

ENGINEER OF RECORD: DYER, RIDDLE, MILLS AND PRECOURT, INC. 1505 EAST COLONIAL DRIVE ORLANDO, FLORIDA 32803

LOGO: DYER, RIDDLE, MILLS AND PRECOURT, INC. ENGINEERS - SURVEYORS 1505 EAST COLONIAL DRIVE ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR 414 | SEMINOLE | 77002-3503 |

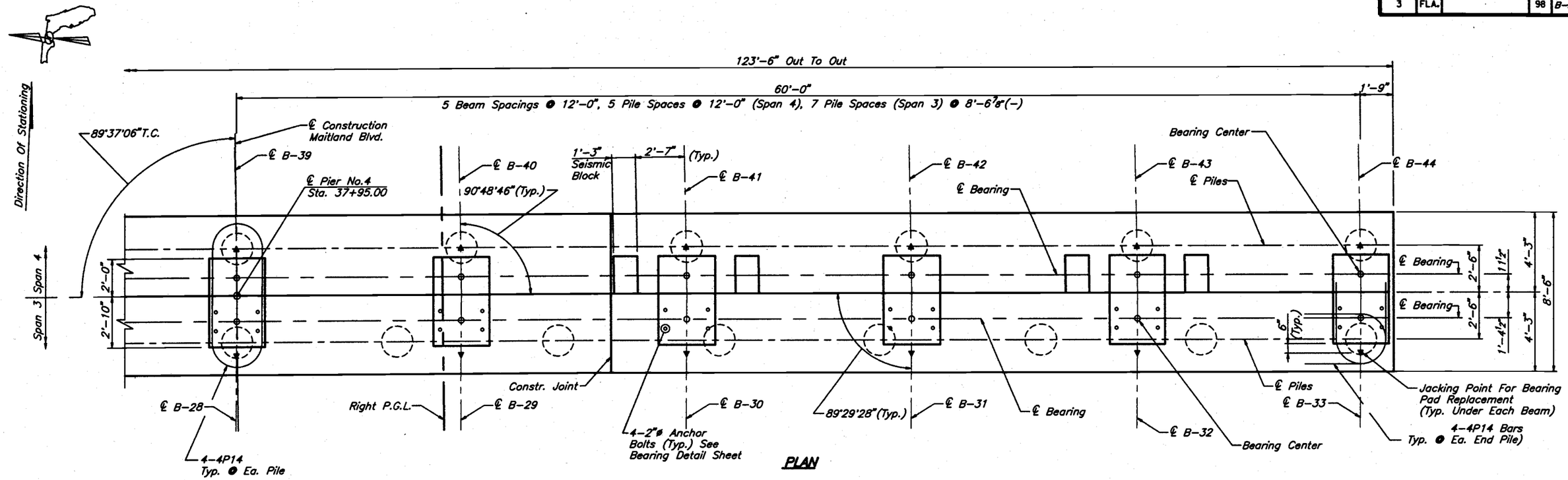
SHEET TITLE: PIER NO. 4

PROJECT NAME: MAITLAND BOULEVARD OVER LAKE BOSSE

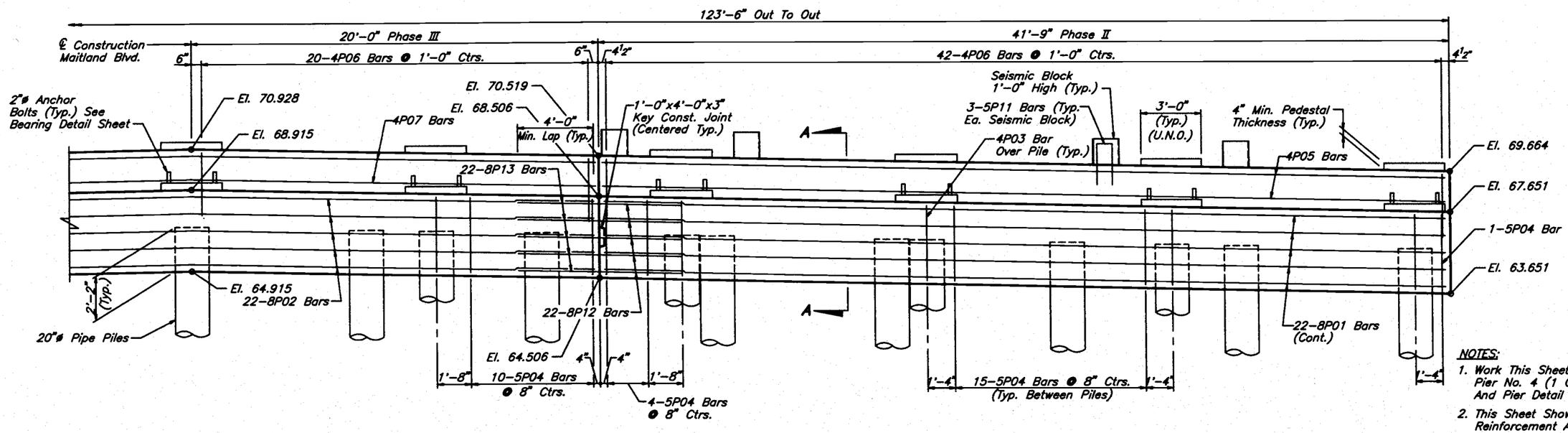
Drawing No. 1 Of 2

Index No.

| FED. ROAD DIV. NO. | STATE | PROJECT NO. | FISCAL YEAR | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | | 98 | B-22 |




PLAN




ELEVATION

NOTES:

1. Work This Sheet With Pier No. 4 (1 Of 2) And Pier Detail Sheet.
2. This Sheet Shows Reinforcement At Span No.4 Side Only. For Reinforcement At Span No.3 See Sheet Pier No.4 (1 Of 2)

| REVISIONS | | | | | |
|---|---|---|---|---|---|
| Date | By | Description | Date | By | Description |
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JLA | 9/94 |
| Checked by | MKA | 9/94 |
| Designed by | MKA | 9/94 |
| Checked by | PM | 9/94 |
| Approved by | Peeter Mannik, P.E. | |

ENGINEER OF RECORD: DYER, RIDDLE, MILLS AND PRECOURT, INC. 1505 EAST COLONIAL DRIVE ORLANDO, FLORIDA 32803

LOGO: DYER, RIDDLE, MILLS AND PRECOURT, INC. ENGINEERS - SURVEYORS 1505 EAST COLONIAL DRIVE ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR 414 | SEMINOLE | 77002-3503 |

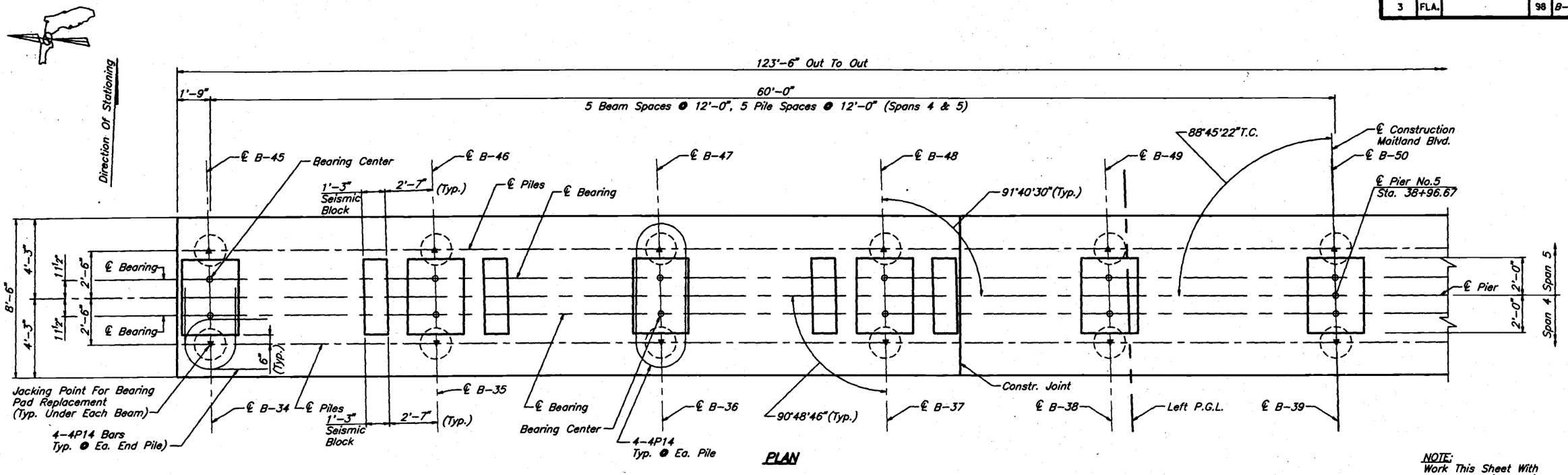
SHEET TITLE: PIER NO. 4

PROJECT NAME: MAITLAND BOULEVARD OVER LAKE BOSSE

Drawing No. 2 Of 2

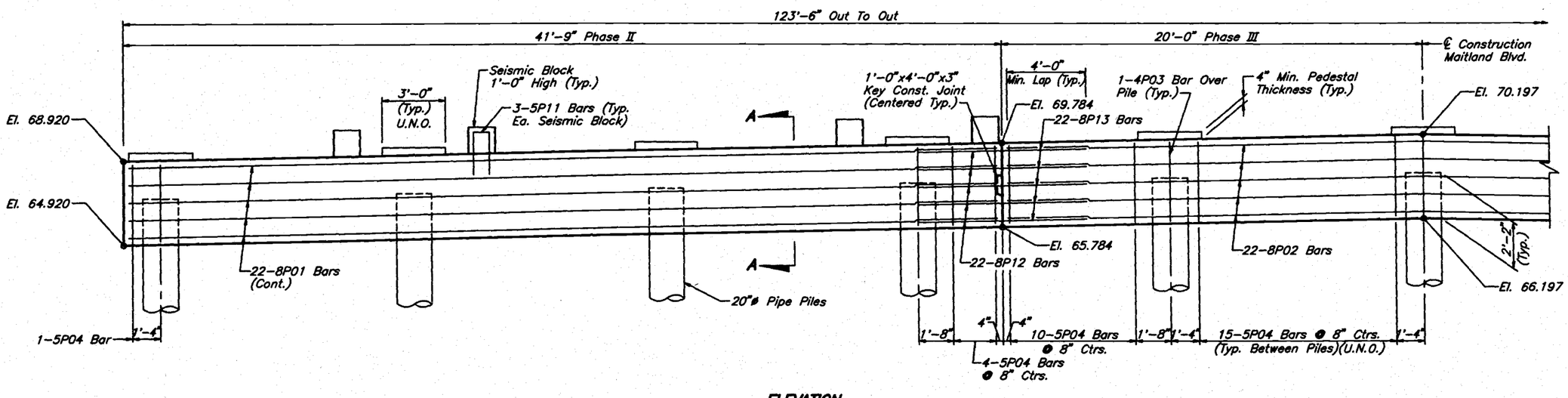
Index No.

| FED. ROAD DIV. NO. | STATE | PROJECT NO. | FISCAL YEAR | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | | 98 | B-23 |




PLAN

NOTE:
Work This Sheet With Pier No. 5 (2 Of 2) And Pier Detail Sheet.




ELEVATION

| REVISIONS | | | | | |
|---|---|---|---|---|---|
| Date | By | Description | Date | By | Description |
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JLA | 9/94 |
| Checked by | MKA | 9/94 |
| Designed by | MKA | 9/94 |
| Checked by | PM | 9/94 |
| Approved by | Peeter Mannik, P.E. | |

ENGINEER OF RECORD:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

LOGO:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
ENGINEERS - SURVEYORS
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR 414 | SEMINOLE | 77002-3503 |

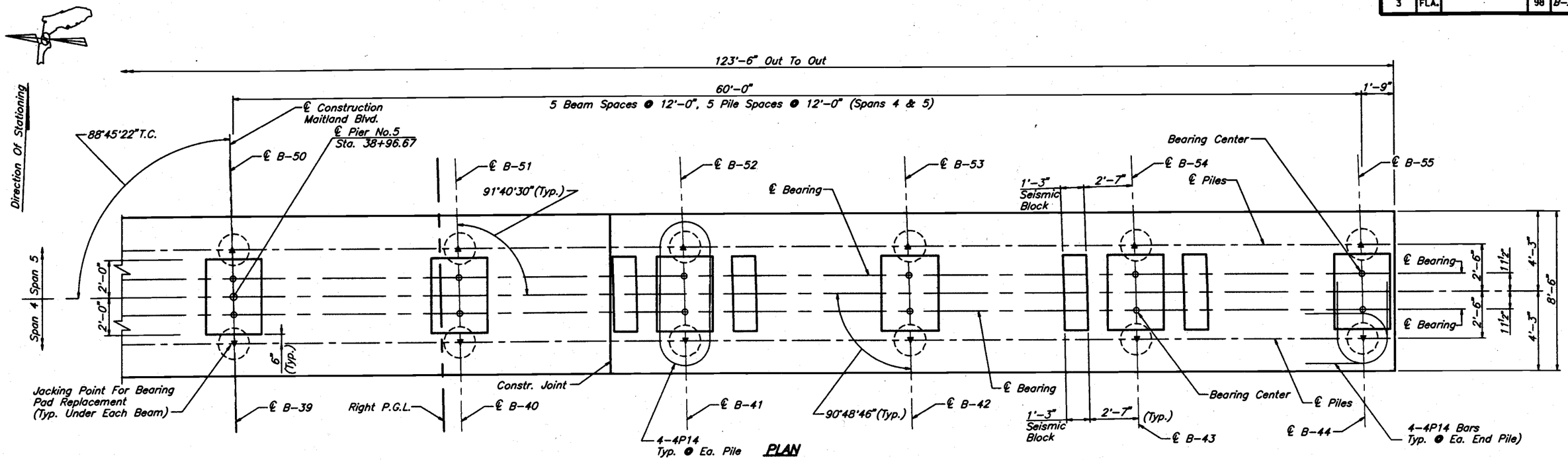
SHEET TITLE: PIER NO. 5

PROJECT NAME: MAITLAND BOULEVARD OVER LAKE BOSSE

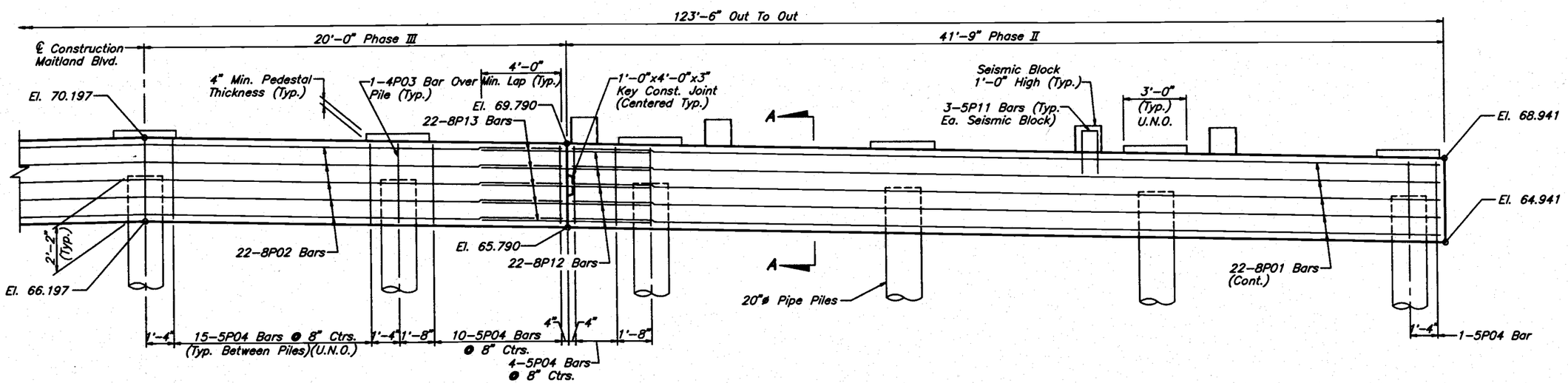
Drawing No. 1 Of 2

Index No.

| FED. ROAD DIV. NO. | STATE | PROJECT NO. | FISCAL YEAR | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | | 98 | B-24 |




NOTE:
Work This Sheet With Pier No. 5 (1 Of 2) And Pier Detail Sheet.




| REVISIONS | | | | | |
|---|---|---|---|---|---|
| Date | By | Description | Date | By | Description |
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JLA | 9/94 |
| Checked by | MKA | 9/94 |
| Designed by | MKA | 9/94 |
| Checked by | PM | 9/94 |
| Approved by | Peeter Mannik, P.E. | |

ENGINEER OF RECORD:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

LOGO:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
ENGINEERS - SURVEYORS
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

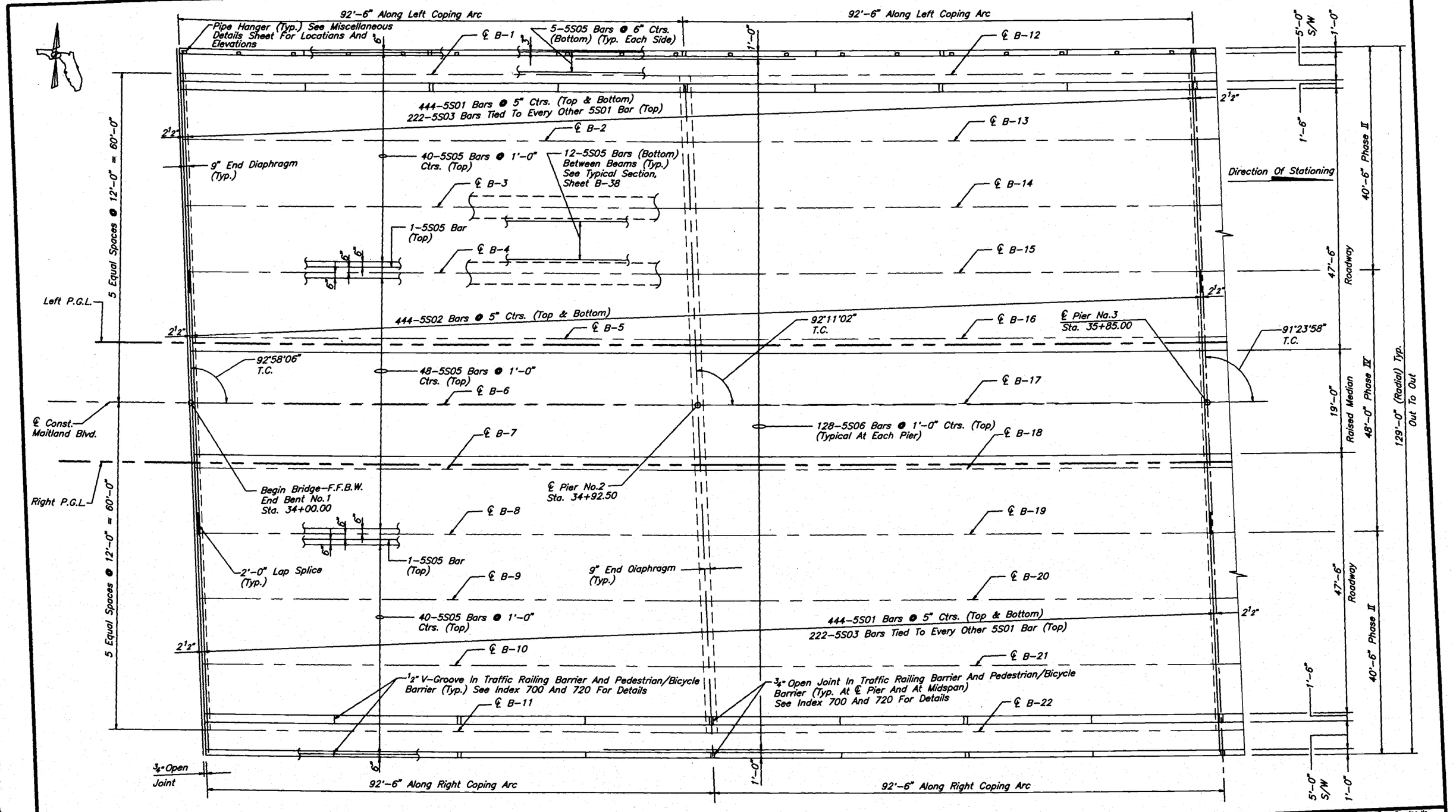
| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR 414 | SEMINOLE | 77002-3503 |

SHEET TITLE: PIER NO. 5

PROJECT NAME: MAITLAND BOULEVARD OVER LAKE BOSSE

Drawing No. 2 Of 2

Index No.




PLAN

| REVISIONS | | | | | |
|---|---|---|---|---|---|
| Date | By | Description | Date | By | Description |
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JJS | 3/95 |
| Checked by | MKA | 3/95 |
| Designed by | MKA | 3/95 |
| Checked by | PM | 3/95 |
| Approved by | Peeter Mannik, P.E. | |

ENGINEER OF RECORD:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

LOGO:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
ENGINEERS - SURVEYORS
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR414 | SEMINOLE | 77002-3503 |

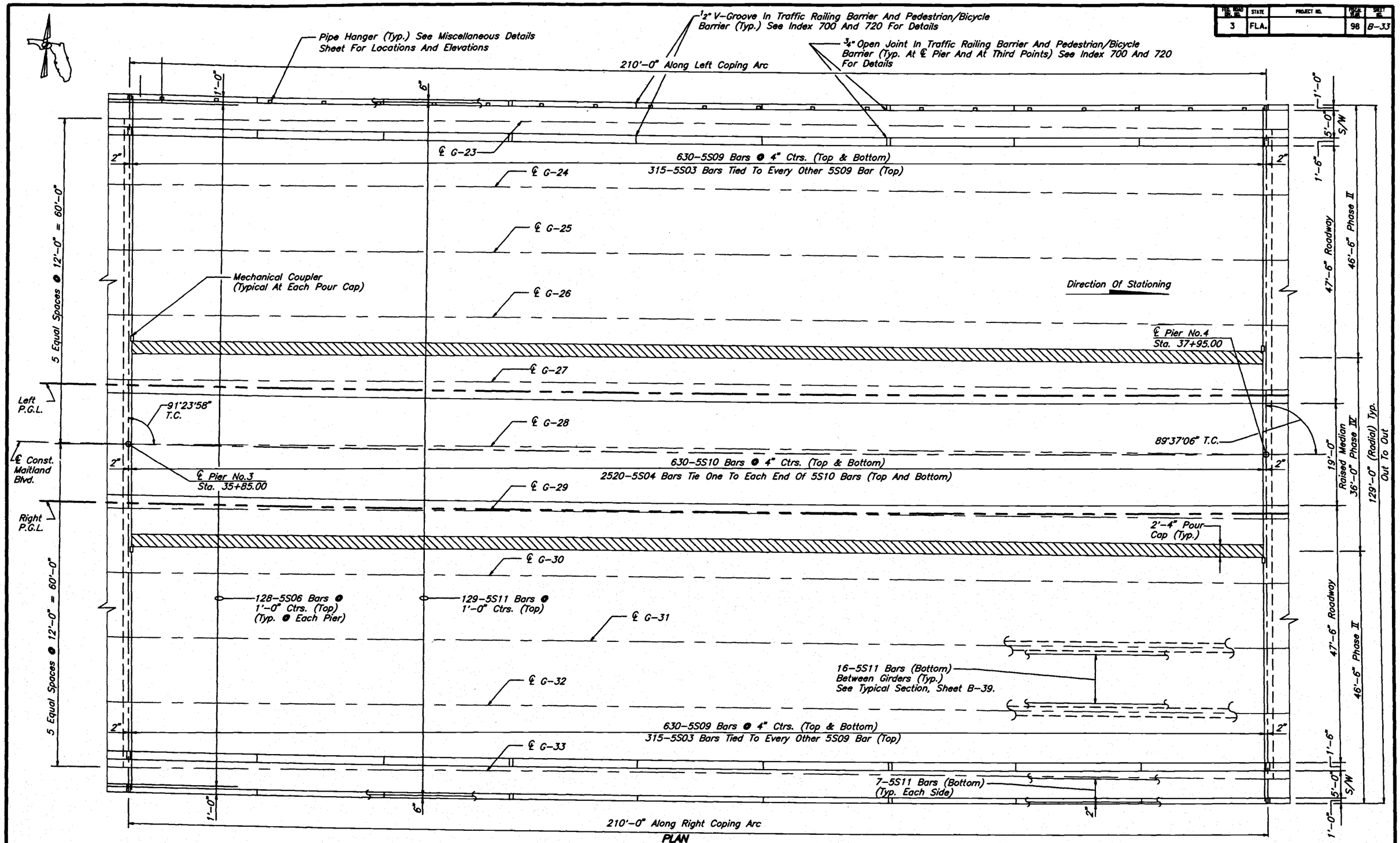
SHEET TITLE: SUPERSTRUCTURE SPANS 1 AND 2

PROJECT NAME: MAITLAND BOULEVARD OVER LAKE BOSSE

Drawing No.

Index No.

| FED. ROAD DIV. NO. | STATE | PROJECT NO. | FISCAL YEAR | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | | 98 | B-33 |




PLAN

| REVISIONS | | | | | |
|---|---|---|---|---|---|
| Date | By | Description | Date | By | Description |
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JLA | 4/95 |
| Checked by | MN | 4/95 |
| Designed by | MN | 4/95 |
| Checked by | PM | 4/95 |
| Approved by | Peeter Mannik, P.E. | |

ENGINEER OF RECORD:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

LOGO:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
ENGINEERS - SURVEYORS
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR 414 | SEMINOLE | 77002-3503 |

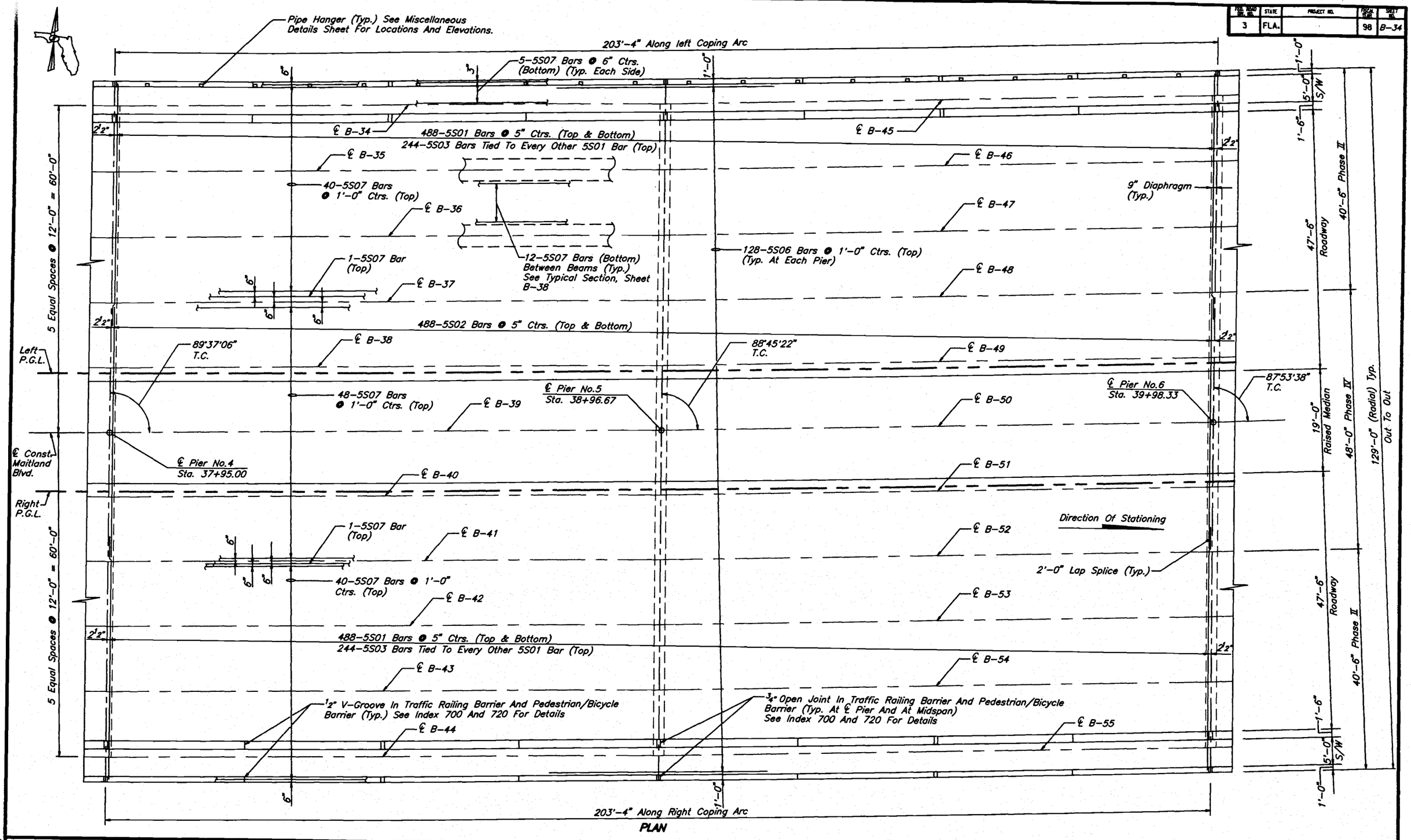
SHEET TITLE: SUPERSTRUCTURE SPAN 3

PROJECT NAME: MAITLAND BOULEVARD OVER LAKE BOSSE

Drawing No.

Index No.

| FED. ROAD DIV. NO. | STATE | PROJECT NO. | FISCAL YEAR | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | | 98 | B-34 |




PLAN

| REVISIONS | | | | | |
|---|---|---|---|---|---|
| Date | By | Description | Date | By | Description |
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JJS | 3/95 |
| Checked by | MKA | 3/95 |
| Designed by | MKA | 3/95 |
| Checked by | PM | 3/95 |
| Approved by | Peeter Mannik, P.E. | |

ENGINEER OF RECORD:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

LOGO:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
ENGINEERS - SURVEYORS
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

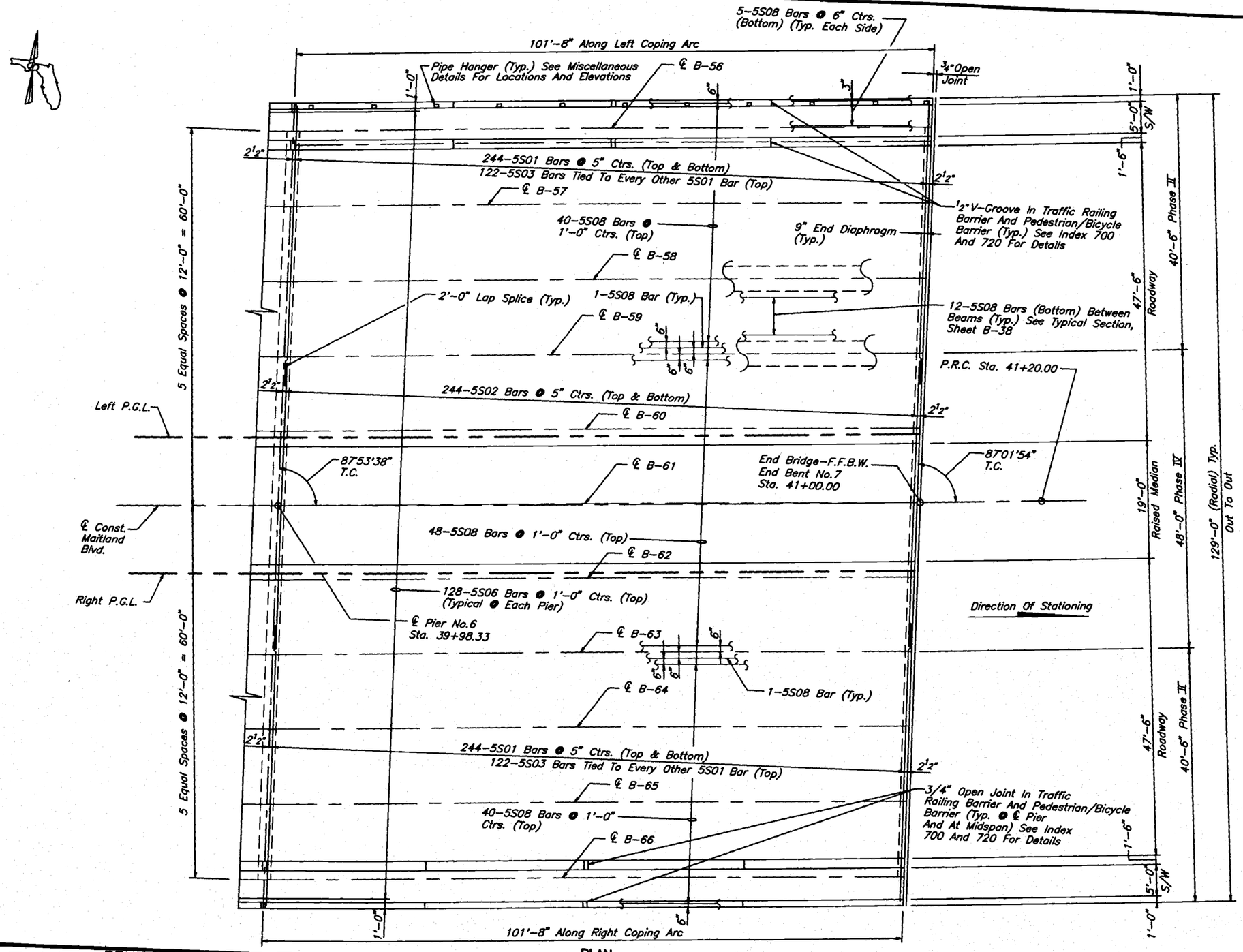
| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR414 | SEMINOLE | 77002-3503 |

SHEET TITLE:
SUPERSTRUCTURE SPANS 4 AND 5

PROJECT NAME:
MAITLAND BOULEVARD OVER LAKE BOSSE

Drawing No.

Index No.




PLAN

REVISIONS

| Date | By | Description | Date | By | Description |
|---|---|---|---|---|---|
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JJS | 3/95 |
| Checked by | MKA | 3/95 |
| Designed by | MKA | 3/95 |
| Checked by | PM | 3/95 |
| Approved by | Peeter Mannik, P.E. | |

ENGINEER OF RECORD:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

LOGO:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
ENGINEERS - SURVEYORS
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR414 | SEMINOLE | 77002-3503 |

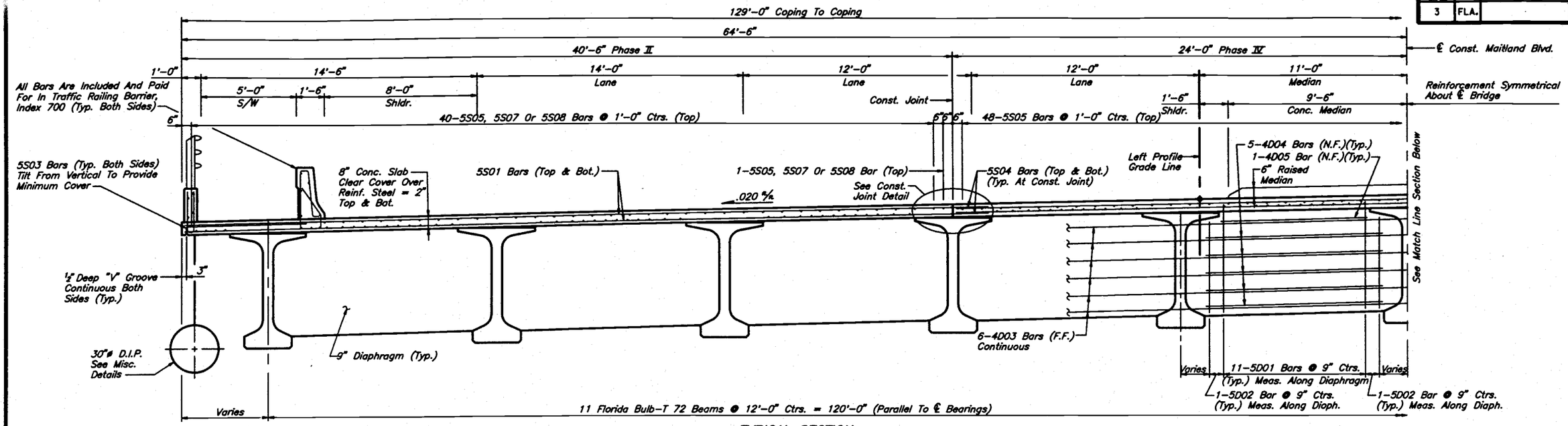
SHEET TITLE: SUPERSTRUCTURE SPAN 6

PROJECT NAME: MAITLAND BOULEVARD OVER LAKE BOSSE

Drawing No.

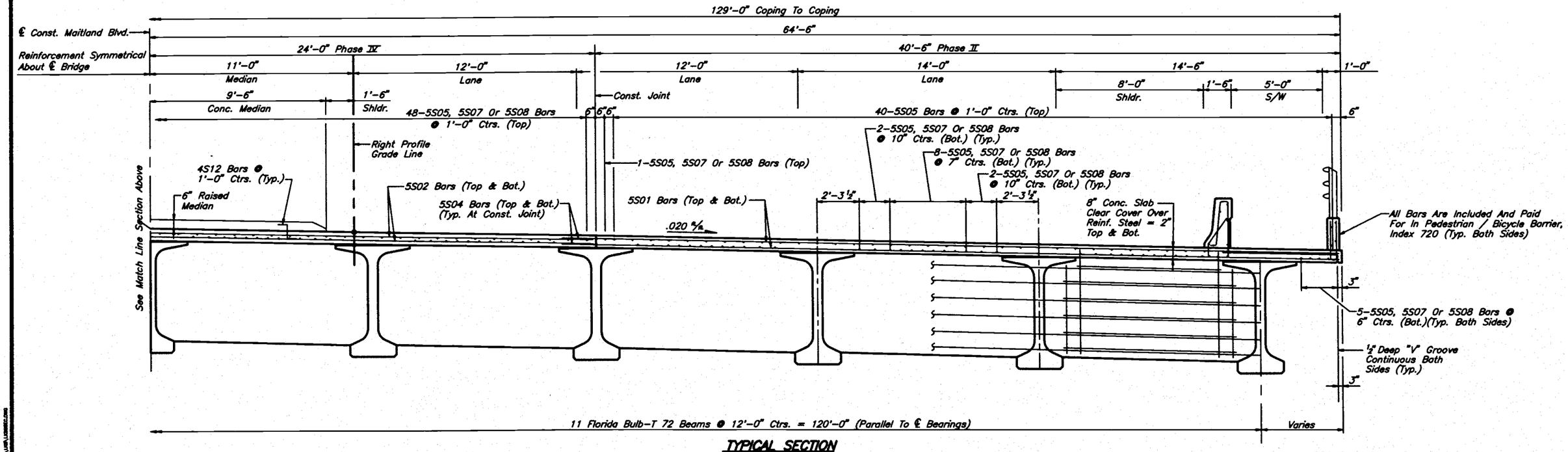
Index No.

| FED. ROAD DIST. NO. | STATE | PROJECT NO. | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | | 98 | B-36 |




**TYPICAL SECTION**

NOTES:
1. All Dimensions Are Measured Radially Unless Noted Otherwise.
2. See Superstructure Details Sheet For Superstructure Notes And Details.




**TYPICAL SECTION**

SPANS 1, 2, 4, 5 AND 6

| REVISIONS | | | | | |
|---|---|---|---|---|---|
| Date | By | Description | Date | By | Description |
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JJS | 9/94 |
| Checked by | MKA | 9/94 |
| Designed by | MKA | 9/94 |
| Checked by | PM | 9/94 |
| Approved by | Peeter Mannik, P.E. | |

ENGINEER OF RECORD:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

LOGO: DYER, RIDDLE, MILLS AND PRECOURT, INC.

SEAL:

FLORIDA DEPARTMENT O

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR414 | SEMINOLE | 77002-3503 |

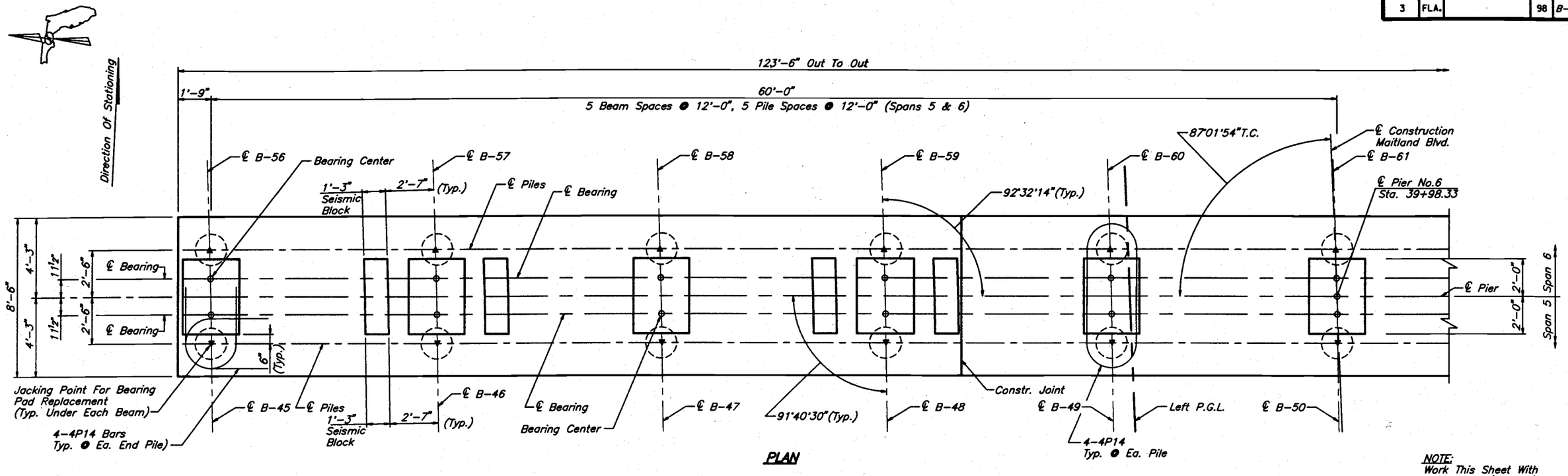
SHEET TITLE: SUPERSTRUCTURE SECTION

PROJECT NAME: MAITLAND BOULEVARD OVER LAKE BOSSE

Drawing No.

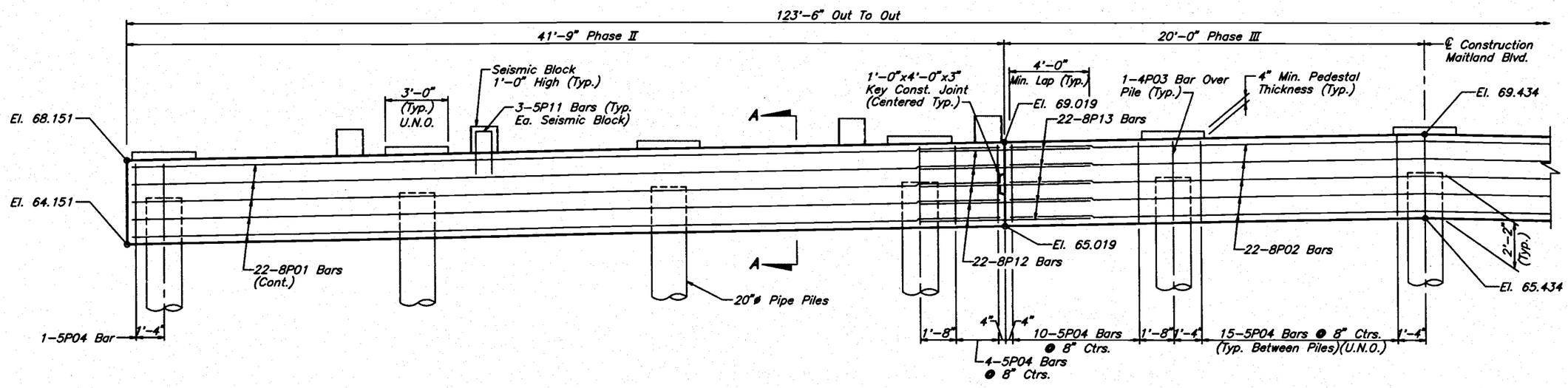
Index No.

| FED. ROAD DIV. NO. | STATE | PROJECT NO. | FISCAL YEAR | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | | 98 | B-25 |




**PLAN**

NOTE:
Work This Sheet With Pier No. 6 (2 Of 2) And Pier Detail Sheet.




**ELEVATION**

| REVISIONS | | | | | |
|---|---|---|---|---|---|
| Date | By | Description | Date | By | Description |
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JLA | 9/94 |
| Checked by | MKA | 9/94 |
| Designed by | MKA | 9/94 |
| Checked by | PM | 9/94 |
| Approved by | Peeter Mannik, P.E. | |

ENGINEER OF RECORD:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

LOGO:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
ENGINEERS - SURVEYORS
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR 414 | SEMINOLE | 77002-3503 |

SHEET TITLE: PIER NO. 6

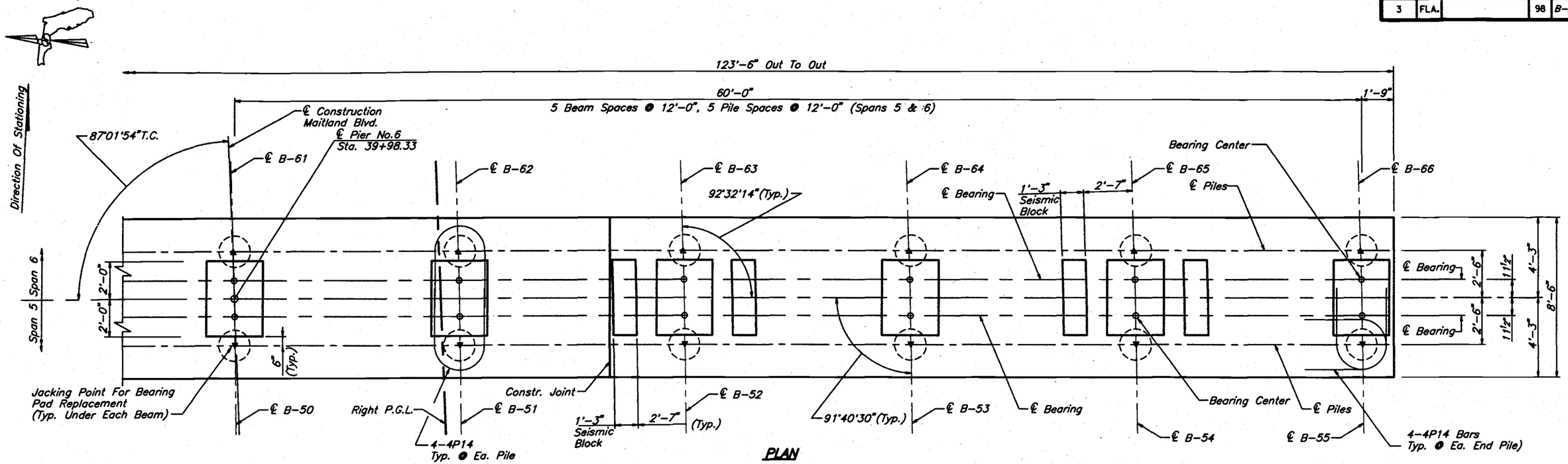
PROJECT NAME: MAITLAND BOULEVARD OVER LAKE BOSSE

Drawing No. 1 Of 2

Index No.

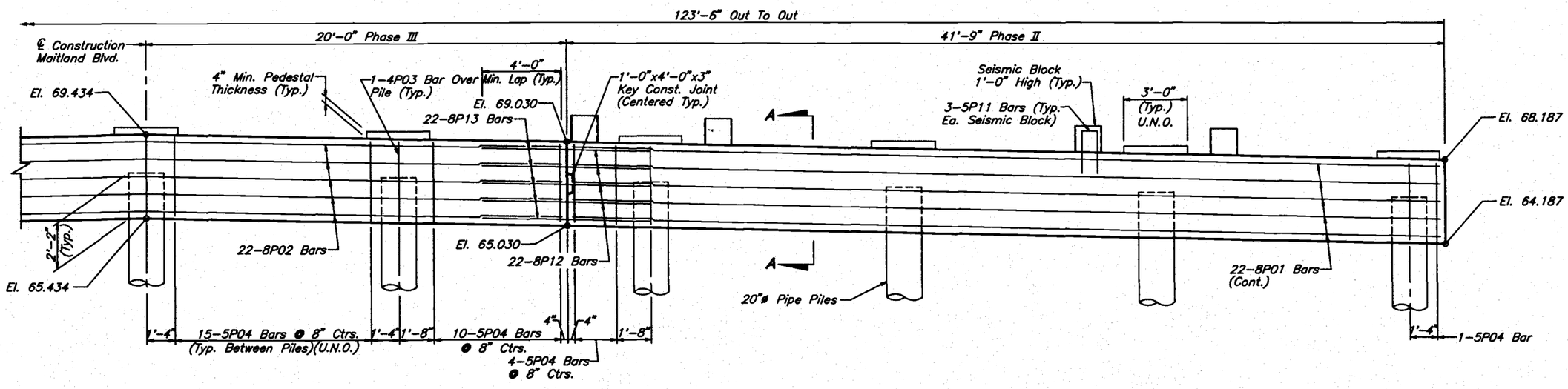
J.A. 07/30/98 8:38PM C:\MAITLAND\J06\J06PR-B.DGN

| FED. ROAD DIV. NO. | STATE | PROJECT NO. | FISCAL YEAR | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | | 98 | B-26 |




PLAN

NOTE:
Work This Sheet With Pier No. 6 (1 Of 2) And Pier Detail Sheet.




ELEVATION

| REVISIONS | | | | | |
|---|---|---|---|---|---|
| Date | By | Description | Date | By | Description |
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JLA | 9/94 |
| Checked by | MKA | 9/94 |
| Designed by | MKA | 9/94 |
| Checked by | PM | 9/94 |
| Approved by | Peeter Mannik, P.E. | |

ENGINEER OF RECORD:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

LOGO:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
ENGINEERS - SURVEYORS
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR 414 | SEMINOLE | 77002-3503 |

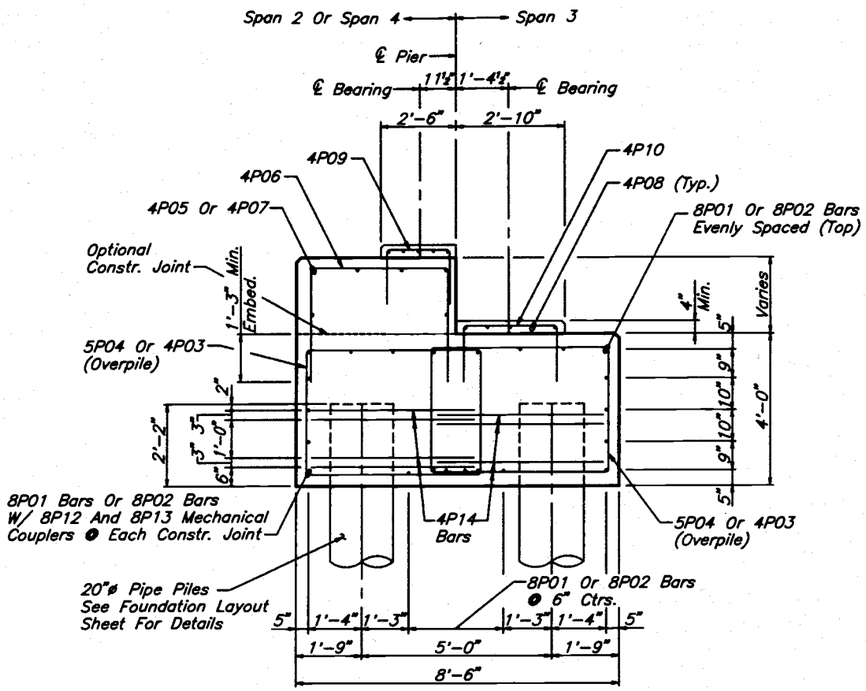
SHEET TITLE: PIER NO. 6

PROJECT NAME: MAITLAND BOULEVARD OVER LAKE BOSSE

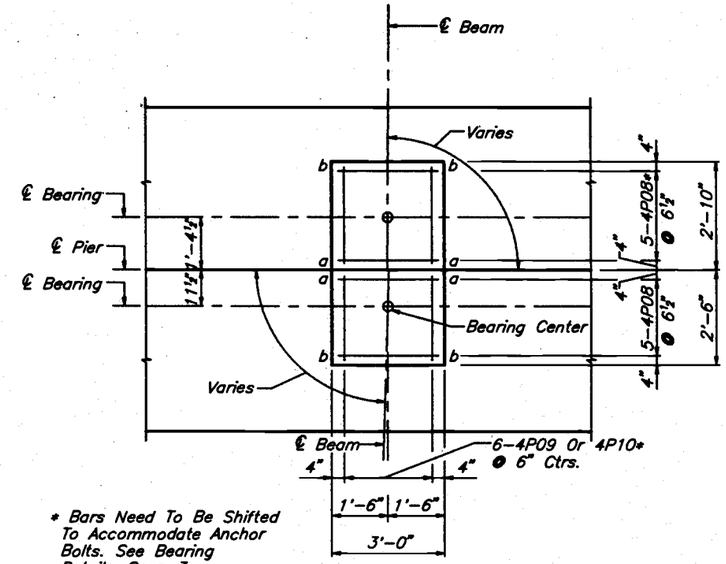
Drawing No. 2 Of 2

Index No.

| FED. ROAD DIV. NO. | STATE | PROJECT NO. | FISCAL YEAR | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | | 98 | B-27 |




**SECTION A-A**
AT PIER NO.3 & PIER NO.4

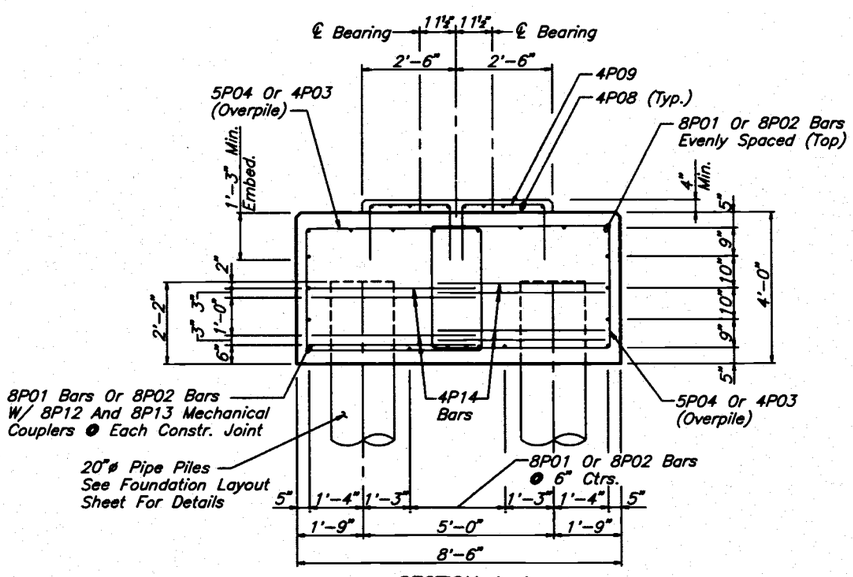



* Bars Need To Be Shifted To Accommodate Anchor Bolts. See Bearing Details-Span 3.

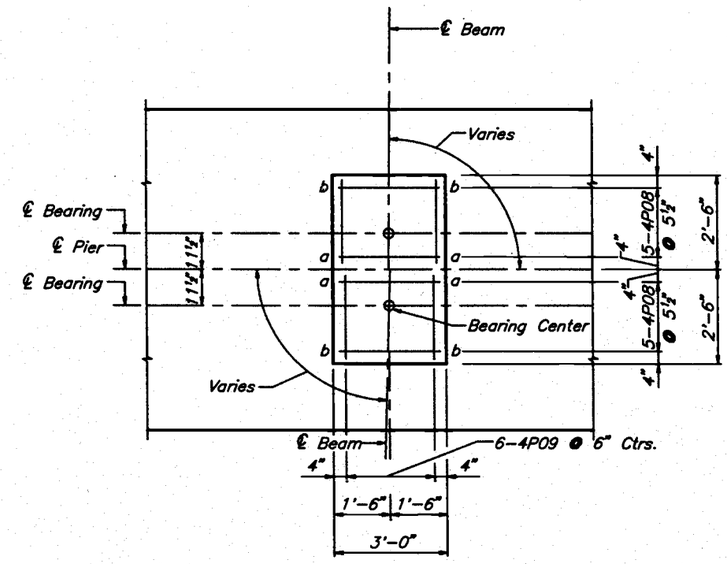
**PEDESTAL DETAIL**
Piers No. 3 & 4 Only

| | UNFACTORED JACKING LOADS | | |
|---|---|---|---|
| | Dead Load (Tons) | Live Load & Impact (Tons) | Total (Tons) |
| Spans 1,2,3,4, 5 & 6 | 75 | 35 | 110 |
| Spans 3 | 123 | 69 | 192 |

Jacks Should Be Equipped To Lift All Beams At The Same Substructure Unit Simultaneously. For Additional Jacking Notes See General Notes Sheet A-2.




**SECTION A-A**




**PEDESTAL DETAIL**
Piers No. 2, 5, & 6

NOTES:

1. Work This Sheet With Pier Sheets.
2. Points a And b Refer To The Pedestal Corner Elevations Shown On The Pier Sheets.
3. Peir Cap Shall Be Paid For Under Class IV Concrete (Mass-Substructure)

| REVISIONS | | | | | |
|---|---|---|---|---|---|
| Date | By | Description | Date | By | Description |
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JLA | 7/94 |
| Checked by | MKA | 7/94 |
| Designed by | MKA | 7/94 |
| Checked by | PM | 7/94 |
| Approved by | Peeter Mannik, P.E. | |

ENGINEER OF RECORD:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

LOGO:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
ENGINEERS - SURVEYORS
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR 414 | SEMINOLE | 77002-3503 |

SHEET TITLE: PIER DETAILS

PROJECT NAME: MAITLAND BOULEVARD OVER LAKE BOSSE

Drawing No. 1 OF 2

Index No.

| FED. ROAD DIV. NO. | STATE | PROJECT NO. | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | | 98 | B-28 |

## PEDESTAL ELEVATIONS
PIER NO. 2 (SPAN 1)

| BEAM MARK | a | b |
|---|---|---|
| B-1 | 69.580 | 69.567 |
| B-2 | 69.823 | 69.810 |
| B-3 | 70.066 | 70.052 |
| B-4 | 70.309 | 70.295 |
| B-5 | 70.552 | 70.538 |
| B-6 | 70.795 | 70.781 |
| B-7 | 70.558 | 70.545 |
| B-8 | 70.321 | 70.308 |
| B-9 | 70.084 | 70.071 |
| B-10 | 69.847 | 69.834 |
| B-11 | 69.611 | 69.597 |

## PEDESTAL ELEVATIONS
PIER NO. 2 (SPAN 2)

| BEAM MARK | a | b |
|---|---|---|
| B-12 | 69.580 | 69.593 |
| B-13 | 69.823 | 69.836 |
| B-14 | 70.066 | 70.079 |
| B-15 | 70.309 | 70.322 |
| B-16 | 70.552 | 70.565 |
| B-17 | 70.795 | 70.808 |
| B-18 | 70.558 | 70.571 |
| B-19 | 70.321 | 70.335 |
| B-20 | 70.084 | 70.098 |
| B-21 | 69.847 | 69.861 |
| B-22 | 69.611 | 69.624 |

## PEDESTAL ELEVATIONS
PIER NO. 3 (SPAN 2)

| BEAM MARK | a | b |
|---|---|---|
| B-12 | 70.175 | 70.164 |
| B-13 | 70.417 | 70.406 |
| B-14 | 70.658 | 70.647 |
| B-15 | 70.900 | 70.889 |
| B-16 | 71.141 | 71.130 |
| B-17 | 71.382 | 71.372 |
| B-18 | 71.144 | 71.134 |
| B-19 | 70.905 | 70.895 |
| B-20 | 70.667 | 70.657 |
| B-21 | 70.428 | 70.418 |
| B-22 | 70.190 | 70.180 |

## PEDESTAL ELEVATIONS
PIER NO. 3 (SPAN 3)

| BEAM MARK | a | b |
|---|---|---|
| B-23 | 68.113 | 68.126 |
| B-24 | 68.355 | 68.368 |
| B-25 | 68.596 | 68.609 |
| B-26 | 68.838 | 68.850 |
| B-27 | 69.079 | 69.092 |
| B-28 | 69.320 | 69.333 |
| B-29 | 69.082 | 69.096 |
| B-30 | 68.843 | 68.858 |
| B-31 | 68.605 | 68.619 |
| B-32 | 68.366 | 68.381 |
| B-33 | 68.128 | 68.142 |

## PEDESTAL ELEVATIONS
PIER NO. 4 (SPAN 3)

| BEAM MARK | a | b |
|---|---|---|
| B-23 | 68.130 | 68.143 |
| B-24 | 68.371 | 68.383 |
| B-25 | 68.611 | 68.623 |
| B-26 | 68.851 | 68.864 |
| B-27 | 69.092 | 69.104 |
| B-28 | 69.332 | 69.344 |
| B-29 | 69.093 | 69.107 |
| B-30 | 68.853 | 68.867 |
| B-31 | 68.613 | 68.627 |
| B-32 | 68.374 | 68.388 |
| B-33 | 68.134 | 68.148 |

## PEDESTAL ELEVATIONS
PIER NO. 4 (SPAN 4)

| BEAM MARK | a | b |
|---|---|---|
| B-34 | 70.118 | 70.107 |
| B-35 | 70.359 | 70.348 |
| B-36 | 70.599 | 70.588 |
| B-37 | 70.839 | 70.829 |
| B-38 | 71.080 | 71.069 |
| B-39 | 71.320 | 71.310 |
| B-40 | 71.081 | 71.071 |
| B-41 | 70.841 | 70.831 |
| B-42 | 70.601 | 70.591 |
| B-43 | 70.362 | 70.352 |
| B-44 | 70.122 | 70.122 |

## PEDESTAL ELEVATIONS
PIER NO. 5 (SPAN 4)

| BEAM MARK | a | b |
|---|---|---|
| B-34 | 69.419 | 69.434 |
| B-35 | 69.661 | 69.676 |
| B-36 | 69.903 | 69.918 |
| B-37 | 70.145 | 70.160 |
| B-38 | 70.387 | 70.402 |
| B-39 | 70.629 | 70.644 |
| B-40 | 70.391 | 70.406 |
| B-41 | 70.153 | 70.168 |
| B-42 | 69.915 | 69.930 |
| B-43 | 69.677 | 69.692 |
| B-44 | 69.439 | 69.454 |

## PEDESTAL ELEVATIONS
PIER NO. 5 (SPAN 5)

| BEAM MARK | a | b |
|---|---|---|
| B-45 | 69.419 | 69.404 |
| B-46 | 69.661 | 69.646 |
| B-47 | 69.903 | 69.888 |
| B-48 | 70.145 | 70.130 |
| B-49 | 70.387 | 70.372 |
| B-50 | 70.629 | 70.614 |
| B-51 | 70.391 | 70.376 |
| B-52 | 70.153 | 70.138 |
| B-53 | 69.915 | 69.900 |
| B-54 | 69.677 | 69.662 |
| B-55 | 69.439 | 69.424 |

## PEDESTAL ELEVATIONS
PIER NO. 6 (SPAN 5)

| BEAM MARK | a | b |
|---|---|---|
| B-45 | 68.651 | 68.666 |
| B-46 | 68.894 | 68.909 |
| B-47 | 69.137 | 69.152 |
| B-48 | 69.380 | 69.395 |
| B-49 | 69.623 | 69.638 |
| B-50 | 69.867 | 69.881 |
| B-51 | 69.630 | 69.645 |
| B-52 | 69.393 | 69.408 |
| B-53 | 69.157 | 69.172 |
| B-54 | 68.920 | 68.935 |
| B-55 | 68.684 | 68.699 |

## PEDESTAL ELEVATIONS
PIER NO. 6 (SPAN 6)

| BEAM MARK | a | b |
|---|---|---|
| B-56 | 68.651 | 68.635 |
| B-57 | 68.894 | 68.879 |
| B-58 | 69.137 | 69.122 |
| B-59 | 69.380 | 69.365 |
| B-60 | 69.623 | 69.608 |
| B-61 | 69.867 | 69.851 |
| B-62 | 69.630 | 69.615 |
| B-63 | 69.393 | 69.379 |
| B-64 | 69.157 | 69.142 |
| B-65 | 68.920 | 68.906 |
| B-66 | 68.684 | 68.669 |

REVISIONS

| Date | By | Description | Date | By | Description |
|---|---|---|---|---|---|
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JJS | 7/94 |
| Checked by | MKA | 7/94 |
| Designed by | MKA | 7/94 |
| Checked by | PM | 7/94 |
| Approved by | Peeter Mannik, P.E. | |

ENGINEER OF RECORD:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

LOGO:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
ENGINEERS - SURVEYORS
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR 414 | SEMINOLE | 77002-3503 |

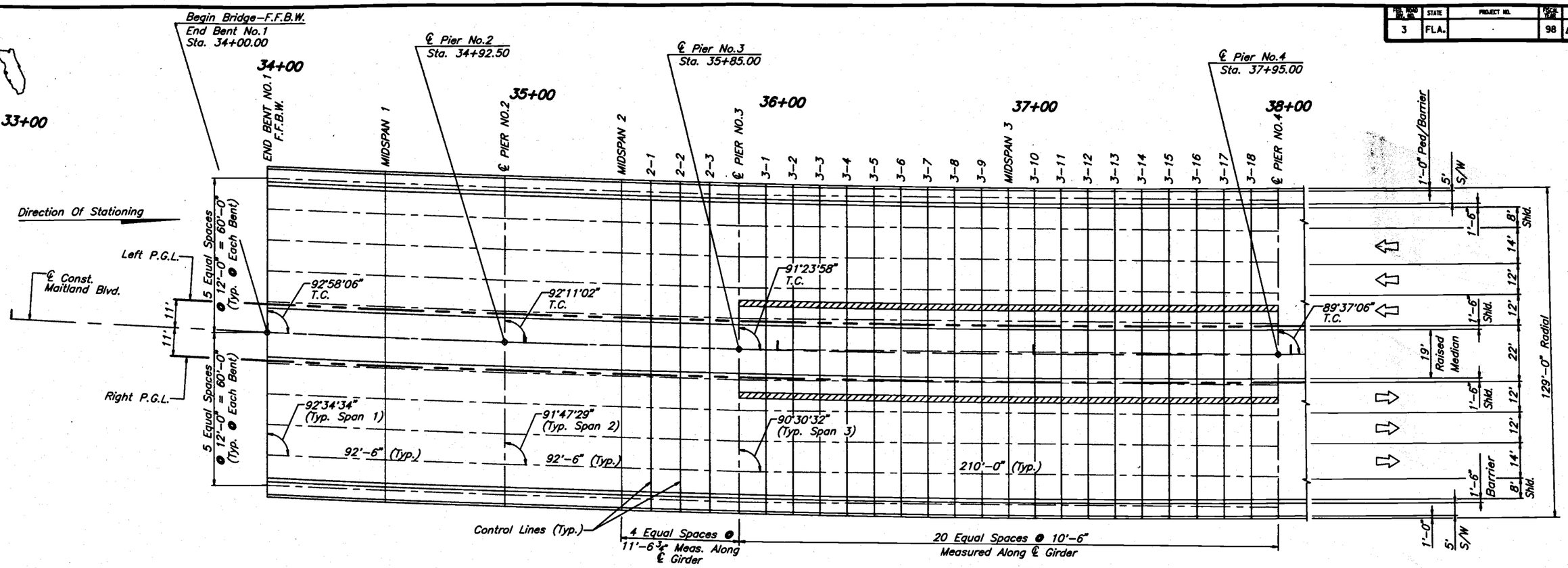
SHEET TITLE: PIER DETAILS

PROJECT NAME: MAITLAND BOULEVARD OVER LAKE BOSSE

Drawing No. 2 OF 2

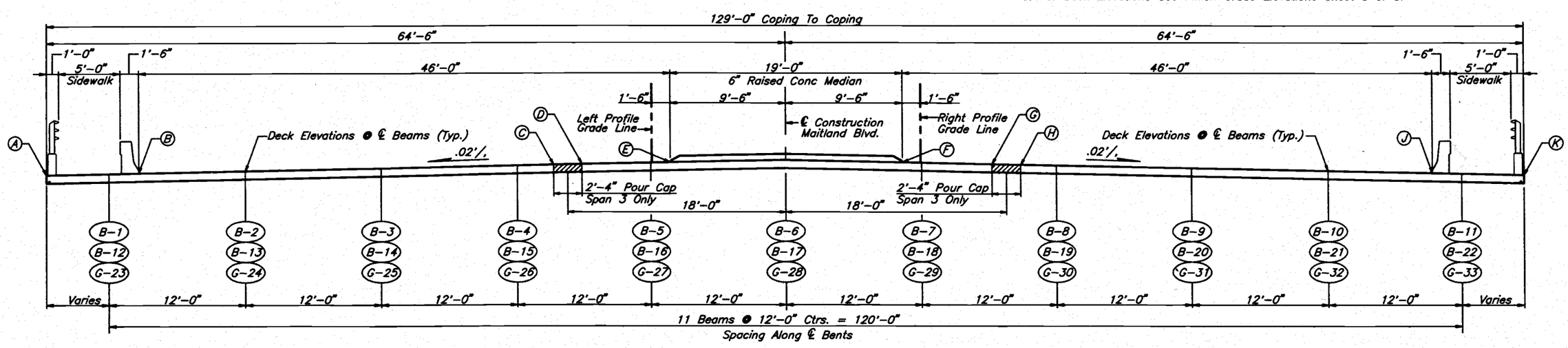
Index No.

| FED. ROAD DIV. NO. | STATE | PROJECT NO. | FISCAL YEAR | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | | 98 | B-29 |




## FRAMING PLAN & ROADWAY SURFACE ELEVATION GRID

NOTES:
1. ▽▽▽▽ Indicates 2'-4" Pour Cap.
2. Control Lines Are Parallel With Bents (S04°48'95"E).
3. For Deck Elevations See Finish Grade Elevations Sheet 3 of 3.




## TYPICAL SECTION
Looking Up Station

REVISIONS

| Date | By | Description | Date | By | Description |
|---|---|---|---|---|---|
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JLA | 6/95 |
| Checked by | MKA | 6/95 |
| Designed by | MKA | 6/95 |
| Checked by | PM | 6/95 |
| Approved by | Peeter Mannik, P.E. | |

ENGINEER OF RECORD:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

LOGO:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
ENGINEERS - SURVEYORS
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR414 | SEMINOLE | 77002-3503 |

SHEET TITLE: FINISH GRADE ELEVATIONS

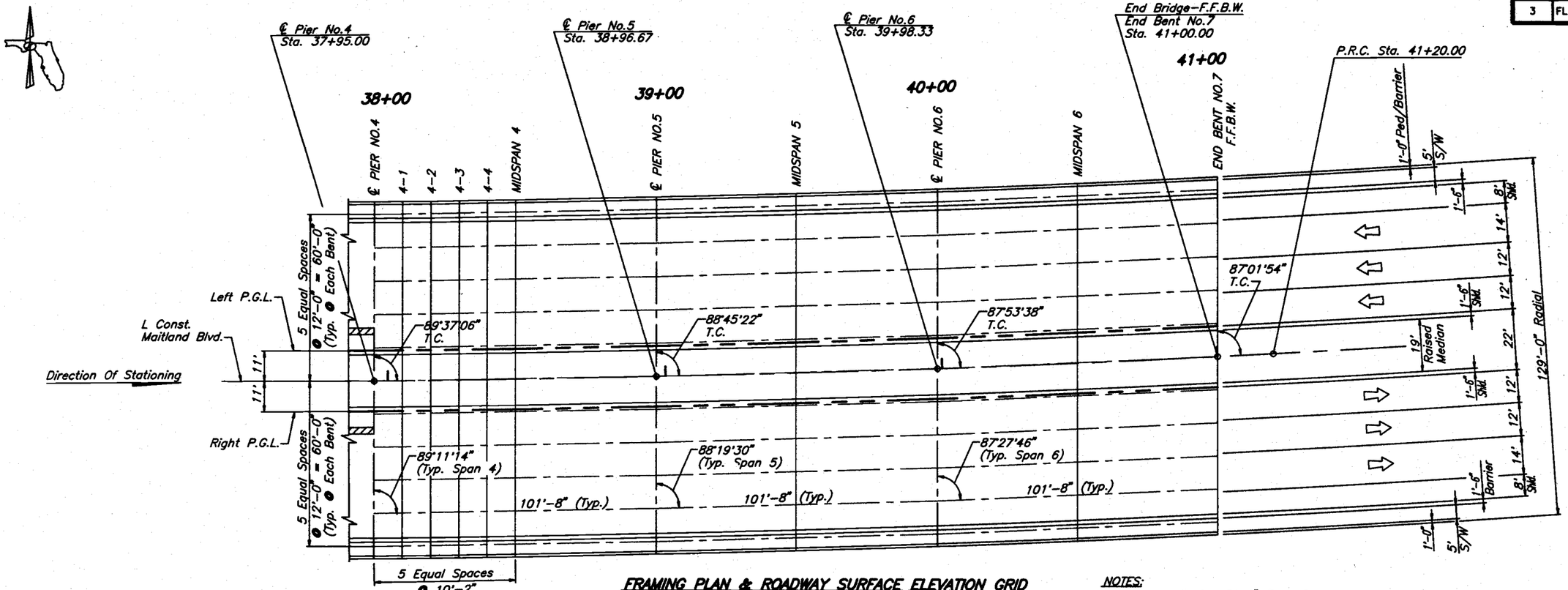
PROJECT NAME: MAITLAND BOULEVARD OVER LAKE BOSSE

Drawing No. 1 of 3

Index No.

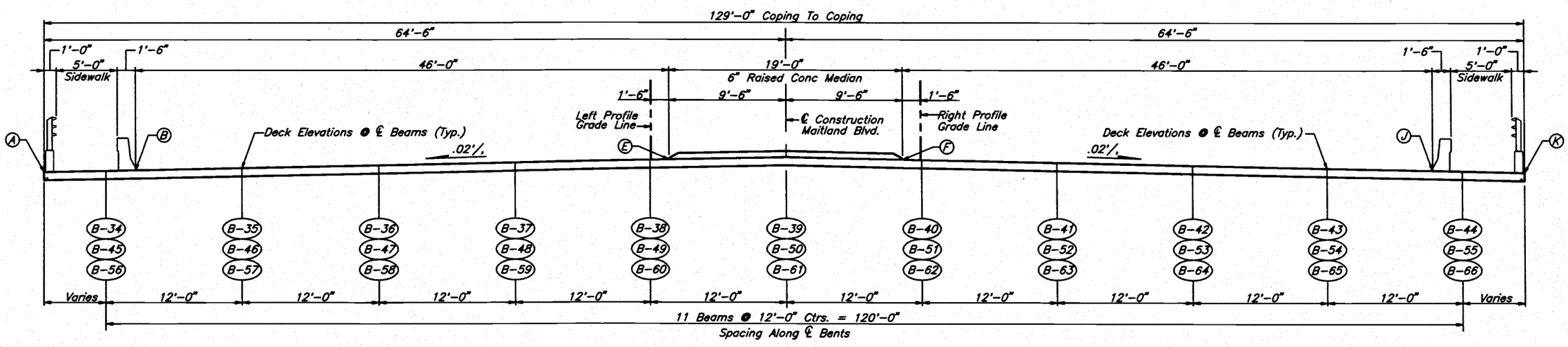
JOB 97/06/98 3:00PM C:\JOB\JLAPRECT.DGN

| FED. ROAD DIST. NO. | STATE | PROJECT NO. | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | | 98 | B-30 |




## FRAMING PLAN & ROADWAY SURFACE ELEVATION GRID

NOTES:
1. ▨ Indicates 2'-4" Pour Cap.
2. Control Lines Are Parallel With Bents (S04°48'95"E).
3. For Deck Elevations See Finish Grade Elevations Sheet 3 of 3.




## TYPICAL SECTION
Looking Up Station

| REVISIONS | | | | | |
|---|---|---|---|---|---|
| Date | By | Description | Date | By | Description |
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JLA | 6/95 |
| Checked by | MKA | 6/95 |
| Designed by | MKA | 6/95 |
| Checked by | PM | 6/95 |
| Approved by | Peeter Mannik, P.E. | |

ENGINEER OF RECORD:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

LOGO:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
ENGINEERS - SURVEYORS
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR414 | SEMINOLE | 77002-3503 |

SHEET TITLE: FINISH GRADE ELEVATIONS

PROJECT NAME: MAITLAND BOULEVARD OVER LAKE BOSSE

Drawing No. 2 of 3

Index No.

| LOCATION | EB. NO.1 | MIDSPAN 1 | LOCATION | PIER NO. 2 | MIDSPAN 2 | 2-1 | 2-2 | 2-3 |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |
| (A) LT. COPING | 75.908 | 76.219 | LT. COPING | 76.530 | 76.841 | 76.919 | 76.995 | 77.064 |
| B-1 | 76.001 | 76.308 | B-12 | 76.622 | 76.930 | 77.008 | 77.084 | 77.153 |
| (B) LT. GUTTER LINE | 76.060 | 76.371 | LT. GUTTER LINE | 76.682 | 76.993 | 77.071 | 77.146 | 77.215 |
| B-2 | 76.245 | 76.552 | B-13 | 76.865 | 77.172 | 77.250 | 77.326 | 77.395 |
| B-3 | 76.488 | 76.795 | B-14 | 77.108 | 77.415 | 77.492 | 77.568 | 77.637 |
| B-4 | 76.732 | 77.038 | B-15 | 77.351 | 77.657 | 77.735 | 77.810 | 77.879 |
| B-5 | 76.976 | 77.282 | B-16 | 77.594 | 77.899 | 77.977 | 78.052 | 78.120 |
| P.G.L. | 76.996 | 77.305 | P.G.L. | 77.614 | 77.923 | 78.000 | 78.074 | 78.142 |
| (E) LT. MED. GUTTER LINE | 77.027 | 77.336 | LT. MED. GUTTER LINE | 77.644 | 77.953 | 78.030 | 78.104 | 78.172 |
| B-6 | 77.220 | 77.525 | B-17 | 77.837 | 78.142 | 78.219 | 78.293 | 78.362 |
| CL | 77.220 | 77.528 | CL | 77.837 | 78.145 | 78.222 | 78.296 | 78.363 |
| (F) RT. MED. GUTTER LINE | 77.033 | 77.341 | RT. MED. GUTTER LINE | 77.649 | 77.957 | 78.034 | 78.107 | 78.175 |
| P.G.L. | 77.004 | 77.312 | P.G.L. | 77.619 | 77.927 | 78.004 | 78.078 | 78.145 |
| B-7 | 76.984 | 77.292 | B-18 | 77.600 | 77.911 | 77.987 | 78.060 | 78.126 |
| B-8 | 76.749 | 77.056 | B-19 | 77.363 | 77.673 | 77.750 | 77.822 | 77.888 |
| B-9 | 76.513 | 76.820 | B-20 | 77.126 | 77.436 | 77.512 | 77.585 | 77.650 |
| B-10 | 76.278 | 76.584 | B-21 | 76.889 | 77.199 | 77.275 | 77.347 | 77.412 |
| (J) RT. GUTTER LINE | 76.100 | 76.405 | RT. GUTTER LINE | 76.711 | 77.017 | 77.093 | 77.165 | 77.231 |
| B-11 | 76.042 | 76.348 | B-22 | 76.653 | 76.961 | 77.037 | 77.109 | 77.174 |
| (K) RT. COPING | 75.952 | 76.258 | RT. COPING | 76.563 | 76.868 | 76.945 | 77.017 | 77.083 |

| LOCATION | PIER NO. 3 | 3-1 | 3-2 | 3-3 | 3-4 | 3-5 | 3-6 | 3-7 | 3-8 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |
| (A) LT. COPING | 77.126 | 77.178 | 77.224 | 77.264 | 77.300 | 77.330 | 77.355 | 77.374 | 77.388 |
| G-23 | 77.217 | 77.265 | 77.308 | 77.347 | 77.380 | 77.408 | 77.431 | 77.449 | 77.463 |
| (B) LT. GUTTER LINE | 77.277 | 77.328 | 77.374 | 77.415 | 77.450 | 77.480 | 77.505 | 77.524 | 77.538 |
| G-24 | 77.459 | 77.507 | 77.549 | 77.587 | 77.620 | 77.648 | 77.671 | 77.690 | 77.703 |
| G-25 | 77.700 | 77.748 | 77.790 | 77.828 | 77.861 | 77.889 | 77.912 | 77.930 | 77.943 |
| G-26 | 77.942 | 77.989 | 78.031 | 78.069 | 78.102 | 78.129 | 78.152 | 78.170 | 78.183 |
| (C) POUR CAP | 78.029 | 78.079 | 78.124 | 78.164 | 78.199 | 78.228 | 78.253 | 78.272 | 78.285 |
| (D) POUR CAP | 78.086 | 78.136 | 78.181 | 78.221 | 78.256 | 78.285 | 78.309 | 78.328 | 78.342 |
| G-27 | 78.183 | 78.230 | 78.272 | 78.310 | 78.342 | 78.370 | 78.393 | 78.410 | 78.423 |
| P.G.L. | 78.203 | 78.253 | 78.298 | 78.338 | 78.373 | 78.402 | 78.426 | 78.445 | 78.459 |
| (E) LT. MED. GUTTER LINE | 78.233 | 78.283 | 78.329 | 78.368 | 78.403 | 78.432 | 78.456 | 78.475 | 78.489 |
| G-28 | 78.424 | 78.471 | 78.513 | 78.551 | 78.583 | 78.610 | 78.633 | 78.651 | 78.663 |
| CL | 78.424 | 78.474 | 78.519 | 78.559 | 78.593 | 78.623 | 78.647 | 78.665 | 78.679 |
| (F) RT. MED. GUTTER LINE | 78.236 | 78.285 | 78.330 | 78.370 | 78.404 | 78.433 | 78.457 | 78.476 | 78.489 |
| P.G.L. | 78.206 | 78.256 | 78.300 | 78.340 | 78.374 | 78.403 | 78.427 | 78.446 | 78.459 |
| G-29 | 78.186 | 78.239 | 78.286 | 78.328 | 78.364 | 78.395 | 78.421 | 78.441 | 78.455 |
| (G) POUR CAP | 78.090 | 78.140 | 78.184 | 78.223 | 78.258 | 78.287 | 78.310 | 78.329 | 78.343 |
| (H) POUR CAP | 78.033 | 78.083 | 78.128 | 78.167 | 78.201 | 78.230 | 78.254 | 78.272 | 78.286 |
| G-30 | 77.947 | 78.000 | 78.047 | 78.089 | 78.125 | 78.156 | 78.181 | 78.201 | 78.215 |
| G-31 | 77.709 | 77.761 | 77.808 | 77.850 | 77.886 | 77.916 | 77.941 | 77.961 | 77.975 |
| G-32 | 77.470 | 77.523 | 77.569 | 77.611 | 77.647 | 77.677 | 77.702 | 77.721 | 77.735 |
| (J) RT. GUTTER LINE | 77.291 | 77.340 | 77.384 | 77.423 | 77.456 | 77.485 | 77.508 | 77.527 | 77.540 |
| G-33 | 77.232 | 77.284 | 77.330 | 77.372 | 77.407 | 77.437 | 77.462 | 77.482 | 77.495 |
| (K) RT. COPING | 77.142 | 77.191 | 77.235 | 77.273 | 77.307 | 77.335 | 77.359 | 77.377 | 77.390 |

| LOCATION | 3-9 | MIDSPAN 3 | 3-10 | 3-11 | 3-12 | 3-13 | 3-14 | 3-15 | 3-16 | 3-17 | 3-18 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | |
| (A) LT. COPING | 77.397 | 77.401 | 77.399 | 77.392 | 77.379 | 77.362 | 77.339 | 77.310 | 77.277 | 77.238 | 77.194 |
| G-23 | 77.471 | 77.474 | 77.473 | 77.466 | 77.454 | 77.438 | 77.416 | 77.390 | 77.358 | 77.322 | 77.280 |
| (B) LT. GUTTER LINE | 77.547 | 77.551 | 77.549 | 77.542 | 77.529 | 77.512 | 77.489 | 77.460 | 77.427 | 77.388 | 77.344 |
| G-24 | 77.711 | 77.714 | 77.713 | 77.706 | 77.694 | 77.678 | 77.656 | 77.630 | 77.598 | 77.562 | 77.521 |
| G-25 | 77.951 | 77.954 | 77.953 | 77.946 | 77.934 | 77.918 | 77.896 | 77.870 | 77.839 | 77.802 | 77.761 |
| G-26 | 78.191 | 78.194 | 78.192 | 78.186 | 78.174 | 78.158 | 78.136 | 78.110 | 78.079 | 78.042 | 78.001 |
| (C) POUR CAP | 78.294 | 78.297 | 78.295 | 78.288 | 78.276 | 78.258 | 78.235 | 78.207 | 78.174 | 78.135 | 78.091 |
| (D) POUR CAP | 78.351 | 78.354 | 78.352 | 78.345 | 78.332 | 78.315 | 78.292 | 78.264 | 78.230 | 78.192 | 78.148 |
| G-27 | 78.431 | 78.434 | 78.432 | 78.426 | 78.414 | 78.398 | 78.376 | 78.350 | 78.319 | 78.283 | 78.242 |
| P.G.L. | 78.467 | 78.471 | 78.469 | 78.461 | 78.449 | 78.431 | 78.408 | 78.380 | 78.347 | 78.309 | 78.265 |
| (E) LT. MED. GUTTER LINE | 78.497 | 78.501 | 78.499 | 78.491 | 78.479 | 78.461 | 78.438 | 78.410 | 78.377 | 78.339 | 78.295 |
| G-28 | 78.671 | 78.674 | 78.672 | 78.666 | 78.654 | 78.638 | 78.616 | 78.590 | 78.559 | 78.523 | 78.482 |
| CL | 78.687 | 78.691 | 78.689 | 78.681 | 78.669 | 78.651 | 78.628 | 78.600 | 78.567 | 78.529 | 78.485 |
| (F) RT. MED. GUTTER LINE | 78.497 | 78.501 | 78.499 | 78.491 | 78.479 | 78.461 | 78.438 | 78.410 | 78.377 | 78.339 | 78.295 |
| P.G.L. | 78.467 | 78.471 | 78.469 | 78.461 | 78.449 | 78.431 | 78.408 | 78.380 | 78.347 | 78.309 | 78.265 |
| G-29 | 78.464 | 78.467 | 78.465 | 78.457 | 78.444 | 78.425 | 78.401 | 78.371 | 78.336 | 78.295 | 78.248 |
| (G) POUR CAP | 78.351 | 78.354 | 78.352 | 78.345 | 78.332 | 78.315 | 78.292 | 78.264 | 78.231 | 78.192 | 78.149 |
| (H) POUR CAP | 78.294 | 78.297 | 78.295 | 78.288 | 78.275 | 78.258 | 78.235 | 78.207 | 78.174 | 78.136 | 78.092 |
| G-30 | 78.224 | 78.227 | 78.225 | 78.217 | 78.204 | 78.185 | 78.161 | 78.131 | 78.096 | 78.055 | 78.009 |
| G-31 | 77.984 | 77.987 | 77.985 | 77.977 | 77.964 | 77.945 | 77.921 | 77.891 | 77.856 | 77.815 | 77.769 |
| G-32 | 77.744 | 77.747 | 77.745 | 77.737 | 77.723 | 77.705 | 77.681 | 77.651 | 77.616 | 77.575 | 77.529 |
| (J) RT. GUTTER LINE | 77.548 | 77.551 | 77.548 | 77.541 | 77.529 | 77.511 | 77.488 | 77.460 | 77.428 | 77.389 | 77.346 |
| G-33 | 77.504 | 77.507 | 77.505 | 77.497 | 77.483 | 77.465 | 77.440 | 77.411 | 77.376 | 77.335 | 77.289 |
| (K) RT. COPING | 77.398 | 77.401 | 77.398 | 77.391 | 77.379 | 77.361 | 77.338 | 77.310 | 77.278 | 77.240 | 77.196 |

| LOCATION | PIER NO. 4 | 4-1 | 4-2 | 4-3 | 4-4 | MIDSPAN 4 | LOCATION | PIER NO. 5 | MIDSPAN 5 | LOCATION | PIER NO. 6 | MIDSPAN 6 | LOCATION | EB. NO. 7 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | |
| (A) LT. COPING | 77.144 | 77.091 | 77.033 | 76.970 | 76.902 | 76.829 | LT. COPING | 76.444 | 76.060 | LT. COPING | 75.675 | 75.290 | LT. COPING | 74.905 |
| B-34 | 77.234 | 77.180 | 77.121 | 77.057 | 76.989 | 76.916 | B-45 | 76.535 | 76.147 | B-56 | 75.767 | 75.378 | B-56 | 74.998 |
| (B) LT. GUTTER LINE | 77.294 | 77.241 | 77.183 | 77.121 | 77.053 | 76.980 | LT. GUTTER LINE | 76.596 | 76.211 | LT. GUTTER LINE | 75.827 | 75.442 | LT. GUTTER LINE | 75.058 |
| B-35 | 77.475 | 77.420 | 77.361 | 77.298 | 77.230 | 77.157 | B-46 | 76.777 | 76.390 | B-57 | 76.010 | 75.622 | B-57 | 75.242 |
| B-36 | 77.715 | 77.661 | 77.602 | 77.539 | 77.471 | 77.398 | B-47 | 77.019 | 76.632 | B-58 | 76.253 | 75.866 | B-58 | 75.487 |
| B-37 | 77.955 | 77.901 | 77.843 | 77.780 | 77.712 | 77.640 | B-48 | 77.261 | 76.875 | B-59 | 76.496 | 76.110 | B-59 | 75.731 |
| B-38 | 78.196 | 78.142 | 78.084 | 78.021 | 77.953 | 77.881 | B-49 | 77.503 | 77.117 | B-60 | 76.739 | 76.354 | B-60 | 75.976 |
| P.G.L. | 78.216 | 78.163 | 78.106 | 78.044 | 77.977 | 77.905 | P.G.L. | 77.523 | 77.141 | P.G.L. | 76.759 | 76.378 | P.G.L. | 75.996 |
| (E) LT. MED. GUTTER LINE | 78.246 | 78.193 | 78.136 | 78.074 | 78.007 | 77.935 | LT. MED. GUTTER LINE | 77.553 | 77.172 | LT. MED. GUTTER LINE | 76.790 | 76.408 | LT. MED. GUTTER LINE | 76.026 |
| B-39 | 78.436 | 78.382 | 78.324 | 78.261 | 78.194 | 78.122 | B-50 | 77.745 | 77.360 | B-61 | 76.983 | 76.597 | B-61 | 76.220 |
| CL | 78.436 | 78.384 | 78.327 | 78.265 | 78.198 | 78.126 | CL | 77.745 | 77.364 | CL | 76.983 | 76.601 | CL | 76.220 |
| (F) RT. MED. GUTTER LINE | 78.246 | 78.194 | 78.137 | 78.075 | 78.009 | 77.937 | RT. MED. GUTTER LINE | 77.557 | 77.176 | RT. MED. GUTTER LINE | 76.795 | 76.414 | RT. MED. GUTTER LINE | 76.034 |
| P.G.L. | 78.216 | 78.164 | 78.107 | 78.045 | 77.979 | 77.907 | P.G.L. | 77.527 | 77.146 | P.G.L. | 76.766 | 76.385 | P.G.L. | 76.004 |
| B-40 | 78.197 | 78.146 | 78.090 | 78.029 | 77.962 | 77.891 | B-51 | 77.507 | 77.130 | B-62 | 76.746 | 76.369 | B-62 | 75.985 |
| B-41 | 77.957 | 77.906 | 77.850 | 77.790 | 77.723 | 77.652 | B-52 | 77.269 | 76.893 | B-63 | 76.509 | 76.133 | B-63 | 75.750 |
| B-42 | 77.717 | 77.667 | 77.611 | 77.550 | 77.484 | 77.413 | B-53 | 77.031 | 76.656 | B-64 | 76.273 | 75.898 | B-64 | 75.515 |
| B-43 | 77.478 | 77.427 | 77.372 | 77.311 | 77.246 | 77.175 | B-54 | 76.793 | 76.418 | B-65 | 76.036 | 75.662 | B-65 | 75.280 |
| (J) RT. GUTTER LINE | 77.298 | 77.246 | 77.190 | 77.129 | 77.063 | 76.992 | RT. GUTTER LINE | 76.614 | 76.236 | RT. GUTTER LINE | 75.858 | 75.480 | RT. GUTTER LINE | 75.102 |
| B-44 | 77.238 | 77.188 | 77.132 | 77.072 | 77.007 | 76.936 | B-55 | 76.555 | 76.181 | B-66 | 75.800 | 75.426 | B-66 | 75.045 |
| (K) RT. COPING | 77.148 | 77.097 | 77.040 | 76.979 | 76.913 | 76.843 | RT. COPING | 76.465 | 76.088 | RT. COPING | 75.710 | 75.333 | RT. COPING | 74.955 |

REVISIONS

| Date | By | Description | Date | By | Description |
|---|---|---|---|---|---|
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JLA | 6/95 |
| Checked by | MKA | 6/95 |
| Designed by | MKA | 6/95 |
| Checked by | PM | 6/95 |
| Approved by | Peeter Mannik, P.E. | |

ENGINEER OF RECORD:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

LOGO:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
ENGINEERS - SURVEYORS
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR414 | SEMINOLE | 77002-3503 |

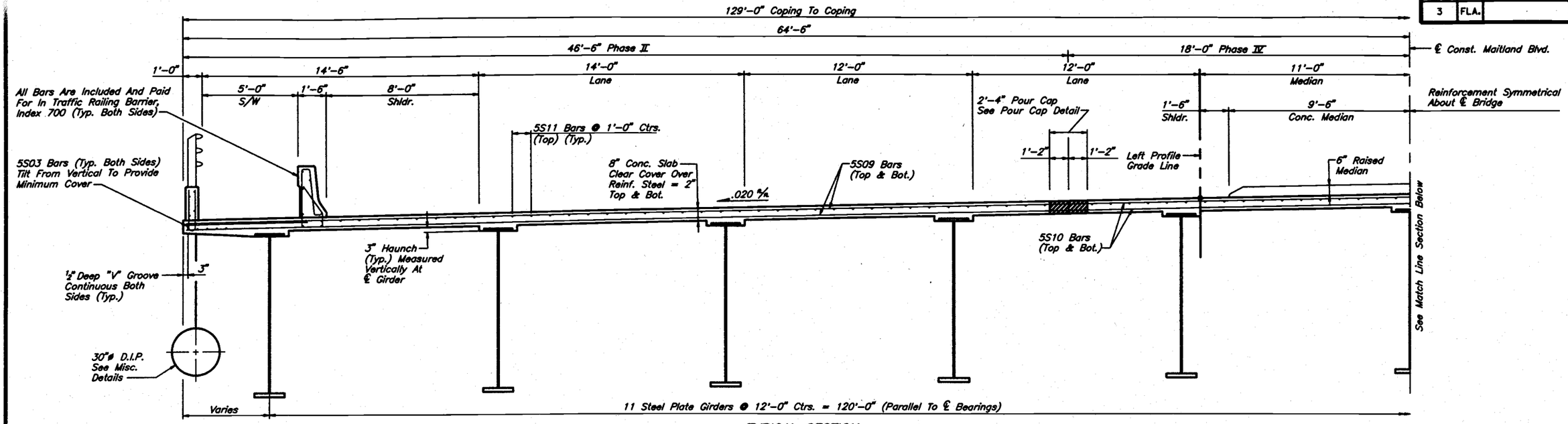
SHEET TITLE: FINISH GRADE ELEVATIONS

PROJECT NAME: MAITLAND BOULEVARD OVER LAKE BOSSE

Drawing No. 3 of 3

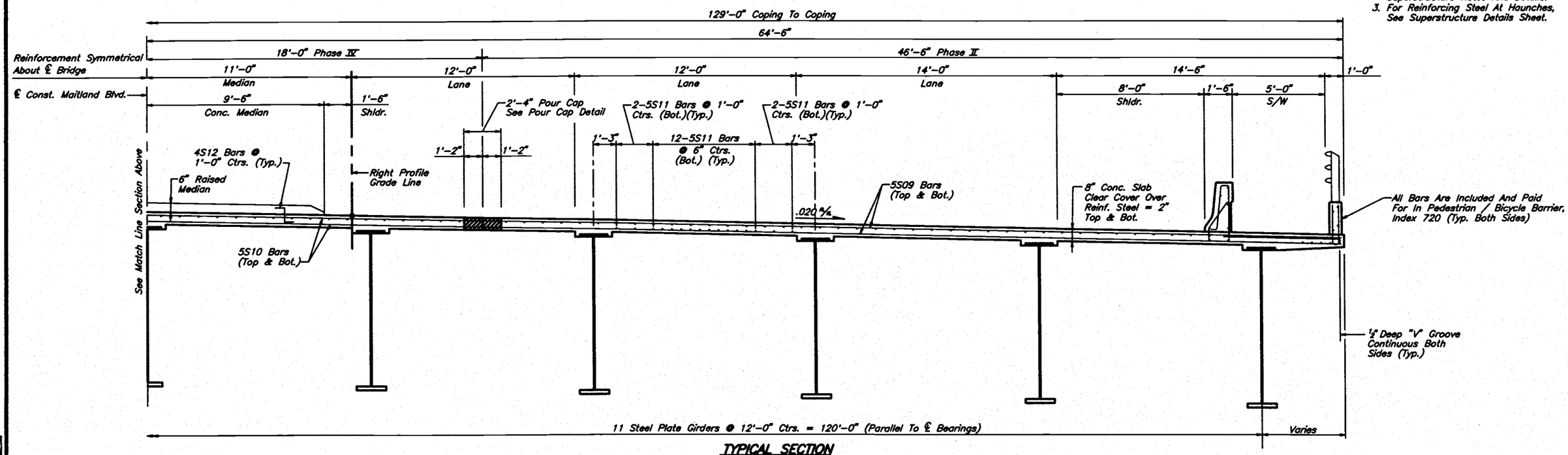
Index No.

| FED. ROAD DIV. NO. | STATE | PROJECT NO. | FISCAL YEAR | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | | 98 | B-37 |




**TYPICAL SECTION**

NOTES:
1. All Dimensions Are Measured Radially Unless Noted Otherwise.
2. See Superstructure Details Sheet For Superstructure Notes And Details.
3. For Reinforcing Steel At Haunches, See Superstructure Details Sheet.




**TYPICAL SECTION**

SPAN NO. 3

| REVISIONS | | | | | |
|---|---|---|---|---|---|
| Date | By | Description | Date | By | Description |
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JJS | 9/94 |
| Checked by | MKA | 9/94 |
| Designed by | MKA | 9/94 |
| Checked by | PM | 9/94 |
| Approved by | Peeter Mannik, P.E. | |

ENGINEER OF RECORD:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

LOGO:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
ENGINEERS - SURVEYORS
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR414 | SEMINOLE | 77002-3503 |

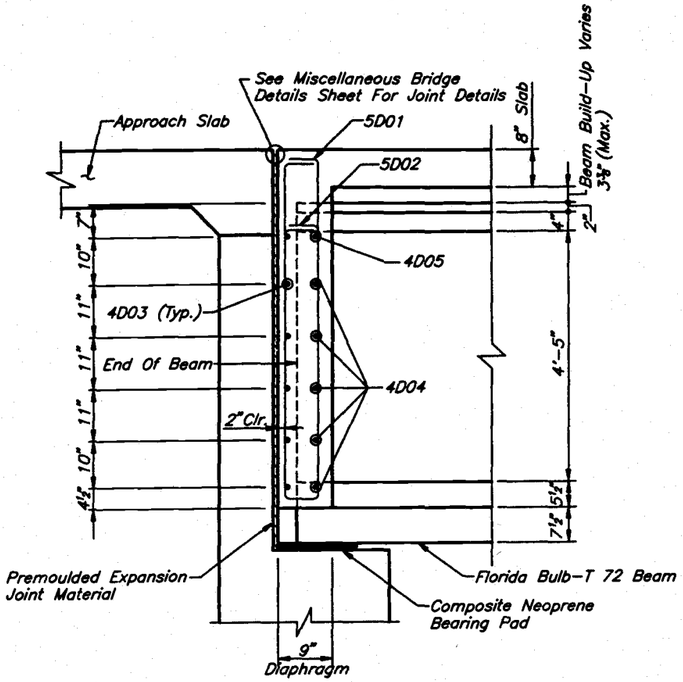
SHEET TITLE: SUPERSTRUCTURE SECTION

PROJECT NAME: MAITLAND BOULEVARD OVER LAKE BOSSE

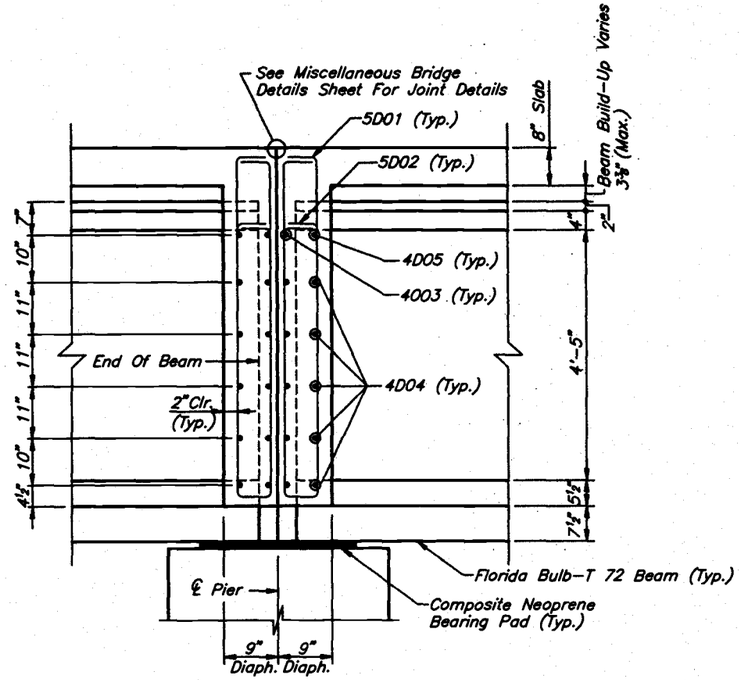
Drawing No.

Index No.

JOB 07/21/98 11:18AM C:\JJS\JJSRSEC.DGN



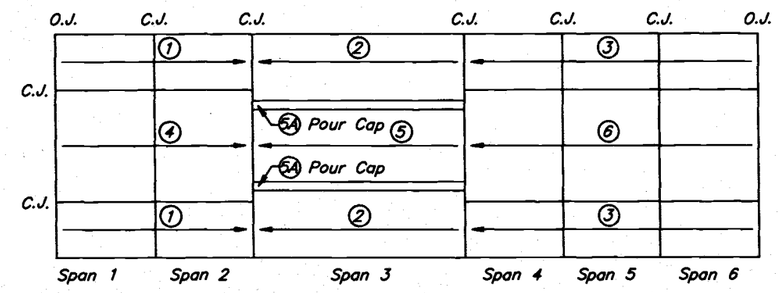

**DIAPHRAGM SECTION AT END BENTS**
(Concrete Beam Spans Only)



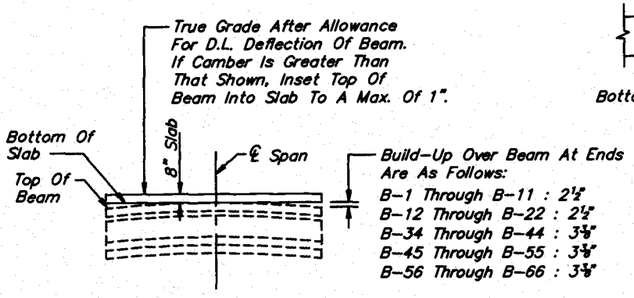

**DIAPHRAGM SECTION AT PIERS**
(Concrete Beam Spans Only)

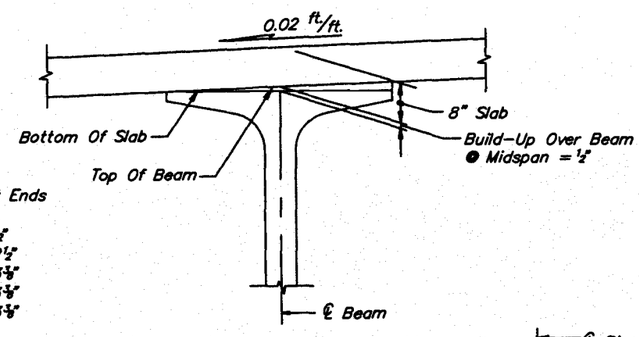
## NOTES

1. The Build-Up Dimensions Are Computed Assuming A Time To Release Of 24 Hours.
2. The Length Correction Dimension And The Build-Up Dimensions Assume A Period Of No More Than 120 Days Between The Casting Of The Beam And The Casting Of The Deck. These Values Are Also Calculated Assuming Transfer Of Prestress At The Indicated Release Concrete Strength (f'ci). Contractor Shall Submit Calculations Revising These Values To The Engineer For Approval Should The Contractor's Proposed Schedule Between Casting Of The Beam And Casting Of The Deck Adversely Affect These Time Dependent Values.
3. Dead Load Deflection During Pour Is The Anticipated Deflection Of Beam Due To Casting Of The Concrete Deck. Build-Up At Ends And Build-up At Midspan (See Detail This Sheet) Refer To The Build-Up At The Ends And Midspan Of The Beam Necessary To Achieve True Grade At The Top Of The Deck After Casting Of The Deck.
4. Slab Shall Be Screeded To Grade With No Allowance For Permanent Camber. For This Project Slabs Shall Be Screeded Longitudinally Between Bents Unless Otherwise Directed In Writing By The Engineer.
5. No Unit Shall Be Placed Adjacent To A Previously Placed Unit That Is Not A Minimum Of 72 Hours Old.
6. After Placement Of The First Unit, Succeeding Placements Shall Begin At The End Away From And Proceed Toward The Previously Placed Unit.
7. The Cost Of All Labor And Materials Required For Construction Of Deck Joint Shall Be Paid For In Bid Item No. 400-2-4 Class II Concrete (Superstructure).
8. All Or Part Of The Raised Median In Span 3 May Be Poured Prior To The Pour Caps In Order To Lower The Camber Of The Middle Section As Necessary.
9. The Pour Caps In Span 3 Must Be Complete Before Placement Of The Traffic Barriers And 30" D.I.P., And Before Completion Of The Raised Median (See Note 8).

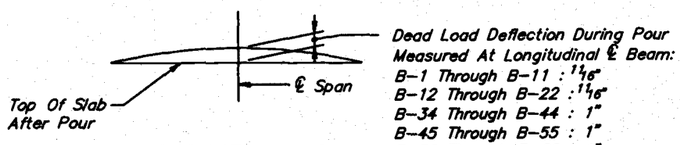



**DECK POUR SEQUENCE**
O.J. : Open Joint
C.J. : Construction Joint

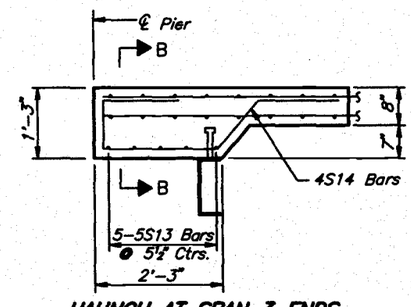


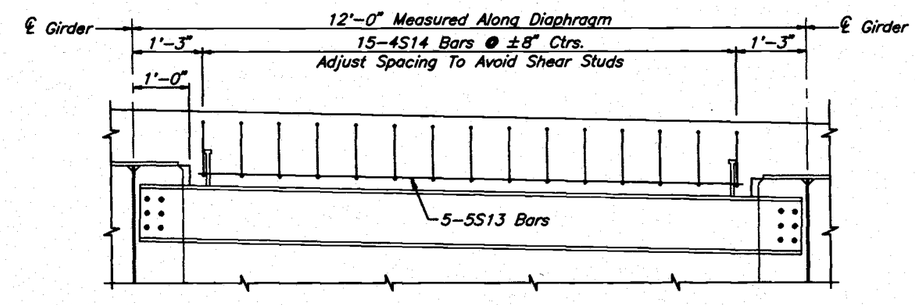

**BUILD-UP OVER FLORIDA BULB-T BEAM**




**DEFLECTION DIAGRAM FOR FLORIDA BULB-T**




**HAUNCH AT SPAN 3 ENDS**




**SECTION B-B**

| REVISIONS | | | | | | |
|---|---|---|---|---|---|---|
| Date | By | Description | Date | By | Description | |

| | Names | Dates |
|---|---|---|
| Drawn by | JLA | 7/94 |
| Checked by | MKA | 7/94 |
| Designed by | MKA | 7/94 |
| Checked by | PM | 7/94 |
| Approved by | Peeter Mannik, P.E. | |

ENGINEER OF RECORD: DYER, RIDDLE, MILLS AND PRECOURT, INC.
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

LOGO: DYER, RIDDLE, MILLS AND PRECOURT, INC.
ENGINEERS - SURVEYORS
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR414 | SEMINOLE | 77002-3503 |

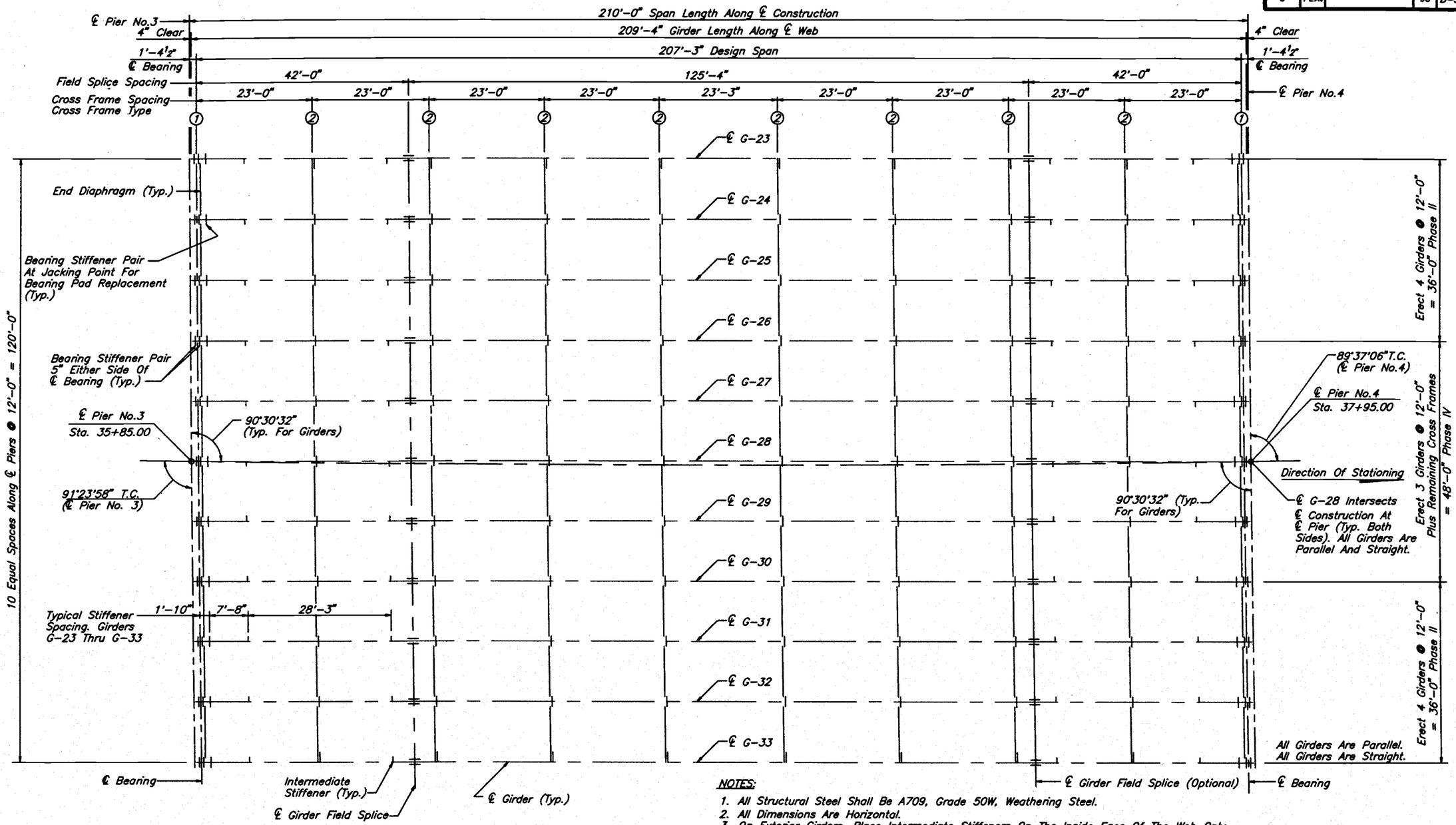
SHEET TITLE: SUPERSTRUCTURE DETAILS

PROJECT NAME: MAITLAND BOULEVARD OVER LAKE BOSSE

Drawing No.

Index No.

| FED. ROAD DIV. NO. | STATE | PROJECT NO. | FISCAL YEAR | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | | 98 | B-39 |




NOTES:

1. All Structural Steel Shall Be A709, Grade 50W, Weathering Steel.
2. All Dimensions Are Horizontal.
3. On Exterior Girders, Place Intermediate Stiffeners On The Inside Face Of The Web Only.
4. Ends Of Girders, Stiffener Plates, Bearing Stiffeners And Connection Plates Shall Be Vertical Upon Completion Of Construction.
5. All Cross Frames Shall Be Parallel To The ℄ Piers.
6. For Steel Girder Details, See Sheets B-40 Thru B-43.
7. For Additional Steel Girder Notes, See Sheet A-2.
8. For Field Splice Details, See Sheet B-42.
9. All Welding Design, Fabrication & Inspection Shall Be In Accordance With The Current AASHTO/AWS Bridge Welding Code.
10. Charpy V-Notch Impact Test Are Required For All Web Plates And Bottom Flange Plates Of The Girders.

REVISIONS

| Date | By | Description | Date | By | Description |
|---|---|---|---|---|---|
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JJS | 4/95 |
| Checked by | MN | 4/95 |
| Designed by | MN | 4/95 |
| Checked by | PM | 4/95 |
| Approved by | Peeter Mannik, P.E. | |

ENGINEER OF RECORD:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

LOGO:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
ENGINEERS - SURVEYORS
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR414 | SEMINOLE | F/002-3503 |

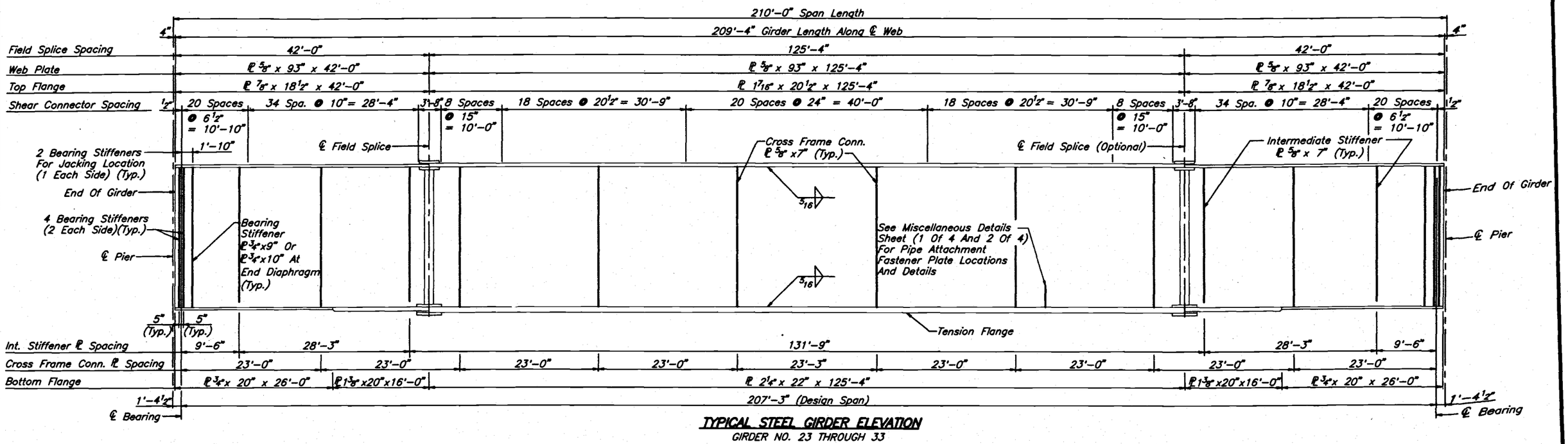
SHEET TITLE: FRAMING PLAN - SPAN 3

PROJECT NAME: MAITLAND BOULEVARD OVER LAKE BOSSE

Drawing No.

Index No.

| FED. ROAD DIV. NO. | STATE | PROJECT NO. | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | | 98 | B-40 |

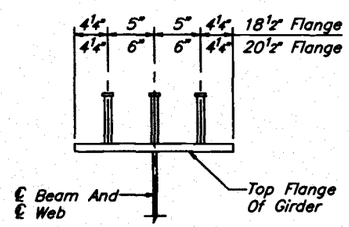



## TYPICAL STEEL GIRDER ELEVATION

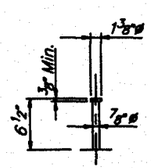
GIRDER NO. 23 THROUGH 33

Notes: 1. All Intermediate Stiffener Plates Are One Sided. All Cross Frame Connection Plates Are Two Sided Except At Exterior Beams. See The "FRAMING PLAN" For Locations.

2. The Web And The Bottom Flange Are Tension Members, And Shall Meet Zone 1 Of The Charpy V-Notch Toughness Requirements.

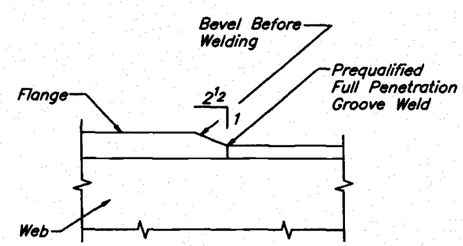



## SECTION THRU GIRDER




Typical Welded Stud (3 Per Row)

## SHEAR CONNECTOR DETAILS




## FLANGE THICKNESS TRANSITION

(Typ.- Except At Field Splice Locations)

| REVISIONS | | | | | |
|---|---|---|---|---|---|
| Date | By | Description | Date | By | Description |
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JLA | 9/94 |
| Checked by | MN | 9/94 |
| Designed by | MN | 9/94 |
| Checked by | PM | 9/94 |
| Approved by | Peeter Mannik, P.E. | |

ENGINEER OF RECORD: DYER, RIDDLE, MILLS AND PRECOURT, INC. 1505 EAST COLONIAL DRIVE ORLANDO, FLORIDA 32803

LOGO: DYER, RIDDLE, MILLS AND PRECOURT, INC. ENGINEERS - SURVEYORS 1505 EAST COLONIAL DRIVE ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR414 | SEMINOLE | 77002-3503 |

SHEET TITLE: GIRDER ELEVATION

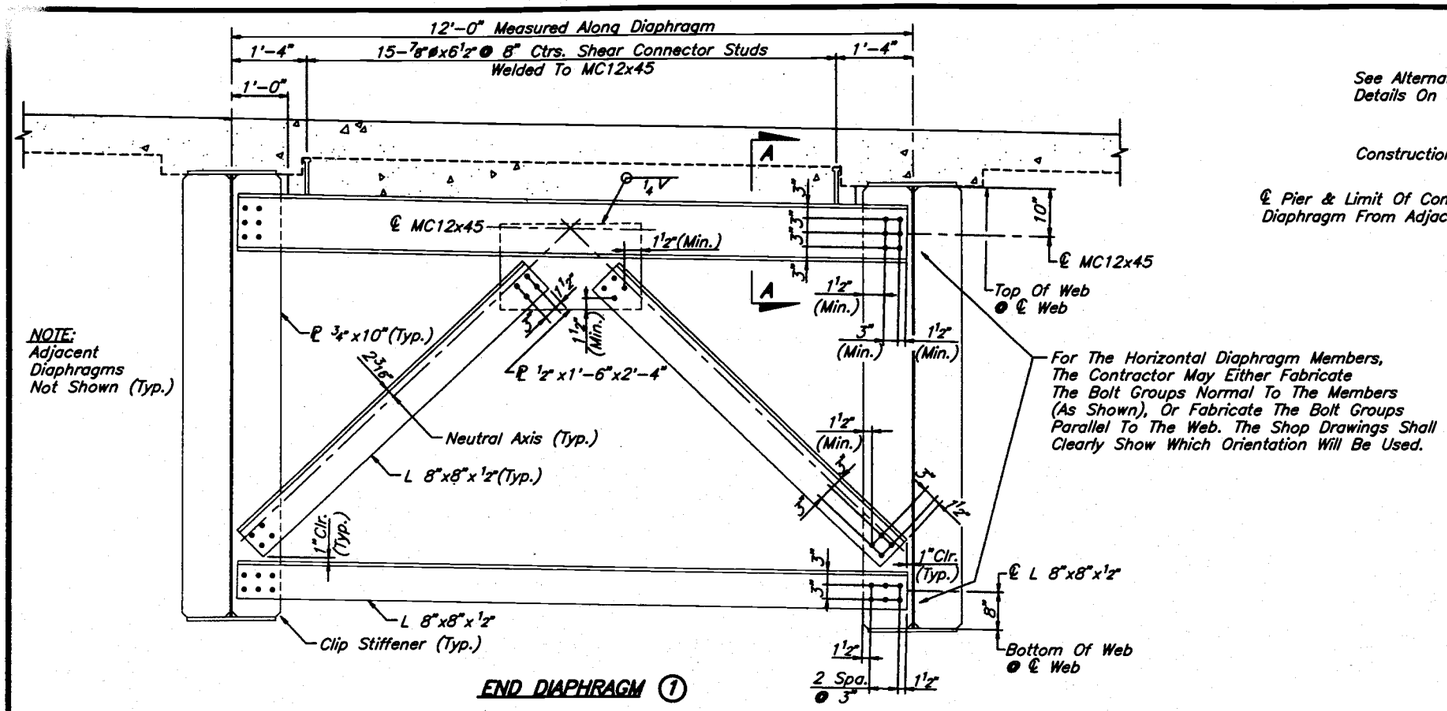
PROJECT NAME: MAITLAND BOULEVARD OVER LAKE BOSSE

Drawing No.

Index No.

JOB 07/21/98 11:18AM C:\USR\JLA\GIRDER1.DGN

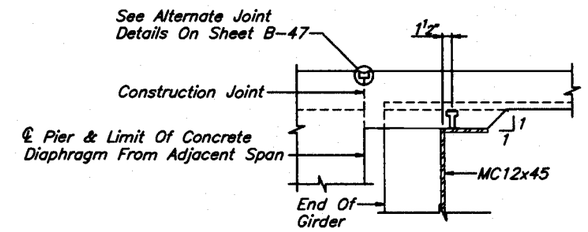
| FED. ROAD DIV. NO. | STATE | PROJECT NO. | FISCAL YEAR | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | | 98 | B-41 |



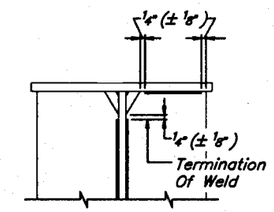

NOTE:
Adjacent Diaphragms Not Shown (Typ.)

For The Horizontal Diaphragm Members, The Contractor May Either Fabricate The Bolt Groups Normal To The Members (As Shown), Or Fabricate The Bolt Groups Parallel To The Web. The Shop Drawings Shall Clearly Show Which Orientation Will Be Used.

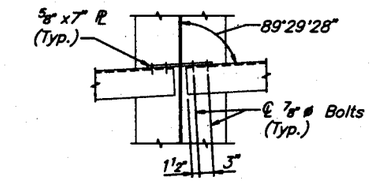
END DIAPHRAGM (1)




SECTION A-A



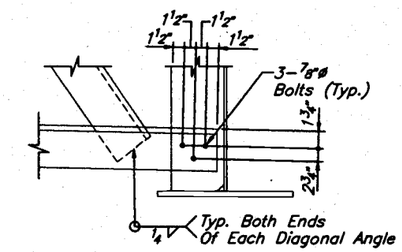

STIFFENER WELD TERMINATION DETAIL



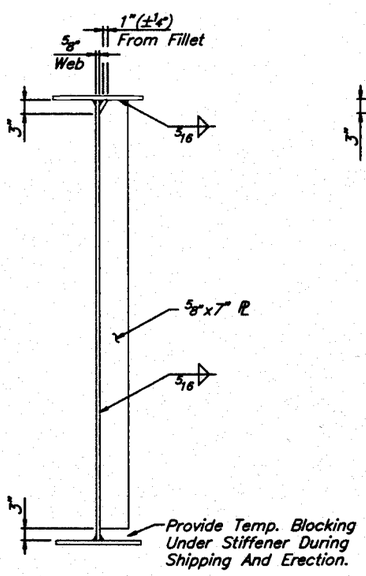

SECTION B-B

DIAPHRAGM AND CROSS FRAME NOTES:

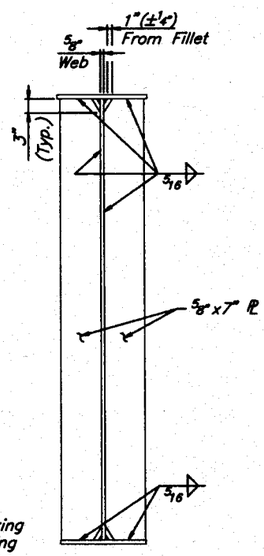
1. Bolt Holes In Diaphragm And Cross Bracing Members Shall Be Oversized Holes (3/16" Larger Than The Bolt Diameter), Bolt Holes In The Connecting Stiffeners Shall Be Standard Holes.
2. All Bolts Shall Be 7/8"ø H.S. Bolts (Friction Type) Conforming To ASTM A325 (Type 3).
3. Diaphragms And Cross Bracing Located In The Beam Space Between Phases (Under The Pour Cap) Shall Not Be Installed Until The Pour Cap Is Complete.



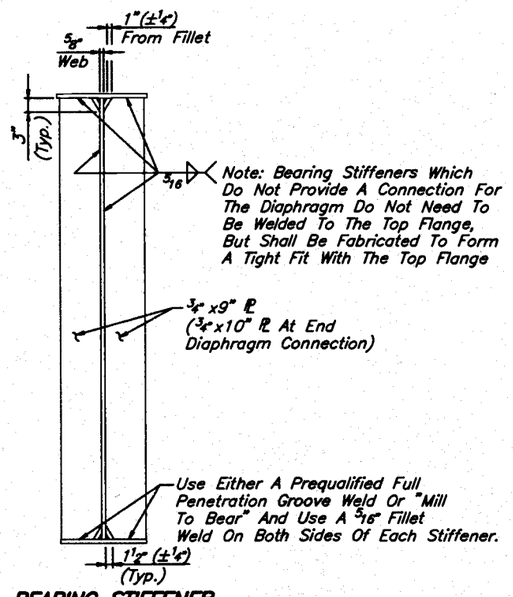

DETAIL "A"



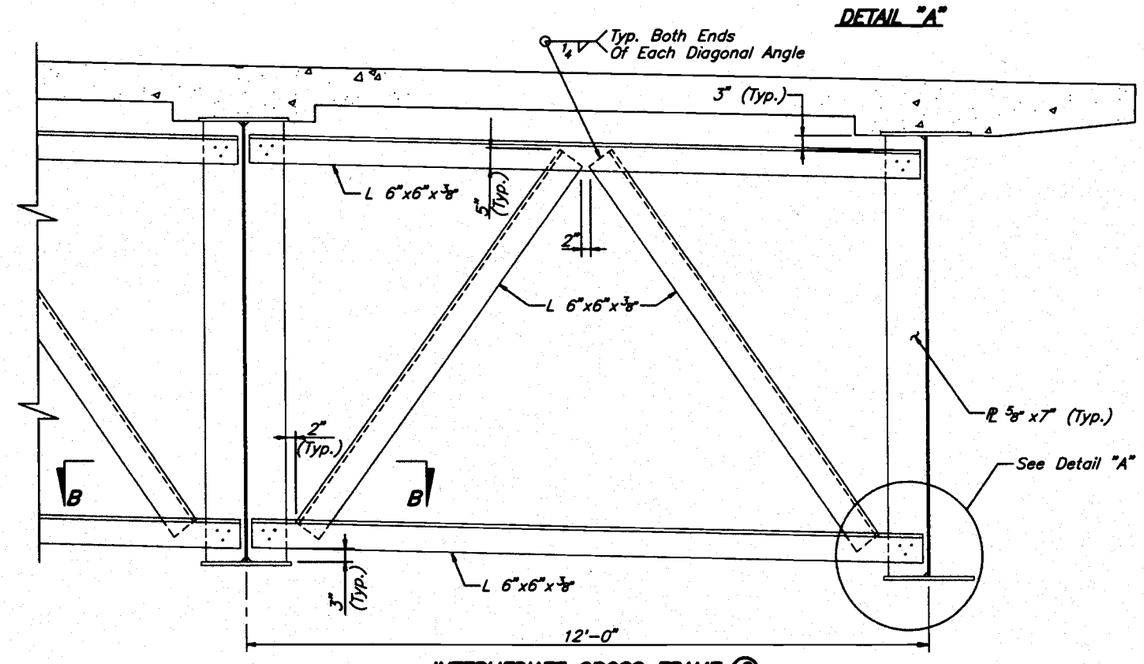

TRANSVERSE STIFFENER




CROSS FRAME CONNECTION




BEARING STIFFENER




INTERMEDIATE CROSS FRAME (2)

| REVISIONS | | | | | |
|---|---|---|---|---|---|
| Date | By | Description | Date | By | Description |
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JLA | 5/94 |
| Checked by | MN | 5/94 |
| Designed by | MN | 5/94 |
| Checked by | PM | 5/94 |
| Approved by | Peeter Mannik, P.E. | |

ENGINEER OF RECORD:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

LOGO:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
ENGINEERS - SURVEYORS
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR 414 | SEMINOLE | 77002-3503 |

SHEET TITLE: GIRDER DETAILS

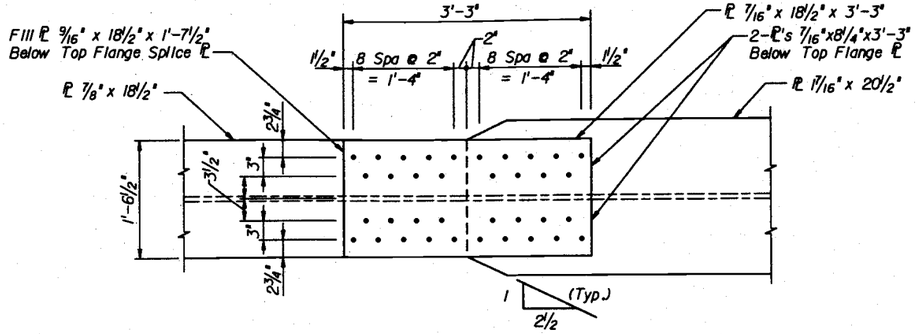
PROJECT NAME: MAITLAND BOULEVARD OVER LAKE BOSSE

Drawing No. 1 OF 2

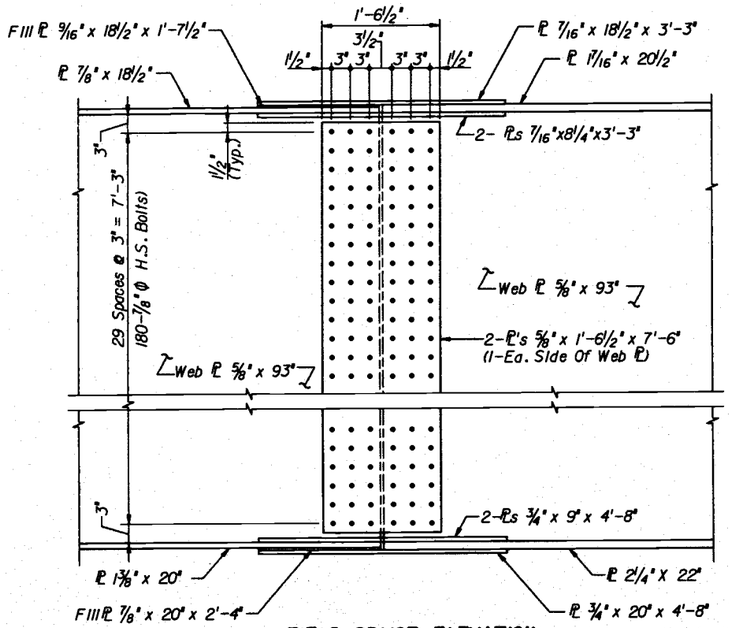
Index No.

J.L. 07/21/98 07:37AM C:\MRL\MRL\LAR\LABBRIDT.DWG

| FED. ROAD DIV. NO. | STATE | PROJECT NO. | FISCAL YEAR | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | | 98 | B-42 |



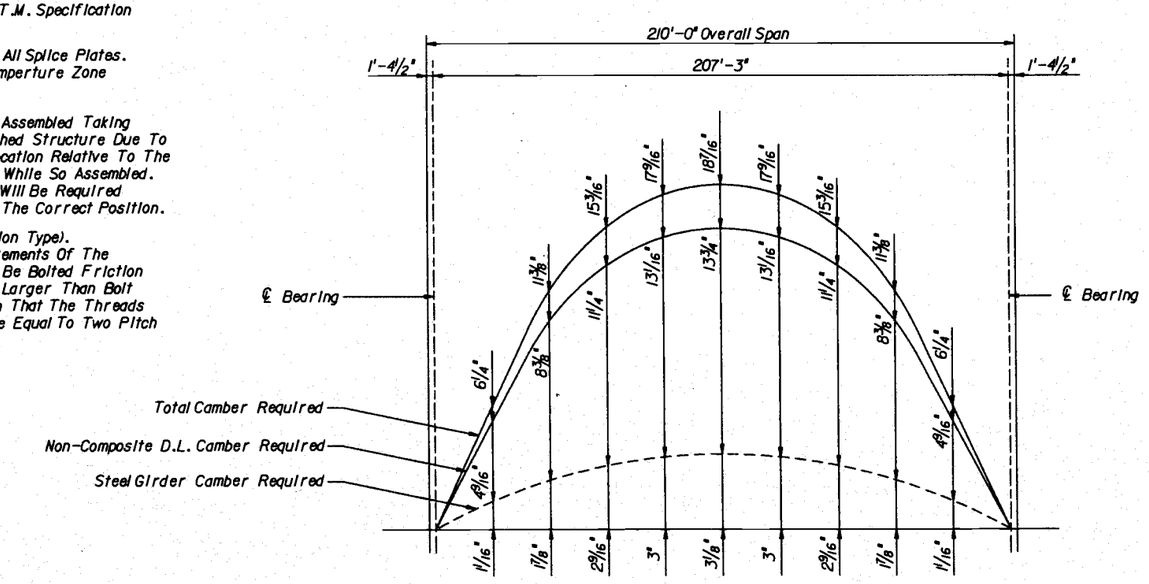

**TOP FLANGE SPLICE**



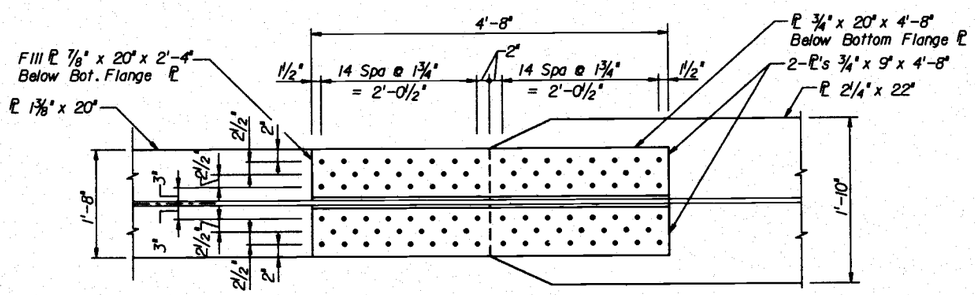

**FIELD SPLICE ELEVATION**

## FIELD SPLICE NOTES:

1. All Splice Plates Shall Be In Accordance With A.S.T.M. Specification A-709 Steel (Grade 50W).
2. Charpy V-Notch Impact Properties Required For All Splice Plates. Impact Properties Shall Be In Accordance With Temperture Zone Designation 1.
3. All Parts Of Each Splice Shall Be Completely Shop Assembled Taking Into Account Their Relative Position In The Finished Structure Due To Grade, Camber, And Curvature Including Their Location Relative To The Shear Connectors. Sections Shall Be Matchmarked While So Assembled. General Reaming Of Holes For Each Field Splice Will Be Required While All Parts Are Completely Shop Assembled In The Correct Position.
4. All Bolts Shall Be 7/8"Ø High Strength Bolts (Friction Type). High Strength Bolts Shall Conform To The Requirements Of The ASTM A-325, Type 3. Girder Field Splices Shall Be Bolted Friction Type Connections Using Standard Size Holes (1/16" Larger Than Bolt Diameter). Bolts And Washers Shall Be Sized Such That The Threads Are Excluded From The Shear Planes A Distance Equal To Two Pitch Increments.




