JEB BUSH
GOVERNOR

Florida Department of Transportation

605 Suwannee Street
Tallahassee, FL 32399-0450
MS-32

THOMAS F BARRY, JR
SECRETARY

DATE: October 26, 2001

TO: Registered Plans Preparation Manual Holders

FROM: Brian Blanchard, P E
State Roadway Design Engineer

CC: Billy Hattaway, William Nickas

SUBJECT: IMPLEMENTATION - PLANS PREPARATION MANUAL
JANUARY 2002 UPDATES

The January 2002 Updates include

1 Revisions to Plans Preparation Manual (PPM), Volume I English, January 2000
2 Revisions to PPM, Volume II English, January 2000
3 Revisions to PPM, Volume I Metric, January 1998 (To be sent at a later date)
4 Revisions to PPM, Volume II Metric, January 1999 (To be sent at a later date)

The revisions to the English and Metric manuals are nearly identical except for units of measure The only other difference is that for the English updates, the chapters that were updated have been reformatted and the complete chapter has been reprinted The Metric updates will consist of page inserts The major changes in design requirements included in both the English and Metric revisions are to be implemented as follows

Volume I, Chapter 1, Section 1.10 Public Involvement

SUMMARY OF CHANGE
This section has been added to support the Department's current policy on Public Involvement Opportunities by focusing on the design phase of a project Corresponding language regarding public involvement has also been added to the bullets in Sections 13 2 and 25 3 of Volume I

IMPLEMENTATION
These changes support an existing Department policy and existing Community Awareness Plan (CAP) guidelines that have been previously developed by each District These changes apply to both English and Metric projects

Volume I Chapter 2, Section 2.0 General

SUMMARY OF CHANGE
Language has been added to address existing project features on reconstruction projects that were designed to meet minimum metric criteria but mathematically may be slightly less than the English equivalents, and that these features do not require design exceptions or variations Corresponding language has been added to Section 25 4 of Volume I

IMPLEMENTATION
These changes are to be implemented on all applicable projects beginning immediately These changes are addressed in the English PPM only

---

Volume I Chapter 2, Section 2.0 General

SUMMARY OF CHANGE
Language has been added to address the Florida Greenbook as the source for design criteria for roads that are not on the State Highway System

IMPLEMENTATION
This change is to be implemented on all applicable projects beginning immediately This change applies to English and Metric projects (although the Florida Greenbook does not contain Metric criteria)

Volume I Chapter 2, Section 2.1.5 Cross Slopes

SUMMARY OF CHANGE
Language has been added to this section to address maximum algebraic difference in cross slope at turning roadway terminals These criteria are presented in the new Table 2 1 4

IMPLEMENTATION
This change is to be implemented on all applicable projects beginning design as of January 1, 2002 This change applies to English and Metric projects

---

Volume I Chapter 2, Section 2.1.8 Number of Lanes on the State Highway System

SUMMARY OF CHANGE
This section has been revised because the Department Policy regarding the maximum number of lanes on the State Highway System has been rescinded A new Department Procedure and Florida Statutes now govern the number of lanes on the State Highway System The table that corresponded with the rescinded policy (the old Table 2 1 4) has been removed

IMPLEMENTATION
This change was implemented when the Policy was rescinded March 23, 2001 This change applies to English and Metric projects

---

Volume I Chapter 2, Section 2.10.1 Vertical Clearance Over Water

SUMMARY OF CHANGE
This section has been revised to clarify the source of approval of structures that do not conform to the criteria for vertical clearance over water

IMPLEMENTATION
This change is to be implemented on all applicable projects beginning immediately This change applies to English and Metric projects

---

Volume I Chapter 2, Section 2.12 Bridge Railings and Separators

SUMMARY OF CHANGE
New language has been added to this section that references the Structures Design Guidelines and gives guidance on the disposition of existing bridge rails on reconstruction projects

IMPLEMENTATION
This change is to be implemented on all applicable projects beginning immediately This change applies to both English and Metric projects

---

Volume I Chapter 2, Figure 2.0.4 Bridge Section

SUMMARY OF CHANGE
Language has been revised to address the bridge shoulder width and to clarify traffic barrier and pedestrian railing placement

IMPLEMENTATION
These changes are to be implemented on all applicable projects beginning design as of January 1, 2002 These changes apply to English and Metric projects

---

Volume I Chapter 2, Table 2.3.1 Shoulder Widths and Slopes - Freeways

SUMMARY OF CHANGE
The outside shoulder width for Auxiliary Lane Mainline Terminal (1-Lane Ramp) has been revised to match the Mainline outside shoulder width

IMPLEMENTATION
This change is to be implemented on all applicable projects beginning design as of January 1, 2002 This change applies to English and Metric projects

---

Volume I Chapter 4, Section 4.5.2 Selection

SUMMARY OF CHANGE
The list of standardized crash cushions has been removed and been replaced by a reference to the Design Standards

IMPLEMENTATION
This change is to be implemented on all applicable projects beginning immediately This change applies to both English and Metric projects

---

Volume I Chapter 7, Section 7.3.8 Grounding

SUMMARY OF CHANGE
This section has been added to provide new grounding requirements for lighting systems The method of payment has also been revised (see the Basis of Estimates (BOE) cover letter dated October 1, 2001 for details)

IMPLEMENTATION
This change is to be implemented on all applicable projects beginning with the July 2002 letting This change applies to both English and Metric projects

---

Volume I Chapter 7, Section 7.4.1 Design Criteria

SUMMARY OF CHANGE
Language regarding the horizontal clearance to signal poles and controller cabinets for signals has been added Corresponding changes have been made to Tables 2 11 4, 23 4 13, and 25 4 14 5 of Volume I

IMPLEMENTATION
These changes are to be implemented on all applicable projects beginning design as of January 2002 These changes apply to English and Metric projects

---

Volume I Chapter 7, Section 7.4.9 Grounding and Electrical Bonding

SUMMARY OF CHANGE
This section has been added to provide new grounding requirements for traffic signal components The method of payment has also been revised (see the BOE cover letter dated October 1, 2001 for details)

IMPLEMENTATION
This change is to be implemented on all applicable projects beginning with the July 2002 letting This change applies to both English and Metric projects

---

Volume I Chapter 8, Section 8.4.1 Bicycle Lanes (Designated)

SUMMARY OF CHANGE
This section has been revised to clarify requirements on bicycle lane width and location Corresponding language was revised Section 8 4 2 of Volume I

IMPLEMENTATION
These changes are to be implemented on all applicable projects beginning design as of January 1, 2002 These changes applies to both Metric and English projects

---

Volume I Chapter 10, Section 10.4 Traffic Control Plans (TCP)

SUMMARY OF CHANGE
Language regarding temporary actuation of traffic signals (number 8 on list) was revised A corresponding revision has been made to Section 10 10 4 of Volume I For further information, see the BOE cover letter dated April 1, 2001

IMPLEMENTATION
These changes are to be implemented on applicable projects beginning with the January 2002 letting These changes apply to both English and Metric projects

---

Volume I Chapter 10, Section 10.7.2 Training Requirements

SUMMARY OF CHANGE
This section has been revised to include the Department's new requirements for work zone traffic control training

IMPLEMENTATION
Persons requiring training must be trained prior to January 2002

Volume I Chapter 10, Section 10.13.6 Temporary Curb

SUMMARY OF CHANGE
A note has been added regarding the discontinuation of the use of temporary curb For further information, see the BOE cover letter dated October 1, 2001

IMPLEMENTATION
This change is to be implemented on all applicable projects beginning with the October 2002 letting This change applies to both English and Metric projects

---

Volume I Chapter 11, Section 11.1 General

SUMMARY OF CHANGE
The language regarding Storm Water Pollution Prevention Plan (SWPPP) requirements and applicable permits has been revised A corresponding revision has been made to Section 11 2 3 of Volume I

IMPLEMENTATION
These changes are to be implemented on all applicable projects beginning immediately Further implementation requirements are given within the revised language These changes apply to both English and Metric projects

---

Volume I Chapter 17, Engineering Design Estimate Process

SUMMARY OF CHANGE
This chapter has been revised to include the use of TRNS*PORT for contract estimating Corresponding changes have been included in Chapter 4 of Volume II

IMPLEMENTATION
Migration to TRNS*PORT is to be effective on all applicable projects beginning with the October 2002 letting See the BOE Cover Letter dated October 1, 2001 for further implementation requirements This change applies to both English and Metric projects

---

Volume I Chapter 17, Section 17.4.1.1 Plan Quantity / Section 17.4.1.2 Final Measurement Concept

SUMMARY OF CHANGE
These sections have been added to give clarification on plan quantity and final measure items Corresponding changes have been made to Section 17 5 of Volume I

IMPLEMENTATION
These changes have previously been implemented See the BOE cover letter dated April 1, 2001 These changes apply to both English and Metric projects

---

Volume I Chapter 22, Lump Sum Project Guidelines

SUMMARY OF CHANGE
This is a new chapter that contains the Lump Sum Project Guidelines that were contained in Department Directive 625-010-030

IMPLEMENTATION
The guidelines contained in this chapter become effective on February 1, 2002 The current Directive (625-010-030) may be used on all applicable projects until it expires on January 31, 2002 These changes apply to both English and Metric projects

---

Volume I Chapter 23, Section 23.1 General

SUMMARY OF CHANGE
Language regarding design exception and design variation requirements on safety improvement projects has been added as a clarification to existing requirements

IMPLEMENTATION
This change is based on a FHWA letter to the State Highway Engineer dated June 1, 2000 regarding the use of Hazard Elimination Funds As a result, this change is to be implemented on all applicable projects beginning immediately This change applies to both English and Metric projects

---

Volume I Chapter 23, Section 23.2 Justification and Documentation

SUMMARY OF CHANGE
The discount rate to be utilized in a benefit/cost analysis has been reduced to 5%

IMPLEMENTATION
This change is to be effective on any benefit/cost analyses completed on January 1, 2002 or thereafter This change applies to both English and Metric projects

---

Volume II Chapter 3, Section 3.2.1 Financial Project ID, Federal Funds, County Name and State Road Number

SUMMARY OF CHANGE
Language has been added regarding the proper way to show the Financial Project ID's on plans that have multiple Financial Project ID's

IMPLEMENTATION
This change is to be implemented on all applicable projects beginning with the July 2002 letting This change applies to both English and Metric projects

---

Volume II Chapter 3, Section 3.3 Project Location Map

SUMMARY OF CHANGE
This section has been revised to include language regarding the availability of county maps in Raster format on the Internet or on CD

IMPLEMENTATION
This change is to be effective immediately as the county maps are now available in Raster format This change applies to both English and Metric projects

---

Volume II Chapter 6, Section 6.2 Mandatory Information

SUMMARY OF CHANGE
This section has been revised to include language regarding including a detail for an asphalt curb pad on the typical section of projects that call for Asphalt Base, Type 12 5 only Corresponding changes have been made in Volume II to Exhibit TYP-6A and Exhibit 7-1, Sheet 1 of 3

IMPLEMENTATION
These changes may be used on all applicable projects beginning immediately These changes apply to both English and Metric projects

---

Volume II Chapter 7, Exhibit SQ-2 Summary of Quantities

SUMMARY OF CHANGE
The Summary of Guardrail summary box has been modified Columns have been added so that the locations of Pedestrian Safety Treatment and Rub Rail can be identified

IMPLEMENTATION
This change is to be implemented on all applicable projects beginning with the July 2002 letting, however the new guardrail summary box may be utilized immediately These changes apply to both English and Metric projects

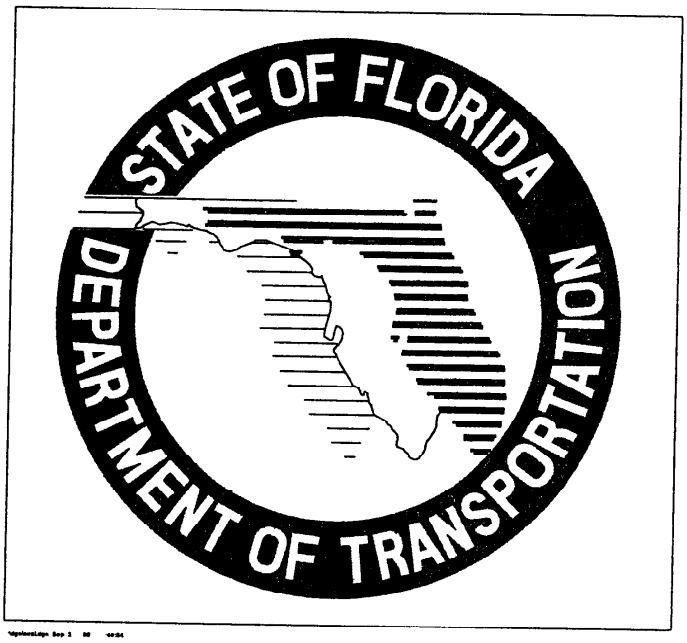
---

All other changes in the January, 2002 Plans Preparation Manual updates package primarily consist of minor editing for clarification and/or error corrections

If you have any questions please contact this office, 850-414-4318, Suncom 994-4318

PLANS PREPARATION MANUAL

VOLUME II - ENGLISH



ROADWAY DESIGN OFFICE

TALLAHASSEE, FLORIDA

JANUARY 2000

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

SUGGESTIONS AND COMMENTS
PLANS PREPARATION MANUAL
VOLUME II - ENGLISH

NAME OF FIRM OR FDOT DEPARTMENT: _____

_____

ADDRESS: _____

_____

_____

_____

NAME OF PERSON RESPONSIBLE FOR SUGGESTIONS OR COMMENTS: _____

TELEPHONE NO.: _____

FAX NO.: _____

SUGGESTIONS OR COMMENTS: _____

_____

_____

_____

_____

_____

_____

_____

(Comments or Suggestions may be attached as marked up copies of pages from the manual)

Please complete the requested information on a copy of this sheet and return to:

FLORIDA DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN OFFICE
MAIL STATION 32
605 SUWANNEE STREET
TALLAHASSEE, FLORIDA 32399-0450
FAX NUMBER (850) 922-9293

Table of Contents

INTRODUCTION

PLANS PREPARATION MANUAL, VOLUME II - ENGLISH

PURPOSE:

This ***Plans Preparation Manual, Volume II - English*** sets forth requirements for the preparation and assembly of contract plans for Florida Department of Transportation (FDOT) projects The information contained herein applies to the preparation of plans for both roadways and structures

AUTHORITY:

Section 334 044(2), Florida Statutes

SCOPE:

This procedure impacts anyone preparing roadway and structures contract plans for the Department

GENERAL INFORMATION:

Chapter 334 of the Florida Statutes, as part of the Florida Transportation Code, establishes the responsibilities of the State, counties, and municipalities for the planning and development of the transportation systems serving the people of Florida, with the objective of assuring development of an integrated, balanced statewide system The Code's purpose is to protect the safety and general welfare of the people of the State and to preserve and improve all transportation facilities in Florida Under Section 334 044, the Code sets forth the powers and duties of the Department of Transportation including to adopt rules, procedures and standards for the conduct of its business operations and the implementation of any provisions of law for which the Department is responsible

PROCEDURE:

The standards and applications contained in this volume of the Plans Preparation Manual are requirements for the design and preparation of contract plans used in the construction of FDOT projects This volume is to be used in conjunction with *Volume I - English (Topic No 625-000-007)* of the *Plans Preparation Manual (PPM)*

The preparation of roadway and structures plans is primarily a matter of sound application of acceptable engineering criteria, standards and presentation techniques While the requirements contained in this volume provide a basis for uniformity in plans preparation, precise formatting and presentation standards which apply to individual situations must rely on good engineering practice and judgement The use of these requirements does not relieve the engineer from the professional responsibility for the accuracy and completeness of the contract plans set(s)

1 PLANS PREPARATION MANUAL, VOLUME II - ENGLISH MANUAL ORGANIZATION

a Background

The Florida Department of Transportation *Plans Preparation Manual* was previously published as a two volume set in 1989 The manual preceded Department requirements for use of the Metric System, and featured only English units Volume I contained design criteria and process requirements, while Volume II addressed plans preparation and assembly

This English version of Volume II has been produced using the same basic format, and closely paralleling, Volume II - Metric This is due in large part to the outdated information in the 1989 English version for such areas as Computer Aided Design Drafting (CADD), plans processing, sheet sizes, etc

b Organization

The *Plans Preparation Manual, Volume II - English* contains specific requirements for plans production and assembly The manual consists of individual chapters, each addressing the requirements for a plan sheet or component, and is ordered according to the way a standard plans set would be assembled

2 DISTRIBUTION

This document is distributed through **FDOT Maps and Publications Sales**

Copies may be obtained from

Florida Department of Transportation
Maps and Publications Sales
Mail Station 12
605 Suwannee Street
Tallahassee, FL 32399-0450

Telephone (850) 414-4050
SUNCOM 994-4050
FAX Number (850) 487-4099
http //www dot state fl us/MapsAndPublications/manuals/pub-list htm

For updates and manual registration information contact

Roadway Design Office
Mail Station 32
Telephone (850) 414-4310
SUNCOM 994-4310
FAX Number (850) 922-9293

3 REVISIONS AND UPDATES

Plans Preparation Manual holders are encouraged to submit comments and suggestions for changes to the manual to the Roadway Design Office When ideas or suggestions are received they will be reviewed by appropriate Roadway and/or Structures Design staff in a timely manner and will be coordinated with other offices affected by the proposed change

Structures design issues which are subject to modification and revision will be processed in coordination with the Structures Design Office

Proposed revisions are distributed in draft form to the District Design Engineers (DDE) The DDE coordinates the review of the proposed revisions with other affected district offices such as Structures Design The goal is to obtain a majority opinion before revisions are made

The Roadway Design Office will also coordinate proposed revisions or additions with affected offices within the Central Office Substantive revisions that result in policy change will be coordinated with the Executive Committee for concurrence

Revisions are voted on jointly by the District Design Engineers and the State Roadway Design Engineer (for Roadway Design issues) or the State Structures Design Engineer (for Structures Design issues) Each district will have one vote and the central office will have two votes, for a total of ten votes Requirements mandated by FHWA or State Rules will not be subject to this majority vote

All revisions and updates will be coordinated with the Organization and Procedures Office prior to distribution to ensure conformance with and incorporation into the Department's Standard Operating System The standard interval for issuing updates to the PPM is yearly, in January, when the adopted revisions and addenda will be distributed to registered holders of the manual

Items warranting immediate change will be made with the approval of the State Roadway Design Engineer in the form of a Design Bulletin

TRAINING:

None required

FORMS ACCESS:

Documents marked as **SAMPLES** provide only a starting point allowing users to change or alter the document as needed to fit specific situations Samples are not official forms of the Department

Chapter 1

PRODUCTION OF PLANS

Chapter 1

PRODUCTION OF PLANS

1.1 General

This volume shall be used in conjunction with ***Volume I - English of the Plans Preparation Manual.*** Close attention must be paid to the harmonizing of design criteria and processes outlined in ***Volume I*** with the related areas of plans preparation and presentation required in this volume

The contract plans set and the specifications are the key documents for project construction and on which the contractor bases his bid Hence, it is imperative that the contract plans and specifications set forth the work to be done in a clear and concise manner

As stated in the FDOT ***Policy for the Development of Construction Plans via Computer Aided Design and Drafting (CADD), Topic No. 000-625-010,*** "All construction plans prepared by the Department of Transportation, either by in-house staff or by consultants, shall be totally prepared utilizing computer aided design and drafting (CADD) techniques "

The Engineer of Record (EOR) must provide quality control of plans, CADD files and deliverables as outlined in the Department's ***CADD Manual, Topic No. 625-050-001*** (or latest version) and this volume These resources, in conjunction with district and project scope requirements, shall form the basis for contract plans format and assembly

Plan sheets content and appearance will follow the requirements of this volume Refer to the FDOT CADD Production Criteria Guide for such features as line weight, style, color, and level

The exhibits shown in this volume were developed using FDOT criteria/standards in force at the time of their creation See **Volume I** for criteria

1.2 Legibility Guidelines

Normally, all letters and figures should be readable from either the bottom or right edge of the sheet The guide for reading is as follows

(1) Horizontal Line Read left to right
(2) Vertical Line Read bottom to top
(3) Diagonals: Read left to right

Abbreviations may be used where they save time and space. Abbreviations must be clear and easily understood A list of standard abbreviations is given in the ***Roadway and Traffic Design Standards,* Index 001**

Standard symbols for Roadway Design are shown in the ***Roadway and Traffic Design Standards,* Index 002**, the Symbol Cell Library, and other CADD sources

1.3 Displaying Information and Data

The following rules apply for displaying information and data in the plans·

1 Dimensioning Requirements

- Typical Section Elements, including lane widths and shoulder widths - in feet, generally as a whole number
- Horizontal control points on plans, including survey centerline, baseline, intersections and alignment - in feet to 2 decimal places
- Vertical alignment control points, (PVC, PVI, PVT) and profile grade elevations - in feet to 2 decimal places
- Profile Grade - in percent to 3 decimal places
- Proposed flow lines - in feet to 1 decimal place
- Manhole tops and grate elevations - in feet to 2 decimal places
- Ditch elevations - in feet to 1 decimal place (to nearest .05 when controlled by percent of grade)

- Box Culvert Spans and Heights - (Show feet as a whole number using the span by height format e g , 10 x 6 means the span is 10 feet and the height is 6 feet) In feet as a whole number for new construction, in feet to 2 decimal places for extensions of existing box culverts

2 Display alignment bearings, degree of curve and delta angles for curve data in degrees, minutes and seconds, rounded to the nearest second

3 Express slope ratios in vertical to horizontal (V H) format For example, show roadside slopes as 1 6, 1 4, etc

1.3.1 Converting From Metric to English:

1 When converting metric values related to surveys, right of way and other geometric alignment use the U S Survey Foot taken to a minimum of 8 decimal places

$$1 \text{ foot} = \frac{12 \text{ inches/foot}}{39\ 37 \text{ inches/meter}} = 0\ 304\ 800\ 61 \text{ meters}$$

For other direct mathematical conversions use the SI definition 1 foot = 0 3048 meters

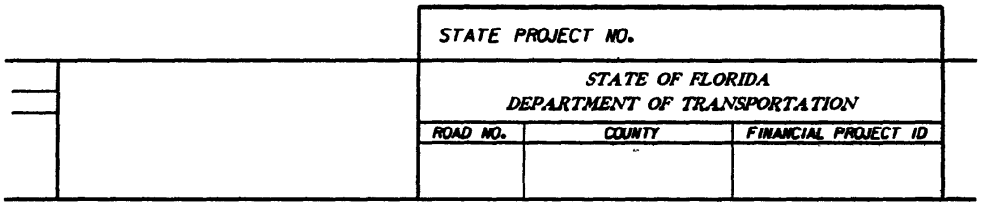
2 Display direct mathematical (soft) converted values to 2 decimal places

3 On resurfacing projects where the original construction was done in metric, hard convert typical section dimensions (lane widths, shoulder widths, etc) where existing conditions permit

Use direct mathematical (soft) conversion for existing pavement widths in curbed sections, existing right of way widths, and existing median widths

1.4 Base Sheet Format

All plan sheet formats are contained in the FDOT Engineering/CADD Systems Software Sheet borders include a place for the Financial Project ID For those projects which still have a State Project Number, the number must be added to each sheet in the plans A separate cell is available for placement above the Financial Project ID as shown below



The blank space immediately left of the box for Financial Project ID information is provided for the name, address and engineering license number of the Engineer of Record If practicing through a duly authorized engineering business, the engineering business name, address, and engineering business license number is shown See **Section 19.2, Volume I** of this manual

Contract plans shall be plotted to scale on size B (11" X 17") multipurpose paper These plots are to be generated from image files in accordance with the ***CADD Manual,* Section 3.8.3** Care must be taken in setting up plotting equipment and software to center the sheet border and provide a minimum 3/4" margin at each end of the sheet This is necessary to maintain plan sheet scales and to facilitate the reproduction process used for providing contract plan sets for advertisement and construction

Sheets which feature grids (cross sections, plan-profile, etc) can be plotted with minor grid lines turned off or on If the minor grids are plotted, they are to be half-toned The FDOT Engineering/CADD System Software provides MicroStation system plot drivers for this task Pen tables for half-toning, using CADNet plotting, are also available from the FDOT Engineering/CADD Systems Office

No aerial photography of any type is permitted in final contract plans

Chapter 2

SEQUENCE OF PLANS PREPARATION

Chapter 2

SEQUENCE OF PLANS PREPARATION

2.1 General

The set of plans depicting in detail the desired construction work is known as the "Contract Plans Set" This set consists of all sheets pertaining to roadway design (Roadway Plans), and component plans The component plans are comprised of

- Signing and Pavement Marking Plans
- Signalization Plans
- Lighting Plans
- Landscape Plans
- Architectural Plans
- Structures Plans

Utility Joint Participation Agreement Plans have a separate Financial Project ID and are placed in the back of the contract plans set

The contract plans set should be prepared systematically, undergoing phases of review and revision to ensure technically correct and clear plans

2.2 Data Collection and Presentation

2.2.1 Type of Project

The type and amount of data required for each project depends on the project For new construction and reconstruction projects which have had a Project Development and Environment (PD&E) phase the data to be used for plans preparation could include the following

- Preliminary Engineering Report
- Project Scope
- Project schedule
- Field survey and/or CADD files (including existing features such as topography, ground elevations, drainage structures, and right of way)

- R/W requirements
- Soils information
- Commitments for environmental permits or mitigation
- Typical Section Package
- Traffic Data
- Pedestrian and bicycle considerations
- Structural design requirements
- Commitments to local government(s)

For projects without the PD&E phase, such as RRR or Safety projects, some of the items listed will not be required Regardless of type, all projects should begin with a field review to determine other requirements such as additional survey needs, utility information, etc

Additional information can be found in **Chapters 13-16** of **Volume I** These chapters contain a comprehensive discussion of the critical issues and major activities for the design process, from initial to final engineering

2.2.2 Presentation of Existing Data

CADD files generated from the field survey will contain existing topography and other characteristics of the project site These also include the existing utilities and drainage structures within the limits of the project

All data pertaining to topography, horizontal location of existing utilities and drainage structures shall be shown on the plan portion of the appropriate sheets (whether they are plan view only, or plan-profile)

2.2.3 Proposed Typical Section

Typical sections show the cross sectional design elements of a roadway In addition to the Typical Section Sheet, certain elements of the typical section are shown on various other plan sheets, such as the Plan-Profile Sheets and Cross Sections The various chapters for individual plan sheets address the specific requirements for displaying data (including typical section elements) on those sheets

2.2.4 Geometrics

The Engineer of Record (EOR) sets the horizontal and vertical geometrics for a project and develops or supervises development of the CADD files used in the production of various plans sheets

Horizontal geometrics include the baseline survey/centerline construction with bearings, curve data, angles or bearings at street intersections, pavement widths, taper lengths, left turn lanes, and other geometric elements These elements are plotted on the plan portion of the plan-profile sheets, as well as other appropriate plan sheets

Vertical geometrics show the vertical curves and grades of the roadway along the profile grade line On municipal projects back-of-sidewalk profiles are developed to provide a vertical alignment which addresses drainage requirements and harmonizes connections to adjacent properties The back-of-sidewalk profiles may be included in the roadway plans as directed by the district

On all projects which include the development of a vertical alignment the existing ground line along the baseline of survey and the proposed profile grade line shall be plotted on the profile portion of appropriate sheets in the roadway or structures plans

2.2.5 Cross Sections

Information required for plotting existing cross sections is obtained from survey data and CADD files These data, along with existing utilities and proposed templates, are shown on the cross sections Refer to **Chapter 18** for additional information

2.3 Phase Submittals

2.3.1 General

Requirements relating to the *design process* for various submittals are given in **Chapter 16, Volume I** of this manual Refer to that chapter for additional guidance in preparing submittals for review by the Department

For bridge submittal requirements see **Chapter 26, Volume I**

2.3.2 Phases

The remainder of this chapter outlines, in detail, the sequence for contract plans preparation and assembly, as well as the information required to be presented on the various plan sheets which are included in design phase submittals

As stated in **Section 16.4 of Chapter 16, Volume I** "The number of submittals and phase reviews shall be determined on a project-by-project basis and shall be defined in the scope Submittals allow functional areas to review the development of the project as contained in the scope "

Standard submittal phases are as follows

SUBMITTAL PHASES
- Phase I
- Phase II
- Phase III
- Phase IV

Minor projects should typically have two phase reviews

Figure 2.1 summarizes the plans sheet status for each submittal No phase is complete until all review comments have been resolved and documented

The technical accuracy required for the design is the responsibility of the Engineer of Record Prior to submitting the plans for a formal FDOT Phase review, the design organization (in-house or consultant) shall conduct a review to ensure technically correct and complete plans Any revisions or corrections noted during the review shall be incorporated into the plans before submittal for the formal Phase review

When deemed necessary by the Engineer of Record, or as requested by the district, phase submittals may include an additional plan sheet titled "Notes for Reviewers " This sheet is placed as the second sheet in the submittal package It contains information pertinent to design criteria and special project requirements, as well as other details or notes which call the reviewer's attention to issues and features unique to the project design The sheet is to be used only in the review process and is not included in the final plans

Figure 2.1 - Summary of Phase Submittals

ITEM	PHASE I	PHASE* II	PHASE III	PHASE IV
Key Sheet	P	P	C	F
Summary of Pay Items		P	C	F
Drainage Map	P	P	C	F
Interchange Drainage Map	P	P	C	F
Typical Section	P	C	C	F
Summary of Quantities			C	F
Box Culvert Data			C	F
Summary of Drainage Structures			C	F
Project Layout	P	C	C	F
Roadway Plan-Profile	P	P	C	F
Special Profile	P	P	C	F
Back-of-Sidewalk Profile	P	C	C	F
Interchange Layout	P	P	C	F
Ramp Terminal Details		P	C	F
Intersection Layout/Detail	P	P	C	F
Drainage Structures		P	C	F
Lateral Ditch Plan-Profile		P	C	F
Lateral Ditch Cross Section		P	C	F
Retention/Detention Ponds		P	C	F
Cross Section Pattern Sheet		P	C	F
Roadway Soil Survey		P	C	F
Cross Sections	P	P	C	F
Storm Water Pollution Prevention Plan	P	P	C	F
Traffic Control Plans	P	P	C	F
Utility Adjustment		P	C	F
Selective Clearing and Grubbing		P	C	F
Miscellaneous Structures Plans		P	C	F
Signing and Pavement Marking Plans		P	C	F
Signalization Plans		P	C	F
Lighting Plans		P	C	F
Landscape Plans	P	P	C	F
Utility Joint Participation Agreement Plans			C	F
Mitigation Plans		P	C	F
Computation Book			C	F
Contract Time			P	F

Status Key
P - Preliminary
C - Complete but subject to change
F - Final

* Projects which have a structures plans component are required to submit the latest set of structures plans with the phase II roadway submittal

Unless otherwise directed by the district, the following elements are required for a Phase I set of plans

KEY SHEET
Location Map w/ location of project on map
All applicable Financial Project ID's
(Federal Funds) notation, if applicable
Exceptions & Equations
County Name
State Road Number
Length of project box
North arrow and scale
Approval signature lines
Railroad crossing (if applicable)
Revision box
Governing Standards & Specifications dates
Project Manager's Name
Begin & end project station and begin mile post
Begin & end bridge stations
Consultant's name, address, contract number and vendor number (if applicable)

DRAINAGE MAP - PLAN VIEW
North arrow and scale
Drainage divides and ground elevations
Drainage areas and flow direction arrows
Equations
High water information as required
Preliminary horizontal alignment
Section, township, range lines
Street names
Begin & end stations of project, bridge, bridge culverts & exceptions
Existing structures & pipes with relevant information
State, Federal, county highway numbers (as appropriate)

DRAINAGE MAP - PROFILE VIEW
Preliminary profile grade & existing ground line
Horizontal & vertical scale
Begin & end stations of project, bridges, bridge culverts & exceptions
Equations

INTERCHANGE DRAINAGE MAP
North arrow and scale
Stationing along baselines
Ramp baselines with nomenclature
Begin and end bridge stationing
Preliminary interchange configuration
R/W lines
Preliminary interchange drainage with drainage areas and flow direction arrows

TYPICAL SECTIONS
Mainline and crossroad typicals
R/W lines
Special details (bifurcated sections, high fills, etc)
Traffic data

PROJECT LAYOUT / Reference Points
Plan-profile sheet sequence (mainline and crossroads)
Reference points (if layout sheet is required)

PLAN AND PROFILE - PLAN VIEW
North arrow and scale
Baseline of survey, equations
Curve data (including superelevation)
Existing topography including utilities
Preliminary horizontal geometrics/dimensions
Existing & proposed R/W lines (if available)
Centerline of construction (if different from the baseline of survey)
Begin and end stations for the project, bridges, bridge culverts and exceptions
Reference points (if project layout sheet not included in plans set)

PLAN AND PROFILE - PROFILE VIEW
Scale
Appropriate existing utilities
Bench mark information
Preliminary profile grade line
Equations
Existing ground line with elevations at each end of sheet
Begin and End Stations for the Project, bridges, bridge culverts and exceptions

SPECIAL PROFILE
Scale
Ramp profile worksheet including nose sections
Existing ground line of intersections
Preliminary grade line of intersections
Preliminary curb return profiles, if applicable

BACK-OF-SIDEWALK PROFILE (Worksheet)
Scale
Begin and end project stations
Begin and end sidewalk stations
Cross-street locations and elevations
Drainage flow direction arrows
Mainline equations
Existing driveway locations and details
Superelevation details
Back-of-sidewalk profile grades and vertical curve information
Building floor elevations with offset distance left and right
Gradeline notation Specifically the numeric difference relative to roadway profile gradeline

INTERCHANGE DETAIL
North arrow and scale
Schematic of traffic flow and volumes
Proposed bridge limits
R/W lines
Preliminary configuration and geometrics
Quadrant Identification
Ramp Labels

INTERSECTION LAYOUT
North arrow and scale
Existing topography (if applicable)
Proposed R/W limits
Length of turn lanes
Taper lengths
Existing Utilities
Geometric dimensions (radii, offsets, widths)

CROSS SECTIONS*
Scale
Existing ground line
Existing survey baseline elevations
Station numbers
Baseline of survey labeled
Existing utilities
Proposed template with profile grade elevations along mainline and cross-streets as necessary

TRAFFIC CONTROL PLANS
Project specific
Other worksheets as necessary to convey concept and scope

LANDSCAPE PLANS
Conceptual landscape plan

2.3.2.2 Requirements for Phase II Submittal

Unless otherwise directed by the district, the following elements are required for a Phase II set of plans

KEY SHEET
Index of sheets
Contract plans and component plans list

SUMMARY OF PAY ITEMS
Item numbers with descriptions

DRAINAGE MAP - PLAN VIEW
Proposed structures with structure numbers
Proposed storm sewer pipes
Flow arrows along proposed ditches
Retention/Detention ponds, pond number and area size
Cross drains with pipe sizes and structure numbers
Bridges/bridge culverts with begin and end stations
Flood data (if applicable)

DRAINAGE MAP - PROFILE VIEW
Ditch gradients including DPI's
Final roadway profile grade line
Mainline storm sewer pipes
Mainline flow line elevations
Mainline structures with structure numbers and pipes
Bridge, Bridge Culvert
Cross drains with pipe sizes, structure numbers and flow line elevation

INTERCHANGE DRAINAGE MAP
Final geometrics including PC and PT
Proposed structures with structure numbers
Proposed storm sewer pipes
Special ditches with DPI and elevation

TYPICAL SECTIONS
Pavement Design

PROJECT LAYOUT
Complete

PLAN AND PROFILE - PLAN VIEW
Curb return numbers, station ties and elevations
Proposed drainage structures with structure no
Proposed R/W lines
Existing utilities
Proposed side drain pipe requirements (including size) for access and intersections
Final geometrics and dimensions including radii, station pluses, offsets, widths, taper/transition lengths, curve data
General notes (if project layout sheet not included)
Flood data if not shown elsewhere

PLAN AND PROFILE - PROFILE VIEW
Final profile grades and vertical curve data
Mainline storm sewer pipes
Proposed special ditches
Ditch gradients with DPI station and elevation
Non-standard superelevation transition details
High water elevations
Existing utilities
Mainline drainage structures with structure numbers
Cross drains with structure number, size and flow line elevations

SPECIAL PROFILE
Final intersection profile grades
Final curb return profiles (if applicable)
Superelevation diagrams as required
Final ramp profile grades including nose sections
Preliminary access and frontage road profiles (may contain one or more types of special profiles)

BACK-OF-SIDEWALK PROFILE
Complete

INTERCHANGE LAYOUT
Curve data including superelevation and design speed
Coordinate data, stationing and ties
Access and/or frontage roads with dimensions and R/W
Fence location
Ramp identification

RAMP TERMINAL DETAILS
Preliminary geometrics
Radii, transition/taper lengths
Ramp identification

INTERSECTION LAYOUT
Limits of proposed construction along side roads
Applicable notes
Cross drains with structure numbers and pipe sizes
Storm sewer pipes including sizes
Final geometrics including dimensions, radii, offsets, station pluses and taper/transition lengths

DRAINAGE STRUCTURES
Vertical and horizontal scale
Roadway template with profile grade elevation
Underground utilities
Special sections at conflict points
R/W lines (at critical locations)
Storm sewer construction notes
Flow arrows
Applicable notes
Structure numbers and location station along right side of sheet
Drainage structures with numbers in numerical order, type, size, location and flowline elevations

OUTFALL/LATERAL DITCH SYSTEM - PLAN VIEW
North arrow and scale
Roadway centerline
Existing and/or survey ditch centerline
Proposed ditch centerline with stationing
Begin and end ditch stations
Equations
Ditch centerline intersection stations
R/W lines
Bearings of ditch and mainline centerlines
Proposed storm sewer pipes
Ditch PI stations with deflection angle left or right
Proposed drainage structures with structure numbers
Existing topography, drainage structures, utilities

OUTFALL/LATERAL DITCH SYSTEM - PROFILE VIEW
Bench mark information
Scale
Existing ground line
Proposed ditch profile with grades
Begin and end ditch stations
High water elevations
Proposed storm sewer pipes with size
Existing Utilities
Overland flow or overtopping elevations
Proposed drainage structures with structure numbers
Typical section can be placed in either plan or profile

LATERAL DITCH CROSS SECTIONS
Horizontal and vertical scale
Existing ground line
Station numbers
Survey centerline and elevation
R/W
Begin and end ditch stations
Begin and end excavation stations
Earthwork quantities
Existing utilities
Total earthwork quantity in cubic yards (CY)
Proposed template with ditch bottom elevation

CROSS SECTION PATTERN SHEET
North arrow and scale
Interchange layout
Access and frontage roads
Mainline and ramp stationing
Begin and end bridge stations
Cross section location lines
Ramp baselines with nomenclature and stationing

ROADWAY SOIL SURVEY
Soil data
Project specific

CROSS SECTIONS
R/W
Special ditch bottom elevations
Equivalent stations for ramps and mainline
Mainline equation stations
Soil borings
Water table
Extent of unsuitable material
Proposed template with profile grade elevation
Earthwork Columns
Begin and end stationing for project, construction and earthwork, bridge and bridge culvert
Existing utilities affected by the template and where unsuitable materials are present

SWPPP PLANS
Narrative Description (with supplemental topographic maps, when used)

TRAFFIC CONTROL PLANS
Preliminary traffic control plan
Detour plan
Phasing plan
R/W - existing and additional if required
Existing Utilities

UTILITY ADJUSTMENT
All existing utilities highlighted

SELECTIVE CLEARING AND GRUBBING
Limits of construction by station and type of selective clearing and grubbing

MISCELLANEOUS STRUCTURES PLANS
Retaining walls (Cast in place, proprietary, temporary) if required

SIGNING AND PAVEMENT MARKING PLANS - KEY SHEET
Financial Project ID
(Federal Funds) notation, if applicable
State Road Number
County Name
FDOT Project Manager's Name
Begin/end stations & exceptions
Station Equations (if location map is shown)
Governing Standards & Specifications Date
Engineer of Record
Consultants name & address, if applicable

SIGNING AND PAVEMENT MARKING PLANS - TABULATION OF QUANTITIES
Project Specific

SIGNING AND PAVEMENT MARKING PLANS - PLAN SHEETS
North arrow and scale
Basic Roadway Geometrics
Begin/End Stations and Exceptions
Station equations
Conflicting utilities, lighting or drainage
Pavement markings
Sign locations
Applicable pay items

SIGNING AND PAVEMENT MARKING PLANS - SIGN DETAIL SHEETS
GUIDE SIGN WORK SHEETS
Project Specific

SIGNALIZATION PLANS - KEY SHEET
Financial Project ID
(Federal Funds) notation, if applicable
State Road Number
County Name
FDOT Project Manager's Name
Begin/end stations & exceptions
Station Equations (if location map is shown)
Governing Standards & Specifications Date
Engineer of Record
Consultants name & address, if applicable

SIGNALIZATION PLANS - TABULATION OF QUANTITIES
Project Specific

SIGNALIZATION PLANS - PLAN SHEET
North arrow and scale
Basic Roadway Geometrics
Begin/End Stations and Exceptions
Station Equations
Conflicting utilities, lighting or drainage
Signal Pole Location
Type and location of loops
Type and location of signal heads
Pedestrian Signal
Location of Stop Bars
Location of Pedestrian Crosswalks
Sheet Title
Applicable pay items

SIGNALIZATION PLANS - POLE SCHEDULE
Pole location, number, type
Pole dimensions
Pay item number and quantity
Joint use pole details, if applicable
Foundation design

SIGNALIZATION PLANS - INTERCONNECT/ COMMUNICATION CABLE PLAN
Placement of interconnect/communication cable
Conflicting utilities, lighting or drainage
Other project specific details

LIGHTING PLANS - KEY SHEET
Financial Project ID
(Federal Funds) notation, if applicable
State Road Number
County Name
FDOT Project Manager's Name
Begin/end stations & exceptions
Station Equations (if location map is shown)
Governing Standards & Specifications Date
Engineer of Record
Consultants name & address, if applicable

LIGHTING PLANS - TABULATION OF QUANTITIES
Project Specific

LIGHTING PLANS - POLE DATA AND LEGEND SHEET
Each pole by number with location, arm length, mounting height and luminaire wattage noted
Design value for light intensities and uniformity ratios shown
Legend and sheet title

LIGHTING PLANS - PLAN SHEETS
North arrow and scale
Basic Roadway Geometrics
Begin/End Stations and Equations
Station Equations
Conflicting utilities, drainage, signal poles, etc
Sheet title
Applicable pay items
Pole symbols shown at correct station location and approximate offset

LIGHTING PLANS - HIGH MAST
Foundation detail sheets (project specific)
Boring data sheets (project specific)
Conflicting utilities, drainage, lighting

LANDSCAPE PLANS - KEY SHEET
Financial Project ID
(Federal Funds) notation, if applicable
State Road Number
County Name
FDOT Project Manager's Name
Begin/end stations & exceptions
Station Equations (if location map is shown)
Governing Standards & Specifications Date
Engineer of Record
Consultants name & address, if applicable

LANDSCAPE PLANS - TABULATION OF QUANTITIES
Project Specific

LANDSCAPE PLANS - STANDARD DETAIL SHEET
Applicable standard details

LANDSCAPE PLANS - PLAN SHEETS
Roadway and sidewalk plan
Component plans features (signing, signalization, lighting, etc)
Plant placement by symbol
Legend for plant symbols
Existing utilities
Limits of clear sight
Canopy limits/location of existing vegetation
Billboard view zones

LANDSCAPE PLANS - IRRIGATION PLAN (if applicable)
Type of system
Location and size of pipes
Type and location of heads

LANDSCAPE PLANS - SPECIFICATIONS PLAN SHEET
Project specific

MITIGATION PLANS
Project Specific

2.3.2.3 Phase III Plans Submittal

Ordinarily, the only other remaining work to be done will be to comply with comments received as a result of the review The Work Zone Traffic Control items paid for on a 'per day' basis shall be estimated and included in the Phase III submittal

The FDOT construction department will make a biddability review and will establish construction duration as a part of the Phase III review after receiving the computation book This information should be included in the Phase III review comments transmitted back to the EOR The estimated pay items for Work Zone Traffic Control shall be revised as necessary based on the established construction duration

All plan sheets and computation books are complete and the Financial Management (FM) system has been updated Final drainage tabulations shall also be furnished for review

Utility Joint Participation Agreement (JPA) Plans, consisting or a key sheet, and mainline plan-profile showing proposed utility horizontal and vertical locations, are also to be included in the Phase III submittal

A "marked up" set of the plans and review comments shall be returned to the EOR for incorporation of the comments into the plans When the review comments have been resolved and documented by the designer, the plans are ready to proceed to completion

2.3.2.4 Phase IV Plans Submittal

After all corrections noted in the Phase III submittal are complete and the cost estimate is complete, the plans are considered final

Chapter 3

Key Sheet

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Chapter 3

Key Sheet

3.1 General

This is the first sheet in the contract plans It describes the project, the contents of the plans, and identifies those responsible for preparing the plans The key sheet cell can be found in the FDOT Engineering/CADD Systems Software Levels and fonts for additional data can be found in the FDOT ***CADD Production Criteria Handbook***

For key sheet examples, see ***Exhibits KS-1*** and ***KS-2***

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3.2 Project Identification

Background On May 21, 1997, the State Highway Engineer, instructed District Secretaries on the implementation of the Financial Management System This system replaces the Work Program Administration, the Job Cost Reporting and the Federal Project Accounting systems Once implemented, all contract documents/sheets that historically had shown project or WPI numbers were to have the new project number on every sheet Beginning March 16, 1998, a Financial Project ID was assigned to each old project, and from then on new projects have been assigned the Financial Project ID only In his memorandum to the District Design Engineers dated April 22, 1998, the State Roadway Design Engineer requested that, starting with the plans packages mailed to Tallahassee for the January, 1999 letting, the new number be printed on all sheets On June 30, 1998, the Secretary instructed the Department to use the Financial Project ID in all project documents

3.2.1 Financial Project ID, Federal Funds, County Name and State Road Number

The Financial Project ID is the main number identifying each individual project within the Department On the key sheet, this number is located immediately under the heading "CONTRACT PLANS", as shown in the exhibits Where Federal funds are involved, the words "(Federal Funds)" are to be placed under the Financial Project ID The county name and the state road number will be included under the Financial Project ID Also, the "county and roadway section number" associated with Straight Line Diagrams will be placed within parentheses to the right of the county name, as shown on ***Exhibit KS-1***

If a project has been previously assigned a State Project Number and a Work Program Item number, both will be shown on the respective key sheet of the Contract Plans, as indicated on ***Exhibit KS-2*** The State Project Number will be placed immediately under the Financial Project ID and the Work Program Item number will be placed on the upper right corner of the sheet

Strung projects, those that are independently prepared but are to be let in the same construction contract, shall have the additional Financial Project IDs noted on the right side of the key sheet

On projects which have one Contract plans set, but multiple Financial Project ID's, all of the Financial Project ID's are located immediately under the heading "CONTRACT PLANS" on the key sheet However, on all other plan sheets, only the lead Financial Project ID is to be shown

3.2.2 Fiscal Year and Sheet Number

The construction fiscal year to be entered in the fiscal year box on the bottom right corner is the second year in the fiscal year, i e , enter 01 for fiscal year beginning July 2000 and ending June 2001 The key sheet of each component of the plans set will be numbered as the first sheet of that component

3.2.3 Length of Project Box

Lengths of roadway, bridges, bridge culverts, exceptions, and net and gross lengths of the project shall be shown in a box in the center of the sheet below the location map The length of the project is computed as follows

1 Roadway = End Project - Begin Project - Exceptions - Bridges (not including bridge culverts) adjusted for Equations

2 Net = Roadway + Bridges

3 Gross = End Project - Begin Project (adjusted for Equations)

The roadway and bridge length shall be computed in feet and converted to miles, to three decimal places, without rounding off The roadway and/or bridge mileage shall then be rounded so that their total equals the net length The survey line should be used to compute the length of the project unless the construction line is substantially different in length (100 feet or more), or the survey line is outside the right of way, or the survey line bridge length is different from the construction line bridge length The use of the survey line will generally result in fewer equations on the key map

If divided highways have significantly different lengths for the left and right roadways, the project length shall be based on the longer roadway A note stating which roadway was used shall be placed adjacent to the project length box

The "Begin Project" and "End Project" stations are the basis for computing the length Begin and end construction stations are not to be used in computing the length of the project

A length of project box is not required on component key sheets

3.3 Project Location Map

This map is placed in the center of the sheet and consists of a reproduced portion of one or more maps showing the project location The map may be a county map or other appropriate map County maps in raster format (* cal) are available from the Survey and Mapping Office on CD or can be individually downloaded by county through MicroStation or AutoCAD as a raster reference attachment Information on the county maps is available at http //www dot state fl us/SurveyingAndMapping/clips

A utility to download the raster county map and clip out the project location area is provided in the ***FDOT CADD Software version fdot2000.02.03*** Requests for county maps on CD should be in writing and include the county requested, the purpose for the use, the anticipated duration of the use, the Department of Transportation project manager's name and a CD upon which to copy the data Requests should be directed to

Florida Department of Transportation
Survey & Mapping Office
605 Suwannee Street, MS 5L
Tallahassee, Florida 32399-0450
(850/414-7924)

The intent of the location map is to provide enough information so that the project location is easily understood This may make it necessary to show the Section, Township, Range and County lines together with Section, Township and Range numbers to make the location clear City and urban limits should be shown where applicable The begin milepost, correct to three decimal places, shall be shown under the begin project station

