GEOTECHNICAL REPORT

I-75 (SR 93) PD&E Study

From north of SR 52 to south of CR 476B
Pasco, Hernando and Sumter Counties, Florida
Financial Project No.: 411014-1-22-01
FAP No.: 0751-120I

June 2007

Florida Department of Transportation
District Seven

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I-75 (SR 93)
Project Development & Environment Study

from north of SR 52 to south of CR 476B
Pasco, Hernando and Sumter Counties, Florida

Financial Project No. 411014-1-22-01
Federal-Aid Project No. 0751-120I

The proposed action consists of improvements to I-75 from north of SR 52 in Pasco County to south of CR 476B in Sumter County, Florida; a distance of approximately 20.8 miles.

Florida Department of Transportation
District Seven
Tampa, Florida

Prepared By:
Professional Service Industries, Inc.
Tampa, Florida

June 2007

Information To Build On
Engineering • Consulting • Testing

February 27, 2007

H.W. Lochner, Inc.
13577 Feather Sound Drive
Suite 600
Clearwater, Florida 33762

Attention: Mr. John Kenty, P.E.

RE: Geotechnical Report
Project Development & Environment Study
I-75 (SR 93) from North of SR 52
to South of CR 476B
Pasco, Hernando and Sumter Counties, Florida
Financial Project No. 411014-1-22-01
Federal-Aid Project No. 0751-120I
PSI Project No. 775-55159

Dear Mr. Kenty:

Professional Service Industries, Inc. (PSI) has completed geotechnical services for the Project Development and Environment (PD&E) Study for the proposed improvements to Interstate Highway I-75 (SR 93) from north of SR 52 in Pasco County to south of CR 476B in Sumter County, Florida. These services were authorized through a subcontract agreement between H.W. Lochner, Inc. (HWL) and PSI dated January 25, 2005.

This report presents the results of geotechnical evaluations for the proposed roadway alignment, stormwater management areas, and our opinions regarding feasible foundation alternatives for the proposed bridge structures. These evaluations are based on the review of the published information, review of available existing plans with geotechnical information, and site reconnaissance. Briefly, this geotechnical study indicates that roadway planning and design should take into consideration organic materials (muck), near-surface boulders, shallow clayey soils, and shallow groundwater conditions along portions of the existing roadway. The potential for sinkhole/development within of the project area was evaluated and is also presented in this report.

PSI appreciates the opportunity of providing our services for this project. If you have any questions concerning the contents of this report or need additional information, please do not hesitate to contact our office.

Sincerely,

Professional Service Industries, Inc.

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Geotechnical Department Manager
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1. INTRODUCTION

The Florida Department of Transportation (FDOT) has conducted a Project Development and Environment (PD&E) study to evaluate capacity improvements along the segment of Interstate 75 (I-75) -State Road (SR) 93- that extends from just north of SR 52 in Pasco County to just south of County Road (CR) 476B in Sumter County, Florida. The length of this segment is approximately 20.8 miles. The design year for the improvements is Year 2030. **Figure 1-1** illustrates the location and limits of this project.

1.1 PURPOSE

The objective of this PD&E Study is to document the engineering and environmental analyses that were performed for this project so that the FDOT and the Federal Highway Administration (FHWA) can reach a decision on the type, location, and conceptual design of the necessary improvements of I-75 to accommodate future traffic demand in a safe and efficient manner. This study documents the need for the improvements as well as the procedures utilized to develop and evaluate various improvement alternatives. Information related to the engineering and environmental characteristics, which are essential for the alternatives analysis, was collected. Design criteria were established and preliminary alternatives were developed. The comparison of alternatives was based on a variety of parameters utilizing a matrix format. This process identified the alternative that would have minimal impacts, while providing the necessary improvements.

The PD&E Study also satisfies all applicable requirements, including the National Environmental Policy Act (NEPA), in order for this project to qualify for federal-aid funding of subsequent development phases (design, right-of-way acquisition, and construction).

This geotechnical report is one in a series of reports prepared as part of this PD&E Study. This report documents a preliminary evaluation of the subsurface soil and groundwater conditions within the study area to generally assess the suitability of the site for the proposed improvements and to identify constraints or limitations that the subsurface conditions may impose on the planned construction, particularly related to proposed structures, high-fill embankments, and stormwater control pond sites. To accomplish this objective, an inventory of existing data was evaluated including aerial photographs, available County and Natural Resource Conservation Services (NRCS) formally known as United States Department of Agriculture (USDA) Soil Conservation Service (SCS) data, United States Geological Survey (USGS) quadrangle maps, existing plans, design engineering information for the past construction projects within the study area, and records of sinkhole activity.


HERNANDO CO.
SUMTER CO.
PASCO CO.
Croom Rd.
Withlacoochee State Forest
END PROJECT
BEGIN PROJECT
Brooksville
Croom Rital Rd.
Treiman Blvd.
Cortez Blvd.
Withlacoochee State Trail
Withlacoochee River
Lockhart Rd.
Kettering Rd.
Spring Lake Hwy.
Blanton Rd.
St. Joe Rd.
Darby Rd.
Dade City
St. Leo
San Antonio
CSX RR
Exit 309
Exit 301
Exit 293
Exit 285
476B
673
480
484
50
700
572
581
420
541
575
577
578
578A
579
41
52
301
98
75
0 1 Mile
Scale is Approximate
I-75 PD&E Study
From N. of SR 52 to S. of CR 476B
Pasco, Hernando & Sumter Counties
WPI Seg. No.: 411014 1
FAP No: 0751-120I
Project Location Map

Figure 1-1

1.2 PROJECT DESCRIPTION

1.2.1 Project Background

I-75 is an interstate, limited access freeway. It is included in the State Highway System (SHS), designated as SR 93, the Florida Intrastate Highway System (FIHS), the Strategic Intermodal System (SIS), and the Federal Aid Interstate System. I-75 also serves as a major evacuation route throughout the state.

Within the limits of this project, I-75 is in a "transitioning" area. Therefore, according to FIHS standards, all of its components (mainline, ramps, merge/diverge areas) should provide adequate capacity to operate at level of service (LOS) "C" or better.

1.2.2 The Study Area

As noted before, the study area for this project extends from just north of SR 52 in Pasco County to just south of CR 476B in Sumter County, Florida; a distance of approximately 20.8 miles. The study area encompasses the following Sections, Townships, and Ranges:

- Pasco County:
  - Sections 5 and 8 of Township 25 S, Range 20 E
  - Sections 2, 3, 9, 10, 16, 17, 20, 21, 28, 29, 32, 33 of Township 24 S, Range 20 E
- Hernando County:
  - Sections 13, 23, 24, 26, 35 of Township 23 S, Range 20 E
  - Sections 5, 6, 7, 18 of Township 23 S, Range 21 E
  - Sections 16, 17, 19, 20, 29, 30, 31, 32 of Township 22 S, Range 21 E
- Sumter County:
  - Sections 4, 9, 16 of Township 22 S, Range 21 E.

Presently, within the project limits, I-75 is a four-lane, divided, limited access, rural highway that generally occupies 300 feet of right-of-way (ROW). **Figure 1-2** depicts the existing typical section of I-75. No major improvements have been made to this segment of I-75 since its original construction in the 1960s.

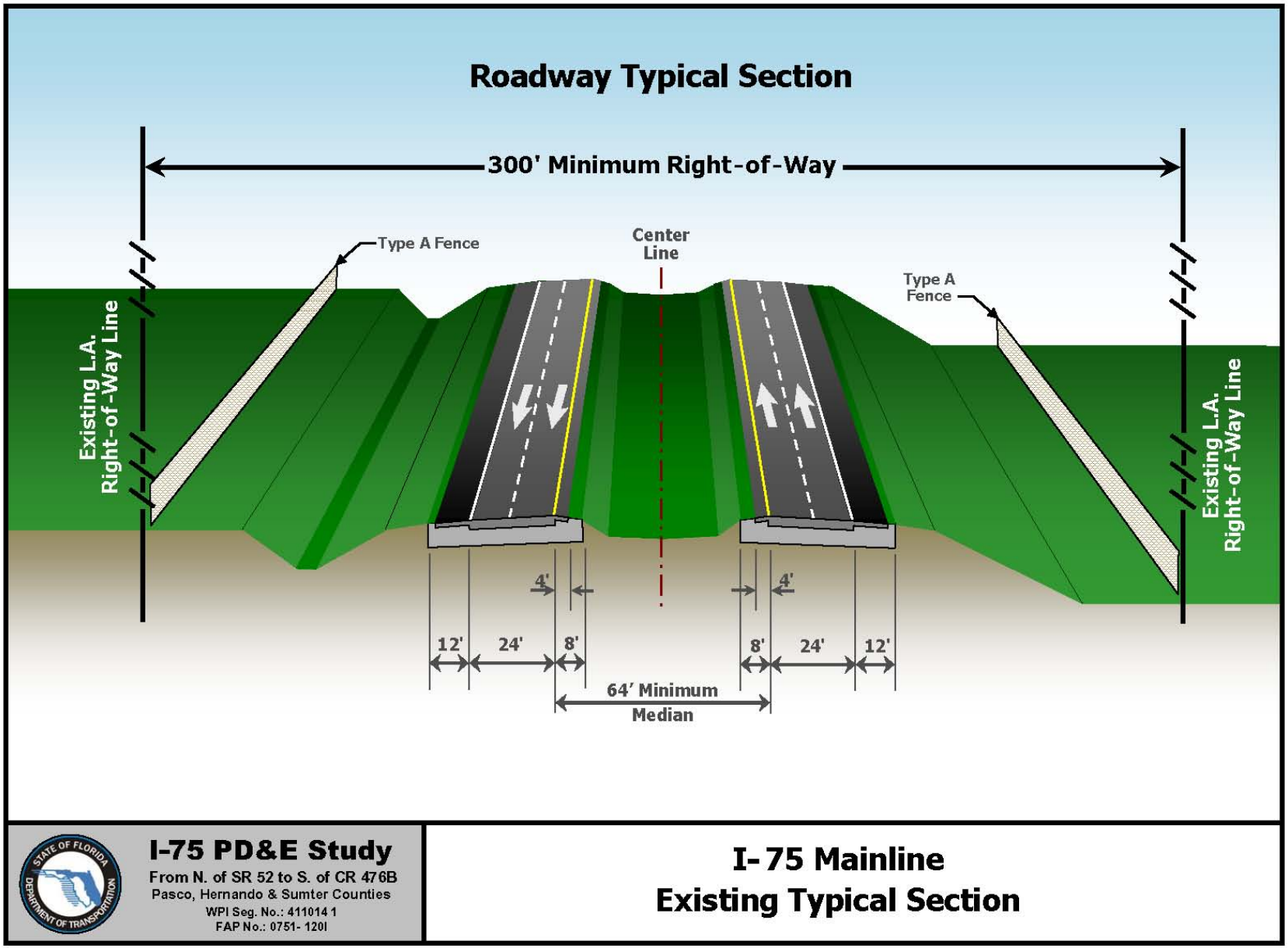

Roadway Typical Section
300' Minimum Right-of-Way
Type A Fence
Center Line
Type A Fence
Existing L.A. Right-of-Way Line
Existing L.A. Right-of-Way Line
4'
4'
12'
24'
8'
8'
24'
12'
64' Minimum Median
I-75 PD&E Study
From N. of SR 52 to S. of CR 476B
Pasco, Hernando & Sumter Counties
WPI Seg. No.: 4110141
FAP No.: 0751- 120I
I- 75 Mainline
Existing Typical Section

Figure 1-2

The study area includes two interchanges and two rest areas (one in each direction). More specifically, a partial cloverleaf interchange is currently provided at Blanton Road (CR 41) approximately 6.3 miles north of SR 52 in Pasco County and a diamond interchange is present at Cortez Road (US 98/SR 50), approximately 9.3 miles north of CR 41, in Hernando County. The rest areas are located in Sumter County, approximately 5.0 miles north of SR 50 and 1.0 mile south of the northern project terminus.

From north of SR 50 to the northern terminus of the project, the Withlacoochee State Forest abuts the entire western border of I-75 and most of its eastern border. I-75 crosses the Withlacoochee River at the Hernando/Sumter County Line, approximately 1.5 miles from the northern project terminus; this segment is under the jurisdiction of the FDOT District 5.
To facilitate development and evaluation of the improvement alternatives, the project was divided into three segments:

- Segment 1: from north of SR 52 to the Pasco/ Hernando County Line; 7.8 miles
- Segment 2: from the Pasco/Hernando County Line to SR 50; 7.0 miles
- Segment 3: from SR 50 to just south of CR 476B; 6.0 miles.

1.2.3 Need for the Project

The need for improving I-75 within the project limits was established after consideration of the following factors:

- Evaluation of the current and future contribution of I-75 in accommodating regional travel and its importance in providing system-wide linkage within the overall roadway network.
- Review of the federal and state policies regarding I-75 and, where applicable, study of the comprehensive plans and the long-range transportation plans of the local governments involved in this project.
- Assessment of current and future social and economic demands.
- Study of the interrelationships of I-75 with other modes of transportation.
- Evaluation of the quality of traffic operations in the study area for the design year assuming that no capacity improvements will be implemented along this corridor (No-Build Alternative).
- Analyses of the traffic safety statistics for the period between 1999 and 2003.
- Comparison of the geometric characteristics of I-75 with current design standards as well as research of records for structural deficiencies along the project.

1.2.4 Other Related Studies and Projects

In addition to this Study, the FDOT is in the process of widening two additional segments of I-75 immediately to the south and north of this project. Specifically:

- A PD&E Study was completed in 2001 for the segment of I-75 that extends from south of SR 56 to just north of SR 52, in Pasco County (the southern terminus of this project). Similar to this project, I-75 currently provides four travel lanes along this segment within a minimum 300-foot-wide right of way. The PD&E Study recommended widening of I-75 to a six-lane facility. The PD&E Study has now advanced to the Final Design phase.

- A PD&E Study is now under way to evaluate improvement alternatives for the segment of I-75 that extends north of this project, from south of CR 476B to SR 44, in Sumter County. Similar to this project, I-75 currently provides four travel lanes along this segment within a minimum 300-foot-wide right of way. This project is being pursued by the FDOT District 5.

1.3 STUDY ALTERNATIVES

According to the Traffic Technical Memorandum –prepared for this study under separate cover– the annual average daily traffic (AADT) volumes along I-75 during the design year 2030 should be expected to range 90,000 to 107,400 vehicles per day (vpd). To accommodate this projected transportation demand at the SIS standard for this facility of LOS "C", I-75 will need to be widened to an eight-lane highway with four travel lanes in each direction. Also, improvements will be needed at the interchanges of I-75 with CR 41 and SR 50.

In addition to the No-Build alternative, which will remain a viable alternative under consideration until this PD&E study is concluded, two other alternatives were evaluated:

- Instead of improving I-75, widen another existing facility or develop a new corridor that parallels I-75,
- Widen I-75 to an eight-lane highway.

A presentation of these alternatives follows below.

1.3.1 The No-Build Alternative

Under the No-Build Alternative no action will be taken with respect to widening I-75 within the limits of this study. The advantages of the No-Build alternative include:

- No right-of-way acquisition,
- No relocations,
- No construction costs,
- No inconveniences to the motoring public due to construction,
- No inconveniences to the adjacent property owners due to construction, and
- No degradation or disruption of natural and other environmental resources.

The disadvantages of the No-Build alternative include:

- The LOS "C" standard for I-75 will not be met and therefore, this facility will not be consistent with the SIS specifications. I-75 will become increasingly congested resulting in increased road user costs and air pollution.

- This alternative is inconsistent with the 2025 Long Range Transportation Plans (LRTPs) of Pasco and Hernando counties Metropolitan Planning Organizations (MPOs) and the comprehensive plans of Pasco, Hernando, and Sumter counties. All of these documents call for widening improvements of I-75 within the project limits.

1.3.2 Development/Widening of Other Corridors

Potential alternative corridors to improving the I-75 corridor could be: a) the development of a new parallel corridor east or west of I-75 and b) the improvement of one or more existing parallel facilities.

The alternative to develop a new north/south limited access highway that parallels I-75 either east or west of I-75 was abandoned early on in this study due to the magnitude of the natural environment, economic, social, cultural, and physical effects such an alternative poses. Such a corridor is not identified in any MPOs' LRTP nor is discussed in any comprehensive plan of any county.

There are two other FIHS facilities several miles west of I-75 that partially accommodate regional north/south travel and, therefore, were considered as alternative routes for improvement: Suncoast Parkway (SR 589) and US 19. Suncoast Parkway (SR 589) –a four-lane, limited access, toll facility– runs in a generally north/south direction approximately 15 miles west of I-75 and connects the Veterans Expressway in Hillsborough County with US 98 in Hernando County. US 19, located approximately 20 miles west of I-75, is a controlled access, multi-lane facility with numerous signalized intersections and driveway connections along its path. US 19 provides access to high-intensity commercial and office space land uses and is highly congested in Pinellas and Pasco counties and moderately congested in Hernando and Citrus counties. Neither of these facilities connects with I-75 and, therefore, they do not provide system continuity.

In addition, two other north/south regional routes were considered: US 41/SR 45 approximately 10 miles west of I-75 and US 301/SR 35 approximately 5 miles east of I-75. Both of these facilities are in their most part two-lane routes with limited capacity. Improvement of these routes to assume portions of the future traffic demands of I-75 would involve extensive right of way acquisitions and environmental and socioeconomic effects. For this reasons, the alternative to widen another existing facility instead of I-75 was also eliminated from further consideration.

1.3.3 Widen I-75 to an Eight-Lane Highway

Based on the current FDOT design criteria, the widening of I-75 to provide eight through lanes –four in each direction– can be accommodated within its existing 300-foot-wide ROW. Additional ROW, however, may be required for interchange improvements and for stormwater management facilities (SMFs).

1.3.3.1 Typical Section Alternatives

Three typical section alternatives were developed based on the location where the additional through lanes will be placed in relation to the existing lanes, as follows:

- The "Inside" Widening Alternative which proposes construction of the additional four lanes into the existing median.
- The "Inside & Outside" Widening Alternative which proposes, for each direction, the construction of one additional lane within the median and one additional lane to the outside where the existing outside shoulder is presently located.
- The "Outside" Widening Alternative which proposes, for each direction, the placement of two additional lanes along the outside of the two existing lanes.

The advantages and disadvantages of each of these alternatives are discussed in detail in the Preliminary Engineering Report, prepared for this study under separate cover. The "Inside & Outside" Widening Alternative was selected for the entire length of this project as the most suitable solution. **Figure 1-3** depicts the proposed typical section for I-75.

1.3.3.2 Interchange Improvements

The traffic analyses have indicated that improvements will be necessary for the existing interchanges of I-75 at CR 41 and SR 50 in order to accommodate the design year traffic demands at acceptable levels of service. Several alternative design concepts were developed for improving the two interchanges, as follows:

- I-75 at CR 41 Interchange: Two alternative design concepts were considered for improving the interchange at CR 41. Under both alternatives, both intersections of the ramp termini at CR 41 will need to be signalized. The limited access right-of-way limits will also be required to be extended a further distance away from the interstate than the current limits. CR 41 will be widened to provide a four-lane rural typical section from east of the northbound ramps to west of the southbound ramps. The FDOT will coordinate with Pasco County to develop an implementation plan for the widening of CR 41. The local access roads located in the northwestern and southeastern quadrants will need to be extended beyond the new limited access right-of-way lines. These alternatives are discussed in detail in the Preliminary Engineering Report, which was prepared for this study. A brief description of the two concepts is provided below.

- **The "Expanded Partial Cloverleaf" Improvement Alternative** proposes to provide additional storage capacity for the exit ramps and to allow higher ramp operating speeds by maintaining the existing interchange configuration while lengthening all ramps by moving the intersections of the ramp termini at CR 41 further apart as well as moving the gore areas along I-75 further downstream.

- **The "NB Diamond and SB Partial Cloverleaf" Improvement Alternative** assumes that the existing loop ramps in the northeastern quadrant will be replaced with diamond-type "slip" ramps similar to those currently provided for the northbound on- and off-ramps at SR 50. Also, this alternative includes lengthening the existing southbound on- and off-ramps in a similar fashion as proposed in the previous concept.

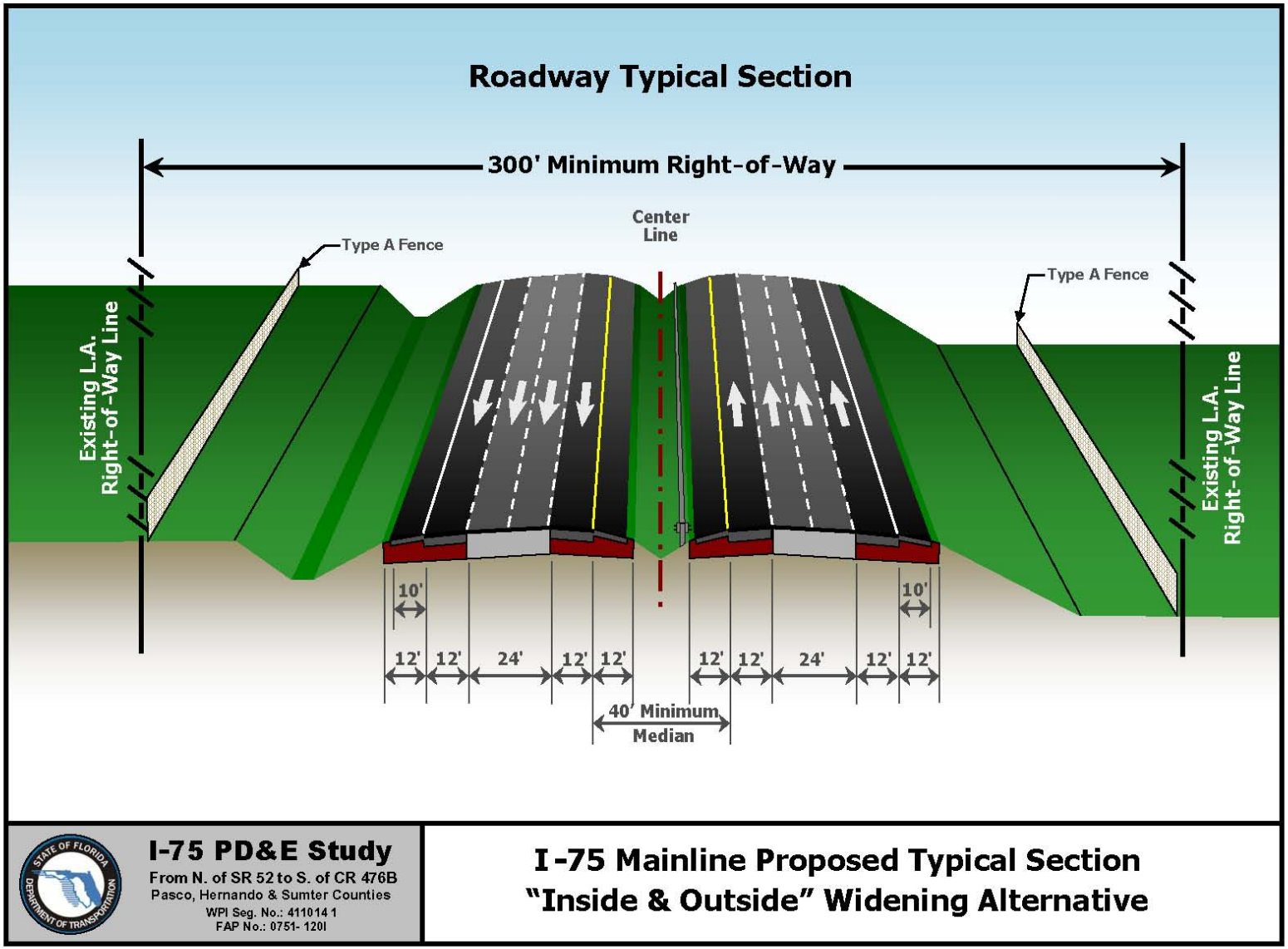

Roadway Typical Section
300' Minimum Right-of-Way
Center Line
Type A Fence
Type A Fence
Existing L.A. Right-of-Way Line
Existing L.A. Right-of-Way Line
10'
10'
12' 12' 24' 12' 12'
12' 12' 24' 12' 12'
40' Minimum Median
I-75 PD&E Study
From N. of SR 52 to S. of CR 476B
Pasco, Hernando & Sumter Counties
WPI Seg. No.: 4110141
FAP No.: 0751-120I
I-75 Mainline Proposed Typical Section
"Inside & Outside" Widening Alternative

Figure 1-3

Based on review of the operational characteristics of the two alternatives and their associated costs, the "NB Diamond and SB Partial Cloverleaf" improvement alternative was selected as the most suitable solution for this interchange.

- I-75 at SR 50 Interchange: Four alternative design concepts were considered for improving traffic operations at the I-75 interchange at SR 50. These alternatives are discussed in detail in the Preliminary Engineering Report, which was prepared for this study. A brief description of these concepts follows below:

    - **Alternative A – Provide a Loop Ramp in the Northwestern Quadrant**: this alternative proposes the construction of a new loop ramp in the northwestern quadrant of the interchange. This ramp will accommodate the motorists who are traveling westbound on SR 50 and are destined to southbound I-75. Construction of the new loop ramp will require realignment of the southbound off-ramp. Several businesses currently situated in this quadrant will have to be relocated. The local access roads located in the northwestern and southwestern quadrants will need to be extended beyond the new limited access right-of-way lines.

    - **Alternative B – Provide a "Flyover" Ramp Originating from the SR 50 Right Side**: this alternative provides a direct "flyover" ramp for the motorists traveling westbound on SR 50 and are destined to southbound I-75. However, this alternative allows for a conventional right-side ramp entrance from SR 50. This alternative directly impacts multiple businesses along the north side of SR 50 that will need to be relocated. In addition, Windmere Boulevard will have to be realigned to form a new intersection with SR 50 further to the east.

    - **Alternative C – Provide a "Flyover" Ramp Originating from the SR 50 Median**: this alternative is similar with the previous alternative in that it will also accommodate the motorists who are traveling westbound on SR 50 and are destined to southbound I-75 by providing a direct "flyover" ramp, thus removing this traffic entirely from traveling through the signalized intersections at the ramp termini. Instead of providing a conventional right-side entrance for this ramp from SR 50, the ramp entrance is placed in the median to minimize access and relocation impacts on adjacent properties along SR 50.

    - **Alternative D – Provide a "Flyover" Ramp Carrying the Northbound I-75 to Westbound SR 50 Exiting Traffic**: this alternative will accommodate the motorists who are traveling northbound on I-75 and are destined to westbound SR 50 by providing a direct "flyover" ramp, thus removing this traffic entirely from traveling through the signalized intersections at the ramp termini. This movement is part of the SIS system. To avoid access impacts on several businesses located along the

north side of SR 50, the "touchdown" point of the ramp is proposed within the SR 50 median.

Based on review of several factors and comments received at the Public Hearing, Alternative D was selected as the best solution for this interchange.

1.4 THE "PREFERRED" ALTERNATIVE

After consideration and evaluation of several engineering and environmental factors, the alternative that includes the widening of I-75 to an eight-lane facility for the entire project segment and the expansion of the existing interchanges at CR 41 and SR 50 was selected as the most appropriate to accommodate the design year 2030 traffic demands.

The "preferred" alternative selected for this project was based on the traffic analyses, the evaluation of several alternatives, and input collected from the various project stakeholders through the Public Involvement Program efforts. To make best use of the FDOT and the FHWA funds in implementing these improvements while ensuring that efficient and safe traffic operations are provided along the project at all times, it was recommended that the "preferred" alternative is constructed in two phases. A brief description of the improvements included in the "preferred" alternative and their construction phasing follows below. Additional detailed information regarding the proposed improvements is provided in subsequent sections.

1.4.1 Phase 1 Improvements

In Phase 1, the mainline of I-75 will be widened to provide six lanes by constructing a 12-foot-wide travel lane in each direction of I-75 within the median, along the existing inside lane. The widening of I-75 will be accommodated within the existing right-of-way. This phase will also include the replacement of the existing I-75 bridges over SR 50 to accommodate the need for additional lanes along SR 50. The proposed replacement bridges over SR 50 and the I-75 profile approaching the bridges will be at a higher elevation to meet current design standards. These elevation changes will require the ramps to be re-constructed and lengthened in order to "tie in" to the new roadway in a safe and efficient manner. With the exception of widening the existing structures at Croom Rital Road and the Withlacoochee River, it is not anticipated that other bridges in the study section will be affected during this phase of construction.

Phase 1 will also include right-of-way acquisition for the sites and construction of the stormwater management facilities, as required, to accommodate the "ultimate" improvements of I-75.

It is estimated, based on the current traffic growth trends, that these improvements will be sufficient to accommodate the traffic demands along I-75 until the year 2021.

1.4.2 Phase 2 Improvements

In Phase 2, the mainline of I-75 will be widened to provide eight lanes by constructing an additional travel lane in each direction of I-75 along the existing outside lane. To accommodate this widening and provide adequate horizontal clearances, all minor roadway overpass bridges with the exception of Church Road will need to be replaced. The widening of I-75 will occur within the existing right-of-way.

Phase 2 also includes the construction of the improvements at the interchanges of I-75 at CR 41 (the "NB Diamond and SB Partial Cloverleaf" Improvement Alternative) and SR 50 (Improvement Alternative D) as previously described.

2. PROJECT APPROACH AND METHODOLOGY

The services for this project consisted of providing geotechnical engineering services in general accordance with the PD&E Study Scope of Services as defined in Exhibit "A" issued by the FDOT. The services included performing a field reconnaissance and a review of existing data including aerial photographs, USDA SCS Soil Survey maps, USGS topographic maps, existing plans, design engineering information for past construction projects within the study area, and records of sinkhole activity.

The purpose of this geotechnical study was to obtain preliminary information concerning the general subsurface soil and groundwater conditions along the project alignment in order to characterize the general subsurface stratigraphy, assess the suitability of the project site for the proposed improvements, identify constraints or limitations that the subsurface conditions may impose on the planned construction, and provide geotechnical recommendations to guide the design and construction of the project. The following services were provided in order to achieve the preceding objectives:

1. Conducted a general visual reconnaissance of the project alignment.

2. Reviewed readily available published topographic and soils information. This published information was obtained from the "San Antonio, Florida", “Spring Lake, Florida”, “Lacoochee, Florida” and “Saint Catherine, Florida” Quadrangle Maps published by the USGS, and the "Soil Survey of Pasco, Hernando and Sumter Counties, Florida" published by the USDA SCS.

3. Reviewed available existing plans from the past projects in the study area.

4. Provided the anticipated seasonal high groundwater level (SHGWL) and shallow soil conditions along the project alignment as published by the USDA SCS.

5. Identified areas with problematic soil and groundwater conditions based on the USDA SCS information. These conditions include near-surface boulders, shallow organic materials (muck), shallow clayey soils, and shallow seasonal high groundwater levels.

6. Evaluated the feasibility of typical foundation alternatives for the future widening of the project bridge structures.

7. Completed a preliminary sinkhole/ground subsidence evaluation for the project areas.

8. Prepared this geotechnical engineering report to support the PD&E study for the design of the proposed project.

3. SUBSURFACE SOIL CONDITIONS

3.1 USGS TOPOGRAPHIC SURVEY

The published USGS topographic survey maps titled “San Antonio, Florida”, “Spring Lake, Florida”, “Lacoochee, Florida” and “Saint Catherine, Florida”, were reviewed for ground surface features along the project alignment. Based on this review, the natural ground surface elevations are generally within the range of 55 to 200 feet based on the National Geodetic Vertical Datum (NGVD) of 1929. A reproduction of the quadrangle maps for the project vicinity can be seen on **Figures 2-1 through 2-3** in **Appendix A**.

3.2 REGIONAL GEOLOGY

The uppermost layers consist of young undifferentiated sediments underlain by the Hawthorn Group of formations. The Hawthorn consists of fine to medium grained quartz sands, silt, clay and limestone in varying proportions and thicknesses. Beneath the Hawthorn lies the Ocala Limestone. The surface of the Ocala formation is locally very irregular. The upper part of the Ocala Limestone is a white, generally soft, somewhat friable, porous coquina composed of large foraminifera, bryozoan fragments and whole to broken echinoid remains, all loosely bound by a matrix of micritic limestone. The lower part of the Ocala Limestone consists of cream to white, generally fine-grained, soft to semi-indurated, micritic limestone containing abundant miliolid remains and scattered large foraminiferas.

3.3 USDA SCS SOIL SURVEY

USDA SCS soil surveys provide general information regarding near-surface (typically to depths of approximately 60 to 99 inches) soil and groundwater conditions. To generally assess the near-surface conditions within the limits of the project, the soil maps provided in the "Soil Survey of Pasco, Hernando and Sumter Counties, Florida" were reviewed and are presented on **Figures 3-1 through 3-3** in **Appendix A**. In addition, the SCS data are summarized in **Table 3-1**, which provides the soil map unit names, typical American Association of State Highway and Transportation Officials (AASHTO) and Unified Soil Classification System (USCS) soil classification, and the reported depths to seasonal high groundwater levels for the soil map units encountered within the project limits.

In general, the surficial soils consist of poorly graded fine sands, silty sands and silty to clayey fine sands underlain by clayey fine sands and clays. As can be seen in **Table 3-1**, some clayey fine sands and clays were encountered at shallow depths of less than 30 inches below the ground surface. Organic soils (muck) may also be encountered in some areas. Seasonal high water levels along the alignment may range from 2.0 feet above the natural ground surface to greater than 6.0 feet below the natural ground surface. Surface and/or subsurface boulders may also be encountered in a few areas near the northern end of the project alignment.