**CAMBER DIAGRAM**




**BOTTOM FLANGE SPLICE**

## CAMBER NOTES

1. Total Camber Includes Deflections Due To Steel Girder Dead Load, Total Concrete Dead Load Including Composite Dead Load And Vertical Curve.
2. Non-Composite Dead Load Camber Includes Dead Load Of Steel Girder And Concrete Deck Pour.
3. Steel Girder Camber Includes Deflections Due To Girder Self Weight Only.
4. Ordinates Computed Along ℄ Girders At Each 10 Equal Spaces Between ℄ Bearings.
5. Girders Shall Be Fabricated To Provide For The Total Dead Load Deflection And The Vertical Curve (Total Camber Required).

| REVISIONS | | | | | |
|---|---|---|---|---|---|
| Date | By | Description | Date | By | Description |
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JJS | 4/95 |
| Checked by | MN | 4/95 |
| Designed by | MN | 4/95 |
| Checked by | PM | 4/95 |
| Approved by | Peeter Mannik, P.E. | |

ENGINEER OF RECORD: DYER, RIDDLE, MILLS AND PRECOURT, INC. 1505 EAST COLONIAL DRIVE ORLANDO, FLORIDA 32803

LOGO: DYER, RIDDLE, MILLS AND PRECOURT, INC. ENGINEERS - SURVEYORS 1505 EAST COLONIAL DRIVE ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR414 | SEMINOLE | 77002-3503 |

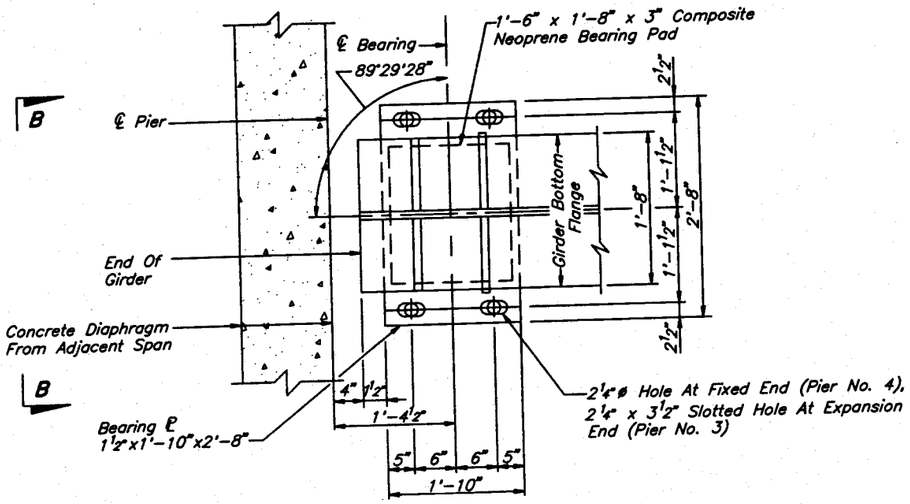
SHEET TITLE: GIRDER DETAILS

PROJECT NAME: MAITLAND BOULEVARD OVER LAKE BOSSE

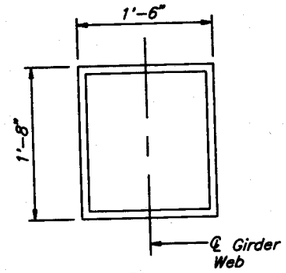
Drawing No. 2 of 2

Index No.

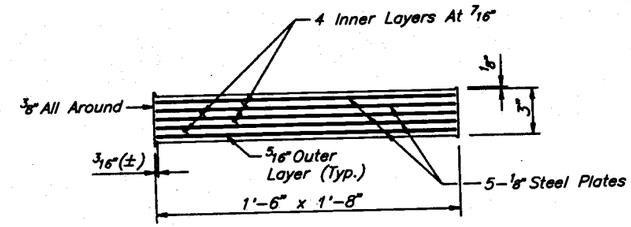
LABSTDT.DGN




SECTION A-A




PLAN



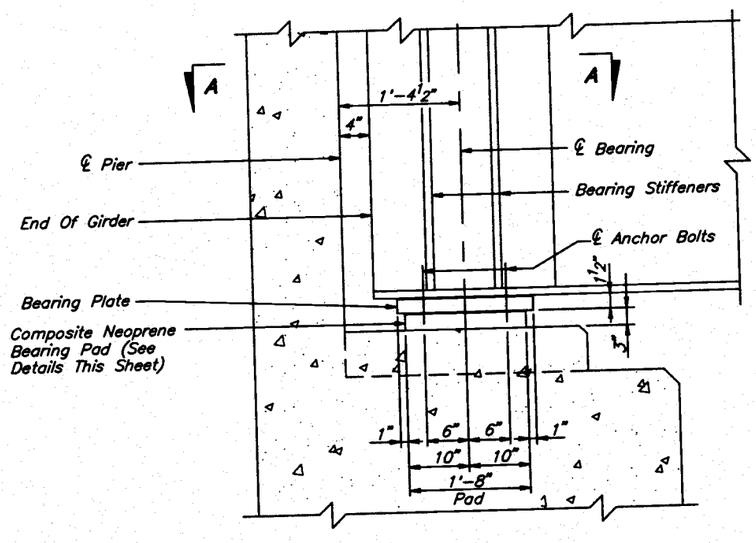

TYPICAL SECTION

NON - STANDARD COMPOSITE PAD

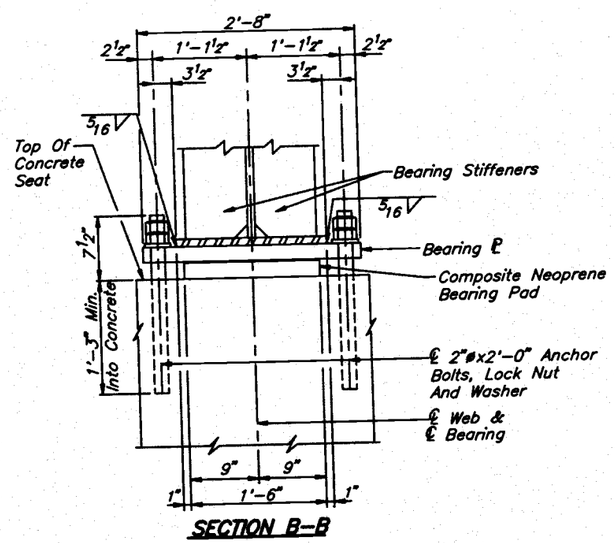
No. Req'd - 22 Units Total

## COMPOSITE PAD NOTES

1. All Neoprene In Bearing Pads Shall Have A Grade 50 Durometer Hardness.
2. Steel Plates In Composite Bearing Pads Shall Conform To AASHTO M-251.
3. Variations In Pad Dimensions Will Be Allowed. Revised Pads Shall Meet The Current Specifications And Shall Be Approved By The Engineer.
4. Steel Bearing Plates, Anchor Bolts, Nuts And Washers Shall Be Hot Dip Galvanized In Accordance With A.S.T.M. Specification A-123. Payment For Steel Bearing Plate Assemblies Shall Be Included In The Contract Unit Price For Structural Steel.
5. Composite Neoprene Pads Shall Meet All Requirements Of The F.D.O.T. Specifications, Section 932-2.
6. The Contractor Shall Furnish All Neoprene Pads, And Shall Submit Shop Drawings For Approval Prior To Fabrication.




PART SECTION THRU GIRDER END




SECTION B-B

# BEARING DETAILS

| REVISIONS | | | | | |
|---|---|---|---|---|---|
| Date | By | Description | Date | By | Description |
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JJS | 5/95 |
| Checked by | MN | 5/95 |
| Designed by | MN | 5/95 |
| Checked by | PM | 5/95 |
| Approved by | PEETER MANNIK, P.E. | |

ENGINEER OF RECORD: DYER, RIDDLE, MILLS AND PRECOURT, INC. 1505 EAST COLONIAL DRIVE ORLANDO, FLORIDA 32803

LOGO: DYER, RIDDLE, MILLS AND PRECOURT, INC. ENGINEERS - SURVEYORS 1505 EAST COLONIAL DRIVE ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR414 | SEMINOLE | 77002-3503 |

SHEET TITLE: BEARING DETAILS - SPAN 3

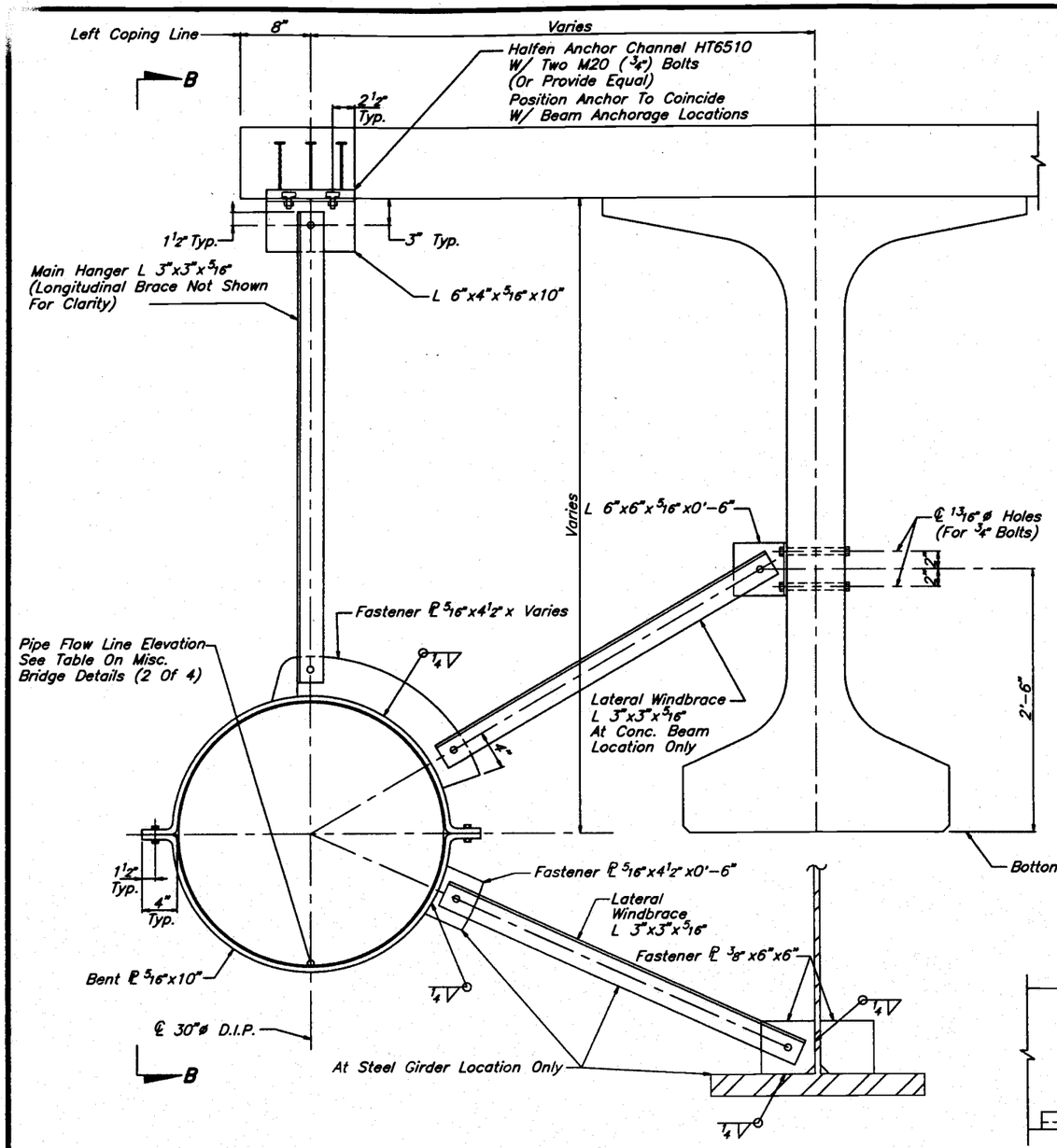
PROJECT NAME: MAITLAND BOULEVARD OVER LAKE BOSSE

Drawing No.

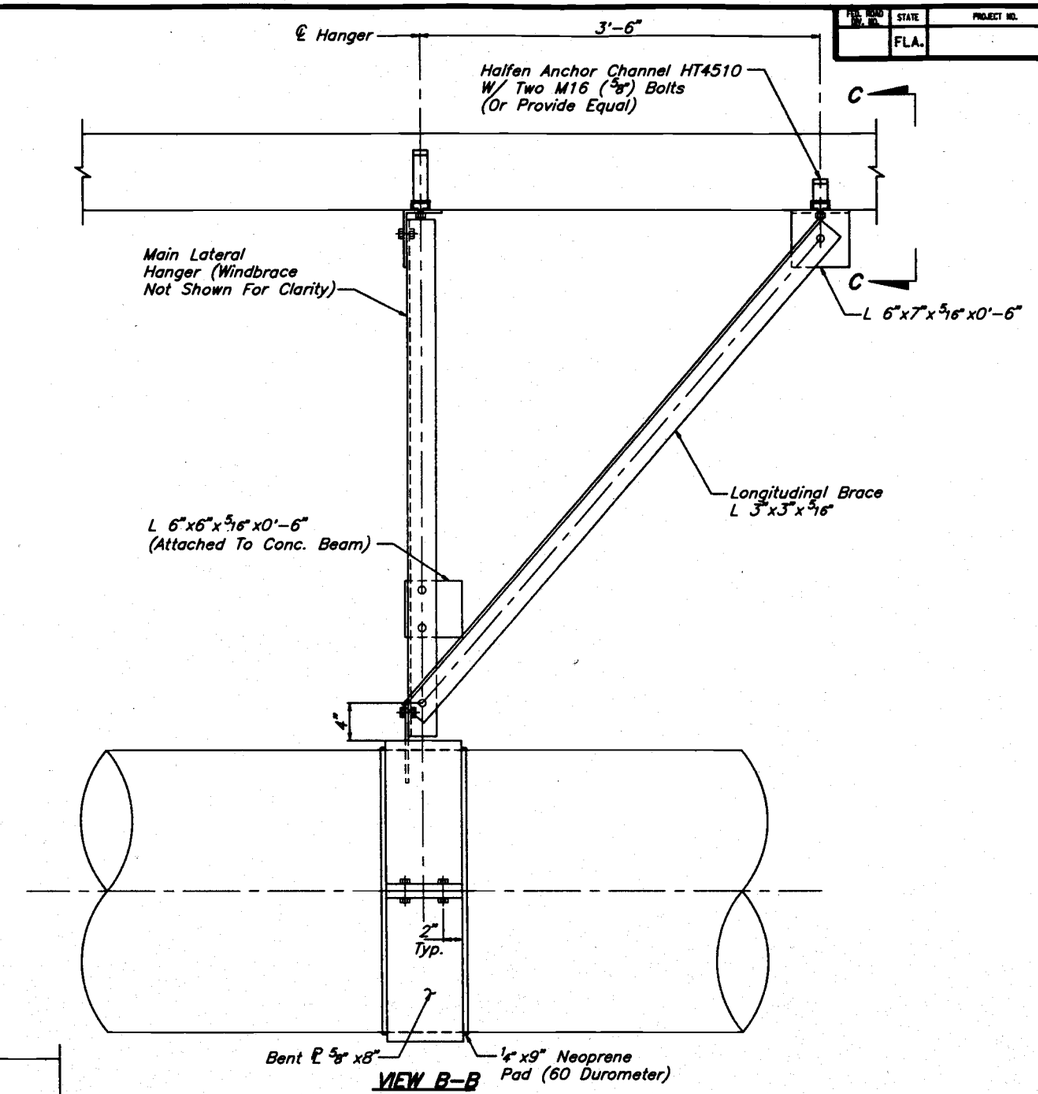
Index No.

07/14/98 1:53PM C:\PROJECT\MAITLAND\MAITLAND.DGN

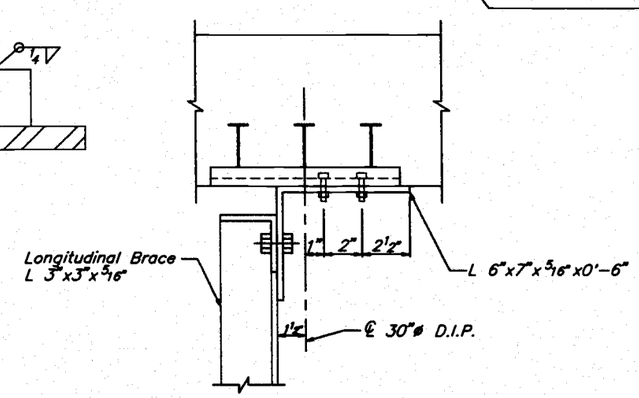
| FED. ROAD DIV. NO. | STATE | PROJECT NO. | FISCAL YEAR | SHEET NO. |
|---|---|---|---|---|
| | FLA. | | | B-44 |




**PIPE HANGER DETAIL**
BRACED HANGER SHOWN
(SEE NOTE 1)




**VIEW B-B**




**VIEW C-C**

NOTES:

1. Hanger Types:
   Type A – Includes Main Hanger Only
   Type B – Includes Main Hanger, Lateral Wind Brace & Longitudinal Brace.
   For Hanger Type Location See Pipe Hanger Location Table, Miscellaneous Bridge Deatils, (2 OF 4).
2. All Supports And Attachment Hardware Shall Be ASTM A36 Steel And Hot Dipped Galvanized After Fabrication.
3. All Bolts And Nuts Are 3/4"ø And Shall Be 304 ST. STL. (U.N.O.)
4. Complete Sign & Sealed Drawings For Pipe Attachment Assembly Is Required.
5. Payment: The Cost Of The Pipe Hanger Assembly Shall Be Paid For Under Pay Item 1622-11-33 Bridge Hanger Anchor And Shall Include Anchorage, Neoprene Pads And Misc. Steel. The Cost Of The Ductile Iron Pipe Shall Be Paid For Under Pay Item 1613-140-233.
6. The Ductile Iron Pipe Shall Be A Push-On Joint type (Fastite Or Equal) With Class 150 Material Grade. The Pipe Lining Shall Be Per A.W.W.A. C-104.

REVISIONS

| Date | By | Description | Date | By | Description |
|---|---|---|---|---|---|
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JLA | 9/94 |
| Checked by | MKA | 9/94 |
| Designed by | MKA | 9/94 |
| Checked by | PM | 9/94 |
| Approved by | Peeter Mannik, P.E. | |

ENGINEER OF RECORD:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

LOGO:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
ENGINEERS - SURVEYORS
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| | SEMINOLE | 77002-3503 |

SHEET TITLE: MISCELLANEOUS BRIDGE DETAILS

Drawing No. 1 OF 4

PROJECT NAME: MAITLAND BOULEVARD OVER LAKE BOSSE

Index No.

A.S. 07/26/96 5:32PM C:\USR\MEN\LAN\LIBRARY\

| PIPE HANGER LOCATION | | | PIPE FLOW LINE ELEVATION |
|---|---|---|---|
| Station | Offset | Type | |
| 33+97.67 | 63.83 | A | 69.22 |
| 34+07.76 | 63.83 | B | 69.19 |
| 34+17.86 | 63.83 | A | 69.16 |
| 34+27.96 | 63.83 | B | 69.13 |
| 34+38.05 | 63.83 | A | 69.11 |
| 34+48.15 | 63.83 | B | 69.08 |
| 34+58.24 | 63.83 | A | 69.05 |
| 34+68.34 | 63.83 | B | 69.02 |
| 34+78.43 | 63.83 | A | 68.99 |
| 34+88.53 | 63.83 | B | 68.97 |
| 34+98.62 | 63.83 | A | 68.94 |
| 35+08.72 | 63.83 | B | 68.91 |
| 35+18.81 | 63.83 | A | 68.88 |
| 35+28.91 | 63.83 | B | 68.86 |
| 35+39.00 | 63.83 | A | 68.83 |
| 35+49.10 | 63.83 | B | 68.80 |
| 35+59.20 | 63.83 | A | 68.77 |
| 35+69.29 | 63.83 | B | 68.75 |
| 35+79.39 | 63.83 | A | 68.72 |
| 35+89.48 | 63.83 | B | 68.69 |
| 35+99.58 | 63.83 | A | 68.66 |
| 36+09.67 | 63.83 | B | 68.63 |
| 36+19.77 | 63.83 | A | 68.61 |
| 36+29.86 | 63.83 | B | 68.58 |
| 36+39.96 | 63.83 | A | 68.55 |
| 36+50.05 | 63.83 | B | 68.52 |
| 36+60.15 | 63.83 | A | 68.50 |
| 36+70.25 | 63.83 | B | 68.47 |
| 36+80.34 | 63.83 | A | 68.44 |
| 36+90.44 | 63.83 | B | 68.41 |
| 37+00.53 | 63.83 | A | 68.39 |
| 37+10.63 | 63.83 | B | 68.36 |
| 37+20.72 | 63.83 | A | 68.33 |
| 37+30.82 | 63.83 | B | 68.30 |
| 37+40.91 | 63.83 | A | 68.27 |
| 37+51.01 | 63.83 | B | 68.25 |

| PIPE HANGER LOCATION | | | PIPE FLOW LINE ELEVATION |
|---|---|---|---|
| Station | Offset | Type | |
| 37+61.10 | 63.83 | A | 68.22 |
| 37+71.20 | 63.83 | B | 68.19 |
| 37+81.29 | 63.83 | A | 68.16 |
| 37+91.39 | 63.83 | B | 68.14 |
| 38+01.49 | 63.83 | A | 68.11 |
| 38+11.58 | 63.83 | B | 68.08 |
| 38+21.68 | 63.83 | A | 68.05 |
| 38+31.77 | 63.83 | B | 68.03 |
| 38+41.87 | 63.83 | A | 68.00 |
| 38+51.96 | 63.83 | B | 67.97 |
| 38+62.06 | 63.83 | A | 67.94 |
| 38+72.15 | 63.83 | B | 67.91 |
| 38+82.25 | 63.83 | A | 67.89 |
| 38+92.34 | 63.83 | B | 67.86 |
| 39+02.44 | 63.83 | A | 67.83 |
| 39+12.53 | 63.83 | B | 67.80 |
| 39+22.63 | 63.83 | A | 67.78 |
| 39+32.73 | 63.83 | B | 67.75 |
| 39+42.82 | 63.83 | A | 67.72 |
| 39+52.92 | 63.83 | B | 67.69 |
| 39+63.01 | 63.83 | A | 67.67 |
| 39+73.11 | 63.83 | B | 67.64 |
| 39+83.20 | 63.83 | A | 67.61 |
| 39+93.30 | 63.83 | B | 67.58 |
| 40+03.39 | 63.83 | A | 67.55 |
| 40+13.49 | 63.83 | B | 67.53 |
| 40+23.58 | 63.83 | A | 67.50 |
| 40+33.68 | 63.83 | B | 67.47 |
| 40+43.77 | 63.83 | A | 67.44 |
| 40+53.87 | 63.83 | B | 67.42 |
| 40+63.97 | 63.83 | A | 67.39 |
| 40+74.06 | 63.83 | B | 67.36 |
| 40+84.16 | 63.83 | A | 67.33 |
| 40+94.25 | 63.83 | B | 67.31 |
| 41+02.33 | 63.83 | A | 67.28 |

| | COPING OFFSETS | | | | | |
|---|---|---|---|---|---|---|
| | Right | | | Left | | |
| | Station | Offset to C.L. Beam | Distance from C.L. Beam to Coping | Station | Offset to C.L. Beam | Distance from C.L. Beam to Coping |
| Bent. No. 1 | 34+03.08 | 59.9211 | 4.5789 | 33+96.87 | 59.9226 | 4.5774 |
| Quarter Point | 34+26.00 | 60.0503 | 4.4497 | 34+20.20 | 59.8140 | 4.6860 |
| Mid Point | 34+48.92 | 60.0995 | 4.4005 | 34+43.53 | 59.7839 | 4.7161 |
| Quarter Point | 34+71.85 | 60.0689 | 4.4311 | 34+66.86 | 59.8323 | 4.6677 |
| Bent. No. 2 | 34+94.77 | 59.9584 | 4.5416 | 34+90.19 | 59.9592 | 4.5408 |
| Quarter Point | 35+17.69 | 60.0847 | 4.4153 | 35+13.52 | 59.8478 | 4.6522 |
| Mid Point | 35+40.61 | 60.1311 | 4.3689 | 35+36.86 | 59.8150 | 4.6850 |
| Quarter Point | 35+63.53 | 60.0976 | 4.4024 | 35+60.19 | 59.8606 | 4.6394 |
| Bent. No. 3 | 35+86.45 | 59.9843 | 4.5157 | 35+83.52 | 59.9846 | 4.5154 |
| Quarter Point | 36+38.49 | 60.6059 | 3.8941 | 36+36.49 | 59.3822 | 5.1178 |
| Mid Point | 36+90.53 | 60.8159 | 3.6841 | 36+89.46 | 59.1841 | 5.3159 |
| Quarter Point | 37+42.57 | 60.6914 | 3.8086 | 37+42.44 | 59.3904 | 5.1096 |
| Bent. No. 4 | 37+94.60 | 60.0010 | 4.4990 | 37+95.40 | 60.0010 | 4.4990 |
| Quarter Point | 38+19.80 | 60.1425 | 4.3575 | 38+21.05 | 59.8557 | 4.6443 |
| Mid Point | 38+44.99 | 60.1875 | 4.3125 | 38+46.69 | 59.8051 | 4.6949 |
| Quarter Point | 38+70.18 | 60.1360 | 4.3640 | 38+72.34 | 59.8494 | 4.6506 |
| Bent. No. 5 | 38+95.38 | 59.9881 | 4.5119 | 38+97.98 | 59.9884 | 4.5116 |
| Quarter Point | 38+20.57 | 60.1262 | 4.3738 | 39+23.62 | 59.8396 | 4.6604 |
| Mid Point | 39+45.76 | 60.1677 | 4.3323 | 39+49.27 | 59.7857 | 4.7143 |
| Quarter Point | 39+70.95 | 60.1128 | 4.3872 | 39+74.91 | 59.8266 | 4.6734 |
| Bent. No. 6 | 39+96.15 | 59.9615 | 4.5385 | 40+00.56 | 59.9622 | 4.5378 |
| Quarter Point | 40+21.34 | 60.0961 | 4.4039 | 40+26.20 | 59.8101 | 4.6899 |
| Mid Point | 40+46.53 | 60.1343 | 4.3657 | 40+51.85 | 59.7528 | 4.7472 |
| Quarter Point | 40+71.73 | 60.0759 | 4.4241 | 40+77.49 | 59.7903 | 4.7097 |
| Bent. No. 7 | 40+96.92 | 59.9211 | 4.5789 | 41+03.14 | 59.9226 | 4.5774 |

Note:
Work This Sheet With Miscellaneous Bridge Details Sheet (1 Of 4)

REVISIONS

| Date | By | Description | Date | By | Description |
|---|---|---|---|---|---|
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JJS | 7/94 |
| Checked by | MKA | 7/94 |
| Designed by | MKA | 7/94 |
| Checked by | PM | 7/94 |
| Approved by | Peeter Mannik, P.E. | |

ENGINEER OF RECORD:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

LOGO:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
ENGINEERS - SURVEYORS
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR 414 | SEMINOLE | 77002-3503 |

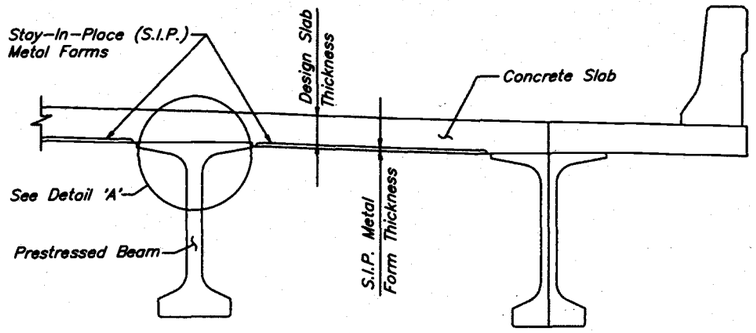
SHEET TITLE: MISCELLANEOUS BRIDGE DETAILS

PROJECT NAME: MAITLAND BOULEVARD OVER LAKE BOSSE

Drawing No. 2 OF 4

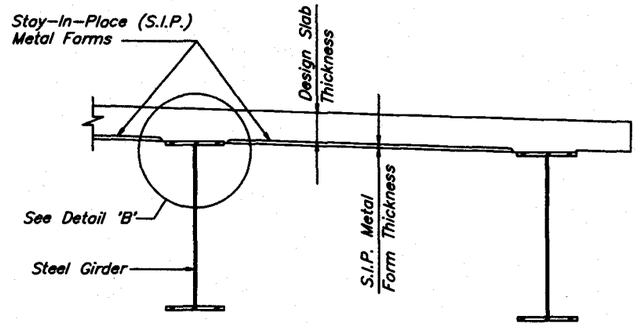
Index No.

| FED. ROAD DIV. NO. | STATE | PROJECT NO. | PROJECT YEAR | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | | 98 | B-46 |




**PARTIAL SECTION THRU SUPERSTRUCTURE**

(Showing Typical Details And Notes For S.I.P. Metal Forms)

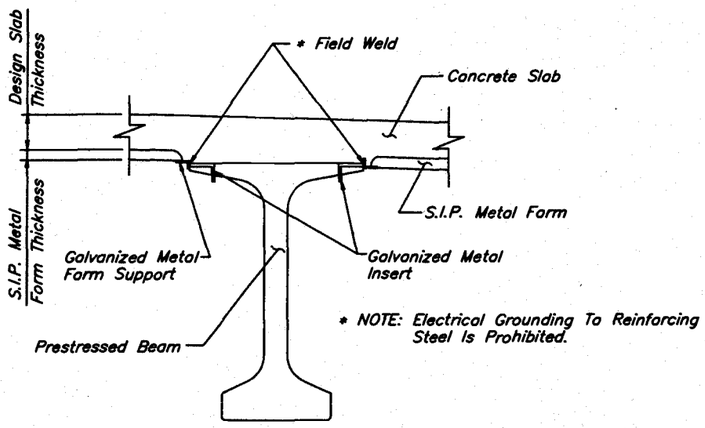



**PARTIAL SECTION THRU SUPERSTRUCTURE**

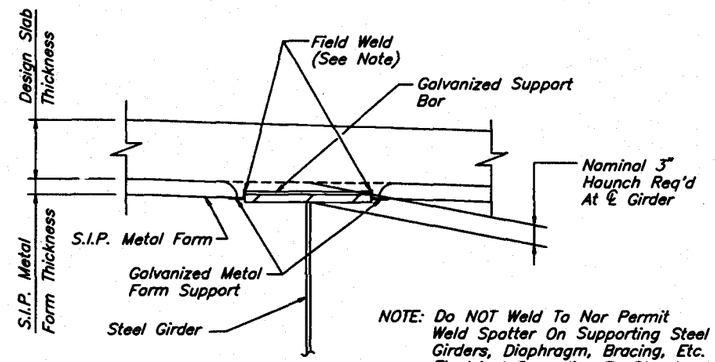
(Showing Typical Details And Notes For S.I.P. Metal Forms)

## EXPANSION JOINT SEAL NOTES

1. The Cost Of All Labor And Materials Required For Construction Of Expansion Joints Shall Be Paid For In Bid Item No. 460-7-4 Expansion Joint Seal (Strip Elastomeric).
2. The Contractor Shall Submit Shop Drawings Showing All Expansion Joint Materials Including Seal Manufacturer, Seal Model Number, Seal Movement Range, And Proposed Method Of Installation With All Sizes And Dimensions Shown. The Seal Selected Shall Be A Heavy Duty Bridge Seal Sized To Perform Satisfactorily For The Joint Opening Range Indicated In Accordance With The Manufacturer's Recommendations. Compression Seal Shall Be Continuous Across The Bridge Deck. All Contact Surfaces Between The Compression Seal And The Concrete Shall Be Thoroughly Coated With A Compression Seal Adhesive Before Setting Seal In Place. Installation Shall Be Performed According To Manufacturer's Recommendations.
3. The Following Is The Compression Seal Data:
   a. Seal Opening Ranges (in.):
      Minimum = $\frac{9}{16}$"
      Maximum = $1\frac{1}{16}$"
   b. Design Opening At 70°F (in.) = $\frac{3}{4}$"
   c. Temperature Adjustment (in/°F) = 0.0020
   d. Total Movement = 0.1002 in.
4. For Joint Construction Other Than 70°F, The Contractor Shall Adjust The Opening As Indicated: For Temperature Above 70°F Decrease The Design Opening, For Temperature Below 70°F Increase The Design Opening Accordingly.

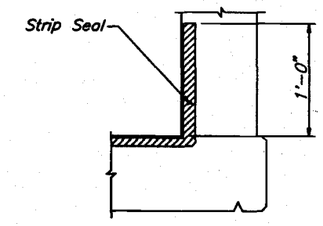



**DETAIL 'A'**

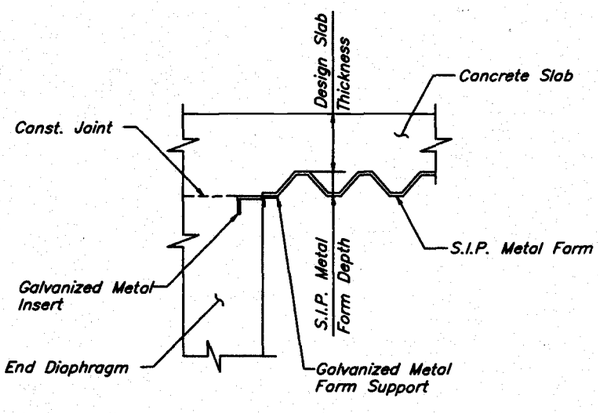



**DETAIL 'A'**

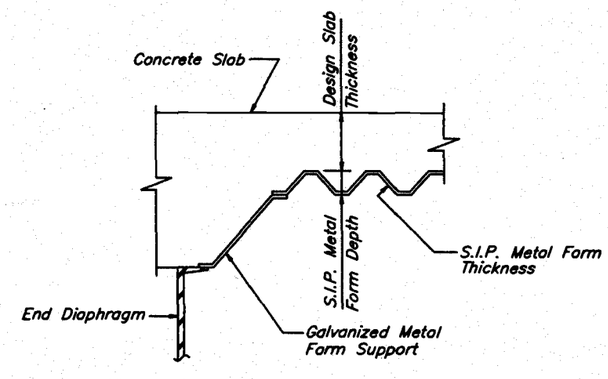
NOTE: Do NOT Weld To Nor Permit Weld Spatter On Supporting Steel Girders, Diaphragm, Bracing, Etc. Electrical Grounding To Structural Steel Is Prohibited. See Section 400 Of The Specifications For Field Welding Of S.I.P. Forms In Place.



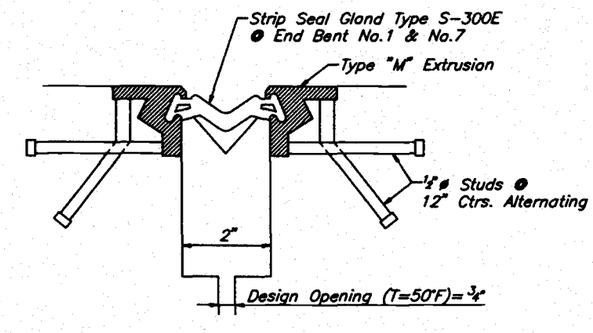

**SECTION ALONG ℄ JOINT**




**PARTIAL SECTION THRU END OF SPAN**
**STAY-IN-PLACE FORMS**
**SPANS 1,2,4,5 & 6**




**PARTIAL SECTION THRU END OF SPAN**
**STAY-IN-PLACE FORMS**
**SPAN 3**




**EXPANSION JOINT DETAIL**

END BENTS ONLY

Watson Bowman Model S-300E Or Approved Equal Install Between The Temperature Of 40°F And 100°F.

| REVISIONS | | | | | |
|---|---|---|---|---|---|
| Date | By | Description | Date | By | Description |
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JJS | 9/94 |
| Checked by | MKA | 9/94 |
| Designed by | MKA | 9/94 |
| Checked by | PM | 9/94 |
| Approved by | Peeter Mannik, P.E. | |

ENGINEER OF RECORD: DYER, RIDDLE, MILLS AND PRECOURT, INC. 1505 EAST COLONIAL DRIVE ORLANDO, FLORIDA 32803

LOGO: DYER, RIDDLE, MILLS AND PRECOURT, INC. ENGINEERS - SURVEYORS 1505 EAST COLONIAL DRIVE ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR414 | SEMINOLE | 77002-3503 |

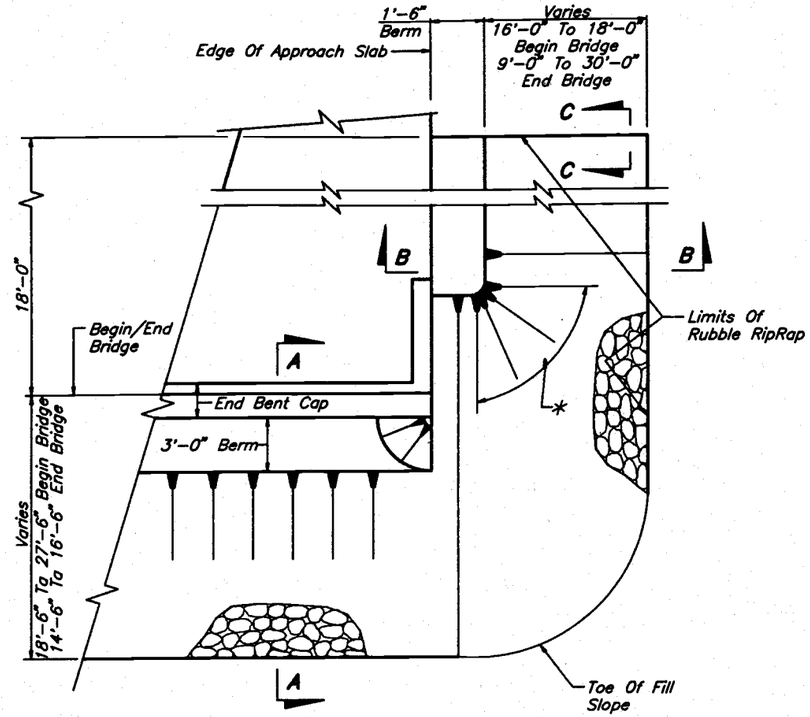
SHEET TITLE: MISCELLANEOUS BRIDGE DETAILS

PROJECT NAME: MAITLAND BOULEVARD OVER LAKE BOSSE

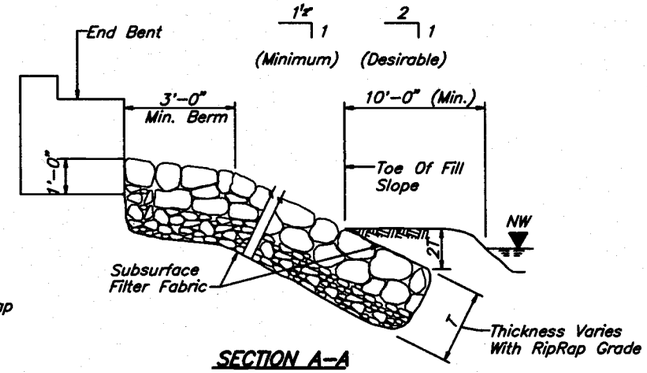
Drawing No. 3 Of 4

Index No.

| FED. ROAD DIV. NO. | STATE | PROJECT NO. | FISCAL YEAR | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | | 98 | B-47 |

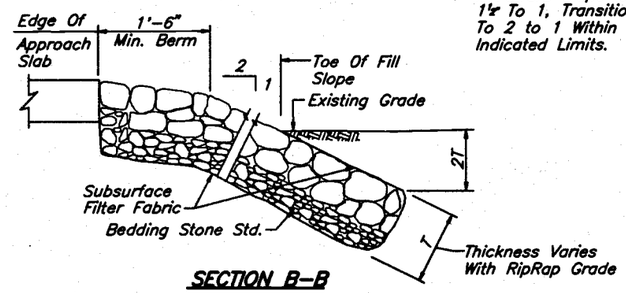



**PARTIAL PLAN**
**RUBBLE PROTECTION DETAILS**
(N.T.S.)

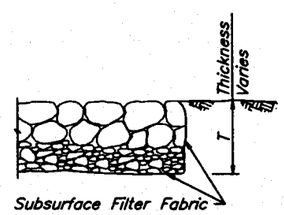



**SECTION A-A**

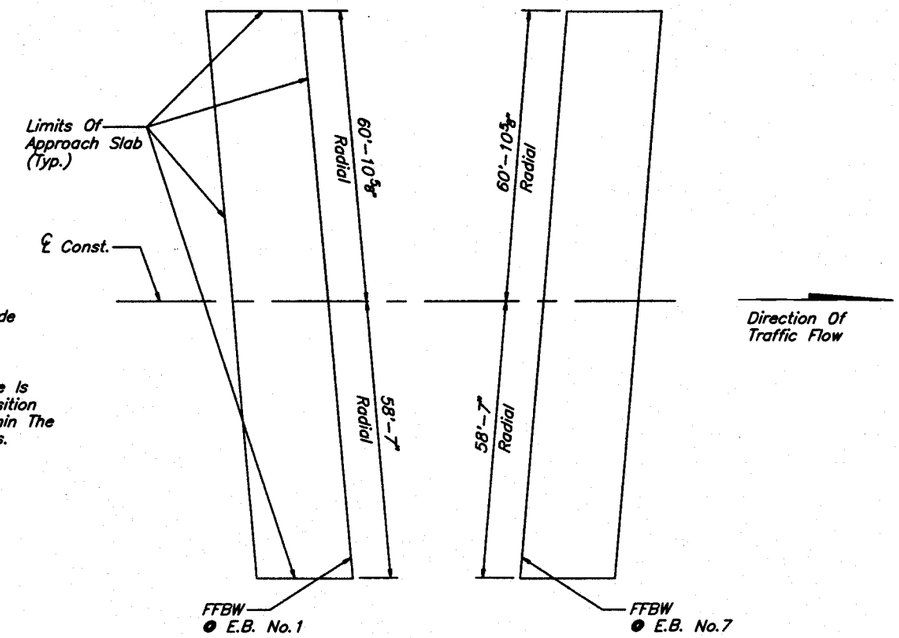
* If Foward Slope Is 1½ To 1, Transition To 2 to 1 Within The Indicated Limits.




**SECTION B-B**

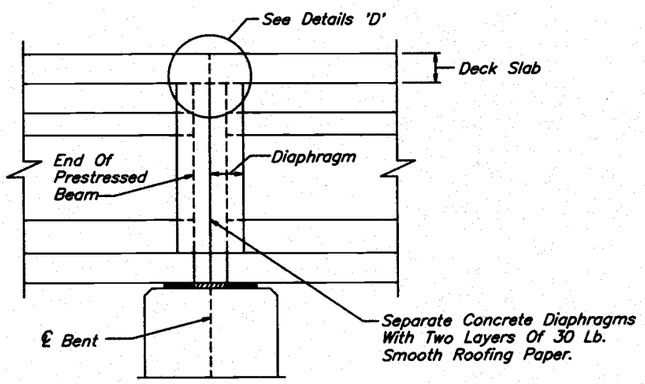



**SECTION C-C**

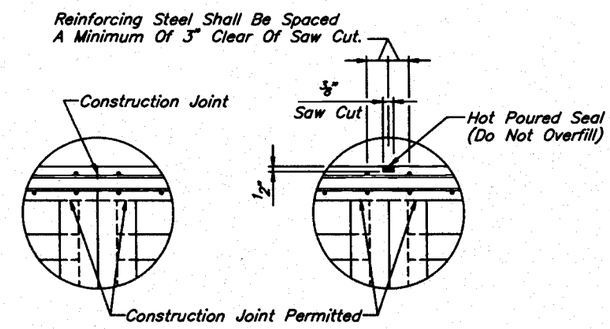



**APPROACH SLAB DETAILS**

Note: For Additional Details See Roadway Plans




**SECTION AT INTERIOR SUPPORT**




**DETAIL D1** **ALTERNATE DETAIL D2**

NOTE: Detail D1 Shall Apply Where A Pour Terminates At An Intermediate Support.

NOTE: At The Option Of The Contractor Alternate Detail D2 May Be Used When Slab Pours Are Continuous Over Intermediate Supports. The Cost Of Constructing Alternate Joints D2 At Intermediate Supports Shall Be At The Contractors Expense. The Saw Cut Shall Be Made No Later Than The Day Following Concrete Placement.

**DETAILS OF CONSTRUCTION JOINTS AT INTERMEDIATE SUPPORTS**

REVISIONS

| Date | By | Description | Date | By | Description |
|---|---|---|---|---|---|
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JLA | 9/94 |
| Checked by | MKA | 9/94 |
| Designed by | MKA | 9/94 |
| Checked by | PM | 9/94 |
| Approved by | Peeter Mannik, P.E. | |

ENGINEER OF RECORD: DYER, RIDDLE, MILLS AND PRECOURT, INC. 1505 EAST COLONIAL DRIVE ORLANDO, FLORIDA 32803

LOGO: DYER, RIDDLE, MILLS AND PRECOURT, INC. ENGINEERS - SURVEYORS 1505 EAST COLONIAL DRIVE ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR 414 | SEMINOLE | 77002-3503 |

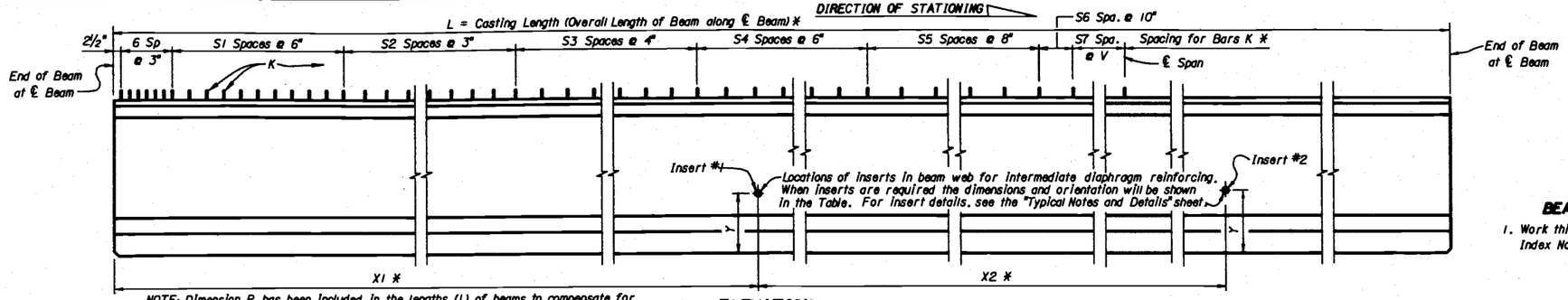
SHEET TITLE: MISCELLANEOUS BRIDGE DETAILS

PROJECT NAME: MAITLAND BOULEVARD OVER LAKE BOSSE

Drawing No. 4 Of 4

Index No.

| FOLD HOLE DIV. NO. | STATE | PROJECT NO. | FISCAL YEAR | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | | 98 | B-48 |




NOTE: Dimension R has been included in the lengths (L) of beams to compensate for elastic and time-dependent shortening effects.

## ELEVATION

## BEAM NOTES

1. Work this sheet with Standard Index No. 110.

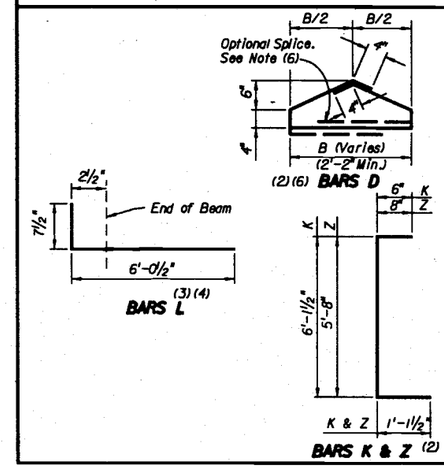
* Note: All longitudinal beam dimensions shown on this sheet with a single asterisk (*) are measured along the top of the beam at the centerline of beam.

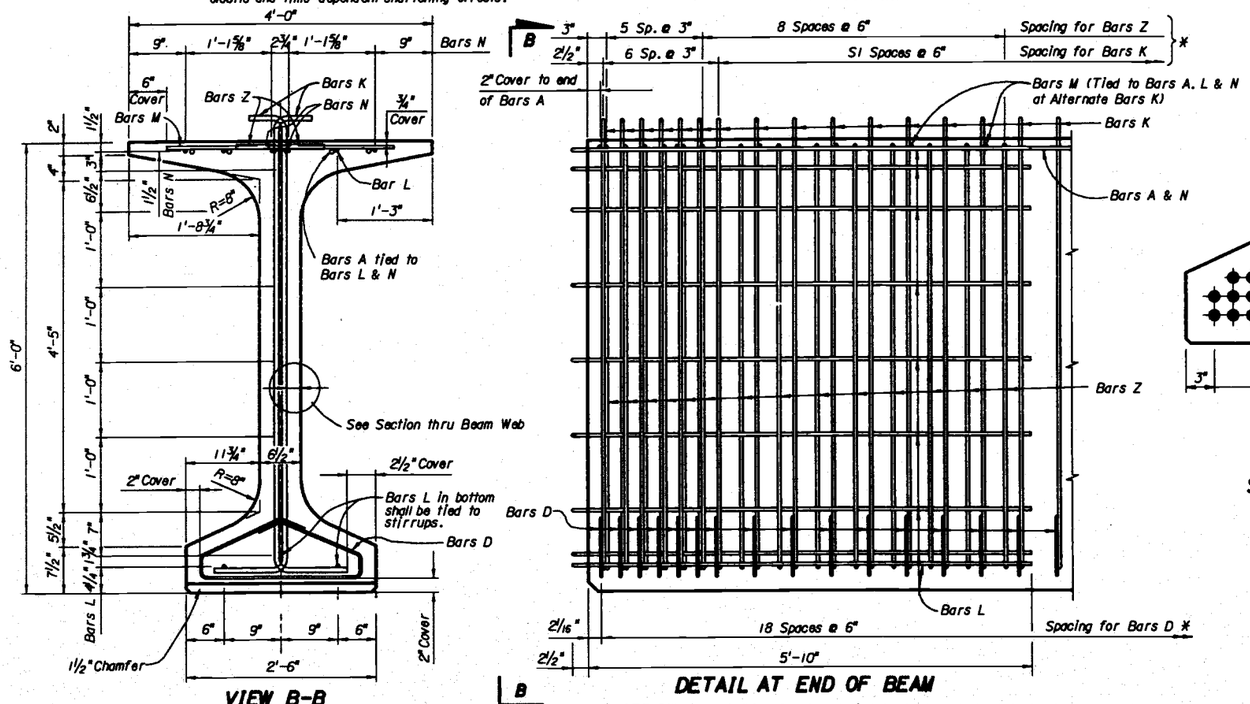
** Note: End of beam bearing dimensions "J" and "K" are measured along the bottom of the beam.

## BILL OF REINFORCING STEEL FOR ONE BEAM ONLY

| MARK | SIZE | NO. REQUIRED | LENGTH (1) |
|---|---|---|---|
| A | 5 | 8 | See Table |
| D (2)(6) | 3 | 38 | Varies 5'-11" Min |
| | | | |
| K (2) | 4 | See Table | 7'-9" |
| L (3)(4) | 4 | 22 | 6'-8" |
| M | 4 | See Table | 3'-0" |
| N (5) | ⅜"Ø Strand | 4 | See Table |
| Z (2) | 4 | 28 | 7'-6" |

## BENDING DIAGRAMS(1)




## VIEW B-B

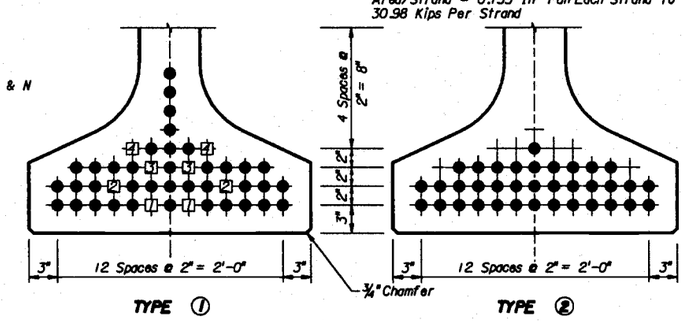
(With strands omitted, see Table for reference to strand pattern)

## DETAIL AT END OF BEAM

NOTE: Stirrups shall be placed and tied to the top of the fully bonded prestressing strands in the bottom row.

‡ Dimension K: 11½" @ Pier; 1'-0¼" @ End Bent
NOTE: Place Bars K and Z one (1) each space (alternate).

½" Dia. -270K Low Relaxation Strands. Area/Strand = 0.153 In. Pull Each Strand To 30.98 Kips Per Strand




TYPE ① TYPE ②

## STRAND PATTERNS AND DEBONDING SCHEDULE

NOTE:
- ● - Indicates fully bonded strands.
- 1 - Indicates referenced pair of strands to be debonded 30'-0" which is measured from the end of the beam. *
- 2 - Indicates referenced pair of strands to be debonded 20'-0" which is measured from the end of the beam. *
- 3 - Indicates referenced pair of strands to be debonded 10'-0" which is measured from the end of the beam. *
- 4 - Indicates referenced pair of strands to be debonded 5'-0" which is measured from the end of the beam. *

NOTES:

(1) All bar dimensions are out-to-out.

(2) Bars D, K, and Z shall be bent around pins having the following diameters for respective sizes:

| Bar Size | Pin Diameters |
|---|---|
| #3 | 1" |
| #4 | 2" |

(3) Bars L shall be bent prior to the beam leaving the prestressing yard. For treatment of bars L at skewed beam ends, see "Plan Ends of Beams".

(4) Caution should be used with Bars L in the ends of exterior beams to assure that the bent portion of the bar is properly oriented so that the bar will be embedded in the diaphragm concrete.

(5) Bars N shall be either ASTM A416, Grade 250 or 270, seven-wire strands ⅜" diameter or larger, stressed to 10,000 pounds each.

(6) The minimum Dimension B and length of Bars D shown apply to one-piece Bars D placed perpendicular to the centerline of the beam. Dimension B and the length of Bars D for beams with skewed ends vary with the skew (See "Plan Ends of Beams").
At the Contractor's option, Bars D may be fabricated either as a two-piece bar with a 1'-2" lap splice of the bottom legs or may be welded wire fabric, one or two-piece, provided the wire size and spacing furnishes the same steel area as the No. 3 Bars shown.

(7) (NS) means Near Side and (FS) means Far Side, both referring to which face of the beam web is to receive the insert for the dimensioned location. (NS) and (FS) are referenced to the DIRECTION OF STATIONING shown.

(8) Optional Stranding Shall Comply In All Respects With The Department's Structures Design Guidelines.

## TABLE OF BEAM VARIABLES

| BEAM ID. | CONCRETE PROPERTIES: CLASS | STRENGTHS: REL. (f'ci) | STRENGTHS: 28-DAY (f'c) | STND PTRN TYPE | PLAN VIEW CASE | END ELEV COND. | BRG. PLATE CASE | END OF BEAM AND BEARING DIMENSIONS **: ANGLE Ø | DIM P | DIM J | DIM K | BEAM DIMENSIONS *: DIM L | DIM R | DIM V | NUMBER OF SPACES FOR STIRRUP BARS K: S1 | S2 | S3 | S4 | S5 | S6 | S7 | DIAPHRAGM INSERT LOCATIONS*: DIM X1 | DIM X2 | DIM Y | NS/FS (8): #1 | #2 | REINFORCING STEEL: A LENGTH* | K NO. REQ'D | M NO. REQ'D | N LENGTH* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B-1 Thru B-11 | V | 4500 | 6500 | 2 | 2 | 2 | N/A | 92°34'34" | ½" | 6½" | ‡ | 91'-8⅞" | ⅝" | 0'-9 9/16" | 8 | 0 | 28 | 10 | 0 | 30 | 1 | - | - | - | - | - | 13'-10" | 167 | 84 | 92'-3" |
| B-12 Thru B-22 | V | 4500 | 6500 | 2 | 2 | 2 | N/A | 91°47'29" | 7/16" | 6½" | 11½" | 91'-9⅝" | ⅝" | 0'-10 5/16" | 8 | 0 | 28 | 10 | 0 | 30 | 1 | - | - | - | - | - | 13'-10" | 167 | 84 | 92'-3" |
| B-34 Thru B-44 | V | 4500 | 6500 | 1 | 3 | 3 | N/A | 89°11'14" | ½" | 6½" | 11½" | 100'-11⅞" | 13/16" | 1'-1" | 8 | 16 | 21 | 16 | 27 | 8 | 1 | - | - | - | - | - | 15'-2" | 207 | 104 | 101'-5" |
| B-45 Thru B-55 | V | 4500 | 6500 | 1 | 3 | 3 | N/A | 88°19'30" | 9/16" | 6½" | 11½" | 100'-11⅞" | 13/16" | 1'-1" | 8 | 16 | 21 | 16 | 27 | 8 | 1 | - | - | - | - | - | 15'-2" | 207 | 104 | 101'-5" |
| B-56 Thru B-66 | V | 4500 | 6500 | 1 | 3 | 3 | N/A | 87°27'46" | 9/16" | 6½" | ‡ | 100'-11⅛" | 13/16" | 1'-0¼" | 8 | 16 | 21 | 16 | 27 | 8 | 1 | - | - | - | - | - | 15'-2" | 207 | 104 | 101'-5" |

| REVISIONS: Date | By | Description | Date | By | Description |
|---|---|---|---|---|---|
| | | | 92R | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JJS | 6/95 |
| Checked by | KCH | 6/95 |
| Designed by | KCH | 6/95 |
| Checked by | | |
| Approved by | | |

ENGINEER OF RECORD: DYER, RIDDLE, MILLS AND PRECOURT, INC. 1505 EAST COLONIAL DRIVE ORLANDO, FLORIDA 32803

LOGO: DYER, RIDDLE, MILLS AND PRECOURT, INC. ENGINEERS - SURVEYORS 1505 EAST COLONIAL DRIVE ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR414 | SEMINOLE | 77002-3503 |

SHEET TITLE: FLORIDA BULB-T 72 BEAMS

PROJECT NAME: MAITLAND BOULEVARD OVER LAKE BOSSE

Drawing No. 1 of 1

Index No. S-113

| FED. ROAD DIV. NO. | STATE | PROJECT NO. | FISCAL YEAR | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | | 98 | B-49 |

## LOCATION – END BENT NO.1 AND END BENT NO.7 (PHASE II) (2 REQUIRED)

| MARK SIZE | MARK DES. | LENGTH FT. IN. | NO. BARS | TYPE BAR | STYLE A | STYLE G | B FT. IN. FR. | C FT. IN. FR. | D FT. IN. FR. | E FT. IN. FR. | F FT. IN. FR. | H FT. IN. FR. | J FT. IN. | K FT. IN. | N NO. | Ø ANG. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8 | A01 | 44–1 | 10 | 1 | | | 44–1–0 | | | | | | | | | |
| 8 | A02 | 2–6 | 10 | 1 | | | 40–4–0 | | | | | | | | | |
| 4 | A03 | 8–4 | 8 | 5 | | | 2–4–0 | 2–10–0 | 0–5–0 | 0–5–0 | | | | | | |
| 4 | A04 | 11–1 | 85 | 4 | 4 | 4 | 2–4–0 | 2–10–0 | | | | | | | | |
| 4 | A05 | 7–6 | 86 | 1 | | | 7–6–0 | | | | | | | | | |
| 4 | A06 | 44–1 | 14 | 1 | | | 44–1–0 | | | | | | | | | |
| 4 | A07 | 40–4 | 14 | 1 | | | 40–4–0 | | | | | | | | | |
| 6 | A09 | 1–6 | 20 | 1 | | | 1–6–0 | | | | | | | | | |
| 8 | A10 | 4–3 | 20 | * | | | 4–3–0 | | | | | | | | | |
| 5 | A13 | 4–7 | 24 | 11 | | | 0–7–0 | 2–0–0 | 2–0–0 | | | | | | | |
| 4 | A14 | 4–10 | 40 | 11 | | | 1–10–0 | 1–6–0 | 1–6–0 | | | | | | | |
| 4 | A15 | 2–4 | 40 | 1 | | | 2–4–0 | | | | | | | | | |
| 8 | W01 | 15–10 | 8 | 1 | | | 15–10–0 | | | | | | | | | |
| 5 | W02 | 18–4 | 7 | 10 | | | 15–10–0 | 2–6–0 | | | | | | | | |
| 4 | W03 | 8–4 | 1 | 5 | | | 2–4–0 | 2–10–0 | 0–5–0 | 0–5–0 | | | | | | |
| 4 | W04 | 11–1 | 15 | 4 | 4 | 4 | 2–4–0 | 2–10–0 | | | | | | | | |
| 5 | W05 | 11–6 | 17 | 10 | | | 8–6–0 | 3–0–0 | | | | | | | | |
| 8 | W06 | 14–0 | 6 | 10 | | | 7–0–0 | 7–0–0 | | | | | | | | |
| 5 | W07 | 15–10 | 4 | 1 | | | 15–10–0 | | | | | | | | | |

## LOCATION – END BENT NO.1 AND END BENT NO.7 (PHASE III) (2 REQUIRED)

| MARK SIZE | MARK DES. | LENGTH FT. IN. | NO. BARS | TYPE BAR | STYLE A | STYLE G | B FT. IN. FR. | C FT. IN. FR. | D FT. IN. FR. | E FT. IN. FR. | F FT. IN. FR. | H FT. IN. FR. | J FT. IN. | K FT. IN. | N NO. | Ø ANG. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | A03 | 8–4 | 3 | 5 | | | 2–4–0 | 2–10–0 | 0–5–0 | 0–5–0 | | | | | | |
| 4 | A04 | 11–1 | 40 | 4 | 4 | 4 | 2–4–0 | 2–10–0 | | | | | | | | |
| 4 | A05 | 7–6 | 40 | 1 | | | 7–6–0 | | | | | | | | | |
| 4 | A08 | 39–6 | 14 | 1 | | | 39–6–0 | | | | | | | | | |
| 6 | A09 | 1–6 | 10 | 1 | | | 1–6–0 | | | | | | | | | |
| 8 | A11 | 4–3 | 20 | 33 | 6 | | 4–3–0 | 0–2–0 | | | | | | | | |
| 8 | A12 | 39–6 | 10 | 1 | | | 39–6–0 | | | | | | | | | |
| 4 | A14 | 4–10 | 15 | 11 | | | 1–10–0 | 1–6–0 | 1–6–0 | | | | | | | |
| 4 | A15 | 2–4 | 15 | 1 | | | 2–4–0 | | | | | | | | | |

* MECHANICAL COUPLER AT ONE END

| REVISIONS | | | | | |
|---|---|---|---|---|---|
| Date | By | Description | Date | By | Description |
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JLA | 6/95 |
| Checked by | MKA | 6/95 |
| Designed by | MKA | 6/95 |
| Checked by | PM | 6/95 |
| Approved by | Peeter Mannik, P.E. | |

ENGINEER OF RECORD:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

LOGO:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
ENGINEERS - SURVEYORS
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR414 | SEMINOLE | 77002-3503 |

SHEET TITLE: REINFORCING BAR LIST

PROJECT NAME: MAITLAND BOULEVARD OVER LAKE BOSSE

Drawing No. 1 OF 3

Index No.

| FED. ROAD DIV. NO. | STATE | PROJECT NO. | FISCAL YEAR | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | | 98 | B-50 |

## LOCATION – PIERS (NO.3 & 4) PHASE II REQUIRED 2

| MARK SIZE | MARK DES. | LENGTH FT. IN. | NO. BARS | TYPE BAR | STYLE A | STYLE G | B FT. IN. FR. | C FT. IN. FR. | O FT. IN. FR. | E FT. IN. FR. | F FT. IN. FR. | H FT. IN. FR. | J FT. IN. | K FT. IN. | N NO. | Ø ANG. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8 | P01 | 41-3 | 44 | 1 | | | 41-3-0 | | | | | | | | | |
| 4 | P03 | 14-10 | 18 | 5 | | | 3-4-0 | 5-0-0 | 2-10-0 | 0-4-0 | | | | | | |
| 4 | P04 | 17-5 | 196 | 4 | 4 | 4 | 3-4-0 | 5-0-0 | | | | | | | | |
| 4 | P05 | 41-3 | 12 | 1 | | | 41-3-0 | | | | | | | | | |
| 4 | P06 | 9-7 | 84 | 11 | | | 3-7-0 | 3-0-0 | 3-0-0 | | | | | | | |
| 4 | P08 | 2-4 | 80 | 1 | | | 2-4-0 | | | | | | | | | |
| 4 | P09 | 4-10 | 48 | 11 | | | 1-10-0 | 1-6-0 | 1-6-0 | | | | | | | |
| 4 | P10 | 5-2 | 48 | 11 | | | 2-2-0 | 1-6-0 | 1-6-0 | | | | | | | |
| 5 | P11 | 4-7 | 24 | 11 | | | 0-7-0 | 2-0-0 | 2-0-0 | | | | | | | |
| 8 | P12 | 4-3 | 22 | * | | | 4-3-0 | | | | | | | | | |
| 4 | P14 | 10-2 | 88 | 23 | | | 3-0-0 | 1-4-0 | 3-0-0 | | | | | | | |

## LOCATION – PIERS (NO.3 & 4) PHASE III REQUIRED 2

| MARK SIZE | MARK DES. | LENGTH FT. IN. | NO. BARS | TYPE BAR | STYLE A | STYLE G | B FT. IN. FR. | C FT. IN. FR. | O FT. IN. FR. | E FT. IN. FR. | F FT. IN. FR. | H FT. IN. FR. | J FT. IN. | K FT. IN. | N NO. | Ø ANG. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8 | P02 | 39-6 | 22 | 1 | | | 39-6-0 | | | | | | | | | |
| 4 | P03 | 14-10 | 8 | 5 | | | 3-4-0 | 5-0-0 | 2-10-0 | 0-4-0 | | | | | | |
| 4 | P04 | 17-5 | 94 | 4 | 4 | 4 | 3-4-0 | 5-0-0 | | | | | | | | |
| 4 | P06 | 9-7 | 40 | 11 | | | 3-7-0 | 3-0-0 | 3-0-0 | | | | | | | |
| 4 | P07 | 39-6 | 6 | 1 | | | 39-6-0 | | | | | | | | | |
| 4 | P08 | 2-4 | 30 | 1 | | | 2-4-0 | | | | | | | | | |
| 4 | P09 | 4-10 | 18 | 11 | | | 1-10-0 | 1-6-0 | 1-6-0 | | | | | | | |
| 4 | P10 | 5-2 | 18 | 11 | | | 2-2-0 | 1-6-0 | 1-6-0 | | | | | | | |
| 8 | P13 | 4-3 | 22 | 33 | 6 | | 4-3-0 | 0-2-0 | | | | | | | | |
| 4 | P14 | 10-2 | 32 | 23 | | | 3-0-0 | 1-4-0 | 3-0-0 | | | | | | | |

## LOCATION – PIERS (NO.2,5 & 6) PHASE II REQUIRED 3

| MARK SIZE | MARK DES. | LENGTH FT. IN. | NO. BARS | TYPE BAR | STYLE A | STYLE G | B FT. IN. FR. | C FT. IN. FR. | O FT. IN. FR. | E FT. IN. FR. | F FT. IN. FR. | H FT. IN. FR. | J FT. IN. | K FT. IN. | N NO. | Ø ANG. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8 | P01 | 41-3 | 44 | 1 | | | 41-3-0 | | | | | | | | | |
| 4 | P03 | 14-10 | 18 | 5 | | | 3-4-0 | 5-0-0 | 2-10-0 | 0-4-0 | | | | | | |
| 4 | P04 | 17-5 | 196 | 4 | 4 | 4 | 3-4-0 | 5-0-0 | | | | | | | | |
| 4 | P08 | 2-4 | 80 | 1 | | | 2-4-0 | | | | | | | | | |
| 4 | P09 | 4-10 | 96 | 11 | | | 1-10-0 | 1-6-0 | 1-6-0 | | | | | | | |
| 5 | P11 | 4-7 | 24 | 11 | | | 0-7-0 | 2-0-0 | 2-0-0 | | | | | | | |
| 8 | P12 | 4-3 | 22 | * | | | 4-3-0 | | | | | | | | | |
| 4 | P14 | 10-2 | 24 | 23 | | | 3-0-0 | 1-4-0 | 3-0-0 | | | | | | | |

## LOCATION – PIERS (NO.2,5 & 6) PHASE III REQUIRED 3

| MARK SIZE | MARK DES. | LENGTH FT. IN. | NO. BARS | TYPE BAR | STYLE A | STYLE G | B FT. IN. FR. | C FT. IN. FR. | O FT. IN. FR. | E FT. IN. FR. | F FT. IN. FR. | H FT. IN. FR. | J FT. IN. | K FT. IN. | N NO. | Ø ANG. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8 | P02 | 39-6 | 22 | 1 | | | 39-6-0 | | | | | | | | | |
| 4 | P03 | 14-10 | 8 | 5 | | | 3-4-0 | 5-0-0 | 2-10-0 | 0-4-0 | | | | | | |
| 4 | P04 | 17-5 | 94 | 4 | 4 | 4 | 3-4-0 | 5-0-0 | | | | | | | | |
| 4 | P08 | 2-4 | 30 | 1 | | | 2-4-0 | | | | | | | | | |
| 4 | P09 | 4-10 | 36 | 11 | | | 1-10-0 | 1-6-0 | 1-6-0 | | | | | | | |
| 8 | P13 | 4-3 | 22 | 33 | 6 | | 4-3-0 | 0-2-0 | | | | | | | | |
| 4 | P14 | 10-2 | 80 | 23 | | | 3-0-0 | 1-4-0 | 3-0-0 | | | | | | | |

* *Mechanical Coupler At One End*

REVISIONS

| Date | By | Description | Date | By | Description |
|---|---|---|---|---|---|
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JLA | 6/95 |
| Checked by | MKA | 6/95 |
| Designed by | MKA | 6/95 |
| Checked by | PM | 6/95 |
| Approved by | Peeter Mannik, P.E. | |

ENGINEER OF RECORD:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

LOGO:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
ENGINEERS - SURVEYORS
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR414 | SEMINOLE | 77002-3503 |

SHEET TITLE: REINFORCING BAR LIST

PROJECT NAME: MAITLAND BOULEVARD OVER LAKE BOSSE

Drawing No. 2 of 3

Index No.

JR 07/12/96 1:30pm C:\JLA\R\JLA0003.DGN

| FED. ROAD DIV. NO. | STATE | PROJECT NO. | FISCAL YEAR | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | | 98 | B-51 |

## LOCATION – SUPERSTRUCTURE (SPANS 1 & 2) REQUIRED 1

| MARK SIZE | MARK DES. | LENGTH FT. IN. | NO. BARS | TYPE BAR | STYLE A | STYLE G | B FT. IN. FR. | C FT. IN. FR. | D FT. IN. FR. | E FT. IN. FR. | F FT. IN. FR. | H FT. IN. FR. | J FT. IN. | K FT. IN. | N NO. | Ø ANG. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | D01 | 11–11 | 440 | 7 | | | 5–5–0 | 0–5–0 | 0–4–0 | 0–4–0 | | | | | | |
| 5 | D02 | 10–9 | 80 | 7 | | | 4–10–0 | 0–5–0 | 0–4–0 | 0–4–0 | | | | | | |
| 4 | D03 | 123–6 | 24 | 2 | | | 1–9–0 | 120–0–0 | | | | | | | 2 | |
| 4 | D04 | 9–2 | 200 | 1 | | | 9–2–0 | | | | | | | | | |
| 4 | D05 | 7–8 | 40 | 1 | | | 7–8–0 | | | | | | | | | |
| 5 | S01 | 42–6 | 1776 | 1 | | | 42–6–0 | | | | | | | | | |
| 5 | S02 | 47–8 | 888 | 1 | | | 47–8–0 | | | | | | | | | |
| 5 | S03 | 7–4 | 444 | 17 | 1 | | 6–9–0 | | | | | | | | | |
| 5 | S05 | 190–10 | 260 | 2 | | | 2–0–0 | 184–10–0 | | | | | | | 3 | |
| 5 | S06 | 40–0 | 256 | 1 | | | 40–0–0 | | | | | | | | | |
| 4 | S12 | 1–9 | 370 | 32 | | | 0–9–0 | 0–6–0 | 0–6–0 | | | | | | | |

## LOCATION – SUPERSTRUCTURE (SPAN 3) REQUIRED 1

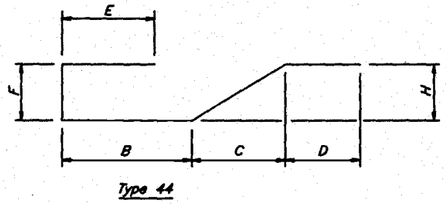
| MARK SIZE | MARK DES. | LENGTH FT. IN. | NO. BARS | TYPE BAR | STYLE A | STYLE G | B FT. IN. FR. | C FT. IN. FR. | D FT. IN. FR. | E FT. IN. FR. | F FT. IN. FR. | H FT. IN. FR. | J FT. IN. | K FT. IN. | N NO. | Ø ANG. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | S03 | 7–4 | 630 | 17 | 1 | | 6–9–0 | | | | | | | | | |
| 5 | S04 | 2–2 | 2520 | 33 | 6 | | 2–2–0 | 0–2–0 | | | | | | | | |
| 5 | S06 | 40–0 | 128 | 1 | | | 40–0–0 | | | | | | | | | |
| 5 | S09 | 45–2 | 2520 | * | | | 45–2–0 | | | | | | | | | |
| 5 | S10 | 38–2 | 1260 | 1 | | | 38–2–0 | | | | | | | | | |
| 5 | S11 | 220–0 | 303 | 2 | | | 2–0–0 | 214–0–0 | | | | | | | 3 | |
| 4 | S12 | 1–9 | 420 | 32 | | | 0–9–0 | 0–6–0 | 0–6–0 | | | | | | | |
| 5 | S13 | 10–2 | 100 | 1 | | | 10–2–0 | | | | | | | | | |
| 4 | S14 | 7–3 | 300 | 44 | | | 2–0–0 | 0–11–0 | 1–0–0 | 2–0–0 | 0–11–0 | 0–11–0 | | | | |

## LOCATION – SUPERSTRUCTURE (SPANS 4 & 5) REQUIRED 1

| MARK SIZE | MARK DES. | LENGTH FT. IN. | NO. BARS | TYPE BAR | STYLE A | STYLE G | B FT. IN. FR. | C FT. IN. FR. | D FT. IN. FR. | E FT. IN. FR. | F FT. IN. FR. | H FT. IN. FR. | J FT. IN. | K FT. IN. | N NO. | Ø ANG. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | D01 | 11–11 | 440 | 7 | | | 5–5–0 | 0–5–0 | 0–4–0 | 0–4–0 | | | | | | |
| 5 | D02 | 10–9 | 80 | 7 | | | 4–10–0 | 0–5–0 | 0–4–0 | 0–4–0 | | | | | | |
| 4 | D03 | 123–6 | 24 | 2 | | | 1–9–0 | 120–0–0 | | | | | | | 2 | |
| 4 | D04 | 9–2 | 200 | 1 | | | 9–2–0 | | | | | | | | | |
| 4 | D05 | 7–8 | 40 | 1 | | | 7–8–0 | | | | | | | | | |
| 5 | S01 | 42–6 | 1952 | 1 | | | 42–6–0 | | | | | | | | | |
| 5 | S02 | 47–8 | 976 | 1 | | | 47–8–0 | | | | | | | | | |
| 5 | S03 | 7–4 | 488 | 17 | 1 | | 6–9–0 | | | | | | | | | |
| 5 | S06 | 40–0 | 256 | 1 | | | 40–0–0 | | | | | | | | | |
| 5 | S07 | 211–4 | 260 | 2 | | | 2–0–0 | 205–4–0 | | | | | | | 3 | |
| 4 | S12 | 1–9 | 406 | 32 | | | 0–9–0 | 0–6–0 | 0–6–0 | | | | | | | |

## LOCATION – SUPERSTRUCTURE (SPAN 6) REQUIRED 1

| MARK SIZE | MARK DES. | LENGTH FT. IN. | NO. BARS | TYPE BAR | STYLE A | STYLE G | B FT. IN. FR. | C FT. IN. FR. | D FT. IN. FR. | E FT. IN. FR. | F FT. IN. FR. | H FT. IN. FR. | J FT. IN. | K FT. IN. | N NO. | Ø ANG. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | D01 | 11–11 | 220 | 7 | | | 5–5–0 | 0–5–0 | 0–4–0 | 0–4–0 | | | | | | |
| 5 | D02 | 10–9 | 40 | 7 | | | 4–10–0 | 0–5–0 | 0–4–0 | 0–4–0 | | | | | | |
| 4 | D03 | 123–6 | 12 | 2 | | | 1–9–0 | 120–0–0 | | | | | | | 2 | |
| 4 | D04 | 9–2 | 100 | 1 | | | 9–2–0 | | | | | | | | | |
| 4 | D05 | 7–8 | 20 | 1 | | | 7–8–0 | | | | | | | | | |
| 5 | S01 | 42–6 | 976 | 1 | | | 42–6–0 | | | | | | | | | |
| 5 | S02 | 47–8 | 488 | 1 | | | 47–8–0 | | | | | | | | | |
| 5 | S03 | 7–4 | 244 | 17 | 1 | | 6–9–0 | | | | | | | | | |
| 5 | S06 | 40–0 | 128 | 1 | | | 40–0–0 | | | | | | | | | |
| 5 | S08 | 103–6 | 260 | 2 | | | 2–0–0 | 101–6–0 | | | | | | | 1 | |
| 4 | S12 | 1–9 | 202 | 32 | | | 0–9–0 | 0–6–0 | 0–6–0 | | | | | | | |




Type 44

* Mechanical Coupler At One End

| REVISIONS | | | | | |
|---|---|---|---|---|---|
| Date | By | Description | Date | By | Description |
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JLA | 6/95 |
| Checked by | MKA | 6/95 |
| Designed by | MKA | 6/95 |
| Checked by | PM | 6/95 |
| Approved by | Peeter Mannik, P.E. | |

ENGINEER OF RECORD: DYER, RIDDLE, MILLS AND PRECOURT, INC. 1505 EAST COLONIAL DRIVE ORLANDO, FLORIDA 32803

LOGO: DYER, RIDDLE, MILLS AND PRECOURT, INC. ENGINEERS - SURVEYORS 1505 EAST COLONIAL DRIVE ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR414 | SEMINOLE | 77002-3503 |

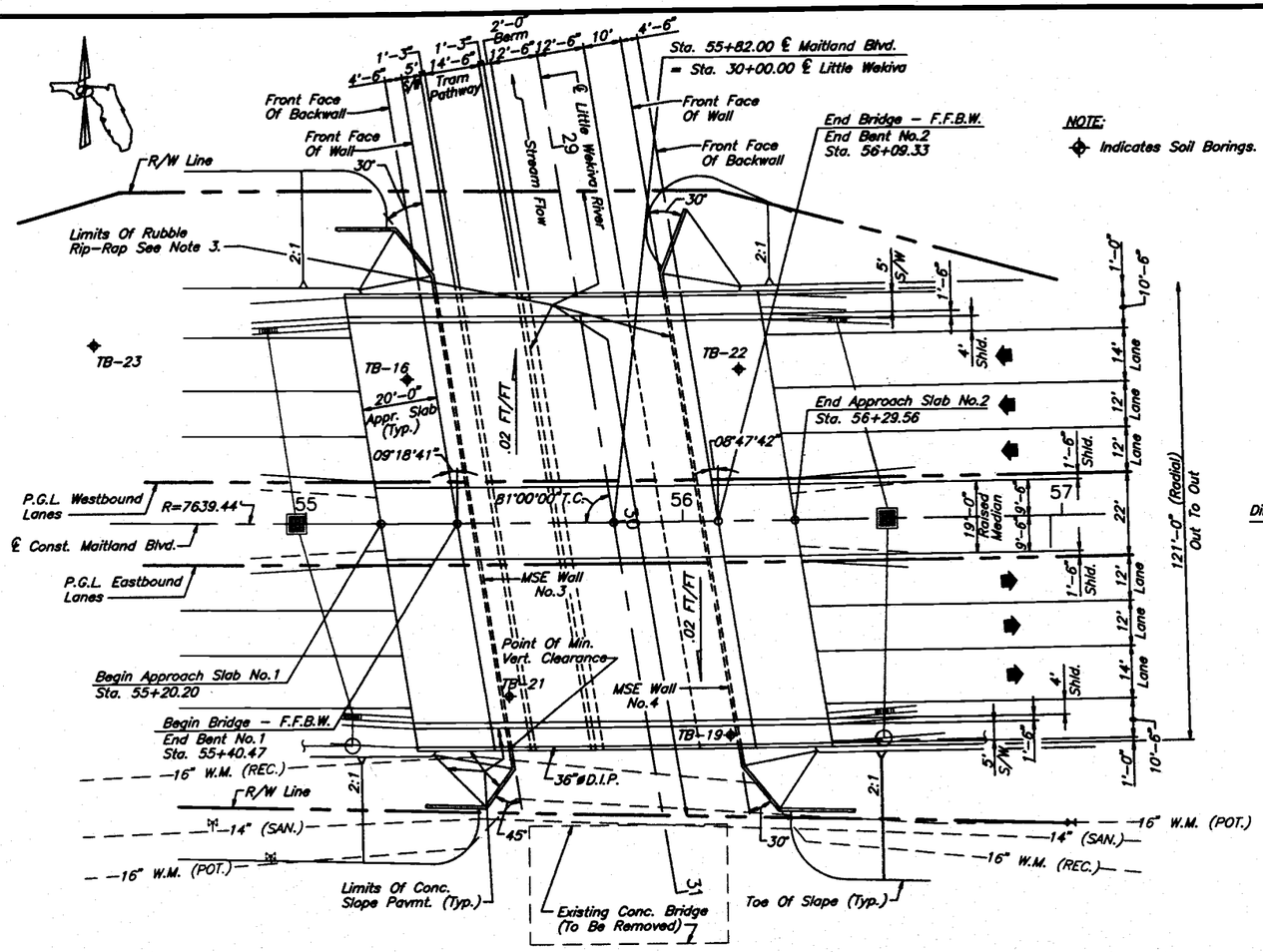
SHEET TITLE: REINFORCING BAR LIST

PROJECT NAME: MAITLAND BOULEVARD OVER LAKE BOSSE

Drawing No. 3 OF 3

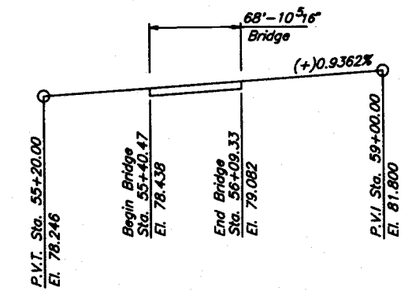
Index No.

| FED. ROAD DIV. NO. | STATE | PROJECT NO. | FISCAL YEAR | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | | 98 | C-1 |




NOTE:
Indicates Soil Borings.

## PLAN



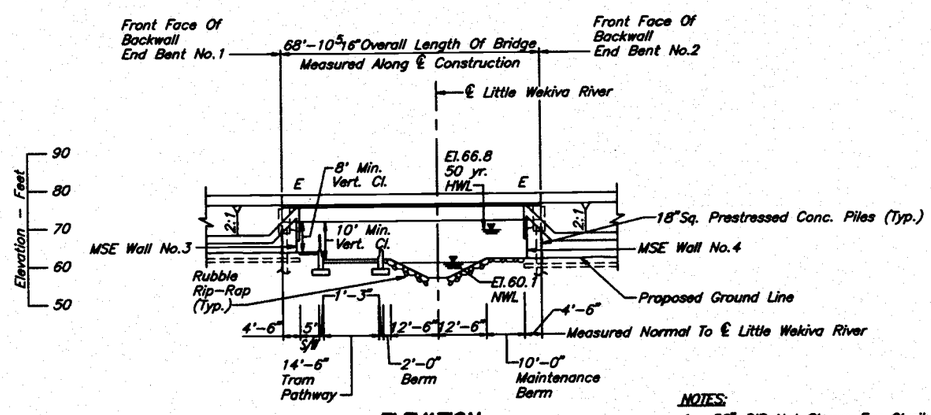

## PROFILE GRADE MAITLAND BLVD.

### TRAFFIC DATA MAITLAND BOULEVARD

EST. 1998 2-WAY ADT 39,967
EST. 2008 2-WAY ADT 43,344
K = 9.0%
D = 55%
T = 10%
DESIGN SPEED = 45 MPH

### CURVE DATA

P.I. STA. = 58+58.70
Δ = 07°11'22" LT.
D = 0°45'00"
T = 479.93'
L = 958.60'
R = 7639.44'
e = N/C
P.C. STA. = 53+78.77
P.R.C. STA. = 63+37.37




## ELEVATION

NOTES:
1. 36" DIP Not Shown For Clarity.
2. Minimum Vertical Clear Measured To Bottom Of Pipe.
3. See Miscellaneous Details For Rubble Rip-Rap Details.
4. See Roadway Plans For Tramway Section Details.

| REVISIONS | | | | | |
|---|---|---|---|---|---|
| Date | By | Description | Date | By | Description |
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JDS | 7/94 |
| Checked by | MKA | 7/94 |
| Designed by | MKA | 7/94 |
| Checked by | PM | 7/94 |
| Approved by | PEETER MANNIK, P.E. | |

ENGINEER OF RECORD:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

LOGO:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
ENGINEERS - SURVEYORS
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR 414 | SEMINOLE | 77002-3503 |

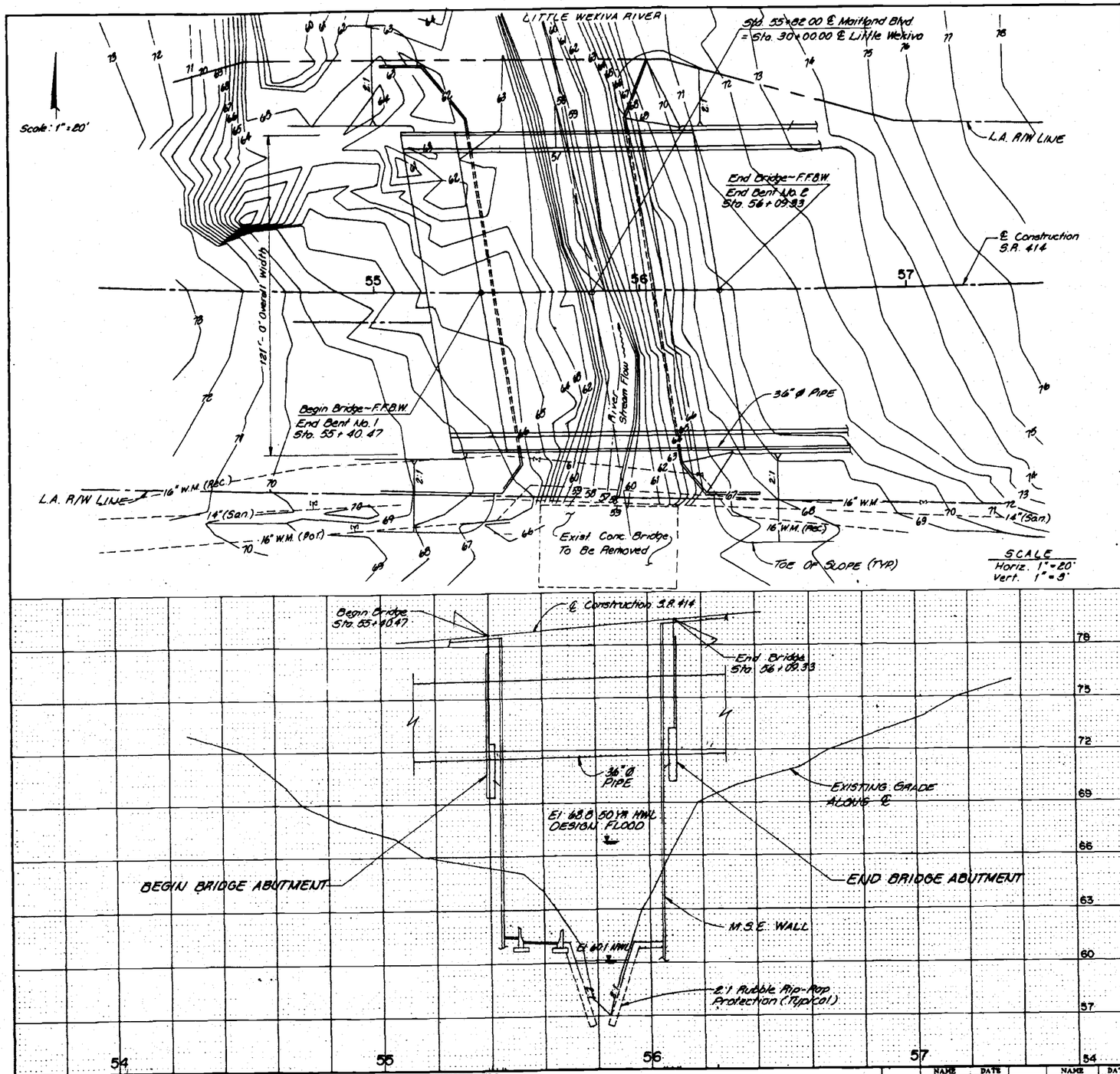
SHEET TITLE: GENERAL PLAN AND ELEVATION

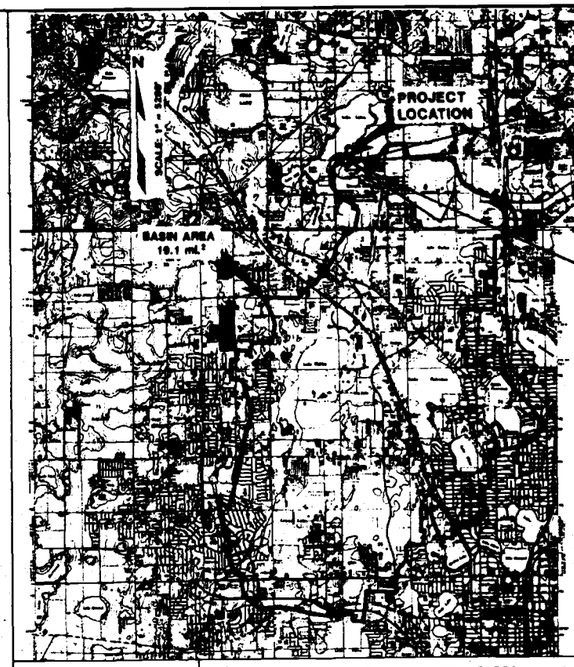
PROJECT NAME: MAITLAND BOULEVARD OVER LITTLE WEKIVA RIVER BRIDGE NO. 770075

Drawing No.

Index No.

| STATE PROJ. NO. | SHEET NO. |
|---|---|
| 77002-3503 | C-2 |




| (REFERENCE) | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| FOUNDATION | 12" Conc. Pile | | | |
| OVERALL LENGTH | 52' | | | |
| SPAN LENGTH | 2@26' | | | |
| TYPE CONSTRUCTION | Flat Slab | | | |
| AREA OF OPENING @ H.W. | 0.77 | | | |
| ROADWAY WIDTH | 30' | | | |
| ELEV. LOW MEMBER | 63.20 | | | |

EXISTING STRUCTURES

ASSUMED CONFIGURATION

| | |
|---|---|
| 18" Prestressed Conc. Piles | |
| 68'-10 #16 | |
| 68'-10 #16 | |
| Prestressed Beam | |
| 29 @ 1'-8 | |
| 121'-0" | |
| 71.61 | |

## HYDRAULIC DESIGN DATA

NOTE: The hydraulic data is shown for informational purposes only to indicate the flood discharges and water surface elevations which may be anticipated in any given year. This data was generated using highly variable factors determined by a study of the watershed. Many judgements and assumptions are required to establish these factors. The resultant hydraulic data is sensitive to changes, particularly antecedent conditions, urbanization, channelization and land use. Users of this data are cautioned against the assumption of precision which cannot be obtained.

DEFINITIONS:
Design Flood: The flood utilized to assure a desired level of hydraulic performance.
Base Flood: The flood having a 1% chance of being exceeded in any year. (100 Year Frequency)
Overtopping Flood: The flood which causes flow over the highway, over a watershed divide or thru emergency relief structures.
Greatest Flood: The most severe flood which can be predicted where overtopping is not practicable.

WATER SURFACE ELEVATIONS: N.H.W. (Non-Tidal) 60.1 M.H.W. N/A M.L.W. N/A

☐ OVERTOPPING FLOOD
☒ GREATEST FLOOD

| FLOOD DATA: | MAX. EVENT OF RECORD | DESIGN FLOOD | BASE FLOOD | ☒ GREATEST FLOOD |
|---|---|---|---|---|
| STAGE ELEV. NGVD (FT.) | Not Available | 66.80 | 67.30 | 68.51 |
| DISCHARGE (CFS) | Not Available | 1850 | 1450 | 1800 |
| AVERAGE VELOCITY (FPS) | Not Available | 2.33 | 2.46 | 2.11 |
| EXCEEDANCE PROB. (%) | Not Available | 2.0% | 1.0% | 0.20% |
| FREQUENCY (YR.) | Not Available | 50 | 100 | 500 |

## HYDRAULIC RECOMMENDATIONS

1. BEGIN BRIDGE STATION 55+40.47 END BRIDGE STATION 56+09.33 SKEW ANGLE 9°
2. CHANNEL SECTION: ℄ STATION 55+82.00 BOTTOM WIDTH 9' ELEV. 57 SIDE SLOPE Vertical Walls
3. LIMITS OF CHANNEL EXCAVATION: RT. 56+10 LT. 55+40
4. CLEARANCE: NAVAGATION: HORIZ. N/A VERT. N/A ABOVE EL. N/A DRIFT: HORIZ. 56' VERT. 4.81 ABOVE EL. 66.80
5. SCOUR PREDICTION: Due To The Proposed Channel Protection, No Abutement Scour Is Predicted. Contraction Scour Estimates Are As Follows: Q(50 Yr.) = 0.43 ft. Q(100 Yr.) = 1.09 ft. Q(500 Yr.) = 1.40 ft.
6. SLOPE PROTECTION: Embankments To Be Protected By Rubble Rip-Rap.
7. DECK DRAINAGE: Runoff Will Be Directed, Via Curb And Gutter, Toward The Roadway Storm Sewer Systems At The West End Of The Structure.
8. OTHER: 36" DIP Will Be Attached To Southern Portion Of Bridge. Purpose Of The Pipe Is To Convey Stormwater.

REMARKS:

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

| | NAME | DATE | | NAME | DATE |
|---|---|---|---|---|---|
| DESIGNED BY | | | DRAWN BY | J.J.S. | 10-91 |
| CHECKED BY | | | CHECKED BY | | |
| SUPERVISED BY: | | | | | |

FLORIDA DEPARTMENT OF TRANSPORTATION

APPROVED BY:

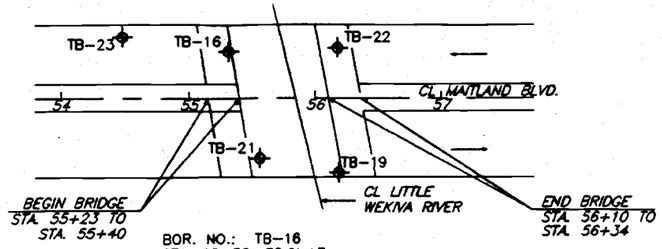
DATE:

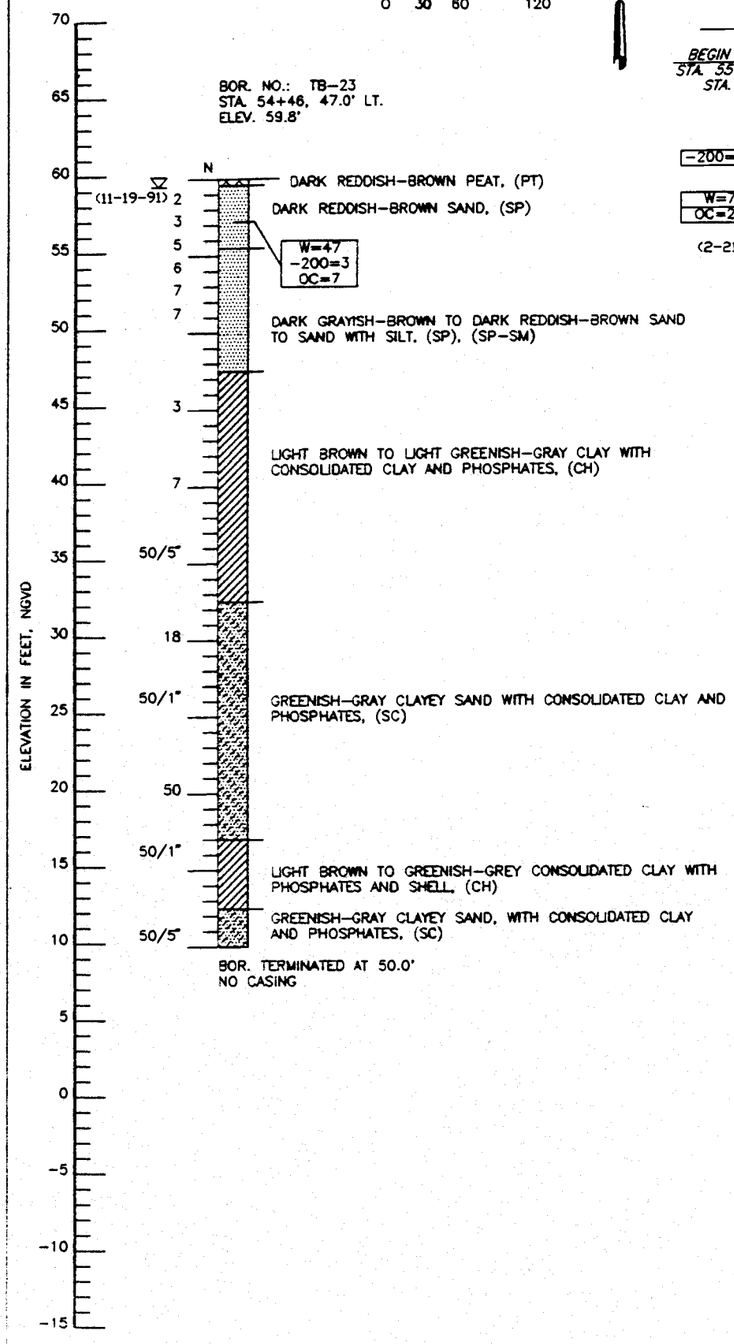
**BRIDGE HYDRAULIC RECOMMENDATIONS**

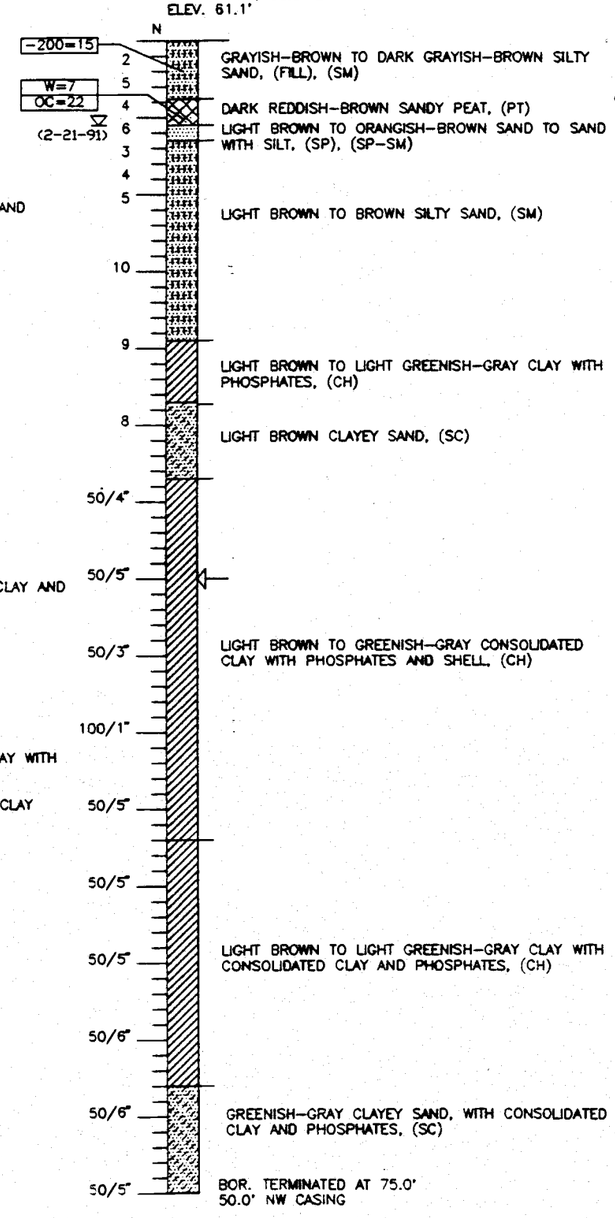
| FED. ROAD DIST. NO. | STATE | PROJECT NO. | FISCAL YEAR | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | 77002-3503 | | C-3 |

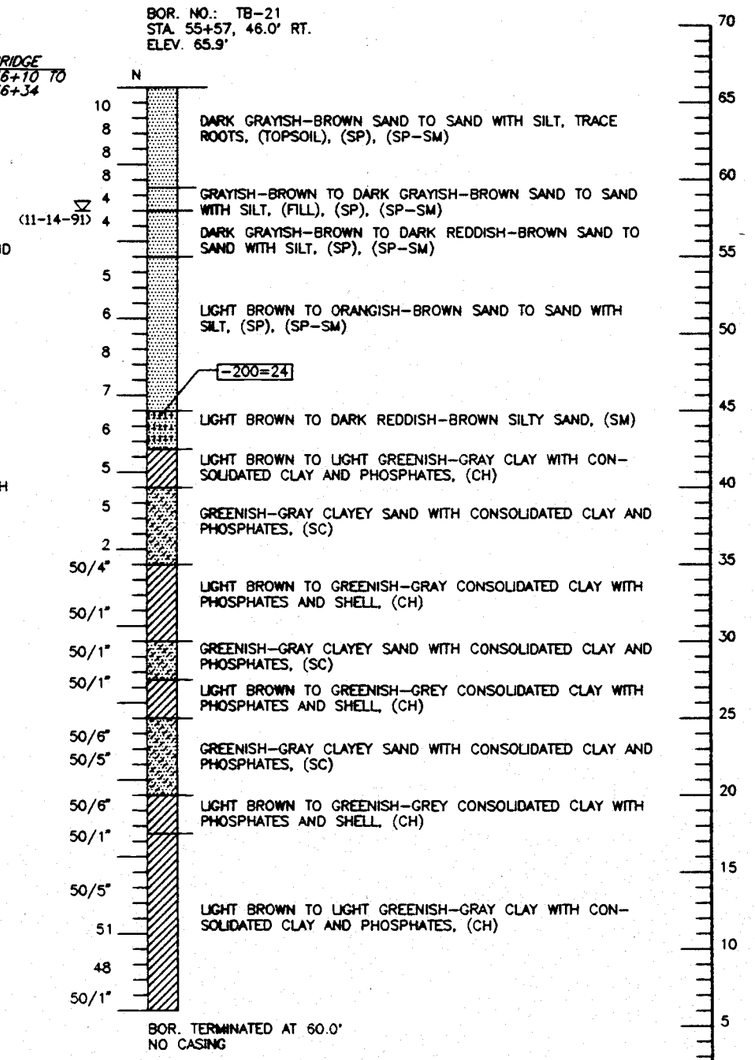
SECTION: 21
TOWNSHIP: 21 SOUTH
RANGE: 29 EAST

0 30 60 120




## LEGEND

- MUCK/PEAT
- SAND
- SILTY SAND
- CLAY
- CLAYEY SAND

(SP) UNIFIED SOIL CLASSIFICATION GROUP SYMBOL

(11-14-91) WATER TABLE LEVEL (WITH DATE OF READING)

N STANDARD PENETRATION RESISTANCE IN BLOWS PER FOOT, UNLESS OTHERWISE NOTED

LOCATION OF STANDARD PENETRATION TEST BORING

CIRCULATION LOSS

W=47 NATURAL MOISTURE CONTENT (%)
-200=3 FINES PASSING No. 200 SIEVE (%)
OC=7 ORGANIC CONTENT (%)

### STANDARD PENETRATION TEST DATA

| | |
|---|---|
| SPOON INSIDE DIA. | 1 3/8 IN. |
| SPOON OUTSIDE DIA. | 2 IN. |
| AVG. HAMMER DROP | 30 IN. |
| HAMMER WEIGHT | 140 LBS. |

NOTE: STRATA BOUNDARIES ARE APPROXIMATE AND MAY VARY BETWEEN OR AWAY FROM BORING LOCATIONS.

### GRANULAR MATERIALS

| RELATIVE DENSITY | SPT (BLOWS/FT.) |
|---|---|
| VERY LOOSE | LESS THAN 4 |
| LOOSE | 4-10 |
| MEDIUM DENSE | 10-30 |
| DENSE | 30-50 |
| VERY DENSE | GREATER THAN 50 |

### SILTS AND CLAYS

| CONSISTENCY | SPT (BLOWS/FT.) |
|---|---|
| VERY SOFT | LESS THAN 2 |
| SOFT | 2-4 |
| FIRM | 4-8 |
| STIFF | 8-15 |
| VERY STIFF | 15-30 |
| HARD | GREATER THAN 30 |

ENVIRONMENTAL CLASSIFICATION:

SUPERSTRUCTURE: SLIGHTLY AGGRESSIVE

SUBSTRUCTURE: EXTREMELY AGGRESSIVE

REVISIONS

| Date | By | Description | Date | By | Description |
|---|---|---|---|---|---|
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | SEJJI | 12-18-91 |
| Checked by | GK | 12-18-91 |
| Designed by | N/A | N/A |
| Checked by | N/A | N/A |
| Approved by | JWC | |

ENGINEER OF RECORD:
JAY W. CASPER, P.E. #36330
PSI
1675 LEE ROAD
WINTER PARK, FLORIDA 32789

LOGO: PSI Environmental Geotechnical Construction Consulting • Engineering • Testing

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
GEOTECHNICAL DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR 414 | SEMINOLE | 77002-3503 |

SHEET TITLE: REPORT OF CORE BORINGS FOR STRUCTURE

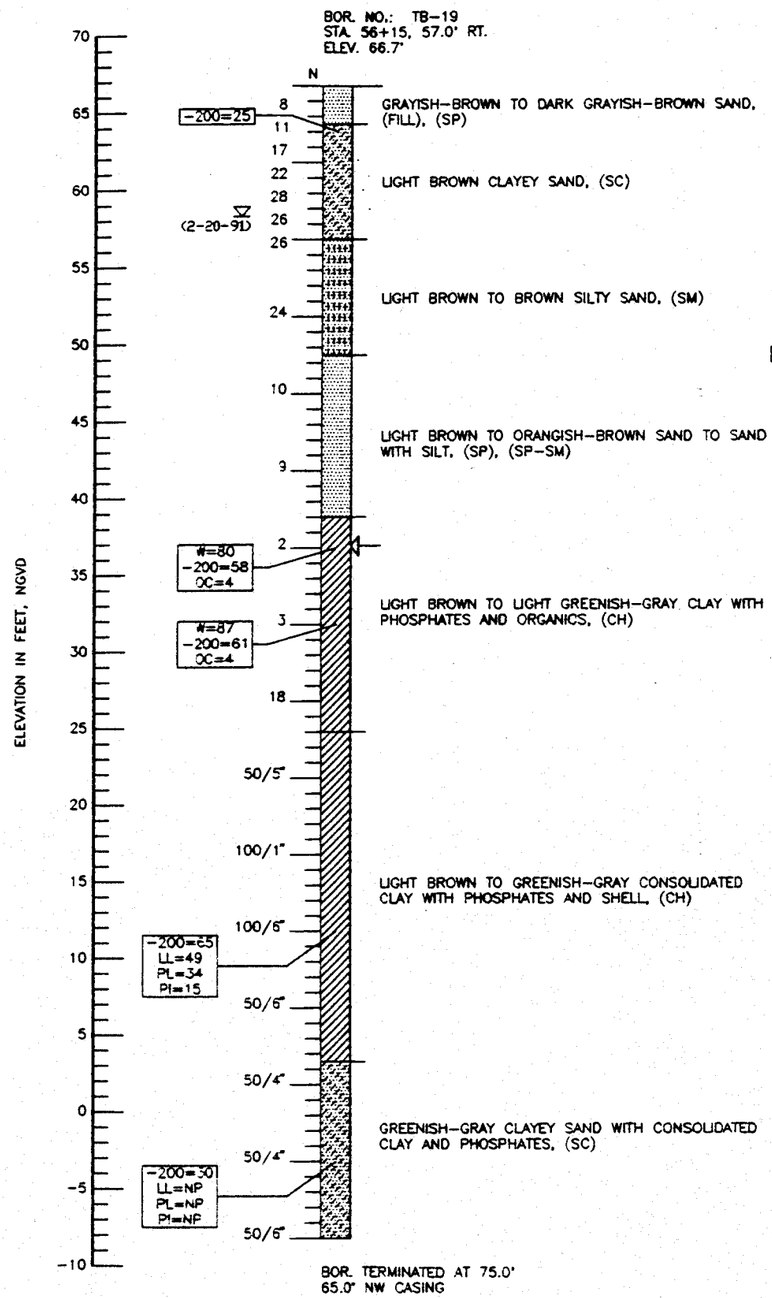
Drawing No.

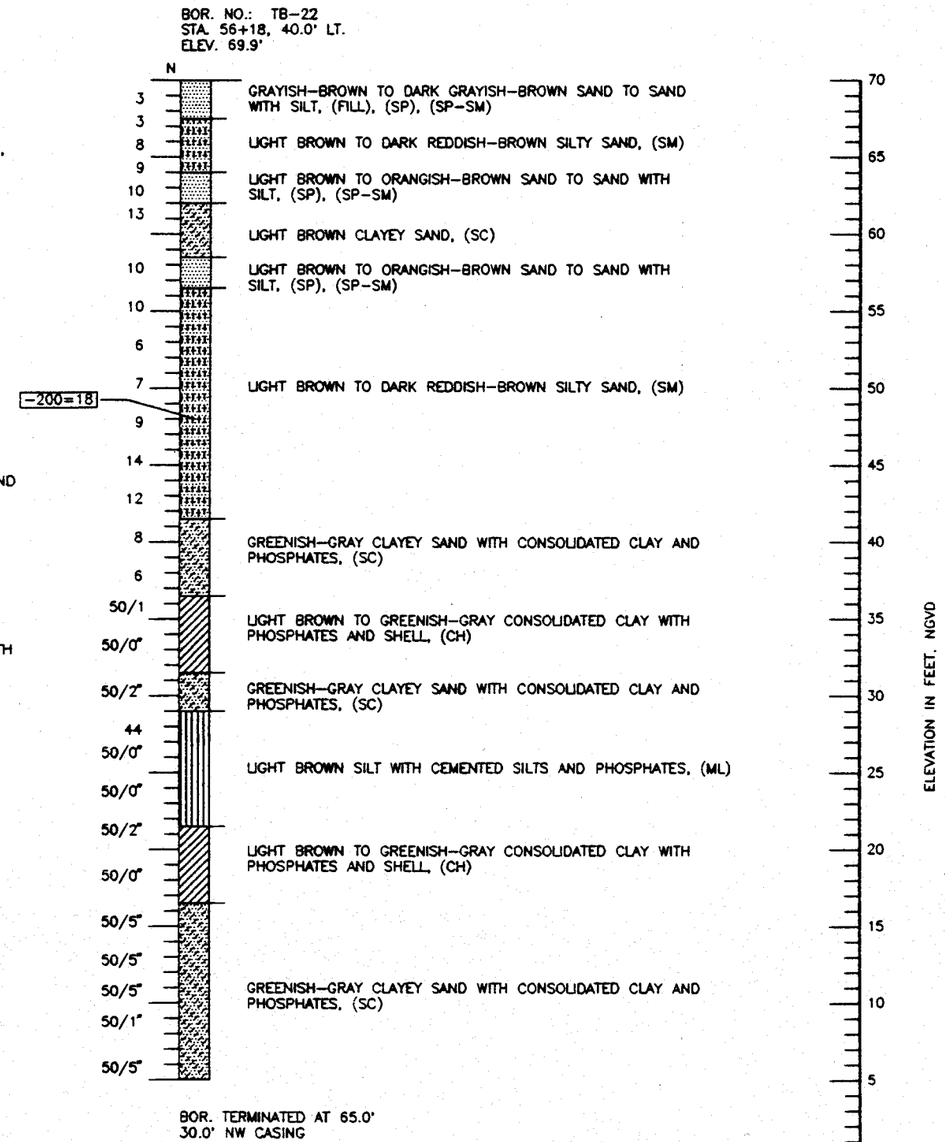
PROJECT NAME: LITTLE WEKIVA RIVER BRIDGE S.R. 414

Index No.

PSI PROJECT No. 754-05250
FIGURE:

| FED. ROAD DIV. NO. | STATE | PROJECT NO. | FISCAL YEAR | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | 77002-3503 | | C-4 |




## LEGEND

- SAND
- SILTY SAND
- SILT
- CLAY
- CLAYEY SAND

(SP) UNIFIED SOIL CLASSIFICATION GROUP SYMBOL

2-20-91 WATER TABLE LEVEL (WITH DATE OF READING)

N STANDARD PENETRATION RESISTANCE IN BLOWS PER FOOT UNLESS OTHERWISE NOTED

CIRCULATION LOSS

| | |
|---|---|
| W=80 | NATURAL MOISTURE CONTENT (%) |
| -200=58 | FINES PASSING No. 200 SIEVE (%) |
| OC=4 | ORGANIC CONTENT (%) |
| LL=34 | LIQUID LIMIT (%) |
| PL=34 | PLASTIC LIMIT (%) |
| PI=15 | PLASTICITY INDEX |

### STANDARD PENETRATION TEST DATA

| | |
|---|---|
| SPOON INSIDE DIA. | 1 3/8 IN. |
| SPOON OUTSIDE DIA. | 2 IN. |
| AVG. HAMMER DROP | 30 IN. |
| HAMMER WEIGHT | 140 LBS. |

NOTE: STRATA BOUNDARIES ARE APPROXIMATE AND MAY VARY BETWEEN OR AWAY FROM BORING LOCATIONS.

### GRANULAR MATERIALS

| RELATIVE DENSITY | SPT (BLOWS/FT.) |
|---|---|
| VERY LOOSE | LESS THAN 4 |
| LOOSE | 4-10 |
| MEDIUM DENSE | 10-30 |
| DENSE | 30-50 |
| VERY DENSE | GREATER THAN 50 |

### SILTS AND CLAYS

| CONSISTENCY | SPT (BLOWS/FT.) |
|---|---|
| VERY SOFT | LESS THAN 2 |
| SOFT | 2-4 |
| FIRM | 4-8 |
| STIFF | 8-15 |
| VERY STIFF | 15-30 |
| HARD | GREATER THAN 30 |

ENVIRONMENTAL CLASSIFICATION:

SUPERSTRUCTURE: SLIGHTLY AGGRESSIVE

SUBSTRUCTURE: EXTREMELY AGGRESSIVE

NOTE: SEE FIGURE 3 FOR BORING LOCATIONS.

REVISIONS

| Date | By | Description | Date | By | Description |
|---|---|---|---|---|---|
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | SEJJB | 12-27-91 |
| Checked by | GK | 12-27-91 |
| Designed by | N/A | N/A |
| Checked by | N/A | N/A |
| Approved by | JWC | |

ENGINEER OF RECORD:
JAY W. CASPER, P.E. #36330
PSI
1675 LEE ROAD
WINTER PARK, FLORIDA 32789

LOGO: PSI Environmental Geotechnical Construction Consulting • Engineering • Testing

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
GEOTECHNICAL DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR 414 | SEMINOLE | 77002-3503 |

SHEET TITLE: REPORT OF CORE BORINGS FOR STRUCTURE

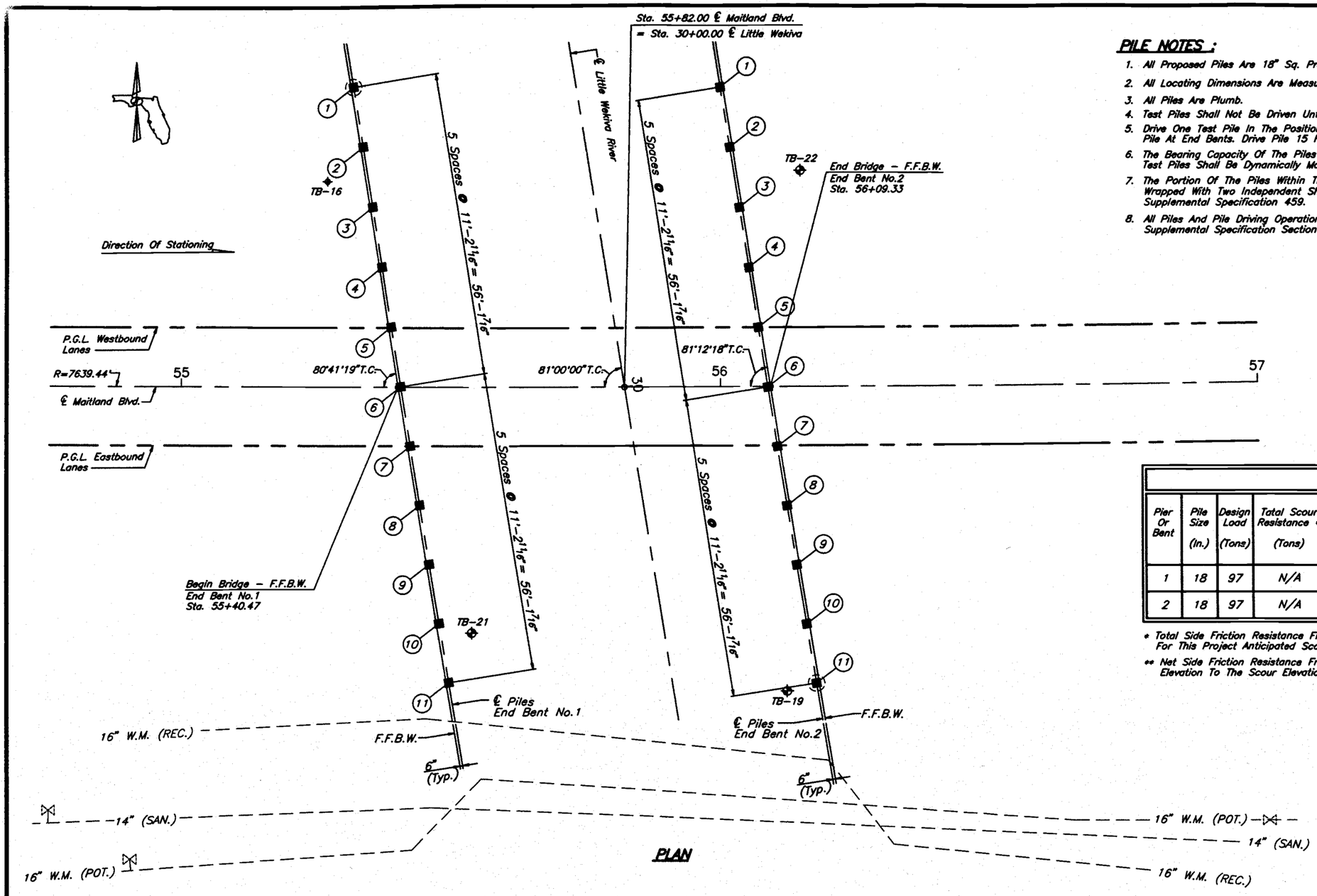
PROJECT NAME: LITTLE WEKIVA RIVER BRIDGE S.R. 414

Drawing No.

Index No.

PSI PROJECT No. 754-05260

| FED. ROAD DIV. NO. | STATE | PROJECT NO. | FISCAL YEAR | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | | 98 | C-5 |




PLAN

## PILE NOTES :

1. All Proposed Piles Are 18" Sq. Prestressed Concrete. See Standard Index 600 For Details.
2. All Locating Dimensions Are Measured To The F.F.B.W.
3. All Piles Are Plumb.
4. Test Piles Shall Not Be Driven Until Approval Of The Engineer Is Obtained.
5. Drive One Test Pile In The Position Of A Permanent Plumb Pile At End Bents. Drive Pile 15 Ft. Below Anticipated Tip Elevation.
6. The Bearing Capacity Of The Piles Shall Be Determined By The Wave Equation Formula. Test Piles Shall Be Dynamically Monitored During Driving To Verify Capacity.
7. The Portion Of The Piles Within The MSE Embankment (Above Existing Grade) Shall Be Wrapped With Two Independent Sheets Of 6 Mil Polyethylene In Accordance With F.D.O.T. Supplemental Specification 459.
8. All Piles And Pile Driving Operations Shall Be In Accordance With F.D.O.T. Supplemental Specification Section 455.

## LEGEND

- (1) Pile Number
- ■ Proposed Piles
- (■) Test Pile
- ◆ Test Boring

## CURVE DATA

Δ = 07°11'22" Lt.
D = 00°45'00"
T = 479.93'
L = 958.60'
R = 7639.44'
P.C. Sta. = 53+78.77
P.R.C. Sta. = 63+37.37

## PILE INSTALLATION TABLE

| Pier Or Bent | Pile Size (In.) | Design Load (Tons) | Total Scour Resistance * (Tons) | Min. Tip Elevation (Ft.) | Scour Elevation (Ft.) | Required Preform Elevation (Ft.) | Required Jet Elevation (Ft.) | Net Scour Resistance ** (Tons) | Anticipated Tip Elevation |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 18 | 97 | N/A | 33 | N/A | N/A | N/A | N/A | 16 |
| 2 | 18 | 97 | N/A | 30 | N/A | N/A | N/A | N/A | 16 |

* Total Side Friction Resistance From Ground Line To The Scour Elevation. For This Project Anticipated Scour Is Minimal, Therefore Neglected.

** Net Side Friction Resistance From The Required Preformed Or Jetting Elevation To The Scour Elevation.

## PILE CUTOFF ELEVATIONS

| PILE NO. | LOCATION | |
|---|---|---|
| | END BENT NO.1 | END BENT NO.2 |
| 1 | 69.70 | 70.30 |
| 2 | 69.90 | 70.50 |
| 3 | 70.20 | 70.80 |
| 4 | 70.40 | 71.00 |
| 5 | 70.60 | 71.20 |
| 6 | 70.90 | 71.50 |
| 7 | 70.60 | 71.30 |
| 8 | 70.40 | 71.10 |
| 9 | 70.20 | 70.90 |
| 10 | 69.90 | 70.70 |
| 11 | 69.70 | 70.50 |

REVISIONS

| Date | By | Description | Date | By | Description |
|---|---|---|---|---|---|
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JLA | 3/95 |
| Checked by | MKA | 3/95 |
| Designed by | MKA | 3/95 |
| Checked by | PM | 3/95 |
| Approved by | Peeter Mannik, P.E. | |

ENGINEER OF RECORD:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

LOGO:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
ENGINEERS - SURVEYORS
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR 414 | SEMINOLE | 77002-3503 |

SHEET TITLE: FOUNDATION LAYOUT

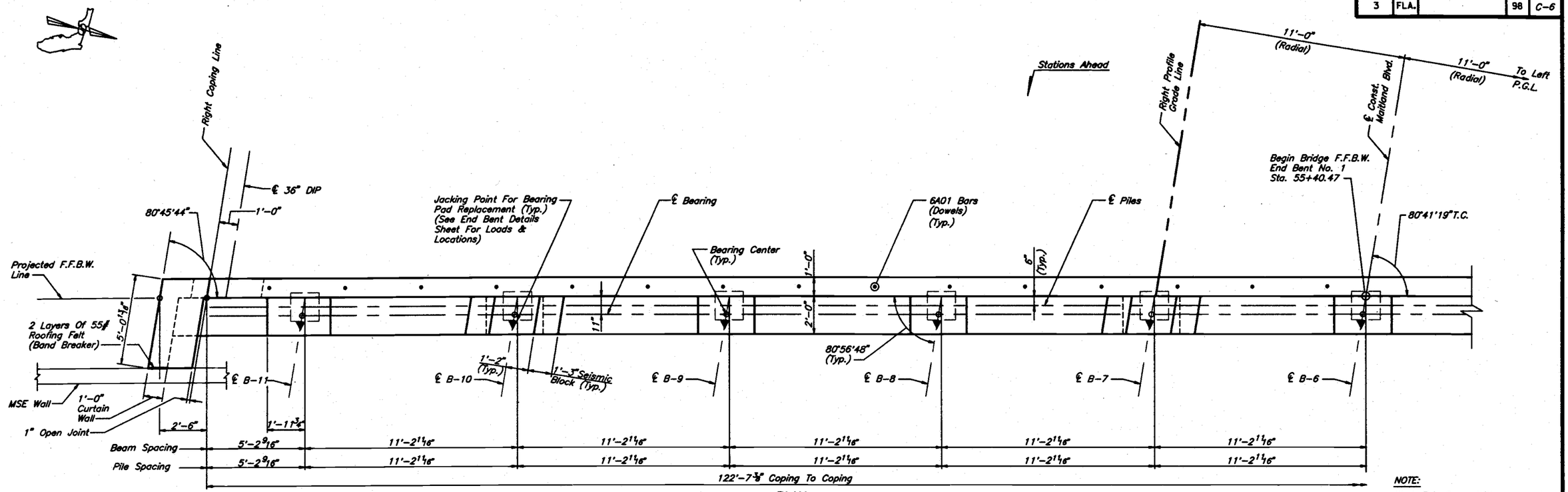
PROJECT NAME: MAITLAND BOULEVARD OVER LITTLE WEKIVA RIVER

Drawing No.

Index No.

AB 07/30/98 11:36AM C:\MAITLAND\USER\LISMPRO.DGN

| FED. ROAD DIV. NO. | STATE | PROJECT NO. | FISCAL YEAR | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | | 98 | C-6 |




NOTE:

Work This Sheet With End Bent No.1, Sheet 2 Of 2, And End Bent Detail Sheet.

REVISIONS

| Date | By | Description | Date | By | Description |
|---|---|---|---|---|---|
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JDS | 7/94 |
| Checked by | MKA | 7/94 |
| Designed by | MKA | 7/94 |
| Checked by | PM | 7/94 |
| Approved by | PEETER MANNIK, P.E. | |

ENGINEER OF RECORD:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

LOGO:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
ENGINEERS - SURVEYORS
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR414 | SEMINOLE | 77002-3503 |

SHEET TITLE: END BENT NO. 1

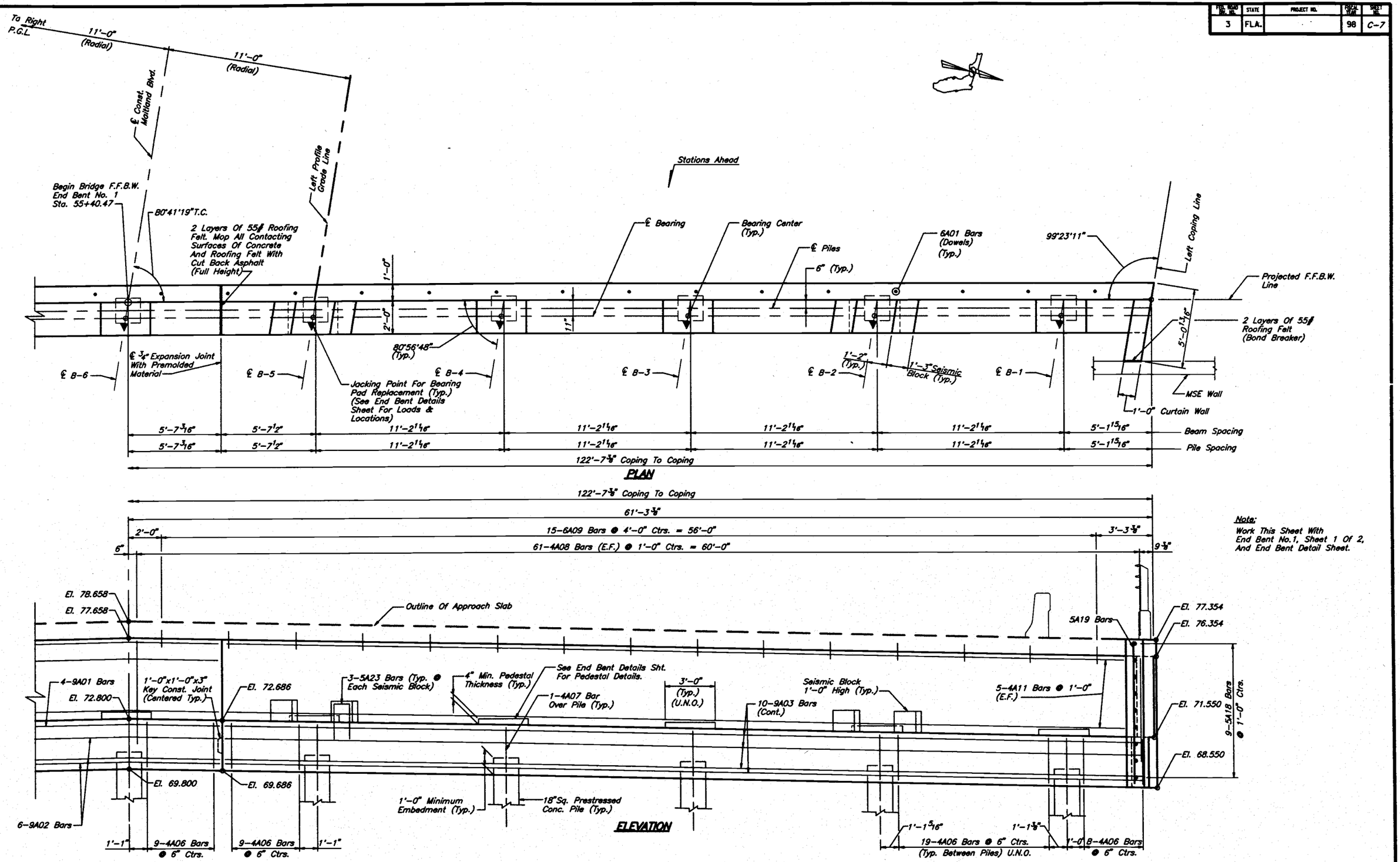
PROJECT NAME: MAITLAND BOULEVARD OVER LITTLE WEKIVA RIVER

Drawing No. 1 OF 2

Index No.

JB 07/21/98 11:11:44a C:\APDTEMP\MRT\MRT0001.DGN

| FED. ROAD DIV. NO. | STATE | PROJECT NO. | FISCAL YEAR | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | | 98 | C-7 |




| REVISIONS | | | | | |
|---|---|---|---|---|---|
| Date | By | Description | Date | By | Description |
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JDS | 7/94 |
| Checked by | MKA | 7/94 |
| Designed by | MKA | 7/94 |
| Checked by | PM | 7/94 |
| Approved by | PEETER MANNIK, P.E. | |

ENGINEER OF RECORD:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

LOGO:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
ENGINEERS - SURVEYORS
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR414 | SEMINOLE | 77002-3503 |

SHEET TITLE: END BENT NO. 1

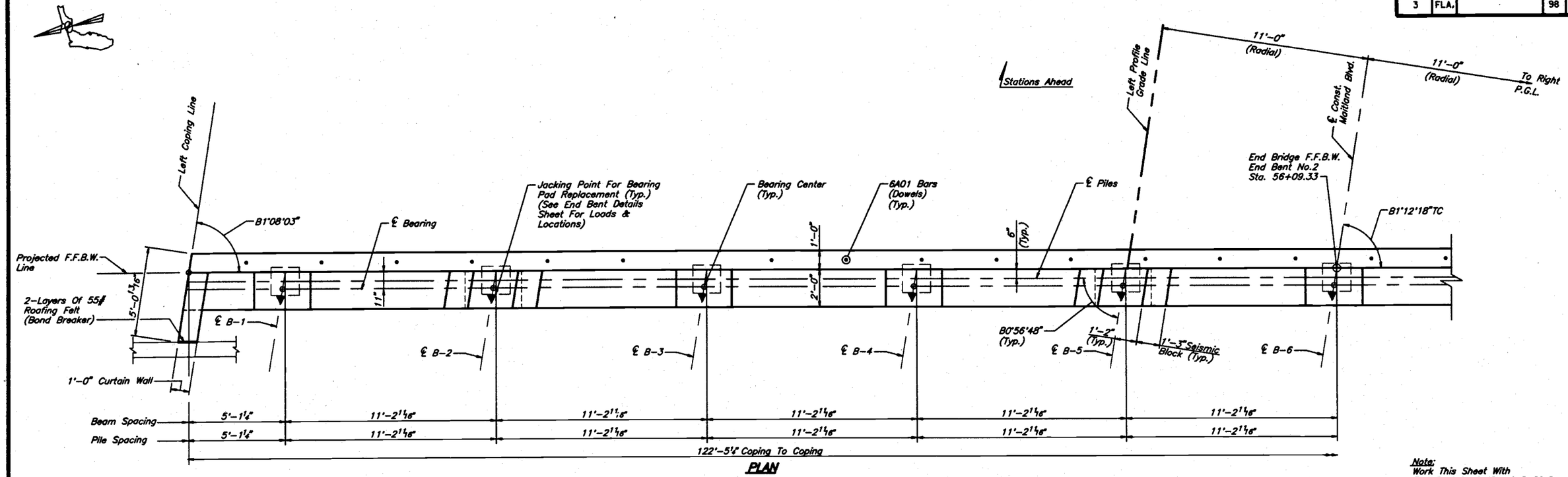
PROJECT NAME: MAITLAND BOULEVARD OVER LITTLE WEKIVA RIVER

Drawing No. 2 OF 2

Index No.

JS 07/30/98 11:04AM C:\APPLIED\LIBR\LIBRES1-S.DGN

| FED. ROAD DIV. NO. | STATE | PROJECT NO. | FISCAL YEAR | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | | 98 | C-8 |




| REVISIONS | | | | | |
|---|---|---|---|---|---|
| Date | By | Description | Date | By | Description |
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JDS | 7/94 |
| Checked by | MKA | 7/94 |
| Designed by | MKA | 7/94 |
| Checked by | PM | 7/94 |
| Approved by | PEETER MANNIK, P.E. | |

ENGINEER OF RECORD:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

LOGO:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
ENGINEERS - SURVEYORS
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR414 | SEMINOLE | 77002-3503 |

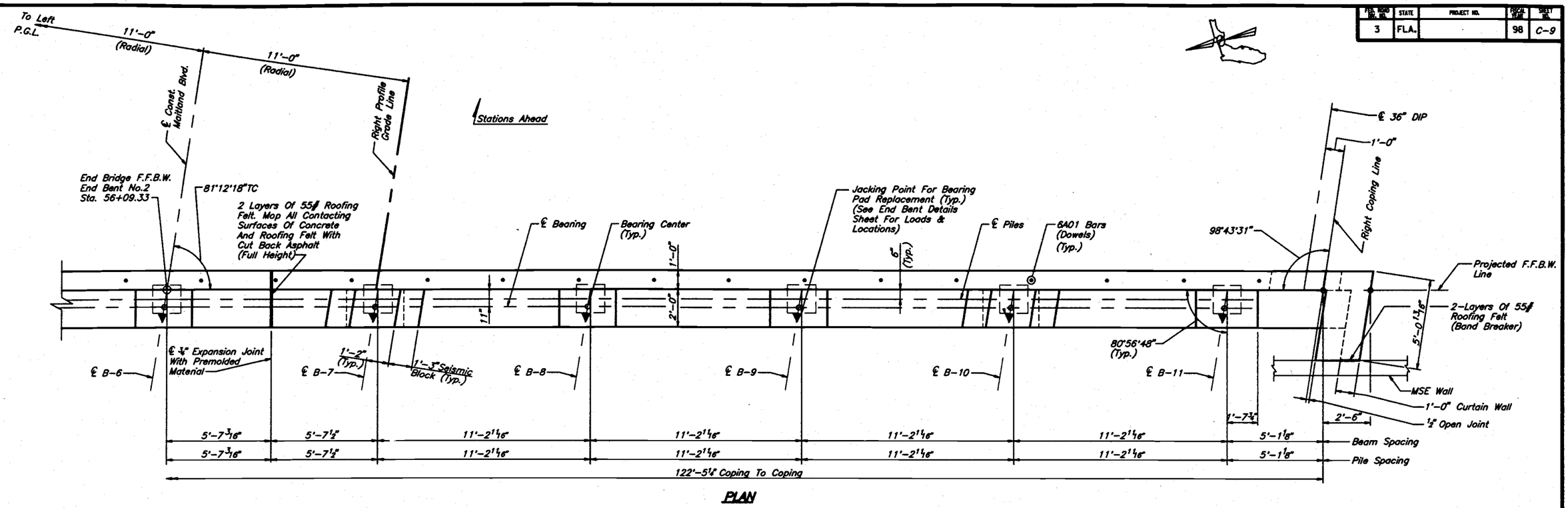
SHEET TITLE: END BENT NO. 2

PROJECT NAME: MAITLAND BOULEVARD OVER LITTLE WEKIVA RIVER

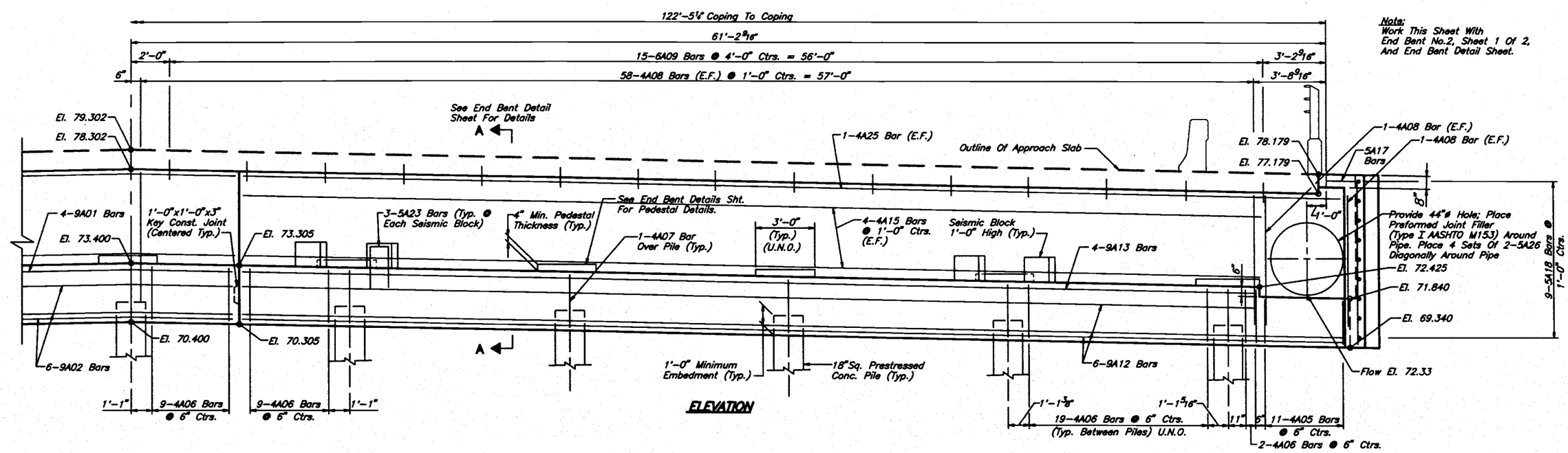
Drawing No. 1 OF 2

Index No.

| FED. ROAD DIV. NO. | STATE | PROJECT NO. | FISCAL YEAR | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | | 98 | C-9 |




**PLAN**




**ELEVATION**

| REVISIONS | | | | | |
|---|---|---|---|---|---|
| Date | By | Description | Date | By | Description |
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JDS | 7/94 |
| Checked by | MKA | 7/94 |
| Designed by | MKA | 7/94 |
| Checked by | PM | 7/94 |
| Approved by | PEETER MANNIK, P.E. | |

ENGINEER OF RECORD: DYER, RIDDLE, MILLS AND PRECOURT, INC. 1505 EAST COLONIAL DRIVE ORLANDO, FLORIDA 32803

LOGO: DYER, RIDDLE, MILLS AND PRECOURT, INC. ENGINEERS - SURVEYORS 1505 EAST COLONIAL DRIVE ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR414 | SEMINOLE | 77002-3503 |

SHEET TITLE: END BENT NO. 2

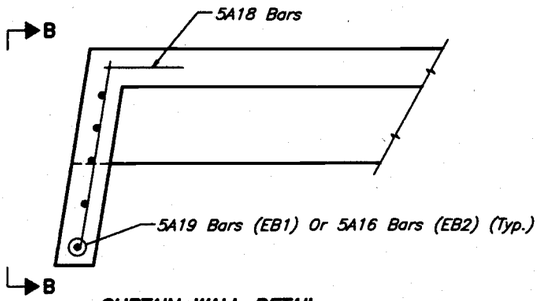
PROJECT NAME: MAITLAND BOULEVARD OVER LITTLE WEKIVA RIVER

Drawing No. 2 OF 2

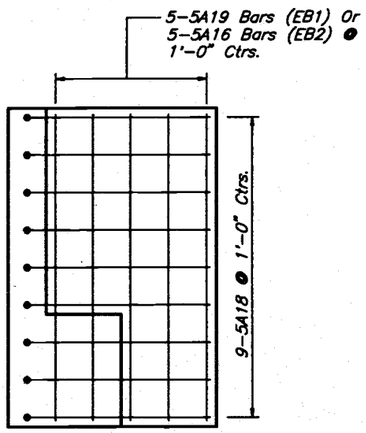
Index No.