Streets shall be designated by name and State road number or U S Highway number, if appropriate The name of the next incorporated city to which these roads lead shall be placed at the edge of the map Roads and topography shall be indicated by standard symbols as shown in the ***Design Standards, Index 002*** and FDOT Engineering/CADD Systems Software

Project location shall be shown by a heavy solid line of substantial width It is sometimes advantageous to show station numbers at regular intervals, particularly with city street projects The begin and end of projects, any station equations, begin and end of proposed bridges along the state project, bridge culverts and exceptions shall be stationed and flagged

When several projects are covered by the same set of plans, the beginning and end of each project shall be indicated clearly by the Financial Project ID and stationing The beginning of each project shall also be indicated by a milepost correct to three decimal places

The scale of the location map should be chosen so that it will not interfere with other features on the key sheet A common error is to position the location map on the sheet and then discover that insufficient space remains for the index of sheets, project title or the length of project box

A location map is not required on component key sheets

3.4 North Arrow and Scale

The north arrow shall be placed on either side of the location map, preferably to the right The map scale shall be shown directly below the north arrow The scale shall be indicated by using a bar scale The scale distance shall be shown between the ticks The map shall be oriented so that the arrow will point toward the top of the sheet If the arrow cannot be oriented to the top, then it must be oriented to point to the right

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3.5 Component Plans in Contract Plans Set

A list of component plans included in the contract plans set shall be shown in the upper left corner The order of listing shall be

1 Roadway
2 Signing and pavement marking
3 Signalization
4 Lighting
5 Landscape
6 Architectural
7 Structures

If sheets covering items such as signing and pavement markings, signalization, lighting and landscape are included and numbered consecutively within the roadway plans, these are not to be shown as components of the contract plans set

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3.6 Index of Sheets

A complete index of roadway plan sheets shall be placed on the left side of the key sheet under the heading When projects contain component plans, each plans set shall have an index of sheets on its respective key sheet

Roadway plans sheets shall be assembled as follows

1 Key Sheet
2 Summary of Pay Items
3 Drainage Map (optional)
4 Interchange Drainage Map
5 Typical Section
6 Summary of Quantities
7 Box Culvert Data Sheet (if ***PSTDN55*** design)
8 Summary of Drainage Structures
9 Project Layout (optional)
10 Roadway Plan-Profiles
11 Special Profiles
12 Back-of-Sidewalk Profiles (optional)
13 Interchange Layout
14 Ramp Terminal Details
15 Intersection Layout/Detail
16 Drainage Structures
17 Box Culvert Details (if ***LRFD*** design)
18 Outfall/Lateral Ditch Plan-Profiles
19 Outfall/Lateral Ditch Cross Sections
20 Special Details
21 Cross Section Pattern Sheet
22 Roadway Soil Survey
23 Cross Sections

24 SWPPP Plans
25 Traffic Control Plans
26 Utility Adjustments
27 Selective Clearing and Grubbing
28 Signing and Pavement Marking Plans (when included as part of roadway plans)
29 Signalization Plans (when included as part of roadway plans)
30 Lighting Plans (when included as part of roadway plans)
31 Landscape Plans (when included as part of roadway plans)
32 Miscellaneous Structures Plans
33 ***Interim Design Standards*** (as required)

3.7 Professional Responsibility

The name of the Engineer of Record, Architect or Landscape Architect of Record and registration number shall be included on the right side of the sheet For specific instructions on sealing plans see ***Volume I, Chapter 19***

For plans prepared by a consulting firm, the name, address, consultant contract number and vendor number of the firm shall be shown on the right side of the sheet

The Department Project Manager's name shall be shown below the length of project box for consultant and Department prepared plans For key sheets where length of project is not required, the Department Project Manager's name shall be shown in the same relative location on the sheet

If shop drawings are anticipated for a project, the name(s) and address(es) of the Delegated Engineer(s) for shop drawing review(s) shall be shown on the right side of the sheet

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3.8 Governing Specifications and Standards

The date of the governing ***Standard Specifications for Road and Bridge Construction*** and of the ***Design Standards*** shall be inserted in a note at the lower left corner of the key sheet

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3.9 State Map

A small-scale state map shall be shown at the upper right portion of the key sheet The location of the project shall be indicated thereon

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3.10 Railroad Crossing

The location of any railroad crossing within the limits of construction will be identified on the key sheet as follows DOT/AAR crossing number, railroad milepost, name of railroad, and the highway project station number

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3.11 Revisions

The lead key sheet (usually roadway) shall show a complete record of all plans revisions The component (such as roadway, structures, signing and pavement marking), the sheet numbers involved, and the date when the sheet was revised shall be listed

A newly sealed lead key sheet is required when any sheet is revised

Revisions shall be shown on the lower left corner of the key sheet Revisions to strung project sheets shall be listed here, under the respective Financial Project ID

A key sheet revision box shall be shown on the right side of each component key sheet that shall contain a record of all revisions particular to that sheet It shall list the revision date, the initials of the person responsible for the revision and a brief description of the revision

If the changes to a key sheet only involve notes in the Revisions area, no entry is made in the key sheet revisions block at the lower right corner The Key Sheet Revisions Block is only used to record changes other than revisions notes

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Chapter 4

Summary of Pay Items

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Chapter 4

SUMMARY OF PAY ITEMS

4.1 General

The summary of pay items sheet is generated from information provided by the Engineer of Record (EOR) and input into the "Contract Estimating System" (CES) or TRNS*PORT This sheet shall be transferred to a graphics design file and placed on a standard formatted plan sheet available in the FDOT Engineering/CADD Systems Software The CES or TRNS*PORT file must be established and kept current with the quantities listed in the plans It is critical that any revisions to the CES or TRNS*PORT be transferred to update the graphics design file The CES or TRNS*PORT is used to prepare the bid documents and must match the plans

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4.2 Summary of Pay Items Sheet

The summary of pay items sheet(s) show all items and quantities for all components (Design Groups) for the project, or projects, in a contract CADD produced summary of pay items sheets are placed directly behind the lead key sheet and must include

1 All the summaries for all component plans listed for the project

These should be placed in the same order as the contract plans listed on the key sheet They should be numbered consecutively Alpha suffixes may be used for numbering to allow for the insertion of additional sheets without renumbering the Index of Sheets

Note Only the lead key sheet for the entire contract should contain reference to summary of pay items

2 All projects let under this contract

Projects that are let under the same contract should be "strung" together The lead project should be the first project on the summary of pay items

Summary of pay items notes may be included on this sheet if they do not fit on the summary of quantities sheet For small projects, the summary or pay item sheet(s) may be combined with the summary of quantities sheet

A summary of pay items sheet without quantities is required at the Phase II submittal, and a complete summary of pay items sheet with quantities is required at the Phase III and Phase IV submittals Refer to ***Chapter 2*** for requirements of phase submittals

For a list of standard pay item notes see ***Chapter 7***, ***Exhibit 7-1*** of this volume

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Chapter 5

DRAINAGE MAP AND BRIDGE HYDRAULIC RECOMMENDATION SHEET

Chapter 5

DRAINAGE MAP AND BRIDGE HYDRAULIC RECOMMENDATION SHEET

5.1 Drainage Map

When a drainage map is required (see FDOT ***Drainage Manual, Topic No. 625-040-001***) it shall be prepared and included in the project file Inclusion of a drainage map in the contract plans set is optional at the district's discretion

Preformatted drainage map sheet cells are located in the FDOT Engineering/CADD Systems Software The upper (grid) portion of each sheet is used for plotting the project profile, which is optional at the discretion of the district The standard grid pattern for the profile portion of the sheet is five lines per inch, both in the horizontal and vertical This will accommodate most scales An optional grid with four lines per inch is available This sheet may be used if approved by the district

Topography of the project area shall be located in the remaining portion of the sheet Aerial photography may be used to develop a drainage map but must not be used in the contract plans set

The horizontal and vertical scales of the profile should be such that the stations and elevations can be read directly from the grid without the use of a scale The horizontal scale must be the same for both the plan and profile views Recommended scales for facility types are as follows

Type of Facility	Horizontal Scale	Vertical Scale
Interstate Urban	1" = 500'	1" = 5'/1"=10'
Interstate & Other Rural	1"=1000'/2000'	1" = 10'/1"=20'
Municipal & Other	1"=200'/500'	1"= 5'/1" =10'

5.1.1 Plan Portion

The plan portion shall comply with the following requirements

1 Stationing shall be shown every 500 feet for scales of 1" = 100'/200', every 1000 feet for a scale of 1" = 500' and every 5000 feet for scales of 1" = 1000'/2000' For additional information see **Figure 10.1** in **Chapter 10**

Station equations and exceptions shall be shown Begin and end stations of project, construction, bridge and bridge culverts shall also be shown

2 Existing physical land features affecting drainage, such as lakes, streams and swamps, shall be clearly labeled by name and direction of flow Past high water elevations and date of occurrence, if available, and present water elevations along with the dates the readings were taken shall be shown

Drainage divides and other information (such as pop-off elevations and spot elevations) shall be shown, where applicable, to indicate the overland flow of water Drainage areas on maps shall be shown in acres

Inserts shall be used to show areas that are of such magnitude that the boundaries cannot be plotted at the selected scale

3 Existing road numbers and street names, drainage structures with type, size, flow line elevations, flow arrows and any other pertinent data shall be shown Refer to the FDOT Engineering/CADD Systems Software and the ***Roadway and Traffic Design Standards,* Index No. 002** for correct symbols for existing drainage facilities In a situation of limited space, all data relating to existing drainage structures and pipes may be compiled in a table format and shown in either the plan or profile portion of the sheet Should the space limitations be such that a table will not fit within the plan or profile view, a supplemental drainage data sheet is acceptable

4 Proposed drainage structures, pipes, outfall structures and retention/detention pond locations, shall be shown Structures and pipes shall be noted by structure number and ponds by pond number Arrows shall be shown to indicate direction of flow along proposed ditches

5 Section, Township, Range and county lines shall be indicated for rural and urban projects when occurring within the project limits

6 A north arrow and graphic scale shall be shown, preferably in the upper right corner of the plan view

7 If the drainage map is to be included in the contract plans set, include Note No 1 (see **Exhibit 5-1**)

5.1.2 Profile Portion

The profile portion, if shown, shall comply with the following requirements

1 The recommended vertical scale for rural and urban projects is 1" = 5' in level terrain and 1" = 10' in rolling terrain A scale of 1" = 20' may sometimes be used for rural projects through rough terrain to avoid numerous profile breaks The profile can be broken for rolling terrain in urban areas However, a scale of 1" = 20' should never be used at locations of proposed storm sewer systems

2 Elevation datum shall be shown at each side of the sheet In cases where the profile block is insufficient and excess space is available on the plan portion of the sheet, the profile block may be expanded

3 The profile of the existing natural ground shall be plotted and labeled and the existing elevation noted at each end

4 The proposed profile grade line shall be plotted Per cent of grade need not be shown The PC, PI, and PT of vertical curves shall be plotted using their respective standard symbols, however, no data (station, elevation, length of curve) needs be noted Begin and end project, bridge and bridge culvert stations, station equations and exceptions shall be flagged Profile grade line elevations shall be shown at begin and end project stations and at the beginning and end of each additional drainage sheet

5 Proposed cross drains shall be plotted and identified by structure number Do not show skew or pipe slope in plotting, but plot to elevation and location at point of crossing the construction centerline

6 For projects with storm sewer systems, only the mainline structure and pipes shall be shown Laterals need not be shown Each structure shall be flagged with its appropriate structure number, and flow line elevations noted for the incoming and outgoing pipes

7 All high water elevations affecting base clearance or roadway grades shall be shown

5.1.3 Flood Data Summary Box

The flood data shall be shown on the drainage map, either in the plan or in the profile portion. If the drainage map is not included in the plans the flood data shall be shown on the summary of quantities sheet or on the first plan-profile sheet

Design, base and overtopping or greatest flood discharge and stage values are required for all cross structures (culverts and bridges), regardless of size, under the following conditions

1 All new cross structures

2. All cross structures that are being modified (extended, new end section, replaced, etc)

3 All cross structures that have a history of flooding or other hydraulic problems, even if the structure is not to be modified, or

4 Cross structures that are not being modified but are being impacted by the modification of another cross structure within the same drainage basin

A "disclaimer" and definitions are required to avoid misuse and possible responsibility for changes in the flood information values over which the FDOT has no control (see **Exhibit 5-1**) A preformatted summary box with disclaimer and definitions is located in the FDOT Engineering/CADD Systems Software

The project drainage engineer shall provide the information required to complete the box

5.1.4 Interchange Drainage Map

If projects include interchanges or rest areas, a drainage map on a 1" = 200' or 1" = 500' scale shall be included The purpose of this detail is to show the small areas needed to calculate pipe sizes for the tabulation of drainage structures within these special areas Should major drains pass through one of these areas, a cross reference note should indicate the proper sheet which reflects the drainage area for that through-structure

5.2 Bridge Hydraulic Recommendation Sheet

When a Bridge Hydraulic Recommendation Sheet (BHRS) is required (see FDOT ***Drainage Manual, Topic No. 625-040-001***), it shall be prepared on a preformatted sheet The cell for this sheet is located in the FDOT Engineering/CADD Systems Software

The inclusion of this sheet in the plans set is optional at the discretion of the district When included in the plans, the BHRS shall be placed in the structures plans If the BHRS is not included in the plans, sufficient details to show the location and extent of bottom and slope protection shall be contained in the plans

Parallel (dual) bridges may be shown on one sheet, although a second sheet should be used, if necessary, to clearly convey the fit of the bridge to the stream bank When two sheets are used, only the plan and profile information needs to be furnished on the second sheet

A completed Bridge Hydraulic Recommendation Sheet is shown as **Exhibit BHD-1**

5.2.1 Required Information on BHRS

The preformatted BHRS is divided into the four areas listed below The required information for each area is described in the following sections

- Plan View
- Profile View
- Location Map, Drainage Area and Existing Structures
- Hydraulic Design Data, and Hydraulic Recommendations

5.2.1.1 Plan View

1 Stationing, scale, and north arrow
2 Existing topography (i e , Including existing bridge) and contours (i e , Show Elevations) Sufficient detail shall be shown in the vicinity of the proposed bridge to depict how the structure will tie to natural ground
3 Label the name of the water body (i e , St Johns River)
4 Arrows showing the direction of the flow
5 Proposed bridge begin and end station
6 Limits of riprap

5.2.1.2 Profile View

1 Stationing and scale
2 One cross section which most represents the section at the proposed crossing
3 Road profile for the proposed structure (i e , stationing and elevation)
4 Proposed bridge with low member, and pier locations (when practical)
5 Abutment locations (i e , toe of slope)
6 Flood elevations For non-tidal crossings, the Normal High Water (N H W) and Design Flood elevations shall be shown For tidal crossings, the Mean Higher High Water (M H H W) and Design Flood Stage elevations shall be shown
7 Present water elevation with month, day and year of survey

5.2.1.3 Location Map, Drainage Map, and Existing Structures

1 A north arrow
2 The range and township
3 An arrow showing the project location
4 A location map similar to that used on the key sheet for most projects The map shall be of a scale so that the entire drainage area for the proposed structure is shown (For projects with very large drainage areas, the map shall be of a scale that clearly shows the project location rather than a scale that shows the entire drainage area)

The drainage area boundaries shall be shown using a very heavy, broken line, with the area (in acres or square miles) shown within the boundary The proposed structure location should be shown Existing structures over the same water body and those structures that affect the hydraulics of the proposed structure should be located and numbered and corresponding existing structure information listed in the appropriate columns

5.2.1.4 Hydraulic Design Data, and Hydraulic Recommendations

The ***Cross Drain Handbook*** provides guidance for filling out this section

Drainage Map Notes

Below are standard notes which shall be placed on the drainage map as applicable

1 (To be placed on the drainage map when it is to be included in the plans)

DO NOT USE THE INFORMATION ON THIS SHEET FOR CONSTRUCTION PURPOSES This sheet is in the plans for documentation and to assist construction personnel with drainage concerns

2 (To be placed under Flood Data Box)

Note The hydraulic data is shown for informational purposes only, to indicate the flood discharges and water surface elevations which may be anticipated in any given year This data was generated using highly variable factors determined by a study of the watershed Many judgements and assumptions are required to establish these factors The resultant hydraulic data is sensitive to changes, particularly of antecedent conditions, urbanization, channelization and land use Users of this data are cautioned against the assumption of precision which can not be attained Discharges are in cubic feet per second (cfs) and stages are in feet, NGVD, 1929 or NAVD 88, as appropriate

Exhibit 5-1

Chapter 6

Typical Sections

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Chapter 6

Typical Sections

6.1 General

Typical sections are detailed cross section depictions of the highway's principal elements that are standard between certain station or milepost limits These sections are the basis for construction details and information shown on the various plan sheets throughout the plans package

Typical sections should show typical conditions only Non-standard conditions that prevail for short distances only should not be shown Existing elements that are to be incorporated into the highway's final section are depicted in conjunction with the proposed elements

When more than one typical section is necessary for a project, the station limits of each section shall be shown below the typical section title Typical section stationing shall cover the entire project Transitions from one typical to another shall be included in the stationing of one or the other typical section Sheets that feature more than one typical section should read from the top down, with the sections in the order in which they occur within the project

The hierarchy for typical sections shall be as follows

1 Project mainline

2 Ramps and service roads (for projects which include an interchange)

3 Crossing side roads

4 Minor side streets

Half sections and details which supplement or support various typical sections should be placed on the same sheet as the typical section to which they apply In the event that this is not possible, additional sheets for details should be placed behind the typical section sheet(s)

Half sections are necessary when changes occur that affect several typical section elements such as number of lanes, border width, ditch/drainage features, clearing and grubbing, R/W width, etc

Details and partial sections are necessary for the clarification of construction techniques or sequence, and to show alternates, such as the placement of shoulder gutter in high fill areas, changes in sidewalk location, etc Judgment will be necessary in making decisions about when and where details should be shown

The Department Engineering/CADD Systems Software contains a number of typical sections that can be used and adjusted to suit the conditions of a particular project Usually typical sections are not created to scale, but the horizontal dimensions should be proportionate

For illustrations of various typical sections, see ***Exhibits TYP-1*** thru ***TYP-12***

6.2 Mandatory Information

Typical sections for all projects shall include the following data

1 Design speed for each typical section

2 Traffic data (description, date and 2-way AADT)

- a Current Year
- b Estimated Opening Year
- c Estimated Design Year
- d K, D and T factors Distinguish between T(peak hour) and T(24 hour)

For skid hazard projects, only the current year or estimated opening year for traffic data (AADT) is required to be noted

All traffic data shown shall be consistent with the data used for pavement design

3 Cross Slopes

- a Cross slopes of roadway pavement, shoulder surfaces, sidewalks and bridge decks shall be expressed as a decimal part of a foot vertical per foot horizontal These cross slopes shall be rounded to two decimal places, i e , 0 02, 0 06 (See ***Volume I, Chapter 2***)
- b Median and outer slopes shall be shown by ratio, vertical to horizontal, i e , 1 4, 1 2 (See ***Volume I, Chapter 2***)
- c Either feathering details or notes (or both) shall be shown when resurfacing without milling in urban curb and gutter sections is specified or when milling depth is less than the overlay thickness
- d When cross slope correction is necessary, special milling and layering details showing the method of correction shall be shown in the plans (See ***Exhibits TYP- 9*** thru ***9B***)

4 Profile grade point shall be flagged

5 Pavement construction shall be described in a clear, precise manner by indicating the LBR requirement and the thickness of the subgrade stabilization, subbase or base, as well as spread rates for structural course, friction course and shoulder pavement Use 4 inches for both base extension on rural sections and for stabilization extension on curbed sections

Pavement structure information shall be obtained from the approved pavement design and shall be described in the order of construction, i e starting with bottom layer and ending with friction course Show pavement spread rate descriptions for leveling, overbuild, structural course and friction course in pounds per square yard (lbs/sy)

6 Limits of grassing

7 Sidewalk location and width

8 Curb and gutter location and type (show Type "E" or "F", not the dimension)

On new construction curb and gutter projects which include Asphalt Base, Type B-12 5 Only, the asphalt curb pad shall be indicated on the typical section and a detail provided (See ***Exhibit TYP – 6A***)

9 Limits of clearing and grubbing, where applicable

10 R/W, where applicable

11 Template dimensions

For widening projects, the existing pavement width shall be shown as a +/- dimension, and the base widening width shall be shown with an asterisk Note 3, of ***Standard Notes for Typical Section Sheets (Exhibit 6-1)***, shall be shown as near to this noted asterisk as possible

NOTE For typical sections with varying dimensions, the dimensions shall be clearly indicated on the plan-profile sheets

12 Standard notes for typical sections are shown on ***Exhibit 6-1***

Standard Notes for Typical Section Sheets

Below are standard notes that shall be shown on typical section sheets as applicable

1 For details and limits of selective clearing and grubbing see _____

2 (Under paved shoulders)

At the contractor's option, this area may be constructed of base material at no additional compensation

3 (On widening projects)

Actual width of base widening may vary due to actual existing pavement width Contractor may elect to place uniform width base widening strip at no additional cost to the Department

Exhibit 6-1

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Chapter 7

Summary of Quantities

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Chapter 7

Summary of Quantities

7.1 General

The summary of quantities sheet shows individual summaries of guardrail, fence, turnouts, sodding, ditch pavement, side drains, mitered end sections, underdrains, and earthwork when applicable The tabulation shall show location and quantities in the plan quantity column (P) The final quantity column (F) is reserved for construction and final estimates As noted in ***Chapter 4***, the necessary pay items and the quantities shall be shown on the summary of pay items sheet

For examples of summary of quantities sheets see ***Exhibits SQ-1*** thru ***3***

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7.2 Item Quantity "Boxes" and Format

The various "boxes" used for each type of summary are contained in the FDOT Engineering/CADD Systems Software Each box is identified by the appropriate Form Number required for the Computation Book The arrangement of these "boxes" on the sheet is dependent on the number used and the size each one must be to contain all of the necessary information

On contracts with multiple Financial Project ID's or federal aid and non-federal aid quantities, provisions shall be made to tabulate and summarize their respective quantities

Standard notes (see ***Exhibit 7-1***) shall be shown under the appropriate box

Applicable pay item notes, listed in ***Exhibit 7-1***, shall also be included on this sheet

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7.3 Box Culvert Data Sheet

The structural design of box culverts may be done by one of two computer programs The first program (***PSTDN55***) designs the culvert based on the details shown on ***Index 290*** of the ***Design Standards*** When this is used, the program output (data sheets) showing the concrete and steel quantities shall be transferred to a graphics design file and placed on a normally formatted plan sheet The plan sheet shall be placed in the contract plans directly behind the Summary of Quantities Sheet(s)

The second program is the ***LRFD Box Culvert Program*** When this is used, ***Index 290*** does not apply The program generates detail plan sheets, with quantities, for constructing culverts These sheets should be placed together, behind the drainage structure sheets in the contract plans

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Standard Notes for Summary of Quantities Sheet

Below are standard notes that should be used on the summary of quantities sheet, as applicable

(Under Summary of Earthwork)

Earthwork has been calculated using the _____ base option If another option is constructed, there shall be no revision to the earthwork quantities for which payment is made by plan quantity

Pay Item Notes

1	102- 1-	Includes approximately _____ SY of Temporary Pavement
2	104- 10- 1	Based on replacement every 3 months
3	104- 13- 1	Based on replacement every 12 months
4	110- 86-	All salvageable material designated to be delivered by the contractor shall be delivered to (Provide address of nearest FDOT Maintenance Yard)
5	331- 2 or 334-1	Includes _____ TN for turnouts, connections to existing drives, streets, etc , as directed by the Engineer
6	400- 1- 15	Includes _____ CY for miscellaneous construction, as directed by the Engineer
7	(For new construction projects with Asphalt Base, Type B-12 5 Only) 510-1-7 or 510-1-10	Cost of asphalt curb pad and additional curb thickness required to be included in the cost of curb gutter
8	536- 73-	(To be used for the removal of existing guardrail when FDOT Maintenance wants materials) Existing guardrail to be dismantled and stockpiled within the right of way in areas designated by the Engineer for removal by FDOT maintenance forces

Exhibit 7-1, Sheet 1 of 2

9 538- 1- This is to include replacement of _____ panels, _____ regular posts and __ special posts which have been determined to be non-salvageable Additional posts and panels determined to be non-salvageable during resetting shall be paid for under Section 538-5 of the Specifications

10 Temporary Grassing When required by the project design, these items shall be included in the cost of the Permanent Grassing items A pay item note should show the approximate quantities For example

570- 1- Includes approximately _____ SY Seeding for temporary grassing

570- 2- Includes approximately _____ SY Seed and Mulch for temporary grassing

570- 3- Includes approximately _____ lbs Grass Seed (Permanent Type) for temporary grassing

570- 4- Includes approximately _____ Tons Mulch Material for temporary grassing

570- 5- Includes approximately _____ Tons Fertilizer for temporary grassing

570- 9- Includes approximately _____ Gallons Water for temporary grassing

570- 10- Includes approximately _____ lbs Grass Seed (Quick Growing) for temporary grassing

575- 1- Includes approximately _____ SY Sodding for temporary grassing

11 570- 5- Based on _____ applications

12 639- 2- 1 Payment shall be based on the linear feet of a single conductor

13 The following pay item note should be shown in the Roadway Plans

710- The totals shown on the Summary of Roadway Pay Items include the quantities for pavement markings used for Traffic Control Pavement Markings (as shown in the Roadway Plans) and for final pavement markings (as shown on the Signing and Pavement Marking Plans)

The following pay item note should be shown on the Signing and Pavement Markings Tabulation of Quantities Sheet

710- All pavement markings shall be paint unless otherwise noted in the plans The quantities for pavement markings indicated in the Signing and Pavement Marking Plans are included in the quantities for Pavement Markings shown in the Summary of Roadway Pay Items

Exhibit 7-1, Sheet 2 of 2

Chapter 8

SUMMARY OF DRAINAGE STRUCTURES AND OPTIONAL MATERIALS TABULATION

Chapter 8

SUMMARY OF DRAINAGE STRUCTURES AND OPTIONAL MATERIALS TABULATION

8.1 Summary of Drainage Structures

The summary of drainage structures sheet shows the location, size, length, number and type of drainage structures used in a project The sheet format is available in the FDOT Engineering/CADD Systems Software Specific levels and fonts which shall be used are given in the FDOT CADD Production Criteria Guide

For an illustration of the summary of drainage structures sheet, see **Exhibit SDS-1**

8.1.1 Sheet Setup and Data

A summary of drainage structures shall be prepared and included in the plans The structures shall be listed by structure number in numerical order The location of each structure shall be identified by station along the construction centerline (**Exhibit SDS-1**)

For cross drains, and storm sewer the summary of drainage structures shall be tabulated by structure number, providing the station, size, length and incidental quantities appropriate for the material detailed in the plans Optional culvert material will be provided and a tabulation form shall be prepared and included (see **Section 8.2**)

Various drainage elements shall be shown in columns This information shall be obtained from drainage structure sheets or plan-profile sheets The order in which the elements are listed should be as follows

Pipe Sizes for
- Cross Drains
- Storm Sewer
- Gutter Drain

Curb Inlets
Manholes
Junction Boxes
Ditch Bottom Inlets
Gutter Inlets

Flared End Sections
Mitered End Sections
Sod
Class of Concrete
Reinforcing Steel
Rip Rap

The "Description" column shall be used to specify the type of structure, the outgoing pipe and the end treatment of that pipe, if applicable

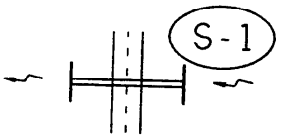
The remarks column shall contain all special notes pertaining to the structure The "Final Quantity" line is for construction to use and shall be left blank

On smaller projects the summary of quantities and the summary of drainage structures may be combined on one sheet

It is recommended that structure numbers be established using the convention shown in the exhibits and described as follows

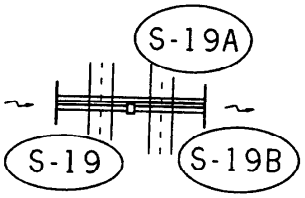
1 For simple cross-drains, one structure number is appropriate for the inlet and outlet treatments and the pipe

Example #1 (cross drain w/o median inlet)



2 For complex cross drains, it is suggested that the first and all intermediate structure numbers identify the hydraulically upper end treatment and pipe The last structure number should identify the hydraulically upper end treatment, pipe and hydraulically lower end treatment

Example #2 (Double pipe CD and median inlet)



S-19A pipe only (barrel #2)

S-19 endwall and pipe

S-19B inlet, pipe and endwall

8.2 Optional Materials Tabulation

An optional materials tabulation shall be prepared and included in the plans (see **Exhibits SDS-2** and **SDS-3**) The sheet format is available in the FDOT Engineering Systems Software

As a minimum, the optional pipe material tabulation should include size, thickness or class, corrugation requirements, if necessary, and protective coating, if any Additional information such as structure number, design service life (DSL), length, and flow line information may be included

The general notes shown on the exhibits are also required

Chapter 9

PROJECT LAYOUT

Chapter 9

PROJECT LAYOUT

9.1 General

The project layout sheet (or sheets) shows the horizontal alignment and plan or plan-profile sheet sequence and numbering for the project This is an optional sheet, to be included in the plans set at the discretion of the district The project layout sheet can prove to be of great advantage for large or complicated projects involving large interchanges with a number of diverging routes If included in the plans set, this sheet should also show all survey reference points and list all general notes applicable to the project.

The layout sheet shall be prepared on a standard plan format sheet in the FDOT Engineering/CADD Systems Software Scale shall be such that clarity and legibility are preserved North arrow and scale shall be shown at a point of maximum visibility on the sheet For large, complicated projects, more than one sheet may be required to clearly depict all required information Appropriate match lines shall be shown if more than one sheet is required

9.2 Alignment Sheet Sequence

Complete project alignment with baseline of survey and/or centerline of construction shall be shown Edge of pavements shall be shown if scale permits Outlines of the plan, or plan-profile sheets shall be superimposed on the alignment to depict the sheet sequence with relation to the alignment stationing Each sheet outline shall contain the appropriate plan sheet number The order of plan/plan-profile sheet numbering shall be as follows

Mainline (for widely separated roadways, the right roadway in the direction of stationing takes precedence)
Crossroads
Ramps
Frontage roads
Access roads

Beginning and ending stations for project, construction and ramps shall be flagged and labeled, including equations and/or exceptions

9.3 Survey Reference Points

Generally, survey reference points should be shown on the project layout sheet just beneath the alignment sheet sequence plan or where other space allows Baseline survey and reference points, with all ties, shall be clearly indicated Complete length of survey baseline between two consecutive reference points need not be shown Each reference point shall be clearly labeled, beginning at the first reference point within the limits of the project, and progressing in the direction of stationing Usually, reference points need not be drawn to any particular scale, but distances and angles shown shall be proportionate Care should be taken to ensure that clarity and legibility are maintained

9.4 General Notes

When the layout sheet is included in the plans set, applicable general notes should be included on the layout sheet instead of the first plan-profile sheet to help simplify the plan-profile sheets

For a list of general notes, refer to **Exhibit 10-1** in **Chapter 10** of this Volume

Chapter 10

Roadway Plan and Roadway Plan-Profile

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Chapter 10

Roadway Plan and Roadway Plan-Profile

10.1 General

The roadway plan sheet shows the project's complete horizontal alignment The plan-profile sheet shows the project's complete horizontal and vertical alignments Various roadway elements such as pavement width, medians, paved shoulders, curbs, drainage elements, tapers, turn provisions, and intersecting roadways, are also shown on these sheets

Roadway plan and roadway plan-profile sheets shall be prepared on standard formatted sheets that are contained in the FDOT Engineering/CADD Systems Software Plotting should typically be done at a horizontal scale of 1" = 40' or 1" = 50' for urban jobs For rural jobs, the scale should typically be from 1" = 100' or 1" = 200' horizontally, depending on the project specific details

If a project layout sheet is not included in the plans set, provision shall be made on the first plan-profile sheet to show applicable general notes Refer to ***Exhibit 10-1*** for a list of general notes

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10.2 Roadway Plan Portion

10.2.1 Centerline

The baseline survey and/or centerline of construction should be centered in the plan portion of the sheet, with stationing running from left to right When alignment includes horizontal curves, the centerline should be positioned on the sheet to avoid breaks or match lines (except at the beginning or end of the sheet)

A "tick" mark shall be placed on the upper side of the centerline at every station In addition, intermediate ticks shall be placed as shown in ***Figure 10.1*** Intermediate ticks should be about half the length of those at each station

Station numbers should be placed close to tick marks for scales up to and including 1" = 50' and outside the R/W lines for smaller scales

In cases where the construction centerline does not coincide with the survey baseline, the construction centerline shall be identified with complete alignment data and ties to the survey baseline However, the construction centerline need not be shown when it is uniformly offset from the survey baseline for the entire length of the project, and is shown on the typical sections All station equations shall be included These include equations occurring on the survey baseline and those equating the survey baseline and construction centerline

A north arrow and scale shall be shown at a point of maximum visibility, preferably in the upper right portion of the plan view

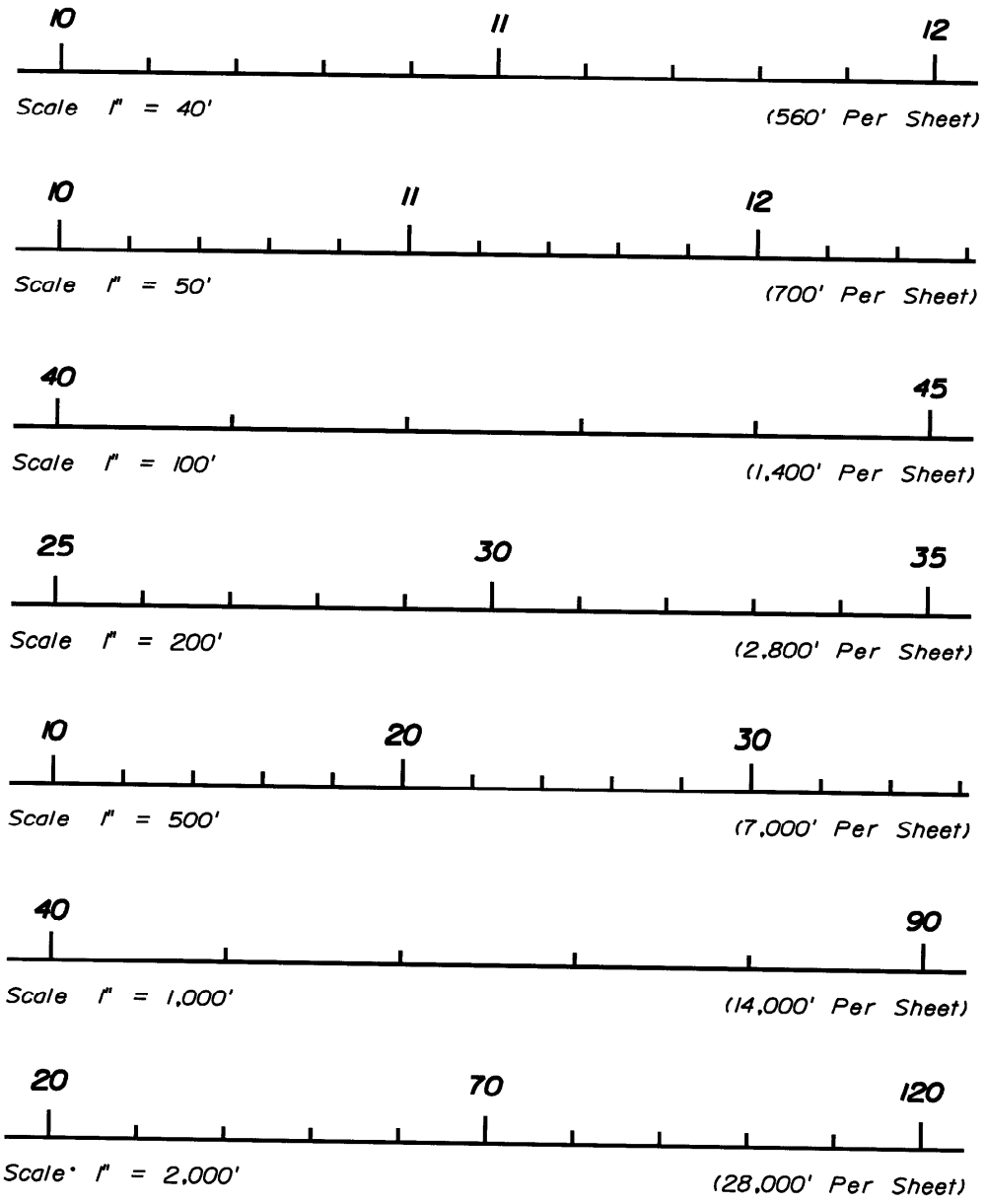
10
11
12
Scale 1" = 40'
(560' Per Sheet)
10
11
12
Scale 1" = 50'
(700' Per Sheet)
40
45
Scale 1" = 100'
(1,400' Per Sheet)
25
30
35
Scale 1" = 200'
(2,800' Per Sheet)
10
20
30
Scale 1" = 500'
(7,000' Per Sheet)
40
90
Scale 1" = 1,000'
(14,000' Per Sheet)
20
70
120
Scale 1" = 2,000'
(28,000' Per Sheet)

Figure 10.1

10.2.2 Horizontal Curves

PC and PT points of horizontal curves shall be indicated by small circles Short radial lines shall be drawn from these points and identified PI's shall be noted by the use of a small triangle with a short section of tangent on either side Care must be taken in the clipping of plan sheets to properly orient the horizontal curves within the plan view In cases where the curve extends over more than one sheet, the curve data shall be repeated on each sheet showing the curve

Complete curve data shall be shown for each horizontal curve using the following format

CURVE DATA

PI (Station)

Δ (Delta Angle with Direction)

D (Degree of Curve)

T (Tangent Length)

L (Length of Curve)

R (Radius Length)

PC (Station)

PT (Station)

e (Superelevation Rate)

10.2.3 Existing Topography

All existing topography shall be shown Existing roads, streets, drives, buildings, underground and overhead utilities, walls, curbs, pavements, fences, railroads, bridges, drainage structures and similar items shall be plotted and labeled Streams, ponds, lakes, wooded areas, ditches and all other physical features shall also be shown

All existing utilities shall be shown on the plan and noted by an appropriate symbol (see the ***Design Standards, Index 002*** and the FDOT Engineering/CADD Systems Software for standard symbols) If the type of utility is unknown it should be labeled as such Existing gasoline storage tanks within limits of topographical survey shall be located and illustrated

10.2.4 Reference Data

Bearings, in the direction of stationing, shall be shown for all tangent sections

Station equivalencies, angles with mainline centerline and/or bearings in the direction of stationing of the crossroad shall be shown for all roads and streets intersecting or crossing the project

All the survey reference points shall be shown (if layout sheet is not included in plans set) at locations removed from the centerline

If section lines or city limits are encountered within the limits of the project, the intersection shall be tied by station and angle/bearings to the baseline of survey

10.2.5 Construction and Project Limits

Proposed construction and project limits shall be indicated in the plans The limits to be flagged and stationed are

1 Begin and end of project, and begin and end of construction where construction limits are other than project limits If plans cover more than one project, the limits of each shall be clearly identified by station and Financial Project ID Limits identification shall be shown both in plan and in profile

It is the responsibility of the Engineer of Record (EOR) to set the project and construction limits If the plans cover more than one project or are part of a corridor improvement, the project limits should be at the beginning of the full typical sections, with any construction (transitions, etc) outside these limits being within the construction limits Examples of types of work that may fall within construction limits but outside project limits are feathering, friction course, guardrail, drainage work and signing and marking work

2 The limits of project breakdown necessary for separation of length and quantities for federal aid and non-federal aid projects

3 The limits of each type of construction classification where more than one type is involved, such as, new construction, resurfacing, bridge work, widening, and milling

4 The begin and end of exceptions and equations

10.2.6 Drainage Structures and Bridges

Proposed cross drain pipes and box culverts shall be indicated in the plan by a symbol and identified by a drainage structure number Cross drain pipe sizes and lengths shall be shown (Box culvert lengths shall be shown on the drainage structure sheets)

Box culverts (single or multiple) of 20 feet total span or more between inside faces of end supports, measured along the center of the roadway, shall be designated as bridge culverts and shall be identified by both a bridge number and a drainage structure number The beginning and ending stations (outside wall to outside wall) shall be flagged

Proposed bridges and approach slabs shall be shown by simple outline Bridges shall be identified by bridge number and their beginning and ending stations noted by station flags The beginning and ending stations of approach slabs shall be noted

A short section of lateral ditch/outfall centerline shall be shown, when appropriate, on the roadway plan-profile sheet, together with a note referring to lateral ditch/outfall sheets for details

The proposed drainage system is indicated by showing storm sewer pipes with a single line, and the outline of inlets, manholes and junction boxes The outline of structure bottoms may be shown at the designer's discretion The pipe size and length between structures shall be given Structure numbers shall be provided for inlets, manholes, junction boxes and special structures

10.2.7 Plan Layout

1 Right of way lines shall be shown Right of way shall be dimensioned only if the applicable typical section shows a varying dimension from the baseline or centerline Dimensions of the R/W line shall be from the centerline or baseline, if survey and construction lines are parallel, otherwise it shall be dimensioned from the construction centerline

2 The showing of detailed information regarding median openings or intersections should be avoided when they are of a type that can be detailed and grouped on a separate sheet When this is the case, median openings and intersections shall be identified by station location

3 At locations along the alignment where traveled way dimensions change, or begin to change, the station and dimensions of the traveled way shall be shown

4 Curb, curb and gutter, traffic separators, sidewalks, curb ramps, retaining walls, etc shall be shown Driveways shall be shown as required by ***Volume I, Section 1.8***

5 Stations of return points shall be shown in tabular form or shown on the plan, unless shown on an intersection detail sheet Offsets shall also be shown, if not governed by a typical

6 Station of radius points of traffic separator or median curb at median openings shall be shown in the plan Elevation of these points shall also be shown if not shown in the intersection details sheet or unobtainable in plans

7 Control radii for traffic turns that set median nose locations shall be indicated, unless shown on the intersection detail sheet

8 Station of end of curb and gutter at side street intersections (when end is not at a return point) shall be shown with proposed gutter grade elevation of these points

9 Limits of pavement and grading at side street intersections shall be indicated

10 When incidental construction extends beyond the right of way lines, construction easements or license agreements may be required and should be shown on the plan sheets

11 Limits of wetlands shall be shown based on permit or regulatory requirements

12 All utilities shall be shown in the plan All major utilities that have been field verified (see *Level "A" locates*, ***Volume I, Chapter 5***) shall be labeled in accordance with the following symbol

V_{vh} = Verified Vertical Elevation and Horizontal Location

13 All traffic monitoring sites on or within one-half mile of the project shall be identified with the following notation

Traffic Monitoring Site Number (XXXX)

Roadway Identifying Number (RCI Section #) Milepost (XX XXX)

Site includes vehicle detectors in roadway and pedestal, pole or base mounted cabinet, buried cable, and solar power unit on right of way

Inquiries about monitoring sites should be addressed to the Traffic Data Section Manager of the Transportation Statistics Section, Office of Planning

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10.3 Roadway Profile Portion

10.3.1 General Data

Preformatted plan-profile sheets are located in the FDOT Engineering/CADD Systems Software The grid portion of each sheet is used for plotting the project profile The standard grid pattern for the profile portion of the sheet is five lines per inch, both in the horizontal and vertical This will accommodate most scales An optional grid with four lines per inch is available This sheet may be used if approved by the district

The horizontal scale for the profile portion of the sheet shall be the same as that used for the plan portion Station limits of the profile shall correspond to those of the plan portion of each sheet Station numbers shall be placed across the bottom of the sheet just above the title block Intervals for profile stations shall be the same as those in the plan view

Vertical elevation datum selected shall be such that the profile will not crowd either the upper or lower limits of the profile format A general guideline is the vertical scale should be 10% of the horizontal grid Elevation datum shall be shown on both the left and right sides of the sheet in the space provided adjacent to the grid

The existing ground line profile shall be shown and labeled Existing ground line elevations shall be noted vertically, just above the station numbers at each end of the sheet only

All high water elevations affecting base clearance or roadway grades shall be shown and labeled

Benchmark data shall normally be given just below the upper margin of the profile portion However, if space permits, it may be placed in the plan portion just above the upper profile margin at the appropriate corresponding station Refer to ***Exhibit PP-2*** for correct format

Station equations and exceptions shall be shown Begin and end stations of project, construction, bridge and bridge culverts shall also be shown

10.3.2 Vertical Alignment

The proposed profile grade shall be shown and labeled Vertical curve PC's and PT's shall be indicated by small circles and PI's by a small triangle with short sections of tangent shown on each side Percents of grade to 3 significant decimal places shall be shown on the tangent line (trailing zeros need not be shown) Vertical lines shall be extended from the PC and PT points and a dimension line placed between these lines indicating the length of the vertical curve The PC and PT stations and elevations shall be indicated on the vertical lines

For vertical curves, the profile grade elevations shall be given on even stations and at appropriate intervals The elevations shall be placed between the dimension line and the grade line The curve length, dimension lines and the profile grade elevations shall be placed above the grade line for sag vertical curves and below the grade line for crest vertical curves The dimensions and elevations shall be placed reasonably near the grade line whenever possible The PI station and elevation shall be noted, lettered vertically above the PI symbol for crest curves and below for sag curves

The profile grade elevation of the beginning and ending station of each sheet shall be shown vertically just above the grade line, except when the beginning or ending station on the sheet is on a vertical curve

10.3.3 Grades

Percents of grades to 3 decimal places shall be indicated for each tangent section on every sheet (trailing zeros need not be shown) When two tangent grades intersect and no vertical curve is required the PI station and elevation shall be labeled vertically, using the same criteria as for vertical curves

10.3.4 Superelevation and Special Profiles

For non-standard superelevated sections of the project, the begin and end superelevation stations should be indicated on the profile with a note "For Superelevation details see sheet _____" (special profiles sheet)

Other special profiles that cannot be clearly shown on the plan-profile sheets shall be referenced in a similar manner to non-standard superelevated sections For additional information regarding special profiles see ***Chapter 11*** of this volume

10.3.5 Other Profile Features

For rural construction projects, special ditches shall be indicated in the profile and labeled Percent of ditch grade and a beginning or ending ditch PI with elevation and station plus shall be shown For multi-lane divided projects, three special ditch grades (right and left roadway ditches and median ditch) sometimes occur at the same location In such cases it may be advantageous to show the median ditch at a convenient location on the sheet with a separate elevation datum

Uniform ditches of non-standard depth should be indicated by a dimension line in the lower portion of the grid and noted as a special ditch with location and depth, or they should be indicated by flagging the DPI's at each end with station elevation and side Standard depth ditches are not shown

Special gutter grades shall be shown in profile for cases where the gutter grades are not controlled by the typical section and no "special profiles" are included in the plans set

Prolongations of gutter profile grades across street intersections shall be included on plan-profile sheets if an inlet is not provided before the intersection

Storm sewer pipe, inlets and manholes along the main line shall be shown Pipes shall be noted by size Proposed structures may be shown by structure number only Flow line elevations shall be shown for all pipes entering and leaving the structure

Proposed cross drain pipes and culverts shall be plotted The section shall be shown at the correct location and elevation of the proposed structure crossing the centerline of construction Cross drains shall be identified by structure number only

Where the project overpasses a road or railroad, the cross section template of the road/railroad under the bridge shall be shown at the appropriate location in profile

All field-located (Level "A"), major underground utilities, as defined in ***Volume I, Chapter 5***, shall be shown to scale in profile and labeled in accordance with the following symbol

V_{vh} = Verified Vertical Elevation and Horizontal Location

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10.4 General Notes for Roadway Plan and Roadway Plan-Profile Sheets

General notes for the project shall be placed on the left portion of the first plan-profile sheet if a project layout sheet is not included in the plans set, otherwise, they shall be included on the layout sheet See ***Exhibit 10-1*** for a list of General Notes required

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General Notes for Roadway Plan and Roadway Plan-Profile Sheets

The bench mark datum used for the plans (whether NGVD 29, NAVD 88 or other) shall be noted in the first General Note Other notes are as follows

1 Buildings to be removed by others, unless otherwise noted

2 Existing drainage structures within construction limits shall (be removed/remain) unless otherwise noted

3 (When there are no utility adjustment sheets in the plans, the notes shown in ***Exhibit 20-1*** shall be included here as part of the general notes)

4 (If there are no drainage structure sheets in the plans, the following notes shall be included in the general notes, if applicable)

   a Special attention is directed to the fact that portions of some drainage structures extend into the stabilized portion of the roadbed and extreme caution will be necessary in stabilization operations at these locations

   b (To be used when there are cross drain pipe and/or storm sewer pipe and optional materials are provided for one or both)

   Some/All of the drainage structures have optional culvert materials When optional materials are allowed, one of the optional materials has been used as the basis of the pay quantities The material selected as the basis of pay quantities is identified on the Tabulation of (Cross Drain, Storm Sewer, or Cross Drain/Storm Sewer) Optional Materials Sheet All options are described and design and installation information for each option is provided on this sheet

5 Any public land corner within the limits of construction is to be protected If a corner monument is in danger of being destroyed and has not been properly referenced, the Engineer should notify the District Location Surveyor, without delay, by telephone

6 Existing driveways within the limits of this project are to be replaced at the same location and width, unless otherwise shown in the plans