Table 3-1
USDA SCS Soil Survey Information

USDA Soil Series	Seasonal High Groundwater Table		Soil Classification		
	Depth (feet)	Duration (months)	Depth (inches)	Unified	AASHTO
PASCO COUNTY					
Wauchula Fine Sand, 0 to 5% Slopes (1)	0.0–1.0	Jun–Feb	0–8 8–19 19–26 26–34 34–80	SP-SM SP-SM, SM SP-SM, SM SP-SM, SM SM, SM-SC, SC	A-3, A-2-4 A-3, A-2-4 A-3, A-2-4 A-3, A-2-4 A-2-4, A-2-6, A-4, A-6
Pomona Fine Sand (2)	0.0–1.0	Jul–Sep	0–6 6–22 22–36 36–52 52–60	SP-SM SP, SP-SM, SM SP-SM, SM SP, SP-SM SC, SM-SC, SM	A-3, A-2-4 A-3, A-2-4 A-3, A-2-4 A-3, A-2-4 A-2-4, A-4, A-6
Tavares Sand, 0 to 5% Slopes (6)	3.5–6.0	Jun–Dec	0–86	SP, SP-SM	A-3
Sparr Fine Sand, 0 to 5% Slopes (7)	1.5–3.5	Jul–Oct	0–6 6–43 43–48 48–59 59–80	SP-SM SP-SM SM-SC, SC, SM SC, SM-SC SC, SM-SC, SM	A-3, A-2-4 A-3, A-2-4 A-2 A-2, A-4, A-6 A-2, A-4, A-6
Zephyr Muck (16)	+2.0–1.0	Jun–Feb	13–0 0–18 18–48 48–67	PT SP-SM, SM SM, SM-SC, SC SM, SM-SC, SC	A-8 A-3, A-2-4 A-2-4, A-2-6 A-2-4, A-4
Basinger Fine Sand, Depressional (23)	+2.0–1.0	Jun–Feb	0–10 10–30 30–80	SP SP, SP-SM SP, SP-SM	A-3 A-3, A-2-4 A-3, A-2-4
Pompano Fine Sand (34)	0.0–1.0	Jun–Nov	0–80	SP, SP-SM	A-3, A-2-4
Arredondo Fine Sand, 5 to 8% Slopes (44)	>6.0	-----	0–52 52–55 55–80	SP-SM, SM SM, SM-SC SC, SM-SC	A-2-4, A-3 A-2-4 A-2-4, A-2-6 A-4, A-6
Lochloosa Fine Sand, 0 to 5% Slopes (48)	2.5–5.0	Jul–Oct	0–36 36–42 42–63 63–72 72–80	SP-SM, SM SM, SM-SC SC, SM-SC SC SC, SM-SC	A-2-4, A-3 A-2-4 A-2, A-4, A-6 A-6, A-7 A-2, A-4, A-6
Blichton Fine Sand, 0 to 2% Slopes (49)	0.0–1.0	Jun–Sep	0–22 22–28 28–63 63–80	SP-SM, SM SM, SM-SC SC SM-SC, SM	A-2-4, A-3 A-2-4 A-6 A-2-4
Blichton Fine Sand, 2 to 5% Slopes (50)	0.0–1.0	Jun–Sep	0–38 38–44 44–50 50–62 62–80	SP-SM, SM SM, SM-SC SC SC SM-SC, SM	A-2-4, A-3 A-2-4 A-6 A-2, A-6, A-7 A-2-4

Table 3-1
USDA SCS Soil Survey Information (Continued)

USDA Soil Series	Seasonal High Groundwater Table		Soil Classification		
	Depth (feet)	Duration (months)	Depth (inches)	Unified	AASHTO
Sparr Fine Sand, 5 to 8% Slopes (53)	1.5–3.5	Jul–Oct	0–6 6–57 57–61 61–69 69–80	SP-SM SP-SM SM-SC, SC, SM SC, SM-SC SC, SM-SC, SM	A-3, A-2-4 A-3, A-2-4 A-2 A-2, A-4, A-6 A-2, A-4, A-6
Flemington Variant Fine Sand, 2 to 5% Slopes (54)	0.0–2.5	Jun–Sep	0–5 5–80	SP-SM, SM SC, CL, CH	A-3, A-2-4 A-7
Newnan Fine Sand, 0 to 5% Slopes (59)	1.5–2.5	Aug–Feb	0–22 22–33 33–44 44–80	SP, SP-SM SP-SM, SM SP, SP-SM, SM SM, SM-SC, SC	A-3, A-2-4 A-3, A-2-4 A-3, A-2-4 A-2-4, A-4, A-6
HERNANDO COUNTY					
Arredondo Fine Sand, 0 to 5% Slopes (6)	>6.0	-----	0–62 62–69 69–99	SP-SM, SM SM, SM-SC SC	A-2-4, A-3 A-2-4 A-2-6, A-6
Arredondo Fine Sand, 5 to 8% Slopes (7)	>6.0	-----	0–62 62–69 69–99	SP-SM, SM SM, SM-SC SC	A-2-4, A-3 A-2-4 A-2-6, A-6
Blichton Loamy Fine Sand, 2 to 5% Slopes (12)	0.0–1.0	Jun–Sep	0–28 28–34 34–63 63–75	SP-SM, SM SC SC SC, CL, CH	A-2-4, A-3 A-2-4, A-6 A-6 A-6, A-7
Candler Fine Sand, 0 to 5% Slopes (14)	>6.0	-----	0–48 48–80	SP, SP-SM SP-SM	A-3 A-3, A-2-4
Candler Fine Sand, 5 to 8% Slopes (15)	>6.0	-----	0–48 48–80	SP, SP-SM SP-SM	A-3 A-3, A-2-4
Flemington Fine Sandy Loam, 0 to 2% Slopes (20)	0.0–2.5	Jun–Sep	0–5 5–36 36–66 66–81	SM SC, CH, CL CH, MH, CL CH, MH	A-2-4 A-7 A-7 A-7
Floridana-Basinger Association, Occasionally Flooded (24)	0.0–1.0	**Floridana** Jun–Feb **Basinger** Jun–Nov	**Floridana** 0–16 16–27 27–80 **Basinger** 0–80	**Floridana** SP-SM, SM SP, SP-SM SM-SC, SC **Basinger** SP, SP-SM	**Floridana** A-3, A-2-4 A-3 A-2-4, A-2-6 **Basinger** A-3, A-2-4
Kendrick Fine Sand, 0 to 5% Slopes (29)	>6.0	-----	0–28 28–34 34–63 63–80	SP-SM SC, SM-SC SC SC, SM-SC	A-3, A-2-4 A-2-6, A-2-4 A-2-6, A-6 A-2-6, A-2-4
Lake Fine Sand, 0 to 5% Slopes (31)	>6.0	-----	0–82	SP-SM	A-3, A-2-4

Table 3-1
USDA SCS Soil Survey Information (Continued)

USDA Soil Series	Seasonal High Groundwater Table		Soil Classification		
	Depth (feet)	Duration (months)	Depth (inches)	Unified	AASHTO
Nobleton Fine Sand, 0 to 5% Slopes (36)	1.5–3.5	Jul–Oct	0–33 33–37 37–60 60–80 80–85	SP-SM, SM SC SC, CL, CH SC SM, SM-SC, SC	A-2-4 A-2-6, A-6 A-6, A-7 A-2-6, A-6 A-2-4, A-2-6, A-6
Sparr Fine Sand, 0 to 5% Slopes (47)	1.5–3.5	Jul–Oct	0–61 61–64 64–80	SP-SM SM-SC, SM SC, SM-SC	A-3, A-2-4 A-2-4 A-2-4, A-2-6, A-4, A-6
Sparr Fine Sand, 5 to 8% Slopes (48)	1.5–3.5	Jul–Oct	0–61 61–64 64–80	SP-SM SM-SC, SM SC, SM-SC	A-3, A-2-4 A-2-4 A-2-4, A-2-6, A-4, A-6
SUMTER COUNTY					
Candler Fine Sand, 0 to 5% Slopes (4)	>6.0	-----	0–8 8–50 50–80	SP, SP-SM SP, SP-SM SP-SM	A-3 A-3 A-3, A-2-4
Candler Fine Sand, 5 to 8% Slopes (5)	>6.0	-----	0–6 6–56 56–80	SP, SP-SM SP, SP-SM SP-SM	A-3 A-3 A-3, A-2-4
EauGallie Fine Sand, Bouldery Subsurface (21)	0.0–1.0	Jun–Oct	0–8 8–25 25–36 36–57 57–80	SP SP SP-SM, SM SP, SP-SM SM, SM-SC, SC	A-3 A-3 A-3, A-2-4 A-3, A-2-4 A-2-4, A-2-6
Sumterville Fine Sand, Bouldery Subsurface, 0 to 5% Slopes (27)	1.5–3.0	Jul–Oct	0–9 9–29 29–80	SP-SM, SM SP-SM, SM CL, CH	A-3, A-2-4 A-3, A-2-4 A-7
Nitaw Muck, Frequently Flooded (29)	0.0–1.0	Jun–Nov	0–5 5–12 12–65 65–80	PT SP-SM, SM CH, CL SP, SP-SM, SM SM-SC	A-8 A-3, A-2-4 A-7 A-3, A-2-4

3.4 AREAS WITH PROBLEMATIC SOIL AND GROUNDWATER CONDITIONS IDENTIFIED BY USDA SCS SOIL SURVEYS

3.4.1 Shallow Seasonal High Groundwater Levels

The seasonal high groundwater level is defined by USDA SCS as the highest level of a saturated zone in the soil in most years. According to the SCS, it is typically estimated within an accuracy of approximately 6 inches and can temporarily be exceeded during

periods of extended heavy rainfall, storms and floods. Based on the "Soil Survey of Pasco, Hernando and Sumter Counties, Florida", several soil map units with relatively shallow seasonal high groundwater levels ranging from 2 feet above the ground surface to a depth of 1 foot have been identified within the project limits. These soil map units are summarized as follows:

Pasco County:

- Wauchula Fine Sand, 0 to 5 Percent Slopes (1)
- Pomona Fine Sand (2)
- Zephyr Muck (16)
- Basinger Fine Sand, Depressional (23)
- Pompano Fine Sand (34)
- Blichton Fine Sand, 0 to 2 Percent Slopes (49)
- Blichton Fine Sand, 2 to 5 Percent Slopes (50)

Hernando County:

- Blichton Loamy Fine Sand, 2 to 5 Percent Slopes (12)
- Floridana-Basinger Association, Occasionally Flooded (24)

Sumter County:

- EauGallie Fine Sand, Bouldery Subsurface (21)
- Nitaw Muck, Frequently Flooded (29)

Areas with shallow seasonal high groundwater levels identified by the above-mentioned soil map units are illustrated on **Figures 4-1 through 4-3** in **Appendix A.**

3.4.2 Organic Materials (Muck)

USDA SCS soil surveys indicate that some organic soils (muck, A-8 classification) were noted in areas in the vicinity of Stanley Branch (approximately 1.5 miles north of SR 52) near the southern end of the project, and in the vicinity of the Withlacoochee River near the northern end of the project. All or some of these organic soils may require removal and replacement depending on final roadway alignments and profiles. The soil map units encountered indicating organic soils within the project limits are summarized as follows:

Pasco County:

- Zephyr Muck (16)

Sumter County:

- Nitaw Muck, Frequently Flooded (29)

Areas with organic soils identified by the above-mentioned soil map units are illustrated on **Figures 5-1 and 5-2** in **Appendix A.**

3.4.3 Shallow Clayey Soils

Based on the "Soil Survey of Pasco, Hernando and Sumter Counties, Florida", relatively shallow clayey soils (A-2-6, A-6 and A-7) were indicated in several areas along the project alignment at depths of less than 30 inches below the ground surface. The soil map units encountered indicating shallow clayey soils within the project limits are summarized as follows:

Pasco County:

- Zephyr Muck (16)
- Blichton Fine Sand, 0 to 2 Percent Slopes (49)
- Flemington Variant Fine Sand, 2 to 5 Percent Slopes (54)

Hernando County:

- Blichton Loamy Fine Sand, 2 to 5 Percent Slopes (12)
- Flemington Fine Sandy Loam, 0 to 2 Percent Slopes (20)
- Floridana-Basinger Association, Occasionally Flooded (24)
- Kendrick Fine Sand, 0 to 5 Percent Slopes (29)

Sumter County:

- Sumterville Fine Sand, Bouldery Subsurface, 0 to 5 Percent Slopes (27)
- Nitaw Muck, Frequently Flooded (29)

Areas with shallow clayey soils identified by the above-mentioned soil map units are illustrated on **Figures 6-1 through 6-3** in **Appendix A.**

3.4.4 Near-Surface Boulders

The "Soil Survey of Sumter County, Florida" indicates several areas near the northern end of the project where near-surface boulders were encountered. These boulders may affect costs for clearing and grubbing or any excavations that may be required. The soil map units encountered indicating near-surface boulders within the project limits are summarized as follows:

Sumter County:

- EauGallie Fine Sand, Bouldery Subsurface (21)
- Sumterville Fine Sand, Bouldery Subsurface, 0 to 5 Percent Slopes (27)

Areas with near-surface boulders identified by the above-mentioned soil map units are illustrated on **Figure 7-1** in **Appendix A.**

3.5 REVIEW OF EXISTING ROADWAY PLANS

To supplement the USDA SCS data, the existing I-75 roadway plans for the projects completed within the project vicinity were reviewed to evaluate the more site-specific geotechnical data included in the roadway soil surveys. Soil survey sheets included in the plans provided soil description, AASHTO classification and associated laboratory test results for each stratum number. Results of the roadway soil surveys revealed subsurface soils predominantly consisting of sandy soils of A-3 and A-2-4 materials underlain by plastic clayey soils of A-2-6, A-4, A-6 and A-7 materials, which correlated reasonably well with the USDA SCS soil surveys. In addition, the roadway soil surveys indicated several areas where organic soils (muck) were encountered. Locations of these areas and approximate depths of the organic soils are summarized as follows:

- Station 1289+40 to Station 1296+20 (approximate depths = 0 to 1.5 feet)
- Station 1550+50 to Station 1554+50 (approximate depths = 0 to 1.5 feet)
- Station 1562+50 to Station 1575+80 (approximate depths = 0 to 2.5 feet)
- Station 1665+50 to Station 1675+00 (approximate depths = 0 to 0.5 feet)
- Station 1675+00 to Station 1681+80 (approximate depths = 0 to 4.5 feet)
- Station 1834+50 to Station 1835+50 (approximate depths = 0 to 1.8 feet)

4. PRELIMINARY EVALUATION OF ROADWAY AREAS

4.1 SOIL USAGE SUMMARY

Based on the review of published information and available geotechnical information from the past projects within the study area, the existing subsurface soils along the project alignment should generally be acceptable for construction to support a typical embankment pavement section after proper subgrade preparation. Unsuitable soils including shallow plastic clayey soils, muck, or debris, if encountered within the right-of-way during construction, should be removed and replaced with compacted select sands in accordance with FDOT requirements.

Material use and/or removal should be completed in accordance with FDOT Indices 500 and 505. Materials directly beneath the base should be "SELECT" materials. The removal of topsoil and other surficial organic soil deposits should be accomplished in accordance with FDOT Standard Specifications for Road and Bridge Construction, Section 110 and the Standard Indices. Organic soils are highly compressible and may cause excessive settlements if left in-place. This material is also susceptible to significant secondary compression settlements.

Backfill should consist of materials conforming to Standard Index 505 and compacted in accordance with the Standard Specifications for Road and Bridge Construction.

Shallow groundwater is a concern for the proposed roadway alignment and roadway grades should be evaluated to make certain that minimum requirements are maintained for separation of roadway base materials and the estimated seasonal high groundwater levels

4.1.1 Earth Embankments

In general, the majority of the fine sands to slightly silty fine sands can be moved and used for grading purposes, site leveling, general engineering fill, structural fill and backfill in other areas, provided the material is free of organic materials, clay, debris or any other material deemed unsuitable for construction. Clayey or silty soils if encountered, may be used as embankment soils as described in FDOT Index 505.

4.1.2 Pavement Design Considerations

The design Limerock Bearing Ratio (LBR) value for pavements constructed on fill should be based on the earthfill material. The "SELECT" materials generally have an LBR value of 20. Based on published information and past experience in the project area, groundwater levels along the corridor may vary from 2.0 feet above the natural ground surface to greater than 6.0 feet below the natural ground surface. The bottom of the base of the proposed improvements should be a minimum of 1.5 feet above sustained water levels in roadside ditches, making positive drainage of the ditches important. The

choice of base material would depend upon the relationship of final roadway improvement grades and the bottom of the base to the estimated seasonal high groundwater table levels. Shell base materials can be more resistant to wet conditions than limerock. Crushed concrete is also less sensitive to moisture than limerock. It is generally more favorable to raise grades when shallow water tables are encountered, if possible, than to use less sensitive base materials such as black base.

4.2 ROADWAY CONSTRUCTION

Site preparation and roadway construction should be in accordance with the latest FDOT Standard Specifications for Road and Bridge Construction and the Roadway and Traffic Design Standards. Along much of the roadway alignment, high groundwater conditions should be expected. Depending upon groundwater levels at the time of construction, some form of dewatering may be required in areas for excavation and compaction below the water table.

Along portions of the alignment, excavation of unsuitable near-surface soils may be required. Unsuitable near-surface soils that may be encountered consist of organic soils (A-8 materials) or plastic clayey soils (A-2-6, A-6 and A-7 materials). In addition, there is potential to encounter near-surface boulders in a few areas near the northern end of the project alignment. Organic soils, plastic clayey soils, and near-surface boulders, if encountered at depths that will affect the proposed construction, should be delineated during the design phase of the I-75 project. The project cross-sections should clearly indicate where organic soils, plastic clayey soils and/or near-surface boulders may be encountered or required to be over-excavated.

5. EVALUATION OF STORMWATER MANAGEMENT AREAS

Seasonal high groundwater estimates presented in this report are based on data published by the USDA SCS and are presented on **Table 3-1** in **Section 3** of this report.

In general, the surficial soils consist of poorly graded fine sands, silty sands and silty to clayey fine sands underlain by clayey fine sands and clays. Based on the SCS data, the permeability for these soils ranges from less than 0.06 to greater than 20.00 inches per hour. Seasonal high water levels may range from 2.0 feet above the natural ground surface to greater than 6.0 feet below the natural ground surface. As revealed in the "Soil Survey of Sumter County, Florida", near-surface boulders may also be encountered in a few areas near the northern end of the project alignment. Excavations in these areas can be difficult and therefore the limits of near-surface boulders, if encountered in areas proposed for pond excavation, will need to be delineated during the design level study.

The majority of the fine sands to slightly silty fine sands (A-3 and A-2-4) can be moved and used for grading purposes, site leveling, general engineering fill, structural fill and backfill in other areas, provided the fill is free of organic materials, clay, debris or any other material deemed unsuitable for construction. Clayey or silty soils may be used as embankment soils as described in FDOT Index 505.

6. EVALUATION OF BRIDGE FOUNDATIONS

6.1 EXISTING BRIDGE STRUCTURES

There are sixteen (16) existing bridge structures located within the project limits. Ten (10) of these structures carry I-75 across other roadways, or other features such as rivers and creeks, and the remaining six (6) structures carry other roadways over I-75. The bridge structures are listed below.

- **I-75 over Stanley Branch** (Bridge No. 140058, 3 spans, 39.4 feet long):

  The existing concrete culvert carries I-75 over Stanley Branch. The structure consists of a three-barrel concrete culvert.

- **Darby Road/CR-578A over I-75** (Bridge No. 140046, 4 spans, 298.5 feet long):

  The existing bridge carries Darby Road/CR-578A over I-75. The substructure consists of end bents founded on 18 inch square concrete piles, and intermediate piers supported on 14 inch square concrete piles.

- **CR-578 over I-75** (Bridge No. 140940, 4 spans, 215 feet long):

  The existing bridge carries CR-578A over I-75. The substructure consists of end bents founded on 18 inch square concrete piles, and intermediate piers supported on 14 inch square concrete piles.

- **I-75 over Thomas Prairie Creek** (Bridge No. 140038, 2 spans, 30.2 feet long):

  The existing concrete culvert carries I-75 over Thomas Prairie Creek. The structure consists of a two-barrel concrete culvert.

- **CR-577 over I-75** (Bridge No. 140042, 4 spans, 305.1 feet long):

  The existing bridge carries CR-577 over I-75. The substructure consists of end bents founded on HP 12x53 steel piles, and intermediate piers supported on 18 inch square concrete piles.

- **CR-41 over I-75** (Bridge No. 140006, 5 spans, 390.5 feet long):

  The existing bridge carries CR-41 over I-75. The substructure consists of end bents founded on HP 12x53 steel piles, and intermediate piers supported on 18 inch square concrete piles.

- **School Bus Road over I-75** (Bridge No. 080012, 5 spans, 345 feet long):

  The existing bridge carries School Bus Road over I-75. The substructure consists of end bents founded on HP 12x53 steel piles, and intermediate piers supported on 18 inch square concrete piles.

- **Hickory Hill Road over I-75** (Bridge No. 080920, 4 spans, 362 feet long):

  The existing bridge carries Hickory Hill Road over I-75. The substructure consists of end bents founded on HP 12x53 steel piles, and intermediate piers supported on 18 inch square concrete piles.

- **SB I-75 over SR 50** (Bridge No. 080021, 4 spans, 174 feet long):

  The existing bridge carries SB I-75 over SR 50. The substructure consists of end bents founded on HP 12x53 steel piles and 18 inch square concrete piles, and intermediate piers supported on 18 inch square concrete piles and 48 inch diameter drilled shafts.

- **NB I-75 over SR 50** (Bridge No. 080022, 4 spans, 174 feet long):

  The existing bridge carries NB I-75 over SR 50. The substructure consists of end bents founded on HP 12x53 steel piles and 18 inch square concrete piles, and intermediate piers supported on 18 inch square concrete piles and 48 inch diameter drilled shafts.

- **SB I-75 over Croom Rital Road** (Bridge No. 080023, 5 spans, 279.5 feet long):

  The existing bridge carries SB I-75 over Croom Road. The substructure consists of end bents founded on HP 12x53 steel piles and 18 inch square concrete piles, and intermediate piers supported on 18 inch square concrete piles.

- **NB I-75 over Croom Rital Road** (Bridge No. 080024, 5 spans, 279.5 feet long):

  The existing bridge carries NB I-75 over Croom Road. The substructure consists of end bents founded on HP 12x53 steel piles and 18 inch square concrete piles, and intermediate piers supported on 18 inch square concrete piles.

- **SB I-75 over Withlacoochee River** (Bridge No. 080025, 7 spans, 350 feet long):

  The existing bridge carries SB I-75 over Withlacoochee River. The substructure consists of end bents founded on HP 12x53 steel piles and 18 inch square concrete piles, and intermediate piers supported on 18 inch square concrete piles.

- **NB I-75 over Withlacoochee River** (Bridge No. 080026, 7 spans, 350 feet long):

  The existing bridge carries NB I-75 over Withlacoochee River. The substructure consists of end bents founded on HP 12x53 steel piles and 18 inch square concrete piles, and intermediate piers supported on 18 inch square concrete piles.

- **SB I-75 over Forestry Road** (Bridge No. 180027, 4 spans, 190 feet long)

- **NB I-75 over Forestry Road** (Bridge No. 180028, 4 spans, 190 feet long)

6.2 REVIEW OF EXISTING STRUCTURES PLANS

As part of the project scope, PSI has reviewed available existing structures plans for the following locations:

- Darby Road/CR-578A over I-75
- CR-578 over I-75.
- CR-577 over I-75
- CR-41 over I-75
- School Bus Road over I-75
- Hickory Hill Road over I-75
- SB and NB I-75 over SR 50
- SB and NB I-75 over Croom Rital Road
- SB and NB I-75 over Withlacoochee River

These plans including Plan and Elevation sheets, Report of Core Borings sheets, and foundation layout sheets were reviewed to assess existing soil data and to determine the foundation systems used to support the existing structures. Specific boring locations and boring logs for each bridge site are provided in **Appendix B** on Plan and Elevation sheets and/or Report of Core Borings sheets. The subsurface soil conditions encountered at the boring locations are outlined below.

- **Darby Road/CR-578A over I-75** – The subsurface conditions consisted of about 5 to 15 feet of loose to medium dense sands underlain by firm to hard clays extending to depths of about 35 to 45 feet below the ground surface. Below the clays, hard limestone was encountered.

- **CR-578 over I-75** – The subsurface conditions consisted of about 5 to 15 feet of loose to dense sands underlain by firm to hard clays extending to depths of about 30 to 50 feet below the ground surface. Below the clays, hard limestone was encountered.

- **CR-577 over I-75** – The subsurface conditions consisted of about 5 to 10 feet of loose to medium dense sands underlain by stiff to hard clays extending to depths of about 30 to 40 feet below the ground surface. Below the clays, hard limestone was encountered.

- **CR-41 over I-75** – The subsurface conditions consisted of about 4 to 7 feet of medium dense fills/sands underlain by firm to hard clays extending to depths of about 47 to 60 feet below the ground surface. Below the clays, approximately 11 to 16 feet of soft to hard transitional materials described as limestone and clays extended to hard limestone encountered at depths of about 70 feet below the ground surface.

- **School Bus Road over I-75** – The subsurface conditions consisted of about 4 to 9 feet of medium dense sands underlain by firm to hard clays extending to depths of

about 46 to 57 feet below the ground surface. Below the clays, hard limestone was encountered. In the borings performed at the Piers 3 and 4 locations, a cavity about 1 to 4 feet thick was noted on the Report of Core Borings between the clays and limestone.

- **Hickory Hill Road over I-75** – The subsurface conditions consisted of about 9 to 12 feet of loose to medium dense sands underlain by soft to hard clays extending to depths of about 53 to 63 feet below the ground surface.

- **SB and NB I-75 over SR 50** – The subsurface conditions consisted of loose to very dense sands throughout, with occasional layers of stiff to very stiff clays encountered at depths ranging from 50 to 75 feet below the ground surface.

- **SB and NB I-75 over Croom Rital Road** – The subsurface conditions consisted of about 22 to 50 feet of loose to dense sands underlain by firm to hard clays extending to depths of about 35 to 60 feet below the ground surface. Below the clays, hard limestone was encountered.

- **SB and NB I-75 over Withlacoochee River** – The subsurface conditions consisted of very loose to very dense sands underlain by very soft to hard clays. Organic soils (muck) were encountered at numerous locations from the ground surface to depths of about 0.5 to 4 feet below the ground surface. Below the clays, very soft to hard limestone was encountered with occasional layers of silty and/or clayey sands encountered in some of the borings. The elevation at which the limestone was encountered varied from approximately +30 to -20 feet, NGVD. Considering these borings are less than 150 feet apart, it is our opinion that the limestone layer in this area is inconsistent.

Widening of I-75 SB and NB bridges over SR 50, Croom Rital Road and the Withlacoochee River occurred in 2002. Foundations for these bridges prior to the bridge widening typically consisted of HP 12x53 steel piles used at the end bents and 18 inch square concrete piles used at the intermediate piers. During the bridge widening in 2002, additional 18 inch square concrete piles were installed for these bridges at the end bent and intermediate pier locations, except for the I-75 SB and NB bridges over SR 50 where 48 inch diameter drilled shafts were used at the intermediate pier locations to support the bridge widening.

The following table (**Table 6-1**) provides summaries of the bridge data obtained from the existing structures plans for each bridge location including pile sizes, pile design loads, unloaded test pile locations and lengths, and pile cut-off elevations. Pile/Drilled Shaft Data Tables established in 1999 for the widening of I-75 SB and NB bridges over SR 50, Croom Road and the Withlacoochee River are included in **Appendix C**.

Table 6-1
Existing Bridge Data Summary

BENT OR PIER NUMBER	PILE SIZE (in)	DESIGN LOAD (tons)	UNLOADED TEST PILE LENGTH (feet)	APPROXIMATE PILE CUT-OFF ELEVATION (feet, NGVD)
Darby Road/CR-578A over I-75				
End Bent 1	18	35	65	112.4 – 121.2
Pier 1	14	45	-----	95.5 – 116.9
Pier 2	14	45	45	Not Shown in the Plans
Pier 3	14	45	-----	96.8 – 117.0
End Bent 2	18	35	70	112.7 – 121.6
CR-578 over I-75				
End Bent 1	18	35	55	126.1 – 133.9
Pier 1	14	45	50	108.9 – 130.1
Pier 2	14	45	40	107.6 – 129.8
Pier 3	14	45	40	109.6 – 130.8
End Bent 2	18	35	55	127.2 – 135.0
CR-577 over I-75				
End Bent 1	HP 12 x 53	31 (except piles supporting wings required to be driven to 20 tons)	Not Shown in the Plans	202.2 – 210.2
Pier 1	18	45		185.4 – 205.9
Pier 2	18	45		184.9 – 206.2
Pier 3	18	45		185.6 – 205.9
End Bent 2	HP 12 x 53	31 (except piles supporting wings required to be driven to 20 tons)		202.2 – 210.2
CR-41 over I-75				
End Bent 1	HP 12 x 53	23 (except piles supporting wings required to be driven to 20 tons)	90	148.6
Pier 1	18	45	80	127.8
Pier 2	18	45	80	126.3
Pier 3	18	45	80	126.3
Pier 4	18	45	80	129.3
End Bent 2	HP 12 x 53	23 (except piles supporting wings required to be driven to 20 tons)	90	151.5

Table 6-1
Existing Bridge Data Summary (Continued)

BENT OR PIER NUMBER	PILE SIZE (in)	DESIGN LOAD (tons)	UNLOADED TEST PILE LENGTH (feet)	APPROXIMATE PILE CUT-OFF ELEVATION (feet, NGVD)
School Bus Road over I-75				
End Bent 1	HP 12 x 53	21 (except piles supporting wings required to be driven to 20 tons)	75	177.6
Pier 1	18	45	60	155.5
Pier 2	18	45	60	152.0
Pier 3	18	45	60	153.5
Pier 4	18	45	60	159.3
End Bent 2	HP 12 x 53	21 (except piles supporting wings required to be driven to 20 tons)	75	179.8
Hickory Hill Road over I-75				
End Bent 1	HP 12 x 53	37 (except piles supporting wings required to be driven to 20 tons)	60	113.6
Pier 1	18	45	60	93.0
Pier 2	18	45	60	91.0
Pier 3	18	45	60	90.3
End Bent 2	HP 12 x 53	37 (except piles supporting wings required to be driven to 20 tons)	60	110.6
SB I-75 over SR 50 (Prior to Bridge Widening in 2002)				
End Bent 1L	HP 12 x 53	22 (except piles supporting wings required to be driven to 20 tons)	65	86.7 – 94.7
Pier 1L	18	45	-----	85.8 – 90.1
Pier 2L	18	45	50	70.8
Pier 3L	18	45		85.7 – 90.0
End Bent 2L	HP 12 x 53	22 (except piles supporting wings required to be driven to 20 tons)	-----	86.7 – 94.6

Table 6-1
Existing Bridge Data Summary (Continued)

BENT OR PIER NUMBER	PILE SIZE (in)	DESIGN LOAD (tons)	UNLOADED TEST PILE LENGTH (feet)	APPROXIMATE PILE CUT-OFF ELEVATION (feet, NGVD)
NB I-75 over SR 50 (Prior to Bridge Widening in 2002)				
End Bent 1R	HP 12 x 53	22 (except piles supporting wings required to be driven to 20 tons)	-----	86.7 – 94.7
Pier 1R	18	45	50	85.8 – 90.1
Pier 2R	18	45	-----	70.8
Pier 3R	18	45	50	85.7 – 90.0
End Bent 2R	HP 12 x 53	22 (except piles supporting wings required to be driven to 20 tons)	65	86.7 – 94.6
SB I-75 over Croom Rital Road (Prior to Bridge Widening in 2002)				
End Bent 1L	HP 12 x 53	31 (except piles supporting wings required to be driven to 20 tons)	-----	94.4
Bent 2L	18	45	65	93.4 – 94.0
Bent 3L	18	45	-----	93.2 – 93.8
Bent 4L	18	45	60	92.9 – 93.6
Bent 5L	18	45	-----	92.4 – 93.2
End Bent 6L	HP 12 x 53	30 (except piles supporting wings required to be driven to 20 tons)	-----	93.1
NB I-75 over Croom Road (Prior to Bridge Widening in 2002)				
End Bent 1R	HP 12 x 53	31 (except piles supporting wings required to be driven to 20 tons)	65	94.7
Bent 2R	18	45	65	93.7 – 94.4
Bent 3R	18	45	-----	93.7 – 94.3
Bent 4R	18	45	-----	93.6 – 94.2
Bent 5R	18	45	60	93.2 – 93.9
End Bent 6R	HP 12 x 53	30 (except piles supporting wings required to be driven to 20 tons)	65	94.1

Table 6-1
Existing Bridge Data Summary (Continued)

BENT OR PIER NUMBER	PILE SIZE (in)	DESIGN LOAD (tons)	UNLOADED TEST PILE LENGTH (feet)	APPROXIMATE PILE CUT-OFF ELEVATION (feet, NGVD)
SB I-75 over Withlacoochee River (Prior to Bridge Widening in 2002)				
End Bent 1L	HP 12 x 53	32 (except piles supporting wings required to be driven to 20 tons)	70	59.0 – 59.6
Bent 2L	18	45	-----	58.6 – 59.2
Bent 3L	18	45	60	58.5 – 59.0
Bent 4L	18	45	-----	58.2 – 58.8
Bent 5L	18	45	60	58.0 – 58.6
Bent 6L	18	45	-----	57.8 – 58.4
Bent 7L	18	45	-----	57.5 – 58.1
End Bent 8L	HP 12 x 53	32 (except piles supporting wings required to be driven to 20 tons)	-----	57.3 – 57.9
NB I-75 over Withlacoochee River (Prior to Bridge Widening in 2002)				
End Bent 1R	HP 12 x 53	32 (except piles supporting wings required to be driven to 20 tons)	-----	59.0 – 59.5
Bent 2R	18	45	60	58.6 – 59.2
Bent 3R	18	45	-----	58.5 – 59.0
Bent 4R	18	45	60	58.2 – 58.9
Bent 5R	18	45	-----	58.0 – 58.6
Bent 6R	18	45	-----	57.8 – 58.4
Bent 7R	18	45	-----	57.5 – 58.1
End Bent 8R	HP 12 x 53	32 (except piles supporting wings required to be driven to 20 tons)	55	57.4 – 58.0

6.3 FEASIBILITY OF FOUNDATION ALTERNATIVES

6.3.1 General

The feasibility of typical foundation alternatives for the future widening of the project bridge structures is discussed below. Based on the review of published information, available geotechnical information from the past projects and field reconnaissance, the project soil conditions do not appear to pose any extraordinary concerns related to the design and construction of the various alternatives. However, specific geotechnical

explorations at the project bridge structures and cost analyses will better define suitable foundation alternatives.

6.3.2 Scour Depths

Anticipated scour depths have not been developed during the PD&E Study. However, scour should be considered when assessing the total axial capacity and lateral stability of bridge foundations. It is our understanding that scour analyses will not be performed until the final design phase of the project.

6.3.2 Shallow Foundations

Where appropriate, the use of shallow foundations is typically the most cost effective. With this foundation system, the structure loads are transmitted to the subsoil at a pressure suited for the properties of the soil. These properties are typically governed by the allowable soil pressure and the total and differential settlement criteria. Typically settlements would exceed the tolerances for bridge structures. Also, due to the potential for scour, greater embedment of the footings and additional measures to counter scour may be required. Therefore, the shallow foundation alternative becomes less favorable.

6.3.3 Deep Foundations

Based on our experience on similar projects, it is our opinion that deep foundations are most appropriate for the proposed bridge structures. The following foundation types are considered to be reasonable alternatives:

- Square precast prestressed concrete (SPC) piles
- Steel Piles
- Drilled Shafts

6.3.3.1 Square Precast Prestressed Concrete Piles

Square precast prestressed concrete (SPC) piles are considered an appropriate foundation type. They are the most common bridge foundation type in Florida and prior experience has generally shown them to be an economical foundation type. Typical pile sizes are 18 inch and 24 inch SPC piles.

6.3.3.2 Steel Piles

Steel piles are a foundation alternative, however, previous experience has shown that they are usually more expensive than precast prestressed concrete piles. Steel piles include pipe piles and H-sections. Steel piles are well suited to conditions with high variability of the anticipated penetration depth where frequent splicing is expected. In some instances, steel piles will more easily penetrate dense layers if necessary to achieve a desired

penetration. In comparison with precast prestressed square concrete piles, the steel piles do not develop as much capacity for similar pile size and penetration depths and rough cost data indicate that the steel pipe piles are as expensive as the 18 inch SPC piles. Steel H-sections are not addressed further because they have even lower capacities than pipe piles for similar or greater costs.

6.3.3.3 Drilled Shafts

Drilled cast-in-place straight sided concrete shafts are also a feasible foundation alternative for the project. Drilled shafts have the advantage of being able to develop high axial and lateral capacities in a single unit. A disadvantage of drilled shaft foundations include a high dependency on construction procedures and quality control. This type of foundation system is often the selected foundation alternative for sites where limestone or very dense bearing strata are present at a relatively shallow depth. In addition, drilled shaft installation typically generates lower construction-induced vibrations than driven piles. Typical drilled shaft sizes are 36, 42 and 48 inches in diameter. It should be recognized that artesian potentiometric water levels need to be given consideration in the evaluation of the drilled shaft foundation alternative due to the problems that artesian water levels can cause with drilled shaft construction.

7. CONSTRUCTION CONSIDERATIONS

7.1 GENERAL CONSTRUCTION RECOMMENDATIONS

Site preparation and construction should be in accordance with the latest FDOT Standard Specifications for Road and Bridge Construction and the Roadway and Traffic Design Standards.

7.2 EXCAVATIONS

In Federal Register, Volume 54, No. 209 (October 1989), the United States Department of Labor, Occupational Safety and Health Administration (OSHA) amended its "Construction Standards for Excavations, 29 CFR, part 1926, Subpart P". This document was issued to better insure the safety of workmen entering trenches or excavations. It is mandated by this federal regulation that excavations, whether they be utility trenches, basement excavations or footing excavations, be constructed in accordance with the current OSHA guidelines. It is our understanding that these regulations are being strictly enforced and if they are not closely followed, the owner and the contractor could be liable for substantial penalties.

The contractor is solely responsible for designing and constructing stable, temporary excavations and should shore, slope or bench the sides of the excavations as required to maintain stability of both the excavation sides and bottom. The contractors "responsible person", as defined in 20 CFR part 1926, should evaluate the soil exposed in the excavations as part of the contractor's safety procedures. In no case should slope height, slope inclination or excavation depth, including utility trench excavation depth, exceed those specified in all local, state and federal safety regulations.

As revealed in the "Soil Survey of Sumter County, Florida", near-surface boulders may be encountered in a few areas near the northern end of the project alignment. Excavations in these areas, if necessary, may be difficult. Therefore, the limits of near-surface boulders, if encountered in areas proposed for excavation, will need to be delineated during the design level study.

7.3 GROUNDWATER CONTROL

Depending upon groundwater levels at the time of construction, some form of dewatering may be required for excavations and/or to achieve the required compaction. Groundwater can normally be controlled in shallow excavations with a sump pump. During subgrade soil preparation, any plastic soils below design grade could become disturbed by construction activities. The contractor may be directed by the Department's representative to remove the disturbed or pumping soils to a depth of 12 to 18 inches below design grade and backfill the area with structural fill in accordance with the latest FDOT Standard Specifications for Road and Bridge Construction.

Surface water and groundwater control should be used to allow construction to occur in accordance with the Florida Department of Transportation Standard Specifications. The construction area should be maintained to prevent surface water from disturbing the construction area and water diverted through a temporary ditch or pumped around construction activities. If a pump is used, a standby pump is recommended.

Depending upon groundwater levels at the time of construction, groundwater may also enter from the bottom and sides of excavated areas. Such seepage will act to loosen soils and create difficult working conditions. Therefore, it may be necessary to wellpoint or sump pump and rim ditch excavation areas. Groundwater levels should be at least 2 feet below the lowest anticipated excavation depth to facilitate proper material placement and compaction.

8. SINKHOLE/GROUND SUBSIDENCE EVALUATION

A sinkhole evaluation, which consisted of field reconnaissance of the proposed roadway alignment and a study of available published data, was completed. Sinkhole frequency data developed by Subsurface Evaluations, Inc. (SEI) was also reviewed to establish the potential for new sinkhole development along the roadway alignment. A map depicting reported new sinkhole frequency in Central and West- Central Florida is provided in **Appendix D**. As seen from this map, the roadway alignment is located within areas where the maximum reported new sinkhole frequency is between 0.00 and 0.06 new sinkholes per square mile per year.

It should be recognized that additional data may be obtained from conducting geophysical and geotechnical studies along the proposed alignment to evaluate the potential impact of subsidence to the performance of the roadway. In order to obtain this data, it would be necessary to complete extensive ground penetrating radar (GPR) or other geophysical testing along with deep test borings. Even with this type of testing, it is difficult to accurately predict the time or extent of ground subsidence activities.

Based on past karst/sinkhole activity in the area, the potential exists for new sinkholes to develop along the roadway alignment that are not visually apparent at this time. Geophysical studies could be performed along the proposed roadway alignment to provide guidance with respect to sinkhole remediation, but in view of the length of the roadway alignment, this program of investigation is not generally considered practical during this phase of the project. The risk for sinkhole development along the alignment is generally considered low in Sumter County and moderate to high in Pasco County and the southern portion of Hernando County as seen by the information in **Appendix D**. A higher potential for sinkhole development is present adjacent to existing sinkholes.

9. REPORT LIMITATIONS

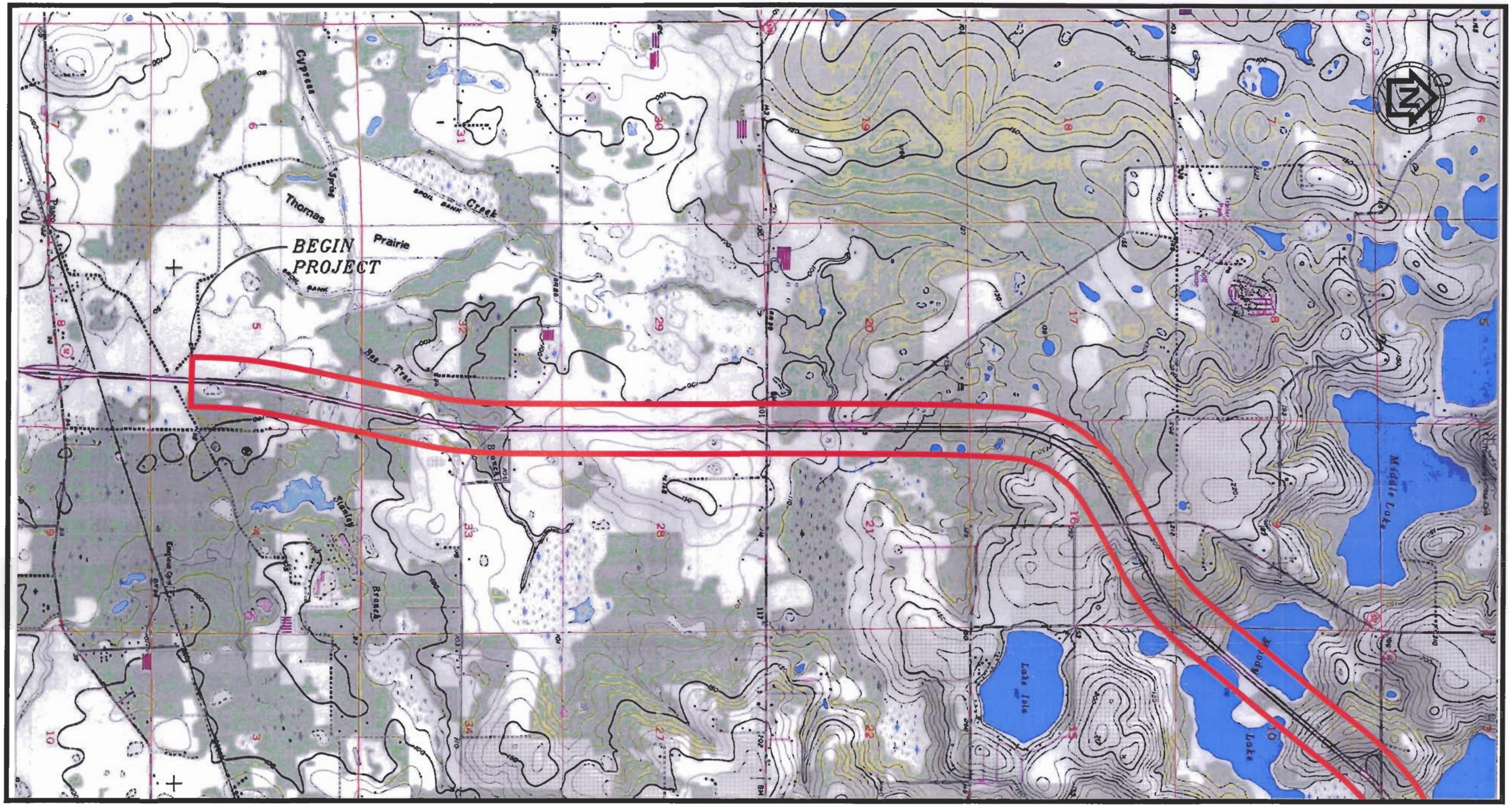
Professional services have been performed, findings obtained, and recommendations prepared in accordance with generally accepted geotechnical engineering principles and practices. This company is not responsible for the conclusions, opinions or recommendations made by others based on this data.