AB 07/30/98 10:08AM C:\APTLANR\APTLANR\LANR22-2.DWG

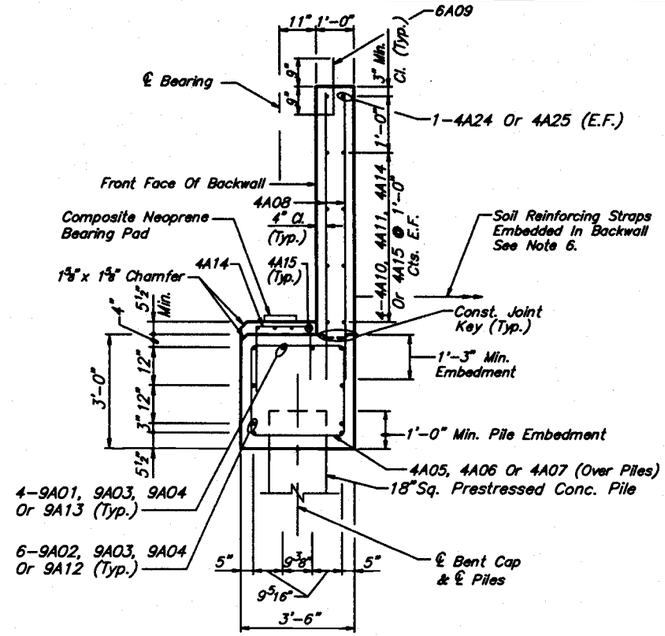
| FED. ROAD DIV. NO. | STATE | PROJECT NO. | FISCAL YEAR | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | | 98 | C-10 |



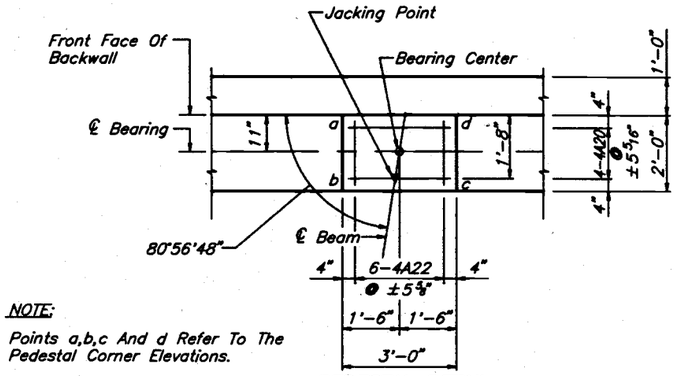

**CURTAIN WALL DETAIL**




**SECTION B-B**



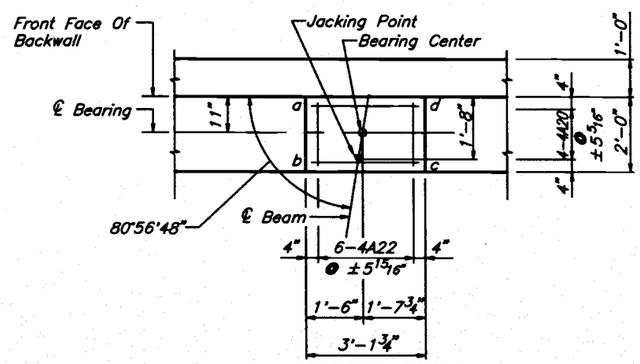

**SECTION A-A**




**PEDESTAL DETAIL**

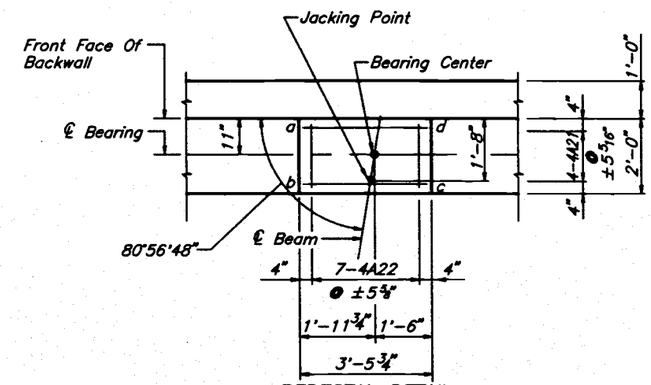
NOTE:

Points a,b,c And d Refer To The Pedestal Corner Elevations.




**PEDESTAL DETAIL**

AT BEAM B-11 ONLY
END BENT NO.2 SHOWN




**PEDESTAL DETAIL**

AT BEAM B-11 ONLY
END BENT NO.1 SHOWN

| UNFACTORED JACKING LOADS | | |
|---|---|---|
| DEAD LOAD (TONS) | LIVE LOAD + IMPACT (TONS) | TOTAL (TONS) |
| 48 | 29 | 77 |

Jacks Should Be Equipped To Lift Each End Of The Span Simultaneously. For Additional Jacking Notes See General Notes Sheet A-2.

**PEDESTAL ELEVATIONS**

| | END BENT NO. 1 | | | | END BENT NO. 2 | | | |
|---|---|---|---|---|---|---|---|---|
| BEAM | a | b | c | d | a | b | c | d |
| B-1 | 72.076 | 72.164 | 72.052 | 71.964 | 72.723 | 72.811 | 72.699 | 72.611 |
| B-2 | 72.314 | 72.402 | 72.290 | 72.202 | 72.961 | 73.049 | 72.937 | 72.849 |
| B-3 | 72.553 | 72.641 | 72.529 | 72.441 | 73.199 | 73.287 | 73.175 | 73.087 |
| B-4 | 72.792 | 72.880 | 72.768 | 72.680 | 73.437 | 73.525 | 73.413 | 73.325 |
| B-5 | 73.030 | 73.118 | 73.006 | 72.918 | 73.675 | 73.763 | 73.651 | 73.563 |
| B-6 | 73.269 | 73.357 | 73.245 | 73.157 | 73.913 | 74.001 | 73.889 | 73.801 |
| B-7 | 73.064 | 73.152 | 73.040 | 72.952 | 73.708 | 73.796 | 73.684 | 73.596 |
| B-8 | 72.860 | 72.948 | 72.836 | 72.748 | 73.502 | 73.590 | 73.478 | 73.390 |
| B-9 | 72.655 | 72.743 | 72.631 | 72.543 | 73.296 | 73.384 | 73.272 | 73.184 |
| B-10 | 72.450 | 72.538 | 72.426 | 72.338 | 73.090 | 73.178 | 73.006 | 72.978 |
| B-11 | 72.263 | 72.351 | 72.221 | 72.133 | 72.884 | 72.972 | 72.855 | 72.767 |

NOTE:

Work This Sheet With End Bent Sheets.

REVISIONS

| Date | By | Description | Date | By | Description |
|---|---|---|---|---|---|
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JLA | 7/94 |
| Checked by | MKA | 7/94 |
| Designed by | MKA | 7/94 |
| Checked by | PM | 7/94 |
| Approved by | PEETER MANNIK, P.E. | |

ENGINEER OF RECORD:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

LOGO:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
ENGINEERS - SURVEYORS
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR 414 | SEMINOLE | 77002-3503 |

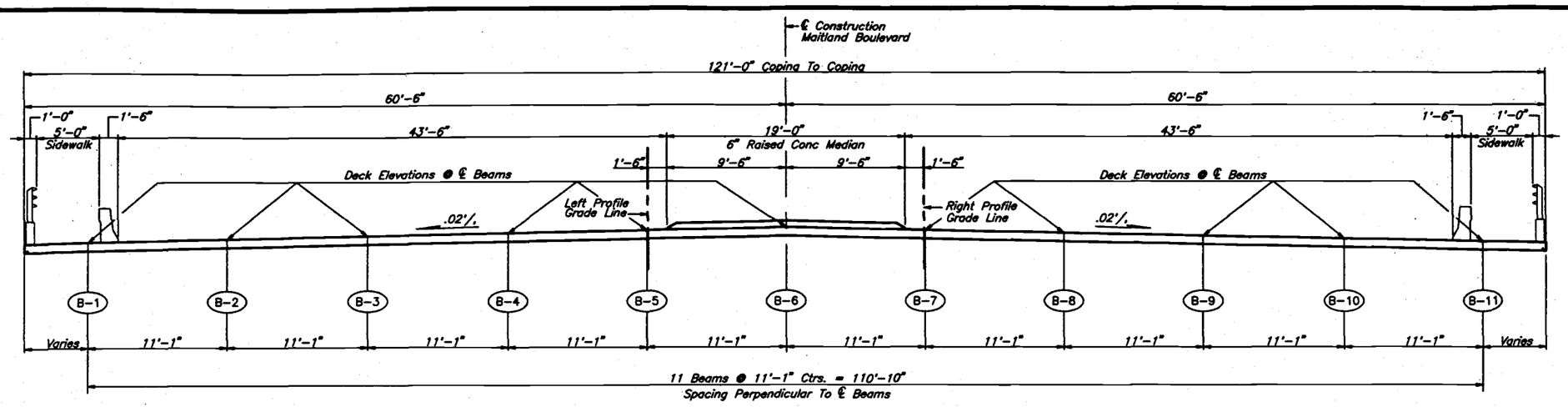
SHEET TITLE: END BENT DETAILS

PROJECT NAME: MAITLAND BOULEVARD OVER LITTLE WEKIVA RIVER

Drawing No.

Index No.

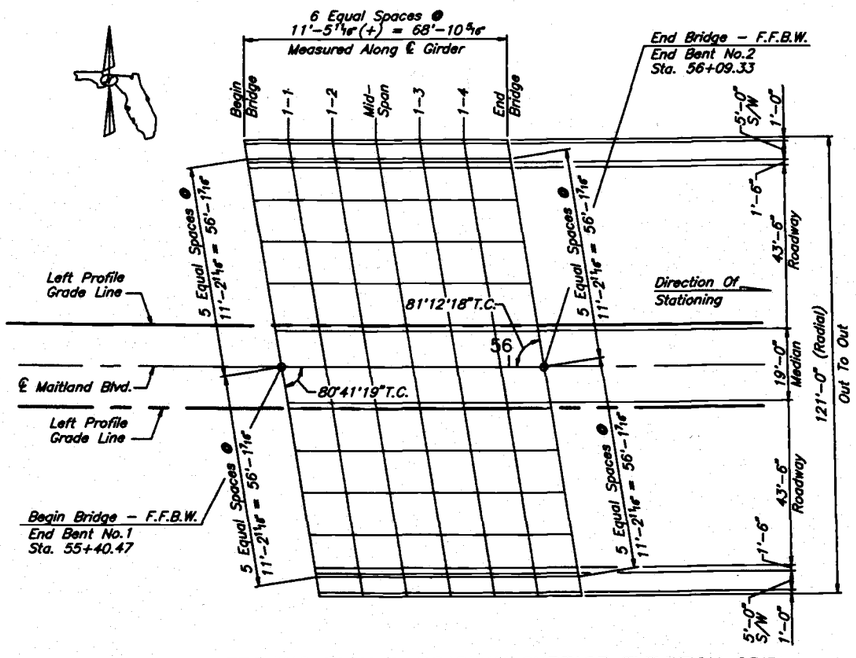
| FED. ROAD DIV. NO. | STATE | PROJECT NO. | FISCAL YEAR | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | | 98 | C-11 |




## TYPICAL SECTION

Looking Up Station

NOTE:
Increment Lines Are Measured Along ℄ Girders And Are Projected To The Coping Line, Gutter Line, Profile Grade Line And Centerline Construction.




## FRAMING PLAN & ROADWAY SURFACE ELEVATION GRID

### DECK ELEVATIONS

| LOCATION | BEGIN BRIDGE | 1-1 | 1-2 | MID-SPAN | 1-3 | 1-4 | END BRIDGE |
|---|---|---|---|---|---|---|---|
| Ⓐ LEFT COPING LINE | 77.354 | 77.462 | 77.571 | 77.679 | 77.787 | 77.896 | 78.004 |
| B-1 | 77.465 | 77.572 | 77.679 | 77.787 | 77.895 | 78.004 | 78.112 |
| Ⓑ LEFT GUTTER LINE | 77.516 | 77.624 | 77.732 | 77.840 | 77.949 | 78.057 | 78.165 |
| B-2 | 77.703 | 77.810 | 77.918 | 78.025 | 78.133 | 78.242 | 78.350 |
| B-3 | 77.942 | 78.049 | 78.156 | 78.264 | 78.372 | 78.480 | 78.588 |
| B-4 | 78.181 | 78.287 | 78.394 | 78.502 | 78.610 | 78.718 | 78.826 |
| B-5 | 78.419 | 78.526 | 78.633 | 78.740 | 78.848 | 78.956 | 79.064 |
| LT. P.G.L. | 78.421 | 78.528 | 78.636 | 78.744 | 78.851 | 78.959 | 79.066 |
| Ⓒ L.M. GUTTER LINE | 78.453 | 78.561 | 78.668 | 78.776 | 78.883 | 78.991 | 79.099 |
| B-6 | 78.658 | 78.764 | 78.871 | 78.978 | 79.086 | 79.194 | 79.302 |
| ℄ MAITLAND BLVD. | 78.658 | 78.765 | 78.873 | 78.980 | 79.087 | 79.195 | 79.302 |
| Ⓓ R.M. GUTTER LINE | 78.482 | 78.590 | 78.697 | 78.804 | 78.912 | 79.019 | 79.126 |
| RT. P.G.L. | 78.454 | 78.562 | 78.669 | 78.776 | 78.884 | 78.991 | 79.098 |
| B-7 | 78.453 | 78.561 | 78.669 | 78.776 | 78.883 | 78.990 | 79.097 |
| B-8 | 78.249 | 78.356 | 78.464 | 78.571 | 78.678 | 78.785 | 78.891 |
| B-9 | 78.044 | 78.152 | 78.259 | 78.366 | 78.473 | 78.579 | 78.685 |
| B-10 | 77.839 | 77.947 | 78.054 | 78.161 | 78.267 | 78.373 | 78.479 |
| Ⓔ RIGHT GUTTER LINE | 77.678 | 77.785 | 77.892 | 77.999 | 78.105 | 78.212 | 78.319 |
| B-11 | 77.634 | 77.742 | 77.849 | 77.955 | 78.061 | 78.167 | 78.273 |
| Ⓕ RIGHT COPING LINE | 77.540 | 77.646 | 77.753 | 77.860 | 77.966 | 78.073 | 78.179 |

REVISIONS

| Date | By | Description | Date | By | Description |
|---|---|---|---|---|---|
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JLA | 7/94 |
| Checked by | MKA | 7/94 |
| Designed by | MKA | 7/94 |
| Checked by | PM | 7/94 |
| Approved by | PEETER MANNIK, P.E. | |

ENGINEER OF RECORD:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

LOGO:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
ENGINEERS - SURVEYORS
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR414 | SEMINOLE | 77002-3503 |

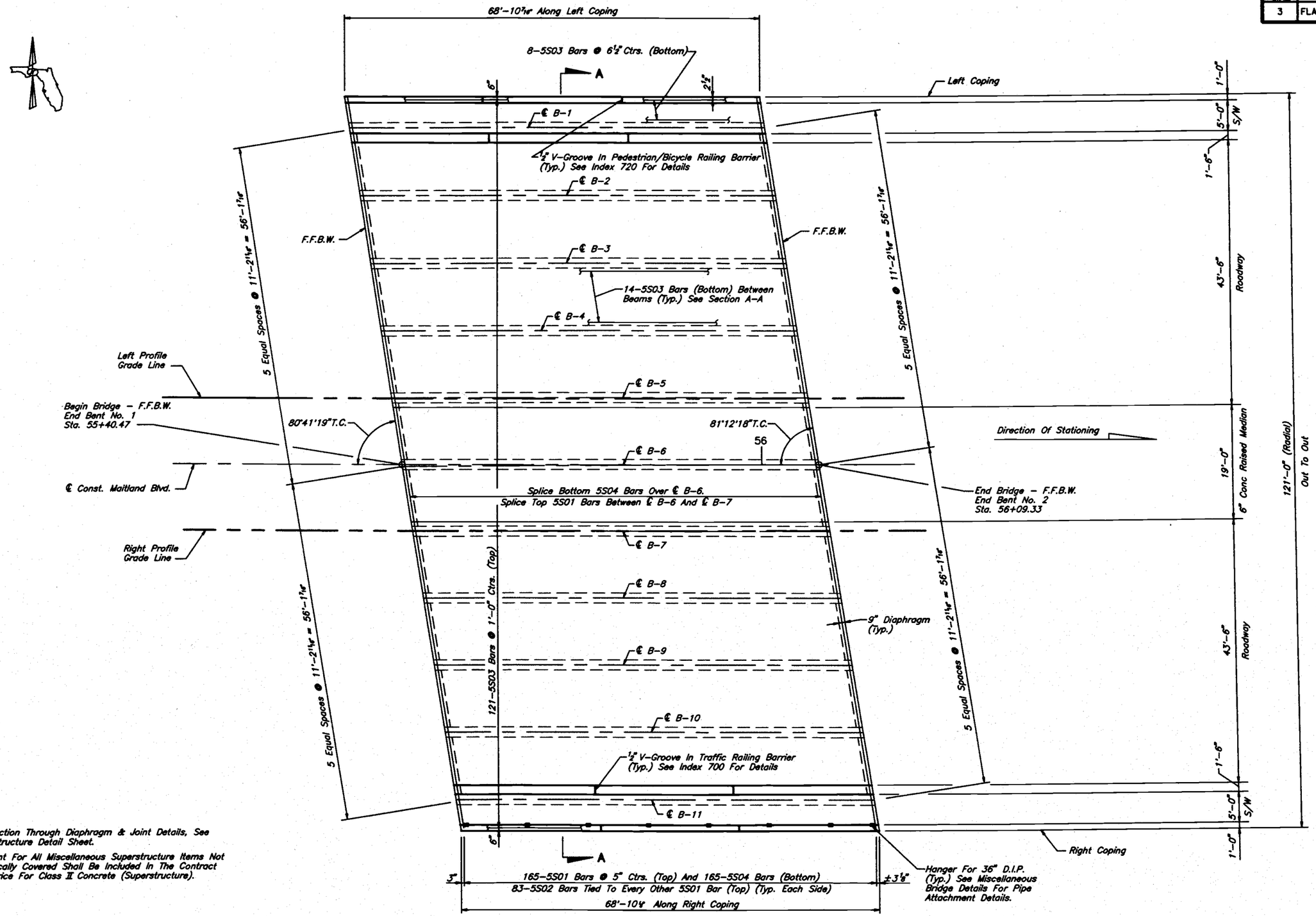
SHEET TITLE: FINISH GRADE ELEVATIONS

Drawing No.

PROJECT NAME: MAITLAND BOULEVARD OVER LITTLE WEKIVA RIVER

Index No.

| FED. ROAD DIV. NO. | STATE | PROJECT NO. | PROJECT YEAR | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | | 98 | C-12 |




NOTES:

1. For Section Through Diaphragm & Joint Details, See Superstructure Detail Sheet.
2. Payment For All Miscellaneous Superstructure Items Not Specifically Covered Shall Be Included In The Contract Unit Price For Class II Concrete (Superstructure).

PLAN

REVISIONS

| Date | By | Description | Date | By | Description |
|---|---|---|---|---|---|
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JDS | 7/94 |
| Checked by | MKA | 7/94 |
| Designed by | MKA | 7/94 |
| Checked by | PM | 7/94 |
| Approved by | PEETER MANNIK, P.E. | |

ENGINEER OF RECORD:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

LOGO:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
ENGINEERS - SURVEYORS
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR 414 | SEMINOLE | 77002-3503 |

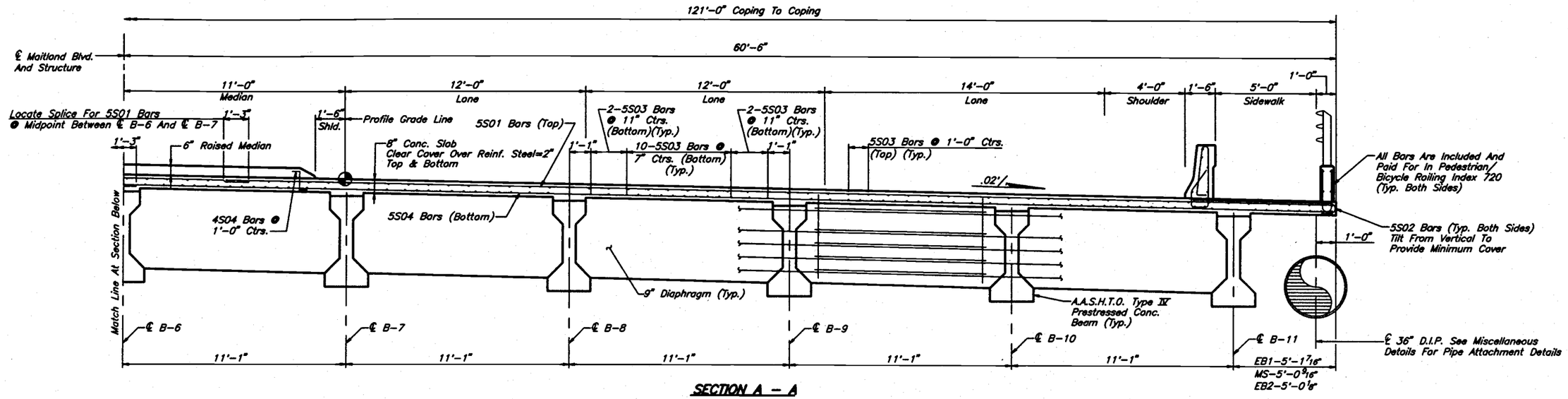
SHEET TITLE: SUPERSTRUCTURE PLAN

PROJECT NAME: MAITLAND BOULEVARD OVER LITTLE WEKIVA RIVER

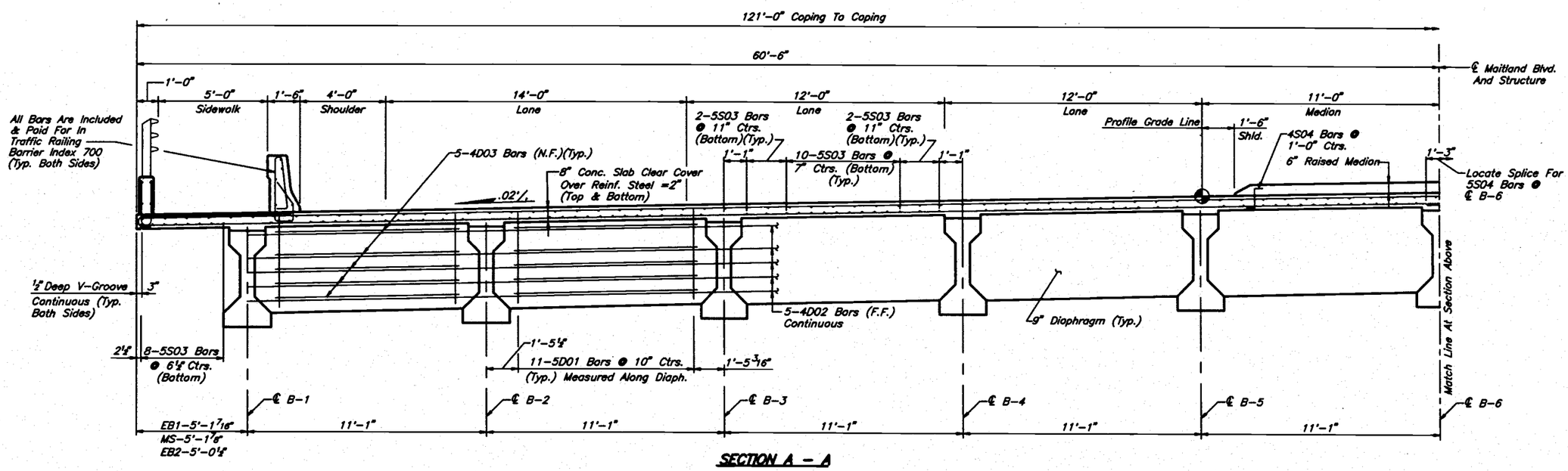
Drawing No.

Index No.

| FED. ROAD DIV. NO. | STATE | PROJECT NO. | FISCAL YEAR | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | | 98 | C-13 |




SECTION A - A




SECTION A - A

NOTE:
1. See Superstructure Details Sheet For Superstructure Notes And Details.
2. All Dimensions Are Perpendicular To ℄ Const. Maitland Blvd. Unless Otherwise Noted.

REVISIONS

| Date | By | Description | Date | By | Description |
|---|---|---|---|---|---|
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JDS | 7/94 |
| Checked by | MKA | 7/94 |
| Designed by | MKA | 7/94 |
| Checked by | PM | 7/94 |
| Approved by | PEETER MANNIK, P.E. | |

ENGINEER OF RECORD:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

LOGO:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
ENGINEERS - SURVEYORS
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR 414 | SEMINOLE | 77002-3503 |

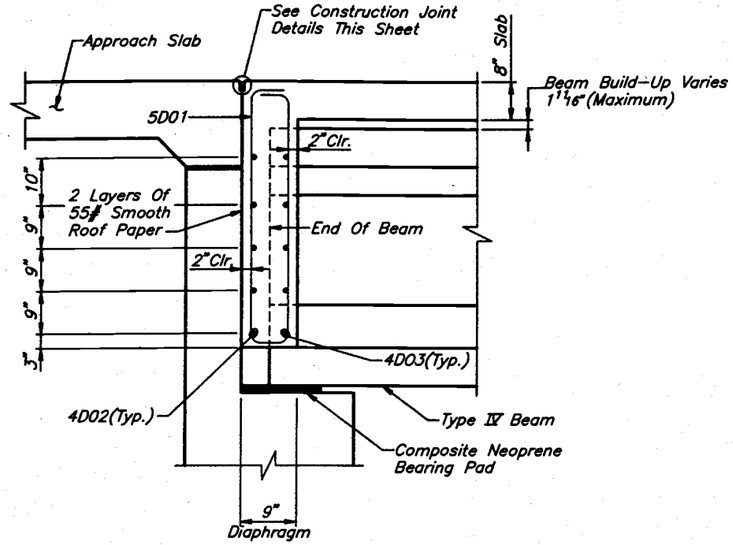
SHEET TITLE: SUPERSTRUCTURE SECTION

PROJECT NAME: MAITLAND BOULEVARD OVER LITTLE WEKIVA RIVER

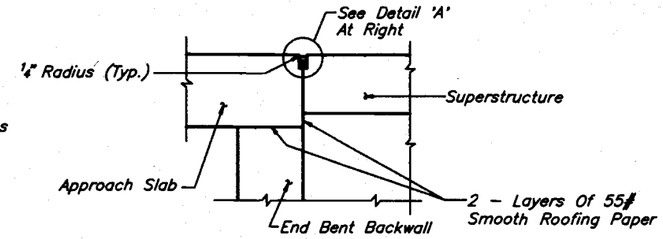
Drawing No.

Index No.

| FED. ROAD DIV. NO. | STATE | PROJECT NO. | FISCAL YEAR | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | | 98 | C-14 |

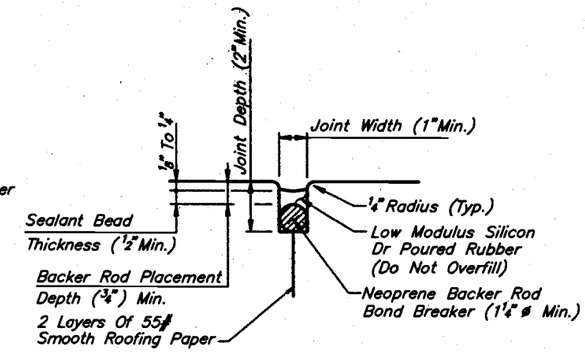



**DIAPHRAGM SECTION AT END BENTS**

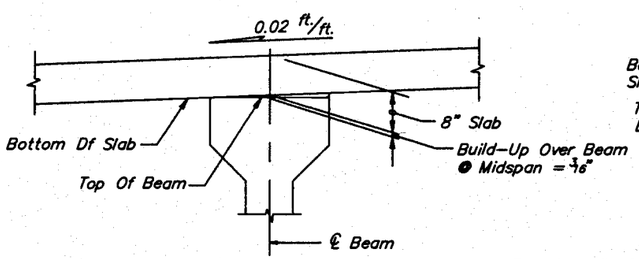


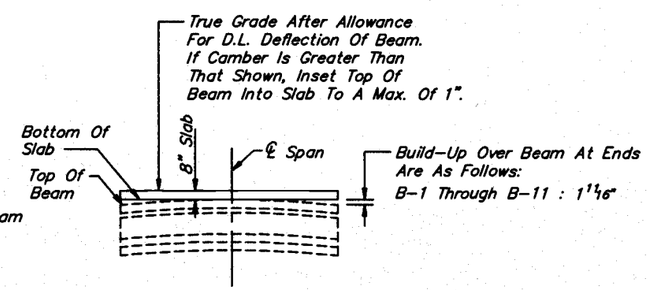

**DECK JOINT**

Construction Joint At End Bents

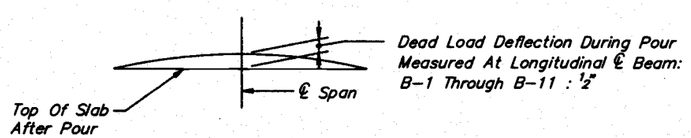



**DETAIL 'A'**




**BUILD-UP OVER BEAM**




**DEFLECTION DIAGRAM**

## NOTES

1. The Build-Up Dimensions Are Computed Assuming A Time To Release Of 24 Hours.
2. The Length Correction Dimension And The Build-Up Dimensions Assume A Period Of No More Than 120 Days Between The Casting Of The Beam And The Casting Of The Deck. These Values Are Also Calculated Assuming Transfer Of Prestress At The Indicated Release Concrete Strength (f'ci). Contractor Shall Submit Calculations Revising These Values To The Engineer For Approval Should The Contractor's Proposed Schedule Between Casting Of The Beam And Casting Of The Deck Adversely Affect These Time Dependent Values.
3. Dead Load Deflection During Pour Is The Anticipated Deflection Of Beam Due To Casting Of The Concrete Deck. Build-Up At Ends And Build-up At Midspan (See Detail This Sheet) Refer To The Build-Up At The Ends And Midspan Of The Beam Necessary To Achieve True Grade At The Top Of The Deck After Casting Of The Deck.
4. Slab Shall Be Screeded To Grade With No Allowance For Permanent Camber. For This Project Slabs Shall Be Screeded Longitudinally Between Bents Unless Otherwise Directed In Writing By The Engineer.
5. No Unit Shall Be Placed Adjacent To A Previously Placed Unit That Is Not A Minimum Of 72 Hrs. Old.
6. After Placement Of The First Unit, Succeeding Placements Shall Begin At The End Away From And Proceed Toward The Previously Placed Unit.
7. The Cost Of All Labor And Materials Required For Construction Of Deck Joint Shall Be Paid For In Bid Item No. 400-2-4 Class II Concrete (Superstructure).

REVISIONS

| Date | By | Description | Date | By | Description |
|---|---|---|---|---|---|
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JLA | 7/94 |
| Checked by | MKA | 7/94 |
| Designed by | MKA | 7/94 |
| Checked by | PM | 7/94 |
| Approved by | Peeter Mannik, P.E. | |

ENGINEER OF RECORD:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

LOGO:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
ENGINEERS - SURVEYORS
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR414 | SEMINOLE | 77002-3503 |

SHEET TITLE: SUPERSTRUCTURE DETAILS

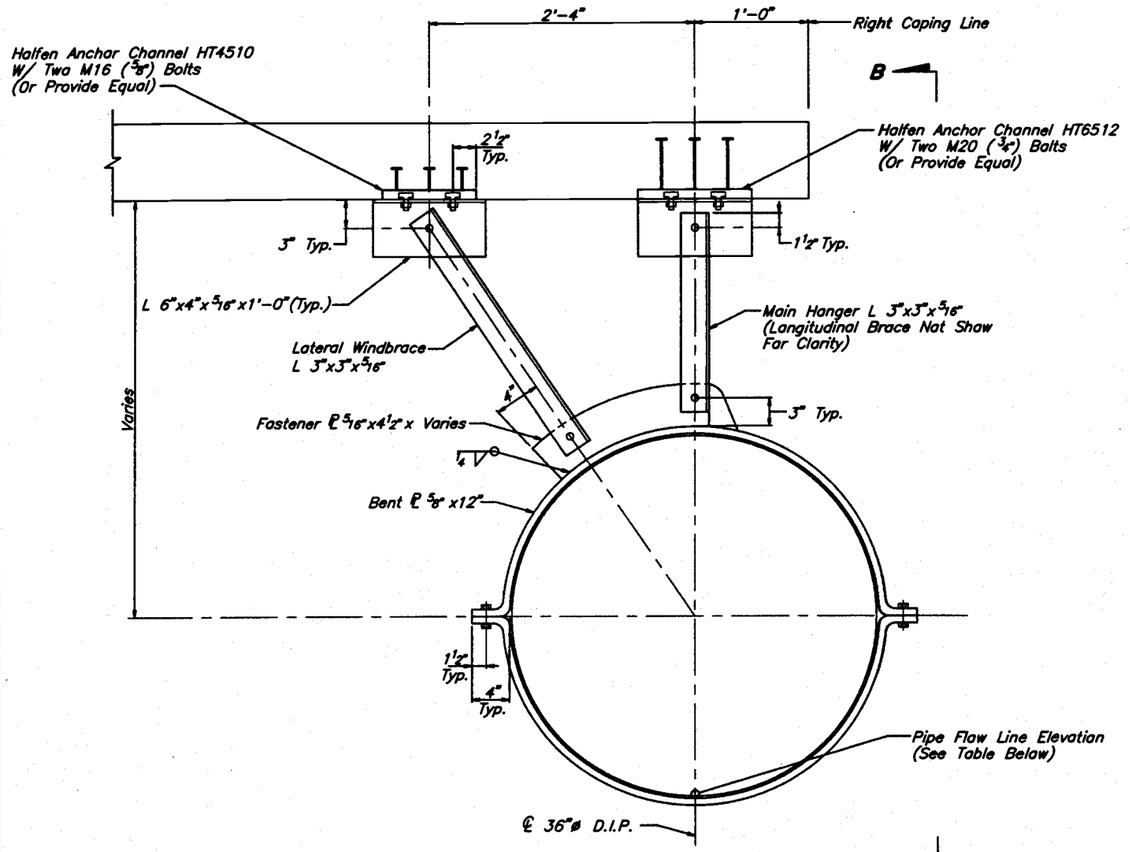
PROJECT NAME: MAITLAND BOULEVARD OVER LITTLE WEKIVA RIVER

Drawing No.

Index No.

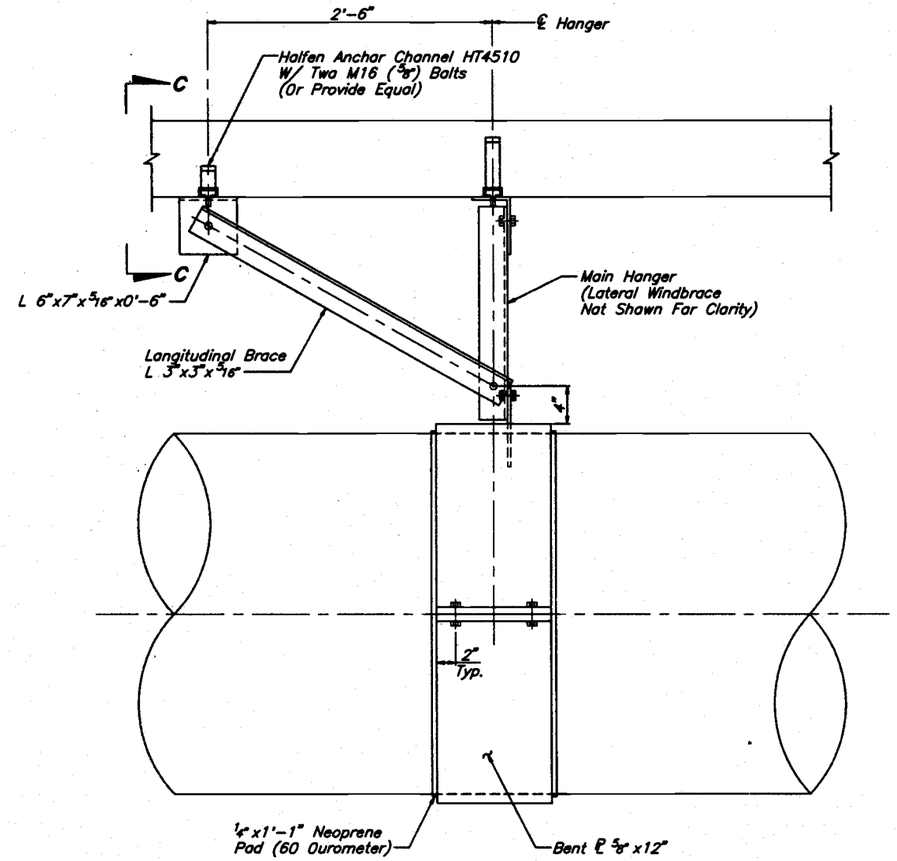
07/17/98 3:58PM C:\MAITLAND\LWR\LWR0207.DWG

| FED. ROAD DIV. NO. | STATE | PROJECT NO. | FOLIO NO. | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | | | C-15 |

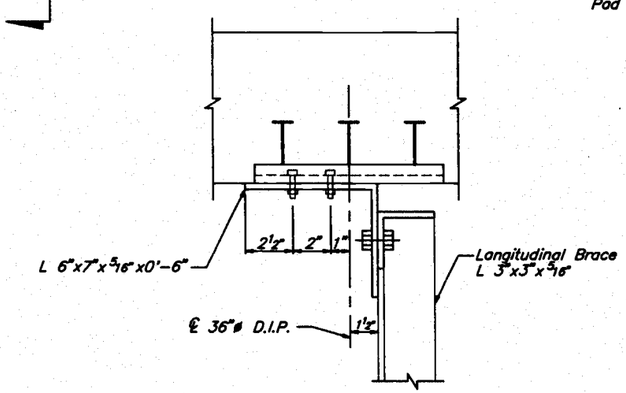



## PIPE HANGER DETAIL

BRACED HANGER SHOWN
(SEE NOTE 1)




## VIEW B-B




## VIEW C-C

| PIPE HANGER LOCATION | | Type (1) | PIPE FLOW LINE ELEVATION |
|---|---|---|---|
| Station | Offset | | |
| 55+51.16 | 59.50 | A | 72.12 |
| 55+61.08 | 59.50 | B | 72.15 |
| 55+71.00 | 59.50 | A | 72.18 |
| 55+80.92 | 59.50 | B | 72.21 |
| 55+90.85 | 59.50 | A | 72.24 |
| 56+00.77 | 59.50 | B | 72.28 |
| 56+10.69 | 59.50 | A | 72.31 |
| 56+17.46 | 59.50 | B | 72.33 |

NOTES:

1. Hanger Types:
   Type A – Includes Main Hanger Only
   Type B – Includes Main Hanger, Lateral Wind Brace & Longitudinal Brace.
   For Hanger Type Location See Pipe Hanger Location Table.
2. All Supports And Attachment Hardware Shall Be ASTM A36 Steel And Hot Dipped Galvanized After Fabrication.
3. All Bolts And Nuts Are 3/4"ø And Shall Be 304 ST. STL. (U.N.O.)
4. Complete Sign & Sealed Drawings For Pipe Attachment Assembly Is Required.
5. Payment: The Cost Of The Pipe Hanger Assembly Shall Be Paid For Under Pay Item 1622-11-38 Bridge Hanger Anchor And Shall Include Anchorage, Neoprene Pads And Misc. Steel. The Cost Of The Ductile Iron Pipe Shall Be Paid For Under Pay Item 1613-140-238.
6. The Ductile Iron Pipe Shall Be A Push-On Joint type (Fastite Or Equal) With Class 150 Material Grade. The Pipe Lining Shall Be Per A.W.W.A. C-104.

REVISIONS

| Date | By | Description | Date | By | Description |
|---|---|---|---|---|---|
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JLA | 9/94 |
| Checked by | MKA | 9/94 |
| Designed by | MKA | 9/94 |
| Checked by | PM | 9/94 |
| Approved by | Peeter Mannik, P.E. | |

ENGINEER OF RECORD: DYER, RIDDLE, MILLS AND PRECOURT, INC.
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

LOGO: DYER, RIDDLE, MILLS AND PRECOURT, INC.
ENGINEERS - SURVEYORS
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| | SEMINOLE | 77002-3503 |

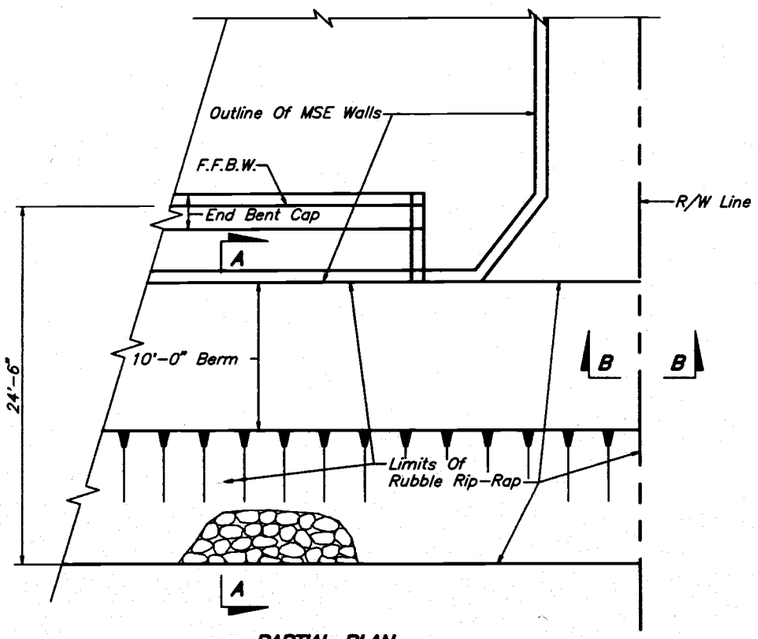
SHEET TITLE: MISCELLANEOUS BRIDGE DETAILS

PROJECT NAME: MAITLAND BOULEVARD OVER LITTLE WEKIVA RIVER

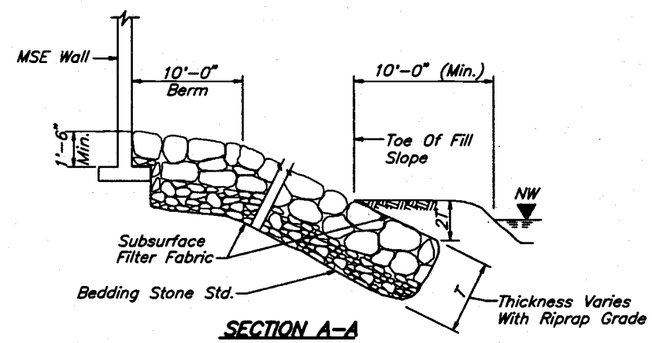
Drawing No. 1 of 2

Index No.

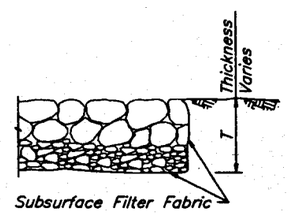
| FED. ROAD DIV. NO. | STATE | PROJECT NO. | FISCAL YEAR | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | | 98 | C-16 |



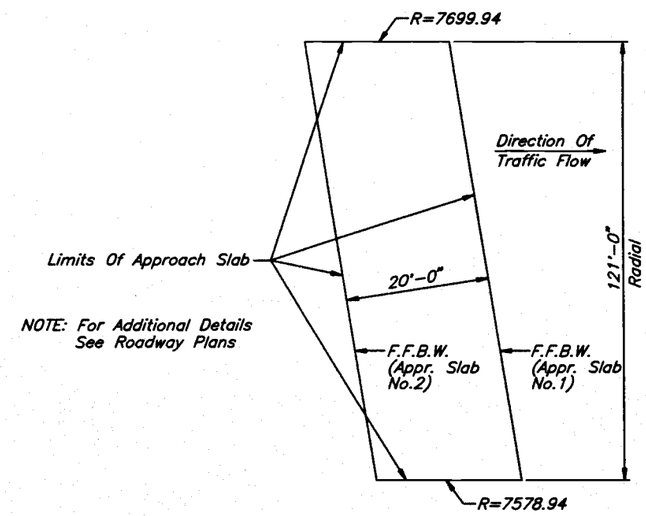

**PARTIAL PLAN**
**SLOPE PROTECTION DETAILS**
**END BRIDGE**
(N.T.S.)




**SECTION A-A**




**SECTION B-B**




**APPROACH SLAB DETAILS**

REVISIONS

| Date | By | Description | Date | By | Description |
|---|---|---|---|---|---|
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JJS | 9/94 |
| Checked by | MKA | 9/94 |
| Designed by | MKA | 9/94 |
| Checked by | PM | 9/94 |
| Approved by | Peeter Mannik, P.E. | |

ENGINEER OF RECORD:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

LOGO:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
ENGINEERS - SURVEYORS
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR 414 | SEMINOLE | 77002-3503 |

SHEET TITLE: MISCELLANEOUS BRIDGE DETAILS

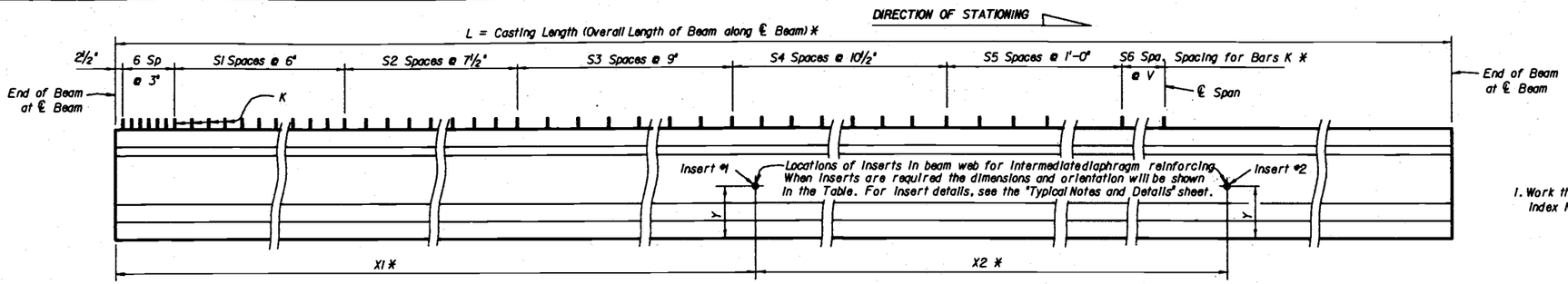
PROJECT NAME: MAITLAND BOULEVARD OVER LITTLE WEKIVA RIVER

Drawing No. 2 Of 2

Index No.

JOB 07/29/98 10:06AM G:\MISLAND\LWR\LWRBRD2.DGN

| FED. ROAD DIV. NO. | STATE | PROJECT NO. | FISCAL YEAR | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | | 98 | C-17 |

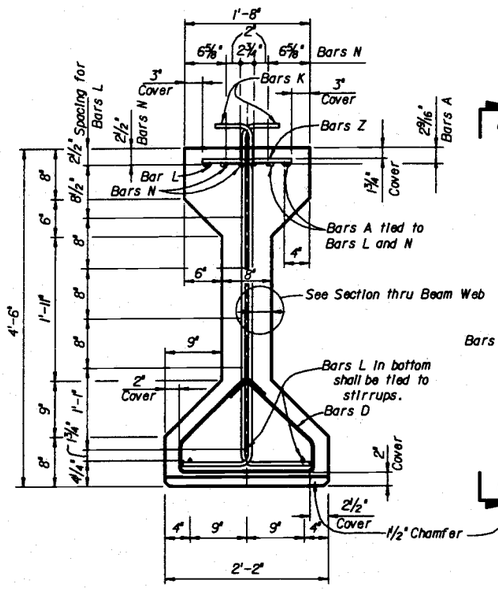



## ELEVATION

NOTE: Dimension R has been included in the lengths (L) of beams to compensate for elastic and time-dependent shortening effects.

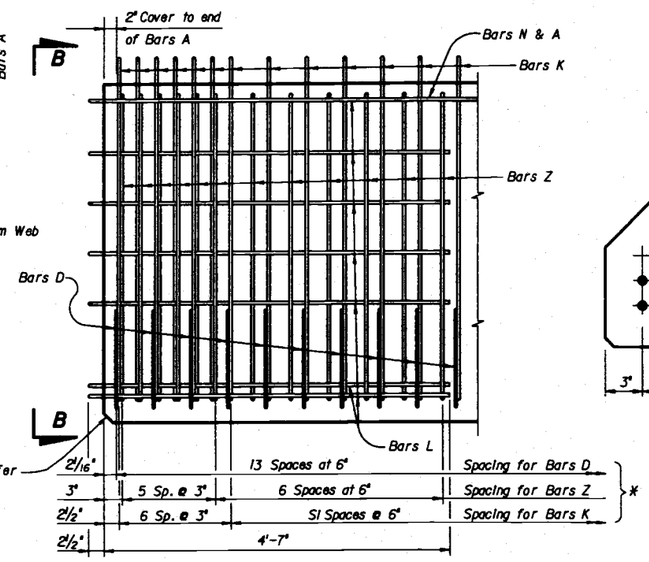
* Note: All longitudinal beam dimensions shown on this sheet with a single asterisk (*) are measured along the top of the beam at the centerline of beam.

** Note: End of beam bearing dimensions "J" and "K" are measured along the bottom of the beam.




## VIEW B-B

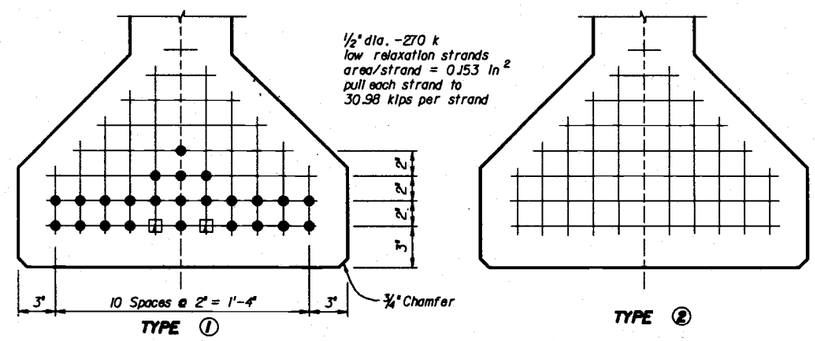
(With strands omitted, see Table for reference to strand pattern.)




## DETAIL AT END OF BEAM

NOTE: Stirrups shall be placed and tied to the top of the fully bonded prestressing strands in the bottom row.

NOTE: Place Bars K and Z one (1) each space (alternate).




## STRAND PATTERNS AND DEBONDING SCHEDULE

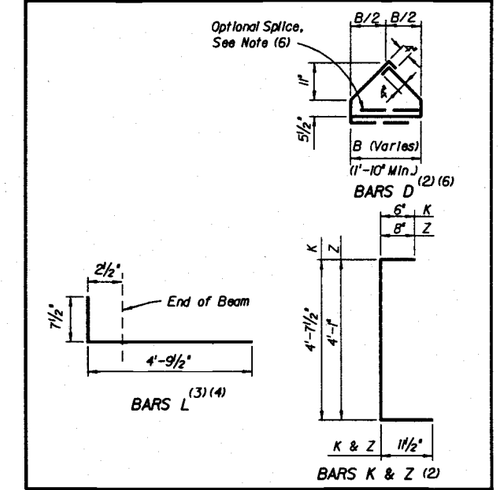
NOTE: ● -Indicates fully bonded strands.

⊡ -Indicates referenced pair of strands to be debonded 7'-8" which is measured from the end of the beam. *

## BILL OF REINFORCING STEEL FOR ONE BEAM ONLY

| MARK | SIZE | NO. REQUIRED | LENGTH (1) |
|---|---|---|---|
| A | 5 | 8 | See Table |
| D (2)(6) | 3 | 28 | Varies(6'-1" Min.) |
| | | | |
| K (2) | 4 | See Table | 6'-1" |
| | | | |
| L (3)(4) | 4 | 18 | 5'-5" |
| N (5) | ⅞" Ø Strand | 4 | See Table |
| Z (2) | 4 | 24 | 5'-9" |

## BENDING DIAGRAMS (1)




NOTES:

(1) All bar dimensions are out-to-out.

(2) Bars D, K, and Z shall be bent around pins having the following diameters for respective sizes:

| Bar Size | Pin Diameters |
|---|---|
| #3 | 1" |
| #4 | 2" |

(3) Bars L shall be bent prior to the beam leaving the prestressing yard. For treatment of bars L at skewed beam ends, see "Plan Ends of Beams".

(4) Caution should be used with Bars L in the ends of exterior beams to assure that the bent portion of the bar is properly oriented so that the bar will be embedded in the diaphragm concrete.

(5) Bars N shall be either ASTM A416, Grade 250 or 270, seven-wire strands ⅞" diameter or larger, stressed to 10,000 pounds each.

(6) The minimum Dimension B and length of Bars D shown apply to one-piece Bars D placed perpendicular to the centerline of the beam. Dimension B and the length of Bars D for beams with skewed ends vary with the skew (See "Plan Ends of Beams").
At the Contractor's option, Bars D may be fabricated either as a two-piece bar with a 1'-2" lap splice of the bottom legs or may be welded wire fabric, one or two-piece, provided the wire size and spacing furnishes the same steel area as the No. 3 Bars shown.

(7) (NS) means Near Side and (FS) means Far Side, both referring to which face of the beam web is to receive the insert for the dimensioned location. (NS) and (FS) are referenced to the DIRECTION OF STATIONING shown.

(8) Optional Stranding shall comply in all respects with the Department's Structures Design Guidelines.

## TABLE OF BEAM VARIABLES

| BEAM ID. | CONCRETE PROPERTIES: CLASS | STRENGTHS: REL. (f'ci) | STRENGTHS: 28-DAY (f'c) | STND PTRN TYPE | PLAN VIEW CASE | END ELEV COND. | BRG. PLATE CASE | END OF BEAM AND BEARING DIMENSIONS **: ANGLE Ø | DIM P | DIM J | DIM K | BEAM DIMENSIONS *: DIM L | DIM R | DIM V | NUMBER OF SPACES FOR STIRRUP BARS K: S1 | S2 | S3 | S4 | S5 | S6 | DIAPHRAGM INSERT LOCATIONS*: DIM X1 | DIM X2 | DIM Y | NS/FS (8): #1 | #2 | REINFORCING STEEL: A LENGTH* | K NO. REQ'D | N LENGTH* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B1 Through B12 | | 4500 | 5500 | 1 | 2 | 2 | N/A | 80°56'48" | ½" | 6½" | 11" | 68'-1 5/16" | 7/16" | 0'-10 5/16" | 13 | 0 | 0 | 0 | 25 | 1 | - | - | - | - | - | 10'-1" | 91 | 68'-7" |

| REVISIONS: Date | By | Description | Date | By | Description |
|---|---|---|---|---|---|
| | | | 92R | | |

| | Names | Dates |
|---|---|---|
| Drawn by | | |
| Checked by | | |
| Designed by | | |
| Checked by | | |
| Approved by | | |

ENGINEER OF RECORD:

LOGO:

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR414 | SEMINOLE | 77002-3503 |

SHEET TITLE: AASHTO TYPE IV BEAMS

PROJECT NAME: MAITLAND BOULEVARD OVER LITTLE WEKIVA RIVER

Drawing No. 1 of 1

Index No. S-104

## LOCATION – SUPERSTRUCTURE (REQUIRED 1)

| MARK | | LENGTH | | NO. | TYPE | STYLE | | B | | | C | | | D | | | E | | | F | | | H | | | J | | K | | N | Ø |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SIZE | DES. | FT. | IN. | BARS | BAR | A | G | FT. | IN. | FR. | FT. | IN. | FR. | FT. | IN. | FR. | FT. | IN. | FR. | FT. | IN. | FR. | FT. | IN. | FR. | FT. | IN. | FT. | IN. | NO. | ANG. |
| 5 | S01 | 124 | 5 | 330 | 2 | | | 1 | 3 | 0 | 121 | 11 | 0 | | | | | | | | | | | | | | | | | 2 | |
| 5 | S02 | 6 | 10 | 166 | 17 | 1 | | 6 | 3 | 0 | | | | | | | | | | | | | | | | | | | | | |
| 5 | S03 | 69 | 9 | 277 | 2 | | | 1 | 3 | 0 | 68 | 6 | 0 | | | | | | | | | | | | | | | | | 1 | |
| 4 | S04 | 1 | 9 | 136 | 32 | | | 0 | 9 | 0 | 0 | 6 | 0 | 0 | 6 | 0 | | | | | | | | | | | | | | | |
| 5 | D01 | 9 | 1 | 220 | 7 | | | 4 | 0 | 0 | 0 | 5 | 0 | 0 | 4 | 0 | 0 | 4 | 0 | | | | | | | | | | | | |
| 4 | D02 | 113 | 2 | 10 | 2 | | | 1 | 0 | 0 | 112 | 2 | 0 | | | | | | | | | | | | | | | | | 1 | |
| 4 | D03 | 9 | 2 | 100 | 1 | | | 9 | 2 | 0 | | | | | | | | | | | | | | | | | | | | | |

## LOCATION – END BENT 1 (REQUIRED 1)

| MARK | | LENGTH | | NO. | TYPE | STYLE | | B | | | C | | | D | | | E | | | F | | | H | | | J | | K | | N | Ø |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SIZE | DES. | FT. | IN. | BARS | BAR | A | G | FT. | IN. | FR. | FT. | IN. | FR. | FT. | IN. | FR. | FT. | IN. | FR. | FT. | IN. | FR. | FT. | IN. | FR. | FT. | IN. | FT. | IN. | NO. | ANG. |
| 9 | A01 | 66 | 8 | 4 | 2 | | | 3 | 6 | 0 | 63 | 2 | 0 | | | | | | | | | | | | | | | | | 1 | |
| 9 | A02 | 72 | 0 | 6 | 2 | | | 3 | 6 | 0 | 68 | 6 | 0 | | | | | | | | | | | | | | | | | 1 | |
| 9 | A03 | 54 | 9 | 10 | 1 | | | 54 | 9 | 0 | | | | | | | | | | | | | | | | | | | | | |
| 4 | A05 | 9 | 1 | 11 | 4 | 4 | 4 | 1 | 10 | 0 | 2 | 4 | 0 | | | | | | | | | | | | | | | | | | |
| 4 | A06 | 10 | 1 | 199 | 4 | 4 | 4 | 2 | 4 | 0 | 2 | 4 | 0 | | | | | | | | | | | | | | | | | | |
| 4 | A07 | 8 | 0 | 11 | 5 | | | 2 | 4 | 0 | 2 | 4 | 0 | 0 | 6 | 0 | 0 | 6 | 0 | | | | | | | | | | | | |
| 4 | A08 | 5 | 9 | 242 | 1 | | | 5 | 9 | 0 | | | | | | | | | | | | | | | | | | | | | |
| 6 | A09 | 1 | 6 | 30 | 1 | | | 1 | 6 | 0 | | | | | | | | | | | | | | | | | | | | | |
| 4 | A10 | 64 | 6 | 8 | 2 | | | 1 | 0 | 0 | 63 | 6 | 0 | | | | | | | | | | | | | | | | | 1 | |
| 4 | A11 | 56 | 2 | 10 | 2 | | | 1 | 0 | 0 | 55 | 2 | 0 | | | | | | | | | | | | | | | | | 1 | |
| 5 | A18 | 6 | 3 | 9 | 14 | | | 4 | 3 | 0 | 2 | 0 | 0 | | | | | | | | | | | | | | | | | | 81 |
| 5 | A19 | 8 | 3 | 5 | 1 | | | 8 | 3 | 0 | | | | | | | | | | | | | | | | | | | | | |
| 4 | A20 | 2 | 4 | 40 | 1 | | | 2 | 4 | 0 | | | | | | | | | | | | | | | | | | | | | |
| 4 | A21 | 2 | 9 | 4 | 1 | | | 2 | 9 | 0 | | | | | | | | | | | | | | | | | | | | | |
| 4 | A22 | 4 | 4 | 67 | 11 | | | 1 | 4 | 0 | 1 | 6 | 0 | 1 | 6 | 0 | | | | | | | | | | | | | | | |
| 5 | A23 | 5 | 7 | 24 | 11 | | | 0 | 7 | 0 | 2 | 6 | 0 | 2 | 6 | 0 | | | | | | | | | | | | | | | |
| 4 | A24 | 69 | 10 | 2 | 2 | | | 1 | 0 | 0 | 68 | 10 | 0 | | | | | | | | | | | | | | | | | 1 | |
| 5 | A26 | 4 | 8 | 8 | 1 | | | 4 | 8 | 0 | | | | | | | | | | | | | | | | | | | | | |

## LOCATION – END BENT 2 (REQUIRED 1)

| MARK | | LENGTH | | NO. | TYPE | STYLE | | B | | | C | | | D | | | E | | | F | | | H | | | J | | K | | N | Ø |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SIZE | DES. | FT. | IN. | BARS | BAR | A | G | FT. | IN. | FR. | FT. | IN. | FR. | FT. | IN. | FR. | FT. | IN. | FR. | FT. | IN. | FR. | FT. | IN. | FR. | FT. | IN. | FT. | IN. | NO. | ANG. |
| 9 | A04 | 69 | 10 | 10 | 2 | | | 3 | 6 | 0 | 66 | 4 | 0 | | | | | | | | | | | | | | | | | 1 | |
| 4 | A05 | 9 | 1 | 11 | 4 | 4 | 4 | 1 | 10 | 0 | 2 | 4 | 0 | | | | | | | | | | | | | | | | | | |
| 4 | A06 | 10 | 1 | 199 | 4 | 4 | 4 | 2 | 4 | 0 | 2 | 4 | 0 | | | | | | | | | | | | | | | | | | |
| 4 | A07 | 8 | 0 | 11 | 5 | | | 2 | 4 | 0 | 2 | 4 | 0 | 0 | 6 | 0 | 0 | 6 | 0 | | | | | | | | | | | | |
| 4 | A08 | 5 | 9 | 242 | 1 | | | 5 | 9 | 0 | | | | | | | | | | | | | | | | | | | | | |
| 6 | A09 | 1 | 6 | 30 | 1 | | | 1 | 6 | 0 | | | | | | | | | | | | | | | | | | | | | |
| 9 | A12 | 56 | 11 | 6 | 1 | | | 56 | 11 | 0 | | | | | | | | | | | | | | | | | | | | | |
| 9 | A13 | 51 | 8 | 4 | 1 | | | 51 | 8 | 0 | | | | | | | | | | | | | | | | | | | | | |
| 4 | A14 | 66 | 10 | 10 | 2 | | | 1 | 0 | 0 | 65 | 10 | 0 | | | | | | | | | | | | | | | | | | |
| 4 | A15 | 52 | 11 | 8 | 2 | | | 1 | 0 | 0 | 51 | 11 | 0 | | | | | | | | | | | | | | | | | 1 | |
| 5 | A16 | 6 | 3 | 9 | 12 | | | 4 | 3 | 0 | 2 | 0 | 0 | | | | | | | | | | | | | | | | | 1 | |
| 5 | A19 | 8 | 3 | 5 | 1 | | | 8 | 3 | 0 | | | | | | | | | | | | | | | | | | | | | 81 |
| 4 | A20 | 2 | 4 | 44 | 1 | | | 2 | 4 | 0 | | | | | | | | | | | | | | | | | | | | | |
| 4 | A22 | 4 | 4 | 66 | 11 | | | 1 | 4 | 0 | 1 | 6 | 0 | 1 | 6 | 0 | | | | | | | | | | | | | | | |
| 5 | A23 | 5 | 7 | 24 | 11 | | | 0 | 7 | 0 | 2 | 6 | 0 | 2 | 6 | 0 | | | | | | | | | | | | | | | |
| 4 | A25 | 58 | 6 | 2 | 2 | | | 1 | 0 | 0 | 57 | 6 | 0 | | | | | | | | | | | | | | | | | 1 | |
| 5 | A26 | 4 | 8 | 8 | 1 | | | 4 | 8 | 0 | | | | | | | | | | | | | | | | | | | | | |

REVISIONS

| Date | By | Description | Date | By | Description |
|---|---|---|---|---|---|
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JJS | 3/95 |
| Checked by | MKA | 7/94 |
| Designed by | MKA | 7/94 |
| Checked by | PM | 7/94 |
| Approved by | Peeter Mannik, P.E. | |

ENGINEER OF RECORD:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

LOGO:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
ENGINEERS - SURVEYORS
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR414 | SEMINOLE | 77002-3503 |

SHEET TITLE: REINFORCING BAR LIST

PROJECT NAME: MAITLAND BOULEVARD OVER LITTLE WEKIVA RIVER

Drawing No.

Index No.

JJB 07/30/98 08:34AM C:\APPLAUNCH\WP\188LLBR.DWG

| FED. ROAD DIV. NO. | STATE | PROJECT NO. | FISCAL YEAR | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | | 98 | W-1 |

## GENERAL NOTES

1. Construction Specifications: Florida Department of Transportation, "Standard Specifications For Road and Bridge Construction", (1991) and Supplements Thereto.

2. Design Specifications: Design in accordance with the 1992 Edition of The AASHTO "Standard Specifications For Highway Bridges", the Florida Department of Transportation, "Structures Design Guidelines", 1987 Edition, through update "H", and "Insitu Soil Improvement Techniques" AASHTO-AGC-ARTBA Task Force 27 Ground Modification Techniques January 1990.

3. Material Stresses: All allowable stresses are in accordance with current AASHTO Standard Specifications for all the materials shown on plans.

   A. Maximum Concrete Stresses :
      Class III f'c = 5000 PSI Min

   B. Reinforcing Steel :
      Grade 60

4. Environment: Extremely Aggressive

5. Design Method: Load Factor

6. For Typical Sections Through Roadway, See Roadway Plans.

7. Pay Item No. 549-70-206 Shall Include The Proprietary Retaining Wall And The Following Where Applicable.
   1. Cast-In-Place Coping
   2. Sound Barrier Wall Footings
   3. Handrail Parapet And Sidewalk.

8. The area of Proprietary Retaining Wall to be used for payment shall be the area bounded by the top of Concrete Handrail Parapet (or top of coping in areas without handrail barrier), the final ground line at the front face of wall and the beginning and end wall limits as shown. The cost (concrete and reinforcing steel) of constructing the Concrete Parapet shall be included in the unit price of the Retaining Walls. The cost of the Aluminum Handrail on the Parapet shall be paid for as item No. 400-5-3. The Cost Of The C.I.P. Coping & The Footing At Sound Barrier wall locations shall be included in the cost of retaining walls. The cost of all foundations, fill material and excavation (required specifically for wall construction outside of roadway cross section template) and walls below the proposed final ground line shall be included in the unit cost for Retaining Walls, Pay Item No. 549-70-206.

9. Concrete surface finish shall be Class III.

10. Coping & Handrail Parapet on top of retaining wall shall have a Class 5 Applied Finish Coating.

11. Piles within the Proprietary Wall Earth Volume shall be driven prior to construction of the Proprietary Retaining Wall. The portion of the piles within the wall volume shall be wrapped with two layers of 6 mil plastic above the existing ground. Polyethylene Sheeting shall be in accordance with supplemental specification 459.

12. These Walls Have Been Designed To Accomodate An Anticipated Long Term Settlement Between 1 And 2.5 Inches. The Anticipated Differential Settlements Is Between 0.5 And 1 Inch In 50 Ft.

13. Leveling pad shall be 1'-6" min below final ground line.

14. Elevations shown are at top of coping.

15. The Wall Shall Be Bid As Tensor Concrete Geo Wall, Pay Item No. 549-70-206. No Substitution Of Other Wall Companies Shall Be Allowed.

16. Wall Criteria and Minimum Saftey Factors:

| | |
|---|---|
| Overturning | = 2.0 |
| Sliding | = 1.5 |
| Bearing Capacity | = 2.5 |
| Internal Pullout | = 1.5 (Allowable Deformation = 0.75 in.) |
| Overall Stability | = 1.5 |
| Tensar Structure Geogrid | = .15 Tult |
| Maximum Allowable Bearing Pressure | = 4000 PSF |

17. Soil Reinforcements Lengths for External Stability

Wall No.1

| Station | 26+00 | 26+50 | 27+00 | 27+50 | 28+00 | 28+50 | 29+00 | 29+50 | 30+00 | 30+50 | 31+00 | 31+50 | 32+00 | 32+50 | 33+00 | 33+50 | 34+00 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Wall Height "H" (Ft.) | 7.3 | 10.2 | 10.6 | 15.4 | 16.4 | 24.0 | 23.4 | 27.0 | 28.7 | 28.5 | 24.3 | 22.1 | 18.7 | 17.7 | 17.8 | 21.5 | 27.5 |
| Reinforcement Length (Ft.) | 8 | 9 | 9 | 18 | 25 | 25 | 25 | 28 | 48 | 46 | 25 | 24 | 20 | 23 | 23 | 23 | 32 |

Wall No.2

| | | | | | | |
|---|---|---|---|---|---|---|
| Wall Height "H" (Ft.) | 8 | 10 | 12 | 14 | 16 | 18 |
| Reinforcement Length (Ft.) | 8 | 10 | 13 | 16 | 18 | 20 |

Wall No.3 And No.4

| | | | | | | |
|---|---|---|---|---|---|---|
| Wall Height "H" (Ft.) | 8 | 10 | 12 | 14 | 16 | 18 |
| Reinforcement Length (Ft.) | 10 | 11 | 12 | 12 | 13 | 14 |

18. Design Based ø = 30° (Assumed sand backfill)

19.

**FOUNDATION SOIL PROPERTIES FOR WALL DESIGN**

| Soil Type | Saturated Unit Weight (pcf) | Cohesion (psf) | Angle Of Internal Friction |
|---|---|---|---|
| Foundation Subsoil | 110 | 0 | 30 |
| Embankment Soil | 110 | 0 | 30 |
| Mechanically Stabilized Soil | 110 | 0 | 30 |

20. If the unit weight of the fill proposed by the Contractor differs from the above, the Project Engineer shall contact both the District Geotechnical Engineer and Wall Designer for a possible redesign.

21. Additional layers and coverage of the geogrid shall be used in the vicinity of the piles as necessary to compensate for the cutting of the geogrid reinforcement at piles.

22. Before wall construction begins, organic soils shall be removed in accordance with the Roadway Plans and specifications.

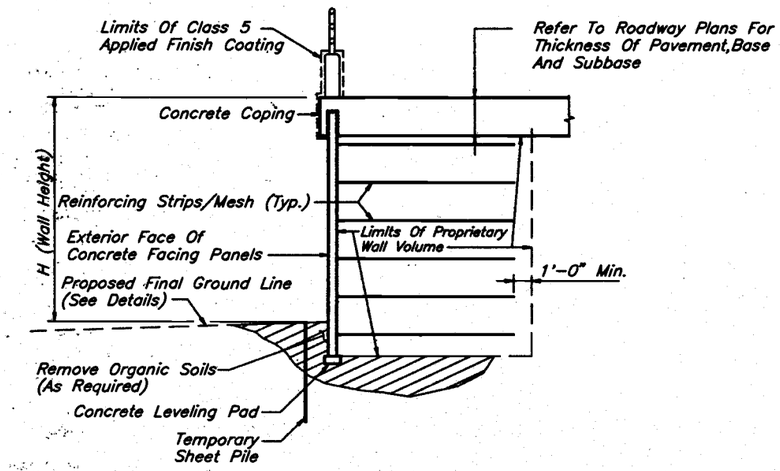
23. The Reinforcing Strips And Fasteners For The Abutment Backwall Shall Be Designed And Furnished By The MSE Company. For Horizontal Design Design Loads (Kips Per Foot Of Backwall) See End Bent Detail Sheets The Cost Of The Strips And Fasteners To Be Included In The Cost Of The MSE Walls. Installation Shall Be By The Bridge Contractor.

24. The long-term design strength (LTADS) of the geogrid soil reinforcements shall include reduction factors for chemical and biological degradation, construction damage, creep, and junction strength, and a factor of safety for uncertainties. The LTADS shall not exceed 15% of the ultimate design strength for each geogrid soil reinforcement type as determined by GRI test method GG1-87, single rib test.

25. All Foundations Shall Be Constructed In The Dry. The Soil Beneath All Foundations (Whether Dug To The Bottom Of The Foundation Or Over-Excavated) Shall Be Compacted To A Density Not Less Than 100% Of The Maximum Density As Determined By AASHTO T-99 For A Minimum Depth Of Two (2) Feet Below The Bottom Of Foundation.

26. Dewatering May Be Required At The Leveling Pad Locations In Order To Maintain The Water Level At A Minimum Of Two (2) Feet Below The Maximum Depth Of Excavation. This Dewatering Shall Be Continuous Until Construction Of The Leveling Pad Is Complete And Excavation Has Been Backfilled At Least Two (2) Feet Above The Water Table Before Dewatering Began.

27. See Roadway Plans For Complete Drainage Details.




**MSE TYPICAL WALL SECTION**
(N.T.S.)

**INDEX OF RETAINING WALL CONTROL DRAWINGS**


| | |
|---|---|
| W-1 | GENERAL NOTES AND SECTION |
| W-2 | REPORT OF CORE BORINGS |
| W-3 | REPORT OF CORE BORINGS |
| W-4 | REPORT OF CORE BORINGS |
| W-5 | REPORT OF CORE BORINGS |
| W-6 | RETAINING WALL NO. 1 ALIGNMENT |
| W-7 | RETAINING WALL NO. 2 ALIGNMENT |
| W-8 | RETAINING WALL NO.1 & NO.2 DETAILS (SHEET 1 OF 2) |
| W-9 | RETAINING WALL NO.1 & NO.2 DETAILS (SHEET 2 OF 2) |
| W-10 | RETAINING WALL NO.3 ALIGNMENT |
| W-11 | RETAINING WALL NO.4 ALIGNMENT |
| W-12 | RETAINING WALL NO.3 AND NO.4 DETAILS |
| W-13 THRU W-22 | TENSAR RETAINING WALL STANDARD DETAILS |


**WALL LEGEND**

| WALL NO. | LOCATION |
|---|---|
| NO. 1 | 26+00 TO 34+20 SOUTH |
| NO. 2 | 40+80 TO 43+00 SOUTH |
| NO. 3 | LITTLE WEKIVA RIVER BRIDGE WEST ABUTMENT |
| NO. 4 | LITTLE WEKIVA RIVER BRIDGE EAST ABUTMENT |

**ESTIMATED QUANTITIES (SF)**

| LOCATION | TOTAL |
|---|---|
| WALL NO. 1 | |
| WALL NO. 2 | |
| WALL NO. 3 | |
| WALL NO. 4 | |

REVISIONS

| Date | By | Description | Date | By | Description |
|---|---|---|---|---|---|
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JLA | 9/94 |
| Checked by | MKA | 9/94 |
| Designed by | MKA | 9/94 |
| Checked by | PM | 9/94 |
| Approved by | Peeter Mannik, P.E. | |

ENGINEER OF RECORD: DYER, RIDDLE, MILLS AND PRECOURT, INC.
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

LOGO: DYER, RIDDLE, MILLS AND PRECOURT, INC.
ENGINEERS - SURVEYORS
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| | SEMINOLE | 77002-3503 |

SHEET TITLE: GENERAL NOTES AND SECTION

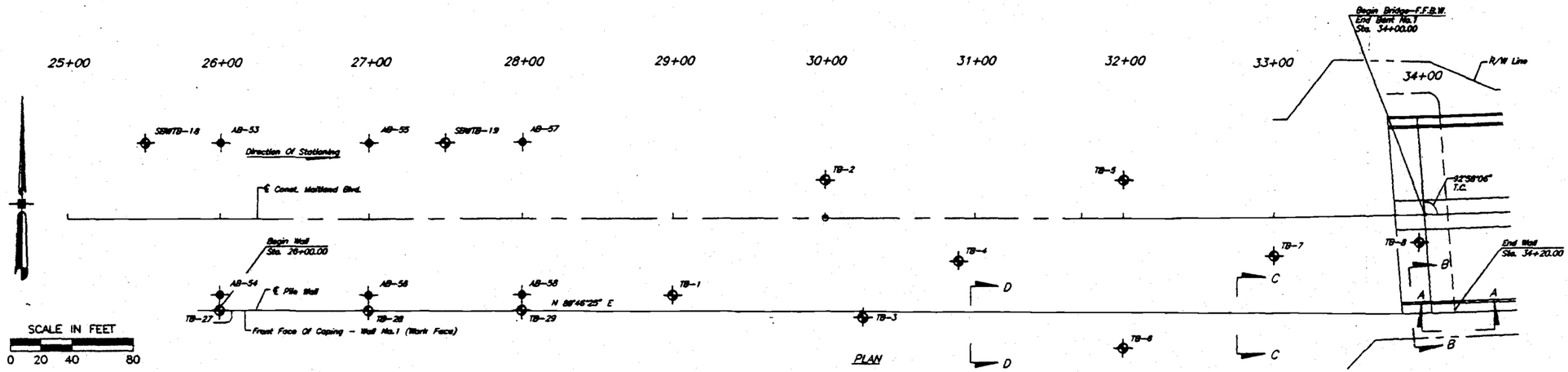
PROJECT NAME: MAITLAND BOULEVARD

Drawing No.

Index No.

JA 07/21/98 11:30AM C:\USR\MRIDGE.DGN

| TRS. ROAD DIST. NO. | STATE | PROJECT NO. | PROJECT TYPE | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | | | W-2 |




## LEGEND

- SAND
- MUCK
- CLAY
- SILT
- (SP) UNIFIED SOIL CLASSIFICATION GROUP SYMBOL
- ⟨7-8-91⟩ WATER (WITH DATE OF READING)
- N STANDARD PENETRATION RESISTANCE IN BLOWS PER FOOT UNLESS OTHERWISE NOTED
- WR FELL UNDER WEIGHT OF ROD
- CIRCULATION LOSS
- * SURVEY DATA TO BE CONSIDERED APPROXIMATE
- APPROXIMATE LOCATION OF STANDARD PENETATION TEST BORING

## STANDARD PENETRATION TEST DATA

| | |
|---|---|
| SPOON INSIDE DIA. | 1 3/8 IN. |
| SPOON OUTSIDE DIA. | 2 IN. |
| AVG. HAMMER DROP | 30 IN. |
| HAMMER WEIGHT | 140 LBS. |

NOTE: STRATA BOUNDARIES ARE APPROXIMATE AND MAY VARY BETWEEN OR AWAY FROM BORING LOCATIONS.

### GRANULAR MATERIALS

| RELATIVE DENSITY | SPT (BLOWS/FT.) |
|---|---|
| VERY LOOSE | LESS THAN 4 |
| LOOSE | 4–10 |
| MEDIUM DENSE | 10–30 |
| DENSE | 30–50 |
| VERY DENSE | GREATER THAN 50 |

### SILTS AND CLAYS

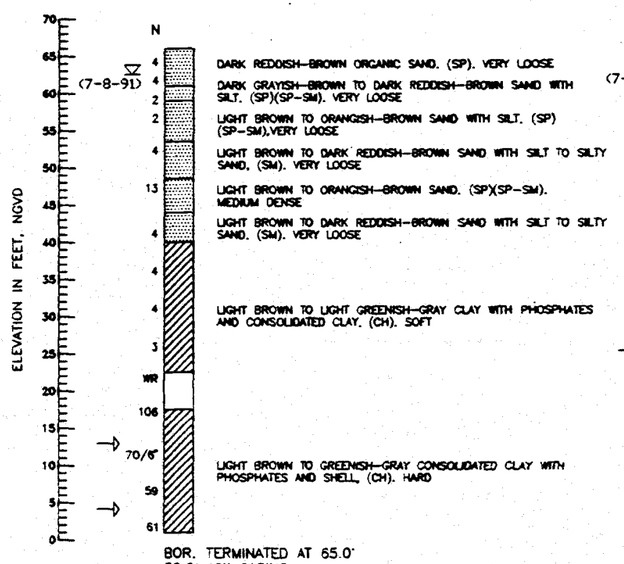
| CONSISTENCY | SPT (BLOWS/FT.) |
|---|---|
| VERY SOFT | LESS THAN 2 |
| SOFT | 2–4 |
| FIRM | 4–8 |
| STIFF | 8–15 |
| VERY STIFF | 15–30 |
| HARD | GREATER THAN 30 |

ENVIRONMENTAL CLASSIFICATION:

SUPERSTRUCTURE: SLIGHTLY AGGRESSIVE

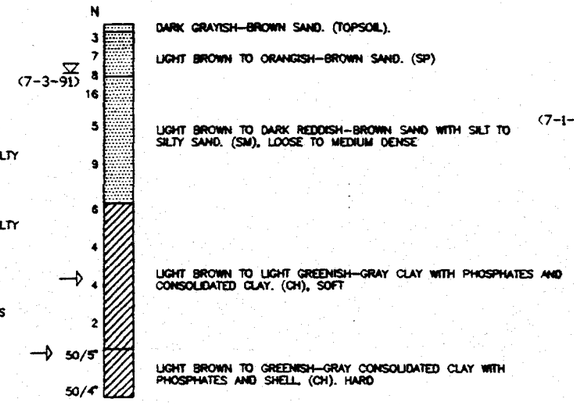
SUBSTRUCTURE: EXTREMELY AGGRESSIVE

* BOR. NO.: TB-1
STA. 29+00. 50.0' RT.
ELEV. 66.0'



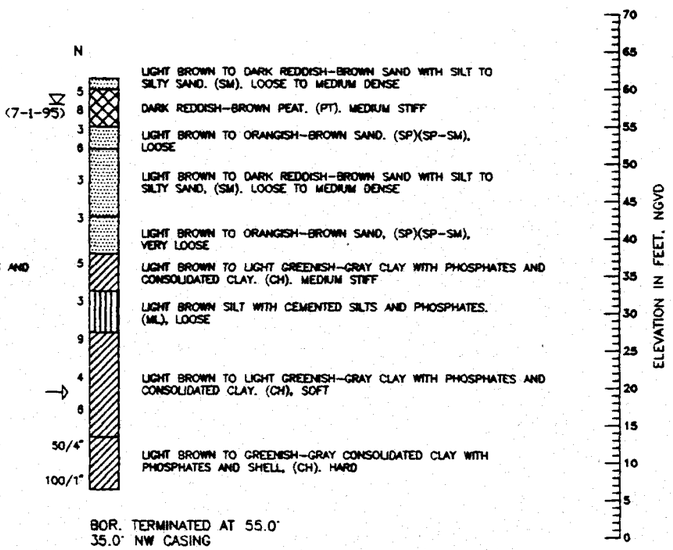

BOR. TERMINATED AT 65.0'
50.0' NW CASING

* BOR. NO.: TB-2
STA. 30+00, 25.0' LT.
ELEV. 69.5'




BOR. TERMINATED AT 50.0'
40.0' NW CASING

* BOR. NO.: TB-3
STA. 30+25. 65.0' RT.
ELEV. 61.5'




BOR. TERMINATED AT 55.0'
35.0' NW CASING

| REVISIONS | | | | | |
|---|---|---|---|---|---|
| Date | By | Description | Date | By | Description |
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | DJW | 1-1-02 |
| Checked by | GK | 1-1-02 |
| Designed by | N/A | N/A |
| Checked by | N/A | N/A |
| Approved by | JWC | |

ENGINEER OF RECORD:
JAY W. CASPER, P.E. #36330
PSI
1675 LEE ROAD
WINTER PARK, FLORIDA 32789

LOGO: PSI Environmental Geotechnical Construction Consulting • Engineering • Testing

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR 414 | SEMINOLE | 77002-3503 |

SHEET TITLE: REPORT OF CORE BORINGS FOR STRUCTURE

Drawing No.

PROJECT NAME: MAITLAND BOULEVARD EXTENSION
S.R. 414

Index No.

PSI PROJECT No. 754-05260
FIGURE: 3

| FED. ROAD DIST. NO. | STATE | PROJECT NO. | FISCAL YEAR | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | | | W-3 |

## LEGEND

- SAND
- MUCK
- CLAY
- CLAYEY SAND
- SILT

(SP) UNIFIED SOIL CLASSIFICATION GROUP SYMBOL

(7-8-91) WATER (WITH DATE OF READING)

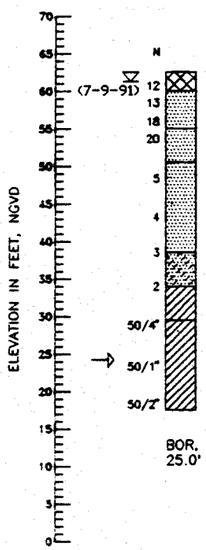
N STANDARD PENETRATION RESISTANCE IN BLOWS PER FOOT UNLESS OTHERWISE NOTED

WR FELL UNDER WEIGHT OF ROD

CIRCULATION LOSS

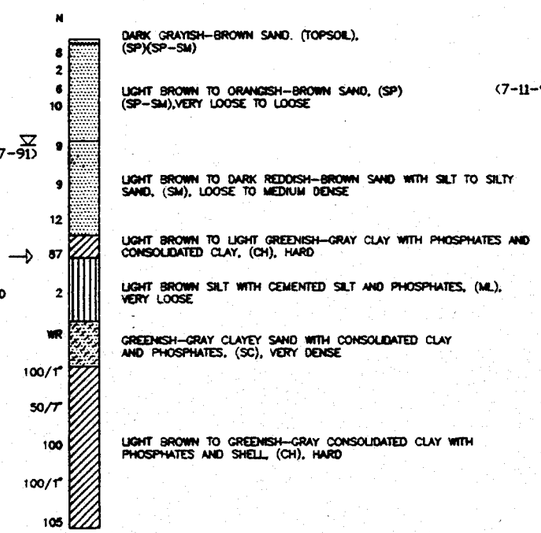
• SURVEY DATA TO BE CONSIDERED APPROXIMATE

BOR. NO.: TB-4
• STA. 30+89, 28.0' RT.
ELEV. 62.4'



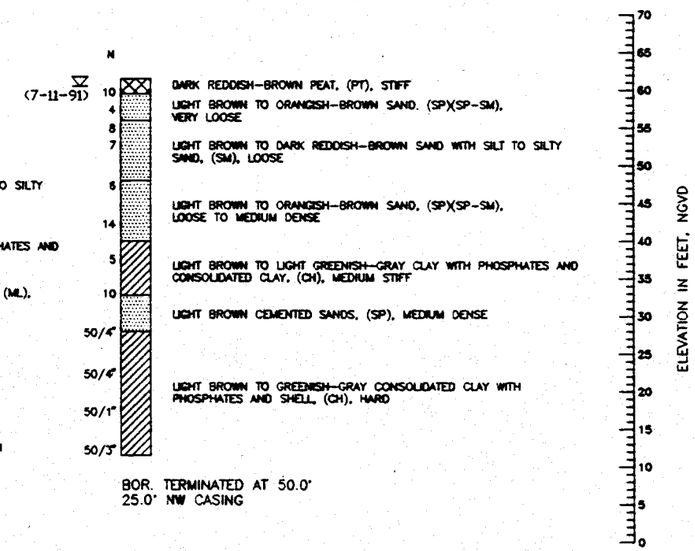

BOR. TERMINATED AT 45.0'
25.0' NW CASING

BOR. NO.: TB-5
• STA. 32+00, 25.0' LT.
ELEV. 66.0'




BOR. TERMINATED AT 65.0'
30.0' NW CASING

BOR. NO.: TB-6
STA. 32+00, 85.0' RT.
ELEV. 61.7'




BOR. TERMINATED AT 50.0'
25.0' NW CASING

## STANDARD PENETRATION TEST DATA

| | |
|---|---|
| SPOON INSIDE DIA. | 1 3/8 IN. |
| SPOON OUTSIDE DIA. | 2 IN. |
| AVG. HAMMER DROP | 30 IN. |
| HAMMER WEIGHT | 140 LBS. |

NOTE: STRATA BOUNDARIES ARE APPROXIMATE AND MAY VARY BETWEEN OR AWAY FROM BORING LOCATIONS.

### GRANULAR MATERIALS

| RELATIVE DENSITY | SPT (BLOWS/FT.) |
|---|---|
| VERY LOOSE | LESS THAN 4 |
| LOOSE | 4–10 |
| MEDIUM DENSE | 10–30 |
| DENSE | 30–50 |
| VERY DENSE | GREATER THAN 50 |

### SILTS AND CLAYS

| CONSISTENCY | SPT (BLOWS/FT.) |
|---|---|
| VERY SOFT | LESS THAN 2 |
| SOFT | 2–4 |
| FIRM | 4–8 |
| STIFF | 8–15 |
| VERY STIFF | 15–30 |
| HARD | GREATER THAN 30 |

ENVIRONMENTAL CLASSIFICATION:

SUPERSTRUCTURE: SLIGHTLY AGGRESSIVE

SUBSTRUCTURE: EXTREMELY AGGRESSIVE

REVISIONS

| Date | By | Description | Date | By | Description |
|---|---|---|---|---|---|
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | DJW | 1-1-92 |
| Checked by | GK | 1-1-92 |
| Designed by | N/A | N/A |
| Checked by | N/A | N/A |
| Approved by | JWC | |

ENGINEER OF RECORD:
JAY W. CASPER, P.E. #36330
PSI
1675 LEE ROAD
WINTER PARK, FLORIDA 32789

LOGO: PSI Environmental Geotechnical Construction
Consulting • Engineering • Testing

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR 414 | SEMINOLE | 77002-3503 |

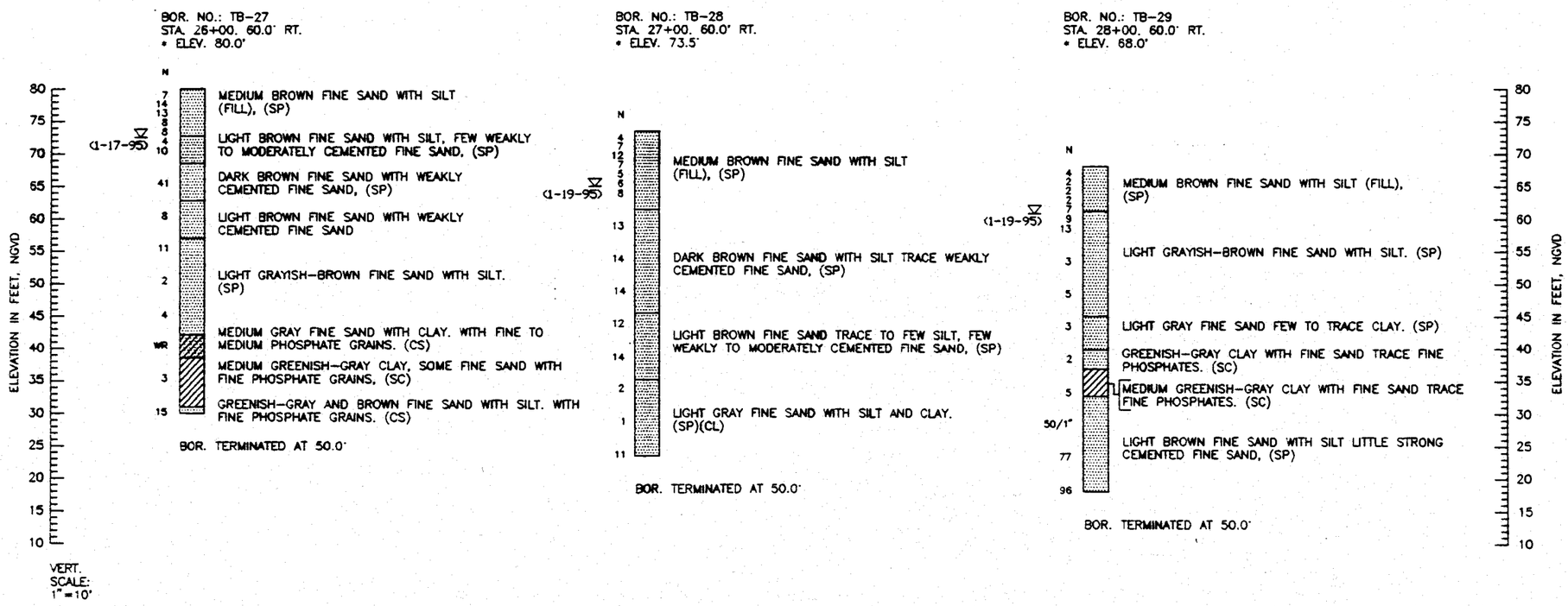
SHEET TITLE: REPORT OF CORE BORINGS FOR STRUCTURE

PROJECT NAME: MAITLAND BOULEVARD EXTENSION S.R. 414

Drawing No.

Index No.

PSI PROJECT No. 754-05260
FIGURE: 3




## LEGEND

- SAND
- CLAY
- (SP) UNIFIED SOIL CLASSIFICATION GROUP SYMBOL
- (7-8-91) WATER (DATE OF READING)
- N STANDARD PENETRATION RESISTANCE IN BLOWS PER FOOT UNLESS OTHERWISE NOTED
- WR FELL UNDER WEIGHT OF ROD AND HAMMER
- LOCATION OF STANDARD PENETRATION TEST BORING
- * SURVEY DATA TO BE CONSIDERED APPROXIMATE

NOTE: STRATA BOUNDARIES ARE APPROXIMATE AND MAY VARY BETWEEN OR AWAY FROM BORING LOCATIONS.

### STANDARD PENETRATION TEST DATA

| | |
|---|---|
| SPOON INSIDE DIA. | 1 3/8 IN. |
| SPOON OUTSIDE DIA. | 2 IN. |
| AVG. HAMMER DROP | 30 IN. |
| HAMMER WEIGHT | 140 LBS. |

### GRANULAR MATERIALS

| RELATIVE DENSITY | SPT (BLOWS/FT.) |
|---|---|
| VERY LOOSE | LESS THAN 4 |
| LOOSE | 4–10 |
| MEDIUM | 10–30 |
| DENSE | 30–50 |
| VERY DENSE | GREATER THAN 50 |

### SILTS AND CLAYS

| CONSISTENCY | SPT (BLOWS/FT.) |
|---|---|
| VERY SOFT | LESS THAN 2 |
| SOFT | 2–4 |
| FIRM | 4–8 |
| STIFF | 8–15 |
| VERY STIFF | 15–30 |
| HARD | GREATER THAN 30 |

ENVIRONMENTAL CLASSIFICATION:

SUPERSTRUCTURE: SLIGHTLY AGGRESSIVE

SUBSTRUCTURE: EXTREMELY AGGRESSIVE

REVISIONS

| Date | By | Description | Date | By | Description |
|---|---|---|---|---|---|
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | DJW | 1-1-92 |
| Checked by | GK | 1-1-92 |
| Designed by | N/A | N/A |
| Checked by | N/A | N/A |
| Approved by | JWC | |

ENGINEER OF RECORD:
JAY W. CASPER, P.E. #36330
PSI
1675 LEE ROAD
WINTER PARK, FLORIDA 32789

LOGO: PSI Environmental Geotechnical Construction Consulting • Engineering • Testing

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR 414 | SEMINOLE | 77002-3503 |

SHEET TITLE: REPORT OF CORE BORINGS FOR STRUCTURE

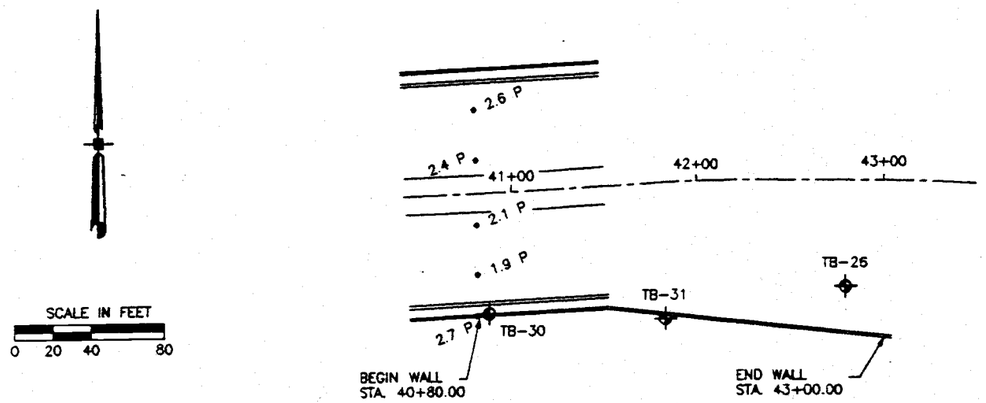
Drawing No.

PROJECT NAME: MAITLAND BOULEVARD EXTENSION
S.R. 414 ; LAKE BOSSE BRIDGE

Index No.

PSI PROJECT No. 754-05260
FIGURE

| FED. ROAD DIV. NO. | STATE | PROJECT NO. | FISCAL YEAR | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | | | W-5 |



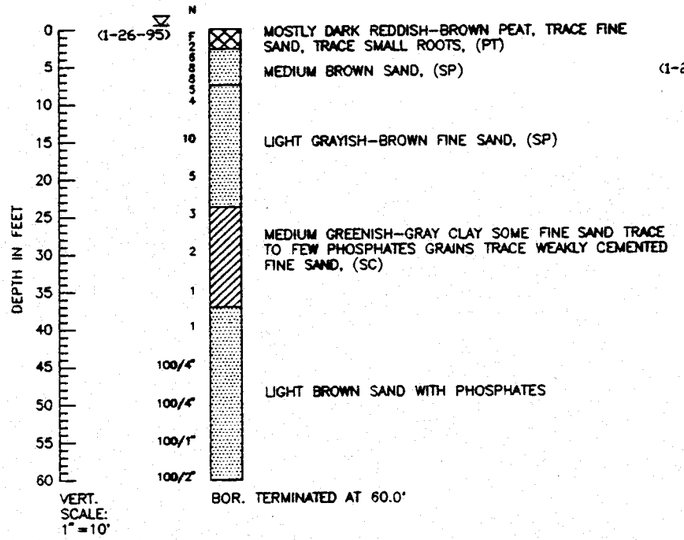

LEGEND

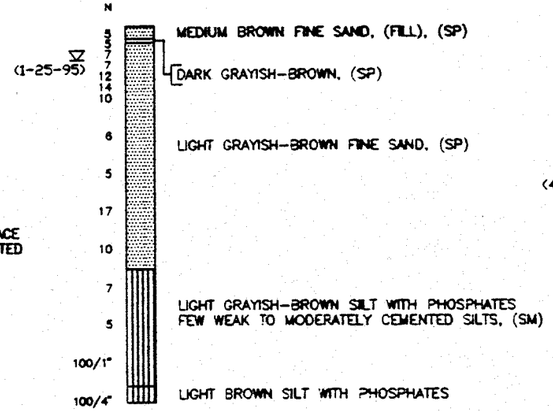
- SAND
- SILT
- CLAY
- MUCK
- (SP) UNIFIED SOIL CLASSIFICATION GROUP SYMBOL
- (1-25-95) WATER (WITH DATE OF READING)
- N STANDARD PENETRATION RESISTANCE IN BLOWS PER FOOT UNLESS OTHERWISE NOTED
- WR FELL UNDER WEIGHT OF ROD
- CIRCULATION LOSS
- LOCATION OF STANDARD PENETRATION TEST BORING

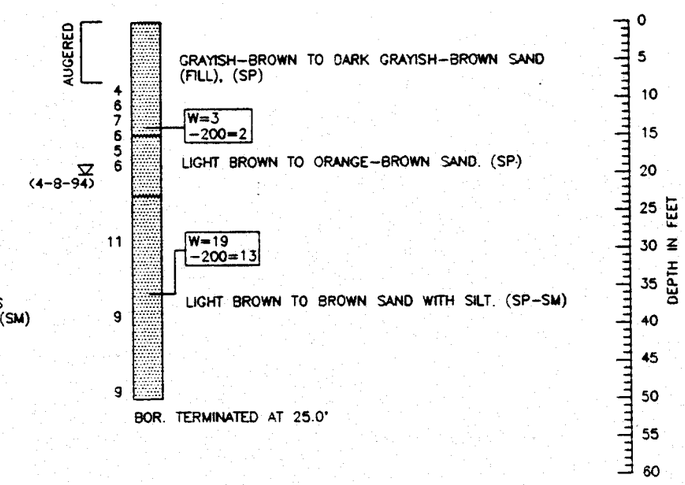
STANDARD PENETRATION TEST DATA

| | |
|---|---|
| SPOON INSIDE DIA. | 1 3/8 IN. |
| SPOON OUTSIDE DIA. | 2 IN. |
| AVG. HAMMER DROP | 30 IN. |
| HAMMER WEIGHT | 140 LBS. |

NOTE: STRATA BOUNDARIES ARE APPROXIMATE AND MAY VARY BETWEEN OR AWAY FROM BORING LOCATIONS.




GRANULAR MATERIALS

| RELATIVE DENSITY | SPT (BLOWS/FT.) |
|---|---|
| VERY LOOSE | LESS THAN 4 |
| LOOSE | 4-10 |
| MEDIUM DENSE | 10-30 |
| DENSE | 30-50 |
| VERY DENSE | GREATER THAN 50 |

SILTS AND CLAYS

| CONSISTENCY | SPT (BLOWS/FT.) |
|---|---|
| VERY SOFT | LESS THAN 2 |
| SOFT | 2-4 |
| FIRM | 4-8 |
| STIFF | 8-15 |
| VERY STIFF | 15-30 |
| HARD | GREATER THAN 30 |

ENVIRONMENTAL CLASSIFICATION:

SUPERSTRUCTURE: EXTREMELY AGGRESSIVE

SUBSTRUCTURE:
CONCRETE: EXTREMELY AGGRESSIVE
STEEL: EXTREMELY AGGRESSIVE

REVISIONS

| Date | By | Description | Date | By | Description |
|---|---|---|---|---|---|
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | DJW | 1-1-92 |
| Checked by | GK | 1-1-92 |
| Designed by | N/A | N/A |
| Checked by | N/A | N/A |
| Approved by | JWC | |

ENGINEER OF RECORD:
JAY W. CASPER, P.E. #36330
PSI
1675 LEE ROAD
WINTER PARK, FLORIDA 32789

LOGO: PSI Environmental Geotechnical Construction Consulting • Engineering • Testing

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
GEOTECHNICAL DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR 414 | SEMINOLE | 77002-3503 |

SHEET TITLE: REPORT OF SPT BORING FOR STRUCTURE

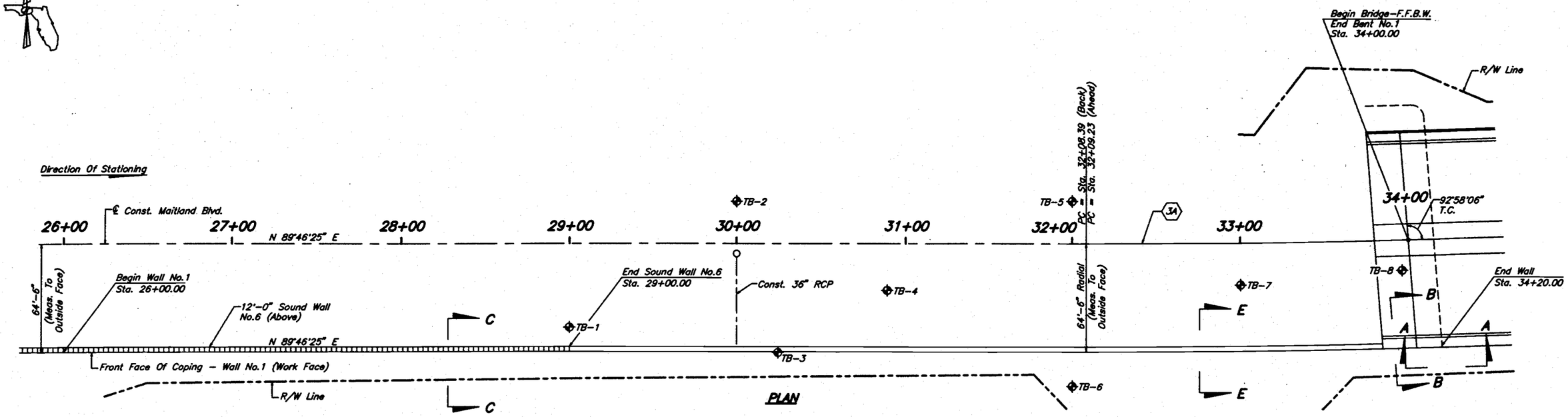
Drawing No.

PROJECT NAME: MAITLAND BOULEVARD EXTENSION
S.R. 414 ; LAKE BOSSE BRIDGE

Index No.

PSI PROJECT No. 754-05250
FIGURE:

| FED. ROAD DIV. NO. | STATE | PROJECT NO. | FISCAL YEAR | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | | 98 | W-6 |



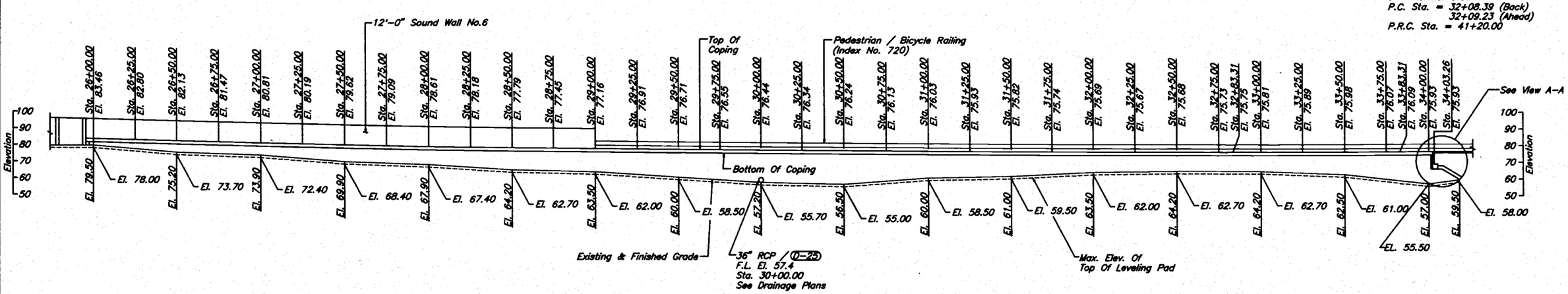

PLAN

NOTES:

1. Work This Sheet With Retaining Wall No.1 & No.2 Details.
2. ⊕ Indicates Soil Borings.
3. See Sound Wall Plans For Sound Wall Information.

## CURVE DATA (3A)

Δ = 07°43'27" Lt.
D = 00°50'53"
T = 456.077'
L = 910.773'
R = 6755.800'
P.I. Sta. = 36+65.30
e = Normal Crown
P.C. Sta. = 32+08.39 (Back)
32+09.23 (Ahead)
P.R.C. Sta. = 41+20.00




ELEVATION

| REVISIONS | | | | | |
|---|---|---|---|---|---|
| Date | By | Description | Date | By | Description |
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JLA | 9/94 |
| Checked by | MKA | 9/94 |
| Designed by | MKA | 9/94 |
| Checked by | PM | 9/94 |
| Approved by | Peeter Mannik, P.E. | |

ENGINEER OF RECORD:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

LOGO:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
ENGINEERS - SURVEYORS
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR414 | SEMINOLE | 77002-3503 |

SHEET TITLE: RETAINING WALL NO.1 ALIGNMENT

PROJECT NAME: MAITLAND BOULEVARD

Drawing No.

Index No.

JA 07/16/98 3:34PM C:\MYFILES\WALLWRECT.DGN

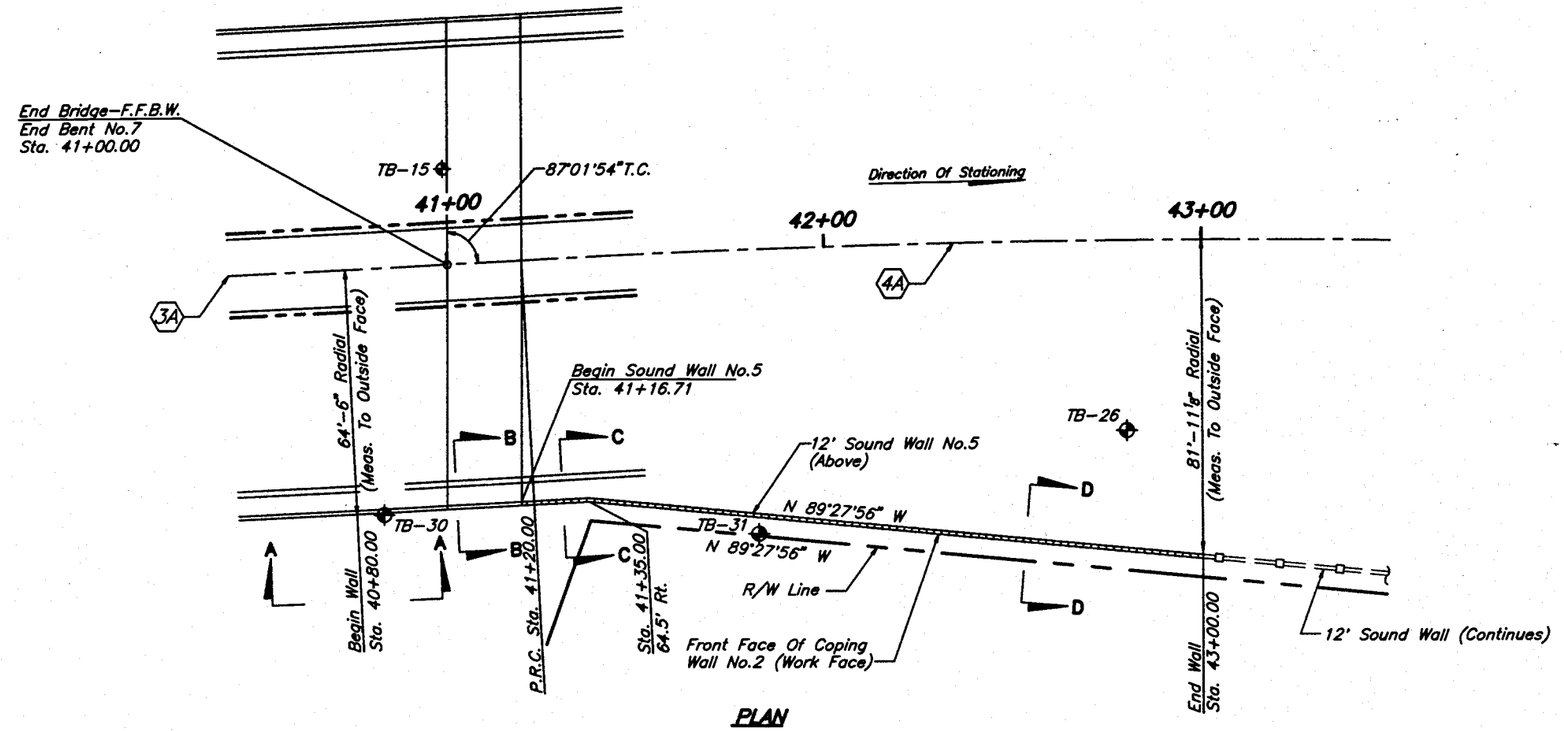
| FED. ROAD DIV. NO. | STATE | PROJECT NO. | FISCAL YEAR | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | | 98 | W-7 |

## CURVE DATA (3A)

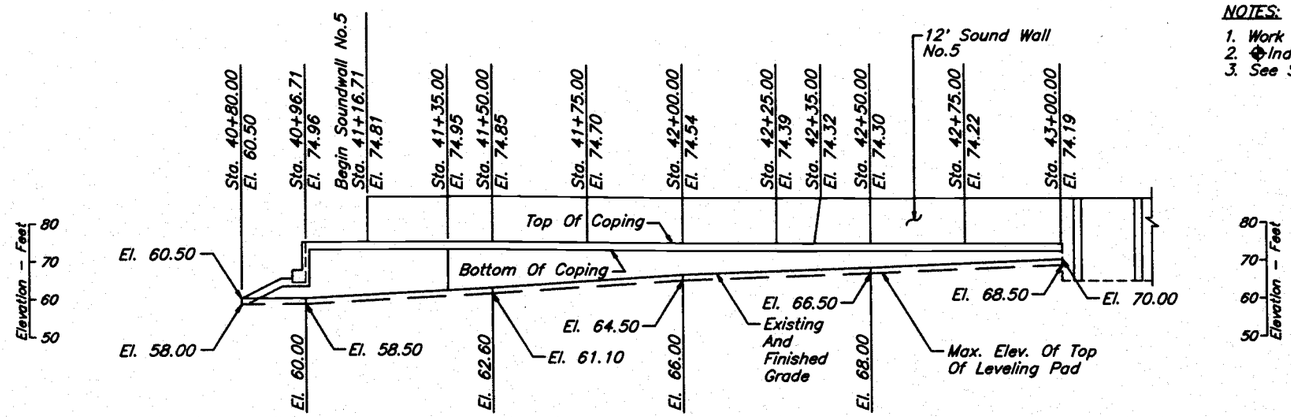
$\Delta$ = 07°43'27" Lt.
D = 00°50'53"
T = 456.077'
L = 910.773'
R = 6755.800'
P.I. Sta. = 36+65.30
e = Normal Crown
P.C. Sta. = 32+08.39 (Back)
32+09.23 (Ahead)
P.R.C. Sta. = 41+20.00

## CURVE DATA (4A)

$\Delta$ = 8°22'17"
D = 1°38'13"
T = 256.15'
L = 511.39'
R = 3500.00'
P.R.C. Sta. = 41+20.00
P.T. Sta. = 46+31.39
e = N/A




PLAN




ELEVATION

NOTES:

1. Work This Sheet With Retaining Wall No.1 & No.2 Details.
2. ⊕ Indicates Soil Borings.
3. See Sound Wall Plans For Sound Wall Information.

| REVISIONS | | | | | |
|---|---|---|---|---|---|
| Date | By | Description | Date | By | Description |
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JLA | 9/94 |
| Checked by | MKA | 9/94 |
| Designed by | MKA | 9/94 |
| Checked by | PM | 9/94 |
| Approved by | Peeter Mannik, P.E. | |

ENGINEER OF RECORD:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

LOGO:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
ENGINEERS - SURVEYORS
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR414 | SEMINOLE | 77002-3503 |

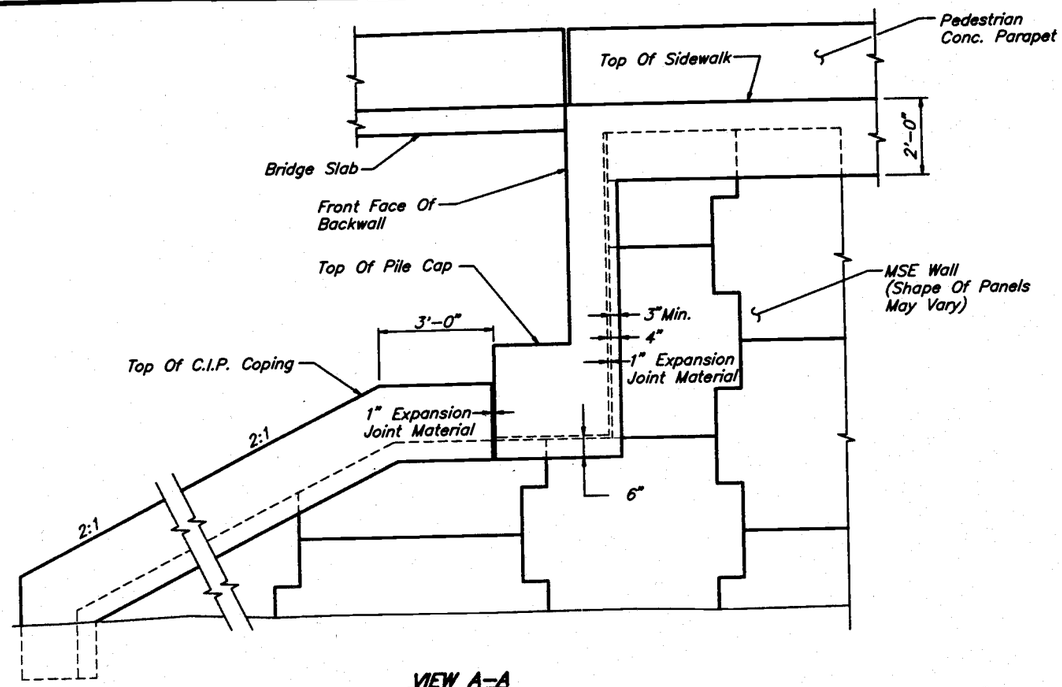
SHEET TITLE: RETAINING WALL NO.2 ALIGNMENT

PROJECT NAME: MAITLAND BOULEVARD

Drawing No.

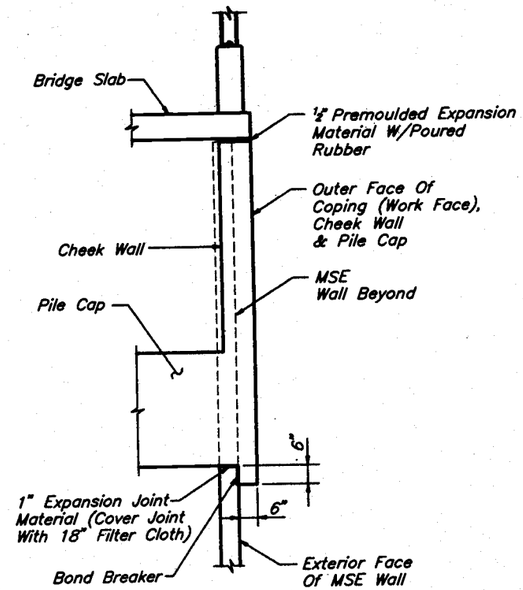
Index No.

| FED. ROAD DIST. NO. | STATE | PROJECT NO. | FISCAL YEAR | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | | 98 | W-8 |

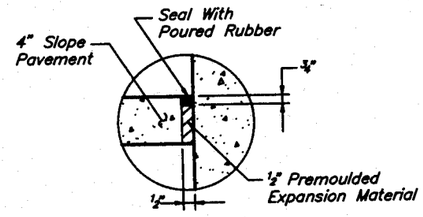



**VIEW A-A**

WALL NO. 2 SHOWN
WALL NO. 1 OPPOSITE

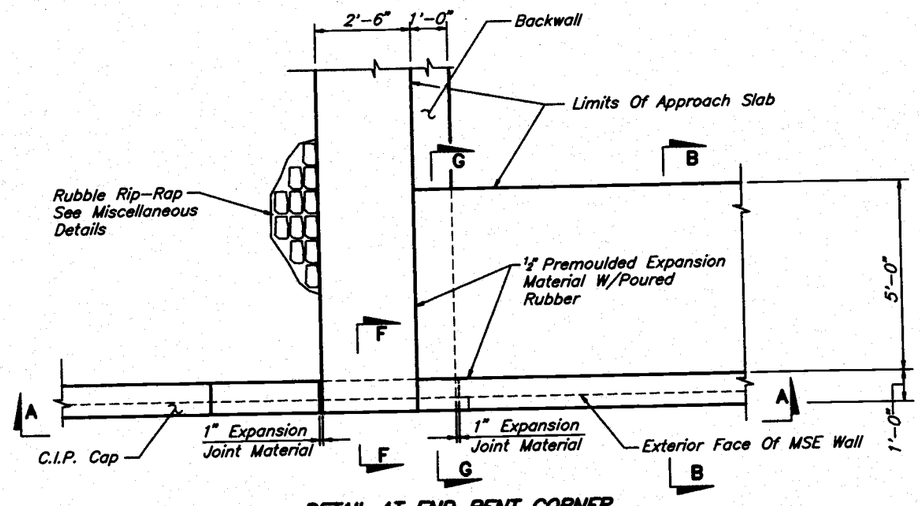



**SECTION F-F**



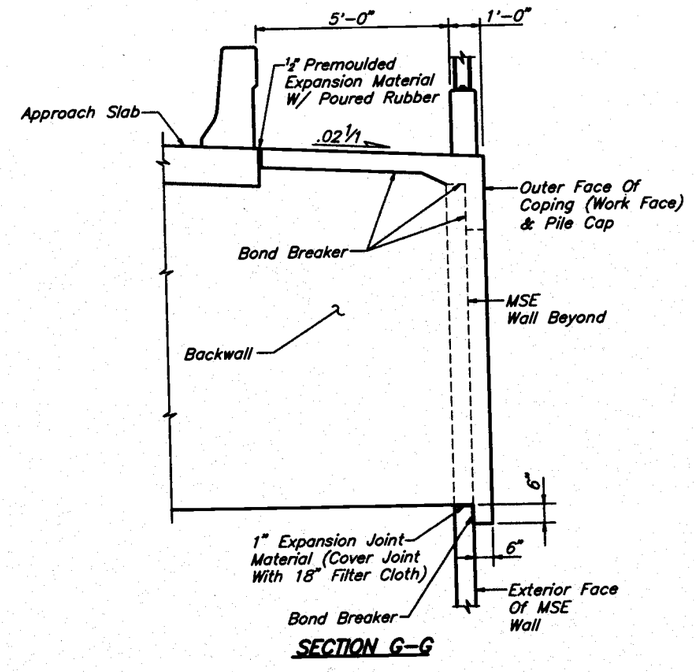

Note: Applies To All Contracting Surfaces Of Slope Pavement At End Bents, Retaining Or End Walls, Toe Wall And Both Edges Of Berm.

**DETAIL AT JOINT**




**DETAIL AT END BENT CORNER**

WALL NO. 2 SHOWN
WALL NO. 1 OPPOSITE




**SECTION G-G**

| REVISIONS | | | | | |
|---|---|---|---|---|---|
| Date | By | Description | Date | By | Description |
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JLA | 9/94 |
| Checked by | MKA | 9/94 |
| Designed by | MKA | 9/94 |
| Checked by | PM | 9/94 |
| Approved by | Peeter Mannik, P.E. | |

ENGINEER OF RECORD:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

LOGO:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
ENGINEERS - SURVEYORS
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| | SEMINOLE | 77002-3503 |

SHEET TITLE: RETAINING WALL NO.1 & NO.2 DETAILS

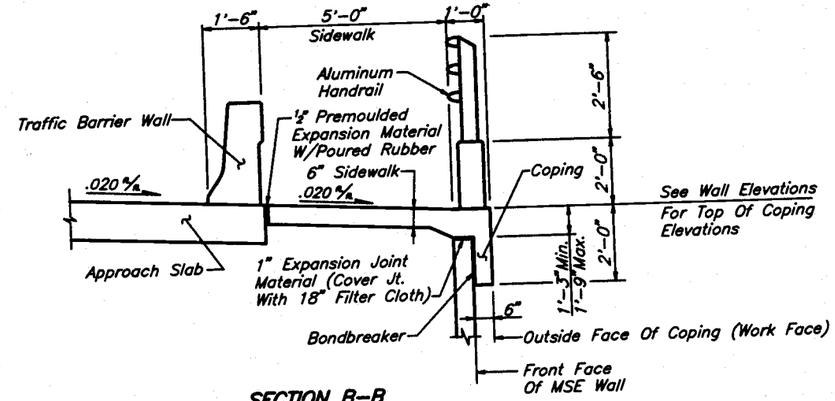
PROJECT NAME: MAITLAND BOULEVARD

Drawing No. 1 OF 2

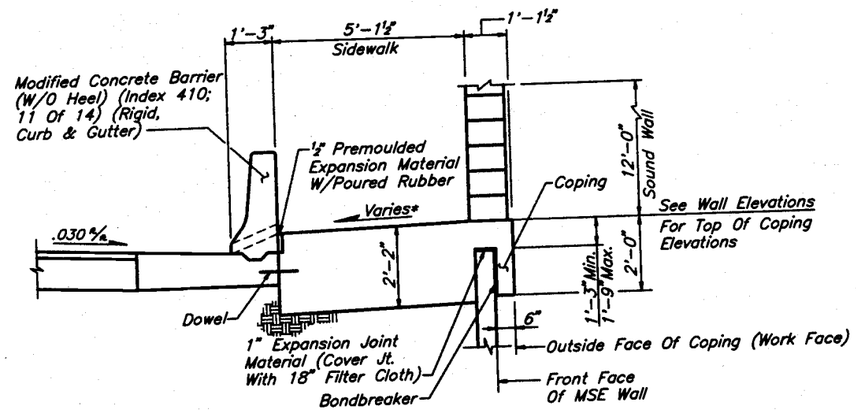
Index No.

J.J. 07/11/98 3:40PM C:\WORLAND\WW7\BRD.DWG

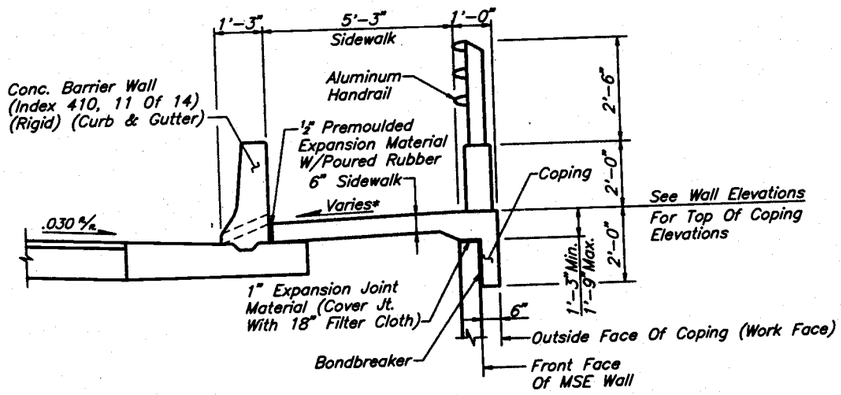
| FED. ROAD DIV. NO. | STATE | PROJECT NO. | FISCAL YEAR | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | | 98 | W-9 |



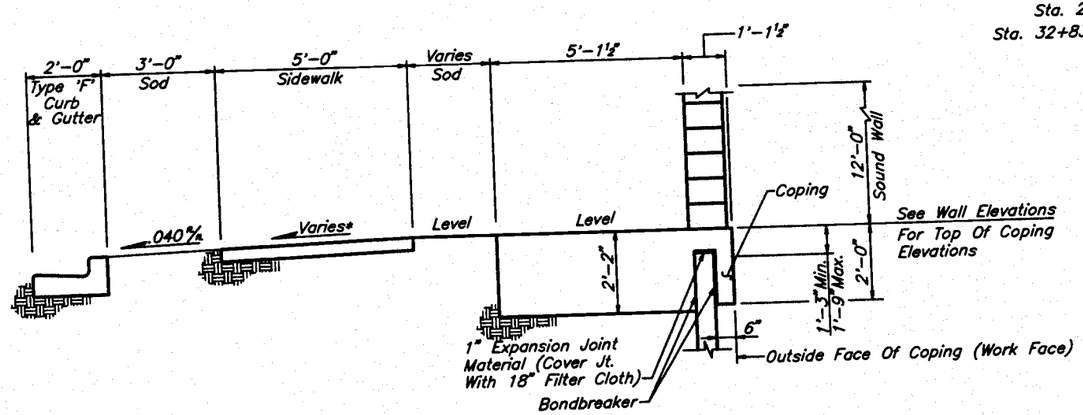

**SECTION B-B**
PEDESTRIAN RAIL
AT APPROACH SLAB
Sta. 33+83.31 To Sta. 34+03.31 (Wall No.1)
Sta. 40+96.71 To Sta. 41+16.71 (Wall No.2)




**SECTION C-C**
AT ROADWAY
Sta. 26+00.00 To Sta. 29+00.00 * .020% (Wall No.1)
Sta. 41+16.71 To Sta. 41+35.00 * .020% (Wall No.2)




**SECTION E-E**
PEDESTRIAN RAIL
AT ROADWAY
Sta. 29+00.00 To Sta. 32+83.31 * .020% (Wall No.1)
Sta. 32+83.31 To Sta. 33+83.31 * Sidewalk Transition; Slope Varies
From .020% To .020% (Wall No.1)




**SECTION E-E**
AT ROADWAY
Sta. 41+35.00 To Sta. 42+35.00 * Sidewalk Transition; Slope Varies
From .020% To .020% (Wall No.2)
Sta. 42+35.00 To Sta. 43+00.00 * .020% (Wall No.2)

REVISIONS

| Date | By | Description | Date | By | Description |
|---|---|---|---|---|---|
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JLA | 9/94 |
| Checked by | MKA | 9/94 |
| Designed by | MKA | 9/94 |
| Checked by | PM | 9/94 |
| Approved by | Peeter Mannik, P.E. | |

ENGINEER OF RECORD:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

LOGO:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
ENGINEERS - SURVEYORS
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR414 | SEMINOLE | 77002-3503 |

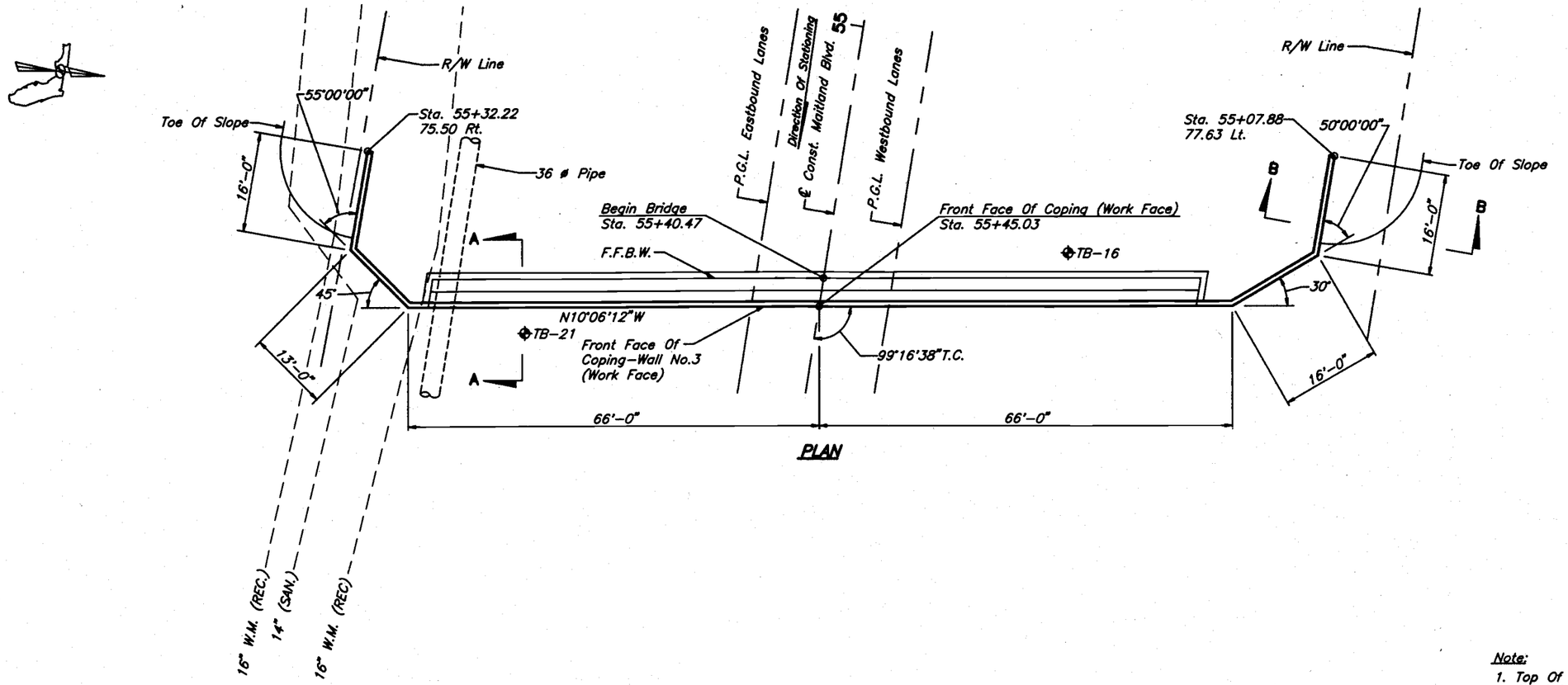
SHEET TITLE: RETAINING WALL NO.1 & NO.2 DETAILS

PROJECT NAME: MAITLAND BOULEVARD

Drawing No. 2 OF 2

Index No.

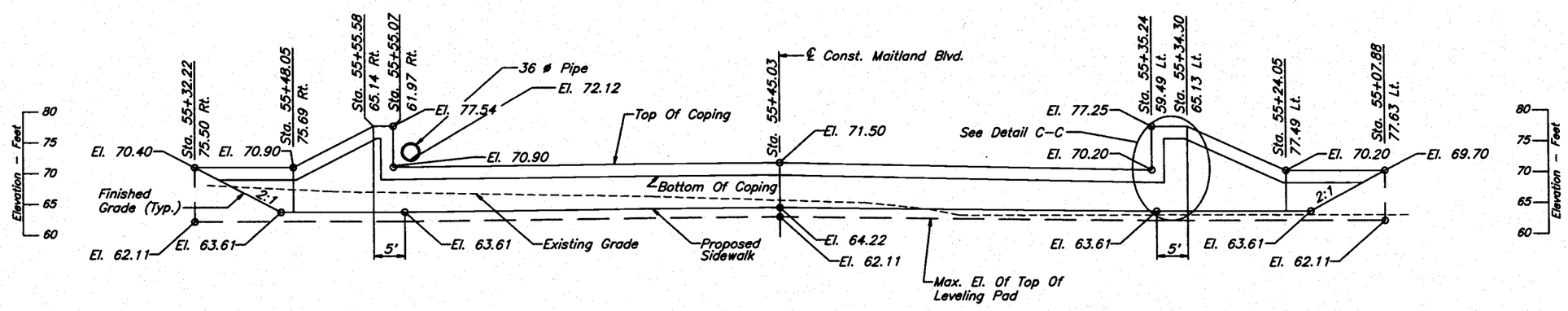
| FED. ROAD DIV. NO. | STATE | PROJECT NO. | FISCAL YEAR | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | | 96 | W-10 |




PLAN

Note:

1. Top Of Leveling Pad Embedment Depth Shall Be A Minimum Of 1'-6"
2. ◆ Indicates Soil Borings.
3. See Retaining Wall Details Wall No.3 & No.4 For Sections A-A And B-B.




ELEVATION
WALL NO. 3

| REVISIONS | | | | | |
|---|---|---|---|---|---|
| Date | By | Description | Date | By | Description |
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JLA | 7/94 |
| Checked by | MKA | 7/94 |
| Designed by | MKA | 7/94 |
| Checked by | PM | 7/94 |
| Approved by | PEETER MANNIK, P.E. | |

ENGINEER OF RECORD:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

LOGO:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
ENGINEERS - SURVEYORS
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR414 | SEMINOLE | 77002-3503 |

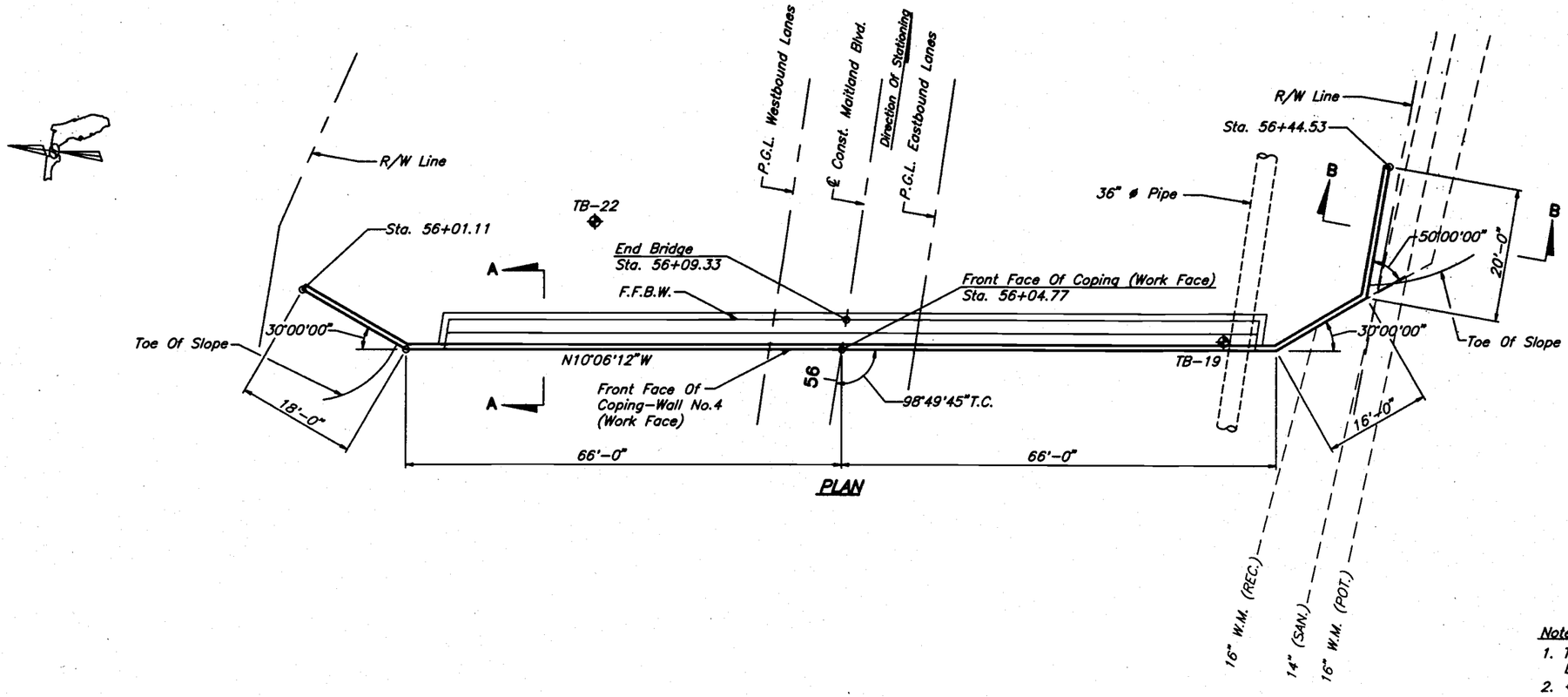
SHEET TITLE:
RETAINING WALL NO.3 ALIGNMENT

PROJECT NAME:
MAITLAND BOULEVARD

Drawing No.