Exhibit 10-1

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Chapter 11

SPECIAL PROFILES

Chapter 11

SPECIAL PROFILES

11.1 General

The special profiles sheet shows profiles of pavement edges or gutter flow lines Special profiles occur at street intersections, ramp termini, curb returns, railroad crossings and roadway or bridge sections requiring special superelevation details Vertical transitions between roadways and bridges may also require special profiling All of these areas require special analysis and design to ensure a safe, efficient, well drained, and smooth roadway/bridge system The special profiles sheet shall show details at close intervals and at a scale large enough to clearly identify all construction details within these areas

11.2 Intersections

In addition to normal profile grade lines, supplemental profiles and sections at intersections may be necessary to define edge of pavement profiles Sections showing pavement surface elevations shall be shown for nose points and other critical locations It is important to develop accurate profiles and sections at locations of curbed channelization to ensure proper drainage

When plan-profile format is used for intersection details, the profile's horizontal scale shall be the same as that for the plan portion A vertical scale of 1" = 2' for the profile portion is recommended as it enables intermediate elevations to be determined from the profile with reasonable accuracy The existing ground line and/or curb line shall be as called for in the FDOT CADD Production Criteria Guide

For intersections detailed on a plan only format, the profile and sections shall be shown on a separate grid sheet The standard cross section sheet, available in the FDOT Engineering/CADD Systems Software, should be used This sheet features a standard grid of five lines per inch, both in the vertical and horizontal The vertical scale can be altered to ten lines per inch by utilizing a toggle feature in the CADD software

For street intersections of municipal projects, a scale of 1" = 20' horizontally and 1" = 2' vertically, or 1" = 50' horizontally and 1" = 5' vertically is recommended

11.3 Curb Returns

Curb return profiles show the profiles of the gutter flow line from the PC to the PT point of the return at an intersection

Curb return profiles shall be shown on a grid format They shall be included in the plans set if the required information cannot clearly be shown on the plan-profile sheet or intersection detail sheet, or if extreme grades are involved, rendering the standard curb return profiles (**Index 303** of the ***Roadway and Traffic Design Standards***) inadequate

Standard scale used should be 1" = 20' horizontally and 1" = 2' vertically Other scales may be used provided all construction details are clearly and legibly shown Each return profile shall be identified and its PC and PT stations shown Elevations should be shown at appropriate intervals and low and high spots shall be identified by location and elevation

11.4 Ramps

Ramp profile grades shall be developed along the baseline of each ramp A profile of the edge of the pavement opposite the baseline shall also be shown These profiles shall be shown on a grid format Data required to be shown shall be similar to that required for roadway profile (**Chapter 10**)

Recommended scales for ramp profiles are 1" = 20' horizontally and 1" = 2' vertically, or 1" = 40' or 50' horizontally and 1" = 4' or 5' vertically

Sections at nose points are required They may be shown using a scale of 1" = 20' horizontally and 1" = 2' vertically

11.5 Spline Grade

Intersections of ramp pavement with mainline pavement and other sections of pavement within special superelevated zones need special attention, not only during the design phase of the project, but also during construction Hence, all construction details pertaining to these areas should be clearly and accurately shown in the plans

Spline grades are often used to show the interconnection and interrelation of the edges of pavement with the mainline edge of pavement This profile proves to be especially helpful if the mainline pavement is superelevated or within the superelevation transition zone

A spline grade shall show the elevations at intervals of 20 to 100 feet, depending on the scale Elevations shall be shown for the outer edge of mainline pavement and inner and outer edges of the ramp pavement at the nose areas

Grades of the three pavement edges shall be shown on a grid format Recommended scales are 1"=20' horizontally, 1"=2' vertically, or 1"= 40' or 50' horizontally and 1"= 4' or 5' vertically

Grades of each pavement edge shall be joined by smooth splines or simple curves The three grade profiles shall be clearly labeled and all equality stations indicated Nose stations shall be flagged and labeled Scale shall be indicated in close proximity of the profile and shall be clearly visible

11.6 Superelevation

The standard superelevation details (**Indexes 510** and **511** of the ***Roadway and Traffic Design Standards)*** may be used for projects which include simple curves For projects which include reverse curves, or compound curves, or any other situation requiring special superelevation not covered in the standards, the superelevation diagram shall be shown in the plans Special profile details may be used to design superelevation on multilane facilities, when a simple diagram will not be sufficient

Complete profile grade line and right and left edges of pavement within the superelevation zone shall be shown on the grid format A scale of 1"= 20' horizontally and 1"= 2' vertically is recommended for clarity The begin and end superelevation stations shall be labelled and indicated by a solid vertical line at the appropriate station A horizontal dimension line shall be utilized to indicate a section in full superelevation

11.7 At-Grade Railroad Crossings

In addition to normal profile grade lines, supplemental profiles for at-grade railroad crossings may be necessary to define lane lines, edges of pavement, and/or gutter flow lines It is important to develop accurate profiles to ensure proper drainage

For at-grade railroad crossings that cannot be adequately detailed on the plan-profile sheets, the profiles shall be shown on a separate grid format A horizontal scale of 1" = 20' and a vertical scale of 1" = 2' is recommended

Chapter 12

BACK-OF-SIDEWALK PROFILES

Chapter 12

BACK-OF-SIDEWALK PROFILES

12.1 General

Back-of-sidewalk profiles are used to establish the profile grade and therefore play an important role in plan preparation, especially if the project site is located in a built-up urban area. Profiles help ensure the constructability of the project within the right of way without excessive disturbance or rework of adjoining properties Back-of-sidewalk profiles are also used for checking of storm water trapped behind the sidewalks and as a major input for establishing centerline grade profiles

Grades shown on this sheet are at the back of the proposed sidewalk, and grades shown on roadway plan-profile sheets are at the profile grade line (PGL) denoted on the typical section

The inclusion of the back-of-sidewalk profiles in the plans set is optional - at the discretion of the district Work sheets may be required with phase reviews

12.2 Sheet Set Up

Back-of-sidewalk profiles shall be prepared on standard cross section format For simple projects which do not involve many cross streets or driveways, the sheet may be divided horizontally to maximize usage Stationing shall progress from left to right and top to bottom Match lines shall be stationed Care should be taken to preserve clarity and legibility

12.3 Required Information

Profiles for use in establishing back-of-sidewalk grades consist of existing profiles along the back edge of each proposed sidewalk The existing profiles shall be shown so as to distinguish between the profiles for the right and left sidewalk, and in accordance with the FDOT CADD Production Criteria Guide

The standard scales are 1" =100' horizontally and 1" =5' vertically This combination works well for projects having few locations where back-of-sidewalk grades would be critical It may be advantageous to use a vertical scale of 1" = 2' and a horizontal scale of 1" = 50' for projects located in business and commercial areas, or where greater clarity is required Elevation datum shall be shown on both sides of the sheet, with station numbers below the profile

Limits of existing pavement, such as parking areas and drives, which should be matched as closely as possible, shall be identified on all sidewalk profiles The centerline for each intersecting street and driveway shall be indicated with a vertical line at the proper station and the street name and station noted Intersecting streets and driveways on the right shall be shown below the profile, and those on the left above the profile

At each station, as well as locations of significant drainage, arrows shall be drawn to indicate the slope of ground at the outer edges of the sidewalk

Drainage arrows shall be placed below the profile line for the right profile and above the profile line for the left profile Arrows pointing outwards from the profile indicate drainage away from the project, while arrows pointing inwards indicate drainage to the project

Floor elevations for buildings shall be indicated by a horizontal line drawn at the floor elevation between the building limits The numeric elevation shall be shown, as well as the offset (distance and side) from centerline of project to the face of the building Entrances to buildings, elevations of top of existing major utilities (as defined in **Chapter 5** of **Volume I**), and water table elevation may be shown when appropriate

Once the proposed back-of-sidewalk profile has been developed, percents of grade, PI stations and elevations shall be shown Vertical curves, if any, shall be dimensioned Elevations along vertical curves are not required Stations for begin and end project, exceptions, and back-of-sidewalk special profiles shall be flagged and labeled Mainline station equations within the limits of the sidewalk profile shall also be flagged and labeled

The difference in elevation between the profile grade and back-of-sidewalk profile grade shall be noted on the sheet Superelevation notes, if applicable, shall also be noted on the sheet

Chapter 13

INTERSECTION AND INTERCHANGE DETAILS/LAYOUTS

Chapter 13

INTERSECTION AND INTERCHANGE DETAILS/LAYOUTS

13.1 General

These sheets provide layouts and details for intersections and interchanges, with consideration for turning and weaving movements of vehicular traffic For a safe and efficient roadway system (including provisions for bicycles and pedestrians), these areas must be designed with special attention to channelization, turning movements, signalization, drainage and vertical alignment The various design details shall be shown explicitly for accurate construction

Intersection and interchange layout sheets shall show all necessary details and geometric controls/access management features, including channelization, tapers, turn lanes, special drainage, and grading The sheets shall be prepared on a standard plan format using a scale large enough to show details clearly and legibly

13.2 Intersections

Intersection details shall be shown on separate plan sheet format if they cannot be shown clearly on the plan-profile sheet format

In cases of simple, non-signalized intersections covering relatively small areas, regular plan-profile format may be used The intersection layout shall be placed, using an appropriate scale, in the plan portion, and the necessary profile grades in the profile portion

For larger, more complicated intersections involving channelization, signalization or tapered connections, the layout shall be placed on a standard plan format Match lines should be used when more than one sheet is required

The profiles shall be presented separately on a grid format (See **Chapter 11 - Special Profiles**)

Existing topography need not be shown on these details if it is shown elsewhere in the plans Information given is generally the same as in the plan portion Pavement edges,

R/W lines, curb and gutter, channelizing and median curbs, driveways, drainage structures, pavement dimensions, radii and appropriate notes shall be included

All intersection layouts shall be dimensioned, stationed adequately, and shall include all pertinent construction notes and alignment data Design speed data shall be given when appropriate Widths of turning lanes and turning paths shall be checked for possible encroachments or conflicts

A north arrow and scale shall be shown at a point of maximum visibility on the plan The scale used shall be sufficient to cover all necessary details, preferably 1" = 40' The scale shall not be smaller than 1" = 50'.

13.3 Interchanges

13.3.1 Geometric Layout

Interchange layouts shall be prepared on a standard plan format The entire interchange shall be placed on one sheet when possible, using a scale not smaller than 1" = 400' In cases of large cloverleaf or directional interchanges, more than one sheet may be required Appropriate match lines shall be shown

Layouts shall be dimensioned and completely stationed, with all alignment data and construction notes included All curves shall be assigned a number and curve data presented in a tabular form It is preferred that the tabular curve and coordinate data be placed on the same sheet as the interchange layout

Interchange ramps shall be identified by the use of letters or a combination of letters and numbers The recommended practice for assigning ramp names is as follows

Ramps in the first left quadrant along mainline stationing should be assigned first Name assignments shall progress in a counterclockwise direction around the interchange (see **Figure 13.1**) For projects with two or more interchanges, continue name assignments with the next letter and in same counter clockwise direction noted above

Ramp baselines are usually located on the right edge of the pavement with relation to the direction of traffic, and shall be clearly indicated Stationing of ramps should be in the same direction as the project

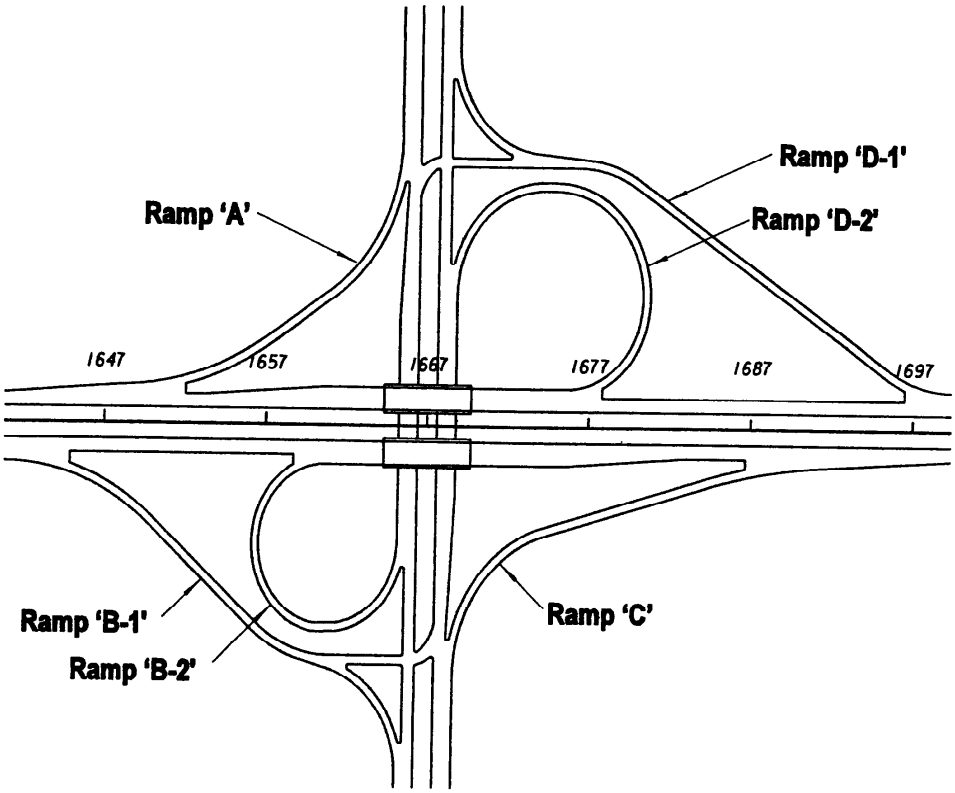
Ramp 'D-1'
Ramp 'A'
Ramp 'D-2'
1647
1657
1667
1677
1687
1697
Ramp 'B-1'
Ramp 'B-2'
Ramp 'C'

Figure 13.1

A topographic worksheet for all interchanges is required and will be considered as the preliminary layout of the interchange This worksheet shall be prepared on a standard plan format on a scale not smaller than 1" = 400' The following information shall be shown

1 All topography, such as existing roads, property lines, utilities, buildings, driveways, etc
2 Preliminary interchange geometrics and proposed right of way limits
3 Drainage right of way and easements
4 Proposed reconstruction of the crossroad, and all access roads and frontage roads within the interchange
5 Frontage roads should be assigned a unique alpha or numeric designation to avoid confusion with ramp nomenclature
6 Contours, unless the terrain is relatively flat
7 Traffic diagram with AADT, DHV, K, D and T values
8 The length of speed change lanes
9 Design speed for ramps and crossroads
10 Proposed bridge limits
11 Pavement transitions
12 Limits of construction along the crossroad

The contract plans set shall include the following interchange sheets

1 Interchange geometric layout
2 Interchange drainage map
3 Interchange topographic map
4 Interchange cross section pattern sheet
5 Ramp terminal details
6 Ramp cross sections

13.3.2 Ramp Terminal Details

Details of ramp terminals with mainline and crossroads shall be shown on separate plan sheets The scale used shall not be smaller than 1" = 50' Standard scale 1" = 40' is preferred Complete details of the terminal shall be shown including

Curve data
Station equality and horizontal tie to mainline or crossroad at critical ramp locations

Turning radii, taper/transition lengths, curb/curb and gutter (if any)
Channelization (if any)
Ramp and crossroad intersection station and angle
Median nose data (if any)
Limits of construction
R/W
Limited Access R/W and fence location
Drainage structures
Spot elevations (as needed)
Roadway dimensions
Station pluses and offsets

13.3.3 Cross Section Pattern Sheet

The cross section pattern sheet shows the entire interchange layout including frontage and access roads, if any, with location and extent of proposed cross sections This information is of special importance for projects involving new interchanges located in rural, undeveloped areas Information to be shown shall include

North arrow and scale
Interchange layout
Access and frontage roads (if any)
Centerline construction and baseline survey
Ramp base lines
Stationing along mainline, crossroads, ramps, access and frontage roads
PC and PT points by symbol
Bridge outline
Cross section pattern

This sheet shall be prepared on a standard plan format The scale shall be such that the complete interchange is shown on one plan sheet, with care taken to ensure clarity and legibility Normal scale is 1" = 400' North arrow and scale shall be located at a point of maximum visibility

Chapter 14

DRAINAGE STRUCTURES

Chapter 14

DRAINAGE STRUCTURES

14.1 General

Drainage structure sheets show the drainage structures, their location, cross section, flow line elevations of all weirs or slots, top of grates, culverts and top of manhole elevations, and similar data Drainage structure sheets also show the vertical relationships of the entire drainage system During the process of design/placement of the drainage structures, potential conflicts with existing or proposed utilities shall be identified and resolved early, thereby avoiding costly time delays during the construction phases

All projects require the plotting of drainage structures When only cross drains are to be constructed or modified, drainage structures may be plotted on the cross section sheets Otherwise drainage structures should be plotted on separate drainage structure sheets, utilizing the cross section sheet cell available in the FDOT Engineering/CADD Systems Software (see **Exhibit DS-2**)

14.2 Required Information

The existing ground line for rural projects shall be shown at the location of the structure, with the existing elevation placed immediately below the ground line at the survey baseline No existing structures shall be shown except those to be incorporated into the proposed drainage system or otherwise modified These shall be shown and their flow line elevations noted Where storm sewers run laterally or diagonally across the project, the drawing should show the pipe cover

The roadway template and proposed structures shall be shown, with the proposed profile grade elevation placed above the grade point The structure shall be located by station and offset to the centerline of construction Flow line information shall be provided at each structure and at each culvert end Structures are to be plotted in detail according to the applicable index of the ***Roadway and Traffic Design Standards***, with walls, grates, tops, pipes, etc shown

Cross drain sections shall include the size and length for each proposed structure

Sections for skewed cross drains shall be depicted along the centerline of the structure

Clear zone distances are to be measured at right angles to the traffic lane for all structures

All structure locations should be checked and R/W shown where the R/W may have potential impact on construction of a structure

For each drainage structure, all necessary information shall be shown by note, including, as appropriate size, end treatment and flow lines, as well as structure, index and station number The note shall be placed as close to the structure as possible, preferably below the plotted structure Elevations shall be given for manhole tops, and ditch bottom inlet grates and slots Grate elevations for shoulder gutter and edge of pavement elevations for curb and gutter inlets shall be shown

Alternate "G" or other special grate treatment shall be included with the inlet note Additional details, such as special bedding, 36" manhole rings, etc , shall be indicated Flow direction arrows shall be shown

Material options shall be shown on the Optional Material Tabulation Sheet (See **Exhibits SDS-2** and **SDS-3** at the back of **Chapter 8** of this volume)

If existing structures are to be filled and/or plugged and are to remain in place, they should be shown in the plans with an appropriate note

Applicable notes to be shown on the first drainage structure sheet are given in **Exhibit 14-1**

14.3 Utility Conflicts

All major underground utilities, as defined in **Chapter 5** of **Volume I**, shall be plotted in conjunction with the structures so that conflicts may be detected during design, and to alert construction forces of potential conflicts

In the case of longitudinal pipes, a section should be plotted for each location of a crossing of any major underground line

Utilities that have been verified (Level A locate) shall be noted and plotted to scale in the appropriate locations on the Drainage Structure Sheets, Cross Section Sheets and bridge foundation plans These utilities should be labeled with the following symbol

V_{vh} = Verified Vertical Elevation and Horizontal Location

14.4 Sheet Set Up

Structures should be plotted as sections along the centerline of the structure They should be shown on a standard cross section format with the sections spaced sufficiently apart to avoid overlapping of structures or notes Beginning at the bottom of the sheet, the sections should be shown successively by stations and should be numbered sequentially, from the beginning to the end of the project The structure number and location station should be shown near the right border of the sheet

If a structure must be shown out of order, a note shall be placed in the correct sequence, referring to the sheet where the structure is shown The scale shall be the same as that used for roadway cross sections, with the centerline of construction placed near the center of the sheet

Drainage Structure Notes

These notes, when required, are to be placed on the first drainage structure sheet

1 Special attention is directed to the fact that portions of some drainage structures extend into the stabilized portion of the roadbed and extreme caution will be necessary in stabilization operations at these locations

2 (To be used when there are Cross Drain Pipe and/or Storm Sewer Pipe and optional materials are provided for one or both)

Some/All of the drainage structures have optional culvert materials When optional materials are allowed, one of the optional materials has been used as the basis of the pay quantities The material selected as the basis of pay quantities is identified on the Tabulation of (Cross Drain, Storm Sewer, or Cross Drain/Storm Sewer) Optional Materials Sheet All options are described and design and installation information for each option is provided on the Tabulation of Optional Materials Sheet

Exhibit 14-1

Chapter 15

LATERAL DITCH/OUTFALLS RETENTION/DETENTION AND MITIGATION AREAS

Chapter 15

LATERAL DITCH/OUTFALLS RETENTION/DETENTION AND MITIGATION AREAS

15.1 General

Drainage systems that convey storm water from the roadway may be made up of many components such as inlets, manholes, pipes, ditches, and retention/detention areas Usually, these systems require additional right of way and/or easements

Mitigation areas, although not usually a component of the highway drainage system, may have drainage components in them

If space permits, drainage components adjacent to the roadway may be shown on the roadway plan-profile sheets Drainage components not adjacent to the roadway may require separate plan view sheets In either case, profile views and/or cross sections may also be needed to provide enough detail to construct the components

Plans for drainage components can generally be grouped into three categories

- Lateral ditch/outfalls
- Retention/detention areas
- Mitigation areas

15.2 Lateral Ditch/Outfall

Lateral ditch plans and profiles shall be prepared on a standard plan-profile format using a horizontal scale of 1" = 100' However, if storm drain construction is proposed for a portion of the ditch, a scale of 1" = 40' or 1" = 50' may be used

15.2.1 Plan Portion

Data presentation in the plan portion shall be oriented so that the lateral ditch/outfall centerline is parallel to the long side of the sheet Information shall be shown in a manner similar to that described in **Chapter 10 - Roadway Plan and Roadway Plan-Profile**

Right of way (or easement) alignment data and topography shall be shown in the plan portion An alignment tie between the lateral ditch/outfall and the project shall also be shown The north arrow and graphic scale shall be placed at the proper location on the sheet (refer to **Chapter 10**)

15.2.2 Profile Portion

The profile portion shall be prepared in the same manner as the profile portion of the roadway plan-profile sheets (**Chapter 10**) Existing ground line profiles, high water elevations, underground utilities, bench mark information and elevation datum shall be shown as described for roadway plan-profiles

Where the lateral ditch/outfall survey baseline does not follow the flow line of the existing ditch or channel, the existing ditch or channel profile shall be shown with a broken line and identified

If storm drain construction is proposed along a lateral ditch/outfall, the proposed structures shall be plotted on the drainage structures sheets, or in the lateral ditch/outfall profile Structures shown in the profile will include flow line, structure numbers, pipe or culvert sizes, and utilities (if applicable)

The normal water elevation of the receiving system shall be indicated and labeled

15.2.3 Typical Section

A typical section showing the width of proposed clearing and grubbing, right of way, ditch bottom width and side slopes shall be shown on the lateral ditch plan and profile sheet This section does not need to be to scale, but shall be dimensionally proportionate If the width of clearing and grubbing is variable for a lateral ditch/outfall, the various widths and their respective station limits shall be noted below the typical section

15.2.4 Ditch Cross Sections

Lateral ditch cross section sheets are included in the plans These sheets show the right of way required, the extent of clearing and grubbing required and the amount of earthwork

Lateral ditch cross sections shall be prepared in a manner similar to that of roadway cross sections (**Chapter 18**) The scale, generally, should be 1" = 10', vertical and horizontal Regardless of the horizontal scale used, the vertical scale shall always be 1" = 10'

Often it is possible to place two or more columns of ditch cross sections on one sheet They shall be plotted with the stationing progressing from the bottom of the sheet to the top, and from left to right

Usually, soil surveys are made along the lateral ditch only when a large amount of material is expected to be excavated

Guidance given in **Roadway Cross Sections** (**Chapter 18**) shall be applicable equally to lateral ditch cross sections

15.3 Retention or Detention Areas

15.3.1 Pond Detail Sheet

The retention or detention pond, including the outlet structure, is usually the end point of the drainage system for a particular project The retention/detention pond detail sheet shall show the pond in plan view, with station and offset ties to the project centerline of construction The plan view shall also include the following

Locations of pond sections
Side slopes and base dimensions
Bottom and top elevations
Location of maintenance berm
Fence and gate locations
Right of way
Pond drainage structures with structure numbers
Soil boring locations, and
Any other necessary data pertaining to the pond

The pond sections shall show the bottom width and elevation, side slopes, normal water depth, if applicable, as well as soil borings A minimum of two (2) sections, taken in directions perpendicular to each other, shall be shown

15.3.2 Typical Section

A typical section is required when the pond sections do not represent the *typical* design features of the pond Following is a list of appropriate information to be shown on the typical section

Limits of clearing and grubbing
Typical side slopes
Bottom and top elevations
Details of maintenance berm
Fence location
Right of way
Water level information
Vegetation requirements

The typical section does not need to be to scale, but shall be dimensionally proportionate It should be shown on the pond detail sheet, if room allows, or on a separate sheet when necessary

15.3.3 Pond Cross Sections

Pond cross sections shall be prepared in a manner similar to that for roadway cross sections (**Chapter 18**) As with lateral ditches, the standard scale is 1" = 10' vertical The standard horizontal scale is also 1" = 10', although another scale may be used if necessary

If material is to be excavated from the pond the data from the soil survey sheet shall be shown on the cross sections

Guidance given in **Roadway Cross Sections (Chapter 18)** shall be applicable to pond cross sections

15.4 Mitigation Areas

If construction details for mitigation areas are included in the plans, follow the requirements for retention/detention areas

CHAPTER 16

SPECIAL DETAILS

CHAPTER 16

SPECIAL DETAILS

16.1 General

Special details sheets are usually included in the plans set if the project contains areas which require special attention to some construction elements Construction details that are not covered in the ***Roadway and Traffic Design Standards*** booklet or elsewhere in the plans set shall be shown on the special details sheet

This sheet shall be prepared on a standard plan format Any convenient scale may be used, provided the information shown is clear and legible Details shown shall be clear, legible, labeled, complete in all respects and should be adequately cross-referenced in the plans set

Chapter 17

SOIL SURVEY

Chapter 17

SOIL SURVEY

17.1 General

The soil survey sheet, essentially a soil test analysis sheet, depicts the various types of soils encountered within the limits of the project This sheet also shows the classification, mechanical properties and recommended usage of those soils A preformatted CADD sheet can be found in the FDOT Engineering/CADD Systems Software

Soils having identical characteristics shall be assigned to the same stratum and group for identification and recommendation purposes The test analysis sheet shall be signed by the responsible Engineer

17. 2 Roadway Soil Survey

17.2.1 Method of Compilation and Presentation

Upon completion of the proposed typical section, and after placing alignment, proposed grades and existing utilities on the plan-profile sheets and preliminary sections, prints of these sheets shall be utilized for determining the location and depth of borings for the sampling of soils for testing and classifications These classification and test results, including pH, resistivity, sulfides and chlorides shall be shown on the test analysis sheet Date and weather conditions at the time of sampling shall also be shown Refer to **Exhibit SS-1** for an example of soil survey sheet

After completion of soils testing, the boring data shall be shown on cross sections by columns approximately 1/4 inch wide below the ground line at test sample locations Stratum limits and numbers shall be shown inside the column This information shall be transmitted to the appropriate responsible materials engineer for verification One hard copy of the soils information, including cross sections with soils information, shall be retained in the Soils Engineer's Record

17.3 Other Soil Surveys

Soil surveys other than those for roadway plans are required for various plans components Included in these are soil surveys/borings for retention/detention ponds, overhead sign structures, high mast poles and traffic signal mast arms

Soil survey sheets generated for such components are generally located in the plans set with the other details and information for each component Requirements for the soil survey sheets are similar to those prepared for the roadway soil survey, showing such things as the location of test holes, various strata encountered, soil properties, classification and recommended usage

Chapter 18

Roadway Cross Sections

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Chapter 18

Roadway Cross Sections

18.1 General

Cross sections depict the existing ground conditions, including all manmade features, as sections perpendicular to the respective stations along a survey baseline or construction centerline The proposed cross-sectional outline of the new facility with all its functional elements is also shown on cross sections Standard cross section sheets shall be used for showing roadway cross sections The preformatted sheet cell is located in the FDOT Engineering/CADD Systems Software This sheet features a standard grid of five lines per inch, both in the vertical and horizontal The vertical scale can be altered to ten lines per inch by utilizing a toggle feature in the CADD software

The recommended vertical scale is 1" = 10' The horizontal scale shall be such that the entire roadway R/W is shown on the sheet (generally 1" = 10' or 1" = 20'), but shall not be smaller than 1" = 40' horizontal If the entire R/W cannot be shown on one sheet, more sheets may be utilized and appropriate match lines shall be shown with referenced sheet numbers The scale shall be shown at the bottom right corner of the sheet above the title box

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18.2 Required Information

Existing ground lines shall be shown and the existing elevation at the centerline shall be noted just below the ground line at the centerline The station number of the section shall be indicated opposite the ground line on the right side of the sheet and location baseline of survey indicated along the top and bottom of the sheet Lines parallel to the baseline of survey should show station equivalencies to the baseline of survey

The surface, as well as the below ground portions of existing features such as pavements, curbs and sidewalks, shall be shown

Existing parallel underground utilities which lie within the horizontal limits of the project shall be shown along with verification notation for those locations which have been verified Utilities that have been verified should be labeled as shown in ***Section 14.3*** of this volume Small distribution or service lines need not be drafted

Soil data and water table shall be shown on cross sections as described in ***Section 17.2.1*** of this volume If it is determined that an organic or plastic material must be removed below the finished grading template, the lower limits of removal of organic or plastic material will be shown to determine the area and volume of subsoil excavation

The proposed roadway template shall be shown The proposed profile grade elevation shall be placed vertically or at an angle to the horizontal, just above the profile grade line Special ditch elevations shall also be shown

Station equations shall be shown, even though a cross section may not be plotted at that point For ramp cross sections equivalent mainline stations shall also be shown

The right of way limits shall be symbolically shown for each cross section

The begin and end stations for project, construction, exceptions, bridge/bridge culvert and the toe of slope under the bridge shall be shown The beginning and ending earthwork stations shall be shown

On projects with grade separations, intersections, interchanges, etc , the earthwork shall be totaled on the last cross section sheet for each of the above and noted as to the station in which the earthwork is included on the project cross sections Earthwork quantities shall be indicated in the appropriate columns on the right side of the sheet Earthwork summaries shall be shown on the last cross section sheet of each roadway, ramp, etc The grand total shall be tabulated in the Summary of Earthwork and shown on the Summary of Quantities Sheet

The order of assembling the cross sections in the plans set shall be

1 Mainline

2 Side streets

3 Ramps

18.3 Sheet Set Up

Cross sections shall be shown on a standard preformatted cross section sheet (available in the FDOT Engineering/CADD Systems Software) with stations increasing from the bottom to the top of the sheet Usually, only one column of sections shall be placed on a sheet

The interval selected for showing sections on the cross section sheet will vary according to project specific factors For new construction and reconstruction, the normal interval for cross sections is 100 feet for rural projects and 50 feet for urban projects These intervals may also be appropriate on RRR projects, depending on the variability of earthwork along the project Other factors that may influence the frequency of cross sections include the presence of intersections, extent of driveway and turnout construction or reconstruction, ADA related work, drainage improvements, etc

Sections shall be centered on the sheet with the survey baseline or the construction centerline placed vertically in the center In cases where additional lanes are to be constructed adjacent to existing lanes, centering the sections will depend upon the location of the survey line and the side on which the new construction is to be placed Sections shall be oriented such that the complete ultimate section will be approximately centered on the sheet When the centerlines of construction and survey are not parallel, the distance between the two at each cross section shall be shown

As many sections as possible shall be placed on a sheet with sections being spaced to avoid overlapping The soil profile should be checked for possible unsuitable material below existing ground which may cause overlapping of sections

When right of way is narrow enough and a horizontal scale of 1" = 20' is used, two columns of cross sections may be placed on a sheet Cross section placement progresses from the left to the right as well as from the bottom to the top of the sheet The sheet shall be set up to provide earthwork columns for each column of sections

For additional information on cross sections see ***Volume I, Chapter 3***

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CHAPTER 19

WORK ZONE TRAFFIC CONTROL

CHAPTER 19

WORK ZONE TRAFFIC CONTROL

19.1 General

A Traffic Control Plan (TCP) will accompany all plans for a construction project The TCP is the final document that summarizes the considerations and investigations made in the development of a comprehensive plan for maintaining traffic through a work zone

The TCP is used to describe the actions to be taken by the contractor to minimize traffic impacts while conveying traffic safely through a work zone The traffic control plans may include, but are not limited to, general notes, phase notes, phase typical sections, phase plan-profile sheets, special details, and temporary cross-sections

19.2 Required Information

Specific traffic control plans are required on all projects The information provided on the traffic control plans may consist of nothing more than notes and references to the ***Roadway and Traffic Design Standards,* Series 600** or may be as elaborate as detailed individual phase layouts using profile sheets and interchange and intersection layout sheets Information shall be provided to inform the contractor of the following

- location of the centerline, pavement edge, curb line, shoulder,
- placement of temporary pavement markings,
- lane configurations,
- locations of work zone signs and any other temporary work zone traffic control device (including variable message signs, advanced warning arrow panels, barriers, crash cushions, temporary signals, etc),
- layouts and placement of channelizing devices,
- work to be accomplished during the individual phases of construction,
- lane closures and other restrictions that apply,
- regulatory speed limits for each phase,
- project specific requirements such as school zones, railroads, waterborne vessels, etc

When a project requires more than one phase of construction, the traffic control plans should address each individual phase

19.3 Levels of Complexity to be Anticipated for Traffic Control Plans

The following guidelines have been developed to assist in determining the level of detail and complexity that may be required for a project

19.3.1 Level I

Application - Simple projects where method of construction is straight forward (Examples RRR, Enhancements, Resurfacing, Minor Widening)

Components of the TCP

General Notes (including references to the applicable indexes in the ***Roadway and Traffic Design Standards***)
Phase Typical Section(s)
Special Details - MINIMAL - where unique situations for the project exist

19.3.2 Level II

Application - Moderately complex Construction projects, such as reconstruction of roadways (Examples Urban or rural widening projects, Projects with Diversions or Detours)

Components of the TCP

General Notes
Phase Notes (including references to the applicable indexes in the ***Roadway and Traffic Design Standards***)
Phase Typical Section(s)
Detailed plan sheets (when an index in the ***Roadway and Traffic Design Standards*** does not apply)
Cross Sections as determined necessary (Example diversions, temporary drainage, temporary bridge structure)
Special Details - As necessary for constructability (Example temporary drainage, slope requirements due to diversions, temporary signalization, railroad work, etc)

19.3.3 Level III

Application - Complex projects

Components of the TCP

General Notes
Phase Notes (including any references to the applicable standard indexes)
Phase Typical Section(s)
Detailed Plan Sheets
Cross Sections
Special Details may include - Temporary Drainage, Temporary Signalization, Intersection Details, etc

19.4 Format

TCP's will be prepared on standard plan sheet format A scaled drawing is not always required, however, clarity and legibility are critical When scaled drawings are required, the scale shall not be less than 1" = 100' for plan sheets and 1" = 40' for special details Levels, fonts and line weights shall be in accordance with the FDOT CADD Production Criteria Guide

Tools are available in FDOT Engineering/CADD Systems Software to assist in the development of Traffic Control Plans

Chapter 20

UTILITY ADJUSTMENTS

Chapter 20

UTILITY ADJUSTMENTS

20.1 General

The purpose of utility adjustment sheets is to provide coordination between the contractor and the affected utility companies These sheets show the contractor the approximate locations of existing, proposed and relocated utilities, and thus aid the contractor in avoiding possible conflicts or damage to the utilities involved

20.2 Required Information

Locations of all existing and proposed utilities within the project limits shall be shown on the plans

All proposed and relocated utilities shall be clearly shown on the plan using lines and standard utility symbols, and shall be labeled (see **Index No. 002** of the ***Roadway and Traffic Design Standards*** and the FDOT CADD Production Criteria Guide) Disposition of all existing utilities shall be clearly indicated for example **"To Be Removed"**, **"To Be Adjusted"**, **"To Be Relocated"**, **"To Remain"**, etc All proposed utilities shall be appropriately labeled

Applicable general notes shall also be shown on the first utility adjustment sheet (see **Exhibit 20-1**)

20.3 Sheet Format

The utility adjustment sheets shall be prepared from CADD files generated for the plan or plan-profile sheets Levels, fonts and line weights shall be in accordance with the FDOT CADD Production Criteria Guide

Information and graphic data which is not necessary for utility adjustment sheets may be removed by turning off the appropriate level(s) on which the data is stored This will help ensure that information pertinent to utility adjustments is more easily seen However, the utility adjustment sheets shall show the following information as a minimum

(1) Baseline and/or centerline of survey
(2) Curb and gutter or edge of pavement
(3) Drainage structures (existing and proposed)
(4) Right-of-way lines
(5) Station numbers
(6) Street names
(7) Location of existing utilities
(8) Disposition of existing utilities, and
(9) Location of new or relocated utilities

General Notes for Utility Adjustments

The following notes shall be placed on the first Utility Adjustment Sheet (If there are no utility adjustment sheets in the plans, these notes shall be included in the General Notes shown on **Exhibit 10-1)**

1 The location(s) of the utilities shown in the plans (including those designated V_v, V_h and V_{vh}) are based on limited investigation techniques and should be considered approximate only The verified locations/elevations apply only at the points shown Interpolations between these points have not been verified

2 Utility Owners

Companies	Telephone Numbers

(Note If there is a traffic-monitoring site on the project or within ½ mile of the construction, the Transportation Statistics Office in Tallahassee shall be added to the list of utility owners The contact person is the Traffic Data Section Manager Refer to **Chapter 10, Section 10.2.7, Item No. 12** for plan requirements involving traffic-monitoring sites)

Exhibit 20-1

Chapter 21

SELECTIVE CLEARING AND GRUBBING

Chapter 21

SELECTIVE CLEARING AND GRUBBING

21.1 General

Selective clearing and grubbing plans show the extent and type of clearing operation required within the project right of way limits This information may be shown on the plan-profile sheet, if no substantial clutter of the sheet results Otherwise, selective clearing and grubbing shall be shown on a separate plan sheet

21.2 Required Information and Sheet Set Up

When separate selective clearing and grubbing sheets are required, they shall be shown on a standard plan format Complete existing topography shall be shown together with centerline of construction with stationing, R/W lines and limits of construction The type of selective clearing and grubbing operation to be performed shall be clearly shown by symbol (refer to **Section 21.3**)

A north arrow and graphic scale shall be placed at a point of maximum visibility on the sheet Any convenient scale may be used provided clarity and legibility are preserved However, it is recommended that the selective clearing and grubbing plans be prepared at the same scale as the roadway plan-profile sheets Appropriate match lines shall be used when necessary

For an illustration of a selective clearing and grubbing sheet, see **Exhibit SCG-2**

21.3 Standard Symbols and Notes

The amount and type of notes required for selective clearing and grubbing will vary depending on the project It may be desirable to provide a separate detail sheet in the plans to display the notes, symbols and details which are applicable to the project An example of such a sheet is given in **Exhibit SCG-1**

All areas that are not included in one of the selective clearing and grubbing categories, as shown on the detail sheet or elsewhere in the plans, shall be standard clearing and grubbing

Undesirable exotic pest plants, including Australian Pine, Brazilian Pepper, Malaleuca and Chinese Tallow trees, as well as Cogon grass should be labeled to be totally removed, regardless of size or location within the project limits

Chapter 22

MISCELLANEOUS STRUCTURES PLANS

Chapter 22

MISCELLANEOUS STRUCTURES PLANS

22.1 General

Miscellaneous structures not included in the bridge plans shall be included in the appropriate component plans This includes box culvert details, high mast lighting supports, traffic mast arm supports, signal strain poles, overhead sign supports, rest area structures or buildings, barrier walls (traffic or sound), retaining walls and toll facilities

For guidelines on structural detailing, refer to the ***Structures Detailing Manual (Topic No. 625-020-200)***

22.2 Approach Slabs

As of the July, 1999 letting, approach slab details sheets are included in the structures plans However, some roadway elements may need to be carried onto the approach slab, and in these cases special attention must be given to clarifying in the plans which elements are to be included as part of the roadway

The stabilization required under the approach slabs shall be paid for using the standard roadway pay item and the quantity included in the roadway plans In addition, roadway elements such as guardrail, earthwork, sidewalks, approach slab surfacing, etc , which are part of the roadway approaches to the bridge and which interface with the approach slabs areas, will also be included and paid for in the roadway quantities

22.3 Retaining Walls (Cast in Place, Proprietary, Temporary)

When cast in place retaining walls other than standard gravity walls are required, complete design and construction details, including pay items and quantities are required in the contract plans The same is true for steel or concrete sheet piles for either permanent or temporary retaining walls

Proprietary walls are handled differently than cast in place, steel and concrete sheet pile

retaining walls A set of control plan details must be developed for retaining walls (See **Chapter 30, Volume I** for a discussion concerning the requirements for control plan details)

On projects with bridges the control plan details shall be included in the bridge plans When there are no bridge plans the control plan details shall be included in the appropriate component plans Examples of control plan details are included as exhibits at the back of this chapter

Standard drawings from the preapproved wall companies are included in the ***Roadway and Traffic Design Standards*** (available as Interim Index Drawings)

Chapter 23

SIGNING AND PAVEMENT MARKING PLANS

Chapter 23

SIGNING AND PAVEMENT MARKING PLANS

23.1 General

Signing and pavement marking plans are usually a component set of plans Projects with minor signing and pavement markings may include these features on sheets in the roadway plan set or detailed on roadway sheets When prepared as component plans they shall be assembled as a separate plans set complete with a key sheet, tabulation of quantities and all other signing and pavement marking sheets The sheets shall be numbered consecutively with the sheet numbers prefixed by the letter S

A complete set of signing and pavement marking plans shall include the following sheets

Key Sheet
Tabulation of Quantities
Plan Sheets
Guide Sign worksheet (if required)
Overhead Sign Cross Section Sheet (if required)
Overhead Sign Support Design (if required)
Foundation Details (if required)
Boring Data Sheets (if required)

Pavement marking material on projects which include new asphalt surfaces will generally be paint, rather than thermoplastic This is based on the requirement of a 90 day curing period for new asphalt Thermoplastic markings on these projects must be placed using a separate contract Exceptions must be coordinated with the District Construction Office

Section 23.9 provides guidance for preparation of separate plans for Thermoplastic markings

Thermoplastic may be called for in the plans on those projects which are exclusively of concrete pavement surfaces

23.2 Key Sheet

The key sheet is the first sheet in the set and shall be prepared on a standard key sheet format as described in **Chapter 3** Contract plans set information, location map and length of project box are not required on this sheet when shown on the lead key sheet A complete index of signing and pavement marking plans shall be shown on the left side of the sheet The date of the governing ***Standard Specifications for Road and Bridge Construction*** and ***Roadway and Traffic Design Standards*** shall be inserted in a note at the lower left corner of the key sheet

Other data, including name, consultant contract number and vendor number of the firm (when plans are prepared by a consultant) shall be shown as described in **Chapter 3**

23.3 Tabulation of Quantities and Pay Item Notes

The tabulation of quantities sheet shall be prepared on the standard plan format and shall show quantities, standard sign numbers, pay item numbers and size of sign for all pay items The sign size is not required if shown in the plans sheets Pay items shall be listed in numerical order and quantities shall be tabulated per sheet Provisions shall be made to show the original and final quantities Pay item notes shall also be shown on this sheet (see **Exhibit 23-1**)

On contracts with multiple Financial Project ID's or federal aid and non-federal aid quantities, provisions shall be made to tabulate and summarize their respective quantities

23.4 General Notes

General notes pertaining to signing and pavement markings may be shown on a separate plan format sheet This sheet shall be placed behind the tabulation of quantities in the plans assembly On minor projects, general notes may be combined with the tabulation of quantities sheet

23.5 Plan Sheets

23.5.1 Format and Scale

The plan sheets shall be prepared on a standard plan format The scale shall be such that all details are clear and legible See the requirements of **Section 10.1** as a guide For simple projects, or sections of a project, it may be possible to "stack" two plans on one sheet, one below the other Stationing shall progress from left to right and top to bottom Clarity and legibility shall be preserved in all cases

A north arrow and scale shall be shown at a point of maximum visibility on the sheet If two plans are "stacked" on one sheet, then each plan portion shall contain a north arrow and scale

23.5.2 Required Information

The basic information pertaining to roadway geometrics and project limits required on the signing and pavement marking plan sheets is the same as that required on the plan portion of the plan-profile sheets (**Chapter 10**) Topography and construction details need not be shown Utilities, drainage, lighting, sidewalks, driveways, landscape features, etc shall be checked for conflicts Those that may cause conflicts with sign placement shall be shown

All pavement markings shall be clearly shown and labeled with their widths, color and spacing specified Either the begin and end pavement marking stations, with offset or the begin pavement marking station with offset and the total length of roadway for pavement marking shall be shown The location of raised pavement markers and delineators shall be indicated by specifying the type, color, spacing, and limits of application by stations

All regulatory, warning and directional signs shall be shown at the proper locations Each sign face shall be shown in close proximity to its respective sign with a leader line connecting the sign location and sign face Each sign face shall be oriented on the plan sheet to be read as viewed from the direction of travel along the roadway The location of all signs shall be indicated by station or kilometer point/milepost

The pay item number and standard sign designation, or assigned number if non-standard, shall be shown for each sign

Any signs to be mounted on signal span wires should be shown and listed on the signalization plan for illustration and placement purposes Sign details should be included

on the signing plans

Begin and end stations shall be shown

23.6 Guide Sign Worksheet

The sign face, with the complete message layout with legend spacing (vertical and horizontal), margins, border widths and corner radii shall be shown on the guide sign worksheet

For multi-support roadside signs, cross sections are not required in the plans set, but the support data (size and average length) for each sign shall be tabulated on the guide sign worksheet

This sheet should be prepared on the standard plan sheet format to any convenient scale that will preserve clarity and legibility The number of signs which may be shown on a single sheet depends on the sign size and complexity The format of the sheet is flexible as long as the information listed above is shown The output from the Transoft *GuidSign* Program or a similar format may be used for the sheet

23.7 Sign Supports

23.7.1 Multi-Post Signs

Standard foundations for multi-post signs are provided in the ***Roadway and Traffic Design Standards*** These foundations are based on the sign support size However, the post size and length are not included in the ***Roadway and Traffic Design Standards*** and must be included as a part of the design and shown in the plans

23.7.2 Overhead Sign Cross Section and Support Structure

The sign cross section sheet shows the location of overhead sign(s) in cross section A standard profile format should be utilized The cross section of the roadway at the sign location shall be shown and fully dimensioned The recommended scale for the cross section is 1" = 10' horizontally and vertically

For overhead signs, the design of the support truss, columns and foundations, along with

the boring data information, shall be included in the signing and marking plans The ***Structures Design Office Standard Drawings (Topic No. 625-020-300)*** should be used **S-2004**, a Semi-Standard for cantilever sign supports, is used with **2001**, **2002** and **2003**, **S-2012**, a Semi-Standard for truss sign supports, is used with **2011** These standards include the information noted above and should be completed by the Structures Design Engineer of Record and inserted as a sheet in the plans

A computer program for the design of overhead cantilever sign structures and a program for the design of overhead span sign structures are available The programs were developed by the Structures Design Office and may be downloaded from the Structures Design web site

The design of the attachment system for signs mounted on bridge structures shall be the responsibility of the Structures Design Engineer of Record The design shall be included in the structures plans if bridge work is included in the project If bridge work is not in the project, design details shall be included in the signing and pavement marking plans

23.8 Typical Pavement Marking Sheet

For simple projects, or sections of a project, it may be possible to show signing and pavement marking plan details schematically using straight-line format and typical markings All signs shall be properly identified and shown at their graphic location on the straight-line diagram Pavement markings shall be shown and labeled on a typical marking plan

23.9 Plans for Thermoplastic Markings

As discussed under **Section 23.1**, placement of thermoplastic markings on most projects will require a separate contract to be let after original construction (and striping with paint) is complete For convenience and economy several projects may be let under one contract

As a minimum, contract plans will consist of a Key Sheet, Summary of Pay Items, Tabulation of Quantities and details about the areas to be marked This will include any changes in pavement markings which may have occurred since completion of the original project The scope and final content of the plans shall be as directed by the district

Standard Notes for Signing and Pavement Marking Plans

The following pay item note should be shown on the Signing and Pavement Marking Plans Tabulation of Quantities Sheet

710- All pavement markings shall be paint unless otherwise noted in the plans The quantities for pavement markings indicated in the Signing and Pavement Marking Plans are included in the quantities for Pavement Markings shown in the Summary of Roadway Pay Items

Exhibit 23-1

Chapter 24

SIGNALIZATION PLANS

Chapter 24

SIGNALIZATION PLANS

24.1 General

Signalization Plans are usually a component set of plans Projects with minor signalization may include these features on sheets in the roadway plans set or on the roadway sheets When prepared as component plans they shall be assembled as a separate plans set complete with a key sheet, tabulation of quantities and all other relevant signal sheets The sheets shall be numbered consecutively with the sheet numbers prefixed by the letter T

The signalization plans show the construction details, electrical circuits, signal phasing and other relevant data

A complete set of signalization plans shall include the following sheets

Key Sheet
Tabulation of Quantities
Plan Sheets
Mast Arm Details (if required)
Foundation Details - Mast Arms (if required)
Boring Data Sheets - Mast Arms (if required)