The recommendations submitted in this report are based upon the anticipated location and type of construction proposed for this project. If any variations become evident during the course of the design of the project or during construction, a re-evaluation of the recommendations contained in this report will be necessary after we have had an opportunity to observe the characteristics of the conditions encountered.

The report presented herein does not include any field or laboratory testing or any environmental assessment or investigation for the presence or absence of hazardous or toxic materials in the soil, groundwater, or surface water within or beyond the site studied. Any statements in this report are intended only as a guide for assessing the feasibility of the proposed project improvements.

APPENDIX A

Figures 2-1 through 2-3:	**USGS Quadrangle Maps**
Figures 3-1 through 3-3:	**USDA SCS Soil Maps**
Figures 4-1 through 4-3:	**Areas with Shallow Seasonal High Groundwater Levels**
Figures 5-1 and 5-2:	**Areas with Organic Soils**
Figures 6-1 through 6-3:	**Areas with Shallow Clayey Soils**
Figure 7-1:	**Areas with Near-Surface Boulders**



REFERENCE: USGS "SAN ANTONIO, FLORIDA" QUADRANGLE MAP

TOWNSHIP:	25 SOUTH	24 SOUTH	ISSUED: 1954
RANGE:	20 EAST	20 EAST	PHOTOREVISED: 1988
SECTION:	5	32, 33, 29 & 28	SCALE: 1" = 0.5 MILE

REFERENCE: USGS "SPRING LAKE, FLORIDA" QUADRANGLE MAP

TOWNSHIP:	24 SOUTH	ISSUED: 1954
RANGE:	20 EAST	PHOTOREVISED: 1988
SECTION:	20, 21, 16, 9, 10 & 3	SCALE: 1" = 0.5 MILE

MATCHLINE "A"

DRAWN	DJG
CHECKED	KL
APPROVED	CLK
SCALE	NOTED

USGS VICINITY MAP
I-75 (SR 93) FROM NORTH OF SR 52 IN PASCO COUNTY TO SOUTH OF CR 476B IN SUMTER COUNTY
PASCO, HERNANDO & SUMTER COUNTIES, FLORIDA

PSI Information To Build On
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DATE	PROJ. NO.	
JULY 05	775-55159	FIGURE 2-1

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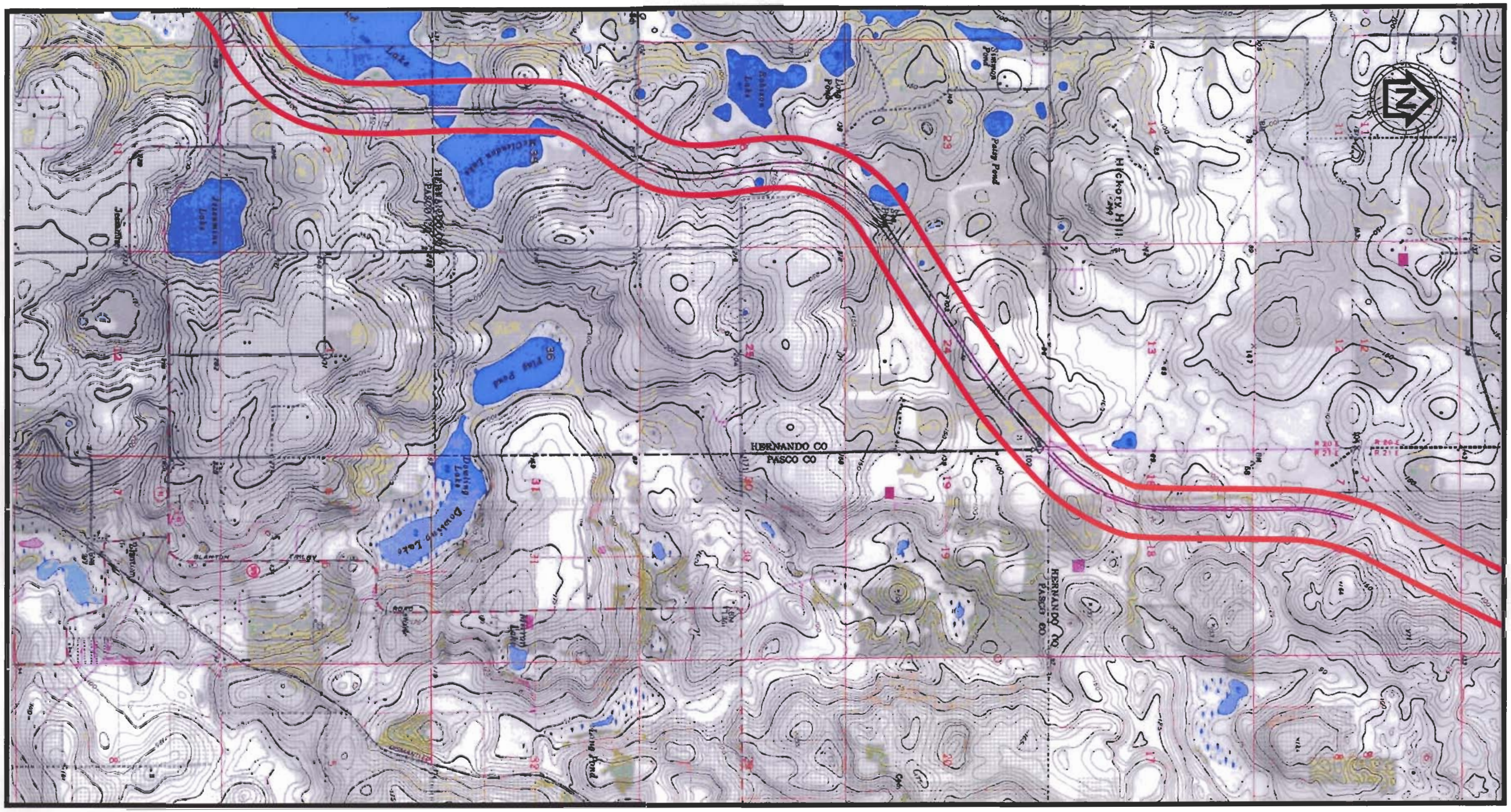
MATCHLINE "A"



MATCHLINE "B"

REFERENCE: USGS "SPRING LAKE, FLORIDA" QUADRANGLE MAP

TOWNSHIP:	24 SOUTH	23 SOUTH	23 SOUTH	ISSUED:	1954
RANGE:	20 EAST	20 EAST	21 EAST	PHOTOREVISED:	1988
SECTION:	3 & 2	35, 26, 23, 24 & 13	19 & 18	SCALE:	1" = 0.5 MILE

REFERENCE: USGS "LACOOCHEE, FLORIDA" QUADRANGLE MAP

TOWNSHIP:	23 SOUTH	ISSUED:	1960
RANGE:	21 EAST	PHOTOREVISED:	1988
SECTION:	18 & 7	SCALE:	1" = 0.5 MILE

REFERENCE: USGS "SAINT CATHERINE, FLORIDA" QUADRANGLE MAP

TOWNSHIP:	23 SOUTH	ISSUED:	1958
RANGE:	21 EAST	PHOTOREVISED:	–
SECTION:	7 & 6	SCALE:	1" = 0.5 MILE

DRAWN	DJG
CHECKED	KL
APPROVED	CLK
SCALE	NOTED

USGS VICINITY MAP

I-75 (SR 93) FROM NORTH OF SR 52 IN PASCO COUNTY TO SOUTH OF CR 476B IN SUMTER COUNTY

PASCO, HERNANDO & SUMTER COUNTIES, FLORIDA

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DATE	PROJ. NO.	
JULY 05	775-55159	FIGURE 2-2

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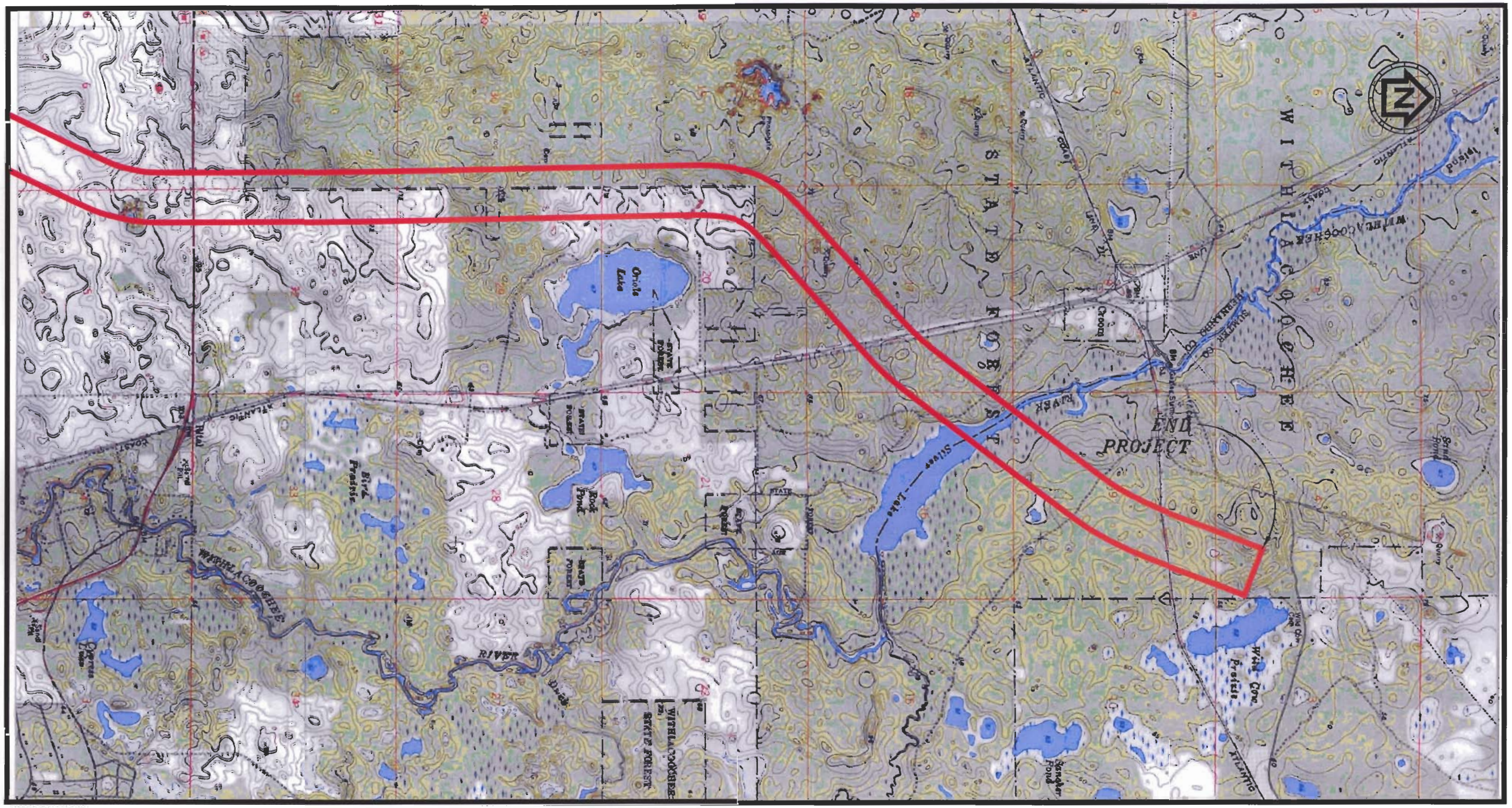
MATCHLINE "B"



REFERENCE: USGS "SAINT CATHERINE, FLORIDA" QUADRANGLE MAP

TOWNSHIP:	23 SOUTH	22 SOUTH
RANGE:	21 EAST	21 EAST
SECTION:	6 & 5	31, 32, 30, 29, 19, 20, 17, 16, 9 & 4

ISSUED: 1958
PHOTOREVISED: –
SCALE: 1" = 0.5 MILE

DRAWN	DJG
CHECKED	KL
APPROVED	CLK
SCALE	NOTED

USGS VICINITY MAP
I-75 (SR 93) FROM NORTH OF SR 52 IN PASCO COUNTY TO SOUTH OF CR 476B IN SUMTER COUNTY
PASCO, HERNANDO & SUMTER COUNTIES, FLORIDA

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DATE	PROJ. NO.	
JULY 05	775-55159	FIGURE 2-3

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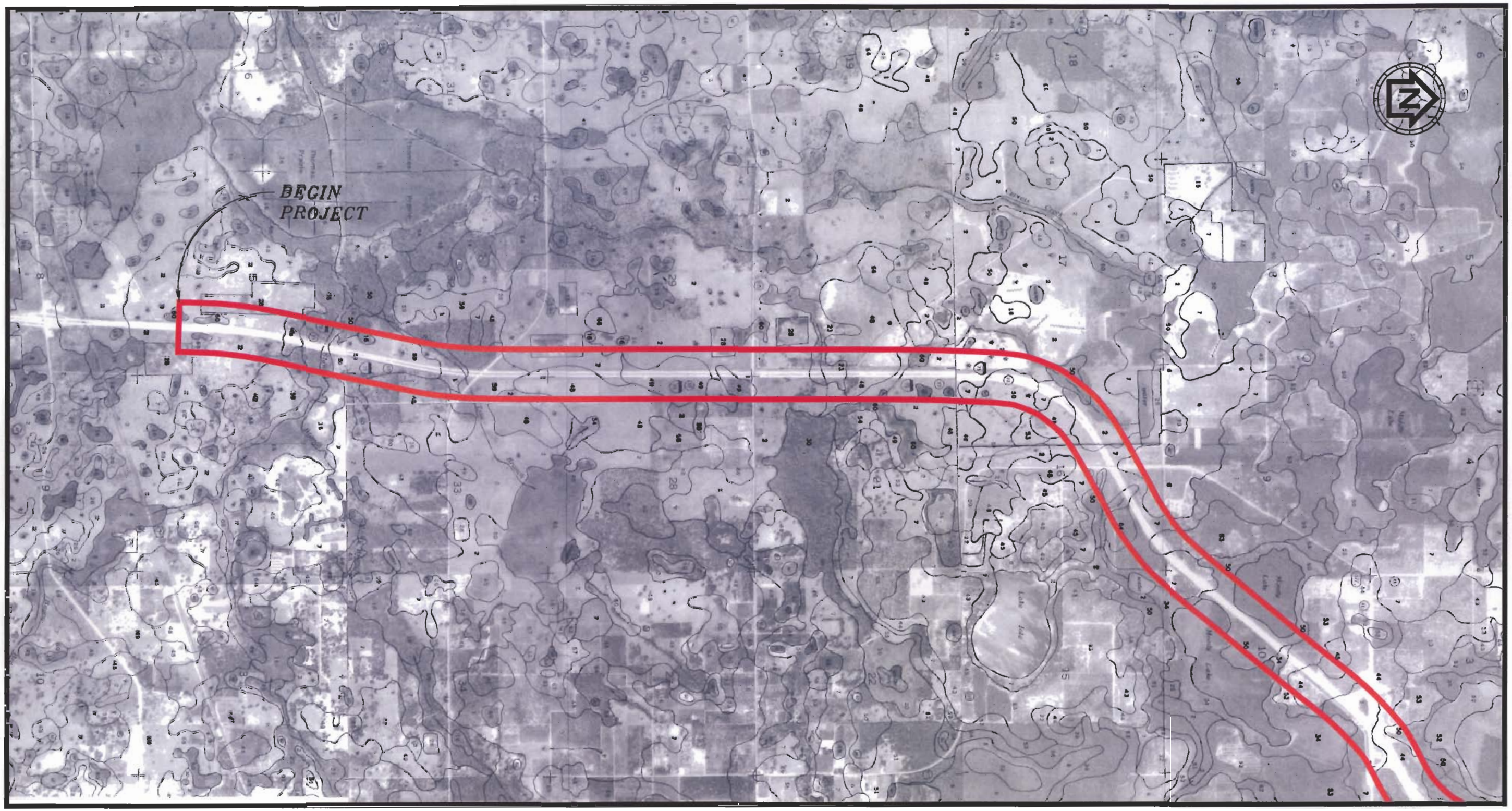

REFERENCE: USDA SCS, "SOIL SURVEY OF PASCO COUNTY, FLORIDA"

TOWNSHIP:	25 SOUTH	24 SOUTH
RANGE:	20 EAST	20 EAST
SECTION:	5	32, 33, 29, 28, 20, 21, 16, 9, 10, 3 & 2

ISSUED: 1982
PHOTOREVISED: 1975
SCALE: 1" = 0.5 MILE

MATCHLINE "A"

DRAWN	DJG
CHECKED	KL
APPROVED	CLK
SCALE	NOTED

USDA VICINITY MAP
I-75 (SR 93) FROM NORTH OF SR 52 IN PASCO COUNTY TO SOUTH OF CR 476B IN SUMTER COUNTY
PASCO, HERNANDO & SUMTER COUNTIES, FLORIDA

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DATE	PROJ. NO.	
JULY 05	775-55159	FIGURE 3-1

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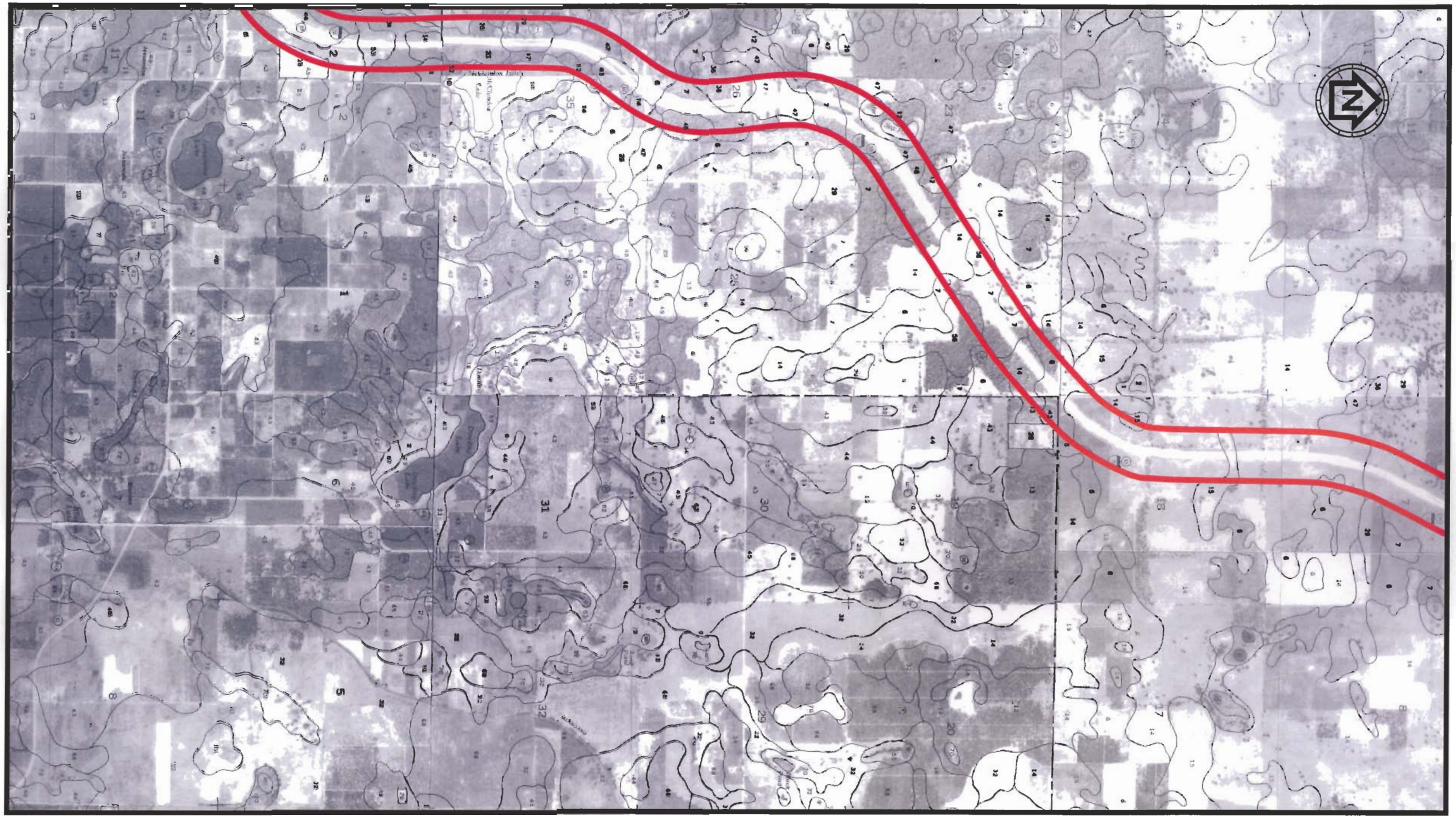
MATCHLINE "A"



MATCHLINE "B"

REFERENCE: USDA SCS, "SOIL SURVEY OF PASCO COUNTY, FLORIDA"

TOWNSHIP:	24 SOUTH	23 SOUTH	ISSUED: 1982
RANGE:	20 EAST	21 EAST	PHOTOREVISED: 1975
SECTION:	2	19	SCALE: 1" = 0.5 MILE

REFERENCE: USDA SCS, "SOIL SURVEY OF HERNANDO COUNTY, FLORIDA"

TOWNSHIP:	23 SOUTH	23 SOUTH	ISSUED: 1977
RANGE:	20 EAST	21 EAST	PHOTOREVISED: 1973
SECTION:	35, 26, 23, 24 & 13	18 & 7	SCALE: 1" = 0.5 MILE

DRAWN	DJG
CHECKED	KL
APPROVED	CLK
SCALE	NOTED

USDA VICINITY MAP

I-75 (SR 93) FROM NORTH OF SR 52 IN PASCO COUNTY TO SOUTH OF CR 476B IN SUMTER COUNTY

PASCO, HERNANDO & SUMTER COUNTIES, FLORIDA

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DATE	PROJ. NO.	
JULY 05	775-55159	FIGURE 3-2

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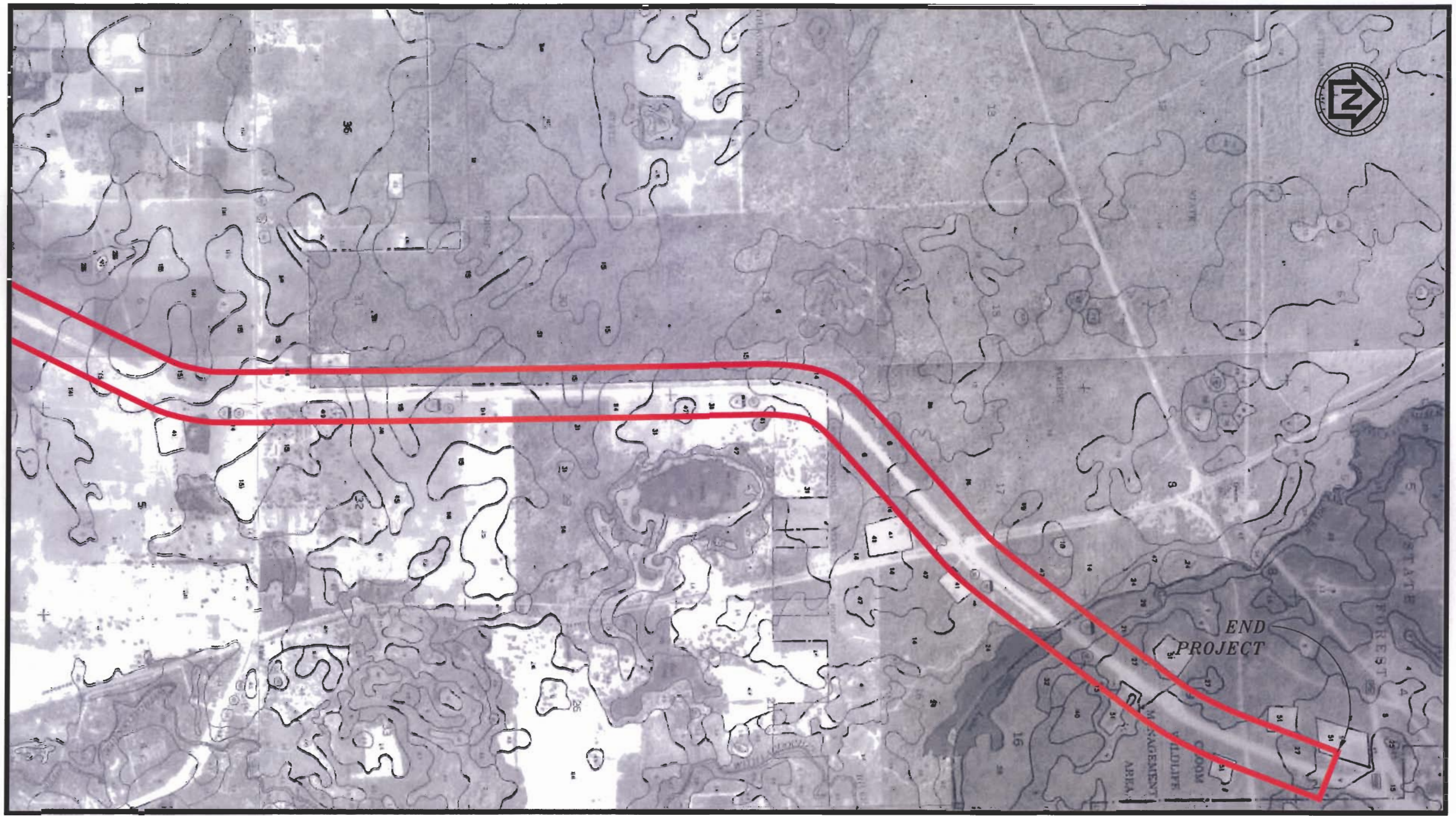

REFERENCE: USDA SCS, "SOIL SURVEY OF HERNANDO COUNTY, FLORIDA"

TOWNSHIP:	23 SOUTH	22 SOUTH	ISSUED: 1977
RANGE:	21 EAST	21 EAST	PHOTOREVISED: 1973
SECTION:	7, 6 & 5	31, 32, 30, 29, 19, 20, 17 & 16	SCALE: 1" = 0.5 MILE

REFERENCE: USDA SCS, "SOIL SURVEY OF SUMTER COUNTY, FLORIDA"

TOWNSHIP:	22 SOUTH	ISSUED:	1988
RANGE:	21 EAST	PHOTOREVISED:	1979
SECTION:	16, 9 & 4	SCALE:	1" = 0.5 MILE

DRAWN	DJG
CHECKED	KL
APPROVED	CLK
SCALE	NOTED

USDA VICINITY MAP

I-75 (SR 93) FROM NORTH OF SR 52 IN PASCO COUNTY TO SOUTH OF CR 476B IN SUMTER COUNTY

PASCO, HERNANDO & SUMTER COUNTIES, FLORIDA

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DATE	PROJ. NO.	
JULY 05	775-55159	FIGURE 3-3

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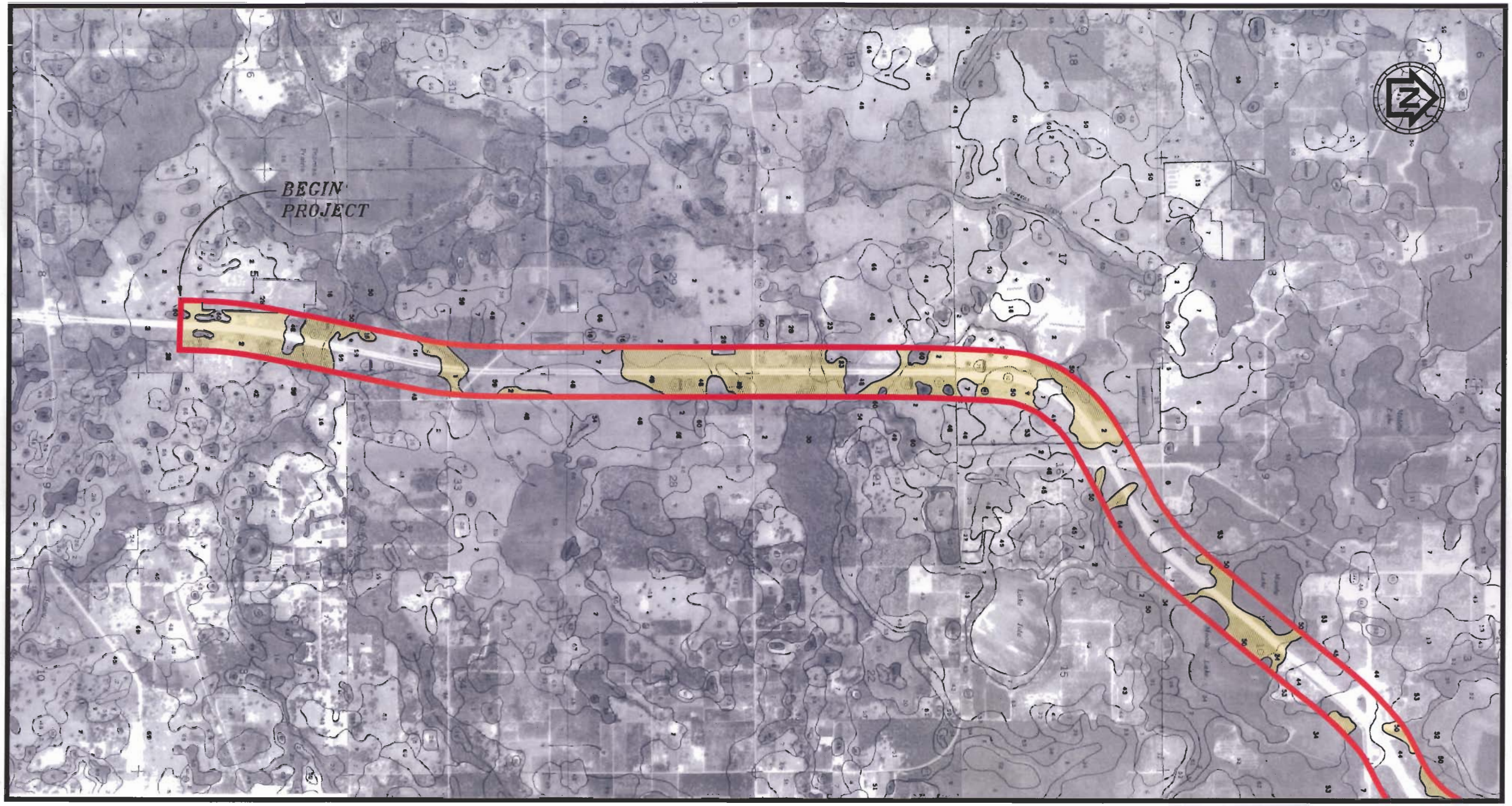

REFERENCE: USDA SCS, "SOIL SURVEY OF PASCO COUNTY, FLORIDA"

TOWNSHIP:	25 SOUTH	24 SOUTH
RANGE:	20 EAST	20 EAST
SECTION:	5	32, 33, 29, 28, 20, 21, 16, 9, 10, 3 & 2

ISSUED: 1982
PHOTOREVISED: 1975
SCALE: 1" = 0.5 MILE

MATCHLINE "A"

LEGEND

AREAS WITH SHALLOW SEASONAL HIGH GROUNDWATER LEVELS

DRAWN	DJG
CHECKED	KL
APPROVED	CLK
SCALE	NOTED

USDA VICINITY MAP
I-75 (SR 93) FROM NORTH OF SR 52 IN PASCO COUNTY TO SOUTH OF CR 476B IN SUMTER COUNTY
PASCO, HERNANDO & SUMTER COUNTIES, FLORIDA

Information To Build On
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DATE	PROJ. NO.	
JULY 05	775-55159	FIGURE 4-1

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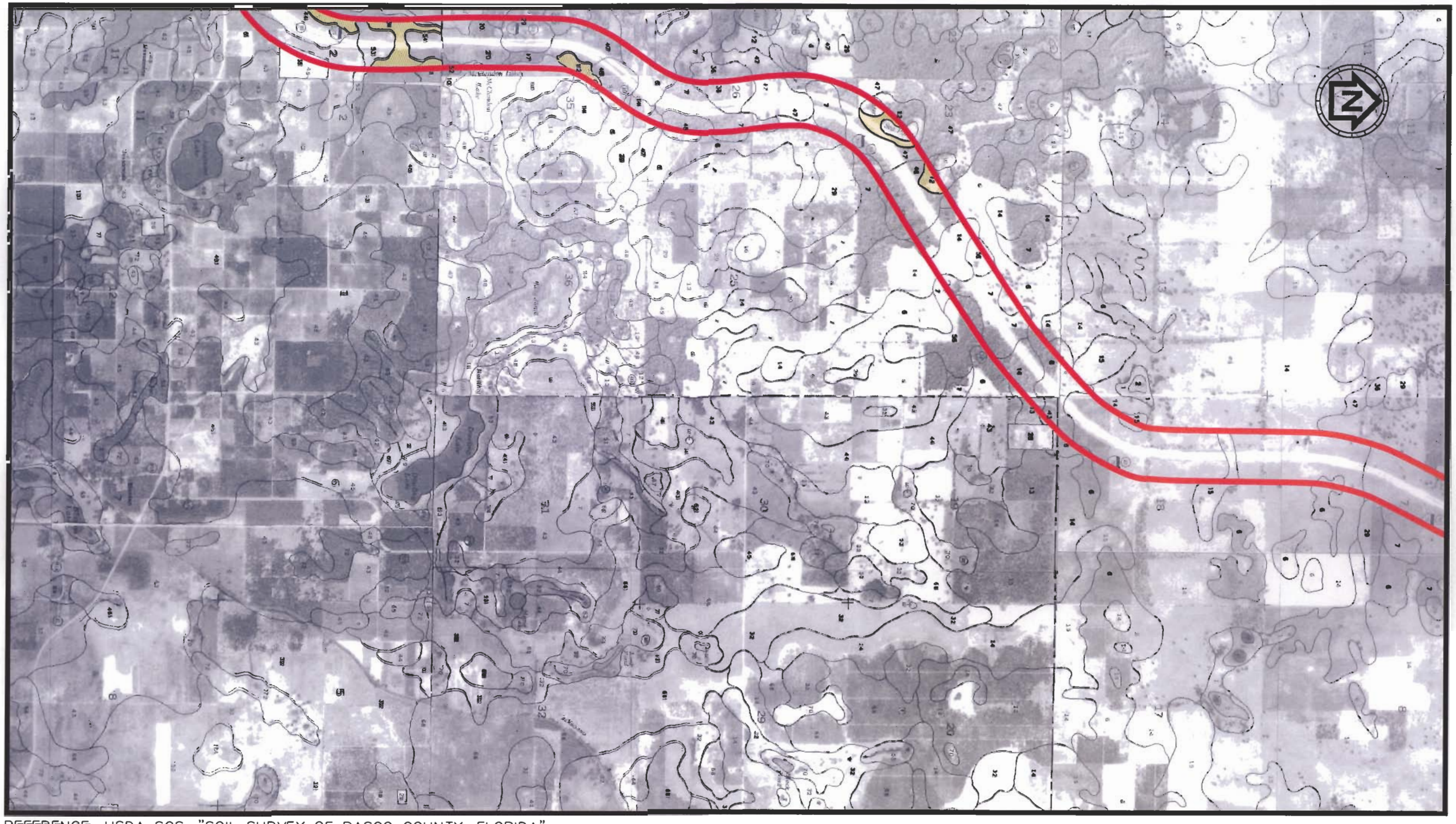
MATCHLINE "A"



MATCHLINE "B"

REFERENCE: USDA SCS, "SOIL SURVEY OF PASCO COUNTY, FLORIDA"

TOWNSHIP:	24 SOUTH	23 SOUTH	ISSUED:	1982
RANGE:	20 EAST	21 EAST	PHOTOREVISED:	1975
SECTION:	2	19	SCALE:	1" = 0.5 MILE

REFERENCE: USDA SCS, "SOIL SURVEY OF HERNANDO COUNTY, FLORIDA"

TOWNSHIP:	23 SOUTH	23 SOUTH	ISSUED:	1977
RANGE:	20 EAST	21 EAST	PHOTOREVISED:	1973
SECTION:	35, 26, 23, 24 & 13	18 & 7	SCALE:	1" = 0.5 MILE

LEGEND

AREAS WITH SHALLOW SEASONAL HIGH GROUNDWATER LEVELS

DRAWN	DJG
CHECKED	KL
APPROVED	CLK
SCALE	NOTED

USDA VICINITY MAP

I-75 (SR 93) FROM NORTH OF SR 52 IN PASCO COUNTY TO SOUTH OF CR 476B IN SUMTER COUNTY

PASCO, HERNANDO & SUMTER COUNTIES, FLORIDA

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DATE	PROJ. NO.	FIGURE
JULY 05	775-55159	FIGURE 4-2