Index No.

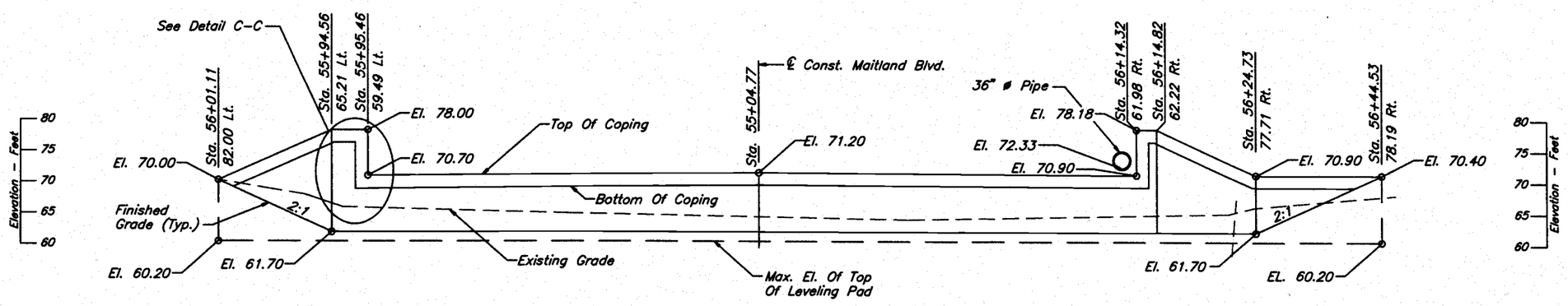
| FED. ROAD DIV. NO. | STATE | PROJECT NO. | FISCAL YEAR | SHEET NO. |
|---|---|---|---|---|
| | FLA. | | 98 | W-11 |




PLAN

Note:

1. Top Of Leveling Pad Embedment Depth Shall Be A Minimum Of 1'-6"
2. ◆ Indicates Soil Borings.
3. See Retaining Wall Details Wall No.3 & No.4 For Sections A-A And B-B.




ELEVATION
WALL NO. 4

| REVISIONS | | | | | |
|---|---|---|---|---|---|
| Date | By | Description | Date | By | Description |
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JLA | 7/94 |
| Checked by | MKA | 7/94 |
| Designed by | MKA | 7/94 |
| Checked by | PM | 7/94 |
| Approved by | Peeter Mannik, P.E. | |

ENGINEER OF RECORD:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

LOGO:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
ENGINEERS - SURVEYORS
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR414 | SEMINOLE | 77002-3503 |

SHEET TITLE: RETAINING WALL NO.4 ALIGNMENT

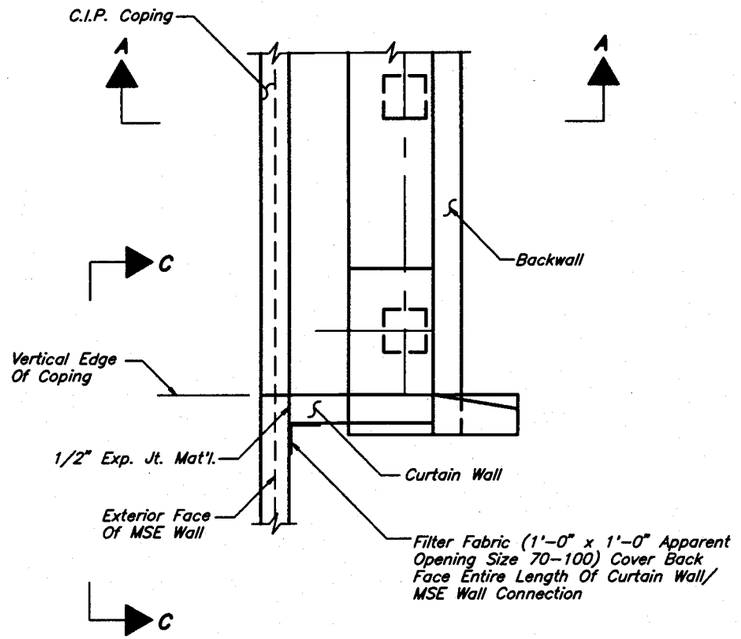
PROJECT NAME: MAITLAND BOULEVARD

Drawing No.

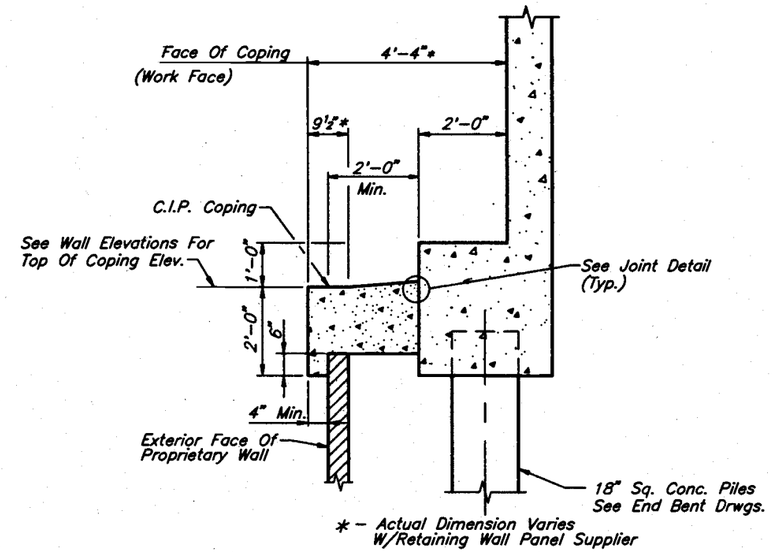
Index No.

JS 07/10/98 4:07PM C:\WINLAND\MAITRET4.DWG

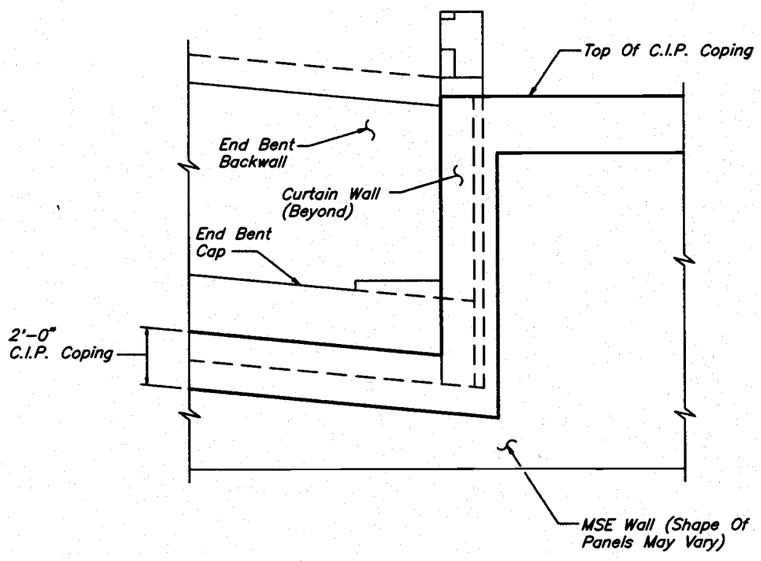
| FED. ROAD DIST. NO. | STATE | PROJECT NO. | FISCAL YEAR | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | | 98 | W-12 |



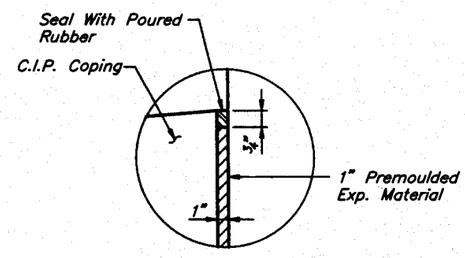

**DETAIL AT END BENT CORNER**




**SECTION A-A**

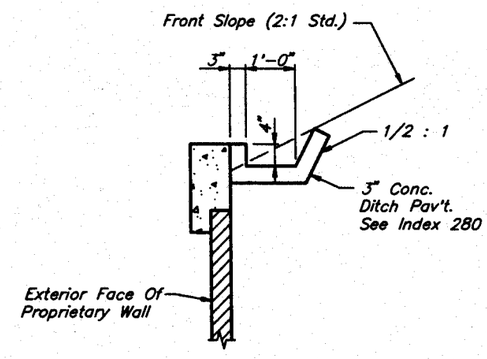



**DETAIL C-C**




NOTE:
Applies To All Contacting Surfaces Of Slope Pavement At End Bents, Retaining Or End Walls, Toe Walls And Both Edges Of Berm.

**JOINT DETAIL**




**SECTION B-B**

| REVISIONS | | | | | |
|---|---|---|---|---|---|
| Date | By | Description | Date | By | Description |
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JLA | 7/94 |
| Checked by | MKA | 7/94 |
| Designed by | MKA | 7/94 |
| Checked by | PM | 7/94 |
| Approved by | Peeter Mannik, P.E. | |

ENGINEER OF RECORD:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

LOGO:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
ENGINEERS - SURVEYORS
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR414 | SEMINOLE | 77002-3503 |

SHEET TITLE: RETAINING WALL DETAILS WALL NO.3 AND NO.4

PROJECT NAME: MAITLAND BOULEVARD

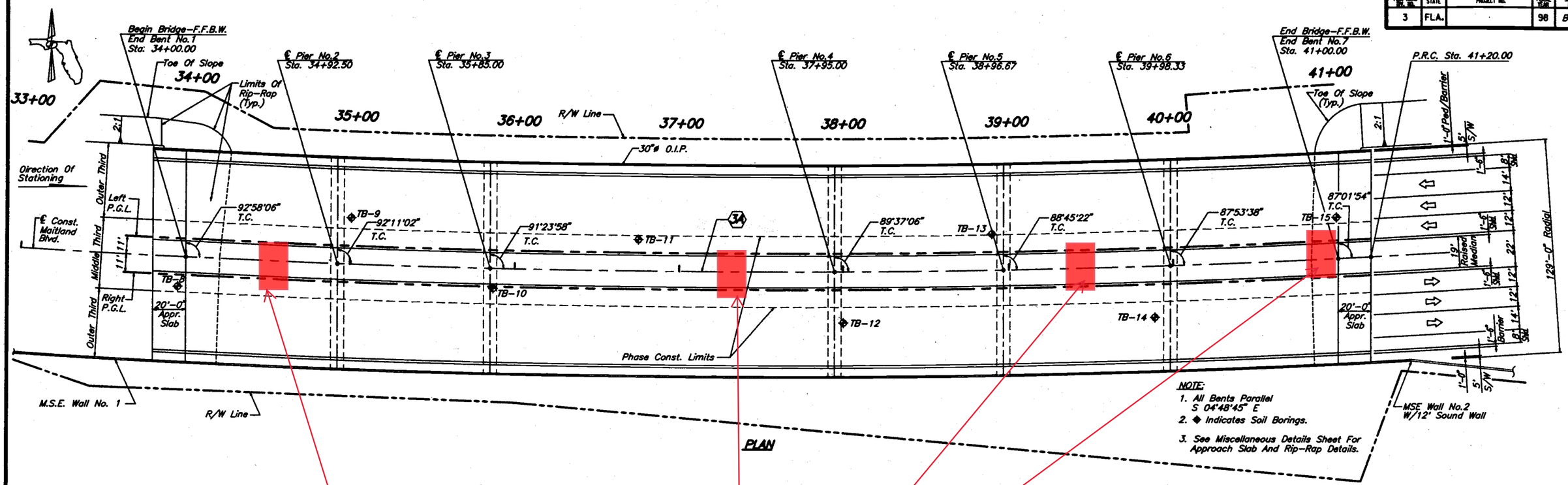
Drawing No.

Index No.

A.S. 07/15/98 4:14PM C:\MAITLAND\MAITRO3.DGN

# Conceptual Proposed Bridge Plans on Existing Bridge Plans at Maitland Boulevard over Lake Bosse

| FED. ROAD DIV. NO. | STATE | PROJECT NO. | FISCAL YEAR | SHEET NO. |
|---|---|---|---|---|
| 3 | FLA. | | 98 | B-1 |




REVISIONS

| Date | By | Description | Date | By | Description |
|---|---|---|---|---|---|
| | | | | | |

| | Names | Dates |
|---|---|---|
| Drawn by | JLA | 7/94 |
| Checked by | MKA | 7/94 |
| Designed by | MKA | 7/94 |
| Checked by | PM | 7/94 |
| Approved by | Peeter Mannik, P.E. | |

ENGINEER OF RECORD:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

LOGO:
DYER, RIDDLE, MILLS AND PRECOURT, INC.
ENGINEERS - SURVEYORS
1505 EAST COLONIAL DRIVE
ORLANDO, FLORIDA 32803

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

| ROAD NO. | COUNTY | PROJECT NO. |
|---|---|---|
| SR414 | SEMINOLE | 77002-3503 |

SHEET TITLE: GENERAL PLAN AND ELEVATION

PROJECT NAME: MAITLAND BOULEVARD OVER LAKE BOSSE
BRIDGE NO. 77002-3503

Drawing No.

Index No.

# Bridge Hydraulics Evaluation

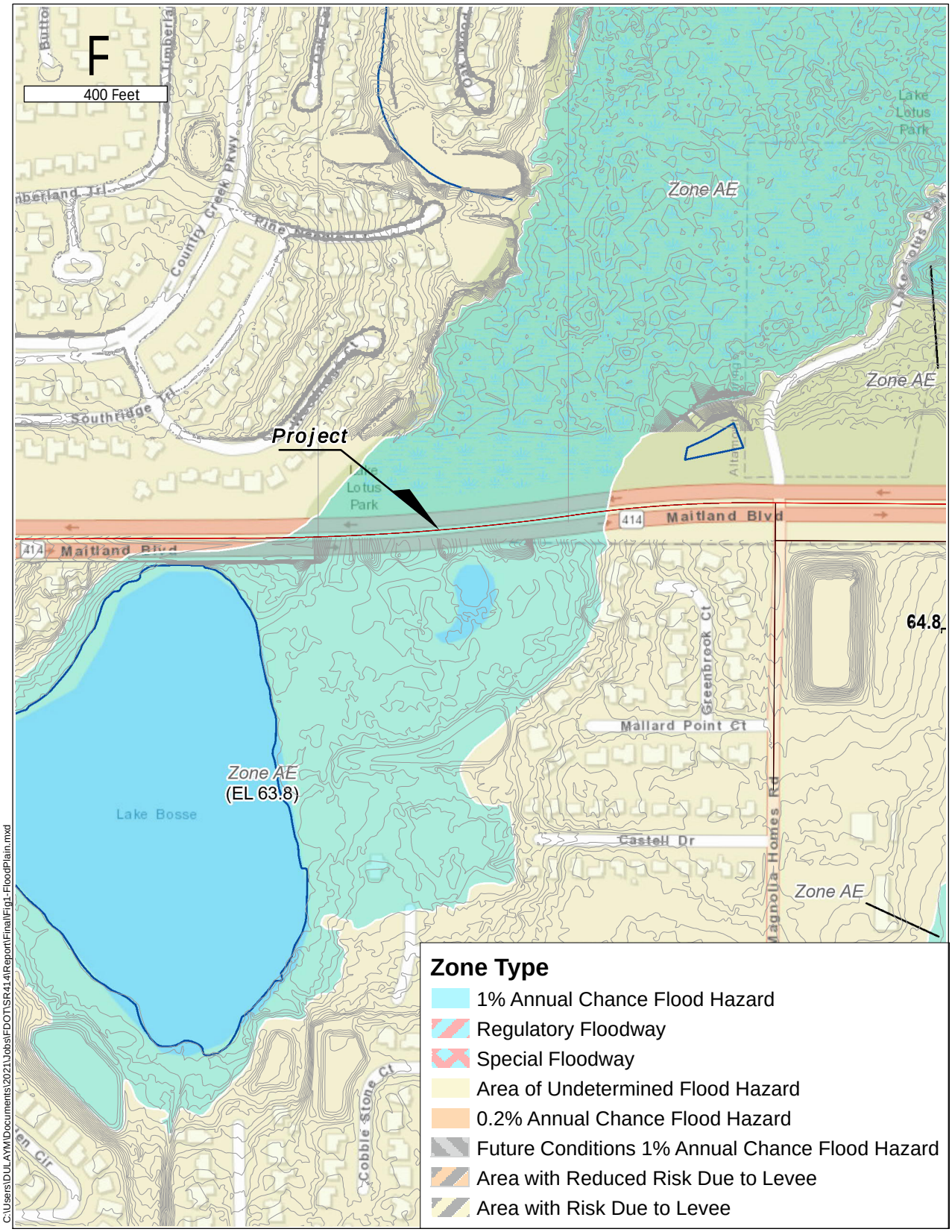
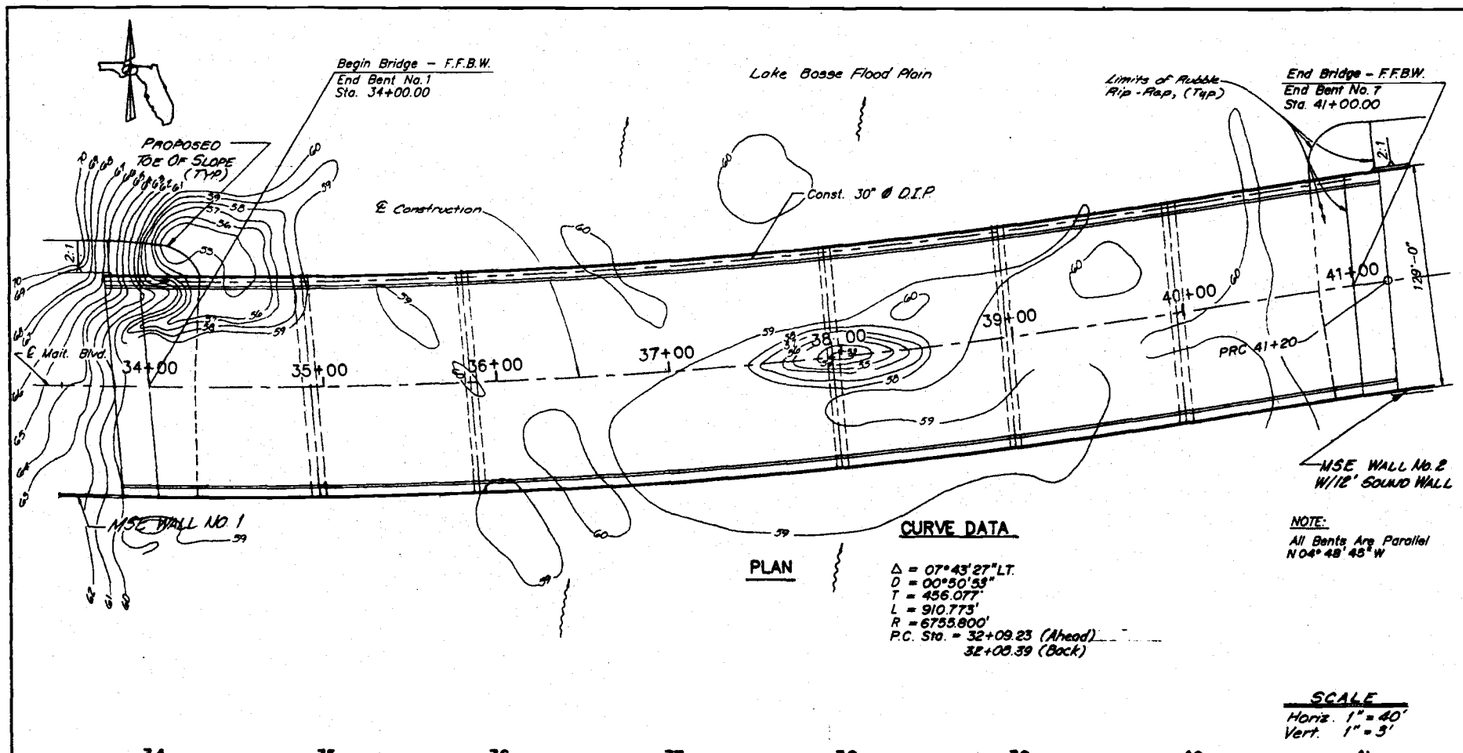
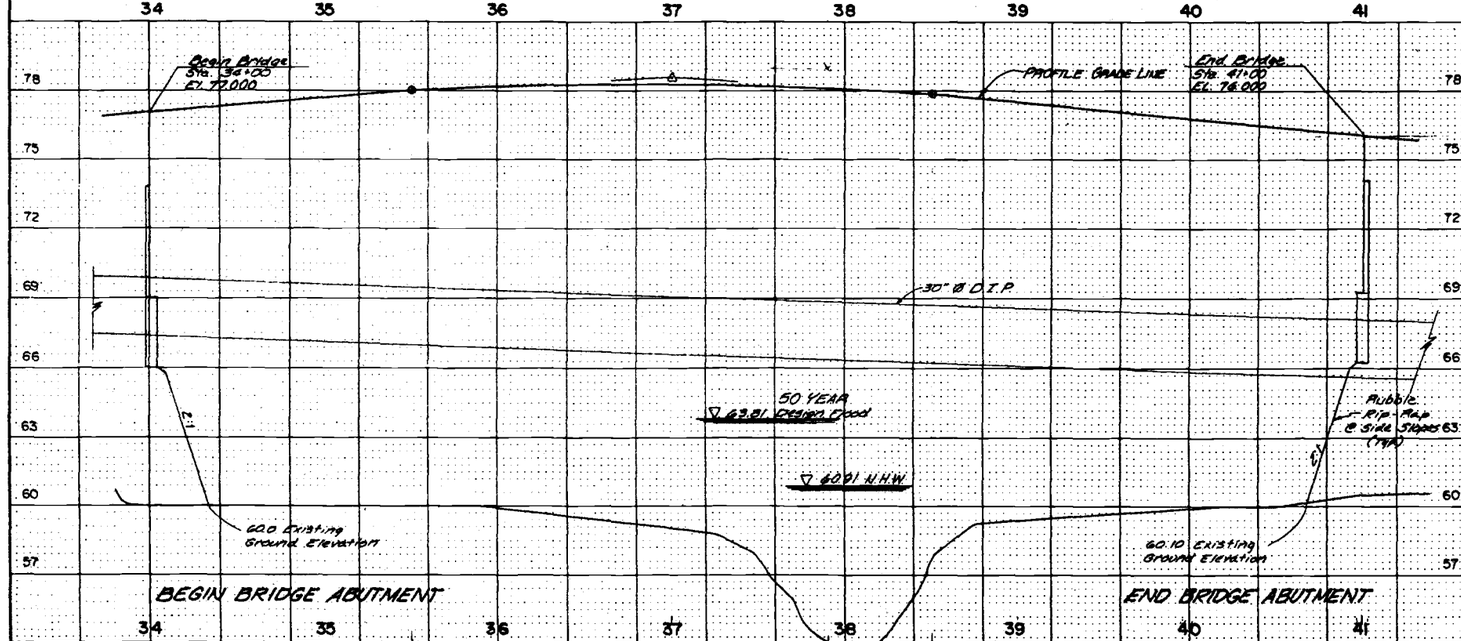



Figure 1. Existing Contours

| STATE PROJ. NO. | SHEET NO. |
|---|---|
| 77002-3503 | 8-5 |






| (REFERENCE) | EXISTING STRUCTURES (1) | (2) | (3) | (4) | ASSUMED CONFIGURATION |
|---|---|---|---|---|---|
| FOUNDATION | N/A | N/A | N/A | N/A | 20" Ø Conc. Filled Pipe Piles |
| OVERALL LENGTH | | | | | 700' |
| SPAN LENGTH | | | | | Varies |
| TYPE CONSTRUCTION | | | | | Hybrid Beams |
| AREA OF OPENING @ H.W. | | | | | N/A |
| ROADWAY WIDTH | | | | | 129' |
| ELEV. LOW MEMBER | | | | | 66.96 |

## HYDRAULIC DESIGN DATA

NOTE: The hydraulic data is shown for informational purposes only to indicate the flood discharges and water surface elevations which may be anticipated in any given year. This data was generated using highly variable factors determined by a study of the watershed. Many judgements and assumptions are required to establish these factors. The resultant hydraulic data is sensitive to changes, particularly antecedent conditions, urbanization, channelization and land use. Users of this data are cautioned against the assumption of precision which cannot be obtained.

DEFINITIONS:
Design Flood: The flood utilized to assure a desired level of hydraulic performance.
Base Flood: The flood having a 1% chance of being exceeded in any year. (100 Year Frequency)
Overtopping Flood: The flood which causes flow over the highway, over a watershed divide or thru emergency relief structures.
Greatest Flood: The most severe flood which can be predicted where overtopping is not practicable.

WATER SURFACE ELEVATIONS: N.H.W. (Non-Tidal) N/A M.H.W. N/A M.L.W. N/A

| FLOOD DATA: | MAX. EVENT OF RECORD | DESIGN FLOOD | BASE FLOOD | ☐ OVERTOPPING FLOOD ☒ GREATEST FLOOD |
|---|---|---|---|---|
| STAGE ELEV. NGVD (FT.) | Not Available | 63.81 | 64.45 | 65.70 |
| DISCHARGE (CFS) | Not Available | 392 | 459 | 579 |
| AVERAGE VELOCITY (FPS) | Not Available | 0.12 | 0.12 | 0.13 |
| EXCEEDANCE PROB. (%) | Not Available | 2.0 | 1.0 | 0.2 |
| FREQUENCY (YR.) | Not Available | 50 | 100 | 500 |

## HYDRAULIC RECOMMENDATIONS

1. BEGIN BRIDGE STATION 34+00 END BRIDGE STATION 41+00 SKEW ANGLE Varies
2. CHANNEL SECTION: ℄ STATION * See Remarks BOTTOM WIDTH N/A ELEV. N/A SIDE SLOPE N/A
3. LIMITS OF CHANNEL EXCAVATION: RT. N/A LT. N/A
4. CLEARANCE: NAVAGATION: HORIZ. N/A VERT. N/A ABOVE EL. N/A DRIFT: HORIZ. 650' VERT. 3.15' ABOVE EL. 63.81
5. SCOUR PREDICTION: No Contraction Scour Is Predicted. 3.5 Feet Of Pier Scour Is Predicted For The 50 Yr. 100 Yr. & 500 Yr. Storm Events. Abutment Scour Will Be Prevented Through The Use Of Rubble Rip-Rap.
6. SLOPE PROTECTION: Rubble Rip-Rap At Spill Through Abutments.
7. DECK DRAINAGE: Runoff Will Be Directed To Inlets At Either End Of The Bridge Via Curb And Gutter Construction.
8. OTHER:

REMARKS: The Bridge Spans A Shallow Flood Plain With No Defined Channel.

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

| | NAME | DATE | | NAME | DATE |
|---|---|---|---|---|---|
| DESIGNED BY | M.K.A. | 7-92 | DRAWN BY | D.A.G. | 7-92 |
| CHECKED BY | J.O.C. | 7-92 | CHECKED BY | M.K.A. | 7-92 |
| SUPERVISED BY: | | | | | |

FLORIDA DEPARTMENT OF TRANSPORTATION

APPROVED BY:

DATE:

# BRIDGE HYDRAULIC RECOMMENDATIONS

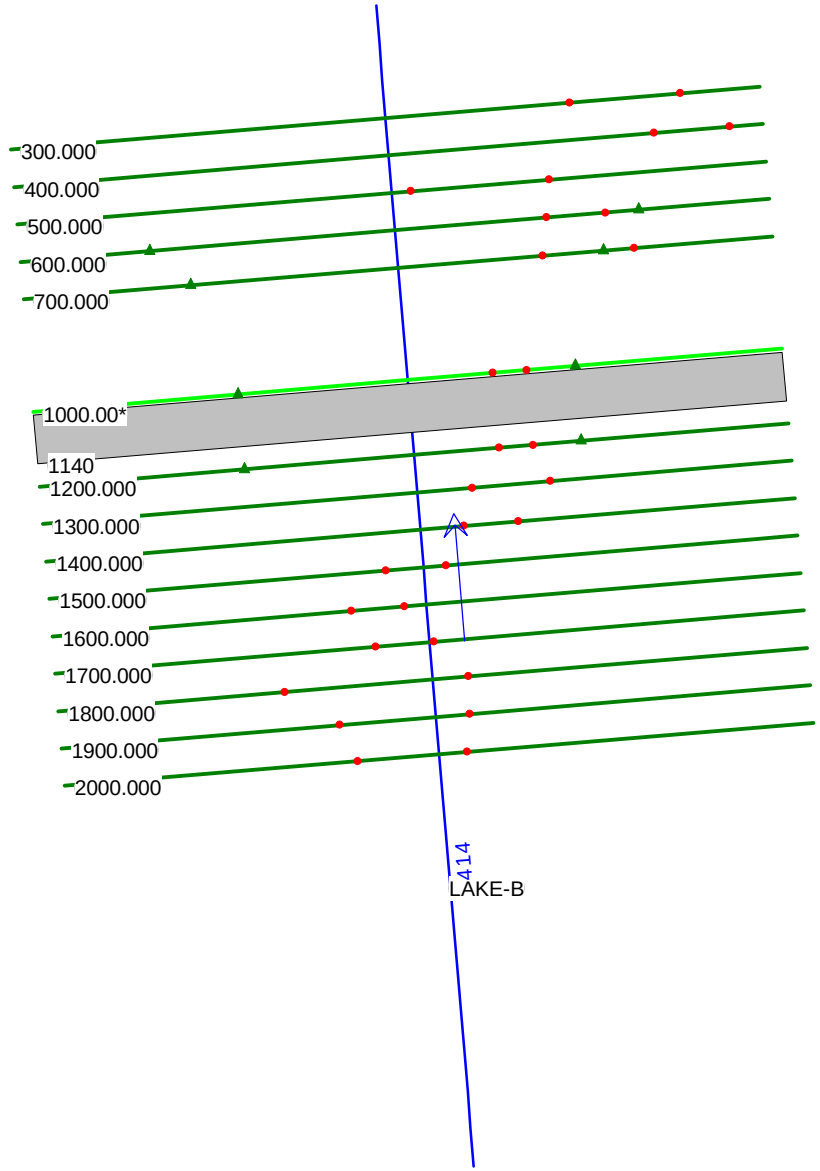
# Existing Condition

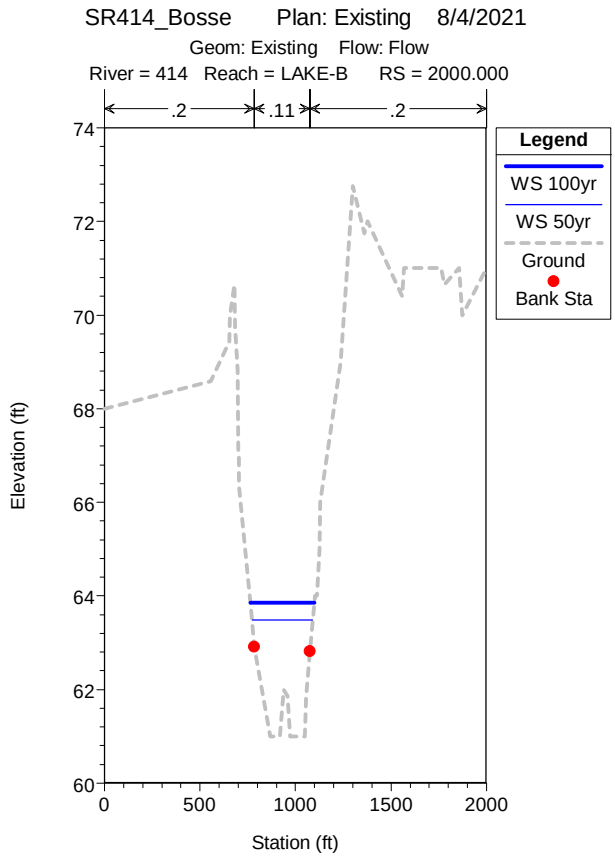
HEC-RAS Plan: EX River: 414 Reach: LAKE-B

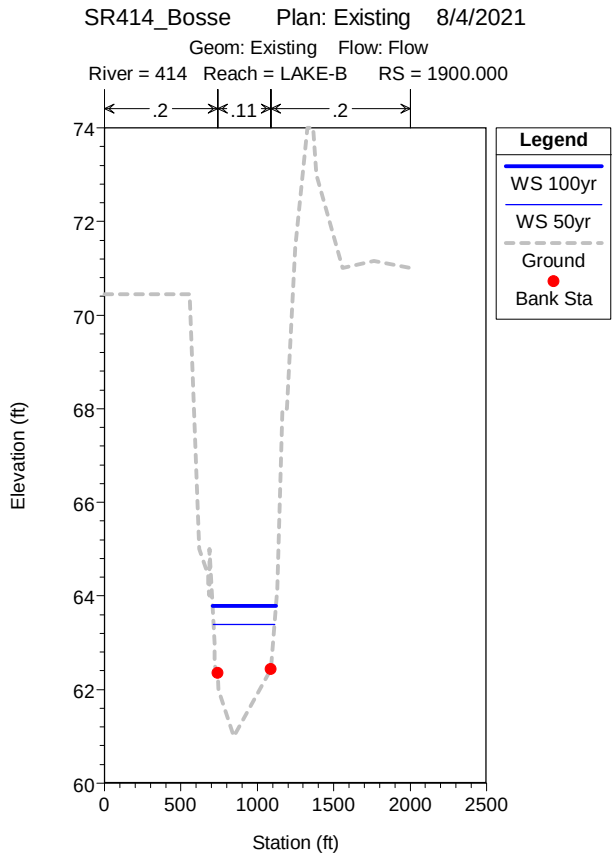
| Reach | River Sta | Profile | Q Total | Min Ch El | W.S. Elev | Crit W.S. | E.G. Elev | E.G. Slope | Vel Chnl | Flow Area | Top Width | Froude # Chl |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft) | (ft) | (ft/ft) | (ft/s) | (sq ft) | (ft) | |
| LAKE-B | 2000.000 | 10yr | 245.88 | 61.00 | 63.05 | | 63.06 | 0.000873 | 0.54 | 458.08 | 300.10 | 0.08 |
| LAKE-B | 2000.000 | 25yr | 325.41 | 61.00 | 63.26 | | 63.26 | 0.001019 | 0.63 | 519.48 | 308.01 | 0.08 |
| LAKE-B | 2000.000 | 50yr | 391.90 | 61.00 | 63.49 | | 63.49 | 0.000977 | 0.67 | 592.02 | 317.10 | 0.08 |
| LAKE-B | 2000.000 | 100yr | 459.25 | 61.00 | 63.86 | | 63.86 | 0.000759 | 0.66 | 711.22 | 332.44 | 0.08 |
| LAKE-B | 2000.000 | 500yr | 579.00 | 61.00 | 64.94 | | 64.95 | 0.000329 | 0.56 | 1107.88 | 385.68 | 0.05 |
| | | | | | | | | | | | | |
| LAKE-B | 1900.000 | 10yr | 245.88 | 61.00 | 62.96 | | 62.96 | 0.001125 | 0.54 | 466.88 | 384.52 | 0.08 |
| LAKE-B | 1900.000 | 25yr | 325.41 | 61.00 | 63.14 | | 63.15 | 0.001246 | 0.62 | 539.95 | 391.58 | 0.09 |
| LAKE-B | 1900.000 | 50yr | 391.90 | 61.00 | 63.39 | | 63.39 | 0.001084 | 0.64 | 635.87 | 401.06 | 0.09 |
| LAKE-B | 1900.000 | 100yr | 459.25 | 61.00 | 63.78 | | 63.79 | 0.000738 | 0.61 | 797.73 | 416.57 | 0.07 |
| LAKE-B | 1900.000 | 500yr | 579.00 | 61.00 | 64.92 | | 64.92 | 0.000269 | 0.49 | 1310.02 | 508.62 | 0.05 |
| | | | | | | | | | | | | |
| LAKE-B | 1800.000 | 10yr | 245.88 | 61.00 | 62.77 | | 62.78 | 0.003262 | 0.73 | 337.51 | 367.92 | 0.13 |
| LAKE-B | 1800.000 | 25yr | 325.41 | 61.00 | 62.95 | | 62.96 | 0.003265 | 0.81 | 402.75 | 376.12 | 0.14 |
| LAKE-B | 1800.000 | 50yr | 391.90 | 61.00 | 63.23 | | 63.24 | 0.002242 | 0.77 | 511.04 | 389.36 | 0.12 |
| LAKE-B | 1800.000 | 100yr | 459.25 | 61.00 | 63.69 | | 63.70 | 0.001194 | 0.66 | 693.81 | 410.74 | 0.09 |
| LAKE-B | 1800.000 | 500yr | 579.00 | 61.00 | 64.89 | | 64.89 | 0.000336 | 0.46 | 1262.48 | 512.58 | 0.05 |
| | | | | | | | | | | | | |
| LAKE-B | 1700.000 | 10yr | 245.88 | 61.00 | 61.88 | | 61.96 | 0.046353 | 2.29 | 107.14 | 152.81 | 0.48 |
| LAKE-B | 1700.000 | 25yr | 325.41 | 61.00 | 62.27 | | 62.32 | 0.016573 | 1.83 | 215.19 | 367.49 | 0.31 |
| LAKE-B | 1700.000 | 50yr | 391.90 | 61.00 | 62.95 | | 62.96 | 0.003433 | 1.15 | 472.90 | 397.09 | 0.15 |
| LAKE-B | 1700.000 | 100yr | 459.25 | 61.00 | 63.55 | | 63.56 | 0.001434 | 0.91 | 751.77 | 467.73 | 0.10 |
| LAKE-B | 1700.000 | 500yr | 579.00 | 61.00 | 64.85 | | 64.85 | 0.000398 | 0.64 | 1399.84 | 550.48 | 0.06 |
| | | | | | | | | | | | | |
| LAKE-B | 1600.000 | 10yr | 245.88 | 59.26 | 61.79 | | 61.79 | 0.000433 | 0.51 | 671.43 | 352.69 | 0.06 |
| LAKE-B | 1600.000 | 25yr | 325.41 | 59.26 | 62.17 | | 62.17 | 0.000456 | 0.58 | 827.47 | 474.73 | 0.06 |
| LAKE-B | 1600.000 | 50yr | 391.90 | 59.26 | 62.89 | | 62.90 | 0.000263 | 0.51 | 1173.29 | 483.15 | 0.05 |
| LAKE-B | 1600.000 | 100yr | 459.25 | 59.26 | 63.52 | | 63.52 | 0.000189 | 0.48 | 1479.93 | 496.36 | 0.04 |
| LAKE-B | 1600.000 | 500yr | 579.00 | 59.26 | 64.83 | | 64.83 | 0.000103 | 0.43 | 2151.41 | 526.33 | 0.03 |
| | | | | | | | | | | | | |
| LAKE-B | 1500.000 | 10yr | 245.88 | 59.10 | 61.76 | | 61.76 | 0.000165 | 0.31 | 1322.29 | 725.76 | 0.04 |
| LAKE-B | 1500.000 | 25yr | 325.41 | 59.10 | 62.15 | | 62.15 | 0.000161 | 0.34 | 1602.89 | 738.61 | 0.04 |
| LAKE-B | 1500.000 | 50yr | 391.90 | 59.10 | 62.88 | | 62.88 | 0.000094 | 0.30 | 2152.55 | 763.15 | 0.03 |
| LAKE-B | 1500.000 | 100yr | 459.25 | 59.10 | 63.51 | | 63.51 | 0.000069 | 0.29 | 2640.36 | 784.29 | 0.03 |
| LAKE-B | 1500.000 | 500yr | 579.00 | 59.10 | 64.83 | | 64.83 | 0.000039 | 0.26 | 3702.81 | 828.46 | 0.02 |
| | | | | | | | | | | | | |
| LAKE-B | 1400.000 | 10yr | 245.88 | 59.00 | 61.74 | | 61.74 | 0.000330 | 0.45 | 793.03 | 480.47 | 0.05 |
| LAKE-B | 1400.000 | 25yr | 325.41 | 59.00 | 62.12 | | 62.12 | 0.000387 | 0.53 | 998.63 | 569.00 | 0.06 |
| LAKE-B | 1400.000 | 50yr | 391.90 | 59.00 | 62.86 | | 62.87 | 0.000206 | 0.45 | 1427.88 | 586.07 | 0.04 |
| LAKE-B | 1400.000 | 100yr | 459.25 | 59.00 | 63.50 | | 63.50 | 0.000144 | 0.42 | 1804.40 | 600.64 | 0.04 |
| LAKE-B | 1400.000 | 500yr | 579.00 | 59.00 | 64.82 | | 64.82 | 0.000078 | 0.37 | 2680.58 | 798.00 | 0.03 |
| | | | | | | | | | | | | |
| LAKE-B | 1300.000 | 10yr | 245.88 | 59.00 | 61.72 | | 61.72 | 0.000172 | 0.34 | 991.29 | 476.25 | 0.04 |
| LAKE-B | 1300.000 | 25yr | 325.41 | 59.00 | 62.10 | | 62.10 | 0.000185 | 0.38 | 1176.23 | 499.53 | 0.04 |
| LAKE-B | 1300.000 | 50yr | 391.90 | 59.00 | 62.85 | | 62.85 | 0.000116 | 0.35 | 1559.01 | 516.42 | 0.03 |
| LAKE-B | 1300.000 | 100yr | 459.25 | 59.00 | 63.49 | | 63.49 | 0.000089 | 0.34 | 1893.25 | 530.72 | 0.03 |
| LAKE-B | 1300.000 | 500yr | 579.00 | 59.00 | 64.81 | | 64.82 | 0.000054 | 0.32 | 2627.63 | 590.65 | 0.02 |
| | | | | | | | | | | | | |
| LAKE-B | 1200.000 | 10yr | 245.88 | 59.00 | 61.70 | 59.56 | 61.70 | 0.000196 | 0.35 | 1404.99 | 897.13 | 0.04 |
| LAKE-B | 1200.000 | 25yr | 325.41 | 59.00 | 62.08 | 59.64 | 62.08 | 0.000181 | 0.37 | 1725.87 | 915.79 | 0.04 |
| LAKE-B | 1200.000 | 50yr | 391.90 | 59.00 | 62.84 | 59.69 | 62.84 | 0.000096 | 0.32 | 2377.20 | 982.89 | 0.03 |
| LAKE-B | 1200.000 | 100yr | 459.25 | 59.00 | 63.48 | 59.75 | 63.48 | 0.000068 | 0.30 | 2933.19 | 1005.45 | 0.03 |
| LAKE-B | 1200.000 | 500yr | 579.00 | 59.00 | 64.81 | 59.83 | 64.81 | 0.000037 | 0.26 | 4107.94 | 1077.31 | 0.02 |
| | | | | | | | | | | | | |
| LAKE-B | 1140 | | Bridge | | | | | | | | | |
| | | | | | | | | | | | | |
| LAKE-B | 1000.00* | 10yr | 245.88 | 59.00 | 61.64 | 59.57 | 61.64 | 0.000217 | 0.37 | 1357.75 | 895.99 | 0.04 |
| LAKE-B | 1000.00* | 25yr | 325.41 | 59.00 | 62.03 | 59.64 | 62.03 | 0.000197 | 0.38 | 1681.22 | 907.36 | 0.04 |
| LAKE-B | 1000.00* | 50yr | 391.90 | 59.00 | 62.81 | 59.70 | 62.81 | 0.000099 | 0.32 | 2352.92 | 981.89 | 0.03 |
| LAKE-B | 1000.00* | 100yr | 459.25 | 59.00 | 63.46 | 59.75 | 63.46 | 0.000069 | 0.30 | 2915.54 | 1004.74 | 0.03 |
| LAKE-B | 1000.00* | 500yr | 579.00 | 59.00 | 64.80 | 59.84 | 64.80 | 0.000037 | 0.26 | 4097.68 | 1072.16 | 0.02 |
| | | | | | | | | | | | | |
| LAKE-B | 700.000 | 10yr | 245.88 | 59.13 | 61.52 | 60.13 | 61.52 | 0.000949 | 0.61 | 602.47 | 559.57 | 0.08 |
| LAKE-B | 700.000 | 25yr | 325.41 | 59.13 | 61.92 | 60.24 | 61.92 | 0.000733 | 0.61 | 796.81 | 587.70 | 0.07 |
| LAKE-B | 700.000 | 50yr | 391.90 | 59.13 | 62.76 | 60.32 | 62.76 | 0.000298 | 0.49 | 1214.05 | 606.05 | 0.05 |
| LAKE-B | 700.000 | 100yr | 459.25 | 59.13 | 63.43 | 60.40 | 63.43 | 0.000193 | 0.45 | 1551.10 | 619.58 | 0.04 |
| LAKE-B | 700.000 | 500yr | 579.00 | 59.13 | 64.78 | 60.54 | 64.78 | 0.000097 | 0.39 | 2258.24 | 654.82 | 0.03 |
| | | | | | | | | | | | | |
| LAKE-B | 600.000 | 10yr | 245.88 | 59.00 | 61.46 | 59.86 | 61.46 | 0.000465 | 0.43 | 915.95 | 719.73 | 0.06 |
| LAKE-B | 600.000 | 25yr | 325.41 | 59.00 | 61.87 | 59.97 | 61.87 | 0.000369 | 0.44 | 1177.47 | 728.30 | 0.05 |
| LAKE-B | 600.000 | 50yr | 391.90 | 59.00 | 62.74 | 60.15 | 62.74 | 0.000156 | 0.36 | 1732.53 | 746.36 | 0.04 |
| LAKE-B | 600.000 | 100yr | 459.25 | 59.00 | 63.41 | 60.20 | 63.41 | 0.000105 | 0.33 | 2164.62 | 768.30 | 0.03 |
| LAKE-B | 600.000 | 500yr | 579.00 | 59.00 | 64.77 | 60.29 | 64.77 | 0.000055 | 0.30 | 3050.14 | 813.23 | 0.02 |
| | | | | | | | | | | | | |
| LAKE-B | 500.000 | 10yr | 245.88 | 59.00 | 61.39 | | 61.39 | 0.001031 | 0.54 | 454.90 | 326.86 | 0.08 |
| LAKE-B | 500.000 | 25yr | 325.41 | 59.00 | 61.81 | | 61.82 | 0.000770 | 0.54 | 598.21 | 342.09 | 0.07 |

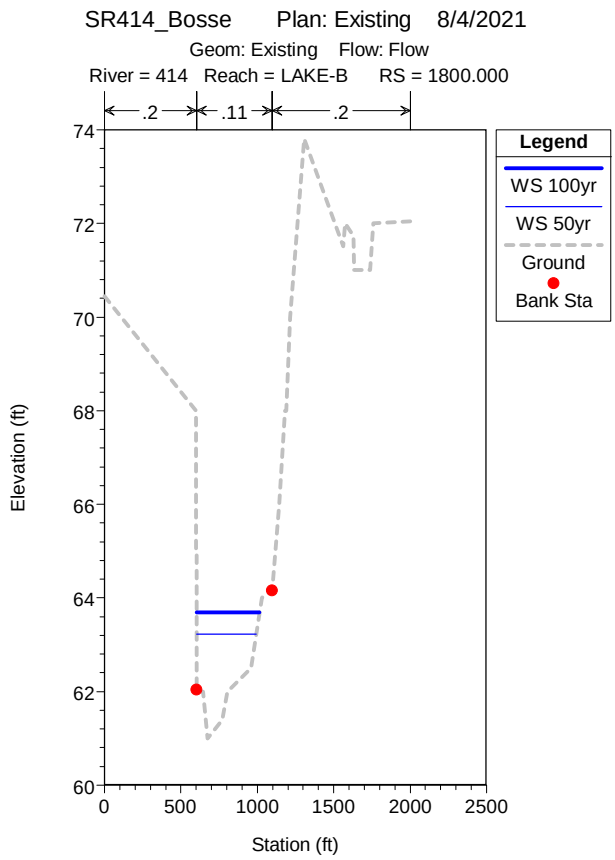
HEC-RAS Plan: EX River: 414 Reach: LAKE-B (Continued)

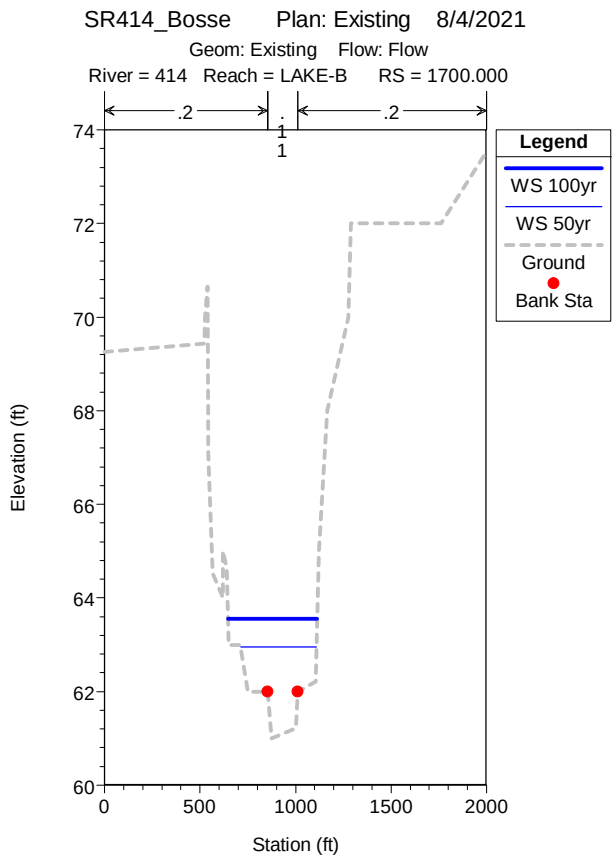
| Reach | River Sta | Profile | Q Total | Min Ch El | W.S. Elev | Crit W.S. | E.G. Elev | E.G. Slope | Vel Chnl | Flow Area | Top Width | Froude # Chl |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft) | (ft) | (ft/ft) | (ft/s) | (sq ft) | (ft) | |
| LAKE-B | 500.000 | 50yr | 391.90 | 59.00 | 62.72 | | 62.72 | 0.000290 | 0.43 | 927.32 | 389.74 | 0.05 |
| LAKE-B | 500.000 | 100yr | 459.25 | 59.00 | 63.40 | | 63.40 | 0.000180 | 0.39 | 1203.51 | 420.37 | 0.04 |
| LAKE-B | 500.000 | 500yr | 579.00 | 59.00 | 64.77 | | 64.77 | 0.000084 | 0.34 | 1802.47 | 448.45 | 0.03 |
| | | | | | | | | | | | | |
| LAKE-B | 400.000 | 10yr | 245.88 | 59.16 | 61.21 | | 61.22 | 0.003282 | 0.83 | 448.74 | 539.03 | 0.14 |
| LAKE-B | 400.000 | 25yr | 325.41 | 59.16 | 61.71 | | 61.72 | 0.001476 | 0.67 | 740.93 | 619.71 | 0.10 |
| LAKE-B | 400.000 | 50yr | 391.90 | 59.16 | 62.69 | | 62.69 | 0.000324 | 0.43 | 1400.50 | 703.74 | 0.05 |
| LAKE-B | 400.000 | 100yr | 459.25 | 59.16 | 63.38 | | 63.38 | 0.000173 | 0.37 | 1896.55 | 722.37 | 0.04 |
| LAKE-B | 400.000 | 500yr | 579.00 | 59.16 | 64.76 | | 64.76 | 0.000071 | 0.31 | 2901.34 | 735.70 | 0.03 |
| | | | | | | | | | | | | |
| LAKE-B | 300.000 | 10yr | 245.88 | 59.15 | 60.70 | 60.07 | 60.72 | 0.008462 | 1.19 | 241.87 | 294.92 | 0.22 |
| LAKE-B | 300.000 | 25yr | 325.41 | 59.15 | 61.55 | 60.16 | 61.56 | 0.001680 | 0.75 | 526.79 | 378.81 | 0.11 |
| LAKE-B | 300.000 | 50yr | 391.90 | 59.15 | 62.65 | 60.21 | 62.65 | 0.000419 | 0.47 | 1021.62 | 509.96 | 0.06 |
| LAKE-B | 300.000 | 100yr | 459.25 | 59.15 | 63.36 | 60.27 | 63.36 | 0.000220 | 0.41 | 1390.71 | 525.24 | 0.04 |
| LAKE-B | 300.000 | 500yr | 579.00 | 59.15 | 64.75 | 60.36 | 64.75 | 0.000091 | 0.34 | 2129.74 | 537.48 | 0.03 |

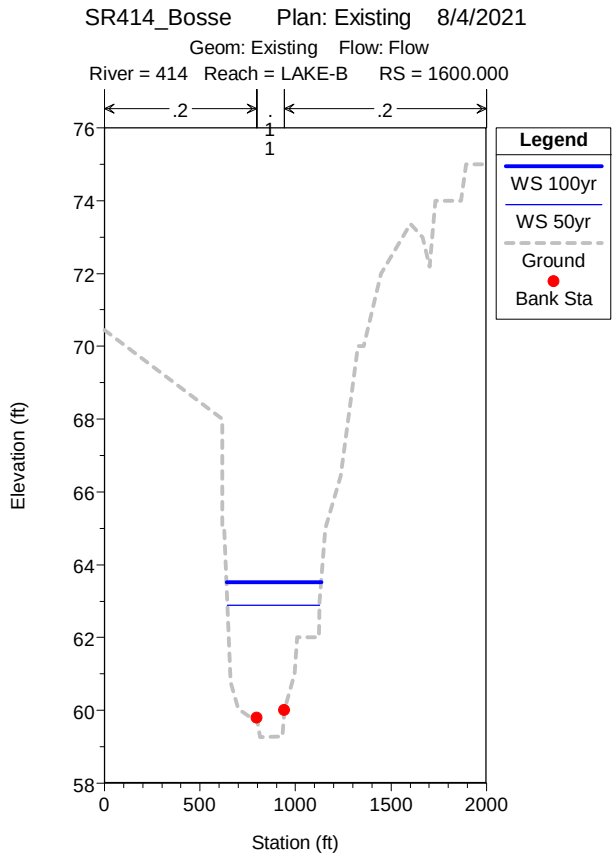

300.000
400.000
500.000
600.000
700.000
1000.00*
1140
1200.000
1300.000
1400.000
1500.000
1600.000
1700.000
1800.000
1900.000
2000.000
414
LAKE-B

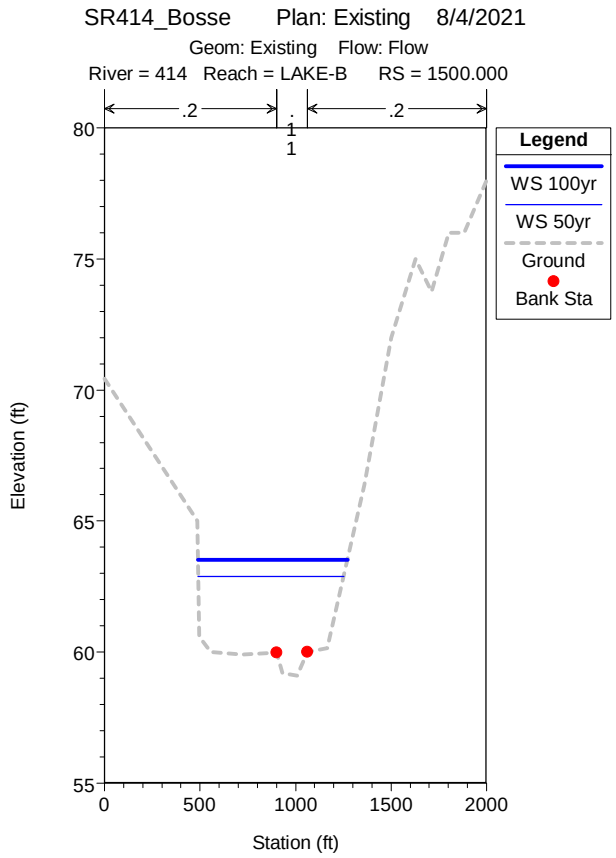

SR414_Bosse Plan: Existing 8/4/2021
Geom: Existing Flow: Flow
River = 414 Reach = LAKE-B RS = 2000.000
.2
.11
.2
Legend
WS 100yr
WS 50yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

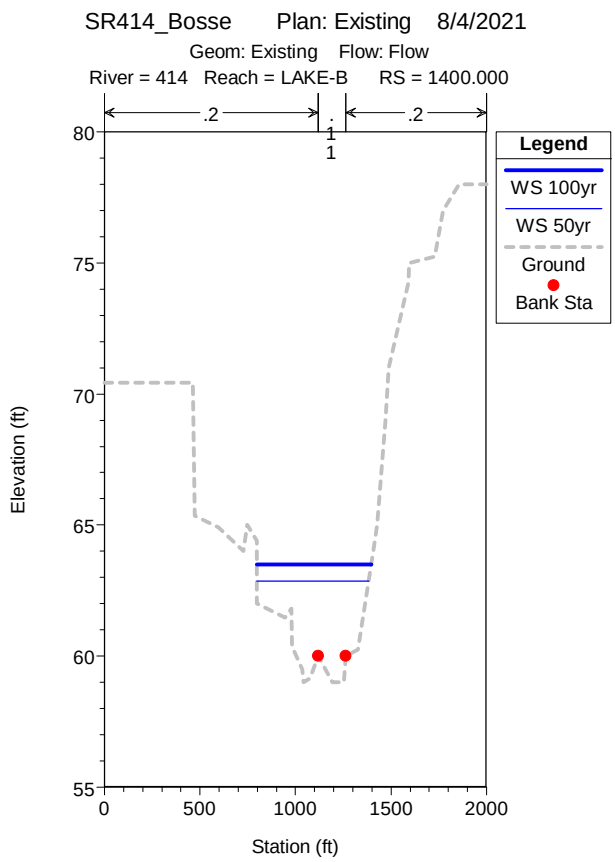

SR414_Bosse Plan: Existing 8/4/2021
Geom: Existing Flow: Flow
River = 414 Reach = LAKE-B RS = 1900.000
.2
.11
.2
Legend
WS 100yr
WS 50yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

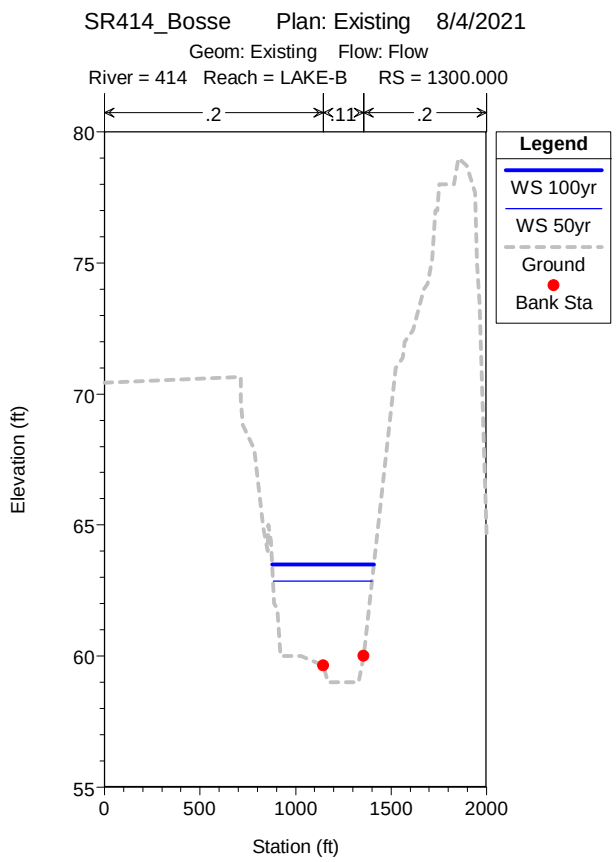

SR414_Bosse Plan: Existing 8/4/2021
Geom: Existing Flow: Flow
River = 414 Reach = LAKE-B RS = 1800.000
.2
.11
.2
Legend
WS 100yr
WS 50yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

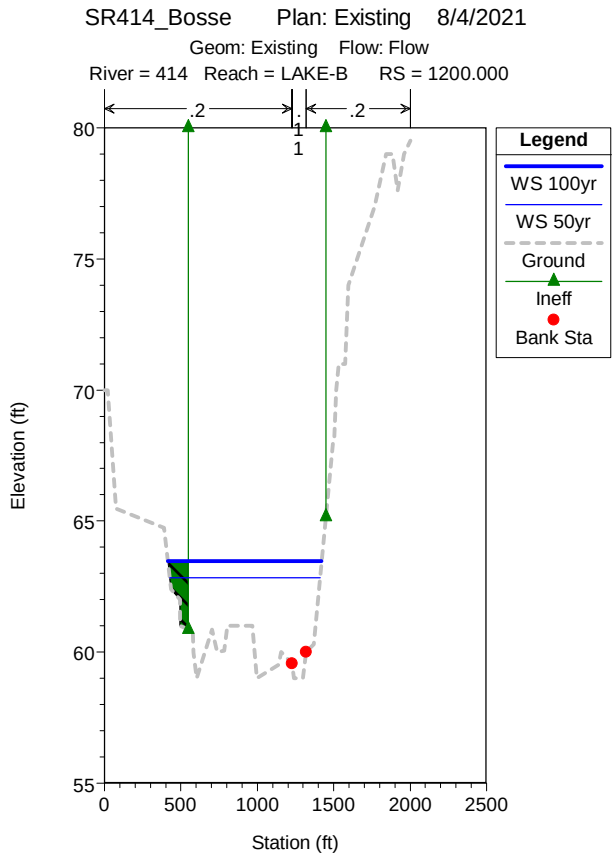

SR414_Bosse Plan: Existing 8/4/2021
Geom: Existing Flow: Flow
River = 414 Reach = LAKE-B RS = 1700.000
.2
.2
Legend
WS 100yr
WS 50yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

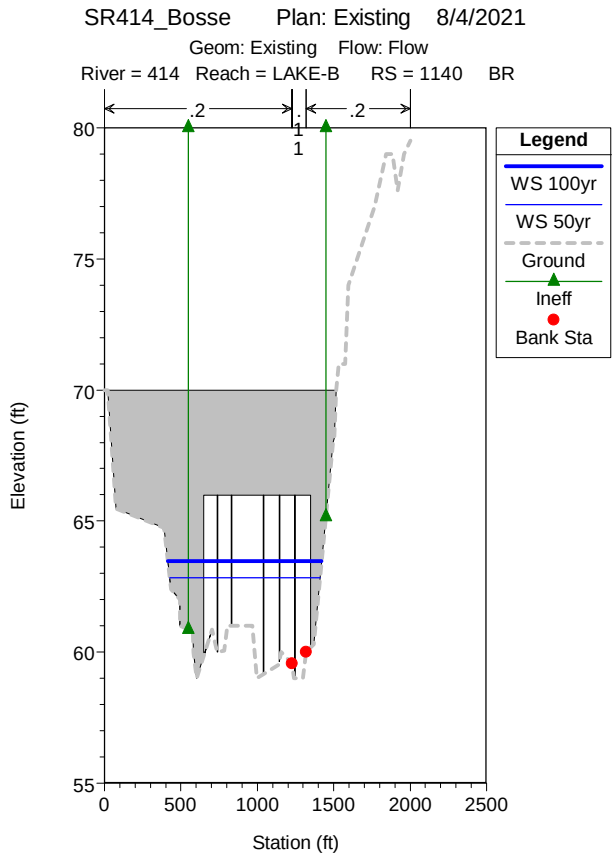

SR414_Bosse Plan: Existing 8/4/2021
Geom: Existing Flow: Flow
River = 414 Reach = LAKE-B RS = 1600.000
.2
.1
.1
.2
Legend
WS 100yr
WS 50yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

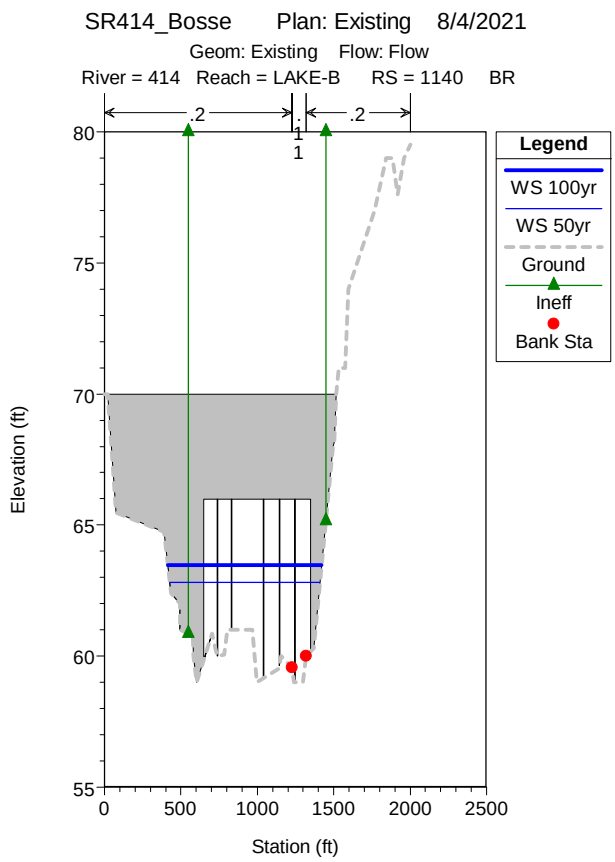

SR414_Bosse Plan: Existing 8/4/2021
Geom: Existing Flow: Flow
River = 414 Reach = LAKE-B RS = 1500.000
.2
.1
.1
.2
Legend
WS 100yr
WS 50yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

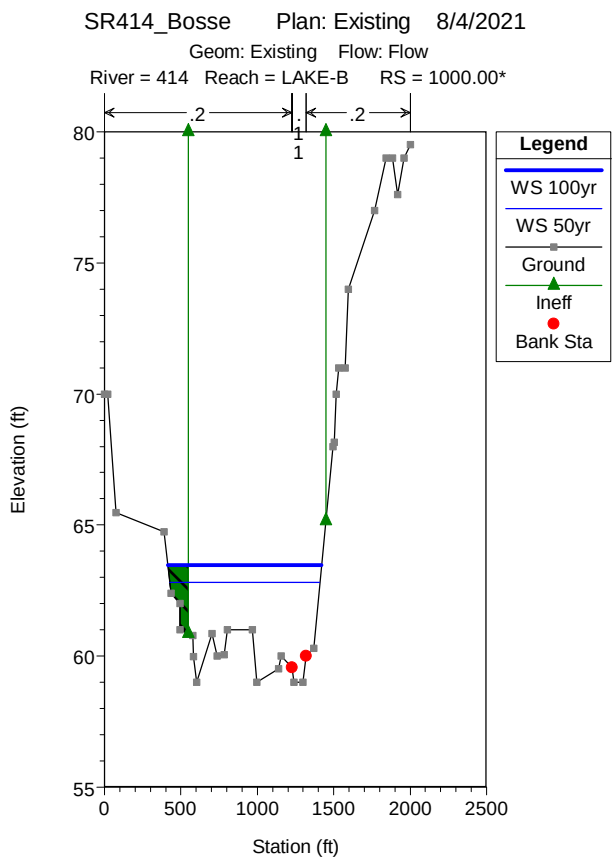

SR414_Bosse Plan: Existing 8/4/2021
Geom: Existing Flow: Flow
River = 414 Reach = LAKE-B RS = 1400.000
.2
.1
.1
.2
Legend
WS 100yr
WS 50yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

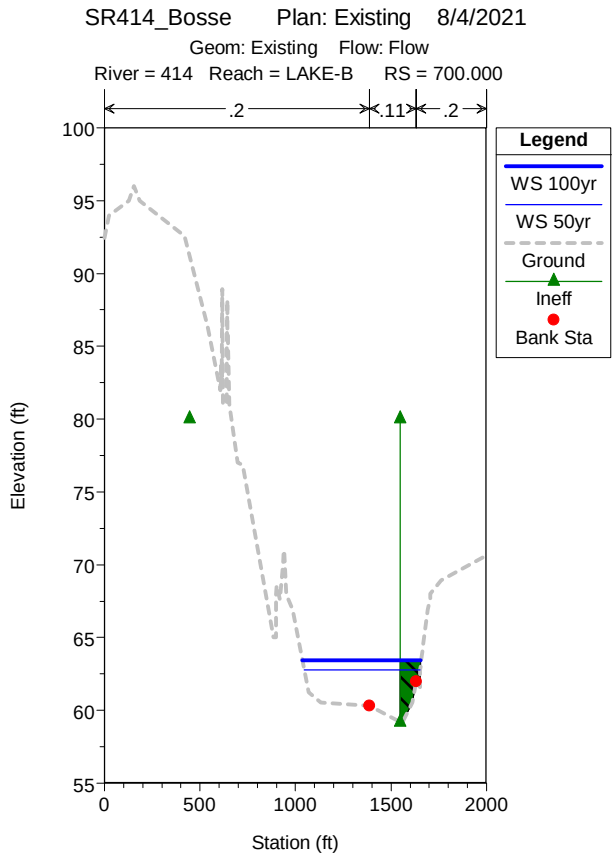

SR414_Bosse Plan: Existing 8/4/2021
Geom: Existing Flow: Flow
River = 414 Reach = LAKE-B RS = 1300.000
.2
.11
.2
Legend
WS 100yr
WS 50yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

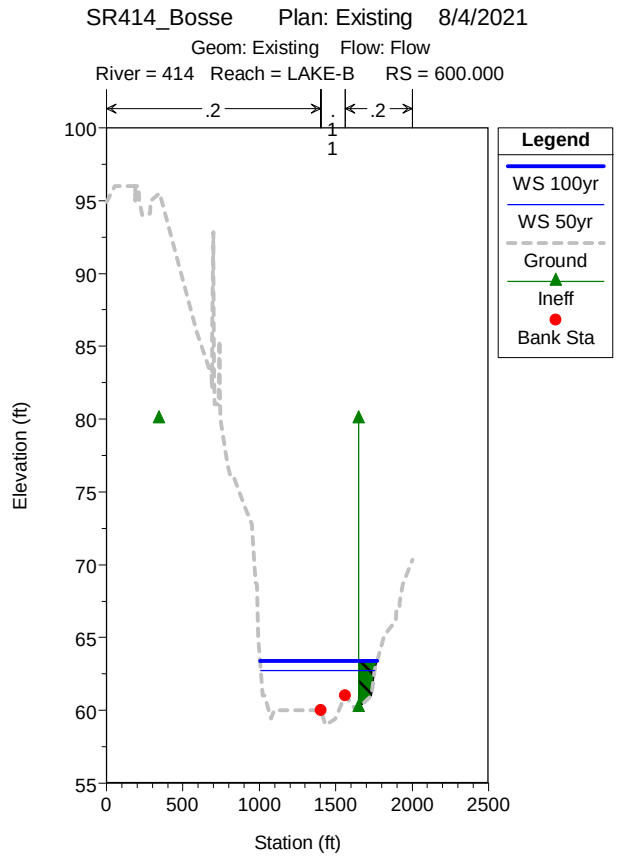

SR414_Bosse Plan: Existing 8/4/2021
Geom: Existing Flow: Flow
River = 414 Reach = LAKE-B RS = 1200.000
Legend
WS 100yr
WS 50yr
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

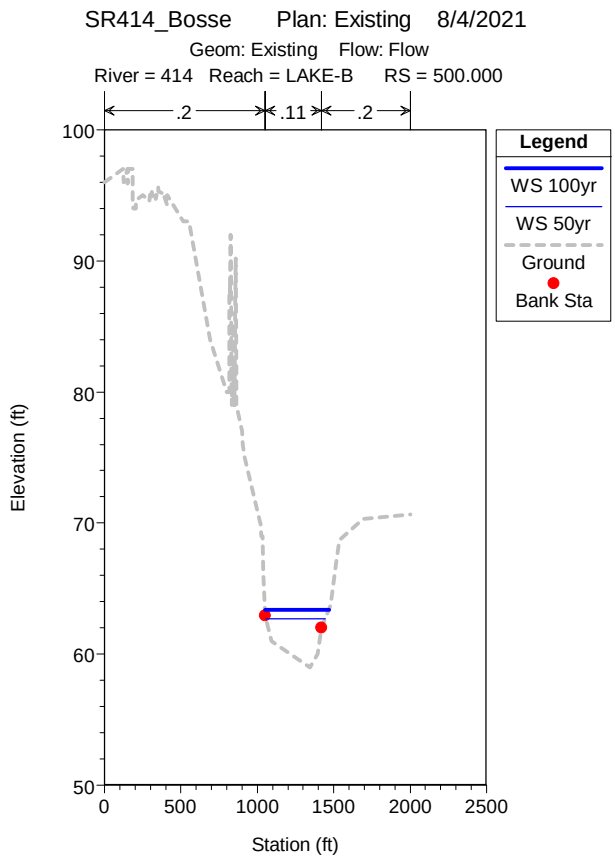

SR414_Bosse Plan: Existing 8/4/2021
Geom: Existing Flow: Flow
River = 414 Reach = LAKE-B RS = 1140 BR
Legend
WS 100yr
WS 50yr
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

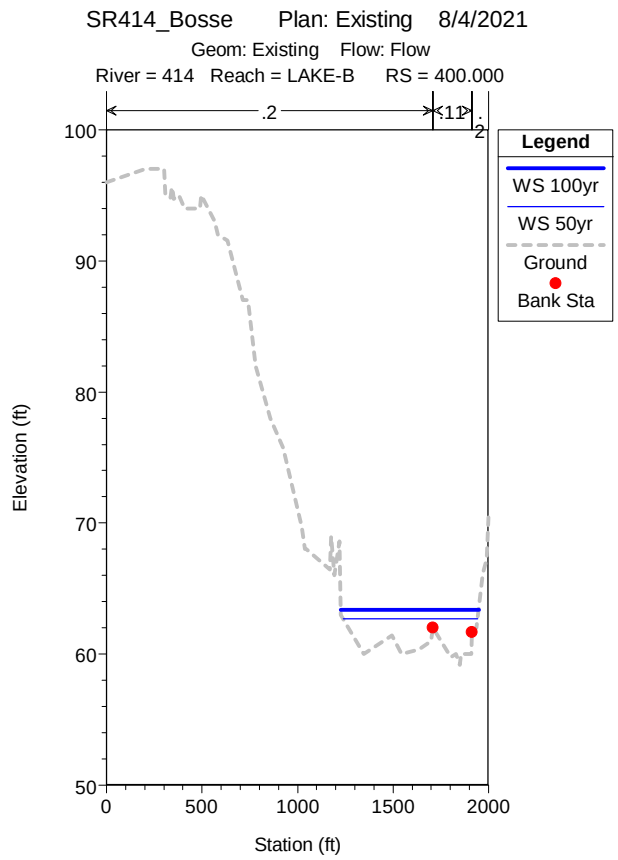

SR414_Bosse Plan: Existing 8/4/2021
Geom: Existing Flow: Flow
River = 414 Reach = LAKE-B RS = 1140 BR
Legend
WS 100yr
WS 50yr
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

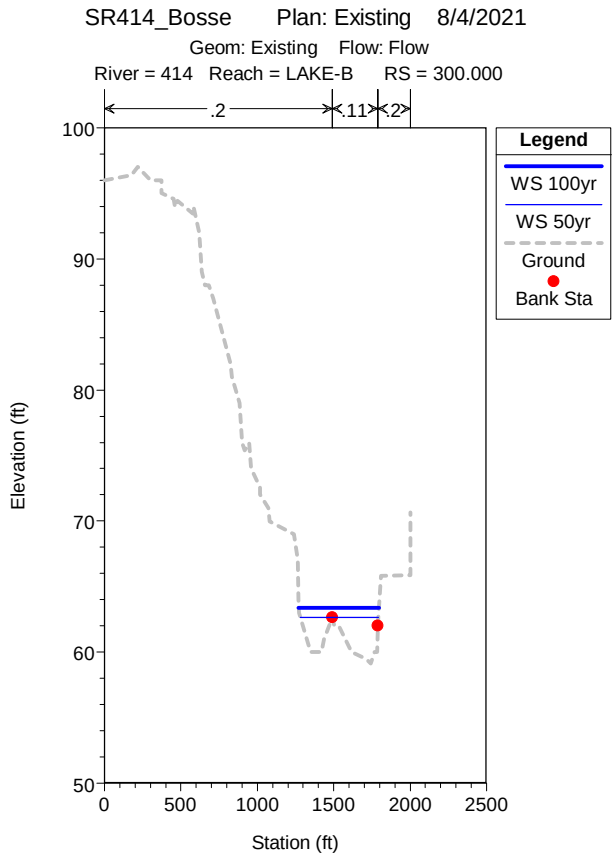

SR414_Bosse Plan: Existing 8/4/2021
Geom: Existing Flow: Flow
River = 414 Reach = LAKE-B RS = 1000.00*
Legend
WS 100yr
WS 50yr
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


SR414_Bosse Plan: Existing 8/4/2021
Geom: Existing Flow: Flow
River = 414 Reach = LAKE-B RS = 700.000
.2
.11
.2
Legend
WS 100yr
WS 50yr
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


SR414_Bosse Plan: Existing 8/4/2021
Geom: Existing Flow: Flow
River = 414 Reach = LAKE-B RS = 600.000
.2
.2
Legend
WS 100yr
WS 50yr
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


SR414_Bosse Plan: Existing 8/4/2021
Geom: Existing Flow: Flow
River = 414 Reach = LAKE-B RS = 500.000
.2
.11
.2
Legend
WS 100yr
WS 50yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


SR414_Bosse Plan: Existing 8/4/2021
Geom: Existing Flow: Flow
River = 414 Reach = LAKE-B RS = 400.000
.2
Legend
WS 100yr
WS 50yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


SR414_Bosse Plan: Existing 8/4/2021
Geom: Existing Flow: Flow
River = 414 Reach = LAKE-B RS = 300.000
.2
.11
.2
Legend
WS 100yr
WS 50yr
Ground
Bank Sta
Elevation (ft)
100
90
80
70
60
50
0
500
1000
1500
2000
2500
Station (ft)

```
                    HEC-RAS HEC-RAS 5.0.7 March 2019
                      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: SR414_Bosse
Project File : SR414_Bosse.prj
Run Date and Time: 8/4/2021 4:53:26 PM

Project in English units

PLAN DATA

Plan Title: Existing
Plan File : C:\Users\DULAYM\Documents\2021\Jobs\FDOT\SR414\HEC_RAS\Version3\SR414_Bosse.p01

Geometry Title: Existing
Geometry File :
C:\Users\DULAYM\Documents\2021\Jobs\FDOT\SR414\HEC_RAS\Version3\SR414_Bosse.g01

Flow Title : Flow
Flow File :
C:\Users\DULAYM\Documents\2021\Jobs\FDOT\SR414\HEC_RAS\Version3\SR414_Bosse.f01

Plan Summary Information:
Number of: Cross Sections = 15 Multiple Openings = 0
Culverts = 0 Inline Structures = 0
Bridges = 1 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: Flow
Flow File : C:\Users\DULAYM\Documents\2021\Jobs\FDOT\SR414\HEC_RAS\Version3\SR414_Bosse.f01

Flow Data (cfs)

| River | Reach | RS | 10yr | 25yr | 50yr | 100yr | 500yr |
|---|---|---|---|---|---|---|---|
| 414 | LAKE-B | 2000.000 | 245.88 | 325.41 | 391.9 | 459.25 | 579 |

Boundary Conditions

| River | Reach | Profile | Upstream | Downstream |
|---|---|---|---|---|
| 414 | LAKE-B | 10yr | | Known WS = 60.7 |
| 414 | LAKE-B | 25yr | | Known WS = 61.55 |
| 414 | LAKE-B | 50yr | | Known WS = 62.65 |
| 414 | LAKE-B | 100yr | | Known WS = 63.36 |
| 414 | LAKE-B | 500yr | | Known WS = 64.75 |

GEOMETRY DATA

Geometry Title: Existing
Geometry File : C:\Users\DULAYM\Documents\2021\Jobs\FDOT\SR414\HEC_RAS\Version3\SR414_Bosse.g01

CROSS SECTION

RIVER: 414
REACH: LAKE-B RS: 2000.000

INPUT
Description:
Station Elevation Data num= 35

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 68 | 554.55 | 68.58 | 654.73 | 69.44 | 655.38 | 70 | 681.63 | 70.65 |
| 683.28 | 69.75 | 697.79 | 68.83 | 699.39 | 67.12 | 702.26 | 67.07 | 703.25 | 66.36 |
| 768.8 | 63.71 | 783.39 | 62.91 | 867.61 | 61 | 918.02 | 61 | 939.45 | 62 |
| 957.1 | 61.86 | 970.28 | 61 | 1049.23 | 61 | 1055.12 | 61.85 | 1075.76 | 62.81 |
| 1100.68 | 64 | 1112.78 | 64 | 1124.6 | 65 | 1129.2 | 66 | 1237.26 | 69 |
| 1298.66 | 72.76 | 1360.19 | 71.74 | 1378.19 | 72 | 1556.16 | 70.4 | 1567.98 | 71 |
| 1760.64 | 71 | 1778.85 | 70.65 | 1857.02 | 71 | 1871.74 | 70 | 2000 | 71 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .2 | 783.39 | .11 | 1075.76 | .2 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 783.39 | 1075.76 | 100 | 100 | 100 | .1 | .3 |

CROSS SECTION OUTPUT Profile #50yr

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 63.49 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.01 | Wt. n-Val. | 0.200 | 0.110 | 0.200 |
| W.S. Elev (ft) | 63.49 | Reach Len. (ft) | 100.00 | 100.00 | 100.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 3.04 | 584.17 | 4.81 |
| E.G. Slope (ft/ft) | 0.000977 | Area (sq ft) | 3.04 | 584.17 | 4.81 |
| Q Total (cfs) | 391.90 | Flow (cfs) | 0.31 | 391.05 | 0.54 |
| Top Width (ft) | 317.10 | Top Width (ft) | 10.54 | 292.37 | 14.19 |
| Vel Total (ft/s) | 0.66 | Avg. Vel. (ft/s) | 0.10 | 0.67 | 0.11 |
| Max Chl Dpth (ft) | 2.49 | Hydr. Depth (ft) | 0.29 | 2.00 | 0.34 |
| Conv. Total (cfs) | 12541.1 | Conv. (cfs) | 9.9 | 12513.9 | 17.4 |
| Length Wtd. (ft) | 100.00 | Wetted Per. (ft) | 10.55 | 292.53 | 14.21 |
| Min Ch El (ft) | 61.00 | Shear (lb/sq ft) | 0.02 | 0.12 | 0.02 |
| Alpha | 1.02 | Stream Power (lb/ft s) | 0.00 | 0.08 | 0.00 |
| Frctn Loss (ft) | 0.10 | Cum Volume (acre-ft) | 31.74 | 20.64 | 4.85 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 13.30 | 7.84 | 2.82 |

CROSS SECTION OUTPUT Profile #100yr

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 63.86 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.01 | Wt. n-Val. | 0.200 | 0.110 | 0.200 |
| W.S. Elev (ft) | 63.86 | Reach Len. (ft) | 100.00 | 100.00 | 100.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 8.21 | 691.57 | 11.44 |
| E.G. Slope (ft/ft) | 0.000759 | Area (sq ft) | 8.21 | 691.57 | 11.44 |
| Q Total (cfs) | 459.25 | Flow (cfs) | 0.99 | 456.74 | 1.52 |
| Top Width (ft) | 332.44 | Top Width (ft) | 18.18 | 292.37 | 21.89 |
| Vel Total (ft/s) | 0.65 | Avg. Vel. (ft/s) | 0.12 | 0.66 | 0.13 |
| Max Chl Dpth (ft) | 2.86 | Hydr. Depth (ft) | 0.45 | 2.37 | 0.52 |

| | | | | | |
|---|---|---|---|---|---|
| Conv. Total (cfs) | 16669.9 | Conv. (cfs) | 35.9 | 16578.9 | 55.1 |
| Length Wtd. (ft) | 100.00 | Wetted Per. (ft) | 18.20 | 292.53 | 21.91 |
| Min Ch El (ft) | 61.00 | Shear (lb/sq ft) | 0.02 | 0.11 | 0.02 |
| Alpha | 1.04 | Stream Power (lb/ft s) | 0.00 | 0.07 | 0.00 |
| Frctn Loss (ft) | 0.07 | Cum Volume (acre-ft) | 40.54 | 25.33 | 6.75 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 13.67 | 7.89 | 3.16 |

CROSS SECTION

RIVER: 414
REACH: LAKE-B RS: 1900.000

INPUT
Description:
Station Elevation Data num= 23

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 70.44 | 557.35 | 70.44 | 618.93 | 65 | 678.42 | 64.45 | 678.84 | 64.18 |
| 687.05 | 64 | 687.58 | 65 | 718.3 | 63 | 722.25 | 62.51 | 742.72 | 62.35 |
| 744.47 | 62 | 843.83 | 61 | 1090.68 | 62.43 | 1131.89 | 64.16 | 1162.91 | 68 |
| 1193.12 | 68 | 1248.53 | 71.44 | 1326.66 | 74 | 1365.8 | 74 | 1384.88 | 73 |
| 1558.76 | 71 | 1764.71 | 71.16 | 2000.01 | 71 | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .2 | 742.72 | .11 | 1090.68 | .2 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 742.72 | 1090.68 | 100 | 100 | 100 | .1 | .3 |

CROSS SECTION OUTPUT Profile #50yr

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 63.39 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.01 | Wt. n-Val. | 0.200 | 0.110 | 0.200 |
| W.S. Elev (ft) | 63.39 | Reach Len. (ft) | 100.00 | 100.00 | 100.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 23.19 | 601.81 | 10.87 |
| E.G. Slope (ft/ft) | 0.001084 | Area (sq ft) | 23.19 | 601.81 | 10.87 |
| Q Total (cfs) | 391.90 | Flow (cfs) | 4.74 | 385.54 | 1.62 |
| Top Width (ft) | 401.06 | Top Width (ft) | 30.34 | 347.96 | 22.76 |
| Vel Total (ft/s) | 0.62 | Avg. Vel. (ft/s) | 0.20 | 0.64 | 0.15 |
| Max Chl Dpth (ft) | 2.39 | Hydr. Depth (ft) | 0.76 | 1.73 | 0.48 |
| Conv. Total (cfs) | 11905.5 | Conv. (cfs) | 143.9 | 11712.3 | 49.3 |
| Length Wtd. (ft) | 100.00 | Wetted Per. (ft) | 30.38 | 348.00 | 22.78 |
| Min Ch El (ft) | 61.00 | Shear (lb/sq ft) | 0.05 | 0.12 | 0.03 |
| Alpha | 1.06 | Stream Power (lb/ft s) | 0.01 | 0.07 | 0.00 |
| Frctn Loss (ft) | 0.15 | Cum Volume (acre-ft) | 31.71 | 19.28 | 4.84 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 13.25 | 7.10 | 2.78 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than
1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100yr

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 63.79 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.01 | Wt. n-Val. | 0.200 | 0.110 | 0.200 |
| W.S. Elev (ft) | 63.78 | Reach Len. (ft) | 100.00 | 100.00 | 100.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 36.41 | 739.57 | 21.75 |
| E.G. Slope (ft/ft) | 0.000738 | Area (sq ft) | 36.41 | 739.57 | 21.75 |
| Q Total (cfs) | 459.25 | Flow (cfs) | 7.34 | 448.54 | 3.38 |
| Top Width (ft) | 416.57 | Top Width (ft) | 36.42 | 347.96 | 32.19 |
| Vel Total (ft/s) | 0.58 | Avg. Vel. (ft/s) | 0.20 | 0.61 | 0.16 |
| Max Chl Dpth (ft) | 2.78 | Hydr. Depth (ft) | 1.00 | 2.13 | 0.68 |
| Conv. Total (cfs) | 16908.2 | Conv. (cfs) | 270.1 | 16513.7 | 124.4 |
| Length Wtd. (ft) | 100.00 | Wetted Per. (ft) | 36.48 | 348.00 | 32.22 |
| Min Ch El (ft) | 61.00 | Shear (lb/sq ft) | 0.05 | 0.10 | 0.03 |
| Alpha | 1.09 | Stream Power (lb/ft s) | 0.01 | 0.06 | 0.00 |
| Frctn Loss (ft) | 0.09 | Cum Volume (acre-ft) | 40.49 | 23.69 | 6.72 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 13.61 | 7.16 | 3.10 |

CROSS SECTION

RIVER: 414
REACH: LAKE-B RS: 1800.000

INPUT
Description:
Station Elevation Data num= 24

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 70.44 | 598.85 | 68 | 599.58 | 65 | 601.67 | 65 | 605.06 | 62.04 |
| 643.28 | 62 | 676.14 | 61 | 769.27 | 61.39 | 802.27 | 62 | 959.67 | 62.5 |
| 1028.6 | 64.01 | 1095.85 | 64.16 | 1142.81 | 66 | 1181.61 | 68 | 1190.56 | 68 |
| 1213.57 | 70 | 1307.04 | 73.81 | 1561.21 | 71.51 | 1573.62 | 72 | 1628.48 | 71.73 |
| 1634.22 | 71 | 1737.24 | 71 | 1758.26 | 72 | 2000.01 | 72.05 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .2 | 605.06 | .11 | 1095.85 | .2 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 605.06 | 1095.85 | 100 | 100 | 100 | .1 | .3 |

CROSS SECTION OUTPUT Profile #50yr

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 63.24 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.01 | Wt. n-Val. | 0.200 | 0.110 | |
| W.S. Elev (ft) | 63.23 | Reach Len. (ft) | 100.00 | 100.00 | 100.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 0.81 | 510.23 | |
| E.G. Slope (ft/ft) | 0.002242 | Area (sq ft) | 0.81 | 510.23 | |
| Q Total (cfs) | 391.90 | Flow (cfs) | 0.17 | 391.73 | |
| Top Width (ft) | 389.36 | Top Width (ft) | 1.36 | 388.00 | |
| Vel Total (ft/s) | 0.77 | Avg. Vel. (ft/s) | 0.21 | 0.77 | |
| Max Chl Dpth (ft) | 2.23 | Hydr. Depth (ft) | 0.60 | 1.32 | |
| Conv. Total (cfs) | 8276.0 | Conv. (cfs) | 3.5 | 8272.5 | |
| Length Wtd. (ft) | 100.00 | Wetted Per. (ft) | 1.81 | 388.03 | |
| Min Ch El (ft) | 61.00 | Shear (lb/sq ft) | 0.06 | 0.18 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | 0.01 | 0.14 | |
| Frctn Loss (ft) | 0.27 | Cum Volume (acre-ft) | 31.68 | 18.00 | 4.82 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 13.21 | 6.26 | 2.75 |

CROSS SECTION OUTPUT Profile #100yr

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 63.70 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.01 | Wt. n-Val. | 0.200 | 0.110 | |
| W.S. Elev (ft) | 63.69 | Reach Len. (ft) | 100.00 | 100.00 | 100.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 1.56 | 692.25 | |
| E.G. Slope (ft/ft) | 0.001194 | Area (sq ft) | 1.56 | 692.25 | |
| Q Total (cfs) | 459.25 | Flow (cfs) | 0.29 | 458.96 | |
| Top Width (ft) | 410.74 | Top Width (ft) | 1.89 | 408.85 | |
| Vel Total (ft/s) | 0.66 | Avg. Vel. (ft/s) | 0.19 | 0.66 | |
| Max Chl Dpth (ft) | 2.69 | Hydr. Depth (ft) | 0.82 | 1.69 | |
| Conv. Total (cfs) | 13291.7 | Conv. (cfs) | 8.4 | 13283.3 | |
| Length Wtd. (ft) | 100.00 | Wetted Per. (ft) | 2.51 | 408.89 | |
| Min Ch El (ft) | 61.00 | Shear (lb/sq ft) | 0.05 | 0.13 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | 0.01 | 0.08 | |
| Frctn Loss (ft) | 0.13 | Cum Volume (acre-ft) | 40.45 | 22.04 | 6.69 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 13.56 | 6.29 | 3.06 |

CROSS SECTION

RIVER: 414
REACH: LAKE-B RS: 1700.000

INPUT
Description:
Station Elevation Data num= 24

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 69.26 | 524.06 | 69.44 | 524.44 | 70 | 538.01 | 70.65 | 541.85 | 67.89 |
| 543.56 | 67.12 | 565.07 | 64.53 | 619.85 | 64 | 621.19 | 65 | 640.81 | 64.64 |
| 648.75 | 63 | 711.12 | 63 | 749.17 | 62 | 854.95 | 62 | 875.47 | 61 |
| 1001.1 | 61.22 | 1012.04 | 62 | 1105.92 | 62.21 | 1122.26 | 65 | 1165.29 | 68 |
| 1276.02 | 70 | 1289.38 | 72 | 1762.7 | 72 | 2000 | 73.54 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .2 | 854.95 | .11 | 1012.04 | .2 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 854.95 | 1012.04 | 100 | 100 | 100 | .1 | .3 |

CROSS SECTION OUTPUT Profile #50yr

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 62.96 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.02 | Wt. n-Val. | 0.200 | 0.110 | 0.200 |
| W.S. Elev (ft) | 62.95 | Reach Len. (ft) | 100.00 | 100.00 | 100.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 117.21 | 275.07 | 80.62 |
| E.G. Slope (ft/ft) | 0.003433 | Area (sq ft) | 117.21 | 275.07 | 80.62 |
| Q Total (cfs) | 391.90 | Flow (cfs) | 44.93 | 316.21 | 30.76 |
| Top Width (ft) | 397.09 | Top Width (ft) | 141.81 | 157.09 | 98.20 |
| Vel Total (ft/s) | 0.83 | Avg. Vel. (ft/s) | 0.38 | 1.15 | 0.38 |
| Max Chl Dpth (ft) | 1.95 | Hydr. Depth (ft) | 0.83 | 1.75 | 0.82 |
| Conv. Total (cfs) | 6688.8 | Conv. (cfs) | 766.9 | 5397.0 | 524.9 |
| Length Wtd. (ft) | 100.00 | Wetted Per. (ft) | 141.82 | 157.14 | 98.26 |
| Min Ch El (ft) | 61.00 | Shear (lb/sq ft) | 0.18 | 0.38 | 0.18 |
| Alpha | 1.59 | Stream Power (lb/ft s) | 0.07 | 0.43 | 0.07 |
| Frctn Loss (ft) | 0.06 | Cum Volume (acre-ft) | 31.55 | 17.10 | 4.73 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 13.05 | 5.63 | 2.64 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than
1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100yr

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 63.56 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.01 | Wt. n-Val. | 0.200 | 0.110 | 0.200 |
| W.S. Elev (ft) | 63.55 | Reach Len. (ft) | 100.00 | 100.00 | 100.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 239.87 | 370.52 | 141.37 |
| E.G. Slope (ft/ft) | 0.001434 | Area (sq ft) | 239.87 | 370.52 | 141.37 |
| Q Total (cfs) | 459.25 | Flow (cfs) | 73.99 | 335.77 | 49.48 |
| Top Width (ft) | 467.73 | Top Width (ft) | 208.88 | 157.09 | 101.75 |
| Vel Total (ft/s) | 0.61 | Avg. Vel. (ft/s) | 0.31 | 0.91 | 0.35 |
| Max Chl Dpth (ft) | 2.55 | Hydr. Depth (ft) | 1.15 | 2.36 | 1.39 |
| Conv. Total (cfs) | 12127.5 | Conv. (cfs) | 1953.9 | 8866.8 | 1306.7 |
| Length Wtd. (ft) | 100.00 | Wetted Per. (ft) | 208.95 | 157.14 | 101.87 |
| Min Ch El (ft) | 61.00 | Shear (lb/sq ft) | 0.10 | 0.21 | 0.12 |
| Alpha | 1.69 | Stream Power (lb/ft s) | 0.03 | 0.19 | 0.04 |
| Frctn Loss (ft) | 0.04 | Cum Volume (acre-ft) | 40.17 | 20.82 | 6.53 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 13.32 | 5.64 | 2.94 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than
1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: 414
REACH: LAKE-B RS: 1600.000

INPUT
Description:
Station Elevation Data num= 27

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 70.44 | 616.81 | 68 | 617.61 | 65 | 626.9 | 65 | 660.07 | 60.78 |
| 699.67 | 60.04 | 754.68 | 59.84 | 798.68 | 59.79 | 814.08 | 59.26 | 932 | 59.29 |
| 940.57 | 60 | 996.26 | 61 | 1007.16 | 62 | 1123.23 | 62 | 1126.99 | 62.99 |
| 1157.06 | 65 | 1235.7 | 66.44 | 1327.57 | 70 | 1356.47 | 70 | 1445.8 | 72 |
| 1600.7 | 73.37 | 1664.6 | 73 | 1701.79 | 72.18 | 1732.5 | 74 | 1864.76 | 74 |
| 1894.38 | 75 | 2000 | 75 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .2 | 798.68 | .11 | 940.57 | .2 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|

```
        798.68  940.57              100     100     100             .1       .3

CROSS SECTION OUTPUT  Profile #50yr

  E.G. Elev (ft)             62.90    Element                  Left OB    Channel   Right OB
  Vel Head (ft)               0.00    Wt. n-Val.                0.200      0.110      0.200
  W.S. Elev (ft)             62.89    Reach Len. (ft)          100.00     100.00     100.00
  Crit W.S. (ft)                      Flow Area (sq ft)        413.62     506.22     253.46
  E.G. Slope (ft/ft)      0.000263    Area (sq ft)             413.62     506.22     253.46
  Q Total (cfs)             391.90    Flow (cfs)                95.68     258.73      37.49
  Top Width (ft)            483.15    Top Width (ft)           155.21     141.89     186.05
  Vel Total (ft/s)            0.33    Avg. Vel. (ft/s)           0.23       0.51       0.15
  Max Chl Dpth (ft)           3.63    Hydr. Depth (ft)           2.66       3.57       1.36
  Conv. Total (cfs)        24179.0    Conv. (cfs)              5903.2    15963.1     2312.7
  Length Wtd. (ft)          100.00    Wetted Per. (ft)         155.35     141.93     186.22
  Min Ch El (ft)             59.26    Shear (lb/sq ft)           0.04       0.06       0.02
  Alpha                       1.68    Stream Power (lb/ft s)     0.01       0.03       0.00
  Frctn Loss (ft)             0.01    Cum Volume (acre-ft)      30.94      16.21       4.35
  C & E Loss (ft)             0.00    Cum SA (acres)            12.71       5.29       2.31


Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or
greater than
         1.4.  This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT  Profile #100yr

  E.G. Elev (ft)             63.52    Element                  Left OB    Channel   Right OB
  Vel Head (ft)               0.00    Wt. n-Val.                0.200      0.110      0.200
  W.S. Elev (ft)             63.52    Reach Len. (ft)          100.00     100.00     100.00
  Crit W.S. (ft)                      Flow Area (sq ft)        512.43     595.14     372.36
  E.G. Slope (ft/ft)      0.000189    Area (sq ft)             512.43     595.14     372.36
  Q Total (cfs)             459.25    Flow (cfs)               113.48     287.18      58.59
  Top Width (ft)            496.36    Top Width (ft)           160.14     141.89     194.33
  Vel Total (ft/s)            0.31    Avg. Vel. (ft/s)           0.22       0.48       0.16
  Max Chl Dpth (ft)           4.26    Hydr. Depth (ft)           3.20       4.19       1.92
  Conv. Total (cfs)        33431.2    Conv. (cfs)              8261.1    20905.2     4264.9
  Length Wtd. (ft)          100.00    Wetted Per. (ft)         160.32     141.93     194.53
  Min Ch El (ft)             59.26    Shear (lb/sq ft)           0.04       0.05       0.02
  Alpha                       1.67    Stream Power (lb/ft s)     0.01       0.02       0.00
  Frctn Loss (ft)             0.01    Cum Volume (acre-ft)      39.31      19.71       5.94
  C & E Loss (ft)             0.00    Cum SA (acres)            12.90       5.30       2.60


Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or
greater than
         1.4.  This may indicate the need for additional cross sections.

CROSS SECTION


RIVER: 414
REACH: LAKE-B             RS: 1500.000

INPUT
Description:
Station Elevation Data    num=      17
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0   70.44  484.12      65  495.05   60.58  554.46   60.01  721.67   59.91
  899.89   59.98  930.69   59.21  1009.8    59.1 1060.75      60 1167.47   60.14
 1360.92   66.37 1501.68      72 1628.18      75 1711.67   73.75 1803.36      76
 1883.78      76    2000      78

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .2  899.89     .11 1060.75      .2

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        899.89 1060.75              100     100     100             .1       .3

CROSS SECTION OUTPUT  Profile #50yr

  E.G. Elev (ft)             62.88    Element                  Left OB    Channel   Right OB
  Vel Head (ft)               0.00    Wt. n-Val.                0.200      0.110      0.200
  W.S. Elev (ft)             62.88    Reach Len. (ft)          100.00     100.00     100.00
```

| | | | | | |
|---|---|---|---|---|---|
| Crit W.S. (ft) | | Flow Area (sq ft) | 1170.98 | 565.34 | 416.23 |
| E.G. Slope (ft/ft) | 0.000094 | Area (sq ft) | 1170.98 | 565.34 | 416.23 |
| Q Total (cfs) | 391.90 | Flow (cfs) | 169.95 | 171.57 | 50.38 |
| Top Width (ft) | 763.15 | Top Width (ft) | 410.52 | 160.86 | 191.77 |
| Vel Total (ft/s) | 0.18 | Avg. Vel. (ft/s) | 0.15 | 0.30 | 0.12 |
| Max Chl Dpth (ft) | 3.78 | Hydr. Depth (ft) | 2.85 | 3.51 | 2.17 |
| Conv. Total (cfs) | 40320.4 | Conv. (cfs) | 17485.2 | 17652.0 | 5183.2 |
| Length Wtd. (ft) | 100.00 | Wetted Per. (ft) | 410.97 | 160.88 | 191.81 |
| Min Ch El (ft) | 59.10 | Shear (lb/sq ft) | 0.02 | 0.02 | 0.01 |
| Alpha | 1.55 | Stream Power (lb/ft s) | 0.00 | 0.01 | 0.00 |
| Frctn Loss (ft) | 0.01 | Cum Volume (acre-ft) | 29.12 | 14.98 | 3.58 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 12.06 | 4.94 | 1.88 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than
1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100yr

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 63.51 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.00 | Wt. n-Val. | 0.200 | 0.110 | 0.200 |
| W.S. Elev (ft) | 63.51 | Reach Len. (ft) | 100.00 | 100.00 | 100.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 1430.30 | 666.76 | 543.30 |
| E.G. Slope (ft/ft) | 0.000069 | Area (sq ft) | 1430.30 | 666.76 | 543.30 |
| Q Total (cfs) | 459.25 | Flow (cfs) | 202.67 | 193.52 | 63.07 |
| Top Width (ft) | 784.29 | Top Width (ft) | 412.08 | 160.86 | 211.34 |
| Vel Total (ft/s) | 0.17 | Avg. Vel. (ft/s) | 0.14 | 0.29 | 0.12 |
| Max Chl Dpth (ft) | 4.41 | Hydr. Depth (ft) | 3.47 | 4.14 | 2.57 |
| Conv. Total (cfs) | 55150.9 | Conv. (cfs) | 24338.0 | 23239.4 | 7573.6 |
| Length Wtd. (ft) | 100.00 | Wetted Per. (ft) | 412.66 | 160.88 | 211.40 |
| Min Ch El (ft) | 59.10 | Shear (lb/sq ft) | 0.02 | 0.02 | 0.01 |
| Alpha | 1.53 | Stream Power (lb/ft s) | 0.00 | 0.01 | 0.00 |
| Frctn Loss (ft) | 0.01 | Cum Volume (acre-ft) | 37.08 | 18.26 | 4.89 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 12.24 | 4.95 | 2.14 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than
1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: 414
REACH: LAKE-B RS: 1400.000

INPUT
Description:
Station Elevation Data num= 29

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 70.44 | 463.89 | 70.44 | 473.7 | 65.35 | 594.64 | 64.91 | 728.07 | 64 |
| 747.41 | 65 | 795.88 | 64.39 | 798.64 | 62 | 943.41 | 61.48 | 978.24 | 61.81 |
| 980.13 | 60.37 | 1035.39 | 59.49 | 1042.96 | 59 | 1075.67 | 59.16 | 1117.45 | 60 |
| 1192.53 | 59 | 1253.49 | 59 | 1262.39 | 60 | 1326.91 | 60.26 | 1408.49 | 64 |
| 1426.7 | 65 | 1470.03 | 69 | 1488.64 | 71 | 1591.21 | 74.27 | 1595.59 | 75 |
| 1730.12 | 75.25 | 1772.24 | 77 | 1856.25 | 78 | 2000 | 78 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .2 | 1117.45 | .11 | 1262.39 | .2 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 1117.45 | 1262.39 | 100 | 100 | 100 | .1 | .3 |

CROSS SECTION OUTPUT Profile #50yr

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 62.87 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.00 | Wt. n-Val. | 0.200 | 0.110 | 0.200 |
| W.S. Elev (ft) | 62.86 | Reach Len. (ft) | 100.00 | 100.00 | 100.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 659.47 | 518.06 | 250.35 |
| E.G. Slope (ft/ft) | 0.000206 | Area (sq ft) | 659.47 | 518.06 | 250.35 |
| Q Total (cfs) | 391.90 | Flow (cfs) | 113.78 | 234.84 | 43.28 |
| Top Width (ft) | 586.07 | Top Width (ft) | 319.81 | 144.94 | 121.32 |
| Vel Total (ft/s) | 0.27 | Avg. Vel. (ft/s) | 0.17 | 0.45 | 0.17 |

| | | | | | |
|---|---|---|---|---|---|
| Max Chl Dpth (ft) | 3.86 | Hydr. Depth (ft) | 2.06 | 3.57 | 2.06 |
| Conv. Total (cfs) | 27292.6 | Conv. (cfs) | 7923.9 | 16354.9 | 3013.8 |
| Length Wtd. (ft) | 100.00 | Wetted Per. (ft) | 320.65 | 145.00 | 121.38 |
| Min Ch El (ft) | 59.00 | Shear (lb/sq ft) | 0.03 | 0.05 | 0.03 |
| Alpha | 1.79 | Stream Power (lb/ft s) | 0.00 | 0.02 | 0.00 |
| Frctn Loss (ft) | 0.02 | Cum Volume (acre-ft) | 27.02 | 13.73 | 2.81 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 11.22 | 4.59 | 1.52 |

CROSS SECTION OUTPUT  Profile #100yr

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 63.50 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.00 | Wt. n-Val. | 0.200 | 0.110 | 0.200 |
| W.S. Elev (ft) | 63.50 | Reach Len. (ft) | 100.00 | 100.00 | 100.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 862.64 | 610.03 | 331.73 |
| E.G. Slope (ft/ft) | 0.000144 | Area (sq ft) | 862.64 | 610.03 | 331.73 |
| Q Total (cfs) | 459.25 | Flow (cfs) | 148.24 | 257.30 | 53.71 |
| Top Width (ft) | 600.64 | Top Width (ft) | 320.54 | 144.94 | 135.16 |
| Vel Total (ft/s) | 0.25 | Avg. Vel. (ft/s) | 0.17 | 0.42 | 0.16 |
| Max Chl Dpth (ft) | 4.50 | Hydr. Depth (ft) | 2.69 | 4.21 | 2.45 |
| Conv. Total (cfs) | 38330.5 | Conv. (cfs) | 12372.4 | 21475.3 | 4482.7 |
| Length Wtd. (ft) | 100.00 | Wetted Per. (ft) | 321.62 | 145.00 | 135.24 |
| Min Ch El (ft) | 59.00 | Shear (lb/sq ft) | 0.02 | 0.04 | 0.02 |
| Alpha | 1.73 | Stream Power (lb/ft s) | 0.00 | 0.02 | 0.00 |
| Frctn Loss (ft) | 0.01 | Cum Volume (acre-ft) | 34.44 | 16.80 | 3.88 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 11.40 | 4.60 | 1.74 |

CROSS SECTION

RIVER: 414
REACH: LAKE-B  RS: 1300.000

INPUT
Description:
Station Elevation Data  num=  34

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 70.44 | 712.08 | 70.65 | 712.79 | 69.75 | 723.98 | 68.83 | 785.21 | 67.89 |
| 832.38 | 64.91 | 855.79 | 64 | 856.72 | 65 | 872.14 | 64.39 | 889.39 | 62 |
| 905.37 | 61.81 | 921.9 | 60 | 1028.94 | 60 | 1147.3 | 59.65 | 1170.59 | 59 |
| 1330.96 | 59 | 1356.39 | 60 | 1523.5 | 71 | 1559.72 | 71.39 | 1571.67 | 72 |
| 1616.2 | 72.43 | 1672.92 | 74 | 1692.96 | 74.21 | 1714.15 | 75.14 | 1733.54 | 77 |
| 1740.79 | 77 | 1753.59 | 78 | 1830.49 | 78 | 1854.09 | 79 | 1895.34 | 78.71 |
| 1939.84 | 77.69 | 1950.06 | 75 | 1962.67 | 73.46 | 2000 | 64.62 | | |

Manning's n Values  num=  3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .2 | 1147.3 | .11 | 1356.39 | .2 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 1147.3 | 1356.39 | 100 | 100 | 100 | .1 | .3 |

CROSS SECTION OUTPUT  Profile #50yr

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 62.85 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.00 | Wt. n-Val. | 0.200 | 0.110 | 0.200 |
| W.S. Elev (ft) | 62.85 | Reach Len. (ft) | 100.00 | 100.00 | 100.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 712.78 | 784.56 | 61.67 |
| E.G. Slope (ft/ft) | 0.000116 | Area (sq ft) | 712.78 | 784.56 | 61.67 |
| Q Total (cfs) | 391.90 | Flow (cfs) | 110.40 | 275.27 | 6.23 |
| Top Width (ft) | 516.42 | Top Width (ft) | 264.04 | 209.09 | 43.29 |
| Vel Total (ft/s) | 0.25 | Avg. Vel. (ft/s) | 0.15 | 0.35 | 0.10 |
| Max Chl Dpth (ft) | 3.85 | Hydr. Depth (ft) | 2.70 | 3.75 | 1.42 |
| Conv. Total (cfs) | 36431.2 | Conv. (cfs) | 10262.8 | 25589.1 | 579.2 |
| Length Wtd. (ft) | 100.00 | Wetted Per. (ft) | 264.20 | 209.12 | 43.38 |
| Min Ch El (ft) | 59.00 | Shear (lb/sq ft) | 0.02 | 0.03 | 0.01 |
| Alpha | 1.48 | Stream Power (lb/ft s) | 0.00 | 0.01 | 0.00 |
| Frctn Loss (ft) | 0.01 | Cum Volume (acre-ft) | 25.44 | 12.24 | 2.46 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 10.55 | 4.18 | 1.33 |

CROSS SECTION OUTPUT  Profile #100yr

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 63.49 | Element | Left OB | Channel | Right OB |

| | | | | | |
|---|---|---|---|---|---|
| Vel Head (ft) | 0.00 | Wt. n-Val. | 0.200 | 0.110 | 0.200 |
| W.S. Elev (ft) | 63.49 | Reach Len. (ft) | 100.00 | 100.00 | 100.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 882.81 | 918.05 | 92.40 |
| E.G. Slope (ft/ft) | 0.000089 | Area (sq ft) | 882.81 | 918.05 | 92.40 |
| Q Total (cfs) | 459.25 | Flow (cfs) | 136.55 | 313.34 | 9.36 |
| Top Width (ft) | 530.72 | Top Width (ft) | 268.65 | 209.09 | 52.98 |
| Vel Total (ft/s) | 0.24 | Avg. Vel. (ft/s) | 0.15 | 0.34 | 0.10 |
| Max Chl Dpth (ft) | 4.49 | Hydr. Depth (ft) | 3.29 | 4.39 | 1.74 |
| Conv. Total (cfs) | 48732.5 | Conv. (cfs) | 14490.1 | 33249.3 | 993.1 |
| Length Wtd. (ft) | 100.00 | Wetted Per. (ft) | 268.85 | 209.12 | 53.10 |
| Min Ch El (ft) | 59.00 | Shear (lb/sq ft) | 0.02 | 0.02 | 0.01 |
| Alpha | 1.48 | Stream Power (lb/ft s) | 0.00 | 0.01 | 0.00 |
| Frctn Loss (ft) | 0.01 | Cum Volume (acre-ft) | 32.44 | 15.05 | 3.40 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 10.72 | 4.19 | 1.52 |

CROSS SECTION

RIVER: 414
REACH: LAKE-B RS: 1200.000

INPUT
Description:
Station Elevation Data num= 35

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 70 | 19.41 | 70 | 74.26 | 65.48 | 390.54 | 64.75 | 434.66 | 62.4 |
| 492.25 | 62 | 496.21 | 61 | 578.67 | 60.78 | 583.77 | 59.97 | 603.21 | 59 |
| 705.2 | 60.85 | 736.2 | 60 | 782.84 | 60.05 | 805.71 | 61 | 968.71 | 61 |
| 995.82 | 59 | 1137.52 | 59.52 | 1156.27 | 60 | 1227.94 | 59.57 | 1241.18 | 59 |
| 1299.45 | 59 | 1318.69 | 60 | 1367.6 | 60.3 | 1494.04 | 68 | 1504.17 | 68.15 |
| 1514.07 | 70 | 1532.06 | 71 | 1575.47 | 71 | 1594.44 | 74 | 1767.9 | 77 |
| 1842.7 | 79 | 1884.29 | 79 | 1916.17 | 77.6 | 1959.76 | 79 | 2000.01 | 79.5 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .2 | 1227.94 | .11 | 1318.69 | .2 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 1227.94 | 1318.69 | 200 | 200 | 200 | .3 | .5 |

Ineffective Flow num= 2

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 547.43 | 80 | T |
| 1447.43 | 2000.01 | 80 | T |

CROSS SECTION OUTPUT Profile #50yr

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 62.84 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.00 | Wt. n-Val. | 0.200 | 0.110 | 0.200 |
| W.S. Elev (ft) | 62.84 | Reach Len. (ft) | 60.00 | 60.00 | 60.00 |
| Crit W.S. (ft) | 59.69 | Flow Area (sq ft) | 1857.70 | 335.03 | 184.48 |
| E.G. Slope (ft/ft) | 0.000096 | Area (sq ft) | 1999.34 | 335.03 | 184.48 |
| Q Total (cfs) | 391.90 | Flow (cfs) | 264.33 | 105.99 | 21.58 |
| Top Width (ft) | 982.89 | Top Width (ft) | 801.53 | 90.75 | 90.61 |
| Vel Total (ft/s) | 0.16 | Avg. Vel. (ft/s) | 0.14 | 0.32 | 0.12 |
| Max Chl Dpth (ft) | 3.84 | Hydr. Depth (ft) | 2.73 | 3.69 | 2.04 |
| Conv. Total (cfs) | 39960.7 | Conv. (cfs) | 26953.0 | 10807.2 | 2200.5 |
| Length Wtd. (ft) | 60.00 | Wetted Per. (ft) | 680.73 | 90.79 | 90.69 |
| Min Ch El (ft) | 59.00 | Shear (lb/sq ft) | 0.02 | 0.02 | 0.01 |
| Alpha | 1.53 | Stream Power (lb/ft s) | 0.00 | 0.01 | 0.00 |
| Frctn Loss (ft) | 0.01 | Cum Volume (acre-ft) | 22.33 | 10.95 | 2.17 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 9.33 | 3.84 | 1.17 |

CROSS SECTION OUTPUT Profile #100yr

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 63.48 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.00 | Wt. n-Val. | 0.200 | 0.110 | 0.200 |
| W.S. Elev (ft) | 63.48 | Reach Len. (ft) | 60.00 | 60.00 | 60.00 |
| Crit W.S. (ft) | 59.75 | Flow Area (sq ft) | 2294.03 | 393.21 | 245.95 |
| E.G. Slope (ft/ft) | 0.000068 | Area (sq ft) | 2517.13 | 393.21 | 245.95 |
| Q Total (cfs) | 459.25 | Flow (cfs) | 315.72 | 116.31 | 27.22 |
| Top Width (ft) | 1005.45 | Top Width (ft) | 813.57 | 90.75 | 101.14 |
| Vel Total (ft/s) | 0.16 | Avg. Vel. (ft/s) | 0.14 | 0.30 | 0.11 |
| Max Chl Dpth (ft) | 4.48 | Hydr. Depth (ft) | 3.37 | 4.33 | 2.43 |

| | | | | | |
|---|---|---|---|---|---|
| Conv. Total (cfs) | 55725.8 | Conv. (cfs) | 38310.1 | 14113.4 | 3302.4 |
| Length Wtd. (ft) | 60.00 | Wetted Per. (ft) | 680.73 | 90.79 | 101.23 |
| Min Ch El (ft) | 59.00 | Shear (lb/sq ft) | 0.01 | 0.02 | 0.01 |
| Alpha | 1.46 | Stream Power (lb/ft s) | 0.00 | 0.01 | 0.00 |
| Frctn Loss (ft) | 0.01 | Cum Volume (acre-ft) | 28.54 | 13.54 | 3.01 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 9.48 | 3.85 | 1.35 |

BRIDGE

RIVER: 414
REACH: LAKE-B RS: 1140

INPUT
Description:
Distance from Upstream XS = 60
Deck/Roadway Width = 130
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 |
|---|---|---|---|---|---|---|---|---|
| 0 | 70 | 0 | 647.43 | 70 | 0 | 647.43 | 70 | 65.99 |
| 1347.43 | 70 | 65.99 | 1347.43 | 70 | 0 | 2000 | 70 | 0 |

Upstream Bridge Cross Section Data
Station Elevation Data num= 35

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 70 | 19.41 | 70 | 74.26 | 65.48 | 390.54 | 64.75 | 434.66 | 62.4 |
| 492.25 | 62 | 496.21 | 61 | 578.67 | 60.78 | 583.77 | 59.97 | 603.21 | 59 |
| 705.2 | 60.85 | 736.2 | 60 | 782.84 | 60.05 | 805.71 | 61 | 968.71 | 61 |
| 995.82 | 59 | 1137.52 | 59.52 | 1156.27 | 60 | 1227.94 | 59.57 | 1241.18 | 59 |
| 1299.45 | 59 | 1318.69 | 60 | 1367.6 | 60.3 | 1494.04 | 68 | 1504.17 | 68.15 |
| 1514.07 | 70 | 1532.06 | 71 | 1575.47 | 71 | 1594.44 | 74 | 1767.9 | 77 |
| 1842.7 | 79 | 1884.29 | 79 | 1916.17 | 77.6 | 1959.76 | 79 | 2000.01 | 79.5 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .2 | 1227.94 | .11 | 1318.69 | .2 |

| Bank Sta: Left | Right | Coeff Contr. | Expan. |
|---|---|---|---|
| 1227.94 | 1318.69 | .3 | .5 |

Ineffective Flow num= 2

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 547.43 | 80 | T |
| 1447.43 | 2000.01 | 80 | T |

Downstream Deck/Roadway Coordinates
num= 6

| Sta | Hi Cord | Lo Cord | Sta | Hi Cord | Lo Cord | Sta | Hi Cord | Lo Cord |
|---|---|---|---|---|---|---|---|---|
| 0 | 70 | 0 | 647.43 | 70 | 0 | 647.43 | 70 | 65.99 |
| 1347.43 | 70 | 65.99 | 1347.43 | 70 | 0 | 2000 | 70 | 0 |

Downstream Bridge Cross Section Data
Station Elevation Data num= 35

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 70 | 19.41 | 70 | 74.26 | 65.48 | 390.54 | 64.75 | 434.66 | 62.4 |
| 492.25 | 62 | 496.21 | 61 | 578.67 | 60.78 | 583.77 | 59.97 | 603.21 | 59 |
| 705.2 | 60.85 | 736.2 | 60 | 782.84 | 60.05 | 805.71 | 61 | 968.71 | 61 |
| 995.82 | 59 | 1137.52 | 59.52 | 1156.27 | 60 | 1227.94 | 59.57 | 1241.18 | 59 |
| 1299.45 | 59 | 1318.69 | 60 | 1367.6 | 60.3 | 1494.04 | 68 | 1504.17 | 68.15 |
| 1514.07 | 70 | 1532.06 | 71 | 1575.47 | 71 | 1594.44 | 74 | 1767.9 | 77 |
| 1842.7 | 79 | 1884.29 | 79 | 1916.17 | 77.6 | 1959.76 | 79 | 2000.01 | 79.5 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .2 | 1227.94 | .11 | 1318.69 | .2 |

| Bank Sta: Left | Right | Coeff Contr. | Expan. |
|---|---|---|---|
| 1227.94 | 1318.69 | .3 | .5 |

Ineffective Flow num= 2

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 547.43 | 80 | F |
| 1447.43 | 2000.01 | 80 | F |

```
Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 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 Piers =  5

Pier Data
Pier Station     Upstream=  739.93    Downstream=  739.93
Upstream     num=       2
    Width   Elev    Width   Elev
       4       0       4   65.99
Downstream     num=       2
    Width   Elev    Width   Elev
       4       0       4   65.99

Pier Data
Pier Station     Upstream=  832.43    Downstream=  832.43
Upstream     num=       2
    Width   Elev    Width   Elev
       4       0       4   65.99
Downstream     num=       2
    Width   Elev    Width   Elev
       4       0       4   65.99

Pier Data
Pier Station     Upstream= 1042.43    Downstream= 1042.43
Upstream     num=       2
    Width   Elev    Width   Elev
       4       0       4   65.99
Downstream     num=       2
    Width   Elev    Width   Elev
       4       0       4   65.99

Pier Data
Pier Station     Upstream=1144.097    Downstream=1144.097
Upstream     num=       2
    Width   Elev    Width   Elev
       4       0       4   65.99
Downstream     num=       2
    Width   Elev    Width   Elev
       4       0       4   65.99

Pier Data
Pier Station     Upstream=1245.763    Downstream=1245.763
Upstream     num=       2
    Width   Elev    Width   Elev
       4       0       4   65.99
Downstream     num=       2
    Width   Elev    Width   Elev
       4       0       4   65.99

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
Selected Low Flow Methods = Highest Energy Answer