24.2 Key Sheet

The key sheet is the first sheet in the component plans set and shall be prepared as described in **Chapter 3** The location map, length of project box and contract plans set information are not required on this sheet when shown on the lead key sheet. The index of signalization plans shall be shown on the left of the sheet The date of the governing ***Standard Specifications for Road and Bridge Construction*** and ***Roadway and Traffic Design Standards*** shall be inserted in a note below the Index of Plan Sheets Other data, including name, consultant contract number and vendor number of the firm (when plans are prepared by a consultant), shall be shown as described in **Chapter 3**

24.3 Tabulation of Quantities and Standard Notes

The tabulation of quantities sheet lists the item numbers, description and quantity of materials This sheet shall be placed behind the key sheet in plans assembly

The tabulation of quantities sheet shall follow the key sheet Pay item numbers shall be listed in numerical order Provisions shall be made to show the original and final quantities per sheet Pay item notes and general notes that refer to item numbers, description of work to be performed and quantity estimates shall also be shown on this sheet If space is limited, notes may be shown on the General Notes Sheet

On contracts with multiple Financial Project ID's, or federal-aid and non-federal-aid quantities, provisions shall be made to tabulate and summarize their respective quantities

24.4 General Notes

The general notes sheet lists special signal design information such as controller operations, loop installations, signal heads, interconnect cable, and computer interface that is generally not covered in the FDOT Standard Specifications, Supplement or Special Provisions This sheet shall be placed behind the tabulation of quantities in the plans assembly On minor projects, general notes may be combined with the tabulation of quantities sheet

24.5 Plan Sheets

24.5.1 Format and Scale

Signalization Plans shall be prepared on standard plan format at a scale large enough to show all details clearly and legibly The recommended scale is 1" = 40' or 1" = 50' Usually, the complete intersection shall be shown on one plan sheet However, for large intersections more sheets may be used with appropriate match lines A north arrow and scale shall be shown at a point of maximum visibility on the sheet

24.5.2 Required Information

The basic information requirements include roadway geometrics, street names, construction stationing or milepost, curb and gutter, drainage inlets, sidewalks and right of way lines as similarly required on the plan portion of the roadway plan-profile sheets Those underground and overhead utilities, signing structures, and lighting structures that may cause construction conflicts with signal components shall be shown All locations, including existing trees, should be checked for potential conflicts

The plan sheet shall also show

Signal head locations with directional arrows and movements
(movements 2 and 6 shall be the major streets)
Details of signal heads in tabular form with pay item numbers
Phasing diagram/signal operating plan
(NOTE If the SOP conforms to the ***Index No. 17870*** of the ***Roadway and Traffic Design Standards***, then the reference to the index is all that is required For all other operating plans, the plan shall be shown)
Signal controller timing chart
Loop detectors
Electrical service location
Location of signal poles and span wires (ground elevation and elevation of roadway crown)
Signal wire signs
Pedestrian signals
Turning radii
Median nose locations
Location of "stop bars" and pedestrian crosswalks
Coordination unit-timing chart
Lane lines with directional arrows

All equipment shown on the plan shall be clearly labeled and their respective pay item numbers and quantity indicated

A separate signalization plan shall be prepared for each signalized intersection included in the construction project

Any span wire or mast arm mounted signs shall be coordinated with the appropriate signing and pavement marking plans to avoid duplication

The sign details for signs must be included on the signalization plans, if signing and pavement markings are not included in the plans package

24.6 Interconnect/Communication Plan

The interconnect/communication plan is required when signal equipment is being coordinated with other signal installations or with a computerized system The interconnect/communication plan shows pictorially the placement of interconnect/communication cable, either underground or aerial, and tabulates all related interconnect quantities The interconnect/communication plan sheet shall indicate all signal poles, service poles, and/or joint-use poles to which interconnect/communication cable will be attached

The interconnect/communication plan shall be prepared on standard plan format Unless otherwise approved, the preferred scale of the interconnect/communication plan shall be 1" = 100' for underground cable, and 1" = 200' for aerial cable For simple projects, or sections of a project, "stacking" two plans on one sheet is generally permitted if clarity and legibility are maintained Stationing shall progress from left to right and top to bottom

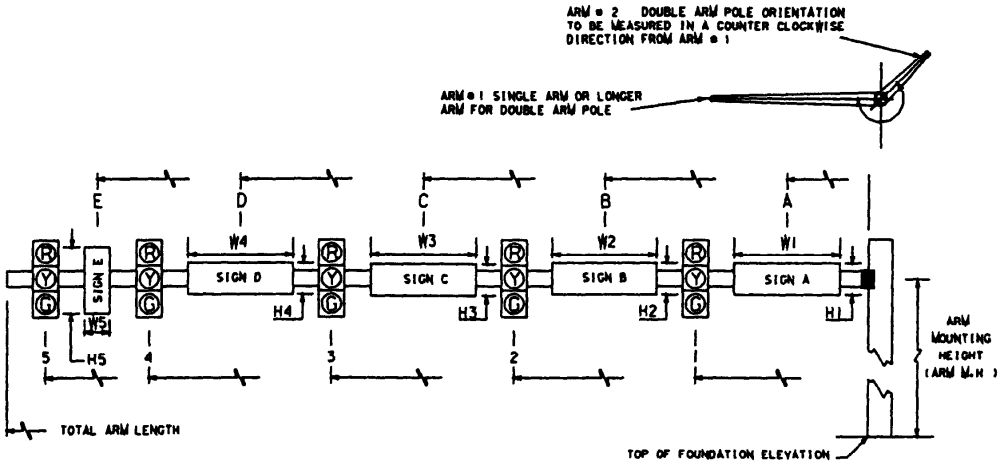
A north arrow and scale shall be shown at a point of maximum visibility on the sheet. If two plans are "stacked" on one sheet, each plan portion shall contain a north arrow and scale

The basic plan information requirements include roadway schematic, showing cross streets and driveways, cable information, pole location, pole number, utility pole identification number, pay item number and quantity

24.7 Mast Arm Sheets

The Mast Arm Tabulation Sheet, completed by the signal designer, and the Standard Mast Arm Assemblies Design Table, ***Structures Standard Drawings S-1700***, completed by the structures designer, will be included in the plans These and the applicable ***Interim Standard Indexes*** are the only plan sheets required for mast arm assemblies which meet the Department's Standard and are included on the Qualified Products List. The structures data table may be placed on a signal plan sheet, if space permits Mast arm assemblies which do not meet the mast arm standard will require a special design The completed Table of Signal Structures Variables, ***Structures Standard Drawings S-1710***, will be included in the plans for special designs

The following instructions are for use with the mast arm tabulation sheet



1 Each mast arm assembly is identified by a unique ID number
2 Dimensions 1-5 are for signals and dimensions A-E are for signs Record the distance from the edge of the pole, at ground level, to the center of the signal or sign
3 Signals may be mounted vertically or horizontally Indicate the mounting in the appropriate column in the table.
4 The entire line for arm #2 and the space for the angle between dual arms are left blank for single arm assemblies
5 All arms and poles will be galvanized If a color is required, indicate the color in the table, otherwise leave blank
6 Starting at the pole, select the signals and/or signs that match the configuration you are tabulating. The spaces representing the signs or signals not used will be blank Example 1. If no sign is located between the pole and signal 1, the spaces for Sign A would be blank. Example 2· A configuration for three signals and one sign between signal 1 and signal 2 – Only the spaces for signals 1, 2, 3 and sign B would be completed; the others will be blank
7 Record the number of sections in each signal head in the space following the distance to that head
8 Record the height and width of each sign in the space following the distance to the sign

9 When double arm poles are used for a skewed intersection, the standard design should be used whenever possible The standard orientation for arm #2 is 90 or 270 degrees measured in a counter clockwise direction from arm #1 The normal orientation of the mast arm is perpendicular to the roadway Adjustments in mounting hardware can compensate for a skew angle of approximately 15 degrees or more from the normal, depending upon the attachment method The designer should verify the mounting hardware capability before specifying an arm with a skew greater than 15 degrees

10 The arm mounting height should be calculated to provide a minimum vertical clearance of 17'-6" from the roadway crown elevation to the lowest sign or signal A standard signal section is approximately 14 " square Therefore the length of a 3-section head is about 42" and a 5-section is about 70" The use of back plates will add about 6" to each side of the signal head Additionally, approximately 3" should be added to the end of the signal head to compensate for the attachment hardware This information may be used to determine the arm mounting height

11 The standard handhole location is 180 degrees from arm #1 Other handhole locations must be noted in the Special Instructions

12 A free swinging internally illuminated street name sign may be attached to the pole by an independent bracket arm if the sign area does not exceed 12 square feet and weigh more than 75 pounds The Structures Design Engineer must review other signs attached to the pole or any size sign of this type attached to the signal mast arm

SPECIAL INSTRUCTIONS					
ID NO	PED BUTTON		PED SIGNALS		HANDHOLE LOCATION

13 The "Special Instructions" Table is used to tabulate pedestrian buttons and pedestrian signal locations and handhole locations when the handholes are not in the standard location Tabulate the ID No and the orientation of the pedestrian buttons and signals in degrees measured counter clockwise from arm #1 The handhole location should be left blank if the handhole is in the standard location (see note 11)

14 Arm #1 is the arm for a single arm assembly or the longer arm for a double arm assembly If the arms are equal length, arm #1 is over the project roadway

24.8 Monotube Sheets

The Monotube Tabulation Sheet, completed by the signal designer, and the Standard Monotube Signal Structure Design Table, ***Structures Standard Drawings S-1720,*** completed by the structures designer will be included in the plans These and the applicable ***Interim Standard Indexes*** are the only plan sheets required for mast arm assemblies which meet the Department's Standard and are included on the Qualified Products List The structures data table may be placed on a signal plan sheet, if space permits. Monotube assemblies which do not meet the mast arm standard will require a special design The Structures Design Engineer will provide all design details for a special design to be included in the plans. Shop drawings will be required for a special design

Chapter 25

LIGHTING PLANS

Chapter 25

LIGHTING PLANS

25.1 General

Lighting Plans are usually a component set of plans. Projects with minor lighting may include these features on sheets in the roadway plan set or detailed on the roadway plans When prepared as component plans they shall be assembled as a separate plans set complete with a key sheet, tabulation of quantities and all other relevant lighting sheets The sheets shall be numbered consecutively with the sheet numbers prefixed by the letter L.

The lighting plans shall show the construction details, electrical circuits, pole data, conduits, service points, luminaires, foundations, boring details and other relevant data

A complete set of lighting plans shall include the following sheets

Key Sheet
Tabulation of Quantities
Pole Data and Legend Sheet
Plan Sheets or Layout Sheets
Foundation Details - High Mast (if required)
Boring Data Sheets - High Mast (if required)

25.2 Key Sheet

The key sheet is the first sheet in the component plans set and shall be prepared as described in **Chapter 3.** The location map, length of project box and contract plans set information are not required on this sheet when shown on the lead key sheet. Index of lighting plans shall be shown on the left of the sheet The date of the governing ***Standard Specifications for Road and Bridge Construction*** and ***Roadway and Traffic Design Standards*** shall be inserted in a note below the index of plan sheets Other data, including name, consultant contract number and vendor number of the firm (when plans are prepared by a consultant), shall be shown as described in **Chapter 3**

25.3 Tabulation of Quantities and Standard Notes

The tabulation of quantities sheet lists the item numbers, description and quantity of materials This sheet shall be placed behind the key sheet in plans assembly

The tabulation of quantities sheet shall follow the key sheet Pay item numbers shall be listed in numerical order Provisions shall be made to show the original and final quantities per sheet

On contracts with multiple Financial Project ID's, or federal-aid and non-federal-aid quantities, provisions shall be made to tabulate and summarize their respective quantities

Pay item notes and standard notes that refer to item numbers shall also be shown on this sheet General notes shall be shown on a separate plan format sheet This sheet shall be placed behind the tabulation of quantities in the plans assembly. On minor projects, general notes may be combined with the tabulation of quantities sheet.

25.4 Pole Data and Legend Sheet

The pole data sheet shall be prepared on a standard plan format and shall include details and notes pertaining to pole placement and construction

This sheet shall provide a listing of each pole by pole number The following information shall also be given for each pole

Circuit Number
Roadway Station and Offset
Arm Length
Luminaire Wattage
Mounting Height
Pay Item Number

The pay item number will indicate if the pole is a standard pole or a special design. Two pay item numbers are utilized, one for standard poles and one for non-standard poles.

The design values for light intensities and uniformity ratios shall be shown together with a legend and description of the symbols used on the plan sheets.

25.5 Plan Sheets

25.5.1 Format and Scale

The plan sheets shall be prepared on a standard plan format. The scale shall be such that all details are clear and legible However, the scale shall not be smaller than 1" = 100' For simple projects, or for narrow sections of a project, it may be possible to "stack" two plans on one sheet, one below the other Stationing shall progress from left to right and top to bottom Clarity and legibility shall be preserved in all cases

A north arrow and scale shall be shown at a point of maximum visibility on the sheet If two plans are "stacked" on one sheet, each plan portion shall contain a north arrow and scale.

25.5.2 Required Information

The basic information pertaining to roadway geometrics and project limits required on the lighting plan sheets is the same as that required on the plan portion of the roadway plan-profile sheets. Topography and construction details need not be shown Utilities, drainage, signal structures, sign structures, landscape features, sidewalks, driveways, etc shall be checked for conflicts Those that may cause conflicts shall be shown

The lighting layout shall be shown on the plan format This shall be accomplished by symbols which represent poles, conduits and service points The symbols used shall be in accordance with the requirements of the FDOT Engineering/CADD Systems Software and shall be used throughout the plans A flag or note shall be used to identify conduit runs with conductor size or numbers different than that shown on the pole data sheet legend

The beginning and ending of the lighting limits shall be shown on the appropriate plan sheet(s). The symbols for poles shall be shown at the correct baseline or centerline station and the approximate offset from the roadway noted

The poles shall be flagged and specific information for each pole shall be shown The pole number, baseline or centerline station, circuit number and offset from baseline or centerline (for high mast) shall be shown

The service point locations shall be shown on the plan sheets as determined through utility negotiations **Index No. 17504** of the ***Roadway and Traffic Design Standards*** provides details for the service point The service point shall be shown at the location where it is to be installed The following information is not covered on the index and must be shown on

the plan sheet

Description--voltages, phases, etc Ex. 240/480 Volt, 3 wire, Overhead
Breaker sizes--The main breaker size and the number of branch circuits and the breaker size of each

25.6 Foundations and Boring Detail Sheets

The foundation design for standard conventional poles is shown in the ***Roadway and Traffic Design Standards, Index 17515, Sheet 3 of 8*** and ***Index 17503*** for non-standard conventional poles These foundations do not need to be shown in the plans Foundations for high mast poles are not in the Standards and must be designed by the responsible structures design engineer of record

Plans showing the foundation details and boring data for high mast poles shall be included in the lighting plans

Chapter 26

LANDSCAPE PLANS

Chapter 26

LANDSCAPE PLANS

26.1 General

Landscape plans are usually a component set of plans Projects with minor or typical landscaping may include these features on separate sheets in the roadway plans set or features may be detailed on roadway plans sheets When prepared as component plans they shall be assembled as a separate plans set complete with a key sheet, tabulation of quantities and all other relevant landscape sheets The sheets shall be numbered consecutively with the sheet numbers prefixed by the letters LD

A complete set of landscape plans shall include the following

Key sheet
Tabulation of Quantities
Planting Sheets
Irrigation Layout
Details Sheet
Other relevant plan sheets as outlined in this chapter

Additional information regarding landscape plans may be found in the ***Florida Highway Landscape Guide*** and the ***Highway Landscape, Beautification, and Plan Review Procedure (Topic No. 650-050-001)*** Standard landscape symbols are contained in the FDOT Engineering/CADD Systems Software

As stated in ***Chapter 481, Part II Florida Statutes*** and ***Rule Chapter 61G10-11.010 (2)*** "All plans, specifications or reports, including all permit documents, prepared or issued by the registered landscape architect and filed for public record shall be signed by the registered landscape architect, dated and stamped with his seal "

26.2 Key Sheet

The key sheet is the first sheet in the component plans set and shall be prepared as described in **Chapter 3** The location map, length of project box and contract plans set information are not required if shown on the lead key sheet The index of landscape plans shall be shown on the left of the sheet The date of the governing ***Standard***

Specifications for Road and Bridge Construction and ***Roadway and Traffic Design Standards*** shall be inserted in a note below the Index of Landscape Plans Other data, including name, consultant contract number and vendor number of the firm (when plans are prepared by a consultant) shall be shown as described in **Chapter 3**

26.3 Tabulation of Quantities

The tabulation of quantities sheet shall be prepared on a standard plan format and shall show all pay items, the breakdown of plants or materials within each pay item as applicable, the quantities of each, and the total quantities for all pay items Pay items shall be listed in numerical order Plant quantities may be tabulated by sheet either on this or on a separate sheet of "Quantities by Sheet"

Notes referring to specific pay items should be shown on this sheet Notes of a more general nature may be shown on this sheet or on the details sheet

The tabulation of quantities sheet or a similar sheet should also be utilized to tabulate the materials required for the construction of irrigation systems

On contracts with multiple Financial Project ID's or federal aid and non-federal aid quantities, provisions shall be made to tabulate and summarize their respective quantities

26.4 Details Sheet

This sheet shall show all details which are applicable to the project General notes and additional landscape and/or irrigation detail drawings may also be shown on this sheet

26.5 Planting and Irrigation Plan Sheets

26.5.1 Format and Scale

Plan sheets shall be prepared on a standard plan sheet format The scale shall be such that all details are clear and legible However, the scale shall not be smaller than 1" = 100' For simple projects, or narrow sections of a project, it may be possible to "stack" two plans on one sheet, one below the other Stationing shall progress from left to right and top to bottom Clarity and legibility shall be preserved in all cases

A north arrow and graphic scale shall be shown, as applicable, at a point of maximum visibility on the sheet If two plans are "stacked" on one sheet, each plan portion shall contain a north arrow and scale

26.5.2 Requirements for Planting Plan Sheets

The base information required is as follows

Project Centerline
Edge of Pavement (edge of traffic lanes)
Curbs or Curb and Gutter
Drainage Structures
Guardrails
Right of way and/or Limited Access Fence Line
Sidewalks or other planned or existing structures
Lighting, signs and signal poles
Intersections and driveways
Overhead and Underground Utility Locations
Clear Zone/Horizontal Clearance (should be plotted or safety setback distances noted frequently on each plan sheet)
Vegetation Management Zones for permitted outdoor advertising signs
Canopy limits and location of existing vegetation
Limits of clear sight (**Index No. 546** of the ***Roadway and Traffic Design Standards***)

All plants shall be located on the plans, with the following information provided in the plant schedule

- Common name
- Botanical name, including variety or cultivar
- Quantity
- Size when installed (height, spread, container size, clear trunk, multi-trunk, caliper, etc)
- Maximum maintained or typical mature height, spread and trunk diameter (6 inches above the ground) of normal mature specimens

26.5.3 Requirements for Irrigation Plan Sheets

These sheets shall be prepared using the planting plan sheets (devoid of unnecessary text and labeling) and shall contain all details and information pertaining to the irrigation system

Chapter 27

UTILITY JOINT PARTICIPATION AGREEMENT PLANS

Chapter 27

UTILITY JOINT PARTICIPATION AGREEMENT PLANS

27.1 General

Most utility adjustment work is performed by the utility owners or their contractor In some cases it is advantageous to the FDOT and Utility to include the utility work as part of the roadway contract In such cases the FDOT will enter into an agreement with a Utility for this purpose These agreements are called Joint Participation Agreements or JPA's The highway contractor is required to construct or relocate the specified utilities in accordance with the plans and special provisions developed by the Utility and incorporated as part of the bid package More than one utility plans set may be included For example, the contract plans may include separate plans for a gas utility and a water utility It is also possible for the utilities to combine their individual facilities into one plans set and supply them to the FDOT It is essential that the Engineer of Record (EOR) be aware which method is to be used This is necessary because reimbursable costs and quantities must be separated and identified in each utility project

Occasionally utility work may extend outside the normal construction limits of the project When this is the case the limits of the utility work shall be shown or noted on the plans

For JPA's, the utility plans shall be prepared in the same basic format as FDOT plans and as a separate plans set The plans shall contain the following

Key Sheet
Tabulation of Quantities
Plan-Profile Sheets
Cross Sections (as required)
Detail Sheets (as required)

The plans shall also reflect any special technical or relocation agreement provisions In some cases it may not be practical or reasonable to develop separate plans sets for incidental construction under a JPA The EOR should consult with the District Utility Engineer to determine the requirements in these cases For further guidance, the FDOT's ***Utility User's Handbook*** and the ***JPA Handbook*** should be used

27.2 Key Sheet

The key sheet, which shall be the first sheet in the set, shall be prepared on a standard key sheet format as described in **Chapter 3** of this volume Contract plans set information, location map and length of project box are not required if shown on the lead key sheet (usually roadway) An index of plan sheets shall be shown on the left side of the utility plans key sheet The date of the governing ***Standard Specifications for Road and Bridge Construction*** and ***Roadway and Traffic Design Standards*** shall be inserted in a note at the lower left corner of the key sheet

In the Financial Project ID, the phase number 56 indicates reimbursable work, and 52 indicates non-reimbursable work All other data shall be as described in **Chapter 3** of this volume

27.3 Tabulation of Quantities

The tabulation of quantities sheet shall be prepared in standard FDOT format and should show any quantities tabulated for location, size, quantity, etc Standard notes referring to item numbers shall also be shown on this sheet or on plan sheets

Summary of pay item sheets will be prepared as noted in **Chapter 4**

27.4 Plan Sheets

Utility plans shall show full construction details for all utilities to be relocated or constructed by the contractor as covered by the JPA Agreement A plan-profile sheet format should be utilized where appropriate All underground utilities shall be shown in the plan portion, and those which equal or exceed 4" shall also be shown in the profile portion All above ground Utilities shall be shown in the plan portion (inclusive of underground connections)

When the construction limits are restricted such as when a power line is above and near a sanitary or water facility, either the facility (overhead lines) must be identified and shown in profile, or the minimum available vertical clearances, along with the type facility, stated on the plans Applicable project information shall be shown similar to that described in **Chapter 10** Utilities to be relocated or constructed shall be shown in plan and profile and in accordance with the FDOT Engineering/CADD Systems Software When practical, the scale used should be the same as that used for the roadway plan-profile sheets

COMPONENTS OF CONTRACT PLANS SET

ROADWAY PLANS
SIGNING AND PAVEMENT MARKING PLANS
SIGNALIZATION PLANS
LIGHTING PLANS
LANDSCAPE PLANS
ARCHITECTURAL PLANS
STRUCTURE PLANS

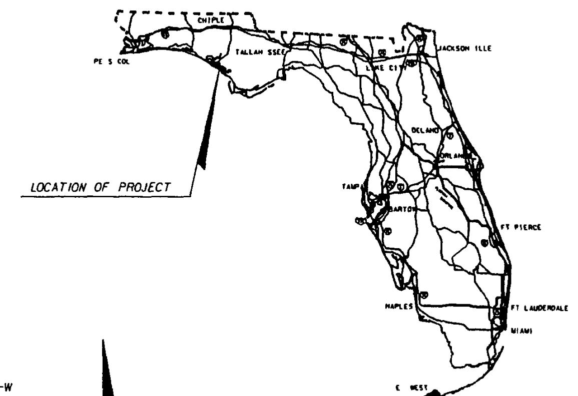
EXAMPLE ONLY: CONTRACT PLANS SET MAY NOT CONTAIN ALL OF THE LISTED COMPONENTS/SHEETS

A DETAILED INDEX APPEARS ON THE KEY SHEET OF EACH COMPONENT

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

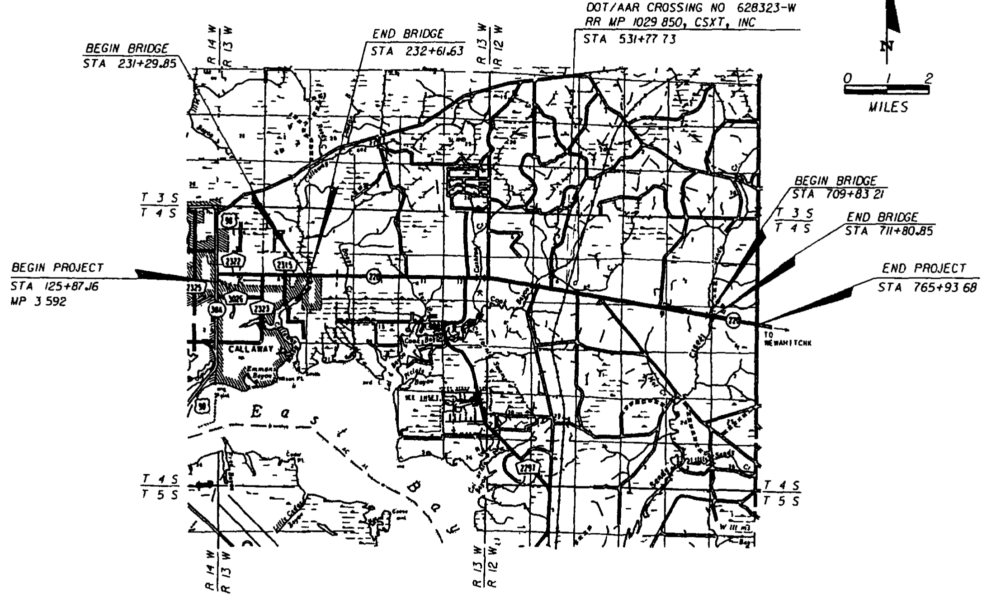
CONTRACT PLANS

FINANCIAL PROJECT ID 000001-1-52-01
(FEDERAL FUNDS)
BAY COUNTY (46001)
STATE ROAD NO. 220



INDEX OF ROADWAY PLANS

SHEET NO	SHEET DESCRIPTION
1	KEY SHEET
2 - 2A	SUMMARY OF PAY ITEMS
3	DRAINAGE MAP
4 5	TYPICAL SECTIONS
6	TYPICAL SECTION DETAILS
7	SUMMARY OF QUANTITIES
8 14	BOX CULVERT DATA SHEETS
15 16	SUMMARY OF DRAINAGE STRUCTURES
17	PROJECT LAYOUT
18 - 22	ROADWAY PLAN-PROFILES
23 - 24	SPECIAL PROFILES
25	INTERSECTION LAYOUT/DETAIL
26- 32	DRAINAGE STRUCTURES
33	LATERAL DITCH PLAN-PROFILES
34	LATERAL DITCH CROSS SECTIONS
35	SPECIAL DETAILS
36	ROADWAY SOIL SURVEY
37 - 47	CROSS SECTIONS
48 - 52	TRAFFIC CONTROL PLANS
53 - 57	UTILITY ADJUSTMENTS
58 - 62	SELECTIVE CLEARING AND GRUBBING



ROADWAY SHOP DRAWINGS TO BE SUBMITTED TO

NAME(S) AND ADDRESS(ES) OF ENGINEER(S) RESPONSIBLE FOR REVIEW OF SHOP DRAWINGS WHEN REQUIRED

PLANS PREPARED BY

NAME ADDRESS CONTRACT NUMBER AND VENDOR NUMBER OF THE CONSULTANT FIRM WHEN THE PLANS ARE PREPARED BY A CONSULTANT

NOTE THIS PROJECT TO BE LET TO CONTRACT WITH FINANCIAL PROJECT ID 000001 1 52 04

NOTE THE SCALE OF THESE PLANS MAY HAVE CHANGED DUE TO REPRODUCTION

GOVERNING STANDARDS AND SPECIFICATIONS
FLORIDA DEPARTMENT OF TRANSPORTATION
ROADWAY AND TRAFFIC DESIGN STANDARDS
DATED JANUARY __ AND
STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE
CONSTRUCTION DATED
AS AMENDED BY CONTRACT DOCUMENTS

REVISIONS

FINANCIAL PROJECT ID 000001 1 52-01

Roadway Sheets 1 6 7 & 13 (Revised 3 30 96)
Signing & Pavement Marking Sheets S 2 & S 3 (Revised 3 30 96)
Signalization Sheets T 1 & T 2 (Revised 11 30 96)
Roadway Sheets 14 & 33 (Revised 3 31 97)
Summary Of Pay Items (Revised 3 31 97)

FINANCIAL PROJECT ID 000001-1 52 04

Roadway Sheets 1 8 & 10 (Revised 3 31 97)
Structure Sheets B 1 & C 1 thru C 10 (Revised 11 30 97)

LENGTH OF PROJECT

	LIN FT	MILES
ROADWAY	63,677 10	12 060
BRIDGES	329 42	0 062
NET LENGTH OF PROJ	64,006 52	12 122
EXCEPTIONS		
GROSS LENGTH OF PROJ	64,006 52	12 122

FDOT PROJECT MANAGER

KEY SHEET REVISIONS

DATE	BY	DESCRIPTION
3 96	JBW	Revised sequence of contract plans

ROADWAY PLANS
ENGINEER OF RECORD ____________

P.E NO ________

EXHIBIT KS-1
Date 1/1/00

FISCAL YEAR	SHEET NO

$$$$$$SYTIME$$$$$$ $$$$$$$DGNSPECIFICATION$$$$$$$
$DATE$ $TIME$ $FILE$

COMPONENTS OF CONTRACT PLANS SET

ROADWAY PLANS
SIGNING AND PAVEMENT MARKING PLANS
SIGNALIZATION PLANS
LIGHTING PLANS
LANDSCAPE PLANS
ARCHITECTURAL PLANS
STRUCTURE PLANS

EXAMPLE ONLY: CONTRACT PLANS SET MAY NOT CONTAIN ALL OF THE LISTED COMPONENTS/SHEETS

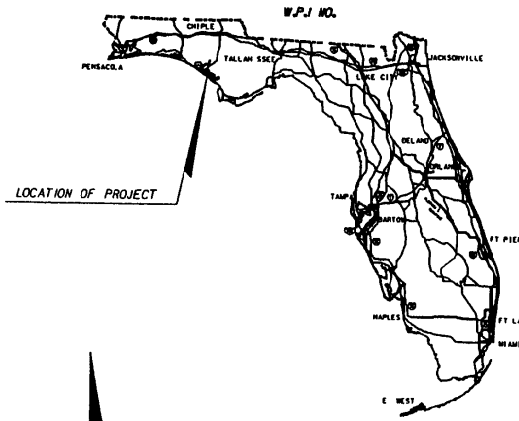
A DETAILED INDEX APPEARS ON THE KEY SHEET OF EACH COMPONENT

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

CONTRACT PLANS

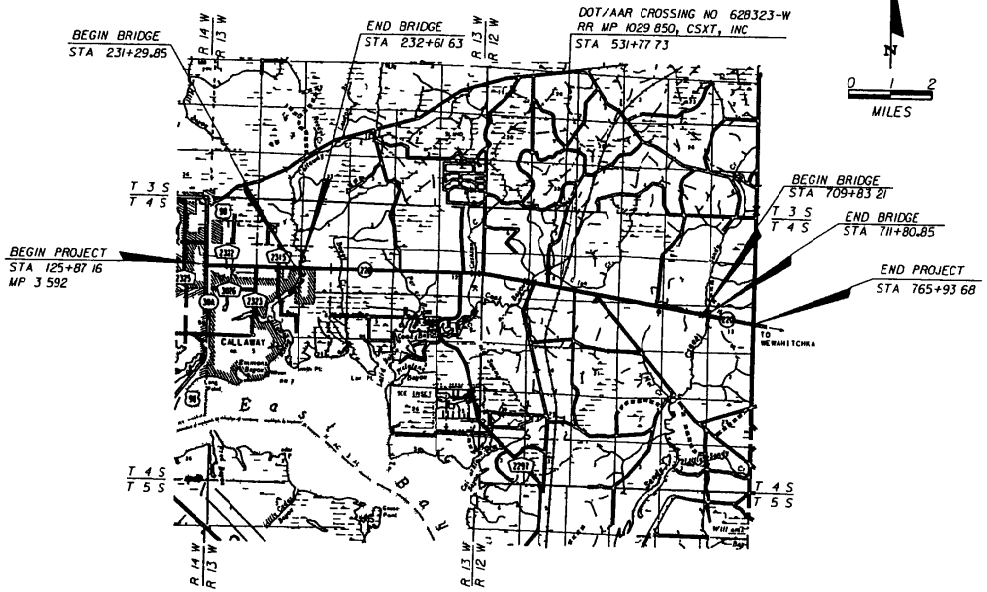
FINANCIAL PROJECT ID 000001-1-52-01
STATE PROJECT NO. 46001-3502
(FEDERAL FUNDS)
BAY COUNTY
STATE ROAD NO. 220

W.P.I NO.



LOCATION OF PROJECT

INDEX OF ROADWAY PLANS



N
0 1 2
MILES

ROADWAY SHOP DRAWINGS TO BE SUBMITTED TO

NAME(S) AND ADDRESS(ES) OF ENGINEER(S) RESPONSIBLE FOR REVIEW OF SHOP DRAWINGS WHEN REQUIRED

PLANS PREPARED BY:

NAME ADDRESS CONTRACT NUMBER AND VENDOR NUMBER OF THE CONSULTANT FIRM WHEN THE PLANS ARE PREPARED BY A CONSULTANT

NOTE THIS PROJECT TO BE LET TO CONTRACT WITH FINANCIAL PROJECT ID 000001-1 52 04

NOTE: THE SCALE OF THESE PLANS MAY HAVE CHANGED DUE TO REPRODUCTION

GOVERNING STANDARDS AND SPECIFICATIONS:
FLORIDA DEPARTMENT OF TRANSPORTATION
ROADWAY AND TRAFFIC DESIGN STANDARDS
DATED JANUARY ____ AND
STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE
CONSTRUCTION DATED ____
AS AMENDED BY CONTRACT DOCUMENTS

REVISIONS

FINANCIAL PROJECT ID 000001 1-52-01

Roadway Sheets 1 6 7 & 13 (Revised 3-30 96)
Signing & Pavement Marking Sheets S-2 & S-3 (Revised 3-30 96)
Signalization Sheets T 1 & T-2 (Revised 11 30 96)
Roadway Sheets 14 & 33 (Revised 3-31-97)
Summary Of Pay Items (Revised 3-31-97)

FINANCIAL PROJECT ID 000001-1-52-04

Roadway Sheets 1 8 & 10 (Revised 3-31 97)
Structure Sheets B 1 & C 1 thru C-10 (Revised 11-30 97

LENGTH OF PROJECT		
	LIN FT	MILES
ROADWAY	63,677.10	12.060
BRIDGES	329.42	0.062
NET LENGTH OF PROJ	64,006.52	12.122
EXCEPTIONS		
GROSS LENGTH OF PROJ	64,006.52	12.122

KEY SHEET REVISIONS		
DATE	BY	DESCRIPTION
3 96	JBW	Revised sequence of contract plans

FDOT PROJECT MANAGER

ROADWAY PLANS ENGINEER OF RECORD: _____

P.E NO _____

EXHIBIT KS-2
Date 1/1/00

FISCAL YEAR	SHEET NO

1 11/18/96
CES0154

CESPJ15 4
PAGE 01 OF 01

99000 3011

SUMMARY OF BRIDGE PAY ITEMS

A S L P T C	ITEM NUMBER	ITEM	UNIT	99000 3011 BR 991234 FA NON PART				QUANTITY TOTAL
1	110 3	STRUCTURES REMOVAL OF EXISTING	LS	1 000				1 000
1	400 7	BRIDGE FLOOR GROOVING	ST	2839 000				2839 000
2	400 148 1	TRAFFIC RAILING (F81)(BARRIER)	LF	2454 000				2454 000
1	415 1 4	REINFORCING STEEL (SUPERSTRUCTURE)	LB	427592 000				427592 000
1	415 1 5	REINFORCING STEEL (SUBSTRUCTURE)	LB	63855 000				63855 000
1	455 3 2	PILING FURNISHED (PRESTRESSED CONCRETE)(18 SQ)	LF	5512 000				5512 000
1	455 4 2	PILING DRIVEN (PRESTRESSED CONCRETE)(18 SQ)	LF	5512 000				5512 000
1	455 15	PILE HOLE PREFORMED	EA	8 000				8 000
1	455 17 2	PILE SPLICES (18)	EA	4 000				4 000
1	455 85 11	PILE EXTRACTION (0 50 PENETRATION) 18 SQ)	EA	4 000				4 000
1	455 115	PILE REDRIVE	EA	4 000				4 000
1	455 137	TEST LOAD (DYNAMIC)	EA	8 000				8 000
1	455 140 12	TEST PILES FURNISHED (18 SQ)	LF	1267 000				1267 000
1	455 141 12	TEST PILES DRIVEN (18 SQ)	LF	1267 000				1267 000
1	530 3 3	RIPRAP (RUBBLE) (BANK AND SHORE)	TN	2834 000				2834 000
AA 1	400 2 4	CONCRETE CLASS II (SUPERSTRUCTURE)	CY	1088 000				1088 000
AB 1	400 4 4	CONCRETE CLASS IV (SUPERSTRUCTURE)	CY	1088 000				1088 000
BA 1	400 2 5	CONCRETE CLASS II (SUBSTRUCTURE)	CY	319 000				319 000
BB 1	400 4 5	CONCRETE CLASS IV (SUBSTRUCTURE)	CY	319 000				319 000

NOTE IDENTIFIES ITEMS NORMALLY REQUIRING SHOP DRAWINGS CONTRACTOR SHALL DETERMINE OTHER ITEMS REQUIRING SHOP DRAWINGS

1 11/18/96
CES0152

CESPJ15 2
PAGE 01 OF 01

99000 3011

SUMMARY OF ROADWAY PAY ITEMS

A S L P T C	ITEM NUMBER	ITEM	UNIT	99000 3011 FA NON PART				QUANTITY TOTAL
1	101 1	MOBILIZATION	LS	1 000				1 000
1	102 1	MAINTENANCE OF TRAFFIC	LS	1 000				1 000
1	102 2 1	SPECIAL DETOUR (DETOUR 1)	LS	1 000				1 000
2	102 70 11	BARRIER WALL (TEMP) (F81)(STANDARD)(CONCRETE)	LF	3871 000				3871 000
2	102 70 21	BARRIER WALL (TEMP) (REL)(STANDARD)(CONCRETE)	LF	3871 000				3871 000
2	102 74 1	BARRICADE (TEMPORARY)(TYPES I II VP 8 DRUM)	LF	3871 000				3871 000
3	102 60	WORK ZONE SIGNS	ED	217000 000				217000 000
2	102 76	PANELS ARROW ADVANCE WARNING	ED	71610 000				71610 000
2	102 79	LIGHTS(TEMP BARR WALL MOUNT)(TYPE C STEADY BURN)	ED	2604 000				2604 000
2	102 81 1	IMPACT ATTENUATOR MODULES VEHIC (INERTIA)(TEMP)	ED	25606 000				25606 000
4	102 89 1	IMPACT ATTEN VEHIC (TEMP)(GREAT CZ)	EA	20 000				20 000
1	104 10	HAY OR STRAW BALED	LO	2 000				2 000
1	104 13 1	SILT FENCE STAKED (TYPE III)	EA	5 000				5 000
2	110 7 1	MAILBOX (F81) (SINGLE)	LF	2986 000				2986 000
3	120 1	EXCAVATION REGULAR	EA	5 000				5 000
1	160 4	STABILIZATION TYPE B	CY	8385 000				8385 000
1	285 706	BASE OPTIONAL (BASE GROUP 06)	SY	35340 000				35340 000
1	285 715	BASE OPTIONAL (BASE GROUP 15)	SY	10308 000				10308 000
1	300 1 3	BITUMINOUS MATERIAL (TACK COAT)	SY	53079 000				53079 000
1	327 70 040	MILLING EXISTING ASPHALT PAVT (1 1/2 AVG DEPTH)	GA	3182 000				3182 000
3	331 2	ASPHALTIC CONCRETE TYPE S	SY	348792 000				348792 000
1	337 5 2	ASPH CONC FRICT COURSE (INC RUBBER)(60LB/SY FC 2)	TN	45812 000				45812 000
1	339 1	ASPHALT PAVEMENT MISCELLANEOUS	SY	400201 000				400201 000
1	360 1	APPROACH SLABS CONCRETE	TN	94 000				94 000
1	425 1 525	INLETS (DT BOT) (TYPE C) (PARTIAL)	EA	8 000				8 000
1	425 1 541	INLETS (DT BOT) (TYPE D) (10)	EA	3 000				3 000
1	425 1 543	INLETS (DT BOT) (TYPE D) (J BOTTOM 10)	EA	4 000				4 000
1	425 1 701	INLETS (GUTTER) (TYPE S) (10)	EA	34 000				34 000
1	430 171 23	PIPE STORM SEWER CULV (OPTIONAL MATERIAL)(15)	EA	2 000				2 000
1	430 171 25	PIPE STORM SEWER CULV (OPTIONAL MATERIAL)(18)	LF	182 000				182 000
1	430 171 29	PIPE STORM SEWER CULV (OPTIONAL MATERIAL)(24)	LF	303 000				303 000
1	430 171 33	PIPE STORM SEWER CULV (OPTIONAL MATERIAL)(30)	LF	141 000				141 000
1	430 171 38	PIPE STORM SEWER CULV (OPTIONAL MATERIAL)(36)	LF	339 000				339 000
1	430 171 40	PIPE STORM SEWER CULV (OPTIONAL MATERIAL)(42)	LF	456 000				456 000
1	430 172 33	PIPE CROSS DRAIN CULV (OPTIONAL MATERIAL)(30)	LF	270 000				270 000
1	520 6	GUTTER SHOULDER CONCRETE	LF	122 000				122 000
1	524 1 2	DITCH PAVEMENT CONCRETE (4 THICK)	SY	3638 000				3638 000
1	536 1 1	GUARDRAIL (ROADWAY)	LF	560 000				560 000
2	536 73	GUARDRAIL REMOVAL	LF	5906 000				5906 000
4	536 85 1	GUARDRAIL END ANCHORAGE ASSEMBLY TYPE II	EA	492 000				492 000
4	536 85 5	GUARDRAIL END ANCHORAGE ASSEMBLY TYPE MELT	EA	4 000				4 000
1	570 2	SEEDING AND MULCHING	SY	4 000				4 000
1	570 3	SEED GRASS (PERMANENT TYPE)	LB	250436 000				250436 000
1	570 4	MULCH MATERIAL	TN	1431 000				1431 000
1	570 5	FERTILIZER	TN	191 100				191 100
1	570 9	WATER FOR GRASSING	MG	22 000				22 000
1	570 10	SEED GRASS (QUICK GROWING TYPE)	LB	309 000				309 000
1	575 1 3	SODDING (ARGENTIA BAHIA)	SY	1909 000				1909 000
1	710 21	TRAFFIC STRIPE SKIP (WHITE/BLACK/BLUE)	GM	30856 000				30856 000
3	710 23 61	TRAFFIC STRIPE SOLID (WHITE/BLACK/BLUE (6)	NM	35 791				35 791
				71 582				71 582

EXHIBIT SPI-1
Date 1/1/00

SHEET 1 of 2

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID

SUMMARY OF PAY ITEMS

SHEET NO

I 11/18/96
CES0152

CESPJ15 2
PAGE 02 OF 01

99000 3011

SUMMARY OF ROADWAY PAY ITEMS CONTRACT ITEMS CONTINUED

ALT SPC	ITEM NUMBER	ITEM	UNIT	99000 3011 FA NON PART				QUANTITY TOTAL
1	710 29	REFLECTIVE PAINT (ISLAND NOSE)(WHITE)	SY	3245 000				3245 000

NOTE IDENTIFIES ITEMS NORMALLY REQUIRING SHOP DRAWINGS CONTRACTOR SHALL DETERMINE OTHER ITEMS REQUIRING SHOP DRAWINGS

I 11/18/96
CES0152

CESPJ15 2
PAGE 01 OF 01

99000 3011

SUMMARY OF SIGNING PAY ITEMS

ALT SPC	ITEM NUMBER	ITEM	UNIT	99000 3011 FA NON PART				QUANTITY TOTAL
1	700 40 1	SIGN SINGLE POST (12)	AS	159 000				159 000
1	700 40 2	SIGN SINGLE POST (12 OR GREATER)	AS	11 000				11 000
1	700 41 10	SIGN MULTI POST (50 OR LESS)	AS	5 000				5 000
1	700 46 11	SIGN EXISTING (REMOVAL) (SINGLE POST)	AS	157 000				157 000
1	700 46 12	SIGN EXISTING (REMOVAL) (MULTI POST)	AS	6 000				6 000
3	705 2	DELINEATOR DOUBLE UNIT	EA	88 000				88 000
1	706 1 12	MARKER PAVEMENT REFLECTIVE(F&I) (CLASS B)	EA	2456 000				2456 000
1	711 3	PAVEMENT MESSAGE (THERMOPLASTIC)	EA	40 000				40 000
1	711 4	DIRECTIONAL ARROW (THERMOPLASTIC)	EA	45 000				45 000
3	711 31	TRAFFIC STRIPE SKIP (THERMOPLASTIC) (WHITE)	GM	15 653				15 653
3	711 35 181	TRAFFIC STRIPE SOLID(THERMOPLASTIC WHITE) (18)	LF	3186 000				3186 000
3	711 35 241	TRAFFIC STRIPE SOLID(THERMOPLASTIC WHITE) (24)	LF	1335 000				1335 000
3	711 37 61	TRAFFIC STRIPE SOLID(THERMOPLASTIC WHITE) (6)	NM	22 096				22 096

NOTE IDENTIFIES ITEMS NORMALLY REQUIRING SHOP DRAWINGS CONTRACTOR SHALL DETERMINE OTHER ITEMS REQUIRING SHOP DRAWINGS

EXHIBIT SPI-2
Date 1/1/00
SHEET 2 of 2

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

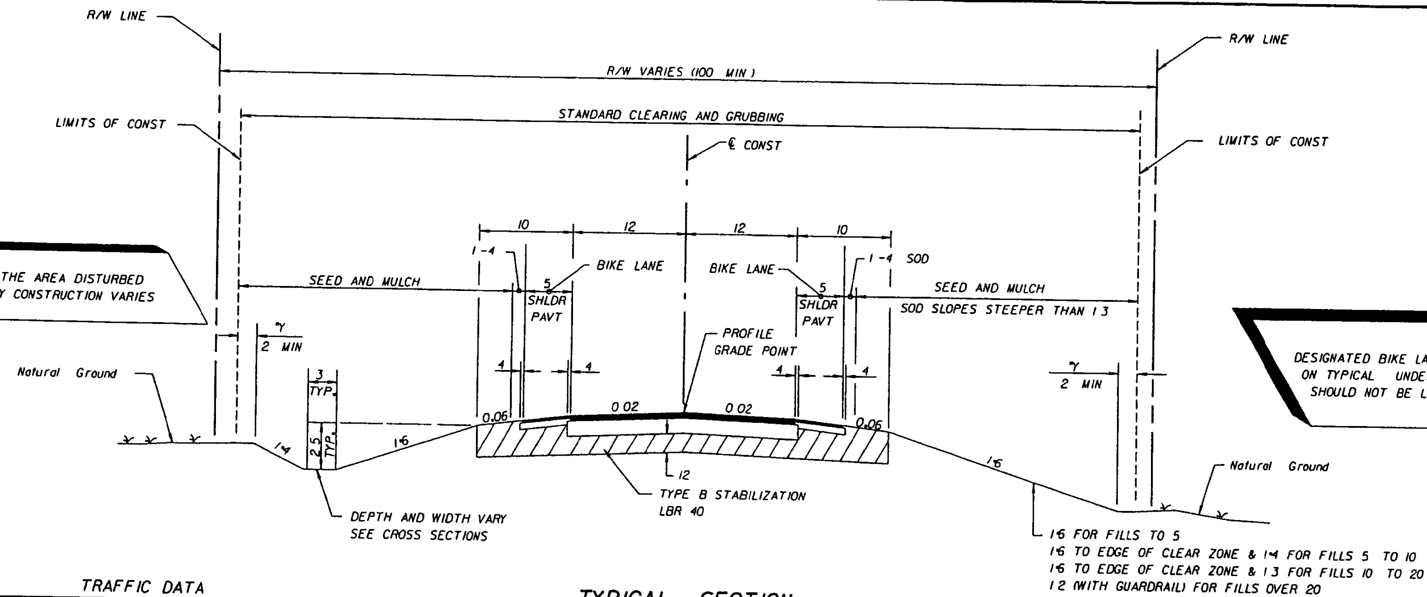
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID

SUMMARY OF PAY ITEMS

SHEET NO

******SYTIME****** *******DGNSPECIFICATION*******
DATE *TIME* *FILE*



Y THE AREA DISTURBED BY CONSTRUCTION VARIES

2-LANE (2-WAY)
ARTERIAL/COLLECTOR
NEW CONSTRUCTION
RURAL
WITH DESIGNATED OR
UNDESIGNATED BIKE LANE
DESIGN SPEED 55 MPH
OR GREATER
WITH PROJECTED
20 YR AADT OF 1500
OR GREATER

DESIGNATED BIKE LANES SHALL BE LABELED ON TYPICAL UNDESIGNATED BIKE LANES SHOULD NOT BE LABELED ON TYPICAL

TRAFFIC DATA

CURRENT YEAR = 1998 AADT = 6800
ESTIMATED OPENING YEAR = 2000 AADT = 7600
ESTIMATED DESIGN YEAR = 2020 AADT = 15000
K = 6/ D = 55/ T = 2/ (24 HOUR)
DESIGN HOUR T = 1/
DESIGN SPEED = 45 MPH