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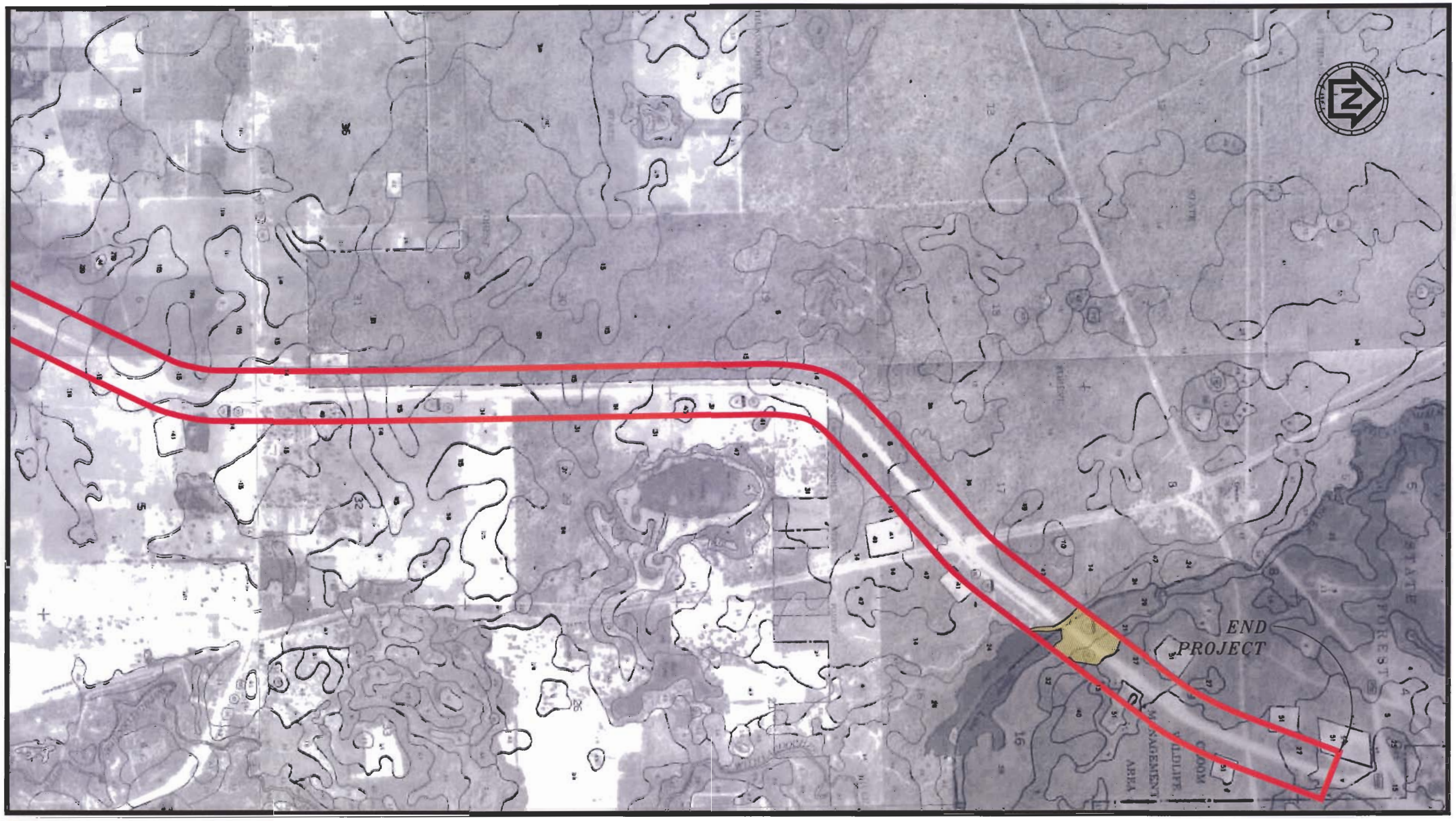

REFERENCE: USDA SCS, "SOIL SURVEY OF HERNANDO COUNTY, FLORIDA"

TOWNSHIP:	23 SOUTH	22 SOUTH
RANGE:	21 EAST	21 EAST
SECTION:	7, 6 & 5	31, 32, 30, 29, 19, 20, 17 & 16

ISSUED: 1977
PHOTOREVISED: 1973
SCALE: 1" = 0.5 MILE

REFERENCE: USDA SCS, "SOIL SURVEY OF SUMTER COUNTY, FLORIDA"

TOWNSHIP:	22 SOUTH	ISSUED:	1988
RANGE:	21 EAST	PHOTOREVISED:	1979
SECTION:	16, 9 & 4	SCALE:	1" = 0.5 MILE

LEGEND

AREAS WITH SHALLOW SEASONAL HIGH GROUNDWATER LEVELS

DRAWN	DJG
CHECKED	KL
APPROVED	CLK
SCALE	NOTED

USDA VICINITY MAP
I-75 (SR 93) FROM NORTH OF SR 52 IN PASCO COUNTY TO SOUTH OF CR 476B IN SUMTER COUNTY
PASCO, HERNANDO & SUMTER COUNTIES, FLORIDA

PSI Information To Build On
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DATE	PROJ. NO.	
JULY 05	775-55159	FIGURE 4-3

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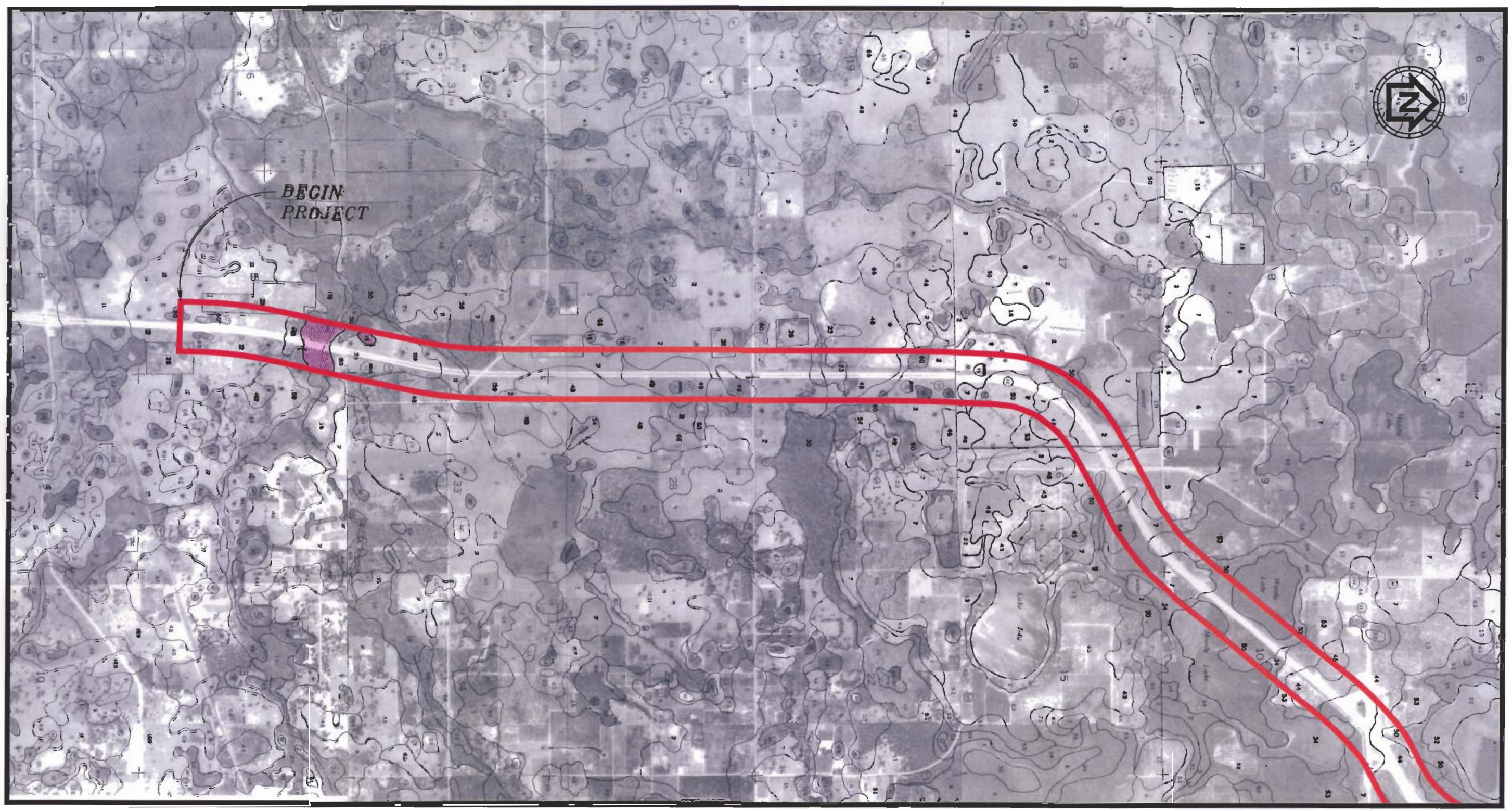


REFERENCE: USDA SCS, "SOIL SURVEY OF PASCO COUNTY, FLORIDA"

TOWNSHIP:	25 SOUTH	24 SOUTH
RANGE:	20 EAST	20 EAST
SECTION:	5	32, 33, 29, 28, 20, 21, 16, 9, 10, 3 & 2

ISSUED: 1982
PHOTOREVISED: 1975
SCALE: 1" = 0.5 MILE

LEGEND

AREAS WITH ORGANIC SOILS

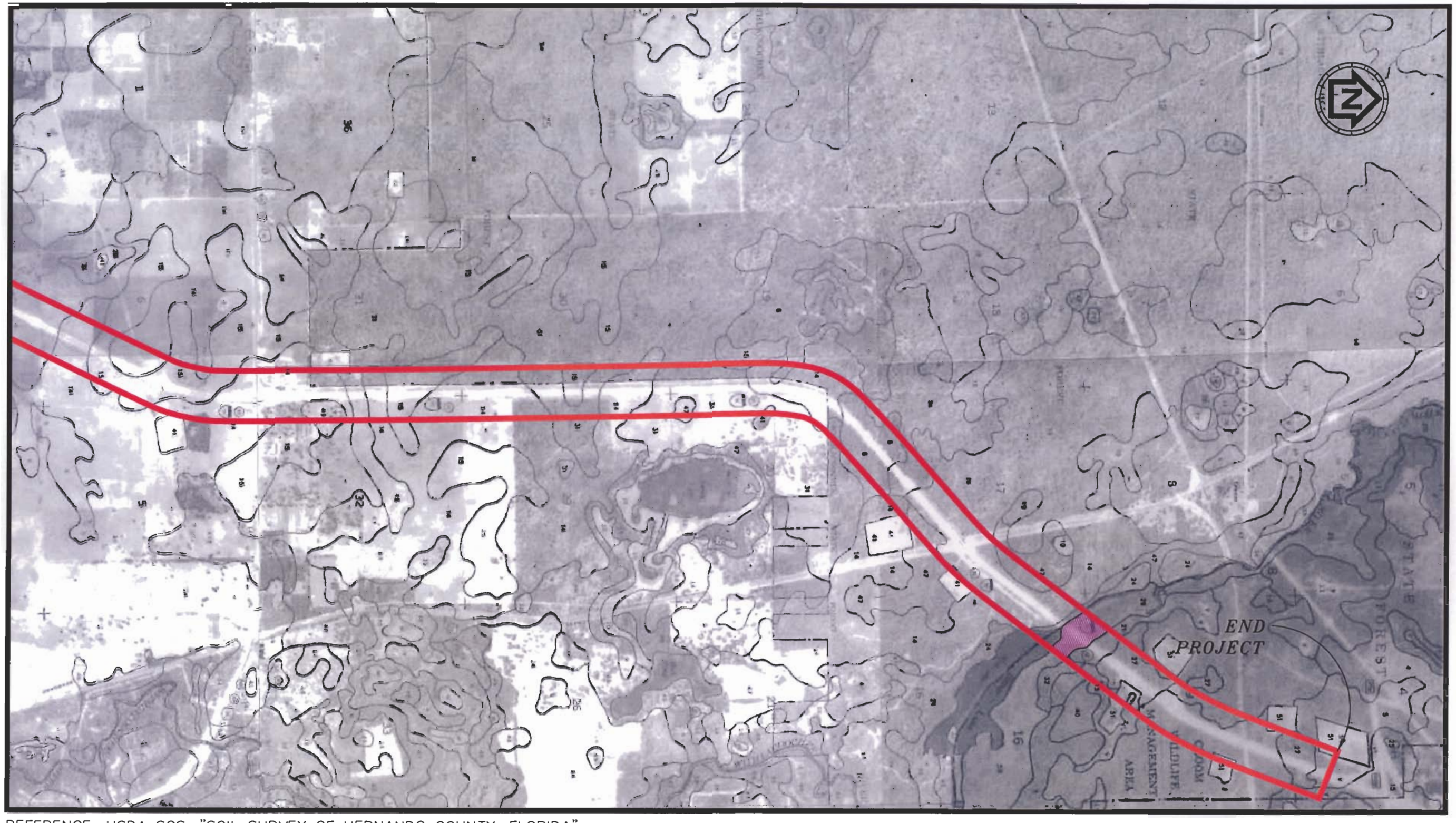
DRAWN	DJG
CHECKED	KL
APPROVED	CLK
SCALE	NOTED

USDA VICINITY MAP
I-75 (SR 93) FROM NORTH OF SR 52 IN PASCO COUNTY TO SOUTH OF CR 476B IN SUMTER COUNTY
PASCO, HERNANDO & SUMTER COUNTIES, FLORIDA

psi *Information To Build On*
Engineering • Consulting • Testing

DATE	PROJ. NO.	
JULY 05	775-55159	FIGURE 5-1

P:\775-Geo\2005\55159_I-75 (SR 93)\Cad files\5515910



REFERENCE: USDA SCS, "SOIL SURVEY OF HERNANDO COUNTY, FLORIDA"

TOWNSHIP:	23 SOUTH	22 SOUTH	ISSUED:	1977
RANGE:	21 EAST	21 EAST	PHOTOREVISED:	1973
SECTION:	7, 6 & 5	31, 32, 30, 29, 19, 20, 17 & 16	SCALE:	1" = 0.5 MILE

REFERENCE: USDA SCS, "SOIL SURVEY OF SUMTER COUNTY, FLORIDA"

TOWNSHIP:	22 SOUTH	ISSUED:	1988
RANGE:	21 EAST	PHOTOREVISED:	1979
SECTION:	16, 9 & 4	SCALE:	1" = 0.5 MILE

LEGEND

AREAS WITH ORGANIC SOILS

DRAWN	DJG
CHECKED	KL
APPROVED	CLK
SCALE	NOTED

USDA VICINITY MAP

I-75 (SR 93) FROM NORTH OF SR 52 IN PASCO COUNTY TO SOUTH OF CR 476B IN SUMTER COUNTY

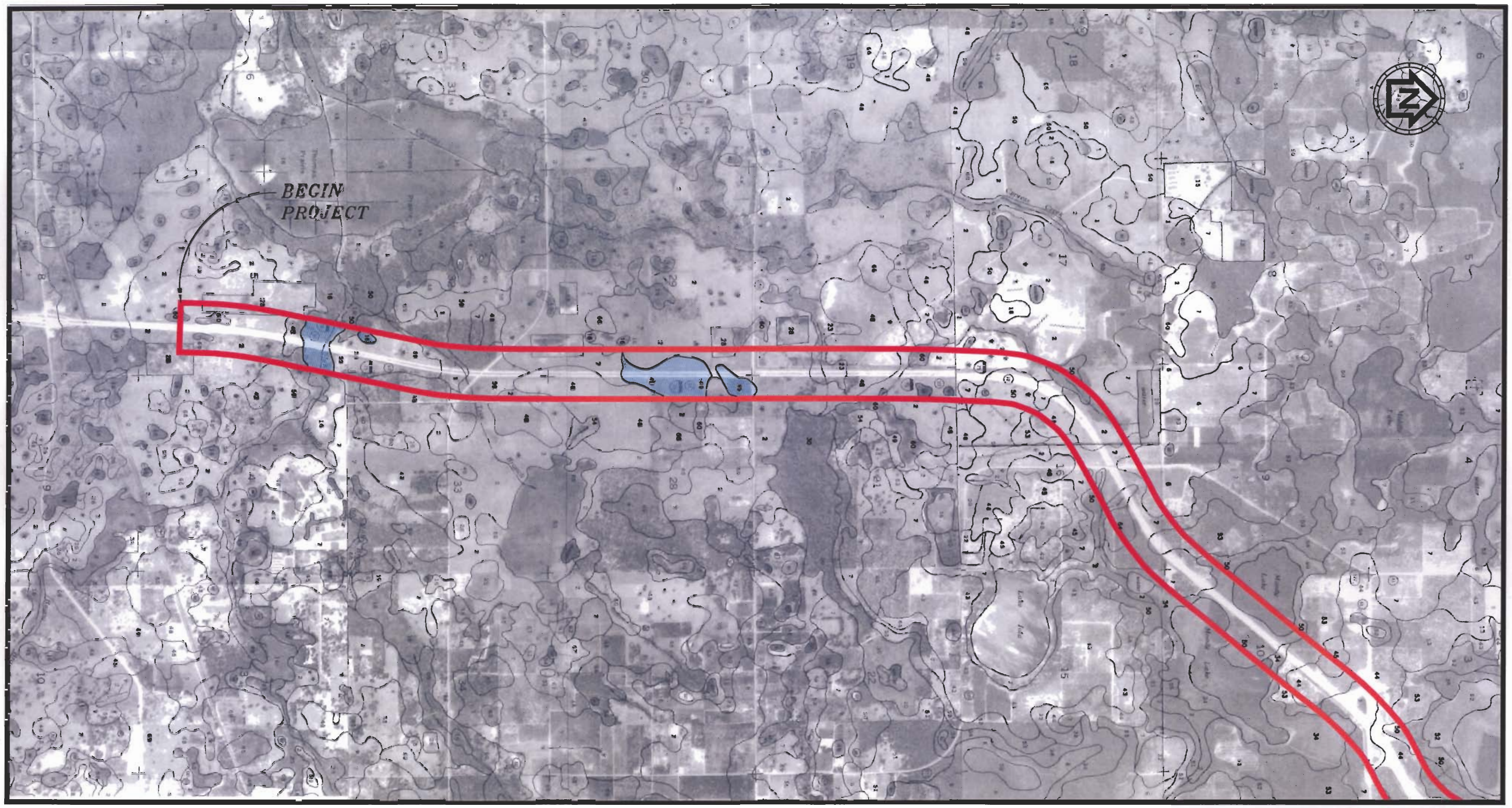
PASCO, HERNANDO & SUMTER COUNTIES, FLORIDA

PSI *Information To Build On*

Engineering • Consulting • Testing

DATE	PROJ. NO.	
JULY 05	775-55159	FIGURE 5-2

P:\775-Geo\2005\55159_I-75 (SR 93)\Cad files\55159II



REFERENCE: USDA SCS, "SOIL SURVEY OF PASCO COUNTY, FLORIDA"

TOWNSHIP:	25 SOUTH	24 SOUTH
RANGE:	20 EAST	20 EAST
SECTION:	5	32, 33, 29, 28, 20, 21, 16, 9, 10, 3 & 2

ISSUED: 1982
PHOTOREVISED: 1975
SCALE: 1" = 0.5 MILE

LEGEND

AREAS WITH SHALLOW CLAYEY SOILS

MATCHLINE "A"

DRAWN	DJG
CHECKED	KL
APPROVED	CLK
SCALE	NOTED

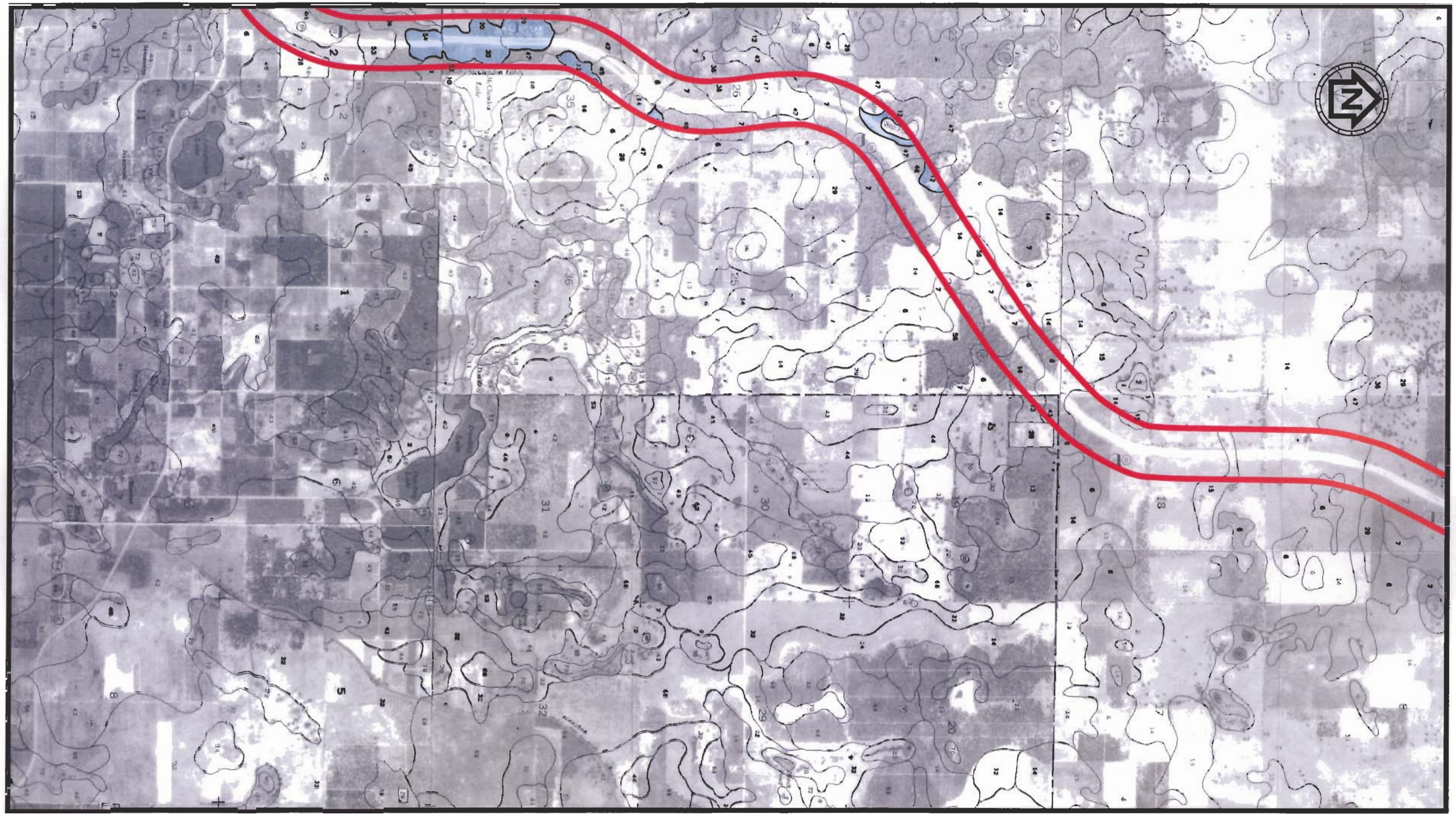
USDA VICINITY MAP
I-75 (SR 93) FROM NORTH OF SR 52 IN PASCO COUNTY TO SOUTH OF CR 476B IN SUMTER COUNTY
PASCO, HERNANDO & SUMTER COUNTIES, FLORIDA

PSI Information To Build On
Engineering • Consulting • Testing

DATE	PROJ. NO.	
JULY 05	775-55159	FIGURE 6-1

P:\775-Geo\2005\55159_I-75 (SR 93)\Cad files\5515912

MATCHLINE "A"



MATCHLINE "B"

REFERENCE: USDA SCS, "SOIL SURVEY OF PASCO COUNTY, FLORIDA"

TOWNSHIP:	24 SOUTH	23 SOUTH	ISSUED: 1982
RANGE:	20 EAST	21 EAST	PHOTOREVISED: 1975
SECTION:	2	19	SCALE: 1" = 0.5 MILE

REFERENCE: USDA SCS, "SOIL SURVEY OF HERNANDO COUNTY, FLORIDA"

TOWNSHIP:	23 SOUTH	23 SOUTH	ISSUED: 1977
RANGE:	20 EAST	21 EAST	PHOTOREVISED: 1973
SECTION:	35, 26, 23, 24 & 13	18 & 7	SCALE: 1" = 0.5 MILE

LEGEND

AREAS WITH SHALLOW CLAYEY SOILS

DRAWN	DJG
CHECKED	KL
APPROVED	CLK
SCALE	NOTED

USDA VICINITY MAP

I-75 (SR 93) FROM NORTH OF SR 52 IN PASCO COUNTY TO SOUTH OF CR 476B IN SUMTER COUNTY

PASCO, HERNANDO & SUMTER COUNTIES, FLORIDA

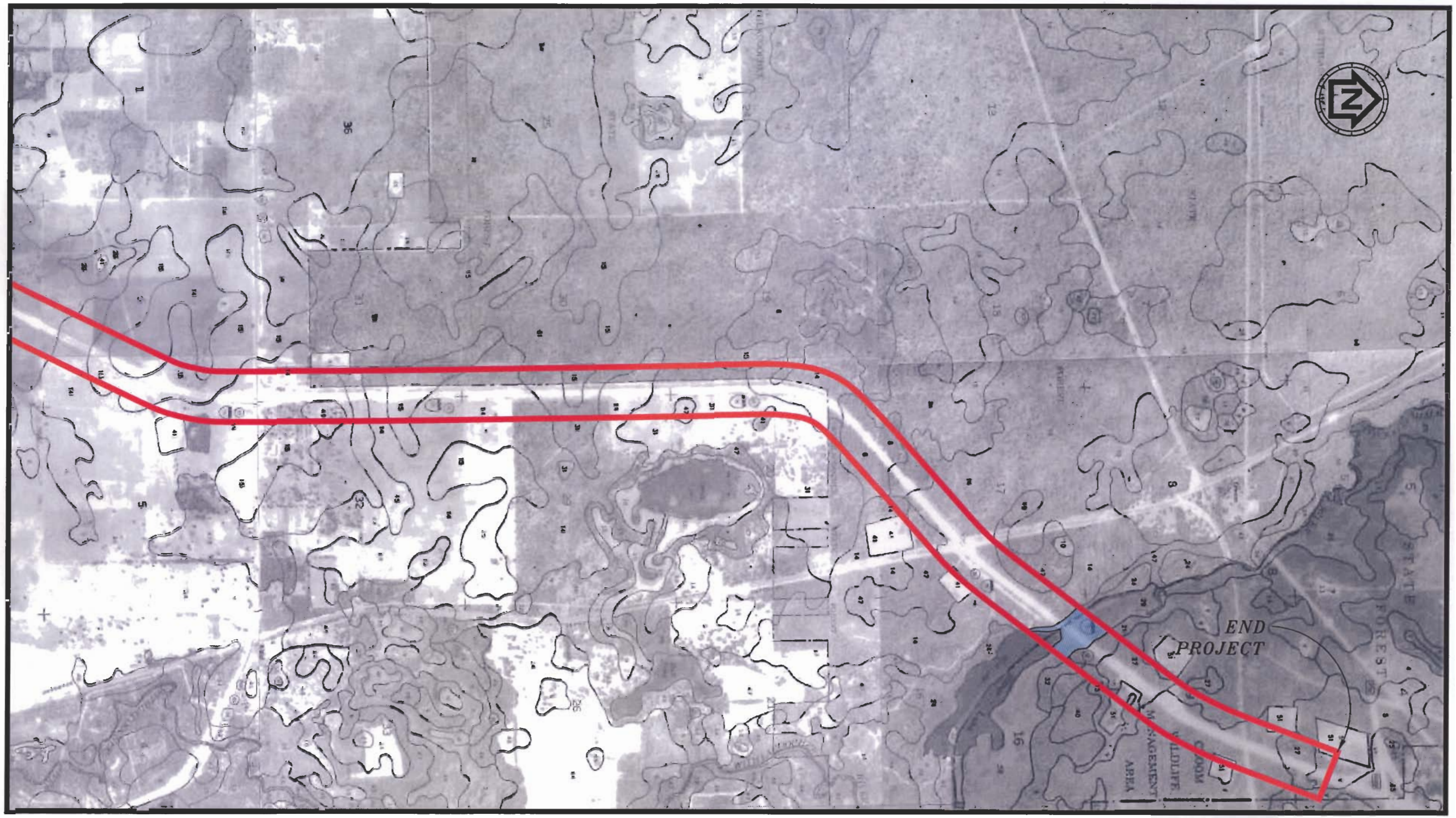
PSI *Information To Build On*

Engineering • Consulting • Testing

DATE	PROJ. NO.	
JULY 05	775-55159	FIGURE 6-2

P:\775-Geo\2005\55159_I-75 (SR 93)\Cad files\5515913

MATCHLINE "B"



REFERENCE: USDA SCS, "SOIL SURVEY OF HERNANDO COUNTY, FLORIDA"

TOWNSHIP:	23 SOUTH	22 SOUTH	ISSUED:	1977
RANGE:	21 EAST	21 EAST	PHOTOREVISED:	1973
SECTION:	7, 6 & 5	31, 32, 30, 29, 19, 20, 17 & 16	SCALE:	1" = 0.5 MILE

REFERENCE: USDA SCS, "SOIL SURVEY OF SUMTER COUNTY, FLORIDA"

TOWNSHIP:	22 SOUTH	ISSUED:	1988
RANGE:	21 EAST	PHOTOREVISED:	1979
SECTION:	16, 9 & 4	SCALE:	1" = 0.5 MILE

LEGEND

AREAS WITH SHALLOW CLAYEY SOILS

DRAWN	DJG
CHECKED	KL
APPROVED	CLK
SCALE	NOTED

USDA VICINITY MAP

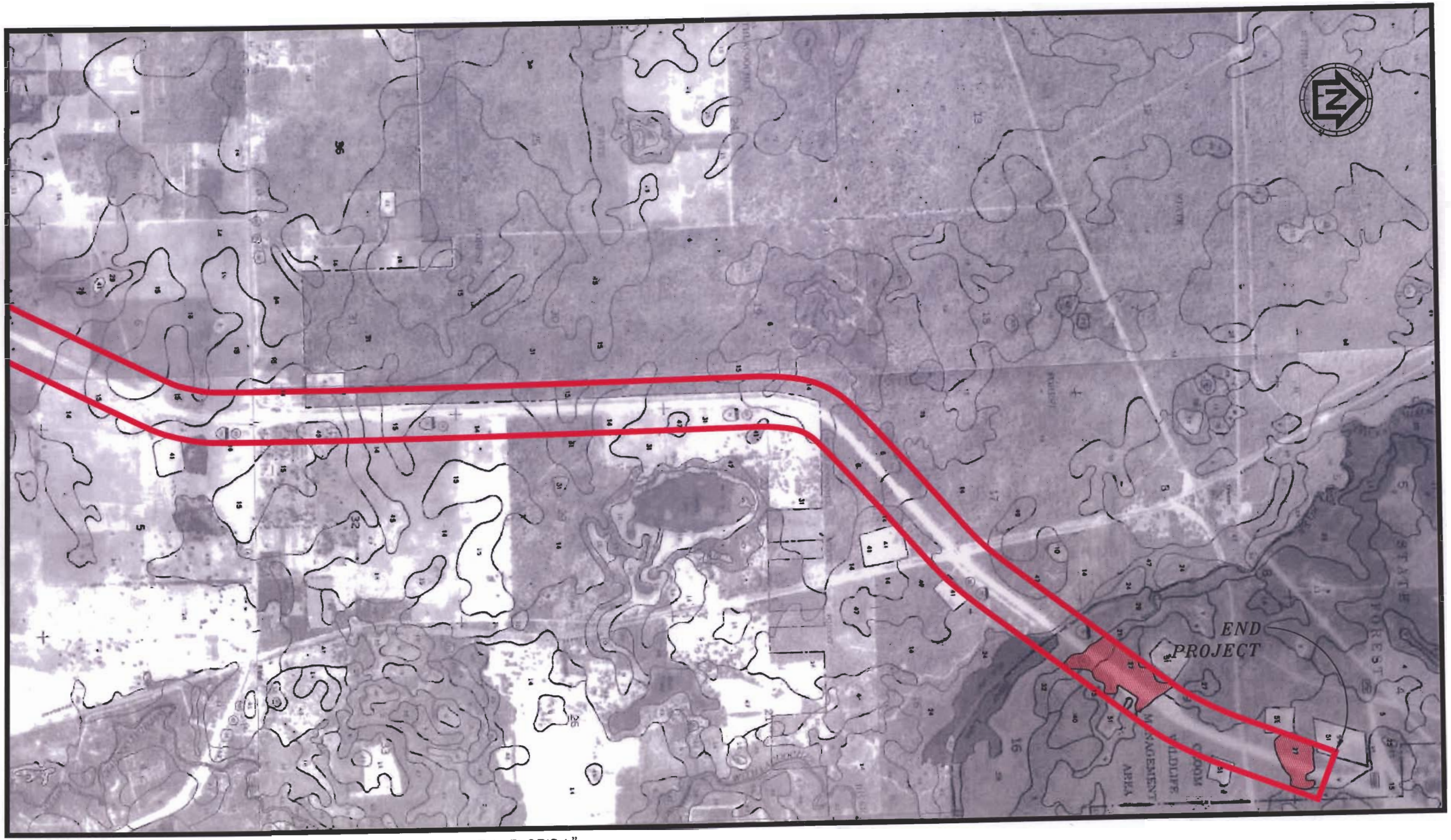
I-75 (SR 93) FROM NORTH OF SR 52 IN PASCO COUNTY TO SOUTH OF CR 476B IN SUMTER COUNTY

PASCO, HERNANDO & SUMTER COUNTIES, FLORIDA

PSI *Information To Build On*
Engineering • Consulting • Testing

DATE	PROJ. NO.	
JULY 05	775-55159	FIGURE 6-3

P:\775-Geo\2005\55159 - I-75 (SR 93)\Cad files\5515914



REFERENCE: USDA SCS, "SOIL SURVEY OF HERNANDO COUNTY, FLORIDA"

TOWNSHIP:	23 SOUTH	22 SOUTH
RANGE:	21 EAST	21 EAST
SECTION:	7, 6 & 5	31, 32, 30, 29, 19, 20, 17 & 16

ISSUED: 1977
PHOTOREVISED: 1973
SCALE: 1" = 0.5 MILE

REFERENCE: USDA SCS, "SOIL SURVEY OF SUMTER COUNTY, FLORIDA"

TOWNSHIP:	22 SOUTH	ISSUED:	1988
RANGE:	21 EAST	PHOTOREVISED:	1979
SECTION:	16, 9 & 4	SCALE:	1" = 0.5 MILE

LEGEND

AREAS WITH NEAR-SURFACE BOULDERS

DRAWN	DJG
CHECKED	KL
APPROVED	CLK
SCALE	NOTED

USDA VICINITY MAP
I-75 (SR 93) FROM NORTH OF SR 52 IN PASCO COUNTY TO SOUTH OF CR 476B IN SUMTER COUNTY
PASCO, HERNANDO & SUMTER COUNTIES, FLORIDA

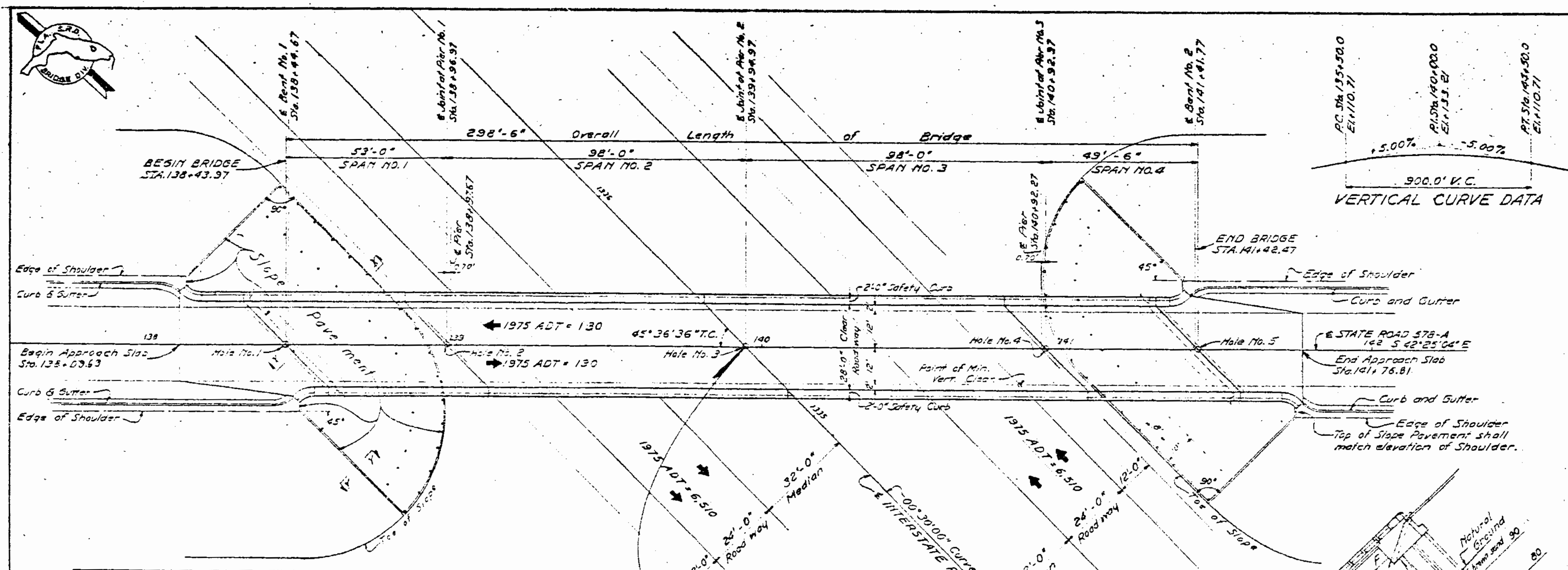
psi *Information To Build On*
Engineering • Consulting • Testing

DATE	PROJ. NO.	
JULY 05	775-55159	FIGURE 7-1

P:\775-Geo\2005\55159_I-75 (SR 93)\Cad files\5515915

APPENDIX B

Plan and Elevation Sheets/Report of Core Borings Sheets



STA.139+94.97 ℄ STATE ROAD 578-A = STA.1335+31.96 ℄ SURVEY INTERSTATE ROUTE 75

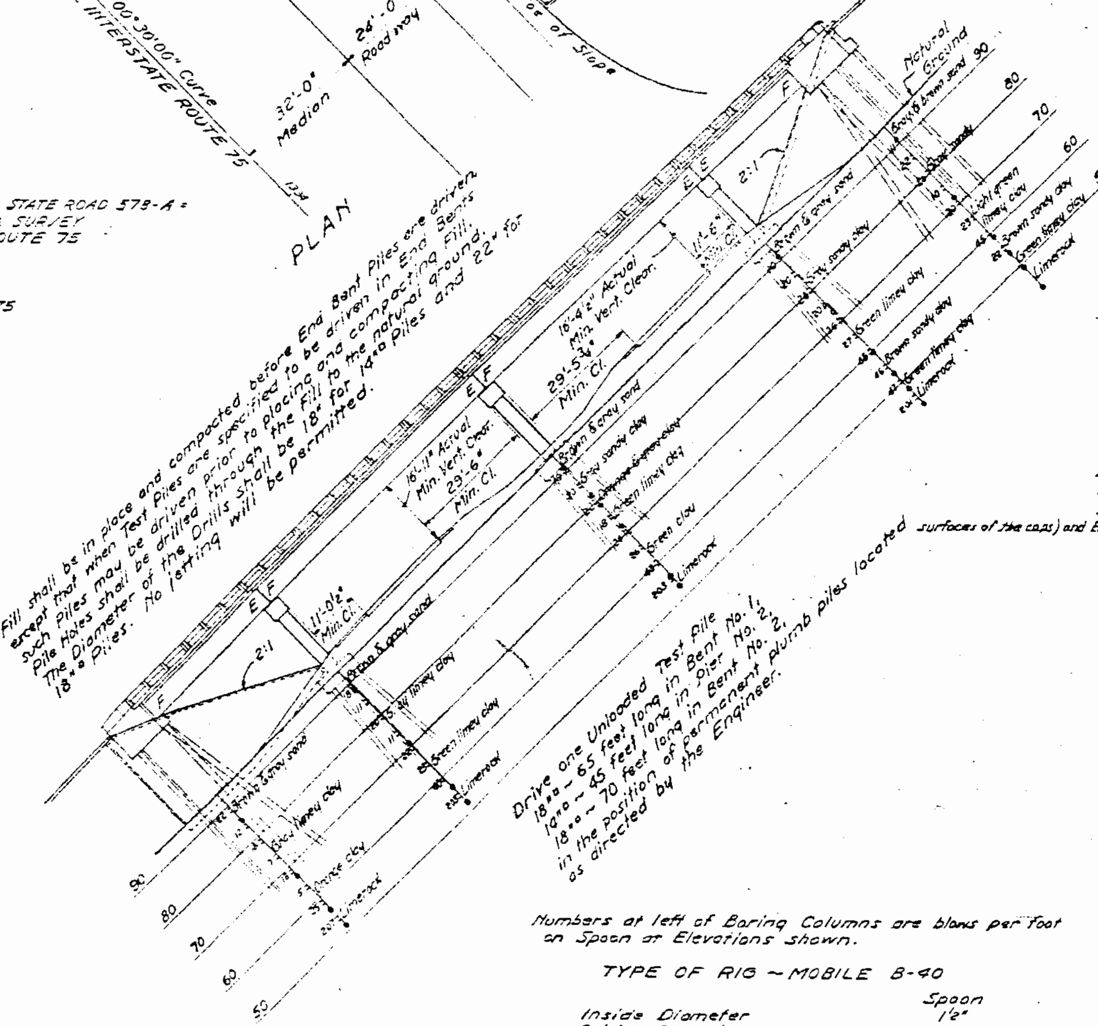
INDEX OF BRIDGE SHEETS

ESTIMATED BRIDGE QUANTITIES

ITEM NO.	ITEM	UNIT	QUANTITY
300-1	Class A Concrete	Cu. Yd.	543.2
300-7	Concrete Handrail	Lin. Ft.	615.0
310-1	Reinforcing Steel	Lb.	95,200
401-1D	Prestressed Beams (Type III~12-6)	Lin. Ft.	200.8
401-1E	Prestressed Beams (Type IV~18-0)	Lin. Ft.	200.8
401-1F	Prestressed Beams (Type IV~30-14)	Lin. Ft.	969.5
403-3A	Precast Concrete Piling Furnished (14"ø Prestressed)	Lin. Ft.	2500
403-3B	Precast Concrete Piling Furnished (18"ø Prestressed)	Lin. Ft.	300
403-4A	Precast Concrete Piling Driven (14"ø Prestressed)	Lin. Ft.	2500
403-4B	Precast Concrete Piling Driven (18"ø Prestressed)	Lin. Ft.	900
403-9A	Unloaded Test Piles (14"ø Prestressed)	Lin. Ft.	45
403-9B	Unloaded Test Piles (18"ø Prestressed)	Lin. Ft.	135
① 403-10	Test Loads (90 Tons)	Each	1
451-4	Concrete Slope Pavement (4" thick)	Sq. Yd.	1,095
② 320-2	Structural Steel (Bearing Shoe Assemblies)	Lump Sum	1

Payment for Incidental Items not specifically covered in the Individual Bid Items shall be included in the Contract Prices for Bid Items.
① The Number of Test Loads may be increased or omitted as directed by the Engineer.
② Estimated Weight = 4,550 Lbs.