High Flow Method
       Energy Only

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

BRIDGE OUTPUT  Profile #50yr

  E.G. US. (ft)                62.84    Element                 Inside BR US  Inside BR DS
  W.S. US. (ft)                62.84    E.G. Elev (ft)               62.83         62.81
```

| | | | | |
|---|---|---|---|---|
| Q Total (cfs) | 391.90 | W.S. Elev (ft) | 62.83 | 62.81 |
| Q Bridge (cfs) | 391.90 | Crit W.S. (ft) | 59.74 | 59.74 |
| Q Weir (cfs) | | Max Chl Dpth (ft) | 3.83 | 3.81 |
| Weir Sta Lft (ft) | | Vel Total (ft/s) | 0.20 | 0.21 |
| Weir Sta Rgt (ft) | | Flow Area (sq ft) | 1912.51 | 1899.17 |
| Weir Submerg | | Froude # Chl | 0.02 | 0.02 |
| Weir Max Depth (ft) | | Specif Force (cu ft) | 2865.47 | 2828.10 |
| Min El Weir Flow (ft) | 70.01 | Hydr Depth (ft) | 2.81 | 2.79 |
| Min El Prs (ft) | 65.99 | W.P. Total (ft) | 716.44 | 716.20 |
| Delta EG (ft) | 0.03 | Conv. Total (cfs) | 32121.2 | 31774.0 |
| Delta WS (ft) | 0.03 | Top Width (ft) | 680.00 | 680.00 |
| BR Open Area (sq ft) | 4060.06 | Frctn Loss (ft) | 0.02 | 0.00 |
| BR Open Vel (ft/s) | 0.21 | C & E Loss (ft) | 0.00 | 0.00 |
| BR Sluice Coef | | Shear Total (lb/sq ft) | 0.02 | 0.03 |
| BR Sel Method | Energy only | Power Total (lb/ft s) | 0.01 | 0.01 |

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

BRIDGE OUTPUT Profile #100yr

| | | | | |
|---|---|---|---|---|
| E.G. US. (ft) | 63.48 | Element | Inside BR US | Inside BR DS |
| W.S. US. (ft) | 63.48 | E.G. Elev (ft) | 63.48 | 63.46 |
| Q Total (cfs) | 459.25 | W.S. Elev (ft) | 63.48 | 63.46 |
| Q Bridge (cfs) | 459.25 | Crit W.S. (ft) | 59.80 | 59.80 |
| Q Weir (cfs) | | Max Chl Dpth (ft) | 4.48 | 4.46 |
| Weir Sta Lft (ft) | | Vel Total (ft/s) | 0.20 | 0.20 |
| Weir Sta Rgt (ft) | | Flow Area (sq ft) | 2349.92 | 2340.34 |
| Weir Submerg | | Froude # Chl | 0.02 | 0.02 |
| Weir Max Depth (ft) | | Specif Force (cu ft) | 4236.68 | 4203.64 |
| Min El Weir Flow (ft) | 70.01 | Hydr Depth (ft) | 3.46 | 3.44 |
| Min El Prs (ft) | 65.99 | W.P. Total (ft) | 724.16 | 723.99 |
| Delta EG (ft) | 0.02 | Conv. Total (cfs) | 44291.7 | 44009.1 |
| Delta WS (ft) | 0.02 | Top Width (ft) | 680.00 | 680.00 |
| BR Open Area (sq ft) | 4060.06 | Frctn Loss (ft) | 0.01 | 0.00 |
| BR Open Vel (ft/s) | 0.20 | C & E Loss (ft) | 0.00 | 0.00 |
| BR Sluice Coef | | Shear Total (lb/sq ft) | 0.02 | 0.02 |
| BR Sel Method | Energy only | Power Total (lb/ft s) | 0.00 | 0.00 |

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 414
REACH: LAKE-B RS: 1000.00*

INPUT
Description:
Station Elevation Data num= 35

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 70 | 19.41 | 70 | 74.26 | 65.48 | 390.54 | 64.75 | 434.66 | 62.4 |
| 492.25 | 62 | 496.21 | 61 | 578.67 | 60.78 | 583.77 | 59.97 | 603.21 | 59 |
| 705.2 | 60.85 | 736.2 | 60 | 782.84 | 60.05 | 805.71 | 61 | 968.71 | 61 |
| 995.82 | 59 | 1137.52 | 59.52 | 1156.27 | 60 | 1227.94 | 59.57 | 1241.18 | 59 |
| 1299.45 | 59 | 1318.69 | 60 | 1367.6 | 60.3 | 1494.04 | 68 | 1504.17 | 68.15 |
| 1514.07 | 70 | 1532.06 | 71 | 1575.47 | 71 | 1594.44 | 74 | 1767.9 | 77 |
| 1842.7 | 79 | 1884.29 | 79 | 1916.17 | 77.6 | 1959.76 | 79 | 2000.01 | 79.5 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .2 | 1227.94 | .11 | 1318.69 | .2 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 1227.94 | 1318.69 | 300 | 300 | 300 | .3 | .5 |

Ineffective Flow num= 2

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 547.43 | 80 | F |
| 1447.43 | 2000.01 | 80 | F |

CROSS SECTION OUTPUT Profile #50yr

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 62.81 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.00 | Wt. n-Val. | 0.200 | 0.110 | 0.200 |
| W.S. Elev (ft) | 62.81 | Reach Len. (ft) | 300.00 | 300.00 | 300.00 |
| Crit W.S. (ft) | 59.70 | Flow Area (sq ft) | 1838.52 | 332.47 | 181.93 |
| E.G. Slope (ft/ft) | 0.000099 | Area (sq ft) | 1976.76 | 332.47 | 181.93 |
| Q Total (cfs) | 391.90 | Flow (cfs) | 264.04 | 106.35 | 21.50 |
| Top Width (ft) | 981.89 | Top Width (ft) | 801.00 | 90.75 | 90.15 |
| Vel Total (ft/s) | 0.17 | Avg. Vel. (ft/s) | 0.14 | 0.32 | 0.12 |
| Max Chl Dpth (ft) | 3.81 | Hydr. Depth (ft) | 2.70 | 3.66 | 2.02 |
| Conv. Total (cfs) | 39318.4 | Conv. (cfs) | 26490.9 | 10670.1 | 2157.4 |
| Length Wtd. (ft) | 300.00 | Wetted Per. (ft) | 680.73 | 90.79 | 90.22 |
| Min Ch El (ft) | 59.00 | Shear (lb/sq ft) | 0.02 | 0.02 | 0.01 |
| Alpha | 1.53 | Stream Power (lb/ft s) | 0.00 | 0.01 | 0.00 |
| Frctn Loss (ft) | 0.05 | Cum Volume (acre-ft) | 15.01 | 9.48 | 1.73 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 6.54 | 3.44 | 0.99 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than
1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #100yr

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 63.46 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.00 | Wt. n-Val. | 0.200 | 0.110 | 0.200 |
| W.S. Elev (ft) | 63.46 | Reach Len. (ft) | 300.00 | 300.00 | 300.00 |
| Crit W.S. (ft) | 59.75 | Flow Area (sq ft) | 2280.26 | 391.38 | 243.91 |
| E.G. Slope (ft/ft) | 0.000069 | Area (sq ft) | 2500.67 | 391.38 | 243.91 |
| Q Total (cfs) | 459.25 | Flow (cfs) | 315.58 | 116.52 | 27.16 |
| Top Width (ft) | 1004.74 | Top Width (ft) | 813.19 | 90.75 | 100.80 |
| Vel Total (ft/s) | 0.16 | Avg. Vel. (ft/s) | 0.14 | 0.30 | 0.11 |
| Max Chl Dpth (ft) | 4.46 | Hydr. Depth (ft) | 3.35 | 4.31 | 2.42 |
| Conv. Total (cfs) | 55195.2 | Conv. (cfs) | 37927.6 | 14003.7 | 3263.9 |
| Length Wtd. (ft) | 300.00 | Wetted Per. (ft) | 680.73 | 90.79 | 100.90 |
| Min Ch El (ft) | 59.00 | Shear (lb/sq ft) | 0.01 | 0.02 | 0.01 |
| Alpha | 1.47 | Stream Power (lb/ft s) | 0.00 | 0.01 | 0.00 |
| Frctn Loss (ft) | 0.03 | Cum Volume (acre-ft) | 19.42 | 11.81 | 2.44 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 6.69 | 3.45 | 1.16 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than
1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 414
REACH: LAKE-B RS: 700.000

INPUT
Description:
Station Elevation Data num= 57

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 92.45 | 24.47 | 94 | 128.78 | 95 | 153.05 | 96 | 185.86 | 95 |
| 419.98 | 92.57 | 540.11 | 86.37 | 606.67 | 82 | 607.43 | 82.81 | 609.14 | 82.44 |
| 609.77 | 82.97 | 610.21 | 83.11 | 610.71 | 83.84 | 612.13 | 83.78 | 612.74 | 82.62 |
| 613.35 | 82.48 | 616.37 | 88.92 | 619.34 | 82 | 621.14 | 81 | 639.49 | 81 |
| 640.66 | 83.97 | 641.15 | 84.75 | 642.71 | 88.19 | 643.78 | 86 | 644.91 | 86 |
| 645.96 | 85.03 | 649.81 | 83.15 | 652.04 | 81 | 697.28 | 77 | 722.01 | 76.85 |
| 883.37 | 65 | 896.43 | 65 | 898.89 | 67.97 | 899.62 | 68.56 | 918.97 | 67.63 |
| 935.92 | 70.05 | 938.12 | 71 | 941.81 | 70.74 | 950.97 | 67.97 | 983.88 | 66.93 |
| 1069.31 | 61.25 | 1133.11 | 60.55 | 1386.18 | 60.31 | 1557.64 | 59.13 | 1612.02 | 60.52 |
| 1630.99 | 62 | 1652.13 | 61.6 | 1652.63 | 62.76 | 1653.72 | 62.98 | 1654.03 | 63.26 |
| 1668.81 | 64.41 | 1669.16 | 64.58 | 1690.82 | 66.9 | 1705.84 | 67.72 | 1706.57 | 68 |
| 1761.15 | 68.91 | 2000 | 70.66 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .2 | 1386.18 | .11 | 1630.99 | .2 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 1386.18 | 1630.99 | 100 | 100 | 100 | .3 | .5 |

Ineffective Flow num= 2

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 446.43 | 80 | F |
| 1548.43 | 2000 | 80 | F |

CROSS SECTION OUTPUT Profile #50yr

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 62.76 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.00 | Wt. n-Val. | 0.200 | 0.110 | |
| W.S. Elev (ft) | 62.76 | Reach Len. (ft) | 100.00 | 100.00 | 100.00 |
| Crit W.S. (ft) | 60.32 | Flow Area (sq ft) | 725.79 | 488.25 | |
| E.G. Slope (ft/ft) | 0.000298 | Area (sq ft) | 725.79 | 709.53 | 20.61 |
| Q Total (cfs) | 391.90 | Flow (cfs) | 154.49 | 237.41 | |
| Top Width (ft) | 606.05 | Top Width (ft) | 339.60 | 244.81 | 21.64 |
| Vel Total (ft/s) | 0.32 | Avg. Vel. (ft/s) | 0.21 | 0.49 | |
| Max Chl Dpth (ft) | 3.63 | Hydr. Depth (ft) | 2.14 | 3.01 | |
| Conv. Total (cfs) | 22693.3 | Conv. (cfs) | 8946.1 | 13747.2 | |
| Length Wtd. (ft) | 100.00 | Wetted Per. (ft) | 339.65 | 162.25 | |
| Min Ch El (ft) | 59.13 | Shear (lb/sq ft) | 0.04 | 0.06 | |
| Alpha | 1.55 | Stream Power (lb/ft s) | 0.01 | 0.03 | |
| Frctn Loss (ft) | 0.02 | Cum Volume (acre-ft) | 5.70 | 5.89 | 1.03 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 2.62 | 2.28 | 0.61 |

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #100yr

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 63.43 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.00 | Wt. n-Val. | 0.200 | 0.110 | |
| W.S. Elev (ft) | 63.43 | Reach Len. (ft) | 100.00 | 100.00 | 100.00 |
| Crit W.S. (ft) | 60.40 | Flow Area (sq ft) | 954.95 | 596.15 | |
| E.G. Slope (ft/ft) | 0.000193 | Area (sq ft) | 954.95 | 872.33 | 35.87 |
| Q Total (cfs) | 459.25 | Flow (cfs) | 192.70 | 266.55 | |
| Top Width (ft) | 619.58 | Top Width (ft) | 349.60 | 244.81 | 25.17 |
| Vel Total (ft/s) | 0.30 | Avg. Vel. (ft/s) | 0.20 | 0.45 | |
| Max Chl Dpth (ft) | 4.30 | Hydr. Depth (ft) | 2.73 | 3.67 | |
| Conv. Total (cfs) | 33036.7 | Conv. (cfs) | 13861.9 | 19174.8 | |
| Length Wtd. (ft) | 100.00 | Wetted Per. (ft) | 349.67 | 162.25 | |
| Min Ch El (ft) | 59.13 | Shear (lb/sq ft) | 0.03 | 0.04 | |
| Alpha | 1.52 | Stream Power (lb/ft s) | 0.01 | 0.02 | |
| Frctn Loss (ft) | 0.01 | Cum Volume (acre-ft) | 7.52 | 7.46 | 1.48 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 2.69 | 2.29 | 0.72 |

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: 414
REACH: LAKE-B RS: 600.000

INPUT
Description:
Station Elevation Data num= 57

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 94.91 | 54.76 | 96 | 182.87 | 96 | 186.88 | 95 | 188.9 | 96 |
| 210.62 | 96 | 212.26 | 95.04 | 233.35 | 94 | 285.56 | 94.11 | 287.29 | 95 |
| 346.52 | 95.51 | 591.03 | 86 | 686.86 | 83 | 689.89 | 82.09 | 690.46 | 82.19 |
| 691.58 | 83.45 | 692.76 | 86 | 697.26 | 92.83 | 698.53 | 91.89 | 699.22 | 91.16 |
| 700.55 | 90.46 | 703.8 | 83.06 | 708.12 | 81.03 | 734.1 | 81 | 735.93 | 83.56 |
| 737.71 | 85 | 738.34 | 85 | 740.07 | 85.41 | 741.53 | 83.35 | 742.11 | 82 |
| 743.46 | 80 | 793.26 | 76.89 | 812.85 | 76 | 832.88 | 76 | 904.14 | 74 |
| 951.43 | 72.79 | 974.6 | 68.75 | 985.49 | 68.65 | 993.12 | 65 | 1022.87 | 61 |
| 1033.57 | 61 | 1076.67 | 59.45 | 1096.34 | 60 | 1404.1 | 60 | 1431.68 | 59 |
| 1496.5 | 59.38 | 1561.66 | 61 | 1634.05 | 60 | 1733.15 | 61 | 1756.54 | 62.76 |
| 1817.65 | 65.15 | 1891.75 | 66.16 | 1897.35 | 66.9 | 1917.27 | 67 | 1918.41 | 67.44 |
| 1939.42 | 68.66 | 2000.01 | 70.33 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .2 | 1404.1 | .11 | 1561.66 | .2 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 1404.1 | 1561.66 | 100 | 100 | 100 | .3 | .5 |

Ineffective Flow num= 2

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 344.43 | 80 | F |
| 1650.43 | 2000.01 | 80 | F |

CROSS SECTION OUTPUT Profile #50yr

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 62.74 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.00 | Wt. n-Val. | 0.200 | 0.110 | 0.200 |
| W.S. Elev (ft) | 62.74 | Reach Len. (ft) | 100.00 | 100.00 | 100.00 |
| Crit W.S. (ft) | 60.15 | Flow Area (sq ft) | 1041.08 | 485.72 | 205.73 |
| E.G. Slope (ft/ft) | 0.000156 | Area (sq ft) | 1041.08 | 485.72 | 404.37 |
| Q Total (cfs) | 391.90 | Flow (cfs) | 184.72 | 173.72 | 33.46 |
| Top Width (ft) | 746.36 | Top Width (ft) | 394.18 | 157.56 | 194.62 |
| Vel Total (ft/s) | 0.23 | Avg. Vel. (ft/s) | 0.18 | 0.36 | 0.16 |
| Max Chl Dpth (ft) | 3.74 | Hydr. Depth (ft) | 2.64 | 3.08 | 2.32 |
| Conv. Total (cfs) | 31347.6 | Conv. (cfs) | 14775.1 | 13895.7 | 2676.7 |
| Length Wtd. (ft) | 100.00 | Wetted Per. (ft) | 394.33 | 157.60 | 88.78 |
| Min Ch El (ft) | 59.00 | Shear (lb/sq ft) | 0.03 | 0.03 | 0.02 |
| Alpha | 1.44 | Stream Power (lb/ft s) | 0.00 | 0.01 | 0.00 |
| Frctn Loss (ft) | 0.02 | Cum Volume (acre-ft) | 3.67 | 4.52 | 0.54 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 1.77 | 1.82 | 0.36 |

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #100yr

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 63.41 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.00 | Wt. n-Val. | 0.200 | 0.110 | 0.200 |
| W.S. Elev (ft) | 63.41 | Reach Len. (ft) | 100.00 | 100.00 | 100.00 |
| Crit W.S. (ft) | 60.20 | Flow Area (sq ft) | 1307.63 | 591.60 | 265.39 |
| E.G. Slope (ft/ft) | 0.000105 | Area (sq ft) | 1307.63 | 591.60 | 540.77 |
| Q Total (cfs) | 459.25 | Flow (cfs) | 219.52 | 197.80 | 41.93 |
| Top Width (ft) | 768.30 | Top Width (ft) | 399.17 | 157.56 | 211.57 |
| Vel Total (ft/s) | 0.21 | Avg. Vel. (ft/s) | 0.17 | 0.33 | 0.16 |
| Max Chl Dpth (ft) | 4.41 | Hydr. Depth (ft) | 3.28 | 3.75 | 2.99 |
| Conv. Total (cfs) | 44815.8 | Conv. (cfs) | 21421.8 | 19302.4 | 4091.6 |
| Length Wtd. (ft) | 100.00 | Wetted Per. (ft) | 399.37 | 157.60 | 88.78 |
| Min Ch El (ft) | 59.00 | Shear (lb/sq ft) | 0.02 | 0.02 | 0.02 |
| Alpha | 1.42 | Stream Power (lb/ft s) | 0.00 | 0.01 | 0.00 |
| Frctn Loss (ft) | 0.01 | Cum Volume (acre-ft) | 4.92 | 5.77 | 0.82 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 1.83 | 1.83 | 0.45 |

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: 414
REACH: LAKE-B RS: 500.000

INPUT
Description:
Station Elevation Data num= 79

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 96 | 123.15 | 97 | 124.74 | 96 | 149.09 | 97 | 152.6 | 95.9 |
| 155.03 | 97 | 182.32 | 97 | 183.21 | 96.52 | 185.13 | 96.43 | 186 | 95.42 |
| 186.3 | 94.67 | 189.06 | 94 | 204.9 | 94 | 205.56 | 94.64 | 251.92 | 95 |
| 294.62 | 94.53 | 295.96 | 95.04 | 303.14 | 94.98 | 306.71 | 95.43 | 308.96 | 94.93 |
| 310.2 | 95.38 | 330.56 | 95.15 | 333 | 94.75 | 350.74 | 95.6 | 351.53 | 95.29 |
| 377.69 | 95.16 | 378.04 | 95 | 382.85 | 95 | 383.24 | 95.14 | 409.24 | 94.22 |
| 410.75 | 95 | 513.02 | 93 | 554.03 | 93 | 692.9 | 84 | 799.56 | 80 |
| 814.56 | 80 | 817.72 | 87.7 | 819.23 | 88 | 820.24 | 87.52 | 820.88 | 88 |
| 823.5 | 91.88 | 824.03 | 92 | 824.74 | 92 | 827.94 | 88 | 830.83 | 82.04 |
| 833.49 | 79 | 834.71 | 79.87 | 835.17 | 80.51 | 836.3 | 80.67 | 837.43 | 83.15 |
| 840.72 | 85.27 | 844.01 | 81.88 | 847.22 | 82.11 | 848.45 | 81.21 | 849.74 | 79 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 851.49 | 79.55 | 852.91 | 84.2 | 853.69 | 86 | 857.15 | 90.19 | 860.64 | 82 |
| 863.13 | 79 | 898.35 | 77 | 902.5 | 76 | 915.22 | 75 | 1021.55 | 69.89 |
| 1026.04 | 69 | 1035.27 | 69 | 1038.26 | 66.24 | 1051.03 | 62.94 | 1093.46 | 61 |
| 1342.69 | 59 | 1392.92 | 60 | 1420.28 | 62 | 1483.85 | 63.8 | 1484.32 | 64 |
| 1516.03 | 67 | 1538.07 | 68.72 | 1691.13 | 70.33 | 2000.01 | 70.66 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .2 | 1051.03 | .11 | 1420.28 | .2 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 1051.03 | 1420.28 | 100 | 100 | 100 | .1 | .3 |

CROSS SECTION OUTPUT Profile #50yr

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 62.72 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.00 | Wt. n-Val. | | 0.110 | 0.200 |
| W.S. Elev (ft) | 62.72 | Reach Len. (ft) | 100.00 | 100.00 | 100.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 918.23 | 9.10 |
| E.G. Slope (ft/ft) | 0.000290 | Area (sq ft) | | 918.23 | 9.10 |
| Q Total (cfs) | 391.90 | Flow (cfs) | | 391.32 | 0.58 |
| Top Width (ft) | 389.74 | Top Width (ft) | | 364.39 | 25.35 |
| Vel Total (ft/s) | 0.42 | Avg. Vel. (ft/s) | | 0.43 | 0.06 |
| Max Chl Dpth (ft) | 3.72 | Hydr. Depth (ft) | | 2.52 | 0.36 |
| Conv. Total (cfs) | 22997.7 | Conv. (cfs) | | 22963.6 | 34.1 |
| Length Wtd. (ft) | 100.00 | Wetted Per. (ft) | | 364.52 | 25.36 |
| Min Ch El (ft) | 59.00 | Shear (lb/sq ft) | | 0.05 | 0.01 |
| Alpha | 1.02 | Stream Power (lb/ft s) | | 0.02 | 0.00 |
| Frctn Loss (ft) | 0.03 | Cum Volume (acre-ft) | 2.48 | 2.91 | 0.07 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 1.32 | 1.22 | 0.11 |

CROSS SECTION OUTPUT Profile #100yr

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 63.40 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.00 | Wt. n-Val. | 0.200 | 0.110 | 0.200 |
| W.S. Elev (ft) | 63.40 | Reach Len. (ft) | 100.00 | 100.00 | 100.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 0.40 | 1168.62 | 34.48 |
| E.G. Slope (ft/ft) | 0.000180 | Area (sq ft) | 0.40 | 1168.62 | 34.48 |
| Q Total (cfs) | 459.25 | Flow (cfs) | 0.01 | 456.53 | 2.71 |
| Top Width (ft) | 420.37 | Top Width (ft) | 1.77 | 369.25 | 49.35 |
| Vel Total (ft/s) | 0.38 | Avg. Vel. (ft/s) | 0.04 | 0.39 | 0.08 |
| Max Chl Dpth (ft) | 4.40 | Hydr. Depth (ft) | 0.23 | 3.16 | 0.70 |
| Conv. Total (cfs) | 34223.3 | Conv. (cfs) | 1.1 | 34020.5 | 201.6 |
| Length Wtd. (ft) | 100.00 | Wetted Per. (ft) | 1.83 | 369.39 | 49.37 |
| Min Ch El (ft) | 59.00 | Shear (lb/sq ft) | 0.00 | 0.04 | 0.01 |
| Alpha | 1.04 | Stream Power (lb/ft s) | 0.00 | 0.01 | 0.00 |
| Frctn Loss (ft) | 0.02 | Cum Volume (acre-ft) | 3.42 | 3.75 | 0.16 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 1.37 | 1.23 | 0.15 |

CROSS SECTION

RIVER: 414
REACH: LAKE-B RS: 400.000

INPUT
Description:
Station Elevation Data num= 44

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 96 | 203.07 | 97 | 302.29 | 97 | 308.51 | 94.97 | 334.14 | 94.84 |
| 340.14 | 95.62 | 345.21 | 95.57 | 352.63 | 94.74 | 378.73 | 95 | 407.32 | 94 |
| 488.78 | 94 | 494.78 | 95 | 564.6 | 93 | 582.33 | 92 | 632.68 | 91.56 |
| 713.82 | 87 | 741.25 | 87 | 779.73 | 82 | 856.96 | 78 | 926 | 75.73 |
| 1023.34 | 69.73 | 1036.87 | 68 | 1044.46 | 68 | 1168.28 | 66.47 | 1174.95 | 69 |
| 1193.19 | 66 | 1218.03 | 68.58 | 1227.28 | 63 | 1346.96 | 60 | 1493.03 | 61.44 |
| 1544.28 | 60 | 1633.8 | 60.33 | 1697.2 | 61 | 1709.79 | 62 | 1802.2 | 59.77 |
| 1829.95 | 60 | 1850.66 | 59.16 | 1857.59 | 60 | 1910.82 | 60 | 1911.55 | 61.68 |
| 1937.96 | 62 | 1971.3 | 66.16 | 1990.38 | 67.24 | 2000 | 70.66 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .2 | 1709.79 | .11 | 1911.55 | .2 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 1709.79 | 1911.55 | 100 | 100 | 100 | .1 | .3 |

CROSS SECTION OUTPUT Profile #50yr

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 62.69 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.00 | Wt. n-Val. | 0.200 | 0.110 | 0.200 |
| W.S. Elev (ft) | 62.69 | Reach Len. (ft) | 100.00 | 100.00 | 100.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 901.49 | 474.72 | 24.29 |
| E.G. Slope (ft/ft) | 0.000324 | Area (sq ft) | 901.49 | 474.72 | 24.29 |
| Q Total (cfs) | 391.90 | Flow (cfs) | 185.94 | 203.26 | 2.70 |
| Top Width (ft) | 703.74 | Top Width (ft) | 470.06 | 201.76 | 31.92 |
| Vel Total (ft/s) | 0.28 | Avg. Vel. (ft/s) | 0.21 | 0.43 | 0.11 |
| Max Chl Dpth (ft) | 3.53 | Hydr. Depth (ft) | 1.92 | 2.35 | 0.76 |
| Conv. Total (cfs) | 21787.1 | Conv. (cfs) | 10337.1 | 11299.7 | 150.3 |
| Length Wtd. (ft) | 100.00 | Wetted Per. (ft) | 470.17 | 202.96 | 31.97 |
| Min Ch El (ft) | 59.16 | Shear (lb/sq ft) | 0.04 | 0.05 | 0.02 |
| Alpha | 1.47 | Stream Power (lb/ft s) | 0.01 | 0.02 | 0.00 |
| Frctn Loss (ft) | 0.04 | Cum Volume (acre-ft) | 1.44 | 1.31 | 0.03 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 0.78 | 0.57 | 0.04 |

CROSS SECTION OUTPUT Profile #100yr

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 63.38 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.00 | Wt. n-Val. | 0.200 | 0.110 | 0.200 |
| W.S. Elev (ft) | 63.38 | Reach Len. (ft) | 100.00 | 100.00 | 100.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 1233.79 | 614.43 | 48.32 |
| E.G. Slope (ft/ft) | 0.000173 | Area (sq ft) | 1233.79 | 614.43 | 48.32 |
| Q Total (cfs) | 459.25 | Flow (cfs) | 225.20 | 228.47 | 5.58 |
| Top Width (ft) | 722.37 | Top Width (ft) | 483.14 | 201.76 | 37.47 |
| Vel Total (ft/s) | 0.24 | Avg. Vel. (ft/s) | 0.18 | 0.37 | 0.12 |
| Max Chl Dpth (ft) | 4.22 | Hydr. Depth (ft) | 2.55 | 3.05 | 1.29 |
| Conv. Total (cfs) | 34915.1 | Conv. (cfs) | 17120.8 | 17369.7 | 424.6 |
| Length Wtd. (ft) | 100.00 | Wetted Per. (ft) | 483.36 | 202.96 | 37.56 |
| Min Ch El (ft) | 59.16 | Shear (lb/sq ft) | 0.03 | 0.03 | 0.01 |
| Alpha | 1.45 | Stream Power (lb/ft s) | 0.01 | 0.01 | 0.00 |
| Frctn Loss (ft) | 0.02 | Cum Volume (acre-ft) | 2.00 | 1.71 | 0.06 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 0.81 | 0.57 | 0.05 |

CROSS SECTION

RIVER: 414
REACH: LAKE-B RS: 300.000

INPUT
Description:
Station Elevation Data num= 48

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 96 | 174.24 | 96.37 | 216.31 | 97 | 303.33 | 96 | 370.81 | 96 |
| 372.44 | 95 | 451.08 | 94.59 | 459.52 | 94 | 473.83 | 94 | 478.93 | 94.45 |
| 576.55 | 93.47 | 581.13 | 94 | 619.45 | 92 | 637.76 | 89 | 655.89 | 88 |
| 684.6 | 88 | 712.16 | 86.96 | 824.88 | 82 | 832.38 | 81 | 883.71 | 79 |
| 901.58 | 76 | 916.13 | 75.41 | 947.12 | 76 | 958.78 | 74 | 1015.95 | 72.58 |
| 1018.95 | 72 | 1072.26 | 71 | 1078.78 | 69.99 | 1240.9 | 69 | 1263 | 67.02 |
| 1268.22 | 64 | 1271.76 | 63 | 1349.47 | 60 | 1417.9 | 60 | 1435.17 | 61 |
| 1492.44 | 62.66 | 1503.58 | 62 | 1533.7 | 62 | 1617.8 | 60 | 1710.81 | 59.48 |
| 1743.67 | 59.15 | 1767.63 | 60 | 1783.01 | 60 | 1786.91 | 61.68 | 1787.24 | 62 |
| 1810.96 | 65.8 | 2000.01 | 65.89 | 2000.01 | 70.66 | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .2 | 1492.44 | .11 | 1787.24 | .2 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 1492.44 | 1787.24 | 0 | 0 | 0 | .1 | .3 |

CROSS SECTION OUTPUT Profile #50yr

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 62.65 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.00 | Wt. n-Val. | 0.200 | 0.110 | 0.200 |
| W.S. Elev (ft) | 62.65 | Reach Len. (ft) | | | |
| Crit W.S. (ft) | 60.21 | Flow Area (sq ft) | 356.39 | 663.92 | 1.32 |

| | | | | | |
|---|---|---|---|---|---|
| E.G. Slope (ft/ft) | 0.000419 | Area (sq ft) | 356.39 | 663.92 | 1.32 |
| Q Total (cfs) | 391.90 | Flow (cfs) | 76.75 | 315.05 | 0.09 |
| Top Width (ft) | 509.96 | Top Width (ft) | 211.27 | 294.63 | 4.06 |
| Vel Total (ft/s) | 0.38 | Avg. Vel. (ft/s) | 0.22 | 0.47 | 0.07 |
| Max Chl Dpth (ft) | 3.50 | Hydr. Depth (ft) | 1.69 | 2.25 | 0.33 |
| Conv. Total (cfs) | 19151.6 | Conv. (cfs) | 3750.9 | 15396.1 | 4.6 |
| Length Wtd. (ft) | | Wetted Per. (ft) | 211.37 | 295.17 | 4.11 |
| Min Ch El (ft) | 59.15 | Shear (lb/sq ft) | 0.04 | 0.06 | 0.01 |
| Alpha | 1.29 | Stream Power (lb/ft s) | 0.01 | 0.03 | 0.00 |
| Frctn Loss (ft) | | Cum Volume (acre-ft) | | | |
| C & E Loss (ft) | | Cum SA (acres) | | | |

Warning: Divided flow computed for this cross-section.

CROSS SECTION OUTPUT  Profile #100yr

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 63.36 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.00 | Wt. n-Val. | 0.200 | 0.110 | 0.200 |
| W.S. Elev (ft) | 63.36 | Reach Len. (ft) | | | |
| Crit W.S. (ft) | 60.27 | Flow Area (sq ft) | 511.71 | 873.22 | 5.77 |
| E.G. Slope (ft/ft) | 0.000220 | Area (sq ft) | 511.71 | 873.22 | 5.77 |
| Q Total (cfs) | 459.25 | Flow (cfs) | 98.36 | 360.40 | 0.49 |
| Top Width (ft) | 525.24 | Top Width (ft) | 221.95 | 294.80 | 8.49 |
| Vel Total (ft/s) | 0.33 | Avg. Vel. (ft/s) | 0.19 | 0.41 | 0.08 |
| Max Chl Dpth (ft) | 4.21 | Hydr. Depth (ft) | 2.31 | 2.96 | 0.68 |
| Conv. Total (cfs) | 30964.1 | Conv. (cfs) | 6631.6 | 24299.6 | 32.9 |
| Length Wtd. (ft) | | Wetted Per. (ft) | 222.12 | 295.34 | 8.60 |
| Min Ch El (ft) | 59.15 | Shear (lb/sq ft) | 0.03 | 0.04 | 0.01 |
| Alpha | 1.30 | Stream Power (lb/ft s) | 0.01 | 0.02 | 0.00 |
| Frctn Loss (ft) | | Cum Volume (acre-ft) | | | |
| C & E Loss (ft) | | Cum SA (acres) | | | |

SUMMARY OF MANNING'S N VALUES

River:414

| Reach | River Sta. | n1 | n2 | n3 |
|---|---|---|---|---|
| LAKE-B | 2000.000 | .2 | .11 | .2 |
| LAKE-B | 1900.000 | .2 | .11 | .2 |
| LAKE-B | 1800.000 | .2 | .11 | .2 |
| LAKE-B | 1700.000 | .2 | .11 | .2 |
| LAKE-B | 1600.000 | .2 | .11 | .2 |
| LAKE-B | 1500.000 | .2 | .11 | .2 |
| LAKE-B | 1400.000 | .2 | .11 | .2 |
| LAKE-B | 1300.000 | .2 | .11 | .2 |
| LAKE-B | 1200.000 | .2 | .11 | .2 |
| LAKE-B | 1140 | Bridge | | |
| LAKE-B | 1000.00* | .2 | .11 | .2 |
| LAKE-B | 700.000 | .2 | .11 | .2 |
| LAKE-B | 600.000 | .2 | .11 | .2 |
| LAKE-B | 500.000 | .2 | .11 | .2 |
| LAKE-B | 400.000 | .2 | .11 | .2 |
| LAKE-B | 300.000 | .2 | .11 | .2 |

SUMMARY OF REACH LENGTHS

River: 414

| Reach | River Sta. | Left | Channel | Right |
|---|---|---|---|---|
| LAKE-B | 2000.000 | 100 | 100 | 100 |
| LAKE-B | 1900.000 | 100 | 100 | 100 |
| LAKE-B | 1800.000 | 100 | 100 | 100 |
| LAKE-B | 1700.000 | 100 | 100 | 100 |
| LAKE-B | 1600.000 | 100 | 100 | 100 |
| LAKE-B | 1500.000 | 100 | 100 | 100 |
| LAKE-B | 1400.000 | 100 | 100 | 100 |

| | | | | |
|---|---|---|---|---|
| LAKE-B | 1300.000 | 100 | 100 | 100 |
| LAKE-B | 1200.000 | 200 | 200 | 200 |
| LAKE-B | 1140 | Bridge | | |
| LAKE-B | 1000.00* | 300 | 300 | 300 |
| LAKE-B | 700.000 | 100 | 100 | 100 |
| LAKE-B | 600.000 | 100 | 100 | 100 |
| LAKE-B | 500.000 | 100 | 100 | 100 |
| LAKE-B | 400.000 | 100 | 100 | 100 |
| LAKE-B | 300.000 | 0 | 0 | 0 |

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: 414

| Reach | River Sta. | Contr. | Expan. |
|---|---|---|---|
| LAKE-B | 2000.000 | .1 | .3 |
| LAKE-B | 1900.000 | .1 | .3 |
| LAKE-B | 1800.000 | .1 | .3 |
| LAKE-B | 1700.000 | .1 | .3 |
| LAKE-B | 1600.000 | .1 | .3 |
| LAKE-B | 1500.000 | .1 | .3 |
| LAKE-B | 1400.000 | .1 | .3 |
| LAKE-B | 1300.000 | .1 | .3 |
| LAKE-B | 1200.000 | .3 | .5 |
| LAKE-B | 1140 | Bridge | |
| LAKE-B | 1000.00* | .3 | .5 |
| LAKE-B | 700.000 | .3 | .5 |
| LAKE-B | 600.000 | .3 | .5 |
| LAKE-B | 500.000 | .1 | .3 |
| LAKE-B | 400.000 | .1 | .3 |
| LAKE-B | 300.000 | .1 | .3 |

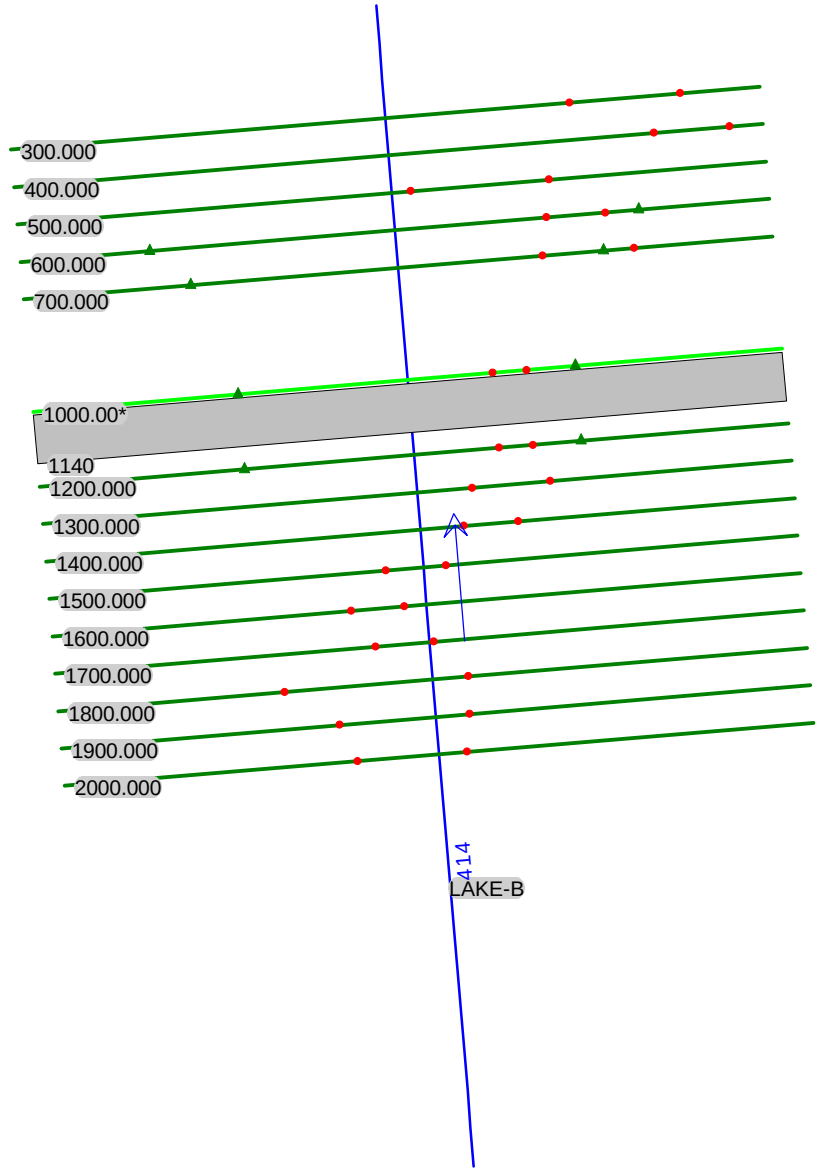
# Proposed Condition

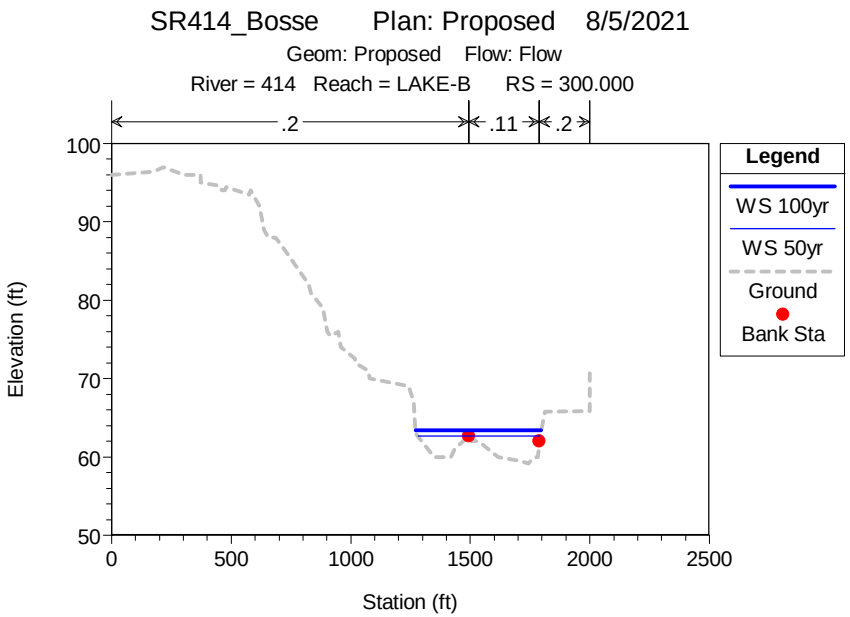
HEC-RAS Plan: PR River: 414 Reach: LAKE-B

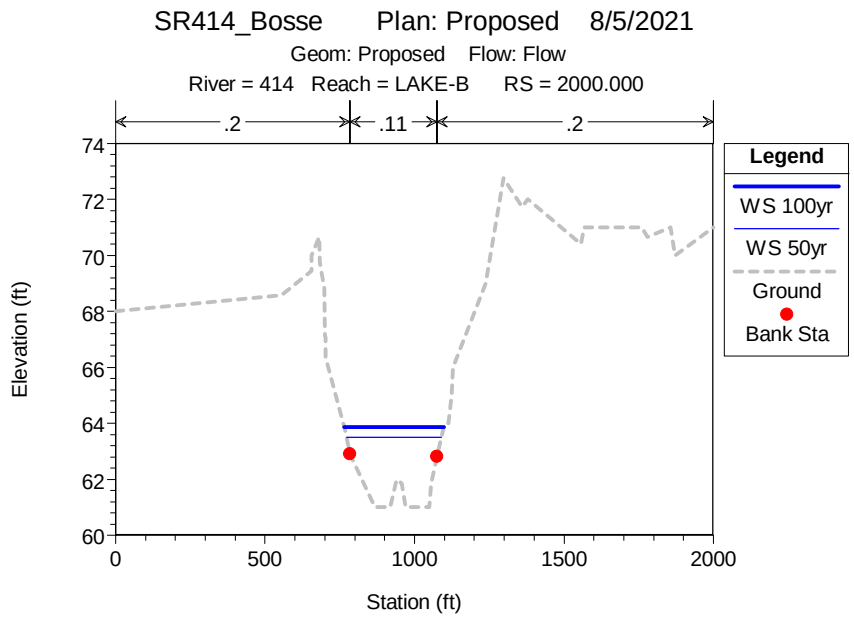
| Reach | River Sta | Profile | Q Total | Min Ch El | W.S. Elev | Crit W.S. | E.G. Elev | E.G. Slope | Vel Chnl | Flow Area | Top Width | Froude # Chl |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft) | (ft) | (ft/ft) | (ft/s) | (sq ft) | (ft) | |
| LAKE-B | 2000.000 | 10yr | 245.88 | 61.00 | 63.05 | | 63.06 | 0.000873 | 0.54 | 458.08 | 300.09 | 0.08 |
| LAKE-B | 2000.000 | 25yr | 325.41 | 61.00 | 63.26 | | 63.26 | 0.001019 | 0.63 | 519.51 | 308.01 | 0.08 |
| LAKE-B | 2000.000 | 50yr | 391.90 | 61.00 | 63.49 | | 63.50 | 0.000974 | 0.67 | 592.53 | 317.16 | 0.08 |
| LAKE-B | 2000.000 | 100yr | 459.25 | 61.00 | 63.86 | | 63.86 | 0.000757 | 0.66 | 711.98 | 332.54 | 0.08 |
| LAKE-B | 2000.000 | 500yr | 579.00 | 61.00 | 64.95 | | 64.95 | 0.000328 | 0.56 | 1108.72 | 385.76 | 0.05 |
| | | | | | | | | | | | | |
| LAKE-B | 1900.000 | 10yr | 245.88 | 61.00 | 62.96 | | 62.96 | 0.001125 | 0.54 | 466.86 | 384.52 | 0.08 |
| LAKE-B | 1900.000 | 25yr | 325.41 | 61.00 | 63.14 | | 63.15 | 0.001245 | 0.62 | 540.00 | 391.58 | 0.09 |
| LAKE-B | 1900.000 | 50yr | 391.90 | 61.00 | 63.39 | | 63.39 | 0.001079 | 0.64 | 636.64 | 401.14 | 0.09 |
| LAKE-B | 1900.000 | 100yr | 459.25 | 61.00 | 63.78 | | 63.79 | 0.000735 | 0.61 | 798.78 | 416.67 | 0.07 |
| LAKE-B | 1900.000 | 500yr | 579.00 | 61.00 | 64.92 | | 64.92 | 0.000268 | 0.49 | 1311.16 | 508.92 | 0.05 |
| | | | | | | | | | | | | |
| LAKE-B | 1800.000 | 10yr | 245.88 | 61.00 | 62.77 | | 62.78 | 0.003263 | 0.73 | 337.48 | 367.91 | 0.13 |
| LAKE-B | 1800.000 | 25yr | 325.41 | 61.00 | 62.95 | | 62.96 | 0.003263 | 0.81 | 402.82 | 376.13 | 0.14 |
| LAKE-B | 1800.000 | 50yr | 391.90 | 61.00 | 63.23 | | 63.24 | 0.002228 | 0.77 | 512.08 | 389.49 | 0.12 |
| LAKE-B | 1800.000 | 100yr | 459.25 | 61.00 | 63.69 | | 63.70 | 0.001187 | 0.66 | 695.02 | 410.88 | 0.09 |
| LAKE-B | 1800.000 | 500yr | 579.00 | 61.00 | 64.89 | | 64.89 | 0.000335 | 0.46 | 1263.67 | 512.64 | 0.05 |
| | | | | | | | | | | | | |
| LAKE-B | 1700.000 | 10yr | 245.88 | 61.00 | 61.88 | | 61.96 | 0.045030 | 2.27 | 108.14 | 153.04 | 0.48 |
| LAKE-B | 1700.000 | 25yr | 325.41 | 61.00 | 62.28 | | 62.33 | 0.016182 | 1.81 | 217.59 | 367.78 | 0.31 |
| LAKE-B | 1700.000 | 50yr | 391.90 | 61.00 | 62.95 | | 62.97 | 0.003396 | 1.15 | 474.77 | 397.30 | 0.15 |
| LAKE-B | 1700.000 | 100yr | 459.25 | 61.00 | 63.56 | | 63.57 | 0.001425 | 0.90 | 753.53 | 467.77 | 0.10 |
| LAKE-B | 1700.000 | 500yr | 579.00 | 61.00 | 64.85 | | 64.86 | 0.000397 | 0.64 | 1401.18 | 550.65 | 0.06 |
| | | | | | | | | | | | | |
| LAKE-B | 1600.000 | 10yr | 245.88 | 59.26 | 61.79 | | 61.80 | 0.000428 | 0.51 | 674.02 | 352.83 | 0.06 |
| LAKE-B | 1600.000 | 25yr | 325.41 | 59.26 | 62.18 | | 62.18 | 0.000451 | 0.58 | 831.11 | 474.82 | 0.06 |
| LAKE-B | 1600.000 | 50yr | 391.90 | 59.26 | 62.90 | | 62.90 | 0.000261 | 0.51 | 1175.74 | 483.21 | 0.05 |
| LAKE-B | 1600.000 | 100yr | 459.25 | 59.26 | 63.52 | | 63.53 | 0.000188 | 0.48 | 1481.88 | 496.45 | 0.04 |
| LAKE-B | 1600.000 | 500yr | 579.00 | 59.26 | 64.83 | | 64.84 | 0.000103 | 0.43 | 2152.70 | 526.38 | 0.03 |
| | | | | | | | | | | | | |
| LAKE-B | 1500.000 | 10yr | 245.88 | 59.10 | 61.77 | | 61.77 | 0.000163 | 0.31 | 1327.83 | 726.02 | 0.04 |
| LAKE-B | 1500.000 | 25yr | 325.41 | 59.10 | 62.15 | | 62.16 | 0.000159 | 0.34 | 1608.76 | 738.88 | 0.04 |
| LAKE-B | 1500.000 | 50yr | 391.90 | 59.10 | 62.88 | | 62.88 | 0.000094 | 0.30 | 2156.48 | 763.32 | 0.03 |
| LAKE-B | 1500.000 | 100yr | 459.25 | 59.10 | 63.51 | | 63.51 | 0.000069 | 0.29 | 2643.47 | 784.42 | 0.03 |
| LAKE-B | 1500.000 | 500yr | 579.00 | 59.10 | 64.83 | | 64.83 | 0.000039 | 0.26 | 3704.85 | 828.54 | 0.02 |
| | | | | | | | | | | | | |
| LAKE-B | 1400.000 | 10yr | 245.88 | 59.00 | 61.75 | | 61.75 | 0.000326 | 0.44 | 796.85 | 483.70 | 0.05 |
| LAKE-B | 1400.000 | 25yr | 325.41 | 59.00 | 62.13 | | 62.13 | 0.000382 | 0.53 | 1003.33 | 569.19 | 0.06 |
| LAKE-B | 1400.000 | 50yr | 391.90 | 59.00 | 62.87 | | 62.87 | 0.000205 | 0.45 | 1430.95 | 586.19 | 0.04 |
| LAKE-B | 1400.000 | 100yr | 459.25 | 59.00 | 63.50 | | 63.50 | 0.000143 | 0.42 | 1806.81 | 600.73 | 0.04 |
| LAKE-B | 1400.000 | 500yr | 579.00 | 59.00 | 64.82 | | 64.82 | 0.000078 | 0.37 | 2682.56 | 798.65 | 0.03 |
| | | | | | | | | | | | | |
| LAKE-B | 1300.000 | 10yr | 245.88 | 59.00 | 61.72 | | 61.73 | 0.000170 | 0.34 | 995.19 | 476.45 | 0.04 |
| LAKE-B | 1300.000 | 25yr | 325.41 | 59.00 | 62.10 | | 62.11 | 0.000183 | 0.38 | 1180.50 | 499.72 | 0.04 |
| LAKE-B | 1300.000 | 50yr | 391.90 | 59.00 | 62.85 | | 62.86 | 0.000115 | 0.35 | 1561.76 | 516.54 | 0.03 |
| LAKE-B | 1300.000 | 100yr | 459.25 | 59.00 | 63.49 | | 63.49 | 0.000089 | 0.34 | 1895.40 | 530.81 | 0.03 |
| LAKE-B | 1300.000 | 500yr | 579.00 | 59.00 | 64.82 | | 64.82 | 0.000054 | 0.32 | 2629.10 | 590.82 | 0.02 |
| | | | | | | | | | | | | |
| LAKE-B | 1200.000 | 10yr | 245.88 | 59.00 | 61.71 | 59.56 | 61.71 | 0.000193 | 0.35 | 1412.13 | 897.30 | 0.04 |
| LAKE-B | 1200.000 | 25yr | 325.41 | 59.00 | 62.09 | 59.64 | 62.09 | 0.000179 | 0.37 | 1733.33 | 917.20 | 0.04 |
| LAKE-B | 1200.000 | 50yr | 391.90 | 59.00 | 62.84 | 59.69 | 62.85 | 0.000096 | 0.32 | 2381.84 | 983.08 | 0.03 |
| LAKE-B | 1200.000 | 100yr | 459.25 | 59.00 | 63.48 | 59.75 | 63.49 | 0.000068 | 0.30 | 2936.74 | 1005.60 | 0.03 |
| LAKE-B | 1200.000 | 500yr | 579.00 | 59.00 | 64.81 | 59.83 | 64.81 | 0.000037 | 0.26 | 4110.18 | 1078.44 | 0.02 |
| | | | | | | | | | | | | |
| LAKE-B | 1140 | | Bridge | | | | | | | | | |
| | | | | | | | | | | | | |
| LAKE-B | 1000.00* | 10yr | 245.88 | 59.00 | 61.64 | | 61.64 | 0.000217 | 0.37 | 1357.75 | 895.99 | 0.04 |
| LAKE-B | 1000.00* | 25yr | 325.41 | 59.00 | 62.03 | | 62.03 | 0.000197 | 0.38 | 1681.22 | 907.36 | 0.04 |
| LAKE-B | 1000.00* | 50yr | 391.90 | 59.00 | 62.81 | | 62.81 | 0.000099 | 0.32 | 2352.92 | 981.89 | 0.03 |
| LAKE-B | 1000.00* | 100yr | 459.25 | 59.00 | 63.46 | | 63.46 | 0.000069 | 0.30 | 2915.54 | 1004.74 | 0.03 |
| LAKE-B | 1000.00* | 500yr | 579.00 | 59.00 | 64.80 | | 64.80 | 0.000037 | 0.26 | 4097.68 | 1072.16 | 0.02 |
| | | | | | | | | | | | | |
| LAKE-B | 700.000 | 10yr | 245.88 | 59.13 | 61.52 | | 61.52 | 0.000949 | 0.61 | 602.47 | 559.57 | 0.08 |
| LAKE-B | 700.000 | 25yr | 325.41 | 59.13 | 61.92 | | 61.92 | 0.000733 | 0.61 | 796.81 | 587.70 | 0.07 |
| LAKE-B | 700.000 | 50yr | 391.90 | 59.13 | 62.76 | | 62.76 | 0.000298 | 0.49 | 1214.05 | 606.05 | 0.05 |
| LAKE-B | 700.000 | 100yr | 459.25 | 59.13 | 63.43 | | 63.43 | 0.000193 | 0.45 | 1551.10 | 619.58 | 0.04 |
| LAKE-B | 700.000 | 500yr | 579.00 | 59.13 | 64.78 | | 64.78 | 0.000097 | 0.39 | 2258.24 | 654.82 | 0.03 |
| | | | | | | | | | | | | |
| LAKE-B | 600.000 | 10yr | 245.88 | 59.00 | 61.46 | | 61.46 | 0.000465 | 0.43 | 915.95 | 719.73 | 0.06 |
| LAKE-B | 600.000 | 25yr | 325.41 | 59.00 | 61.87 | | 61.87 | 0.000369 | 0.44 | 1177.47 | 728.30 | 0.05 |
| LAKE-B | 600.000 | 50yr | 391.90 | 59.00 | 62.74 | | 62.74 | 0.000156 | 0.36 | 1732.53 | 746.36 | 0.04 |
| LAKE-B | 600.000 | 100yr | 459.25 | 59.00 | 63.41 | | 63.41 | 0.000105 | 0.33 | 2164.62 | 768.30 | 0.03 |
| LAKE-B | 600.000 | 500yr | 579.00 | 59.00 | 64.77 | | 64.77 | 0.000055 | 0.30 | 3050.14 | 813.23 | 0.02 |
| | | | | | | | | | | | | |
| LAKE-B | 500.000 | 10yr | 245.88 | 59.00 | 61.39 | | 61.39 | 0.001031 | 0.54 | 454.90 | 326.86 | 0.08 |
| LAKE-B | 500.000 | 25yr | 325.41 | 59.00 | 61.81 | | 61.82 | 0.000770 | 0.54 | 598.21 | 342.09 | 0.07 |

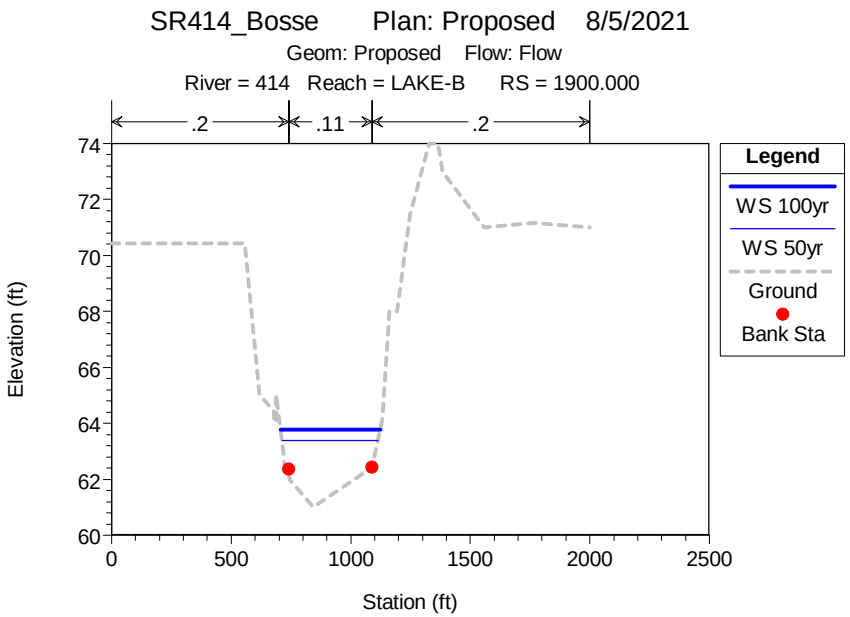
HEC-RAS Plan: PR River: 414 Reach: LAKE-B (Continued)

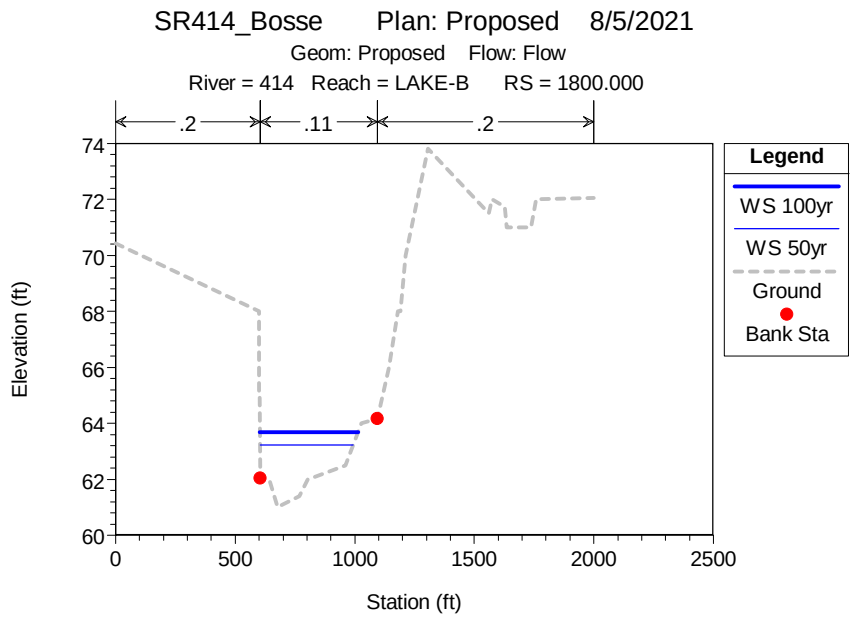
| Reach | River Sta | Profile | Q Total | Min Ch El | W.S. Elev | Crit W.S. | E.G. Elev | E.G. Slope | Vel Chnl | Flow Area | Top Width | Froude # Chl |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft) | (ft) | (ft/ft) | (ft/s) | (sq ft) | (ft) | |
| LAKE-B | 500.000 | 50yr | 391.90 | 59.00 | 62.72 | | 62.72 | 0.000290 | 0.43 | 927.32 | 389.74 | 0.05 |
| LAKE-B | 500.000 | 100yr | 459.25 | 59.00 | 63.40 | | 63.40 | 0.000180 | 0.39 | 1203.51 | 420.37 | 0.04 |
| LAKE-B | 500.000 | 500yr | 579.00 | 59.00 | 64.77 | | 64.77 | 0.000084 | 0.34 | 1802.47 | 448.45 | 0.03 |
| | | | | | | | | | | | | |
| LAKE-B | 400.000 | 10yr | 245.88 | 59.16 | 61.21 | | 61.22 | 0.003282 | 0.83 | 448.74 | 539.03 | 0.14 |
| LAKE-B | 400.000 | 25yr | 325.41 | 59.16 | 61.71 | | 61.72 | 0.001476 | 0.67 | 740.93 | 619.71 | 0.10 |
| LAKE-B | 400.000 | 50yr | 391.90 | 59.16 | 62.69 | | 62.69 | 0.000324 | 0.43 | 1400.50 | 703.74 | 0.05 |
| LAKE-B | 400.000 | 100yr | 459.25 | 59.16 | 63.38 | | 63.38 | 0.000173 | 0.37 | 1896.55 | 722.37 | 0.04 |
| LAKE-B | 400.000 | 500yr | 579.00 | 59.16 | 64.76 | | 64.76 | 0.000071 | 0.31 | 2901.34 | 735.70 | 0.03 |
| | | | | | | | | | | | | |
| LAKE-B | 300.000 | 10yr | 245.88 | 59.15 | 60.70 | 60.07 | 60.72 | 0.008462 | 1.19 | 241.87 | 294.92 | 0.22 |
| LAKE-B | 300.000 | 25yr | 325.41 | 59.15 | 61.55 | 60.16 | 61.56 | 0.001680 | 0.75 | 526.79 | 378.81 | 0.11 |
| LAKE-B | 300.000 | 50yr | 391.90 | 59.15 | 62.65 | 60.21 | 62.65 | 0.000419 | 0.47 | 1021.62 | 509.96 | 0.06 |
| LAKE-B | 300.000 | 100yr | 459.25 | 59.15 | 63.36 | 60.27 | 63.36 | 0.000220 | 0.41 | 1390.71 | 525.24 | 0.04 |
| LAKE-B | 300.000 | 500yr | 579.00 | 59.15 | 64.75 | 60.36 | 64.75 | 0.000091 | 0.34 | 2129.74 | 537.48 | 0.03 |

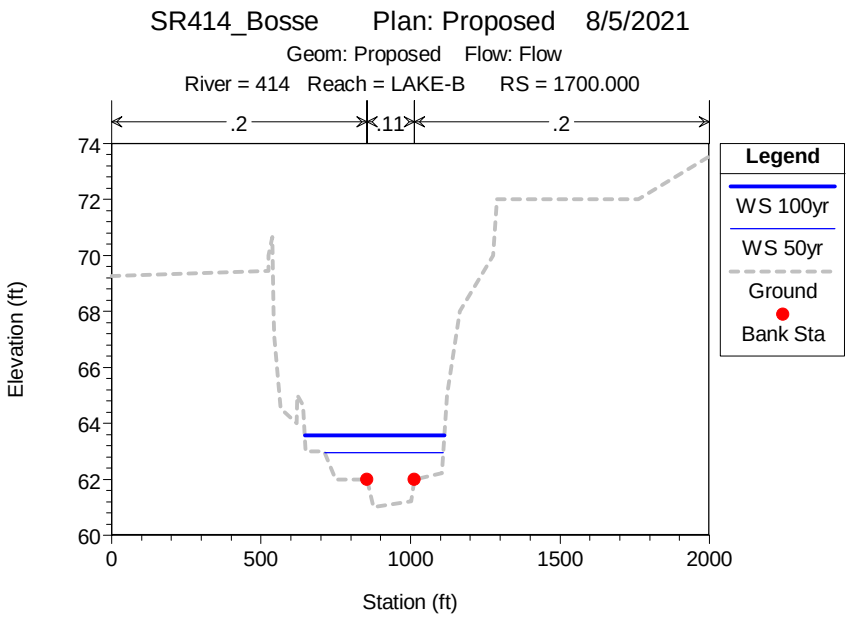

300.000
400.000
500.000
600.000
700.000
1000.00*
1140
1200.000
1300.000
1400.000
1500.000
1600.000
1700.000
1800.000
1900.000
2000.000
414
LAKE-B

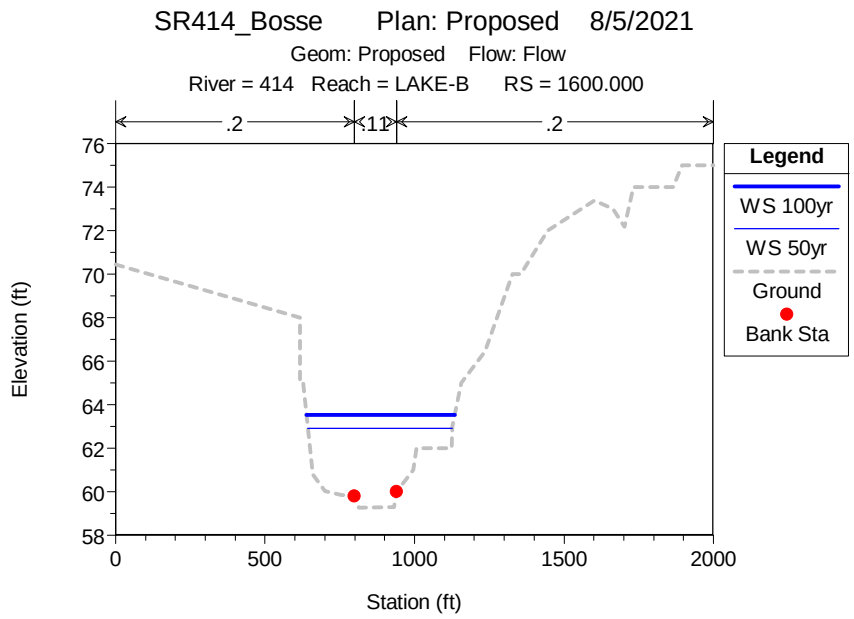

SR414_Bosse Plan: Proposed 8/5/2021
Geom: Proposed Flow: Flow
River = 414 Reach = LAKE-B RS = 300.000
.2
.11
.2
Legend
WS 100yr
WS 50yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

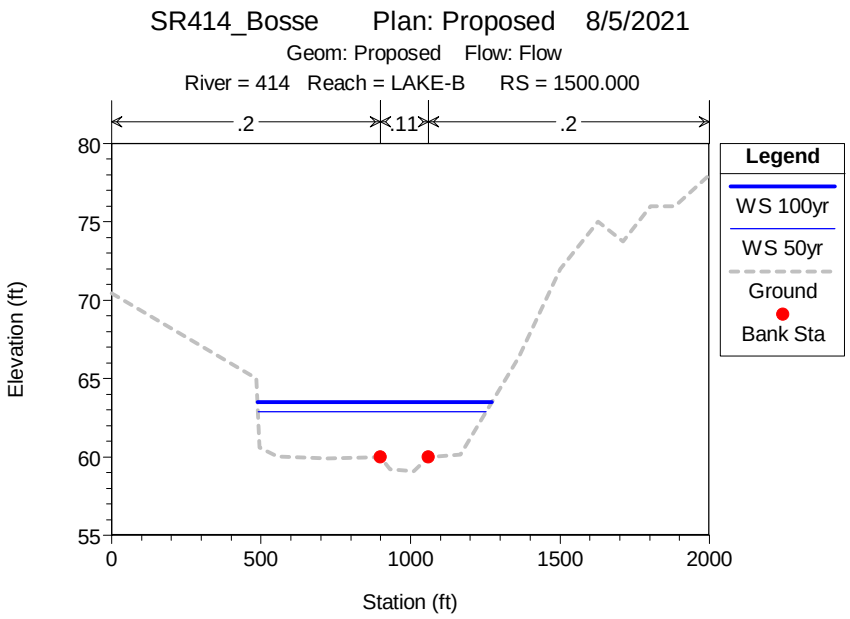

SR414_Bosse Plan: Proposed 8/5/2021
Geom: Proposed Flow: Flow
River = 414 Reach = LAKE-B RS = 2000.000
.2
.11
.2
Legend
WS 100yr
WS 50yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

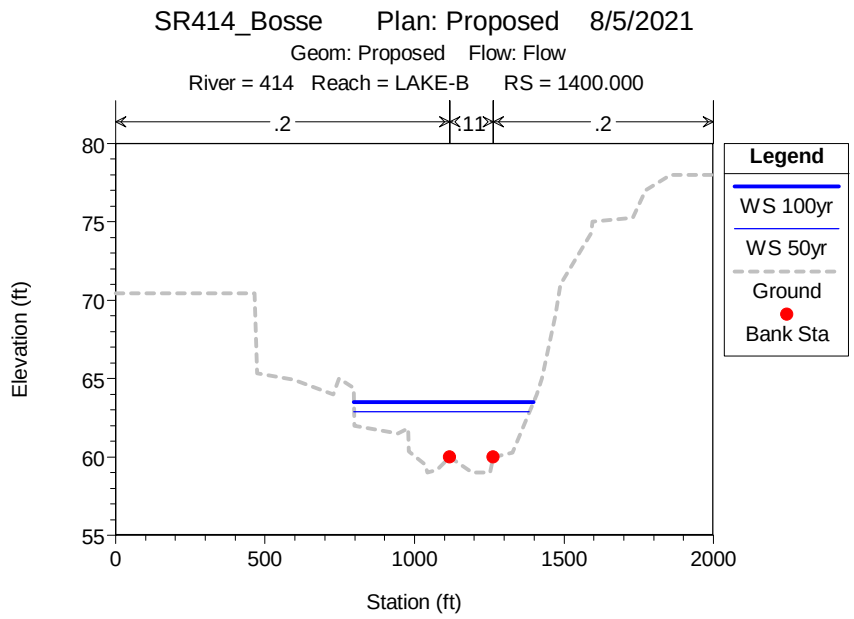

SR414_Bosse Plan: Proposed 8/5/2021
Geom: Proposed Flow: Flow
River = 414 Reach = LAKE-B RS = 1900.000
.2
.11
.2
Legend
WS 100yr
WS 50yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

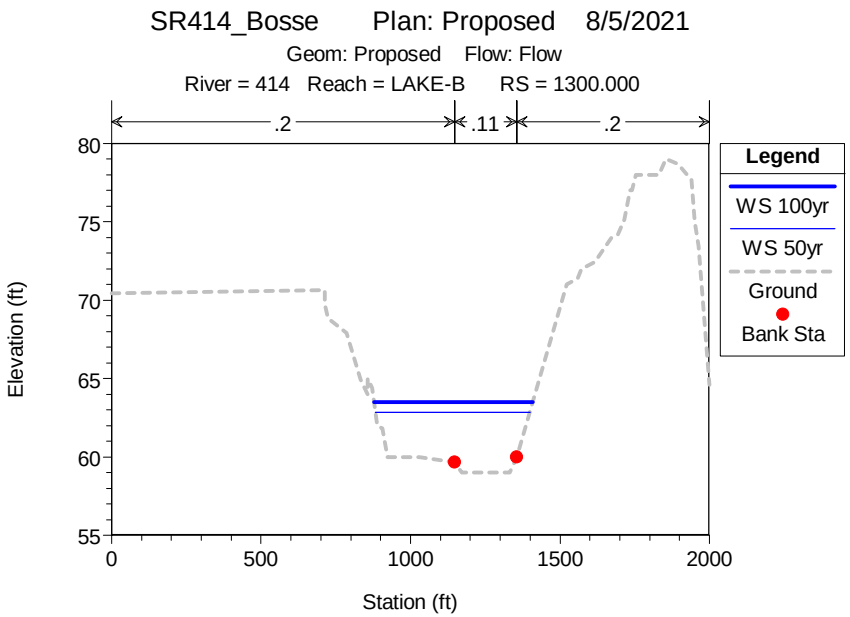

SR414_Bosse Plan: Proposed 8/5/2021
Geom: Proposed Flow: Flow
River = 414 Reach = LAKE-B RS = 1800.000
.2
.11
.2
Legend
WS 100yr
WS 50yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

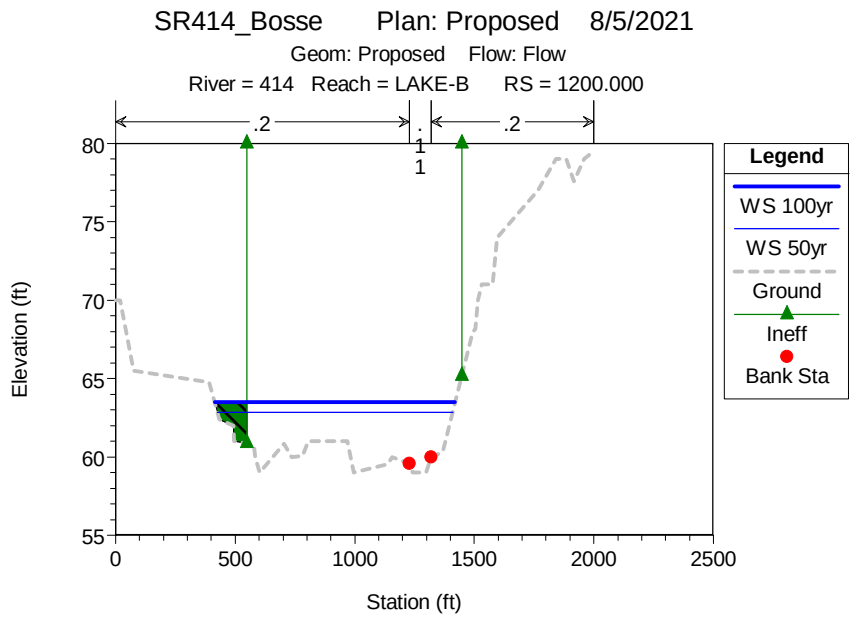

SR414_Bosse Plan: Proposed 8/5/2021
Geom: Proposed Flow: Flow
River = 414 Reach = LAKE-B RS = 1700.000
.2
.11
.2
Legend
WS 100yr
WS 50yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

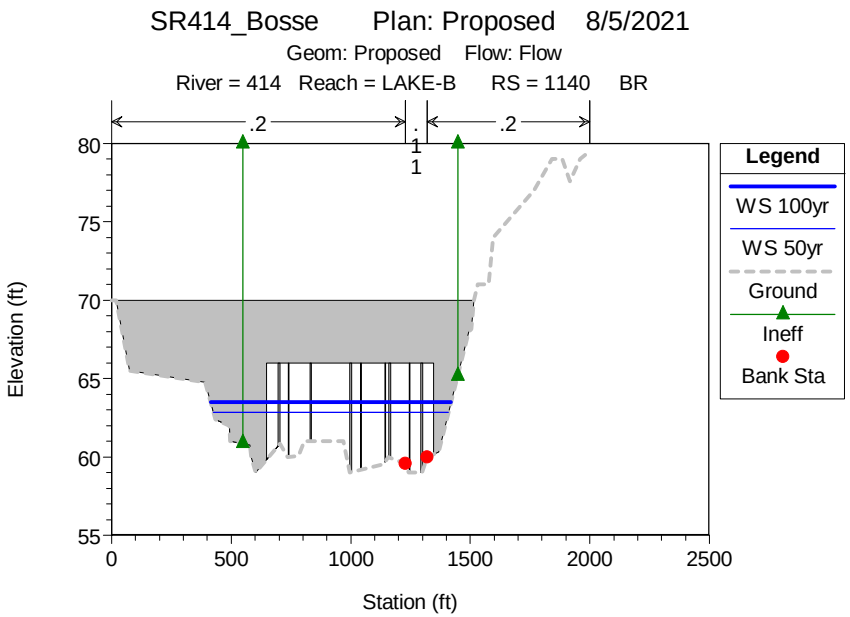

SR414_Bosse Plan: Proposed 8/5/2021
Geom: Proposed Flow: Flow
River = 414 Reach = LAKE-B RS = 1600.000
.2
.11
.2
Legend
WS 100yr
WS 50yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

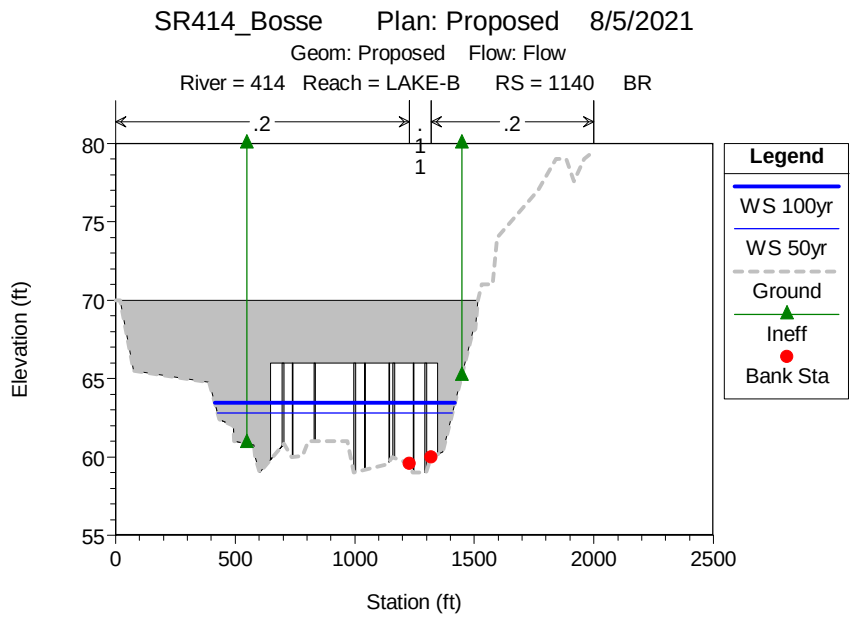

SR414_Bosse Plan: Proposed 8/5/2021
Geom: Proposed Flow: Flow
River = 414 Reach = LAKE-B RS = 1500.000
.2
.11
.2
Legend
WS 100yr
WS 50yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

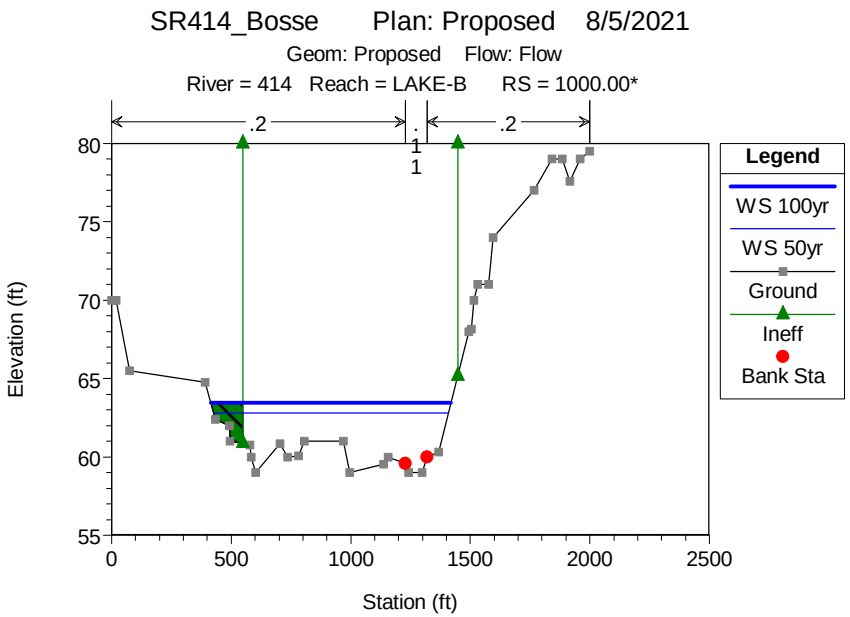

SR414_Bosse Plan: Proposed 8/5/2021
Geom: Proposed Flow: Flow
River = 414 Reach = LAKE-B RS = 1400.000
.2
.11
.2
Legend
WS 100yr
WS 50yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

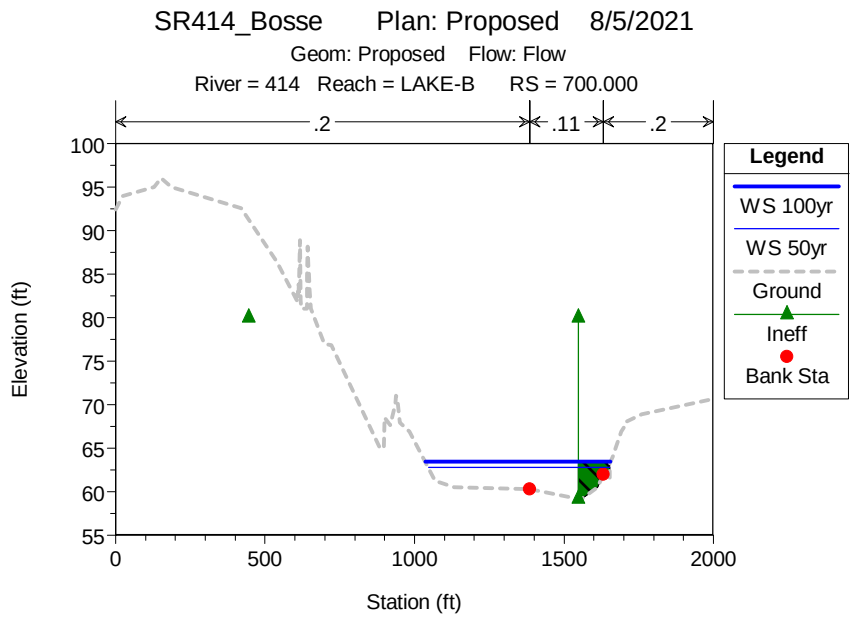

SR414_Bosse Plan: Proposed 8/5/2021
Geom: Proposed Flow: Flow
River = 414 Reach = LAKE-B RS = 1300.000
.2
.11
.2
Legend
WS 100yr
WS 50yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

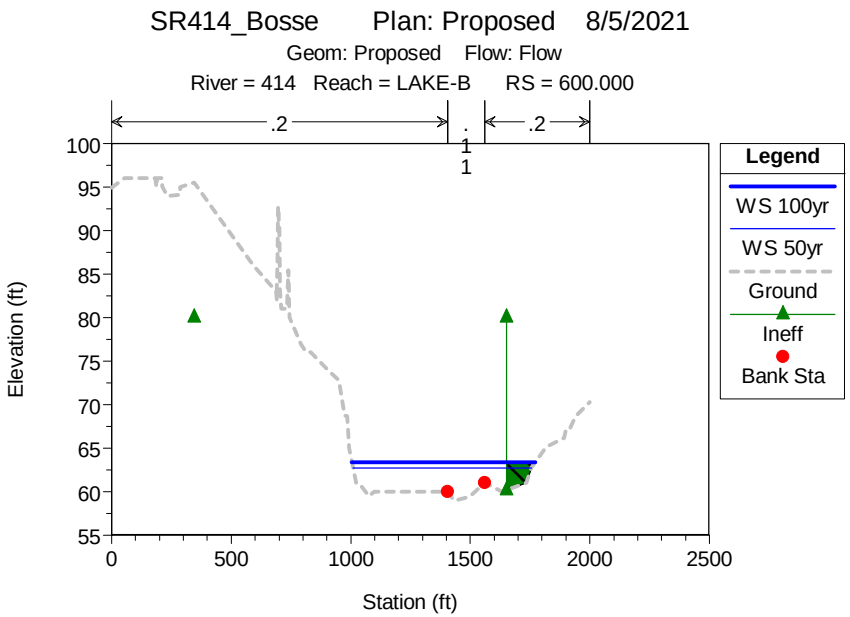

SR414_Bosse Plan: Proposed 8/5/2021
Geom: Proposed Flow: Flow
River = 414 Reach = LAKE-B RS = 1200.000
.2
.2
Legend
WS 100yr
WS 50yr
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

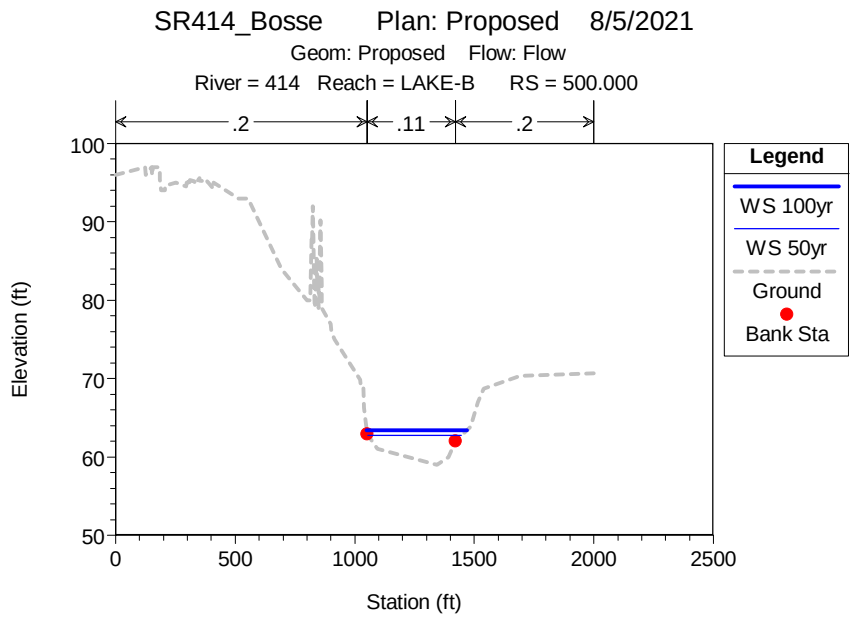

SR414_Bosse Plan: Proposed 8/5/2021
Geom: Proposed Flow: Flow
River = 414 Reach = LAKE-B RS = 1140 BR
.2
.2
Legend
WS 100yr
WS 50yr
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

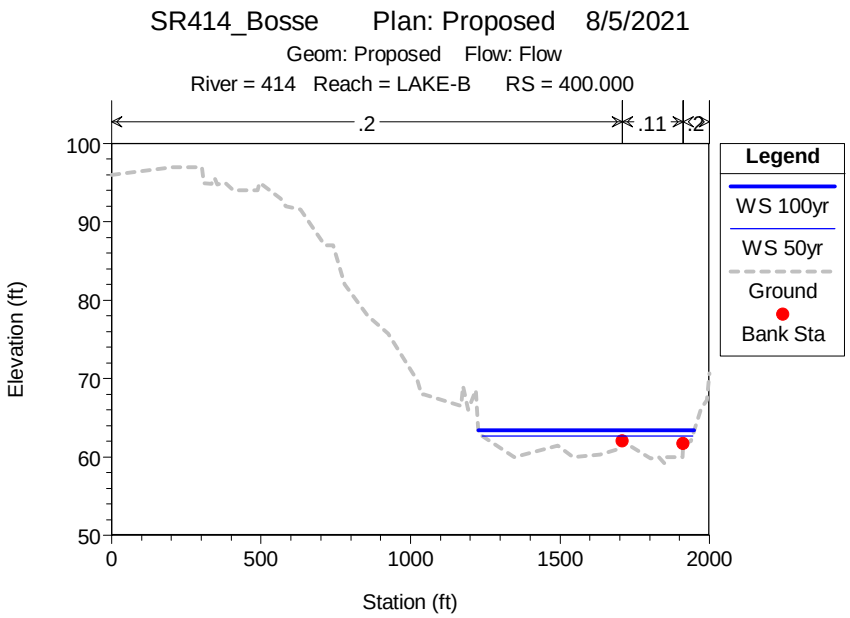

SR414_Bosse Plan: Proposed 8/5/2021
Geom: Proposed Flow: Flow
River = 414 Reach = LAKE-B RS = 1140 BR
.2
.2
Legend
WS 100yr
WS 50yr
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


SR414_Bosse Plan: Proposed 8/5/2021
Geom: Proposed Flow: Flow
River = 414 Reach = LAKE-B RS = 1000.00*
.2
.1
1
.2
Legend
WS 100yr
WS 50yr
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


SR414_Bosse Plan: Proposed 8/5/2021
Geom: Proposed Flow: Flow
River = 414 Reach = LAKE-B RS = 700.000
.2
.11
.2
Legend
WS 100yr
WS 50yr
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


SR414_Bosse Plan: Proposed 8/5/2021
Geom: Proposed Flow: Flow
River = 414 Reach = LAKE-B RS = 600.000
.2
.1
1
.2
Legend
WS 100yr
WS 50yr
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


SR414_Bosse Plan: Proposed 8/5/2021
Geom: Proposed Flow: Flow
River = 414 Reach = LAKE-B RS = 500.000
.2
.11
.2
Legend
WS 100yr
WS 50yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


SR414_Bosse Plan: Proposed 8/5/2021
Geom: Proposed Flow: Flow
River = 414 Reach = LAKE-B RS = 400.000
.2
.11
.2
Legend
WS 100yr
WS 50yr
Ground
Bank Sta
Elevation (ft)
100
90
80
70
60
50
0
500
1000
1500
2000
Station (ft)

```
                    HEC-RAS HEC-RAS 5.0.7 March 2019
                      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: SR414_Bosse
Project File : SR414_Bosse.prj
Run Date and Time: 8/5/2021 12:25:14 AM

Project in English units

PLAN DATA

Plan Title: Proposed
Plan File : C:\Users\DULAYM\Documents\2021\Jobs\FDOT\SR414\HEC_RAS\Version3\SR414_Bosse.p02

Geometry Title: Proposed
Geometry File :
C:\Users\DULAYM\Documents\2021\Jobs\FDOT\SR414\HEC_RAS\Version3\SR414_Bosse.g02

Flow Title : Flow
Flow File :
C:\Users\DULAYM\Documents\2021\Jobs\FDOT\SR414\HEC_RAS\Version3\SR414_Bosse.f01

Plan Summary Information:
Number of: Cross Sections = 15 Multiple Openings = 0
Culverts = 0 Inline Structures = 0
Bridges = 1 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: Flow
Flow File : C:\Users\DULAYM\Documents\2021\Jobs\FDOT\SR414\HEC_RAS\Version3\SR414_Bosse.f01

Flow Data (cfs)

| River | Reach | RS | 10yr | 25yr | 50yr | 100yr | 500yr |
|---|---|---|---|---|---|---|---|
| 414 | LAKE-B | 2000.000 | 245.88 | 325.41 | 391.9 | 459.25 | 579 |

Boundary Conditions

| River | Reach | Profile | Upstream | Downstream |
|---|---|---|---|---|
| 414 | LAKE-B | 10yr | | Known WS = 60.7 |
| 414 | LAKE-B | 25yr | | Known WS = 61.55 |
| 414 | LAKE-B | 50yr | | Known WS = 62.65 |
| 414 | LAKE-B | 100yr | | Known WS = 63.36 |
| 414 | LAKE-B | 500yr | | Known WS = 64.75 |

GEOMETRY DATA

Geometry Title: Proposed
Geometry File : C:\Users\DULAYM\Documents\2021\Jobs\FDOT\SR414\HEC_RAS\Version3\SR414_Bosse.g02

CROSS SECTION

RIVER: 414
REACH: LAKE-B RS: 2000.000

INPUT
Description:
Station Elevation Data num= 35

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 68 | 554.55 | 68.58 | 654.73 | 69.44 | 655.38 | 70 | 681.63 | 70.65 |
| 683.28 | 69.75 | 697.79 | 68.83 | 699.39 | 67.12 | 702.26 | 67.07 | 703.25 | 66.36 |
| 768.8 | 63.71 | 783.39 | 62.91 | 867.61 | 61 | 918.02 | 61 | 939.45 | 62 |
| 957.1 | 61.86 | 970.28 | 61 | 1049.23 | 61 | 1055.12 | 61.85 | 1075.76 | 62.81 |
| 1100.68 | 64 | 1112.78 | 64 | 1124.6 | 65 | 1129.2 | 66 | 1237.26 | 69 |
| 1298.66 | 72.76 | 1360.19 | 71.74 | 1378.19 | 72 | 1556.16 | 70.4 | 1567.98 | 71 |
| 1760.64 | 71 | 1778.85 | 70.65 | 1857.02 | 71 | 1871.74 | 70 | 2000 | 71 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .2 | 783.39 | .11 | 1075.76 | .2 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 783.39 | 1075.76 | 100 | 100 | 100 | .1 | .3 |

CROSS SECTION OUTPUT Profile #50yr

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 63.50 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.01 | Wt. n-Val. | 0.200 | 0.110 | 0.200 |
| W.S. Elev (ft) | 63.49 | Reach Len. (ft) | 100.00 | 100.00 | 100.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 3.06 | 584.64 | 4.83 |
| E.G. Slope (ft/ft) | 0.000974 | Area (sq ft) | 3.06 | 584.64 | 4.83 |
| Q Total (cfs) | 391.90 | Flow (cfs) | 0.31 | 391.04 | 0.55 |
| Top Width (ft) | 317.16 | Top Width (ft) | 10.57 | 292.37 | 14.23 |
| Vel Total (ft/s) | 0.66 | Avg. Vel. (ft/s) | 0.10 | 0.67 | 0.11 |
| Max Chl Dpth (ft) | 2.49 | Hydr. Depth (ft) | 0.29 | 2.00 | 0.34 |
| Conv. Total (cfs) | 12557.9 | Conv. (cfs) | 9.9 | 12530.5 | 17.5 |
| Length Wtd. (ft) | 100.00 | Wetted Per. (ft) | 10.58 | 292.53 | 14.24 |
| Min Ch El (ft) | 61.00 | Shear (lb/sq ft) | 0.02 | 0.12 | 0.02 |
| Alpha | 1.02 | Stream Power (lb/ft s) | 0.00 | 0.08 | 0.00 |
| Frctn Loss (ft) | 0.10 | Cum Volume (acre-ft) | 31.44 | 20.51 | 4.86 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 13.18 | 7.80 | 2.82 |

CROSS SECTION OUTPUT Profile #100yr

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 63.86 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.01 | Wt. n-Val. | 0.200 | 0.110 | 0.200 |
| W.S. Elev (ft) | 63.86 | Reach Len. (ft) | 100.00 | 100.00 | 100.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 8.26 | 692.24 | 11.49 |
| E.G. Slope (ft/ft) | 0.000757 | Area (sq ft) | 8.26 | 692.24 | 11.49 |
| Q Total (cfs) | 459.25 | Flow (cfs) | 0.99 | 456.73 | 1.52 |
| Top Width (ft) | 332.54 | Top Width (ft) | 18.24 | 292.37 | 21.93 |
| Vel Total (ft/s) | 0.65 | Avg. Vel. (ft/s) | 0.12 | 0.66 | 0.13 |
| Max Chl Dpth (ft) | 2.86 | Hydr. Depth (ft) | 0.45 | 2.37 | 0.52 |

| | | | | | |
|---|---|---|---|---|---|
| Conv. Total (cfs) | 16696.9 | Conv. (cfs) | 36.1 | 16605.4 | 55.4 |
| Length Wtd. (ft) | 100.00 | Wetted Per. (ft) | 18.26 | 292.53 | 21.96 |
| Min Ch El (ft) | 61.00 | Shear (lb/sq ft) | 0.02 | 0.11 | 0.02 |
| Alpha | 1.04 | Stream Power (lb/ft s) | 0.00 | 0.07 | 0.00 |
| Frctn Loss (ft) | 0.07 | Cum Volume (acre-ft) | 40.16 | 25.17 | 6.76 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 13.56 | 7.86 | 3.16 |

CROSS SECTION

RIVER: 414
REACH: LAKE-B RS: 1900.000

INPUT
Description:
Station Elevation Data num= 23

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 70.44 | 557.35 | 70.44 | 618.93 | 65 | 678.42 | 64.45 | 678.84 | 64.18 |
| 687.05 | 64 | 687.58 | 65 | 718.3 | 63 | 722.25 | 62.51 | 742.72 | 62.35 |
| 744.47 | 62 | 843.83 | 61 | 1090.68 | 62.43 | 1131.89 | 64.16 | 1162.91 | 68 |
| 1193.12 | 68 | 1248.53 | 71.44 | 1326.66 | 74 | 1365.8 | 74 | 1384.88 | 73 |
| 1558.76 | 71 | 1764.71 | 71.16 | 2000.01 | 71 | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .2 | 742.72 | .11 | 1090.68 | .2 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 742.72 | 1090.68 | 100 | 100 | 100 | .1 | .3 |

CROSS SECTION OUTPUT Profile #50yr

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 63.39 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.01 | Wt. n-Val. | 0.200 | 0.110 | 0.200 |
| W.S. Elev (ft) | 63.39 | Reach Len. (ft) | 100.00 | 100.00 | 100.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 23.25 | 602.48 | 10.92 |
| E.G. Slope (ft/ft) | 0.001079 | Area (sq ft) | 23.25 | 602.48 | 10.92 |
| Q Total (cfs) | 391.90 | Flow (cfs) | 4.74 | 385.53 | 1.63 |
| Top Width (ft) | 401.14 | Top Width (ft) | 30.37 | 347.96 | 22.81 |
| Vel Total (ft/s) | 0.62 | Avg. Vel. (ft/s) | 0.20 | 0.64 | 0.15 |
| Max Chl Dpth (ft) | 2.39 | Hydr. Depth (ft) | 0.77 | 1.73 | 0.48 |
| Conv. Total (cfs) | 11928.0 | Conv. (cfs) | 144.4 | 11734.0 | 49.6 |
| Length Wtd. (ft) | 100.00 | Wetted Per. (ft) | 30.41 | 348.00 | 22.83 |
| Min Ch El (ft) | 61.00 | Shear (lb/sq ft) | 0.05 | 0.12 | 0.03 |
| Alpha | 1.06 | Stream Power (lb/ft s) | 0.01 | 0.07 | 0.00 |
| Frctn Loss (ft) | 0.15 | Cum Volume (acre-ft) | 31.41 | 19.15 | 4.84 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 13.14 | 7.06 | 2.78 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than
1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100yr

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 63.79 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.01 | Wt. n-Val. | 0.200 | 0.110 | 0.200 |
| W.S. Elev (ft) | 63.78 | Reach Len. (ft) | 100.00 | 100.00 | 100.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 36.50 | 740.45 | 21.83 |
| E.G. Slope (ft/ft) | 0.000735 | Area (sq ft) | 36.50 | 740.45 | 21.83 |
| Q Total (cfs) | 459.25 | Flow (cfs) | 7.35 | 448.51 | 3.39 |
| Top Width (ft) | 416.67 | Top Width (ft) | 36.46 | 347.96 | 32.25 |
| Vel Total (ft/s) | 0.57 | Avg. Vel. (ft/s) | 0.20 | 0.61 | 0.16 |
| Max Chl Dpth (ft) | 2.78 | Hydr. Depth (ft) | 1.00 | 2.13 | 0.68 |
| Conv. Total (cfs) | 16942.7 | Conv. (cfs) | 271.1 | 16546.6 | 125.0 |
| Length Wtd. (ft) | 100.00 | Wetted Per. (ft) | 36.52 | 348.00 | 32.28 |
| Min Ch El (ft) | 61.00 | Shear (lb/sq ft) | 0.05 | 0.10 | 0.03 |
| Alpha | 1.09 | Stream Power (lb/ft s) | 0.01 | 0.06 | 0.00 |
| Frctn Loss (ft) | 0.09 | Cum Volume (acre-ft) | 40.11 | 23.53 | 6.72 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 13.49 | 7.12 | 3.10 |

CROSS SECTION

RIVER: 414
REACH: LAKE-B RS: 1800.000

INPUT
Description:
Station Elevation Data num= 24

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 70.44 | 598.85 | 68 | 599.58 | 65 | 601.67 | 65 | 605.06 | 62.04 |
| 643.28 | 62 | 676.14 | 61 | 769.27 | 61.39 | 802.27 | 62 | 959.67 | 62.5 |
| 1028.6 | 64.01 | 1095.85 | 64.16 | 1142.81 | 66 | 1181.61 | 68 | 1190.56 | 68 |
| 1213.57 | 70 | 1307.04 | 73.81 | 1561.21 | 71.51 | 1573.62 | 72 | 1628.48 | 71.73 |
| 1634.22 | 71 | 1737.24 | 71 | 1758.26 | 72 | 2000.01 | 72.05 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .2 | 605.06 | .11 | 1095.85 | .2 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 605.06 | 1095.85 | 100 | 100 | 100 | .1 | .3 |

CROSS SECTION OUTPUT Profile #50yr

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 63.24 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.01 | Wt. n-Val. | 0.200 | 0.110 | |
| W.S. Elev (ft) | 63.23 | Reach Len. (ft) | 100.00 | 100.00 | 100.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 0.82 | 511.27 | |
| E.G. Slope (ft/ft) | 0.002228 | Area (sq ft) | 0.82 | 511.27 | |
| Q Total (cfs) | 391.90 | Flow (cfs) | 0.17 | 391.73 | |
| Top Width (ft) | 389.49 | Top Width (ft) | 1.37 | 388.12 | |
| Vel Total (ft/s) | 0.77 | Avg. Vel. (ft/s) | 0.21 | 0.77 | |
| Max Chl Dpth (ft) | 2.23 | Hydr. Depth (ft) | 0.60 | 1.32 | |
| Conv. Total (cfs) | 8302.4 | Conv. (cfs) | 3.6 | 8298.8 | |
| Length Wtd. (ft) | 100.00 | Wetted Per. (ft) | 1.82 | 388.15 | |
| Min Ch El (ft) | 61.00 | Shear (lb/sq ft) | 0.06 | 0.18 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | 0.01 | 0.14 | |
| Frctn Loss (ft) | 0.27 | Cum Volume (acre-ft) | 31.38 | 17.87 | 4.83 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 13.10 | 6.22 | 2.75 |

CROSS SECTION OUTPUT Profile #100yr

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 63.70 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.01 | Wt. n-Val. | 0.200 | 0.110 | |
| W.S. Elev (ft) | 63.69 | Reach Len. (ft) | 100.00 | 100.00 | 100.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 1.56 | 693.46 | |
| E.G. Slope (ft/ft) | 0.001187 | Area (sq ft) | 1.56 | 693.46 | |
| Q Total (cfs) | 459.25 | Flow (cfs) | 0.29 | 458.96 | |
| Top Width (ft) | 410.88 | Top Width (ft) | 1.89 | 408.99 | |
| Vel Total (ft/s) | 0.66 | Avg. Vel. (ft/s) | 0.19 | 0.66 | |
| Max Chl Dpth (ft) | 2.69 | Hydr. Depth (ft) | 0.83 | 1.70 | |
| Conv. Total (cfs) | 13327.6 | Conv. (cfs) | 8.5 | 13319.1 | |
| Length Wtd. (ft) | 100.00 | Wetted Per. (ft) | 2.51 | 409.02 | |
| Min Ch El (ft) | 61.00 | Shear (lb/sq ft) | 0.05 | 0.13 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | 0.01 | 0.08 | |
| Frctn Loss (ft) | 0.13 | Cum Volume (acre-ft) | 40.07 | 21.88 | 6.70 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 13.45 | 6.25 | 3.06 |

CROSS SECTION

RIVER: 414
REACH: LAKE-B RS: 1700.000

INPUT
Description:
Station Elevation Data num= 24

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 69.26 | 524.06 | 69.44 | 524.44 | 70 | 538.01 | 70.65 | 541.85 | 67.89 |
| 543.56 | 67.12 | 565.07 | 64.53 | 619.85 | 64 | 621.19 | 65 | 640.81 | 64.64 |
| 648.75 | 63 | 711.12 | 63 | 749.17 | 62 | 854.95 | 62 | 875.47 | 61 |
| 1001.1 | 61.22 | 1012.04 | 62 | 1105.92 | 62.21 | 1122.26 | 65 | 1165.29 | 68 |
| 1276.02 | 70 | 1289.38 | 72 | 1762.7 | 72 | 2000 | 73.54 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .2 | 854.95 | .11 | 1012.04 | .2 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 854.95 | 1012.04 | 100 | 100 | 100 | .1 | .3 |

CROSS SECTION OUTPUT Profile #50yr

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 62.97 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.02 | Wt. n-Val. | 0.200 | 0.110 | 0.200 |
| W.S. Elev (ft) | 62.95 | Reach Len. (ft) | 100.00 | 100.00 | 100.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 117.88 | 275.81 | 81.08 |
| E.G. Slope (ft/ft) | 0.003396 | Area (sq ft) | 117.88 | 275.81 | 81.08 |
| Q Total (cfs) | 391.90 | Flow (cfs) | 45.08 | 315.94 | 30.88 |
| Top Width (ft) | 397.30 | Top Width (ft) | 141.99 | 157.09 | 98.22 |
| Vel Total (ft/s) | 0.83 | Avg. Vel. (ft/s) | 0.38 | 1.15 | 0.38 |
| Max Chl Dpth (ft) | 1.95 | Hydr. Depth (ft) | 0.83 | 1.76 | 0.83 |
| Conv. Total (cfs) | 6724.7 | Conv. (cfs) | 773.6 | 5421.2 | 529.9 |
| Length Wtd. (ft) | 100.00 | Wetted Per. (ft) | 142.00 | 157.14 | 98.29 |
| Min Ch El (ft) | 61.00 | Shear (lb/sq ft) | 0.18 | 0.37 | 0.17 |
| Alpha | 1.59 | Stream Power (lb/ft s) | 0.07 | 0.43 | 0.07 |
| Frctn Loss (ft) | 0.06 | Cum Volume (acre-ft) | 31.25 | 16.97 | 4.74 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 12.94 | 5.59 | 2.64 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than
1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100yr

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 63.57 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.01 | Wt. n-Val. | 0.200 | 0.110 | 0.200 |
| W.S. Elev (ft) | 63.56 | Reach Len. (ft) | 100.00 | 100.00 | 100.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 240.66 | 371.12 | 141.75 |
| E.G. Slope (ft/ft) | 0.001425 | Area (sq ft) | 240.66 | 371.12 | 141.75 |
| Q Total (cfs) | 459.25 | Flow (cfs) | 74.15 | 335.56 | 49.54 |
| Top Width (ft) | 467.77 | Top Width (ft) | 208.90 | 157.09 | 101.78 |
| Vel Total (ft/s) | 0.61 | Avg. Vel. (ft/s) | 0.31 | 0.90 | 0.35 |
| Max Chl Dpth (ft) | 2.56 | Hydr. Depth (ft) | 1.15 | 2.36 | 1.39 |
| Conv. Total (cfs) | 12167.4 | Conv. (cfs) | 1964.5 | 8890.4 | 1312.4 |
| Length Wtd. (ft) | 100.00 | Wetted Per. (ft) | 208.97 | 157.14 | 101.89 |
| Min Ch El (ft) | 61.00 | Shear (lb/sq ft) | 0.10 | 0.21 | 0.12 |
| Alpha | 1.68 | Stream Power (lb/ft s) | 0.03 | 0.19 | 0.04 |
| Frctn Loss (ft) | 0.04 | Cum Volume (acre-ft) | 39.79 | 20.66 | 6.54 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 13.21 | 5.60 | 2.94 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than
1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: 414
REACH: LAKE-B RS: 1600.000

INPUT
Description:
Station Elevation Data num= 27

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 70.44 | 616.81 | 68 | 617.61 | 65 | 626.9 | 65 | 660.07 | 60.78 |
| 699.67 | 60.04 | 754.68 | 59.84 | 798.68 | 59.79 | 814.08 | 59.26 | 932 | 59.29 |
| 940.57 | 60 | 996.26 | 61 | 1007.16 | 62 | 1123.23 | 62 | 1126.99 | 62.99 |
| 1157.06 | 65 | 1235.7 | 66.44 | 1327.57 | 70 | 1356.47 | 70 | 1445.8 | 72 |
| 1600.7 | 73.37 | 1664.6 | 73 | 1701.79 | 72.18 | 1732.5 | 74 | 1864.76 | 74 |
| 1894.38 | 75 | 2000 | 75 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .2 | 798.68 | .11 | 940.57 | .2 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|

```
        798.68  940.57              100     100     100             .1       .3

CROSS SECTION OUTPUT  Profile #50yr

  E.G. Elev (ft)             62.90    Element                  Left OB    Channel   Right OB
  Vel Head (ft)               0.00    Wt. n-Val.                0.200      0.110      0.200
  W.S. Elev (ft)             62.90    Reach Len. (ft)          100.00     100.00     100.00
  Crit W.S. (ft)                      Flow Area (sq ft)        414.41     506.94     254.40
  E.G. Slope (ft/ft)      0.000261    Area (sq ft)             414.41     506.94     254.40
  Q Total (cfs)             391.90    Flow (cfs)                95.69     258.60      37.61
  Top Width (ft)            483.21    Top Width (ft)           155.25     141.89     186.07
  Vel Total (ft/s)            0.33    Avg. Vel. (ft/s)           0.23       0.51       0.15
  Max Chl Dpth (ft)           3.64    Hydr. Depth (ft)           2.67       3.57       1.37
  Conv. Total (cfs)        24248.8    Conv. (cfs)              5920.9    16001.0     2326.9
  Length Wtd. (ft)          100.00    Wetted Per. (ft)         155.39     141.93     186.24
  Min Ch El (ft)             59.26    Shear (lb/sq ft)           0.04       0.06       0.02
  Alpha                       1.68    Stream Power (lb/ft s)     0.01       0.03       0.00
  Frctn Loss (ft)             0.01    Cum Volume (acre-ft)      30.63      16.07       4.35
  C & E Loss (ft)             0.00    Cum SA (acres)            12.59       5.25       2.31


Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or
greater than
         1.4.  This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT  Profile #100yr

  E.G. Elev (ft)             63.53    Element                  Left OB    Channel   Right OB
  Vel Head (ft)               0.00    Wt. n-Val.                0.200      0.110      0.200
  W.S. Elev (ft)             63.52    Reach Len. (ft)          100.00     100.00     100.00
  Crit W.S. (ft)                      Flow Area (sq ft)        513.06     595.70     373.12
  E.G. Slope (ft/ft)      0.000188    Area (sq ft)             513.06     595.70     373.12
  Q Total (cfs)             459.25    Flow (cfs)               113.49     287.09      58.67
  Top Width (ft)            496.45    Top Width (ft)           160.17     141.89     194.39
  Vel Total (ft/s)            0.31    Avg. Vel. (ft/s)           0.22       0.48       0.16
  Max Chl Dpth (ft)           4.26    Hydr. Depth (ft)           3.20       4.20       1.92
  Conv. Total (cfs)        33493.3    Conv. (cfs)              8276.9    20937.8     4278.6
  Length Wtd. (ft)          100.00    Wetted Per. (ft)         160.35     141.93     194.59
  Min Ch El (ft)             59.26    Shear (lb/sq ft)           0.04       0.05       0.02
  Alpha                       1.67    Stream Power (lb/ft s)     0.01       0.02       0.00
  Frctn Loss (ft)             0.01    Cum Volume (acre-ft)      38.92      19.55       5.94
  C & E Loss (ft)             0.00    Cum SA (acres)            12.78       5.26       2.60


Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or
greater than
         1.4.  This may indicate the need for additional cross sections.

CROSS SECTION


RIVER: 414
REACH: LAKE-B             RS: 1500.000

INPUT
Description:
Station Elevation Data    num=      17
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0   70.44  484.12      65  495.05   60.58  554.46   60.01  721.67   59.91
  899.89   59.98  930.69   59.21  1009.8    59.1 1060.75      60 1167.47   60.14
 1360.92   66.37 1501.68      72 1628.18      75 1711.67   73.75 1803.36      76
 1883.78      76    2000      78

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .2  899.89     .11 1060.75      .2

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        899.89 1060.75              100     100     100             .1       .3

CROSS SECTION OUTPUT  Profile #50yr

  E.G. Elev (ft)             62.88    Element                  Left OB    Channel   Right OB
  Vel Head (ft)               0.00    Wt. n-Val.                0.200      0.110      0.200
  W.S. Elev (ft)             62.88    Reach Len. (ft)          100.00     100.00     100.00
```

| | | | | | |
|---|---|---|---|---|---|
| Crit W.S. (ft) | | Flow Area (sq ft) | 1173.09 | 566.17 | 417.21 |
| E.G. Slope (ft/ft) | 0.000094 | Area (sq ft) | 1173.09 | 566.17 | 417.21 |
| Q Total (cfs) | 391.90 | Flow (cfs) | 169.98 | 171.51 | 50.41 |
| Top Width (ft) | 763.32 | Top Width (ft) | 410.54 | 160.86 | 191.93 |
| Vel Total (ft/s) | 0.18 | Avg. Vel. (ft/s) | 0.14 | 0.30 | 0.12 |
| Max Chl Dpth (ft) | 3.78 | Hydr. Depth (ft) | 2.86 | 3.52 | 2.17 |
| Conv. Total (cfs) | 40433.5 | Conv. (cfs) | 17537.5 | 17695.1 | 5200.9 |
| Length Wtd. (ft) | 100.00 | Wetted Per. (ft) | 410.99 | 160.88 | 191.97 |
| Min Ch El (ft) | 59.10 | Shear (lb/sq ft) | 0.02 | 0.02 | 0.01 |
| Alpha | 1.55 | Stream Power (lb/ft s) | 0.00 | 0.01 | 0.00 |
| Frctn Loss (ft) | 0.01 | Cum Volume (acre-ft) | 28.81 | 14.84 | 3.58 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 11.94 | 4.90 | 1.88 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than
1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100yr

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 63.51 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.00 | Wt. n-Val. | 0.200 | 0.110 | 0.200 |
| W.S. Elev (ft) | 63.51 | Reach Len. (ft) | 100.00 | 100.00 | 100.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 1431.93 | 667.40 | 544.14 |
| E.G. Slope (ft/ft) | 0.000069 | Area (sq ft) | 1431.93 | 667.40 | 544.14 |
| Q Total (cfs) | 459.25 | Flow (cfs) | 202.68 | 193.48 | 63.09 |
| Top Width (ft) | 784.42 | Top Width (ft) | 412.09 | 160.86 | 211.47 |
| Vel Total (ft/s) | 0.17 | Avg. Vel. (ft/s) | 0.14 | 0.29 | 0.12 |
| Max Chl Dpth (ft) | 4.41 | Hydr. Depth (ft) | 3.47 | 4.15 | 2.57 |
| Conv. Total (cfs) | 55250.2 | Conv. (cfs) | 24383.8 | 23276.4 | 7590.1 |
| Length Wtd. (ft) | 100.00 | Wetted Per. (ft) | 412.67 | 160.88 | 211.52 |
| Min Ch El (ft) | 59.10 | Shear (lb/sq ft) | 0.01 | 0.02 | 0.01 |
| Alpha | 1.53 | Stream Power (lb/ft s) | 0.00 | 0.01 | 0.00 |
| Frctn Loss (ft) | 0.01 | Cum Volume (acre-ft) | 36.69 | 18.10 | 4.89 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 12.13 | 4.91 | 2.14 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than
1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: 414
REACH: LAKE-B RS: 1400.000

INPUT
Description:
Station Elevation Data num= 29

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 70.44 | 463.89 | 70.44 | 473.7 | 65.35 | 594.64 | 64.91 | 728.07 | 64 |
| 747.41 | 65 | 795.88 | 64.39 | 798.64 | 62 | 943.41 | 61.48 | 978.24 | 61.81 |
| 980.13 | 60.37 | 1035.39 | 59.49 | 1042.96 | 59 | 1075.67 | 59.16 | 1117.45 | 60 |
| 1192.53 | 59 | 1253.49 | 59 | 1262.39 | 60 | 1326.91 | 60.26 | 1408.49 | 64 |
| 1426.7 | 65 | 1470.03 | 69 | 1488.64 | 71 | 1591.21 | 74.27 | 1595.59 | 75 |
| 1730.12 | 75.25 | 1772.24 | 77 | 1856.25 | 78 | 2000 | 78 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .2 | 1117.45 | .11 | 1262.39 | .2 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 1117.45 | 1262.39 | 100 | 100 | 100 | .1 | .3 |

CROSS SECTION OUTPUT Profile #50yr

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 62.87 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.00 | Wt. n-Val. | 0.200 | 0.110 | 0.200 |
| W.S. Elev (ft) | 62.87 | Reach Len. (ft) | 100.00 | 100.00 | 100.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 661.15 | 518.82 | 250.99 |
| E.G. Slope (ft/ft) | 0.000205 | Area (sq ft) | 661.15 | 518.82 | 250.99 |
| Q Total (cfs) | 391.90 | Flow (cfs) | 113.91 | 234.69 | 43.30 |
| Top Width (ft) | 586.19 | Top Width (ft) | 319.81 | 144.94 | 121.43 |
| Vel Total (ft/s) | 0.27 | Avg. Vel. (ft/s) | 0.17 | 0.45 | 0.17 |

| | | | | | |
|---|---|---|---|---|---|
| Max Chl Dpth (ft) | 3.87 | Hydr. Depth (ft) | 2.07 | 3.58 | 2.07 |
| Conv. Total (cfs) | 27376.9 | Conv. (cfs) | 7957.3 | 16394.9 | 3024.7 |
| Length Wtd. (ft) | 100.00 | Wetted Per. (ft) | 320.66 | 145.00 | 121.50 |
| Min Ch El (ft) | 59.00 | Shear (lb/sq ft) | 0.03 | 0.05 | 0.03 |
| Alpha | 1.79 | Stream Power (lb/ft s) | 0.00 | 0.02 | 0.00 |
| Frctn Loss (ft) | 0.02 | Cum Volume (acre-ft) | 26.71 | 13.59 | 2.82 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 11.11 | 4.55 | 1.52 |

CROSS SECTION OUTPUT  Profile #100yr

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 63.50 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.00 | Wt. n-Val. | 0.200 | 0.110 | 0.200 |
| W.S. Elev (ft) | 63.50 | Reach Len. (ft) | 100.00 | 100.00 | 100.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 863.92 | 610.61 | 332.27 |
| E.G. Slope (ft/ft) | 0.000143 | Area (sq ft) | 863.92 | 610.61 | 332.27 |
| Q Total (cfs) | 459.25 | Flow (cfs) | 148.31 | 257.21 | 53.73 |
| Top Width (ft) | 600.73 | Top Width (ft) | 320.55 | 144.94 | 135.25 |
| Vel Total (ft/s) | 0.25 | Avg. Vel. (ft/s) | 0.17 | 0.42 | 0.16 |
| Max Chl Dpth (ft) | 4.50 | Hydr. Depth (ft) | 2.70 | 4.21 | 2.46 |
| Conv. Total (cfs) | 38405.2 | Conv. (cfs) | 12402.9 | 21509.3 | 4493.0 |
| Length Wtd. (ft) | 100.00 | Wetted Per. (ft) | 321.63 | 145.00 | 135.32 |
| Min Ch El (ft) | 59.00 | Shear (lb/sq ft) | 0.02 | 0.04 | 0.02 |
| Alpha | 1.73 | Stream Power (lb/ft s) | 0.00 | 0.02 | 0.00 |
| Frctn Loss (ft) | 0.01 | Cum Volume (acre-ft) | 34.05 | 16.63 | 3.89 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 11.29 | 4.56 | 1.74 |

CROSS SECTION

RIVER: 414
REACH: LAKE-B  RS: 1300.000

INPUT
Description:
Station Elevation Data  num=  34

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 70.44 | 712.08 | 70.65 | 712.79 | 69.75 | 723.98 | 68.83 | 785.21 | 67.89 |
| 832.38 | 64.91 | 855.79 | 64 | 856.72 | 65 | 872.14 | 64.39 | 889.39 | 62 |
| 905.37 | 61.81 | 921.9 | 60 | 1028.94 | 60 | 1147.3 | 59.65 | 1170.59 | 59 |
| 1330.96 | 59 | 1356.39 | 60 | 1523.5 | 71 | 1559.72 | 71.39 | 1571.67 | 72 |
| 1616.2 | 72.43 | 1672.92 | 74 | 1692.96 | 74.21 | 1714.15 | 75.14 | 1733.54 | 77 |
| 1740.79 | 77 | 1753.59 | 78 | 1830.49 | 78 | 1854.09 | 79 | 1895.34 | 78.71 |
| 1939.84 | 77.69 | 1950.06 | 75 | 1962.67 | 73.46 | 2000 | 64.62 | | |

Manning's n Values  num=  3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .2 | 1147.3 | .11 | 1356.39 | .2 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 1147.3 | 1356.39 | 100 | 100 | 100 | .1 | .3 |

CROSS SECTION OUTPUT  Profile #50yr

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 62.86 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.00 | Wt. n-Val. | 0.200 | 0.110 | 0.200 |
| W.S. Elev (ft) | 62.85 | Reach Len. (ft) | 100.00 | 100.00 | 100.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 714.18 | 785.68 | 61.90 |
| E.G. Slope (ft/ft) | 0.000115 | Area (sq ft) | 714.18 | 785.68 | 61.90 |
| Q Total (cfs) | 391.90 | Flow (cfs) | 110.46 | 275.19 | 6.25 |
| Top Width (ft) | 516.54 | Top Width (ft) | 264.08 | 209.09 | 43.37 |
| Vel Total (ft/s) | 0.25 | Avg. Vel. (ft/s) | 0.15 | 0.35 | 0.10 |
| Max Chl Dpth (ft) | 3.85 | Hydr. Depth (ft) | 2.70 | 3.76 | 1.43 |
| Conv. Total (cfs) | 36527.3 | Conv. (cfs) | 10295.5 | 25649.6 | 582.1 |
| Length Wtd. (ft) | 100.00 | Wetted Per. (ft) | 264.24 | 209.12 | 43.46 |
| Min Ch El (ft) | 59.00 | Shear (lb/sq ft) | 0.02 | 0.03 | 0.01 |
| Alpha | 1.48 | Stream Power (lb/ft s) | 0.00 | 0.01 | 0.00 |
| Frctn Loss (ft) | 0.01 | Cum Volume (acre-ft) | 25.13 | 12.10 | 2.46 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 10.44 | 4.14 | 1.33 |

CROSS SECTION OUTPUT  Profile #100yr

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 63.49 | Element | Left OB | Channel | Right OB |

| | | | | | |
|---|---|---|---|---|---|
| Vel Head (ft) | 0.00 | Wt. n-Val. | 0.200 | 0.110 | 0.200 |
| W.S. Elev (ft) | 63.49 | Reach Len. (ft) | 100.00 | 100.00 | 100.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 883.90 | 918.89 | 92.61 |
| E.G. Slope (ft/ft) | 0.000089 | Area (sq ft) | 883.90 | 918.89 | 92.61 |
| Q Total (cfs) | 459.25 | Flow (cfs) | 136.59 | 313.29 | 9.37 |
| Top Width (ft) | 530.81 | Top Width (ft) | 268.68 | 209.09 | 53.05 |
| Vel Total (ft/s) | 0.24 | Avg. Vel. (ft/s) | 0.15 | 0.34 | 0.10 |
| Max Chl Dpth (ft) | 4.49 | Hydr. Depth (ft) | 3.29 | 4.39 | 1.75 |
| Conv. Total (cfs) | 48815.2 | Conv. (cfs) | 14518.7 | 33300.3 | 996.2 |
| Length Wtd. (ft) | 100.00 | Wetted Per. (ft) | 268.88 | 209.12 | 53.16 |
| Min Ch El (ft) | 59.00 | Shear (lb/sq ft) | 0.02 | 0.02 | 0.01 |
| Alpha | 1.48 | Stream Power (lb/ft s) | 0.00 | 0.01 | 0.00 |
| Frctn Loss (ft) | 0.01 | Cum Volume (acre-ft) | 32.05 | 14.88 | 3.40 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 10.61 | 4.16 | 1.52 |

CROSS SECTION

RIVER: 414
REACH: LAKE-B RS: 1200.000

INPUT
Description:
Station Elevation Data num= 35

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 70 | 19.41 | 70 | 74.26 | 65.48 | 390.54 | 64.75 | 434.66 | 62.4 |
| 492.25 | 62 | 496.21 | 61 | 578.67 | 60.78 | 583.77 | 59.97 | 603.21 | 59 |
| 705.2 | 60.85 | 736.2 | 60 | 782.84 | 60.05 | 805.71 | 61 | 968.71 | 61 |
| 995.82 | 59 | 1137.52 | 59.52 | 1156.27 | 60 | 1227.94 | 59.57 | 1241.18 | 59 |
| 1299.45 | 59 | 1318.69 | 60 | 1367.6 | 60.3 | 1494.04 | 68 | 1504.17 | 68.15 |
| 1514.07 | 70 | 1532.06 | 71 | 1575.47 | 71 | 1594.44 | 74 | 1767.9 | 77 |
| 1842.7 | 79 | 1884.29 | 79 | 1916.17 | 77.6 | 1959.76 | 79 | 2000.01 | 79.5 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .2 | 1227.94 | .11 | 1318.69 | .2 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 1227.94 | 1318.69 | 200 | 200 | 200 | .3 | .5 |

Ineffective Flow num= 2

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 547.43 | 80 | T |
| 1447.43 | 2000.01 | 80 | T |

CROSS SECTION OUTPUT Profile #50yr

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 62.85 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.00 | Wt. n-Val. | 0.200 | 0.110 | 0.200 |
| W.S. Elev (ft) | 62.84 | Reach Len. (ft) | 60.00 | 60.00 | 60.00 |
| Crit W.S. (ft) | 59.69 | Flow Area (sq ft) | 1861.36 | 335.52 | 184.97 |
| E.G. Slope (ft/ft) | 0.000096 | Area (sq ft) | 2003.66 | 335.52 | 184.97 |
| Q Total (cfs) | 391.90 | Flow (cfs) | 264.39 | 105.92 | 21.59 |
| Top Width (ft) | 983.08 | Top Width (ft) | 801.63 | 90.75 | 90.70 |
| Vel Total (ft/s) | 0.16 | Avg. Vel. (ft/s) | 0.14 | 0.32 | 0.12 |
| Max Chl Dpth (ft) | 3.84 | Hydr. Depth (ft) | 2.74 | 3.70 | 2.04 |
| Conv. Total (cfs) | 40084.0 | Conv. (cfs) | 27041.7 | 10833.5 | 2208.7 |
| Length Wtd. (ft) | 60.00 | Wetted Per. (ft) | 680.73 | 90.79 | 90.77 |
| Min Ch El (ft) | 59.00 | Shear (lb/sq ft) | 0.02 | 0.02 | 0.01 |
| Alpha | 1.53 | Stream Power (lb/ft s) | 0.00 | 0.01 | 0.00 |
| Frctn Loss (ft) | 0.01 | Cum Volume (acre-ft) | 22.01 | 10.81 | 2.17 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 9.21 | 3.80 | 1.17 |

CROSS SECTION OUTPUT Profile #100yr

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 63.49 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.00 | Wt. n-Val. | 0.200 | 0.110 | 0.200 |
| W.S. Elev (ft) | 63.48 | Reach Len. (ft) | 60.00 | 60.00 | 60.00 |
| Crit W.S. (ft) | 59.75 | Flow Area (sq ft) | 2296.79 | 393.58 | 246.36 |
| E.G. Slope (ft/ft) | 0.000068 | Area (sq ft) | 2520.43 | 393.58 | 246.36 |
| Q Total (cfs) | 459.25 | Flow (cfs) | 315.75 | 116.27 | 27.23 |
| Top Width (ft) | 1005.60 | Top Width (ft) | 813.64 | 90.75 | 101.20 |
| Vel Total (ft/s) | 0.16 | Avg. Vel. (ft/s) | 0.14 | 0.30 | 0.11 |
| Max Chl Dpth (ft) | 4.48 | Hydr. Depth (ft) | 3.38 | 4.34 | 2.43 |

| | | | | | |
|---|---|---|---|---|---|
| Conv. Total (cfs) | 55832.7 | Conv. (cfs) | 38387.2 | 14135.5 | 3310.1 |
| Length Wtd. (ft) | 60.00 | Wetted Per. (ft) | 680.73 | 90.79 | 101.30 |
| Min Ch El (ft) | 59.00 | Shear (lb/sq ft) | 0.01 | 0.02 | 0.01 |
| Alpha | 1.46 | Stream Power (lb/ft s) | 0.00 | 0.01 | 0.00 |
| Frctn Loss (ft) | 0.01 | Cum Volume (acre-ft) | 28.14 | 13.37 | 3.01 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 9.37 | 3.81 | 1.35 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than
1.4. This may indicate the need for additional cross sections.

BRIDGE

RIVER: 414
REACH: LAKE-B RS: 1140

INPUT
Description:
Distance from Upstream XS = 60
Deck/Roadway Width = 130
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 |
|---|---|---|---|---|---|---|---|---|
| 0 | 70 | 0 | 647.43 | 70 | 0 | 647.43 | 70 | 65.99 |
| 1347.43 | 70 | 65.99 | 1347.43 | 70 | 0 | 2000 | 70 | 0 |

Upstream Bridge Cross Section Data
Station Elevation Data num= 35

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 70 | 19.41 | 70 | 74.26 | 65.48 | 390.54 | 64.75 | 434.66 | 62.4 |
| 492.25 | 62 | 496.21 | 61 | 578.67 | 60.78 | 583.77 | 59.97 | 603.21 | 59 |
| 705.2 | 60.85 | 736.2 | 60 | 782.84 | 60.05 | 805.71 | 61 | 968.71 | 61 |
| 995.82 | 59 | 1137.52 | 59.52 | 1156.27 | 60 | 1227.94 | 59.57 | 1241.18 | 59 |
| 1299.45 | 59 | 1318.69 | 60 | 1367.6 | 60.3 | 1494.04 | 68 | 1504.17 | 68.15 |
| 1514.07 | 70 | 1532.06 | 71 | 1575.47 | 71 | 1594.44 | 74 | 1767.9 | 77 |
| 1842.7 | 79 | 1884.29 | 79 | 1916.17 | 77.6 | 1959.76 | 79 | 2000.01 | 79.5 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .2 | 1227.94 | .11 | 1318.69 | .2 |

Bank Sta: Left Right Coeff Contr. Expan.
1227.94 1318.69 .3 .5
Ineffective Flow num= 2

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 547.43 | 80 | T |
| 1447.43 | 2000.01 | 80 | T |

Downstream Deck/Roadway Coordinates
num= 6

| Sta | Hi Cord | Lo Cord | Sta | Hi Cord | Lo Cord | Sta | Hi Cord | Lo Cord |
|---|---|---|---|---|---|---|---|---|
| 0 | 70 | 0 | 647.43 | 70 | 0 | 647.43 | 70 | 65.99 |
| 1347.43 | 70 | 65.99 | 1347.43 | 70 | 0 | 2000 | 70 | 0 |

Downstream Bridge Cross Section Data
Station Elevation Data num= 35

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 70 | 19.41 | 70 | 74.26 | 65.48 | 390.54 | 64.75 | 434.66 | 62.4 |
| 492.25 | 62 | 496.21 | 61 | 578.67 | 60.78 | 583.77 | 59.97 | 603.21 | 59 |
| 705.2 | 60.85 | 736.2 | 60 | 782.84 | 60.05 | 805.71 | 61 | 968.71 | 61 |
| 995.82 | 59 | 1137.52 | 59.52 | 1156.27 | 60 | 1227.94 | 59.57 | 1241.18 | 59 |
| 1299.45 | 59 | 1318.69 | 60 | 1367.6 | 60.3 | 1494.04 | 68 | 1504.17 | 68.15 |
| 1514.07 | 70 | 1532.06 | 71 | 1575.47 | 71 | 1594.44 | 74 | 1767.9 | 77 |
| 1842.7 | 79 | 1884.29 | 79 | 1916.17 | 77.6 | 1959.76 | 79 | 2000.01 | 79.5 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .2 | 1227.94 | .11 | 1318.69 | .2 |

Bank Sta: Left Right Coeff Contr. Expan.
1227.94 1318.69 .3 .5
Ineffective Flow num= 2

```
   Sta L   Sta R    Elev  Permanent
       0  547.43      80       T
 1447.43 2000.01      80       T

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 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 Piers =  9

Pier Data
Pier Station     Upstream=     700    Downstream=     700
Upstream     num=       2
    Width   Elev    Width   Elev
      10       0      10      80
Downstream     num=       2
    Width   Elev    Width   Elev
      10       0      10      80

Pier Data
Pier Station     Upstream=  739.93    Downstream=  739.93
Upstream     num=       2
    Width   Elev    Width   Elev
       4       0       4   65.99
Downstream     num=       2
    Width   Elev    Width   Elev
       4       0       4   65.99

Pier Data
Pier Station     Upstream=  832.43    Downstream=  832.43
Upstream     num=       2
    Width   Elev    Width   Elev
       4       0       4   65.99
Downstream     num=       2
    Width   Elev    Width   Elev
       4       0       4   65.99

Pier Data
Pier Station     Upstream=    1000    Downstream=    1000
Upstream     num=       2
    Width   Elev    Width   Elev
      10       0      10      80
Downstream     num=       2
    Width   Elev    Width   Elev
      10       0      10      80

Pier Data
Pier Station     Upstream= 1042.43    Downstream= 1042.43
Upstream     num=       2
    Width   Elev    Width   Elev
       4       0       4   65.99
Downstream     num=       2
    Width   Elev    Width   Elev
       4       0       4   65.99

Pier Data
Pier Station     Upstream=1144.097    Downstream=1144.097
Upstream     num=       2
    Width   Elev    Width   Elev
       4       0       4   65.99
Downstream     num=       2
    Width   Elev    Width   Elev
       4       0       4   65.99

Pier Data
Pier Station     Upstream=    1163    Downstream=    1163
Upstream     num=       2
    Width   Elev    Width   Elev
      10       0      10      80
Downstream     num=       2
    Width   Elev    Width   Elev
```

```
      10       0      10      80

Pier Data
Pier Station     Upstream=1245.763    Downstream=1245.763
Upstream     num=       2
    Width   Elev    Width   Elev
       4       0       4   65.99
Downstream     num=       2
    Width   Elev    Width   Elev
       4       0       4   65.99

Pier Data
Pier Station     Upstream=  1296.7    Downstream=  1296.7
Upstream     num=       2
    Width   Elev    Width   Elev
      10       0      10      80
Downstream     num=       2
    Width   Elev    Width   Elev
      10       0      10      80

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
Selected Low Flow Methods = Highest Energy Answer

High Flow Method
       Energy Only

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

BRIDGE OUTPUT  Profile #50yr

  E.G. US. (ft)                 62.85    Element                 Inside BR US  Inside BR DS
  W.S. US. (ft)                 62.84    E.G. Elev (ft)               62.84         62.81
  Q Total (cfs)                391.90    W.S. Elev (ft)               62.84         62.81
  Q Bridge (cfs)               391.90    Crit W.S. (ft)               59.79         59.79
  Q Weir (cfs)                           Max Chl Dpth (ft)             3.84          3.81
  Weir Sta Lft (ft)                      Vel Total (ft/s)              0.22          0.22
  Weir Sta Rgt (ft)                      Flow Area (sq ft)          1789.68       1774.19
  Weir Submerg                           Froude # Chl                 0.02          0.02
  Weir Max Depth (ft)                    Specif Force (cu ft)       2665.48       2622.38
  Min El Weir Flow (ft)         70.01    Hydr Depth (ft)              2.80          2.77
  Min El Prs (ft)               65.99    W.P. Total (ft)            701.54        701.05
  Delta EG (ft)                  0.03    Conv. Total (cfs)          28977.1       28597.3
  Delta WS (ft)                  0.03    Top Width (ft)             640.00        640.00
  BR Open Area (sq ft)        3807.92    Frctn Loss (ft)              0.02          0.00
  BR Open Vel (ft/s)             0.22    C & E Loss (ft)              0.00          0.00
  BR Sluice Coef                         Shear Total (lb/sq ft)       0.03          0.03
  BR Sel Method           Energy only    Power Total (lb/ft s)        0.01          0.01


BRIDGE OUTPUT  Profile #100yr

  E.G. US. (ft)                 63.49    Element                 Inside BR US  Inside BR DS
  W.S. US. (ft)                 63.48    E.G. Elev (ft)               63.48         63.46
  Q Total (cfs)                459.25    W.S. Elev (ft)               63.48         63.46
  Q Bridge (cfs)               459.25    Crit W.S. (ft)               59.85         59.85
  Q Weir (cfs)                           Max Chl Dpth (ft)             4.48          4.46
  Weir Sta Lft (ft)                      Vel Total (ft/s)              0.21          0.21
  Weir Sta Rgt (ft)                      Flow Area (sq ft)          2200.63       2189.40
  Weir Submerg                           Froude # Chl                 0.02          0.02
  Weir Max Depth (ft)                    Specif Force (cu ft)       3946.88       3908.37
  Min El Weir Flow (ft)         70.01    Hydr Depth (ft)              3.44          3.42
  Min El Prs (ft)               65.99    W.P. Total (ft)            714.38        714.03
  Delta EG (ft)                  0.02    Conv. Total (cfs)          39731.8       39421.1
  Delta WS (ft)                  0.02    Top Width (ft)             640.00        640.00
  BR Open Area (sq ft)        3807.92    Frctn Loss (ft)              0.02          0.00
  BR Open Vel (ft/s)             0.21    C & E Loss (ft)              0.00          0.00
  BR Sluice Coef                         Shear Total (lb/sq ft)       0.03          0.03
```

BR Sel Method Energy only Power Total (lb/ft s) 0.01 0.01

CROSS SECTION

RIVER: 414
REACH: LAKE-B RS: 1000.00*

INPUT
Description:
Station Elevation Data num= 35

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 70 | 19.41 | 70 | 74.26 | 65.48 | 390.54 | 64.75 | 434.66 | 62.4 |
| 492.25 | 62 | 496.21 | 61 | 578.67 | 60.78 | 583.77 | 59.97 | 603.21 | 59 |
| 705.2 | 60.85 | 736.2 | 60 | 782.84 | 60.05 | 805.71 | 61 | 968.71 | 61 |
| 995.82 | 59 | 1137.52 | 59.52 | 1156.27 | 60 | 1227.94 | 59.57 | 1241.18 | 59 |
| 1299.45 | 59 | 1318.69 | 60 | 1367.6 | 60.3 | 1494.04 | 68 | 1504.17 | 68.15 |
| 1514.07 | 70 | 1532.06 | 71 | 1575.47 | 71 | 1594.44 | 74 | 1767.9 | 77 |
| 1842.7 | 79 | 1884.29 | 79 | 1916.17 | 77.6 | 1959.76 | 79 | 2000.01 | 79.5 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .2 | 1227.94 | .11 | 1318.69 | .2 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 1227.94 | 1318.69 | 300 | 300 | 300 | .3 | .5 |

Ineffective Flow num= 2

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 547.43 | 80 | T |
| 1447.43 | 2000.01 | 80 | T |

CROSS SECTION OUTPUT Profile #50yr

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 62.81 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.00 | Wt. n-Val. | 0.200 | 0.110 | 0.200 |
| W.S. Elev (ft) | 62.81 | Reach Len. (ft) | 300.00 | 300.00 | 300.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 1838.52 | 332.47 | 181.93 |
| E.G. Slope (ft/ft) | 0.000099 | Area (sq ft) | 1976.76 | 332.47 | 181.93 |
| Q Total (cfs) | 391.90 | Flow (cfs) | 264.04 | 106.35 | 21.50 |
| Top Width (ft) | 981.89 | Top Width (ft) | 801.00 | 90.75 | 90.15 |
| Vel Total (ft/s) | 0.17 | Avg. Vel. (ft/s) | 0.14 | 0.32 | 0.12 |
| Max Chl Dpth (ft) | 3.81 | Hydr. Depth (ft) | 2.70 | 3.66 | 2.02 |
| Conv. Total (cfs) | 39318.4 | Conv. (cfs) | 26490.9 | 10670.1 | 2157.4 |
| Length Wtd. (ft) | 300.00 | Wetted Per. (ft) | 680.73 | 90.79 | 90.22 |
| Min Ch El (ft) | 59.00 | Shear (lb/sq ft) | 0.02 | 0.02 | 0.01 |
| Alpha | 1.53 | Stream Power (lb/ft s) | 0.00 | 0.01 | 0.00 |
| Frctn Loss (ft) | 0.05 | Cum Volume (acre-ft) | 15.01 | 9.48 | 1.73 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 6.54 | 3.44 | 0.99 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than
1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100yr

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 63.46 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.00 | Wt. n-Val. | 0.200 | 0.110 | 0.200 |
| W.S. Elev (ft) | 63.46 | Reach Len. (ft) | 300.00 | 300.00 | 300.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 2280.26 | 391.38 | 243.91 |
| E.G. Slope (ft/ft) | 0.000069 | Area (sq ft) | 2500.67 | 391.38 | 243.91 |
| Q Total (cfs) | 459.25 | Flow (cfs) | 315.58 | 116.52 | 27.16 |
| Top Width (ft) | 1004.74 | Top Width (ft) | 813.19 | 90.75 | 100.80 |
| Vel Total (ft/s) | 0.16 | Avg. Vel. (ft/s) | 0.14 | 0.30 | 0.11 |
| Max Chl Dpth (ft) | 4.46 | Hydr. Depth (ft) | 3.35 | 4.31 | 2.42 |
| Conv. Total (cfs) | 55195.2 | Conv. (cfs) | 37927.6 | 14003.7 | 3263.9 |
| Length Wtd. (ft) | 300.00 | Wetted Per. (ft) | 680.73 | 90.79 | 100.90 |
| Min Ch El (ft) | 59.00 | Shear (lb/sq ft) | 0.01 | 0.02 | 0.01 |
| Alpha | 1.47 | Stream Power (lb/ft s) | 0.00 | 0.01 | 0.00 |
| Frctn Loss (ft) | 0.03 | Cum Volume (acre-ft) | 19.42 | 11.81 | 2.44 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 6.69 | 3.45 | 1.16 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or

greater than
1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: 414
REACH: LAKE-B RS: 700.000

INPUT
Description:
Station Elevation Data num= 57

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 92.45 | 24.47 | 94 | 128.78 | 95 | 153.05 | 96 | 185.86 | 95 |
| 419.98 | 92.57 | 540.11 | 86.37 | 606.67 | 82 | 607.43 | 82.81 | 609.14 | 82.44 |
| 609.77 | 82.97 | 610.21 | 83.11 | 610.71 | 83.84 | 612.13 | 83.78 | 612.74 | 82.62 |
| 613.35 | 82.48 | 616.37 | 88.92 | 619.34 | 82 | 621.14 | 81 | 639.49 | 81 |
| 640.66 | 83.97 | 641.15 | 84.75 | 642.71 | 88.19 | 643.78 | 86 | 644.91 | 86 |
| 645.96 | 85.03 | 649.81 | 83.15 | 652.04 | 81 | 697.28 | 77 | 722.01 | 76.85 |
| 883.37 | 65 | 896.43 | 65 | 898.89 | 67.97 | 899.62 | 68.56 | 918.97 | 67.63 |
| 935.92 | 70.05 | 938.12 | 71 | 941.81 | 70.74 | 950.97 | 67.97 | 983.88 | 66.93 |
| 1069.31 | 61.25 | 1133.11 | 60.55 | 1386.18 | 60.31 | 1557.64 | 59.13 | 1612.02 | 60.52 |
| 1630.99 | 62 | 1652.13 | 61.6 | 1652.63 | 62.76 | 1653.72 | 62.98 | 1654.03 | 63.26 |
| 1668.81 | 64.41 | 1669.16 | 64.58 | 1690.82 | 66.9 | 1705.84 | 67.72 | 1706.57 | 68 |
| 1761.15 | 68.91 | 2000 | 70.66 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .2 | 1386.18 | .11 | 1630.99 | .2 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 1386.18 | 1630.99 | 100 | 100 | 100 | .3 | .5 |

Ineffective Flow num= 2

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 446.43 | 80 | T |
| 1548.43 | 2000 | 80 | T |

CROSS SECTION OUTPUT Profile #50yr

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 62.76 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.00 | Wt. n-Val. | 0.200 | 0.110 | |
| W.S. Elev (ft) | 62.76 | Reach Len. (ft) | 100.00 | 100.00 | 100.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 725.79 | 488.25 | |
| E.G. Slope (ft/ft) | 0.000298 | Area (sq ft) | 725.79 | 709.53 | 20.61 |
| Q Total (cfs) | 391.90 | Flow (cfs) | 154.49 | 237.41 | |
| Top Width (ft) | 606.05 | Top Width (ft) | 339.60 | 244.81 | 21.64 |
| Vel Total (ft/s) | 0.32 | Avg. Vel. (ft/s) | 0.21 | 0.49 | |
| Max Chl Dpth (ft) | 3.63 | Hydr. Depth (ft) | 2.14 | 3.01 | |
| Conv. Total (cfs) | 22693.3 | Conv. (cfs) | 8946.1 | 13747.2 | |
| Length Wtd. (ft) | 100.00 | Wetted Per. (ft) | 339.65 | 162.25 | |
| Min Ch El (ft) | 59.13 | Shear (lb/sq ft) | 0.04 | 0.06 | |
| Alpha | 1.55 | Stream Power (lb/ft s) | 0.01 | 0.03 | |
| Frctn Loss (ft) | 0.02 | Cum Volume (acre-ft) | 5.70 | 5.89 | 1.03 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 2.62 | 2.28 | 0.61 |

CROSS SECTION OUTPUT Profile #100yr

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 63.43 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.00 | Wt. n-Val. | 0.200 | 0.110 | |
| W.S. Elev (ft) | 63.43 | Reach Len. (ft) | 100.00 | 100.00 | 100.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 954.95 | 596.15 | |
| E.G. Slope (ft/ft) | 0.000193 | Area (sq ft) | 954.95 | 872.33 | 35.87 |
| Q Total (cfs) | 459.25 | Flow (cfs) | 192.70 | 266.55 | |
| Top Width (ft) | 619.58 | Top Width (ft) | 349.60 | 244.81 | 25.17 |
| Vel Total (ft/s) | 0.30 | Avg. Vel. (ft/s) | 0.20 | 0.45 | |
| Max Chl Dpth (ft) | 4.30 | Hydr. Depth (ft) | 2.73 | 3.67 | |
| Conv. Total (cfs) | 33036.7 | Conv. (cfs) | 13861.9 | 19174.8 | |
| Length Wtd. (ft) | 100.00 | Wetted Per. (ft) | 349.67 | 162.25 | |
| Min Ch El (ft) | 59.13 | Shear (lb/sq ft) | 0.03 | 0.04 | |
| Alpha | 1.52 | Stream Power (lb/ft s) | 0.01 | 0.02 | |
| Frctn Loss (ft) | 0.01 | Cum Volume (acre-ft) | 7.52 | 7.46 | 1.48 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 2.69 | 2.29 | 0.72 |

CROSS SECTION

RIVER: 414
REACH: LAKE-B RS: 600.000

INPUT
Description:
Station Elevation Data num= 57

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 94.91 | 54.76 | 96 | 182.87 | 96 | 186.88 | 95 | 188.9 | 96 |
| 210.62 | 96 | 212.26 | 95.04 | 233.35 | 94 | 285.56 | 94.11 | 287.29 | 95 |
| 346.52 | 95.51 | 591.03 | 86 | 686.86 | 83 | 689.89 | 82.09 | 690.46 | 82.19 |
| 691.58 | 83.45 | 692.76 | 86 | 697.26 | 92.83 | 698.53 | 91.89 | 699.22 | 91.16 |
| 700.55 | 90.46 | 703.8 | 83.06 | 708.12 | 81.03 | 734.1 | 81 | 735.93 | 83.56 |
| 737.71 | 85 | 738.34 | 85 | 740.07 | 85.41 | 741.53 | 83.35 | 742.11 | 82 |
| 743.46 | 80 | 793.26 | 76.89 | 812.85 | 76 | 832.88 | 76 | 904.14 | 74 |
| 951.43 | 72.79 | 974.6 | 68.75 | 985.49 | 68.65 | 993.12 | 65 | 1022.87 | 61 |
| 1033.57 | 61 | 1076.67 | 59.45 | 1096.34 | 60 | 1404.1 | 60 | 1431.68 | 59 |
| 1496.5 | 59.38 | 1561.66 | 61 | 1634.05 | 60 | 1733.15 | 61 | 1756.54 | 62.76 |
| 1817.65 | 65.15 | 1891.75 | 66.16 | 1897.35 | 66.9 | 1917.27 | 67 | 1918.41 | 67.44 |
| 1939.42 | 68.66 | 2000.01 | 70.33 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .2 | 1404.1 | .11 | 1561.66 | .2 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 1404.1 | 1561.66 | 100 | 100 | 100 | .3 | .5 |

Ineffective Flow num= 2

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 344.43 | 80 | T |
| 1650.43 | 2000.01 | 80 | T |

CROSS SECTION OUTPUT Profile #50yr

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 62.74 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.00 | Wt. n-Val. | 0.200 | 0.110 | 0.200 |
| W.S. Elev (ft) | 62.74 | Reach Len. (ft) | 100.00 | 100.00 | 100.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 1041.08 | 485.72 | 205.73 |
| E.G. Slope (ft/ft) | 0.000156 | Area (sq ft) | 1041.08 | 485.72 | 404.37 |
| Q Total (cfs) | 391.90 | Flow (cfs) | 184.72 | 173.72 | 33.46 |
| Top Width (ft) | 746.36 | Top Width (ft) | 394.18 | 157.56 | 194.62 |
| Vel Total (ft/s) | 0.23 | Avg. Vel. (ft/s) | 0.18 | 0.36 | 0.16 |
| Max Chl Dpth (ft) | 3.74 | Hydr. Depth (ft) | 2.64 | 3.08 | 2.32 |
| Conv. Total (cfs) | 31347.6 | Conv. (cfs) | 14775.1 | 13895.7 | 2676.7 |
| Length Wtd. (ft) | 100.00 | Wetted Per. (ft) | 394.33 | 157.60 | 88.78 |
| Min Ch El (ft) | 59.00 | Shear (lb/sq ft) | 0.03 | 0.03 | 0.02 |
| Alpha | 1.44 | Stream Power (lb/ft s) | 0.00 | 0.01 | 0.00 |
| Frctn Loss (ft) | 0.02 | Cum Volume (acre-ft) | 3.67 | 4.52 | 0.54 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 1.77 | 1.82 | 0.36 |

CROSS SECTION OUTPUT Profile #100yr

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 63.41 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.00 | Wt. n-Val. | 0.200 | 0.110 | 0.200 |
| W.S. Elev (ft) | 63.41 | Reach Len. (ft) | 100.00 | 100.00 | 100.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 1307.63 | 591.60 | 265.39 |
| E.G. Slope (ft/ft) | 0.000105 | Area (sq ft) | 1307.63 | 591.60 | 540.77 |
| Q Total (cfs) | 459.25 | Flow (cfs) | 219.52 | 197.80 | 41.93 |
| Top Width (ft) | 768.30 | Top Width (ft) | 399.17 | 157.56 | 211.57 |
| Vel Total (ft/s) | 0.21 | Avg. Vel. (ft/s) | 0.17 | 0.33 | 0.16 |
| Max Chl Dpth (ft) | 4.41 | Hydr. Depth (ft) | 3.28 | 3.75 | 2.99 |
| Conv. Total (cfs) | 44815.8 | Conv. (cfs) | 21421.8 | 19302.4 | 4091.6 |
| Length Wtd. (ft) | 100.00 | Wetted Per. (ft) | 399.37 | 157.60 | 88.78 |
| Min Ch El (ft) | 59.00 | Shear (lb/sq ft) | 0.02 | 0.02 | 0.02 |
| Alpha | 1.42 | Stream Power (lb/ft s) | 0.00 | 0.01 | 0.00 |
| Frctn Loss (ft) | 0.01 | Cum Volume (acre-ft) | 4.92 | 5.77 | 0.82 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 1.83 | 1.83 | 0.45 |

CROSS SECTION

RIVER: 414
REACH: LAKE-B RS: 500.000

INPUT
Description:
Station Elevation Data num= 79

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 96 | 123.15 | 97 | 124.74 | 96 | 149.09 | 97 | 152.6 | 95.9 |
| 155.03 | 97 | 182.32 | 97 | 183.21 | 96.52 | 185.13 | 96.43 | 186 | 95.42 |
| 186.3 | 94.67 | 189.06 | 94 | 204.9 | 94 | 205.56 | 94.64 | 251.92 | 95 |
| 294.62 | 94.53 | 295.96 | 95.04 | 303.14 | 94.98 | 306.71 | 95.43 | 308.96 | 94.93 |
| 310.2 | 95.38 | 330.56 | 95.15 | 333 | 94.75 | 350.74 | 95.6 | 351.53 | 95.29 |
| 377.69 | 95.16 | 378.04 | 95 | 382.85 | 95 | 383.24 | 95.14 | 409.24 | 94.22 |
| 410.75 | 95 | 513.02 | 93 | 554.03 | 93 | 692.9 | 84 | 799.56 | 80 |
| 814.56 | 80 | 817.72 | 87.7 | 819.23 | 88 | 820.24 | 87.52 | 820.88 | 88 |
| 823.5 | 91.88 | 824.03 | 92 | 824.74 | 92 | 827.94 | 88 | 830.83 | 82.04 |
| 833.49 | 79 | 834.71 | 79.87 | 835.17 | 80.51 | 836.3 | 80.67 | 837.43 | 83.15 |
| 840.72 | 85.27 | 844.01 | 81.88 | 847.22 | 82.11 | 848.45 | 81.21 | 849.74 | 79 |
| 851.49 | 79.55 | 852.91 | 84.2 | 853.69 | 86 | 857.15 | 90.19 | 860.64 | 82 |
| 863.13 | 79 | 898.35 | 77 | 902.5 | 76 | 915.22 | 75 | 1021.55 | 69.89 |
| 1026.04 | 69 | 1035.27 | 69 | 1038.26 | 66.24 | 1051.03 | 62.94 | 1093.46 | 61 |
| 1342.69 | 59 | 1392.92 | 60 | 1420.28 | 62 | 1483.85 | 63.8 | 1484.32 | 64 |
| 1516.03 | 67 | 1538.07 | 68.72 | 1691.13 | 70.33 | 2000.01 | 70.66 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .2 | 1051.03 | .11 | 1420.28 | .2 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 1051.03 | 1420.28 | 100 | 100 | 100 | .1 | .3 |

CROSS SECTION OUTPUT Profile #50yr

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 62.72 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.00 | Wt. n-Val. | | 0.110 | 0.200 |
| W.S. Elev (ft) | 62.72 | Reach Len. (ft) | 100.00 | 100.00 | 100.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 918.23 | 9.10 |
| E.G. Slope (ft/ft) | 0.000290 | Area (sq ft) | | 918.23 | 9.10 |
| Q Total (cfs) | 391.90 | Flow (cfs) | | 391.32 | 0.58 |
| Top Width (ft) | 389.74 | Top Width (ft) | | 364.39 | 25.35 |
| Vel Total (ft/s) | 0.42 | Avg. Vel. (ft/s) | | 0.43 | 0.06 |
| Max Chl Dpth (ft) | 3.72 | Hydr. Depth (ft) | | 2.52 | 0.36 |
| Conv. Total (cfs) | 22997.7 | Conv. (cfs) | | 22963.6 | 34.1 |
| Length Wtd. (ft) | 100.00 | Wetted Per. (ft) | | 364.52 | 25.36 |
| Min Ch El (ft) | 59.00 | Shear (lb/sq ft) | | 0.05 | 0.01 |
| Alpha | 1.02 | Stream Power (lb/ft s) | | 0.02 | 0.00 |
| Frctn Loss (ft) | 0.03 | Cum Volume (acre-ft) | 2.48 | 2.91 | 0.07 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 1.32 | 1.22 | 0.11 |