TYPICAL SECTION
SR 10 (U.S. 90-A)
STA. 10+00.00 TO STA. 267+34.89

NOTE
HEIGHT OF FILL IS THE VERTICAL DISTANCE FROM THE EDGE OF THE OUTSIDE TRAVEL LANE TO TOE OF FRONT SLOPE

NEW CONSTRUCTION

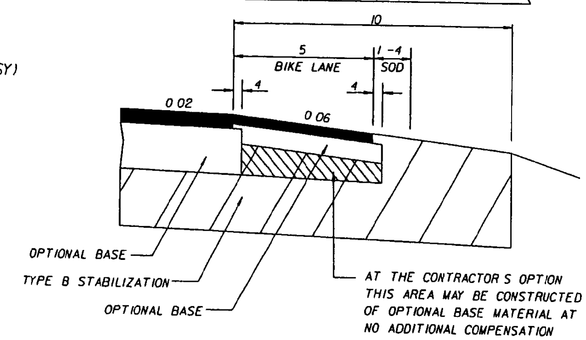
OPTIONAL BASE GROUP 8 WITH
TYPE SP STRUCTURAL COURSE (TRAFFIC C) (200 LBS/SY)
AND FRICTION COURSE FC-6 (160 LBS/SY) (RUBBER)

SHOULDER PAVEMENT

OPTIONAL BASE GROUP 1 WITH
FRICTION COURSE FC-6 (160 LBS/SY) (RUBBER)

TRAFFIC DATA IS REQUIRED TO BE NOTED FOR CURRENT YEAR OPENING YEAR AND DESIGN YEAR POSTED SPEED (MPH) IS OPTIONAL

FOR STANDARD TYPICAL SECTION NOTES REFER TO EXHIBIT 6-1, THIS CHAPTER



SHOULDER PAVEMENT DETAIL

EXHIBIT TYP-1
Date 1/1/00

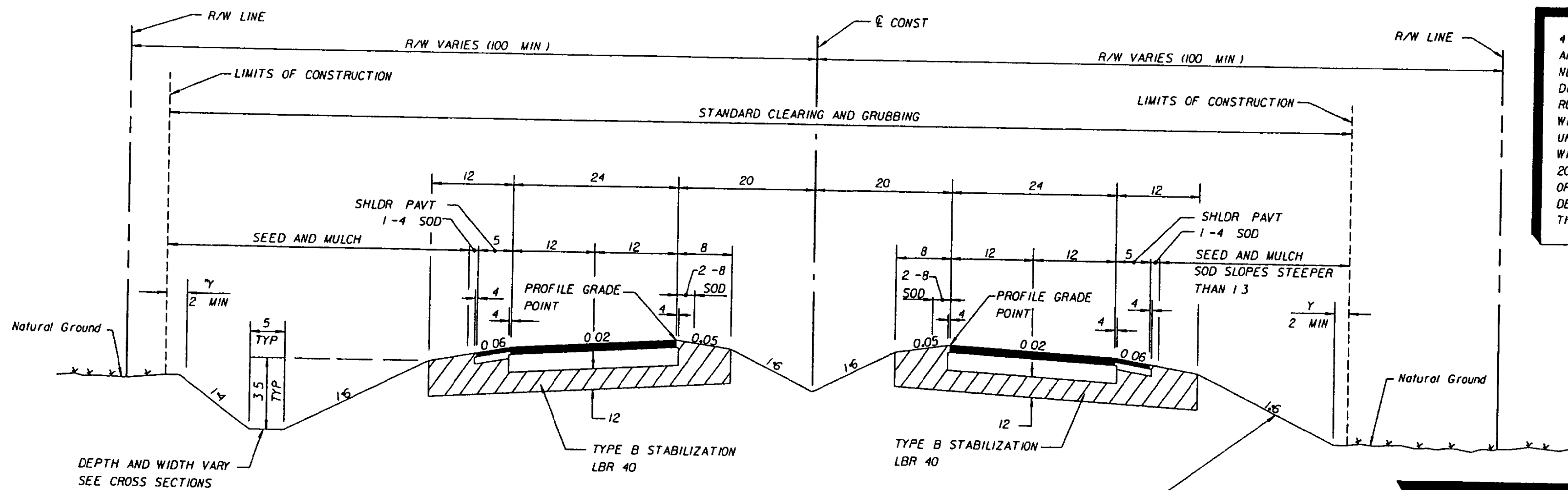
REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID

TYPICAL SECTION

SHEET NO



4 LANE
ARTERIAL/COLLECTOR
NEW CONSTRUCTION
DIVIDED
RURAL
WITH DESIGNATED OR UNDESIGNATED BIKE LANE
WITH PROJECTED 20 YR AADT OF 1500 OR GREATER
DESIGN SPEED GREATER THAN 50 MPH

*Y THE AREA DISTURBED BY CONSTRUCTION VARIES

TRAFFIC DATA

CURRENT YEAR = 1998 AADT = 22300
ESTIMATED OPENING YEAR = 2000 AADT = 23300
ESTIMATED DESIGN YEAR = 2020 AADT = 51500
K = 9/ D = 56/ T = 10/ (24 HOUR)
DESIGN HOUR T = 5/
DESIGN SPEED = 70 MPH

DESIGNATED BIKE LANES SHALL BE LABELED ON TYPICAL UNDESIGNATED BIKE LANES SHOULD NOT BE LABELED ON TYPICAL

TRAFFIC DATA IS REQUIRED TO BE NOTED FOR CURRENT YEAR, OPENING YEAR, AND DESIGN YEAR POSTED SPEED (MPH) IS OPTIONAL

FOR STANDARD TYPICAL SECTION NOTES REFER TO EXHIBIT 6-1, THIS CHAPTER

TYPICAL SECTION
SR 500
STA. 63+65.42 TO STA. 328+65.14

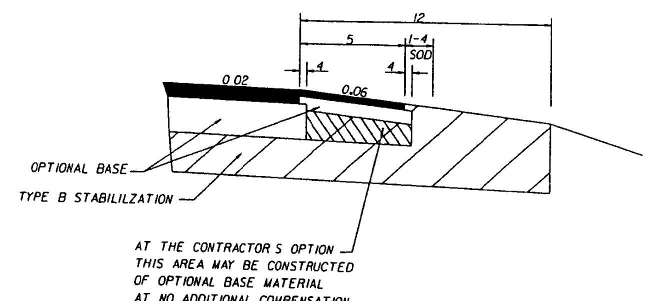
NEW CONSTRUCTION

OPTIONAL BASE GROUP 9 WITH
TYPE SP STRUCTURAL COURSE (TRAFFIC D) (350 LBS/SY)
AND FRICTION COURSE FC-5 (80 LBS/SY) (RUBBER)

SHOULDER PAVEMENT

OPTIONAL BASE GROUP 1 WITH
TYPE SP STRUCTURAL COURSE (TRAFFIC D) (150 LBS/SY)
AND FRICTION COURSE FC-5 (80 LBS/SY) (RUBBER)

NOTE
HEIGHT OF FILL IS THE VERTICAL DISTANCE FROM THE EDGE OF THE OUTSIDE TRAVEL LANE TO TOE OF FRONT SLOPE



SHOULDER PAVEMENT DETAIL

EXHIBIT TYP-2
Date 1/1/00

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID

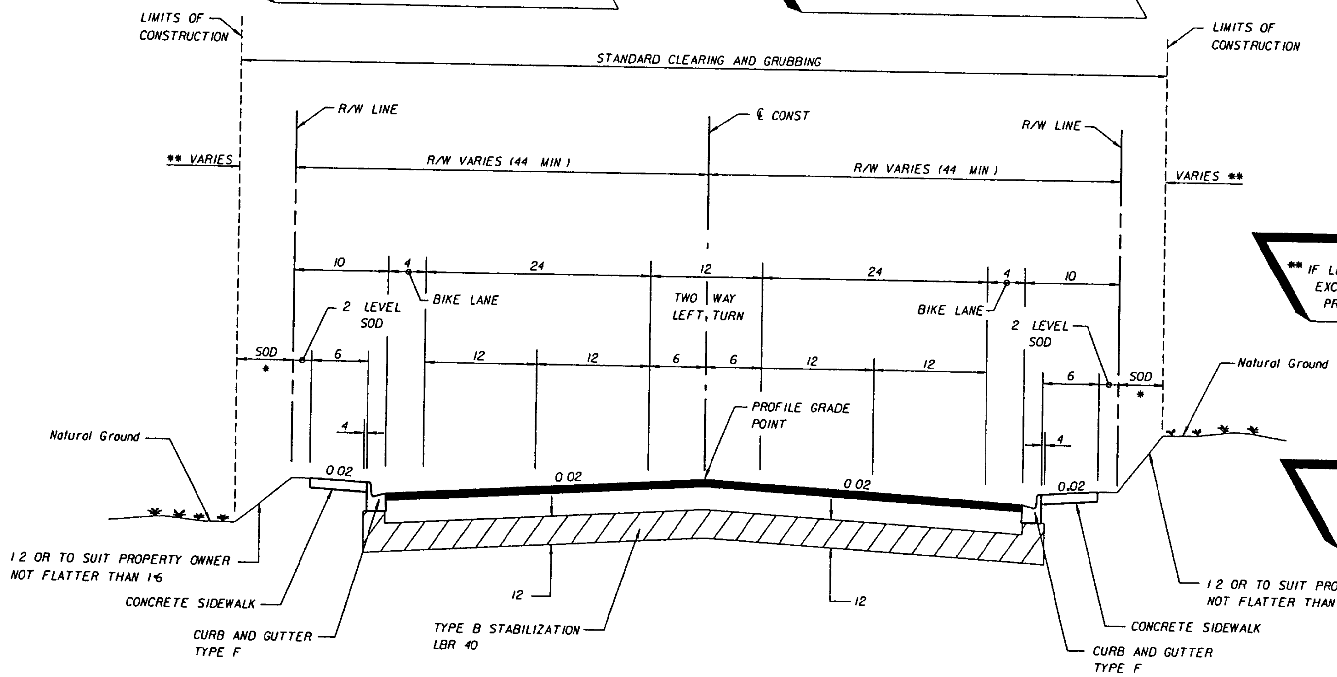
TYPICAL SECTION

SHEET NO

DESIGNATED BIKE LANES SHALL BE LABELED ON TYPICAL UNDESIGNATED BIKE LANES SHOULD NOT BE LABELED ON TYPICAL

5-LANE SECTIONS ARE TO INCLUDE SECTIONS OF RAISED OR RESTRICTIVE MEDIAN SEE PPM TABLE 2 2 1

5-LANE
ARTERIAL/COLLECTOR
NEW CONSTRUCTION
UNDIVIDED
URBAN
WITH DESIGNATED OR UNDESIGNATED BIKE LANE
MINIMUM RIGHT OF WAY
DESIGN SPEED 40 MPH OR LESS
WITH PROJECTED 20 YR AADT OF 1500 OR GREATER



** IF LIMITS OF CONSTRUCTION EXCEEDS RIGHT OF WAY, A PROPERTY AGREEMENT IS REQUIRED

* SEED
SEED AND MULCH
SOD OR SEED
SOD

TRAFFIC DATA

CURRENT YEAR = 1998 AADT = 9900
ESTIMATED OPENING YEAR = 2000 AADT = 10600
ESTIMATED DESIGN YEAR = 2020 AADT = 14000
K = 6/ D = 55/ T = 2/ (24 HOUR)
DESIGN HOUR T = 1/
DESIGN SPEED = 45 MPH

TYPICAL SECTION
SR 00 (DUVAL STREET)
STA. 252+12.00 TO STA. 323+19.42

NEW CONSTRUCTION

OPTIONAL BASE GROUP 8 WITH
TYPE SP STRUCTURAL COURSE (TRAFFIC B) (150 LBS/SY)
AND FRICTION COURSE FC-6 (160 LBS/SY) (RUBBER)

FOR STANDARD TYPICAL SECTION NOTES REFER TO EXHIBIT 6-1, THIS CHAPTER

TRAFFIC DATA IS REQUIRED TO BE NOTED FOR CURRENT YEAR OPENING YEAR AND DESIGN YEAR
POSTED SPEED (MPH) IS OPTIONAL

EXHIBIT TYP-3
Date 1/1/00

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID

TYPICAL SECTION

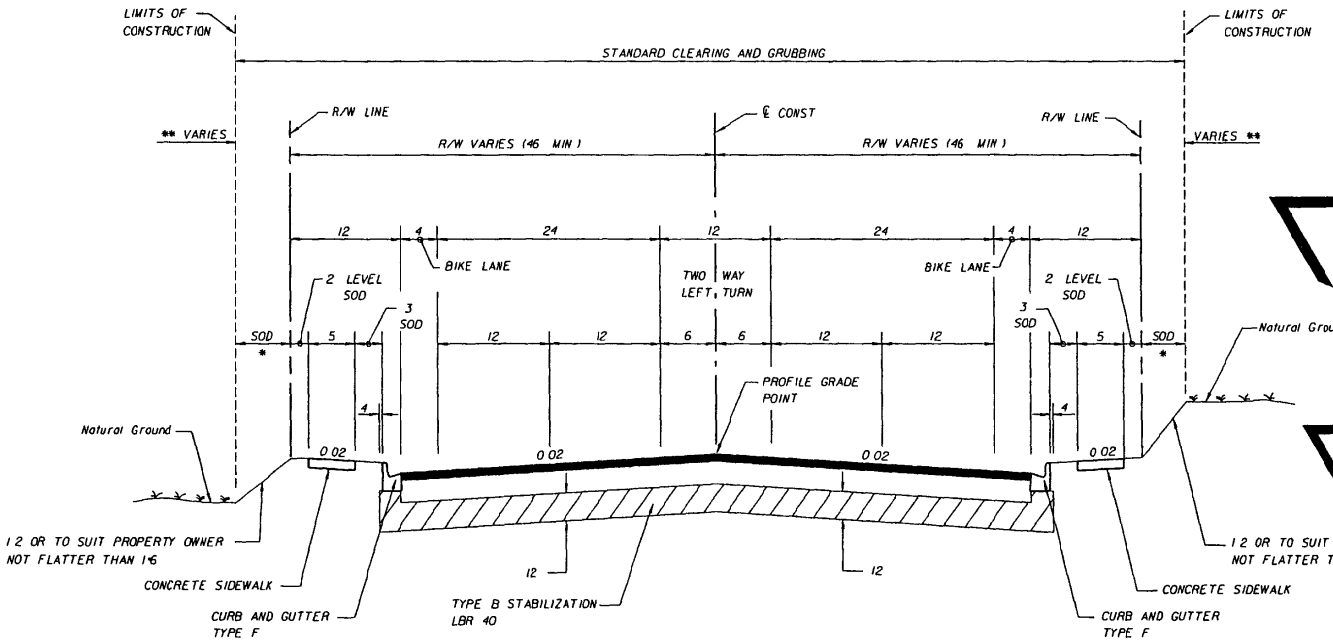
SHEET NO

$$$$$$SYTIME$$$$$$ $$$$$$$DGNSPECIFICATION$$$$$$$
$DATE$ $TIME$ $FILE$

DESIGNATED BIKE LANES SHALL BE LABELED ON TYPICAL UNDESIGNATED BIKE LANES SHOULD NOT BE LABELED ON TYPICAL

5-LANE SECTIONS ARE TO INCLUDE SECTIONS OF RAISED OR RESTRICTIVE MEDIAN SEE PPM TABLE 2.2.1

5-LANE
ARTERIAL/COLLECTOR
NEW CONSTRUCTION
UNDIVIDED
URBAN
WITH DESIGNATED OR
UNDESIGNATED BIKE LANE
DESIGN SPEED 40 MPH
OR LESS
WITH PROJECTED
20 YR AADT OF 1500
OR GREATER



** IF LIMITS OF CONSTRUCTION EXCEEDS RIGHT OF WAY A PROPERTY AGREEMENT IS REQUIRED

* SEED
SEED AND MULCH
SOD OR SEED
SOD

TRAFFIC DATA

CURRENT YEAR = 1998 AADT = 20819
ESTIMATED OPENING YEAR = 2003 AADT = 24100
ESTIMATED DESIGN YEAR = 2023 AADT = 24900
K = 9/ D = 60/ T = 2/ (24 HOUR)
DESIGN HOUR T = 2/
DESIGN SPEED = 40 MPH

TYPICAL SECTION
SR 00 (MATTHEWS STREET)
STA. 202+42.00 TO STA. 263+29.68

NEW CONSTRUCTION

OPTIONAL BASE GROUP 8 WITH
TYPE SP STRUCTURAL COURSE (TRAFFIC B) (150 LBS/SY)
AND FRICTION COURSE FC-6 (160 LBS/SY) (RUBBER)

FOR STANDARD TYPICAL SECTION NOTES REFER TO EXHIBIT 6-1, THIS CHAPTER

TRAFFIC DATA IS REQUIRED TO BE NOTED FOR CURRENT YEAR, OPENING YEAR AND DESIGN YEAR POSTED SPEED (MPH) IS OPTIONAL

EXHIBIT TYP-4
Date 1/1/00

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID

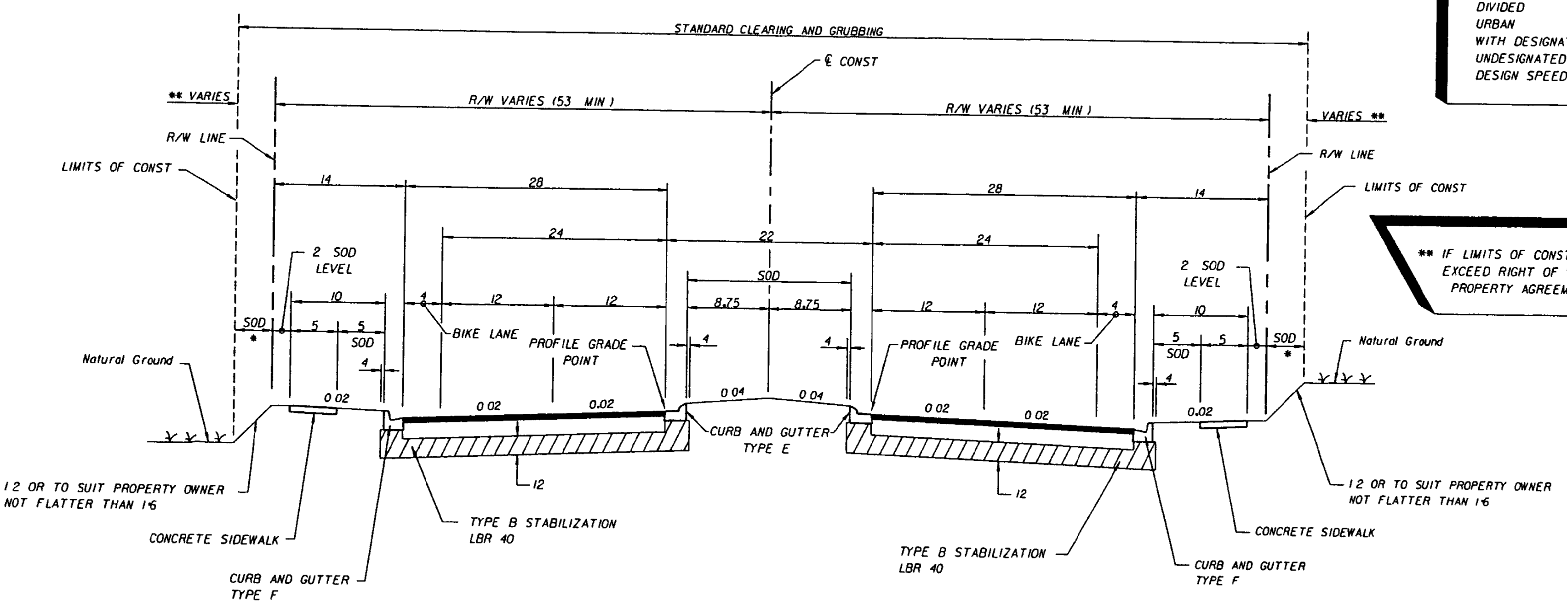
TYPICAL SECTION

SHEET NO

SSSSSSTIMESSSSSS SSSSSSSDGNSPECIFICATIONSSSSSSS

DESIGNATED BIKE LANES SHALL BE LABELED ON TYPICAL UNDESIGNATED BIKE LANES SHOULD NOT BE LABELED ON TYPICAL

4-LANE
ARTERIAL
NEW CONSTRUCTION
DIVIDED
URBAN
WITH DESIGNATED OR
UNDESIGNATED BIKE LANE
DESIGN SPEED 45 MPH OR LESS



** IF LIMITS OF CONSTRUCTION EXCEED RIGHT OF WAY A PROPERTY AGREEMENT IS REQUIRED

TYPICAL SECTION
SR 00 (WILSON STREET)
STA. 98+40.00 TO STA. 202+33.00

NEW CONSTRUCTION

OPTIONAL BASE GROUP 9 WITH
TYPE SP STRUCTURAL COURSE (TRAFFIC B) (150 LBS/SY)
AND FRICTION COURSE FC-6 (160 LBS/SY) (RUBBER)

TRAFFIC DATA

CURRENT YEAR = 1998 AADT = 22800
ESTIMATED OPENING YEAR = 2000 AADT = 25800
ESTIMATED DESIGN YEAR = 2020 AADT = 30600
K = 6/ D = 55/ T = 2/ (24 HOUR)
DESIGN HOUR T = 1/
DESIGN SPEED = 45 MPH

TRAFFIC DATA IS REQUIRED TO BE NOTED FOR CURRENT YEAR, OPENING YEAR AND DESIGN YEAR
POSTED SPEED (MPH) IS OPTIONAL

* SEED
SEED AND MULCH
SOD OR SEED
SOD

FOR STANDARD TYPICAL SECTION NOTES REFER TO EXHIBIT 6-1 THIS CHAPTER

EXHIBIT TYP-5
Date 1/1/00

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID

TYPICAL SECTION

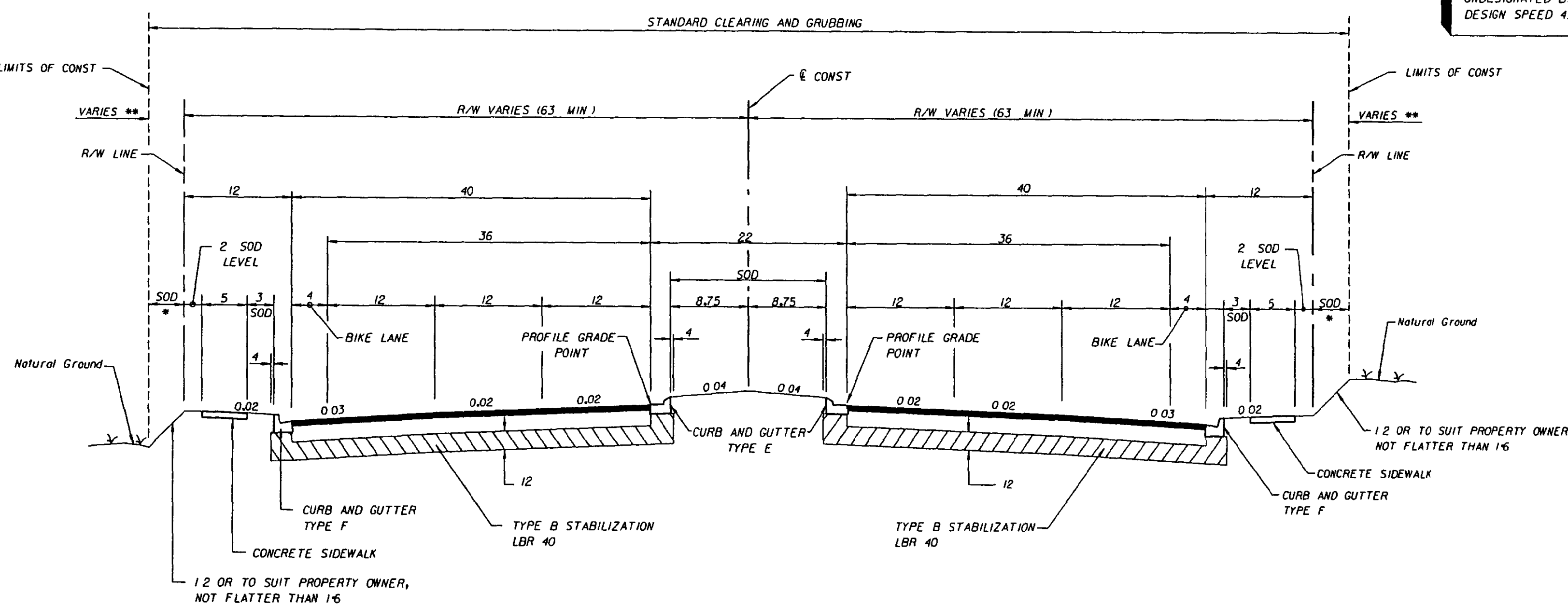
SHEET NO

$$$$$$SYTIME$$$$$$ $$$$$$$DGNSPECIFICATION$$$$$$$ $DATE$ $TIME$ $FILE$

DESIGNATED BIKE LANES SHALL BE LABELED ON TYPICAL UNDESIGNATED BIKE LANES SHOULD NOT BE LABELED ON TYPICAL

** IF LIMITS OF CONSTRUCTION EXCEED RIGHT OF WAY A PROPERTY AGREEMENT IS REQUIRED

6-LANE
ARTERIAL
NEW CONSTRUCTION
DIVIDED
URBAN
WITH DESIGNATED OR
UNDESIGNATED BIKE LANE
DESIGN SPEED 45 MPH OR LESS



TYPICAL SECTION
SR 00 (JACKSON STREET)
STA. 101+21.00 TO STA. 221+44.00

NEW CONSTRUCTION

OPTIONAL BASE GROUP 9 WITH
TYPE SP STRUCTURAL COURSE (TRAFFIC C) (200 LBS/SY)
AND FRICTION COURSE FC-6 (160 LBS/SY) (RUBBER)

TRAFFIC DATA

CURRENT YEAR = 1998 AADT = 22800
ESTIMATED OPENING YEAR = 2000 AADT = 25800
ESTIMATED DESIGN YEAR = 2020 AADT = 30600
K = 6/ D = 55/ T = 2/ (24 HOUR)
DESIGN HOUR T = 1/
DESIGN SPEED = 45 MPH

TRAFFIC DATA IS REQUIRED TO BE NOTED FOR CURRENT YEAR, OPENING YEAR AND DESIGN YEAR

* SEED
SEED AND MULCH,
SOD OR SEED
SOD

FOR STANDARD TYPICAL SECTION NOTES REFER TO EXHIBIT 6 1 THIS CHAPTER

EXHIBIT TYP-6
Date 1/1/00

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID

TYPICAL SECTION

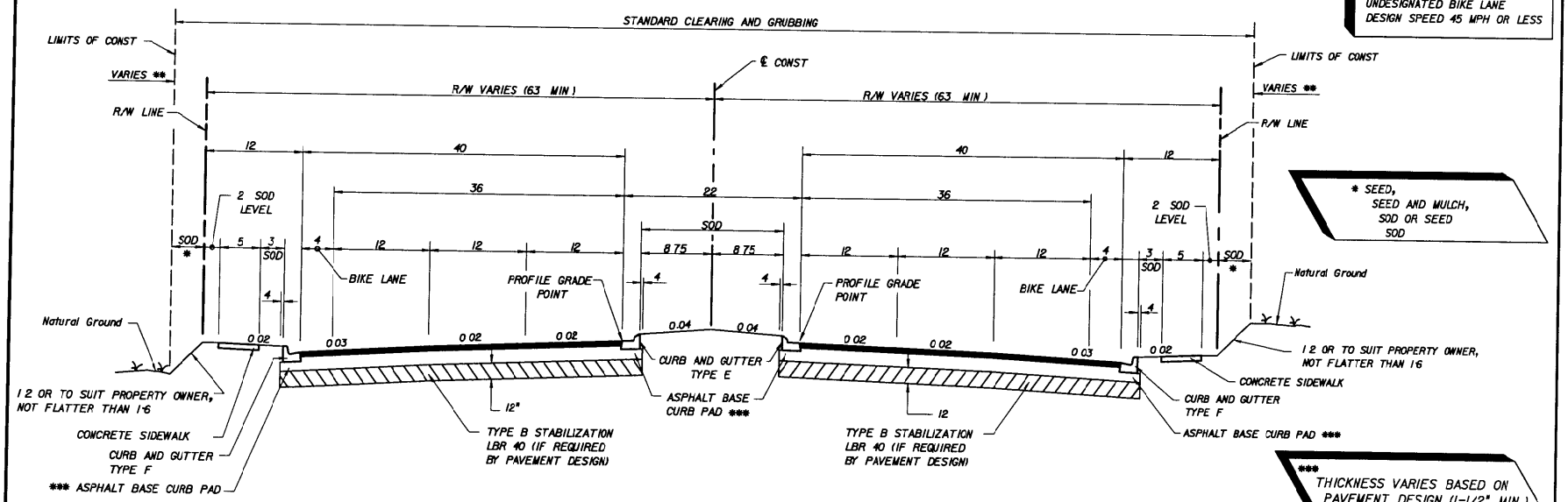
SHEET NO

$$$$$$SYTIME$$$$$$ $$$$$$$DGNSPECIFICATION$$$$$$$$ $DATE$ $TIME$ $FILE$

DESIGNATED BIKE LANES SHALL BE LABELED ON TYPICAL UNDESIGNATED BIKE LANES SHOULD NOT BE LABELED ON TYPICAL

** IF LIMITS OF CONSTRUCTION EXCEED RIGHT OF WAY, A PROPERTY AGREEMENT IS REQUIRED

6-LANE
ARTERIAL
NEW CONSTRUCTION
DIVIDED
URBAN
WITH DESIGNATED OR
UNDESIGNATED BIKE LANE
DESIGN SPEED 45 MPH OR LESS



* SEED, SEED AND MULCH, SOD OR SEED SOD

*** THICKNESS VARIES BASED ON PAVEMENT DESIGN (1-1/2" MIN)

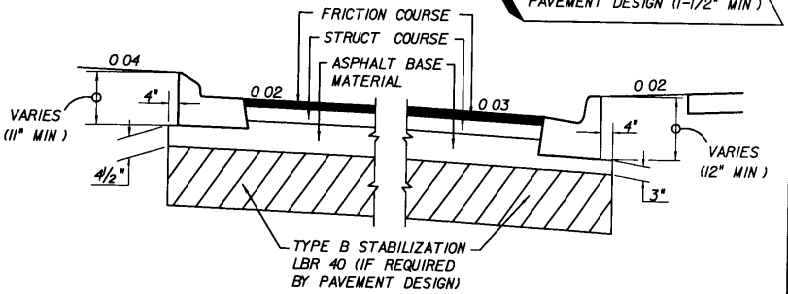
TRAFFIC DATA

CURRENT YEAR = 1998 AADT = 22800
ESTIMATED OPENING YEAR = 2000 AADT = 25800
ESTIMATED DESIGN YEAR = 2020 AADT = 30600
K = 6/ D = 55/ T = 2/ (24 HOUR)
DESIGN HOUR T = 1/
DESIGN SPEED = 45 MPH

TYPICAL SECTION
SR 00 (JACKSON STREET)
STA 101+21 00 TO STA 221+44 00

NEW CONSTRUCTION

OPTIONAL BASE GROUP 9, TYPE B-12 5 (6") ONLY, WITH TYPE SP STRUCTURAL COURSE (TRAFFIC C) (300 LBS/SY) AND FRICTION COURSE FC-6 (160 LBS/SY) (RUBBER)



DETAIL OF ASPHALT BASE CURB PAD

FOR STANDARD TYPICAL SECTION NOTES REFER TO EXHIBIT 6-1, THIS CHAPTER

TRAFFIC DATA IS REQUIRED TO BE NOTED FOR CURRENT YEAR, OPENING YEAR AND DESIGN YEAR

EXHIBIT TYP-6A
Date 1/1/02

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

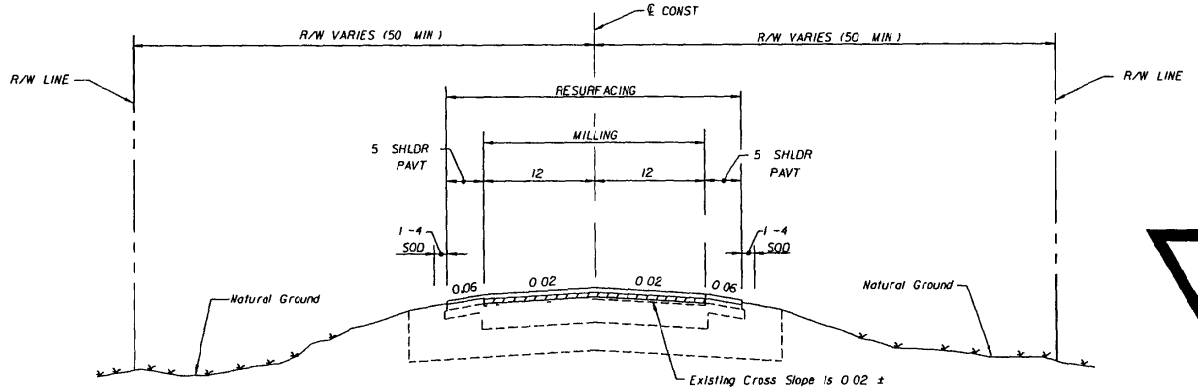
ROAD NO	COUNTY	FINANCIAL PROJECT ID

TYPICAL SECTION

SHEET NO

DESIGNATED BIKE LANES SHALL BE LABELED ON TYPICAL UNDESIGNATED BIKE LANES SHOULD NOT BE LABELED ON TYPICAL

EXISTING
2-LANE (2-WAY)
ARTERIAL/COLLECTOR
MILLING AND RESURFACING
NO CROSS SLOPE
CORRECTION REQUIRED
UNDIVIDED
RURAL
(WITH DESIGNATED OR
UNDESIGNATED BIKE LANE
EXISTING)
WITH PROJECTED 20 YR
AADT OF 1500 OR GREATER



SOME PROJECTS MAY REQUIRE SHOULDER WORK WHEN REQUIRED THIS SHOULD BE IDENTIFIED ON THE TYPICAL SECTION SHEET

FOR STANDARD TYPICAL SECTION NOTES REFER TO EXHIBIT 6-1 THIS CHAPTER

TRAFFIC DATA
STA. 10+53.00 TO STA. 130+77.10

CURRENT YEAR = 1998 AADT = 9670
ESTIMATED OPENING YEAR = 2000 AADT = 11900
ESTIMATED DESIGN YEAR = 2010 AADT = 20200
K = 10/ D = 60/ T = 7/ (24 HOUR)
DESIGN HOUR T = 3/
DESIGN SPEED = 55 MPH

STA 206+82.28 TO 368+41.21

CURRENT YEAR = 1998 AADT = 6835
ESTIMATED OPENING YEAR = 2000 AADT = 8600
ESTIMATED DESIGN YEAR = 2010 AADT = 15100
K = 10/ D = 65/ T = 7/ (24 HOUR)
DESIGN HOUR T = 3/
DESIGN SPEED = 55 MPH

TRAFFIC DATA IS REQUIRED TO BE NOTED FOR CURRENT YEAR, OPENING YEAR AND DESIGN YEAR

TYPICAL SECTION
SR 00
STA. 10+53.00 TO STA. 130+77.00
STA. 206+82.28 TO STA. 368+41.21

MILLING

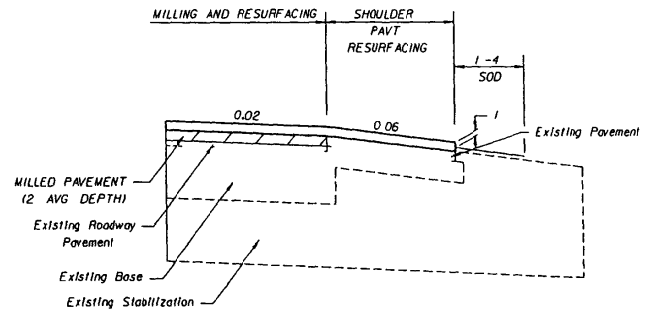
MILL EXISTING ASPHALT PAVEMENT (2" AVG. DEPTH)

RESURFACING

TYPE SP STRUCTURAL COURSE (TRAFFIC B) (200 LBS/SY)
AND FRICTION COURSE FC-6 (160 LBS/SY) (RUBBER)

SHOULDER PAVEMENT RESURFACING

FRICTION COURSE FC-6 (160 LBS/SY) (RUBBER)



SHOULDER PAVEMENT DETAIL

EXHIBIT TYP-7
Date 1/1/00

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

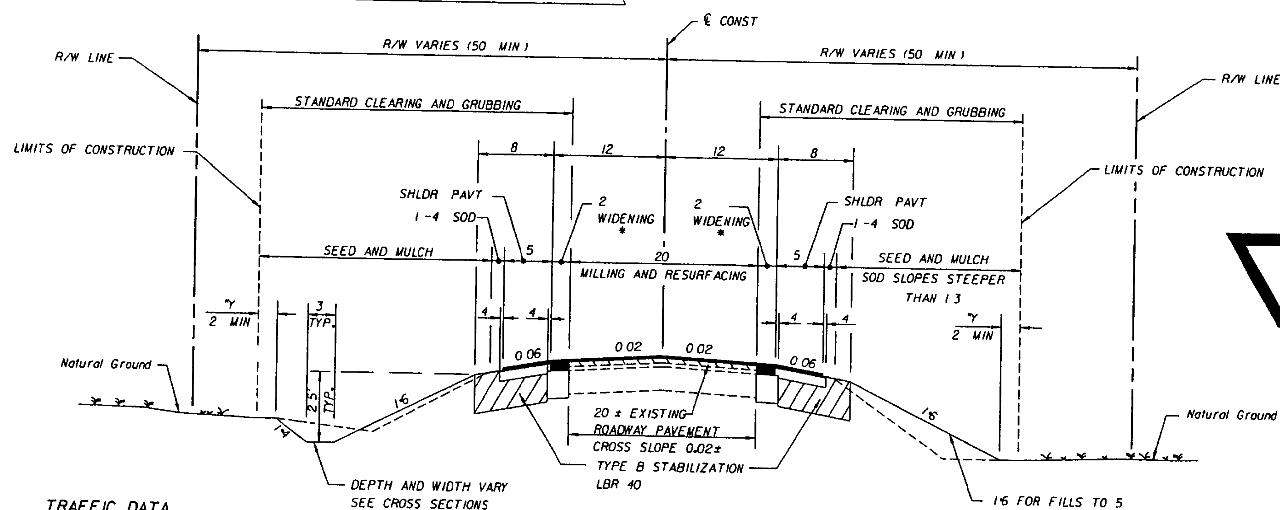
ROAD NO.	COUNTY	FINANCIAL PROJECT ID

TYPICAL SECTION

SHEET NO.

DESIGNATED BIKE LANES SHALL BE LABELED ON TYPICAL UNDESIGNATED BIKE LANES SHOULD NOT BE LABELED ON TYPICAL

EXISTING
2-LANE (2-WAY)
ARTERIAL/COLLECTOR
WIDENING
MILLING AND RESURFACING
UNDIVIDED
RURAL
CONST 5 SHOULDER
PAVEMENT OR BIKE LANE
WITH PROJECTED 20 YR
AADT OF 1500 OR GREATER
DESIGN SPEED GREATER
THAN 50 MPH



*Y THE AREA DISTURBED BY CONSTRUCTION VARIES

1:6 FOR FILLS TO 5
1:6 TO EDGE OF CLEAR ZONE & 1:4 FOR FILLS 5 TO 10
1:6 TO EDGE OF CLEAR ZONE & 1:3 FOR FILLS 10 TO 20
1:2 (WITH GUARDRAIL) FILLS OVER 20

TRAFFIC DATA
STA 20+25.00 TO STA. 48+16.56

CURRENT YEAR = 1998 AADT = 8700
ESTIMATED OPENING YEAR = 2000 AADT = 9200
ESTIMATED DESIGN YEAR = 2020 AADT = 23600
K = 10% D = 56% T = 5% (24 HOUR)
DESIGN HOUR T = 3%
DESIGN SPEED = 55 MPH

STA. 57+82.78 TO STA. 93+41.21

CURRENT YEAR = 1998 AADT = 6835
ESTIMATED OPENING YEAR = 2000 AADT = 8600
ESTIMATED DESIGN YEAR = 2020 AADT = 17200
K = 10% D = 65% T = 7% (24 HOUR)
DESIGN HOUR T = 3 %
DESIGN SPEED = 55 MPH

TRAFFIC DATA IS REQUIRED TO BE NOTED FOR CURRENT YEAR OPENING YEAR AND DESIGN YEAR

TYPICAL SECTION
SR 000
STA. 20+25.00 TO STA. 48+16.56
STA. 57+82.78 TO STA. 93+41.21

MILLING

MILL EXISTING ASPHALT PAVEMENT (2 AVG DEPTH)

RESURFACING

TYPE SP STRUCTURAL COURSE (TRAFFIC C) (150 LBS/SY)
AND FRICTION COURSE FC-6 (160 LBS/SY) (RUBBER)

WIDENING

OPTIONAL BASE GROUP II WITH
TYPE SP STRUCTURAL COURSE (TRAFFIC C) (300 LBS/SY)
AND FRICTION COURSE FC-6 (160 LBS/SY) (RUBBER)

NOTE
HEIGHT OF FILL IS THE VERTICAL DISTANCE FROM THE EDGE OF THE OUTSIDE TRAVEL LANE TO TOE OF FRONT SLOPE

FOR STANDARD TYPICAL SECTION NOTES REFER TO EXHIBIT 6-1, THIS CHAPTER

* SEE SHEET 2 OF 2 FOR WIDENING AND SHOULDER PAVEMENT DETAIL

EXHIBIT TYP-8
Date 1/1/00

SHEET 1 OF 2

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

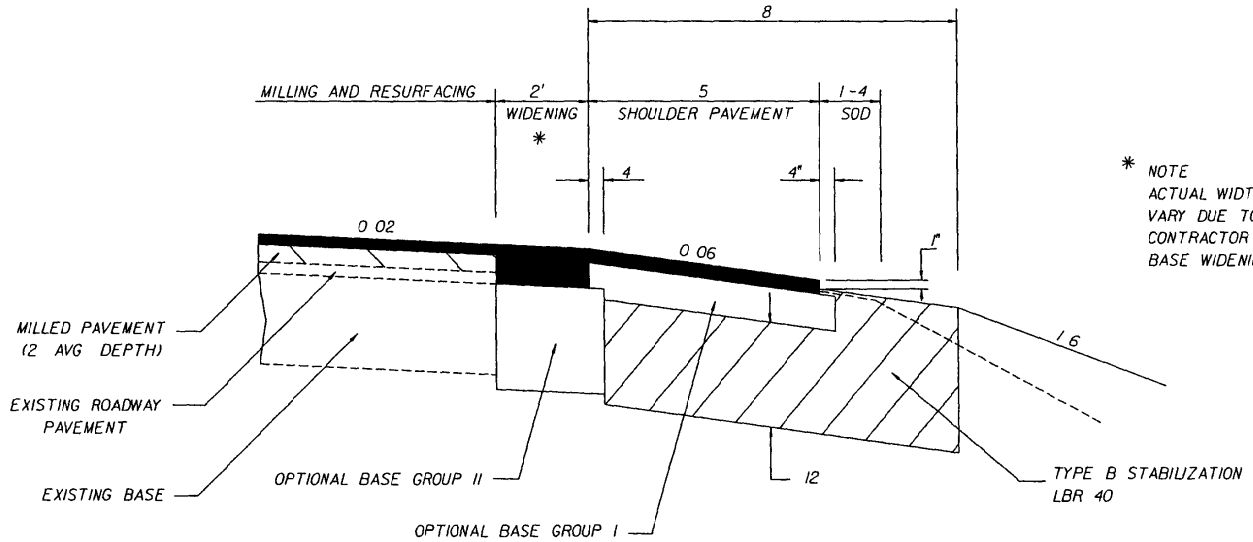
ROAD NO	COUNTY	FINANCIAL PROJECT ID

TYPICAL SECTION

SHEET NO

DESIGNATED BIKE LANES SHALL BE LABELED ON TYPICAL UNDESIGNATED BIKE LANES SHOULD NOT BE LABELED ON TYPICAL

THE NEED FOR STABILIZATION IN THE SHOULDER AREA ON RRR PROJECTS IS SITE SPECIFIC AND NOT ALWAYS REQUIRED THE USE OF STABILIZING IN NARROW TRENCH WIDENING STRIPS IS NOT RECOMMENDED GENERALLY SEE THE FLEXIBLE PAVEMENT DESIGN MANUAL FOR FURTHER CRITERIA



* NOTE
ACTUAL WIDTH OF BASE WIDENING MAY VARY DUE TO ACTUAL PAVEMENT WIDTH CONTRACTOR MAY ELECT TO PLACE UNIFORM BASE WIDENING AT NO ADDITIONAL COST

WIDENING & SHOULDER PAVEMENT DETAIL

FOR STANDARD TYPICAL SECTION NOTES REFER TO EXHIBIT 6-1 THIS CHAPTER

WIDENING

OPTIONAL BASE GROUP II WITH
TYPE SP STRUCTURAL COURSE (TRAFFIC C) (300 LBS/SY) AVG
FRICTION COURSE FC-6 (160 LBS/SY) (RUBBER)

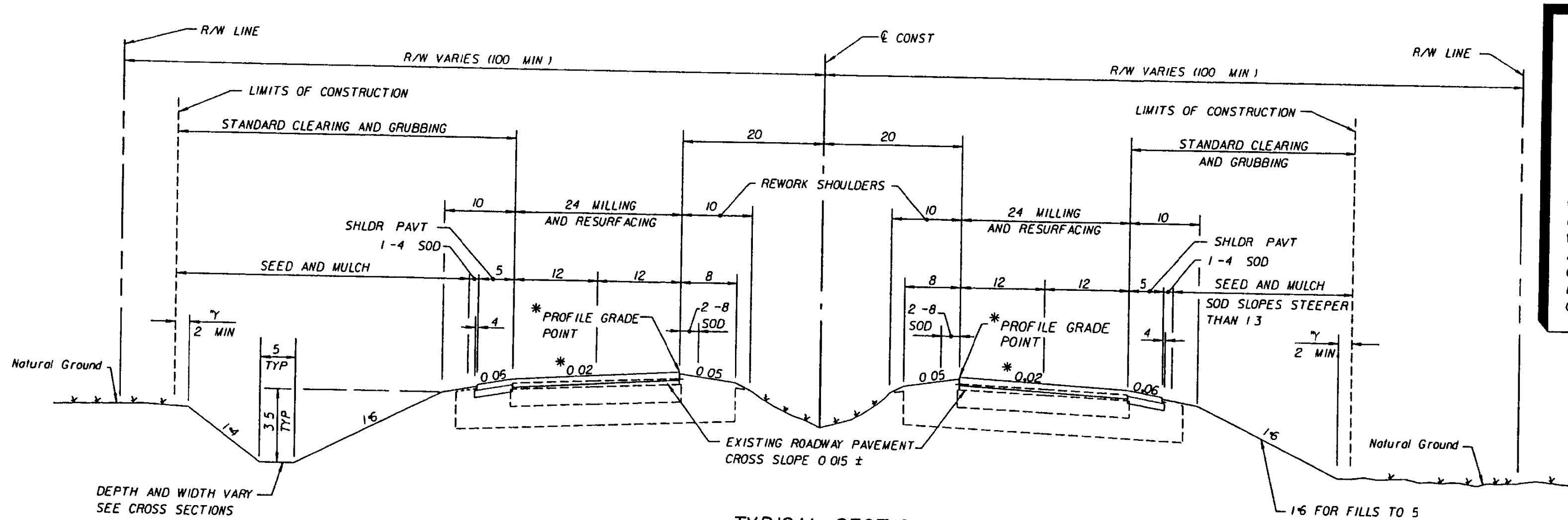
SHOULDER PAVEMENT

OPTIONAL BASE GROUP I WITH
FRICTION COURSE FC-6 (160 LBS/SY) (RUBBER)

EXHIBIT TYP-8A
Date 1/1/00

SHEET 2 OF 2

REVISIONS						STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			TYPICAL SECTION	SHEET NO
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	ROAD NO	COUNTY	FINANCIAL PROJECT ID		



- 1:6 FOR FILLS TO 5
- 1:6 TO EDGE OF CLEAR ZONE & 1:4 FOR FILLS 5 TO 10
- 1:6 TO EDGE OF CLEAR ZONE & 1:3 FOR FILLS 10 TO 20
- 1:2 (WITH GUARDRAIL) FILLS OVER 20

4 LANE
ARTERIAL/COLLECTOR
MILLING & RESURFACING
CROSS SLOPE CORRECTION BY MILLING
CONST 5 SHLDR PAVT
DIVIDED
RURAL
DRAINAGE IMPROVEMENTS
SAFETY IMPROVEMENTS
WITH DESIGNATED OR UNDESIGNATED BIKE LANE
WITH PROJECTED 20 YR AADT OF 1500 OR GREATER
DESIGN SPEED 45 MPH OR GREATER

DESIGNATED BIKE LANES SHALL BE LABELED ON TYPICAL. UNDESIGNATED BIKE LANES SHOULD NOT BE LABELED ON TYPICAL

TYPICAL SECTION
SR 500
STA. 204+34.58 TO STA. 288+95.16

MILLING

MILL EXISTING ASPHALT PAVEMENT (1½" AVG DEPTH)

RESURFACING

TYPE SP STRUCTURAL COURSE (TRAFFIC E) (300 LBS/SY AVG)
AND FRICTION COURSE FC-5 (80 LBS/SY) (RUBBER)