CURVE DATA FOR I.R. 75
P.I. Sta. 1328+06.83
Δ = 12°15'30" Lt.
D = 00°30'00"
T = 1230.53'
L = 2451.67'
R = 11,459.16'
P.C. Sta. 1315+76.30
P.T. Sta. 1340+27.97



Fill shall be in place and compacted before End Bent Piles are driven except that when Test Piles are specified to be driven in End Bents such piles may be driven prior to placing and compacting Fill. Pile Holes shall be drilled through the Fill to the natural ground. The Diameter of the Drills shall be 18" for 14"ø Piles and 22" for 18"ø Piles. No Jetting will be permitted.

Drive one Unloaded Test Pile 18"ø ~ 65 feet long in Bent No. 1, 14"ø ~ 45 feet long in Pier No. 2, 18"ø ~ 70 feet long in Bent No. 2, in the position of permanent plumb piles located as directed by the Engineer.

Numbers at left of Boring Columns are blows per foot on Spoon at Elevations shown.

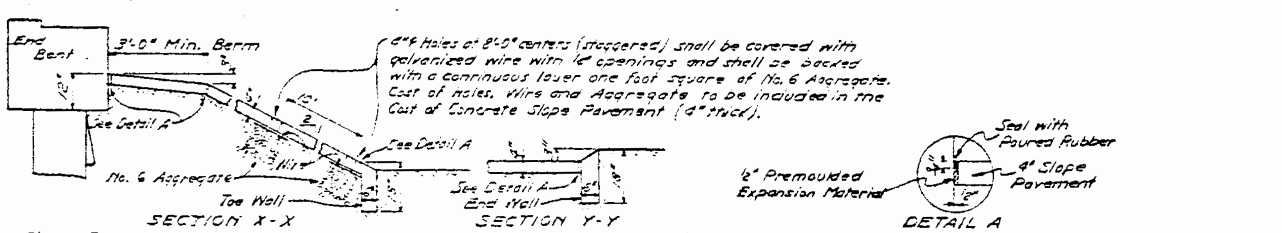
TYPE OF RIG ~ MOBILE B-40

	Spoon
Inside Diameter	1½"
Outside Diameter	2"
Weight of Hammer	140 Lbs.
Average Drop of Hammer	30"

BORING DATA

GENERAL NOTES

DESIGN SPECIFICATIONS: A.A.S.H.O., 1961 with Approved Revisions.
LOADING: H 20-44.
SURFACE FINISH: All exposed surfaces of Piers (including the bottom surfaces of the caps) and End Bents shall be given Class I Surface Finish. All surfaces of Superstructure as seen in elevation, including the outside face of the Exterior Prestressed Beams, the bottom surface of the Curb overhang and the bottom surface of the Roadway Slab outside of the Exterior Beams shall be given Class I Surface Finish.



4"ø Holes at 8'-0" centers (staggered) shall be covered with galvanized wire with ¼" openings and shall be backed with a continuous layer one foot square of No. 6 Aggregate. Cost of holes, wire and Aggregate to be included in the Cost of Concrete Slope Pavement (4" thick).

Slope Pavement shall be tooled with a double 4" Radius Tool at 2'± intervals along the slope and at 4'± across the slope. Construction Joints will be permitted at Joints as directed by the Engineer.

Showing Joint Details at End Bent, applies at all contacting surfaces of Slope Pavement with End Bents, End Walls, Toe Walls and both sides of Berm.

SLOPE PAVEMENT DETAILS

PLAN AND ELEVATION AND ESTIMATED BRIDGE QUANTITIES

STATE ROAD DEPARTMENT OF FLORIDA
BRIDGE DIVISION

STATE ROAD 578-A
OVER INTERSTATE ROUTE 75

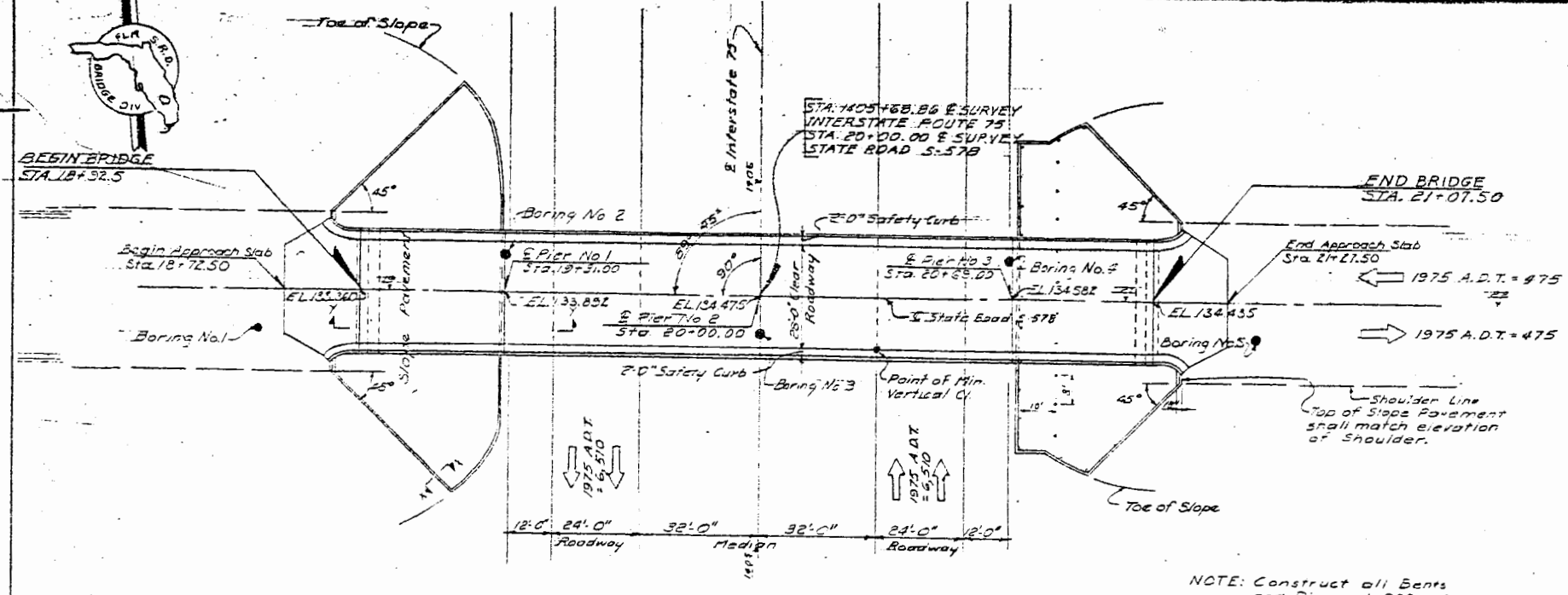
REVISIONS Dates	Descriptions	ROAD NO.	COUNTY	PROJECT NO.
		578-A	PASCO	14140-3402

	Names	Dates
Detailed by	E.C.F. C.E.S.	1-63
Checked by	A.F.R.	3-63
Quantities by	A.G.M.	2-63
Checked by	A.F.R.	3-63
Traced by	C.E.S.	2-63

APPROVED BY T. W. Jennings
Drawing No. 1 of 16
Index No. 7772

140046

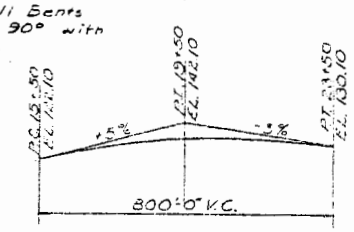
			FISCAL YEAR	SHEET NO.
3	FLA.	F.A.P. I-75-1(14)123	63	A-1



PLAN

NOTE: Construct all Bents and Piers at 90° with S.R. S-578.

Fill shall be in place and compacted before End Bent Piles are driven except that when Test Piles are specified to be driven in End Bents such Piles may be driven prior to placing and compacting fill. Pile Holes shall be drilled through the fill to the natural ground. The diameter of the Holes shall be 12" for 14"ø Piles and 22" for 18"ø Piles. No jetting will be permitted.



VERTICAL CURVE DATA

ESTIMATED BRIDGE QUANTITIES

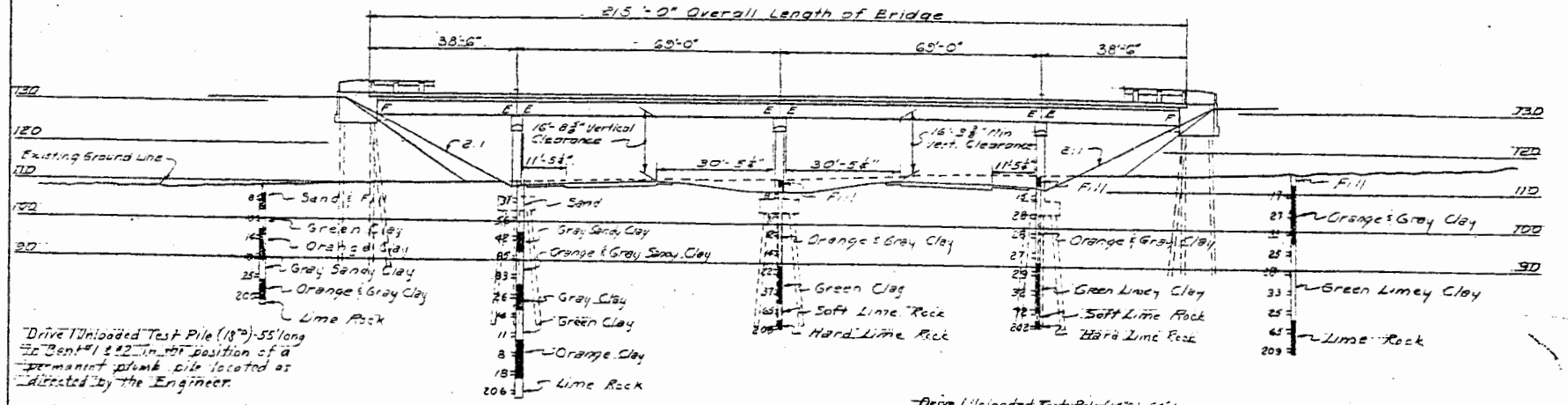
ITEM NO.	ITEM	UNIT	QUANTITY
300-1	Class A Concrete	Cu. Yd.	340.3
310-1	Reinforcing Steel	Lb.	66,600
401-1A	Prestressed Beams (Type II - 12-6)	Lin. Ft.	151.0
401-1B	Prestressed Beams (Type III - 14-0)	Lin. Ft.	151.0
401-1C	Prestressed Beams (Type III - 20-8)	Lin. Ft.	546.0
403-3A	Precast Concrete Piling Furnished (14"ø Prestressed)	Lin. Ft.	1300
403-3B	Precast Concrete Piling Furnished (18"ø Prestressed)	Lin. Ft.	600
403-4A	Precast Concrete Piling Driven (14"ø Prestressed)	Lin. Ft.	1300
403-4B	Precast Concrete Piling Driven (18"ø Prestressed	Lin. Ft.	600
405-9A	Unloaded Test Piles (14"ø Prestressed)	Lin. Ft.	130
403-9B	Unloaded Test Piles (18"ø Prestressed)	Lin. Ft.	110
©403-10	Test Loads (130 Tons)	Each	1
527-7	Concrete Handrail	Lin. Ft.	430
451-4	Concrete Slope Pavement (4" thick)	Sq. Yd.	1200

© The number of Test Loads may be increased or omitted as directed by the Engineer.
Note: Payment for incidental items not specifically covered in the individual Bid Items shall be included in the contract prices for bid items.

~GENERAL NOTES~

DESIGN SPECIFICATIONS: A.A.S.H.O., 1961 with Approved Revisions.
LOADING: H 20-44.
SURFACE FINISH: All exposed surfaces of Piers (including the bottom surfaces of the caps) and End Bents shall be given Class I Surface Finish. All Surfaces of Superstructure as shown in Elevation, including the outside face of the Exterior Prestressed Beams, the bottom surface of the curb overhang and the bottom surface of the roadway slab outside of the exterior beam shall be given Class I Surface Finish.

INDEX OF BRIDGE SHEETS



Drive 1 Unloaded Test Pile (18"ø) - 55' long in "C" Bent #1 @ 12' in the position of a permanent plumb pile located as directed by the Engineer.

Drive 1 Unloaded Test Pile (18"ø) - 50' long in Pier #1 in the position of a permanent plumb pile located as directed by the Engineer.

Drive 1 Unloaded Test Pile (18"ø) - 40' long in Pier #2 & 3 in the position of a permanent plumb pile located as directed by the Engineer.

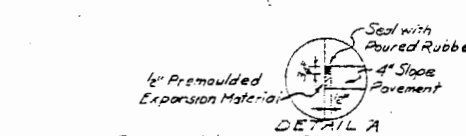
ELEVATION

BORING DATA

TYPE OF RIG: Mobile B-40

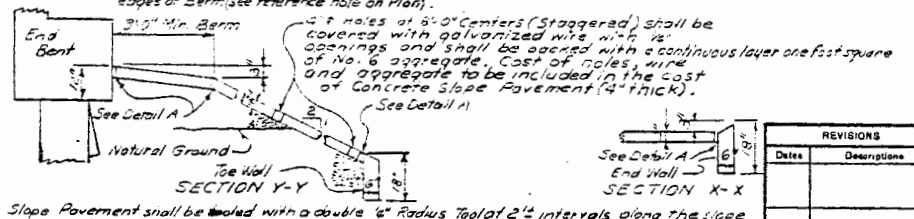
SPOON:
Inside diameter - 1⅜"
Outside diameter - 2"
Weight of Hammer - 140 #
Average drop of Hammer - 30"

Note: Number of Blows of Boring Oil must be blows per foot on the spoon.



DETAIL A

Showing Joint Details at End Bent, applies at all contacting surfaces of Slope Pavement with End Bents, End Walls, Toe Walls and both edges of Berm (See reference note on Plan).



Slope Pavement shall be tooled with a double 6" Radius Tool at 2'-4" intervals along the slope and at 4'-1" across the slope. Construction Joints will be permitted at tooled joints as directed by the Engineer.

SLOPE PAVEMENT DETAILS

140940

PLAN AND ELEVATION AND ESTIMATED BRIDGE QUANTITIES

STATE ROAD DEPARTMENT OF FLORIDA
BRIDGE DIVISION

STATE ROAD S-578 OVER INTERSTATE ROUTE 75

REVISIONS		ROAD NO.	COUNTY	PROJECT NO.
Dates	Descriptions	S-578	PASCO	14140-3402

	Names	Dates
Detailed by	W.H.W.	3-62
Checked by	A.F.R.	3-62
Quantities by	A.G.M.	3-62
Checked by	A.F.R.	3-62
Traced by	W.H.W.	3-62

APPROVED BY: T. W. Lamar, Assistant State Highway Engineer

Drawing No. 1 of 9 | Index No. 7527

FED. ROAD DIV. No.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
3	FLA.	I-75-1(22)30	63	A-1

GENERAL NOTES

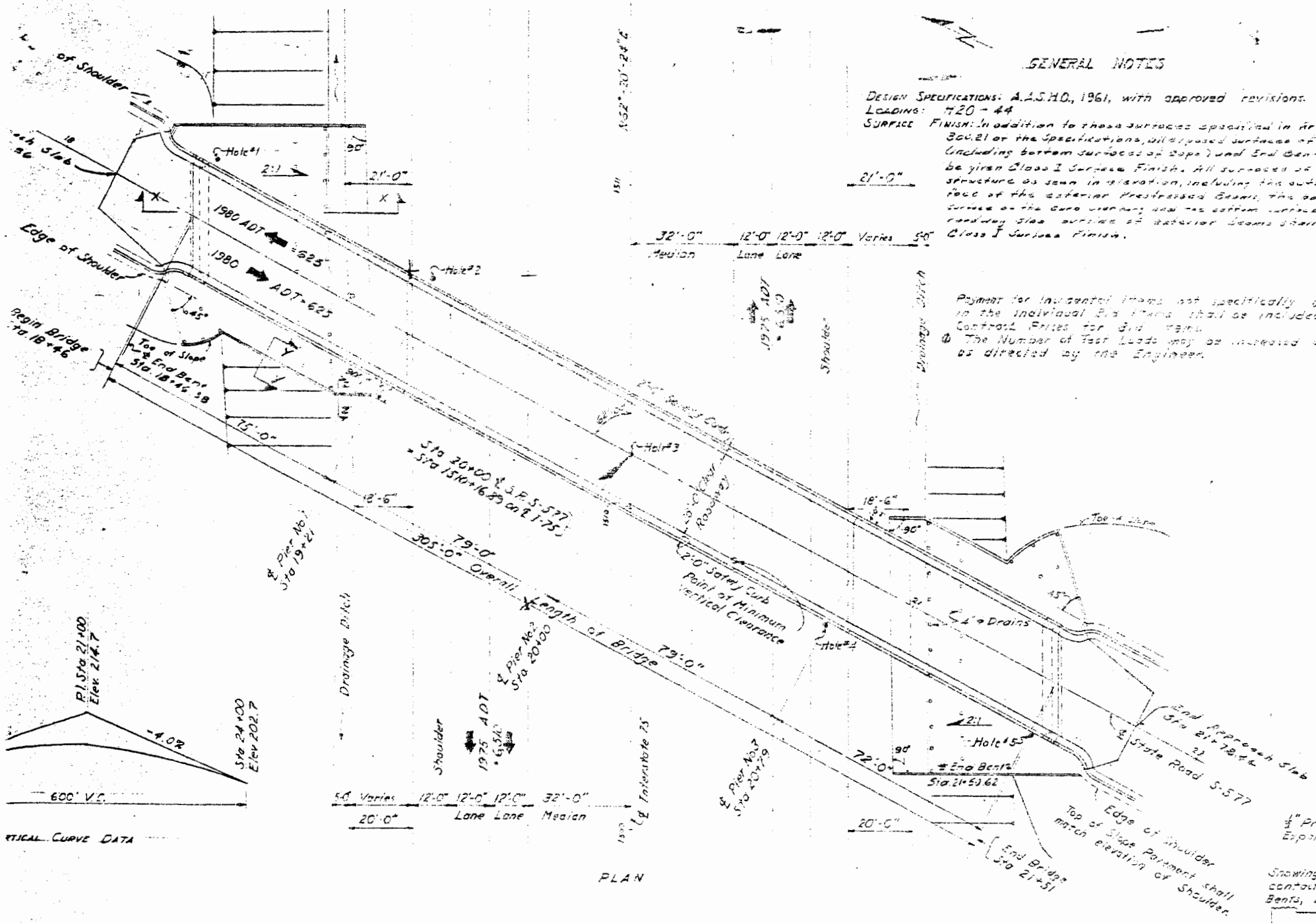
DESIGN SPECIFICATIONS: A.A.S.H.O., 1961, with approved revisions.
LOADING: H20 - 44
SURFACE FINISH: In addition to those surfaces specified in Article 801.21 of the Specifications, all exposed surfaces of Piers (including bottom surfaces of caps) and End Bents shall be given Class I Surface Finish. All surfaces of Superstructure as seen in elevation, including the outside face of the exterior Prestressed Beams, the bottom surface of the dare diaphragms and the bottom surface of the roadway slab outside of exterior Beams shall be given Class F Surface Finish.

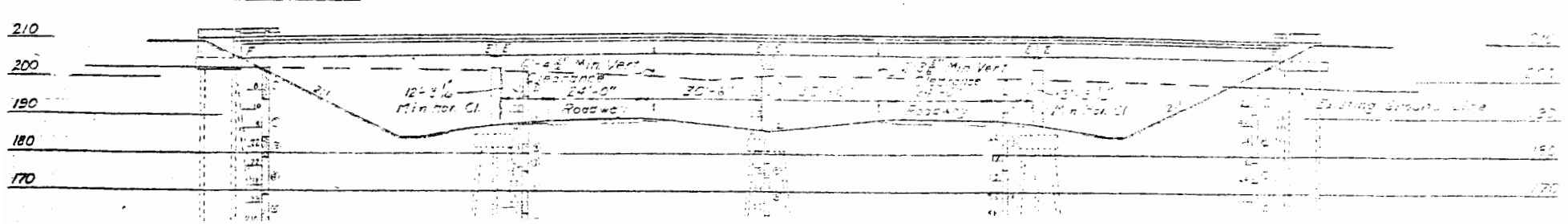
Payment for incidental items not specifically covered in the individual Bid Items shall be included in the Contract Prices for Bid Items.
① The Number of Test Loads may be increased or omitted as directed by the Engineer.

ESTIMATED BRIDGE QUANTITIES

ITEM NO.	ITEM	UNIT	QUANTITY
300-15	Class A Concrete	Cu Yd	433.5
300-73	Concrete Handrail (Type B)	Lin. Ft	610
310-15	Reinforcing Steel	Lb	88,950
401-10	Prestressed Beams (Type III ~ 22-8)	Lin. Ft	727.3
401-15	Prestressed Beams (Type III ~ 22-10)	Lin. Ft	782.3
403-3	Precast Concrete Piling Furnished (18"ᴓ Prestressed)	Lin. Ft	1,000
403-4	Precast Concrete Piling Driven (18"ᴓ Prestressed)	Lin. Ft	1,000
403-7	Steel Piling Furnished (12 BP 53)	Lin. Ft	800
403-8	Steel Piling Driven (12 BP 53)	Lin. Ft	800
403-9A	Unloaded Test Piles (18"ᴓ Prestressed)	Lin. Ft	90
403-9B	Unloaded Test Piles (12 BP 53)	Lin. Ft	100
① 403-10	Test Loads (190 Tons)	Each	1
451-1	Concrete Ditch Pavement (3" thick)	Sq. Yd.	205
451-2	Concrete Slope Pavement (4" thick)	Sq. Yd.	860

INDEX OF BRIDGE SHEETS





BORING DATA

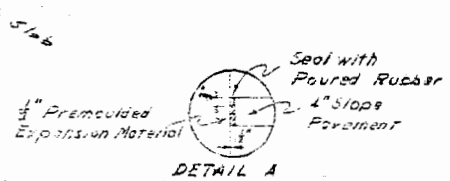
Orange & Gray Clay
Gray Clay
Gray Sandy Clay
Green Clay
Bright Brown & Gray Clay
Limerock
Light Gray Sandy Clay
Orange Clay
Fill

TYPE OF RIG - Mobile B40
SPOON - Inside Diameter - 1½"
Outside Diameter - 2"
Weight of Hammer - 140#
Average Drop of Hammer - 30"

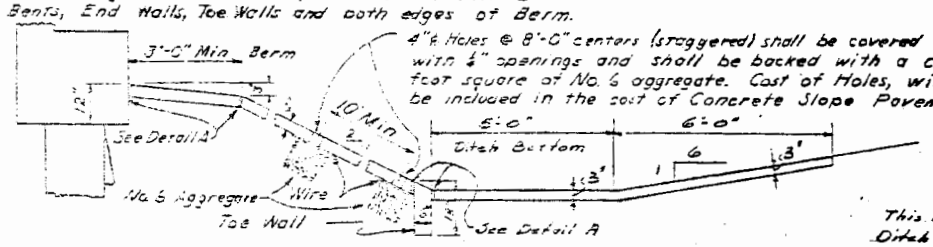
Figures to left of borings are the blows per foot in the spoon at the elevation shown

NOTE: Rough grading for Interstate Route 75 at the Bridge site shall be performed prior to driving test piles. In lieu of grade as noted on the plans, the Contractor may elect at his additional cost to the state, to drive piles 20" in diameter for each test pile to the approximate elevation of the members shown and provide additional random test piles.

Fill shall be in place and compacted before End Bent Piles are driven except that when Test Piles are specified to be driven in End Bents such piles may be driven prior to placing and compacting fill.



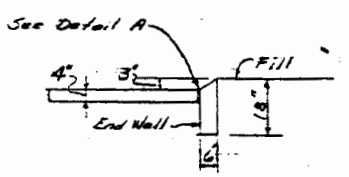
Showing Joint Details at End Bent, applies at all contacting surfaces of Slope Pavement with End Bents, End Walls, Toe Walls and both edges of Berm.

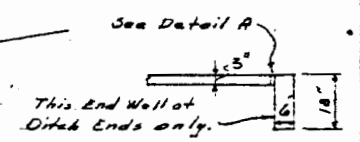


4"ᴓ Holes @ 8'-0" centers (staggered) shall be covered with galvanized wire with ½" openings and shall be backed with a continuous layer one foot square of No. 6 aggregate. Cost of Holes, wire and aggregate to be included in the cost of Concrete Slope Pavement (4" thick).

Slope Pavement shall be tooled with a double ½" tooling Tool at 2'± intervals along the slope and at 6'± across the slope. Construction Joints will be permitted at Joints as directed by the Engineer.

SLOPE PAVEMENT DETAILS



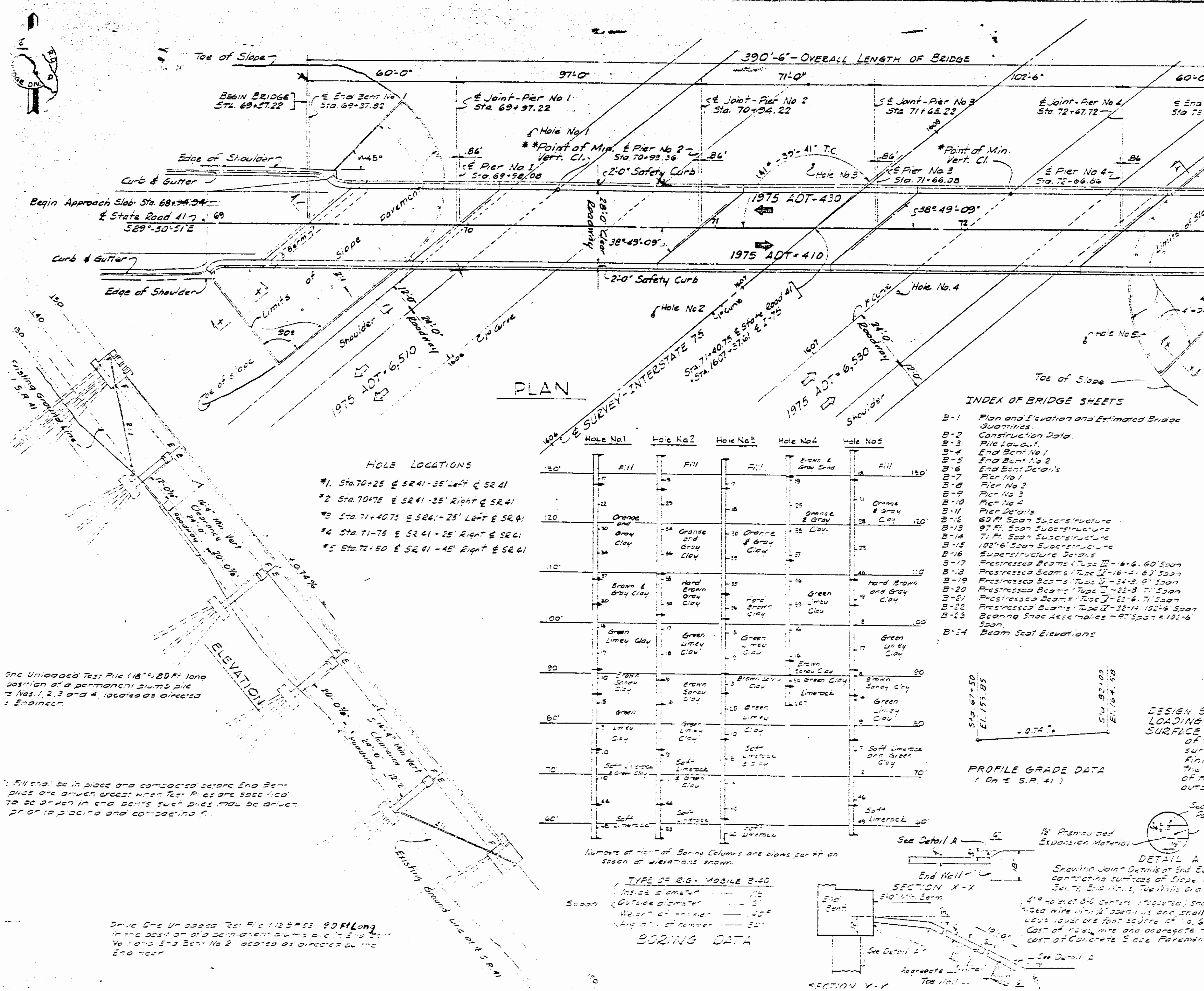


PLAN AND ELEVATION AND ESTIMATED BRIDGE QUANTITIES AND BORING DATA

STATE ROAD DEPARTMENT OF FLORIDA
BRIDGE DIVISION

STATE ROAD S-577 OVER INTERSTATE 75

REVISIONS		ROAD NO.	COUNTY	PROJECT NO.
Dates	Descriptions	43	PASCO	14140-3403
			Names / Dates / APPROVED BY	



INDEX OF BRIDGE SHEETS

ESTIMATED BRIDGE QUANTITIES

ITEM NO.	ITEM	UNIT	QUANTITY
300-15	Class A Concrete	C. Yd.	721.8
300-7B	Concrete Handrail (Type B)	Lin. Ft.	811
310-15	Reinforcing Steel	Lb.	142,440
*320-2A	Structural Steel (Shoe Assemblies)	Lump Sum	1
401-1 C	Prestressed Beams (Type III - 16-6)	Lin. Ft.	235.4
401-1 D	Prestressed Beams (Type III - 22-8)	Lin. Ft.	139.7
401-1 F	Prestressed Beams (Type IV - 16-4)	Lin. Ft.	235.4
401-1 G	Prestressed Beams (Type IV - 22-6)	Lin. Ft.	139.7
401-1 H	Prestressed Beams (Type IV - 32-14)	Lin. Ft.	506.9
401-1 J	Prestressed Beams (Type IV - 34-8)	Lin. Ft.	479.4
403-3	Precast Concrete Piling Furnished (18" Prestressed)	Lin. Ft.	4,600
403-4	Precast Concrete Piling Driven (18" Prestressed)	Lin. Ft.	4,600
403-7	Steel Piling Furnished (12 BP53)	Lin. Ft.	2,000
403-8	Steel Piling Driven (12 BP53)	Lin. Ft.	2,000
403-9A	Unloaded Test Piles (18" Prestressed)	Lin. Ft.	320
403-9B	Unloaded Test Piles (12 BP53)	Lin. Ft.	180
①403-10	Test Loads (90 Tons)	Each	1
451-4	Concrete Slope Pavement (4" thick)	Sq. Yd.	610

Payment for incidental items not specifically covered in the individual bid items shall be included in the contract prices for bid items.

① - The Number of test loads may be increased or omitted as directed by the Engr.

*Estimated Weight Structural Steel Item No 320-2A 6,540 lbs

GENERAL NOTES

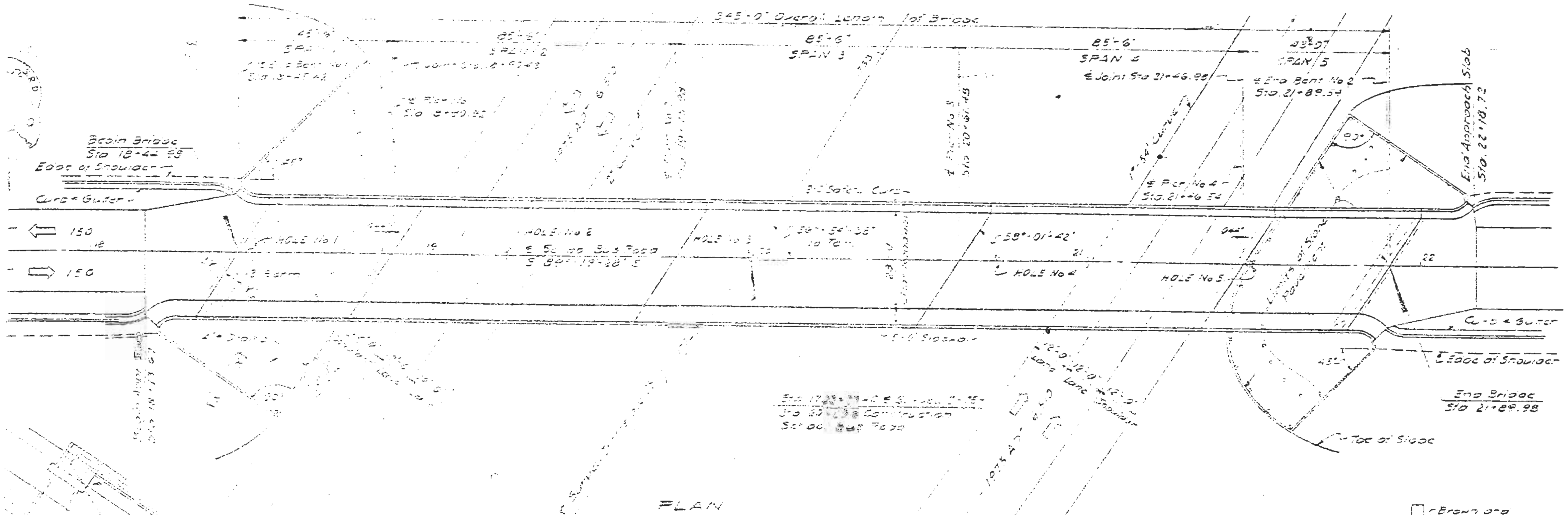
DESIGN SPECIFICATIONS: A.A.S.H.O., 1961 with approved Revisions

LOADING: H-20-44

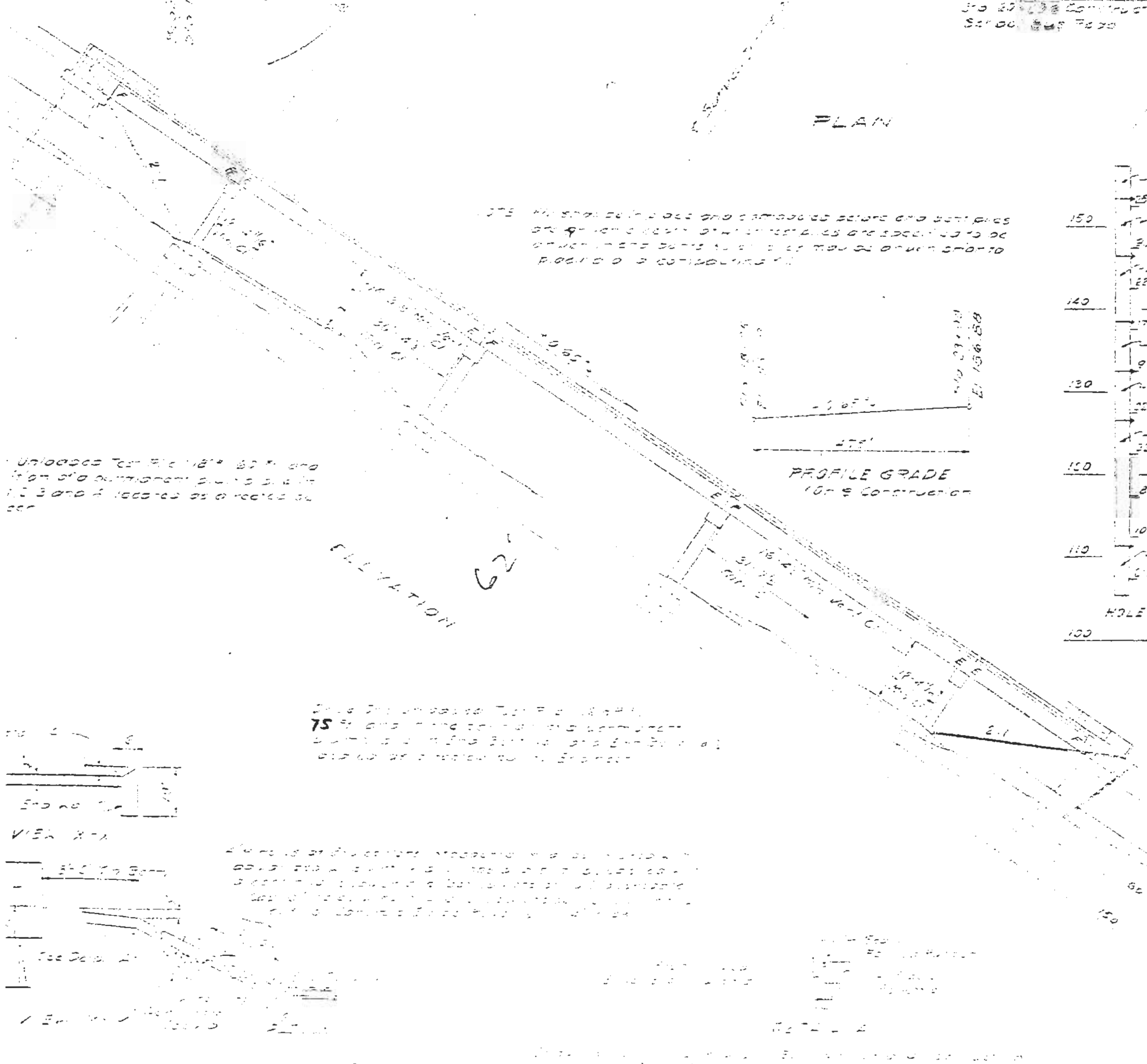
SURFACE FINISH: In addition to those surfaces specified in article 300.21 of the specifications, all exposed surfaces of piers (including bottom surfaces of caps) and End Bents shall be given Class I Surface Finish. All surfaces of superstructure as seen in Elevation, including the outside face of the exterior Prestressed Beams, the bottom surface of the curb overhang and the bottom surface of the roadway slab outside of the exterior beams shall be given class I Surface finish.