CROSS SECTION OUTPUT Profile #100yr

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 63.40 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.00 | Wt. n-Val. | 0.200 | 0.110 | 0.200 |
| W.S. Elev (ft) | 63.40 | Reach Len. (ft) | 100.00 | 100.00 | 100.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 0.40 | 1168.62 | 34.48 |
| E.G. Slope (ft/ft) | 0.000180 | Area (sq ft) | 0.40 | 1168.62 | 34.48 |
| Q Total (cfs) | 459.25 | Flow (cfs) | 0.01 | 456.53 | 2.71 |
| Top Width (ft) | 420.37 | Top Width (ft) | 1.77 | 369.25 | 49.35 |
| Vel Total (ft/s) | 0.38 | Avg. Vel. (ft/s) | 0.04 | 0.39 | 0.08 |
| Max Chl Dpth (ft) | 4.40 | Hydr. Depth (ft) | 0.23 | 3.16 | 0.70 |
| Conv. Total (cfs) | 34223.3 | Conv. (cfs) | 1.1 | 34020.5 | 201.6 |
| Length Wtd. (ft) | 100.00 | Wetted Per. (ft) | 1.83 | 369.39 | 49.37 |
| Min Ch El (ft) | 59.00 | Shear (lb/sq ft) | 0.00 | 0.04 | 0.01 |
| Alpha | 1.04 | Stream Power (lb/ft s) | 0.00 | 0.01 | 0.00 |
| Frctn Loss (ft) | 0.02 | Cum Volume (acre-ft) | 3.42 | 3.75 | 0.16 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 1.37 | 1.23 | 0.15 |

CROSS SECTION

RIVER: 414
REACH: LAKE-B RS: 400.000

INPUT
Description:
Station Elevation Data num= 44

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 96 | 203.07 | 97 | 302.29 | 97 | 308.51 | 94.97 | 334.14 | 94.84 |
| 340.14 | 95.62 | 345.21 | 95.57 | 352.63 | 94.74 | 378.73 | 95 | 407.32 | 94 |
| 488.78 | 94 | 494.78 | 95 | 564.6 | 93 | 582.33 | 92 | 632.68 | 91.56 |
| 713.82 | 87 | 741.25 | 87 | 779.73 | 82 | 856.96 | 78 | 926 | 75.73 |
| 1023.34 | 69.73 | 1036.87 | 68 | 1044.46 | 68 | 1168.28 | 66.47 | 1174.95 | 69 |
| 1193.19 | 66 | 1218.03 | 68.58 | 1227.28 | 63 | 1346.96 | 60 | 1493.03 | 61.44 |
| 1544.28 | 60 | 1633.8 | 60.33 | 1697.2 | 61 | 1709.79 | 62 | 1802.2 | 59.77 |
| 1829.95 | 60 | 1850.66 | 59.16 | 1857.59 | 60 | 1910.82 | 60 | 1911.55 | 61.68 |
| 1937.96 | 62 | 1971.3 | 66.16 | 1990.38 | 67.24 | 2000 | 70.66 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .2 | 1709.79 | .11 | 1911.55 | .2 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 1709.79 | 1911.55 | 100 | 100 | 100 | .1 | .3 |

CROSS SECTION OUTPUT Profile #50yr

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 62.69 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.00 | Wt. n-Val. | 0.200 | 0.110 | 0.200 |
| W.S. Elev (ft) | 62.69 | Reach Len. (ft) | 100.00 | 100.00 | 100.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 901.49 | 474.72 | 24.29 |
| E.G. Slope (ft/ft) | 0.000324 | Area (sq ft) | 901.49 | 474.72 | 24.29 |
| Q Total (cfs) | 391.90 | Flow (cfs) | 185.94 | 203.26 | 2.70 |
| Top Width (ft) | 703.74 | Top Width (ft) | 470.06 | 201.76 | 31.92 |
| Vel Total (ft/s) | 0.28 | Avg. Vel. (ft/s) | 0.21 | 0.43 | 0.11 |
| Max Chl Dpth (ft) | 3.53 | Hydr. Depth (ft) | 1.92 | 2.35 | 0.76 |
| Conv. Total (cfs) | 21787.1 | Conv. (cfs) | 10337.1 | 11299.7 | 150.3 |
| Length Wtd. (ft) | 100.00 | Wetted Per. (ft) | 470.17 | 202.96 | 31.97 |
| Min Ch El (ft) | 59.16 | Shear (lb/sq ft) | 0.04 | 0.05 | 0.02 |
| Alpha | 1.47 | Stream Power (lb/ft s) | 0.01 | 0.02 | 0.00 |
| Frctn Loss (ft) | 0.04 | Cum Volume (acre-ft) | 1.44 | 1.31 | 0.03 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 0.78 | 0.57 | 0.04 |

CROSS SECTION OUTPUT Profile #100yr

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 63.38 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.00 | Wt. n-Val. | 0.200 | 0.110 | 0.200 |
| W.S. Elev (ft) | 63.38 | Reach Len. (ft) | 100.00 | 100.00 | 100.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 1233.79 | 614.43 | 48.32 |
| E.G. Slope (ft/ft) | 0.000173 | Area (sq ft) | 1233.79 | 614.43 | 48.32 |
| Q Total (cfs) | 459.25 | Flow (cfs) | 225.20 | 228.47 | 5.58 |
| Top Width (ft) | 722.37 | Top Width (ft) | 483.14 | 201.76 | 37.47 |
| Vel Total (ft/s) | 0.24 | Avg. Vel. (ft/s) | 0.18 | 0.37 | 0.12 |
| Max Chl Dpth (ft) | 4.22 | Hydr. Depth (ft) | 2.55 | 3.05 | 1.29 |
| Conv. Total (cfs) | 34915.1 | Conv. (cfs) | 17120.8 | 17369.7 | 424.6 |
| Length Wtd. (ft) | 100.00 | Wetted Per. (ft) | 483.36 | 202.96 | 37.56 |
| Min Ch El (ft) | 59.16 | Shear (lb/sq ft) | 0.03 | 0.03 | 0.01 |
| Alpha | 1.45 | Stream Power (lb/ft s) | 0.01 | 0.01 | 0.00 |
| Frctn Loss (ft) | 0.02 | Cum Volume (acre-ft) | 2.00 | 1.71 | 0.06 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 0.81 | 0.57 | 0.05 |

CROSS SECTION

RIVER: 414
REACH: LAKE-B RS: 300.000

INPUT
Description:
Station Elevation Data num= 48

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 96 | 174.24 | 96.37 | 216.31 | 97 | 303.33 | 96 | 370.81 | 96 |
| 372.44 | 95 | 451.08 | 94.59 | 459.52 | 94 | 473.83 | 94 | 478.93 | 94.45 |
| 576.55 | 93.47 | 581.13 | 94 | 619.45 | 92 | 637.76 | 89 | 655.89 | 88 |
| 684.6 | 88 | 712.16 | 86.96 | 824.88 | 82 | 832.38 | 81 | 883.71 | 79 |
| 901.58 | 76 | 916.13 | 75.41 | 947.12 | 76 | 958.78 | 74 | 1015.95 | 72.58 |
| 1018.95 | 72 | 1072.26 | 71 | 1078.78 | 69.99 | 1240.9 | 69 | 1263 | 67.02 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1268.22 | 64 | 1271.76 | 63 | 1349.47 | 60 | 1417.9 | 60 | 1435.17 | 61 |
| 1492.44 | 62.66 | 1503.58 | 62 | 1533.7 | 62 | 1617.8 | 60 | 1710.81 | 59.48 |
| 1743.67 | 59.15 | 1767.63 | 60 | 1783.01 | 60 | 1786.91 | 61.68 | 1787.24 | 62 |
| 1810.96 | 65.8 | 2000.01 | 65.89 | 2000.01 | 70.66 | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .2 | 1492.44 | .11 | 1787.24 | .2 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 1492.44 | 1787.24 | 0 | 0 | 0 | .1 | .3 |

CROSS SECTION OUTPUT Profile #50yr

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 62.65 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.00 | Wt. n-Val. | 0.200 | 0.110 | 0.200 |
| W.S. Elev (ft) | 62.65 | Reach Len. (ft) | | | |
| Crit W.S. (ft) | 60.21 | Flow Area (sq ft) | 356.39 | 663.92 | 1.32 |
| E.G. Slope (ft/ft) | 0.000419 | Area (sq ft) | 356.39 | 663.92 | 1.32 |
| Q Total (cfs) | 391.90 | Flow (cfs) | 76.75 | 315.05 | 0.09 |
| Top Width (ft) | 509.96 | Top Width (ft) | 211.27 | 294.63 | 4.06 |
| Vel Total (ft/s) | 0.38 | Avg. Vel. (ft/s) | 0.22 | 0.47 | 0.07 |
| Max Chl Dpth (ft) | 3.50 | Hydr. Depth (ft) | 1.69 | 2.25 | 0.33 |
| Conv. Total (cfs) | 19151.6 | Conv. (cfs) | 3750.9 | 15396.1 | 4.6 |
| Length Wtd. (ft) | | Wetted Per. (ft) | 211.37 | 295.17 | 4.11 |
| Min Ch El (ft) | 59.15 | Shear (lb/sq ft) | 0.04 | 0.06 | 0.01 |
| Alpha | 1.29 | Stream Power (lb/ft s) | 0.01 | 0.03 | 0.00 |
| Frctn Loss (ft) | | Cum Volume (acre-ft) | | | |
| C & E Loss (ft) | | Cum SA (acres) | | | |

Warning: Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #100yr

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 63.36 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.00 | Wt. n-Val. | 0.200 | 0.110 | 0.200 |
| W.S. Elev (ft) | 63.36 | Reach Len. (ft) | | | |
| Crit W.S. (ft) | 60.27 | Flow Area (sq ft) | 511.71 | 873.22 | 5.77 |
| E.G. Slope (ft/ft) | 0.000220 | Area (sq ft) | 511.71 | 873.22 | 5.77 |
| Q Total (cfs) | 459.25 | Flow (cfs) | 98.36 | 360.40 | 0.49 |
| Top Width (ft) | 525.24 | Top Width (ft) | 221.95 | 294.80 | 8.49 |
| Vel Total (ft/s) | 0.33 | Avg. Vel. (ft/s) | 0.19 | 0.41 | 0.08 |
| Max Chl Dpth (ft) | 4.21 | Hydr. Depth (ft) | 2.31 | 2.96 | 0.68 |
| Conv. Total (cfs) | 30964.1 | Conv. (cfs) | 6631.6 | 24299.6 | 32.9 |
| Length Wtd. (ft) | | Wetted Per. (ft) | 222.12 | 295.34 | 8.60 |
| Min Ch El (ft) | 59.15 | Shear (lb/sq ft) | 0.03 | 0.04 | 0.01 |
| Alpha | 1.30 | Stream Power (lb/ft s) | 0.01 | 0.02 | 0.00 |
| Frctn Loss (ft) | | Cum Volume (acre-ft) | | | |
| C & E Loss (ft) | | Cum SA (acres) | | | |

SUMMARY OF MANNING'S N VALUES

River:414

| Reach | River Sta. | n1 | n2 | n3 |
|---|---|---|---|---|
| LAKE-B | 2000.000 | .2 | .11 | .2 |
| LAKE-B | 1900.000 | .2 | .11 | .2 |
| LAKE-B | 1800.000 | .2 | .11 | .2 |
| LAKE-B | 1700.000 | .2 | .11 | .2 |
| LAKE-B | 1600.000 | .2 | .11 | .2 |
| LAKE-B | 1500.000 | .2 | .11 | .2 |
| LAKE-B | 1400.000 | .2 | .11 | .2 |
| LAKE-B | 1300.000 | .2 | .11 | .2 |
| LAKE-B | 1200.000 | .2 | .11 | .2 |
| LAKE-B | 1140 | Bridge | | |
| LAKE-B | 1000.00* | .2 | .11 | .2 |
| LAKE-B | 700.000 | .2 | .11 | .2 |
| LAKE-B | 600.000 | .2 | .11 | .2 |
| LAKE-B | 500.000 | .2 | .11 | .2 |
| LAKE-B | 400.000 | .2 | .11 | .2 |

| | | | | |
|---|---|---|---|---|
| LAKE-B | 300.000 | .2 | .11 | .2 |

SUMMARY OF REACH LENGTHS

River: 414

| Reach | River Sta. | Left | Channel | Right |
|---|---|---|---|---|
| LAKE-B | 2000.000 | 100 | 100 | 100 |
| LAKE-B | 1900.000 | 100 | 100 | 100 |
| LAKE-B | 1800.000 | 100 | 100 | 100 |
| LAKE-B | 1700.000 | 100 | 100 | 100 |
| LAKE-B | 1600.000 | 100 | 100 | 100 |
| LAKE-B | 1500.000 | 100 | 100 | 100 |
| LAKE-B | 1400.000 | 100 | 100 | 100 |
| LAKE-B | 1300.000 | 100 | 100 | 100 |
| LAKE-B | 1200.000 | 200 | 200 | 200 |
| LAKE-B | 1140 | Bridge | | |
| LAKE-B | 1000.00* | 300 | 300 | 300 |
| LAKE-B | 700.000 | 100 | 100 | 100 |
| LAKE-B | 600.000 | 100 | 100 | 100 |
| LAKE-B | 500.000 | 100 | 100 | 100 |
| LAKE-B | 400.000 | 100 | 100 | 100 |
| LAKE-B | 300.000 | 0 | 0 | 0 |

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: 414

| Reach | River Sta. | Contr. | Expan. |
|---|---|---|---|
| LAKE-B | 2000.000 | .1 | .3 |
| LAKE-B | 1900.000 | .1 | .3 |
| LAKE-B | 1800.000 | .1 | .3 |
| LAKE-B | 1700.000 | .1 | .3 |
| LAKE-B | 1600.000 | .1 | .3 |
| LAKE-B | 1500.000 | .1 | .3 |
| LAKE-B | 1400.000 | .1 | .3 |
| LAKE-B | 1300.000 | .1 | .3 |
| LAKE-B | 1200.000 | .3 | .5 |
| LAKE-B | 1140 | Bridge | |
| LAKE-B | 1000.00* | .3 | .5 |
| LAKE-B | 700.000 | .3 | .5 |
| LAKE-B | 600.000 | .3 | .5 |
| LAKE-B | 500.000 | .1 | .3 |
| LAKE-B | 400.000 | .1 | .3 |
| LAKE-B | 300.000 | .1 | .3 |

# Original HEC-RAS Model

```
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

            *** RUN DATE & TIME: 11-30-94  10:19

  T1         MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER

  T2         BRIDGE HYDRAULICS REPORT (file name NOBRIDGE.10)

  T3         10,100 YR - NATURAL CHANNEL, NO ORANOLE BRIDGE

  *          Q's & ELEV's BASED ON SJRWMD REPORT

  Q          795,1450

*** Q-DATA FOR SEC-ID, ISEQ =            1
  WS         64.28,66.6

  J1


 J1 RECORD PARAMETERS:
DELTAY = 1.00   YTOL =  .02   QTOL =  .02   FNTEST =  .80   IHFNOJ = -1

  J3         5,6,3,17,13,14,16,28

  *          DOWNSTREAM - STA 24+00

1
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name NOBRIDGE.10)
        10,100 YR - NATURAL CHANNEL, NO ORANOLE BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19

*** START PROCESSING CROSS SECTION - "24+00"
  XS   24+000

  GR         9,73.5 25,72.1 50,69.7 75,68.0 100,67.1 115,65.2 123,60.2 131,57.8

  GR         139,55.2 144,56.2 145,58.5 152,61.6 170,61.1 174,59.7 180,63.0

  GR         198,67.5 225,67.0 250,66.9 275,66.8 300,66.2

  N          0.15,0.04,0.15

  SA         115,198


*** FINISH PROCESSING CROSS SECTION - "24+00"
*** CROSS SECTION "24+00" WRITTEN TO DISK, RECORD NO. =  1

--- DATA SUMMARY FOR SECID "24+00" AT SRD =      0.  ERR-CODE =      0

    SKEW      IHFNO     VSLOPE        EK        CK
      .0         0. *********       .50       .00

X-Y COORDINATE PAIRS  (NGP =  20):
      X       Y          X       Y          X       Y          X       Y
     9.0   73.50       25.0   72.10       50.0   69.70       75.0   68.00
```

```
    170.0   61.10      174.0   59.70      180.0   63.00      198.0   67.50
    225.0   67.00      250.0   66.90      275.0   66.80      300.0   66.20

 X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN       XMAX       Y          X    YMAX
      9.0   73.50      139.0   55.20      300.0   66.20        9.0   73.50

 SUBAREA BREAKPOINTS (NSA =  3):
        115.    198.

 ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150
1
 WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
 P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name NOBRIDGE.10)
        10,100 YR - NATURAL CHANNEL, NO ORANOLE BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19

 *** START PROCESSING CROSS SECTION - "24+28"
   XS   24+2828.90

   GR        72,68.0

   GR        75,67.8 100,65.9 110,65.6 117,62.4 124,61.2 127,55.5 133,54.7

   GR        142,55.9 146,61.5 167,64.9 179,59.0 185,58.2 190,59.6 200,68.4

   GR        225,69.9 250,71.0

   SA        110,200


 *** FINISH PROCESSING CROSS SECTION - "24+28"
 *** CROSS SECTION "24+28" WRITTEN TO DISK, RECORD NO. =  2

 --- DATA SUMMARY FOR SECID "24+28" AT SRD =     29.  ERR-CODE =      0

      SKEW     IHFNO    VSLOPE        EK        CK
        .0        0. *********       .50       .00

 X-Y COORDINATE PAIRS  (NGP =  17):
        X       Y          X       Y          X       Y          X       Y
      72.0   68.00       75.0   67.80      100.0   65.90      110.0   65.60
     117.0   62.40      124.0   61.20      127.0   55.50      133.0   54.70
     142.0   55.90      146.0   61.50      167.0   64.90      179.0   59.00
     185.0   58.20      190.0   59.60      200.0   68.40      225.0   69.90
     250.0   71.00

  X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN       XMAX       Y          X    YMAX
     72.0   68.00      133.0   54.70      250.0   71.00      250.0   71.00

 SUBAREA BREAKPOINTS (NSA =  3):
        110.    200.

 ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150
1
 WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
 P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS
```

```
        10,100 YR - NATURAL CHANNEL, NO ORANOLE BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19

*** START PROCESSING CROSS SECTION - "24+50"
  XS   24+5050

  GR        70,68.0

  GR        75,67.7 100,66.0 115,65.7 123,55.5 130,54.7 139,57.4 148,62.8

  GR        154,63.6 165,62.5 171,60.0 179,59.0 184,59.5 196,67.4 225,70.5

  GR        250,71.5

  SA        115,196

*** FINISH PROCESSING CROSS SECTION - "24+50"
*** CROSS SECTION "24+50" WRITTEN TO DISK, RECORD NO. =  3

--- DATA SUMMARY FOR SECID "24+50" AT SRD =     50.  ERR-CODE =      0

     SKEW      IHFNO    VSLOPE        EK        CK
       .0         0. *********      .50       .00

X-Y COORDINATE PAIRS  (NGP =  16):
       X       Y          X       Y          X       Y          X       Y
     70.0   68.00       75.0   67.70      100.0   66.00      115.0   65.70
    123.0   55.50      130.0   54.70      139.0   57.40      148.0   62.80
    154.0   63.60      165.0   62.50      171.0   60.00      179.0   59.00
    184.0   59.50      196.0   67.40      225.0   70.50      250.0   71.50

 X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
     70.0   68.00      130.0   54.70      250.0   71.50      250.0   71.50

 SUBAREA BREAKPOINTS (NSA =  3):
        115.    196.

 ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150

WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name NOBRIDGE.10)
        10,100 YR - NATURAL CHANNEL, NO ORANOLE BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19

*** START PROCESSING CROSS SECTION - "25+00"
  XS   25+00100

  GR        38,72.7 50,71.8 75,68.8 100,67.2 115,66.1 125,55.9 135,56.3 137,57.

  GR        147,61.8 160,62.9 182,60.3 199,66.8 225,69.7 250,72.7 264,72.4

  SA        115,199

*** FINISH PROCESSING CROSS SECTION - "25+00"
*** CROSS SECTION "25+00" WRITTEN TO DISK, RECORD NO. =  4

--- DATA SUMMARY FOR SECID "25+00" AT SRD =    100.  ERR-CODE =      0
```

```
      .0          0. *********        .50        .00

 X-Y COORDINATE PAIRS  (NGP =  15):
       X      Y          X      Y          X      Y          X      Y
     38.0   72.70      50.0   71.80      75.0   68.80     100.0   67.20
    115.0   66.10     125.0   55.90     135.0   56.30     137.0   57.50
    147.0   61.80     160.0   62.90     182.0   60.30     199.0   66.80
    225.0   69.70     250.0   72.70     264.0   72.40

  X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
     38.0   72.70     125.0   55.90     264.0   72.40      38.0   72.70

 SUBAREA BREAKPOINTS (NSA =  3):
        115.    199.

 ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150
1
 WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
 P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name NOBRIDGE.10)
        10,100 YR - NATURAL CHANNEL, NO ORANOLE BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19

 *** START PROCESSING CROSS SECTION - "25+25"
   XS   25+25125

   GR        38,73.2 50,72.1 75,69.3 100,67.7 102,67.6 117,66.2 124,61.1 126,57
5
   GR        128,56.6 136,56.8 140,57.5 145,60.7 149,62.2 157,63.6 162,63.4

   GR        169,62.1 178,61.2 184,61.2 192,63.4 201,65.6 203,66.3 214,67.9

   GR        250,72 270,73.0

   SA        117,201


 *** FINISH PROCESSING CROSS SECTION - "25+25"
 *** CROSS SECTION "25+25" WRITTEN TO DISK, RECORD NO. =  5

 --- DATA SUMMARY FOR SECID "25+25" AT SRD =    125.  ERR-CODE =      0

      SKEW     IHFNO    VSLOPE        EK        CK
        .0        0. *********       .50       .00

 X-Y COORDINATE PAIRS  (NGP =  24):
       X      Y          X      Y          X      Y          X      Y
     38.0   73.20      50.0   72.10      75.0   69.30     100.0   67.70
    102.0   67.60     117.0   66.20     124.0   61.10     126.0   57.50
    128.0   56.60     136.0   56.80     140.0   57.50     145.0   60.70
    149.0   62.20     157.0   63.60     162.0   63.40     169.0   62.10
    178.0   61.20     184.0   61.20     192.0   63.40     201.0   65.60
    203.0   66.30     214.0   67.90     250.0   72.00     270.0   73.00

  X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
     38.0   73.20     128.0   56.60     270.0   73.00      38.0   73.20

 SUBAREA BREAKPOINTS (NSA =  3):
        117.    201.
```

```
        .150     .040     .150

WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name NOBRIDGE.10)
        10,100 YR - NATURAL CHANNEL, NO ORANOLE BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19

*** START PROCESSING CROSS SECTION - "25+50"
  XS   25+50150

  GR        38,73.7 50,72.5 75,69.9 100,68.3 117,66.3 125,61.1 127,57.5 135,57.

  GR        141,57.4 143,60.8 157,65.2 170,62.1 178,61.7 184,62.2 217,67.6

  GR        250,71.3 275,73.7

  SA        117,217


*** FINISH PROCESSING CROSS SECTION - "25+50"
*** CROSS SECTION "25+50" WRITTEN TO DISK, RECORD NO. =  6

--- DATA SUMMARY FOR SECID "25+50" AT SRD =    150.  ERR-CODE =      0

     SKEW     IHFNO    VSLOPE        EK        CK
       .0        0. *********       .50       .00

X-Y COORDINATE PAIRS  (NGP =  17):
       X      Y          X      Y          X      Y          X      Y
     38.0   73.70      50.0   72.50      75.0   69.90     100.0   68.30
    117.0   66.30     125.0   61.10     127.0   57.50     135.0   57.60
    141.0   57.40     143.0   60.80     157.0   65.20     170.0   62.10
    178.0   61.70     184.0   62.20     217.0   67.60     250.0   71.30
    275.0   73.70

 X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
     38.0   73.70     141.0   57.40     275.0   73.70      38.0   73.70

SUBAREA BREAKPOINTS (NSA =  3):
        117.    217.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150     .040     .150

WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name NOBRIDGE.10)
        10,100 YR - NATURAL CHANNEL, NO ORANOLE BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19

*** START PROCESSING CROSS SECTION - "25+62"
  XS   25+62162.5

  GR        50,72.8 75,70.3 100,68.6 101,68.5 109,67.6 118,66.2 126,61.1

  GR        128,57.4 141,57.4 145,60.8 148,61.8 158,63.6 169,61.5 186,62.3

  GR        194,62.6 213,66.7 250,71.1 275,73.4
```

```
*** FINISH PROCESSING CROSS SECTION - "25+62"
*** CROSS SECTION "25+62" WRITTEN TO DISK, RECORD NO. =  7

--- DATA SUMMARY FOR SECID "25+62" AT SRD =    163.  ERR-CODE =      0

     SKEW      IHFNO    VSLOPE        EK        CK
       .0         0. *********       .50       .00

X-Y COORDINATE PAIRS  (NGP =  18):
       X       Y          X       Y          X       Y          X       Y
     50.0   72.80       75.0   70.30      100.0   68.60      101.0   68.50
    109.0   67.60      118.0   66.20      126.0   61.10      128.0   57.40
    141.0   57.40      145.0   60.80      148.0   61.80      158.0   63.60
    169.0   61.50      186.0   62.30      194.0   62.60      213.0   66.70
    250.0   71.10      275.0   73.40

 X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN       XMAX       Y          X    YMAX
     50.0   72.80      128.0   57.40      275.0   73.40      275.0   73.40

SUBAREA BREAKPOINTS (NSA =  3):
        117.    250.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150
1
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name NOBRIDGE.10)
        10,100 YR - NATURAL CHANNEL, NO ORANOLE BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19

*** START PROCESSING CROSS SECTION - "25+75"
  XS   25+75175

  GR        50,73.2 75,70.7 100,69.0 101,68.9 110,68.0 117,66.1 126,61.1

  GR        128,57.4 133,57.0 141,57.4 147,60.8 149,61.6 157,62.4 168,60.9

  GR        177,62.0 183,62.5 185,62.4 192,61.4 195,61.1 200,63.0 213,66.6

  GR        250,70.9 275,73.1

  SA        117,250


*** FINISH PROCESSING CROSS SECTION - "25+75"
*** CROSS SECTION "25+75" WRITTEN TO DISK, RECORD NO. =  8

--- DATA SUMMARY FOR SECID "25+75" AT SRD =    175.  ERR-CODE =      0

     SKEW      IHFNO    VSLOPE        EK        CK
       .0         0. *********       .50       .00

X-Y COORDINATE PAIRS  (NGP =  23):
       X       Y          X       Y          X       Y          X       Y
     50.0   73.20       75.0   70.70      100.0   69.00      101.0   68.90
    110.0   68.00      117.0   66.10      126.0   61.10      128.0   57.40
    133.0   57.00      141.0   57.40      147.0   60.80      149.0   61.60
    157.0   62.40      168.0   60.90      177.0   62.00      183.0   62.50
```

```
 X-Y MAX-MIN POINTS:
     XMIN        Y          X     YMIN       XMAX        Y          X     YMAX
     50.0    73.20      133.0    57.00      275.0    73.10       50.0    73.20

SUBAREA BREAKPOINTS (NSA =  3):
        117.     250.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150     .040     .150
1
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name NOBRIDGE.10)
        10,100 YR - NATURAL CHANNEL, NO ORANOLE BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19

*** START PROCESSING CROSS SECTION - "25+87"
  XS   25+87187.5

  GR        50,73.5 75,71.1 102,69.5 115,68.5 130,61.2 132,57.3 136,56.6

  GR        147,57.5 154,61.5 162,61.1 173,59.8 182,62.2 189,62.5 196,60.4

  GR        200,60.0 218,66.5 250,70.7 275,72.8


*** FINISH PROCESSING CROSS SECTION - "25+87"
*** NO ROUGHNESS DATA INPUT, WILL PROPAGATE FROM PREVIOUS CROSS SECTION.
*** CROSS SECTION "25+87" WRITTEN TO DISK, RECORD NO. =  9

--- DATA SUMMARY FOR SECID "25+87" AT SRD =    188.  ERR-CODE =      0

     SKEW      IHFNO     VSLOPE         EK         CK
       .0         0. *********        .50        .00

X-Y COORDINATE PAIRS  (NGP =  18):
       X        Y          X        Y          X        Y          X        Y
     50.0    73.50       75.0    71.10      102.0    69.50      115.0    68.50
    130.0    61.20      132.0    57.30      136.0    56.60      147.0    57.50
    154.0    61.50      162.0    61.10      173.0    59.80      182.0    62.20
    189.0    62.50      196.0    60.40      200.0    60.00      218.0    66.50
    250.0    70.70      275.0    72.80

 X-Y MAX-MIN POINTS:
     XMIN        Y          X     YMIN       XMAX        Y          X     YMAX
     50.0    73.50      136.0    56.60      275.0    72.80       50.0    73.50

SUBAREA BREAKPOINTS (NSA =  3):
        117.     250.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150     .040     .150

WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name NOBRIDGE.10)
        10,100 YR - NATURAL CHANNEL, NO ORANOLE BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19
```

```
  GR        0,76.9 25,75.4 50,73.9 75,71.5 100,69.8 113,68.8 123,62.4 128,61.1

  GR        130,57.1 136,56.4 145,57.6 152,61.2 162,59.9 170,58.9 174,59.4

  GR        179,62.3 187,62.8 193,59.5 198,59.3 201,60.1 216,66.4 225,67.4

  GR        250,70.5 275,72.5

  SA        113,216


*** FINISH PROCESSING CROSS SECTION - "26+00"
*** CROSS SECTION "26+00" WRITTEN TO DISK, RECORD NO. = 10

--- DATA SUMMARY FOR SECID "26+00" AT SRD =    200.  ERR-CODE =      0

     SKEW      IHFNO    VSLOPE        EK        CK
       .0         0. *********      .50       .00

X-Y COORDINATE PAIRS  (NGP =  24):
       X       Y          X       Y          X       Y          X       Y
      .0   76.90       25.0   75.40       50.0   73.90       75.0   71.50
    100.0   69.80      113.0   68.80      123.0   62.40      128.0   61.10
    130.0   57.10      136.0   56.40      145.0   57.60      152.0   61.20
    162.0   59.90      170.0   58.90      174.0   59.40      179.0   62.30
    187.0   62.80      193.0   59.50      198.0   59.30      201.0   60.10
    216.0   66.40      225.0   67.40      250.0   70.50      275.0   72.50

 X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN       XMAX       Y          X    YMAX
      .0   76.90      136.0   56.40      275.0   72.50         .0   76.90

SUBAREA BREAKPOINTS (NSA =  3):
        113.    216.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150
1
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name NOBRIDGE.10)
        10,100 YR - NATURAL CHANNEL, NO ORANOLE BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19

*** START PROCESSING CROSS SECTION - "26+25"
  XS   26+25225

  GR        25,75.7 50,74.0 75,71.6 100,70.3 112,68.5 124,62.5 128,61.1 129,57
5
  GR        137,56.1 145,57.6 148,58.7 154,62.3 161,62.4 168,61.4 174,60.4

  GR        184,61.4 186,62.3 194,60.0 196,59.8 199,60.3 206,63.6 221,66.7

  GR        225,67.2 250,69.8

  SA        128,206


*** FINISH PROCESSING CROSS SECTION - "26+25"
*** CROSS SECTION "26+25" WRITTEN TO DISK, RECORD NO. = 11
```

```
    SKEW      IHFNO     VSLOPE        EK        CK
      .0         0. *********       .50       .00

X-Y COORDINATE PAIRS  (NGP =  24):
      X       Y          X       Y          X       Y          X       Y
    25.0   75.70       50.0   74.00       75.0   71.60      100.0   70.30
   112.0   68.50      124.0   62.50      128.0   61.10      129.0   57.50
   137.0   56.10      145.0   57.60      148.0   58.70      154.0   62.30
   161.0   62.40      168.0   61.40      174.0   60.40      184.0   61.40
   186.0   62.30      194.0   60.00      196.0   59.80      199.0   60.30
   206.0   63.60      221.0   66.70      225.0   67.20      250.0   69.80

 X-Y MAX-MIN POINTS:
    XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
    25.0   75.70      137.0   56.10     250.0   69.80       25.0   75.70

SUBAREA BREAKPOINTS (NSA =  3):
        128.    206.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150

WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name NOBRIDGE.10)
        10,100 YR - NATURAL CHANNEL, NO ORANOLE BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19

*** START PROCESSING CROSS SECTION - "26+50"
  XS   26+50250

  GR        25,76.0 50,74.1 75,71.7 100,70.5 107,69.6 123,62.2 127,57.7 135,56.

  GR        144,57.6 148,58.9 153,64.2 162,65.7 174,61.1 184,60.2 186,61.8

  GR        190,61.6 194,60.5 202,64.1 225,67.0 250,69.2 270,72.6 298,73.1

  SA        107,202


*** FINISH PROCESSING CROSS SECTION - "26+50"
*** CROSS SECTION "26+50" WRITTEN TO DISK, RECORD NO. = 12

--- DATA SUMMARY FOR SECID "26+50" AT SRD =    250.  ERR-CODE =      0

    SKEW      IHFNO     VSLOPE        EK        CK
      .0         0. *********       .50       .00

X-Y COORDINATE PAIRS  (NGP =  22):
      X       Y          X       Y          X       Y          X       Y
    25.0   76.00       50.0   74.10       75.0   71.70      100.0   70.50
   107.0   69.60      123.0   62.20      127.0   57.70      135.0   56.20
   144.0   57.60      148.0   58.90      153.0   64.20      162.0   65.70
   174.0   61.10      184.0   60.20      186.0   61.80      190.0   61.60
   194.0   60.50      202.0   64.10      225.0   67.00      250.0   69.20
   270.0   72.60      298.0   73.10

 X-Y MAX-MIN POINTS:
    XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
    25.0   76.00      135.0   56.20     298.0   73.10       25.0   76.00

SUBAREA BREAKPOINTS (NSA =  3):
```

```
ROUGHNESS COEFFICIENTS (NSA =  3):
        .150    .040    .150
1
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name NOBRIDGE.10)
        10,100 YR - NATURAL CHANNEL, NO ORANOLE BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19

*** START PROCESSING CROSS SECTION - "27+23"
  XS   27+23323.49

  GR        35,75.9 50,75.0 75,73.0 100,70.5 116,69.8 126,61.6 129,61.3 131,57
9
  GR        146,57.5 159,58.4 163,62.2 188,63.4 211,64.3 234,62.8 260,68.6

  GR        275,71.5 300,73.1

  SA        116,260


*** FINISH PROCESSING CROSS SECTION - "27+23"
*** CROSS SECTION "27+23" WRITTEN TO DISK, RECORD NO. = 13

--- DATA SUMMARY FOR SECID "27+23" AT SRD =    323.  ERR-CODE =      0

     SKEW     IHFNO    VSLOPE        EK        CK
       .0        0. *********       .50       .00

X-Y COORDINATE PAIRS  (NGP =  17):
       X       Y          X       Y          X       Y          X       Y
    35.0   75.90       50.0   75.00       75.0   73.00      100.0   70.50
   116.0   69.80      126.0   61.60      129.0   61.30      131.0   57.90
   146.0   57.50      159.0   58.40      163.0   62.20      188.0   63.40
   211.0   64.30      234.0   62.80      260.0   68.60      275.0   71.50
   300.0   73.10

 X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
     35.0   75.90      146.0   57.50     300.0   73.10       35.0   75.90

SUBAREA BREAKPOINTS (NSA =  3):
        116.    260.

ROUGHNESS COEFFICIENTS (NSA =  3):
        .150    .040    .150
1
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name NOBRIDGE.10)
        10,100 YR - NATURAL CHANNEL, NO ORANOLE BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19

*** START PROCESSING CROSS SECTION - "28+00"
  XS   28+00400

  GR        35,75.4 50,74.3 75,72.0 100,69.9 106,69.7 117,67.1 133,61.9 140,61
5
  GR        144,57.7 148,56.9 155,57.5 160,61.9 172,64.2 181,62.4 209,63.0
```

```
*** FINISH PROCESSING CROSS SECTION - "28+00"
*** CROSS SECTION "28+00" WRITTEN TO DISK, RECORD NO. = 14

--- DATA SUMMARY FOR SECID "28+00" AT SRD =    400.  ERR-CODE =      0

     SKEW      IHFNO     VSLOPE         EK         CK
       .0         0. *********        .50        .00

X-Y COORDINATE PAIRS  (NGP =  21):
       X       Y          X       Y          X       Y          X       Y
     35.0   75.40       50.0   74.30       75.0   72.00      100.0   69.90
    106.0   69.70      117.0   67.10      133.0   61.90      140.0   61.50
    144.0   57.70      148.0   56.90      155.0   57.50      160.0   61.90
    172.0   64.20      181.0   62.40      209.0   63.00      218.0   59.50
    228.0   60.80      240.0   67.70      250.0   69.70      275.0   72.00
    300.0   73.40

 X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN       XMAX       Y          X    YMAX
     35.0   75.40      148.0   56.90      300.0   73.40       35.0   75.40

SUBAREA BREAKPOINTS (NSA =  3):
        106.    240.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150

WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name NOBRIDGE.10)
        10,100 YR - NATURAL CHANNEL, NO ORANOLE BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19

*** START PROCESSING CROSS SECTION - "28+50"
  XS   28+50450

  GR        15,76.1 25,75.4 50,73.7 75,71.6 100,70.5 103,70.5 117,67.8 129,62.2

  GR        135,61.4 138,57.8 142,57.2 151,57.7 154,62.2 167,62.5 172,64.3

  GR        189,63.8 197,62.4 212,63.1 221,60.1 232,59.9 240,59.8 248,62.8

  GR        265,69.7 286,72.7 300,73.5

  SA        103,265


*** FINISH PROCESSING CROSS SECTION - "28+50"
*** CROSS SECTION "28+50" WRITTEN TO DISK, RECORD NO. = 15

--- DATA SUMMARY FOR SECID "28+50" AT SRD =    450.  ERR-CODE =      0

     SKEW      IHFNO     VSLOPE         EK         CK
       .0         0. *********        .50        .00

X-Y COORDINATE PAIRS  (NGP =  25):
       X       Y          X       Y          X       Y          X       Y
     15.0   76.10       25.0   75.40       50.0   73.70       75.0   71.60
    100.0   70.50      103.0   70.50      117.0   67.80      129.0   62.20
```

```
    197.0   62.40     212.0   63.10     221.0   60.10     232.0   59.90
    240.0   59.80     248.0   62.80     265.0   69.70     286.0   72.70
    300.0   73.50

 X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
     15.0   76.10      142.0   57.20     300.0   73.50       15.0   76.10

SUBAREA BREAKPOINTS (NSA =  3):
        103.    265.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150
1
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name NOBRIDGE.10)
        10,100 YR - NATURAL CHANNEL, NO ORANOLE BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19

*** START PROCESSING CROSS SECTION - "29+00"
  XS   29+00500

  GR        2,76.9 25,75.6 50,74.1 75,72.4 100,71.0 114,69.5 128,62.6 133,62.2

  GR        137,59.6 141,59.1 144,57.5 152,57.8 162,63.2 184,62.5 196,63.1

  GR        208,60.0 215,62.5 240,65.3 271,69.0 285,71.7 300,72.7

  SA        114,240


*** FINISH PROCESSING CROSS SECTION - "29+00"
*** CROSS SECTION "29+00" WRITTEN TO DISK, RECORD NO. = 16

--- DATA SUMMARY FOR SECID "29+00" AT SRD =    500.  ERR-CODE =      0

     SKEW     IHFNO    VSLOPE        EK        CK
       .0        0. *********       .50       .00

X-Y COORDINATE PAIRS  (NGP =  21):
       X       Y          X       Y          X       Y          X       Y
      2.0   76.90       25.0   75.60       50.0   74.10       75.0   72.40
    100.0   71.00      114.0   69.50      128.0   62.60      133.0   62.20
    137.0   59.60      141.0   59.10      144.0   57.50      152.0   57.80
    162.0   63.20      184.0   62.50      196.0   63.10      208.0   60.00
    215.0   62.50      240.0   65.30      271.0   69.00      285.0   71.70
    300.0   72.70

 X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
      2.0   76.90      144.0   57.50     300.0   72.70        2.0   76.90

SUBAREA BREAKPOINTS (NSA =  3):
        114.    240.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150
1
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS
```

```
        10,100 YR - NATURAL CHANNEL, NO ORANOLE BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19

*** START PROCESSING CROSS SECTION - "29+12"
  XS   29+12512

  GR        4,76.8 25,75.7 50,74.1 75,72.5 100,71.0 145,58.5 152,57.9 162,61.7

  GR        183,62.9 197,63.6 216,63.3 238,65.7 272,69.2

  SA        118,197


*** FINISH PROCESSING CROSS SECTION - "29+12"
*** CROSS SECTION "29+12" WRITTEN TO DISK, RECORD NO. = 17

--- DATA SUMMARY FOR SECID "29+12" AT SRD =    512.  ERR-CODE =      0

     SKEW      IHFNO    VSLOPE        EK        CK
       .0         0. *********       .50       .00

X-Y COORDINATE PAIRS  (NGP =  13):
       X       Y          X       Y          X       Y          X       Y
      4.0   76.80       25.0   75.70       50.0   74.10       75.0   72.50
    100.0   71.00      145.0   58.50      152.0   57.90      162.0   61.70
    183.0   62.90      197.0   63.60      216.0   63.30      238.0   65.70
    272.0   69.20

 X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN       XMAX       Y          X    YMAX
      4.0   76.80      152.0   57.90      272.0   69.20        4.0   76.80

SUBAREA BREAKPOINTS (NSA =  3):
        118.    197.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150

WSPRO         FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188           MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name NOBRIDGE.10)
        10,100 YR - NATURAL CHANNEL, NO ORANOLE BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19

*** START PROCESSING CROSS SECTION - "29+25"
  XS   29+25525

  GR        6,76.8 25,75.8 50,74.1 75,72.6 100,71.1 122,67.4 139,60.7 146,59.5

  GR        152,58 162,60.2 182,63.2 199,64.2 217,64.1 237,66.1 245,66.6

  GR        273,69.3

  SA        122,182


*** FINISH PROCESSING CROSS SECTION - "29+25"
*** CROSS SECTION "29+25" WRITTEN TO DISK, RECORD NO. = 18

--- DATA SUMMARY FOR SECID "29+25" AT SRD =    525.  ERR-CODE =      0

     SKEW      IHFNO    VSLOPE        EK        CK
```

```
X-Y COORDINATE PAIRS  (NGP =  16):
       X      Y          X      Y          X      Y          X      Y
     6.0   76.80       25.0   75.80       50.0   74.10       75.0   72.60
   100.0   71.10      122.0   67.40      139.0   60.70      146.0   59.50
   152.0   58.00      162.0   60.20      182.0   63.20      199.0   64.20
   217.0   64.10      237.0   66.10      245.0   66.60      273.0   69.30

 X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
     6.0   76.80      152.0   58.00      273.0   69.30        6.0   76.80

SUBAREA BREAKPOINTS (NSA =  3):
        122.    182.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150
1
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name NOBRIDGE.10)
        10,100 YR - NATURAL CHANNEL, NO ORANOLE BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19

*** START PROCESSING CROSS SECTION - "29+50"
  XS   29+50550

  GR        11,76.7 25,76 50,74.2 75,72.9 100,71.3 124,68.8 139,62.1 148,61.6

  GR        151,58.2 156,55.4 161,56.9 167,62.7 173,62.8 187,65.0 220,65.7

  GR        235,66.8 250,67.9 275,69.6

  SA        124,187


*** FINISH PROCESSING CROSS SECTION - "29+50"
*** CROSS SECTION "29+50" WRITTEN TO DISK, RECORD NO. = 19

--- DATA SUMMARY FOR SECID "29+50" AT SRD =    550.  ERR-CODE =      0

     SKEW     IHFNO    VSLOPE        EK        CK
       .0        0. *********       .50       .00

X-Y COORDINATE PAIRS  (NGP =  18):
       X      Y          X      Y          X      Y          X      Y
    11.0   76.70       25.0   76.00       50.0   74.20       75.0   72.90
   100.0   71.30      124.0   68.80      139.0   62.10      148.0   61.60
   151.0   58.20      156.0   55.40      161.0   56.90      167.0   62.70
   173.0   62.80      187.0   65.00      220.0   65.70      235.0   66.80
   250.0   67.90      275.0   69.60

 X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
    11.0   76.70      156.0   55.40      275.0   69.60       11.0   76.70

SUBAREA BREAKPOINTS (NSA =  3):
        124.    187.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150
1
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
```

```
        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name NOBRIDGE.10)
        10,100 YR - NATURAL CHANNEL, NO ORANOLE BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19

*** START PROCESSING CROSS SECTION - "30+00"
  XS   30+00600

  GR        25,76.0 50,73.8 75,72.1 100,70.6 137,67.5 155,57.4 161,57.0 169,58.
3
  GR        172,61.3 186,64.3 200,65.7 225,67.9 250,68.3 275,68.9 300,70.3

  SA        139,186


*** FINISH PROCESSING CROSS SECTION - "30+00"
*** CROSS SECTION "30+00" WRITTEN TO DISK, RECORD NO. = 20

--- DATA SUMMARY FOR SECID "30+00" AT SRD =    600.  ERR-CODE =      0

     SKEW      IHFNO    VSLOPE        EK        CK
       .0         0. *********      .50       .00

X-Y COORDINATE PAIRS  (NGP =  15):
       X       Y          X       Y          X       Y          X       Y
    25.0   76.00       50.0   73.80       75.0   72.10      100.0   70.60
   137.0   67.50      155.0   57.40      161.0   57.00      169.0   58.30
   172.0   61.30      186.0   64.30      200.0   65.70      225.0   67.90
   250.0   68.30      275.0   68.90      300.0   70.30

 X-Y MAX-MIN POINTS:
    XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
    25.0   76.00      161.0   57.00      300.0   70.30       25.0   76.00

SUBAREA BREAKPOINTS (NSA =  3):
        139.    186.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150
1
WSPRO        FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188          MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name NOBRIDGE.10)
        10,100 YR - NATURAL CHANNEL, NO ORANOLE BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19

*** START PROCESSING CROSS SECTION - "30+43"
  XS   30+43643.30

  GR        25,74.3 50,72.3 75,70.8 100,69.6 109,69.5 148,67.1 161,60.2 167,60.
1
  GR        172,58.6 173,57.5 178,57.2 187,58.4 192,60.8 201,63.8 207,65.7

  GR        237,67.7 250,68.4 275,68.7 300,69.9

  SA        148,237


*** FINISH PROCESSING CROSS SECTION - "30+43"
*** CROSS SECTION "30+43" WRITTEN TO DISK, RECORD NO. = 21

--- DATA SUMMARY FOR SECID "30+43" AT SRD =    643.  ERR-CODE =      0
```

```
      .0          0. ********        .50        .00

 X-Y COORDINATE PAIRS  (NGP =  19):
        X       Y          X       Y          X       Y          X       Y
     25.0   74.30      50.0   72.30      75.0   70.80     100.0   69.60
    109.0   69.50     148.0   67.10     161.0   60.20     167.0   60.10
    172.0   58.60     173.0   57.50     178.0   57.20     187.0   58.40
    192.0   60.80     201.0   63.80     207.0   65.70     237.0   67.70
    250.0   68.40     275.0   68.70     300.0   69.90

  X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
     25.0   74.30     178.0   57.20     300.0   69.90      25.0   74.30

 SUBAREA BREAKPOINTS (NSA =  3):
        148.    237.

 ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150
1
 WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
 P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name NOBRIDGE.10)
        10,100 YR - NATURAL CHANNEL, NO ORANOLE BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19

 *** START PROCESSING CROSS SECTION - "30+86"
   XS   30+86686.6

   GR        0,73.4 25,72.6 50,70.8 75,69.6 100,68.7 125,67.7 150,66.9 163,66.7

   GR        176,59.9 179,59.7 185,60.2 190,59.7 192,58.0 195,57.7 208,58.9

   GR        213,60.2 224,67.2 250,68.5 275,68.6 300,69.5

   SA        163,224


 *** FINISH PROCESSING CROSS SECTION - "30+86"
 *** CROSS SECTION "30+86" WRITTEN TO DISK, RECORD NO. = 22

 --- DATA SUMMARY FOR SECID "30+86" AT SRD =    687.  ERR-CODE =      0

      SKEW     IHFNO    VSLOPE        EK        CK
        .0        0. *********      .50       .00

 X-Y COORDINATE PAIRS  (NGP =  20):
        X       Y          X       Y          X       Y          X       Y
        .0   73.40      25.0   72.60      50.0   70.80      75.0   69.60
    100.0   68.70     125.0   67.70     150.0   66.90     163.0   66.70
    176.0   59.90     179.0   59.70     185.0   60.20     190.0   59.70
    192.0   58.00     195.0   57.70     208.0   58.90     213.0   60.20
    224.0   67.20     250.0   68.50     275.0   68.60     300.0   69.50

  X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
        .0   73.40     195.0   57.70     300.0   69.50        .0   73.40

 SUBAREA BREAKPOINTS (NSA =  3):
        163.    224.

 ROUGHNESS COEFFICIENTS (NSA =  3):
```

```
        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name NOBRIDGE.10)
        10,100 YR - NATURAL CHANNEL, NO ORANOLE BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19

*** START PROCESSING CROSS SECTION - "31+18"
  XS   31+18718

  GR        0,72.9 25,72.3 50,71.1 75,70.0 100,68.7 125,68.1 150,67.3 178,67.3

  GR        190,60.2 195,60.5 201,58.6 206,57.6 210,57.9 212,59.8 219,60.6

  GR        231,66.9 250,66.9 275,67.3 300,68.0 336,69.0

  SA        178,231


*** FINISH PROCESSING CROSS SECTION - "31+18"
*** CROSS SECTION "31+18" WRITTEN TO DISK, RECORD NO. = 23

 --- DATA SUMMARY FOR SECID "31+18" AT SRD =    718.  ERR-CODE =      0

     SKEW      IHFNO    VSLOPE        EK        CK
       .0         0. *********       .50       .00

X-Y COORDINATE PAIRS  (NGP =  20):
       X       Y          X       Y          X       Y          X       Y
      .0   72.90       25.0   72.30       50.0   71.10       75.0   70.00
   100.0   68.70      125.0   68.10      150.0   67.30      178.0   67.30
   190.0   60.20      195.0   60.50      201.0   58.60      206.0   57.60
   210.0   57.90      212.0   59.80      219.0   60.60      231.0   66.90
   250.0   66.90      275.0   67.30      300.0   68.00      336.0   69.00

 X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
      .0   72.90      206.0   57.60     336.0   69.00         .0   72.90

SUBAREA BREAKPOINTS (NSA =  3):
        178.    231.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150

WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name NOBRIDGE.10)
        10,100 YR - NATURAL CHANNEL, NO ORANOLE BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19

*** START PROCESSING CROSS SECTION - "31+59"
  XS   31+59759

  GR        0,71.3 25,70.4 50,69.0 75,67.9 100,67.1 125,67.3 150,64.4

  GR        179,60.5 184,57.9 189,56.8 195,58.1 205,60.3 228,66.2 250,67.4

  GR        275,68.0 300,71.0

  SA        162,215
```

```
*** FINISH PROCESSING CROSS SECTION - "31+59"
*** CROSS SECTION "31+59" WRITTEN TO DISK, RECORD NO. = 24

--- DATA SUMMARY FOR SECID "31+59" AT SRD =    759.  ERR-CODE =      0

     SKEW      IHFNO     VSLOPE         EK         CK
       .0         0. *********        .50        .00

X-Y COORDINATE PAIRS  (NGP =  16):
       X       Y          X       Y          X       Y          X       Y
       .0   71.30       25.0   70.40       50.0   69.00       75.0   67.90
    100.0   67.10      125.0   67.30      150.0   64.40      179.0   60.50
    184.0   57.90      189.0   56.80      195.0   58.10      205.0   60.30
    228.0   66.20      250.0   67.40      275.0   68.00      300.0   71.00

 X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN       XMAX       Y          X    YMAX
       .0   71.30      189.0   56.80      300.0   71.00         .0   71.30

SUBAREA BREAKPOINTS (NSA =  3):
        162.    215.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150
1
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name NOBRIDGE.10)
        10,100 YR - NATURAL CHANNEL, NO ORANOLE BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19

*** START PROCESSING CROSS SECTION - "32+00"
  XS   32+00800

  GR        0,69.6 25,68.5 50,66.8 75,65.7 100,65.5 125,66.6 147,65.5

  GR        158,62.1 164,60.6 166,57.3 172,56.1 180,58.2 185,60.8 191,60.0

  GR        201,63.1 225,65.5 250,68.0 275,69.5

  N         0.15,0.04,0.15

  SA        147,201


*** FINISH PROCESSING CROSS SECTION - "32+00"
*** CROSS SECTION "32+00" WRITTEN TO DISK, RECORD NO. = 25

--- DATA SUMMARY FOR SECID "32+00" AT SRD =    800.  ERR-CODE =      0

     SKEW      IHFNO     VSLOPE         EK         CK
       .0         0. *********        .50        .00

X-Y COORDINATE PAIRS  (NGP =  18):
       X       Y          X       Y          X       Y          X       Y
       .0   69.60       25.0   68.50       50.0   66.80       75.0   65.70
    100.0   65.50      125.0   66.60      147.0   65.50      158.0   62.10
    164.0   60.60      166.0   57.30      172.0   56.10      180.0   58.20
    185.0   60.80      191.0   60.00      201.0   63.10      225.0   65.50
    250.0   68.00      275.0   69.50

 X-Y MAX-MIN POINTS:
```

```
SUBAREA BREAKPOINTS (NSA =  3):
        147.    201.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150
1
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name NOBRIDGE.10)
        10,100 YR - NATURAL CHANNEL, NO ORANOLE BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19

*** START PROCESSING CROSS SECTION - "32+50"
  XS   32+50850

  GR        -50,68.8

  GR        0,66.6 25,65.5 50,64.7 75,64.2 100,63.7 125,63.9 135,63.2 144,61.3

  GR        151,60.7 152,57.1 159,53.3 167,58.1 170,61.9 174,60.4 179,60.4

  GR        184,63.1 200,65.4 225,66.7 250,68.5 275,70.3

  SA        135,184


*** FINISH PROCESSING CROSS SECTION - "32+50"
*** CROSS SECTION "32+50" WRITTEN TO DISK, RECORD NO. = 26

--- DATA SUMMARY FOR SECID "32+50" AT SRD =    850.  ERR-CODE =      0

     SKEW      IHFNO    VSLOPE        EK        CK
       .0         0. *********       .50       .00

X-Y COORDINATE PAIRS  (NGP =  21):
       X       Y          X       Y          X       Y          X       Y
    -50.0   68.80         .0   66.60       25.0   65.50       50.0   64.70
     75.0   64.20      100.0   63.70      125.0   63.90      135.0   63.20
    144.0   61.30      151.0   60.70      152.0   57.10      159.0   53.30
    167.0   58.10      170.0   61.90      174.0   60.40      179.0   60.40
    184.0   63.10      200.0   65.40      225.0   66.70      250.0   68.50
    275.0   70.30

 X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
    -50.0   68.80      159.0   53.30     275.0   70.30     275.0   70.30

SUBAREA BREAKPOINTS (NSA =  3):
        135.    184.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150

WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name NOBRIDGE.10)
        10,100 YR - NATURAL CHANNEL, NO ORANOLE BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19
```

```
  GR        -260,69.2 -160,67.2

  GR        -110,66.2 -100,66 -55,65.0 0,64.4 25,63.6 50,63.1 75,63.2 100,63.4

  GR        125,63.2 130,62.6 136,59.9 141,59.6 144,56.9 149,55.9 154,58.7

  GR        160,62.0 165,60.8 167,60.7 171,62.3 185,63.5 200,64.6 225,66.5

  GR        250,68.5 275,70.5

  SA        130,171


*** FINISH PROCESSING CROSS SECTION - "33+00"
*** CROSS SECTION "33+00" WRITTEN TO DISK, RECORD NO. = 27

--- DATA SUMMARY FOR SECID "33+00" AT SRD =    900.  ERR-CODE =      0

     SKEW      IHFNO     VSLOPE        EK        CK
       .0         0. *********       .50       .00

X-Y COORDINATE PAIRS  (NGP =  26):
       X       Y          X       Y          X       Y          X       Y
   -260.0   69.20    -160.0   67.20    -110.0   66.20    -100.0   66.00
    -55.0   65.00        .0   64.40      25.0   63.60      50.0   63.10
     75.0   63.20     100.0   63.40     125.0   63.20     130.0   62.60
    136.0   59.90     141.0   59.60     144.0   56.90     149.0   55.90
    154.0   58.70     160.0   62.00     165.0   60.80     167.0   60.70
    171.0   62.30     185.0   63.50     200.0   64.60     225.0   66.50
    250.0   68.50     275.0   70.50

 X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
   -260.0   69.20     149.0   55.90     275.0   70.50     275.0   70.50

SUBAREA BREAKPOINTS (NSA =  3):
        130.    171.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150
1
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name NOBRIDGE.10)
        10,100 YR - NATURAL CHANNEL, NO CRANOLE BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19

*** START PROCESSING CROSS SECTION - "33+25"
  XS   33+25925

  GR        -530,69.0

  GR        -480,66.2 -470,66 -420,65 -300,64 -150,65 -20,63 0,63.8 25,63.1

  GR        45,63.0 95,63.2 120,63.2 125,62.6 131,60.9 136,59.5 139,56.8

  GR        144,55.9 155,61.4 160,60.5 162,60.6 169,62.3 182,63.8 195,63.9

  GR        225,65.2 245,67.7 295,69.0

  SA        136,155
```

```
*** FINISH PROCESSING CROSS SECTION - "33+25"
*** CROSS SECTION "33+25" WRITTEN TO DISK, RECORD NO. = 28

--- DATA SUMMARY FOR SECID "33+25" AT SRD =    925.  ERR-CODE =      0

     SKEW      IHFNO     VSLOPE         EK         CK
       .0         0. *********       .50        .00

X-Y COORDINATE PAIRS  (NGP =  26):
       X       Y           X       Y           X       Y           X       Y
   -530.0   69.00     -480.0   66.20     -470.0   66.00     -420.0   65.00
   -300.0   64.00     -150.0   65.00      -20.0   63.00         .0   63.80
     25.0   63.10       45.0   63.00       95.0   63.20      120.0   63.20
    125.0   62.60      131.0   60.90      136.0   59.50      139.0   56.80
    144.0   55.90      155.0   61.40      160.0   60.50      162.0   60.60
    169.0   62.30      182.0   63.80      195.0   63.90      225.0   65.20
    245.0   67.70      295.0   69.00

 X-Y MAX-MIN POINTS:
     XMIN       Y           X    YMIN       XMAX       Y           X    YMAX
   -530.0   69.00      144.0   55.90      295.0   69.00     -530.0   69.00

SUBAREA BREAKPOINTS (NSA =  3):
        136.    155.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150

WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name NOBRIDGE.10)
        10,100 YR - NATURAL CHANNEL, NO ORANOLE BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19

*** START PROCESSING CROSS SECTION - "33+31"
  XS   33+31931.25

  GR        -650,69.0

  GR        -600,66.2 -590,66 -570,65 -425,64 -270,65 -65,63 0,63.6 26,63

  GR        94,63.2 119,63.2 124,62.6 131,61 135,59.6 138,56.8 143,55.9

  GR        154,61.3 159,60.4 166,62.3 182,63.4 203,64.3 234,66.7 284,69.0

  SA        131,154


*** FINISH PROCESSING CROSS SECTION - "33+31"
*** CROSS SECTION "33+31" WRITTEN TO DISK, RECORD NO. = 29

--- DATA SUMMARY FOR SECID "33+31" AT SRD =    931.  ERR-CODE =      0

     SKEW      IHFNO     VSLOPE         EK         CK
       .0         0. *********       .50        .00

X-Y COORDINATE PAIRS  (NGP =  23):
       X       Y           X       Y           X       Y           X       Y
   -650.0   69.00     -600.0   66.20     -590.0   66.00     -570.0   65.00
   -425.0   64.00     -270.0   65.00      -65.0   63.00         .0   63.60
     26.0   63.00       94.0   63.20      119.0   63.20      124.0   62.60
    131.0   61.00      135.0   59.60      138.0   56.80      143.0   55.90
```

```
 X-Y MAX-MIN POINTS:
     XMIN        Y          X     YMIN       XMAX        Y          X     YMAX
   -650.0    69.00      143.0    55.90      284.0    69.00     -650.0    69.00

 SUBAREA BREAKPOINTS (NSA =  3):
         131.    154.

 ROUGHNESS COEFFICIENTS (NSA =  3):
          .150     .040     .150
1
 WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
 P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

         MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
         BRIDGE HYDRAULICS REPORT (file name NOBRIDGE.10)
         10,100 YR - NATURAL CHANNEL, NO ORANOLE BRIDGE
            *** RUN DATE & TIME: 11-30-94  10:19

 *** START PROCESSING CROSS SECTION - "33+34"
   XS   33+34934

   GR        -735,69.0 -685,66.2 -675,66 -635,65 -485,64 -330,65 -85,63 0,63.5

   GR        26,63 93,63.2 118,63.2 123,62.6 131,61.1 134,59.6 137,56.8

   GR        143,55.9 153,61.2 158,60.4 166,62.2 181,63.3 202,64.1 233,66.6

   GR        279,69.0

   SA        131,158


 *** FINISH PROCESSING CROSS SECTION - "33+34"
 *** CROSS SECTION "33+34" WRITTEN TO DISK, RECORD NO. = 30

 --- DATA SUMMARY FOR SECID "33+34" AT SRD =    934.  ERR-CODE =      0

      SKEW      IHFNO     VSLOPE         EK         CK
        .0         0. *********        .50        .00

 X-Y COORDINATE PAIRS  (NGP =  23):
        X       Y           X       Y           X       Y           X       Y
    -735.0   69.00      -685.0   66.20      -675.0   66.00      -635.0   65.00
    -485.0   64.00      -330.0   65.00       -85.0   63.00          .0   63.50
      26.0   63.00        93.0   63.20       118.0   63.20       123.0   62.60
     131.0   61.10       134.0   59.60       137.0   56.80       143.0   55.90
     153.0   61.20       158.0   60.40       166.0   62.20       181.0   63.30
     202.0   64.10       233.0   66.60       279.0   69.00

  X-Y MAX-MIN POINTS:
     XMIN        Y          X     YMIN       XMAX        Y          X     YMAX
    -735.0   69.00      143.0    55.90      279.0    69.00     -735.0    69.00

 SUBAREA BREAKPOINTS (NSA =  3):
         131.    158.

 ROUGHNESS COEFFICIENTS (NSA =  3):
          .150     .040     .150
1
 WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
 P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

         MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
```

```
*** START PROCESSING CROSS SECTION - "33+37"
  XS   33+37937.5

  GR        -820,69.0

  GR        -770,66.2 -760,66 -700,65 -550,64 -390,65 -110,63 0,63.4 27,63.0

  GR        93,63.2 118,63.2 123,62.6 130,61.2 133,59.6 137,56.8 142,55.9

  GR        145,56.7 152,61.1 158,60.3 165,62.1 181,63.2 201,63.9 233,66.5

  GR        273,69.0

  SA        130,165

*** FINISH PROCESSING CROSS SECTION - "33+37"
*** CROSS SECTION "33+37" WRITTEN TO DISK, RECORD NO. = 31

--- DATA SUMMARY FOR SECID "33+37" AT SRD =    938.  ERR-CODE =      0

     SKEW      IHFNC    VSLOPE        EK        CK
       .0         0. *********      .50       .00

X-Y COORDINATE PAIRS  (NGP =  24):
       X       Y          X       Y          X       Y          X       Y
   -820.0   69.00     -770.0   66.20     -760.0   66.00     -700.0   65.00
   -550.0   64.00     -390.0   65.00     -110.0   63.00        .0    63.40
     27.0   63.00       93.0   63.20      118.0   63.20      123.0   62.60
    130.0   61.20      133.0   59.60      137.0   56.80      142.0   55.90
    145.0   56.70      152.0   61.10      158.0   60.30      165.0   62.10
    181.0   63.20      201.0   63.90      233.0   66.50      273.0   69.00

 X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
   -820.0   69.00      142.0   55.90      273.0   69.00    -820.0   69.00

SUBAREA BREAKPOINTS (NSA =  3):
        130.    165.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150

WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name NOBRIDGE.10)
        10,100 YR - NATURAL CHANNEL, NO CRANOLE BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19

*** START PROCESSING CROSS SECTION - "33+44"
  XS   33+44944

  GR        -915,69.0 -865,66.2 -855,66 -790,65 -690,64 -395,63 0,63.2

  GR        26,62.9 97,63.2 117,63.2 129,61.2 134,58.3 138,56.3 142,56.3

  GR        150,61 156,60.2 164,62.1 178,63.1 200,63.8 230,66.2 274,69.0

  SA        117,164
```

```
*** CROSS SECTION "33+44" WRITTEN TO DISK, RECORD NO. = 32

--- DATA SUMMARY FOR SECID "33+44" AT SRD =    944.  ERR-CODE =      0

     SKEW      IHFNO     VSLOPE         EK         CK
       .0         0. *********        .50        .00

X-Y COORDINATE PAIRS  (NGP =  21):
       X       Y          X       Y          X       Y          X       Y
   -915.0   69.00     -865.0   66.20     -855.0   66.00     -790.0   65.00
   -690.0   64.00     -395.0   63.00         .0   63.20       26.0   62.90
     97.0   63.20      117.0   63.20      129.0   61.20      134.0   58.30
    138.0   56.30      142.0   56.30      150.0   61.00      156.0   60.20
    164.0   62.10      178.0   63.10      200.0   63.80      230.0   66.20
    274.0   69.00

 X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN       XMAX       Y          X    YMAX
   -915.0   69.00      138.0   56.30      274.0   69.00     -915.0   69.00

SUBAREA BREAKPOINTS (NSA =  3):
        117.    164.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150
1
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name NOBRIDGE.10)
        10,100 YR - NATURAL CHANNEL, NO ORANOLE BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19

*** START PROCESSING CROSS SECTION - "33+50"
  XS   33+50950

  GR        -1010,69.0

  GR        -960,66.2 -950,66 -880,65 -810,64 -730,63 -635,63 -580,64 -470,64

  GR        -95,63 0,63.2 25,62.8 50,63.1 75,63.1 100,63.2 115,63.3 128,61.3

  GR        134,57.0 139,55.8 142,56.7 149,61.0 155,60.1 163,62.2 175,63.0

  GR        200,63.6 225,65.8 250,67.3 275,68.6 325,69.0

  SA        115,163


*** FINISH PROCESSING CROSS SECTION - "33+50"
*** CROSS SECTION "33+50" WRITTEN TO DISK, RECORD NO. = 33

--- DATA SUMMARY FOR SECID "33+50" AT SRD =    950.  ERR-CODE =      0

     SKEW      IHFNO     VSLOPE         EK         CK
       .0         0. *********        .50        .00

X-Y COORDINATE PAIRS  (NGP =  29):
       X       Y          X       Y          X       Y          X       Y
  -1010.0   69.00     -960.0   66.20     -950.0   66.00     -880.0   65.00
   -810.0   64.00     -730.0   63.00     -635.0   63.00     -580.0   64.00
   -470.0   64.00      -95.0   63.00         .0   63.20       25.0   62.80
     50.0   63.10       75.0   63.10      100.0   63.20      115.0   63.30
```

```
    200.0    63.60      225.0    65.80      250.0    67.30      275.0    68.60
    325.0    69.00

 X-Y MAX-MIN POINTS:
     XMIN        Y          X     YMIN       XMAX        Y          X     YMAX
  -1010.0    69.00      139.0    55.80      325.0    69.00   -1010.0    69.00

SUBAREA BREAKPOINTS (NSA =  3):
        115.     163.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150     .040     .150

WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR- WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name NOBRIDGE.10)
        10,100 YR - NATURAL CHANNEL, NO CRANOLE BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19

*** START PROCESSING CROSS SECTION - "34+00"
  XS   34+001000

  GR        -790,69.0

  GR        -740,66.2 -730,66 -710,65 -685,64 -620,63 -415,62 -130,62 -90,61

  GR        -50,62 0,61.9 25,61.9 45,61.6 53,63.0 61,61.8 75,62.8 100,63.3

  GR        121,63.4 136,61.0 141,58.1 146,57.6 151,58.2 156,61.4 162,61.5

  GR        166,62.8 175,63.3 200,63.4 225,63.7 250,65.9 275,67.4 325,69.0

  SA        121,166


*** FINISH PROCESSING CROSS SECTION - "34+00"
*** CROSS SECTION "34+00" WRITTEN TO DISK, RECORD NO. = 34

--- DATA SUMMARY FOR SECID "34+00" AT SRD =   1000.  ERR-CODE =      0

     SKEW      IHFNO    VSLOPE        EK        CK
       .0         0. *********      .50       .00

X-Y COORDINATE PAIRS  (NGP =  31):
       X        Y          X        Y          X        Y          X        Y
   -790.0    69.00     -740.0    66.20     -730.0    66.00     -710.0    65.00
   -685.0    64.00     -620.0    63.00     -415.0    62.00     -130.0    62.00
    -90.0    61.00      -50.0    62.00        .0    61.90       25.0    61.90
     45.0    61.60       53.0    63.00       61.0    61.80       75.0    62.80
    100.0    63.30      121.0    63.40      136.0    61.00      141.0    58.10
    146.0    57.60      151.0    58.20      156.0    61.40      162.0    61.50
    166.0    62.80      175.0    63.30      200.0    63.40      225.0    63.70
    250.0    65.90      275.0    67.40      325.0    69.00

 X-Y MAX-MIN POINTS:
     XMIN        Y          X     YMIN       XMAX        Y          X     YMAX
   -790.0    69.00      146.0    57.60      325.0    69.00    -790.0    69.00

SUBAREA BREAKPOINTS (NSA =  3):
        121.     166.

ROUGHNESS COEFFICIENTS (NSA =  3):
```

```
MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
BRIDGE HYDRAULICS REPORT (file name NOBRIDGE.10)
10,100 YR - NATURAL CHANNEL, NO ORANOLE BRIDGE
   *** RUN DATE & TIME: 11-30-94  10:19

*** START PROCESSING CROSS SECTION - "34+50"
  XS   34+501050

  GR        -690,69.0

  GR        -640,66.3 -625,66 -595,64 -555,63 -450,62 -345,61 -200,60 -185,59

  GR        -135,59 -90,63 -55,63 -40,62 -15,61 0,62.6 25,62.7

  GR        50,63.1 75,63.0 100,63.8 110,64.1 128,62.4 138,61.1 143,58.9

  GR        148,56.9 151,57.6 155,61.9 165,61.3 171,63.9 200,64.2 225,64.1

  GR        250,65.3 275,65.9 300,66.2 350,69.0

  SA        110,171


*** FINISH PROCESSING CROSS SECTION - "34+50"
*** CROSS SECTION "34+50" WRITTEN TO DISK, RECORD NO. = 35

--- DATA SUMMARY FOR SECID "34+50" AT SRD =   1050.  ERR-CODE =      0

     SKEW      IHFNO     VSLOPE        EK        CK
       .0         0. *********       .50       .00

X-Y COORDINATE PAIRS  (NGP =  34):
       X       Y          X       Y          X       Y          X       Y
   -690.0   69.00     -640.0   66.30     -625.0   66.00     -595.0   64.00
   -555.0   63.00     -450.0   62.00     -345.0   61.00     -200.0   60.00
   -185.0   59.00     -135.0   59.00      -90.0   63.00      -55.0   63.00
    -40.0   62.00      -15.0   61.00         .0   62.60       25.0   62.70
     50.0   63.10       75.0   63.00      100.0   63.80      110.0   64.10
    128.0   62.40      138.0   61.10      143.0   58.90      148.0   56.90
    151.0   57.60      155.0   61.90      165.0   61.30      171.0   63.90
    200.0   64.20      225.0   64.10      250.0   65.30      275.0   65.90
    300.0   66.20      350.0   69.00

 X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN       XMAX       Y          X    YMAX
   -690.0   69.00      148.0   56.90      350.0   69.00    -690.0   69.00

SUBAREA BREAKPOINTS (NSA =  3):
        110.    171.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150
```

1



```
MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
BRIDGE HYDRAULICS REPORT (file name NOBRIDGE.10)
10,100 YR - NATURAL CHANNEL, NO ORANOLE BRIDGE
   *** RUN DATE & TIME: 11-30-94  10:19
```

```
GR          -650,69.0

GR          -600,66.3 -585,66 -575,65 -555,64 -500,63 -365,62 -255,60 -210,60

GR          -20,63 0,62.9 25,63.2 50,63.4 75,63.4 100,63.5 114,63.2

GR          128,59.9 137,59.4 145,58.0 153,61.5 173,64.4 200,63.9 225,63.2

GR          250,63.4 275,64.4 300,66.0 310,66.2 360,69.0

SA          114,173

*** FINISH PROCESSING CROSS SECTION - "35+00"
*** CROSS SECTION "35+00" WRITTEN TO DISK, RECORD NO. = 36

--- DATA SUMMARY FOR SECID "35+00" AT SRD =   1100.  ERR-CODE =      0

     SKEW      IHFNO     VSLOPE         EK         CK
       .0         0. *********       .50        .00

X-Y COORDINATE PAIRS  (NGP =  28):
       X       Y          X       Y          X       Y          X       Y
   -650.0   69.00     -600.0   66.30     -585.0   66.00     -575.0   65.00
   -555.0   64.00     -500.0   63.00     -365.0   62.00     -255.0   60.00
   -210.0   60.00      -20.0   63.00         .0   62.90       25.0   63.20
     50.0   63.40       75.0   63.40      100.0   63.50      114.0   63.20
    128.0   59.90      137.0   59.40      145.0   58.00      153.0   61.50
    173.0   64.40      200.0   63.90      225.0   63.20      250.0   63.40
    275.0   64.40      300.0   66.00      310.0   66.20      360.0   69.00

 X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN       XMAX       Y          X    YMAX
   -650.0   69.00      145.0   58.00      360.0   69.00    -650.0   69.00

SUBAREA BREAKPOINTS (NSA =  3):
        114.    173.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150     .040     .150

WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name NOBRIDGE.10)
        10,100 YR - NATURAL CHANNEL, NO ORANOLE BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19

*** START PROCESSING CROSS SECTION - "35+50"
 XS   35+501150

 GR         -610,69.0

 GR         -560,66.3 -540,66 -495,65 -455,64 -395,63 -330,62 -285,60 -260,60

 GR         0,63.2 25,63.6 50,63.6 75,63.8 100,63.2 119,62.2 126,60.7 128,57.3

 GR         136,57.6 144,58.1 153,63.2 175,64.8 200,63.6 225,62.2 250,61.5

 GR         275,62.9 300,66.0 310,66.2 360,69.0

 SA         119,153
```

```
*** FINISH PROCESSING CROSS SECTION - "35+50"
*** CROSS SECTION "35+50" WRITTEN TO DISK, RECORD NO. = 37

--- DATA SUMMARY FOR SECID "35+50" AT SRD =   1150.  ERR-CODE =      0

     SKEW      IHFNO    VSLOPE        EK        CK
       .0         0. *********       .50       .00

X-Y COORDINATE PAIRS  (NGP =  28):
       X       Y          X       Y          X       Y          X       Y
   -610.0   69.00     -560.0   66.30     -540.0   66.00     -495.0   65.00
   -455.0   64.00     -395.0   63.00     -330.0   62.00     -285.0   60.00
   -260.0   60.00         .0   63.20       25.0   63.60       50.0   63.60
     75.0   63.80      100.0   63.20      119.0   62.20      126.0   60.70
    128.0   57.30      136.0   57.60      144.0   58.10      153.0   63.20
    175.0   64.80      200.0   63.60      225.0   62.20      250.0   61.50
    275.0   62.90      300.0   66.00      310.0   66.20      360.0   69.00

 X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
   -610.0   69.00      128.0   57.30     360.0   69.00     -610.0   69.00

SUBAREA BREAKPOINTS (NSA =  3):
        119.    153.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150

+++ BEGINNING PROFILE CALCULATIONS --   2
1
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name NOBRIDGE.10)
        10,100 YR - NATURAL CHANNEL, NO ORANOLE BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19

 XSID:CODE   SRDL     LEW      AREA    VHD     HF      EGL     CRWS       Q     WSEL
       SRD   FLEN     REW         K   ALPH     HO      ERR      FR#     VEL

24+00:XS   ******    116.      286.    .12 *****   64.40   60.79     795.   64.28
        0. ******    185.    26269.   1.00 ***** *******     .24     2.78

24+28:XS      29.    113.      327.    .09    .02   64.42 *******     795.   64.33
       29.    29.    195.    29091.   1.00    .00     .00     .21     2.43

24+50:XS      21.    116.      330.    .09    .01   64.44 *******     795.   64.35
       50.    21.    191.    30721.   1.00    .00     .00     .20     2.41

25+00:XS      50.    117.      289.    .12    .04   64.49 *******     795.   64.37
      100.    50.    193.    25020.   1.00    .01     .00     .25     2.75

25+25:XS      25.    119.      251.    .16    .03   64.54 *******     795.   64.38
      125.    25.    196.    19706.   1.00    .02     .00     .31     3.17

25+50:XS      25.    120.      206.    .23    .05   64.62 *******     795.   64.39
      150.    25.    197.    14723.   1.00    .04    -.01     .40     3.86

25+62:XS      13.    121.      250.    .16    .03   64.64 *******     795.   64.49
      163.    13.    203.    18835.   1.00    .00    -.01     .32     3.18
```

```
25+87:XS      13.   123.     360.   .08   .01   64.66 *******    795.   64.59
      188.    13.   213.   32440.  1.00   .00     .00      .19    2.21

26+00:XS      13.   120.     406.   .06   .01   64.67 *******    795.   64.61
      200.    13.   212.   38678.  1.00   .00     .00      .16    1.96

26+25:XS      25.   120.     361.   .08   .01   64.69 *******    795.   64.61
      225.    25.   211.   32906.  1.08   .01     .00      .20    2.20

26+50:XS      25.   118.     305.   .11   .02   64.72 *******    795.   64.61
      250.    25.   206.   27068.  1.01   .01     .00      .23    2.61

27+23:XS      73.   122.     338.   .09   .07   64.79 *******    795.   64.70
      323.    73.   243.   24391.  1.00   .00     .00      .25    2.35

28+00:XS      77.   124.     348.   .08   .07   64.87 *******    795.   64.78
      400.    77.   235.   26859.  1.00   .00     .00      .23    2.28

28+50:XS      50.   123.     406.   .06   .04   64.90 *******    795.   64.84
      450.    50.   253.   31339.  1.00   .00     .00      .19    1.96

29+00:XS      50.   123.     336.   .09   .04   64.95 *******    795.   64.87
      500.    50.   236.   25299.  1.00   .01     .00      .24    2.37
```

WSPRO FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188 MODEL FOR WATER-SURFACE PROFILE COMPUTATIONS

MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
BRIDGE HYDRAULICS REPORT (file name NOBRIDGE.10)
10,100 YR - NATURAL CHANNEL, NO ORANCLE BRIDGE
*** RUN DATE & TIME: 11-30-94 10:19

```
 XSID:CODE   SRDL    LEW     AREA   VHD    HF     EGL    CRWS       Q    WSEL
       SRD   FLEN    REW        K  ALPH    HO     ERR     FR#     VEL

29+12:XS      12.   122.     282.   .15   .01   65.00 *******    795.   64.84
      512.    12.   230.   20244.  1.25   .03    -.01      .34    2.81

29+25:XS      13.   129.     245.   .21   .02   65.04 *******    795.   64.83
      525.    13.   224.   19577.  1.29   .03     .00      .41    3.24

29+50:XS      25.   133.     190.   .27   .05   65.12 *******    795.   64.85
      550.    25.   186.   15497.  1.00   .03    -.01      .39    4.18

30+00:XS      50.   141.     205.   .24   .10   65.23 *******    795.   64.99
      600.    50.   193.   19717.  1.02   .00     .00      .35    3.87

30+43:XS      43.   152.     249.   .16   .06   65.28 *******    795.   65.12
      643.    43.   205.   24864.  1.00   .00     .00      .26    3.19

30+86:XS      43.   166.     272.   .13   .04   65.32 *******    795.   65.18
      687.    43.   221.   28226.  1.00   .00     .00      .23    2.92

31+18:XS      31.   182.     211.   .22   .03   65.39 *******    795.   65.17
      718.    31.   228.   20583.  1.00   .04     .00      .31    3.77

===135 CONVEYANCE RATIO OUTSIDE OF RECOMMENDED LIMITS.
                          "31+59"     KRATIO =  1.51

31+59:XS      41.   142.     314.   .12   .04   65.43 *******    795.   65.31
      759.    41.   225.   31045.  1.22   .00     .00      .25    2.53

32+00:XS      41.   148.     292.   .13   .03   65.47 *******    795.   65.33
```

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 32+50:XS | 50. | 28. | 438. | .10 | .03 | 65.50 | ******* | 795. | 65.40 |
| 850. | 50. | 200. | 33690. | 1.93 | .00 | .00 | .28 | 1.83 | |
| 33+00:XS | 50. | -74. | 604. | .11 | .03 | 65.53 | ******* | 795. | 65.43 |
| 900. | 50. | 211. | 31494. | 3.99 | .00 | .00 | .32 | 1.32 | |
| 33+25:XS | 25. | -442. | 1101. | .11 | .02 | 65.55 | ******* | 795. | 65.44 |
| 925. | 25. | 227. | 31097. | 13.12 | .00 | .00 | .36 | .72 | |
| 33+31:XS | 6. | -579. | 1353. | .07 | .00 | 65.54 | ******* | 795. | 65.47 |
| 931. | 6. | 218. | 36796. | 12.75 | .00 | -.01 | .28 | .59 | |
| 33+34:XS | 3. | -654. | 1485. | .05 | .00 | 65.54 | ******* | 795. | 65.49 |
| 934. | 3. | 219. | 40449. | 12.27 | .00 | .00 | .25 | .54 | |
| 33+37:XS | 4. | -730. | 1626. | .04 | .00 | 65.54 | ******* | 795. | 65.50 |
| 938. | 4. | 221. | 45533. | 11.18 | .00 | .00 | .22 | .49 | |
| 33+44:XS | 7. | -824. | 2312. | .02 | .00 | 65.54 | ******* | 795. | 65.52 |
| 944. | 7. | 222. | 61721. | 8.27 | .00 | .00 | .12 | .34 | |

1

WSPRO FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188 MODEL FOR WATER-SURFACE PROFILE COMPUTATIONS

MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
BRIDGE HYDRAULICS REPORT (file name NOBRIDGE.10)
10,100 YR - NATURAL CHANNEL, NO ORANOLE BRIDGE
*** RUN DATE & TIME: 11-30-94 10:19

| XSID:CODE | SRDL | LEW | AREA | VHD | HF | EGL | CRWS | Q | WSEL |
|---|---|---|---|---|---|---|---|---|---|
| SRD | FLEN | REW | K | ALPH | HO | ERR | FR# | VEL | |
| 33+50:XS | 6. | -917. | 2407. | .01 | .00 | 65.54 | ******* | 795. | 65.52 |
| 950. | 6. | 222. | 62867. | 8.70 | .00 | .00 | .12 | .33 | |
| 34+00:XS | 50. | -721. | 3035. | .00 | .01 | 65.54 | ******* | 795. | 65.54 |
| 1000. | 50. | 246. | 82722. | 4.65 | .00 | .00 | .06 | .26 | |
| 34+50:XS | 50. | -618. | 3111. | .00 | .00 | 65.55 | ******* | 795. | 65.54 |
| 1050. | 50. | 260. | 90712. | 3.03 | .00 | .00 | .04 | .26 | |
| 35+00:XS | 50. | -580. | 2830. | .01 | .00 | 65.55 | ******* | 795. | 65.55 |
| 1100. | 50. | 293. | 82094. | 4.09 | .00 | .00 | .06 | .28 | |
| 35+50:XS | 50. | -520. | 2545. | .01 | .01 | 65.56 | ******* | 795. | 65.55 |
| 1150. | 50. | 296. | 73411. | 6.11 | .00 | .00 | .08 | .31 | |

1

WSPRO FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188 MODEL FOR WATER-SURFACE PROFILE COMPUTATIONS

MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
BRIDGE HYDRAULICS REPORT (file name NOBRIDGE.10)
10,100 YR - NATURAL CHANNEL, NO ORANOLE BRIDGE
*** RUN DATE & TIME: 11-30-94 10:19

FIRST USER DEFINED TABLE.

| XSID:CODE | Q | SRD | WSEL | AREA | VEL | FR# | K | XSTW |
|---|---|---|---|---|---|---|---|---|
| 24+00:XS | 795. | 0. | 64.28 | 286. | 2.78 | .24 | 26269. | 69. |
| 24+28:XS | 795. | 29. | 64.33 | 327. | 2.43 | .21 | 29091. | 78. |
| 24+50:XS | 795. | 50. | 64.35 | 330. | 2.41 | .20 | 30721. | 75. |
| 25+00:XS | 795. | 100. | 64.37 | 289. | 2.75 | .25 | 25020. | 76. |
| 25+25:XS | 795. | 125. | 64.38 | 251. | 3.17 | .31 | 19706. | 77. |
| 25+50:XS | 795. | 150. | 64.39 | 206. | 3.86 | .40 | 14723. | 72. |
| 25+62:XS | 795. | 163. | 64.49 | 250. | 3.18 | .32 | 18835. | 82. |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 26+00:XS | 795. | 200. | 64.61 | 406. | 1.96 | .18 | 38678. | 92. |
| 26+25:XS | 795. | 225. | 64.61 | 361. | 2.20 | .20 | 32906. | 91. |
| 26+50:XS | 795. | 250. | 64.61 | 305. | 2.61 | .23 | 27068. | 79. |
| 27+23:XS | 795. | 323. | 64.70 | 338. | 2.35 | .25 | 24391. | 120. |
| 28+00:XS | 795. | 400. | 64.78 | 348. | 2.28 | .23 | 26859. | 111. |
| 28+50:XS | 795. | 450. | 64.84 | 406. | 1.96 | .19 | 31339. | 130. |
| 29+00:XS | 795. | 500. | 64.87 | 336. | 2.37 | .24 | 25299. | 113. |
| 29+12:XS | 795. | 512. | 64.84 | 282. | 2.81 | .34 | 20244. | 108. |
| 29+25:XS | 795. | 525. | 64.83 | 245. | 3.24 | .41 | 19577. | 96. |
| 29+50:XS | 795. | 550. | 64.85 | 190. | 4.18 | .39 | 15497. | 53. |
| 30+00:XS | 795. | 600. | 64.99 | 205. | 3.87 | .35 | 19717. | 51. |
| 30+43:XS | 795. | 643. | 65.12 | 249. | 3.19 | .26 | 24864. | 53. |
| 30+86:XS | 795. | 687. | 65.18 | 272. | 2.92 | .23 | 28226. | 55. |
| 31+18:XS | 795. | 718. | 65.17 | 211. | 3.77 | .31 | 20583. | 46. |
| 31+59:XS | 795. | 759. | 65.31 | 314. | 2.53 | .25 | 31045. | 82. |
| 32+00:XS | 795. | 800. | 65.33 | 292. | 2.72 | .26 | 27998. | 76. |
| 32+50:XS | 795. | 850. | 65.40 | 435. | 1.83 | .28 | 33690. | 172. |
| 33+00:XS | 795. | 900. | 65.43 | 604. | 1.32 | .32 | 31494. | 285. |
| 33+25:XS | 795. | 925. | 65.44 | 1101. | .72 | .36 | 31097. | 669. |
| 33+31:XS | 795. | 931. | 65.47 | 1353. | .59 | .28 | 36796. | 798. |
| 33+34:XS | 795. | 934. | 65.49 | 1485. | .54 | .25 | 40449. | 874. |
| 33+37:XS | 795. | 938. | 65.50 | 1626. | .49 | .22 | 45533. | 950. |
| 33+44:XS | 795. | 944. | 65.52 | 2312. | .34 | .12 | 61721. | 1045. |
| 33+50:XS | 795. | 950. | 65.52 | 2407. | .33 | .12 | 62867. | 1138. |
| 34+00:XS | 795. | 1000. | 65.54 | 3035. | .26 | .06 | 82722. | 967. |
| 34+50:XS | 795. | 1050. | 65.54 | 3111. | .26 | .04 | 90712. | 878. |
| 35+00:XS | 795. | 1100. | 65.55 | 2830. | .28 | .06 | 82094. | 873. |
| 35+50:XS | 795. | 1150. | 65.55 | 2545. | .31 | .08 | 73411. | 816. |

WSPRO FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188 MODEL FOR WATER-SURFACE PROFILE COMPUTATIONS

MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
BRIDGE HYDRAULICS REPORT (file name NOBRIDGE.10)
10,100 YR - NATURAL CHANNEL, NO ORANOLE BRIDGE
*** RUN DATE & TIME: 11-30-94 10:19

| XSID:CODE<br>SRD | SRDL<br>FLEN | LEW<br>REW | AREA<br>K | VHD<br>ALPH | HF<br>HO | EGL<br>ERR | CRWS<br>FR# | Q<br>VEL | WSEL |
|---|---|---|---|---|---|---|---|---|---|
| 24+00:XS | ****** | 104. | 470. | .15 | ***** | 66.75 | 62.23 | 1450. | 66.60 |
| 0. | ****** | 300. | 52557. | 1.04 | ***** | ******* | .27 | 3.08 | |
| 24+28:XS | 29. | 90. | 538. | .12 | .02 | 66.77 | ******* | 1450. | 66.65 |
| 29. | 29. | 198. | 59261. | 1.04 | .00 | .00 | .22 | 2.70 | |
| 24+50:XS | 21. | 90. | 526. | .12 | .01 | 66.79 | ******* | 1450. | 66.66 |
| 50. | 21. | 195. | 60762. | 1.06 | .00 | .00 | .22 | 2.76 | |
| 25+00:XS | 50. | 107. | 477. | .15 | .03 | 66.83 | ******* | 1450. | 66.69 |
| 100. | 50. | 199. | 53271. | 1.01 | .01 | .00 | .24 | 3.04 | |
| 25+25:XS | 25. | 112. | 443. | .17 | .02 | 66.86 | ******* | 1450. | 66.69 |
| 125. | 25. | 206. | 47137. | 1.01 | .01 | .00 | .27 | 3.27 | |
| 25+50:XS | 25. | 114. | 404. | .20 | .03 | 66.91 | ******* | 1450. | 66.71 |
| 150. | 25. | 212. | 37664. | 1.00 | .02 | .00 | .31 | 3.59 | |
| 25+62:XS | 13. | 114. | 454. | .16 | .02 | 66.92 | ******* | 1450. | 66.76 |
| 163. | 13. | 214. | 45494. | 1.00 | .00 | .00 | .26 | 3.20 | |
| 25+75:XS | 13. | 114. | 507. | .13 | .01 | 66.93 | ******* | 1450. | 66.80 |
| 175. | 13. | 215. | 54329. | 1.00 | .00 | .00 | .22 | 2.86 | |

```
26+00:XS        13.    116.      624.    .08    .01    66.94 *******    1450.    66.85
      200.      13.    220.    74565.   1.00    .00      .00      .17     2.32

26+25:XS        25.    115.      582.    .12    .01    66.96 *******    1450.    66.85
      225.      25.    222.    66025.   1.20    .02      .00      .21     2.49

26+50:XS        25.    113.      523.    .13    .01    66.98 *******    1450.    66.85
      250.      25.    224.    54578.   1.10    .01      .00      .24     2.77

27+23:XS        73.    119.      622.    .08    .05    67.03 *******    1450.    66.94
      323.      73.    253.    62892.   1.00    .00      .00      .19     2.33

28+00:XS        77.    117.      603.    .09    .04    67.07 *******    1450.    66.98
      400.      77.    239.    63091.   1.00    .00      .00      .19     2.40

28+50:XS        50.    119.      701.    .07    .02    67.09 *******    1450.    67.03
      450.      50.    258.    73810.   1.00    .00      .00      .16     2.07

29+00:XS        50.    119.      605.    .09    .02    67.13 *******    1450.    67.04
      500.      50.    255.    62237.   1.04    .01      .00      .20     2.39
1
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name NOBRIDGE.10)
        10,100 YR - NATURAL CHANNEL, NO ORANOLE BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19

 XSID:CODE    SRDL     LEW      AREA    VHD     HF     EGL    CRWS       Q     WSEL
       SRD    FLEN     REW         K   ALPH     HO     ERR     FR#     VEL

29+12:XS        12.    114.      546.    .16    .01    67.17 *******    1450.    67.01
      512.      12.    251.    48119.   1.50    .04      .00      .29     2.65

29+25:XS        13.    123.      482.    .25    .01    67.22 *******    1450.    66.98
      525.      13.    249.    40824.   1.74    .04      .00      .36     3.01

29+50:XS        25.    128.      375.    .32    .04    67.29 *******    1450.    66.98
      550.      25.    237.    33560.   1.36    .04      .00      .43     3.87

30+00:XS        50.    138.      337.    .35    .09    67.40 *******    1450.    67.04
      600.      50.    215.    36423.   1.23    .02      .00      .40     4.30

30+43:XS        43.    146.      388.    .22    .06    67.46 *******    1450.    67.24
      643.      43.    230.    39395.   1.00    .00      .00      .31     3.74

30+86:XS        43.    138.      405.    .21    .05    67.51 *******    1450.    67.30
      687.      43.    226.    48927.   1.04    .00      .00      .30     3.58

31+18:XS        31.    178.      328.    .33    .04    67.60 *******    1450.    67.28
      718.      31.    273.    36627.   1.07    .06      .00      .44     4.43

 ===135 CONVEYANCE RATIO OUTSIDE OF RECOMMENDED LIMITS.
                                "31+59"     KRATIO =  1.53

31+59:XS        41.     89.      538.    .19    .04    67.64 *******    1450.    67.45
      759.      41.    252.    56006.   1.72    .00      .00      .34     2.69

32+00:XS        41.     40.      630.    .18    .03    67.68 *******    1450.    67.49
      800.      41.    245.    53863.   2.21    .00      .00      .34     2.30

32+50:XS        50.    -22.      908.    .13    .03    67.70 *******    1450.    67.57
```

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 33+00:XS | 50. | -181. | 1378. | .10 | .03 | 67.73 | ******* | 1450. | 67.62 |
| 900. | 50. | 239. | 66353. | 5.89 | .00 | .00 | .25 | 1.05 | |

4-42

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 33+25:XS | 25. | -507. | 2718. | .04 | .01 | 67.73 | ******* | 1450. | 67.69 |
| 925. | 25. | 245. | 86468. | 8.47 | .00 | .00 | .14 | .53 | |
| 33+31:XS | 6. | -627. | 3226. | .03 | .00 | 67.73 | ******* | 1450. | 67.71 |
| 931. | 6. | 256. | 102038. | 8.00 | .00 | .00 | .12 | .45 | |
| 33+34:XS | 3. | -712. | 3541. | .02 | .00 | 67.73 | ******* | 1450. | 67.71 |
| 934. | 3. | 254. | 112714. | 7.78 | .00 | .00 | .11 | .41 | |
| 33+37:XS | 4. | -797. | 3864. | .02 | .00 | 67.73 | ******* | 1450. | 67.71 |
| 938. | 4. | 252. | 126284. | 7.51 | .00 | .00 | .09 | .38 | |
| 33+44:XS | 7. | -892. | 4746. | .01 | .00 | 67.73 | ******* | 1450. | 67.72 |
| 944. | 7. | 254. | 160261. | 5.73 | .00 | .00 | .06 | .31 | |

1
WSPRO FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188 MODEL FOR WATER-SURFACE PROFILE COMPUTATIONS

MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
BRIDGE HYDRAULICS REPORT (file name NOBRIDGE.10)
10,100 YR - NATURAL CHANNEL, NO ORANOLE BRIDGE
*** RUN DATE & TIME: 11-30-94 10:19

| XSID:CODE | SRDL | LEW | AREA | VHD | HF | EGL | CRWS | Q | WSEL |
|---|---|---|---|---|---|---|---|---|---|
| SRD | FLEN | REW | K | ALPH | HO | ERR | FR# | VEL | |
| 33+50:XS | 6. | -987. | 5054. | .01 | .00 | 67.73 | ******* | 1450. | 67.72 |
| 950. | 6. | 258. | 167422. | 5.82 | .00 | .00 | .06 | .29 | |
| 34+00:XS | 50. | -767. | 5247. | .00 | .00 | 67.73 | ******* | 1450. | 67.73 |
| 1000. | 50. | 285. | 185643. | 3.86 | .00 | .00 | .04 | .28 | |
| 34+50:XS | 50. | -667. | 5183. | .00 | .00 | 67.74 | ******* | 1450. | 67.73 |
| 1050. | 50. | 327. | 193448. | 3.13 | .00 | .00 | .04 | .28 | |
| 35+00:XS | 50. | -627. | 4845. | .01 | .00 | 67.74 | ******* | 1450. | 67.74 |
| 1100. | 50. | 337. | 180827. | 3.82 | .00 | .00 | .05 | .30 | |
| 35+50:XS | 50. | -587. | 4467. | .01 | .00 | 67.75 | ******* | 1450. | 67.74 |
| 1150. | 50. | 337. | 158529. | 4.81 | .00 | .00 | .06 | .32 | |

1
WSPRO FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188 MODEL FOR WATER-SURFACE PROFILE COMPUTATIONS

MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
BRIDGE HYDRAULICS REPORT (file name NOBRIDGE.10)
10,100 YR - NATURAL CHANNEL, NO ORANOLE BRIDGE
*** RUN DATE & TIME: 11-30-94 10:19
FIRST USER DEFINED TABLE.

| XSID:CODE | Q | SRD | WSEL | AREA | VEL | FR# | K | XSTW |
|---|---|---|---|---|---|---|---|---|
| 24+00:XS | 1450. | 0. | 66.60 | 470. | 3.08 | .27 | 52557. | 107. |
| 24+28:XS | 1450. | 29. | 66.65 | 538. | 2.70 | .22 | 59261. | 108. |
| 24+50:XS | 1450. | 50. | 66.66 | 526. | 2.76 | .22 | 60762. | 105. |
| 25+00:XS | 1450. | 100. | 66.69 | 477. | 3.04 | .24 | 53271. | 92. |
| 25+25:XS | 1450. | 125. | 66.69 | 443. | 3.27 | .27 | 47137. | 94. |
| 25+50:XS | 1450. | 150. | 66.71 | 404. | 3.59 | .31 | 37664. | 98. |
| 25+62:XS | 1450. | 163. | 66.76 | 454. | 3.20 | .26 | 45494. | 99. |
| 25+75:XS | 1450. | 175. | 66.80 | 507. | 2.86 | .22 | 54329. | 100. |
| 25+87:XS | 1450. | 188. | 66.83 | 574. | 2.53 | .19 | 64728. | 102. |
| 26+00:XS | 1450. | 200. | 66.85 | 624. | 2.32 | .17 | 74565. | 104. |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 27+23:XS | 1450. | 923. | 66.94 | 622. | 2.33 | .19 | 62892. | 434? |
| 28+00:XS | 1450. | 400. | 66.98 | 603. | 2.40 | .19 | 63091. | 121. |
| 28+50:XS | 1450. | 450. | 67.03 | 701. | 2.07 | .16 | 73810. | 140. |
| 29+00:XS | 1450. | 500. | 67.04 | 605. | 2.39 | .20 | 62237. | 136. |
| 29+12:XS | 1450. | 512. | 67.01 | 546. | 2.65 | .29 | 48119. | 136. |
| 29+25:XS | 1450. | 525. | 66.98 | 482. | 3.01 | .36 | 40824. | 126. |
| 29+50:XS | 1450. | 550. | 66.98 | 375. | 3.87 | .43 | 33560. | 109. |
| 30+00:XS | 1450. | 600. | 67.04 | 337. | 4.30 | .40 | 36423. | 77. |
| 30+43:XS | 1450. | 643. | 67.24 | 388. | 3.74 | .31 | 39395. | 84. |
| 30+86:XS | 1450. | 687. | 67.30 | 405. | 3.58 | .30 | 48927. | 88. |
| 31+18:XS | 1450. | 718. | 67.28 | 328. | 4.43 | .44 | 36627. | 95. |
| 31+59:XS | 1450. | 759. | 67.45 | 538. | 2.69 | .34 | 56006. | 163. |
| 32+00:XS | 1450. | 800. | 67.49 | 630. | 2.30 | .34 | 53863. | 205. |
| 32+50:XS | 1450. | 850. | 67.57 | 908. | 1.60 | .27 | 63318. | 259. |
| 33+00:XS | 1450. | 900. | 67.62 | 1378. | 1.05 | .25 | 66353. | 420. |
| 33+25:XS | 1450. | 925. | 67.69 | 2718. | .53 | .14 | 86468. | 752. |
| 33+31:XS | 1450. | 931. | 67.71 | 3226. | .45 | .12 | 102038. | 883. |
| 33+34:XS | 1450. | 934. | 67.71 | 3541. | .41 | .11 | 112714. | 966. |
| 33+37:XS | 1450. | 938. | 67.71 | 3864. | .38 | .09 | 126284. | 1049. |
| 33+44:XS | 1450. | 944. | 67.72 | 4746. | .31 | .06 | 160261. | 1146. |
| 33+50:XS | 1450. | 950. | 67.72 | 5054. | .29 | .06 | 167422. | 1245. |
| 34+00:XS | 1450. | 1000. | 67.73 | 5247. | .28 | .04 | 185643. | 1053. |
| 34+50:XS | 1450. | 1050. | 67.73 | 5183. | .28 | .04 | 193448. | 994. |
| 35+00:XS | 1450. | 1100. | 67.74 | 4845. | .30 | .05 | 180827. | 964. |
| 35+50:XS | 1450. | 1150. | 67.74 | 4467. | .32 | .06 | 158529. | 924. |

ER

1 NORMAL END OF WSPRO EXECUTION.

```
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

           *** RUN DATE & TIME: 11-30-94  10:19

  T1        MAITLAND BLVD EXT - PROPOSED BRIDGE OVER LITTLE WEKIVA RIVER

  T2        BRIDGE HYDRAULICS REPORT (file name MAITBRIN.10)

  T3        10,100 YR - NATURAL CHANNEL, WITH MAITLAND BLVD PROPOSED BRIDGE

  *         Q's & ELEV's BASED ON SJRWMD REPORT

  Q         795,1450

*** Q-DATA FOR SEC-ID, ISEQ =            1
  WS        64.28,66.6

  J1


J1 RECORD PARAMETERS:
DELTAY = 1.00   YTOL =  .02   QTOL =  .02   FNTEST =  .80   IHFNOJ = -1

  J3        5,6,3,17,13,14,16,28

  *         DOWNSTREAM - STA 24+00

1
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - PROPOSED BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name MAITBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH MAITLAND BLVD PROPOSED BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19

*** START PROCESSING CROSS SECTION - "24+00"
  XS   24+000

  GR        9,73.5 25,72.1 50,69.7 75,68.0 100,67.1 115,65.2 123,60.2 131,57.8

  GR        139,55.2 144,56.2 145,58.5 152,61.6 170,61.1 174,59.7 180,63.0

  GR        198,67.5 225,67.0 250,66.9 275,66.8 300,66.2

  N         0.15,0.04,0.15

  SA        115,198


*** FINISH PROCESSING CROSS SECTION - "24+00"
*** CROSS SECTION "24+00" WRITTEN TO DISK, RECORD NO. =  1

--- DATA SUMMARY FOR SECID "24+00" AT SRD =      0.  ERR-CODE =      0
```

```
X-Y COORDINATE PAIRS  (NGP =  20):
       X      Y          X      Y          X      Y          X      Y
     9.0   73.50      25.0   72.10      50.0   69.70      75.0   68.00
   100.0   67.10     115.0   65.20     123.0   60.20     131.0   57.80
   139.0   55.20     144.0   56.20     145.0   58.50     152.0   61.60
   170.0   61.10     174.0   59.70     180.0   63.00     198.0   67.50
   225.0   67.00     250.0   66.90     275.0   66.80     300.0   66.20

 X-Y MAX-MIN POINTS:
    XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
     9.0   73.50     139.0   55.20     300.0   66.20       9.0   73.50

SUBAREA BREAKPOINTS (NSA =  3):
        115.    198.

ROUGHNESS COEFFICIENTS (NSA =  3):
        .150    .040    .150
1
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - PROPOSED BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name MAITBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH MAITLAND BLVD PROPOSED BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19

*** START PROCESSING CROSS SECTION - "24+28"
  XS   24+2828.90

  GR        72,68.0

  GR        75,67.8 100,65.9 110,65.6 117,62.4 124,61.2 127,55.5 133,54.7

  GR        142,55.9 146,61.5 167,64.9 179,59.0 185,58.2 190,59.6 200,68.4

  GR        225,69.9 250,71.0

  SA        110,200


*** FINISH PROCESSING CROSS SECTION - "24+28"
*** CROSS SECTION "24+28" WRITTEN TO DISK, RECORD NO. =  2

--- DATA SUMMARY FOR SECID "24+28" AT SRD =     29.  ERR-CODE =      0

     SKEW     IHFNO    VSLOPE        EK        CK
       .0        0. *********       .50       .00

X-Y COORDINATE PAIRS  (NGP =  17):
       X      Y          X      Y          X      Y          X      Y
    72.0   68.00      75.0   67.80     100.0   65.90     110.0   65.60
   117.0   62.40     124.0   61.20     127.0   55.50     133.0   54.70
   142.0   55.90     146.0   61.50     167.0   64.90     179.0   59.00
   185.0   58.20     190.0   59.60     200.0   68.40     225.0   69.90
   250.0   71.00

 X-Y MAX-MIN POINTS:
    XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
    72.0   68.00     133.0   54.70     250.0   71.00     250.0   71.00

SUBAREA BREAKPOINTS (NSA =  3):
        110.    200.
```

```
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - PROPOSED BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name MAITBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH MAITLAND BLVD PROPOSED BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19

*** START PROCESSING CROSS SECTION - "24+50"
  XS   24+5050

  GR        70,68.0

  GR        75,67.7 100,66.0 115,65.7 123,55.5 130,54.7 139,57.4 148,62.8

  GR        154,63.6 165,62.5 171,60.0 179,59.0 184,59.5 196,67.4 225,70.5

  GR        250,71.5

  SA        115,196


*** FINISH PROCESSING CROSS SECTION - "24+50"
*** CROSS SECTION "24+50" WRITTEN TO DISK, RECORD NO. =  3

--- DATA SUMMARY FOR SECID "24+50" AT SRD =     50.  ERR-CODE =      0

     SKEW      IHFNO     VSLOPE        EK        CK
       .0         0. *********       .50       .00

X-Y COORDINATE PAIRS  (NGP =  16):
       X       Y          X       Y          X       Y          X       Y
    70.0   68.00      75.0   67.70     100.0   66.00     115.0   65.70
   123.0   55.50     130.0   54.70     139.0   57.40     148.0   62.80
   154.0   63.60     165.0   62.50     171.0   60.00     179.0   59.00
   184.0   59.50     196.0   67.40     225.0   70.50     250.0   71.50

 X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
     70.0   68.00     130.0   54.70     250.0   71.50     250.0   71.50

SUBAREA BREAKPOINTS (NSA =  3):
        115.    196.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150

WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - PROPOSED BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name MAITBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH MAITLAND BLVD PROPOSED BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19

*** START PROCESSING CROSS SECTION - "25+00"
  XS   25+00100

  GR        38,72.7 50,71.8 75,68.8 100,67.2 115,66.1 125,55.9 135,56.3 137,57.

  GR        147,61.8 160,62.9 182,60.3 199,66.8 225,69.7 250,72.7 264,72.4

  SA        115,199
```

```
*** FINISH PROCESSING CROSS SECTION - "25+00"
*** CROSS SECTION "25+00" WRITTEN TO DISK, RECORD NO. =  4

--- DATA SUMMARY FOR SECID "25+00" AT SRD =    100.  ERR-CODE =      0

     SKEW      IHFNO     VSLOPE         EK         CK
       .0         0. *********       .50        .00

X-Y COORDINATE PAIRS  (NGP =  15):
       X       Y          X       Y          X       Y          X       Y
     38.0   72.70       50.0   71.80       75.0   68.80      100.0   67.20
    115.0   66.10      125.0   55.90      135.0   56.30      137.0   57.50
    147.0   61.80      160.0   62.90      182.0   60.30      199.0   66.80
    225.0   69.70      250.0   72.70      264.0   72.40

 X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN       XMAX       Y          X    YMAX
     38.0   72.70      125.0   55.90      264.0   72.40       38.0   72.70

SUBAREA BREAKPOINTS (NSA =  3):
        115.    199.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150
1
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - PROPOSED BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name MAITBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH MAITLAND BLVD PROPOSED BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19

*** START PROCESSING CROSS SECTION - "25+25"
  XS   25+25125

  GR        38,73.2 50,72.1 75,69.3 100,67.7 102,67.6 117,66.2 124,61.1 126,57.
5
  GR        128,56.6 136,56.8 140,57.5 145,60.7 149,62.2 157,63.6 162,63.4

  GR        169,62.1 178,61.2 184,61.2 192,63.4 201,65.6 203,66.3 214,67.9

  GR        250,72 270,73.0

  SA        117,201


*** FINISH PROCESSING CROSS SECTION - "25+25"
*** CROSS SECTION "25+25" WRITTEN TO DISK, RECORD NO. =  5

--- DATA SUMMARY FOR SECID "25+25" AT SRD =    125.  ERR-CODE =      0

     SKEW      IHFNO     VSLOPE         EK         CK
       .0         0. *********       .50        .00

X-Y COORDINATE PAIRS  (NGP =  24):
       X       Y          X       Y          X       Y          X       Y
     38.0   73.20       50.0   72.10       75.0   69.30      100.0   67.70
    102.0   67.60      117.0   66.20      124.0   61.10      126.0   57.50
    128.0   56.60      136.0   56.80      140.0   57.50      145.0   60.70
    149.0   62.20      157.0   63.60      162.0   63.40      169.0   62.10
    178.0   61.20      184.0   61.20      192.0   63.40      201.0   65.60
    203.0   66.30      214.0   67.90      250.0   72.00      270.0   73.00
```

```
     38.0   73.20      128.0   56.60      270.0   73.00       38.0   73.20

SUBAREA BREAKPOINTS (NSA =  3):
        117.    201.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150

WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - PROPOSED BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name MAITBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH MAITLAND BLVD PROPOSED BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19

*** START PROCESSING CROSS SECTION - "25+50"
  XS   25+50150

  GR        38,73.7 50,72.5 75,69.9 100,68.3 117,66.3 125,61.1 127,57.5 135,57.

  GR        141,57.4 143,60.8 157,65.2 170,62.1 178,61.7 184,62.2 217,67.6

  GR        250,71.3 275,73.7

  SA        117,217


*** FINISH PROCESSING CROSS SECTION - "25+50"
*** CROSS SECTION "25+50" WRITTEN TO DISK, RECORD NO. =  6

--- DATA SUMMARY FOR SECID "25+50" AT SRD =    150.  ERR-CODE =      0

     SKEW      IHFNO    VSLOPE        EK        CK
       .0         0. *********       .50       .00

X-Y COORDINATE PAIRS  (NGP =  17):
       X       Y          X       Y          X       Y          X       Y
     38.0   73.70       50.0   72.50       75.0   69.90      100.0   68.30
    117.0   66.30      125.0   61.10      127.0   57.50      135.0   57.60
    141.0   57.40      143.0   60.80      157.0   65.20      170.0   62.10
    178.0   61.70      184.0   62.20      217.0   67.60      250.0   71.30
    275.0   73.70

 X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN       XMAX       Y          X    YMAX
     38.0   73.70      141.0   57.40      275.0   73.70       38.0   73.70

SUBAREA BREAKPOINTS (NSA =  3):
        117.    217.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150

WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - PROPOSED BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name MAITBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH MAITLAND BLVD PROPOSED BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19

*** START PROCESSING CROSS SECTION - "25+62"
  XS   25+62162.5
```

```
GR          128,57.4 141,57.4 145,60.8 148,61.8 158,63.6 169,61.5 186,62.3

GR          194,62.6 213,66.7 250,71.1 275,73.4

SA          117,250
```

4-49

```
*** FINISH PROCESSING CROSS SECTION - "25+62"
*** CROSS SECTION "25+62" WRITTEN TO DISK, RECORD NO. =  7

--- DATA SUMMARY FOR SECID "25+62" AT SRD =    163.  ERR-CODE =      0

     SKEW      IHFNO     VSLOPE         EK         CK
       .0         0. *********        .50        .00

X-Y COORDINATE PAIRS  (NGP =  18):
       X       Y          X       Y          X       Y          X       Y
     50.0   72.80       75.0   70.30      100.0   68.60      101.0   68.50
    109.0   67.60      118.0   66.20      126.0   61.10      128.0   57.40
    141.0   57.40      145.0   60.80      148.0   61.80      158.0   63.60
    169.0   61.50      186.0   62.30      194.0   62.60      213.0   66.70
    250.0   71.10      275.0   73.40

 X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN       XMAX       Y          X    YMAX
     50.0   72.80      128.0   57.40      275.0   73.40      275.0   73.40

SUBAREA BREAKPOINTS (NSA =  3):
        117.    250.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150
1
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - PROPOSED BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name MAITBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH MAITLAND BLVD PROPOSED BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19

*** START PROCESSING CROSS SECTION - "25+75"
  XS   25+75175

  GR        50,73.2 75,70.7 100,69.0 101,68.9 110,68.0 117,66.1 126,61.1

  GR        128,57.4 133,57.0 141,57.4 147,60.8 149,61.6 157,62.4 168,60.9

  GR        177,62.0 183,62.5 185,62.4 192,61.4 195,61.1 200,63.0 213,66.6

  GR        250,70.9 275,73.1

  SA        117,250


*** FINISH PROCESSING CROSS SECTION - "25+75"
*** CROSS SECTION "25+75" WRITTEN TO DISK, RECORD NO. =  8

--- DATA SUMMARY FOR SECID "25+75" AT SRD =    175.  ERR-CODE =      0

     SKEW      IHFNO     VSLOPE         EK         CK
       .0         0. *********        .50        .00
```

```
     50.0   73.20      75.0   70.70     100.0   69.00     101.0   68.90
    110.0   68.00     117.0   66.10     126.0   61.10     128.0   57.40
    133.0   57.00     141.0   57.40     147.0   60.80     149.0   61.60
    157.0   62.40     168.0   60.90     177.0   62.00     183.0   62.50
    185.0   62.40     192.0   61.40     195.0   61.10     200.0   63.00
    213.0   66.60     250.0   70.90     275.0   73.10

 X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
     50.0   73.20     133.0   57.00     275.0   73.10      50.0   73.20

SUBAREA BREAKPOINTS (NSA =  3):
        117.    250.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150
1
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - PROPOSED BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name MAITBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH MAITLAND BLVD PROPOSED BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19

*** START PROCESSING CROSS SECTION - "25+87"
  XS   25+87187.5

  GR        50,73.5 75,71.1 102,69.5 115,68.5 130,61.2 132,57.3 136,56.6

  GR        147,57.5 154,61.5 162,61.1 173,59.8 182,62.2 189,62.5 196,60.4

  GR        200,60.0 218,66.5 250,70.7 275,72.8


*** FINISH PROCESSING CROSS SECTION - "25+87"
*** NO ROUGHNESS DATA INPUT, WILL PROPAGATE FROM PREVIOUS CROSS SECTION.
*** CROSS SECTION "25+87" WRITTEN TO DISK, RECORD NO. =  9

--- DATA SUMMARY FOR SECID "25+87" AT SRD =    188.  ERR-CODE =      0

     SKEW     IHFNO    VSLOPE        EK        CK
       .0        0. *********       .50       .00

X-Y COORDINATE PAIRS  (NGP =  18):
       X       Y          X       Y          X       Y          X       Y
     50.0   73.50      75.0   71.10     102.0   69.50     115.0   68.50
    130.0   61.20     132.0   57.30     136.0   56.60     147.0   57.50
    154.0   61.50     162.0   61.10     173.0   59.80     182.0   62.20
    189.0   62.50     196.0   60.40     200.0   60.00     218.0   66.50
    250.0   70.70     275.0   72.80

 X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
     50.0   73.50     136.0   56.60     275.0   72.80      50.0   73.50

SUBAREA BREAKPOINTS (NSA =  3):
        117.    250.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150

WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS
```

```
        BRIDGE HYDRAULICS REPORT (file name MAITBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH MAITLAND BLVD PROPOSED BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19

*** START PROCESSING CROSS SECTION - "26+00"
  XS   26+00200

  GR        0,76.9 25,75.4 50,73.9 75,71.5 100,69.8 113,68.8 123,62.4 128,61.1

  GR        130,57.1 136,56.4 145,57.6 152,61.2 162,59.9 170,58.9 174,59.4

  GR        179,62.3 187,62.8 193,59.5 198,59.3 201,60.1 216,66.4 225,67.4

  GR        250,70.5 275,72.5

  SA        113,216


*** FINISH PROCESSING CROSS SECTION - "26+00"
*** CROSS SECTION "26+00" WRITTEN TO DISK, RECORD NO. = 10

--- DATA SUMMARY FOR SECID "26+00" AT SRD =    200.  ERR-CODE =      0

     SKEW      IHFNO     VSLOPE        EK        CK
       .0         0. *********       .50       .00

X-Y COORDINATE PAIRS  (NGP =  24):
       X       Y          X       Y          X       Y          X       Y
      .0   76.90       25.0   75.40       50.0   73.90       75.0   71.50
    100.0   69.80      113.0   68.80      123.0   62.40      128.0   61.10
    130.0   57.10      136.0   56.40      145.0   57.60      152.0   61.20
    162.0   59.90      170.0   58.90      174.0   59.40      179.0   62.30
    187.0   62.80      193.0   59.50      198.0   59.30      201.0   60.10
    216.0   66.40      225.0   67.40      250.0   70.50      275.0   72.50

 X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
       .0   76.90      136.0   56.40     275.0   72.50         .0   76.90

SUBAREA BREAKPOINTS (NSA =  3):
        113.    216.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150
1
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - PROPOSED BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name MAITBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH MAITLAND BLVD PROPOSED BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19

*** START PROCESSING CROSS SECTION - "26+25"
  XS   26+25225

  GR        25,75.7 50,74.0 75,71.6 100,70.3 112,68.5 124,62.5 128,61.1 129,57.
5
  GR        137,56.1 145,57.6 148,58.7 154,62.3 161,62.4 168,61.4 174,60.4

  GR        184,61.4 186,62.3 194,60.0 196,59.8 199,60.3 206,63.6 221,66.7

  GR        225,67.2 250,69.8
```

```
*** FINISH PROCESSING CROSS SECTION - "26+25"
*** CROSS SECTION "26+25" WRITTEN TO DISK, RECORD NO. = 11

--- DATA SUMMARY FOR SECID "26+25" AT SRD =    225.  ERR-CODE =      0

     SKEW      IHFNO     VSLOPE         EK         CK
       .0         0. *********       .50        .00

X-Y COORDINATE PAIRS  (NGP =  24):
       X       Y          X       Y          X       Y          X       Y
     25.0   75.70       50.0   74.00       75.0   71.60      100.0   70.30
    112.0   68.50      124.0   62.50      128.0   61.10      129.0   57.50
    137.0   56.10      145.0   57.60      148.0   58.70      154.0   62.30
    161.0   62.40      168.0   61.40      174.0   60.40      184.0   61.40
    186.0   62.30      194.0   60.00      196.0   59.80      199.0   60.30
    206.0   63.60      221.0   66.70      225.0   67.20      250.0   69.80

 X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN       XMAX       Y          X    YMAX
     25.0   75.70      137.0   56.10      250.0   69.80       25.0   75.70

SUBAREA BREAKPOINTS (NSA =  3):
        128.    206.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150

WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - PROPOSED BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name MAITBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH MAITLAND BLVD PROPOSED BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19

*** START PROCESSING CROSS SECTION - "26+50"
  XS   26+50250

  GR        25,76.0 50,74.1 75,71.7 100,70.5 107,69.6 123,62.2 127,57.7 135,56.

  GR        144,57.6 148,58.9 153,64.2 162,65.7 174,61.1 184,60.2 186,61.8

  GR        190,61.6 194,60.5 202,64.1 225,67.0 250,69.2 270,72.6 298,73.1

  SA        107,202


*** FINISH PROCESSING CROSS SECTION - "26+50"
*** CROSS SECTION "26+50" WRITTEN TO DISK, RECORD NO. = 12

--- DATA SUMMARY FOR SECID "26+50" AT SRD =    250.  ERR-CODE =      0

     SKEW      IHFNO     VSLOPE         EK         CK
       .0         0. *********       .50        .00

X-Y COORDINATE PAIRS  (NGP =  22):
       X       Y          X       Y          X       Y          X       Y
     25.0   76.00       50.0   74.10       75.0   71.70      100.0   70.50
    107.0   69.60      123.0   62.20      127.0   57.70      135.0   56.20
    144.0   57.60      148.0   58.90      153.0   64.20      162.0   65.70
    174.0   61.10      184.0   60.20      186.0   61.80      190.0   61.60
    194.0   60.50      202.0   64.10      225.0   67.00      250.0   69.20
    270.0   72.60      298.0   73.10
```

```
     XMIN        Y          X     YMIN       XMAX        Y          X     YMAX
     25.0    76.00      135.0    56.20      298.0    73.10       25.0    76.00
```

4-53

```
 SUBAREA BREAKPOINTS (NSA =  3):
        107.    202.

 ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150
1
 WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
 P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - PROPOSED BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name MAITBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH MAITLAND BLVD PROPOSED BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19

 *** START PROCESSING CROSS SECTION - "27+23"
   XS   27+23323.49

   GR        35,75.9 50,75.0 75,73.0 100,70.5 116,69.8 126,61.6 129,61.3 131,57
9
   GR        146,57.5 159,58.4 163,62.2 188,63.4 211,64.3 234,62.8 260,68.6

   GR        275,71.5 300,73.1

   SA        116,260


 *** FINISH PROCESSING CROSS SECTION - "27+23"
 *** CROSS SECTION "27+23" WRITTEN TO DISK, RECORD NO. = 13

 --- DATA SUMMARY FOR SECID "27+23" AT SRD =    323.  ERR-CODE =      0

      SKEW      IHFNO    VSLOPE        EK        CK
        .0         0. *********       .50       .00

 X-Y COORDINATE PAIRS  (NGP =  17):
       X       Y          X       Y          X       Y          X       Y
      35.0   75.90       50.0   75.00       75.0   73.00      100.0   70.50
     116.0   69.80      126.0   61.60      129.0   61.30      131.0   57.90
     146.0   57.50      159.0   58.40      163.0   62.20      188.0   63.40
     211.0   64.30      234.0   62.80      260.0   68.60      275.0   71.50
     300.0   73.10

  X-Y MAX-MIN POINTS:
     XMIN        Y          X     YMIN       XMAX        Y          X     YMAX
     35.0    75.90      146.0    57.50      300.0    73.10       35.0    75.90

 SUBAREA BREAKPOINTS (NSA =  3):
        116.    260.

 ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150
1
 WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
 P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - PROPOSED BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name MAITBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH MAITLAND BLVD PROPOSED BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19

 *** START PROCESSING CROSS SECTION - "28+60"
```

```
  GR        35,75.4 50,74.3 75,72.0 100,69.9 106,69.7 117,67.1 133,61.9 140,61.

  GR        144,57.7 148,56.9 155,57.5 160,61.9 172,64.2 181,62.4 209,63.0
```

4-54

```
  GR        218,59.5 228,60.8 240,67.7 250,69.7 275,72.0 300,73.4

  SA        106,240


*** FINISH PROCESSING CROSS SECTION - "28+00"
*** CROSS SECTION "28+00" WRITTEN TO DISK, RECORD NO. = 14

--- DATA SUMMARY FOR SECID "28+00" AT SRD =    400.  ERR-CODE =      0

     SKEW      IHFNO    VSLOPE        EK        CK
       .0         0. *********       .50       .00

X-Y COORDINATE PAIRS  (NGP =  21):
       X       Y          X       Y          X       Y          X       Y
     35.0   75.40       50.0   74.30       75.0   72.00      100.0   69.90
    106.0   69.70      117.0   67.10      133.0   61.90      140.0   61.50
    144.0   57.70      148.0   56.90      155.0   57.50      160.0   61.90
    172.0   64.20      181.0   62.40      209.0   63.00      218.0   59.50
    228.0   60.80      240.0   67.70      250.0   69.70      275.0   72.00
    300.0   73.40

 X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
     35.0   75.40      148.0   56.90     300.0   73.40       35.0   75.40

SUBAREA BREAKPOINTS (NSA =  3):
        106.    240.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150

WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - PROPOSED BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name MAITBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH MAITLAND BLVD PROPOSED BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19

*** START PROCESSING CROSS SECTION - " EXIT"
  XS    EXIT450

  GR        15,76.1 25,75.4 50,73.7 75,71.6 100,70.5 103,70.5 117,67.8 129,62.2

  GR        135,61.4 138,57.8 142,57.2 151,57.7 154,62.2 167,62.5 172,64.3

  GR        189,63.8 197,62.4 212,63.1 221,60.1 232,59.9 240,59.8 248,62.8

  GR        265,69.7 286,72.7 300,73.5

  SA        103,265


*** FINISH PROCESSING CROSS SECTION - " EXIT"
*** CROSS SECTION " EXIT" WRITTEN TO DISK, RECORD NO. = 15

--- DATA SUMMARY FOR SECID " EXIT" AT SRD =    450.  ERR-CODE =      0

     SKEW      IHFNO    VSLOPE        EK        CK
```

```
X-Y COORDINATE PAIRS  (NGP =  25):
       X       Y          X       Y          X       Y          X       Y
    15.0   76.10      25.0   75.40      50.0   73.70      75.0   71.60
   100.0   70.50     103.0   70.50     117.0   67.80     129.0   62.20
   135.0   61.40     138.0   57.80     142.0   57.20     151.0   57.70
   154.0   62.20     167.0   62.50     172.0   64.30     189.0   63.80
   197.0   62.40     212.0   63.10     221.0   60.10     232.0   59.90
   240.0   59.80     248.0   62.80     265.0   69.70     286.0   72.70
   300.0   73.50

 X-Y MAX-MIN POINTS:
    XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
    15.0   76.10     142.0   57.20     300.0   73.50      15.0   76.10

SUBAREA BREAKPOINTS (NSA =  3):
        103.    265.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150
1
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - PROPOSED BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name MAITBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH MAITLAND BLVD PROPOSED BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19

*** START PROCESSING CROSS SECTION - "FULLV"
  XS   FULLV550

  GR        11,76.7 25,76 50,74.2 75,72.9 100,71.3 124,68.8 139,62.1 148,61.6

  GR        151,58.2 156,55.4 161,56.9 167,62.7 173,62.8 187,65.0 220,65.7

  GR        235,66.8 250,67.9 275,69.6

  SA        124,187

  *         PROPOSED MAITLAND BLVD BRIDGE


*** FINISH PROCESSING CROSS SECTION - "FULLV"
*** CROSS SECTION "FULLV" WRITTEN TO DISK, RECORD NO. = 16

--- DATA SUMMARY FOR SECID "FULLV" AT SRD =    550.  ERR-CODE =      0

     SKEW     IHFNO    VSLOPE        EK        CK
       .0        0. *********       .50       .00

X-Y COORDINATE PAIRS  (NGP =  18):
       X       Y          X       Y          X       Y          X       Y
    11.0   76.70      25.0   76.00      50.0   74.20      75.0   72.90
   100.0   71.30     124.0   68.80     139.0   62.10     148.0   61.60
   151.0   58.20     156.0   55.40     161.0   56.90     167.0   62.70
   173.0   62.80     187.0   65.00     220.0   65.70     235.0   66.80
   250.0   67.90     275.0   69.60

 X-Y MAX-MIN POINTS:
    XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
    11.0   76.70     156.0   55.40     275.0   69.60      11.0   76.70

SUBAREA BREAKPOINTS (NSA =  3):
        124.    187.
```

```
        .150     .040     .150

WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - PROPOSED BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name MAITBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH MAITLAND BLVD PROPOSED BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19

*** START PROCESSING CROSS SECTION - "MAITB"
  BR   MAITB550,71.3

  *          FIXED GEOMETRY MODE

  GR         0,71.3 5,70.3 5.01,63.33 10.67,63.3 10.68,61.3 25.93,61.1 33.93,57

  GR         42.93,57 50.93,61.1 60.93,61.1 60.94,70.3 65.93,71.3 0,71.3

  N          0.03 0.04 0.03

  SA         25.93,50.93

  *          NO PIER DATA

  CD         2 125 2 75.6

  AB         *  *  63.3  61.1


*** FINISH PROCESSING CROSS SECTION - "MAITB"
*** CROSS SECTION "MAITB" WRITTEN TO DISK, RECORD NO. = 17

--- DATA SUMMARY FOR SECID "MAITB" AT SRD =    550.  ERR-CODE =      0

     SKEW      IHFNO     VSLOPE         EK         CK
       .0         0. *********        .50        .00

X-Y COORDINATE PAIRS  (NGP =  13):
       X       Y          X       Y          X       Y          X       Y
       .0   71.30       5.0   70.30        5.0   63.33       10.7   63.30
     10.7   61.30      25.9   61.10       33.9   57.00       42.9   57.00
     50.9   61.10      60.9   61.10       60.9   70.30       65.9   71.30
       .0   71.30

 X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN       XMAX       Y          X    YMAX
       .0   71.30      33.9   57.00       65.9   71.30         .0   71.30

SUBAREA BREAKPOINTS (NSA =  3):
         26.     51.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .030     .040     .030

BRIDGE PARAMETERS:
 BRTYPE  BRWDTH     LSEL  USERCD  EMBSS   EMBELV    YABLT    YABRT
   2     125.0    71.30 *******   2.00    75.60    63.30    61.10

PIER DATA:  NPW =  0    PPCD = **

WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS
```

```
10,100 YR - NATURAL CHANNEL, WITH MAITLAND BLVD PROPOSED BRIDGE
   *** RUN DATE & TIME: 11-30-94  10:19

*** START PROCESSING CROSS SECTION - "APPRO"
  AS   APPRO800

  GR        0,69.6 25,68.5 50,66.8 75,65.7 100,65.5 125,66.6 147,65.5

  GR        158,62.1 164,60.6 166,57.3 172,56.1 180,58.2 185,60.8 191,60.0

  GR        201,63.1 225,65.5 250,68.0 275,69.5

  N         0.15,0.04,0.15

  SA        147,201


*** FINISH PROCESSING CROSS SECTION - "APPRO"
*** CROSS SECTION "APPRO" WRITTEN TO DISK, RECORD NO. = 18

--- DATA SUMMARY FOR SECID "APPRO" AT SRD =    800.  ERR-CODE =      0

     SKEW     IHFNO    VSLOPE        EK        CK
       .0        0. *********       .50       .00

X-Y COORDINATE PAIRS  (NGP =  18):
       X      Y          X      Y          X      Y          X      Y
       .0   69.60      25.0   68.50      50.0   66.80      75.0   65.70
    100.0   65.50     125.0   66.60     147.0   65.50     158.0   62.10
    164.0   60.60     166.0   57.30     172.0   56.10     180.0   58.20
    185.0   60.80     191.0   60.00     201.0   63.10     225.0   65.50
    250.0   68.00     275.0   69.50

 X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
       .0   69.60     172.0   56.10     275.0   69.50         .0   69.60

SUBAREA BREAKPOINTS (NSA =  3):
        147.    201.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150

BRIDGE PROJECTION DATA:  XREFLT  XREFRT  FDSTLT  FDSTRT
                        ******* ******* ******* *******
1
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - PROPOSED BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name MAITBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH MAITLAND BLVD PROPOSED BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19

*** START PROCESSING CROSS SECTION - "32+50"
  XS   32+50850

  GR        -50,68.8

  GR        0,66.6 25,65.5 50,64.7 75,64.2 100,63.7 125,63.9 135,63.2 144,61.3

  GR        151,60.7 152,57.1 159,53.3 167,58.1 170,61.9 174,60.4 179,60.4

  GR        184,66.1 200,65.4 225,66.7 250,68.5 275,70.3
```

```
*** FINISH PROCESSING CROSS SECTION - "32+50"
*** CROSS SECTION "32+50" WRITTEN TO DISK, RECORD NO. = 19

--- DATA SUMMARY FOR SECID "32+50" AT SRD =    850.  ERR-CODE =      0

     SKEW      IHFNO     VSLOPE         EK         CK
       .0         0. *********        .50        .00

X-Y COORDINATE PAIRS  (NGP =  21):
       X       Y          X       Y          X       Y          X       Y
    -50.0   68.80         .0   66.60      25.0   65.50      50.0   64.70
     75.0   64.20      100.0   63.70     125.0   63.90     135.0   63.20
    144.0   61.30      151.0   60.70     152.0   57.10     159.0   53.30
    167.0   58.10      170.0   61.90     174.0   60.40     179.0   60.40
    184.0   63.10      200.0   65.40     225.0   66.70     250.0   68.50
    275.0   70.30

 X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
    -50.0   68.80      159.0   53.30     275.0   70.30     275.0   70.30

SUBAREA BREAKPOINTS (NSA =  3):
        135.    184.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150

WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - PROPOSED BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name MAITBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH MAITLAND BLVD PROPOSED BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19

*** START PROCESSING CROSS SECTION - "33+00"
  XS   33+00900

  GR        -260,69.2 -160,67.2

  GR        -110,66.2 -100,66 -55,65.0 0,64.4 25,63.6 50,63.1 75,63.2 100,63.4

  GR        125,63.2 130,62.6 136,59.9 141,59.6 144,56.9 149,55.9 154,58.7

  GR        160,62.0 165,60.8 167,60.7 171,62.3 185,63.5 200,64.6 225,66.5

  GR        250,68.5 275,70.5

  SA        130,171

*** FINISH PROCESSING CROSS SECTION - "33+00"
*** CROSS SECTION "33+00" WRITTEN TO DISK, RECORD NO. = 20

--- DATA SUMMARY FOR SECID "33+00" AT SRD =    900.  ERR-CODE =      0

     SKEW      IHFNO     VSLOPE         EK         CK
       .0         0. *********        .50        .00

X-Y COORDINATE PAIRS  (NGP =  26):
       X       Y          X       Y          X       Y          X       Y
    -260.0   69.20     -160.0   67.20     -110.0   66.20     -100.0   66.00
```

```
    136.0   59.90     141.0   59.60     144.0   56.90     149.0   55.90
    154.0   58.70     160.0   62.00     165.0   60.80     167.0   60.70
    171.0   62.30     185.0   63.50     200.0   64.60     225.0   66.50
    250.0   68.50     275.0   70.50

 X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
   -260.0   69.20     149.0   55.90     275.0   70.50     275.0   70.50

SUBAREA BREAKPOINTS (NSA =  3):
        130.    171.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150
1
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - PROPOSED BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name MAITBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH MAITLAND BLVD PROPOSED BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19

*** START PROCESSING CROSS SECTION - "33+25"
  XS   33+25925

  GR        -530,69.0

  GR        -480,66.2 -470,66 -420,65 -300,64 -150,65 -20,63 0,63.8 25,63.1

  GR        45,63.0 95,63.2 120,63.2 125,62.6 131,60.9 136,59.5 139,56.8

  GR        144,55.9 155,61.4 160,60.5 162,60.6 169,62.3 182,63.8 195,63.9

  GR        225,65.2 245,67.7 295,69.0

  SA        136,155


*** FINISH PROCESSING CROSS SECTION - "33+25"
*** CROSS SECTION "33+25" WRITTEN TO DISK, RECORD NO. = 21

--- DATA SUMMARY FOR SECID "33+25" AT SRD =    925.  ERR-CODE =      0

     SKEW     IHFNO    VSLOPE        EK        CK
       .0        0. *********       .50       .00

X-Y COORDINATE PAIRS  (NGP =  26):
       X       Y          X       Y          X       Y          X       Y
   -530.0   69.00    -480.0   66.20    -470.0   66.00    -420.0   65.00
   -300.0   64.00    -150.0   65.00     -20.0   63.00        .0   63.80
     25.0   63.10      45.0   63.00      95.0   63.20     120.0   63.20
    125.0   62.60     131.0   60.90     136.0   59.50     139.0   56.80
    144.0   55.90     155.0   61.40     160.0   60.50     162.0   60.60
    169.0   62.30     182.0   63.80     195.0   63.90     225.0   65.20
    245.0   67.70     295.0   69.00

 X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
   -530.0   69.00     144.0   55.90     295.0   69.00    -530.0   69.00

SUBAREA BREAKPOINTS (NSA =  3):
        136.    155.
```

```
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - PROPOSED BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name MAITBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH MAITLAND BLVD PROPOSED BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19

*** START PROCESSING CROSS SECTION - "33+31"
  XS   33+31931.25

  GR        -650,69.0

  GR        -600,66.2 -590,66 -570,65 -425,64 -270,65 -65,63 0,63.6 26,63

  GR        94,63.2 119,63.2 124,62.6 131,61 135,59.6 138,56.8 143,55.9

  GR        154,61.3 159,60.4 166,62.3 182,63.4 203,64.3 234,66.7 284,69.0

  SA        131,154


*** FINISH PROCESSING CROSS SECTION - "33+31"
*** CROSS SECTION "33+31" WRITTEN TO DISK, RECORD NO. = 22

--- DATA SUMMARY FOR SECID "33+31" AT SRD =    931.  ERR-CODE =      0

     SKEW      IHFNO     VSLOPE        EK        CK
       .0         0. *********       .50       .00

X-Y COORDINATE PAIRS  (NGP =  23):
       X       Y          X       Y          X       Y          X       Y
   -650.0   69.00     -600.0   66.20     -590.0   66.00     -570.0   65.00
   -425.0   64.00     -270.0   65.00      -65.0   63.00        .0   63.60
     26.0   63.00       94.0   63.20      119.0   63.20      124.0   62.60
    131.0   61.00      135.0   59.60      138.0   56.80      143.0   55.90
    154.0   61.30      159.0   60.40      166.0   62.30      182.0   63.40
    203.0   64.30      234.0   66.70      284.0   69.00

 X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN       XMAX       Y          X    YMAX
   -650.0   69.00      143.0   55.90      284.0   69.00    -650.0   69.00

SUBAREA BREAKPOINTS (NSA =  3):
        131.    154.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150
1
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - PROPOSED BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name MAITBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH MAITLAND BLVD PROPOSED BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19

*** START PROCESSING CROSS SECTION - "33+34"
  XS   33+34934

  GR        -735,69.0 -685,66.2 -675,66 -635,65 -485,64 -330,65 -85,63 0,63.5

  GR        26,63 93,63.2 119,63.2 123,62.6 131,61.1 134,59.6 137,56.8
```

```
  GR        279,69.0

  SA        131,158


*** FINISH PROCESSING CROSS SECTION - "33+34"
*** CROSS SECTION "33+34" WRITTEN TO DISK, RECORD NO. = 23

--- DATA SUMMARY FOR SECID "33+34" AT SRD =    934.  ERR-CODE =      0

     SKEW      IHFNO    VSLOPE        EK        CK
       .0         0. *********       .50       .00

X-Y COORDINATE PAIRS  (NGP =  23):
       X       Y          X       Y          X       Y          X       Y
   -735.0   69.00     -685.0   66.20     -675.0   66.00     -635.0   65.00
   -485.0   64.00     -330.0   65.00      -85.0   63.00        .0   63.50
     26.0   63.00       93.0   63.20      118.0   63.20      123.0   62.60
    131.0   61.10      134.0   59.60      137.0   56.80      143.0   55.90
    153.0   61.20      158.0   60.40      166.0   62.20      181.0   63.30
    202.0   64.10      233.0   66.60      279.0   69.00

 X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN       XMAX       Y          X    YMAX
   -735.0   69.00      143.0   55.90      279.0   69.00     -735.0   69.00

SUBAREA BREAKPOINTS (NSA =  3):
        131.    158.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150
1
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - PROPOSED BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name MAITBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH MAITLAND BLVD PROPOSED BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19

*** START PROCESSING CROSS SECTION - "33+37"
  XS   33+37937.5

  GR        -820,69.0

  GR        -770,66.2 -760,66 -700,65 -550,64 -390,65 -110,63 0,63.4 27,63.0

  GR        93,63.2 118,63.2 123,62.6 130,61.2 133,59.6 137,56.8 142,55.9

  GR        145,56.7 152,61.1 158,60.3 165,62.1 181,63.2 201,63.9 233,66.5

  GR        273,69.0

  SA        130,165


*** FINISH PROCESSING CROSS SECTION - "33+37"
*** CROSS SECTION "33+37" WRITTEN TO DISK, RECORD NO. = 24

--- DATA SUMMARY FOR SECID "33+37" AT SRD =    938.  ERR-CODE =      0

     SKEW      IHFNO    VSLOPE        EK        CK
       0         0. *********       .50       .00
```

```
      X       Y          X       Y          X       Y          X       Y
   -820.0   69.00    -770.0   66.20    -760.0   66.00    -700.0   65.00
   -550.0   64.00    -390.0   65.00    -110.0   63.00        .0   63.40
     27.0   63.00      93.0   63.20     118.0   63.20     123.0   62.60
    130.0   61.20     133.0   59.60     137.0   56.80     142.0   55.90
    145.0   56.70     152.0   61.10     158.0   60.30     165.0   62.10
    181.0   63.20     201.0   63.90     233.0   66.50     273.0   69.00

 X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
   -820.0   69.00     142.0   55.90     273.0   69.00    -820.0   69.00

SUBAREA BREAKPOINTS (NSA =  3):
        130.    165.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150

WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - PROPOSED BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name MAITBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH MAITLAND BLVD PROPOSED BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19

*** START PROCESSING CROSS SECTION - "33+44"
  XS   33+44944

  GR        -915,69.0 -865,66.2 -855,66 -790,65 -690,64 -395,63 0,63.2

  GR        26,62.9 97,63.2 117,63.2 129,61.2 134,58.3 138,56.3 142,56.3

  GR        150,61 156,60.2 164,62.1 178,63.1 200,63.8 230,66.2 274,69.0

  SA        117,164


*** FINISH PROCESSING CROSS SECTION - "33+44"
*** CROSS SECTION "33+44" WRITTEN TO DISK, RECORD NO. = 25

--- DATA SUMMARY FOR SECID "33+44" AT SRD =    944.  ERR-CODE =      0

     SKEW     IHFNO    VSLOPE        EK        CK
       .0        0. *********       .50       .00

X-Y COORDINATE PAIRS  (NGP =  21):
      X       Y          X       Y          X       Y          X       Y
   -915.0   69.00    -865.0   66.20    -855.0   66.00    -790.0   65.00
   -690.0   64.00    -395.0   63.00        .0   63.20      26.0   62.90
     97.0   63.20     117.0   63.20     129.0   61.20     134.0   58.30
    138.0   56.30     142.0   56.30     150.0   61.00     156.0   60.20
    164.0   62.10     178.0   63.10     200.0   63.80     230.0   66.20
    274.0   69.00

 X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
   -915.0   69.00     138.0   56.30     274.0   69.00    -915.0   69.00

SUBAREA BREAKPOINTS (NSA =  3):
        117.    164.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150
```

```
        MAITLAND BLVD EXT - PROPOSED BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name MAITBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH MAITLAND BLVD PROPOSED BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19

*** START PROCESSING CROSS SECTION - "33+50"
  XS   33+50950

  GR        -1010,69.0

  GR        -960,66.2 -950,66 -880,65 -810,64 -730,63 -635,63 -580,64 -470,64

  GR        -95,63 0,63.2 25,62.8 50,63.1 75,63.1 100,63.2 115,63.3 128,61.3

  GR        134,57.0 139,55.8 142,56.7 149,61.0 155,60.1 163,62.2 175,63.0

  GR        200,63.6 225,65.8 250,67.3 275,68.6 325,69.0

  SA        115,163


*** FINISH PROCESSING CROSS SECTION - "33+50"
*** CROSS SECTION "33+50" WRITTEN TO DISK, RECORD NO. = 26

--- DATA SUMMARY FOR SECID "33+50" AT SRD =    950.  ERR-CODE =      0

     SKEW      IHFNO    VSLOPE        EK        CK
       .0         0. *********       .50       .00

X-Y COORDINATE PAIRS  (NGP =  29):
       X       Y          X       Y          X       Y          X       Y
  -1010.0   69.00    -960.0   66.20    -950.0   66.00    -880.0   65.00
   -810.0   64.00    -730.0   63.00    -635.0   63.00    -580.0   64.00
   -470.0   64.00     -95.0   63.00        .0   63.20      25.0   62.80
     50.0   63.10      75.0   63.10     100.0   63.20     115.0   63.30
    128.0   61.30     134.0   57.00     139.0   55.80     142.0   56.70
    149.0   61.00     155.0   60.10     163.0   62.20     175.0   63.00
    200.0   63.60     225.0   65.80     250.0   67.30     275.0   68.60
    325.0   69.00

 X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
  -1010.0   69.00     139.0   55.80     325.0   69.00   -1010.0   69.00

SUBAREA BREAKPOINTS (NSA =  3):
        115.    163.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150
1
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - PROPOSED BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name MAITBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH MAITLAND BLVD PROPOSED BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19

*** START PROCESSING CROSS SECTION - "34+00"
  XS   34+001000
```

```
GR          -50,62 0,61.9 25,61.9 45,61.6 53,63.0 61,61.8 75,62.8 100,63.3
GR          121,63.4 136,61.0 141,58.1 146,57.6 151,58.2 156,61.4 162,61.5
GR          166,62.8 175,63.3 200,63.4 225,63.7 250,65.9 275,67.4 325,69.0
SA          121,166

*** FINISH PROCESSING CROSS SECTION - "34+00"
*** CROSS SECTION "34+00" WRITTEN TO DISK, RECORD NO. = 27

--- DATA SUMMARY FOR SECID "34+00" AT SRD =   1000.  ERR-CODE =      0

     SKEW      IHFNO    VSLOPE        EK        CK
       .0         0. *********      .50       .00

X-Y COORDINATE PAIRS  (NGP =  31):
       X       Y          X       Y          X       Y          X       Y
   -790.0   69.00     -740.0   66.20     -730.0   66.00     -710.0   65.00
   -685.0   64.00     -620.0   63.00     -415.0   62.00     -130.0   62.00
    -90.0   61.00      -50.0   62.00         .0   61.90       25.0   61.90
     45.0   61.60       53.0   63.00       61.0   61.80       75.0   62.80
    100.0   63.30      121.0   63.40      136.0   61.00      141.0   58.10
    146.0   57.60      151.0   58.20      156.0   61.40      162.0   61.50
    166.0   62.80      175.0   63.30      200.0   63.40      225.0   63.70
    250.0   65.90      275.0   67.40      325.0   69.00

 X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN       XMAX       Y          X    YMAX
   -790.0   69.00      146.0   57.60      325.0   69.00    -790.0   69.00

SUBAREA BREAKPOINTS (NSA =  3):
        121.    166.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150

WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - PROPOSED BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name MAITBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH MAITLAND BLVD PROPOSED BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19

*** START PROCESSING CROSS SECTION - "34+50"
 XS   34+501050

 GR         -690,69.0

 GR         -640,66.3 -625,66 -595,64 -555,63 -450,62 -345,61 -200,60 -185,59

 GR         -135,59 -90,63 -55,63 -40,62 -15,61 0,62.6 25,62.7

 GR         50,63.1 75,63.0 100,63.8 110,64.1 128,62.4 138,61.1 143,58.9

 GR         148,56.9 151,57.6 155,61.9 165,61.3 171,63.9 200,64.2 225,64.1

 GR         250,65.3 275,65.9 300,66.2 350,69.0

 SA         110,171
```

```
*** CROSS SECTION "34+50" WRITTEN TO DISK, RECORD NO. = 28

--- DATA SUMMARY FOR SECID "34+50" AT SRD =   1050.  ERR-CODE =      0

     SKEW      IHFNO    VSLOPE        EK        CK
       .0         0. *********      .50       .00

X-Y COORDINATE PAIRS  (NGP =  34):
       X       Y          X       Y          X       Y          X       Y
   -690.0   69.00     -640.0   66.30     -625.0   66.00     -595.0   64.00
   -555.0   63.00     -450.0   62.00     -345.0   61.00     -200.0   60.00
   -185.0   59.00     -135.0   59.00      -90.0   63.00      -55.0   63.00
    -40.0   62.00      -15.0   61.00         .0   62.60       25.0   62.70
     50.0   63.10       75.0   63.00      100.0   63.80      110.0   64.10
    128.0   62.40      138.0   61.10      143.0   58.90      148.0   56.90
    151.0   57.60      155.0   61.90      165.0   61.30      171.0   63.90
    200.0   64.20      225.0   64.10      250.0   65.30      275.0   65.90
    300.0   66.20      350.0   69.00

 X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
   -690.0   69.00      148.0   56.90     350.0   69.00    -690.0   69.00

SUBAREA BREAKPOINTS (NSA =  3):
        110.    171.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150
1
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - PROPOSED BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name MAITBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH MAITLAND BLVD PROPOSED BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19

*** START PROCESSING CROSS SECTION - "35+00"
  XS   35+001100

  GR        -650,69.0

  GR        -600,66.3 -585,66 -575,65 -555,64 -500,63 -365,62 -255,60 -210,60

  GR        -20,63 0,62.9 25,63.2 50,63.4 75,63.4 100,63.5 114,63.2

  GR        128,59.9 137,59.4 145,58.0 153,61.5 173,64.4 200,63.9 225,63.2

  GR        250,63.4 275,64.4 300,66.0 310,66.2 360,69.0

  xSA        114,173

+++005 IGNORED UNRECOGNIZED RECORD TYPE - "xS"

*** FINISH PROCESSING CROSS SECTION - "35+00"
*** NO ROUGHNESS DATA INPUT, WILL PROPAGATE FROM PREVIOUS CROSS SECTION.
*** CROSS SECTION "35+00" WRITTEN TO DISK, RECORD NO. = 29

--- DATA SUMMARY FOR SECID "35+00" AT SRD =   1100.  ERR-CODE =      0

     SKEW      IHFNO    VSLOPE        EK        CK
       .0         0. *********      .50       .00

X-Y COORDINATE PAIRS  (NGP =  30):
```

```
  -555.0   64.00    -500.0   63.00    -365.0   62.00    -255.0   60.00
  -210.0   60.00     -20.0   63.00        .0   62.90      25.0   63.20
    50.0   63.40      75.0   63.40     100.0   63.50     114.0   63.20
   128.0   59.90     137.0   59.40     145.0   58.00     153.0   61.50
   173.0   64.40     200.0   63.90     225.0   63.20     250.0   63.40
   275.0   64.40     300.0   66.00     310.0   66.20     360.0   69.00

X-Y MAX-MIN POINTS:
    XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
  -650.0   69.00     145.0   58.00     360.0   69.00    -650.0   69.00

SUBAREA BREAKPOINTS (NSA =  3):
        110.    171.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150
1
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - PROPOSED BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name MAITBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH MAITLAND BLVD PROPOSED BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19

*** START PROCESSING CROSS SECTION - "35+50"
  XS   35+501150

  GR        -610,69.0

  GR        -560,66.3 -540,66 -495,65 -455,64 -395,63 -330,62 -285,60 -260,60

  GR        0,63.2 25,63.6 50,63.6 75,63.8 100,63.2 119,62.2 126,60.7 128,57.3

  GR        136,57.6 144,58.1 153,63.2 175,64.8 200,63.6 225,62.2 250,61.5

  GR        275,62.9 300,66.0 310,66.2 360,69.0

  SA        119,153

  *

  HP 1 MAITB66.47,1,66.47


*** FINISH PROCESSING CROSS SECTION - "35+50"
*** CROSS SECTION "35+50" WRITTEN TO DISK, RECORD NO. = 30

--- DATA SUMMARY FOR SECID "35+50" AT SRD =   1150.  ERR-CODE =      0

    SKEW     IHFNO    VSLOPE        EK        CK
      .0        0. *********       .50       .00

X-Y COORDINATE PAIRS  (NGP =  28):
      X       Y          X       Y          X       Y          X       Y
  -610.0   69.00    -560.0   66.30    -540.0   66.00    -495.0   65.00
  -455.0   64.00    -395.0   63.00    -330.0   62.00    -285.0   60.00
  -260.0   60.00        .0   63.20      25.0   63.60      50.0   63.60
    75.0   63.80     100.0   63.20     119.0   62.20     126.0   60.70
   128.0   57.30     136.0   57.60     144.0   58.10     153.0   63.20
   175.0   64.80     200.0   63.60     225.0   62.20     250.0   61.50
   275.0   62.90     300.0   66.00     310.0   66.20     360.0   69.00

X-Y MAX-MIN POINTS:
```

```
SUBAREA BREAKPOINTS (NSA =  3):
        119.    153.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150
1
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - PROPOSED BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name MAITBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH MAITLAND BLVD PROPOSED BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19
    CROSS-SECTION PROPERTIES:  ISEQ = 17;  SECID = MAITB;  SRD =     550.

     WSEL  SA#     AREA        K   TOPW   WETP  ALPH    LEW    REW     QCR
             1      98.   11828.    21.    26.                        1209.
             2     204.   29263.    25.    27.                        3306.
             3      54.    6144.    10.    15.                         706.
    66.47          356.   47235.    56.    68.  1.03     5.    61.   5028.
1
  *

  HP 1 MAITB68.18,1,68.18

1
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - PROPOSED BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name MAITBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH MAITLAND BLVD PROPOSED BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19
    CROSS-SECTION PROPERTIES:  ISEQ = 17;  SECID = MAITB;  SRD =     550.

     WSEL  SA#     AREA        K   TOPW   WETP  ALPH    LEW    REW     QCR
             1     134.   19022.    21.    28.                        1925.
             2     247.   40185.    25.    27.                        4398.
             3      71.    9080.    10.    17.                        1069.
    68.18          452.   68286.    56.    72.  1.02     5.    61.   7196.
1
  *

  HP 1 APPRO66.80,1,66.80

1
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - PROPOSED BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name MAITBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH MAITLAND BLVD PROPOSED BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19
    CROSS-SECTION PROPERTIES:  ISEQ = 18;  SECID = APPRO;  SRD =     800.

     WSEL  SA#     AREA        K   TOPW   WETP  ALPH    LEW    REW     QCR
             1      79.     684.    97.    97.                         405.
             2     347.   42465.    54.    58.                        4983.
             3      68.    1021.    37.    37.                         528.
    66.80          494.   44170.   188.   192.  1.81    50.   238.   3382.
1
  *
```

WSPRO FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188 MODEL FOR WATER-SURFACE PROFILE COMPUTATIONS

MAITLAND BLVD EXT - PROPOSED BRIDGE OVER LITTLE WEKIVA RIVER
BRIDGE HYDRAULICS REPORT (file name MAITBRIN.10)
10,100 YR - NATURAL CHANNEL, WITH MAITLAND BLVD PROPOSED BRIDGE
*** RUN DATE & TIME: 11-30-94 10:19

CROSS-SECTION PROPERTIES: ISEQ = 18; SECID = APPRO; SRD = 800.

| WSEL | SA# | AREA | K | TOPW | WETP | ALPH | LEW | REW | QCR |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 266. | 4444. | 122. | 122. | | | | 2231. |
| | 2 | 439. | 62950. | 54. | 58. | | | | 7101. |
| | 3 | 147. | 2728. | 58. | 58. | | | | 1337. |
| 68.51 | | 853. | 70122. | 234. | 238. | 2.73 | 25. | 259. | 5588. |

*

HP 2 MAITB66.47 * * 1280

WSPRO FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188 MODEL FOR WATER-SURFACE PROFILE COMPUTATIONS

MAITLAND BLVD EXT - PROPOSED BRIDGE OVER LITTLE WEKIVA RIVER
BRIDGE HYDRAULICS REPORT (file name MAITBRIN.10)
10,100 YR - NATURAL CHANNEL, WITH MAITLAND BLVD PROPOSED BRIDGE
*** RUN DATE & TIME: 11-30-94 10:19

VELOCITY DISTRIBUTION: ISEQ = 17; SECID = MAITB; SRD = 550.

| WSEL | LEW | REW | AREA | K | Q | VEL |
|---|---|---|---|---|---|---|
| 66.47 | 5.0 | 60.9 | 355.9 | 47235. | 1280. | 3.60 |

| | | | | | | |
|---|---|---|---|---|---|---|
| X STA. | 5.0 | 14.1 | 17.1 | 20.0 | 23.0 | 25.9 |
| A(I) | 35.5 | 15.7 | 15.7 | 15.8 | 15.3 | |
| V(I) | 1.80 | 4.09 | 4.08 | 4.05 | 4.18 | |
| X STA. | 25.9 | 29.4 | 31.7 | 33.5 | 35.1 | 36.6 |
| A(I) | 21.9 | 17.8 | 16.1 | 14.4 | 14.5 | |
| V(I) | 2.92 | 3.59 | 3.97 | 4.43 | 4.42 | |
| X STA. | 36.6 | 38.1 | 39.7 | 41.2 | 42.7 | 44.4 |
| A(I) | 14.5 | 14.5 | 14.2 | 14.4 | 15.6 | |
| V(I) | 4.40 | 4.40 | 4.51 | 4.44 | 4.10 | |
| X STA. | 44.4 | 46.4 | 49.3 | 52.7 | 55.5 | 60.9 |
| A(I) | 16.7 | 20.0 | 18.9 | 15.1 | 29.1 | |
| V(I) | 3.83 | 3.20 | 3.38 | 4.24 | 2.20 | |

*

HP 2 MAITB68.18 * * 1800

WSPRO FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188 MODEL FOR WATER-SURFACE PROFILE COMPUTATIONS

MAITLAND BLVD EXT - PROPOSED BRIDGE OVER LITTLE WEKIVA RIVER
BRIDGE HYDRAULICS REPORT (file name MAITBRIN.10)
10,100 YR - NATURAL CHANNEL, WITH MAITLAND BLVD PROPOSED BRIDGE
*** RUN DATE & TIME: 11-30-94 10:19

VELOCITY DISTRIBUTION: ISEQ = 17; SECID = MAITB; SRD = 550.