SHOULDER PAVEMENT

OPTIONAL BASE GROUP 1 WITH
TYPE SP STRUCTURAL COURSE (TRAFFIC E) (150 LBS/SY AVG)
AND FRICTION COURSE FC-5 (80 LBS/SY) (RUBBER)

STA. 316+53.67 TO STA. 527+82.00

MILLING

MILL EXISTING ASPHALT PAVEMENT (2" AVG DEPTH)

RESURFACING

TYPE SP STRUCTURAL COURSE (TRAFFIC E) (350 LBS/SY AVG)
AND FRICTION COURSE FC-5 (80 LBS/SY) (RUBBER)

SHOULDER PAVEMENT

OPTIONAL BASE GROUP 1 WITH
TYPE SP STRUCTURAL COURSE (TRAFFIC E) (150 LBS/SY AVG)
AND FRICTION COURSE FC-5 (80 LBS/SY) (RUBBER)

TRAFFIC DATA

CURRENT YEAR = 1998 AADT = 18100
ESTIMATED OPENING YEAR = 2000 AADT = 21000
ESTIMATED DESIGN YEAR = 2012 AADT = 30900
K = 11% D = 58% T = 23% (24 HOUR)
DESIGN HOUR T = 11%
DESIGN SPEED = 60 MPH
POSTED SPEED = 55 MPH

TRAFFIC DATA IS REQUIRED TO BE NOTED FOR CURRENT YEAR, OPENING YEAR, AND DESIGN YEAR. POSTED SPEED (MPH) IS OPTIONAL

* WHEN CROSS SLOPE CORRECTION IS NECESSARY SPECIAL MILLING AND LAYERING DETAILS MUST BE PROVIDED TO SUPPLEMENT TYPICAL SECTION. THE NEED FOR AND LOCATION OF PROFILE GRADE POINTS WILL DEPEND ON SITE SPECIFIC CONDITIONS

NOTE
HEIGHT OF FILL IS THE VERTICAL DISTANCE FROM THE EDGE OF THE OUTSIDE TRAVEL LANE TO TOE OF FRONT SLOPE

*Y THE AREA DISTURBED BY CONSTRUCTION VARIES

FOR STANDARD TYPICAL SECTION NOTES REFER TO EXHIBIT 6-1, THIS CHAPTER

FOR MILLING AND RESURFACING DETAILS SEE TYPICAL SECTION DETAILS SHEET 2 AND 3

EXHIBIT TYP-9
Date 1/1/00

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

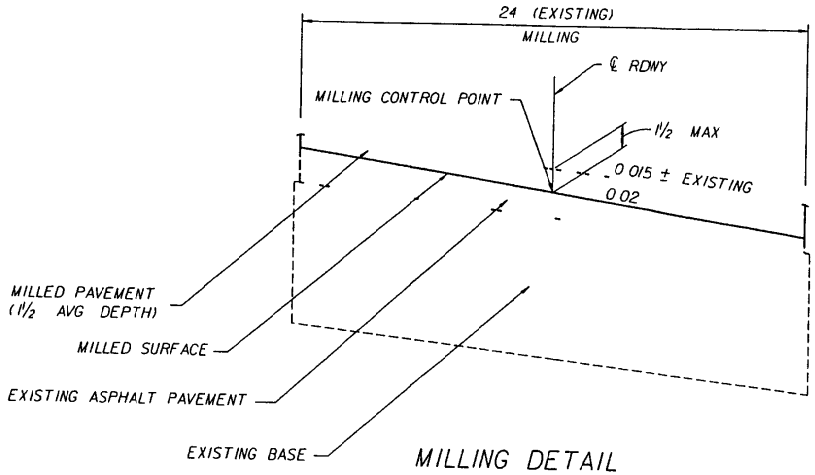
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID

TYPICAL SECTION

SHEET NO

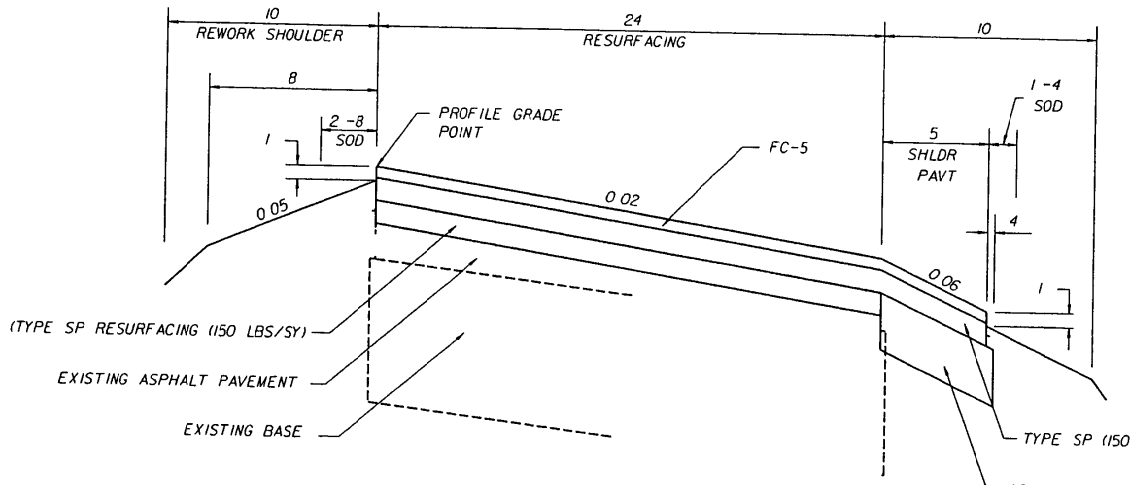
$$$$ $SYTIME$ $ $ $$$$$$$DGNSPECIFICATION$$$$$$$$ $DATE$ $TIME$ $FILE$



MILLING DETAIL

* WHEN CROSS SLOPE CORRECTION IS NECESSARY SPECIAL MILLING AND LAYERING DETAILS MUST BE PROVIDED TO SUPPLEMENT TYPICAL SECTION THE NEED FOR AND LOCATION OF PROFILE GRADE POINTS WILL DEPEND ON SITE SPECIFIC CONDITIONS

EXAMPLE OF CROSS SLOPE CORRECTION BY MILLING



RESURFACING DETAIL

FOR STANDARD TYPICAL SECTION NOTES REFER TO EXHIBIT 6-1, THIS CHAPTER

STA. 204+34.58 TO STA. 288+95.16

EXHIBIT TYP-9A
Date 1/1/00

SHEET 2 OF 3

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

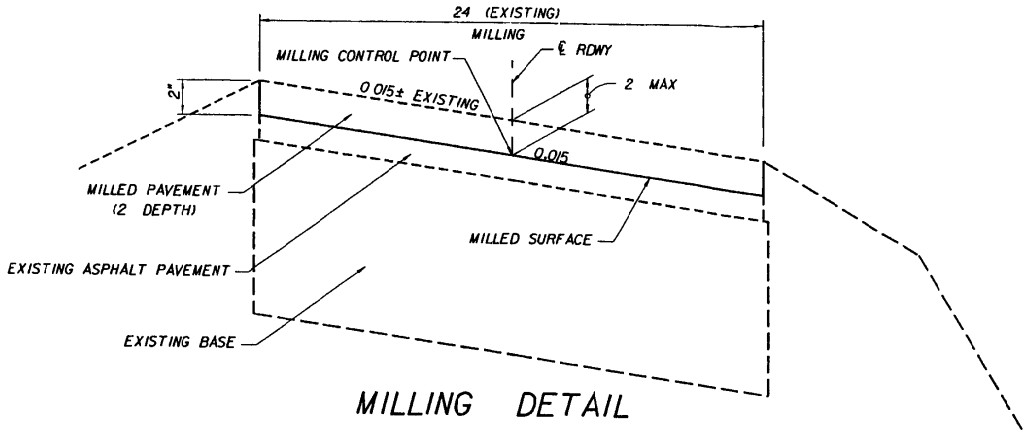
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID

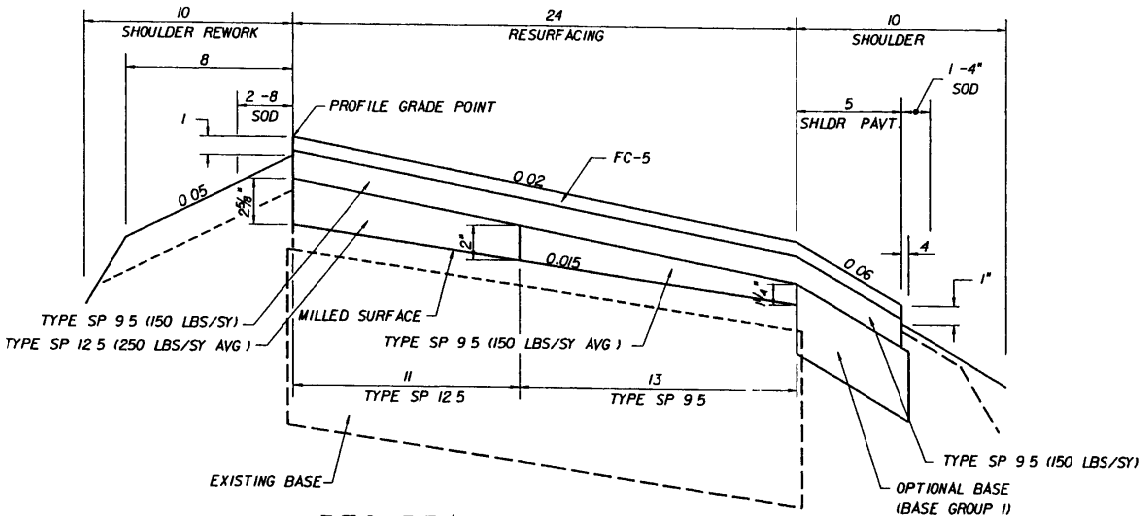
TYPICAL SECTION DETAILS

SHEET NO

$$$$$$$$DGNSPECIFICATIONS$$$$$$$$
$$$$$$$$DATE$$$$$$$$
$$$$$$$$TIME$$$$$$$$
$$$$$$$$FILES$$$$$$$$



MILLING DETAIL



RESURFACING DETAIL

WHEN CROSS SLOPE CORRECTION IS NECESSARY SPECIAL MILLING AND LAYERING DETAILS MUST BE PROVIDED TO SUPPLEMENT TYPICAL SECTION

* WHEN CROSS SLOPE CORRECTION IS NECESSARY SPECIAL MILLING AND LAYERING DETAILS MUST BE PROVIDED TO SUPPLEMENT TYPICAL SECTION THE NEED FOR AND LOCATION OF PROFILE GRADE POINTS WILL DEPEND ON SITE SPECIFIC CONDITIONS

FOR STANDARD TYPICAL SECTION NOTES REFER TO EXHIBIT 6-1, THIS CHAPTER

TRAFFIC LEVEL E ON THIS TYPICAL REQUIRES COARSE GRADED MIXES

SUGGESTED CONSTRUCTION SEQUENCES SHOWN OTHER SEQUENCES THAT MEET SPECIFICATIONS, THICKNESS AND CROSS SLOPE REQUIREMENTS MAY BE CONSIDERED BY THE ENGINEER

STA 316+53.67 TO STA 527+82.00

EXHIBIT TYP-9B
Date 1/1/01

SHEET 3 OF 3

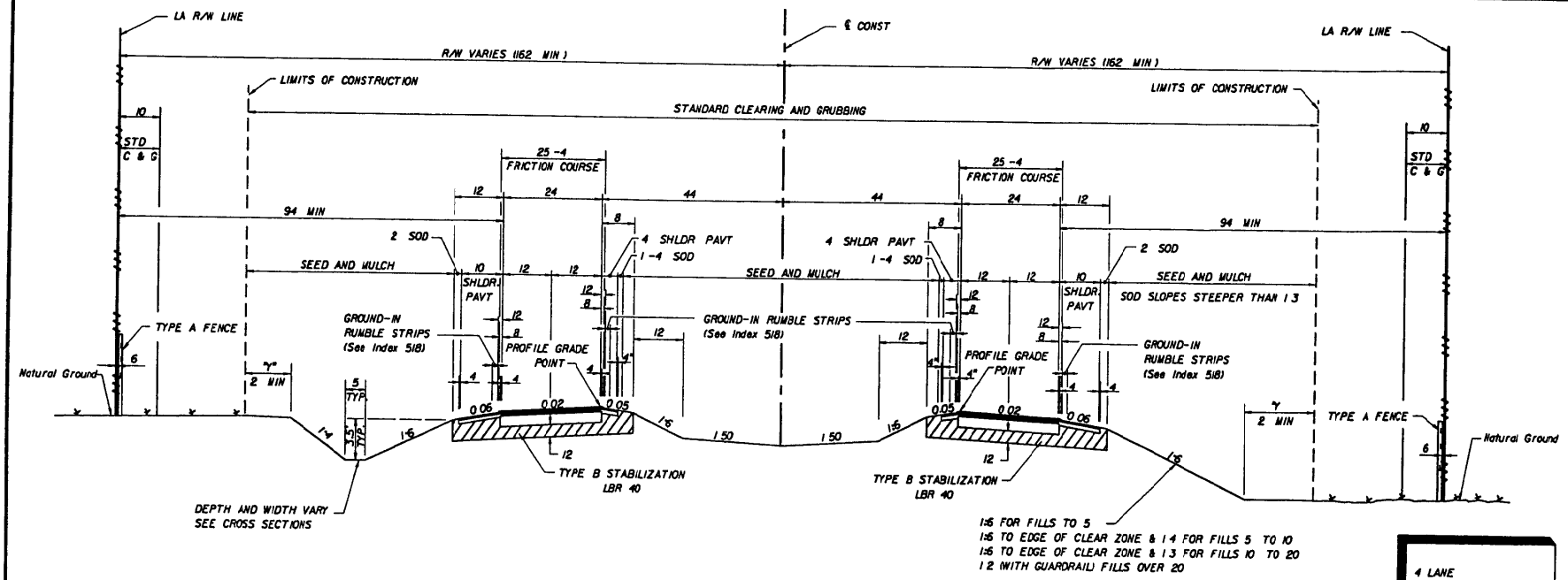
REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID

TYPICAL SECTION DETAILS

SHEET NO



TYPICAL SECTION
SR 8
STA 567+25.67 TO STA 1056+84.35

TRAFFIC DATA

CURRENT YEAR = 1998 AADT = 22300
ESTIMATED OPENING YEAR = 2000 AADT = 23300
ESTIMATED DESIGN YEAR = 2020 AADT = 51500
K = 9.4 D = 56 / T = 10 / (24 HOUR)
DESIGN HOUR T = 5 /
DESIGN SPEED = 70 MPH

TRAFFIC DATA IS REQUIRED TO BE NOTED FOR CURRENT YEAR, OPENING YEAR, AND DESIGN YEAR POSTED SPEED (MPH) IS OPTIONAL

FOR STANDARD TYPICAL SECTION NOTES REFER TO EXHIBIT 6-1, THIS CHAPTER

NEW CONSTRUCTION

OPTIONAL BASE GROUP 9 WITH
TYPE SP STRUCTURAL COURSE (TRAFFIC D) (400 LBS/SY) AND
FRICTION COURSE FC-5 (80 LBS/SY) (RUBBER)

MEDIAN SHOULDER PAVEMENT

OPTIONAL BASE GROUP 1 WITH
TYPE SP STRUCTURAL COURSE (TRAFFIC D) (150 LBS/SY) AND
FRICTION COURSE FC-5 (80 LBS/SY) (RUBBER)

OUTSIDE SHOULDER PAVEMENT

OPTIONAL BASE GROUP 1 WITH
TYPE SP STRUCTURAL COURSE (TRAFFIC B) (150 LBS/SY) AND
FRICTION COURSE FC-5 (80 LBS/SY) (RUBBER)

NOTE
HEIGHT OF FILL IS THE VERTICAL DISTANCE FROM THE EDGE OF THE OUTSIDE TRAVEL LANE TO TOE OF FRONT SLOPE

4 LANE
INTERSTATE SYSTEM
NEW CONSTRUCTION
DIVIDED
RURAL
WITH PROJECTED
20 YR AADT OF 1500
OR GREATER
DESIGN SPEED
70 MPH

"Y" THE AREA DISTURBED BY CONSTRUCTION VARIES

EXHIBIT TYP-10
Date 7/1/01

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

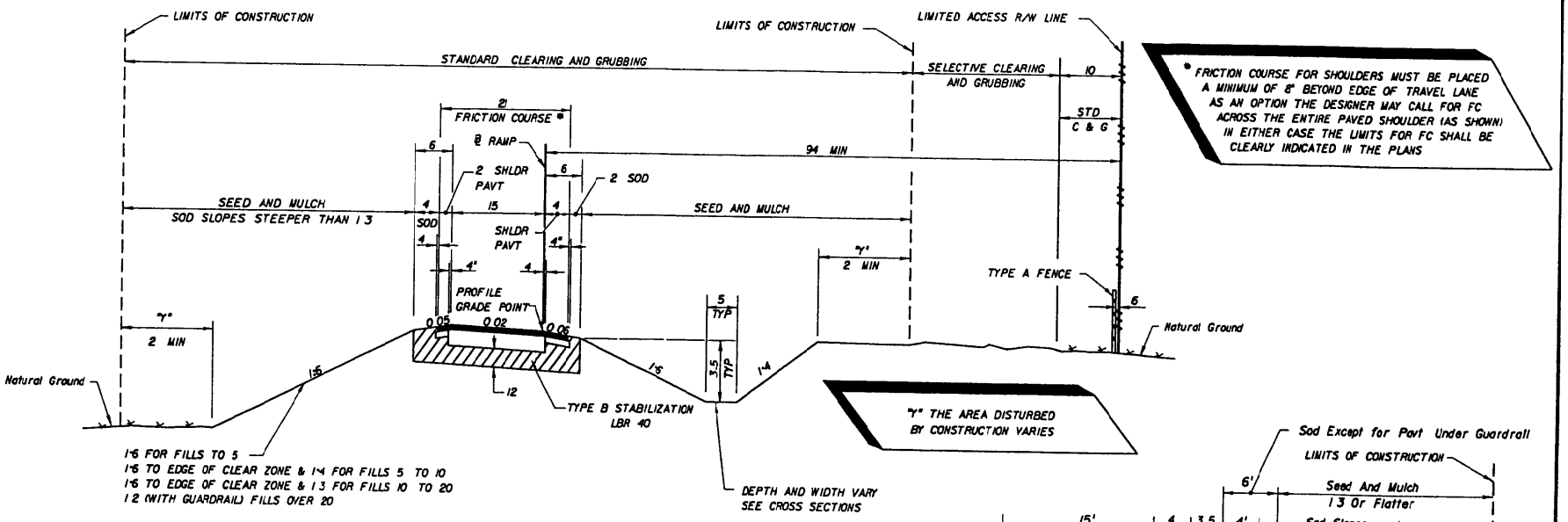
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID
		- - -

TYPICAL SECTIONS

SHEET NO

#DATE# #TIME# #FILE#



* FRICTION COURSE FOR SHOULDERS MUST BE PLACED A MINIMUM OF 8" BEYOND EDGE OF TRAVEL LANE AS AN OPTION THE DESIGNER MAY CALL FOR FC ACROSS THE ENTIRE PAVED SHOULDER (AS SHOWN) IN EITHER CASE THE LIMITS FOR FC SHALL BE CLEARLY INDICATED IN THE PLANS

"Y" THE AREA DISTURBED BY CONSTRUCTION VARIES

NOTE:
HEIGHT OF FILL IS THE VERTICAL DISTANCE FROM THE EDGE OF THE OUTSIDE TRAVEL LANE TO TOE OF FRONT SLOPE

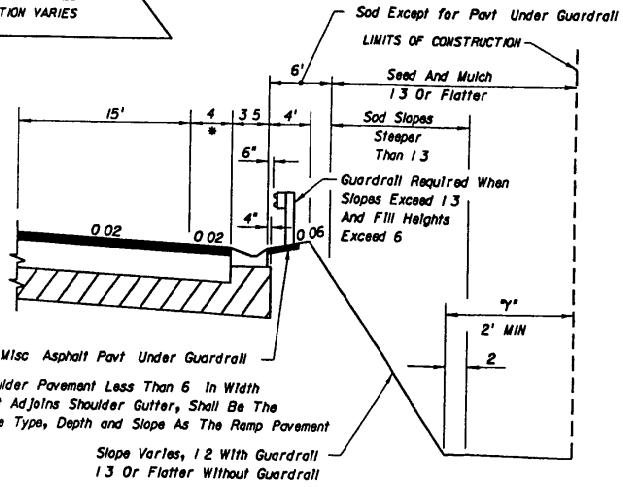
TYPICAL SECTION
RAMP "B"
STA 415+67.28 TO STA 421+23.68
(SINGLE LANE RAMP)

NEW CONSTRUCTION

OPTIONAL BASE GROUP 9 WITH
TYPE SP STRUCTURAL COURSE (TRAFFIC D) (250 LBS/SY) AND
FRICTION COURSE FC-5 (80 LBS/SY) (RUBBER)

SHOULDER PAVEMENT

OPTIONAL BASE GROUP 1 WITH
TYPE SP STRUCTURAL COURSE (TRAFFIC D) (250 LBS/SY) AND
FRICTION COURSE FC-5 (80 LBS/SY) (RUBBER)



SHOULDER PAVEMENT & SHOULDER GUTTER DETAIL FOR SINGLE LANE RAMP

FOR STANDARD TYPICAL SECTION NOTES REFER TO EXHIBIT 6-1, THIS CHAPTER

EXHIBIT TYP-11
Date 7/1/01

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

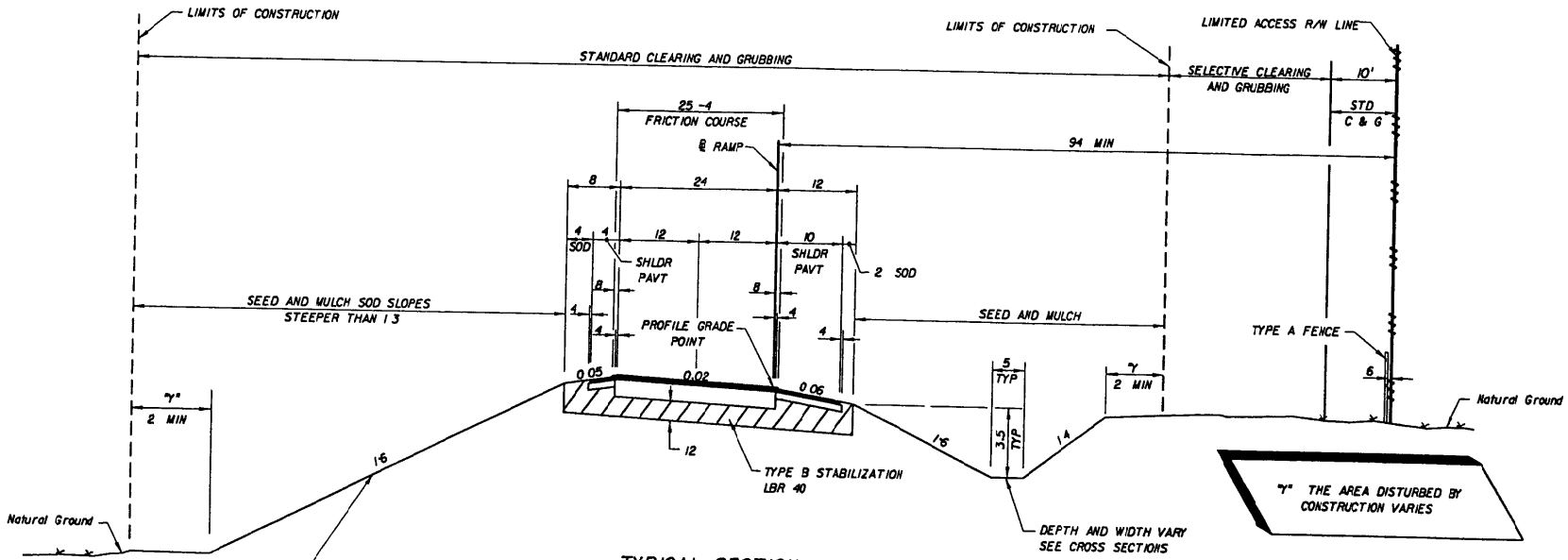
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID
		- - -

RAMP TYPICAL SECTION

SHEET NO

$DATE$ $TIME$ $FILE$



TYPICAL SECTION
RAMP "C"
STA 623+28 64 TO STA 629+13 78
(TWO LANE RAMP)

1:6 FOR FILLS TO 5
1:6 TO EDGE OF CLEAR ZONE & 1:4 FOR FILLS 5 TO 10
1:6 TO EDGE OF CLEAR ZONE & 1:3 FOR FILLS 10 TO 20
1:2 (WITH GUARDRAIL) FILLS OVER 20

NOTE
HEIGHT OF FILL IS THE VERTICAL DISTANCE FROM THE EDGE OF THE OUTSIDE TRAVEL LANE TO TOE OF FRONT SLOPE

FOR STANDARD TYPICAL SECTION NOTES REFER TO EXHIBIT 6-1, THIS CHAPTER

NEW CONSTRUCTION

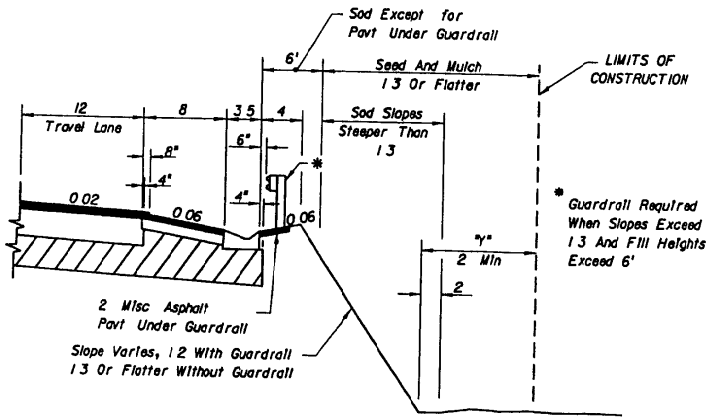
OPTIONAL BASE GROUP 9 WITH
TYPE SP STRUCTURAL COURSE (TRAFFIC D) (200 LBS/SY) AND
FRICTION COURSE FC-5 (80 LBS/SY) (RUBBER)

LEFT SHOULDER PAVEMENT

OPTIONAL BASE GROUP 1 WITH
TYPE SP STRUCTURAL COURSE (TRAFFIC D) (200 LBS/SY) AND
FRICTION COURSE FC-5 (80 LBS/SY) (RUBBER)

RIGHT SHOULDER PAVEMENT

OPTIONAL BASE GROUP 1 WITH
TYPE SP STRUCTURAL COURSE (TRAFFIC B) (200 LBS/SY) AND
FRICTION COURSE FC-5 (80 LBS/SY) (RUBBER)



* Guardrail Required When Slopes Exceed 1:3 And Fill Heights Exceed 6'

SHOULDER PAVEMENT & SHOULDER GUTTER DETAIL
MAINLINE AND MULTILANE RAMPS

EXHIBIT TYP-12
Date 7/1/01

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID
		- - -

RAMP TYPICAL SECTION

SHEET NO

#DATE# #TIME# #FILE#

SUMMARY OF SODDING

FORM 625-000 29
ROADWAY DESIGN 01 2000

LOCATION STA TO STA	SIDE	P L	P W	P SY	F L	F W	F SY	FIELD BOOK REFERENCE
NB 1-00								
570+00 - 580+62	MED	1062	1 33	157				
570+00 - 574+57	RT	457	1 33	68				
575+45 - 576+80	RT	135	1 33	20				
576+80 - 579+95	RT	315	56	1960				
579+95 - 580+62	RT	67	32	238				
580+62 - 586+37	MED	575	1 33	85				
580+62 - 586+37	RT	575	1 33	85				
SB 1-00								
570+00 - 580+62	MED	1062	1 33	157				
570+00 - 574+57	LT	457	1 33	68				
575+45 - 577+25	LT	180	1 33	27				
577+25 - 580+34	LT	309	48	1648				
580+34 - 580+62	LT	28	37	115				
580+62 - 586+37	MED	575	1 33	85				
580+62 - 586+37	LT	575	1 33	85				
RAMP A								
182+99 - 187+24	LT	425	1 33	63				
180+87 - 187+74	RT	687	1 33	102				
RAMP B								
276+62 - 281+75	LT	513	1 33	76				
274+47 - 280+29	RT	582	1 33	86				
RAMP C								
382+45 - 386+88	RT	443	1 33	65				
381+95 - 388+30	LT	635	1 33	94				
RAMP D								
481+05 - 485+63	LT	458	1 33	68				
480+64 - 487+31	RT	667	1 33	99				
DRAINAGE STRUCTURES				807				
PAVED DITCHES				278				
TOTAL				6536				

SUMMARY OF SIDEDRAIN & MITERED END SECTIONS

FORM 625 000 30 ROADWAY DESIGN 01/2000

	LOCATION STA TO STA	SIDE	PIPE LENGTH (LF) 15	MES (EA)	18	MES (EA)	24	MES (EA)	30	MES (EA)	36	MES (EA)
P	150+10 - 150+50	RT	40	2								
F												
P	160+85 - 161+21	LT			36	2						
F												
P	176+36 - 176+78	LT							42	2		
F												
P	181+46 - 181+98	RT					52	2				
F												
P	192+46 - 192+82	LT	36	2								
F												
P	194+50 - 195+14	RT									64	2
F												
P												
F												
P	TOTAL		76	4	36	2	52	2	42	2	64	2
F												
P												
F												
P												
F												

EXHIBIT SQ-1
Date 1/1/00

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID

SUMMARY OF QUANTITIES

SHEET NO

$$$$$$$$DGNSPECIFICATIONS$$$$$$$$
$$$$$$$$FILES$$$$$$$$
$$$$$$$$STIMES$$$$$$$$
$$$$$$$$DATES$$$$$$$$

SUMMARY OF GUARDRAIL

FORM 625-000-05
ROADWAY DESIGN 01/2000

LOCATION STATION	SIDE	GUARDRAIL (LF) ROADWAY P	ROADWAY F	ROADWAY, DOUBLE FACE P	ROADWAY, DOUBLE FACE F	PEDESTRIAN SAFETY TREATMENT P	PEDESTRIAN SAFETY TREATMENT F	RUBRAIL P	RUBRAIL F	END ANCHORAGE ASSEMBLIES (EA) FLARED P	FLARED F	PARALLEL P	PARALLEL F	TYPE II P	TYPE II F	TYPE CRT P	TYPE CRT F	REMARKS	FIELD BOOK REFERENCE
FROM 600+50	RT	87 5				From		From 600+70		1									
TO 601+37						To		To 601+20						1					
FROM 600+10	LT	125 0				From		From						1					
TO 601+35						To		To								1			
FROM 602+25	RT	100 0				From 602+30		From		1									
TO 603+25						To 603+00		To						1					
FROM 600+50	MED			275 0		From		From						1					
TO 603+25						To		To						1					
FROM 604+25	RT	62 5				From		From		1									
TO 604+87						To		To						1					
FROM 602+45	LT	75 0				From		From						1					
TO 603+20						To		To				1							
FROM						From		From											
TO						To		To											
TOTAL		450		275						3		1		7		1			

SUMMARY OF DITCH PAVEMENT AND SODDING

FORM 625-000-06
ROADWAY DESIGN 01/2000

LOCATION STA TO STA	SIDE	RIPRAP (SAND CEMENT) CY P	RIPRAP (SAND CEMENT) CY F	RIPRAP (RUBBLE) TN P	RIPRAP (RUBBLE) TN F	CONCRETE SY P	CONCRETE SY F	SODDING SY P	SODDING SY F	REMARKS	FIELD BOOK REFERENCE
128+17	LT	21 6									
128+52	RT	24 2									
137+12 (S-2)	LT					26		8			
156+14 (S-6)	LT					30		9			
158+00 (S-7)	LT/RT					96		42			
161+20 (S-9)	LT					40		10			
168+40 (S-12)	RT					108		12			
172+87 (S-15)	RT					56		10			
180+12 (S-17)	LT					20		8			
182+57 (S-20)	RT					20		7			
TOTAL		45 8				396		106			

WHEN A PEDESTRIAN SAFETY TREATMENT, AND/OR RUB RAIL TREATMENT, IS TO BE PROVIDED FOR A RUN OF GUARDRAIL, THE BEGINNING AND END STATION IS TO BE NOTED AS SHOWN IN THE SUMMARY OF GUARDRAIL ABOVE OTHERWISE, THESE COLUMNS MAY BE DELETED

EXHIBIT SQ-2
Date 1/1/02

REVISIONS DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID

SUMMARY OF QUANTITIES

SHEET NO

SUMMARY OF EARTHWORK

FORM 625-000-08
ROADWAY DESIGN 01/2001

DESCRIPTION	P	F
	CY	CY
ROADWAY EXCAVATION, MAINLINE	10,000	
ROADWAY EXCAVATION, ADAMS ST	800	
REGULAR EXCAVATION, POND No 1	1,005	
REGULAR EXCAVATION FROM LATERAL DITCHES	5,000	
TOTAL REGULAR EXCAVATION	16,805	
EMBANKMENT, MAINLINE	20,000	
EMBANKMENT, ADAMS ST	7,000	
TOTAL EMBANKMENT	27,000	
SUBSOIL EXCAVATION, MAINLINE	2,080	
SUBSOIL EXCAVATION, ADAMS ST	1,100	
TOTAL SUBSOIL EXCAVATION	3,180	

Earthwork has been calculated using the ________ base option
If another option is constructed, there shall be no revision to the
earthwork quantities for which payment is made by Plan Quantity

FOR PROJECTS WITH CROSS SECTIONS
Pay Items
120-1 Regular Excavation 16,805 CY
120-4 Subsoil Excavation 3,180 CY
120-6 Embankment 27,000 CY

SUMMARY OF EARTHWORK

FORM 625-000-08
ROADWAY DESIGN 01/2001

DESCRIPTION	P	F
	CY	CY
FILL, MAINLINE	253	
FILL, GUARDRAIL LOCATIONS	70	
FILL, CROSS DRAINS	100	
SUB-TOTAL FILL	423	
FILL ADJUSTMENT (20%) (423 x 0 20)	85	
SUB-TOTAL WITH FILL ADJUSTMENT	508	
TRUCK ADJUSTMENT (25%) (571 x 0 25)	127	
TOTAL BORROW EXCAVATION	635	
EXCAVATION	200	

FOR PROJECTS WITHOUT CROSS SECTIONS
Adjustment percentages shown are for example only
Contact District Materials Office or Construction
for actual percentages to be used for each project
Pay Items
120-2-2 Borrow Excavation (Truck Measure) 635 CY
120-71 Regular Excavation (RRR Projects Only) 1 LS

EXHIBIT SQ-3
Date: 7/1/01

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID
		- - -

SUMMARY OF QUANTITIES

SHEET NO

06/20/2001 11:27:26 AM \Manuals\Ppmeng\English Jan00\Vol 2\Dgn\Eassq 3.dgn

QUANTITY	STR NO	STATION	DESCRIPTION	BARRELS	SIZE (Inches)	LENGTH (Feet)	CROSS DRAIN OPTIONAL TYPE 15	18	24	30	48	60	STORM DRAIN OPTIONAL TYPE 15	18	24	30	36	42	GUTTER DRAIN OPT TYPE 15	CURB INLETS P 1 <10	P 2 <10	J 1 <10	J 2 <10	MH J 7 <10	DITCH BOTTOM INLETS A <10	B <10	C <10	D <10	GUTTER INLET S <10	S >10	FLARED END SECTION 15	18	30	MITERED END SECTION 18	24	SOD SY	CLASS I CONC CY	CLASS II CONC CY	REINF STEEL Lbs	SAND CEMENT RIPRAP CY	REMARKS
P	1	146+50	Pipe	1	18	12								12																											Const Conc Jacket
F																																									
P	2	146+54 12	Pipe	1	18	103								103																											
F																																									
P	3	147+33.80	Inlet Pipe	1	15	89							89							1																					
F																																									
P	4	147+61	Inlet Pipe	1	36	78											78						1																		
F																																									
P	5	148+15 96	Inlet Pipe	1	15	93							93								1																				Mod Height
F																																									
P	6	148+45 30	MH Pipe	1	36	28											28							1																	All A Brick
F																																									
P	7	148+77 55	Inlet Pipe	1	36	52											52						1																		RCP CLASS II
F																																									
P	8	148+77 55	EW Pipe	1	42	16												16																		43	6 33				
F																																									
P	9	149+35	Inlet Pipe	1	30	185										185						1																			
F																																									
P	10	149+35	Inlet Pipe	1	18	53								53						1																					
F																																									
P	11	454+18 & Leg A	MES Pipe	1	18	76								76																				1		9					
F																																									
P	12	150+27	EW Pipe	1	24	80									80																					24				2 9	RCP CLASS II
F																																									
P	13	203+00	FES Pipe	1	30	96				96																								2			32					RCP CLASS II
F																																									
P	14	5+00 Ramp A	EW Pipe Inlet	1	30	72				72																				1							62	3 26				
F																																									
P	14A	5+00 Ramp A	Pipe EW	1	30	50				50																											62	3 26				
F																																									
P	15	15+00 Ramp A	Inlet Pipe EW	1	15	21													32											1						17	0.67				
F																																									
P	16	214+00	EW Pipe	2	48	160					320																									97	10 48				Const. Collar, Pipe Ahead
F																																									
P	17	214+14	Inlet Pipe	1	18	8		8																			1									6					
F																																									
P	18	219+00	Inlet Pipe FES	1	18	62		62																				1				1				17					
F																																									
P	19	229+00	EW Pipe Inlet	1	60	102						102														1										140		11 3	695		
F																																									
P	19A	229+00	Pipe EW	2	60	98						196																								172		13 7	824		
F																																									
P	19B	229+00	Pipe	1	60	204						204																													
F																																									
P	20	229+42	MES, Pipe	1	24	40			40																										1	14					Const Collar
F																																									
P	21	240+00	MES Pipe Inlet	1	18	86		86																			1							1		15					
F																																									
P	22	260+00	FES Pipe Inlet	1	15	87	87																		1						1					19					
F																																									
P	23	281+00	Inlet Pipe FES	1	15	89	89																		1						1					19					
F																																									
P																																									
F																																									
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TOTALS			PLAN QUANTITY				176	156	40	218	320	502	182	244	80	185	158	16	32	2	1	1	2	1	2	1	2	1	1	1	2	1	2	2	1	748	24.00	25 00	1519	2 9	
			FINAL QUANTITY																																						

FORM 625 000 04
ROADWAY DESIGN 01/2000

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID

EXHIBIT SDS-1
Date 1/1/00

SUMMARY OF DRAINAGE STRUCTURES

SHEET NO

QUANTITY	STR NO	STATION	DESCRIPTION	BARRELS	SIZE (Inches)	LENGTH (Feet)	CROSS DRAIN OPTIONAL TYPE ROUND SHAPE						CROSS DRAIN OPTIONAL TYPE OTHER SHAPE		STORM DRAIN OPTIONAL TYPE						GUTTER DRAIN OPT TYPE	CURB INLETS				MH	DITCH BOTTOM INLETS				GUTTER INLET		FLARED END SECTION			MITERED END SECTION		SOD	CLASS I CONC	CLASS II CONC	REINF STEEL	SAND CEMENT RIPRAP	FORM 625 000 04 ROADWAY DESIGN 01/2000 REMARKS
																						P 1	P 2	J 1	J 2	J 7	A	B	C	D	S												
							15	18	24	30	48	60	24	30	15	18	24	30	36	42	15	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	>10	15	18	30	18	24	SY	CY	CY	Lbs	CY	
P	1	146+50	Pipe	1	18	12										12																											Const Conc Jacket
F																																											
P	2	146+54.12	Pipe	1	18	103										103																											
F																																											
P	3	147+33.80	Inlet Pipe	1	15	89									89							1																					
F																																											
P	4	147+61	Inlet Pipe	1	36	78													78						1																		
F																																											
P	5	148+15.96	Inlet Pipe	1	15	93									93								1																				Mod Height
F																																											
P	6	148+45.30	MH Pipe	1	36	28													28							1																	Alt A Brick
F																																											
P	7	148+77.55	Inlet Pipe	1	36	52													52						1																		RCP CLASS II
F																																											
P	8	148+77.55	EW Pipe	1	42	16														16																		43	6.33				
F																																											
P	9	149+35	Inlet Pipe	1	30	185												185						1																			
F																																											
P	10	149+35	Inlet Pipe	1	18	53										53						1																					
F																																											
P	11	454+18 & Lsg A	MES Pipe	1	18	76										76																				1		9					
F																																											
P	12	150+27	EW Pipe	1	24	80											80																					24				2.9	RCP CLASS III
F																																											
P	13	203+00	FES Pipe	1	30	96								96																								32					
F																																											
P	14	5+00 Ramp A	EW Pipe, Inlet	1	30	72				72																					1							62	3.26				
F																																											
P	14A	5+00 Ramp A	Pipe, EW	1	30	50							50																									62	3.26				
F																																											
P	15	15+00 Ramp A	Inlet Pipe, EW	1	15	21															32											1						17	0.67				
F																																											
P	16	214+00	EW Pipe	2	48	160					320																											97	10.48				Const Collar Pipe Ahead
F																																											
P	17	214+14	Inlet Pipe	1	18	8		8																					1									6					
F																																											
P	18	219+00	Inlet Pipe, FES	1	18	62		62																						1				1				17					
F																																											
P	19	229+00	EW Pipe, Inlet	1	60	102						102																1										140		11.3	695		
F																																											
P	19A	229+00	Pipe, EW	2	60	98						196																										172		13.7	824		
F																																											
P	19B	229+00	Pipe	1	60	204						204																															
F																																											
P	20	229+42	MES Pipe	1	24	40			40																												1	14					Const Collar
F																																											
P	21	240+00	MES Pipe, Inlet	1	18	86		86																					1							1		15					
F																																											
P	22	260+00	FES Pipe Inlet	1	15	87	87																				1						1					19					
F																																											
P	23	281+00	Inlet Pipe FES	1	15	89	89																				1						1					19					
F																																											
P																																											
F																																											
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F																																											
TOTALS			PLAN QUANTITY				176	156	40	72	320	502	50	96	182	244	80	185	158	16	32	2	1	1	2	1	2	1	2	1	1	1	2	1		2	1	748	24.00	25.00	1519	2.9	
			FINAL QUANTITY																																								

EXHIBIT SDS-1a
Date 7/1/01

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID
		- - -

SUMMARY OF DRAINAGE STRUCTURES

SHEET NO

06/20/2001 10:54:41 AM r:\Manuals\Ppmrp\English Jan00\Vol 2\Dgn\E sds 1a.dgn

GENERAL NOTES

1 The Contractor may use any of the optional pipe materials tabulated for a given structure Only the material options tabulated for a given structure can be used

2 Adjustment to the bid quantities, prices and payment will not be allowed due to increase or decrease in structure size, shape, length, width, depth or accessory construction necessary to accommodate the use of an optional pipe material other than the plotted option, likewise there will be no added or reduced compensation for structure alterations required to relieve utility conflicts which arise from the use of an optional material other than the plotted option

3 Adjustment to the bid quantities, prices and payment will not be allowed due to increased or decreased excavation, bedding, borrow, backfilling, compaction, special installation requirements or disposal of excess materials due to use of any of the pipe optional materials Likewise, adjustment in the quantities, prices and payment will not be allowed due to differences in end treatment size or types, pipe length, alternate jointing and connecting materials, saddles, cradles, filter fabrics, shoring or similar features due to the use of an optional material other than the plotted option

4 If adjustments are required due to plan errors or omissions or authorized field changes, the plotted material and not the material elected by the Contractor would be used to establish new pay quantities

5 The Contractor shall notify the Department in writing as to which optional pipe materials he chooses to use at the preconstruction conference Once identified the Contractor may not change pipe material selected without the approval of the Engineer

THIS EXAMPLE SHOULD BE USED WHEN PIPE FLOW LINES, AND/OR SIZES FOR INDIVIDUAL OPTIONS ARE NOT THE SAME (SEE STRUCTURE NOS 14, 14-A OR WHEN NUMEROUS EXCEPTIONS OCCUR

STR NO	DSL YEARS	SIZE (inches)	PLOTTED	MATERIAL & THICKNESS	FL	FL	AS BUILT	REMARKS
1	100	18	X	RCP CLASS II				
2	100	18	X	RCP CLASS II				
3	100	15	X	RCP CLASS II	7.0			
				SRAP				
4	100	36	X	RCP CLASS II	5.7			
				SRSP, 12 GA				
				SRAP, 12 GA				
				SRASP, 16 GA				
5	100	15	X	RCP CLASS II	7.7			
				SRAP				
6	100	36	X	RCP CLASS II	6.4	5.1		
				SRSP, 12 GA				
				SRAP 12 GA				
				SRASP, 16 GA				
7	100	36	X	RCP CLASS II	6.5	6.4		
8	100	42	X	RCP CLASS II	7.9	7.7		
				SRAP				
				SRSP				
9	100	30	X	RCP CLASS II	6.8	6.5		
				SRAP, 16 GA				
				SRSP, 16 GA				
10	100	18	X	RCP CLASS II	7.5	7.2		
				SRAP, 16 GA				
				SRSP, 14 GA				
				SRASP, 16 GA				
11	100	18	X	RCP CLASS II	8.0	7.6		
				SRAP, 16 GA				
				SRSP, 14 GA				
				SRASP, 16 GA				
12	100	24	X	RCP CLASS III				ENDWALL
13	100	30	X	RCP CLASS II	10.4	10.3		
14	50	30	X	RCP CLASS III	6.0	5.9		
				SRASP 14 GA				
				SRAP 14 GA				
				CPE				
				PVC				
		36		CAP, 16 GA	5.9	5.8		
		36		CSP, 16 GA BIT COATED	5.9	5.8		
14A	50	30	X	RCP CLASS III	5.9	5.8		
				SRASP 14 GA				
				SRAP, 14 GA				
				CPE				
				PVC				
		36		CAP 16 GA	5.8	5.7		
		36		CSP, 16 GA BIT COATED	5.8	5.7		

EXHIBIT SDS-2
Date 1/1/00

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID

OPTIONAL MATERIALS TABULATION

SHEET NO

$$$$$$$$DGNSPECIFICATIONS$$$$$$$$
$$$$$$$$FILE$
$$$$$$$$TIME$
$$$$$$$$DATE$

GENERAL NOTES

1 The Contractor may use any of the optional pipe materials tabulated for a given structure Only the material options tabulated for a given structure can be used

2 Adjustment to the bid quantities, prices and payment will not be allowed due to increase or decrease in structure size, shape, length, width, depth or accessory construction necessary to accommodate the use of an optional pipe material other than the "plotted" option, likewise there will be no added or reduced compensation for structure alterations required to relieve utility conflicts which arise from the use of an optional material other than the "plotted" option

3 Adjustment to the bid quantities, prices and payment will not be allowed due to increased or decreased excavation, bedding, borrow, backfilling, compaction, special installation requirements or disposal of excess materials due to use of any of the pipe optional materials Likewise, adjustment in the quantities, prices and payment will not be allowed due to differences in end treatment size or types, pipe length, alternate jointing and connecting materials, saddles, cradles, filter fabrics, shoring or similar features due to the use of an optional material other than the "plotted" option

4 If adjustments are required due to plan errors or omissions or authorized field changes, the "plotted" material and not the material elected by the Contractor would be used to establish new pay quantities

5 The Contractor shall notify the Department in writing as to which optional pipe materials he chooses to use at the preconstruction conference Once identified the Contractor may not change pipe material selected without the approval of the Engineer

6 Pipe shapes other than round (Elliptical/Arch) are summarized and paid for using equivalent round pipe diameter

THIS EXAMPLE SHOULD BE USED WHEN PIPE FLOW LINES, AND/OR SIZES FOR INDIVIDUAL OPTIONS ARE NOT THE SAME (SEE STRUCTURE NOS 14, OR WHEN NUMEROUS EXCEPTIONS OCCUR

This Tabulation Sheet is to be used only on projects to be let beginning with the July, 2002 Letting in conjunction with the Implementation of Pay Item 430-17a-bcc Pipe Culvert Optional Materials (Remove this note prior to Inclusion in the plans)

STR NO	DSL YEARS	SIZE (Inches)	PLOTTED	MATERIAL & THICKNESS	FL	FL	AS BUILT	REMARKS
1	100	18	X	RCP CLASS II				
2	100	18	X	RCP CLASS II				
3	100	15	X	RCP CLASS II	7.0			
				SRAP				
4	100	36	X	RCP CLASS II	5.7			
				SRSP, 12 GA				
				SRAP, 12 GA				
				SRASP, 16 GA				
5	100	15	X	RCP CLASS II	7.7			
				SRAP				
6	100	36	X	RCP CLASS II	6.4	5.7		
				SRSP, 12 GA				
				SRAP, 12 GA				
				SRASP, 16 GA				
7	100	36	X	RCP CLASS II	6.5	6.4		
8	100	42	X	RCP CLASS II	7.9	7.7		
				SRAP				
				SRSP				
9	100	30	X	RCP CLASS II	6.8	6.5		
				SRAP, 16 GA				
				SRSP, 16 GA				
10	100	18	X	RCP CLASS II	7.5	7.2		
				SRAP, 16 GA				
				SRSP, 14 GA				
				SRASP, 16 GA				
11	100	18	X	RCP CLASS II	8.0	7.6		
				SRAP, 16 GA				
				SRSP, 14 GA				
				SRASP, 16 GA				
12	100	24	X	RCP CLASS III				ENDWALL
13	100	24x38	X	ERCP CLASS II	10.4	10.3		
		35x24		ASPA, 14 GA				
14	50	30	X	RCP CLASS III	6.0	5.9		
				SRASP 14 GA				
				SRAP, 14 GA				
				CPE				
				PVC				
		36		CAP, 16 GA	5.9	5.8		
		36		CSP, 16 GA BIT COATED	5.9	5.8		
14A	50	19x30	X	ERCP CLASS III	5.9	5.8		
		28x20		ASPA 14 GA				

EXHIBIT SDS-2a
Date 1/1/02

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID
		- - -

OPTIONAL MATERIALS TABULATION

SHEET NO

GENERAL NOTES

1 The Contractor may use any of the optional pipe materials tabulated for a given structure Only the material options tabulated for a given structure can be used

2 Adjustment to the bid quantities, prices and payment will not be allowed due to increase or decrease in structure size, shape, length, width, depth or accessory construction necessary to accommodate the use of an optional pipe material other than the plotted option, likewise there will be no added or reduced compensation for structure alterations required to relieve utility conflicts which arise from the use of an optional material other than the plotted option

3 Adjustment to the bid quantities, prices and payment will not be allowed due to increased or decreased excavation, bedding, borrow, backfilling, compaction, special installation requirements or disposal of excess materials due to use of any of the pipe optional materials Likewise, adjustment in the quantities, prices and payment will not be allowed due to differences in end treatment size or types, pipe length, alternate jointing and connecting materials, saddles, cradles, filter fabrics, shoring or similar features due to the use of an optional material other than the plotted option

4 If adjustments are required due to plan errors or omissions or authorized field changes, the plotted material and not the material elected by the Contractor would be used to establish new pay quantities

5 The Contractor shall notify the Department in writing as to which optional pipe materials he chooses to use at the preconstruction conference Once identified the Contractor may not change pipe material selected without the approval of the Engineer

THIS EXAMPLE SHOULD BE USED WHEN MATERIAL OPTIONS ARE THE SAME FOR THE DIFFERENT PIPE SIZES AND WHEN LIMITED EXCEPTIONS ARE NOTED

STRUCTURE	SIZE (Inches)	MATERIAL	PLOTTED	AS BUILT	REMARKS
	15	RCP CLASS II	X		
		SRAP 14 GA			
EXCEPTION	18	RCP CLASS II	X		
S 1 & S 2		SRAP 16 GA			
RCP CLASS II		SRSP 14 GA			
ONLY		SRASP 16 GA			
EXCEPTION	24	RCP CLASS III	X		
S 12		SRAP 16 GA			
RCP CLASS III		SRSP, 16 GA			
ONLY		SRASP 16 GA			
EXCEPTION	30	RCP CLASS III	X		
S 13		SRAP 14 GA			
RCP CLASS III		SRASP 14 GA			
ONLY					
EXCEPTION	36	RCP CLASS II	X		
S 7		SRAP 14 GA			
RCP CLASS II		SRSP 12 GA			
ONLY		SRASP 16 GA			

EXHIBIT SDS-3
Date 1/1/00

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID

OPTIONAL MATERIALS TABULATION

SHEET NO

$$$$$$$$STANDARDSPECIFICATIONS$$$$$$$$
$$$$$$$$TIMES$$$$$$$$
$$$$$$$$FILES$$$$$$$$
$$$$$$$$DATES$$$$$$$$

GENERAL NOTES

1 The Contractor may use any of the optional pipe materials tabulated for a given structure Only the material options tabulated for a given structure can be used

2 Adjustment to the bid quantities, prices and payment will not be allowed due to increase or decrease in structure size, shape, length, width, depth or accessory construction necessary to accommodate the use of an optional pipe material other than the "plotted" option, likewise there will be no added or reduced compensation for structure alterations required to relieve utility conflicts which arise from the use of an optional material other than the "plotted" option

3 Adjustment to the bid quantities, prices and payment will not be allowed due to increased or decreased excavation, bedding, borrow, backfilling, compaction, special installation requirements or disposal of excess materials due to use of any of the pipe optional materials Likewise, adjustment in the quantities, prices and payment will not be allowed due to differences in end treatment size or types, pipe length, alternate jointing and connecting materials, saddles, cradles, filter fabrics, shoring or similar features due to the use of an optional material other than the "plotted" option

4 If adjustments are required due to plan errors or omissions or authorized field changes, the "plotted" material and not the material elected by the Contractor would be used to establish new pay quantities

5 The Contractor shall notify the Department in writing as to which optional pipe materials he chooses to use at the preconstruction conference Once identified the Contractor may not change pipe material selected without the approval of the Engineer

6 Pipe shapes other than round (Elliptical/Arch) are summarized and paid for using equivalent round pipe diameter

STRUCTURE	SIZE (Inches)	MATERIAL	PLOTTED	AS BUILT	REMARKS
	15	RCP CLASS II	X		
		SRAP, 14 GA			
EXCEPTION	18	RCP CLASS II	X		
S-1 & S-2		SRAP, 16 GA			
RCP CLASS II		SRSP, 14 GA			
ONLY		SRASP, 16 GA			
EXCEPTION	24	RCP CLASS III	X		
S-12		SRAP, 16 GA			
RCP CLASS III		SRSP, 16 GA			
ONLY		SRASP, 16 GA			
	30	RCP CLASS III	X		
		SRAP, 14 GA			
		SRASP, 14 GA			
EXCEPTION	36	RCP CLASS II	X		
S-7		SRAP, 14 GA			
RCP CLASS II		SRSP, 12 GA			
ONLY		SRASP, 16 GA			
EXCEPTION	24x38	ERCP, CLASS II	X		
S-13	35x24	ASPA, 14 GA			
EXCEPTION	19x30	ERCP, CLASS III	X		
S-14-A	28x20	ASPA, 14 GA.			