PLAN AND ELEVATION, AND ESTIMATED BRIDGE QUANTITIES

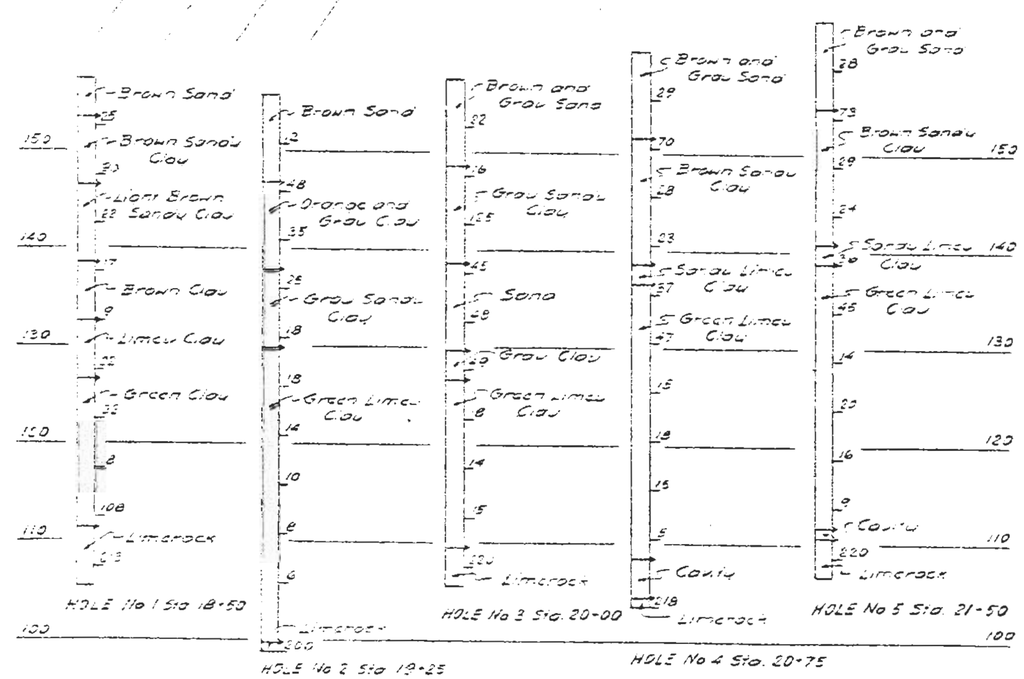
STATE ROAD DEPARTMENT OF FLORIDA BRIDGE DIVISION		
STATE ROAD 41 OVER INTERSTATE ROUTE 75		
ROAD NO.	COUNTY	PROJECT NO.
93	PASCO	14140-3403



PLAN



ELEVATION



NOTE All borings are on ℄ School Bus Road. For Locations see Plan.

TYPE OF RIG: MOBILE B-40

	Spoon
Inside Diameter	1½"
Outside Diameter	2"
Weight of Hammer	140 Lb.
Average Drop of Hammer	30"

Numerals at right of Boring Columns are Blows per foot on the Spoon at Elevation shown.

BORING DATA

FED. ROAD DIV. No.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
3	FLA.	375-1(22) 30	63	C-1

ESTIMATED BRIDGE QUANTITIES

ITEM No	ITEM	UNIT	QUANTITY
300-15	Class A Concrete	Cu. Yd.	633.1
300-7A	Concrete Handrail (Type A)	Lin. Ft.	353
300-7B	Concrete Handrail (Type B)	Lin. Ft.	353
310-15	Reinforcing Steel	Lb.	140 200
*320-2B	Structural Steel (Shoe Assemblies)	Lump Sum	1
401-1A	Prestressed Beams (Type I - 16-8)	Lin. Ft.	173.6
401-1B	Prestressed Beams (Type I - 8-4)	Lin. Ft.	173.6
401-1E	Prestressed Beams (Type II - 22-10)	Lin. Ft.	1,534.0
403-3	Precast Concrete Piling Furnished (18" Prestressed)	Lin. Ft.	3,000
403-4	Precast Concrete Piling Driven (18" Prestressed)	Lin. Ft.	3,000
403-7	Steel Piling Furnished (12 BP 53)	Lin. Ft.	1,500
403-8	Steel Piling Driven (12 BP 53)	Lin. Ft.	1,500
403-9A	Unloaded Test Piles (18" Prestressed)	Lin. Ft.	240
403-9B	Unloaded Test Piles (12 BP 53)	Lin. Ft.	150
① 403-10	Test Loads (90 Tons)	Each	1
451-4	Concrete Slope Pavement (4" Thick)	Sq. Yd.	800

Payment for incidental items not specifically covered in the individual bid items shall be included in the contract prices for bid items.

① The number of test loads may be increased or omitted as directed by the Engineer.

* Estimated Weight of Structural Steel Item No 320-2B 6,636 Lbs

INDEX OF BRIDGE SHEETS

C-1	Plan and Elevation and Estimated Bridge Quantities.
C-2	Construction Data
C-3	Pile Layout.
C-4	End Bent No 1
C-5	End Bent No 2.
C-6	End Bent Details - End Bents No 1 & 2
C-7	Pier No 1.
C-8	Pier No 2.
C-9	Pier No 3.
C-10	Pier No 4.
C-11	45'-6" Superstructure - Span 1.
C-12	85'-6" Superstructure - Span 2, 3 & 4
C-13	43'-3" Superstructure - Span 5.
C-14	Superstructure Details.
C-15	Prestressed Beams (Type I - 16-8) 45'-6" Span
C-16	Prestressed Beams (Type I - 8-4) 45'-6" Span.
C-17	Prestressed Beams (Type III - 22-10) 85'-6" Span.
C-18	Prestressed Beams (Type I - 16-8) 43'-3" Span.
C-19	Prestressed Beams (Type II - 8-4) 43'-3" Span.
C-20	Bearing Shoe Assemblies - Spans 85'-6".
C-21	Beam Seat Elevations

GENERAL NOTES

DESIGN SPECIFICATIONS: A.A.S.H.O. 1961 with Approved Revisions

LOADING: H20-44

SURFACE FINISH: In addition to those surfaces specified in Article 330.21 of the Specifications, all exposed surfaces of Piers (including bottom surfaces of caps) and End Bents shall be given Class I Surface Finish. All surfaces of Superstructure as seen in Elevation, including the outside face of the exterior Prestressed Beams, the bottom surface of the curb overhang and the bottom surface of the roadway slab outside of the exterior beams shall be given Class I Surface Finish.

PLAN AND ELEVATION AND ESTIMATED BRIDGE QUANTITIES

STATE ROAD DEPARTMENT OF FLORIDA
BRIDGE DIVISION

SCHOOL BUS ROAD OVER INTERSTATE ROUTE 75

REVISIONS		ROAD NO.	COUNTY	PROJECT NO.
Dates	Descriptions	93	HERNANDO	08150-3401

Revised March 30 1964

FED. ROAD DIV. NO.	STATE		
3	FLA.		

ESTIMATED BRIDGE QUANTITIES

ITEM No.	ITEM	UNIT	QUANTITY
300-15	Class A Concrete	Cu.Yd.	90
300-73	Concrete Handrail (Type B)	Lin.Ft.	1124
510-15	Reinforcing Steel	Lb.	18,400
* 520-2C	Structural Steel (Shoe Assemblies)	Lump Sum	
** 520-2D	Structural Steel (Expansion Assemblies)	Lump Sum	
401-1K	Prestressed Beams (Type IV 30-8)	Lin.Ft.	932.5
401-1H	Prestressed Beams (Type III 32-14)	Lin.Ft.	1144.5
401-1L	Prestressed Beams (Type II 34-10)	Lin.Ft.	956.5
403-3	Precast Concrete Piling Furnished (18" Prestressed)	Lin.Ft.	2,500
403-4	Precast Concrete Piling Driven (18" Prestressed)	Lin.Ft.	2,500
403-7	Steel Piling Furnished (12 BP 53)	Lin.Ft.	1,300
403-8	Steel Piling Driven (12 BP 53)	Lin.Ft.	1,300
403-9A	Unloaded Test Piles (18" Prestressed)	Lin.Ft.	180
403-9B	Unloaded Test Piles (12 BP 53)	Lin.Ft.	120
*** 403-10	Test Loads (90 Tons)	Each	1
451-1	Concrete Ditch Pavement (3" thick)	Sq.Yd.	280
451-4	Concrete Slope Pavement (4" thick)	Sq.Yd.	1,179

* Estimated Weight of Structural Steel Item No 520-2C 9,104 Lb.

** Estimated Weight of Structural Steel Item No 520-2D 1,790 Lb.

*** The Number of test loads maybe increased or omitted as directed by the Engineer.

Payment for incidental items not specifically covered in the individual bid items shall be included in the Contract Prices for bid items.

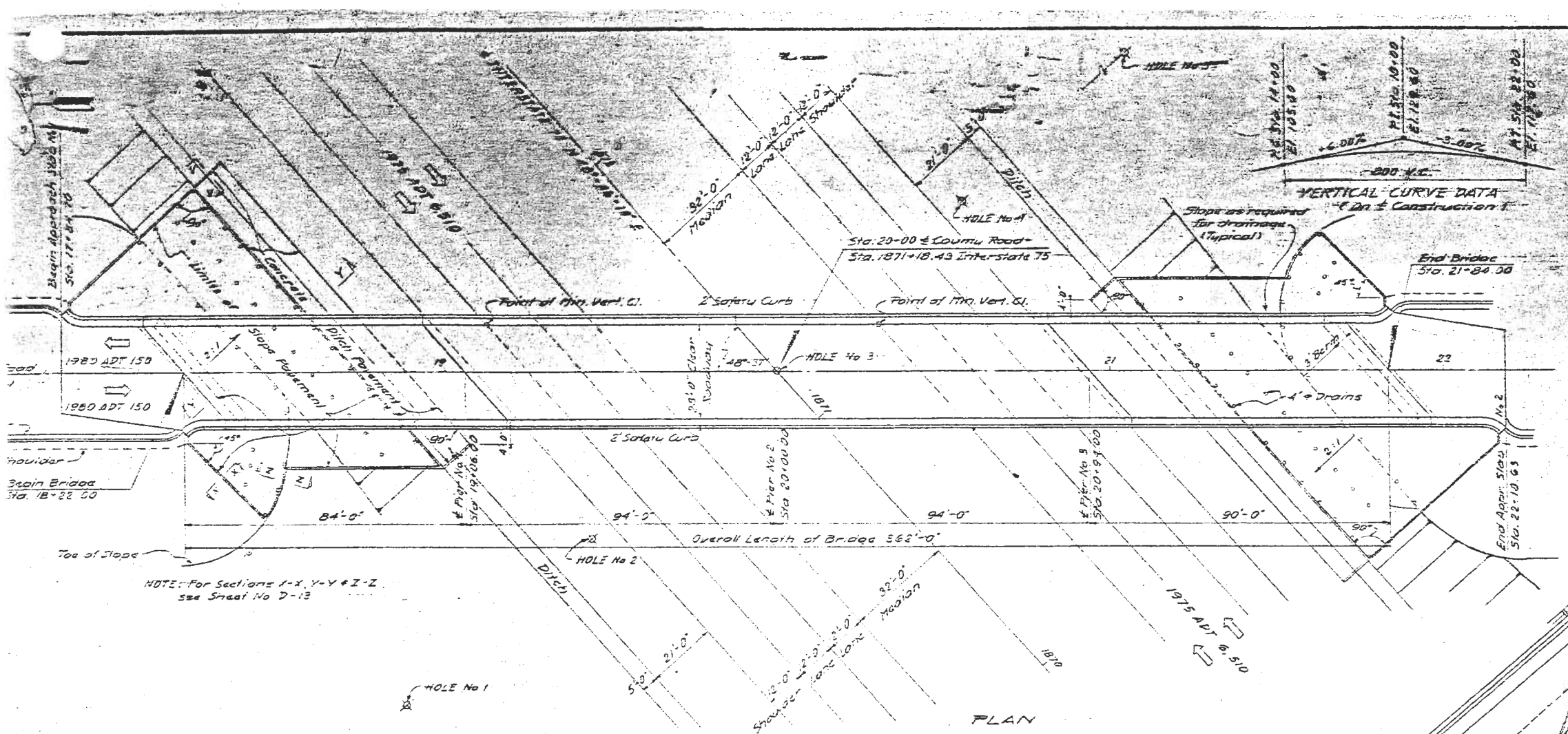
INDEX OF BRIDGE SHEETS

GENERAL NOTES

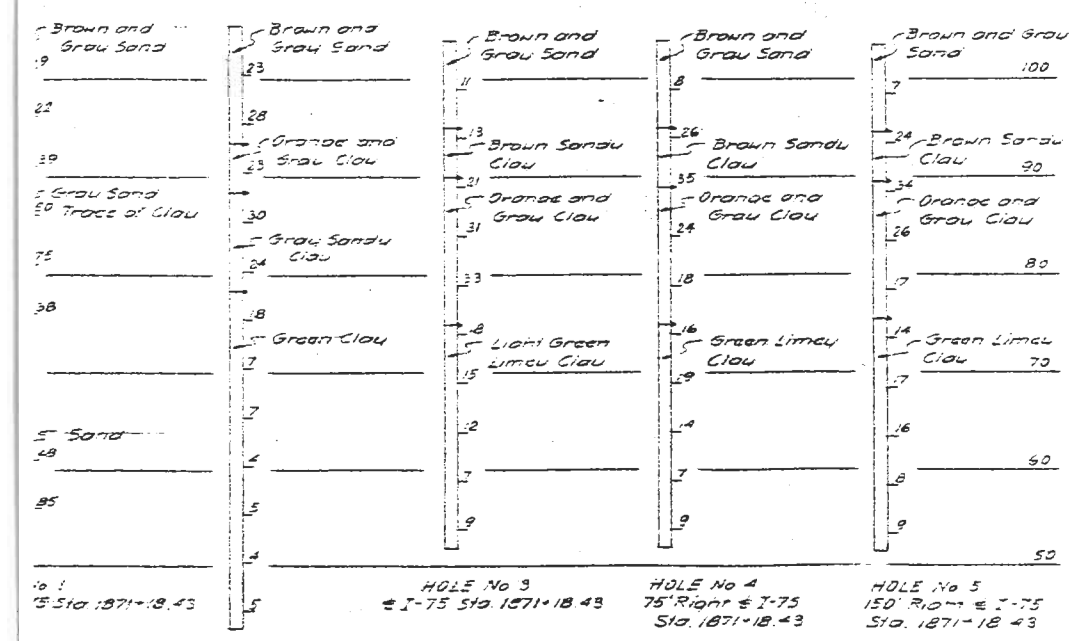
DESIGN SPECIFICATIONS: A.A.S.H.O., 1961 with approved Revisions.

LOADING: H20-44

SURFACE FINISH: In addition to those surfaces specified in article 300.21 of the Specifications, all exposed surfaces of Piers (including bottom surface of Caps) and End Bents shall be given Class I Surface Finish. All surfaces of superstructure as seen in Elevation, including the outside face of the exterior Prestressed Beams, the bottom surface of the curb overhang and the bottom surface of the roadway slab outside of the exterior beams shall be given Class I Surface finish.



NOTE: For Sections I-X, Y-Y & Z-Z See Sheet No D-13



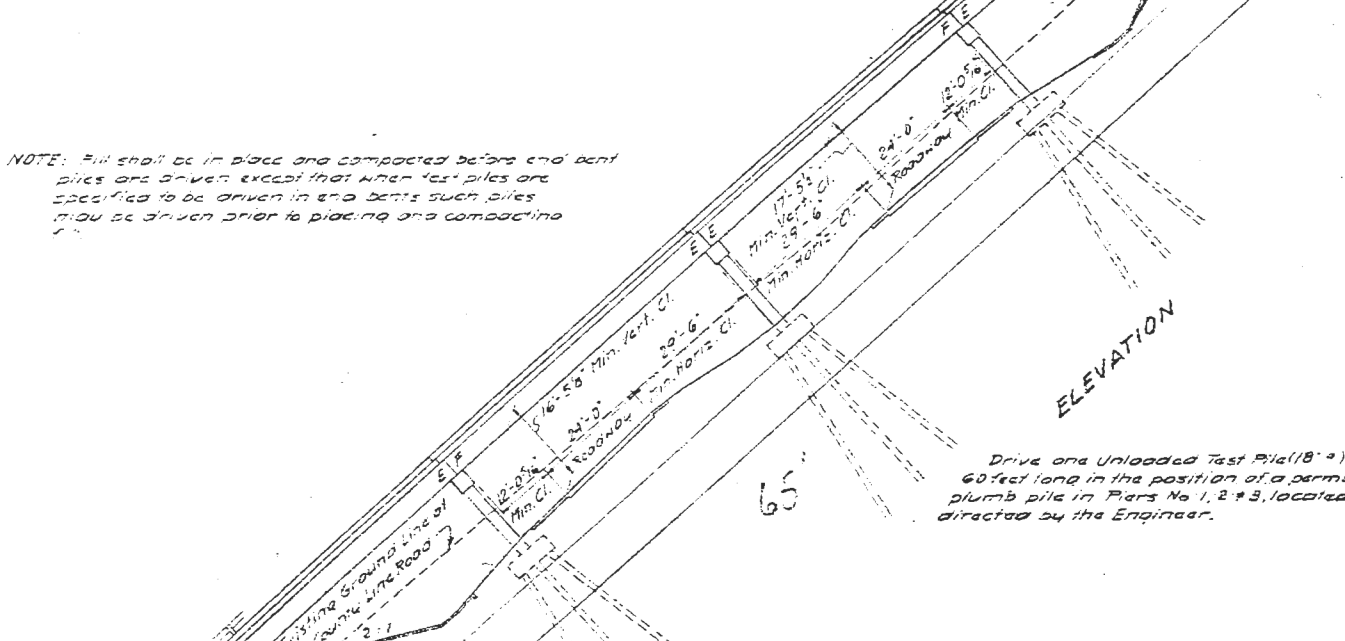
NOTE: For Location of Borings see Plan.

TYPE OF RIG: MOBILE B-40

	Casing	Spoon
Inside Diameter	2 3/8"	1 1/2"
Outside Diameter	2 7/8"	2"
Weight of Hammer	140 Lb	140 Lb
Average Drop of Hammer	30"	30"

Symbols of Log of Boring (columns are Blows per foot on the Casing or Elevations shown

NOTE: Fill shall be in place and compacted before end bent piles are driven except that when test piles are specified to be driven in end bents such piles may be driven prior to placing and compacting



NOTE: Rough grading for Interstate Route 75 at the Bridge site

PLAN AND ELEVATION, BORING DATA AND ESTIMATED BRIDGE QUANTITIES

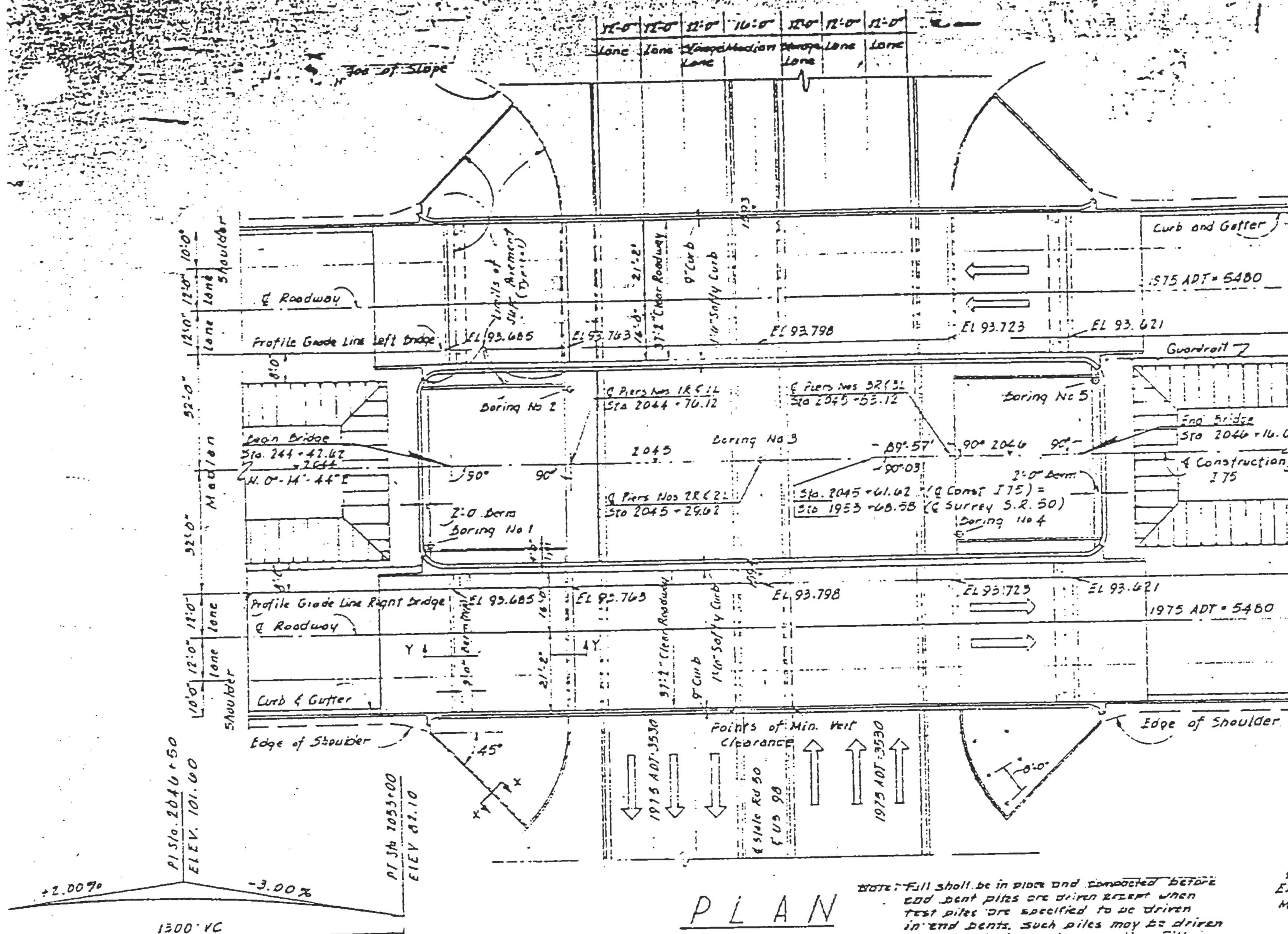
STATE ROAD DEPARTMENT OF FLORIDA
BRIDGE DIVISION

COUNTY LINE ROAD OVER INTERSTATE ROUTE 75

REVISIONS		ROAD NO.	COUNTY	PROJECT NO.
Dates	Descriptions	99	PASCO HERNANDO	14140-3403 98150-3401

FINANCIAL PROJECT ID 258487-1-52-01 | STATE PROJECT NO 08150-3417

E3-1 | FLA | F.A.R.I-75-1(1)39 | 65



VERTICAL CURVE DATA

PLAN

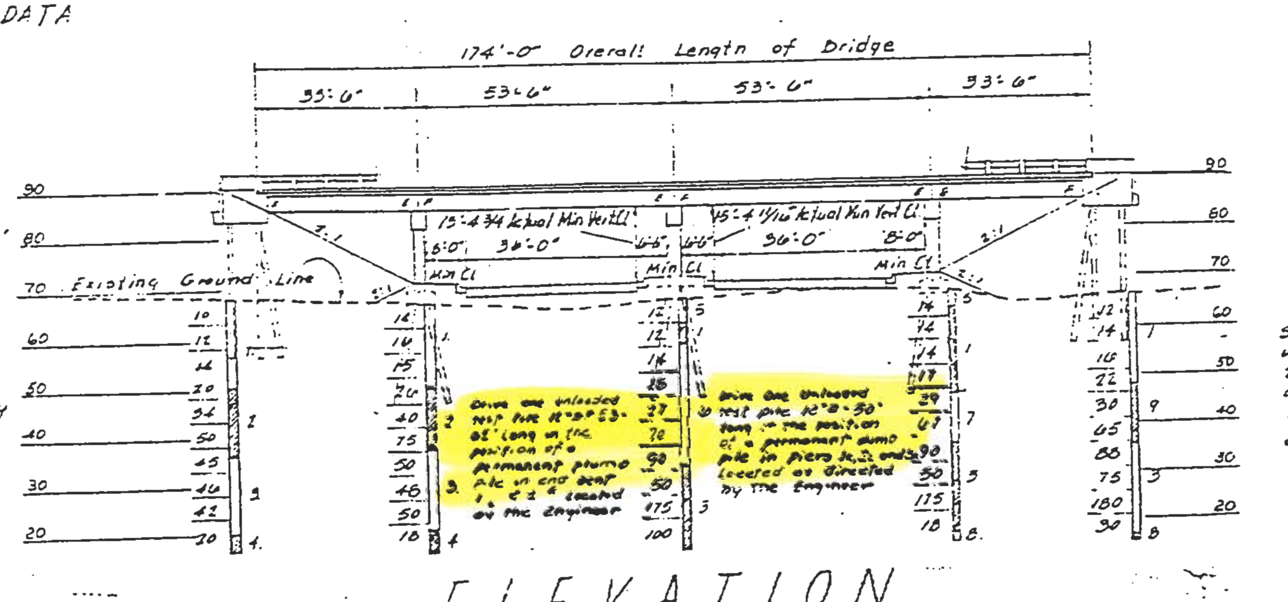
NOTE: Fill shall be in place and compacted before end bent piles are driven except when test piles are specified to be driven in end bents. Such piles may be driven prior to placing and compacting fill.

BORING DATA

Rig: Model B (40) using 6" Hollow Auger
Inside Diameter - 1 1/2"
Outside Diameter - 2"
Weight of Hammer - 140#
Average Drop of Hammer - 30"

1. Brown and gray sand
2. Light brown sand
3. White sand
4. Brown and gray sandy clay
5. Fill
6. Brown Sand
7. Light brown sand, traces of clay
8. Orange and gray clay
9. Tan brown sand. Light of clay.

Figures to left of boring are blows per ft. on spoon at elevation shown.



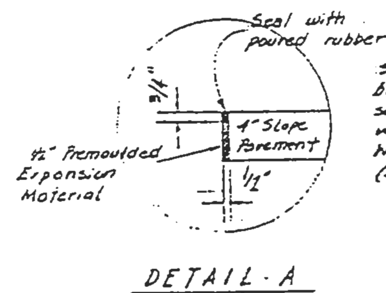
ELEVATION

ESTIMATED BRIDGE QUANTITIES			
ITEM NO	ITEM	UNIT	QUANTITY
300-1S	Class A Concrete	Cu Yd.	686.5
300-7	Concrete Handrail	Lin. Ft.	696
310-1S	Reinforcing Steel	Lb.	120,020
401-1A	Prestressed Beams (Type II 10-4)	Lin Ft.	655
401-1D	Prestressed Beams (Type II 16-8)	Lin Ft	1477
403-3A	Precast Concrete Piling Furnished (18" Prestressed)	Lin Ft	2260
403-4A	Precast Concrete Piling Driven (18" Prestressed)	Lin Ft	2200
403-7	Steel Piling Furnished (12 BP 53)	Lin Ft	2300
403-8	Steel Piling Driven (12 BP 53)	Lin Ft	2600
403-9A	Unloaded Test Pile (18" Prestressed)	Lin Ft	150
403-9B	Unloaded Test Pile (12 BP 53)	Lin Ft	130
*403-10	Test Loads (90 Ton)	Each	1
451-4	Concrete Slope Pavement (4" Thick)	Sq. Yd	1275

* The number of Test Loads may be increased or ommitted as directed by the Engineer. Payment for incidental items not specifically covered in the individual bid items shall be included in the contract price for the bid item.

GENERAL NOTES

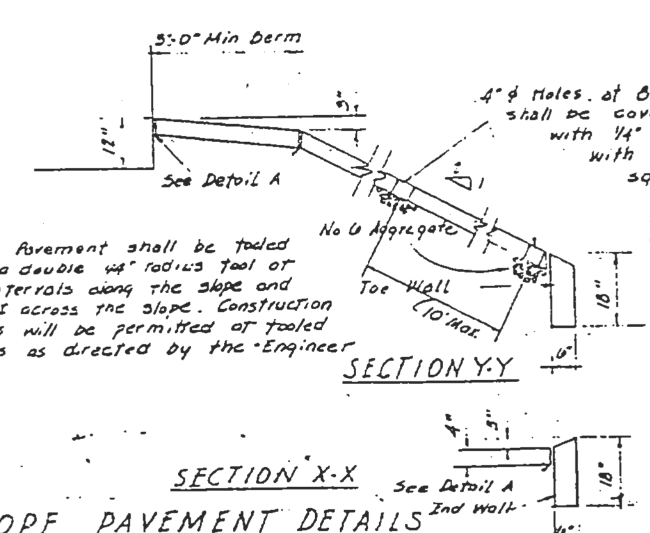
DESIGN SPECIFICATIONS: A.A.S.H.O., 1961, with Approved Revisions.
DESIGN LOADING: H20-S16-44 (Modified for Military Loading as Required)
SURFACE FINISH: All exposed surfaces of Piers and End Bents shall be given Class I Surface Finish. All surfaces of Superstructure as shown in Elevation, including the outside face of exterior Prestressed beams, the bottom surface of the Curb overhang, the bottom surface of the roadway slab outside of the exterior beams, and the bottom surface of the Pier Caps shall be given Class I Surface Finish.
WEARING SURFACE: An allowance of 15#/sq ft included for 1 1/2" of future wearing surface



Showing Joint details at End Bent, applies at all contacting surfaces of Slope Pavement with End Bents, End Walls, Toe Walls and both edges of Berm (See reference on Plan.)

DETAIL A

INDEX OF SHEETS



4" ϕ Holes at 8'-0" Centers (Staggered) shall be covered with galvanized wire with 1/4" openings and shall be backed with a continuous layer one foot square of No 6 aggregate. Cost of holes, wire and aggregate to be included in the cost of Concrete Slope Pavement (4" thick)

Slope Pavement shall be tooled with a double 1/4" radius tool at 2' intervals along the slope and at 4' across the slope. Construction Joints will be permitted at tooled joints as directed by the Engineer.

SLOPE PAVEMENT DETAILS

EXISTING PLANS

PLAN, ELEVATION, AND ESTIMATED BRIDGE QUANTITIES

STATE ROAD DEPARTMENT OF FLORIDA
BRIDGE DIVISION

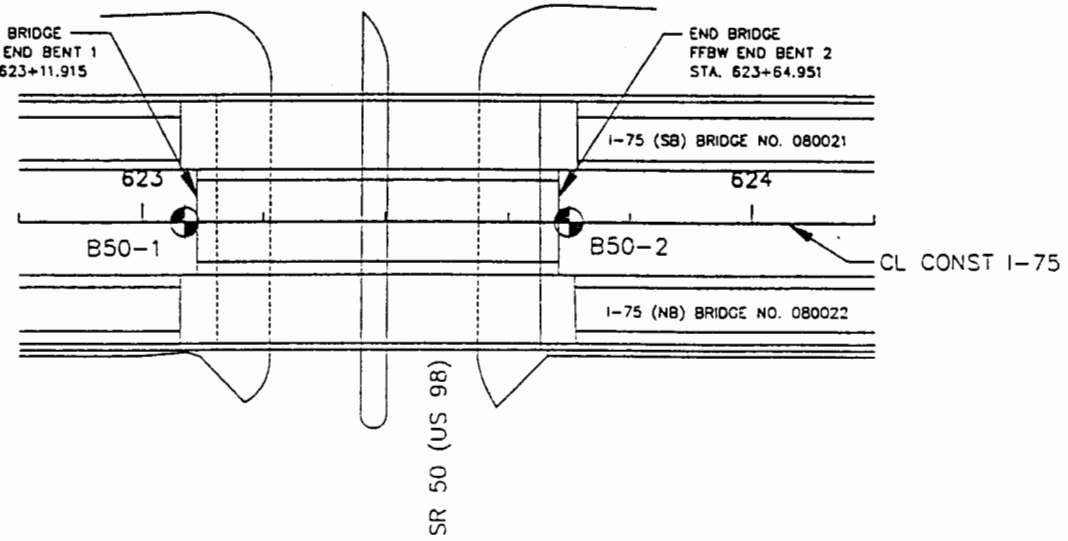
INTERSTATE ROUTE 75 OVER STATE ROAD 50

ROAD NO.	COUNTY	PROJECT NO.
93	HERNANDO	08150-3402

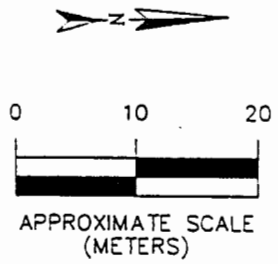
		Date
Designed by	SS	10/63
Checked by	AGM	10/63
Quantities by	AGM	10/63
Checked by	CLT	11/63
Traced by	SS	10/63

APPROVED BY T.W.S.
Drawing No. 1 of 11
8214

FINANCIAL PROJECT ID	FED. ROAD DIST. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
258487-1-52-01		FLA.			6-2

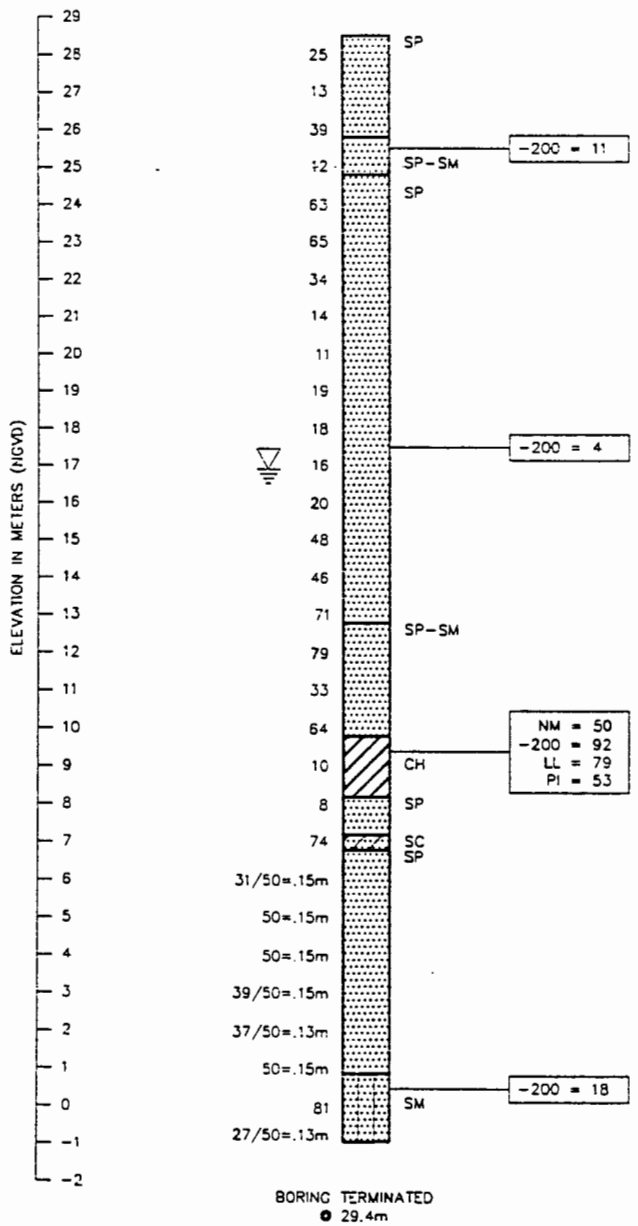


BORING LOCATION PLAN



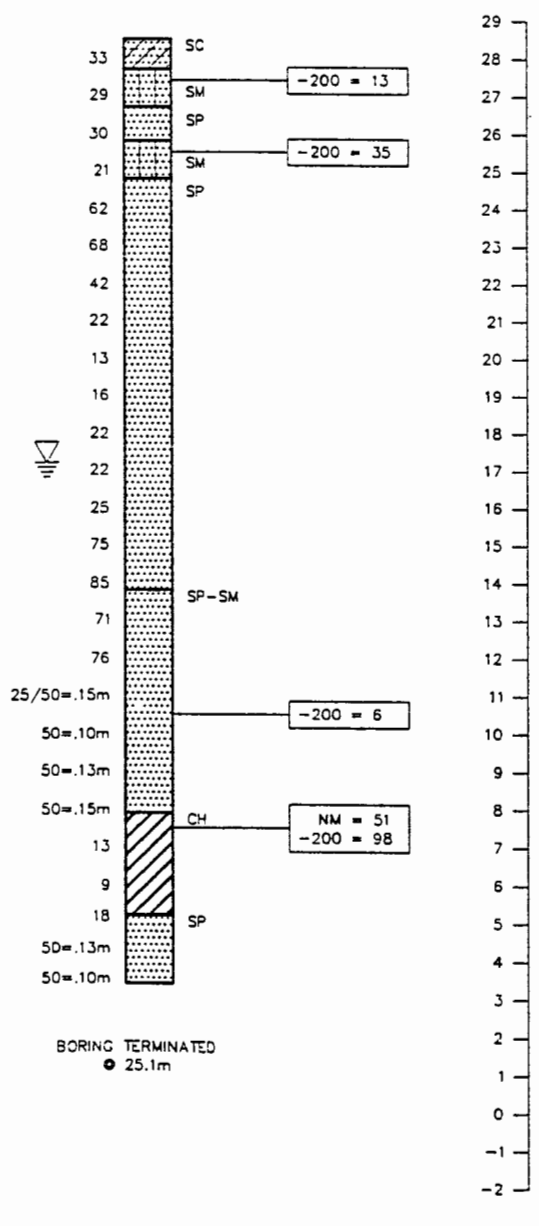
APPROXIMATE SCALE
(METERS)

BORING NO. B50-1
STA. 623+07
CL I-75
ELEV +28.5
DATE 12/11/98



BORING TERMINATED
@ 29.4m

BORING NO. B50-2
STA. 623+70
CL I-75
ELEV +28.5
DATE 12/15/98



BORING TERMINATED
@ 25.1m

LEGEND

- = SP, SP-SC and SM, Fine sands, slightly clayey fine sands and slightly silty fine sands
- = SM, Silty fine sand
- = SC, Clayey sands
- = CH, Inorganic clays of high plasticity
- = PT, Peat
- = Limestone formation
- = LS, Limestone
- = Possible Void

NM = Natural Moisture Content
-200 = % Passing #200 Sieve
LL = Liquid Limit
PI = Plasticity Index

GENERAL NOTES

DRILL AND PENETRATION TESTING WERE PERFORMED IN ACCORDANCE WITH ASTM D 1586-67. NUMBER TO LEFT OF BORING INDICATES BLOWS OF 0.03 METERS I.D., 0.05 METERS O.D. SPLIT-SPOON FOR 0.30 METERS OF PENETRATION (UNLESS OTHERWISE NOTED) WITH A 63.5 KILOGRAM HAMMER DROPPED 0.762 METERS

THE BORING LOGS SHOWN REPRESENT SUBSURFACE CONDITIONS WITHIN THE BOREHOLE AT THE TIME OF DRILLING. NO WARRANTY AS TO THE SUBSURFACE CONDITION, STRATA DEPTH OR SOIL CONSISTENCY BETWEEN OR OUTSIDE BORING LOCATIONS IS EXPRESSED OR IMPLIED BY THIS DRAWING.