4-69

| WSEL | LEW | REW | AREA | K | Q | VEL |
|---|---|---|---|---|---|---|
| 68.18 | 5.0 | 60.9 | 451.6 | 68286. | 1800. | 3.99 |

| | | | | | | |
|---|---|---|---|---|---|---|
| X STA. | 5.0 | 13.7 | 16.4 | 19.1 | 21.8 | 24.4 |
| A(I) | 48.2 | 18.8 | 19.2 | 18.5 | 18.8 | |
| V(I) | 1.87 | 4.80 | 4.68 | 4.87 | 4.79 | |
| X STA. | 24.4 | 27.5 | 30.3 | 32.5 | 34.4 | 36.0 |
| A(I) | 22.4 | 24.6 | 21.4 | 20.2 | 18.2 | |
| V(I) | 4.03 | 3.66 | 4.21 | 4.47 | 4.93 | |
| X STA. | 36.0 | 37.7 | 39.4 | 41.0 | 42.7 | 44.5 |
| A(I) | 18.8 | 18.8 | 18.4 | 18.7 | 20.2 | |
| V(I) | 4.78 | 4.78 | 4.90 | 4.82 | 4.45 | |
| X STA. | 44.5 | 46.7 | 49.7 | 52.6 | 55.3 | 60.9 |
| A(I) | 21.4 | 24.9 | 21.6 | 18.7 | 40.0 | |
| V(I) | 4.22 | 3.61 | 4.16 | 4.82 | 2.25 | |

1

*

HP 2 APPRO66.80 * * 1280

1

WSPRO FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188 MODEL FOR WATER-SURFACE PROFILE COMPUTATIONS

MAITLAND BLVD EXT - PROPOSED BRIDGE OVER LITTLE WEKIVA RIVER
BRIDGE HYDRAULICS REPORT (file name MAITBRIN.10)
10,100 YR - NATURAL CHANNEL, WITH MAITLAND BLVD PROPOSED BRIDGE
*** RUN DATE & TIME: 11-30-94 10:19

VELOCITY DISTRIBUTION: ISEQ = 18; SECID = APPRO; SRD = 800.

| WSEL | LEW | REW | AREA | K | Q | VEL |
|---|---|---|---|---|---|---|
| 66.80 | 50.0 | 238.0 | 494.1 | 44170. | 1280. | 2.59 |

| | | | | | | |
|---|---|---|---|---|---|---|
| X STA. | 50.0 | 159.5 | 163.2 | 166.3 | 167.7 | 169.1 |
| A(I) | 119.4 | 20.3 | 23.7 | 13.5 | 13.7 | |
| V(I) | .54 | 3.15 | 2.70 | 4.73 | 4.66 | |
| X STA. | 169.1 | 170.4 | 171.7 | 173.0 | 174.3 | 175.7 |
| A(I) | 13.5 | 13.5 | 13.3 | 14.0 | 13.9 | |
| V(I) | 4.73 | 4.74 | 4.80 | 4.58 | 4.60 | |
| X STA. | 175.7 | 177.3 | 178.9 | 180.6 | 182.8 | 185.7 |
| A(I) | 14.5 | 14.8 | 15.2 | 16.6 | 18.5 | |
| V(I) | 4.41 | 4.33 | 4.20 | 3.86 | 3.45 | |
| X STA. | 185.7 | 188.5 | 191.0 | 193.8 | 197.6 | 238.0 |
| A(I) | 17.5 | 16.6 | 18.0 | 20.6 | 82.7 | |
| V(I) | 3.66 | 3.87 | 3.56 | 3.11 | .77 | |

1

*

HP 2 APPRO68.51 * * 1800

1

WSPRO FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY

MAITLAND BLVD EXT - PROPOSED BRIDGE OVER LITTLE WEKIVA RIVER
BRIDGE HYDRAULICS REPORT (file name MAITBRIN.10)
10,100 YR - NATURAL CHANNEL, WITH MAITLAND BLVD PROPOSED BRIDGE 4-70
*** RUN DATE & TIME: 11-30-94 10:19

VELOCITY DISTRIBUTION: ISEQ = 18; SECID = APPRO; SRD = 800.

| WSEL | LEW | REW | AREA | K | Q | VEL |
|---|---|---|---|---|---|---|
| 68.51 | 24.8 | 258.5 | 852.5 | 70122. | 1800. | 2.11 |

| | | | | | | |
|---|---|---|---|---|---|---|
| X STA. | 24.8 | 128.1 | 156.2 | 160.7 | 164.3 | 167.0 |
| A(I) | 218.4 | 88.5 | 29.7 | 27.1 | 28.3 | |
| V(I) | .41 | 1.02 | 3.03 | 3.33 | 3.18 | |
| X STA. | 167.0 | 168.7 | 170.3 | 171.8 | 173.4 | 175.0 |
| A(I) | 19.2 | 18.9 | 19.1 | 19.0 | 19.5 | |
| V(I) | 4.68 | 4.76 | 4.71 | 4.74 | 4.61 | |
| X STA. | 175.0 | 176.8 | 178.7 | 180.8 | 183.3 | 186.3 |
| A(I) | 20.1 | 20.5 | 21.2 | 23.2 | 24.7 | |
| V(I) | 4.47 | 4.38 | 4.24 | 3.88 | 3.64 | |
| X STA. | 186.3 | 189.2 | 192.0 | 195.2 | 199.7 | 258.5 |
| A(I) | 23.3 | 23.3 | 24.9 | 28.8 | 154.7 | |
| V(I) | 3.87 | 3.86 | 3.62 | 3.13 | .58 | |

EX

+++ BEGINNING PROFILE CALCULATIONS -- 2

1
WSPRO FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188 MODEL FOR WATER-SURFACE PROFILE COMPUTATIONS

MAITLAND BLVD EXT - PROPOSED BRIDGE OVER LITTLE WEKIVA RIVER
BRIDGE HYDRAULICS REPORT (file name MAITBRIN.10)
10,100 YR - NATURAL CHANNEL, WITH MAITLAND BLVD PROPOSED BRIDGE
*** RUN DATE & TIME: 11-30-94 10:19

| XSID:CODE<br>SRD | SRDL<br>FLEN | LEW<br>REW | AREA<br>K | VHD<br>ALPH | HF<br>HO | EGL<br>ERR | CRWS<br>FR# | Q<br>VEL | WSEL |
|---|---|---|---|---|---|---|---|---|---|
| 24+00:XS | ****** | 116. | 286. | .12 | ***** | 64.40 | 60.79 | 795. | 64.28 |
| 0. | ****** | 185. | 26269. | 1.00 | ***** | ******* | .24 | 2.78 | |
| 24+28:XS | 29. | 113. | 327. | .09 | .02 | 64.42 | ******* | 795. | 64.33 |
| 29. | 29. | 195. | 29091. | 1.00 | .00 | .00 | .21 | 2.43 | |
| 24+50:XS | 21. | 116. | 330. | .09 | .01 | 64.44 | ******* | 795. | 64.35 |
| 50. | 21. | 191. | 30721. | 1.00 | .00 | .00 | .20 | 2.41 | |
| 25+00:XS | 50. | 117. | 289. | .12 | .04 | 64.49 | ******* | 795. | 64.37 |
| 100. | 50. | 193. | 25020. | 1.00 | .01 | .00 | .25 | 2.75 | |
| 25+25:XS | 25. | 119. | 251. | .16 | .03 | 64.54 | ******* | 795. | 64.38 |
| 125. | 25. | 196. | 19706. | 1.00 | .02 | .00 | .31 | 3.17 | |
| 25+50:XS | 25. | 120. | 206. | .23 | .05 | 64.62 | ******* | 795. | 64.39 |
| 150. | 25. | 197. | 14723. | 1.00 | .04 | -.01 | .40 | 3.86 | |
| 25+62:XS | 13. | 121. | 250. | .16 | .03 | 64.64 | ******* | 795. | 64.49 |
| 163. | 13. | 203. | 18835. | 1.00 | .00 | -.01 | .32 | 3.18 | |

```
      175.    13.   206.   24688.  1.00   .00    -.01     .25    2.66

25+87:XS      13.   123.     360.   .08   .01   64.66 *******    795.   64.59
      188.    13.   213.   32440.  1.00   .00     .00     .19    2.21

26+00:XS      13.   120.     406.   .06   .01   64.67 *******    795.   64.61
      200.    13.   212.   38678.  1.00   .00     .00     .16    1.96

26+25:XS      25.   120.     361.   .08   .01   64.69 *******    795.   64.61
      225.    25.   211.   32906.  1.08   .01     .00     .20    2.20

26+50:XS      25.   118.     305.   .11   .02   64.72 *******    795.   64.61
      250.    25.   206.   27068.  1.01   .01     .00     .23    2.61

27+23:XS      73.   122.     338.   .09   .07   64.79 *******    795.   64.70
      323.    73.   243.   24391.  1.00   .00     .00     .25    2.35

28+00:XS      77.   124.     348.   .08   .07   64.87 *******    795.   64.78
      400.    77.   235.   26859.  1.00   .00     .00     .23    2.28

 EXIT:XS      50.   123.     406.   .06   .04   64.90 *******    795.   64.84
      450.    50.   253.   31339.  1.00   .00     .00     .19    1.96

 ===135 CONVEYANCE RATIO OUTSIDE OF RECOMMENDED LIMITS.
                              "FULLV"     KRATIO =    .50

FULLV:FV     100.   133.     191.   .27   .13   65.13 *******    795.   64.86
      550.   100.   186.   15584.  1.00   .10     .00     .39    4.16
         <<<<<THE ABOVE RESULTS REFLECT "NORMAL" (UNCONSTRICTED) FLOW>>>>>

 ===135 CONVEYANCE RATIO OUTSIDE OF RECOMMENDED LIMITS.
                              "APPRO"     KRATIO =   1.81
1
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - PROPOSED BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name MAITBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH MAITLAND BLVD PROPOSED BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19

 XSID:CODE   SRDL    LEW     AREA   VHD    HF     EGL    CRWS       Q    WSEL
       SRD   FLEN    REW        K  ALPH    HO     ERR     FR#     VEL

APPRO:AS     250.   147.     295.   .13   .36   65.49 *******    795.   65.36
      800.   250.   224.   28255.  1.16   .00     .00     .26    2.70
         <<<<<THE ABOVE RESULTS REFLECT "NORMAL" (UNCONSTRICTED) FLOW>>>>>

           <<<<<RESULTS REFLECTING THE CONSTRICTED FLOW FOLLOW>>>>>

 XSID:CODE   SRDL    LEW     AREA   VHD    HF     EGL    CRWS       Q    WSEL
       SRD   FLEN    REW        K  ALPH    HO     ERR     FR#     VEL

MAITB:BR     100.     5.     265.   .14   .08   64.99   61.83    795.   64.85
      550.   100.    61.   29924.  1.00   .01     .00     .24    3.00

     TYPE PPCD FLOW      C    P/A    LSEL   BLEN   XLAB   XRAB
       2. ****   1.   .998 ******   71.30 ****** ****** ******

 XSID:CODE   SRDL    LEW     AREA   VHD    HF     EGL    CRWS       Q    WSEL
       SRD   FLEN    REW        K  ALPH    HO     ERR     FR#     VEL

APPRO:AS     125.   148.     277.   .15   .17   65.28   61.43    795.   65.13
```

```
.266    .011    25911.    144.    199.    65.02

                <<<<<END OF BRIDGE COMPUTATIONS>>>>>

 XSID:CODE   SRDL    LEW     AREA   VHD    HF     EGL    CRWS       Q    WSEL
      SRD   FLEN    REW        K  ALPH    HO     ERR     FR#     VEL

32+50:XS     50.     34.     402.   .11   .04   65.31 *******    795.   65.20
     850.    50.    199.   31607.  1.81   .00     .00     .30    1.98

33+00:XS     50.    -65.     550.   .12   .03   65.35 *******    795.   65.23
     900.    50.    208.   29193.  3.75   .01     .00     .35    1.44

33+25:XS     25.   -432.     970.   .14   .02   65.38 *******    795.   65.25
     925.    25.    225.   27800. 13.13   .01     .00     .43     .82

33+31:XS      6.   -576.    1205.   .09   .00   65.38 *******    795.   65.29
     931.     6.    216.   32964. 12.98   .00    -.01     .34     .66

33+34:XS      3.   -647.    1328.   .07   .00   65.37 *******    795.   65.31
     934.     3.    217.   36351. 12.46   .00     .00     .30     .60

33+37:XS      4.   -719.    1460.   .05   .00   65.37 *******    795.   65.32
     938.     4.    218.   41071. 11.27   .00     .00     .26     .54

WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - PROPOSED BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name MAITBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH MAITLAND BLVD PROPOSED BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19

 XSID:CODE   SRDL    LEW     AREA   VHD    HF     EGL    CRWS       Q    WSEL
      SRD   FLEN    REW        K  ALPH    HO     ERR     FR#     VEL

33+44:XS      7.   -813.    2137.   .02   .00   65.37 *******    795.   65.35
     944.     7.    219.   56140.  8.52   .00     .00     .13     .37

33+50:XS      6.   -905.    2216.   .02   .00   65.37 *******    795.   65.35
     950.     6.    220.   56995.  8.98   .00     .00     .14     .36

34+00:XS     50.   -717.    2876.   .01   .01   65.38 *******    795.   65.37
    1000.    50.    244.   76408.  4.76   .00     .00     .06     .28

34+50:XS     50.   -616.    2967.   .00   .00   65.38 *******    795.   65.38
    1050.    50.    253.   84400.  3.02   .00     .00     .04     .27

35+00:XS     50.   -579.    2687.   .01   .00   65.39 *******    795.   65.38
    1100.    50.    290.   76379.  4.11   .00     .00     .06     .30

35+50:XS     50.   -512.    2413.   .01   .01   65.40 *******    795.   65.39
    1150.    50.    295.   68377.  6.25   .00     .00     .08     .33

WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - PROPOSED BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name MAITBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH MAITLAND BLVD PROPOSED BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19
 FIRST USER DEFINED TABLE.

 XSID:CODE        Q     SRD    WSEL    AREA     VEL     FR#       K   XSTW
```

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 24+50:XS | 795. | 50. | 64.35 | 330. | 2.41 | .20 | 30721. | 75. |
| 25+00:XS | 795. | 100. | 64.37 | 289. | 2.75 | .25 | 25020. | 76. |
| 25+25:XS | 795. | 125. | 64.38 | 251. | 3.17 | .31 | 19706. | 77. |
| 25+50:XS | 795. | 150. | 64.39 | 206. | 3.86 | .40 | 14723. | 72. |
| 25+62:XS | 795. | 163. | 64.49 | 250. | 3.18 | .32 | 18835. | 82. |
| 25+75:XS | 795. | 175. | 64.54 | 299. | 2.66 | .25 | 24688. | 86. |
| 25+87:XS | 795. | 188. | 64.59 | 360. | 2.21 | .19 | 32440. | 90. |
| 26+00:XS | 795. | 200. | 64.61 | 406. | 1.96 | .16 | 38678. | 92. |
| 26+25:XS | 795. | 225. | 64.61 | 361. | 2.20 | .20 | 32906. | 91. |
| 26+50:XS | 795. | 250. | 64.61 | 305. | 2.61 | .23 | 27068. | 79. |
| 27+23:XS | 795. | 323. | 64.70 | 338. | 2.35 | .25 | 24391. | 120. |
| 28+00:XS | 795. | 400. | 64.78 | 348. | 2.28 | .23 | 26859. | 111. |
| EXIT:XS | 795. | 450. | 64.84 | 406. | 1.96 | .19 | 31339. | 130. |
| FULLV:FV | 795. | 550. | 64.86 | 191. | 4.16 | .39 | 15584. | 53. |
| MAITB:BR | 795. | 550. | 64.85 | 265. | 3.00 | .24 | 29924. | 56. |
| APPRO:AS | 795. | 800. | 65.13 | 277. | 2.87 | .28 | 26324. | 73. |
| 32+50:XS | 795. | 850. | 65.20 | 402. | 1.98 | .30 | 31607. | 164. |
| 33+00:XS | 795. | 900. | 65.23 | 550. | 1.44 | .35 | 29193. | 274. |
| 33+25:XS | 795. | 925. | 65.25 | 970. | .82 | .43 | 27800. | 658. |
| 33+31:XS | 795. | 931. | 65.29 | 1205. | .66 | .34 | 32964. | 792. |
| 33+34:XS | 795. | 934. | 65.31 | 1328. | .60 | .30 | 36351. | 864. |
| 33+37:XS | 795. | 938. | 65.32 | 1460. | .54 | .26 | 41071. | 938. |
| 33+44:XS | 795. | 944. | 65.35 | 2137. | .37 | .13 | 56140. | 1032. |
| 33+50:XS | 795. | 950. | 65.35 | 2216. | .36 | .14 | 56995. | 1125. |
| 34+00:XS | 795. | 1000. | 65.37 | 2876. | .28 | .06 | 76408. | 961. |
| 34+50:XS | 795. | 1050. | 65.38 | 2967. | .27 | .04 | 84400. | 869. |
| 35+00:XS | 795. | 1100. | 65.38 | 2687. | .30 | .06 | 76379. | 869. |
| 35+50:XS | 795. | 1150. | 65.39 | 2413. | .33 | .08 | 68377. | 807. |

4-73

1

WSPRO FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188 MODEL FOR WATER-SURFACE PROFILE COMPUTATIONS

MAITLAND BLVD EXT - PROPOSED BRIDGE OVER LITTLE WEKIVA RIVER
BRIDGE HYDRAULICS REPORT (file name MAITBRIN.10)
10,100 YR - NATURAL CHANNEL, WITH MAITLAND BLVD PROPOSED BRIDGE
*** RUN DATE & TIME: 11-30-94 10:19

| XSID:CODE | SRDL | LEW | AREA | VHD | HF | EGL | CRWS | Q | WSEL |
|---|---|---|---|---|---|---|---|---|---|
| SRD | FLEN | REW | K | ALPH | HO | ERR | FR# | VEL | |
| 24+00:XS | ****** | 104. | 470. | .15 | ***** | 66.75 | 62.23 | 1450. | 66.60 |
| 0. | ****** | 300. | 52557. | 1.04 | ***** | ******* | .27 | 3.08 | |
| 24+28:XS | 29. | 90. | 538. | .12 | .02 | 66.77 | ******* | 1450. | 66.65 |
| 29. | 29. | 198. | 59261. | 1.04 | .00 | .00 | .22 | 2.70 | |
| 24+50:XS | 21. | 90. | 526. | .12 | .01 | 66.79 | ******* | 1450. | 66.66 |
| 50. | 21. | 195. | 60762. | 1.06 | .00 | .00 | .22 | 2.76 | |
| 25+00:XS | 50. | 107. | 477. | .15 | .03 | 66.83 | ******* | 1450. | 66.69 |
| 100. | 50. | 199. | 53271. | 1.01 | .01 | .00 | .24 | 3.04 | |
| 25+25:XS | 25. | 112. | 443. | .17 | .02 | 66.86 | ******* | 1450. | 66.69 |
| 125. | 25. | 206. | 47137. | 1.01 | .01 | .00 | .27 | 3.27 | |
| 25+50:XS | 25. | 114. | 404. | .20 | .03 | 66.91 | ******* | 1450. | 66.71 |
| 150. | 25. | 212. | 37664. | 1.00 | .02 | .00 | .31 | 3.59 | |
| 25+62:XS | 13. | 114. | 454. | .16 | .02 | 66.92 | ******* | 1450. | 66.76 |
| 163. | 13. | 214. | 45494. | 1.00 | .00 | .00 | .26 | 3.20 | |
| 25+75:XS | 13. | 114. | 507. | .13 | .01 | 66.93 | ******* | 1450. | 66.80 |
| 175. | 13. | 215. | 54329. | 1.00 | .00 | .00 | .22 | 2.86 | |

```
26+00:XS      13.   116.     624.   .08   .01   66.94 *******   1450.   66.85
      200.    13.   220.   74565.  1.00   .00     .00     .17    2.32

26+25:XS      25.   115.     582.   .12   .01   66.96 *******   1450.   66.85
      225.    25.   222.   66025.  1.20   .02     .00     .21    2.49

26+50:XS      25.   113.     523.   .13   .01   66.98 *******   1450.   66.85
      250.    25.   224.   54578.  1.10   .01     .00     .24    2.77

27+23:XS      73.   119.     622.   .08   .05   67.03 *******   1450.   66.94
      323.    73.   253.   62892.  1.00   .00     .00     .19    2.33

28+00:XS      77.   117.     603.   .09   .04   67.07 *******   1450.   66.98
      400.    77.   239.   63091.  1.00   .00     .00     .19    2.40

 EXIT:XS      50.   119.     701.   .07   .02   67.09 *******   1450.   67.03
      450.    50.   258.   73810.  1.00   .00     .00     .16    2.07

 ===135 CONVEYANCE RATIO OUTSIDE OF RECOMMENDED LIMITS.
                              "FULLV"     KRATIO =    .46

FULLV:FV     100.   128.     376.   .32   .08   67.30 *******   1450.   66.98
      550.   100.   238.   33657.  1.37   .12     .00     .43    3.85
         <<<<<THE ABOVE RESULTS REFLECT "NORMAL" (UNCONSTRICTED) FLOW>>>>>

 ===135 CONVEYANCE RATIO OUTSIDE OF RECOMMENDED LIMITS.
                              "APPRO"     KRATIO =   1.56

WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - PROPOSED BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name MAITBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH MAITLAND BLVD PROPOSED BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:19

 XSID:CODE   SRDL    LEW     AREA   VHD    HF     EGL    CRWS       Q    WSEL
       SRD   FLEN    REW        K  ALPH    HO     ERR     FR#     VEL

APPRO:AS     250.    41.     613.   .19   .30   67.60 *******   1450.   67.41
      800.   250.   244.   52611.  2.16   .00     .00     .35    2.37
         <<<<<THE ABOVE RESULTS REFLECT "NORMAL" (UNCONSTRICTED) FLOW>>>>>

            <<<<<RESULTS REFLECTING THE CONSTRICTED FLOW FOLLOW>>>>>

 XSID:CODE   SRDL    LEW     AREA   VHD    HF     EGL    CRWS       Q    WSEL
       SRD   FLEN    REW        K  ALPH    HO     ERR     FR#     VEL

MAITB:BR     100.     5.     383.   .23   .06   67.18   62.85   1450.   66.96
      550.   100.    61.   52959.  1.01   .03    -.01     .26    3.78

     TYPE PPCD FLOW      C    P/A    LSEL   BLEN   XLAB   XRAB
       2. ****   1.   .994 ******   71.30 ****** ****** ******

 XSID:CODE   SRDL    LEW     AREA   VHD    HF     EGL    CRWS       Q    WSEL
       SRD   FLEN    REW        K  ALPH    HO     ERR     FR#     VEL

APPRO:AS     125.    43.     590.   .20   .19   67.49   62.79   1450.   67.30
      800.   223.   243.   50986.  2.10   .12     .00     .37    2.46

       M(G)   M(K)       KQ   XLKQ   XRKQ    OTEL
       .725   .062   47850.   144.   200.    67.20
```

| XSID:CODE<br>SRD | SRDL<br>FLEN | LEW<br>REW | AREA<br>K | VHD<br>ALPH | HF<br>HO | EGL<br>ERR | CRWS<br>FR# | Q<br>VEL | WSEL<br>4-75 |
|---|---|---|---|---|---|---|---|---|---|
| 32+50:XS | 50. | -18. | 860. | .14 | .03 | 67.52 | ******* | 1450. | 67.39 |
| 850. | 50. | 235. | 60267. | 3.15 | .00 | .00 | .29 | 1.69 | |
| 33+00:XS | 50. | -172. | 1301. | .11 | .03 | 67.55 | ******* | 1450. | 67.44 |
| 900. | 50. | 237. | 62755. | 5.78 | .00 | .00 | .26 | 1.11 | |
| 33+25:XS | 25. | -503. | 2583. | .04 | .01 | 67.56 | ******* | 1450. | 67.51 |
| 925. | 25. | 244. | 80893. | 8.80 | .00 | .00 | .16 | .56 | |
| 33+31:XS | 6. | -624. | 3068. | .03 | .00 | 67.56 | ******* | 1450. | 67.53 |
| 931. | 6. | 252. | 95557. | 8.28 | .00 | .00 | .13 | .47 | |
| 33+34:XS | 3. | -709. | 3369. | .02 | .00 | 67.56 | ******* | 1450. | 67.53 |
| 934. | 3. | 251. | 105528. | 8.06 | .00 | .00 | .11 | .43 | |
| 33+37:XS | 4. | -794. | 3677. | .02 | .00 | 67.56 | ******* | 1450. | 67.54 |
| 938. | 4. | 250. | 118262. | 7.75 | .00 | .00 | .10 | .39 | |

1
WSPRO FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188 MODEL FOR WATER-SURFACE PROFILE COMPUTATIONS

MAITLAND BLVD EXT - PROPOSED BRIDGE OVER LITTLE WEKIVA RIVER
BRIDGE HYDRAULICS REPORT (file name MAITBRIN.10)
10,100 YR - NATURAL CHANNEL, WITH MAITLAND BLVD PROPOSED BRIDGE
*** RUN DATE & TIME: 11-30-94 10:19

| XSID:CODE<br>SRD | SRDL<br>FLEN | LEW<br>REW | AREA<br>K | VHD<br>ALPH | HF<br>HO | EGL<br>ERR | CRWS<br>FR# | Q<br>VEL | WSEL |
|---|---|---|---|---|---|---|---|---|---|
| 33+44:XS | 7. | -889. | 4544. | .01 | .00 | 67.56 | ******* | 1450. | 67.55 |
| 944. | 7. | 251. | 150717. | 5.87 | .00 | .00 | .07 | .32 | |
| 33+50:XS | 6. | -984. | 4835. | .01 | .00 | 67.56 | ******* | 1450. | 67.55 |
| 950. | 6. | 255. | 157267. | 5.98 | .00 | .00 | .07 | .30 | |
| 34+00:XS | 50. | -764. | 5063. | .00 | .00 | 67.56 | ******* | 1450. | 67.55 |
| 1000. | 50. | 280. | 176127. | 3.89 | .00 | .00 | .05 | .29 | |
| 34+50:XS | 50. | -663. | 5010. | .00 | .00 | 67.56 | ******* | 1450. | 67.56 |
| 1050. | 50. | 324. | 183864. | 3.13 | .00 | .00 | .04 | .29 | |
| 35+00:XS | 50. | -623. | 4677. | .01 | .00 | 67.57 | ******* | 1450. | 67.56 |
| 1100. | 50. | 334. | 172542. | 3.83 | .00 | .00 | .05 | .31 | |
| 35+50:XS | 50. | -583. | 4306. | .01 | .00 | 67.57 | ******* | 1450. | 67.56 |
| 1150. | 50. | 334. | 150478. | 4.89 | .00 | .00 | .06 | .34 | |

1
WSPRO FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188 MODEL FOR WATER-SURFACE PROFILE COMPUTATIONS

MAITLAND BLVD EXT - PROPOSED BRIDGE OVER LITTLE WEKIVA RIVER
BRIDGE HYDRAULICS REPORT (file name MAITBRIN.10)
10,100 YR - NATURAL CHANNEL, WITH MAITLAND BLVD PROPOSED BRIDGE
*** RUN DATE & TIME: 11-30-94 10:19
FIRST USER DEFINED TABLE.

| XSID:CODE | Q | SRD | WSEL | AREA | VEL | FR# | K | XSTW |
|---|---|---|---|---|---|---|---|---|
| 24+00:XS | 1450. | 0. | 66.60 | 470. | 3.08 | .27 | 52557. | 107. |
| 24+28:XS | 1450. | 29. | 66.65 | 538. | 2.70 | .22 | 59261. | 108. |
| 24+50:XS | 1450. | 50. | 66.66 | 526. | 2.76 | .22 | 60762. | 105. |
| 25+00:XS | 1450. | 100. | 66.69 | 477. | 3.04 | .24 | 59271. | 92. |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 25+62:XS | 1450. | 163. | 66.76 | 454. | 3.20 | .26 | 45494. | 99. |
| 25+75:XS | 1450. | 175. | 66.80 | 507. | 2.86 | .22 | 54329. | 100. |
| 25+87:XS | 1450. | 188. | 66.83 | 574. | 2.53 | .19 | 64728. | 102. |
| 26+00:XS | 1450. | 200. | 66.85 | 624. | 2.32 | .17 | 74565. | 104. |
| 26+25:XS | 1450. | 225. | 66.85 | 582. | 2.49 | .21 | 66025. | 107. |
| 26+50:XS | 1450. | 250. | 66.85 | 523. | 2.77 | .24 | 54578. | 111. |
| 27+23:XS | 1450. | 323. | 66.94 | 622. | 2.33 | .19 | 62892. | 133. |
| 28+00:XS | 1450. | 400. | 66.98 | 603. | 2.40 | .19 | 63091. | 121. |
| EXIT:XS | 1450. | 450. | 67.03 | 701. | 2.07 | .16 | 73810. | 140. |
| FULLV:FV | 1450. | 550. | 66.98 | 376. | 3.85 | .43 | 33657. | 109. |
| MAITB:BR | 1450. | 550. | 66.96 | 383. | 3.78 | .26 | 52959. | 56. |
| APPRO:AS | 1450. | 800. | 67.30 | 590. | 2.46 | .37 | 50986. | 200. |
| 32+50:XS | 1450. | 850. | 67.39 | 860. | 1.69 | .29 | 60267. | 252. |
| 33+00:XS | 1450. | 900. | 67.44 | 1301. | 1.11 | .26 | 62755. | 409. |
| 33+25:XS | 1450. | 925. | 67.51 | 2583. | .56 | .16 | 80893. | 747. |
| 33+31:XS | 1450. | 931. | 67.53 | 3068. | .47 | .13 | 95557. | 876. |
| 33+34:XS | 1450. | 934. | 67.53 | 3369. | .43 | .11 | 105528. | 960. |
| 33+37:XS | 1450. | 938. | 67.54 | 3677. | .39 | .10 | 118262. | 1043. |
| 33+44:XS | 1450. | 944. | 67.55 | 4544. | .32 | .07 | 150717. | 1140. |
| 33+50:XS | 1450. | 950. | 67.55 | 4835. | .30 | .07 | 157267. | 1239. |
| 34+00:XS | 1450. | 1000. | 67.55 | 5063. | .29 | .05 | 176127. | 1044. |
| 34+50:XS | 1450. | 1050. | 67.56 | 5010. | .29 | .04 | 183864. | 988. |
| 35+00:XS | 1450. | 1100. | 67.56 | 4677. | .31 | .05 | 172542. | 958. |
| 35+50:XS | 1450. | 1150. | 67.56 | 4306. | .34 | .06 | 150478. | 918. |

ER

NORMAL END OF WSPRO EXECUTION.

```
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

           *** RUN DATE & TIME: 11-30-94  10:20

  T1        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER

  T2        BRIDGE HYDRAULICS REPORT (file name ORANBRIN.10)

  T3        10,100 YR - NATURAL CHANNEL, WITH  ORANOLE ROAD BRIDGE

  *         Q's & ELEV's BASED ON SJRWMD REPORT TP SJ 89-3 AUGUST 1989.

  Q         795,1450

*** Q-DATA FOR SEC-ID, ISEQ =            1
  WS        64.28,66.6

  J1


J1 RECORD PARAMETERS:
DELTAY = 1.00   YTOL =  .02   QTOL =  .02   FNTEST =  .80   IHFNOJ = -1

  J3        5,6,3,17,13,14,16,28

  *         DOWNSTREAM - STA 24+00

WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name ORANBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH  ORANOLE ROAD BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:20

*** START PROCESSING CROSS SECTION - "24+00"
  XS   24+000

  GR        9,73.5 25,72.1 50,69.7 75,68.0 100,67.1 115,65.2 123,60.2 131,57.8

  GR        139,55.2 144,56.2 145,58.5 152,61.6 170,61.1 174,59.7 180,63.0

  GR        198,67.5 225,67.0 250,66.9 275,66.8 300,66.2

  N         0.15,0.04,0.15

  SA        115,198


*** FINISH PROCESSING CROSS SECTION - "24+00"
*** CROSS SECTION "24+00" WRITTEN TO DISK, RECORD NO. =  1

--- DATA SUMMARY FOR SECID "24+00" AT SRD =      0.  ERR-CODE =      0

     SKEW      IHFNO    VSLOPE        EK        CK
       .0         0. *********       .50       .00

X-Y COORDINATE PAIRS  (NGP =  20):
       X       Y          X       Y          X       Y          X       Y
      9.0   73.50       25.0   72.10       50.0   69.70       75.0   68.00
```

```
    170.0   61.10      174.0   69.70      180.0   63.00      193.0   67.50
    225.0   67.00      250.0   66.90      275.0   66.80      300.0   66.20
```

4-74

```
 X-Y MAX-MIN POINTS:
     XMIN        Y          X     YMIN       XMAX        Y          X     YMAX
      9.0    73.50      139.0    55.20      300.0    66.20        9.0    73.50

 SUBAREA BREAKPOINTS (NSA =  3):
        115.    198.

 ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150
1
 WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
 P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name ORANBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH  ORANOLE ROAD BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:20

 *** START PROCESSING CROSS SECTION - "24+28"
   XS   24+2828.90

   GR        72,68.0

   GR        75,67.8 100,65.9 110,65.6 117,62.4 124,61.2 127,55.5 133,54.7

   GR        142,55.9 146,61.5 167,64.9 179,59.0 185,58.2 190,59.6 200,68.4

   GR        225,69.9 250,71.0

   SA        110,200


 *** FINISH PROCESSING CROSS SECTION - "24+28"
 *** CROSS SECTION "24+28" WRITTEN TO DISK, RECORD NO. =  2

 --- DATA SUMMARY FOR SECID "24+28" AT SRD =     29.  ERR-CODE =      0

      SKEW      IHFNO    VSLOPE        EK        CK
        .0         0. *********       .50       .00

 X-Y COORDINATE PAIRS  (NGP =  17):
        X        Y          X        Y          X        Y          X        Y
     72.0    68.00      75.0    67.80     100.0    65.90     110.0    65.60
    117.0    62.40     124.0    61.20     127.0    55.50     133.0    54.70
    142.0    55.90     146.0    61.50     167.0    64.90     179.0    59.00
    185.0    58.20     190.0    59.60     200.0    68.40     225.0    69.90
    250.0    71.00

  X-Y MAX-MIN POINTS:
     XMIN        Y          X     YMIN       XMAX        Y          X     YMAX
     72.0    68.00     133.0    54.70     250.0    71.00     250.0    71.00

 SUBAREA BREAKPOINTS (NSA =  3):
        110.    200.

 ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150
1
 WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
 P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS
```

4-80

```
*** START PROCESSING CROSS SECTION - "24+50"
  XS   24+5050

  GR        70,68.0

  GR        75,67.7 100,66.0 115,65.7 123,55.5 130,54.7 139,57.4 148,62.8

  GR        154,63.6 165,62.5 171,60.0 179,59.0 184,59.5 196,67.4 225,70.5

  GR        250,71.5

  SA        115,196

*** FINISH PROCESSING CROSS SECTION - "24+50"
*** CROSS SECTION "24+50" WRITTEN TO DISK, RECORD NO. =  3

--- DATA SUMMARY FOR SECID "24+50" AT SRD =     50.  ERR-CODE =      0

     SKEW      IHFNO    VSLOPE        EK        CK
       .0         0. *********       .50       .00

X-Y COORDINATE PAIRS  (NGP =  16):
       X       Y          X       Y          X       Y          X       Y
    70.0   68.00       75.0   67.70      100.0   66.00      115.0   65.70
   123.0   55.50      130.0   54.70      139.0   57.40      148.0   62.80
   154.0   63.60      165.0   62.50      171.0   60.00      179.0   59.00
   184.0   59.50      196.0   67.40      225.0   70.50      250.0   71.50

 X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
     70.0   68.00      130.0   54.70     250.0   71.50      250.0   71.50

SUBAREA BREAKPOINTS (NSA =  3):
        115.    196.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150

WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name ORANBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH  ORANOLE ROAD BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:20

*** START PROCESSING CROSS SECTION - "25+00"
  XS   25+00100

  GR        38,72.7 50,71.8 75,68.8 100,67.2 115,66.1 125,55.9 135,56.3 137,57.

  GR        147,61.8 160,62.9 182,60.3 199,66.8 225,69.7 250,72.7 264,72.4

  SA        115,199

*** FINISH PROCESSING CROSS SECTION - "25+00"
*** CROSS SECTION "25+00" WRITTEN TO DISK, RECORD NO. =  4

--- DATA SUMMARY FOR SECID "25+00" AT SRD =    100.  ERR-CODE =      0
```

```
      .0          0. *********        .50        .00

 X-Y COORDINATE PAIRS  (NGP =  15):
       X       Y          X       Y          X       Y          X       Y
     38.0   72.70       50.0   71.80       75.0   68.80      100.0   67.20
    115.0   66.10      125.0   55.90      135.0   56.30      137.0   57.50
    147.0   61.80      160.0   62.90      182.0   60.30      199.0   66.80
    225.0   69.70      250.0   72.70      264.0   72.40

  X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
     38.0   72.70      125.0   55.90      264.0   72.40       38.0   72.70

 SUBAREA BREAKPOINTS (NSA =  3):
        115.    199.

 ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150
1
 WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
 P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name ORANBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH  ORANOLE ROAD BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:20

 *** START PROCESSING CROSS SECTION - "25+25"
   XS   25+25125

   GR        38,73.2 50,72.1 75,69.3 100,67.7 102,67.6 117,66.2 124,61.1 126,57.
5
   GR        128,56.6 136,56.8 140,57.5 145,60.7 149,62.2 157,63.6 162,63.4

   GR        169,62.1 178,61.2 184,61.2 192,63.4 201,65.6 203,66.3 214,67.9

   GR        250,72 270,73.0

   SA        117,201


 *** FINISH PROCESSING CROSS SECTION - "25+25"
 *** CROSS SECTION "25+25" WRITTEN TO DISK, RECORD NO. =  5

 --- DATA SUMMARY FOR SECID "25+25" AT SRD =    125.  ERR-CODE =      0

      SKEW     IHFNO    VSLOPE        EK        CK
        .0        0. *********       .50       .00

 X-Y COORDINATE PAIRS  (NGP =  24):
       X       Y          X       Y          X       Y          X       Y
     38.0   73.20       50.0   72.10       75.0   69.30      100.0   67.70
    102.0   67.60      117.0   66.20      124.0   61.10      126.0   57.50
    128.0   56.60      136.0   56.80      140.0   57.50      145.0   60.70
    149.0   62.20      157.0   63.60      162.0   63.40      169.0   62.10
    178.0   61.20      184.0   61.20      192.0   63.40      201.0   65.60
    203.0   66.30      214.0   67.90      250.0   72.00      270.0   73.00

  X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
     38.0   73.20      128.0   56.60      270.0   73.00       38.0   73.20

 SUBAREA BREAKPOINTS (NSA =  3):
        117.    201.
```

```
        .150     .040     .150
1
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name ORANBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH  ORANOLE ROAD BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:20

*** START PROCESSING CROSS SECTION - "25+50"
  XS   25+50150

  GR        38,73.7 50,72.5 75,69.9 100,68.3 117,66.3 125,61.1 127,57.5 135,57.
6
  GR        141,57.4 143,60.8 157,65.2 170,62.1 178,61.7 184,62.2 217,67.6

  GR        250,71.3 275,73.7

  SA        117,217


*** FINISH PROCESSING CROSS SECTION - "25+50"
*** CROSS SECTION "25+50" WRITTEN TO DISK, RECORD NO. =  6

--- DATA SUMMARY FOR SECID "25+50" AT SRD =    150.  ERR-CODE =      0

     SKEW     IHFNO    VSLOPE        EK        CK
       .0        0. *********       .50       .00

X-Y COORDINATE PAIRS  (NGP =  17):
       X      Y          X      Y          X      Y          X      Y
     38.0   73.70      50.0   72.50      75.0   69.90     100.0   68.30
    117.0   66.30     125.0   61.10     127.0   57.50     135.0   57.60
    141.0   57.40     143.0   60.80     157.0   65.20     170.0   62.10
    178.0   61.70     184.0   62.20     217.0   67.60     250.0   71.30
    275.0   73.70

 X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
     38.0   73.70     141.0   57.40     275.0   73.70      38.0   73.70

SUBAREA BREAKPOINTS (NSA =  3):
        117.    217.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150     .040     .150

WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name ORANBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH  ORANOLE ROAD BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:20

*** START PROCESSING CROSS SECTION - "25+62"
  XS   25+62162.5

  GR        50,72.8 75,70.3 100,68.6 101,68.5 109,67.6 118,66.2 126,61.1

  GR        128,57.4 141,57.4 145,60.8 148,61.8 158,63.6 169,61.5 186,62.3

  GR        194,62.6 213,66.7 250,71.1 275,73.4
```

```
*** FINISH PROCESSING CROSS SECTION - "25+62"
*** CROSS SECTION "25+62" WRITTEN TO DISK, RECORD NO. =  7

--- DATA SUMMARY FOR SECID "25+62" AT SRD =    163.  ERR-CODE =      0

     SKEW      IHFNO     VSLOPE         EK         CK
       .0         0. *********       .50        .00

X-Y COORDINATE PAIRS  (NGP =  18):
       X       Y           X       Y           X       Y           X       Y
     50.0   72.80        75.0   70.30       100.0   68.60       101.0   68.50
    109.0   67.60       118.0   66.20       126.0   61.10       128.0   57.40
    141.0   57.40       145.0   60.80       148.0   61.80       158.0   63.60
    169.0   61.50       186.0   62.30       194.0   62.60       213.0   66.70
    250.0   71.10       275.0   73.40

 X-Y MAX-MIN POINTS:
     XMIN       Y           X    YMIN       XMAX       Y           X    YMAX
     50.0   72.80       128.0   57.40      275.0   73.40       275.0   73.40

SUBAREA BREAKPOINTS (NSA =  3):
        117.    250.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150
1
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name ORANBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH  ORANOLE ROAD BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:20

*** START PROCESSING CROSS SECTION - "25+75"
  XS   25+75175

  GR        50,73.2 75,70.7 100,69.0 101,68.9 110,68.0 117,66.1 126,61.1

  GR        128,57.4 133,57.0 141,57.4 147,60.8 149,61.6 157,62.4 168,60.9

  GR        177,62.0 183,62.5 185,62.4 192,61.4 195,61.1 200,63.0 213,66.6

  GR        250,70.9 275,73.1

  SA        117,250


*** FINISH PROCESSING CROSS SECTION - "25+75"
*** CROSS SECTION "25+75" WRITTEN TO DISK, RECORD NO. =  8

--- DATA SUMMARY FOR SECID "25+75" AT SRD =    175.  ERR-CODE =      0

     SKEW      IHFNO     VSLOPE         EK         CK
       .0         0. *********       .50        .00

X-Y COORDINATE PAIRS  (NGP =  23):
       X       Y           X       Y           X       Y           X       Y
     50.0   73.20        75.0   70.70       100.0   69.00       101.0   68.90
    110.0   68.00       117.0   66.10       126.0   61.10       128.0   57.40
    133.0   57.00       141.0   57.40       147.0   60.80       149.0   61.60
    157.0   62.40       168.0   60.90       177.0   62.00       183.0   62.50
```

```
 X-Y MAX-MIN POINTS:
     XMIN        Y          X     YMIN       XMAX        Y          X     YMAX
     50.0    73.20      133.0    57.00      275.0    73.10       50.0    73.20

SUBAREA BREAKPOINTS (NSA =  3):
        117.     250.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150     .040     .150

WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name ORANBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH  ORANOLE ROAD BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:20

*** START PROCESSING CROSS SECTION - "25+87"
  XS   25+87187.5

  GR        50,73.5 75,71.1 102,69.5 115,68.5 130,61.2 132,57.3 136,56.6

  GR        147,57.5 154,61.5 162,61.1 173,59.8 182,62.2 189,62.5 196,60.4

  GR        200,60.0 218,66.5 250,70.7 275,72.8


*** FINISH PROCESSING CROSS SECTION - "25+87"
*** NO ROUGHNESS DATA INPUT, WILL PROPAGATE FROM PREVIOUS CROSS SECTION.
*** CROSS SECTION "25+87" WRITTEN TO DISK, RECORD NO. =  9

--- DATA SUMMARY FOR SECID "25+87" AT SRD =    188.  ERR-CODE =      0

     SKEW      IHFNO    VSLOPE        EK        CK
       .0         0. *********       .50       .00

X-Y COORDINATE PAIRS  (NGP =  18):
       X        Y          X        Y          X        Y          X        Y
     50.0    73.50       75.0    71.10      102.0    69.50      115.0    68.50
    130.0    61.20      132.0    57.30      136.0    56.60      147.0    57.50
    154.0    61.50      162.0    61.10      173.0    59.80      182.0    62.20
    189.0    62.50      196.0    60.40      200.0    60.00      218.0    66.50
    250.0    70.70      275.0    72.80

 X-Y MAX-MIN POINTS:
     XMIN        Y          X     YMIN       XMAX        Y          X     YMAX
     50.0    73.50      136.0    56.60      275.0    72.80       50.0    73.50

SUBAREA BREAKPOINTS (NSA =  3):
        117.     250.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150     .040     .150

WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name ORANBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH  ORANOLE ROAD BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:20
```

```
  GR        0,76.9 25,75.4 50,73.9 75,71.5 100,69.8 113,68.8 123,62.4 128,61.1

  GR        130,57.1 136,56.4 145,57.6 152,61.2 162,59.9 170,58.9 174,59.4

  GR        179,62.3 187,62.8 193,59.5 198,59.3 201,60.1 216,66.4 225,67.4

  GR        250,70.5 275,72.5

  SA        113,216


*** FINISH PROCESSING CROSS SECTION - "26+00"
*** CROSS SECTION "26+00" WRITTEN TO DISK, RECORD NO. = 10

--- DATA SUMMARY FOR SECID "26+00" AT SRD =    200.  ERR-CODE =      0

     SKEW     IHFNO    VSLOPE        EK        CK
       .0        0. *********       .50       .00

X-Y COORDINATE PAIRS  (NGP =  24):
       X       Y          X       Y          X       Y          X       Y
      .0   76.90       25.0   75.40       50.0   73.90       75.0   71.50
   100.0   69.80      113.0   68.80      123.0   62.40      128.0   61.10
   130.0   57.10      136.0   56.40      145.0   57.60      152.0   61.20
   162.0   59.90      170.0   58.90      174.0   59.40      179.0   62.30
   187.0   62.80      193.0   59.50      198.0   59.30      201.0   60.10
   216.0   66.40      225.0   67.40      250.0   70.50      275.0   72.50

 X-Y MAX-MIN POINTS:
    XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
      .0   76.90      136.0   56.40     275.0   72.50         .0   76.90

SUBAREA BREAKPOINTS (NSA =  3):
        113.    216.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150
1
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name ORANBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH  ORANOLE ROAD BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:20

*** START PROCESSING CROSS SECTION - "26+25"
  XS   26+25225

  GR        25,75.7 50,74.0 75,71.6 100,70.3 112,68.5 124,62.5 128,61.1 129,57
5
  GR        137,56.1 145,57.6 148,58.7 154,62.3 161,62.4 168,61.4 174,60.4

  GR        184,61.4 186,62.3 194,60.0 196,59.8 199,60.3 206,63.6 221,66.7

  GR        225,67.2 250,69.8

  SA        128,206


*** FINISH PROCESSING CROSS SECTION - "26+25"
*** CROSS SECTION "26+25" WRITTEN TO DISK, RECORD NO. = 11
```

```
     SKEW      IHFNO     VSLOPE         EK         CK
       .0         0. *********        .50        .00

X-Y COORDINATE PAIRS  (NGP =  24):
       X       Y          X       Y          X       Y          X       Y
     25.0   75.70       50.0   74.00       75.0   71.60      100.0   70.30
    112.0   68.50      124.0   62.50      128.0   61.10      129.0   57.50
    137.0   56.10      145.0   57.60      148.0   58.70      154.0   62.30
    161.0   62.40      168.0   61.40      174.0   60.40      184.0   61.40
    186.0   62.30      194.0   60.00      196.0   59.80      199.0   60.30
    206.0   63.60      221.0   66.70      225.0   67.20      250.0   69.80

 X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN       XMAX       Y          X    YMAX
     25.0   75.70      137.0   56.10      250.0   69.80       25.0   75.70

SUBAREA BREAKPOINTS (NSA =  3):
        128.    206.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150

WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name ORANBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH  ORANOLE ROAD BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:20

*** START PROCESSING CROSS SECTION - "26+50"
  XS   26+50250

  GR        25,76.0 50,74.1 75,71.7 100,70.5 107,69.6 123,62.2 127,57.7 135,56.
2

  GR        144,57.6 148,58.9 153,64.2 162,65.7 174,61.1 184,60.2 186,61.8

  GR        190,61.6 194,60.5 202,64.1 225,67.0 250,69.2 270,72.6 298,73.1

  SA        107,202


*** FINISH PROCESSING CROSS SECTION - "26+50"
*** CROSS SECTION "26+50" WRITTEN TO DISK, RECORD NO. = 12

--- DATA SUMMARY FOR SECID "26+50" AT SRD =    250.  ERR-CODE =      0

     SKEW      IHFNO     VSLOPE         EK         CK
       .0         0. *********        .50        .00

X-Y COORDINATE PAIRS  (NGP =  22):
       X       Y          X       Y          X       Y          X       Y
     25.0   76.00       50.0   74.10       75.0   71.70      100.0   70.50
    107.0   69.60      123.0   62.20      127.0   57.70      135.0   56.20
    144.0   57.60      148.0   58.90      153.0   64.20      162.0   65.70
    174.0   61.10      184.0   60.20      186.0   61.80      190.0   61.60
    194.0   60.50      202.0   64.10      225.0   67.00      250.0   69.20
    270.0   72.60      298.0   73.10

 X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN       XMAX       Y          X    YMAX
     25.0   76.00      135.0   56.20      298.0   73.10       25.0   76.00

SUBAREA BREAKPOINTS (NSA =  3):
```

```
ROUGHNESS COEFFICIENTS (NSA =  3):
        .150    .040    .150
1
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name ORANBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH  ORANOLE ROAD BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:20

*** START PROCESSING CROSS SECTION - "27+23"
  XS   27+23323.49

  GR        35,75.9 50,75.0 75,73.0 100,70.5 116,69.8 126,61.6 129,61.3 131,57
9
  GR        146,57.5 159,58.4 163,62.2 188,63.4 211,64.3 234,62.8 260,68.6

  GR        275,71.5 300,73.1

  SA        116,260


*** FINISH PROCESSING CROSS SECTION - "27+23"
*** CROSS SECTION "27+23" WRITTEN TO DISK, RECORD NO. = 13

--- DATA SUMMARY FOR SECID "27+23" AT SRD =    323.  ERR-CODE =      0

     SKEW     IHFNO    VSLOPE        EK        CK
       .0        0. *********       .50       .00

X-Y COORDINATE PAIRS  (NGP =  17):
       X       Y          X       Y          X       Y          X       Y
    35.0   75.90       50.0   75.00       75.0   73.00      100.0   70.50
   116.0   69.80      126.0   61.60      129.0   61.30      131.0   57.90
   146.0   57.50      159.0   58.40      163.0   62.20      188.0   63.40
   211.0   64.30      234.0   62.80      260.0   68.60      275.0   71.50
   300.0   73.10

 X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
     35.0   75.90      146.0   57.50     300.0   73.10       35.0   75.90

SUBAREA BREAKPOINTS (NSA =  3):
        116.    260.

ROUGHNESS COEFFICIENTS (NSA =  3):
        .150    .040    .150
1
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name ORANBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH  ORANOLE ROAD BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:20

*** START PROCESSING CROSS SECTION - "28+00"
  XS   28+00400

  GR        35,75.4 50,74.3 75,72.0 100,69.9 106,69.7 117,67.1 133,61.9 140,61
5
  GR        144,57.7 148,56.9 155,57.5 160,61.9 172,64.2 181,62.4 209,63.0
```

SA 106,240

4-88

```
*** FINISH PROCESSING CROSS SECTION - "28+00"
*** CROSS SECTION "28+00" WRITTEN TO DISK, RECORD NO. = 14

--- DATA SUMMARY FOR SECID "28+00" AT SRD =    400.  ERR-CODE =      0

     SKEW      IHFNO     VSLOPE         EK         CK
       .0         0. *********        .50        .00

X-Y COORDINATE PAIRS  (NGP =  21):
       X       Y          X       Y          X       Y          X       Y
     35.0   75.40       50.0   74.30       75.0   72.00      100.0   69.90
    106.0   69.70      117.0   67.10      133.0   61.90      140.0   61.50
    144.0   57.70      148.0   56.90      155.0   57.50      160.0   61.90
    172.0   64.20      181.0   62.40      209.0   63.00      218.0   59.50
    228.0   60.80      240.0   67.70      250.0   69.70      275.0   72.00
    300.0   73.40

 X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
     35.0   75.40      148.0   56.90     300.0   73.40       35.0   75.40

SUBAREA BREAKPOINTS (NSA =  3):
        106.    240.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150
1
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name ORANBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH  ORANOLE ROAD BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:20

*** START PROCESSING CROSS SECTION - "28+50"
  XS   28+50450

  GR        15,76.1 25,75.4 50,73.7 75,71.6 100,70.5 103,70.5 117,67.8 129,62.2

  GR        135,61.4 138,57.8 142,57.2 151,57.7 154,62.2 167,62.5 172,64.3

  GR        189,63.8 197,62.4 212,63.1 221,60.1 232,59.9 240,59.8 248,62.8

  GR        265,69.7 286,72.7 300,73.5

  SA        103,265


*** FINISH PROCESSING CROSS SECTION - "28+50"
*** CROSS SECTION "28+50" WRITTEN TO DISK, RECORD NO. = 15

--- DATA SUMMARY FOR SECID "28+50" AT SRD =    450.  ERR-CODE =      0

     SKEW      IHFNO     VSLOPE         EK         CK
       .0         0. *********        .50        .00

X-Y COORDINATE PAIRS  (NGP =  25):
       X       Y          X       Y          X       Y          X       Y
     15.0   76.10       25.0   75.40       50.0   73.70       75.0   71.60
    100.0   70.50      103.0   70.50      117.0   67.80      129.0   62.20
```

```
    197.0   62.40     212.0   63.10     221.0   60.10     232.0   59.90
    240.0   59.80     248.0   62.80     265.0   69.70     286.0   72.70
    300.0   73.50
```

4-89

```
 X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
     15.0   76.10      142.0   57.20     300.0   73.50       15.0   76.10

SUBAREA BREAKPOINTS (NSA =  3):
        103.    265.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150
1
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name ORANBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH  ORANOLE ROAD BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:20

*** START PROCESSING CROSS SECTION - "29+00"
  XS   29+00500

  GR        2,76.9 25,75.6 50,74.1 75,72.4 100,71.0 114,69.5 128,62.6 133,62.2

  GR        137,59.6 141,59.1 144,57.5 152,57.8 162,63.2 184,62.5 196,63.1

  GR        208,60.0 215,62.5 240,65.3 271,69.0 285,71.7 300,72.7

  SA        114,240


*** FINISH PROCESSING CROSS SECTION - "29+00"
*** CROSS SECTION "29+00" WRITTEN TO DISK, RECORD NO. = 16

--- DATA SUMMARY FOR SECID "29+00" AT SRD =    500.  ERR-CODE =      0

     SKEW     IHFNO    VSLOPE        EK        CK
       .0        0. *********       .50       .00

X-Y COORDINATE PAIRS  (NGP =  21):
       X       Y          X       Y          X       Y          X       Y
      2.0   76.90       25.0   75.60       50.0   74.10       75.0   72.40
    100.0   71.00      114.0   69.50      128.0   62.60      133.0   62.20
    137.0   59.60      141.0   59.10      144.0   57.50      152.0   57.80
    162.0   63.20      184.0   62.50      196.0   63.10      208.0   60.00
    215.0   62.50      240.0   65.30      271.0   69.00      285.0   71.70
    300.0   72.70

 X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
      2.0   76.90      144.0   57.50     300.0   72.70        2.0   76.90

SUBAREA BREAKPOINTS (NSA =  3):
        114.    240.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150
1
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS
```

```
        10,100 YR - NATURAL CHANNEL, WITH  ORANOLE ROAD BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:20

*** START PROCESSING CROSS SECTION - "29+12"
  XS   29+12512

  GR        4,76.8 25,75.7 50,74.1 75,72.5 100,71.0 145,58.5 152,57.9 162,61.7

  GR        183,62.9 197,63.6 216,63.3 238,65.7 272,69.2

  SA        118,197


*** FINISH PROCESSING CROSS SECTION - "29+12"
*** CROSS SECTION "29+12" WRITTEN TO DISK, RECORD NO. = 17

--- DATA SUMMARY FOR SECID "29+12" AT SRD =    512.  ERR-CODE =      0

     SKEW     IHFNO    VSLOPE        EK        CK
       .0        0. *********      .50       .00

X-Y COORDINATE PAIRS  (NGP =  13):
       X      Y          X      Y          X      Y          X      Y
      4.0   76.80      25.0   75.70      50.0   74.10      75.0   72.50
    100.0   71.00     145.0   58.50     152.0   57.90     162.0   61.70
    183.0   62.90     197.0   63.60     216.0   63.30     238.0   65.70
    272.0   69.20

 X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
      4.0   76.80     152.0   57.90     272.0   69.20        4.0   76.80

SUBAREA BREAKPOINTS (NSA =  3):
        118.    197.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150

WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name ORANBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH  ORANOLE ROAD BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:20

*** START PROCESSING CROSS SECTION - "29+25"
  XS   29+25525

  GR        6,76.8 25,75.8 50,74.1 75,72.6 100,71.1 122,67.4 139,60.7 146,59.5

  GR        152,58 162,60.2 182,63.2 199,64.2 217,64.1 237,66.1 245,66.6

  GR        273,69.3

  SA        122,182


*** FINISH PROCESSING CROSS SECTION - "29+25"
*** CROSS SECTION "29+25" WRITTEN TO DISK, RECORD NO. = 18

--- DATA SUMMARY FOR SECID "29+25" AT SRD =    525.  ERR-CODE =      0

     SKEW     IHFNO    VSLOPE        EK        CK
```

```
X-Y COORDINATE PAIRS  (NGP =  16):
      X      Y          X      Y          X      Y          X      Y
    6.0   76.80       25.0   75.80       50.0   74.10       75.0   72.60
  100.0   71.10      122.0   67.40      139.0   60.70      146.0   59.50
  152.0   58.00      162.0   60.20      182.0   63.20      199.0   64.20
  217.0   64.10      237.0   66.10      245.0   66.60      273.0   69.30

 X-Y MAX-MIN POINTS:
    XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
     6.0   76.80      152.0   58.00     273.0   69.30        6.0   76.80

SUBAREA BREAKPOINTS (NSA =  3):
        122.    182.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150
1
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name ORANBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH  ORANOLE ROAD BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:20

*** START PROCESSING CROSS SECTION - "29+50"
  XS   29+50550

  GR        11,76.7 25,76 50,74.2 75,72.9 100,71.3 124,68.8 139,62.1 148,61.6

  GR        151,58.2 156,55.4 161,56.9 167,62.7 173,62.8 187,65.0 220,65.7

  GR        235,66.8 250,67.9 275,69.6

  SA        124,187


*** FINISH PROCESSING CROSS SECTION - "29+50"
*** CROSS SECTION "29+50" WRITTEN TO DISK, RECORD NO. = 19

--- DATA SUMMARY FOR SECID "29+50" AT SRD =    550.  ERR-CODE =      0

     SKEW     IHFNO    VSLOPE        EK        CK
       .0        0. *********       .50       .00

X-Y COORDINATE PAIRS  (NGP =  18):
      X      Y          X      Y          X      Y          X      Y
   11.0   76.70       25.0   76.00       50.0   74.20       75.0   72.90
  100.0   71.30      124.0   68.80      139.0   62.10      148.0   61.60
  151.0   58.20      156.0   55.40      161.0   56.90      167.0   62.70
  173.0   62.80      187.0   65.00      220.0   65.70      235.0   66.80
  250.0   67.90      275.0   69.60

 X-Y MAX-MIN POINTS:
    XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
    11.0   76.70      156.0   55.40     275.0   69.60       11.0   76.70

SUBAREA BREAKPOINTS (NSA =  3):
        124.    187.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150
1
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
```

```
        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name ORANBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH  ORANOLE ROAD BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:20

*** START PROCESSING CROSS SECTION - "30+00"
  XS   30+00600

  GR        25,76.0 50,73.8 75,72.1 100,70.6 137,67.5 155,57.4 161,57.0 169,58.
3
  GR        172,61.3 186,64.3 200,65.7 225,67.9 250,68.3 275,68.9 300,70.3

  SA        139,186


*** FINISH PROCESSING CROSS SECTION - "30+00"
*** CROSS SECTION "30+00" WRITTEN TO DISK, RECORD NO. = 20

--- DATA SUMMARY FOR SECID "30+00" AT SRD =    600.  ERR-CODE =      0

     SKEW      IHFNO    VSLOPE        EK        CK
       .0         0. *********      .50       .00

X-Y COORDINATE PAIRS  (NGP =  15):
       X       Y          X       Y          X       Y          X       Y
    25.0   76.00      50.0   73.80      75.0   72.10     100.0   70.60
   137.0   67.50     155.0   57.40     161.0   57.00     169.0   58.30
   172.0   61.30     186.0   64.30     200.0   65.70     225.0   67.90
   250.0   68.30     275.0   68.90     300.0   70.30

 X-Y MAX-MIN POINTS:
    XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
    25.0   76.00     161.0   57.00     300.0   70.30      25.0   76.00

SUBAREA BREAKPOINTS (NSA =  3):
        139.    186.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150
1
WSPRO        FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188          MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name ORANBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH  ORANOLE ROAD BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:20

*** START PROCESSING CROSS SECTION - "30+43"
  XS   30+43643.30

  GR        25,74.3 50,72.3 75,70.8 100,69.6 109,69.5 148,67.1 161,60.2 167,60.
1
  GR        172,58.6 173,57.5 178,57.2 187,58.4 192,60.8 201,63.8 207,65.7

  GR        237,67.7 250,68.4 275,68.7 300,69.9

  SA        148,237


*** FINISH PROCESSING CROSS SECTION - "30+43"
*** CROSS SECTION "30+43" WRITTEN TO DISK, RECORD NO. = 21

--- DATA SUMMARY FOR SECID "30+43" AT SRD =    643.  ERR-CODE =      0
```

```
      .0          0. *********        .50        .00

X-Y COORDINATE PAIRS  (NGP =  19):
       X       Y          X       Y          X       Y          X       Y
    25.0   74.30      50.0   72.30      75.0   70.80     100.0   69.60
   109.0   69.50     148.0   67.10     161.0   60.20     167.0   60.10
   172.0   58.60     173.0   57.50     178.0   57.20     187.0   58.40
   192.0   60.80     201.0   63.80     207.0   65.70     237.0   67.70
   250.0   68.40     275.0   68.70     300.0   69.90

 X-Y MAX-MIN POINTS:
    XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
    25.0   74.30     178.0   57.20     300.0   69.90      25.0   74.30

SUBAREA BREAKPOINTS (NSA =  3):
        148.    237.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150
1
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name ORANBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH  ORANOLE ROAD BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:20

*** START PROCESSING CROSS SECTION - "EXIT "
  XS   EXIT 686.6

  GR        0,73.4 25,72.6 50,70.8 75,69.6 100,68.7 125,67.7 150,66.9 163,66.7

  GR        176,59.9 179,59.7 185,60.2 190,59.7 192,58.0 195,57.7 208,58.9

  GR        213,60.2 224,67.2 250,68.5 275,68.6 300,69.5

  SA        163,224


*** FINISH PROCESSING CROSS SECTION - "EXIT "
*** CROSS SECTION "EXIT " WRITTEN TO DISK, RECORD NO. = 22

--- DATA SUMMARY FOR SECID "EXIT " AT SRD =    687.  ERR-CODE =      0

     SKEW     IHFNO    VSLOPE        EK        CK
       .0        0. *********       .50       .00

X-Y COORDINATE PAIRS  (NGP =  20):
       X       Y          X       Y          X       Y          X       Y
      .0   73.40      25.0   72.60      50.0   70.80      75.0   69.60
   100.0   68.70     125.0   67.70     150.0   66.90     163.0   66.70
   176.0   59.90     179.0   59.70     185.0   60.20     190.0   59.70
   192.0   58.00     195.0   57.70     208.0   58.90     213.0   60.20
   224.0   67.20     250.0   68.50     275.0   68.60     300.0   69.50

 X-Y MAX-MIN POINTS:
    XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
      .0   73.40     195.0   57.70     300.0   69.50        .0   73.40

SUBAREA BREAKPOINTS (NSA =  3):
        163.    224.

ROUGHNESS COEFFICIENTS (NSA =  3):
```

```
        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name ORANBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH  ORANOLE ROAD BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:20

*** START PROCESSING CROSS SECTION - "FULLV"
  XS   FULLV718

  GR        0,72.9 25,72.3 50,71.1 75,70.0 100,68.7 125,68.1 150,67.3 178,67.3

  GR        190,60.2 195,60.5 201,58.6 206,57.6 210,57.9 212,59.8 219,60.6

  GR        231,66.9 250,66.9 275,67.3 300,68.0 336,69.0

  SA        178,231

  *         ORANOLE ROAD BRIDGE (EXISTING)


*** FINISH PROCESSING CROSS SECTION - "FULLV"
*** CROSS SECTION "FULLV" WRITTEN TO DISK, RECORD NO. = 23

--- DATA SUMMARY FOR SECID "FULLV" AT SRD =    718.  ERR-CODE =      0

     SKEW     IHFNO    VSLOPE        EK        CK
       .0        0. *********      .50       .00

X-Y COORDINATE PAIRS  (NGP =  20):
       X      Y          X      Y          X      Y          X      Y
       .0   72.90      25.0   72.30      50.0   71.10      75.0   70.00
    100.0   68.70     125.0   68.10     150.0   67.30     178.0   67.30
    190.0   60.20     195.0   60.50     201.0   58.60     206.0   57.60
    210.0   57.90     212.0   59.80     219.0   60.60     231.0   66.90
    250.0   66.90     275.0   67.30     300.0   68.00     336.0   69.00

 X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
       .0   72.90     206.0   57.60     336.0   69.00         .0   72.90

SUBAREA BREAKPOINTS (NSA =  3):
        178.    231.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150

WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name ORANBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH  ORANOLE ROAD BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:20

*** START PROCESSING CROSS SECTION - "ORANO"
  BR   ORANO718.9,64.9

  GR        182,64.9 190,60.2 195,60.5 201,58.6 206,57.6 210,57.9 212,59.8

  GR        219,60.6 227,64.9 182,64.9

  N         0.04
```

```
  PW 1        58.0,1.0 63.0,1.3

  *           BRIDGE DATA CONT.

  CD          2,52.0,2.0,67.0

  AB          *,*,64.9,64.9


*** FINISH PROCESSING CROSS SECTION - "ORANO"
*** CROSS SECTION "ORANO" WRITTEN TO DISK, RECORD NO. = 24

--- DATA SUMMARY FOR SECID "ORANO" AT SRD =    719.  ERR-CODE =      0

     SKEW      IHFNO     VSLOPE         EK         CK
       .0         0. *********        .50        .00

X-Y COORDINATE PAIRS  (NGP =  10):
       X       Y           X       Y           X       Y           X       Y
    182.0   64.90       190.0   60.20       195.0   60.50       201.0   58.60
    206.0   57.60       210.0   57.90       212.0   59.80       219.0   60.60
    227.0   64.90       182.0   64.90

 X-Y MAX-MIN POINTS:
     XMIN       Y           X    YMIN       XMAX       Y           X    YMAX
    182.0   64.90       206.0   57.60       227.0   64.90       182.0   64.90

ROUGHNESS COEFFICIENTS (NSA =  1):
         .040

BRIDGE PARAMETERS:
 BRTYPE  BRWDTH     LSEL  USERCD  EMBSS   EMBELV    YABLT    YABRT
    2      52.0    64.90 *******   2.00    67.00    64.90    64.90

PIER DATA:  NPW =  2    PPCD = 1.
     PELV  PWDTH      PELV  PWDTH      PELV  PWDTH      PELV  PWDTH
     58.00   1.0      63.00   1.3
1
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name ORANBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH  ORANOLE ROAD BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:20

*** START PROCESSING CROSS SECTION - " ROAD"
  XR    ROAD748.90,30.0

  GR          0,74.4 50,73.1 100,71.8 150,70.4 200,68.8 250,67.2 284,66.2

  GR          284.01,67.00 335,67.00 335.01,67.00 350,66.4 400,68.2 450,70.3

  N           0.03,0.02,0.03

  SA          284,335


*** FINISH PROCESSING CROSS SECTION - " ROAD"
*** CROSS SECTION " ROAD" WRITTEN TO DISK, RECORD NO. = 25

--- DATA SUMMARY FOR SECID " ROAD" AT SRD =    749.  ERR-CODE =      0
```

```
X-Y COORDINATE PAIRS  (NGP =  13):
       X      Y          X      Y          X      Y          X      Y
      .0   74.40      50.0   73.10     100.0   71.80     150.0   70.40
   200.0   68.80     250.0   67.20     284.0   66.20     284.0   67.00
   335.0   67.00     335.0   67.00     350.0   66.40     400.0   68.20
   450.0   70.30

 X-Y MAX-MIN POINTS:
    XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
      .0   74.40     284.0   66.20     450.0   70.30         .0   74.40

SUBAREA BREAKPOINTS (NSA =  3):
        284.    335.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .030    .020    .030

ROAD GRADE DATA:  IPAVE  RDWID  USERCF
                  *****   30.0 *******

BRIDGE PROJECTION DATA:  XREFLT  XREFRT  FDSTLT  FDSTRT
                        ******* ******* ******* *******
1
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name ORANBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH  ORANOLE ROAD BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:20

*** START PROCESSING CROSS SECTION - "32+00"
  AS   32+00800

  GR        0,69.6 25,68.5 50,66.8 75,65.7 100,65.5 125,66.6 147,65.5

  GR        158,62.1 164,60.6 166,57.3 172,56.1 180,58.2 185,60.8 191,60.0

  GR        201,63.1 225,65.5 250,68.0 275,69.5

  N         0.15,0.04,0.15

  SA        147,201


*** FINISH PROCESSING CROSS SECTION - "32+00"
*** CROSS SECTION "32+00" WRITTEN TO DISK, RECORD NO. = 26

--- DATA SUMMARY FOR SECID "32+00" AT SRD =    800.  ERR-CODE =      0

     SKEW     IHFNO    VSLOPE        EK        CK
       .0        0. *********       .50       .00

X-Y COORDINATE PAIRS  (NGP =  18):
       X      Y          X      Y          X      Y          X      Y
      .0   69.60      25.0   68.50      50.0   66.80      75.0   65.70
   100.0   65.50     125.0   66.60     147.0   65.50     158.0   62.10
   164.0   60.60     166.0   57.30     172.0   56.10     180.0   58.20
   185.0   60.80     191.0   60.00     201.0   63.10     225.0   65.50
   250.0   68.00     275.0   69.50

 X-Y MAX-MIN POINTS:
    XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
```

```
SUBAREA BREAKPOINTS (NSA =  3):
        147.    201.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150

BRIDGE PROJECTION DATA:  XREFLT  XREFRT  FDSTLT  FDSTRT
                        ******* ******* ******* *******
1
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name ORANBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH  ORANOLE ROAD BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:20

*** START PROCESSING CROSS SECTION - "32+50"
  XS   32+50850

  GR        -50,68.8

  GR        0,66.6 25,65.5 50,64.7 75,64.2 100,63.7 125,63.9 135,63.2 144,61.3

  GR        151,60.7 152,57.1 159,53.3 167,58.1 170,61.9 174,60.4 179,60.4

  GR        184,63.1 200,65.4 225,66.7 250,68.5 275,70.3

  SA        135,184


*** FINISH PROCESSING CROSS SECTION - "32+50"
*** CROSS SECTION "32+50" WRITTEN TO DISK, RECORD NO. = 27

--- DATA SUMMARY FOR SECID "32+50" AT SRD =    850.  ERR-CODE =      0

     SKEW     IHFNO    VSLOPE        EK        CK
       .0        0. *********      .50       .00

X-Y COORDINATE PAIRS  (NGP =  21):
       X       Y          X       Y          X       Y          X       Y
    -50.0   68.80         .0   66.60       25.0   65.50       50.0   64.70
     75.0   64.20      100.0   63.70      125.0   63.90      135.0   63.20
    144.0   61.30      151.0   60.70      152.0   57.10      159.0   53.30
    167.0   58.10      170.0   61.90      174.0   60.40      179.0   60.40
    184.0   63.10      200.0   65.40      225.0   66.70      250.0   68.50
    275.0   70.30

 X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN       XMAX       Y          X    YMAX
    -50.0   68.80      159.0   53.30      275.0   70.30      275.0   70.30

SUBAREA BREAKPOINTS (NSA =  3):
        135.    184.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150
1
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name ORANBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH  ORANOLE ROAD BRIDGE
```

```
*** START PROCESSING CROSS SECTION - "33+00"
  XS   33+00900

  GR        -260,69.2 -160,67.2

  GR        -110,66.2 -100,66 -55,65.0 0,64.4 25,63.6 50,63.1 75,63.2 100,63.4

  GR        125,63.2 130,62.6 136,59.9 141,59.6 144,56.9 149,55.9 154,58.7

  GR        160,62.0 165,60.8 167,60.7 171,62.3 185,63.5 200,64.6 225,66.5

  GR        250,68.5 275,70.5

  SA        130,171


*** FINISH PROCESSING CROSS SECTION - "33+00"
*** CROSS SECTION "33+00" WRITTEN TO DISK, RECORD NO. = 28

--- DATA SUMMARY FOR SECID "33+00" AT SRD =    900.  ERR-CODE =      0

     SKEW      IHFNO    VSLOPE        EK        CK
       .0         0. *********       .50       .00

X-Y COORDINATE PAIRS  (NGP =  26):
       X       Y          X       Y          X       Y          X       Y
   -260.0   69.20    -160.0   67.20    -110.0   66.20    -100.0   66.00
    -55.0   65.00        .0   64.40      25.0   63.60      50.0   63.10
     75.0   63.20     100.0   63.40     125.0   63.20     130.0   62.60
    136.0   59.90     141.0   59.60     144.0   56.90     149.0   55.90
    154.0   58.70     160.0   62.00     165.0   60.80     167.0   60.70
    171.0   62.30     185.0   63.50     200.0   64.60     225.0   66.50
    250.0   68.50     275.0   70.50

 X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
   -260.0   69.20     149.0   55.90     275.0   70.50     275.0   70.50

SUBAREA BREAKPOINTS (NSA =  3):
        130.    171.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150
1
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name ORANBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH  ORANOLE ROAD BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:20

*** START PROCESSING CROSS SECTION - "33+25"
  XS   33+25925

  GR        -530,69.0

  GR        -480,66.2 -470,66 -420,65 -300,64 -150,65 -20,63 0,63.8 25,63.1

  GR        45,63.0 95,63.2 120,63.2 125,62.6 131,60.9 136,59.5 139,56.8

  GR        144,55.9 155,61.4 160,60.5 162,60.6 169,62.3 182,63.8 195,63.9

  GR        225,65.2 245,67.7 295,69.0
```

```
*** FINISH PROCESSING CROSS SECTION - "33+25"
*** CROSS SECTION "33+25" WRITTEN TO DISK, RECORD NO. = 29

--- DATA SUMMARY FOR SECID "33+25" AT SRD =    925.  ERR-CODE =      0

     SKEW      IHFNO     VSLOPE         EK         CK
       .0         0. *********        .50        .00

X-Y COORDINATE PAIRS  (NGP =  26):
       X       Y          X       Y          X       Y          X       Y
   -530.0   69.00     -480.0   66.20     -470.0   66.00     -420.0   65.00
   -300.0   64.00     -150.0   65.00      -20.0   63.00         .0   63.80
     25.0   63.10       45.0   63.00       95.0   63.20      120.0   63.20
    125.0   62.60      131.0   60.90      136.0   59.50      139.0   56.80
    144.0   55.90      155.0   61.40      160.0   60.50      162.0   60.60
    169.0   62.30      182.0   63.80      195.0   63.90      225.0   65.20
    245.0   67.70      295.0   69.00

 X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
   -530.0   69.00      144.0   55.90      295.0   69.00    -530.0   69.00

SUBAREA BREAKPOINTS (NSA =  3):
        136.    155.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150
1
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name ORANBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH  ORANOLE ROAD BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:20

*** START PROCESSING CROSS SECTION - "33+31"
  XS   33+31931.25

  GR        -650,69.0

  GR        -600,66.2 -590,66 -570,65 -425,64 -270,65 -65,63 0,63.6 26,63

  GR        94,63.2 119,63.2 124,62.6 131,61 135,59.6 138,56.8 143,55.9

  GR        154,61.3 159,60.4 166,62.3 182,63.4 203,64.3 234,66.7 284,69.0

  SA        131,154


*** FINISH PROCESSING CROSS SECTION - "33+31"
*** CROSS SECTION "33+31" WRITTEN TO DISK, RECORD NO. = 30

--- DATA SUMMARY FOR SECID "33+31" AT SRD =    931.  ERR-CODE =      0

     SKEW      IHFNO     VSLOPE         EK         CK
       .0         0. *********        .50        .00

X-Y COORDINATE PAIRS  (NGP =  23):
       X       Y          X       Y          X       Y          X       Y
   -650.0   69.00     -600.0   66.20     -590.0   66.00     -570.0   65.00
   -425.0   64.00     -270.0   65.00      -65.0   63.00         .0   63.60
```

```
   154.0   61.30     159.0   60.40     166.0   62.30     181.0   63.40
   203.0   64.30     234.0   66.70     284.0   69.00

 X-Y MAX-MIN POINTS:
    XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
  -650.0   69.00      143.0   55.90     284.0   69.00    -650.0   69.00

SUBAREA BREAKPOINTS (NSA =  3):
        131.    154.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150

WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name ORANBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH  ORANOLE ROAD BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:20

*** START PROCESSING CROSS SECTION - "33+34"
  XS   33+34934

  GR        -735,69.0 -685,66.2 -675,66 -635,65 -485,64 -330,65 -85,63 0,63.5

  GR        26,63 93,63.2 118,63.2 123,62.6 131,61.1 134,59.6 137,56.8

  GR        143,55.9 153,61.2 158,60.4 166,62.2 181,63.3 202,64.1 233,66.6

  GR        279,69.0

  SA        131,158


*** FINISH PROCESSING CROSS SECTION - "33+34"
*** CROSS SECTION "33+34" WRITTEN TO DISK, RECORD NO. = 31

--- DATA SUMMARY FOR SECID "33+34" AT SRD =    934.  ERR-CODE =      0

     SKEW     IHFNO    VSLOPE        EK        CK
       .0        0. *********      .50       .00

X-Y COORDINATE PAIRS  (NGP =  23):
       X       Y          X       Y          X       Y          X       Y
   -735.0   69.00     -685.0   66.20     -675.0   66.00     -635.0   65.00
   -485.0   64.00     -330.0   65.00      -85.0   63.00        .0   63.50
     26.0   63.00       93.0   63.20      118.0   63.20     123.0   62.60
    131.0   61.10      134.0   59.60      137.0   56.80     143.0   55.90
    153.0   61.20      158.0   60.40      166.0   62.20     181.0   63.30
    202.0   64.10      233.0   66.60      279.0   69.00

 X-Y MAX-MIN POINTS:
    XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
  -735.0   69.00      143.0   55.90     279.0   69.00    -735.0   69.00

SUBAREA BREAKPOINTS (NSA =  3):
        131.    158.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150

WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS
```

```
BRIDGE HYDRAULICS REPORT (file name ORANBRIN.10)
10,100 YR - NATURAL CHANNEL, WITH  ORANOLE ROAD BRIDGE
   *** RUN DATE & TIME: 11-30-94  10:20

*** START PROCESSING CROSS SECTION - "33+37"
  XS   33+37937.5

  GR        -820,69.0

  GR        -770,66.2 -760,66 -700,65 -550,64 -390,65 -110,63 0,63.4 27,63.0

  GR        93,63.2 118,63.2 123,62.6 130,61.2 133,59.6 137,56.8 142,55.9

  GR        145,56.7 152,61.1 158,60.3 165,62.1 181,63.2 201,63.9 233,66.5

  GR        273,69.0

  SA        130,165


*** FINISH PROCESSING CROSS SECTION - "33+37"
*** CROSS SECTION "33+37" WRITTEN TO DISK, RECORD NO. = 32

--- DATA SUMMARY FOR SECID "33+37" AT SRD =    938.  ERR-CODE =      0

     SKEW      IHFNO    VSLOPE        EK        CK
       .0         0. *********      .50       .00

X-Y COORDINATE PAIRS  (NGP =  24):
       X       Y          X       Y          X       Y          X       Y
   -820.0   69.00    -770.0   66.20    -760.0   66.00    -700.0   65.00
   -550.0   64.00    -390.0   65.00    -110.0   63.00        .0   63.40
     27.0   63.00      93.0   63.20     118.0   63.20     123.0   62.60
    130.0   61.20     133.0   59.60     137.0   56.80     142.0   55.90
    145.0   56.70     152.0   61.10     158.0   60.30     165.0   62.10
    181.0   63.20     201.0   63.90     233.0   66.50     273.0   69.00

 X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
   -820.0   69.00     142.0   55.90     273.0   69.00    -820.0   69.00

SUBAREA BREAKPOINTS (NSA =  3):
        130.    165.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150
1
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name ORANBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH  ORANOLE ROAD BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:20

*** START PROCESSING CROSS SECTION - "33+44"
  XS   33+44944

  GR        -915,69.0 -865,66.2 -855,66 -790,65 -690,64 -395,63 0,63.2

  GR        26,62.9 97,63.2 117,63.2 129,61.2 134,58.3 138,56.3 142,56.3

  GR        150,61 156,60.2 164,62.1 178,63.1 200,63.8 230,66.2 274,69.0
```

```
*** FINISH PROCESSING CROSS SECTION - "33+44"
*** CROSS SECTION "33+44" WRITTEN TO DISK, RECORD NO. = 33

--- DATA SUMMARY FOR SECID "33+44" AT SRD =    944.  ERR-CODE =      0

     SKEW      IHFNO    VSLOPE        EK        CK
       .0         0. *********      .50       .00

X-Y COORDINATE PAIRS  (NGP =  21):
       X       Y          X       Y          X       Y          X       Y
   -915.0   69.00     -865.0   66.20     -855.0   66.00     -790.0   65.00
   -690.0   64.00     -395.0   63.00        .0   63.20       26.0   62.90
     97.0   63.20      117.0   63.20      129.0   61.20      134.0   58.30
    138.0   56.30      142.0   56.30      150.0   61.00      156.0   60.20
    164.0   62.10      178.0   63.10      200.0   63.80      230.0   66.20
    274.0   69.00

 X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
   -915.0   69.00      138.0   56.30     274.0   69.00    -915.0   69.00

SUBAREA BREAKPOINTS (NSA =  3):
        117.    164.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150

WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name ORANBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH  ORANOLE ROAD BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:20

*** START PROCESSING CROSS SECTION - "33+50"
  XS   33+50950

  GR        -1010,69.0

  GR        -960,66.2 -950,66 -880,65 -810,64 -730,63 -635,63 -580,64 -470,64

  GR        -95,63 0,63.2 25,62.8 50,63.1 75,63.1 100,63.2 115,63.3 128,61.3

  GR        134,57.0 139,55.8 142,56.7 149,61.0 155,60.1 163,62.2 175,63.0

  GR        200,63.6 225,65.8 250,67.3 275,68.6 325,69.0

  SA        115,163


*** FINISH PROCESSING CROSS SECTION - "33+50"
*** CROSS SECTION "33+50" WRITTEN TO DISK, RECORD NO. = 34

--- DATA SUMMARY FOR SECID "33+50" AT SRD =    950.  ERR-CODE =      0

     SKEW      IHFNO    VSLOPE        EK        CK
       .0         0. *********      .50       .00

X-Y COORDINATE PAIRS  (NGP =  29):
       X       Y          X       Y          X       Y          X       Y
  -1010.0   69.00     -960.0   66.20     -950.0   66.00     -880.0   65.00
   -810.0   64.00     -730.0   63.00     -635.0   63.00     -580.0   64.00
```

```
    128.0   61.30     134.0   57.00     139.0   55.80     142.0   55.70
    149.0   61.00     155.0   60.10     163.0   62.20     175.0   63.00
    200.0   63.60     225.0   65.80     250.0   67.30     275.0   68.60
    325.0   69.00

 X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
  -1010.0   69.00     139.0   55.80     325.0   69.00   -1010.0   69.00

SUBAREA BREAKPOINTS (NSA =  3):
        115.    163.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150
1
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name ORANBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH  ORANOLE ROAD BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:20

*** START PROCESSING CROSS SECTION - "34+00"
  XS   34+001000

  GR        -790,69.0

  GR        -740,66.2 -730,66 -710,65 -685,64 -620,63 -415,62 -130,62 -90,61

  GR        -50,62 0,61.9 25,61.9 45,61.6 53,63.0 61,61.8 75,62.8 100,63.3

  GR        121,63.4 136,61.0 141,58.1 146,57.6 151,58.2 156,61.4 162,61.5

  GR        166,62.8 175,63.3 200,63.4 225,63.7 250,65.9 275,67.4 325,69.0

  SA        121,166


*** FINISH PROCESSING CROSS SECTION - "34+00"
*** CROSS SECTION "34+00" WRITTEN TO DISK, RECORD NO. = 35

--- DATA SUMMARY FOR SECID "34+00" AT SRD =   1000.  ERR-CODE =      0

     SKEW      IHFNO    VSLOPE        EK        CK
       .0         0. *********       .50       .00

X-Y COORDINATE PAIRS  (NGP =  31):
       X       Y          X       Y          X       Y          X       Y
   -790.0   69.00     -740.0   66.20     -730.0   66.00     -710.0   65.00
   -685.0   64.00     -620.0   63.00     -415.0   62.00     -130.0   62.00
    -90.0   61.00      -50.0   62.00        .0   61.90       25.0   61.90
     45.0   61.60       53.0   63.00       61.0   61.80       75.0   62.80
    100.0   63.30      121.0   63.40      136.0   61.00      141.0   58.10
    146.0   57.60      151.0   58.20      156.0   61.40      162.0   61.50
    166.0   62.80      175.0   63.30      200.0   63.40      225.0   63.70
    250.0   65.90      275.0   67.40      325.0   69.00

 X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
   -790.0   69.00     146.0   57.60     325.0   69.00    -790.0   69.00

SUBAREA BREAKPOINTS (NSA =  3):
        121.    166.
```

```
        .150     .040     .150

WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name ORANBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH  ORANOLE ROAD BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:20

*** START PROCESSING CROSS SECTION - "34+50"
  XS   34+501050

  GR         -690,69.0

  GR         -640,66.3 -625,66 -595,64 -555,63 -450,62 -345,61 -200,60 -185,59

  GR         -135,59 -90,63 -55,63 -40,62 -15,61 0,62.6 25,62.7

  GR         50,63.1 75,63.0 100,63.8 110,64.1 128,62.4 138,61.1 143,58.9

  GR         148,56.9 151,57.6 155,61.9 165,61.3 171,63.9 200,64.2 225,64.1

  GR         250,65.3 275,65.9 300,66.2 350,69.0

  SA         110,171


*** FINISH PROCESSING CROSS SECTION - "34+50"
*** CROSS SECTION "34+50" WRITTEN TO DISK, RECORD NO. = 36

--- DATA SUMMARY FOR SECID "34+50" AT SRD =   1050.  ERR-CODE =      0

     SKEW      IHFNO     VSLOPE         EK         CK
       .0         0. *********        .50        .00

X-Y COORDINATE PAIRS  (NGP =  34):
       X       Y           X       Y           X       Y           X       Y
   -690.0   69.00     -640.0   66.30     -625.0   66.00     -595.0   64.00
   -555.0   63.00     -450.0   62.00     -345.0   61.00     -200.0   60.00
   -185.0   59.00     -135.0   59.00      -90.0   63.00      -55.0   63.00
    -40.0   62.00      -15.0   61.00         .0   62.60       25.0   62.70
     50.0   63.10       75.0   63.00      100.0   63.80      110.0   64.10
    128.0   62.40      138.0   61.10      143.0   58.90      148.0   56.90
    151.0   57.60      155.0   61.90      165.0   61.30      171.0   63.90
    200.0   64.20      225.0   64.10      250.0   65.30      275.0   65.90
    300.0   66.20      350.0   69.00

 X-Y MAX-MIN POINTS:
     XMIN       Y           X    YMIN       XMAX       Y           X    YMAX
   -690.0   69.00      148.0   56.90      350.0   69.00     -690.0   69.00

SUBAREA BREAKPOINTS (NSA =  3):
        110.     171.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150     .040     .150

WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name ORANBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH  ORANOLE ROAD BRIDGE
```

```
*** START PROCESSING CROSS SECTION - "35+00"
  XS   35+001100

  GR        -650,69.0

  GR        -600,66.3 -585,66 -575,65 -555,64 -500,63 -365,62 -255,60 -210,60

  GR        -20,63 0,62.9 25,63.2 50,63.4 75,63.4 100,63.5 114,63.2

  GR        128,59.9 137,59.4 145,58.0 153,61.5 173,64.4 200,63.9 225,63.2

  GR        250,63.4 275,64.4 300,66.0 310,66.2 360,69.0

  SA        114,173


*** FINISH PROCESSING CROSS SECTION - "35+00"
*** CROSS SECTION "35+00" WRITTEN TO DISK, RECORD NO. = 37

--- DATA SUMMARY FOR SECID "35+00" AT SRD =   1100.  ERR-CODE =      0

     SKEW      IHFNO     VSLOPE        EK        CK
       .0         0. *********       .50       .00

X-Y COORDINATE PAIRS  (NGP =  28):
       X       Y          X       Y          X       Y          X       Y
   -650.0   69.00     -600.0   66.30     -585.0   66.00     -575.0   65.00
   -555.0   64.00     -500.0   63.00     -365.0   62.00     -255.0   60.00
   -210.0   60.00      -20.0   63.00        .0    62.90       25.0   63.20
     50.0   63.40       75.0   63.40      100.0   63.50      114.0   63.20
    128.0   59.90      137.0   59.40      145.0   58.00      153.0   61.50
    173.0   64.40      200.0   63.90      225.0   63.20      250.0   63.40
    275.0   64.40      300.0   66.00      310.0   66.20      360.0   69.00

 X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN       XMAX       Y          X    YMAX
   -650.0   69.00      145.0   58.00      360.0   69.00     -650.0   69.00

SUBAREA BREAKPOINTS (NSA =  3):
        114.    173.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150
1
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name ORANBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH  ORANOLE ROAD BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:20

*** START PROCESSING CROSS SECTION - "35+50"
  XS   35+501150

  GR        -610,69.0

  GR        -560,66.3 -540,66 -495,65 -455,64 -395,63 -330,62 -285,60 -260,60

  GR        0,63.2 25,63.6 50,63.6 75,63.8 100,63.2 119,62.2 126,60.7 128,57.3

  GR        136,57.6 144,58.1 153,63.2 175,64.8 200,63.6 225,62.2 250,61.5

  GR        275,63.9 300,66.0 310,66.2 360,69.0
```

EX

```
*** FINISH PROCESSING CROSS SECTION - "35+50"
*** CROSS SECTION "35+50" WRITTEN TO DISK, RECORD NO. = 38

--- DATA SUMMARY FOR SECID "35+50" AT SRD =   1150.  ERR-CODE =      0

     SKEW      IHFNO    VSLOPE        EK        CK
       .0         0. *********      .50       .00

X-Y COORDINATE PAIRS  (NGP =  28):
       X       Y          X       Y          X       Y          X       Y
   -610.0   69.00    -560.0   66.30    -540.0   66.00    -495.0   65.00
   -455.0   64.00    -395.0   63.00    -330.0   62.00    -285.0   60.00
   -260.0   60.00        .0   63.20      25.0   63.60      50.0   63.60
     75.0   63.80     100.0   63.20     119.0   62.20     126.0   60.70
    128.0   57.30     136.0   57.60     144.0   58.10     153.0   63.20
    175.0   64.80     200.0   63.60     225.0   62.20     250.0   61.50
    275.0   62.90     300.0   66.00     310.0   66.20     360.0   69.00

 X-Y MAX-MIN POINTS:
    XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
   -610.0   69.00     128.0   57.30     360.0   69.00    -610.0   69.00

SUBAREA BREAKPOINTS (NSA =  3):
        119.    153.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .150    .040    .150

+++ BEGINNING PROFILE CALCULATIONS --   2

1
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name ORANBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH  ORANOLE ROAD BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:20

 XSID:CODE   SRDL     LEW      AREA   VHD     HF      EGL     CRWS       Q     WSEL
       SRD   FLEN     REW         K  ALPH     HO      ERR      FR#     VEL

24+00:XS   ******    116.      286.   .12 *****   64.40    60.79    795.   64.28
        0. ******    185.    26269.  1.00 ***** *******      .24    2.78

24+28:XS      29.    113.      327.   .09    .02   64.42 *******    795.   64.33
       29.    29.    195.    29091.  1.00    .00     .00      .21    2.43

24+50:XS      21.    116.      330.   .09    .01   64.44 *******    795.   64.35
       50.    21.    191.    30721.  1.00    .00     .00      .20    2.41

25+00:XS      50.    117.      289.   .12    .04   64.49 *******    795.   64.37
      100.    50.    193.    25020.  1.00    .01     .00      .25    2.75

25+25:XS      25.    119.      251.   .16    .03   64.54 *******    795.   64.38
      125.    25.    196.    19706.  1.00    .02     .00      .31    3.17

25+50:XS      25.    120.      206.   .23    .05   64.62 *******    795.   64.39
      150.    25.    197.    14723.  1.00    .04    -.01      .40    3.86

25+62:XS      13.    121.      250.   .16    .03   64.64 *******    795.   64.49
```

```
25+75:XS        13.    120.      299.    .11    .02    64.65 *******     795.    64.54
      175.      13.    206.    24688.   1.00    .00     -.01      .25     2.66
```

4-107

```
25+87:XS        13.    123.      360.    .08    .01    64.66 *******     795.    64.59
      188.      13.    213.    32440.   1.00    .00      .00      .19     2.21

26+00:XS        13.    120.      406.    .06    .01    64.67 *******     795.    64.61
      200.      13.    212.    38678.   1.00    .00      .00      .16     1.96

26+25:XS        25.    120.      361.    .08    .01    64.69 *******     795.    64.61
      225.      25.    211.    32906.   1.08    .01      .00      .20     2.20

26+50:XS        25.    118.      305.    .11    .02    64.72 *******     795.    64.61
      250.      25.    206.    27068.   1.01    .01      .00      .23     2.61

27+23:XS        73.    122.      338.    .09    .07    64.79 *******     795.    64.70
      323.      73.    243.    24391.   1.00    .00      .00      .25     2.35

28+00:XS        77.    124.      348.    .08    .07    64.87 *******     795.    64.78
      400.      77.    235.    26859.   1.00    .00      .00      .23     2.28

28+50:XS        50.    123.      406.    .06    .04    64.90 *******     795.    64.84
      450.      50.    253.    31339.   1.00    .00      .00      .19     1.96

29+00:XS        50.    123.      336.    .09    .04    64.95 *******     795.    64.87
      500.      50.    236.    25299.   1.00    .01      .00      .24     2.37
```

1

WSPRO FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188 MODEL FOR WATER-SURFACE PROFILE COMPUTATIONS

MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
BRIDGE HYDRAULICS REPORT (file name ORANBRIN.10)
10,100 YR - NATURAL CHANNEL, WITH ORANOLE ROAD BRIDGE
*** RUN DATE & TIME: 11-30-94 10:20

```
 XSID:CODE    SRDL     LEW      AREA    VHD     HF      EGL     CRWS        Q     WSEL
       SRD    FLEN     REW         K   ALPH     HO      ERR      FR#      VEL

29+12:XS        12.    122.      282.    .15    .01    65.00 *******     795.    64.84
      512.      12.    230.    20244.   1.25    .03     -.01      .34     2.81

29+25:XS        13.    129.      245.    .21    .02    65.04 *******     795.    64.83
      525.      13.    224.    19577.   1.29    .03      .00      .41     3.24

29+50:XS        25.    133.      190.    .27    .05    65.12 *******     795.    64.85
      550.      25.    186.    15497.   1.00    .03     -.01      .39     4.18

30+00:XS        50.    141.      205.    .24    .10    65.23 *******     795.    64.99
      600.      50.    193.    19717.   1.02    .00      .00      .35     3.87

30+43:XS        43.    152.      249.    .16    .06    65.28 *******     795.    65.12
      643.      43.    205.    24864.   1.00    .00      .00      .26     3.19

EXIT :XS        43.    166.      272.    .13    .04    65.32 *******     795.    65.18
      687.      43.    221.    28226.   1.00    .00      .00      .23     2.92

FULLV:FV        31.    182.      211.    .22    .03    65.39 *******     795.    65.17
      718.      31.    228.    20583.   1.00    .04      .00      .31     3.77
     <<<<<THE ABOVE RESULTS REFLECT "NORMAL" (UNCONSTRICTED) FLOW>>>>>

32+00:AS        82.    148.      293.    .13    .09    65.48 *******     795.    65.34
      800.      82.    223.    28106.   1.16    .00      .00      .26     2.71
     <<<<<THE ABOVE RESULTS REFLECT "NORMAL" (UNCONSTRICTED) FLOW>>>>>
```

<<<<<RESULTS REFLECTING THE CONSTRICTED FLOW FOLLOW>>>>>

| XSID:CODE | SRDL | LEW | AREA | VHD | HF | EGL | CRWS | Q | WSEL |
|---|---|---|---|---|---|---|---|---|---|
| SRD | FLEN | REW | K | ALPH | HO | ERR | FR# | VEL | |
| ORANO:BR | 31. | 182. | 190. | .27 | ***** | 65.17 | 62.27 | 792. | 64.90 |
| 719. | ****** | 227. | 12202. | 1.00 | ***** | ******* | .36 | 4.16 | |

| TYPE | PPCD | FLOW | C | P/A | LSEL | BLEN | XLAB | XRAB |
|---|---|---|---|---|---|---|---|---|
| 2. | 1. | 3. | .800 | .041 | 64.90 | ****** | ****** | ****** |

| XSID:CODE | SRD | FLEN | HF | VHD | EGL | ERR | Q | WSEL |
|---|---|---|---|---|---|---|---|---|
| ROAD:RG | 749. | | <<<<<EMBANKMENT IS NOT OVERTOPPED>>>>> | | | | | |

WSPRO FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188 MODEL FOR WATER-SURFACE PROFILE COMPUTATIONS

MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
BRIDGE HYDRAULICS REPORT (file name ORANBRIN.10)
10,100 YR - NATURAL CHANNEL, WITH ORANOLE ROAD BRIDGE
*** RUN DATE & TIME: 11-30-94 10:20

| XSID:CODE | SRDL | LEW | AREA | VHD | HF | EGL | CRWS | Q | WSEL |
|---|---|---|---|---|---|---|---|---|---|
| SRD | FLEN | REW | K | ALPH | HO | ERR | FR# | VEL | |
| 32+00:AS | 30. | 94. | 309. | .12 | .08 | 65.67 | 61.43 | 795. | 65.55 |
| 800. | 48. | 226. | 29941. | 1.19 | .00 | .00 | .26 | 2.57 | |

| M(G) | M(K) | KQ | XLKQ | XRKQ | OTEL |
|---|---|---|---|---|---|
| ****** | ****** | ******** | ****** | ****** | 65.51 |

<<<<<END OF BRIDGE COMPUTATIONS>>>>>

| XSID:CODE | SRDL | LEW | AREA | VHD | HF | EGL | CRWS | Q | WSEL |
|---|---|---|---|---|---|---|---|---|---|
| SRD | FLEN | REW | K | ALPH | HO | ERR | FR# | VEL | |
| 32+50:XS | 50. | 23. | 472. | .09 | .03 | 65.70 | ******* | 795. | 65.61 |
| 850. | 50. | 204. | 36057. | 2.07 | .00 | .00 | .26 | 1.68 | |
| 33+00:XS | 50. | -84. | 665. | .09 | .03 | 65.73 | ******* | 795. | 65.64 |
| 900. | 50. | 214. | 34146. | 4.23 | .00 | .00 | .29 | 1.19 | |
| 33+25:XS | 25. | -453. | 1247. | .08 | .01 | 65.74 | ******* | 795. | 65.66 |
| 925. | 25. | 229. | 34979. | 12.89 | .00 | .00 | .30 | .64 | |
| 33+31:XS | 6. | -584. | 1519. | .05 | .00 | 65.74 | ******* | 795. | 65.68 |
| 931. | 6. | 221. | 41409. | 12.34 | .00 | -.01 | .24 | .52 | |
| 33+34:XS | 3. | -663. | 1666. | .04 | .00 | 65.73 | ******* | 795. | 65.69 |
| 934. | 3. | 222. | 45451. | 11.92 | .00 | .00 | .21 | .48 | |
| 33+37:XS | 4. | -742. | 1821. | .03 | .00 | 65.73 | ******* | 795. | 65.70 |
| 938. | 4. | 223. | 51032. | 10.95 | .00 | .00 | .19 | .44 | |
| 33+44:XS | 7. | -837. | 2520. | .01 | .00 | 65.73 | ******* | 795. | 65.72 |
| 944. | 7. | 224. | 68561. | 8.00 | .00 | .00 | .10 | .32 | |
| 33+50:XS | 6. | -930. | 2633. | .01 | .00 | 65.73 | ******* | 795. | 65.72 |
| 950. | 6. | 224. | 70077. | 8.38 | .00 | .00 | .10 | .30 | |
| 34+00:XS | 50. | -725. | 3223. | .00 | .00 | 65.74 | ******* | 795. | 65.73 |
| 1000. | 50. | 248. | 90393. | 4.53 | .00 | .00 | .05 | .25 | |

```
35+00:XS      50.  -582.    2998.    .00    .00    65.74 *******    795.   65.74
     1100.    50.   296.   89508.  4.03    .00      .00      .05     .27

35+50:XS      50.  -528.    2703.    .01    .00    65.75 *******    795.   65.74
     1150.    50.   298.   79535.  5.96    .00      .00      .07     .29
```

1

WSPRO FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188 MODEL FOR WATER-SURFACE PROFILE COMPUTATIONS

MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
BRIDGE HYDRAULICS REPORT (file name ORANBRIN.10)
10,100 YR - NATURAL CHANNEL, WITH ORANOLE ROAD BRIDGE
*** RUN DATE & TIME: 11-30-94 10:20

FIRST USER DEFINED TABLE.

| XSID:CODE | Q | SRD | WSEL | AREA | VEL | FR# | K | XSTW |
|---|---|---|---|---|---|---|---|---|
| 24+00:XS | 795. | 0. | 64.28 | 286. | 2.78 | .24 | 26269. | 69. |
| 24+28:XS | 795. | 29. | 64.33 | 327. | 2.43 | .21 | 29091. | 78. |
| 24+50:XS | 795. | 50. | 64.35 | 330. | 2.41 | .20 | 30721. | 75. |
| 25+00:XS | 795. | 100. | 64.37 | 289. | 2.75 | .25 | 25020. | 76. |
| 25+25:XS | 795. | 125. | 64.38 | 251. | 3.17 | .31 | 19706. | 77. |
| 25+50:XS | 795. | 150. | 64.39 | 206. | 3.86 | .40 | 14723. | 72. |
| 25+62:XS | 795. | 163. | 64.49 | 250. | 3.18 | .32 | 18835. | 82. |
| 25+75:XS | 795. | 175. | 64.54 | 299. | 2.66 | .25 | 24688. | 86. |
| 25+87:XS | 795. | 188. | 64.59 | 360. | 2.21 | .19 | 32440. | 90. |
| 26+00:XS | 795. | 200. | 64.61 | 406. | 1.96 | .16 | 38678. | 92. |
| 26+25:XS | 795. | 225. | 64.61 | 361. | 2.20 | .20 | 32906. | 91. |
| 26+50:XS | 795. | 250. | 64.61 | 305. | 2.61 | .23 | 27068. | 79. |
| 27+23:XS | 795. | 323. | 64.70 | 338. | 2.35 | .25 | 24391. | 120. |
| 28+00:XS | 795. | 400. | 64.78 | 348. | 2.28 | .23 | 26859. | 111. |
| 28+50:XS | 795. | 450. | 64.84 | 406. | 1.96 | .19 | 31339. | 130. |
| 29+00:XS | 795. | 500. | 64.87 | 336. | 2.37 | .24 | 25299. | 113. |
| 29+12:XS | 795. | 512. | 64.84 | 282. | 2.81 | .34 | 20244. | 108. |
| 29+25:XS | 795. | 525. | 64.83 | 245. | 3.24 | .41 | 19577. | 96. |
| 29+50:XS | 795. | 550. | 64.85 | 190. | 4.18 | .39 | 15497. | 53. |
| 30+00:XS | 795. | 600. | 64.99 | 205. | 3.87 | .35 | 19717. | 51. |
| 30+43:XS | 795. | 643. | 65.12 | 249. | 3.19 | .26 | 24864. | 53. |
| EXIT :XS | 795. | 687. | 65.18 | 272. | 2.92 | .23 | 28226. | 55. |
| FULLV:FV | 795. | 718. | 65.17 | 211. | 3.77 | .31 | 20583. | 46. |
| ORANO:BR | 792. | 719. | 64.90 | 190. | 4.16 | .36 | 12202. | 0. |
| ROAD:RG | 0. | 749. | ********** | | 1.00 | ******** | 0. | ******* |
| 32+00:AS | 795. | 800. | 65.55 | 309. | 2.57 | .26 | 29941. | 87. |
| 32+50:XS | 795. | 850. | 65.61 | 472. | 1.68 | .26 | 36057. | 181. |
| 33+00:XS | 795. | 900. | 65.64 | 665. | 1.19 | .29 | 34146. | 297. |
| 33+25:XS | 795. | 925. | 65.66 | 1247. | .64 | .30 | 34979. | 682. |
| 33+31:XS | 795. | 931. | 65.68 | 1519. | .52 | .24 | 41409. | 805. |
| 33+34:XS | 795. | 934. | 65.69 | 1666. | .48 | .21 | 45451. | 884. |
| 33+37:XS | 795. | 938. | 65.70 | 1821. | .44 | .19 | 51032. | 965. |
| 33+44:XS | 795. | 944. | 65.72 | 2520. | .32 | .10 | 68561. | 1061. |
| 33+50:XS | 795. | 950. | 65.72 | 2633. | .30 | .10 | 70077. | 1154. |
| 34+00:XS | 795. | 1000. | 65.73 | 3223. | .25 | .05 | 90393. | 973. |
| 34+50:XS | 795. | 1050. | 65.74 | 3281. | .24 | .04 | 98373. | 889. |
| 35+00:XS | 795. | 1100. | 65.74 | 2998. | .27 | .05 | 89508. | 878. |
| 35+50:XS | 795. | 1150. | 65.74 | 2703. | .29 | .07 | 79535. | 826. |

1

WSPRO FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188 MODEL FOR WATER-SURFACE PROFILE COMPUTATIONS

MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
BRIDGE HYDRAULICS REPORT (file name ORANBRIN.10)
10,100 YR - NATURAL CHANNEL, WITH ORANOLE ROAD BRIDGE
*** RUN DATE & TIME: 11-30-94 10:20

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 24+00:XS | ****** | 104. | 470. | .15 | ***** | 66.75 | 62.23 | 1450. | 66.60 |
| 0. | ****** | 300. | 52557. | 1.04 | ***** | ******* | .27 | 3.08 | |
| 24+28:XS | 29. | 90. | 538. | .12 | .02 | 66.77 | ******* | 1450. | 66.65 |
| 29. | 29. | 198. | 59261. | 1.04 | .00 | .00 | .22 | 2.70 | |
| 24+50:XS | 21. | 90. | 526. | .12 | .01 | 66.79 | ******* | 1450. | 66.66 |
| 50. | 21. | 195. | 60762. | 1.06 | .00 | .00 | .22 | 2.76 | |
| 25+00:XS | 50. | 107. | 477. | .15 | .03 | 66.83 | ******* | 1450. | 66.69 |
| 100. | 50. | 199. | 53271. | 1.01 | .01 | .00 | .24 | 3.04 | |
| 25+25:XS | 25. | 112. | 443. | .17 | .02 | 66.86 | ******* | 1450. | 66.69 |
| 125. | 25. | 206. | 47137. | 1.01 | .01 | .00 | .27 | 3.27 | |
| 25+50:XS | 25. | 114. | 404. | .20 | .03 | 66.91 | ******* | 1450. | 66.71 |
| 150. | 25. | 212. | 37664. | 1.00 | .02 | .00 | .31 | 3.59 | |
| 25+62:XS | 13. | 114. | 454. | .16 | .02 | 66.92 | ******* | 1450. | 66.76 |
| 163. | 13. | 214. | 45494. | 1.00 | .00 | .00 | .26 | 3.20 | |
| 25+75:XS | 13. | 114. | 507. | .13 | .01 | 66.93 | ******* | 1450. | 66.80 |
| 175. | 13. | 215. | 54329. | 1.00 | .00 | .00 | .22 | 2.86 | |
| 25+87:XS | 13. | 118. | 574. | .10 | .01 | 66.93 | ******* | 1450. | 66.83 |
| 188. | 13. | 221. | 64728. | 1.00 | .00 | .00 | .19 | 2.53 | |
| 26+00:XS | 13. | 116. | 624. | .08 | .01 | 66.94 | ******* | 1450. | 66.85 |
| 200. | 13. | 220. | 74565. | 1.00 | .00 | .00 | .17 | 2.32 | |
| 26+25:XS | 25. | 115. | 582. | .12 | .01 | 66.96 | ******* | 1450. | 66.85 |
| 225. | 25. | 222. | 66025. | 1.20 | .02 | .00 | .21 | 2.49 | |
| 26+50:XS | 25. | 113. | 523. | .13 | .01 | 66.98 | ******* | 1450. | 66.85 |
| 250. | 25. | 224. | 54578. | 1.10 | .01 | .00 | .24 | 2.77 | |
| 27+23:XS | 73. | 119. | 622. | .08 | .05 | 67.03 | ******* | 1450. | 66.94 |
| 323. | 73. | 253. | 62892. | 1.00 | .00 | .00 | .19 | 2.33 | |
| 28+00:XS | 77. | 117. | 603. | .09 | .04 | 67.07 | ******* | 1450. | 66.98 |
| 400. | 77. | 239. | 63091. | 1.00 | .00 | .00 | .19 | 2.40 | |
| 28+50:XS | 50. | 119. | 701. | .07 | .02 | 67.09 | ******* | 1450. | 67.03 |
| 450. | 50. | 258. | 73810. | 1.00 | .00 | .00 | .16 | 2.07 | |
| 29+00:XS | 50. | 119. | 605. | .09 | .02 | 67.13 | ******* | 1450. | 67.04 |
| 500. | 50. | 255. | 62237. | 1.04 | .01 | .00 | .20 | 2.39 | |

WSPRO FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188 MODEL FOR WATER-SURFACE PROFILE COMPUTATIONS

MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
BRIDGE HYDRAULICS REPORT (file name ORANBRIN.10)
10,100 YR - NATURAL CHANNEL, WITH ORANOLE ROAD BRIDGE
*** RUN DATE & TIME: 11-30-94 10:20

| XSID:CODE | SRDL | LEW | AREA | VHD | HF | EGL | CRWS | Q | WSEL |
|---|---|---|---|---|---|---|---|---|---|
| SRD | FLEN | REW | K | ALPH | HO | ERR | FR# | VEL | |
| 29+12:XS | 12. | 114. | 546. | .16 | .01 | 67.17 | ******* | 1450. | 67.01 |
| 512. | 12. | 251. | 48119. | 1.50 | .04 | .00 | .29 | 2.65 | |
| 29+25:XS | 13. | 123. | 482. | .25 | .01 | 67.22 | ******* | 1450. | 66.98 |

```
29+50:XS        25.    128.      375.    .32    .04    67.29 *******    1450.    66.95
      550.      25.    237.    33560.   1.36    .04      .00      .43     3.87
```

4-111

```
30+00:XS        50.    138.      337.    .35    .09    67.40 *******    1450.    67.04
      600.      50.    215.    36423.   1.23    .02      .00      .40     4.30

30+43:XS        43.    146.      388.    .22    .06    67.46 *******    1450.    67.24
      643.      43.    230.    39395.   1.00    .00      .00      .31     3.74

EXIT :XS        43.    138.      405.    .21    .05    67.51 *******    1450.    67.30
      687.      43.    226.    48927.   1.04    .00      .00      .30     3.58

FULLV:FV        31.    178.      328.    .33    .04    67.60 *******    1450.    67.28
      718.      31.    273.    36627.   1.07    .06      .00      .44     4.43
         <<<<<THE ABOVE RESULTS REFLECT "NORMAL" (UNCONSTRICTED) FLOW>>>>>

 ===135 CONVEYANCE RATIO OUTSIDE OF RECOMMENDED LIMITS.
                              "32+00"     KRATIO =  1.48

32+00:AS        82.     40.      633.    .18    .09    67.69 *******    1450.    67.51
      800.      82.    245.    54036.   2.21    .00      .00      .34     2.29
         <<<<<THE ABOVE RESULTS REFLECT "NORMAL" (UNCONSTRICTED) FLOW>>>>>

 ===255 ATTEMPTING FLOW CLASS 3 (6) SOLUTION.
                        WS3N,LSEL =    67.28       64.90

            <<<<<RESULTS REFLECTING THE CONSTRICTED FLOW FOLLOW>>>>>

 XSID:CODE   SRDL     LEW      AREA    VHD     HF      EGL     CRWS       Q     WSEL
       SRD   FLEN     REW         K   ALPH     HO      ERR      FR#     VEL

ORANO:BR        31.    182.      190.    .42 *****   65.32    62.73     994.    64.90
      719. ******    227.    12202.   1.00 ***** *******      .45     5.23

     TYPE PPCD FLOW       C     P/A    LSEL   BLEN   XLAB   XRAB
       2.   1.   6.    .800    .041   64.90 ****** ****** ******

    XSID:CODE     SRD    FLEN     HF    VHD     EGL     ERR       Q    WSEL
    ROAD:RG      749.     52.    .03    .16   67.98     .02    484.   67.69

              Q   WLEN    LEW    REW  DMAX  DAVG  VMAX  VAVG  HAVG  CAVG
   LT:       0. ****** ****** ****** ***** ***** ***** ***** ***** *****
   RT:     484.    151.    235.    386.   1.5    .7   4.7   4.4   1.0   3.1
1
 WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
 P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
        BRIDGE HYDRAULICS REPORT (file name ORANBRIN.10)
        10,100 YR - NATURAL CHANNEL, WITH  ORANOLE ROAD BRIDGE
           *** RUN DATE & TIME: 11-30-94  10:20

 XSID:CODE   SRDL     LEW      AREA    VHD     HF      EGL     CRWS       Q     WSEL
       SRD   FLEN     REW         K   ALPH     HO      ERR      FR#     VEL

32+00:AS        30.     34.      707.    .16    .08    68.01    62.79    1450.    67.86
      800.      37.    249.    59409.   2.40    .00      .02      .31     2.05

       M(G)   M(K)       KQ   XLKQ   XRKQ    OTEL
     ****** ****** ******** ****** ****** ********

                  <<<<<END OF BRIDGE COMPUTATIONS>>>>>

 XSID:CODE   SRDL     LEW      AREA    VHD     HF      EGL     CRWS       Q     WSEL
```

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 32+50:XS | 50. | -30. | 1001. | .11 | .03 | 68.04 | ******* | 1450. | 67.92 |
| 850. | 50. | 242. | 69213. | 3.44 | .00 | .00 | .25 | 1.45 | |
| 33+00:XS | 50. | -198. | 1526. | .09 | .02 | 68.06 | ******* | 1450. | 67.97 |
| 900. | 50. | 243. | 73370. | 6.08 | .00 | .00 | .22 | .95 | |
| 33+25:XS | 25. | -513. | 2974. | .03 | .01 | 68.06 | ******* | 1450. | 68.03 |
| 925. | 25. | 258. | 96804. | 8.05 | .00 | .00 | .12 | .49 | |
| 33+31:XS | 6. | -633. | 3523. | .02 | .00 | 68.06 | ******* | 1450. | 68.04 |
| 931. | 6. | 263. | 114690. | 7.51 | .00 | .00 | .10 | .41 | |
| 33+34:XS | 3. | -718. | 3865. | .02 | .00 | 68.06 | ******* | 1450. | 68.04 |
| 934. | 3. | 261. | 126740. | 7.32 | .00 | .00 | .09 | .38 | |
| 33+37:XS | 4. | -803. | 4214. | .01 | .00 | 68.06 | ******* | 1450. | 68.05 |
| 938. | 4. | 258. | 141934. | 7.10 | .00 | .00 | .08 | .34 | |
| 33+44:XS | 7. | -898. | 5127. | .01 | .00 | 68.06 | ******* | 1450. | 68.05 |
| 944. | 7. | 259. | 178822. | 5.49 | .00 | .00 | .06 | .28 | |
| 33+50:XS | 6. | -993. | 5468. | .01 | .00 | 68.06 | ******* | 1450. | 68.05 |
| 950. | 6. | 265. | 187193. | 5.57 | .00 | .00 | .05 | .27 | |
| 34+00:XS | 50. | -773. | 5596. | .00 | .00 | 68.06 | ******* | 1450. | 68.06 |
| 1000. | 50. | 296. | 204090. | 3.80 | .00 | .00 | .04 | .26 | |
| 34+50:XS | 50. | -673. | 5511. | .00 | .00 | 68.07 | ******* | 1450. | 68.06 |
| 1050. | 50. | 333. | 211994. | 3.14 | .00 | .00 | .04 | .26 | |
| 35+00:XS | 50. | -633. | 5163. | .00 | .00 | 68.07 | ******* | 1450. | 68.06 |
| 1100. | 50. | 343. | 198614. | 3.79 | .00 | .00 | .04 | .28 | |
| 35+50:XS | 50. | -593. | 4771. | .01 | .00 | 68.07 | ******* | 1450. | 68.07 |
| 1150. | 50. | 343. | 174133. | 4.67 | .00 | .00 | .05 | .30 | |

4-112

WSPRO FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188 MODEL FOR WATER-SURFACE PROFILE COMPUTATIONS

MAITLAND BLVD EXT - BRIDGE OVER LITTLE WEKIVA RIVER
BRIDGE HYDRAULICS REPORT (file name ORANBRIN.10)
10,100 YR - NATURAL CHANNEL, WITH ORANOLE ROAD BRIDGE
*** RUN DATE & TIME: 11-30-94 10:20

FIRST USER DEFINED TABLE.