THIS EXAMPLE SHOULD BE USED WHEN MATERIAL OPTIONS ARE THE SAME FOR THE DIFFERENT PIPE SIZES AND WHEN LIMITED EXCEPTIONS ARE NOTED

This Tabulation Sheet is to be used only on projects to be let beginning with the July, 2002 Letting in conjunction with the Implementation of Pay Item 430-174-bcc Pipe Culvert Optional Materials (Remove this note prior to Inclusion in the plans)

EXHIBIT SDS-3a
Date 1/1/02

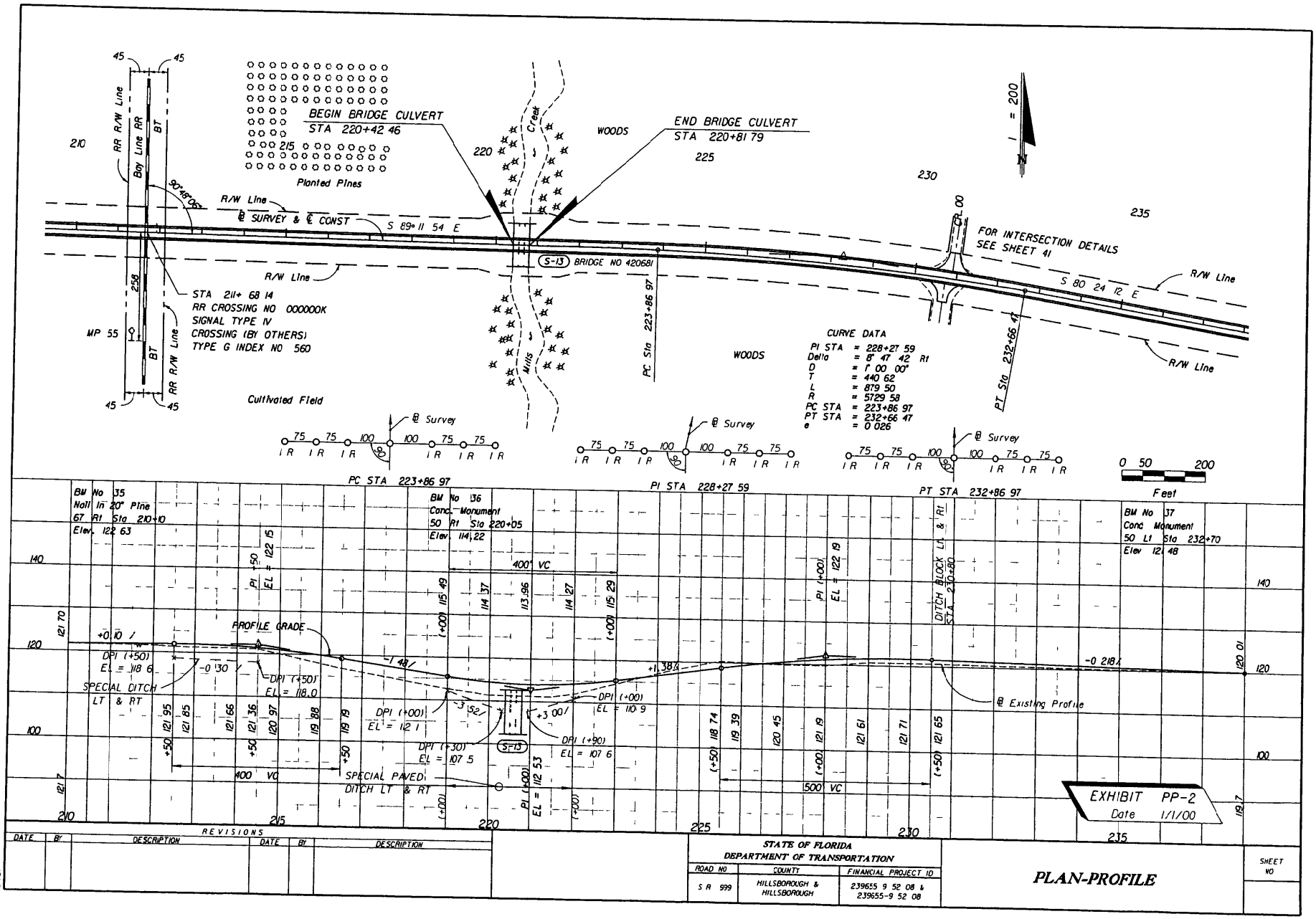
REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID
		- - -

OPTIONAL MATERIALS TABULATION

SHEET NO



REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID
S R 999	HILLSBOROUGH & HILLSBOROUGH	239655 9 52 08 & 239655-9 52 08

PLAN-PROFILE

SHEET NO

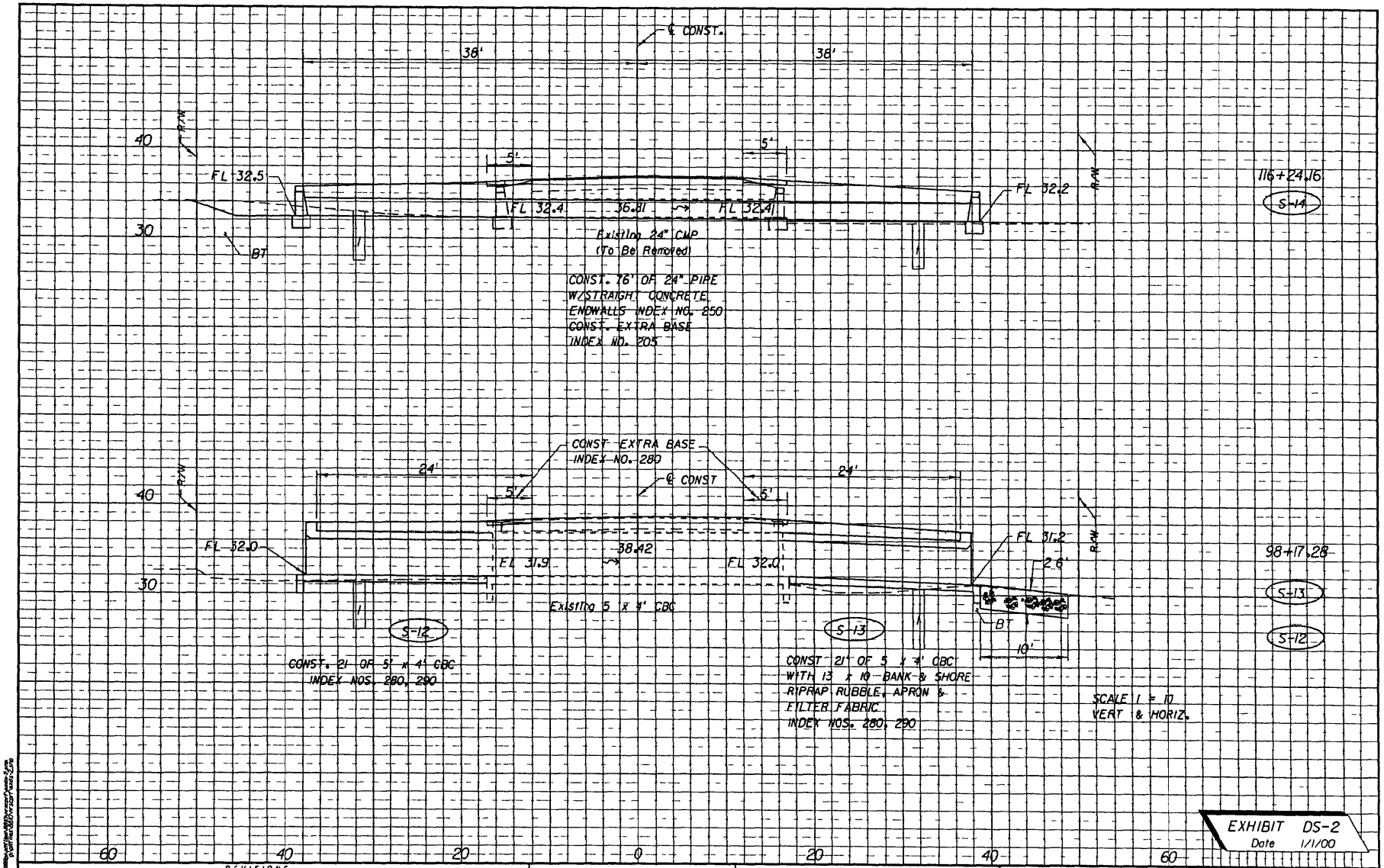


EXHIBIT DS-2
Date 1/1/00

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID

DRAINAGE STRUCTURES

SHEET NO

#######$TIME###### #######DGNSPECIFICATION#######
#DATE# #TIME# #FILE#

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION
MATERIALS AND RESEARCH

DATE OF SURVEY 2/15/95 -5/1/95
SURVEY MADE BY HARTFORD TESTING COMPANY
SUBMITTED BY LARRY BALLARD, P.E.

FINANCIAL PROJECT ID : ____________

DISTRICT 3
ROAD NO S.R. 29
COUNTY HOUSTON

CROSS SECTION SOIL SURVEY FOR THE DESIGN OF ROADS

SURVEY BEGINS STA 400+00 SURVEY ENDS STA 554+00

	ORGANIC CONTENT			SIEVE ANALYSIS RESULTS / PASS						ATTERBERG LIMITS (/)					CORROSION TEST RESULTS				
STRATUM NO	NO OF TESTS	/ ORGANIC	MOISTURE CONTENT	NO OF TESTS	10 MESH	40 MESH	60 MESH	100 MESH	200 MESH	NO OF TESTS	LIQUID LIMIT	PLASTIC INDEX	AASHTO GROUP	DESCRIPTION	NO OF TESTS	RESISTIVITY ohms om	CHLORIDE ppm	SULFATES ppm	pH
1												N.P		ROCK BASE ASPHALTIC CONCRETE					
2				4	98 87	93 77	82 59	55 44	10 3			N P	A 3	SUBGRADE (GRAY & TAN SAND W/TRACE SILT L R & SHELL)					
3	7	3 5 2 5		7	100 94	94 86	71 65	45 34	21 15			N.P	A 2 4	FILL (DARK BROWN SAND W/SOME SILT & TRACE L.R)	7	43000 34000	60 40	72 18	8 3 6 4
4	3	1 5 1 9		4	100 84	93 71	90 60	82 53	45 37	4	38 25	9 5	A 4	GRAY AND BROWN SILTY SAND W/TRACE CLAY AND L R	4	26000 23000	120 60	96 84	8 9 8 4
5				3	100	100 99	98 96	80 75	34 30	3	44 42	15 11	A 2 7	TAN AND LIGHT GRAY SILTY SAND W/SOME CLAY AND TRACE SHELL	3	8000-6600	120 60	216 156	8.2 7 5
6	3	18.2 40	20 60						46 30	3	33 25	15 10	A 8	MUCK (DARK BROWN SILTY SAND W/SOME CLAY					
7				3	100	92 88	79 73	69 60	55 51	3	61 55	53 38	A 7	YELLOW AND GRAY SILTY SAND CLAY					
8	3	15 5 20	20 58	3	100 99	99 97	97 88	80 77	15 10			N.P	A 8	MUCK (BROWN SAND W/SOME ORGANIC AND TRACE SHELL	3	35000 20000	120	120	5 2 4 6

EMBANKMENT AND SUBGRADE MATERIAL
STRATA BOUNDARIES ARE APPROXIMATE MAKE FINAL CHECK AFTER GRADING
▽ - WATER TABLE ENCOUNTERED
GNE - GROUND WATER NOT ENCOUNTERED

The material from Stratum Number 1 is Rock Base under Asphaltic Concrete

The material from Stratum Number 2 appears satisfactory for use in the embankment when utilized in accordance with Index 505

The material from Stratum Number 3 appears satisfactory for use in the embankment when utilized in accordance with Index 505 However, this material is likely to retain excess moisture and be difficult to dry and compact It should be used in the embankment above the water level existing at the time of construction
This material may not be used in the subgrade portion of the roadbed due to its organic content

The materials from Stratum Numbers 4 and 5 are plastic materials and shall be removed in accordance with Index 500 They may be placed above the existing water level at the time of construction to within 4 Feet of the proposed base They should be placed uniformly in the lower portion of the embankment for some distances along the project rather than full depths for short distances

The material from Stratum Numbers 6 and 8 is ORGANIC/A-8 material and shall be removed in accordance with Index 500

The material from Stratum Number 7 is Highly Plastic material and shall be removed in accordance with Index 500 It may be used within the project limits as indicated in Index 505 only when excavated within the project limits and is not to be used when obtained from outside the project limits

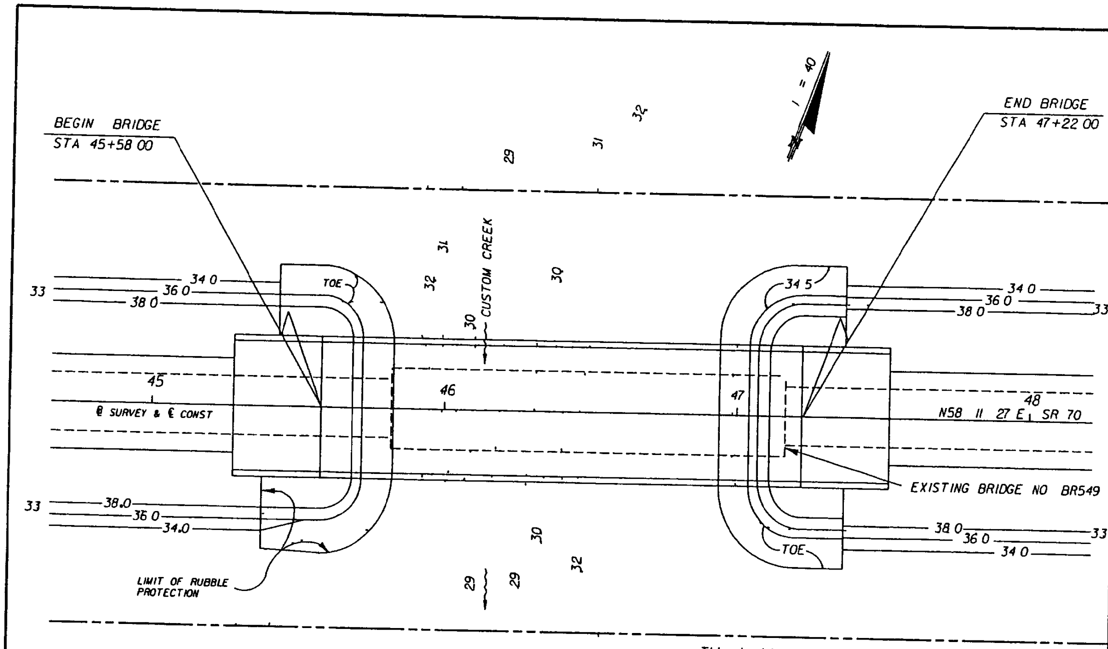
EXHIBIT SS-1
Date 1/1/00

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

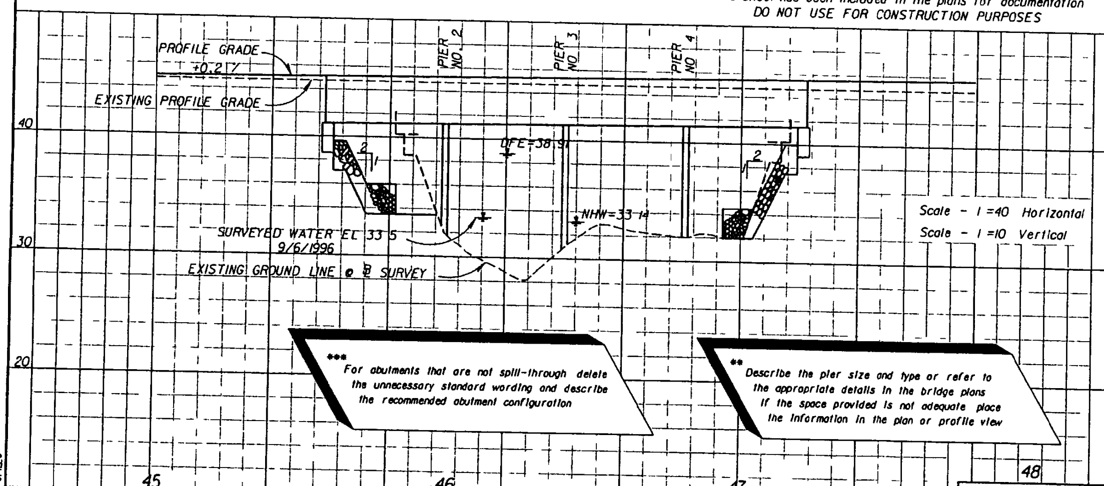
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO	COUNTY	FINANCIAL PROJECT ID

ROADWAY SOILS SURVEY

SHEET NO

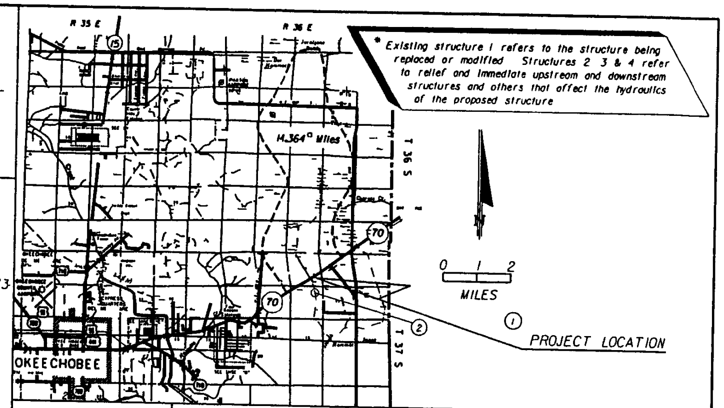


This sheet has been included in the plans for documentation
DO NOT USE FOR CONSTRUCTION PURPOSES



*** For abutments that are not spill-through delete the unnecessary standard wording and describe the recommended abutment configuration

** Describe the pier size and type or refer to the appropriate details in the bridge plans. If the space provided is not adequate place the information in the plan or profile view



* Existing structure 1 refers to the structure being replaced or modified. Structures 2, 3 & 4 refer to relief and immediate upstream and downstream structures and others that affect the hydraulics of the proposed structure

(REFERENCE)	* EXISTING STRUCTURES (1)	(2)	(3)	(4)	PROPOSED STRUCTURE
FOUNDATION	Conc Piles	Timber			Conc Piles
OVERALL LENGTH	135	200			164 (rem. #1)
SPAN LENGTH	5 @ 27	20 @ 10			4 @ 41
TYPE CONSTRUCTION	Concrete	Timber			Concrete
AREA OF OPENING @ D.F	1000	Unknow			1020
BRIDGE WIDTH	28	Railroad (South)			44
ELEV LOW MEMBER	40 35	38.32			41.17

HYDRAULIC DESIGN DATA

NOTE
Th hydraulic data is show fo informatio l purp s s o ly to indicate the flood dischw ges and water surf c ele ations which may be anticipated in y gi en year. This data was ge erated si g highly v riable factors determined by a study of the watershed. Many judgeme ts a d ass mptions are equired to stablish these facto s. The esult l hydraulic data is se siti e to cha ges particularly nte edent c nditio s urb nizatio chan elizatio and la d use. Users of this data are cautio ed agai st the assumption of precisio which cannot be obtained

TERMS:
Design Flood: Utilized to ass re a desired le l of hydraulic perfo mance
Base Flood: H a 1% ch ce of bei g e ce d d i y gi e yea (100 year frequency)
O ertopping Flood: Causes flow over the highway o e a watershed di ide or thru emergency relief str ct s
Greatest Flo d: The most seve e th t can be p edicted where overtoppi g is ot practicable

WATER SURFACE ELEVATIONS N.H.W (Non Tidal) 33.14 M.H.W (Tidal) ____
CONTROL (Non Tidal) ____ M.L.W (Tidal) ____

FLOOD DATA	MAX EVENT OF RECORD	DESIGN FLOOD	BASE FLOOD	☐ OVERTOPPING or ☒ GREATEST FLOOD
STAGE ELEV NGVD (ft)	38.7 (rem #2)	38.91	39.27	39.57
DISCHARGE (cfs)	unknown	3280	3950	4630
AVERAGE VELOCITY (ft/s)		3.22	3.58	4.13
EXCEEDANCE PROB (%)		2	1	0.2
FREQUENCY (yr)		50	100	500

SCOUR PREDICTIONS FOR PROPOSED STRUCTURE DESCRIBED ABOVE:

PIER INFORMATION NUMBERS	** SIZE AND TYPE	LONG TERM SCOUR ELEV	TOTAL SCOUR ELEVATION WORST CASE (< 100 yr FREQ (yr) 100)	WORST CASE (< 500 yr FREQ (yr) 500)
2 & 3	24 Conc. Piles	N/A	18 4	16.4
4 (rem. #3)	24 Conc. Piles	N/A	27.6	25.6

HYDRAULIC RECOMMENDATIONS

1 BEGIN BRIDGE STATION 45+58.00 END BRIDGE STATION 47+22.00 SKEW ANGLE 0°
2 CLEARANCE PROVIDED NAV HORIZ 39.0 VERT 8.04 ABOVE EL 33.14 DRIFT HORIZ 39.0 VERT 2.26 ABOVE EL 38.91
3 MINIMUM CLEARANCE: NAV: HORIZ 10.0 VERT 6.0 ABOVE EL 33.14 DRIFT HORIZ N/A VERT 2.0 ABOVE EL 38.91
4 ABUTMENTS

***	BEGIN BRIDGE	END BRIDGE
RUBBLE GRADE:	Bank and Shore	Bank and Shore
SLOPE:	1 2	1:2
BURIED OR NON BURIED HORIZ TOE	Non Buried	Non Buried
TOE HORIZ DISTANCE:	10	10
LIMIT OF PROTECTION:	15 Lt., 20 Rt.	15 Lt and Rt

5 DECK DRAINAGE Spread is contained in shoulder. Runoff captured by inlets at begin bridge

REMARKS
(1) Bridge lengthened to accomodate predicted channel migration to the west.
(2) Based on mark provided by local resident of 43 years.
(3) Due to predicted channel migration to the west and lack of meander cutoff Pier No. 4 will not experience main channel scour depths.

EXHIBIT BHD-1
Date 1/1/00

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
REVISIONS					

BRIDGE NO

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID

BRIDGE HYDRAULIC RECOMMENDATIONS

SHEET NO

SELECTIVE CLEARING AND GRUBBING - GENERAL NOTES

① DESIGNATES AREAS TO REMAIN NATURAL NO CLEARING OR GRUBBING IN THESE AREAS NO EQUIPMENT SHALL ENTER THESE AREAS NO STAGING, STORAGE OR DUMPING IN THIS AREA

② DESIGNATES AREAS WHERE TREES AND STUMPS OVER 3 IN DIAMETER SHALL BE CUT FLUSH WITH THE GROUND OR REMOVED, AND ALL UNDERGROWTH IS TO REMAIN NATURAL NO EQUIPMENT SHALL ENTER THESE AREAS THAT WOULD IN ANY WAY DAMAGE THE PLANT MATERIAL TO REMAIN NO STAGING STORAGE OR DUMPING IN THIS AREA

③ DESIGNATES AREAS WHERE TREES OF 3 IN DIAMETER OR GREATER ARE TO REMAIN AND ALL UNDERGROWTH IS TO BE REMOVED ONLY RUBBER TIRE EQUIPMENT SHALL ENTER THESE AREAS, AND REMAINING TREES SHALL BE PROTECTED FROM ROOT AND TRUNK DAMAGE NO STAGING, STORAGE OR DUMPING IN THIS AREA

④ DESIGNATES AREAS WHERE THE TYPE AND EXTENT OF CLEARING AND GRUBBING SHALL BE DETERMINED BY THE ENGINEER ACCORDING TO FIELD CONDITIONS

⑤ DESIGNATES AREAS THAT SHALL REMAIN NATURAL WHEN, IN THE OPINION OF THE ENGINEER, ADEQUATE AND DESIRABLE NATURAL VEGETATION OR GRASS EXIST WHERE THIS TYPE VEGETATION DOES NOT EXIST, ONLY HARROWING DISKING, LEVELING, AND/OR CLEAN-UP SHALL BE UNDERTAKEN, TO A DEGREE SUFFICIENT TO PREPARE THE AREA FOR GRASSING OPERATIONS

— x — x — AREAS WHERE EQUIPMENT IS NOT ALLOWED AND OTHER LOCATIONS, AS DIRECTED BY THE ENGINEER, MUST BE PROTECTED BY TREE GUARDS THE LOCATION FOR TREE GUARDS SHALL BE SHOWN IN THE PLANS

ALL OTHER AREAS NOT INCLUDED IN ONE OF THE ABOVE CATEGORIES, OR THOSE DESIGNATED BY THE TYPICAL SECTIONS, SHALL BE STANDARD CLEARING AND GRUBBING

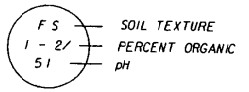
WHERE UNFORSEEN SITE CONDITIONS EXIST, ADJUSTMENTS OR EXCEPTIONS MAY BE MADE TO THE ABOVE PROCEDURE AT THE DIRECTION OF THE ENGINEER

FINISH SOIL LAYER - GENERAL NOTES

STOCKPILING OF FINISH SOIL LAYER MATERIAL IS TO BE DONE ONLY IN AREAS REQUIRING STANDARD CLEARING AND GRUBBING AND/OR AREAS DESIGNATED AS TYPE 5 (SEE SELECTIVE CLEARING AND GRUBBING - GENERAL NOTES)

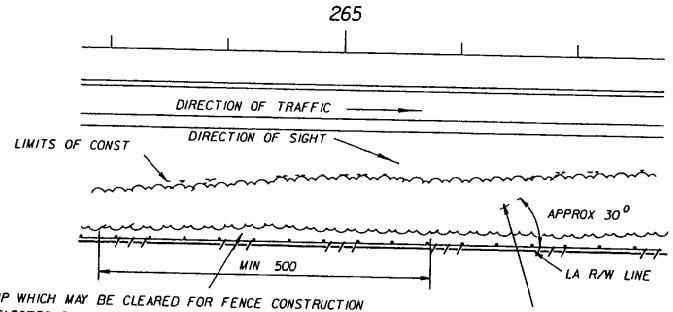
TYPE 4 AREAS MAY BE USED FOR STOCKPILING OF FINISH SOIL LAYER MATERIAL ONLY WHERE SUCH AREAS HAVE BEEN CLEARED, AT THE DIRECTION OF THE ENGINEER DURING CONSTRUCTION OPERATIONS

SUFFICIENT AREA HAS BEEN DESIGNATED SO THAT ALL STOCKPILING MAY BE DONE IN ACCORDANCE WITH THE REQUIREMENTS LISTED ABOVE



SOIL INFORMATION DETAIL

EXPLANATION OF SYMBOLS & SOIL TEXTURE ABBREVIATIONS



10 STRIP WHICH MAY BE CLEARED FOR FENCE CONSTRUCTION WITH SELECTED DESIRABLE TREES ALLOWED TO REMAIN, AS DIRECTED BY THE ENGINEER

AT THE DIRECTION OF THE ENGINEER, DIAGONAL PATH MAY BE CUT IN AREAS TO REMAIN NATURAL, AS SHOWN ABOVE, FOR THE REMOVAL OF TIMBER AND STUMPS FROM THE AREA CLEARED FOR FENCE CONSTRUCTION

ACCESS FOR FENCE CONSTRUCTION

(APPLIES TO ALL TYPES OF SELECTIVE CLEARING AND GRUBBING)

EXHIBIT SCG-1
Date 1/1/00

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID

SELECTIVE CLEARING AND GRUBBING

SHEET NO

$$$ $$$TIME$$$$$$ $$$ $$$DGNSPECIFICATION$$$$$$$$$
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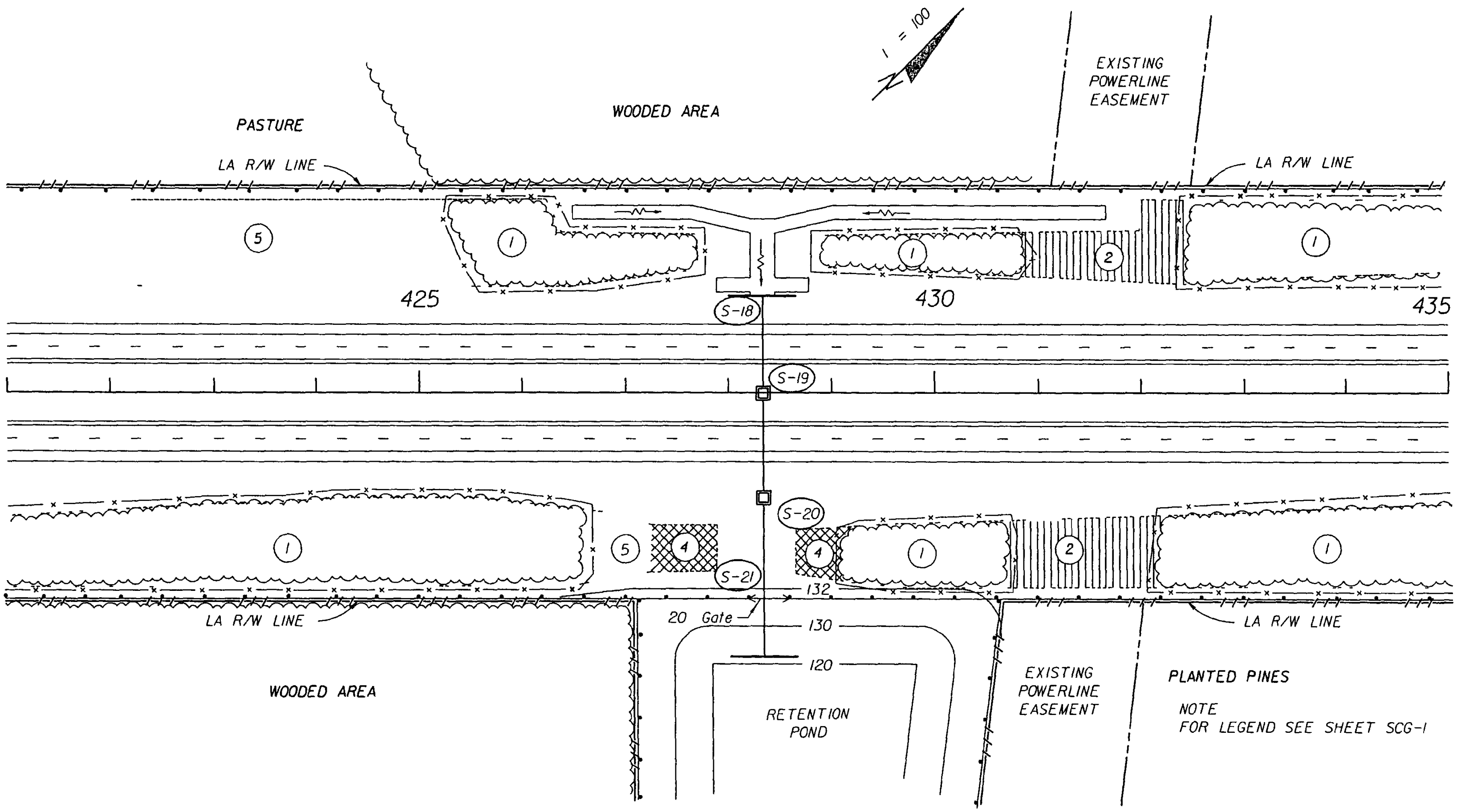


EXHIBIT SCG-2
Date 1/1/00

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID

SELECTIVE CLEARING AND GRUBBING

SHEET NO

GENERAL NOTES

1 CONSTRUCTION SPECIFICATIONS
Florida Department of Transportation Standard Specifications for Road and Bridge Construction, 199_ and supplements thereto

2 DESIGN SPECIFICATIONS Design shall be in accordance with the following specifications

AASHTO Standard Specifications for Highway Bridges, 16th Edition, and applicable Interim specifications

Florida Department of Transportation Structures Design Guidelines

Insitu Soil Improvement Techniques AASHTO-AGC-ARTBA Task Force 27 Ground Modification Techniques, January 1990

3 MATERIAL STRESSES All allowable stresses shall be in accordance with the current AASHTO Specifications for all the materials shown on the plans

a Concrete Compressive Strength
Panels Class IV, f c = 5500 psi min
C I P. Class II, f c = 3400 psi min
Leveling Pad Class I f c = 2500 psi min

b Reinforcing Steel ASTM A615 Grade 60

4 DESIGN METHOD Load Factor except that internal and external stability shall be designed for service loads

The following minimum factors of safety shall be utilized in the design of the walls

Overturning	F S = 20
Sliding	F S = 15
Bearing Capacity	F S = 25
Internal Pullout	F S = 15 (Allowable Deflection = ¾)
Overall Stability	F S = 15
Steel	0 55 Fy (Straps)
	0 47 Fy (Wire Mat or Grid)
Plastics	0.19 Fu (HDPE) (Permanent Walls)
	0.29 Fu (Polyester and HDPE) (Temporary Walls)
Steel Connections	See AASHTO Specifications

5 DESIGN LOADS
Live Loading HS20-44
Sidewalk Loading 85 lbs per square foot

6 For Typical Sections through roadway, see Roadway Plans

7 Concrete facing panel surface treatment shall be a fluted trapezoidal, V-Groove, fractured rib ¾ on 1½ centers similar to Burke Form Liner Pattern No BG312 (Waterfall)

8 Longitudinal dimensions shown in the plans are measured along the exterior face of the wall Elevations shown are to the top of coping top of leveling pad or top of wall footing

9 Leveling Pad The leveling pad shall be 1 -8 min below final ground line

10 A structural extension of the connection of the wall panel to the soil reinforcement shall be used whenever necessary to avoid the cutting or excessive skewing (greater than 15 degrees) of the soil reinforcements at piles or other obstructions

11 The soil reinforcement and fasteners (if required) for the abutment backwall shall be designed and furnished by the MSE wall company The soil reinforcement shall be designed to resist a horizontal load of 3 5 kips per foot of backwall width The cost of the soil reinforcement and fasteners is to be included in the cost of the Retaining Wall System Installation shall be by the contractor

12 These walls are to be designed for the settlements noted for each wall Long term settlement is measured from the beginning of wall construction

GEOTECHNICAL INFORMATION

	Reinforced Soil & Random Backfill	Loose Fine Sand	Firm Fine Sand	Loose Clayey Fine Sand	Firm Clayey Fine Sand
Depth Below Existing Ground Line for Walls 1 & 2	-	0 -6	6 -33	33 -39	-
Walls 3		0 -10	10 -26	-	26 -39
Unit Weight	110 pcf Moist Weight In-Place	118 pcf	118 pcf	120 pcf	110 pcf
Cohesion	0	0	0	122 pcf	122 pcf
Internal Friction	30	30	32	18	18

If the unit weight and/or Ø angle of the fill proposed by the Contractor differs from the above, the Project Engineer shall contact both the District Geotechnical Engineer and the Wall Designer for a possible redesign

Design Based Internal Friction Angle = 30 degrees (Sand Backfill)
34 degrees (Limerock) (Dade, Monroe Co)

Refer to Plan and Elevation sheets of individual walls for minimum reinforcement strip/mesh length, allowable bearing capacities, minimum wall embedment and anticipated long term and differential settlements

SOIL REINFORCEMENT LENGTHS FOR EXTERNAL STABILITY (0 7h)

Walls 1 and 2

Wall Height (ft)	0-11	12	13-14	15	16-17	18	19-20	21	22-23	24	25
* Reinforcement Length (ft)	8	9	10	11	12	13	14	15	16	17	18
Bearing Pressure (psf)	1984	2295	2546	2857	3108	3419	3671	3980	4233	4543	4851

Wall 3

Wall Height (ft)	0-11	12	13-14	15	16-17	18	19-20
* Reinforcement Length (ft)	8	9	10	11	12	13	14
Bearing Pressure (psf)	2467	2467	2467	2467	2467	2467	2467

* The reinforcement strap lengths shown in this column are minimum lengths required for external stability The proprietary wall companies are responsible for internal stability of the retaining walls The reinforcement lengths used in the construction of the retaining walls shall be the longer of that required for internal or external stability

The applicable wall systems for each wall location are listed below Wall systems not listed have been deemed unacceptable for use at that specific site due to the environment excessive settlement etc and shall not be used and will not be considered for future substitution during construction

Wall Nos 1 & 2 Environment Slightly Aggressive

Long Term Settlement	2 to 3
Short Term Settlement	1 to 2
Differential Settlement	1/16 /1

Wall No 3 Environment Slightly Aggressive

Long Term Settlement	2 to 3
Short Term Settlement	1 to 2
Differential Settlement	1/16 /1

The following wall systems are acceptable for use at this location

Brand X
Brand Y
Brand Z

EXHIBIT CP-1
Date 1/1/00

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

	NAMES	DATES
DRAWN BY		
CHECKED BY		
DESIGNED BY		
CHECKED BY		
APPROVED BY		

ENGINEER OF RECORD

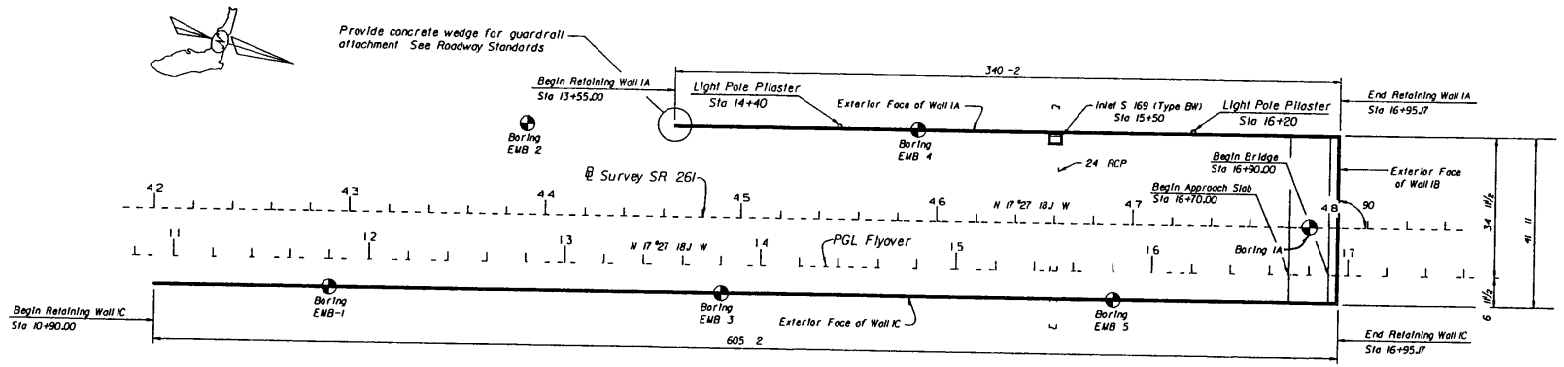
FLORIDA DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	PROJECT NO

SHEET TITLE
CONTROL DRAWING GENERAL NOTES
INDEX NO S-825, SHEET 1 OF 1

PROJECT NAME

SHEET NO



PLAN

NOTES

1 For Top of Coping Elevations see sheet W 6

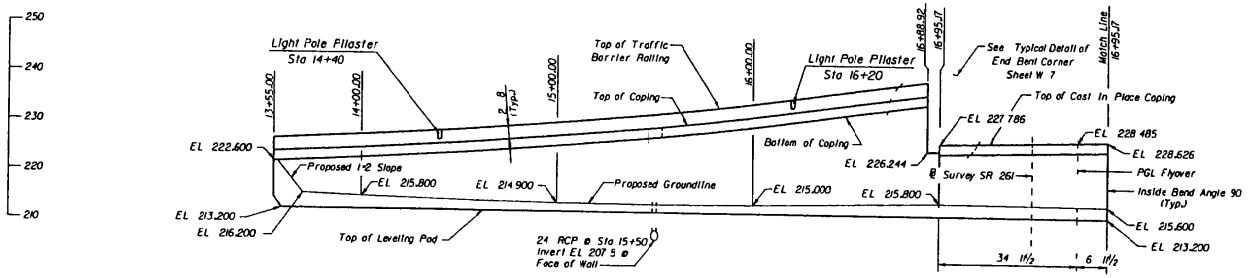
2 Top of footing embedment depth shall be a minimum of 1 6 (See Sheet W 1 for de ails)

3 Provide ¾ open joints in Traffic Railing Barrier at a maximum of 90 ft intervals

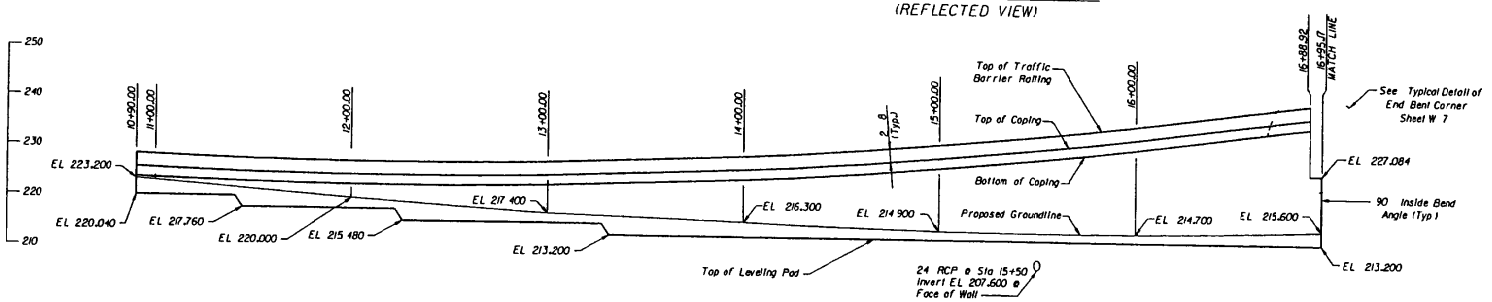
4 Indicates Soil Boring See Sheets B 8 thru B 12a for boring data

5 CPT Sounding Locations are not shown See Sheets B-12b thru B 12a for CPT data

6 For Additional information regarding Drainage Structures and Utility Locations See Roadway Plans



ELEVATION - WALLS IA AND IB
(REFLECTED VIEW)



ELEVATION - WALL IC

EXHIBIT CP-2
Date 1/1/00

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

	NAMES	DATES
DRAWN BY		
CHECKED BY		
DESIGNED BY		
CHECKED BY		
APPROVED BY		

ENGINEER OF RECORD

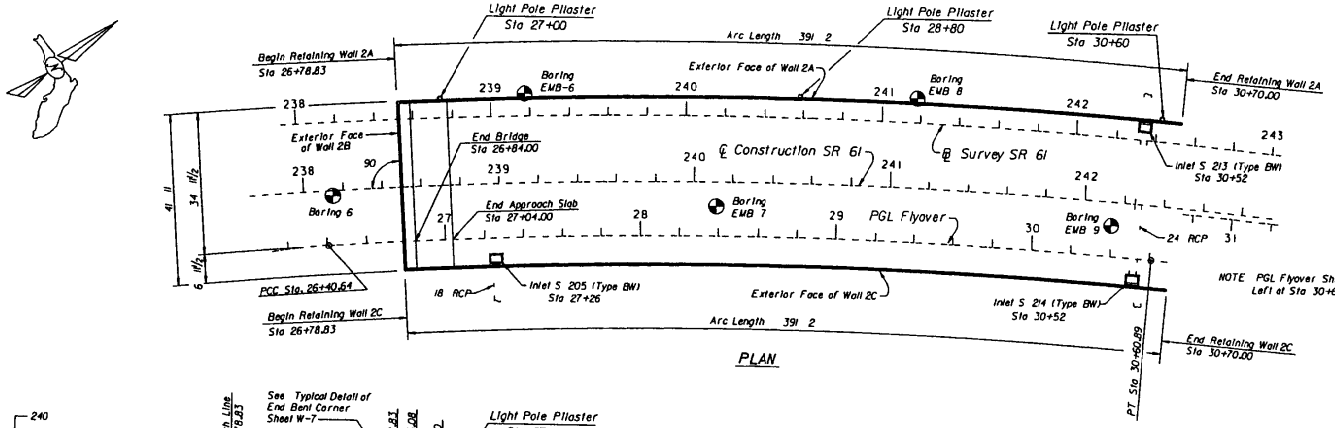
FLORIDA DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	PROJECT NO