REFER TO GEOTECHNICAL REPORT FOR DETAILED BORING INFORMATION.

CREW CHIEF: SPOON, OYER
DRILL RIG TYPE: FAILING 1500
HAMMER TYPE: MANUAL

NOTES

Numbers to the left of borings indicate SPT values for 300mm penetration. (Unless otherwise noted.)

- = Water Table
- = Casing used
- 100% = Loss of circulation & Percent loss

ENVIRONMENTAL CLASSIFICATION

SUBSTRUCTURE: SLIGHTLY AGGRESSIVE
SUPERSTRUCTURE: SLIGHTLY AGGRESSIVE

Granular Materials- Relative Density	SPT (Blows/300mm)
Very Loose	Less than 4
Loose	4 - 10
Medium or Compact	11 - 30
Dense	31 - 50
Very Dense	Greater than 50

Silts and Clays- Consistency	SPT (Blows/300mm)
Very Soft	Less than 2
Soft	2 - 4
Firm	5 - 8
Stiff	9 - 15
Very Stiff	16 - 30
Hard	Greater than 30

C397101 BRDG1

REVISIONS					
Date	By	Description	Date	By	Description

	Names	Dates
Drawn by	TEJ	1/99
Checked by	LDS	1/99
Designed by	LDS	1/99
Checked by	KDB	1/99
Approved by	K. D. BENNETT, P.E.	

ENGINEER OF RECORD:
WILLIAMS EARTH SCIENCES, INC.
10600 Endeavour Way
Largo, Florida 33777

LOGO: WILLIAMS EARTH SCIENCES, INC.

SEAL: 1-6-00

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

ROAD NO.	COUNTY	STATE PROJECT NO.
I-75	HERNANDO	08150-3417

SHEET TITLE: REPORT OF CORE BORINGS

PROJECT NAME: I-75 OVER SR 50
BRIDGE NO. 080021 AND 080022

Drawing No.

Index No.

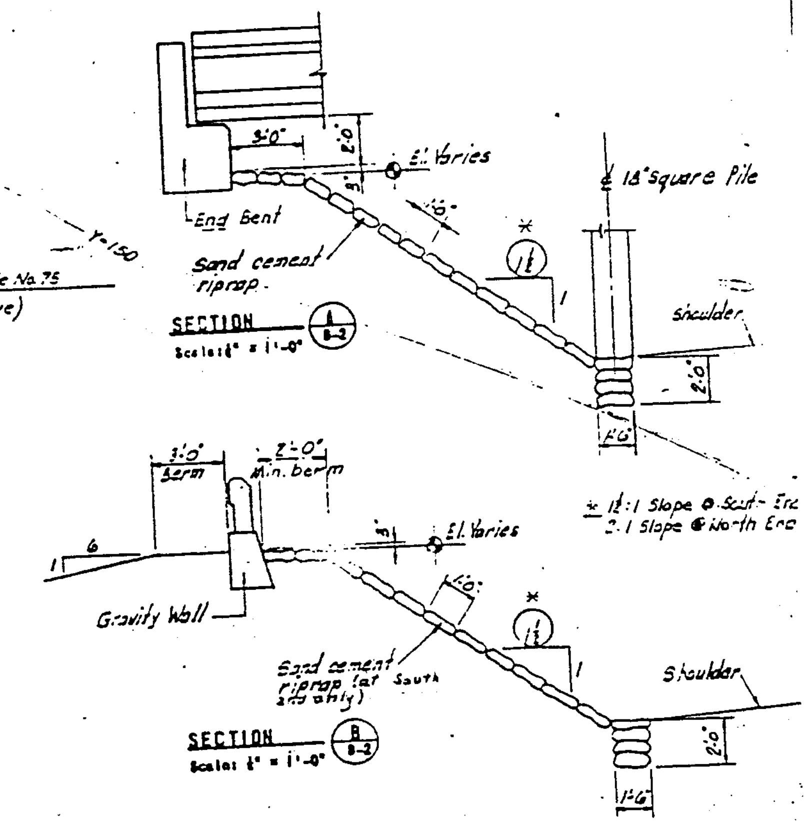
3	FLA	B-2

Revised 5/5/64

FINANCIAL PROJECT ID 258487-1-52-01

STATE PROJECT NO. 08150-3417

SUBSTRUCTURE LAYOUT PLAN



SECTION (A/B-2)
Scale: ¼" = 1'-0"

SECTION (B/B-2)
Scale: ¼" = 1'-0"

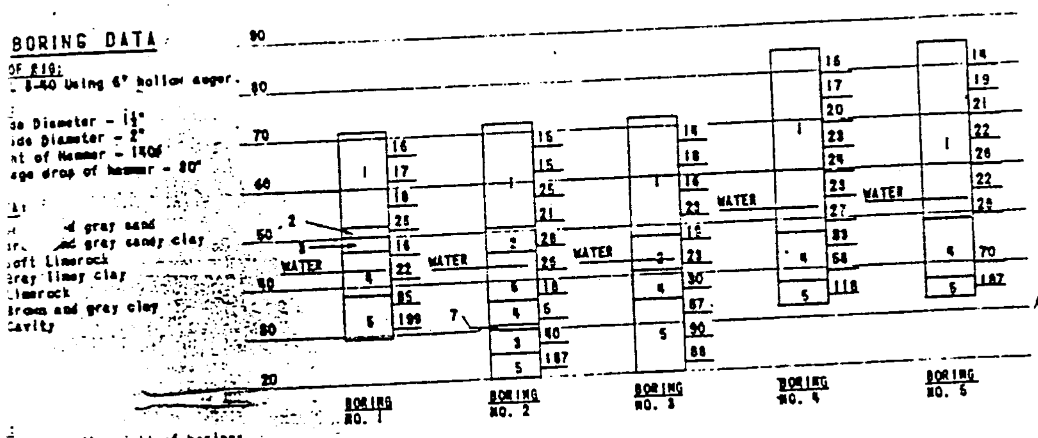
Sand cement riprap

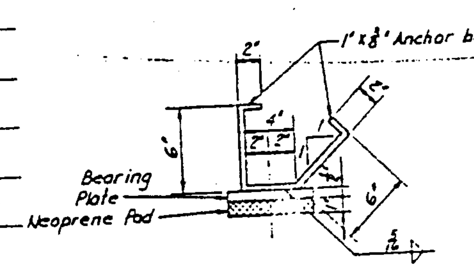
SECTION (C/B-2)
Scale: ¼" = 1'-0"

NOTES:
1. Fill all joints between sacks with grout composed of one part portland cement and five parts sand.
2. Sacks for sand cement riprap shall be approximately 6" x 1'-6" x 1'-0" when filled.
3. All joints shall be staggered.
4. The entire trench excavated for the toe wall shall be filled with sand cement in sacks or poured in place as specified in article 485-3

Note: Bearing plates, anchor bolts, nuts and washers shall be hot diped galvanized in accordance with requirements of ASTM Specifications, Designation A-123.

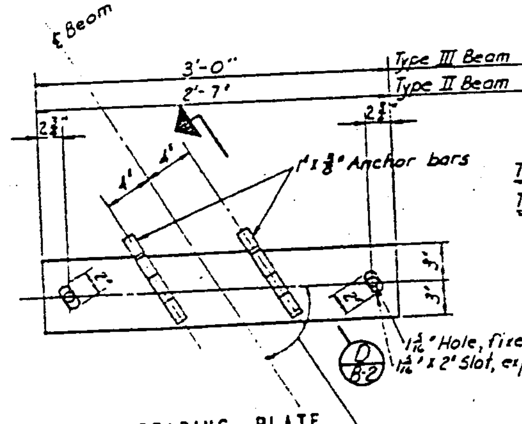
BORING DATA





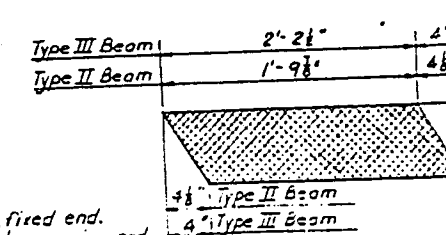
SECTION (D/B-2)
Scale: 1½" = 1'-0"

Note: Two-End welded stud anchars (⅝" x 6") may be substituted for each of the two (1" x 8") anchor bars.



PLAN - BEARING PLATE
Scale: 1½" = 1'-0"

Note: Anchor plates shall be anchored with 1"x1'-3" anchor bolts. ¾" of threads shall be left exposed after anchor bolts are tightened.



NEOPRENE PAD
Scale: 1½" = 1'-0"

Note: Cost of Neoprene Bearing Assembly including neoprene pad, metal plate, anchor bolts, nuts and washers shall be included in the Contract Unit Price for Prestressed Beams.

EXISTING PLANS

SUBSTRUCTURE PLAN

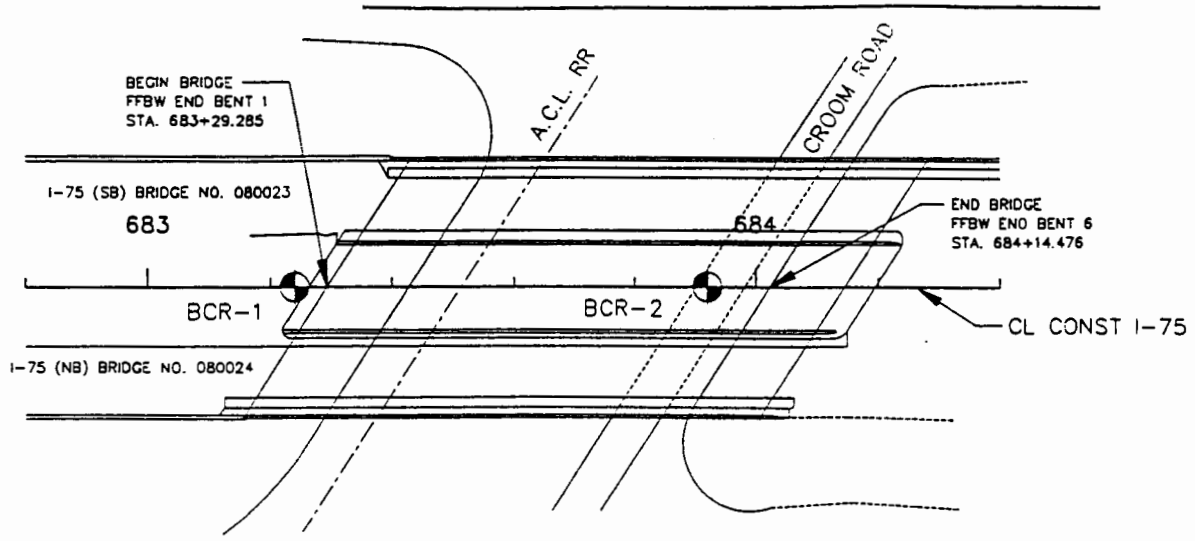
REYNOLDS, SMITH AND HILLS
ARCHITECTS AND ENGINEERS
JACKSONVILLE, FLORIDA

STATE ROAD DEPARTMENT OF FLORIDA

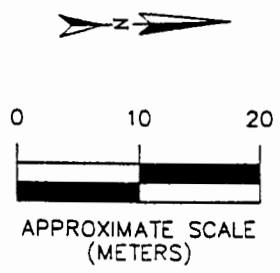
INTERSTATE ROUTE 75 OVER
A.C.L. R.R. AND CROOM ROAD

REVISIONS		ROAD NO.		COUNTY	PROJECT NO.
Dates	Descriptions	93		HERNANDO	08150-3402
5-64	Show Drain Connect at Railroad		Names	Dates	APPROVED BY
		Designed by	WHM	3-64	
		Drawn by	JHZ	3-64	
		Checked by	WHM	3-64	Drawing No. 2 OF 23
		Quantities by			
		Checked by			

FINANCIAL PROJECT ID	CO. ROAD NO.	STATE	PROJECT NO.	FISCAL YEAR	SHT. NO.
258487-1-52-01		FLA.			C-2



BORING LOCATION PLAN

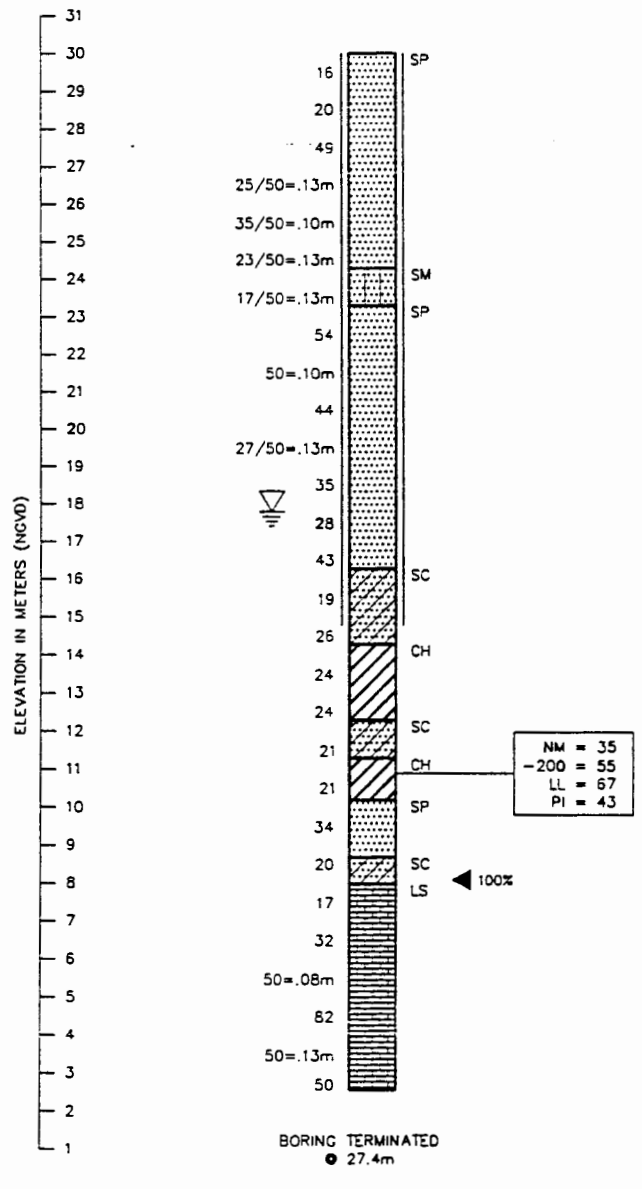


LEGEND

- = SP, SP-SC and SM, Fine sands, slightly clayey fine sands and slightly silty fine sands
- = SM, Silty fine sand
- = SC, Clayey sands
- = CH, Inorganic clays of high plasticity
- = PT, Peat
- = Limestone formation
- = LS, Limestone
- = Possible Void

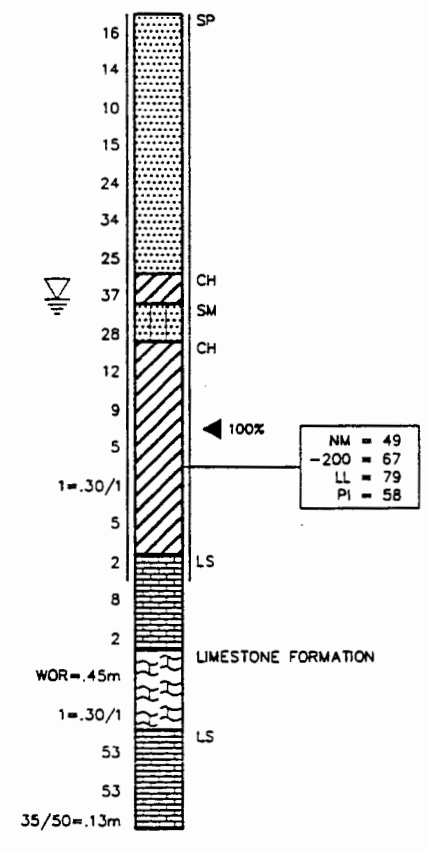
NM = Natural Moisture Content
-200 = % Passing #200 Sieve
LL = Liquid Limit
PI = Plasticity Index

BORING NO. BCR-1
STA. 683+24
CL I-75
ELEV +30.0
11/24/98

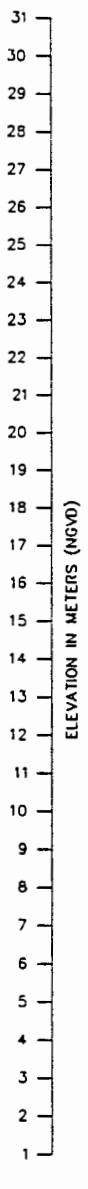


BORING TERMINATED
@ 27.4m

BORING NO. BCR-2
STA. 683+92
OFFSET 19m RT CL I-75
ELEV +24.0
DATE 11/23-98



BORING TERMINATED
@ 21.5m



GENERAL NOTES

DRILL AND PENETRATION TESTING WERE PERFORMED IN ACCORDANCE WITH ASTM D 1586-67. NUMBER TO LEFT OF BORING INDICATES BLOWS OF 0.03 METERS I.D., 0.05 METERS O.D. SPLIT-SPOON FOR 0.30 METERS OF PENETRATION (UNLESS OTHERWISE NOTED) WITH A 63.5 KILOGRAM HAMMER DROPPED 0.762 METERS

THE BORING LOGS SHOWN REPRESENT SUBSURFACE CONDITIONS WITHIN THE BOREHOLE AT THE TIME OF DRILLING. NO WARRANTY AS TO THE SUBSURFACE CONDITION, STRATA DEPTH OR SOIL CONSISTENCY BETWEEN OR OUTSIDE BORING LOCATIONS IS EXPRESSED OR IMPLIED BY THIS DRAWING.

REFER TO GEOTECHNICAL REPORT FOR DETAILED BORING INFORMATION.

CREW CHIEF: SPOON, DYER
DRILL RIG TYPE: FAILING 1500
HAMMER TYPE: MANUAL

NOTES

Numbers to the left of borings indicate SPT values for 300mm penetration. (Unless otherwise noted.)

- = Water Table
- = Casing used
- 100% = Loss of circulation & Percent loss

ENVIRONMENTAL CLASSIFICATION

SUBSTRUCTURE: SLIGHTLY AGGRESSIVE
SUPERSTRUCTURE: SLIGHTLY AGGRESSIVE

Granular Materials- Relative Density	SPT (Blows/300mm)
Very Loose	Less than 4
Loose	4 - 10
Medium or Compact	11 - 30
Dense	31 - 50
Very Dense	Greater than 50

Silts and Clays- Consistency	SPT (Blows/300mm)
Very Soft	Less than 2
Soft	2 - 4
Firm	5 - 8
Stiff	9 - 15
Very Stiff	16 - 30
Hard	Greater than 30

C397101 BRDG2

REVISIONS					
Date	By	Description	Date	By	Description

	Names	Dates
Drawn by	TEJ	1/99
Checked by	LDS	1/99
Designed by	LDS	1/99
Checked by	KDB	1/99
Approved by	K. D. BENNETT, P.E.	

ENGINEER OF RECORD:
WILLIAMS EARTH SCIENCES, INC.
10600 Endeavour Way
Largo, Florida 33777

LOGO: WILLIAMS EARTH SCIENCES, INC.

SEAL: 1-6-00

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

ROAD NO.	COUNTY	STATE PROJECT NO.
I-75	HERNANDO	08150-3417

SHEET TITLE: REPORT OF CORE BORINGS

Drawing No.

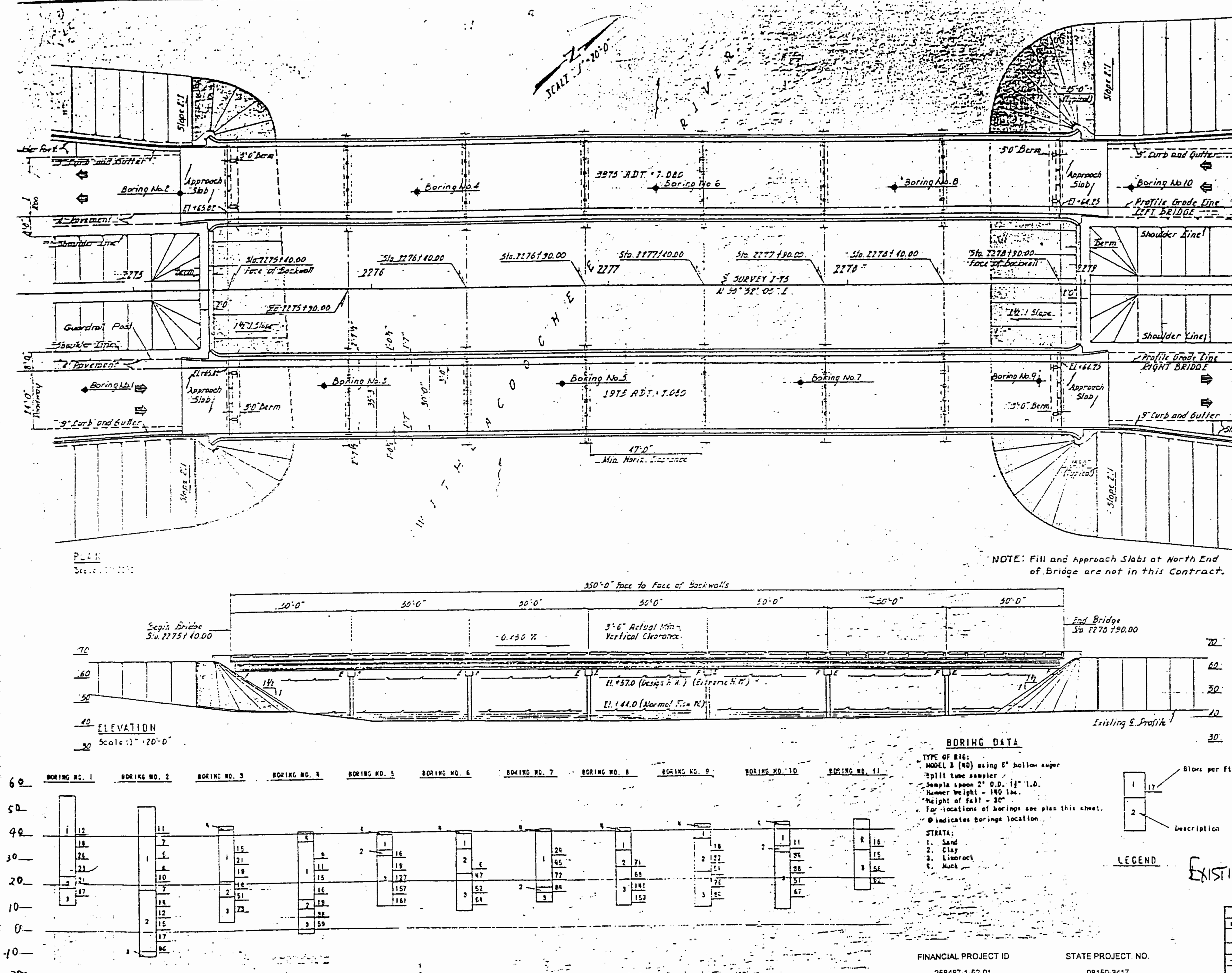
PROJECT NAME: I-75 OVER CROOM ROAD
BRIDGE NO. 080023 AND 080024

Index No.

ED-1

FED. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
3	FLA.	F.I.P. I-75-1 (22)59	65	C-1

Revised 5-5-64



EXISTING PLANS

INDEX OF SHEETS

NOTES

DESIGN LOADING: H-20-S16-44 Modified for Military Loading as required.

BEARINGS FOR PRESTRESSED BEAMS: Use Neoprene Pad Bearings under all beams. Use ½" plate and anchor bolts under exterior beams only.

FOR GENERAL NOTE; See Index sheet 1

Surface Finish exterior beams on median side of bridge

NOTE:

Drive the one unloaded test pile in the position of a permanent vertical pile in each of the following bents located as directed by the Engineer.

South Abutment Left	12 BP 53 Pile — 70' Long
Bent No. 2 Right	18" sq. Pile — 60' Long
Bent No. 3 Left	18" sq. Pile — 60' Long
Bent No. 4 Right	18" sq. Pile — 60' Long
Bent No. 5 Left	18" sq. Pile — 60' Long
North Abutment Right	12 BP 53 Pile — 55' Long

NOTE: Fill shall be in place and compacted before end bent [illegible] driven except when test piles are specified to be dri[illegible] bents such piles may be driven prior to placing and co[illegible] fill. (South Abutments only)

NOTE: Provide for 15# per sq. ft. for future wearing surface.

Note: Piles in North Abutments may be driven prior to placing and compacting Fill.

* The number of Test Loads may be increased or omitted as directed by the Engineer.

ESTIMATED BRIDGE QUANTITIES

ITEM NO.	ITEM	UNIT	QUANTITY
300-15	Class "A" Concrete	Cu. Yd.	8[illegible]
300-7	Concrete Handrail	Lin. Ft.	14[illegible]
310-15	Reinforcing Steel	Lb.	153,85[illegible]
401-1C	Prestressed Beams, Type II (18-8)	Lin. Ft.	344[illegible]
403-3B	Precast Concrete Piling (18") Furnished, Prestressed	Lin. Ft.	300[illegible]
403-4B	Precast Concrete Piling (18") Driven, Prestressed	Lin. Ft.	3000
403-7	Steel Piling (12 BP 53) Furnished	Lin. Ft.	1,700
403-8	Steel Piling (12 BP 53) Driven	Lin. Ft.	1,700
403-9B	Unloaded Test Piles (18") Prestressed	Lin. Ft.	24[illegible]
403-9C	Unloaded Test Piles (Steel 12 BP 53)	Lin. Ft.	125
403-10	Test Loads (90 Tons)*	Each	[illegible]
456-1 ①	Riprap (Sand Cement)	Cu. Yd.	170

① Est. Quantities for South Abutments only.

PLAN AND ELEVATION AND ESTIMATED BRIDGE QUANTITIES

REYNOLDS, SMITH AND HILLS
ARCHITECTS AND ENGINEERS
JACKSONVILLE, FLORIDA

STATE ROAD DEPARTMENT OF FLORIDA

INTERSTATE ROUTE 75 OVER WITHLACOOCHEE RIVER

REVISIONS	ROAD NO.	COUNTY	PROJECT NO.
	93	HERNANDO	(08150-3402)

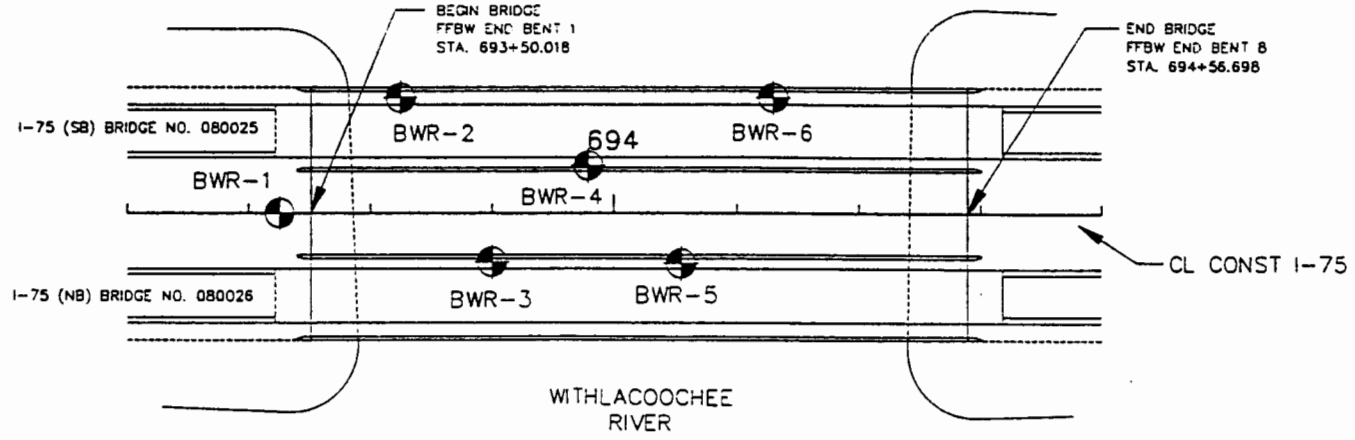
	Initials	Date
Designed by	J.J.M.	2-64
Drawn by	L.C.S.	5-15-64
Checked by	J.J.M.	3-64

6745

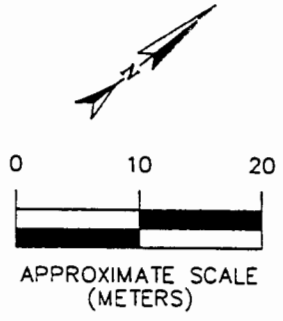
FINANCIAL PROJECT ID 258487-1-52-01

STATE PROJECT NO. 08150-3417

FINANCIAL PROJECT ID	FED. ROAD DIST. NO.	STATE	PROJECT NO.	TYPICAL SHEET NO.
258487-1-52-01		FLA.		D-2



BORING LOCATION PLAN



LEGEND

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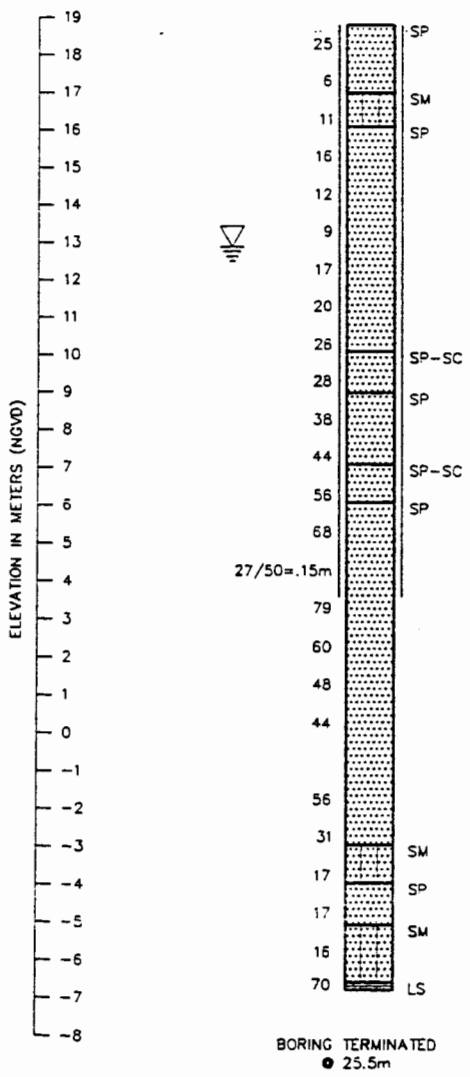
- = SC, Clayey sands
- = CH, Inorganic clays of high plasticity
- = PT, Peat
- = Limestone formation
- = LS, Limestone
- = Possible Void

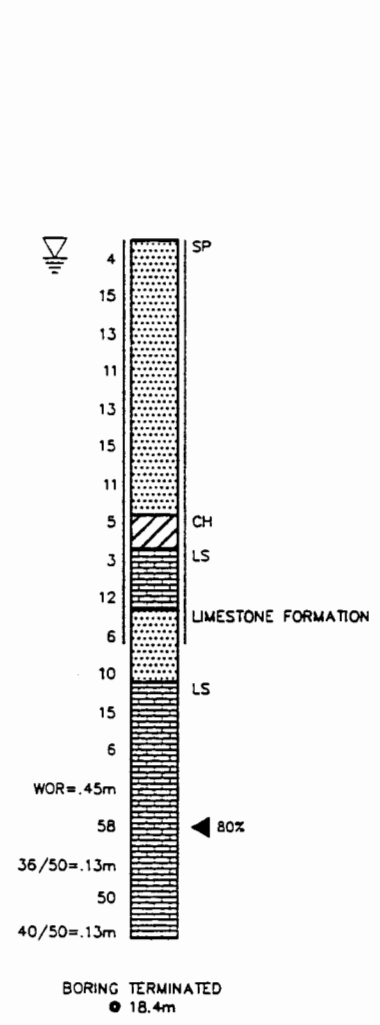
NM	= Natural Moisture Content
-200	= % Passing #200 Sieve
LL	= Liquid Limit
PI	= Plasticity Index

BORING NO. BWR-1
STA. 693+45
CL I-75
ELEV +18.8
DATE 11/25/98

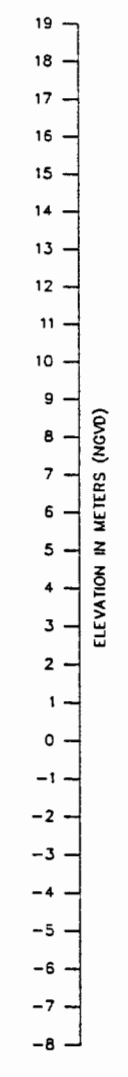


BORING TERMINATED
● 25.5m

BORING NO. BWR-2
STA. 693+65
OFFSET 19m LT CL I-75
ELEV +13.2
DATE 12/2/98



BORING TERMINATED
● 18.4m



GENERAL NOTES

DRILL AND PENETRATION TESTING WERE PERFORMED IN ACCORDANCE WITH ASTM D 1586-67. NUMBER TO LEFT OF BORING INDICATES BLOWS OF 0.03 METERS I.D., 0.05 METERS O.D. SPLIT-SPOON FOR 0.30 METERS OF PENETRATION (UNLESS OTHERWISE NOTED) WITH A 63.5 KILOGRAM HAMMER DROPPED 0.762 METERS

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REFER TO GEOTECHNICAL REPORT FOR DETAILED BORING INFORMATION.

CREW CHIEF: SPOON, DYER
DRILL RIG TYPE: FAILING 1500
HAMMER TYPE: MANUAL

NOTES

Numbers to the left of borings indicate SPT values for 300mm penetration. (Unless otherwise noted.)

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- = Casing used
- 100% = Loss of circulation & Percent loss

ENVIRONMENTAL CLASSIFICATION

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Very Loose	Less than 4
Loose	4 - 10
Medium or Compact	11 - 30
Dense	31 - 50
Very Dense	Greater than 50

Silts and Clays - Consistency	SPT (Blows/300mm)
Very Soft	Less than 2
Soft	2 - 4
Firm	5 - 8
Stiff	9 - 15
Very Stiff	16 - 30
Hard	Greater than 30

C397101 BRDG3

REVISIONS					
Date	By	Description	Date	By	Description

	Names	Dates
Drawn by	TEJ	1/99
Checked by	LDS	1/99
Designed by	LDS	1/99
Checked by	KDB	1/99
Approved by	K. D. BENNETT, P.E.	

ENGINEER OF RECORD:
WILLIAMS EARTH SCIENCES, INC.
10600 Endeavour Way
Largo, Florida 33777

LOGO: WILLIAMS EARTH SCIENCES, INC.