| XSID:CODE | Q | SRD | WSEL | AREA | VEL | FR# | K | XSTW |
|---|---|---|---|---|---|---|---|---|
| 24+00:XS | 1450. | 0. | 66.60 | 470. | 3.08 | .27 | 52557. | 107. |
| 24+28:XS | 1450. | 29. | 66.65 | 538. | 2.70 | .22 | 59261. | 108. |
| 24+50:XS | 1450. | 50. | 66.66 | 526. | 2.76 | .22 | 60762. | 105. |
| 25+00:XS | 1450. | 100. | 66.69 | 477. | 3.04 | .24 | 53271. | 92. |
| 25+25:XS | 1450. | 125. | 66.69 | 443. | 3.27 | .27 | 47137. | 94. |
| 25+50:XS | 1450. | 150. | 66.71 | 404. | 3.59 | .31 | 37664. | 98. |
| 25+62:XS | 1450. | 163. | 66.76 | 454. | 3.20 | .26 | 45494. | 99. |
| 25+75:XS | 1450. | 175. | 66.80 | 507. | 2.86 | .22 | 54329. | 100. |
| 25+87:XS | 1450. | 188. | 66.83 | 574. | 2.53 | .19 | 64728. | 102. |
| 26+00:XS | 1450. | 200. | 66.85 | 624. | 2.32 | .17 | 74565. | 104. |
| 26+25:XS | 1450. | 225. | 66.85 | 582. | 2.49 | .21 | 66025. | 107. |
| 26+50:XS | 1450. | 250. | 66.85 | 523. | 2.77 | .24 | 54578. | 111. |
| 27+23:XS | 1450. | 323. | 66.94 | 622. | 2.33 | .19 | 62892. | 133. |
| 28+00:XS | 1450. | 400. | 66.98 | 603. | 2.40 | .19 | 63091. | 121. |
| 28+50:XS | 1450. | 450. | 67.03 | 701. | 2.07 | .16 | 73810. | 140. |
| 29+00:XS | 1450. | 500. | 67.04 | 605. | 2.39 | .20 | 62237. | 136. |
| 29+12:XS | 1450. | 512. | 67.01 | 546. | 2.65 | .29 | 48119. | 136. |
| 29+25:XS | 1450. | 525. | 66.98 | 482. | 3.01 | .36 | 40824. | 126. |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 30+43:XS | 1450. | 643. | 67.24 | 388. | 3.74 | .01 | 39396. | 84. |
| EXIT :XS | 1450. | 687. | 67.30 | 405. | 3.58 | .30 | 48927. | 88. |
| FULLV:FV | 1450. | 718. | 67.28 | 328. | 4.43 | .44 | 36627. | 95. |
| ORANO:BR | 994. | 719. | 64.90 | 190. | 5.23 | .45 | 12202. | 0. |
| ROAD:RG | 484. | 749. | 67.69 | ******** | 1.00 | ******** | 0. | ******* |
| 32+00:AS | 1450. | 800. | 67.86 | 707. | 2.05 | .31 | 59409. | 214. |
| 32+50:XS | 1450. | 850. | 67.92 | 1001. | 1.45 | .25 | 69213. | 272. |
| 33+00:XS | 1450. | 900. | 67.97 | 1526. | .95 | .22 | 73370. | 442. |
| 33+25:XS | 1450. | 925. | 68.03 | 2974. | .49 | .12 | 96804. | 770. |
| 33+31:XS | 1450. | 931. | 68.04 | 3523. | .41 | .10 | 114690. | 896. |
| 33+34:XS | 1450. | 934. | 68.04 | 3865. | .38 | .09 | 126740. | 979. |
| 33+37:XS | 1450. | 938. | 68.05 | 4214. | .34 | .08 | 141934. | 1061. |
| 33+44:XS | 1450. | 944. | 68.05 | 5127. | .28 | .06 | 178822. | 1157. |
| 33+50:XS | 1450. | 950. | 68.05 | 5468. | .27 | .05 | 187193. | 1258. |
| 34+00:XS | 1450. | 1000. | 68.06 | 5596. | .26 | .04 | 204090. | 1069. |
| 34+50:XS | 1450. | 1050. | 68.06 | 5511. | .26 | .04 | 211994. | 1006. |
| 35+00:XS | 1450. | 1100. | 68.06 | 5163. | .28 | .04 | 198614. | 976. |
| 35+50:XS | 1450. | 1150. | 68.07 | 4771. | .30 | .05 | 174133. | 936. |

ER

1 NORMAL END OF WSPRO EXECUTION.

```
1     MAITLAND BLVD. EXT. - BRIDGE OVER LAKE BOSSE FLOODWAY PLAIN
      BRIDGE HYDRAULICS REPORT
      10, 25, 50 & 100 YR WATER SURFACE PROFILE          S.C.    7-15-91
      245.88,325.41,391.90,459.25
      62.20,63.05,63.75,64.4
      5,6,3,17,13,14,16,28
      DOWNSTREAM - STA 60+18.55, BL #2
60+000
      -275,66 -240,62.43 -214,61.83 -193,62.73 -150,61.43, -100,60.73
      -50,59.73, 0,59.43 58,59.13 63,55.43 75,56.23 83,57.43 90,59.23
R     100,59.93 150,59.93 200,59.73 250,60.13 300,61.73 320,63.53
      0,2,0.11,0.2
      58,90
59+00100
      -283,66.33 -263,70.63 -252,70.93 -238,65.06 -200,62.56 -150,61.58
      -107,60.78 -79,60.28 -50,59.78 0,60.18 50,59.48 63,59.58 68,57.08
R     75,57.98 85,57.48 90,58.88 100,59.18 150,59.28 200,59.38 250,59.58
R     300,59.98 350,60.78 370,63.08 400,66
      63,90
58+50150,,,,-.0025
58+25175,,,,-.004
58+00200
      -270,68.44 -240,64.74 -200,62.84 -150,60.44 -100,59.94 -50,59.74
      0,59.74 50,59.34 63,59.04 80,59.24 91,59.34 120,59.44 150,59.64
      200,59.44 250,60.34 300,61.04 350,61.04 465,66
      -105,215
57+50250,,,,-.0025
57+00300
      -208,72.78 -170,63.07 -150,61.47 -100,59.97 -50,59.87 0,59.67
      51,59.27 58,53.77 68,53.37 75,54.77 82,59.67 100,59.97 150,59.37
      200,59.87 250,59.77 300,60.57 350,61.17 390,62.37 419,63.07
R     565,66
      51,82
55+00500
      -50,72.29 -31,71.79 -16,66.99 0,64.03 50,61.33 86,60.23 88,59.82
R     91,59.13 103,56.13 112,58.73 114,59.82 118,59.93 150,59.53 200,59.63
R     250,59.03 300,59.83 350,59.83 400,60.33 450,60.53 500,61.08
      550,59.88 600,60.18 650,61.58 676,62.98 687,61.48 695,63.28 800,66
      86,350
54+00600
      -44,66.49 -23,72.69 -14,72.69 0,67.48 50,60.08 53,59.90 60,59.42
R     83,57.92 90,57.82 103,61.42 150,59.62 200,59.62 250,60.12 300,57.62
      350,59.72 400,60.12 450,58.42 500,59.76 550,60.06 600,59.76
      650,59.66 700,59.76 750,61.66 763,62.76 770,62.26 776,62.96 850,66
      53,103
53+50650,,,,-.0055
53+25675,,,,-.0055
      STA.53+00 BL #1
53+00700
      -44,67.22 -31,71.82 -23,71.92 0,64.73 37,60.93 39,59.86 41,57.83
      60,57.83 70,58.43 100,59.53 150,59.93 200,60.13 250,60.13 327,59.83
R     550,54.87 575,59.86 600,59.67 650,58.97 700,59.87 750,61.17
      792,62.47 797,61.27 801,62.17 810,63.07 880,66
      37,100
52+50750,,,,.0085
52+25775,,,,.014
52+00800
      -37,70.47 -31,71.66 -23,71.66 0,64.51 10,62.61 36,60.61 37.5,60.16
      40,59.31 50,58.31 68,59.51 78,60.16 82,60.13 100,59.61 150,59.51
      200,60.11 300,59.96 350,59.66 400,59.96 450,60.26 500,58.86
```

```
        550,59.96 600,58.46 650,59.66 700,60.88 750,59.86 758,61.46
        765,59.36 773,62.46 870,66
        36,82
51+50850,,,,.015
51+00900
        -31,70.97 -24,72.17 -18,71.97 0,66.87 8,65.87 30,62.47 58,60.87
        60,60.15 65,58.77 83,57.67 94,59.37 110,59.57 150,59.87 200,59.87
        250,60.07 300,60.07 350,59.77 400,59.47 450,62.57 500,62.27
        550,60.87 600,62.57 650,62.67 700,63.47 710,63.37 727,65.97
        740,67.17
        58,110
50+50950,,,,-.005
50+001000
        -83,73.58 -67,72.18 -50,70.68 0,66.80 50,64.20 100,61.00 107,60.13
        111,58.60 124,58.00 140,58.50 150,59.60 200,59.70 250,59.40
        300,59.70 350,59.40 400,60.50 450,59.67 500,59.67 550,59.07
        600,59.87 650,59.57 670,59.87 699,62.67 713,64.67 1020,66
        100,150
49+501050,,,,.0075
49+001100
        -130,66 0,64.44 50,62.84 90,61.94 106,64.54 120,64.24 133,60.02
        142,58.84 151,58.64 163,60.74 200,61.34 250,60.74 300,61.74
        350,59.65 400,59.84 450,59.64 500,59.64 550,59.34 600,60.04
        650,60.19 679,60.79 695,64.19 1180,66
        120,163
48+251175
        -200,66 -150,63.00 -130,62.00 0,60.22 50,60.42 100,61.92
        125,59.92 136,58.62 156,59.92 200,60.92 250,60.72 300,60.72
        350,60.52 400,60.22 450,59.96 500,59.96 550,59.76 600,60.16
        631,60.66 667,63.66 1220,66
        125,156
```

```
1
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

          *** RUN DATE & TIME: 07-15-91   16:08

  T1          MAITLAND BLVD. EXT. - BRIDGE OVER LAKE BOSSE FLOODWAY PLAIN
  T2          BRIDGE HYDRAULICS REPORT
  T3          10, 25, 50 & 100 YR WATER SURFACE PROFILE          S.C.     7-15-91
  Q           245.88,325.41,391.90,459.25
*** Q-DATA FOR SEC-ID, ISEQ =              1
  WS          62.20,63.05,63.75,64.4
  J3          5,6,3,17,13,14,16,28
  *           DOWNSTREAM - STA 60+18.55, BL #2

WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD. EXT. - BRIDGE OVER LAKE BOSSE FLOODWAY PLAIN
        BRIDGE HYDRAULICS REPORT
        10, 25, 50 & 100 YR WATER SURFACE PROFILE          S.C.     7-15-91
          *** RUN DATE & TIME: 07-15-91   16:08

*** START PROCESSING CROSS SECTION - "60+00"
  XS    60+000
  GR          -275,66 -240,62.43 -214,61.83 -193,62.73 -150,61.43, -100,60.73
  GR          -50,59.73, 0,59.43 58,59.13 63,55.43 75,56.23 83,57.43 90,59.23
  GR          100,59.93 150,59.93 200,59.73 250,60.13 300,61.73 320,63.53
  N           0.2,0.11,0.2
  SA          58,90

*** FINISH PROCESSING CROSS SECTION - "60+00"
*** CROSS SECTION "60+00" WRITTEN TO DISK, RECORD NO. =  1

--- DATA SUMMARY FOR SECID "60+00" AT SRD =       0.   ERR-CODE =       0

     SKEW      IHFNO     VSLOPE        EK        CK
      .0          0.  *********      .50       .00

X-Y COORDINATE PAIRS  (NGP =  19):
      X         Y         X         Y         X         Y         X         Y
   -275.0    66.00    -240.0    62.43    -214.0    61.83    -193.0    62.73
   -150.0    61.43    -100.0    60.73     -50.0    59.73        .0    59.43
     58.0    59.13      63.0    55.43      75.0    56.23      83.0    57.43
     90.0    59.23     100.0    59.93     150.0    59.93     200.0    59.73
    250.0    60.13     300.0    61.73     320.0    63.53

X-Y MAX-MIN POINTS:
    XMIN        Y         X      YMIN      XMAX        Y         X      YMAX
   -275.0    66.00      63.0    55.43     320.0    63.53    -275.0    66.00

SUBAREA BREAKPOINTS (NSA =  3):
        58.      90.

ROUGHNESS COEFFICIENTS (NSA =  3):
       .200     .110     .200
1
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS
```

```
        MAITLAND BLVD. EXT. - BRIDGE OVER LAKE BOSSE FLOODWAY PLAIN
        BRIDGE HYDRAULICS REPORT
        10, 25, 50 & 100 YR WATER SURFACE PROFILE          S.C.     7-15-91
           *** RUN DATE & TIME: 07-15-91   16:08

*** START PROCESSING CROSS SECTION - "59+00"
  XS    59+00100
  GR          -283,66.33 -263,70.63 -252,70.93 -238,65.06 -200,62.56 -150,61.58
  GR          -107,60.78 -79,60.28 -50,59.78 0,60.18 50,59.48 63,58.58 68,57.08
  GR          75,57.98 85,57.48 90,58.88 100,59.18 150,59.28 200,59.38 250,59.58
  GR          300,59.98 350,60.78 370,63.08 400,66
  SA          63,90

*** FINISH PROCESSING CROSS SECTION - "59+00"
*** CROSS SECTION "59+00" WRITTEN TO DISK, RECORD NO. =  2

--- DATA SUMMARY FOR SECID "59+00" AT SRD =     100.  ERR-CODE =       0

      SKEW      IHFNO     VSLOPE         EK         CK
        .0         0.  *********        .50        .00

X-Y COORDINATE PAIRS   (NGP =  24):
        X         Y         X         Y         X         Y         X         Y
   -283.0    66.33    -263.0    70.63    -252.0    70.93    -238.0    65.06
   -200.0    62.56    -150.0    61.58    -107.0    60.78     -79.0    60.28
    -50.0    59.78        .0    60.18      50.0    59.48      63.0    58.58
     68.0    57.08      75.0    57.98      85.0    57.48      90.0    58.88
    100.0    59.18     150.0    59.28     200.0    59.38     250.0    59.58
    300.0    59.98     350.0    60.78     370.0    63.08     400.0    66.00

 X-Y MAX-MIN POINTS:
      XMIN         Y         X      YMIN      XMAX         Y         X      YMAX
   -283.0    66.33      68.0    57.08     400.0    66.00    -252.0    70.93

SUBAREA BREAKPOINTS (NSA =  3):
        63.      90.

ROUGHNESS COEFFICIENTS (NSA =  3):
        .200     .110     .200

WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL   FOR   WATER-SURFACE   PROFILE   COMPUTATIONS

        MAITLAND BLVD. EXT. - BRIDGE OVER LAKE BOSSE FLOODWAY PLAIN
        BRIDGE HYDRAULICS REPORT
        10, 25, 50 & 100 YR WATER SURFACE PROFILE          S.C.     7-15-91
           *** RUN DATE & TIME: 07-15-91   16:08

*** START PROCESSING CROSS SECTION - "58+50"
  XS    58+50150,,,,-.0025

*** FINISH PROCESSING CROSS SECTION - "58+50"
*** NO ROUGHNESS DATA INPUT, WILL PROPAGATE FROM PREVIOUS CROSS SECTION.
*** CROSS SECTION "58+50" WRITTEN TO DISK, RECORD NO. =  3

--- DATA SUMMARY FOR SECID "58+50" AT SRD =     150.  ERR-CODE =       0

      SKEW      IHFNO     VSLOPE         EK         CK
        .0         0.    -.0025        .50        .00
```

```
X-Y COORDINATE PAIRS   (NGP =   24):
      X        Y          X        Y          X        Y          X        Y
   -283.0    66.21    -263.0    70.50    -252.0    70.81    -238.0    64.93
   -200.0    62.44    -150.0    61.46    -107.0    60.65     -79.0    60.15
    -50.0    59.65        .0    60.06      50.0    59.35      63.0    58.46
     68.0    56.96      75.0    57.85      85.0    57.35      90.0    58.76
    100.0    59.06     150.0    59.15     200.0    59.26     250.0    59.46
    300.0    59.85     350.0    60.65     370.0    62.96     400.0    65.88

X-Y MAX-MIN POINTS:
     XMIN       Y          X     YMIN       XMAX       Y          X     YMAX
   -283.0    66.21      68.0    56.96     400.0    65.88    -252.0    70.81

SUBAREA BREAKPOINTS (NSA =   3):
        63.      90.

ROUGHNESS COEFFICIENTS (NSA =   3):
        .200     .110     .200

SPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188           MODEL   FOR   WATER-SURFACE   PROFILE   COMPUTATIONS

        MAITLAND BLVD. EXT. - BRIDGE OVER LAKE BOSSE FLOODWAY PLAIN
        BRIDGE HYDRAULICS REPORT
        10, 25, 50 & 100 YR WATER SURFACE PROFILE          S.C.     7-15-91
           *** RUN DATE & TIME: 07-15-91   16:08

** START PROCESSING CROSS SECTION - "58+25"
 XS    58+25175,,,,-.004

*** FINISH PROCESSING CROSS SECTION - "58+25"
*** NO ROUGHNESS DATA INPUT, WILL PROPAGATE FROM PREVIOUS CROSS SECTION.
** CROSS SECTION "58+25" WRITTEN TO DISK, RECORD NO. =   4

-- DATA SUMMARY FOR SECID "58+25" AT SRD =     175.   ERR-CODE =       0

     SKEW      IHFNO     VSLOPE        EK        CK
       .0         0.    -.0040       .50       .00

X-Y COORDINATE PAIRS   (NGP =   24):
      X        Y          X        Y          X        Y          X        Y
   -283.0    66.11    -263.0    70.40    -252.0    70.71    -238.0    64.83
   -200.0    62.34    -150.0    61.36    -107.0    60.56     -79.0    60.06
    -50.0    59.56        .0    59.96      50.0    59.26      63.0    58.36
     68.0    56.86      75.0    57.76      85.0    57.26      90.0    58.66
    100.0    58.96     150.0    59.06     200.0    59.16     250.0    59.36
    300.0    59.76     350.0    60.56     370.0    62.86     400.0    65.78

X-Y MAX-MIN POINTS:
     XMIN       Y          X     YMIN       XMAX       Y          X     YMAX
   -283.0    66.11      68.0    56.86     400.0    65.78    -252.0    70.71

SUBAREA BREAKPOINTS (NSA =   3):
        63.      90.

ROUGHNESS COEFFICIENTS (NSA =   3):
        .200     .110     .200

SPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188           MODEL   FOR   WATER-SURFACE   PROFILE   COMPUTATIONS
```

```
        MAITLAND BLVD. EXT. - BRIDGE OVER LAKE BOSSE FLOODWAY PLAIN
        BRIDGE HYDRAULICS REPORT
        10, 25, 50 & 100 YR WATER SURFACE PROFILE          S.C.     7-15-91
           *** RUN DATE & TIME: 07-15-91   16:08

*** START PROCESSING CROSS SECTION - "58+00"
  XS    58+00200
  GR          -270,68.44 -240,64.74 -200,62.84 -150,60.44 -100,59.94 -50,59.74
  GR          0,59.74 50,59.34 63,59.04 80,59.24 91,59.34 120,59.44 150,59.64
  GR          200,59.44 250,60.34 300,61.04 350,61.04 465,66
  SA          -105,215

*** FINISH PROCESSING CROSS SECTION - "58+00"
*** CROSS SECTION "58+00" WRITTEN TO DISK, RECORD NO. =  5

--- DATA SUMMARY FOR SECID "58+00" AT SRD =     200.  ERR-CODE =       0

     SKEW      IHFNO     VSLOPE        EK         CK
       .0         0.    -.0040       .50        .00

X-Y COORDINATE PAIRS  (NGP =  18):
      X         Y         X         Y         X         Y         X         Y
   -270.0    68.44    -240.0    64.74    -200.0    62.84    -150.0    60.44
   -100.0    59.94     -50.0    59.74        .0    59.74      50.0    59.34
     63.0    59.04      80.0    59.24      91.0    59.34     120.0    59.44
    150.0    59.64     200.0    59.44     250.0    60.34     300.0    61.04
    350.0    61.04     465.0    66.00

 X-Y MAX-MIN POINTS:
     XMIN        Y         X      YMIN      XMAX         Y         X      YMAX
   -270.0    68.44      63.0    59.04     465.0    66.00    -270.0    68.44

SUBAREA BREAKPOINTS (NSA =  3):
       -105.     215.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .200      .110      .200

WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD. EXT. - BRIDGE OVER LAKE BOSSE FLOODWAY PLAIN
        BRIDGE HYDRAULICS REPORT
        10, 25, 50 & 100 YR WATER SURFACE PROFILE          S.C.     7-15-91
           *** RUN DATE & TIME: 07-15-91   16:08

*** START PROCESSING CROSS SECTION - "57+50"
  XS    57+50250,,,,-.0025

*** FINISH PROCESSING CROSS SECTION - "57+50"
*** NO ROUGHNESS DATA INPUT, WILL PROPAGATE FROM PREVIOUS CROSS SECTION.
*** CROSS SECTION "57+50" WRITTEN TO DISK, RECORD NO. =  6

--- DATA SUMMARY FOR SECID "57+50" AT SRD =     250.  ERR-CODE =       0

     SKEW      IHFNO     VSLOPE        EK         CK
       .0         0.    -.0025       .50        .00

X-Y COORDINATE PAIRS  (NGP =  18):
```

```
      X        Y          X        Y          X        Y          X        Y
  -270.0    68.32     -240.0    64.61     -200.0    62.72     -150.0    60.31
  -100.0    59.81      -50.0    59.62        .0     59.62      50.0     59.22
    63.0    58.92       80.0    59.12       91.0    59.22     120.0     59.31
   150.0    59.51      200.0    59.31      250.0    60.22     300.0     60.92
   350.0    60.92      465.0    65.88

X-Y MAX-MIN POINTS:
    XMIN       Y          X     YMIN       XMAX       Y          X     YMAX
  -270.0    68.32       63.0    58.92      465.0    65.88    -270.0    68.32

SUBAREA BREAKPOINTS (NSA =  3):
      -105.     215.

ROUGHNESS COEFFICIENTS (NSA =  3):
        .200     .110     .200

SPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD. EXT. - BRIDGE OVER LAKE BOSSE FLOODWAY PLAIN
        BRIDGE HYDRAULICS REPORT
        10, 25, 50 & 100 YR WATER SURFACE PROFILE          S.C.     7-15-91
           *** RUN DATE & TIME: 07-15-91  16:08

*** START PROCESSING CROSS SECTION - "57+00"
 XS    57+00300
 GR         -208,72.78 -170,63.07 -150,61.47 -100,59.97 -50,59.87 0,59.67
 GR         51,59.27 58,53.77 68,53.37 75,54.77 82,59.67 100,59.97 150,59.37
 GR         200,59.87 250,59.77 300,60.57 350,61.17 390,62.37 419,63.07
 GR         565,66
 SA         51,82

** FINISH PROCESSING CROSS SECTION - "57+00"
** CROSS SECTION "57+00" WRITTEN TO DISK, RECORD NO. =  7

--- DATA SUMMARY FOR SECID "57+00" AT SRD =    300.  ERR-CODE =      0

    SKEW      IHFNO     VSLOPE        EK        CK
      .0         0.     -.0025       .50       .00

X-Y COORDINATE PAIRS  (NGP =  20):
      X        Y          X        Y          X        Y          X        Y
  -208.0    72.78     -170.0    63.07     -150.0    61.47     -100.0    59.97
   -50.0    59.87        .0     59.67       51.0    59.27      58.0     53.77
    68.0    53.37       75.0    54.77       82.0    59.67     100.0     59.97
   150.0    59.37      200.0    59.87      250.0    59.77     300.0     60.57
   350.0    61.17      390.0    62.37      419.0    63.07     565.0     66.00

X-Y MAX-MIN POINTS:
    XMIN       Y          X     YMIN       XMAX       Y          X     YMAX
  -208.0    72.78       68.0    53.37      565.0    66.00    -208.0    72.78

SUBAREA BREAKPOINTS (NSA =  3):
        51.      82.

ROUGHNESS COEFFICIENTS (NSA =  3):
        .200     .110     .200

SPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
```

```
P060188              MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

         MAITLAND BLVD. EXT. - BRIDGE OVER LAKE BOSSE FLOODWAY PLAIN
         BRIDGE HYDRAULICS REPORT
         10, 25, 50 & 100 YR WATER SURFACE PROFILE          S.C.     7-15-91
            *** RUN DATE & TIME: 07-15-91  16:08

*** START PROCESSING CROSS SECTION - "55+00"
  XS    55+00500
  GR          -50,72.29 -31,71.79 -16,66.99 0,64.03 50,61.33 86,60.23 88,59.82
  GR          91,59.13 103,56.13 112,58.73 114,59.82 118,59.93 150,59.53 200,59.63
  GR          250,59.03 300,59.83 350,59.83 400,60.33 450,60.53 500,61.08
  GR          550,59.88 600,60.18 650,61.58 676,62.98 687,61.48 695,63.28 800,66
  SA          86,350

*** FINISH PROCESSING CROSS SECTION - "55+00"
*** CROSS SECTION "55+00" WRITTEN TO DISK, RECORD NO. =  8

--- DATA SUMMARY FOR SECID "55+00" AT SRD =     500.  ERR-CODE =       0

     SKEW      IHFNO     VSLOPE        EK        CK
       .0         0.    -.0025       .50       .00

X-Y COORDINATE PAIRS  (NGP =  27):
      X         Y         X         Y         X         Y         X         Y
    -50.0     72.29     -31.0     71.79     -16.0     66.99        .0     64.03
     50.0     61.33      86.0     60.23      88.0     59.82      91.0     59.13
    103.0     56.13     112.0     58.73     114.0     59.82     118.0     59.93
    150.0     59.53     200.0     59.63     250.0     59.03     300.0     59.83
    350.0     59.83     400.0     60.33     450.0     60.53     500.0     61.08
    550.0     59.88     600.0     60.18     650.0     61.58     676.0     62.98
    687.0     61.48     695.0     63.28     800.0     66.00

 X-Y MAX-MIN POINTS:
     XMIN         Y         X      YMIN      XMAX         Y         X      YMAX
    -50.0     72.29     103.0     56.13     800.0     66.00     -50.0     72.29

SUBAREA BREAKPOINTS (NSA =  3):
         86.     350.

ROUGHNESS COEFFICIENTS (NSA =  3):
        .200     .110     .200

WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188              MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

         MAITLAND BLVD. EXT. - BRIDGE OVER LAKE BOSSE FLOODWAY PLAIN
         BRIDGE HYDRAULICS REPORT
         10, 25, 50 & 100 YR WATER SURFACE PROFILE          S.C.     7-15-91
            *** RUN DATE & TIME: 07-15-91  16:08

*** START PROCESSING CROSS SECTION - "54+00"
  XS    54+00600
  GR          -44,66.49 -23,72.69 -14,72.69 0,67.48 50,60.08 53,59.90 60,59.42
  GR          83,57.92 90,57.82 103,61.42 150,59.62 200,59.62 250,60.12 300,57.62
  GR          350,59.72 400,60.12 450,58.42 500,59.76 550,60.06 600,59.76
  GR          650,59.66 700,59.76 750,61.66 763,62.76 770,62.26 776,62.96 850,66
  SA          53,103

*** FINISH PROCESSING CROSS SECTION - "54+00"
```

```
*** CROSS SECTION "54+00" WRITTEN TO DISK, RECORD NO. =  9

-- DATA SUMMARY FOR SECID "54+00" AT SRD =     600.  ERR-CODE =       0

    SKEW      IHFNO     VSLOPE        EK        CK
     .0         0.     -.0025       .50       .00

X-Y COORDINATE PAIRS   (NGP =  27):
      X        Y         X        Y         X        Y         X        Y
   -44.0    66.49     -23.0    72.69     -14.0    72.69        .0    67.48
    50.0    60.08      53.0    59.90      60.0    59.42      83.0    57.92
    90.0    57.82     103.0    61.42     150.0    59.62     200.0    59.62
   250.0    60.12     300.0    57.62     350.0    59.72     400.0    60.12
   450.0    58.42     500.0    59.76     550.0    60.06     600.0    59.76
   650.0    59.66     700.0    59.76     750.0    61.66     763.0    62.76
   770.0    62.26     776.0    62.96     850.0    66.00

X-Y MAX-MIN POINTS:
    XMIN       Y         X     YMIN      XMAX       Y         X     YMAX
   -44.0    66.49     300.0    57.62     850.0    66.00     -23.0    72.69

SUBAREA BREAKPOINTS (NSA =  3):
         53.     103.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .200     .110     .200
1
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
060188             MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD. EXT. - BRIDGE OVER LAKE BOSSE FLOODWAY PLAIN
        BRIDGE HYDRAULICS REPORT
        10, 25, 50 & 100 YR WATER SURFACE PROFILE          S.C.     7-15-91
           *** RUN DATE & TIME: 07-15-91  16:08

*** START PROCESSING CROSS SECTION - "53+50"
 XS   53+50650,,,,-.0055

*** FINISH PROCESSING CROSS SECTION - "53+50"
*** NO ROUGHNESS DATA INPUT, WILL PROPAGATE FROM PREVIOUS CROSS SECTION.
*** CROSS SECTION "53+50" WRITTEN TO DISK, RECORD NO. = 10

-- DATA SUMMARY FOR SECID "53+50" AT SRD =     650.  ERR-CODE =       0

    SKEW      IHFNO     VSLOPE        EK        CK
     .0         0.     -.0055       .50       .00

X-Y COORDINATE PAIRS   (NGP =  27):
      X        Y         X        Y         X        Y         X        Y
   -44.0    66.21     -23.0    72.42     -14.0    72.42        .0    67.21
    50.0    59.81      53.0    59.63      60.0    59.14      83.0    57.64
    90.0    57.54     103.0    61.14     150.0    59.34     200.0    59.34
   250.0    59.84     300.0    57.34     350.0    59.44     400.0    59.84
   450.0    58.14     500.0    59.48     550.0    59.78     600.0    59.48
   650.0    59.38     700.0    59.48     750.0    61.38     763.0    62.48
   770.0    61.98     776.0    62.68     850.0    65.72

X-Y MAX-MIN POINTS:
    XMIN       Y         X     YMIN      XMAX       Y         X     YMAX
   -44.0    66.21     300.0    57.34     850.0    65.72     -23.0    72.42
```

```
SUBAREA BREAKPOINTS (NSA =  3):
        53.     103.

ROUGHNESS COEFFICIENTS (NSA =  3):
        .200     .110     .200

WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD. EXT. - BRIDGE OVER LAKE BOSSE FLOODWAY PLAIN
        BRIDGE HYDRAULICS REPORT
        10, 25, 50 & 100 YR WATER SURFACE PROFILE          S.C.     7-15-91
           *** RUN DATE & TIME: 07-15-91  16:08

*** START PROCESSING CROSS SECTION - "53+25"
  XS    53+25675,,,-.0055
  *          STA.53+00 BL #1

*** FINISH PROCESSING CROSS SECTION - "53+25"
*** NO ROUGHNESS DATA INPUT, WILL PROPAGATE FROM PREVIOUS CROSS SECTION.
*** CROSS SECTION "53+25" WRITTEN TO DISK, RECORD NO. = 11

--- DATA SUMMARY FOR SECID "53+25" AT SRD =     675.  ERR-CODE =       0

     SKEW      IHFNO     VSLOPE        EK        CK
       .0         0.     -.0055       .50       .00

X-Y COORDINATE PAIRS  (NGP =  27):
      X        Y        X        Y        X        Y        X        Y
   -44.0    66.08    -23.0    72.28    -14.0    72.28       .0    67.07
    50.0    59.67     53.0    59.49     60.0    59.01     83.0    57.51
    90.0    57.41    103.0    61.01    150.0    59.21    200.0    59.21
   250.0    59.71    300.0    57.21    350.0    59.31    400.0    59.71
   450.0    58.01    500.0    59.35    550.0    59.65    600.0    59.35
   650.0    59.25    700.0    59.35    750.0    61.25    763.0    62.35
   770.0    61.85    776.0    62.55    850.0    65.59

 X-Y MAX-MIN POINTS:
    XMIN        Y        X     YMIN     XMAX        Y        X     YMAX
   -44.0    66.08    300.0    57.21    850.0    65.59    -23.0    72.28

SUBAREA BREAKPOINTS (NSA =  3):
        53.     103.

ROUGHNESS COEFFICIENTS (NSA =  3):
        .200     .110     .200

WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD. EXT. - BRIDGE OVER LAKE BOSSE FLOODWAY PLAIN
        BRIDGE HYDRAULICS REPORT
        10, 25, 50 & 100 YR WATER SURFACE PROFILE          S.C.     7-15-91
           *** RUN DATE & TIME: 07-15-91  16:08

*** START PROCESSING CROSS SECTION - "53+00"
  XS    53+00700
  GR        -44,67.22 -31,71.82 -23,71.92 0,64.73 37,60.93 39,59.86 41,57.83
  GR        60,57.83 70,58.43 100,59.53 150,59.93 200,60.13 250,60.13 327,59.83
```

```
GR          550,54.87 575,59.86 600,59.67 650,58.97 700,59.87 750,61.17
GR          792,62.47 797,61.27 801,62.17 810,63.07 880,66
SA          37,100

** FINISH PROCESSING CROSS SECTION - "53+00"
*** CROSS SECTION "53+00" WRITTEN TO DISK, RECORD NO. = 12

-- DATA SUMMARY FOR SECID "53+00" AT SRD =     700.  ERR-CODE =       0

    SKEW      IHFNO     VSLOPE        EK        CK
      .0         0.     -.0055       .50       .00

-Y COORDINATE PAIRS   (NGP =  25):
      X         Y         X         Y         X         Y         X         Y
   -44.0     67.22     -31.0     71.82     -23.0     71.92        .0     64.73
    37.0     60.93      39.0     59.86      41.0     57.83      60.0     57.83
    70.0     58.43     100.0     59.53     150.0     59.93     200.0     60.13
   250.0     60.13     327.0     59.83     550.0     54.87     575.0     59.86
   600.0     59.67     650.0     58.97     700.0     59.87     750.0     61.17
   792.0     62.47     797.0     61.27     801.0     62.17     810.0     63.07
   880.0     66.00

X-Y MAX-MIN POINTS:
    XMIN         Y         X      YMIN      XMAX         Y         X      YMAX
   -44.0     67.22     550.0     54.87     880.0     66.00     -23.0     71.92

SUBAREA BREAKPOINTS (NSA =  3):
        37.     100.

OUGHNESS COEFFICIENTS (NSA =  3):
       .200      .110      .200
1
SPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD. EXT. - BRIDGE OVER LAKE BOSSE FLOODWAY PLAIN
        BRIDGE HYDRAULICS REPORT
        10, 25, 50 & 100 YR WATER SURFACE PROFILE          S.C.     7-15-91
           *** RUN DATE & TIME: 07-15-91  16:08

*** START PROCESSING CROSS SECTION - "52+50"
 XS   52+50750,,,,.0085

** FINISH PROCESSING CROSS SECTION - "52+50"
** NO ROUGHNESS DATA INPUT, WILL PROPAGATE FROM PREVIOUS CROSS SECTION.
*** CROSS SECTION "52+50" WRITTEN TO DISK, RECORD NO. = 13

-- DATA SUMMARY FOR SECID "52+50" AT SRD =     750.  ERR-CODE =       0

    SKEW      IHFNO     VSLOPE        EK        CK
      .0         0.      .0085       .50       .00

-Y COORDINATE PAIRS   (NGP =  25):
      X         Y         X         Y         X         Y         X         Y
   -44.0     67.65     -31.0     72.25     -23.0     72.35        .0     65.16
    37.0     61.35      39.0     60.28      41.0     58.26      60.0     58.26
    70.0     58.85     100.0     59.95     150.0     60.35     200.0     60.56
   250.0     60.56     327.0     60.26     550.0     55.29     575.0     60.28
   600.0     60.09     650.0     59.40     700.0     60.29     750.0     61.59
   792.0     62.90     797.0     61.69     801.0     62.59     810.0     63.49
```

```
    880.0    66.43

 X-Y MAX-MIN POINTS:
     XMIN        Y          X     YMIN       XMAX        Y          X     YMAX
    -44.0    67.65      550.0    55.29      880.0    66.43      -23.0    72.35

SUBAREA BREAKPOINTS (NSA =  3):
          37.     100.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .200     .110     .200

WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD. EXT. - BRIDGE OVER LAKE BOSSE FLOODWAY PLAIN
        BRIDGE HYDRAULICS REPORT
        10, 25, 50 & 100 YR WATER SURFACE PROFILE          S.C.     7-15-91
           *** RUN DATE & TIME: 07-15-91  16:08

*** START PROCESSING CROSS SECTION - "52+25"
  XS   52+25775,,,,.014

*** FINISH PROCESSING CROSS SECTION - "52+25"
*** NO ROUGHNESS DATA INPUT, WILL PROPAGATE FROM PREVIOUS CROSS SECTION.
*** CROSS SECTION "52+25" WRITTEN TO DISK, RECORD NO. = 14

--- DATA SUMMARY FOR SECID "52+25" AT SRD =     775.  ERR-CODE =       0

     SKEW      IHFNO     VSLOPE        EK         CK
       .0         0.      .0140       .50        .00

X-Y COORDINATE PAIRS  (NGP =  25):
      X         Y          X         Y          X         Y          X         Y
    -44.0     68.00      -31.0     72.60      -23.0     72.69        .0     65.51
     37.0     61.70       39.0     60.63       41.0     58.60      60.0     58.60
     70.0     59.20      100.0     60.30      150.0     60.70     200.0     60.90
    250.0     60.90      327.0     60.60      550.0     55.64     575.0     60.63
    600.0     60.44      650.0     59.74      700.0     60.64     750.0     61.94
    792.0     63.24      797.0     62.04      801.0     62.94     810.0     63.84
    880.0     66.78

 X-Y MAX-MIN POINTS:
     XMIN        Y          X     YMIN       XMAX        Y          X     YMAX
    -44.0    68.00      550.0    55.64      880.0    66.78      -23.0    72.69

SUBAREA BREAKPOINTS (NSA =  3):
          37.     100.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .200     .110     .200

WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD. EXT. - BRIDGE OVER LAKE BOSSE FLOODWAY PLAIN
        BRIDGE HYDRAULICS REPORT
        10, 25, 50 & 100 YR WATER SURFACE PROFILE          S.C.     7-15-91
           *** RUN DATE & TIME: 07-15-91  16:08
```

```
*** START PROCESSING CROSS SECTION - "52+00"
 XS    52+00800
 GR          -37,70.47 -31,71.66 -23,71.66 0,64.51 10,62.61 36,60.61 37.5,60.16
 GR          40,59.31 50,58.31 68,59.51 78,60.16 82,60.13 100,59.61 150,59.51
 GR          200,60.11 300,59.96 350,59.66 400,59.96 450,60.26 500,58.86
 GR          550,59.96 600,58.46 650,59.66 700,60.88 750,59.86 758,61.46
 GR          765,59.36 773,62.46 870,66
 SA          36,82

*** FINISH PROCESSING CROSS SECTION - "52+00"
*** CROSS SECTION "52+00" WRITTEN TO DISK, RECORD NO. = 15

--- DATA SUMMARY FOR SECID "52+00" AT SRD =     800.  ERR-CODE =       0

     SKEW      IHFNO     VSLOPE        EK        CK
       .0         0.      .0140       .50       .00

X-Y COORDINATE PAIRS  (NGP =  29):
      X         Y         X         Y         X         Y         X         Y
   -37.0     70.47     -31.0     71.66     -23.0     71.66        .0     64.51
    10.0     62.61      36.0     60.61      37.5     60.16      40.0     59.31
    50.0     58.31      68.0     59.51      78.0     60.16      82.0     60.13
   100.0     59.61     150.0     59.51     200.0     60.11     300.0     59.96
   350.0     59.66     400.0     59.96     450.0     60.26     500.0     58.86
   550.0     59.96     600.0     58.46     650.0     59.66     700.0     60.88
   750.0     59.86     758.0     61.46     765.0     59.36     773.0     62.46
   870.0     66.00

X-Y MAX-MIN POINTS:
    XMIN         Y         X      YMIN      XMAX         Y         X      YMAX
   -37.0     70.47      50.0     58.31     870.0     66.00     -31.0     71.66

SUBAREA BREAKPOINTS (NSA =  3):
        36.      82.

ROUGHNESS COEFFICIENTS (NSA =  3):
       .200     .110     .200

WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
9060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD. EXT. - BRIDGE OVER LAKE BOSSE FLOODWAY PLAIN
        BRIDGE HYDRAULICS REPORT
        10, 25, 50 & 100 YR WATER SURFACE PROFILE          S.C.     7-15-91
           *** RUN DATE & TIME: 07-15-91  16:08

*** START PROCESSING CROSS SECTION - "51+50"
 XS    51+50850,,,,.015

*** FINISH PROCESSING CROSS SECTION - "51+50"
*** NO ROUGHNESS DATA INPUT, WILL PROPAGATE FROM PREVIOUS CROSS SECTION.
*** CROSS SECTION "51+50" WRITTEN TO DISK, RECORD NO. = 16

--- DATA SUMMARY FOR SECID "51+50" AT SRD =     850.  ERR-CODE =       0

     SKEW      IHFNO     VSLOPE        EK        CK
       .0         0.      .0150       .50       .00

X-Y COORDINATE PAIRS  (NGP =  29):
      X         Y         X         Y         X         Y         X         Y
```

```
    -37.0    71.22      -31.0    72.41      -23.0    72.41        .0    65.26
     10.0    63.36       36.0    61.36       37.5    60.91       40.0    60.06
     50.0    59.06       68.0    60.26       78.0    60.91       82.0    60.88
    100.0    60.36      150.0    60.26      200.0    60.86      300.0    60.71
    350.0    60.41      400.0    60.71      450.0    61.01      500.0    59.61
    550.0    60.71      600.0    59.21      650.0    60.41      700.0    61.63
    750.0    60.61      758.0    62.21      765.0    60.11      773.0    63.21
    870.0    66.75

 X-Y MAX-MIN POINTS:
    XMIN        Y          X     YMIN       XMAX        Y          X     YMAX
    -37.0    71.22       50.0    59.06      870.0    66.75      -31.0    72.41

SUBAREA BREAKPOINTS (NSA =  3):
         36.      82.

ROUGHNESS COEFFICIENTS (NSA =  3):
        .200     .110     .200

WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD. EXT. - BRIDGE OVER LAKE BOSSE FLOODWAY PLAIN
        BRIDGE HYDRAULICS REPORT
        10, 25, 50 & 100 YR WATER SURFACE PROFILE          S.C.     7-15-91
           *** RUN DATE & TIME: 07-15-91  16:08

*** START PROCESSING CROSS SECTION - "51+00"
  XS    51+00900
  GR         -31,70.97 -24,72.17 -18,71.97 0,66.87 8,65.87 30,62.47 58,60.87
  GR         60,60.15 65,58.77 83,57.67 94,59.37 110,59.57 150,59.87 200,59.87
  GR         250,60.07 300,60.07 350,59.77 400,59.47 450,62.57 500,62.27
  GR         550,60.87 600,62.57 650,62.67 700,63.47 710,63.37 727,65.97
  GR         740,67.17
  SA         58,110

*** FINISH PROCESSING CROSS SECTION - "51+00"
*** CROSS SECTION "51+00" WRITTEN TO DISK, RECORD NO. = 17

--- DATA SUMMARY FOR SECID "51+00" AT SRD =     900.  ERR-CODE =       0

     SKEW      IHFNO     VSLOPE        EK         CK
       .0         0.      .0150       .50        .00

X-Y COORDINATE PAIRS   (NGP =  27):
       X         Y          X         Y          X         Y          X         Y
    -31.0    70.97      -24.0    72.17      -18.0    71.97        .0    66.87
      8.0    65.87       30.0    62.47       58.0    60.87       60.0    60.15
     65.0    58.77       83.0    57.67       94.0    59.37      110.0    59.57
    150.0    59.87      200.0    59.87      250.0    60.07      300.0    60.07
    350.0    59.77      400.0    59.47      450.0    62.57      500.0    62.27
    550.0    60.87      600.0    62.57      650.0    62.67      700.0    63.47
    710.0    63.37      727.0    65.97      740.0    67.17

 X-Y MAX-MIN POINTS:
    XMIN        Y          X     YMIN       XMAX        Y          X     YMAX
    -31.0    70.97       83.0    57.67      740.0    67.17      -24.0    72.17

SUBAREA BREAKPOINTS (NSA =  3):
         58.     110.
```

```
ROUGHNESS COEFFICIENTS (NSA =  3):
        .200     .110     .200

WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD. EXT. - BRIDGE OVER LAKE BOSSE FLOODWAY PLAIN
        BRIDGE HYDRAULICS REPORT
        10, 25, 50 & 100 YR WATER SURFACE PROFILE          S.C.     7-15-91
           *** RUN DATE & TIME: 07-15-91  16:08

*** START PROCESSING CROSS SECTION - "50+50"
 XS    50+50950,,,,-.005

*** FINISH PROCESSING CROSS SECTION - "50+50"
*** NO ROUGHNESS DATA INPUT, WILL PROPAGATE FROM PREVIOUS CROSS SECTION.
*** CROSS SECTION "50+50" WRITTEN TO DISK, RECORD NO. = 18

--- DATA SUMMARY FOR SECID "50+50" AT SRD =     950.  ERR-CODE =       0

     SKEW      IHFNO     VSLOPE        EK        CK
       .0         0.    -.0050       .50       .00

X-Y COORDINATE PAIRS  (NGP =  27):
      X        Y        X        Y        X        Y        X        Y
   -31.0    70.72    -24.0    71.92    -18.0    71.72       .0    66.62
     8.0    65.62     30.0    62.22     58.0    60.62     60.0    59.90
    65.0    58.52     83.0    57.42     94.0    59.12    110.0    59.32
   150.0    59.62    200.0    59.62    250.0    59.82    300.0    59.82
   350.0    59.52    400.0    59.22    450.0    62.32    500.0    62.02
   550.0    60.62    600.0    62.32    650.0    62.42    700.0    63.22
   710.0    63.12    727.0    65.72    740.0    66.92

X-Y MAX-MIN POINTS:
    XMIN        Y        X     YMIN     XMAX        Y        X     YMAX
   -31.0    70.72     83.0    57.42    740.0    66.92    -24.0    71.92

SUBAREA BREAKPOINTS (NSA =  3):
        58.     110.

ROUGHNESS COEFFICIENTS (NSA =  3):
        .200     .110     .200

WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD. EXT. - BRIDGE OVER LAKE BOSSE FLOODWAY PLAIN
        BRIDGE HYDRAULICS REPORT
        10, 25, 50 & 100 YR WATER SURFACE PROFILE          S.C.     7-15-91
           *** RUN DATE & TIME: 07-15-91  16:08

*** START PROCESSING CROSS SECTION - "50+00"
 XS    50+001000
 GR          -83,73.58 -67,72.18 -50,70.68 0,66.80 50,64.20 100,61.00 107,60.13
 GR          111,58.60 124,58.00 140,58.50 150,59.60 200,59.70 250,59.40
 GR          300,59.70 350,59.40 400,60.50 450,59.67 500,59.67 550,59.07
 GR          600,59.87 650,59.57 670,59.87 699,62.67 713,64.67 1020,66
 SA          100,150
```

```
*** FINISH PROCESSING CROSS SECTION - "50+00"
*** CROSS SECTION "50+00" WRITTEN TO DISK, RECORD NO. = 19

--- DATA SUMMARY FOR SECID "50+00" AT SRD =   1000.  ERR-CODE =      0

     SKEW      IHFNO     VSLOPE        EK        CK
       .0         0.    -.0050       .50       .00

X-Y COORDINATE PAIRS   (NGP =  25):
      X         Y         X         Y         X         Y         X         Y
   -83.0     73.58     -67.0     72.18     -50.0     70.68        .0     66.80
    50.0     64.20     100.0     61.00     107.0     60.13     111.0     58.60
   124.0     58.00     140.0     58.50     150.0     59.60     200.0     59.70
   250.0     59.40     300.0     59.70     350.0     59.40     400.0     60.50
   450.0     59.67     500.0     59.67     550.0     59.07     600.0     59.87
   650.0     59.57     670.0     59.87     699.0     62.67     713.0     64.67
  1020.0     66.00

 X-Y MAX-MIN POINTS:
    XMIN         Y         X      YMIN      XMAX         Y         X      YMAX
   -83.0     73.58     124.0     58.00    1020.0     66.00     -83.0     73.58

SUBAREA BREAKPOINTS (NSA =  3):
        100.     150.

ROUGHNESS COEFFICIENTS (NSA =  3):
        .200     .110     .200

WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD. EXT. - BRIDGE OVER LAKE BOSSE FLOODWAY PLAIN
        BRIDGE HYDRAULICS REPORT
        10, 25, 50 & 100 YR WATER SURFACE PROFILE          S.C.     7-15-91
          *** RUN DATE & TIME: 07-15-91  16:08

*** START PROCESSING CROSS SECTION - "49+50"
  XS   49+501050,,,,.0075

*** FINISH PROCESSING CROSS SECTION - "49+50"
*** NO ROUGHNESS DATA INPUT, WILL PROPAGATE FROM PREVIOUS CROSS SECTION.
*** CROSS SECTION "49+50" WRITTEN TO DISK, RECORD NO. = 20

--- DATA SUMMARY FOR SECID "49+50" AT SRD =   1050.  ERR-CODE =      0

     SKEW      IHFNO     VSLOPE        EK        CK
       .0         0.     .0075       .50       .00

X-Y COORDINATE PAIRS   (NGP =  25):
      X         Y         X         Y         X         Y         X         Y
   -83.0     73.96     -67.0     72.56     -50.0     71.06        .0     67.18
    50.0     64.57     100.0     61.38     107.0     60.51     111.0     58.97
   124.0     58.38     140.0     58.88     150.0     59.97     200.0     60.08
   250.0     59.78     300.0     60.08     350.0     59.78     400.0     60.88
   450.0     60.04     500.0     60.04     550.0     59.44     600.0     60.24
   650.0     59.94     670.0     60.24     699.0     63.04     713.0     65.04
  1020.0     66.38

 X-Y MAX-MIN POINTS:
    XMIN         Y         X      YMIN      XMAX         Y         X      YMAX
```

```
   -83.0    73.96      124.0    58.38     1020.0    66.38      -83.0    73.96

UBAREA BREAKPOINTS (NSA =  3):
        100.     150.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .200     .110     .200

SPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD. EXT. - BRIDGE OVER LAKE BOSSE FLOODWAY PLAIN
        BRIDGE HYDRAULICS REPORT
        10, 25, 50 & 100 YR WATER SURFACE PROFILE          S.C.     7-15-91
           *** RUN DATE & TIME: 07-15-91  16:08

*** START PROCESSING CROSS SECTION - "49+00"
 XS    49+001100
 GR          -130,66.0,64.44 50,62.84 90,61.94 106,64.54 120,64.24 133,60.02
 GR          142,58.84 151,58.64 163,60.74 200,61.34 250,60.74 300,61.74
 GR          350,59.65 400,59.84 450,59.64 500,59.64 550,59.34 600,60.04
 GR          650,60.19 679,60.79 695,64.19 1180,66
 SA          120,163

** FINISH PROCESSING CROSS SECTION - "49+00"
** CROSS SECTION "49+00" WRITTEN TO DISK, RECORD NO. = 21

-- DATA SUMMARY FOR SECID "49+00" AT SRD =   1100.  ERR-CODE =      0

    SKEW      IHFNO     VSLOPE        EK        CK
      .0         0.      .0075       .50       .00

-Y COORDINATE PAIRS  (NGP =  23):
      X        Y          X        Y          X        Y          X        Y
  -130.0    66.00        .0    64.44       50.0    62.84       90.0    61.94
   106.0    64.54     120.0    64.24      133.0    60.02      142.0    58.84
   151.0    58.64     163.0    60.74      200.0    61.34      250.0    60.74
   300.0    61.74     350.0    59.65      400.0    59.84      450.0    59.64
   500.0    59.64     550.0    59.34      600.0    60.04      650.0    60.19
   679.0    60.79     695.0    64.19     1180.0    66.00

X-Y MAX-MIN POINTS:
    XMIN       Y          X     YMIN       XMAX       Y          X     YMAX
  -130.0    66.00     151.0    58.64     1180.0    66.00    -130.0    66.00

SUBAREA BREAKPOINTS (NSA =  3):
        120.     163.

OUGHNESS COEFFICIENTS (NSA =  3):
         .200     .110     .200

WSPRO         FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD. EXT. - BRIDGE OVER LAKE BOSSE FLOODWAY PLAIN
        BRIDGE HYDRAULICS REPORT
        10, 25, 50 & 100 YR WATER SURFACE PROFILE          S.C.     7-15-91
           *** RUN DATE & TIME: 07-15-91  16:08

** START PROCESSING CROSS SECTION - "48+25"
```

```
XS    48+251175
GR          -200,66 -150,63.00 -130,62.00 0,60.22 50,60.42 100,61.92
GR          125,59.92 136,58.62 156,59.92 200,60.92 250,60.72 300,60.72
GR          350,60.52 400,60.22 450,59.96 500,59.96 550,59.76 600,60.16
GR          631,60.66 667,63.66 1220,66
SA          125,156
EX

*** FINISH PROCESSING CROSS SECTION - "48+25"
*** CROSS SECTION "48+25" WRITTEN TO DISK, RECORD NO. = 22

--- DATA SUMMARY FOR SECID "48+25" AT SRD =    1175.  ERR-CODE =       0

     SKEW      IHFNO     VSLOPE        EK        CK
       .0         0.     .0075       .50       .00

X-Y COORDINATE PAIRS   (NGP =  21):
       X         Y         X         Y         X         Y         X         Y
   -200.0     66.00    -150.0     63.00    -130.0     62.00        .0     60.22
     50.0     60.42     100.0     61.92     125.0     59.92     136.0     58.62
    156.0     59.92     200.0     60.92     250.0     60.72     300.0     60.72
    350.0     60.52     400.0     60.22     450.0     59.96     500.0     59.96
    550.0     59.76     600.0     60.16     631.0     60.66     667.0     63.66
   1220.0     66.00

 X-Y MAX-MIN POINTS:
     XMIN         Y         X      YMIN      XMAX         Y         X      YMAX
   -200.0     66.00     136.0     58.62    1220.0     66.00    -200.0     66.00

SUBAREA BREAKPOINTS (NSA =  3):
        125.     156.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .200     .110     .200

+++ BEGINNING PROFILE CALCULATIONS --   4

WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD. EXT. - BRIDGE OVER LAKE BOSSE FLOODWAY PLAIN
        BRIDGE HYDRAULICS REPORT
        10, 25, 50 & 100 YR WATER SURFACE PROFILE          S.C.     7-15-91
           *** RUN DATE & TIME: 07-15-91  16:08

 XSID:CODE    SRDL      LEW      AREA     VHD      HF      EGL     CRWS        Q     WSEL
       SRD    FLEN      REW         K    ALPH      HO      ERR      FR#      VEL

60+00:XS    ******     -230.     1077.     .00   *****    62.20    57.83     246.    62.20
         0.  ******      305.    17278.    2.79   *****  *******      .05      .23

59+00:XS       100.     -183.     1245.     .00     .02    62.22  *******     246.    62.22
       100.     100.      363.    18615.    1.94     .00      .00      .03      .20

58+50:XS        50.     -190.     1319.     .00     .01    62.23  *******     246.    62.23
       150.      50.      364.    20186.    1.90     .00      .00      .03      .19

58+25:XS        25.     -195.     1377.     .00     .00    62.23  *******     246.    62.23
       175.      25.      365.    21447.    1.87     .00      .00      .03      .18
```

```
58+00:XS        25.   -187.    1209.    .00    .00   62.24 *******    246.   62.24
      200.      25.    378.   25642.   1.34    .00     .00      .03     .20

57+50:XS        50.   -190.    1283.    .00    .00   62.24 *******    246.   62.24
      250.      50.    381.   27939.   1.34    .00     .00      .03     .19

57+00:XS        50.   -160.    1298.    .00    .00   62.25 *******    246.   62.25
      300.      50.    386.   23338.   3.16    .00     .00      .04     .19

55+00:XS       200.     33.    1368.    .00    .02   62.27 *******    246.   62.27
      500.     200.    690.   26902.   1.52    .00     .00      .03     .18

54+00:XS       100.     35.    1877.    .00    .01   62.28 *******    246.   62.28
      600.     100.    770.   28832.   1.35    .00     .00      .02     .13

53+50:XS        50.     33.    2080.    .00    .00   62.28 *******    246.   62.28
      650.      50.    773.   33777.   1.33    .00     .00      .01     .12

53+25:XS        25.     32.    2182.    .00    .00   62.28 *******    246.   62.28
      675.      25.    774.   36368.   1.33    .00     .00      .01     .11

53+00:XS        25.     24.    2459.    .00    .00   62.28 *******    246.   62.28
      700.      25.    802.   43343.   1.28    .00     .00      .01     .10

52+50:XS        50.     28.    2138.    .00    .00   62.28 *******    246.   62.28
      750.      50.    800.   34984.   1.27    .00     .00      .01     .12

52+25:XS        25.     31.    1880.    .00    .00   62.29 *******    246.   62.29
      775.      25.    798.   28678.   1.27    .00     .00      .02     .13

52+00:XS        25.     14.    1871.    .00    .00   62.29 *******    246.   62.29
      800.      25.    773.   27398.   1.26    .00     .00      .02     .13

===135 CONVEYANCE RATIO OUTSIDE OF RECOMMENDED LIMITS.
                              "51+50"      KRATIO =    .56

51+50:XS        50.     24.    1313.    .00    .01   62.30 *******    246.   62.30
      850.      50.    771.   15432.   1.32    .00     .00      .03     .19

WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
9060188            MODEL   FOR   WATER-SURFACE   PROFILE   COMPUTATIONS

      MAITLAND BLVD. EXT. - BRIDGE OVER LAKE BOSSE FLOODWAY PLAIN
      BRIDGE HYDRAULICS REPORT
      10, 25, 50 & 100 YR WATER SURFACE PROFILE          S.C.     7-15-91
         *** RUN DATE & TIME: 07-15-91   16:08

XSID:CODE    SRDL     LEW      AREA     VHD     HF      EGL     CRWS       Q     WSEL
      SRD    FLEN     REW         K    ALPH     HO      ERR      FR#     VEL

51+00:XS        50.     33.    1038.    .00    .01   62.31 *******    246.   62.31
      900.      50.    592.   15305.   1.93    .00     .00      .04     .24

50+50:XS        50.     29.    1180.    .00    .01   62.32 *******    246.   62.32
      950.      50.    601.   17585.   2.03    .00     .00      .04     .21

===135 CONVEYANCE RATIO OUTSIDE OF RECOMMENDED LIMITS.
                              "50+00"      KRATIO =   1.45

50+00:XS        50.     79.    1608.    .00    .01   62.33 *******    246.   62.33
```

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1000. | 50. | 695. | 25508. | 1.43 | .00 | .00 | .02 | .15 | |
| 49+50:XS | 50. | 85. | 1383. | .00 | .01 | 62.34 | ******* | 246. | 62.34 |
| 1050. | 50. | 692. | 20134. | 1.47 | .00 | .00 | .03 | .18 | |
| 49+00:XS | 50. | 72. | 1197. | .00 | .01 | 62.35 | ******* | 246. | 62.35 |
| 1100. | 50. | 686. | 15873. | 1.31 | .00 | .00 | .03 | .21 | |
| 48+25:XS | 75. | -137. | 1448. | .00 | .02 | 62.37 | ******* | 246. | 62.36 |
| 1175. | 75. | 651. | 17791. | 1.56 | .00 | .00 | .03 | .17 | |

WSPRO FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188 MODEL FOR WATER-SURFACE PROFILE COMPUTATIONS

MAITLAND BLVD. EXT. - BRIDGE OVER LAKE BOSSE FLOODWAY PLAIN
BRIDGE HYDRAULICS REPORT
10, 25, 50 & 100 YR WATER SURFACE PROFILE S.C. 7-15-91
*** RUN DATE & TIME: 07-15-91 16:08
FIRST USER DEFINED TABLE.

| XSID:CODE | Q | SRD | WSEL | AREA | VEL | FR# | K | XSTW |
|---|---|---|---|---|---|---|---|---|
| 60+00:XS | 246. | 0. | 62.20 | 1077. | .23 | .05 | 17278. | 505. |
| 59+00:XS | 246. | 100. | 62.22 | 1245. | .20 | .03 | 18615. | 545. |
| 58+50:XS | 246. | 150. | 62.23 | 1319. | .19 | .03 | 20186. | 553. |
| 58+25:XS | 246. | 175. | 62.23 | 1377. | .18 | .03 | 21447. | 559. |
| 58+00:XS | 246. | 200. | 62.24 | 1209. | .20 | .03 | 25642. | 565. |
| 57+50:XS | 246. | 250. | 62.24 | 1283. | .19 | .03 | 27939. | 571. |
| 57+00:XS | 246. | 300. | 62.25 | 1298. | .19 | .04 | 23338. | 546. |
| 55+00:XS | 246. | 500. | 62.27 | 1368. | .18 | .03 | 26902. | 639. |
| 54+00:XS | 246. | 600. | 62.28 | 1877. | .13 | .02 | 28832. | 722. |
| 53+50:XS | 246. | 650. | 62.28 | 2080. | .12 | .01 | 33777. | 734. |
| 53+25:XS | 246. | 675. | 62.28 | 2182. | .11 | .01 | 36368. | 740. |
| 53+00:XS | 246. | 700. | 62.28 | 2459. | .10 | .01 | 43343. | 771. |
| 52+50:XS | 246. | 750. | 62.28 | 2138. | .12 | .01 | 34984. | 749. |
| 52+25:XS | 246. | 775. | 62.29 | 1880. | .13 | .02 | 28678. | 732. |
| 52+00:XS | 246. | 800. | 62.29 | 1871. | .13 | .02 | 27398. | 758. |
| 51+50:XS | 246. | 850. | 62.30 | 1313. | .19 | .03 | 15432. | 747. |
| 51+00:XS | 246. | 900. | 62.31 | 1038. | .24 | .04 | 15305. | 512. |
| 50+50:XS | 246. | 950. | 62.32 | 1180. | .21 | .04 | 17585. | 571. |
| 50+00:XS | 246. | 1000. | 62.33 | 1608. | .15 | .02 | 25508. | 616. |
| 49+50:XS | 246. | 1050. | 62.34 | 1383. | .18 | .03 | 20134. | 607. |
| 49+00:XS | 246. | 1100. | 62.35 | 1197. | .21 | .03 | 15873. | 581. |
| 48+25:XS | 246. | 1175. | 62.36 | 1448. | .17 | .03 | 17791. | 789. |

WSPRO FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188 MODEL FOR WATER-SURFACE PROFILE COMPUTATIONS

MAITLAND BLVD. EXT. - BRIDGE OVER LAKE BOSSE FLOODWAY PLAIN
BRIDGE HYDRAULICS REPORT
10, 25, 50 & 100 YR WATER SURFACE PROFILE S.C. 7-15-91
*** RUN DATE & TIME: 07-15-91 16:08

| XSID:CODE<br>SRD | SRDL<br>FLEN | LEW<br>REW | AREA<br>K | VHD<br>ALPH | HF<br>HO | EGL<br>ERR | CRWS<br>FR# | Q<br>VEL | WSEL |
|---|---|---|---|---|---|---|---|---|---|
| 60+00:XS | ****** | -246. | 1537. | .00 | ***** | 63.05 | 58.14 | 325. | 63.05 |
| 0. | ****** | 315. | 27370. | 2.40 | ***** | ******* | .03 | .21 | |
| 59+00:XS | 100. | -208. | 1722. | .00 | .01 | 63.07 | ******* | 325. | 63.06 |
| 100. | 100. | 370. | 29823. | 1.71 | .00 | .00 | .03 | .19 | |

```
58+50:XS      50.   -210.    1798.   .00   .01   63.07 *******    325.   63.07
      150.    50.    371.   31801.  1.68   .00     .00     .02     .18

58+25:XS      25.   -211.    1857.   .00   .00   63.07 *******    325.   63.07
      175.    25.    372.   33390.  1.66   .00     .00     .02     .18

58+00:XS      25.   -205.    1699.   .00   .00   63.08 *******    325.   63.07
      200.    25.    397.   41993.  1.37   .00     .00     .02     .19

57+50:XS      50.   -208.    1776.   .00   .00   63.08 *******    325.   63.08
      250.    50.    400.   44797.  1.38   .00     .00     .02     .18

57+00:XS      50.   -170.    1772.   .00   .00   63.08 *******    325.   63.08
      300.    50.    420.   34505.  2.70   .00     .00     .03     .18

55+00:XS     200.     17.    1915.   .00   .01   63.10 *******    325.   63.10
      500.   200.    694.   43615.  1.53   .00     .00     .02     .17

54+00:XS     100.     30.    2487.   .00   .01   63.10 *******    325.   63.10
      600.   100.    779.   44686.  1.31   .00     .00     .01     .13

53+50:XS      50.     28.    2696.   .00   .00   63.11 *******    325.   63.10
      650.    50.    786.   50672.  1.30   .00     .00     .01     .12

53+25:XS      25.     27.    2802.   .00   .00   63.11 *******    325.   63.11
      675.    25.    790.   53780.  1.30   .00     .00     .01     .12

53+00:XS      25.     16.    3107.   .00   .00   63.11 *******    325.   63.11
      700.    25.    811.   62654.  1.27   .00     .00     .01     .10

52+50:XS      50.     20.    2773.   .00   .00   63.11 *******    325.   63.11
      750.    50.    806.   52246.  1.27   .00     .00     .01     .12

52+25:XS      25.     23.    2500.   .00   .00   63.11 *******    325.   63.11
      775.    25.    803.   44433.  1.28   .00     .00     .01     .13

52+00:XS      25.      7.    2505.   .00   .00   63.11 *******    325.   63.11
      800.    25.    791.   43402.  1.24   .00     .00     .01     .13

===135 CONVEYANCE RATIO OUTSIDE OF RECOMMENDED LIMITS.
                          "51+50"      KRATIO =    .66

51+50:XS      50.     13.    1931.   .00   .00   63.12 *******    325.   63.12
      850.    50.    773.   28814.  1.26   .00     .00     .02     .17
```

```
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
060188              MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD. EXT. - BRIDGE OVER LAKE BOSSE FLOODWAY PLAIN
        BRIDGE HYDRAULICS REPORT
        10, 25, 50 & 100 YR WATER SURFACE PROFILE          S.C.     7-15-91
           *** RUN DATE & TIME: 07-15-91  16:08

XSID:CODE    SRDL     LEW      AREA   VHD    HF     EGL    CRWS       Q    WSEL
      SRD    FLEN     REW         K  ALPH    HO     ERR     FR#     VEL

51+00:XS      50.     26.    1527.   .00   .01   63.12 *******    325.   63.12
      900.    50.    678.   24216.  2.03   .00     .00     .03     .21
```

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 50+50:XS | 50. | 24. | 1698. | .00 | .01 | 63.13 | ******* | 325. | 63.13 |
| 950. | 50. | 710. | 28031. | 1.97 | .00 | .00 | .03 | .19 | |
| 50+00:XS | 50. | 67. | 2114. | .00 | .00 | 63.14 | ******* | 325. | 63.14 |
| 1000. | 50. | 702. | 39164. | 1.38 | .00 | .00 | .02 | .15 | |
| 49+50:XS | 50. | 72. | 1880. | .00 | .00 | 63.14 | ******* | 325. | 63.14 |
| 1050. | 50. | 700. | 32574. | 1.40 | .00 | .00 | .02 | .17 | |
| 49+00:XS | 50. | 40. | 1681. | .00 | .01 | 63.15 | ******* | 325. | 63.15 |
| 1100. | 50. | 690. | 26828. | 1.24 | .00 | .00 | .02 | .19 | |
| 48+25:XS | 75. | -153. | 2084. | .00 | .01 | 63.16 | ******* | 325. | 63.16 |
| 1175. | 75. | 661. | 31270. | 1.40 | .00 | .00 | .02 | .16 | |

WSPRO FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188 MODEL FOR WATER-SURFACE PROFILE COMPUTATIONS

MAITLAND BLVD. EXT. - BRIDGE OVER LAKE BOSSE FLOODWAY PLAIN
BRIDGE HYDRAULICS REPORT
10, 25, 50 & 100 YR WATER SURFACE PROFILE S.C. 7-15-91
*** RUN DATE & TIME: 07-15-91 16:08
FIRST USER DEFINED TABLE.

| XSID:CODE | Q | SRD | WSEL | AREA | VEL | FR# | K | XSTW |
|---|---|---|---|---|---|---|---|---|
| 60+00:XS | 325. | 0. | 63.05 | 1537. | .21 | .03 | 27370. | 561. |
| 59+00:XS | 325. | 100. | 63.06 | 1722. | .19 | .03 | 29823. | 578. |
| 58+50:XS | 325. | 150. | 63.07 | 1798. | .18 | .02 | 31801. | 581. |
| 58+25:XS | 325. | 175. | 63.07 | 1857. | .18 | .02 | 33390. | 583. |
| 58+00:XS | 325. | 200. | 63.07 | 1699. | .19 | .02 | 41993. | 602. |
| 57+50:XS | 325. | 250. | 63.08 | 1776. | .18 | .02 | 44797. | 608. |
| 57+00:XS | 325. | 300. | 63.08 | 1772. | .18 | .03 | 34505. | 590. |
| 55+00:XS | 325. | 500. | 63.10 | 1915. | .17 | .02 | 43615. | 677. |
| 54+00:XS | 325. | 600. | 63.10 | 2487. | .13 | .01 | 44686. | 750. |
| 53+50:XS | 325. | 650. | 63.10 | 2696. | .12 | .01 | 50672. | 759. |
| 53+25:XS | 325. | 675. | 63.11 | 2802. | .12 | .01 | 53780. | 763. |
| 53+00:XS | 325. | 700. | 63.11 | 3107. | .10 | .01 | 62654. | 795. |
| 52+50:XS | 325. | 750. | 63.11 | 2773. | .12 | .01 | 52246. | 786. |
| 52+25:XS | 325. | 775. | 63.11 | 2500. | .13 | .01 | 44433. | 774. |
| 52+00:XS | 325. | 800. | 63.11 | 2505. | .13 | .01 | 43402. | 783. |
| 51+50:XS | 325. | 850. | 63.12 | 1931. | .17 | .02 | 28814. | 760. |
| 51+00:XS | 325. | 900. | 63.12 | 1527. | .21 | .03 | 24216. | 653. |
| 50+50:XS | 325. | 950. | 63.13 | 1698. | .19 | .03 | 28031. | 672. |
| 50+00:XS | 325. | 1000. | 63.14 | 2114. | .15 | .02 | 39164. | 636. |
| 49+50:XS | 325. | 1050. | 63.14 | 1880. | .17 | .02 | 32574. | 627. |
| 49+00:XS | 325. | 1100. | 63.15 | 1681. | .19 | .02 | 26828. | 624. |
| 48+25:XS | 325. | 1175. | 63.16 | 2084. | .16 | .02 | 31270. | 814. |

WSPRO FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188 MODEL FOR WATER-SURFACE PROFILE COMPUTATIONS

MAITLAND BLVD. EXT. - BRIDGE OVER LAKE BOSSE FLOODWAY PLAIN
BRIDGE HYDRAULICS REPORT
10, 25, 50 & 100 YR WATER SURFACE PROFILE S.C. 7-15-91
*** RUN DATE & TIME: 07-15-91 16:08

| XSID:CODE<br>SRD | SRDL<br>FLEN | LEW<br>REW | AREA<br>K | VHD<br>ALPH | HF<br>HO | EGL<br>ERR | CRWS<br>FR# | Q<br>VEL | WSEL |
|---|---|---|---|---|---|---|---|---|---|
| 60+00:XS | ****** | -253. | 1934. | .00 | ***** | 63.75 | 58.39 | 392. | 63.75 |

```
        0.  ******    320.    38076.   2.09 *****  *******      .03      .20

9+00:XS     100.   -218.     2130.    .00   .01    63.76 *******     392.    63.76
     100.   100.    377.    40977.   1.59   .00      .00      .02      .18

58+50:XS     50.   -220.     2207.    .00   .00    63.77 *******     392.    63.77
     150.    50.    378.    43223.   1.57   .00      .00      .02      .18

8+25:XS      25.   -222.     2269.    .00   .00    63.77 *******     392.    63.77
     175.    25.    379.    45031.   1.56   .00      .00      .02      .17

58+00:XS     25.   -220.     2127.    .00   .00    63.77 *******     392.    63.77
     200.    25.    413.    58150.   1.40   .00      .00      .02      .18

7+50:XS      50.   -222.     2208.    .00   .00    63.77 *******     392.    63.77
     250.    50.    416.    61366.   1.41   .00      .00      .02      .18

7+00:XS      50.   -173.     2193.    .00   .00    63.77 *******     392.    63.77
     300.    50.    454.    45561.   2.43   .00      .00      .03      .18

55+00:XS    200.      5.     2392.    .00   .01    63.79 *******     392.    63.79
     500.   200.    715.    60058.   1.55   .00      .00      .02      .16

4+00:XS     100.     25.     3010.    .00   .00    63.79 *******     392.    63.79
     600.   100.    796.    60111.   1.30   .00      .00      .01      .13

53+50:XS     50.     23.     3225.    .00   .00    63.79 *******     392.    63.79
     650.    50.    803.    66870.   1.29   .00      .00      .01      .12

3+25:XS      25.     22.     3333.    .00   .00    63.79 *******     392.    63.79
     675.    25.    806.    70363.   1.29   .00      .00      .01      .12

3+00:XS      25.      9.     3662.    .00   .00    63.79 *******     392.    63.79
     700.    25.    827.    80771.   1.27   .00      .00      .01      .11

52+50:XS     50.     13.     3318.    .00   .00    63.80 *******     392.    63.80
     750.    50.    817.    69366.   1.27   .00      .00      .01      .12

2+25:XS      25.     17.     3039.    .00   .00    63.80 *******     392.    63.80
     775.    25.    810.    60507.   1.27   .00      .00      .01      .13

52+00:XS     25.      4.     3051.    .00   .00    63.80 *******     392.    63.80
     800.    25.    810.    58964.   1.23   .00      .00      .01      .13

1+50:XS      50.      8.     2458.    .00   .00    63.80 *******     392.    63.80
     850.    50.    789.    42129.   1.24   .00      .00      .02      .16
```

```
1
SPRO            FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
060188                MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD. EXT. - BRIDGE OVER LAKE BOSSE FLOODWAY PLAIN
        BRIDGE HYDRAULICS REPORT
        10, 25, 50 & 100 YR WATER SURFACE PROFILE          S.C.     7-15-91
           *** RUN DATE & TIME: 07-15-91  16:08

 XSID:CODE    SRDL     LEW      AREA   VHD     HF      EGL     CRWS       Q     WSEL
       SRD    FLEN     REW         K  ALPH     HO      ERR      FR#     VEL

1+00:XS      50.     21.     1989.    .00   .01    63.81 *******     392.    63.81
     900.    50.    713.    35190.   1.87   .00      .00      .03      .20
```

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 50+50:XS | 50. | 20. | 2167. | .00 | .01 | 63.81 | ******* | 392. | 63.81 |
| 950. | 50. | 715. | 40068. | 1.80 | .00 | .00 | .02 | .18 | |
| 50+00:XS | 50. | 56. | 2551. | .00 | .00 | 63.82 | ******* | 392. | 63.82 |
| 1000. | 50. | 707. | 52543. | 1.35 | .00 | .00 | .02 | .15 | |
| 49+50:XS | 50. | 62. | 2310. | .00 | .00 | 63.82 | ******* | 392. | 63.82 |
| 1050. | 50. | 704. | 45006. | 1.36 | .00 | .00 | .02 | .17 | |
| 49+00:XS | 50. | 19. | 2113. | .00 | .00 | 63.82 | ******* | 392. | 63.82 |
| 1100. | 50. | 693. | 38036. | 1.22 | .00 | .00 | .02 | .19 | |
| 48+25:XS | 75. | -164. | 2641. | .00 | .01 | 63.83 | ******* | 392. | 63.83 |
| 1175. | 75. | 707. | 43894. | 1.37 | .00 | .00 | .02 | .15 | |

WSPRO FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188 MODEL FOR WATER-SURFACE PROFILE COMPUTATIONS

MAITLAND BLVD. EXT. - BRIDGE OVER LAKE BOSSE FLOODWAY PLAIN
BRIDGE HYDRAULICS REPORT
10, 25, 50 & 100 YR WATER SURFACE PROFILE S.C. 7-15-91
*** RUN DATE & TIME: 07-15-91 16:08

FIRST USER DEFINED TABLE.

| XSID:CODE | Q | SRD | WSEL | AREA | VEL | FR# | K | XSTW |
|---|---|---|---|---|---|---|---|---|
| 60+00:XS | 392. | 0. | 63.75 | 1934. | .20 | .03 | 38076. | 573. |
| 59+00:XS | 392. | 100. | 63.76 | 2130. | .18 | .02 | 40977. | 595. |
| 58+50:XS | 392. | 150. | 63.77 | 2207. | .18 | .02 | 43223. | 599. |
| 58+25:XS | 392. | 175. | 63.77 | 2269. | .17 | .02 | 45031. | 601. |
| 58+00:XS | 392. | 200. | 63.77 | 2127. | .18 | .02 | 58150. | 633. |
| 57+50:XS | 392. | 250. | 63.77 | 2208. | .18 | .02 | 61366. | 638. |
| 57+00:XS | 392. | 300. | 63.77 | 2193. | .18 | .03 | 45561. | 627. |
| 55+00:XS | 392. | 500. | 63.79 | 2392. | .16 | .02 | 60058. | 710. |
| 54+00:XS | 392. | 600. | 63.79 | 3010. | .13 | .01 | 60111. | 771. |
| 53+50:XS | 392. | 650. | 63.79 | 3225. | .12 | .01 | 66870. | 780. |
| 53+25:XS | 392. | 675. | 63.79 | 3333. | .12 | .01 | 70363. | 784. |
| 53+00:XS | 392. | 700. | 63.79 | 3662. | .11 | .01 | 80771. | 818. |
| 52+50:XS | 392. | 750. | 63.80 | 3318. | .12 | .01 | 69366. | 804. |
| 52+25:XS | 392. | 775. | 63.80 | 3039. | .13 | .01 | 60507. | 793. |
| 52+00:XS | 392. | 800. | 63.80 | 3051. | .13 | .01 | 58964. | 806. |
| 51+50:XS | 392. | 850. | 63.80 | 2458. | .16 | .02 | 42129. | 782. |
| 51+00:XS | 392. | 900. | 63.81 | 1989. | .20 | .03 | 35190. | 691. |
| 50+50:XS | 392. | 950. | 63.81 | 2167. | .18 | .02 | 40068. | 695. |
| 50+00:XS | 392. | 1000. | 63.82 | 2551. | .15 | .02 | 52543. | 651. |
| 49+50:XS | 392. | 1050. | 63.82 | 2310. | .17 | .02 | 45006. | 643. |
| 49+00:XS | 392. | 1100. | 63.82 | 2113. | .19 | .02 | 38036. | 654. |
| 48+25:XS | 392. | 1175. | 63.83 | 2641. | .15 | .02 | 43894. | 871. |

WSPRO FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188 MODEL FOR WATER-SURFACE PROFILE COMPUTATIONS

MAITLAND BLVD. EXT. - BRIDGE OVER LAKE BOSSE FLOODWAY PLAIN
BRIDGE HYDRAULICS REPORT
10, 25, 50 & 100 YR WATER SURFACE PROFILE S.C. 7-15-91
*** RUN DATE & TIME: 07-15-91 16:08

| XSID:CODE | SRDL | LEW | AREA | VHD | HF | EGL | CRWS | Q | WSEL |
|---|---|---|---|---|---|---|---|---|---|
| SRD | FLEN | REW | K | ALPH | HO | ERR | FR# | VEL | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 60+00:XS | ****** | -259. | 2309. | .00 | ***** | 64.40 | 58.62 | 459. | 64.40 |
| 0. | ****** | 320. | 49571. | 1.90 | ***** | ******* | .02 | .20 | |
| 59+00:XS | 100. | -228. | 2521. | .00 | .01 | 64.41 | ******* | 459. | 64.41 |
| 100. | 100. | 384. | 52740. | 1.51 | .00 | .00 | .02 | .18 | |
| 58+50:XS | 50. | -230. | 2600. | .00 | .00 | 64.41 | ******* | 459. | 64.41 |
| 150. | 50. | 385. | 55233. | 1.50 | .00 | .00 | .02 | .18 | |
| 58+25:XS | 25. | -232. | 2663. | .00 | .00 | 64.41 | ******* | 459. | 64.41 |
| 175. | 25. | 386. | 57239. | 1.49 | .00 | .00 | .02 | .17 | |
| 58+00:XS | 25. | -233. | 2546. | .00 | .00 | 64.42 | ******* | 459. | 64.42 |
| 200. | 25. | 428. | 75289. | 1.43 | .00 | .00 | .02 | .18 | |
| 57+50:XS | 50. | -236. | 2630. | .00 | .00 | 64.42 | ******* | 459. | 64.42 |
| 250. | 50. | 431. | 78885. | 1.43 | .00 | .00 | .02 | .17 | |
| 57+00:XS | 50. | -175. | 2609. | .00 | .00 | 64.42 | ******* | 459. | 64.42 |
| 300. | 50. | 486. | 57354. | 2.25 | .00 | .00 | .02 | .18 | |
| 55+00:XS | 200. | -2. | 2860. | .00 | .01 | 64.43 | ******* | 459. | 64.43 |
| 500. | 200. | 739. | 77485. | 1.56 | .00 | .00 | .02 | .16 | |
| 54+00:XS | 100. | 21. | 3513. | .00 | .00 | 64.43 | ******* | 459. | 64.43 |
| 600. | 100. | 812. | 76280. | 1.29 | .00 | .00 | .01 | .13 | |
| 53+50:XS | 50. | 19. | 3733. | .00 | .00 | 64.44 | ******* | 459. | 64.44 |
| 650. | 50. | 819. | 83748. | 1.28 | .00 | .00 | .01 | .12 | |
| 53+25:XS | 25. | 18. | 3844. | .00 | .00 | 64.44 | ******* | 459. | 64.44 |
| 675. | 25. | 822. | 87593. | 1.28 | .00 | .00 | .01 | .12 | |
| 53+00:XS | 25. | 3. | 4194. | .00 | .00 | 64.44 | ******* | 459. | 64.44 |
| 700. | 25. | 843. | 99507. | 1.27 | .00 | .00 | .01 | .11 | |
| 52+50:XS | 50. | 7. | 3841. | .00 | .00 | 64.44 | ******* | 459. | 64.44 |
| 750. | 50. | 833. | 86959. | 1.27 | .00 | .00 | .01 | .12 | |
| 52+25:XS | 25. | 10. | 3555. | .00 | .00 | 64.44 | ******* | 459. | 64.44 |
| 775. | 25. | 824. | 77181. | 1.27 | .00 | .00 | .01 | .13 | |
| 52+00:XS | 25. | 0. | 3575. | .00 | .00 | 64.44 | ******* | 459. | 64.44 |
| 800. | 25. | 827. | 75349. | 1.23 | .00 | .00 | .01 | .13 | |
| 51+50:XS | 50. | 4. | 2966. | .00 | .00 | 64.44 | ******* | 459. | 64.44 |
| 850. | 50. | 807. | 56443. | 1.24 | .00 | .00 | .02 | .15 | |

SPRO FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
060188 MODEL FOR WATER-SURFACE PROFILE COMPUTATIONS

MAITLAND BLVD. EXT. - BRIDGE OVER LAKE BOSSE FLOODWAY PLAIN
BRIDGE HYDRAULICS REPORT
10, 25, 50 & 100 YR WATER SURFACE PROFILE S.C. 7-15-91
*** RUN DATE & TIME: 07-15-91 16:08

| XSID:CODE | SRDL | LEW | AREA | VHD | HF | EGL | CRWS | Q | WSEL |
|---|---|---|---|---|---|---|---|---|---|
| SRD | FLEN | REW | K | ALPH | HO | ERR | FR# | VEL | |
| 51+00:XS | 50. | 17. | 2435. | .00 | .00 | 64.45 | ******* | 459. | 64.45 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 900. | 50. | 717. | 47897. | 1.72 | .00 | .00 | .02 | .19 | |
| 50+50:XS | 50. | 16. | 2613. | .00 | .00 | 64.45 | ******* | 459. | 64.45 |
| 950. | 50. | 719. | 53403. | 1.67 | .00 | .00 | .02 | .18 | |
| 50+00:XS | 50. | 45. | 2971. | .00 | .00 | 64.45 | ******* | 459. | 64.45 |
| 1000. | 50. | 711. | 66625. | 1.33 | .00 | .00 | .01 | .15 | |
| 49+50:XS | 50. | 52. | 2725. | .00 | .00 | 64.46 | ******* | 459. | 64.46 |
| 1050. | 50. | 709. | 58236. | 1.34 | .00 | .00 | .02 | .17 | |
| 49+00:XS | 50. | -2. | 2549. | .00 | .00 | 64.46 | ******* | 459. | 64.46 |
| 1100. | 50. | 767. | 47092. | 1.28 | .00 | .00 | .02 | .18 | |
| 48+25:XS | 75. | -174. | 3246. | .00 | .01 | 64.47 | ******* | 459. | 64.47 |
| 1175. | 75. | 858. | 55200. | 1.43 | .00 | .00 | .02 | .14 | |

WSPRO FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188 MODEL FOR WATER-SURFACE PROFILE COMPUTATIONS

MAITLAND BLVD. EXT. - BRIDGE OVER LAKE BOSSE FLOODWAY PLAIN
BRIDGE HYDRAULICS REPORT
10, 25, 50 & 100 YR WATER SURFACE PROFILE S.C. 7-15-91
*** RUN DATE & TIME: 07-15-91 16:08

FIRST USER DEFINED TABLE.

| XSID:CODE | Q | SRD | WSEL | AREA | VEL | FR# | K | XSTW |
|---|---|---|---|---|---|---|---|---|
| 60+00:XS | 459. | 0. | 64.40 | 2309. | .20 | .02 | 49571. | 579. |
| 59+00:XS | 459. | 100. | 64.41 | 2521. | .18 | .02 | 52740. | 612. |
| 58+50:XS | 459. | 150. | 64.41 | 2600. | .18 | .02 | 55233. | 615. |
| 58+25:XS | 459. | 175. | 64.41 | 2663. | .17 | .02 | 57239. | 618. |
| 58+00:XS | 459. | 200. | 64.42 | 2546. | .18 | .02 | 75289. | 661. |
| 57+50:XS | 459. | 250. | 64.42 | 2630. | .17 | .02 | 78885. | 667. |
| 57+00:XS | 459. | 300. | 64.42 | 2609. | .18 | .02 | 57354. | 662. |
| 55+00:XS | 459. | 500. | 64.43 | 2860. | .16 | .02 | 77485. | 742. |
| 54+00:XS | 459. | 600. | 64.43 | 3510. | .13 | .01 | 76280. | 791. |
| 53+50:XS | 459. | 650. | 64.44 | 3733. | .12 | .01 | 83748. | 800. |
| 53+25:XS | 459. | 675. | 64.44 | 3844. | .12 | .01 | 87593. | 804. |
| 53+00:XS | 459. | 700. | 64.44 | 4194. | .11 | .01 | 99507. | 840. |
| 52+50:XS | 459. | 750. | 64.44 | 3841. | .12 | .01 | 86959. | 826. |
| 52+25:XS | 459. | 775. | 64.44 | 3555. | .13 | .01 | 77181. | 814. |
| 52+00:XS | 459. | 800. | 64.44 | 3575. | .13 | .01 | 75349. | 827. |
| 51+50:XS | 459. | 850. | 64.44 | 2966. | .15 | .02 | 56443. | 802. |
| 51+00:XS | 459. | 900. | 64.45 | 2435. | .19 | .02 | 47897. | 700. |
| 50+50:XS | 459. | 950. | 64.45 | 2613. | .18 | .02 | 53403. | 703. |
| 50+00:XS | 459. | 1000. | 64.45 | 2971. | .15 | .01 | 66625. | 666. |
| 49+50:XS | 459. | 1050. | 64.46 | 2725. | .17 | .02 | 58236. | 657. |
| 49+00:XS | 459. | 1100. | 64.46 | 2549. | .18 | .02 | 47092. | 765. |
| 48+25:XS | 459. | 1175. | 64.47 | 3246. | .14 | .02 | 55200. | 1032. |

ER

NORMAL END OF WSPRO EXECUTION.

```
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

           *** RUN DATE & TIME: 12-01-94  10:55

  T1        MAITLAND BLVD. EXT. - 700' BRIDGE OVER LAKE BOSSE FLOODWAY PLAIN

  T2        BRIDGE HYDRAULICS REPORT (file name BRG700.10)

  T3        10, 100 YR WATER SURFACE PROFILE

  Q         246,459

*** Q-DATA FOR SEC-ID, ISEQ =            1
  WS        62.3,64.4

  J3        5,6,3,17,13,14,16,28

  *         DOWNSTREAM - STA 60+18.55, BL #2


WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD. EXT. - 700' BRIDGE OVER LAKE BOSSE FLOODWAY PLAIN
        BRIDGE HYDRAULICS REPORT (file name BRG700.10)
        10, 100 YR WATER SURFACE PROFILE
           *** RUN DATE & TIME: 12-01-94  10:55

*** START PROCESSING CROSS SECTION - "60+00"
  XS   60+000

  GR        -275,66 -240,62.43 -214,61.83 -193,62.73 -150,61.43, -100,60.73

  GR        -50,59.73, 0,59.43 58,59.13 63,55.43 75,56.23 83,57.43 90,59.23

  GR        100,59.93 150,59.93 200,59.73 250,60.13 300,61.73 320,63.53

  N         0.2,0.11,0.2

  SA        58,90


*** FINISH PROCESSING CROSS SECTION - "60+00"
*** CROSS SECTION "60+00" WRITTEN TO DISK, RECORD NO. =  1

--- DATA SUMMARY FOR SECID "60+00" AT SRD =      0.  ERR-CODE =      0

     SKEW      IHFNO     VSLOPE        EK        CK
       .0         0. *********       .50       .00

X-Y COORDINATE PAIRS  (NGP =  19):
       X       Y          X       Y          X       Y          X       Y
   -275.0   66.00     -240.0   62.43     -214.0   61.83     -193.0   62.73
   -150.0   61.43     -100.0   60.73      -50.0   59.73         .0   59.43
     58.0   59.13       63.0   55.43       75.0   56.23       83.0   57.43
     90.0   59.23      100.0   59.93      150.0   59.93      200.0   59.73
    250.0   60.13      300.0   61.73      320.0   63.53

X-Y MAX-MIN POINTS:
    XMIN       Y          X    YMIN       XMAX       Y          X    YMAX
   -275.0   66.00       63.0   55.43      320.0   63.53     -275.0   66.00
```

```
 ... COEFFICIENTS (NSA =  3):
        .200     .110     .200
1
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD. EXT. - 700' BRIDGE OVER LAKE BOSSE FLOODWAY PLAIN
        BRIDGE HYDRAULICS REPORT (file name BRG700.10)
        10, 100 YR WATER SURFACE PROFILE
           *** RUN DATE & TIME: 12-01-94  10:55

*** START PROCESSING CROSS SECTION - "59+00"
  XS   59+00100

  GR        -283,66.33 -263,70.63 -252,70.93 -238,65.06 -200,62.56 -150,61.58

  GR        -107,60.78 -79,60.28 -50,59.78 0,60.18 50,59.48 63,58.58 68,57.08

  GR        75,57.98 85,57.48 90,58.88 100,59.18 150,59.28 200,59.38 250,59.5

  GR        300,59.98 350,60.78 370,63.08 400,66

  SA        63,90


*** FINISH PROCESSING CROSS SECTION - "59+00"
*** CROSS SECTION "59+00" WRITTEN TO DISK, RECORD NO. =  2

--- DATA SUMMARY FOR SECID "59+00" AT SRD =    100.  ERR-CODE =      0

     SKEW      IHFNO    VSLOPE        EK        CK
       .0         0. *********       .50       .00

X-Y COORDINATE PAIRS  (NGP =  24):
       X       Y          X       Y          X       Y          X       Y
   -283.0   66.33    -263.0   70.63    -252.0   70.93    -238.0   65.06
   -200.0   62.56    -150.0   61.58    -107.0   60.78     -79.0   60.28
    -50.0   59.78        .0   60.18      50.0   59.48      63.0   58.58
     68.0   57.08      75.0   57.98      85.0   57.48      90.0   58.88
    100.0   59.18     150.0   59.28     200.0   59.38     250.0   59.58
    300.0   59.98     350.0   60.78     370.0   63.08     400.0   66.00

 X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
   -283.0   66.33      68.0   57.08     400.0   66.00    -252.0   70.93

 SUBAREA BREAKPOINTS (NSA =  3):
         63.     90.

 ROUGHNESS COEFFICIENTS (NSA =  3):
        .200     .110     .200

 WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
 P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD. EXT. - 700' BRIDGE OVER LAKE BOSSE FLOODWAY PLAIN
        BRIDGE HYDRAULICS REPORT (file name BRG700.10)
        10, 100 YR WATER SURFACE PROFILE
           *** RUN DATE & TIME: 12-01-94  10:55

  *** START PROCESSING CROSS SECTION - "58+50"
   XS   58+50150,,,,-.0025
```

*** NO ROUGHNESS DATA INPUT, WILL PROPAGATE FROM PREVIOUS CROSS SECTION.
*** CROSS SECTION "58+50" WRITTEN TO DISK, RECORD NO. = 3

--- DATA SUMMARY FOR SECID "58+50" AT SRD = 150. ERR-CODE = 0

| SKEW | IHFNO | VSLOPE | EK | CK |
|---|---|---|---|---|
| .0 | 0. | -.0025 | .50 | .00 |

X-Y COORDINATE PAIRS (NGP = 24):

| X | Y | X | Y | X | Y | X | Y |
|---|---|---|---|---|---|---|---|
| -283.0 | 66.21 | -263.0 | 70.50 | -252.0 | 70.81 | -238.0 | 64.93 |
| -200.0 | 62.44 | -150.0 | 61.46 | -107.0 | 60.65 | -79.0 | 60.15 |
| -50.0 | 59.65 | .0 | 60.06 | 50.0 | 59.35 | 63.0 | 58.46 |
| 68.0 | 56.96 | 75.0 | 57.85 | 85.0 | 57.35 | 90.0 | 58.76 |
| 100.0 | 59.06 | 150.0 | 59.15 | 200.0 | 59.26 | 250.0 | 59.46 |
| 300.0 | 59.85 | 350.0 | 60.65 | 370.0 | 62.96 | 400.0 | 65.88 |

X-Y MAX-MIN POINTS:

| XMIN | Y | X | YMIN | XMAX | Y | X | YMAX |
|---|---|---|---|---|---|---|---|
| -283.0 | 66.21 | 68.0 | 56.96 | 400.0 | 65.88 | -252.0 | 70.81 |

SUBAREA BREAKPOINTS (NSA = 3):
63. 90.

ROUGHNESS COEFFICIENTS (NSA = 3):
.200 .110 .200

1
WSPRO FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188 MODEL FOR WATER-SURFACE PROFILE COMPUTATIONS

MAITLAND BLVD. EXT. - 700' BRIDGE OVER LAKE BOSSE FLOODWAY PLAIN
BRIDGE HYDRAULICS REPORT (file name BRG700.10)
10, 100 YR WATER SURFACE PROFILE
*** RUN DATE & TIME: 12-01-94 10:55

*** START PROCESSING CROSS SECTION - "58+25"
XS 58+25175,,,,-.004

*** FINISH PROCESSING CROSS SECTION - "58+25"
*** NO ROUGHNESS DATA INPUT, WILL PROPAGATE FROM PREVIOUS CROSS SECTION.
*** CROSS SECTION "58+25" WRITTEN TO DISK, RECORD NO. = 4

--- DATA SUMMARY FOR SECID "58+25" AT SRD = 175. ERR-CODE = 0

| SKEW | IHFNO | VSLOPE | EK | CK |
|---|---|---|---|---|
| .0 | 0. | -.0040 | .50 | .00 |

X-Y COORDINATE PAIRS (NGP = 24):

| X | Y | X | Y | X | Y | X | Y |
|---|---|---|---|---|---|---|---|
| -283.0 | 66.11 | -263.0 | 70.40 | -252.0 | 70.71 | -238.0 | 64.83 |
| -200.0 | 62.34 | -150.0 | 61.36 | -107.0 | 60.56 | -79.0 | 60.06 |
| -50.0 | 59.56 | .0 | 59.96 | 50.0 | 59.26 | 63.0 | 58.36 |
| 68.0 | 56.86 | 75.0 | 57.76 | 85.0 | 57.26 | 90.0 | 58.66 |
| 100.0 | 58.96 | 150.0 | 59.06 | 200.0 | 59.16 | 250.0 | 59.36 |
| 300.0 | 59.76 | 350.0 | 60.56 | 370.0 | 62.86 | 400.0 | 65.78 |

X-Y MAX-MIN POINTS:

| XMIN | Y | X | YMIN | XMAX | Y | X | YMAX |
|---|---|---|---|---|---|---|---|
| -283.0 | 66.11 | 68.0 | 56.86 | 400.0 | 65.78 | -252.0 | 70.71 |

SUBAREA BREAKPOINTS (NSA = 3):
63. 90.

```
1
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD. EXT. - 700' BRIDGE OVER LAKE BOSSE FLOODWAY PLAIN
        BRIDGE HYDRAULICS REPORT (file name BRG700.10)
        10, 100 YR WATER SURFACE PROFILE
           *** RUN DATE & TIME: 12-01-94  10:55

*** START PROCESSING CROSS SECTION - "58+00"
  XS   58+00200

  GR        -270,68.44 -240,64.74 -200,62.84 -150,60.44 -100,59.94 -50,59.74

  GR        0,59.74 50,59.34 63,59.04 80,59.24 91,59.34 120,59.44 150,59.64

  GR        200,59.44 250,60.34 300,61.04 350,61.04 465,66

  SA        -105,215


*** FINISH PROCESSING CROSS SECTION - "58+00"
*** CROSS SECTION "58+00" WRITTEN TO DISK, RECORD NO. =  5

--- DATA SUMMARY FOR SECID "58+00" AT SRD =    200.  ERR-CODE =      0

     SKEW      IHFNO     VSLOPE        EK        CK
       .0         0.    -.0040       .50       .00

X-Y COORDINATE PAIRS  (NGP =  18):
       X       Y          X       Y          X       Y          X       Y
   -270.0   68.44     -240.0   64.74     -200.0   62.84     -150.0   60.44
   -100.0   59.94      -50.0   59.74         .0   59.74       50.0   59.34
     63.0   59.04       80.0   59.24       91.0   59.34      120.0   59.44
    150.0   59.64      200.0   59.44      250.0   60.34      300.0   61.04
    350.0   61.04      465.0   66.00

 X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
   -270.0   68.44       63.0   59.04     465.0   66.00    -270.0   68.44

SUBAREA BREAKPOINTS (NSA =  3):
       -105.    215.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .200    .110    .200
1
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD. EXT. - 700' BRIDGE OVER LAKE BOSSE FLOODWAY PLAIN
        BRIDGE HYDRAULICS REPORT (file name BRG700.10)
        10, 100 YR WATER SURFACE PROFILE
           *** RUN DATE & TIME: 12-01-94  10:55

*** START PROCESSING CROSS SECTION - "57+50"
  XS   57+50250,,,,-.0025


*** FINISH PROCESSING CROSS SECTION - "57+50"
*** NO ROUGHNESS DATA INPUT, WILL PROPAGATE FROM PREVIOUS CROSS SECTION.
*** CROSS SECTION "57+50" WRITTEN TO DISK, RECORD NO. =  6
```

```
      .0          0.     -.0025        .50        .00

 X-Y COORDINATE PAIRS  (NGP =  18):
       X       Y          X       Y          X       Y          X       Y
   -270.0   68.32    -240.0   64.61    -200.0   62.72    -150.0   60.31
   -100.0   59.81     -50.0   59.62        .0   59.62      50.0   59.22
     63.0   58.92      80.0   59.12      91.0   59.22     120.0   59.31
    150.0   59.51     200.0   59.31     250.0   60.22     300.0   60.92
    350.0   60.92     465.0   65.88

 X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
   -270.0   68.32      63.0   58.92     465.0   65.88    -270.0   68.32

SUBAREA BREAKPOINTS (NSA =  3):
       -105.    215.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .200    .110    .200
1
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD. EXT. - 700' BRIDGE OVER LAKE BOSSE FLOODWAY PLAIN
        BRIDGE HYDRAULICS REPORT (file name BRG700.10)
        10, 100 YR WATER SURFACE PROFILE
           *** RUN DATE & TIME: 12-01-94  10:55

*** START PROCESSING CROSS SECTION - " EXIT"
  XS    EXIT300

  GR        -208,72.78 -170,63.07 -150,61.47 -100,59.97 -50,59.87 0,59.67

  GR        51,59.27 58,53.77 68,53.37 75,54.77 82,59.67 100,59.97 150,59.37

  GR        200,59.87 250,59.77 300,60.57 350,61.17 390,62.37 419,63.07

  GR        565,66

  SA        51,82


 *** FINISH PROCESSING CROSS SECTION - " EXIT"
*** CROSS SECTION " EXIT" WRITTEN TO DISK, RECORD NO. =  7

--- DATA SUMMARY FOR SECID " EXIT" AT SRD =    300.  ERR-CODE =      0

     SKEW     IHFNO    VSLOPE        EK        CK
       .0        0.    -.0025       .50       .00

X-Y COORDINATE PAIRS  (NGP =  20):
       X       Y          X       Y          X       Y          X       Y
   -208.0   72.78    -170.0   63.07    -150.0   61.47    -100.0   59.97
    -50.0   59.87        .0   59.67      51.0   59.27      58.0   53.77
     68.0   53.37      75.0   54.77      82.0   59.67     100.0   59.97
    150.0   59.37     200.0   59.87     250.0   59.77     300.0   60.57
    350.0   61.17     390.0   62.37     419.0   63.07     565.0   66.00

 X-Y MAX-MIN POINTS:
     XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
   -208.0   72.78      68.0   53.37     565.0   66.00    -208.0   72.78

SUBAREA BREAKPOINTS (NSA =  3):
```

```
ROUGHNESS COEFFICIENTS (NSA =  3):
         .200     .110     .200
1
 WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
 P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD. EXT. - 700' BRIDGE OVER LAKE BOSSE FLOODWAY PLAIN
        BRIDGE HYDRAULICS REPORT (file name BRG700.10)
        10, 100 YR WATER SURFACE PROFILE
           *** RUN DATE & TIME: 12-01-94  10:55

 *** START PROCESSING CROSS SECTION - "FULLV"
   XS   FULLV700

   GR        -44,67.22 -31,71.82 -23,71.92 0,64.73 37,60.93 39,59.86 41,57.83

   GR        60,57.83 70,58.43 100,59.53 150,59.93 200,60.13 250,60.13 327,59.83

   GR        550,54.87 575,59.86 600,59.67 650,58.97 700,59.87 750,61.17

   GR        792,62.47 797,61.27 801,62.17 810,63.07 880,66

   SA        37,100

   *         Maitland Blvd Bridge


 *** FINISH PROCESSING CROSS SECTION - "FULLV"
 *** CROSS SECTION "FULLV" WRITTEN TO DISK, RECORD NO. =  8

 --- DATA SUMMARY FOR SECID "FULLV" AT SRD =    700.  ERR-CODE =      0

      SKEW      IHFNO     VSLOPE        EK        CK
        .0         0.    -.0025       .50       .00

 X-Y COORDINATE PAIRS  (NGP =  25):
        X       Y          X       Y          X       Y          X       Y
     -44.0   67.22      -31.0   71.82      -23.0   71.92        .0   64.73
      37.0   60.93       39.0   59.86       41.0   57.83      60.0   57.83
      70.0   58.43      100.0   59.53      150.0   59.93     200.0   60.13
     250.0   60.13      327.0   59.83      550.0   54.87     575.0   59.86
     600.0   59.67      650.0   58.97      700.0   59.87     750.0   61.17
     792.0   62.47      797.0   61.27      801.0   62.17     810.0   63.07
     880.0   66.00

  X-Y MAX-MIN POINTS:
      XMIN       Y          X    YMIN       XMAX       Y          X    YMAX
     -44.0   67.22      550.0   54.87      880.0   66.00     -23.0   71.92

 SUBAREA BREAKPOINTS (NSA =  3):
          37.     100.

 ROUGHNESS COEFFICIENTS (NSA =  3):
         .200     .110     .200
1
 WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
 P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD. EXT. - 700' BRIDGE OVER LAKE BOSSE FLOODWAY PLAIN
        BRIDGE HYDRAULICS REPORT (file name BRG700.10)
        10, 100 YR WATER SURFACE PROFILE
           *** RUN DATE & TIME: 12-01-94  10:55

 *** START PROCESSING CROSS SECTION - "BRIDG"
```

```
GR          575,59.86 600,59.67 650,59.87 700,59.87 760,59.5 780,69.6 80,69.6

SA          325,575

CD          3,121,4,75.4

PW 1        55.75,1.5 57.5,1.5 57.5,3 59,3 59,6 60,6 60,10.5


*** FINISH PROCESSING CROSS SECTION - "BRIDG"
*** CROSS SECTION "BRIDG" WRITTEN TO DISK, RECORD NO. =  9

--- DATA SUMMARY FOR SECID "BRIDG" AT SRD =    700.  ERR-CODE =      0

     SKEW      IHFNO     VSLOPE        EK        CK
       .0         0.    -.0025       .50       .00

X-Y COORDINATE PAIRS  (NGP =  13):
       X       Y          X       Y          X       Y          X       Y
    80.0   69.60      100.0   59.93      200.0   60.13      250.0   60.13
   327.0   59.83      550.0   54.87      575.0   59.86      600.0   59.67
   650.0   59.87      700.0   59.87      760.0   59.50      780.0   69.60
    80.0   69.60

 X-Y MAX-MIN POINTS:
    XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
    80.0   69.60      550.0   54.87      780.0   69.60       80.0   69.60

SUBAREA BREAKPOINTS (NSA =  3):
        325.    575.

ROUGHNESS COEFFICIENTS (NSA =  3):
        .200    .110    .200

BRIDGE PARAMETERS:
 BRTYPE  BRWDTH     LSEL  USERCD  EMBSS   EMBELV  ABSLPL  ABSLPR
    3     121.0    69.60 *******   4.00    75.40 ******* *******

PIER DATA:  NPW =  7    PPCD = 1.
    PELV  PWDTH      PELV  PWDTH      PELV  PWDTH      PELV  PWDTH
    55.75   1.5      57.50   1.5      57.50   3.0      59.00   3.0
    59.00   6.0      60.00   6.0      60.00  10.5

WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD. EXT. - 700' BRIDGE OVER LAKE BOSSE FLOODWAY PLAIN
        BRIDGE HYDRAULICS REPORT (file name BRG700.10)
        10, 100 YR WATER SURFACE PROFILE
           *** RUN DATE & TIME: 12-01-94  10:55

*** START PROCESSING CROSS SECTION - " APPR"
 AS    APPR1050,,,,.0075

 N          0.2,0.2,0.11,0.2,0.2

 SA         150,325,575,710


*** FINISH PROCESSING CROSS SECTION - " APPR"
*** CROSS SECTION " APPR" WRITTEN TO DISK, RECORD NO. = 10
```

```
      .0        0.      .0075        .50        .00

X-Y COORDINATE PAIRS  (NGP =  25):
       X      Y          X      Y          X      Y          X      Y
   -44.0   69.85     -31.0   74.44     -23.0   74.54        .0   67.36
    37.0   63.56      39.0   62.49      41.0   60.46      60.0   60.46
    70.0   61.06     100.0   62.15     150.0   62.56     200.0   62.76
   250.0   62.76     327.0   62.46     550.0   57.49     575.0   62.49
   600.0   62.29     650.0   61.60     700.0   62.49     750.0   63.79
   792.0   65.10     797.0   63.90     801.0   64.79     810.0   65.69
   880.0   68.63

 X-Y MAX-MIN POINTS:
    XMIN       Y          X    YMIN      XMAX       Y          X    YMAX
   -44.0   69.85     550.0   57.49     880.0   68.63     -23.0   74.54

SUBAREA BREAKPOINTS (NSA =  5):
        150.    325.    575.    710.

ROUGHNESS COEFFICIENTS (NSA =  5):
         .200    .200    .110    .200    .200

BRIDGE PROJECTION DATA:  XREFLT  XREFRT  FDSTLT  FDSTRT
                        ******* ******* ******* *******
1
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD. EXT. - 700' BRIDGE OVER LAKE BOSSE FLOODWAY PLAIN
        BRIDGE HYDRAULICS REPORT (file name BRG700.10)
        10, 100 YR WATER SURFACE PROFILE
           *** RUN DATE & TIME: 12-01-94  10:55

*** START PROCESSING CROSS SECTION - "49+00"
  XS   49+001100

  GR        -130,66 0,64.44 50,62.84 90,61.94 106,64.54 120,64.24 133,60.02

  GR        142,58.84 151,58.64 163,60.74 200,61.34 250,60.74 300,61.74

  GR        350,59.65 400,59.84 450,59.64 500,59.64 550,59.34 600,60.04

  GR        650,60.19 679,60.79 695,64.19 1180,66

  N         0.2,0.11,0.2

  SA        120,163


*** FINISH PROCESSING CROSS SECTION - "49+00"
*** CROSS SECTION "49+00" WRITTEN TO DISK, RECORD NO. = 11

--- DATA SUMMARY FOR SECID "49+00" AT SRD =   1100.  ERR-CODE =      0

     SKEW     IHFNO    VSLOPE        EK        CK
       .0        0.     .0075       .50       .00

X-Y COORDINATE PAIRS  (NGP =  23):
       X      Y          X      Y          X      Y          X      Y
  -130.0   66.00        .0   64.44      50.0   62.84      90.0   61.94
   106.0   64.54     120.0   64.24     133.0   60.02     142.0   58.84
   151.0   58.64     163.0   60.74     200.0   61.34     250.0   60.74
   300.0   61.74     350.0   59.65     400.0   59.84     450.0   59.64
```

```
 X-Y MAX-MIN POINTS:
     XMIN        Y          X     YMIN       XMAX        Y          X     YMAX
   -130.0    66.00      151.0    58.64     1180.0    66.00     -130.0    66.00

SUBAREA BREAKPOINTS (NSA =  3):
        120.     163.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .200     .110     .200
1
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD. EXT. - 700' BRIDGE OVER LAKE BOSSE FLOODWAY PLAIN
        BRIDGE HYDRAULICS REPORT (file name BRG700.10)
        10, 100 YR WATER SURFACE PROFILE
           *** RUN DATE & TIME: 12-01-94  10:55

*** START PROCESSING CROSS SECTION - "48+25"
  XS   48+251175

  GR        -200,66 -150,63.00 -130,62.00 0,60.22 50,60.42 100,61.92

  GR        125,59.92 136,58.62 156,59.92 200,60.92 250,60.72 300,60.72

  GR        350,60.52 400,60.22 450,59.96 500,59.96 550,59.76 600,60.16

  GR        631,60.66 667,63.66 1220,66

  SA        125,156

  HP 1  APPR63.8,.1,65.8


*** FINISH PROCESSING CROSS SECTION - "48+25"
*** CROSS SECTION "48+25" WRITTEN TO DISK, RECORD NO. = 12

--- DATA SUMMARY FOR SECID "48+25" AT SRD =   1175.  ERR-CODE =      0

     SKEW      IHFNO     VSLOPE        EK        CK
       .0         0.      .0075       .50       .00

X-Y COORDINATE PAIRS  (NGP =  21):
       X        Y          X        Y          X        Y          X        Y
   -200.0    66.00     -150.0    63.00     -130.0    62.00        .0    60.22
     50.0    60.42      100.0    61.92      125.0    59.92     136.0    58.62
    156.0    59.92      200.0    60.92      250.0    60.72     300.0    60.72
    350.0    60.52      400.0    60.22      450.0    59.96     500.0    59.96
    550.0    59.76      600.0    60.16      631.0    60.66     667.0    63.66
   1220.0    66.00

 X-Y MAX-MIN POINTS:
     XMIN        Y          X     YMIN       XMAX        Y          X     YMAX
   -200.0    66.00      136.0    58.62     1220.0    66.00     -200.0    66.00

SUBAREA BREAKPOINTS (NSA =  3):
        125.     156.

ROUGHNESS COEFFICIENTS (NSA =  3):
         .200     .110     .200

WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS
```

10, 100 YR WATER SURFACE PROFILE
*** RUN DATE & TIME: 12-01-94 10:55
CROSS-SECTION PROPERTIES: ISEQ = 10; SECID = APPR; SRD = 1050.

| WSEL | SA# | AREA | K | TOPW | WETP | ALPH | LEW | REW | QCR |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 239. | 2866. | 115. | 117. | | | | 1947. |
| | 2 | 199. | 1613. | 175. | 175. | | | | 1203. |
| | 3 | 951. | 31340. | 250. | 251. | | | | 10524. |
| | 4 | 227. | 2400. | 135. | 135. | | | | 1676. |
| | 5 | 21. | 102. | 40. | 40. | | | | 86. |
| 63.80 | | 1637. | 38320. | 716. | 717. | 1.66 | 35. | 750. | 10909. |

| WSEL | SA# | AREA | K | TOPW | WETP | ALPH | LEW | REW | QCR |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 250. | 3085. | 116. | 118. | | | | 2082. |
| | 2 | 216. | 1856. | 175. | 175. | | | | 1365. |
| | 3 | 976. | 32725. | 250. | 251. | | | | 10941. |
| | 4 | 241. | 2642. | 135. | 135. | | | | 1827. |
| | 5 | 25. | 130. | 43. | 43. | | | | 109. |
| 63.90 | | 1709. | 40438. | 720. | 722. | 1.67 | 34. | 797. | 11575. |

| WSEL | SA# | AREA | K | TOPW | WETP | ALPH | LEW | REW | QCR |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 262. | 3310. | 117. | 119. | | | | 2220. |
| | 2 | 234. | 2113. | 175. | 175. | | | | 1534. |
| | 3 | 1001. | 34134. | 250. | 251. | | | | 11364. |
| | 4 | 254. | 2893. | 135. | 135. | | | | 1983. |
| | 5 | 30. | 162. | 48. | 48. | | | | 133. |
| 64.00 | | 1781. | 42613. | 725. | 727. | 1.67 | 33. | 797. | 12252. |

| WSEL | SA# | AREA | K | TOPW | WETP | ALPH | LEW | REW | QCR |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 274. | 3543. | 118. | 119. | | | | 2362. |
| | 2 | 251. | 2383. | 175. | 175. | | | | 1709. |
| | 3 | 1026. | 35567. | 250. | 251. | | | | 11793. |
| | 4 | 268. | 3153. | 135. | 135. | | | | 2143. |
| | 5 | 35. | 198. | 52. | 52. | | | | 161. |
| 64.10 | | 1854. | 44844. | 730. | 732. | 1.68 | 32. | 798. | 12946. |

| WSEL | SA# | AREA | K | TOPW | WETP | ALPH | LEW | REW | QCR |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 286. | 3782. | 119. | 120. | | | | 2507. |
| | 2 | 269. | 2666. | 175. | 175. | | | | 1891. |
| | 3 | 1051. | 37023. | 250. | 251. | | | | 12227. |
| | 4 | 281. | 3423. | 135. | 135. | | | | 2307. |
| | 5 | 40. | 239. | 56. | 56. | | | | 193. |
| 64.20 | | 1927. | 47133. | 735. | 737. | 1.68 | 31. | 798. | 13657. |

| WSEL | SA# | AREA | K | TOPW | WETP | ALPH | LEW | REW | QCR |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 298. | 4028. | 120. | 121. | | | | 2656. |
| | 2 | 286. | 2962. | 175. | 175. | | | | 2078. |
| | 3 | 1076. | 38503. | 250. | 251. | | | | 12665. |
| | 4 | 295. | 3701. | 135. | 135. | | | | 2475. |
| | 5 | 46. | 286. | 60. | 60. | | | | 228. |
| 64.30 | | 2001. | 49479. | 740. | 742. | 1.68 | 30. | 799. | 14385. |

1
WSPRO FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188 MODEL FOR WATER-SURFACE PROFILE COMPUTATIONS

MAITLAND BLVD. EXT. - 700' BRIDGE OVER LAKE BOSSE FLOODWAY PLAIN
BRIDGE HYDRAULICS REPORT (file name BRG700.10)
10, 100 YR WATER SURFACE PROFILE
*** RUN DATE & TIME: 12-01-94 10:55
CROSS-SECTION PROPERTIES: ISEQ = 10; SECID = APPR; SRD = 1050.

| WSEL | SA# | AREA | K | TOPW | WETP | ALPH | LEW | REW | QCR |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 310. | 4281. | 121. | 122. | | | | 2808. |

4-150

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 5 | 52. | 337. | 64. | 64. | | | | 266. |
| 64.40 | | 2075. | 51881. | 745. | 747. | 1.69 | 29. | 799. | 15129. |

| WSEL | SA# | AREA | K | TOPW | WETP | ALPH | LEW | REW | QCR |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 322. | 4541. | 122. | 123. | | | | 2963. |
| | 2 | 321. | 3590. | 175. | 175. | | | | 2471. |
| | 3 | 1126. | 41531. | 250. | 251. | | | | 13558. |
| | 4 | 322. | 4282. | 135. | 135. | | | | 2822. |
| | 5 | 59. | 395. | 68. | 68. | | | | 309. |
| 64.50 | | 2150. | 54338. | 750. | 752. | 1.69 | 28. | 800. | 15889. |

| WSEL | SA# | AREA | K | TOPW | WETP | ALPH | LEW | REW | QCR |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 334. | 4808. | 123. | 124. | | | | 3122. |
| | 2 | 339. | 3921. | 175. | 175. | | | | 2675. |
| | 3 | 1151. | 43079. | 250. | 251. | | | | 14013. |
| | 4 | 335. | 4585. | 135. | 135. | | | | 3001. |
| | 5 | 66. | 458. | 72. | 72. | | | | 355. |
| 64.60 | | 2225. | 56852. | 755. | 757. | 1.69 | 27. | 800. | 16666. |

| WSEL | SA# | AREA | K | TOPW | WETP | ALPH | LEW | REW | QCR |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 346. | 5082. | 124. | 125. | | | | 3283. |
| | 2 | 356. | 4265. | 175. | 175. | | | | 2885. |
| | 3 | 1176. | 44650. | 250. | 251. | | | | 14472. |
| | 4 | 349. | 4897. | 135. | 135. | | | | 3184. |
| | 5 | 73. | 528. | 76. | 76. | | | | 406. |
| 64.70 | | 2301. | 59421. | 760. | 762. | 1.69 | 26. | 801. | 17458. |

| WSEL | SA# | AREA | K | TOPW | WETP | ALPH | LEW | REW | QCR |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 359. | 5362. | 125. | 126. | | | | 3449. |
| | 2 | 374. | 4619. | 175. | 175. | | | | 3100. |
| | 3 | 1201. | 46243. | 250. | 251. | | | | 14936. |
| | 4 | 362. | 5217. | 135. | 135. | | | | 3371. |
| | 5 | 81. | 604. | 80. | 81. | | | | 460. |
| 64.80 | | 2377. | 62045. | 765. | 767. | 1.69 | 25. | 801. | 18266. |

| WSEL | SA# | AREA | K | TOPW | WETP | ALPH | LEW | REW | QCR |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 371. | 5650. | 126. | 127. | | | | 3617. |
| | 2 | 391. | 4985. | 175. | 175. | | | | 3321. |
| | 3 | 1226. | 47859. | 250. | 251. | | | | 15404. |
| | 4 | 376. | 5545. | 135. | 135. | | | | 3561. |
| | 5 | 89. | 684. | 85. | 85. | | | | 518. |
| 64.90 | | 2454. | 64722. | 771. | 773. | 1.69 | 24. | 802. | 19082. |

1

WSPRO FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188 MODEL FOR WATER-SURFACE PROFILE COMPUTATIONS

MAITLAND BLVD. EXT. - 700' BRIDGE OVER LAKE BOSSE FLOODWAY PLAIN
BRIDGE HYDRAULICS REPORT (file name BRG700.10)
10, 100 YR WATER SURFACE PROFILE
*** RUN DATE & TIME: 12-01-94 10:55
CROSS-SECTION PROPERTIES: ISEQ = 10; SECID = APPR; SRD = 1050.

| WSEL | SA# | AREA | K | TOPW | WETP | ALPH | LEW | REW | QCR |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 384. | 5944. | 127. | 128. | | | | 3789. |
| | 2 | 409. | 5362. | 175. | 175. | | | | 3546. |
| | 3 | 1251. | 49496. | 250. | 251. | | | | 15878. |
| | 4 | 389. | 5880. | 135. | 135. | | | | 3754. |
| | 5 | 98. | 771. | 90. | 90. | | | | 580. |
| 65.00 | | 2531. | 67454. | 777. | 779. | 1.70 | 23. | 803. | 19913. |

| WSEL | SA# | AREA | K | TOPW | WETP | ALPH | LEW | REW | QCR |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 397. | 6245. | 128. | 129. | | | | 3964. |
| | 2 | 426. | 5750. | 175. | 175. | | | | 3776. |
| | 3 | 1276. | 51156. | 250. | 251. | | | | 16256. |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 65.10 | | 2609. | 70242. | 782. | 784. | 1.70 | 22. | 804. | 20762. |

4-15

| WSEL | SA# | AREA | K | TOPW | WETP | ALPH | LEW | REW | QCR |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 410. | 6552. | 129. | 130. | | | | 4143. |
| | 2 | 444. | 6149. | 175. | 175. | | | | 4011. |
| | 3 | 1301. | 52837. | 250. | 251. | | | | 16839. |
| | 4 | 416. | 6575. | 135. | 135. | | | | 4151. |
| | 5 | 116. | 992. | 95. | 95. | | | | 732. |
| 65.20 | | 2687. | 73106. | 784. | 786. | 1.70 | 21. | 805. | 21681. |

| WSEL | SA# | AREA | K | TOPW | WETP | ALPH | LEW | REW | QCR |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 423. | 6867. | 130. | 131. | | | | 4325. |
| | 2 | 461. | 6559. | 175. | 175. | | | | 4250. |
| | 3 | 1326. | 54540. | 250. | 251. | | | | 17327. |
| | 4 | 430. | 6934. | 135. | 135. | | | | 4355. |
| | 5 | 126. | 1123. | 96. | 96. | | | | 819. |
| 65.30 | | 2766. | 76023. | 786. | 788. | 1.69 | 20. | 806. | 22618. |

| WSEL | SA# | AREA | K | TOPW | WETP | ALPH | LEW | REW | QCR |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 436. | 7188. | 131. | 132. | | | | 4509. |
| | 2 | 479. | 6979. | 175. | 175. | | | | 4494. |
| | 3 | 1351. | 56265. | 250. | 251. | | | | 17819. |
| | 4 | 443. | 7301. | 135. | 135. | | | | 4561. |
| | 5 | 136. | 1261. | 97. | 97. | | | | 910. |
| 65.40 | | 2845. | 78994. | 788. | 790. | 1.69 | 19. | 807. | 23570. |

| WSEL | SA# | AREA | K | TOPW | WETP | ALPH | LEW | REW | QCR |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 449. | 7516. | 132. | 133. | | | | 4698. |
| | 2 | 496. | 7409. | 175. | 175. | | | | 4743. |
| | 3 | 1376. | 58011. | 250. | 251. | | | | 18316. |
| | 4 | 457. | 7675. | 135. | 135. | | | | 4771. |
| | 5 | 145. | 1406. | 98. | 98. | | | | 1005. |
| 65.50 | | 2924. | 82017. | 790. | 792. | 1.69 | 18. | 808. | 24539. |

1
WSPRO FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188 MODEL FOR WATER-SURFACE PROFILE COMPUTATIONS

MAITLAND BLVD. EXT. - 700' BRIDGE OVER LAKE BOSSE FLOODWAY PLAIN
BRIDGE HYDRAULICS REPORT (file name BRG700.10)
10, 100 YR WATER SURFACE PROFILE
*** RUN DATE & TIME: 12-01-94 10:55
CROSS-SECTION PROPERTIES: ISEQ = 10; SECID = APPR; SRD = 1050.

| WSEL | SA# | AREA | K | TOPW | WETP | ALPH | LEW | REW | QCR |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 462. | 7851. | 133. | 134. | | | | 4889. |
| | 2 | 514. | 7849. | 175. | 175. | | | | 4996. |
| | 3 | 1401. | 59779. | 250. | 251. | | | | 18818. |
| | 4 | 470. | 8057. | 135. | 135. | | | | 4984. |
| | 5 | 155. | 1558. | 99. | 99. | | | | 1103. |
| 65.60 | | 3003. | 85093. | 792. | 794. | 1.69 | 17. | 809. | 25524. |

| WSEL | SA# | AREA | K | TOPW | WETP | ALPH | LEW | REW | QCR |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 475. | 8192. | 134. | 135. | | | | 5084. |
| | 2 | 531. | 8300. | 175. | 175. | | | | 5254. |
| | 3 | 1426. | 61567. | 250. | 251. | | | | 19324. |
| | 4 | 484. | 8446. | 135. | 135. | | | | 5200. |
| | 5 | 165. | 1716. | 100. | 100. | | | | 1205. |
| 65.70 | | 3082. | 88220. | 794. | 796. | 1.69 | 16. | 810. | 26522. |

| WSEL | SA# | AREA | K | TOPW | WETP | ALPH | LEW | REW | QCR |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 489. | 8541. | 135. | 136. | | | | 5282. |
| | 2 | 549. | 8760. | 175. | 175. | | | | 5515. |
| | 3 | 1451. | 63377. | 250. | 251. | | | | 19834. |

```
    WSEL  SA#      AREA         K    TOPW    WETP   ALPH     LEW     REW      QCR
            1      489.      8541.   135.    136.                             5282.
            2      549.      8761.   175.    175.                             5515.
            3     1451.     63377.   250.    251.                            19834.
            4      498.      8842.   135.    135.                             5419.
            5      175.      1865.   103.    103.                             1302.
   65.80           3161.     91386.   797.    800.   1.69     15.    813.   27508.
1
  EX


+++ BEGINNING PROFILE CALCULATIONS --   2
1
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD. EXT. - 700' BRIDGE OVER LAKE BOSSE FLOODWAY PLAIN
        BRIDGE HYDRAULICS REPORT (file name BRG700.10)
        10, 100 YR WATER SURFACE PROFILE
           *** RUN DATE & TIME: 12-01-94  10:55

 XSID:CODE   SRDL     LEW      AREA    VHD     HF      EGL     CRWS       Q     WSEL
       SRD   FLEN     REW         K   ALPH     HO      ERR      FR#     VEL

60+00:XS   ******  -234.     1128.    .00 *****   62.30    57.83    246.   62.30
        0. ******   306.    18263.   2.76 ***** *******      .04     .22

59+00:XS     100.  -188.     1299.    .00    .02   62.32 *******    246.   62.32
      100.   100.   363.    19756.   1.91    .00     .00      .03     .19

58+50:XS      50.  -194.     1373.    .00    .01   62.33 *******    246.   62.33
      150.    50.   365.    21359.   1.87    .00     .00      .03     .18

58+25:XS      25.  -200.     1431.    .00    .00   62.33 *******    246.   62.33
      175.    25.   365.    22649.   1.84    .00     .00      .03     .17

58+00:XS      25.  -189.     1264.    .00    .00   62.33 *******    246.   62.33
      200.    25.   380.    27333.   1.34    .00     .00      .03     .19

57+50:XS      50.  -192.     1338.    .00    .00   62.34 *******    246.   62.34
      250.    50.   383.    29684.   1.35    .00     .00      .02     .18

 EXIT:XS      50.  -161.     1350.    .00    .00   62.34 *******    246.   62.34
      300.    50.   389.    24500.   3.10    .00     .00      .04     .18

 ===135 CONVEYANCE RATIO OUTSIDE OF RECOMMENDED LIMITS.
                              "FULLV"     KRATIO =  1.84

FULLV:FV     400.    23.     2523.    .00    .02   62.36 *******    246.   62.36
      700.   400.   803.    45059.   1.28    .00     .00      .01     .10
         <<<<<THE ABOVE RESULTS REFLECT "NORMAL" (UNCONSTRICTED) FLOW>>>>>

 ===135 CONVEYANCE RATIO OUTSIDE OF RECOMMENDED LIMITS.
                              " APPR"     KRATIO =   .34

 APPR:AS     350.    39.      723.    .00    .03   62.40 *******    246.   62.39
     1050.   350.   694.    15476.   1.26    .00     .00      .05     .34
         <<<<<THE ABOVE RESULTS REFLECT "NORMAL" (UNCONSTRICTED) FLOW>>>>>

            <<<<<RESULTS REFLECTING THE CONSTRICTED FLOW FOLLOW>>>>>

 XSID:CODE   SRDL     LEW      AREA    VHD     HF      EGL     CRWS       Q     WSEL
```

```
      700.   400.   766.   64048.  1.02   .00     .00     .01     .11

     TYPE PPCD FLOW      C     P/A    LSEL   BLEN   XLAB   XRAB
       3.   1.   1.    .990   .017   69.60 ****** ****** ******
1
 WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
 P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD. EXT. - 700' BRIDGE OVER LAKE BOSSE FLOODWAY PLAIN
        BRIDGE HYDRAULICS REPORT (file name BRG700.10)
        10, 100 YR WATER SURFACE PROFILE
           *** RUN DATE & TIME: 12-01-94  10:55

  XSID:CODE   SRDL    LEW     AREA   VHD    HF     EGL    CRWS      Q    WSEL
        SRD   FLEN    REW        K  ALPH    HO     ERR     FR#    VEL

  APPR:AS     229.    39.     756.   .00   .06   62.47   58.92   246.   62.47
     1050.    249.   698.   16073.  1.29   .00    -.01     .05    .33

       M(G)   M(K)       KQ   XLKQ   XRKQ    OTEL
       .000   .038   15552.   115.   786.   62.41

                  <<<<<END OF BRIDGE COMPUTATIONS>>>>>

  XSID:CODE   SRDL    LEW     AREA   VHD    HF     EGL    CRWS      Q    WSEL
        SRD   FLEN    REW        K  ALPH    HO     ERR     FR#    VEL

 49+00:XS      50.    66.    1275.   .00   .01   62.48 *******   246.   62.48
     1100.     50.   687.   17511.  1.29   .00     .00     .03    .19

 48+25:XS      75.  -140.    1550.   .00   .01   62.49 *******   246.   62.49
     1175.     75.   653.   19765.  1.52   .00     .00     .02    .16
1
 WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
 P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD. EXT. - 700' BRIDGE OVER LAKE BOSSE FLOODWAY PLAIN
        BRIDGE HYDRAULICS REPORT (file name BRG700.10)
        10, 100 YR WATER SURFACE PROFILE
           *** RUN DATE & TIME: 12-01-94  10:55
   FIRST USER DEFINED TABLE.

    XSID:CODE        Q    SRD    WSEL     AREA     VEL     FR#       K   XSTW
   60+00:XS        246.     0.   62.30    1128.     .22     .04  18263.   516.
   59+00:XS        246.   100.   62.32    1299.     .19     .03  19756.   551.
   58+50:XS        246.   150.   62.33    1373.     .18     .03  21359.   559.
   58+25:XS        246.   175.   62.33    1431.     .17     .03  22649.   565.
   58+00:XS        246.   200.   62.33    1264.     .19     .03  27333.   569.
   57+50:XS        246.   250.   62.34    1338.     .18     .02  29684.   575.
    EXIT:XS        246.   300.   62.34    1350.     .18     .04  24500.   550.
   FULLV:FV        246.   700.   62.36    2523.     .10     .01  45059.   776.
   BRIDG:BR        246.   700.   62.41    2294.     .11     .01  64048.   671.
    APPR:AS        246.  1050.   62.47     756.     .33     .05  16073.   471.
   49+00:XS        246.  1100.   62.48    1275.     .19     .03  17511.   589.
   48+25:XS        246.  1175.   62.49    1550.     .16     .02  19765.   793.
1
 WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
 P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD. EXT. - 700' BRIDGE OVER LAKE BOSSE FLOODWAY PLAIN
        BRIDGE HYDRAULICS REPORT (file name BRG700.10)
        10, 100 YR WATER SURFACE PROFILE
           *** RUN DATE & TIME: 12-01-94  10:55
```

```
60+00:XS    ******  -259.    2309.    .00 *****   64.40   58.62    459.   64.40
        0.  ******   320.   49571.  1.90 ***** *******     .02     .20

59+00:XS      100.  -228.    2521.    .00   .01   64.41 *******    459.   64.41
      100.    100.   384.   52740.  1.51   .00     .00     .02     .18

58+50:XS       50.  -230.    2600.    .00   .00   64.41 *******    459.   64.41
      150.     50.   385.   55233.  1.50   .00     .00     .02     .18

58+25:XS       25.  -232.    2663.    .00   .00   64.41 *******    459.   64.41
      175.     25.   386.   57239.  1.49   .00     .00     .02     .17

58+00:XS       25.  -233.    2546.    .00   .00   64.42 *******    459.   64.42
      200.     25.   428.   75288.  1.43   .00     .00     .02     .18

57+50:XS       50.  -236.    2630.    .00   .00   64.42 *******    459.   64.42
      250.     50.   431.   78884.  1.43   .00     .00     .02     .17

 EXIT:XS       50.  -175.    2609.    .00   .00   64.42 *******    459.   64.42
      300.     50.   486.   57354.  2.25   .00     .00     .02     .18

 ===135 CONVEYANCE RATIO OUTSIDE OF RECOMMENDED LIMITS.
                              "FULLV"     KRATIO =  1.73

FULLV:FV      400.     3.    4193.    .00   .01   64.44 *******    459.   64.44
      700.    400.   843.   99465.  1.27   .00     .00     .01     .11
        <<<<<THE ABOVE RESULTS REFLECT "NORMAL" (UNCONSTRICTED) FLOW>>>>>

 ===135 CONVEYANCE RATIO OUTSIDE OF RECOMMENDED LIMITS.
                              " APPR"     KRATIO =   .53

 APPR:AS      350.    28.    2112.    .00   .01   64.45 *******    459.   64.45
     1050.    350.   799.   53085.  1.69   .00     .00     .03     .22
        <<<<<THE ABOVE RESULTS REFLECT "NORMAL" (UNCONSTRICTED) FLOW>>>>>

           <<<<<RESULTS REFLECTING THE CONSTRICTED FLOW FOLLOW>>>>>

 XSID:CODE   SRDL     LEW      AREA   VHD     HF      EGL     CRWS       Q    WSEL
       SRD   FLEN     REW         K  ALPH     HO      ERR      FR#     VEL

BRIDG:BR      400.    91.    3674.    .00   .03   64.45   56.72    459.   64.45
      700.    400.   770.  126415.  1.06   .00     .00     .01     .12

    TYPE PPCD FLOW      C    P/A    LSEL   BLEN   XLAB   XRAB
      3.   1.   1.   .971   .016   69.60 ****** ****** ******
```

1

```
WSPRO          FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188            MODEL  FOR  WATER-SURFACE  PROFILE  COMPUTATIONS

        MAITLAND BLVD. EXT. - 700' BRIDGE OVER LAKE BOSSE FLOODWAY PLAIN
        BRIDGE HYDRAULICS REPORT (file name BRG700.10)
        10, 100 YR WATER SURFACE PROFILE
           *** RUN DATE & TIME: 12-01-94  10:55

 XSID:CODE   SRDL     LEW      AREA   VHD     HF      EGL     CRWS       Q    WSEL
       SRD   FLEN     REW         K  ALPH     HO      ERR      FR#     VEL

 APPR:AS      229.    28.    2126.    .00   .02   64.47   59.33    459.   64.47
     1050.    239.   800.   53574.  1.69   .00     .00     .03     .22

       M(G)   M(K)       KQ   XLKQ   XRKQ    OTEL
       .119   .058   50499.    98.   777.   64.45
```

| XSID:CODE | SRDL | LEW | AREA | VHD | HF | EGL | CRWS | Q | WSEL |
|---|---|---|---|---|---|---|---|---|---|
| SRD | FLEN | REW | K | ALPH | HO | ERR | FR# | VEL | |

4-155

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 49+00:XS | 50. | -3. | 2560. | .00 | .00 | 64.47 | ******* | 459. | 64.47 |
| 1100. | 50. | 771. | 47222. | 1.28 | .00 | .00 | .02 | .18 | |
| 48+25:XS | 75. | -175. | 3260. | .00 | .01 | 64.48 | ******* | 459. | 64.48 |
| 1175. | 75. | 861. | 55478. | 1.43 | .00 | .00 | .02 | .14 | |

1

WSPRO FEDERAL HIGHWAY ADMINISTRATION - U. S. GEOLOGICAL SURVEY
P060188 MODEL FOR WATER-SURFACE PROFILE COMPUTATIONS

MAITLAND BLVD. EXT. - 700' BRIDGE OVER LAKE BOSSE FLOODWAY PLAIN
BRIDGE HYDRAULICS REPORT (file name BRG700.10)
10, 100 YR WATER SURFACE PROFILE
*** RUN DATE & TIME: 12-01-94 10:55

FIRST USER DEFINED TABLE.

| XSID:CODE | Q | SRD | WSEL | AREA | VEL | FR# | K | XSTW |
|---|---|---|---|---|---|---|---|---|
| 60+00:XS | 459. | 0. | 64.40 | 2309. | .20 | .02 | 49571. | 579. |
| 59+00:XS | 459. | 100. | 64.41 | 2521. | .18 | .02 | 52740. | 612. |
| 58+50:XS | 459. | 150. | 64.41 | 2600. | .18 | .02 | 55233. | 615. |
| 58+25:XS | 459. | 175. | 64.41 | 2663. | .17 | .02 | 57239. | 618. |
| 58+00:XS | 459. | 200. | 64.42 | 2546. | .18 | .02 | 75288. | 661. |
| 57+50:XS | 459. | 250. | 64.42 | 2630. | .17 | .02 | 78884. | 667. |
| EXIT:XS | 459. | 300. | 64.42 | 2609. | .18 | .02 | 57354. | 662. |
| FULLV:FV | 459. | 700. | 64.44 | 4193. | .11 | .01 | 99465. | 840. |
| BRIDG:BR | 459. | 700. | 64.45 | 3674. | .12 | .01 | 126415. | 679. |
| APPR:AS | 459. | 1050. | 64.47 | 2126. | .22 | .03 | 53574. | 749. |
| 49+00:XS | 459. | 1100. | 64.47 | 2560. | .18 | .02 | 47222. | 770. |
| 48+25:XS | 459. | 1175. | 64.48 | 3260. | .14 | .02 | 55478. | 1036. |

ER

1 NORMAL END OF WSPRO EXECUTION.