SEAL: 1-6-00

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

ROAD NO.	COUNTY	STATE PROJECT NO.
I-75	HERNANDO	08150-3417

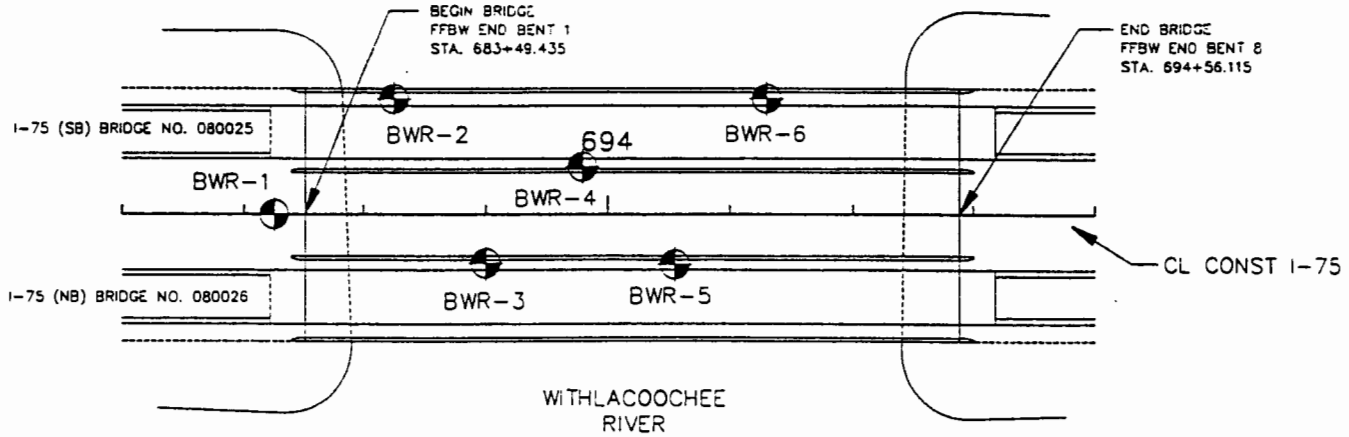
SHEET TITLE: REPORT OF CORE BORINGS

PROJECT NAME: I-75 OVER WITHLACOOCHEE RIVER BRIDGE NO. 080025 AND 080026

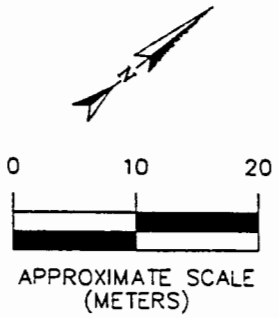
Drawing No.

Index No.

FINANCIAL PROJECT ID	FED. ROAD DIST. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
258487-1-52-01		FLA.			D-3



BORING LOCATION PLAN



LEGEND

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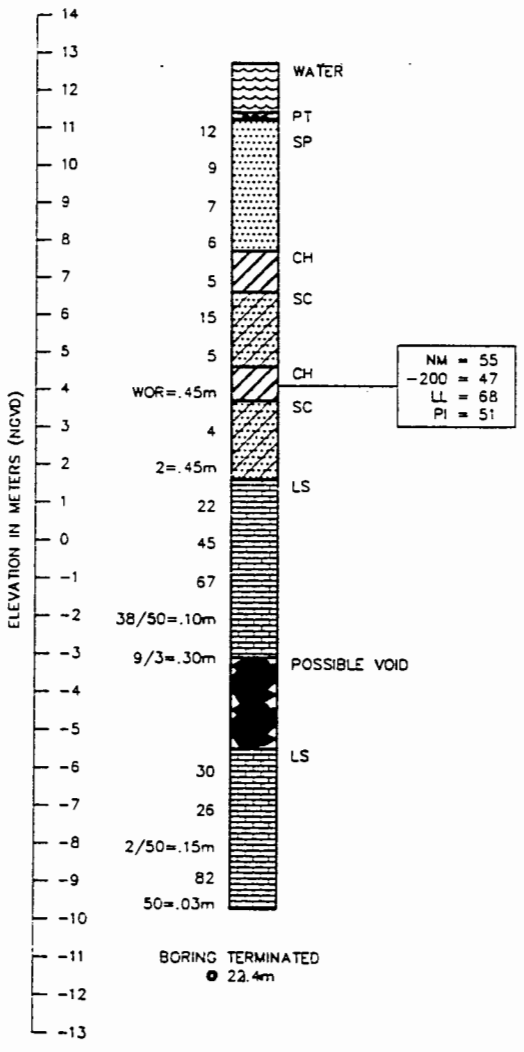
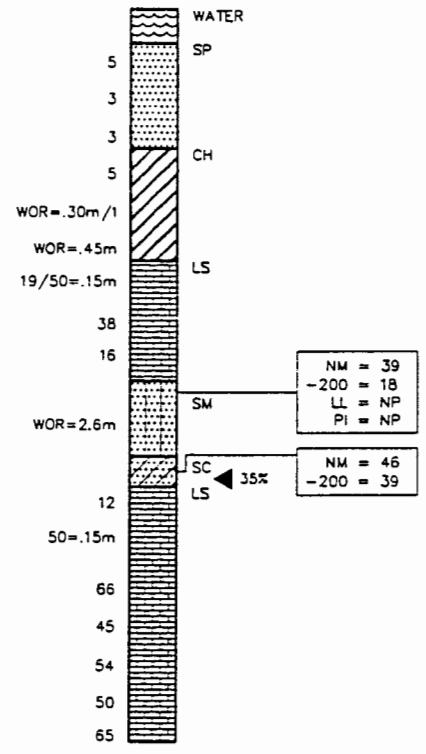
- = SC, Clayey sands
- = CH, Inorganic clays of high plasticity
- = PT, Peat
- = Limestone formation
- = LS, Limestone
- = Possible Void

NM = Natural Moisture Content
-200 = % Passing #200 Sieve
LL = Liquid Limit
PI = Plasticity Index

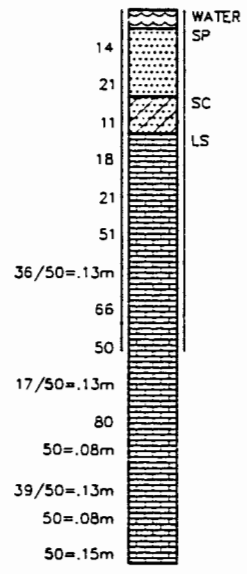
BORING NO. BWR-3
STA. 693+80
OFFSET 8m RT CL I-75
MUDLINE ELEV +11.4
DATE 11/16/98



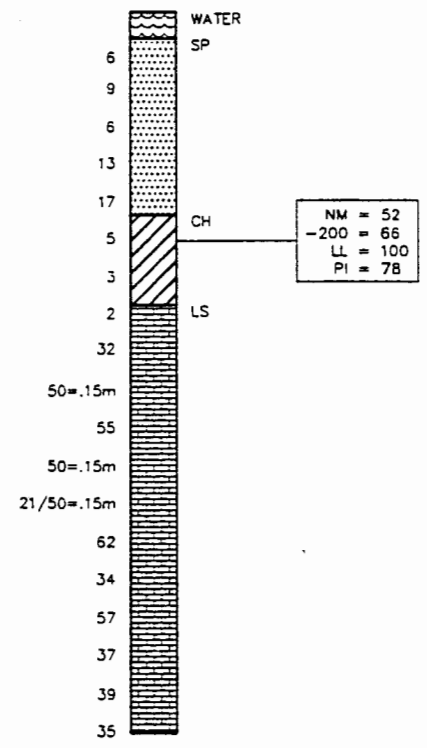
BORING NO. BWR-4
STA. 693+96
OFFSET 8m LT CL I-75
MUDLINE ELEV +11.8
DATE 11/17/98

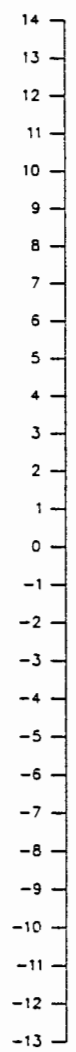


BORING NO. BWR-5
STA. 694+11
OFFSET 8m RT CL I-75
MUDLINE ELEV +12.2
DATE 11/18/98



BORING NO. BWR-6
STA. 694+26
OFFSET 19m LT CL I-75
MUDLINE ELEV +12.0
DATE 11/19/98





GENERAL NOTES

DRILL AND PENETRATION TESTING WERE PERFORMED IN ACCORDANCE WITH ASTM D 1586-67. NUMBER TO LEFT OF BORING INDICATES BLOWS OF 0.03 METERS I.D., 0.05 METERS O.D. SPLIT-SPOON FOR 0.30 METERS OF PENETRATION (UNLESS OTHERWISE NOTED) WITH A 63.5 KILOGRAM HAMMER DROPPED 0.762 METERS

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REFER TO GEOTECHNICAL REPORT FOR DETAILED BORING INFORMATION.

CREW CHIEF: SPOON, DYER
DRILL RIG TYPE: FAILING 1500
HAMMER TYPE: MANUAL

NOTES

Numbers to the left of borings indicate SPT values for 300mm penetration. (Unless otherwise noted.)

= Water Table

= Casing used

100% = Loss of circulation & Percent loss

ENVIRONMENTAL CLASSIFICATION

SUBSTRUCTURE: SLIGHTLY AGGRESSIVE
SUPERSTRUCTURE: SLIGHTLY AGGRESSIVE

Granular Materials- Relative Density	SPT (Blows/300mm)
Very Loose	Less than 4
Loose	4 - 10
Medium or Compact	11 - 30
Dense	31 - 50
Very Dense	Greater than 50

Silts and Clays- Consistency	SPT (Blows/300mm)
Very Soft	Less than 2
Soft	2 - 4
Firm	5 - 8
Stiff	9 - 15
Very Stiff	16 - 30
Hard	Greater than 30

C397101 BRDG4

REVISIONS					
Date	By	Description	Date	By	Description

	Names	Dates
Drawn by	TEJ	1/99
Checked by	LDS	1/99
Designed by	LDS	1/99
Checked by	KDB	1/99
Approved by	K. D. BENNETT, P.E.	

ENGINEER OF RECORD:
WILLIAMS EARTH SCIENCES, INC.
10600 Endeavour Way
Largo, Florida 33777

LOGO: WILLIAMS EARTH SCIENCES, INC.

SEAL: 1-6-00

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

ROAD NO.	COUNTY	STATE PROJECT NO.
I-75	HERNANDO	08150-3417

SHEET TITLE: REPORT OF CORE BORINGS

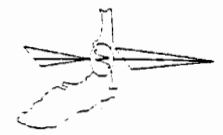
PROJECT NAME: I-75 OVER WITHLACOOCHEE RIVER BRIDGE NO. 080025 AND 080026

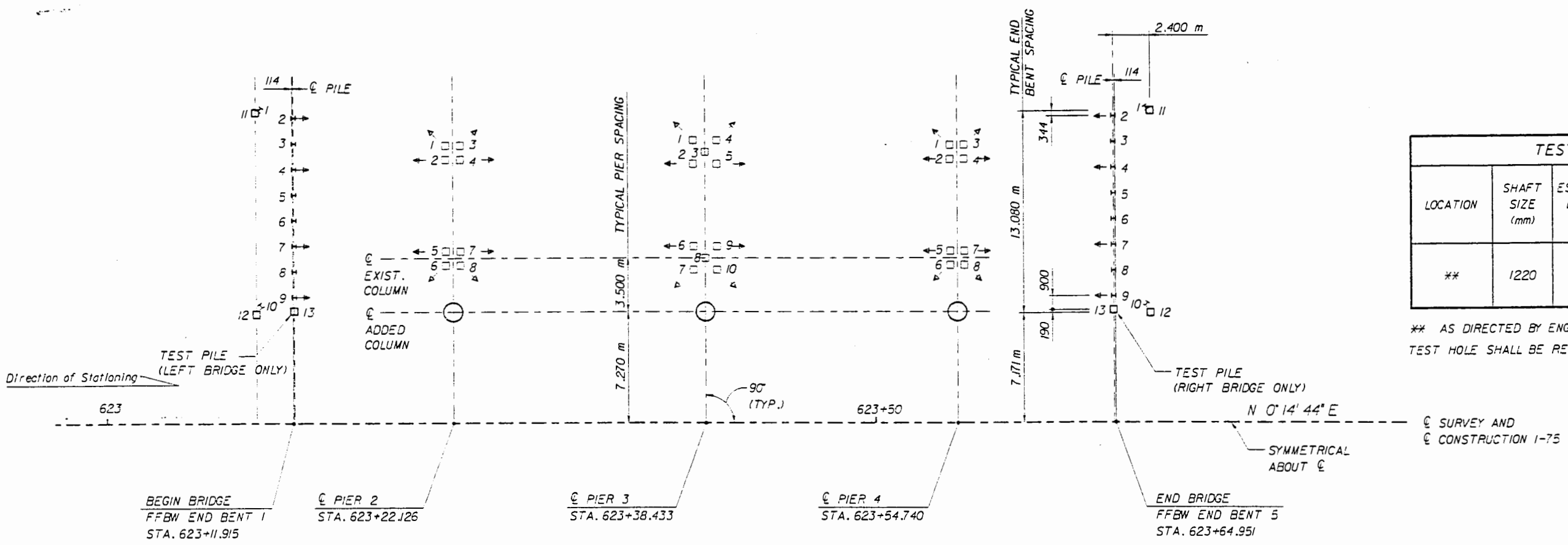
Drawing No.

Index No.

APPENDIX C

Pile/Drilled Shaft Data Table





FOUNDATION LAYOUT

SYMMETRICAL ABOUT ℄ OF CONSTRUCTION

TEST HOLE PROGRAM

LOCATION	SHAFT SIZE (mm)	EST. TIP ELEV. (m)	MIN. UNCASED SOCKET LENGTH (m)	TOP OF SHAFT ELEV. (m)	TEST TYPE
**	1220	+14.0	NA	21.300	CONSTRUCTION METHOD

** AS DIRECTED BY ENGINEER

TEST HOLE SHALL BE REINFORCED (SEE TECHNICAL SPECIAL PROVISION)

LEGEND

H = EXISTING HP 310 x 79 STEEL PILE

□ = PROPOSED 455 mm SQUARE PRESTRESSED CONC. PILE

□ = EXISTING BATTERED PILE: 1:8 AT INT. BENTS

◯ = 1220 mm ℗ DRILLED SHAFT

SHAFT TOP ELEVATION

PIER	SHAFT SIZE (mm)	SHAFT TOP ELEVATION (m)
2L	1220	21.900
3L	1220	21.900
4L	1220	21.900
2R	1220	21.900
3R	1220	21.900
4R	1220	21.900

PILE CUT-OFF ELEVATIONS

BENT NO.	PILE NUMBER 11	12	13
1L	26.587	26.587	26.587
5L	26.567	26.567	26.567
1R	26.587	26.587	26.587
5R	26.567	26.567	26.567

PILE DATA TABLE

INSTALLATION CRITERIA								DESIGN CRITERIA					
PIER OR BENT NO.	PILE SIZE (mm)	ULTIMATE BEARING CAPACITY (kN)	TENSION CAPACITY (kN)	MIN. TIP ELEV. (m)	TEST PILE LENGTH (m)	REQ'D JET ELEV. (m)	REQ'D PERFORM ELEV. (m)	FACTORED DESIGN LOAD (kN)	DOWN DRAG (kN)	TOTAL SCOUR RESIST. (kN)	NET SCOUR RESIST. (kN)	100 YR SCOUR ELEV. (m)	ϕ
1	455	815	NA	*	27	NA	NA	530	NA	NA	NA	NA	0.65
5	455	815	NA	*	23	NA	NA	530	NA	NA	NA	NA	0.65

* AS PER SPECIFICATION 455.

DRILLED SHAFT DATA TABLE

INSTALLATION CRITERIA					DESIGN CRITERIA		
PIER OR BENT NO.	SHAFT SIZE (mm)	TIP ELEV. (m)	MIN. TIP ELEV. (m)	MIN. UNCASED SOCKET LENGTH (m)	FACTORED DESIGN LOAD (kN)	DOWN DRAG (kN)	100 YR SCOUR ELEV. (m)
2	1220	+14.0	+14.0	6	925	NA	NA
3	1220	+14.0	+14.0	6	925	NA	NA
4	1220	+14.0	+14.0	6	925	NA	NA

Donald F. Spencer
1-6-2000

NOTES:

1. PROPOSED END PILES ARE 455 mm SQ. PRESTRESSED CONCRETE PILES. PROPOSED PIER FOUNDATIONS ARE 1220 mm ℗ DRILLED SHAFTS.
2. PILE SPACING SHOWN ARE ALONG FFBW OR ℄ BENT AT BOTTOM OF CAP.
3. DYNAMIC LOAD TEST SHALL BE PERFORMED ON ALL TEST PILES AS PER SUBARTICLE 455-5.13 OF STANDARD SPECIFICATION 455. DYNAMIC LOAD TEST SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR BID ITEM 2455-137 (DYNAMIC TEST LOAD).
4. "TIP ELEVATION" IS THE ELEVATION TO WHICH THE SHAFT SHALL BE CONSTRUCTED UNLESS TEST LOAD DATA, ROCK CORES OR OTHER GEOTECHNICAL DATA OBTAINED DURING CONSTRUCTION ALLOWS THE ENGINEER TO AUTHORIZE A DIFFERENT TIP ELEVATION.
5. "MIN. TIP ELEVATION" IS THE HIGHEST ELEVATION THAT THE SHAFT TIP MAY BE CONSTRUCTED IF ADJUSTMENTS ARE MADE TO THE TIP ELEVATION SPECIFIED, AND IS REQUIRED FOR LATERAL STABILITY.
6. "MIN. UNCASED SOCKET LENGTH" IS THE MINIMUM UNCASED LENGTH REQUIRED FOR AXIAL CAPACITY.
7. WHERE EXISTING PILES CONFLICT WITH THE PLACEMENT OF PROPOSED PILES, THE EXISTING PILES SHALL BE COMPLETELY REMOVED. THE CONTRACTOR SHALL SUBMIT IN THE PILE INSTALLATION PLAN, ARTICLE 455-10, ITEM 13, THE PROPOSED PROCEDURES FOR PILE REMOVAL, PROPOSED EQUIPMENT USED FOR PILE REMOVAL, AND THE PROPOSED METHODS TO MAINTAIN AXIAL ALIGNMENT AND PLAN POSITION FOR INSTALLATION OF THE PROPOSED PILES. THE COST OF ALL PILES THAT ARE COMPLETELY REMOVED SHALL BE INCLUDED IN PAY ITEMS 2110-3. THERE WILL BE NO SEPARATE PAYMENT FOR THE MEANS AND METHODS REQUIRED TO MAINTAIN AXIAL ALIGNMENT AND PLAN POSITION.

REVISIONS

Date	By	Description	Date	By	Description

	Names	Dates
Drawn by	MEB	01-99
Checked by	HNS	01-99
Designed by	HNS	01-99
Checked by	DFS	01-99
Approved by	N. JETHA	

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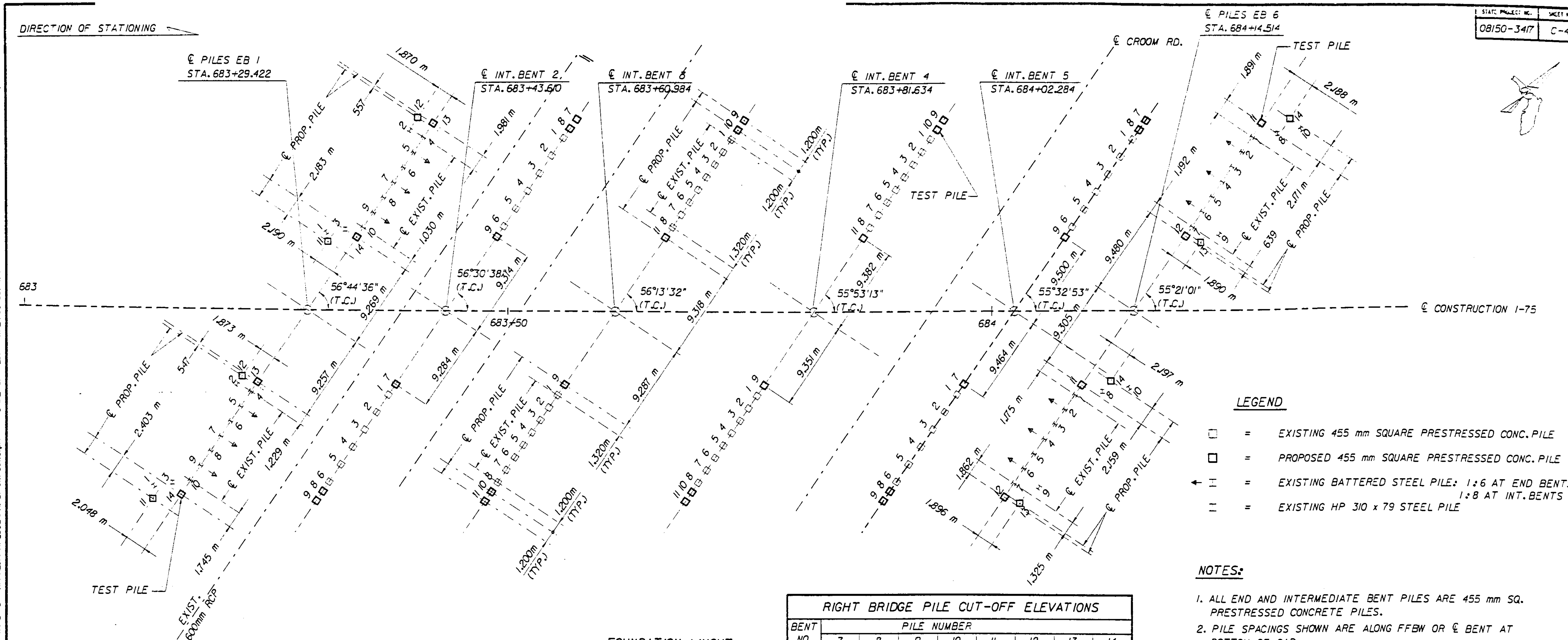
LOGO: AYRES ASSOCIATES

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 93	HERNANDO	258487-1-52-01

SHEET TITLE: FOUNDATION LAYOUT

PROJECT NAME: SR 93 (I-75) OVER SR 50
BRIDGE NOS. 080021 AND 080022



FOUNDATION LAYOUT

LEGEND

□	=	EXISTING 455 mm SQUARE PRESTRESSED CONC. PILE
■	=	PROPOSED 455 mm SQUARE PRESTRESSED CONC. PILE
← I	=	EXISTING BATTERED STEEL PILE: 1:6 AT END BENTS 1:8 AT INT. BENTS
I	=	EXISTING HP 310 x 79 STEEL PILE

NOTES:

1. ALL END AND INTERMEDIATE BENT PILES ARE 455 mm SQ. PRESTRESSED CONCRETE PILES.
2. PILE SPACINGS SHOWN ARE ALONG FFBW OR ℄ BENT AT BOTTOM OF CAP.
3. DYNAMIC LOAD TEST SHALL BE PERFORMED ON ALL TEST PILES AS PER SUB-ARTICLE 455-5J3 OF THE STANDARD SPECIFICATIONS. DYNAMIC LOAD TEST SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR BID ITEM 2455-137 (DYNAMIC TEST LOAD).
4. WHERE EXISTING PILES CONFLICT WITH THE PLACEMENT OF PROPOSED PILES, THE EXISTING PILES SHALL BE COMPLETELY REMOVED. THE CONTRACTOR SHALL SUBMIT IN THE PILE INSTALLATION PLAN, SECTION 455-10, ITEM 13, THE PROPOSED PROCEDURES FOR PILE REMOVAL, PROPOSED EQUIPMENT USED FOR PILE REMOVAL, AND THE PROPOSED METHODS TO MAINTAIN AXIAL ALIGNMENT AND PLAN POSITION FOR INSTALLATION OF THE PROPOSED PILES. THE COST OF ALL PILES THAT ARE COMPLETELY REMOVED SHALL BE INCLUDED IN PAY ITEMS 2110-3. THERE WILL BE NO SEPARATE PAYMENT FOR THE MEANS AND METHODS REQUIRED TO MAINTAIN AXIAL ALIGNMENT AND PLAN POSITION.
5. PILE SPLICES REQUIRED FOR TRANSPORTATION PURPOSES SHALL BE MECHANICAL SPLICES AND SHALL BE SURELOCK OR EQUIVALENT SPLICES. CONTACT THE DISTRICT GEOTECHNICAL ENGINEER 48 HOURS PRIOR TO PRODUCING THE PILES FOR SPLICING FOR LOCATION OF SPLICE.

PILE DATA TABLE

PIER OR BENT NO.	PILE SIZE (mm)	ULTIMATE BEARING CAPACITY (kN)	TENSION CAPACITY (kN)	MIN. TIP ELEV. (m)	TEST PILE LENGTH (m)	REQ'D JET ELEV. (m)	REQ'D PERFORM ELEV. (m)	FACTORED DESIGN LOAD (kN)	DOWN DRAG (kN)	TOTAL SCOUR RESIST. (kN)	NET SCOUR RESIST. (kN)	100 YR SCOUR ELEV. (m)	Φ
	INSTALLATION CRITERIA							DESIGN CRITERIA					
1	455	1277	NA	*	33	NA	NA	830	NA	NA	NA	NA	0.65
2	455	1477	NA	*	-	NA	NA	960	NA	NA	NA	NA	0.65
3	455	1477	NA	*	-	NA	NA	960	NA	NA	NA	NA	0.65
4	455	1477	NA	*	33	NA	NA	960	NA	NA	NA	NA	0.65
5	455	1477	NA	*	-	NA	NA	960	NA	NA	NA	NA	0.65
6	455	1277	NA	*	38	NA	NA	830	NA	NA	NA	NA	0.65

* AS PER SPECIFICATION 455.
ULTIMATE BEARING CAPACITY = (FACTORED DESIGN LOAD + NET SCOUR + DOWNDRAG)/ Φ

RIGHT BRIDGE PILE CUT-OFF ELEVATIONS

BENT NO.	PILE NUMBER 7	8	9	10	11	12	13	14
1	-	-	-	-	28.685	28.559	28.559	28.685
2	28.570	28.770	28.770	-	-	-	-	-
3	-	-	28.570	28.740	28.740	-	-	-
4	-	-	28.520	28.700	28.700	-	-	-
5	28.415	28.610	28.610	-	-	-	-	-
6	-	-	-	-	28.374	28.516	28.516	28.374

LEFT BRIDGE PILE CUT-OFF ELEVATIONS

BENT NO.	PILE NUMBER 7	8	9	10	11	12	13	14
1	-	-	-	-	28.595	28.473	28.473	28.595
2	28.455	28.455	28.650	-	-	-	-	-
3	-	-	28.395	28.395	28.605	-	-	-
4	-	-	28.305	28.305	28.530	-	-	-
5	28.155	28.155	28.400	-	-	-	-	-
6	-	-	-	-	28.087	28.245	28.245	28.087

Donald F. [signature] 11-21-00

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
11/13/00	JLP	REVISED PILE CUT-OFF ELEVATIONS			

	NAMES	DATES
DRAWN BY	LDP	1-99
CHECKED BY	DFS	1-99
DESIGNED BY	DFS	1-99
CHECKED BY	HNS	1-99
APPROVED BY	N. JETHA	

ENGINEER OF RECORD:
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FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 93	HERNANDO	258487-1-52-01

SHEET TITLE: FOUNDATION LAYOUT

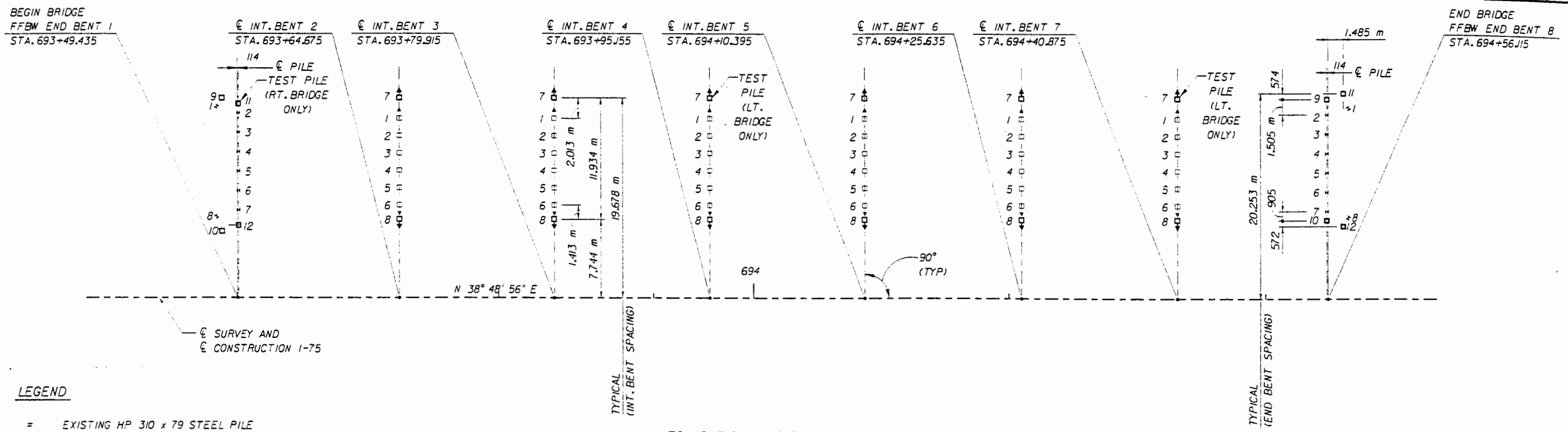
PROJECT NAME: SR 93 (I-75) OVER CROOM RD. BRIDGE NOS. 080023 & 080024

STATE PROJECT NO.	SHEET NO.
08150-3417	C-4

DESIGN FILE I: H:\30027700\SUBMITTL\FINAL\final\nov00\GNFOUNC1.DGN PRF NAME IS \\TPA_ON\PRF_SUBv...\GNFOUNC1.prf DATE OF PLOT - 11/21/00 08:44:41 PEN TABLE - \oo_plot\half.v801.tbl

FINAL SUBMITTAL

STATE PROJECT NO.	SHEET NO.
08150-3417	D-5



FOUNDATION LAYOUT

SYMMETRICAL ABOUT ℄ OF CONSTRUCTION

LEGEND

- H = EXISTING H.P. 310 x 79 STEEL PILE
- □ = EXISTING 455 mm SQUARE PRESTRESSED CONC. PILE
- ■ = PROPOSED 455 mm SQUARE PRESTRESSED CONC. PILE
- ←□ = EXISTING BATTERED PILE: 1:8 AT INT. BENTS
- ←■ = PROPOSED BATTERED PILE: 1:8 AT INT. BENTS

PILE CUT-OFF ELEVATIONS

BENT NO.	PILE NUMBER 7	8	9	10	11	12
1L	-	-	17.988	18.162	17.988	18.162
2L	17.876	18.058	-	-	-	-
3L	17.835	17.996	-	-	-	-
4L	17.749	17.926	-	-	-	-
5L	17.673	17.855	-	-	-	-
6L	17.609	17.790	-	-	-	-
7L	17.528	17.718	-	-	-	-
8L	-	-	17.477	17.649	17.477	17.649
1R	-	-	17.974	18.141	17.974	18.141
2R	17.867	18.051	-	-	-	-
3R	17.816	17.994	-	-	-	-
4R	17.751	17.945	-	-	-	-
5R	17.678	17.861	-	-	-	-
6R	17.607	17.790	-	-	-	-
7R	17.532	17.720	-	-	-	-
8R	-	-	17.505	17.683	17.505	17.683

PILE DATA TABLE

PIER OR BENT NO.	INSTALLATION CRITERIA: PILE SIZE (mm)	ULTIMATE BEARING CAPACITY (kN)	TENSION CAPACITY (kN)	MIN. TIP ELEV. (m)	TEST PILE LENGTH (m)	REQ'D JET ELEV. (m)	REQ'D PERFORM ELEV. (m)	DESIGN CRITERIA: FACTORED DESIGN LOAD (kN)	DOWN DRAG (kN)	TOTAL SCOUR RESIST. (kN)	NET SCOUR RESIST. (kN)	100 YR SCOUR ELEV. (m)	φ
1	455	1123	NA	*	32	NA	NA	730	NA	NA	NA	NA	0.65
2	455	1331	NA	+1.0	-	NA	+1.0	865	NA	80	0	+11.0	0.65
3	455	1331	NA	+1.0	-	NA	+1.0	865	NA	80	0	+9.2	0.65
4	455	1331	NA	+1.0	32	NA	+1.0	865	NA	80	0	+9.0	0.65
5	455	1331	NA	+1.0	-	NA	+1.0	865	NA	80	0	+8.6	0.65
6	455	1331	NA	+1.0	-	NA	+1.0	865	NA	80	0	+9.5	0.65
7	455	1331	NA	+1.0	32	NA	+1.0	865	NA	80	0	+11.4	0.65
8	455	1123	NA	*	-	NA	NA	730	NA	NA	NA	NA	0.65

* AS PER SPECIFICATION 455.

ULTIMATE BEARING CAPACITY = (FACTORED DESIGN LOAD + NET SCOUR + DOWNDRAG)/ φ

NOTES:

1. PROPOSED END AND INTERMEDIATE BENT PILES ARE 455 mm SQ. PRESTRESSED CONCRETE PILES.
2. PILE SPACINGS SHOWN ARE ALONG FFBW OR ℄ BENT AT BOTTOM OF CAP.
3. DYNAMIC LOAD TEST SHALL BE PERFORMED ON ALL TEST PILES AS PER ARTICLE 455-5.3 OF STANDARD SPECIFICATION 455. DYNAMIC LOAD TEST SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR BID ITEM 2455-137 (DYNAMIC TEST LOAD).
4. MINIMUM TIP ELEVATION IS REQUIRED FOR LATERAL STABILITY.
5. PILE SPLICES REQUIRED FOR TRANSPORTATION PURPOSES SHALL BE MECHANICAL SPLICES AND SHALL BE SURELOCK OR EQUIVALENT SPLICES. CONTACT THE DISTRICT GEOTECHNICAL ENGINEER 48 HOURS PRIOR TO PRODUCING THE PILES FOR SPLICING FOR LOCATION OF SPLICE.
6. PILES AT INTERMEDIATE BENTS SHALL BE DRIVEN FROM A WATERBORNE CRAFT.

Donald F. Spencer
1-6-2000

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

	NAMES	DATES
DRAWN BY	MEB	01-99
CHECKED BY	DFS	01-99
DESIGNED BY	DFS	01-99
CHECKED BY	HNS	01-99
APPROVED BY	N. JETHA	

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FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 93	HERNANDO	258487-1-52-01

SHEET TITLE: FOUNDATION LAYOUT

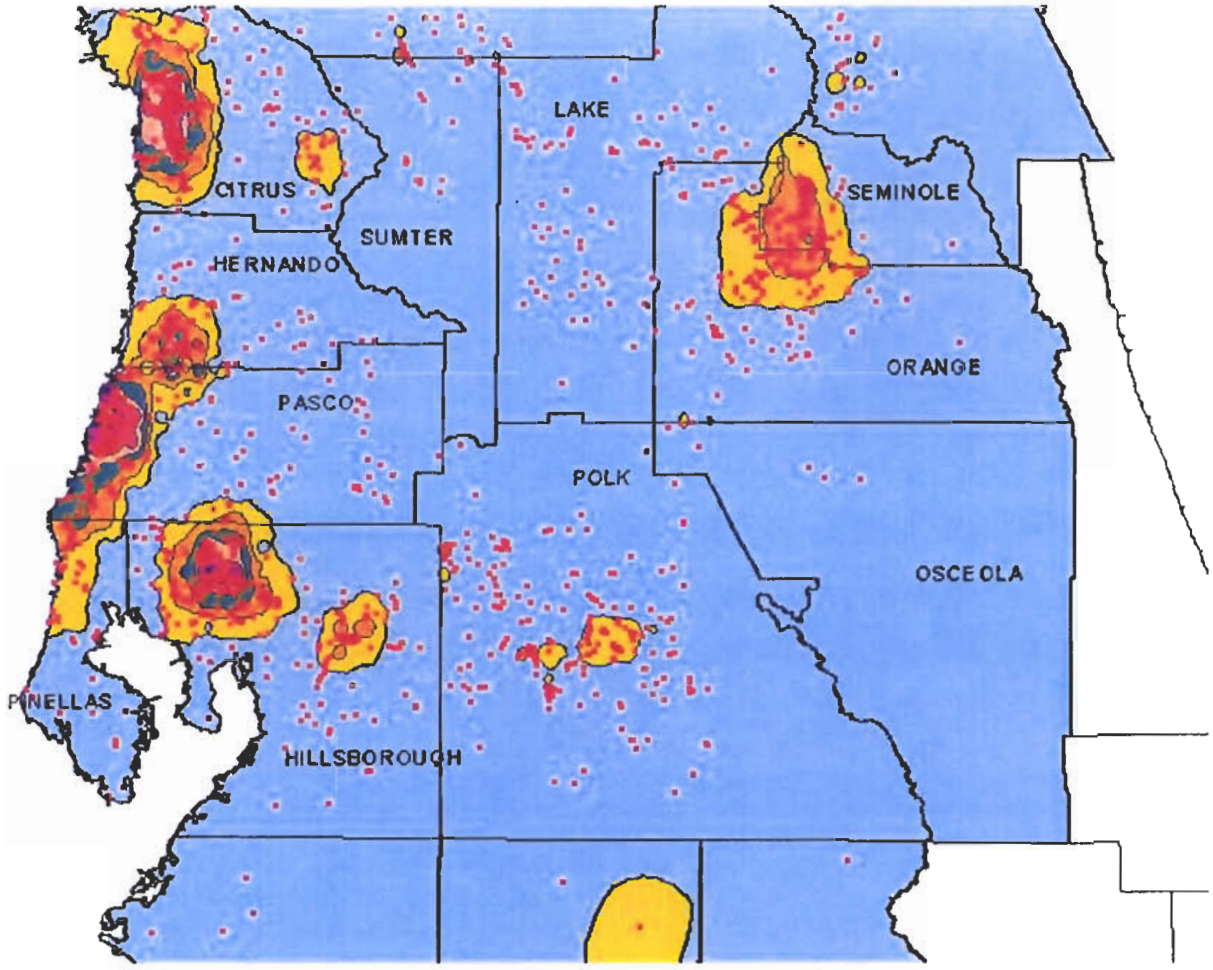
PROJECT NAME: SR 93 (I-75) OVER WITHLACOOCHEE RIVER, BRIDGE NOS. 080025 AND 080026

FINAL SUBMITTAL

APPENDIX D

Reported New Sinkhole Frequency

REPORTED NEW SINKHOLE FREQUENCY
in Central and West-Central Florida



Rate of Occurrence of new sinkholes per square mile per year

- 0.00-0.01
- 0.01-0.02
- 0.02-0.03
- 0.03-0.04
- 0.04-0.05
- 0.05-0.06
- 0.06-0.07
- 0.07-0.08
- 0.08-0.09
- 0.09-0.10

Reported sinkhole location

10 0 10 20 Miles

*Map depicts the maximum reported new sinkhole frequency and approximately 95% of the reported new sinkhole locations

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