SHEET TITLE: RETAINING WALL NO 1

PROJECT NO

SHEET NO



PLAN

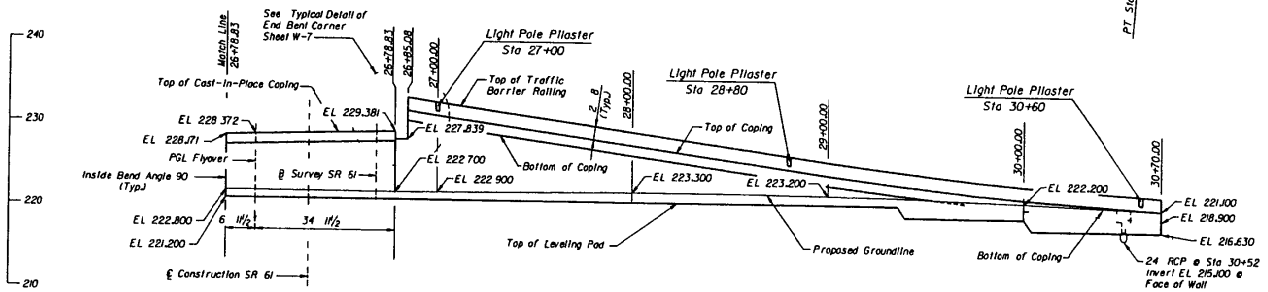
NOTE PGL Flyover Shifts 12 0 Left at Sta 30+69.23

HORIZONTAL CURVE DATA

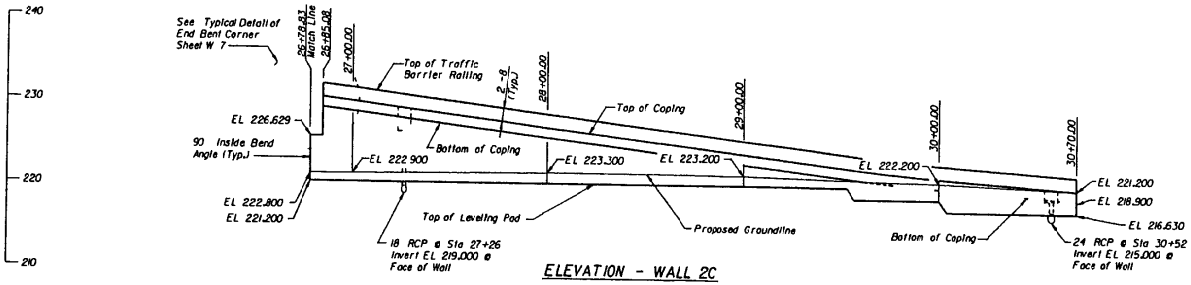
PI Sta = 28+50.87
Δ = 4 28 13 Rt
D = 1 02 54
T = 210.23
L = 420.25
R = 5 386.25
PCC Sta = 26+40.64
PT Sta = 30+60 89

STATE PLANE COORDINATES

	N	E
PCC		
PI	(Not Available)	
PT		



ELEVATION - WALLS 2A AND 2B
(REFLECTED VIEW)



ELEVATION - WALL 2C

NOTES:

1 For Top of Coping Elevations see sheet W 6

2 Top of footing embedment depth shall be a minimum of 1 6 (See Sheet W) for details)

3 Provide ¾ open joints in Traffic Railing Barrier at a maximum of 90 ft intervals

4 ⊕ Indicates Soil Boring See Sheets B 8 thru B 12a for boring data

5 CPT Sounding Locations are not shown See Sheets B 12b thru B 12q for CPT data

6 For Additional Information regarding Drainage Structures and Utility Locations See Roadway Plans

EXHIBIT CP-3
Date 1/1/00

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

	NAMES	DATES
DRAWN BY		
CHECKED BY		
DESIGNED BY		
CHECKED BY		
APPROVED BY		

ENGINEER OF RECORD

FLORIDA DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	PROJECT NO

SHEET 1 LE

RETAINING WALL NO 2

PROJEC NME

SHEET NO

WALL No 1A

PGL Flyover Station	Exposed Face of Wall 1A Offset from PGL Flyover (ft.)	Top of Coping Elevation @ Wall 1A (ft.)
13 55 00	34 958	224 600
13 75 00	34 958	224 969
14 00 00	34 958	225 503
14 25 00	34 958	226 116
14 50 00	34 958	226 809
14 75 00	34 958	227 583
15 00 00	34 958	228 436
15 25 00	34 958	229 370
15 50 00	34 958	230 383
15 75 00	34 958	231 477
16 00 00	34 958	232 650
16 25 00	34 958	233 904
16 50 00	34 958	235 390
16 75 00	34 958	236 848
16 88 92	34 958	237 615
16 93 50	34 958	

WALL No 1C

PGL Flyover Station	Exposed Face of Wall 1C Offset from PGL Flyover (ft.)	Top of Coping Elevation @ Wall 1C (ft.)
10 90 00	6 958	225 647
11 00 00	6 958	225 486
11 25 00	6 958	225 139
11 50 00	6 958	224 872
11 75 00	6 958	224 685
12 00 00	6 958	224 578
12 25 00	6 958	224 551
12 50 00	6 958	224 604
12 75 00	6 958	224 737
13 00 00	6 958	224 950
13 25 00	6 958	225 243
13 50 00	6 958	225 616
13 75 00	6 958	226 069
14 00 00	6 958	226 603
14 25 00	6 958	227 216
14 50 00	6 958	227 909
14 75 00	6 958	228 683
15 00 00	6 958	229 536
15 25 00	6 958	230 470
15 50 00	6 958	231 483
15 75 00	6 958	232 577
16 00 00	6 958	233 750
16 25 00	6 958	235 004
16 50 00	6 958	236 323
16 75 00	6 958	237 648
16 88 92	6 958	238 477
16 93 50	6 958	

WALL No 2A

PGL Flyover Station	Exposed Face of Wall 2A Offset from PGL Flyover (ft.)	Top of Coping Elevation @ Wall 2A (ft.)
26 78 83	34 958	
26 85 08	34 958	239 246
27 00 00	34 958	238 327
27 25 00	34 958	236 948
27 50 00	34 958	235 569
27 75 00	34 958	234 191
28 00 00	34 958	232 812
28 25 00	34 958	231 433
28 50 00	34 958	230 055
28 75 00	34 958	228 676
29 00 00	34 958	227 297
29 25 00	34 958	226 058
29 50 00	34 958	224 927
29 75 00	34 958	223 891
30 00 00	34 958	222 950
30 25 00	34 958	222 109
30 50 00	34 958	221 525
30 70 00	22 958	221 121

WALL No 2C

PGL Flyover Station	Exposed Face of Wall 2C Offset from PGL Flyover (ft.)	Top of Coping Elevation @ Wall 2C (ft.)
26 78 83	6 958	
26 85 08	6 958	238 015
27 00 00	6 958	237 310
27 25 00	6 958	236 055
27 50 00	6 958	234 804
27 75 00	6 958	233 554
28 00 00	6 958	232 314
28 25 00	6 958	231 102
28 50 00	6 958	229 890
28 75 00	6 958	228 678
29 00 00	6 958	227 466
29 25 00	6 958	226 258
29 50 00	6 958	225 127
29 75 00	6 958	224 091
30 00 00	6 958	223 150
30 25 00	6 958	222 307
30 50 00	6 958	221 656
30 70 00	18 958	221 201

WALL No 3

SR 61 ℄ Construction Station	Exposed Face of Wall 3 Offset from SR 61 ℄ Construction (ft.)	Top of Coping Elevation @ Wall 3 (ft.)
265 20 00	69 708	212 650
265 40 00	69 708	212 210
265 42 48	69 708	212 160
265 60 00	68 550	211 810
265 80 00	67 227	211 490
266 00 00	65 905	211 000
266 20 00	64 582	210 590
266 40 00	63 260	210 190
266 60 00	61 938	209 780
266 80 00	60 615	209 380
267 00 00	59 293	209 010
267 20 00	57 970	208 670
267 23 96	57 708	208 610
267 40 00	57 708	208 330
267 60 00	57 708	208 030
267 80 00	57 708	207 770
268 00 00	57 708	207 550
268 20 00	57 708	207 350
268 40 00	57 708	207 210
268 60 00	57 708	207 090
268 80 00	57 708	207 010
269 00 00	57 708	206 970
269 20 00	57 708	206 970
269 40 00	57 708	207 010
269 60 00	57 708	207 090
269 80 00	57 708	207 210
270 00 00	57 708	207 350
270 20 00	57 708	207 550
270 40 00	57 708	207 770
270 60 00	57 708	208 030
270 80 00	57 708	208 330
271 00 00	57 708	208 670
271 20 00	57 708	209 050
271 25 00	57 708	209 150

NOTES

1 Offsets are given to the exterior face of the proprietary wall (See Sheet W 1 for detail)

2 Top of Coping Elevation detail shown on Sheet W 1

3 For existing and proposed ground elevations for all walls see Sheets W 2 thru W 5

EXHIBIT CP-4
Date 1/1/00

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

	NAMES	DATES
DRAWN BY		
CHECKED BY		
DESIGNED BY		
CHECKED BY		
APPROVED BY		

ENGINEER OF RECORD

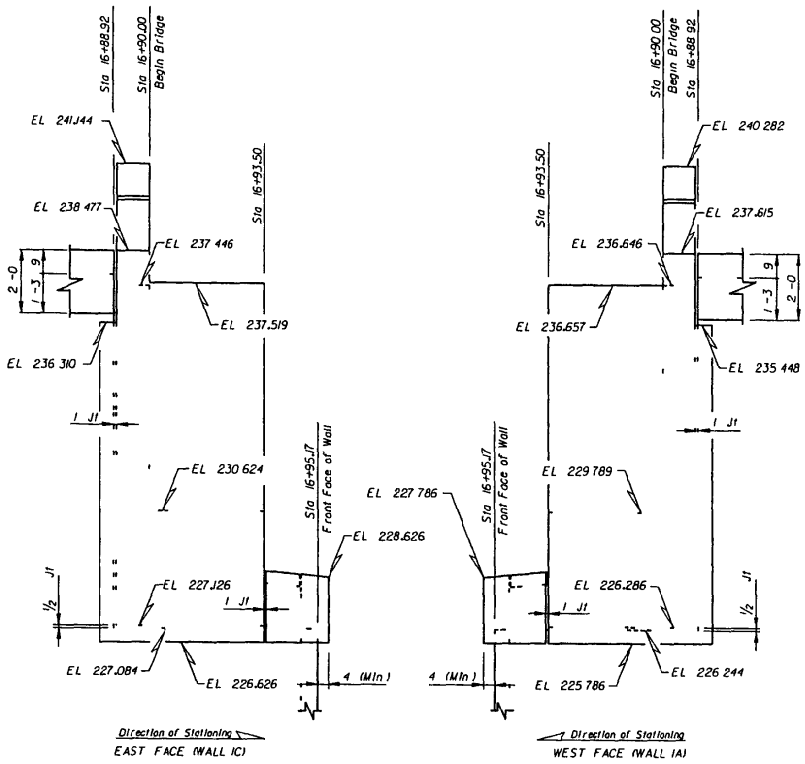
FLORIDA DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	PROJECT NO

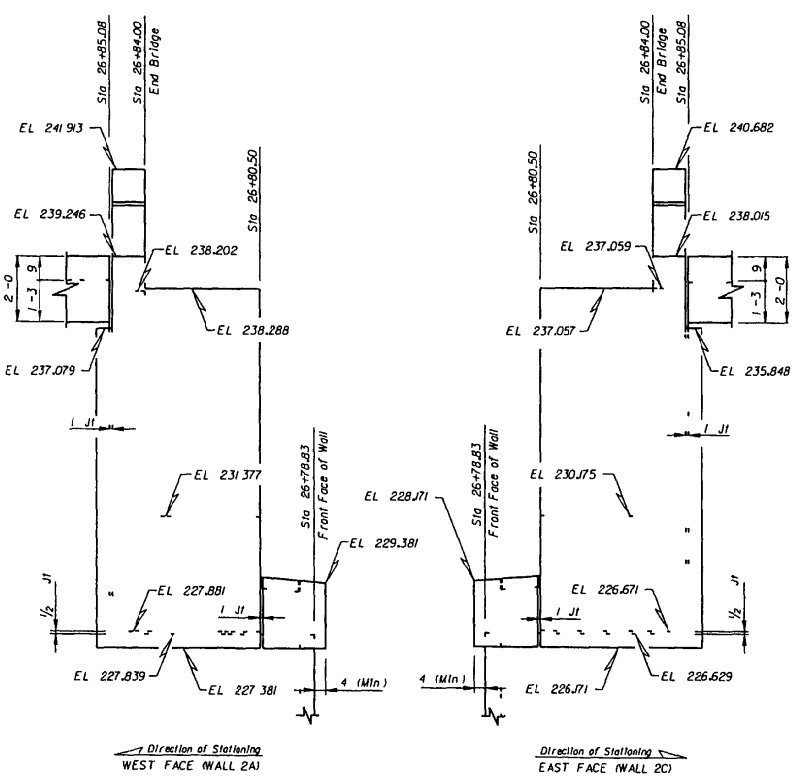
SHEET TITLE: PROPRIETARY WALL ELEVATIONS

PROJECT NAME

SHEET NO



END BENT NO 1



END BENT NO 7

EXHIBIT CP-5
Date 1/1/00

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

	NAMES	DATES
DRAWN BY		
CHECKED BY		
DESIGNED BY		
CHECKED BY		
APPROVED BY		

ENGINEER OF RECORD

FLORIDA DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	PROJECT NO

SHEET TITLE: MISCELLANEOUS DETAILS

PROJECT NAME

SHEET NO

GENERAL NOTES

1 CONSTRUCTION SPECIFICATIONS
Florida Department of Transportation Standard Specifications for Road and Bridge Construction (1999) and supplements thereto

2 DESIGN SPECIFICATIONS Design shall be in accordance with the following specifications

AASHTO Standard Specifications for Highway Bridges, 16th Edition and applicable interim specifications

Florida Department of Transportation Structures Design Guidelines

Insitu Soil Improvement Techniques AASHTO-AGC-ARTBA Task Force 27 Ground Modification Techniques, January 1990

3 MATERIAL STRESSES All allowable stresses shall be in accordance with the current AASHTO Specifications for all the materials shown on the plans

4 DESIGN METHOD Load Factor, except that internal and external stability shall be designed for service loads

The following minimum factors of safety shall be utilized in the design of the walls

Overturning	F S = 2.0
Sliding	F S = 1.5
Bearing Capacity	F.S = 2.5
Internal Pullout	F S = 1.5 (Allowable Deflection = 3/4)
Overall Stability	F S = 1.5
Steel	0.55 Fy (Straps)
	0.47 Fy (Wire Mat or Grid)
Plastics	0.19 Fu (HDPE) (Permanent Walls)
	0.29 Fu (Polyester and HDPE) (Temporary Walls)
Steel Connections	See AASHTO Specifications

5 DESIGN LOADS
Live Loading HS20-44

6 For Typical Sections through roadway, see Roadway Plans

7 Longitudinal dimensions shown in the plans are measured along the exterior face of the wall Elevations shown are to the top of coping, top of leveling pad or top of wall footing

8 A structural extension of the connection of the wall panel to the soil reinforcement shall be used whenever necessary to avoid the cutting or excessive skewing (greater than 15 degrees) of the soil reinforcements at piles or other obstructions

9 These walls are to be designed for the settlements noted for each wall Long term settlement is measured from the beginning of wall construction

GEOTECHNICAL INFORMATION

Walls MSE-1& MSE-2 (South Approach Area)	Reinforced Soil & Random Backfill	Medium Dense Fine Sand	Medium Dense Silty Fine Sand	Medium Dense to Dense Fine Sand	Loose Fine Sand
Depth Below Existing Ground Line	———	0 -9	9 -23	23 -37	37 -45
Unit Weight	110 pcf	118 pcf	118 pcf	120 pcf	110 pcf
Cohesion	0	0	0	0	0
Internal Friction.	30	34	34	35	30

Walls MSE-3 & MSE-4 (North Approach Area)	Reinforced Soil & Random Backfill	Loose to Medium Dense Clayey Fine Sand	Medium Dense Clayey Fine Sand	Hard Sandy Clay	Loose to Dense Fine Sand
Depth Below Existing Ground Line	———	0 -10	10 -15	15 -17	17 -45
Unit Weight	110 pcf	116 pcf	118 pcf	120 pcf	116 pcf
Cohesion	0	0	0	4177 psf	0
Internal Friction	30	32	34	0	34

If the unit weight and/or Ø angle of the fill proposed by the Contractor differs from the above the Project Engineer shall contact both the District Geotechnical Engineer and the Wall Designer for a possible redesign

Design Based Internal Friction Angle = 30 degrees (Sand Backfill)
34 degrees (Limerock) (Dade, Monroe Co.)

Refer to Plan and Elevation sheets of individual walls for minimum reinforcement strip/mesh length, allowable bearing capacities minimum wall embedment and anticipated long term and differential settlements

SOIL REINFORCEMENT LENGTHS FOR EXTERNAL STABILITY (0.7h)

Wall Height	5 -0	5 -6	6 -0	6 -6	7 -0	7 -6
* Reinforcement Length	7 -0	7 -0	7 -0	7 -0	7 -0	7 -0
Bearing Pressure (psf)	1082	1241	1426	1648	1454	1623

* The reinforcement strap lengths shown in this column are minimum lengths required for external stability The proprietary wall companies are responsible for internal stability of the retaining walls The reinforcement lengths used in the construction of the retaining walls shall be the longer of that required for internal or external stability

The applicable wall systems for each wall location are listed below Wall systems not listed have been deemed unacceptable for use at that specific site due to the environment, excessive settlement etc and shall not be used, and will not be considered for future substitution during construction

Wall Nos 1 & 2 Environment Extremely Aggressive

Long Term Settlement	1/2
Short Term Settlement	3/8
Differential Settlement	1/16 /1

Wall Nos 3 & 4 Environment Extremely Aggressive

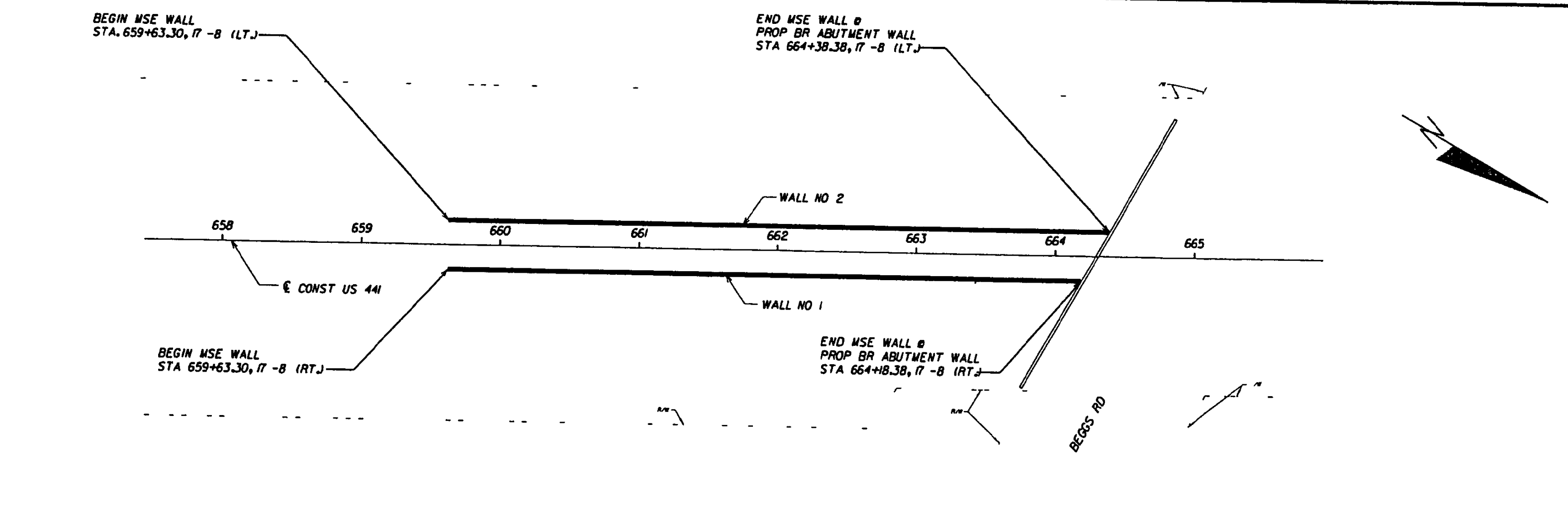
Long Term Settlement	1/2
Short Term Settlement	1/4
Differential Settlement	1/16 /1

The following wall systems are acceptable for use at this location

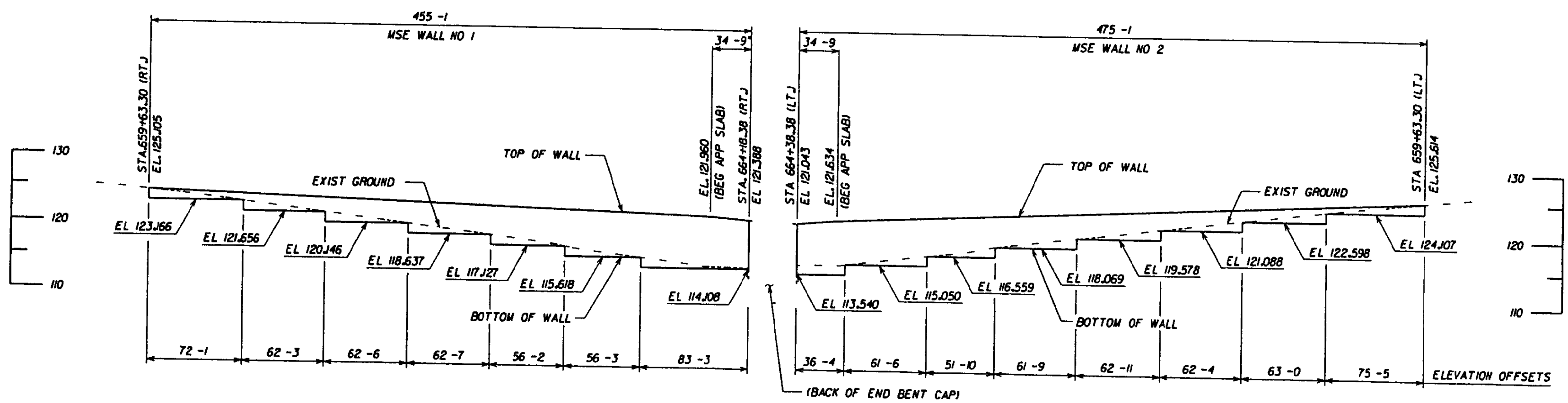
Brand X
Brand Y
Brand Z

EXHIBIT CP-6
Date 1/1/00

REVISIONS						NAMES	DATES	ENGINEER OF RECORD	FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET TITLE: CONTROL DRAWING GENERAL NOTES INDEX NO S-825, SHEET 1 OF 1	
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DRAWN BY			ROAD NO	COUNTY	PROJECT NO	PROJECT NAME	SHEET NO
						CHECKED BY							
						DESIGNED BY							
						CHECKED BY							
						APPROVED BY							



PLAN VIEW TEMP MSE WALL NOS 1 & 2



EXPANDED ELEVATION VIEWS (TEMP MSE WALL NOS 1 & 2, LOOKING AT FRONT FACE OF WALL)

EXHIBIT CP-7
Date 1/1/00

REVISIONS									
Dat	By	Description	Dat	By	Description		Names	Dates	ENGINEER OF RECORD:
						Drawn by			
						Checked by			
						Designed by			
						Checked by			
						Approved by			

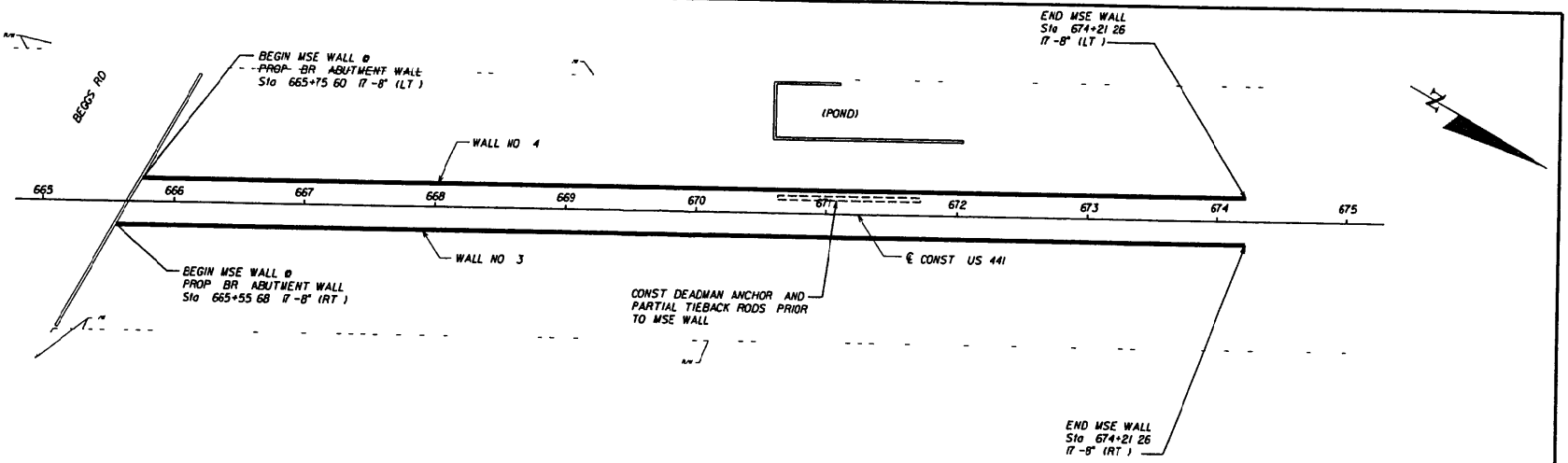
FLORIDA DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	PROJECT NO.

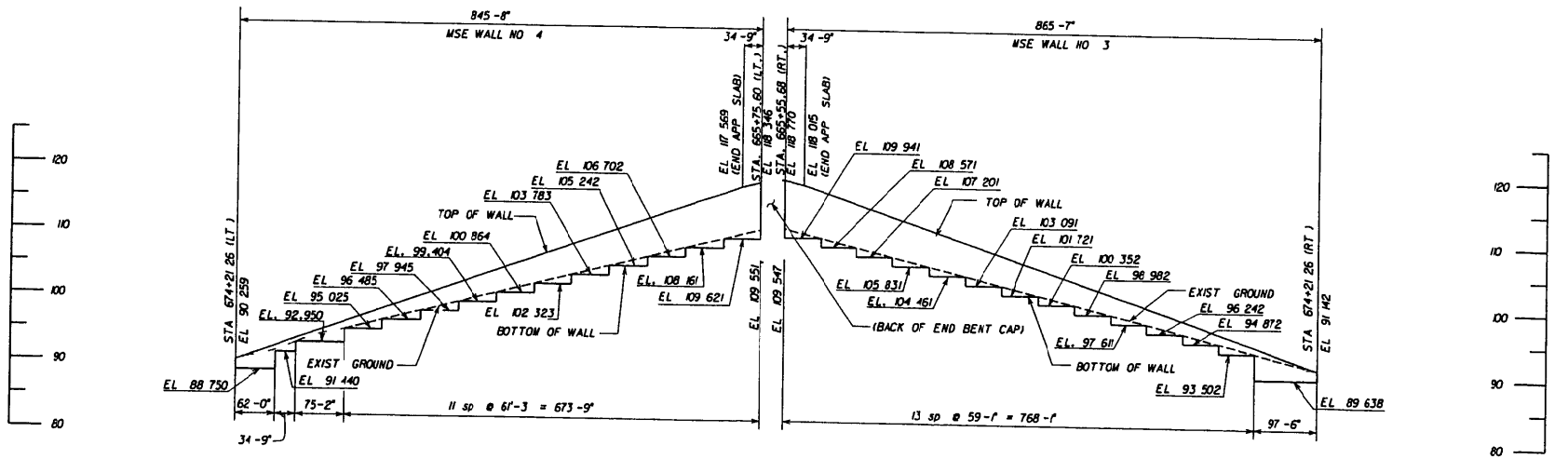
SHEET TITLE: TEMPORARY RETAINING WALL SYSTEM

PROJECT NAME:

SHEET NO.



PLAN VIEW TEMP MSE WALL NOS 3 & 4

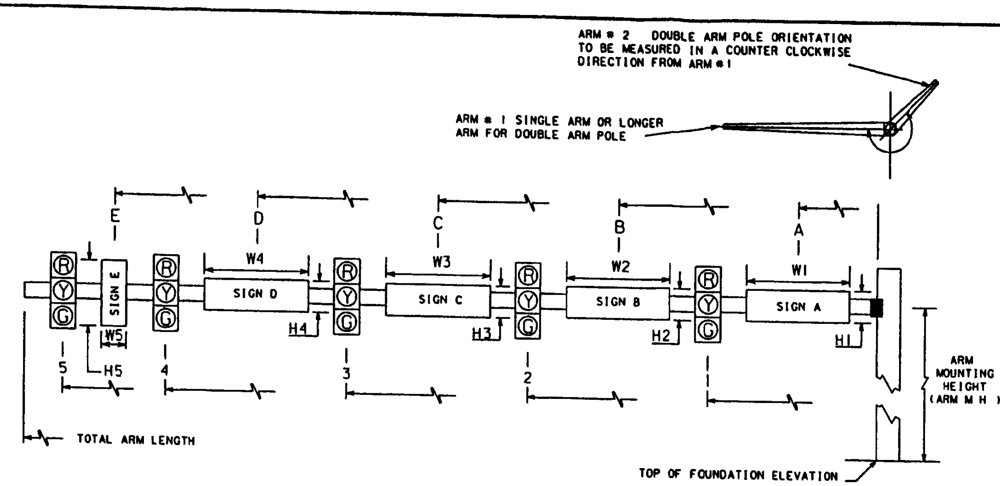


EXPANDED ELEVATION VIEWS (TEMP MSE WALL NOS 3 & 4 LOOKING AT FRONT FACE OF WALL)

EXHIBIT CP-8
Date 1/1/00

REVISIONS						NAMES	DATE	ENGINEER OF RECORD	FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET 1 2	TEMPORARY RETAINING WALL SYSTEM
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DRAWN BY			ROAD NO	COUNTY	PROJECT NO	PROJECT LINE	SHEET NO
						CHECKED BY							
						DESIGNED BY							
						CHECKED BY							
						APPROVED BY							

SPECIAL INSTRUCTIONS			
ID NO	PED. BUTTON	PED SIGNALS	HANDHOLE LOCATION



\# DENOTES NUMBER OF SECTIONS IN SIGNAL HEAD ASSEMBLY

ID NO	SHEET NO	LOCATION BY STA	TOP OF FOUNDATION ELEVATION	RDWY ARM NO	CROWN ELEV	SIGNAL DATA: SIGNAL V/H	BACK PLATES Y/N	PED SIGNAL Y/N	DISTANCE FROM POLE: 1	#	2	#	3	#	4	#	5	#	TOTAL ARM LENGTH	ARM M H	∠ BETWEEN DUAL ARMS 90/270	SIGN DATA — DISTANCE FROM POLE / HEIGHT AND WIDTH OF SIGN: A	H1	W1	B	H2	W2	C	H3	W3	D	H4	W4	E	H5	W5	PAINT COLOR
1	T-4	10+42 00	2 81	1	2 84	V	Y		11 5	3	22 0	3	28 5	3	50 0	5			52 5	20 0																	
				2																											46 0	2 0	2 0				
2	T-5	12+36 00	2 68	1	2 67	V	Y		11 5	3	22 0	3	28 0	3	50 0	5			52 5	20 0	270																
				2	2 69	V	Y		13 0	3	24 5	3							26 5	20 0					18 5	1 5	5 0				45 0	2 0	2 0				
				1																		6 0	1 5	4 5	10 0	2 0	2 0										
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EXHIBIT T-MA (ENGLISH)
Date 7/1/00

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID

MAST ARM TABULATION

SHEET NO

COMPONENTS OF CONTRACT PLANS SET

ROADWAY PLANS
SIGNING AND PAVEMENT MARKING PLANS
SIGNALIZATION PLANS
LIGHTING PLANS
LANDSCAPE PLANS
ARCHITECTURAL PLANS
STRUCTURE PLANS

EXAMPLE ONLY
CONTRACT PLANS SET MAY NOT CONTAIN ALL OF THE LISTED COMPONENTS/SHEETS

A DETAILED INDEX APPEARS ON THE KEY SHEET OF EACH COMPONENT

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

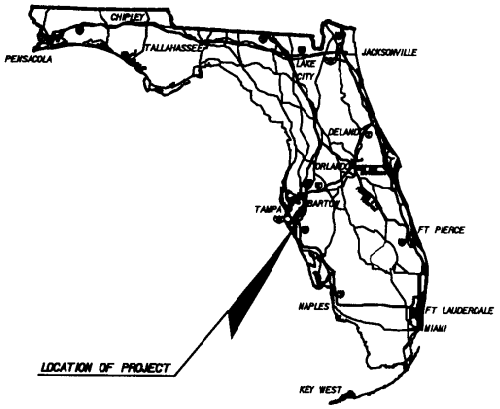
CONTRACT PLANS

FINANCIAL PROJECT ID 196058-1-52-01

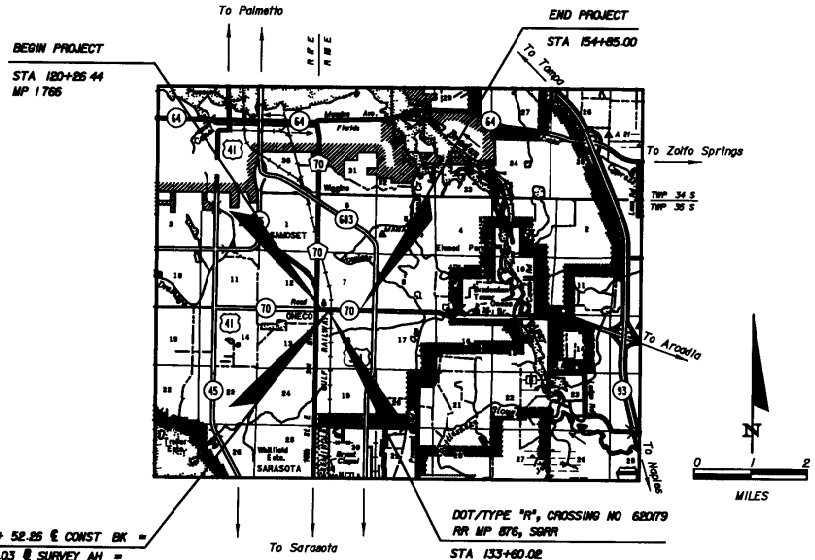
(FEDERAL FUNDS)

MANATEE COUNTY (13160)

STATE ROAD NO 70



INDEX OF ROADWAY PLANS



EQUATION
PT STA 132 + 52.26 ℄ CONST BK =
STA 32 + 50.03 ℄ SURVEY AH =
STA 132 + 50.03 ℄ CONST AH =

DOT/TYPE "R", CROSSING NO 620179
RR MP 876, SGRR
STA 133+60.02
SEMINOLE GULF RAILWAY

ROADWAY SHOP DRAWINGS
TO BE SUBMITTED TO

HARRY GILMER JR , PE
HILL & DALE ENGINEERING, INC
P.O BOX 2651
TAMPA FLORIDA 33755

PLANS PREPARED BY

HILL & DALE ENGINEERING INC
P O BOX 2651
TAMPA FLORIDA 33755
CONTRACT NO C-8001
VENDOR NO 38

NOTE THIS PROJECT TO BE LET TO CONTRACT WITH FINANCIAL PROJECT ID 196058-1-52-02

NOTE THE SCALE OF THESE PLANS MAY HAVE CHANGED DUE TO REPRODUCTION

GOVERNING STANDARDS AND SPECIFICATIONS
FLORIDA DEPARTMENT OF TRANSPORTATION
ROADWAY AND TRAFFIC DESIGN STANDARDS
DATED JANUARY 2000, AND
STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION DATED 2000
AS AMENDED BY CONTRACT DOCUMENTS

REVISIONS

FINANCIAL PROJECT ID 196058-1-52-01
Roadway Sheets 1, 6, 7 & 13 (Revised 3-10-00)
Signing & Pavement Marking Sheets 5-1 & 5-2 (Revised 3-10-00)
Signalization Sheets T-1 & T-2 (Revised 3-10-00)
Roadway Sheets 2E & 3D (Revised 3-15-00)
Summary Of Pay Items (Revised 3-30-00)

FINANCIAL PROJECT ID 196058-1-52-02
Roadway Sheets 15, 20 & 21, (Revised 3 30-00)
Signalization Sheets T-1 & T-2 (Revised 3 30-00)

PROJECT LENGTH IS BASED ON ℄ CONSTRUCTION

LENGTH OF PROJECT		
	LINEAR FEET	MILES
ROADWAY	3460 79	0 655
BRIDGES	NA	NA
NET LENGTH OF PROJECT	3460 79	0 655
EXCEPTIONS	NA	NA
GROSS LENGTH OF PROJECT	3460 79	0 655

FDOT PROJECT MANAGER THOMAS DILFER

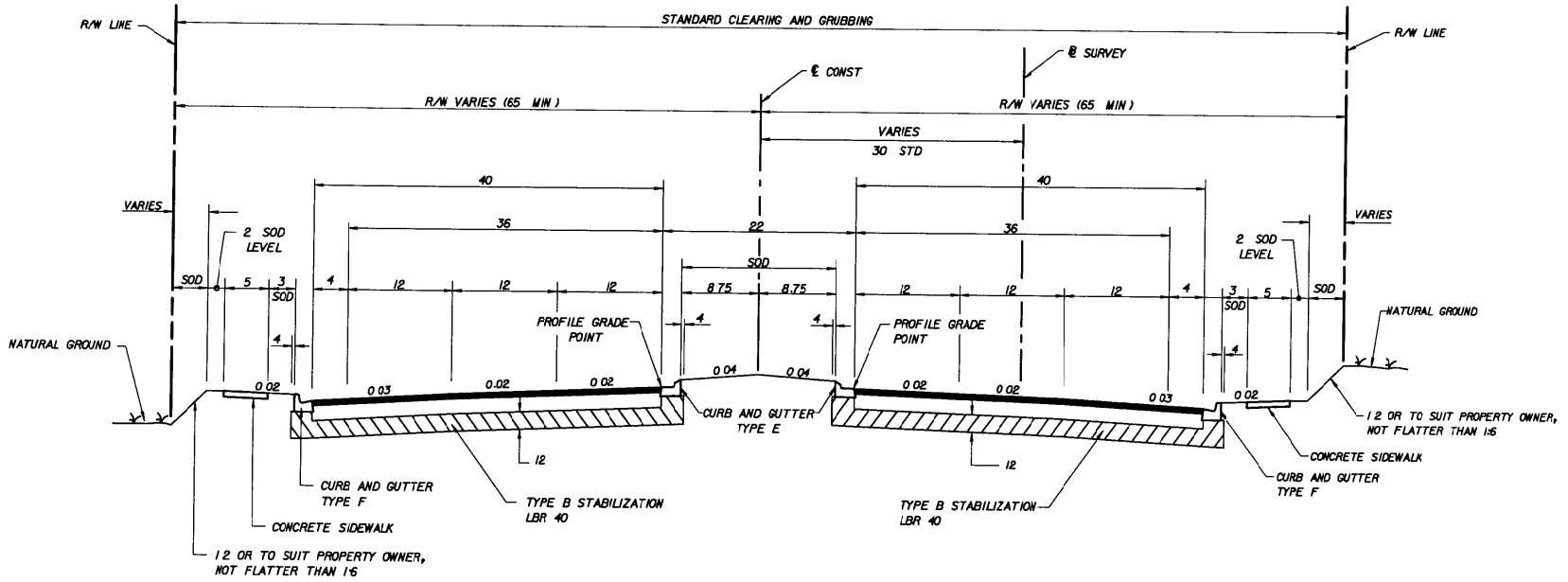
KEY SHEET REVISIONS		
DATE	BY	DESCRIPTION
3-00	hsd	Revised sequence of Utility Adjustment Sheets

ROADWAY PLANS
ENGINEER OF RECORD HARRY GILMER JR

PE NO. 606655

EXHIBIT EX-KS-1
Date. 1/1/02

FISCAL YEAR	SHEET NO
01	1



TYPICAL SECTION
SR 70 (EVAN FRANCIS BLVD)
STA 120+25 69 TO STA 154+85 00

NEW CONSTRUCTION

OPTIONAL BASE GROUP 9 WITH
TYPE SP STRUCTURAL COURSE (TRAFFIC C) (200 LBS/SY)
AND FRICTION COURSE FC-6 (160 LBS/SY) (RUBBER)

TRAFFIC DATA

CURRENT YEAR = 1998 AADT = 22,950
ESTIMATED OPENING YEAR = 2001 AADT = 26,070
ESTIMATED DESIGN YEAR = 2020 AADT = 30,600
K = 6/ D = 55/ T = 2/ (24 HOUR)
DESIGN HOUR T = 1/
DESIGN SPEED = 45 MPH

EXHIBIT EX-TYP
Date 1/1/02

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

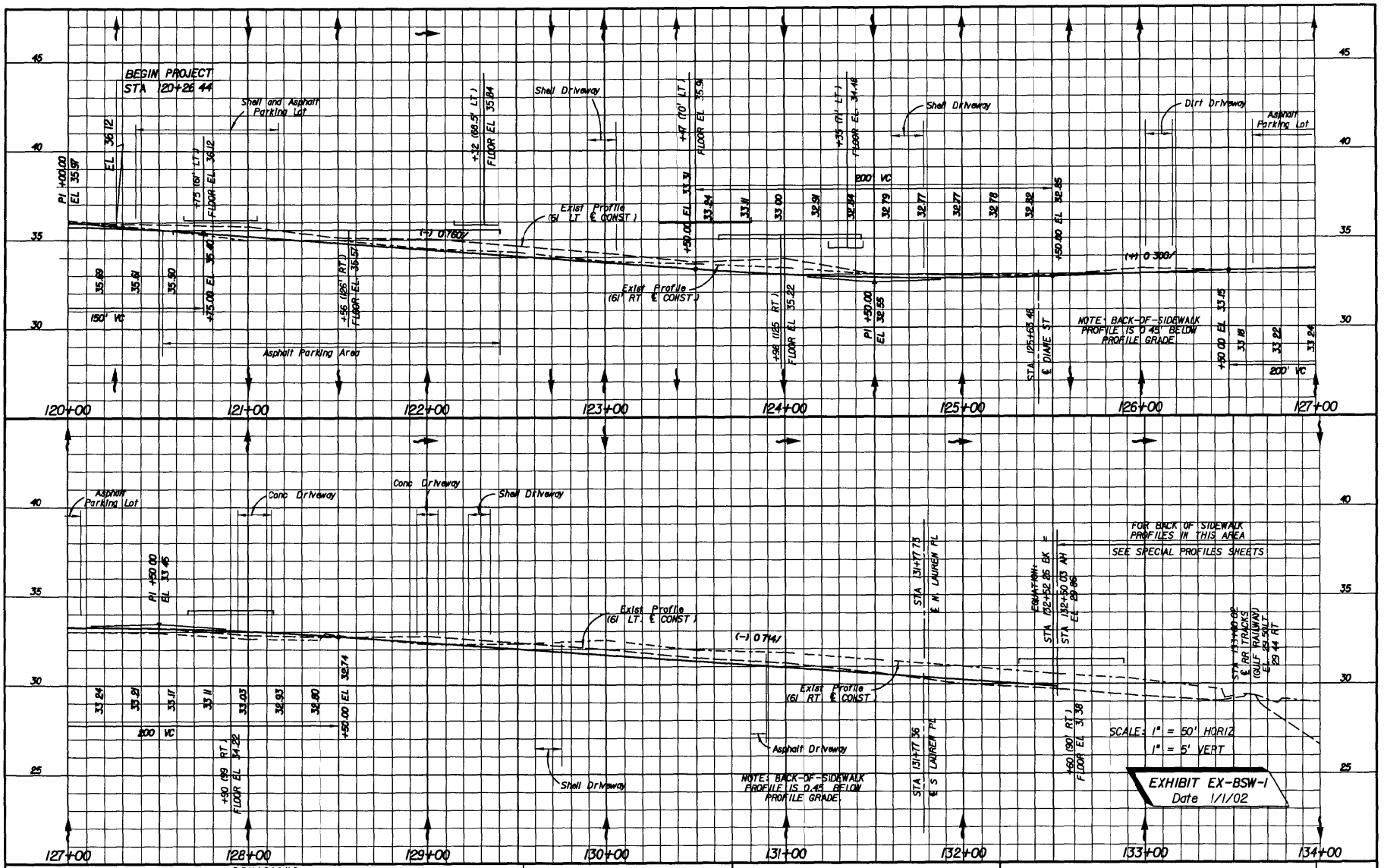
HILL & DALE ENGINEERING INC
P O BOX 2651
TAMPA, FLORIDA 33755
P E LICENSE NO 606655

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID
70	MANATEE	196058-1-52-01

TYPICAL SECTION

SHEET NO
4



REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

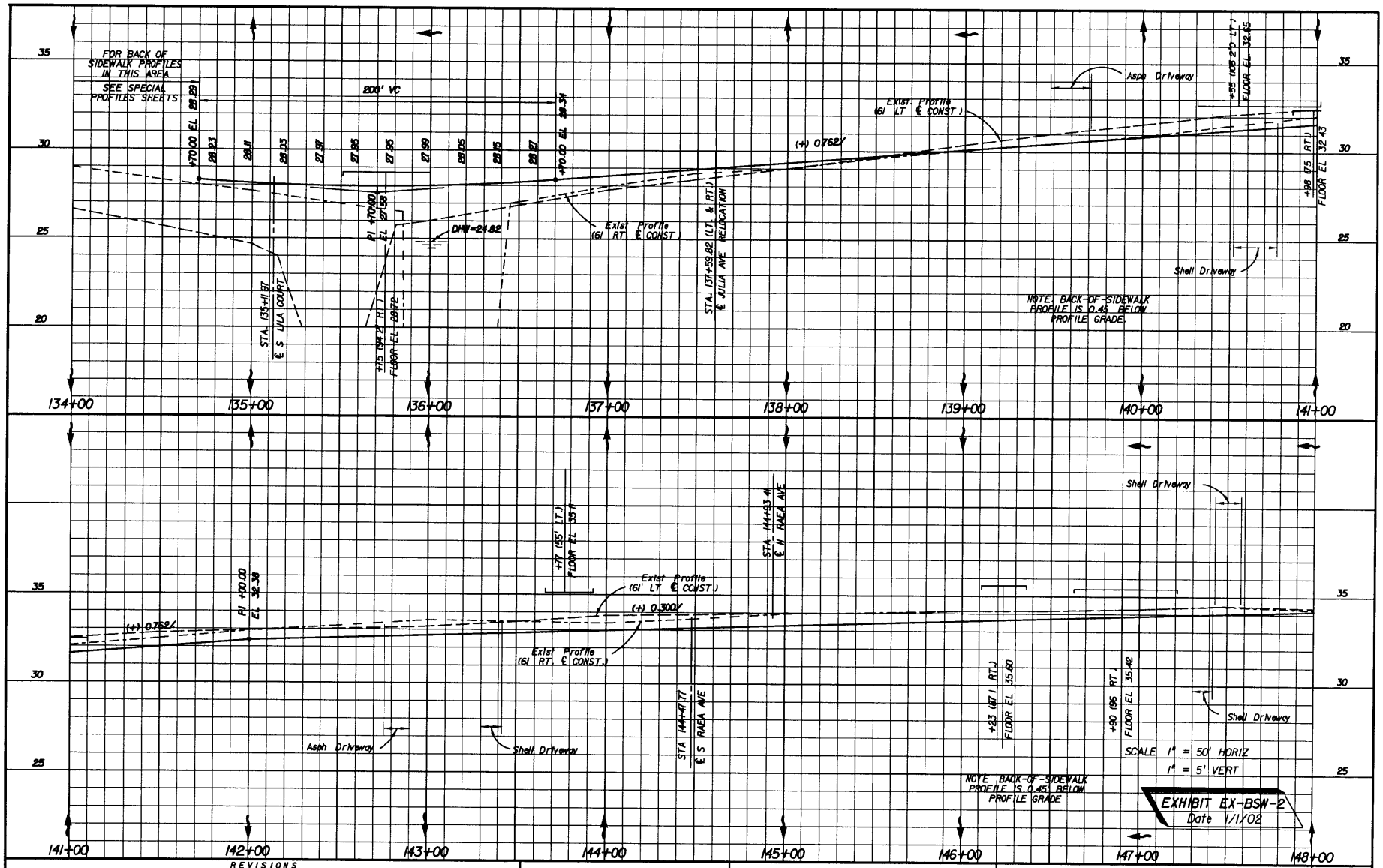
HILL & DALE ENGINEERING INC
P O BOX 2651
TAMPA, FLORIDA 33755
PE LICENSE NO 606655

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID
70	MANATEE	196058-1-52-01

BACK-OF-SIDEWALK PROFILES

SHEET NO 13



REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

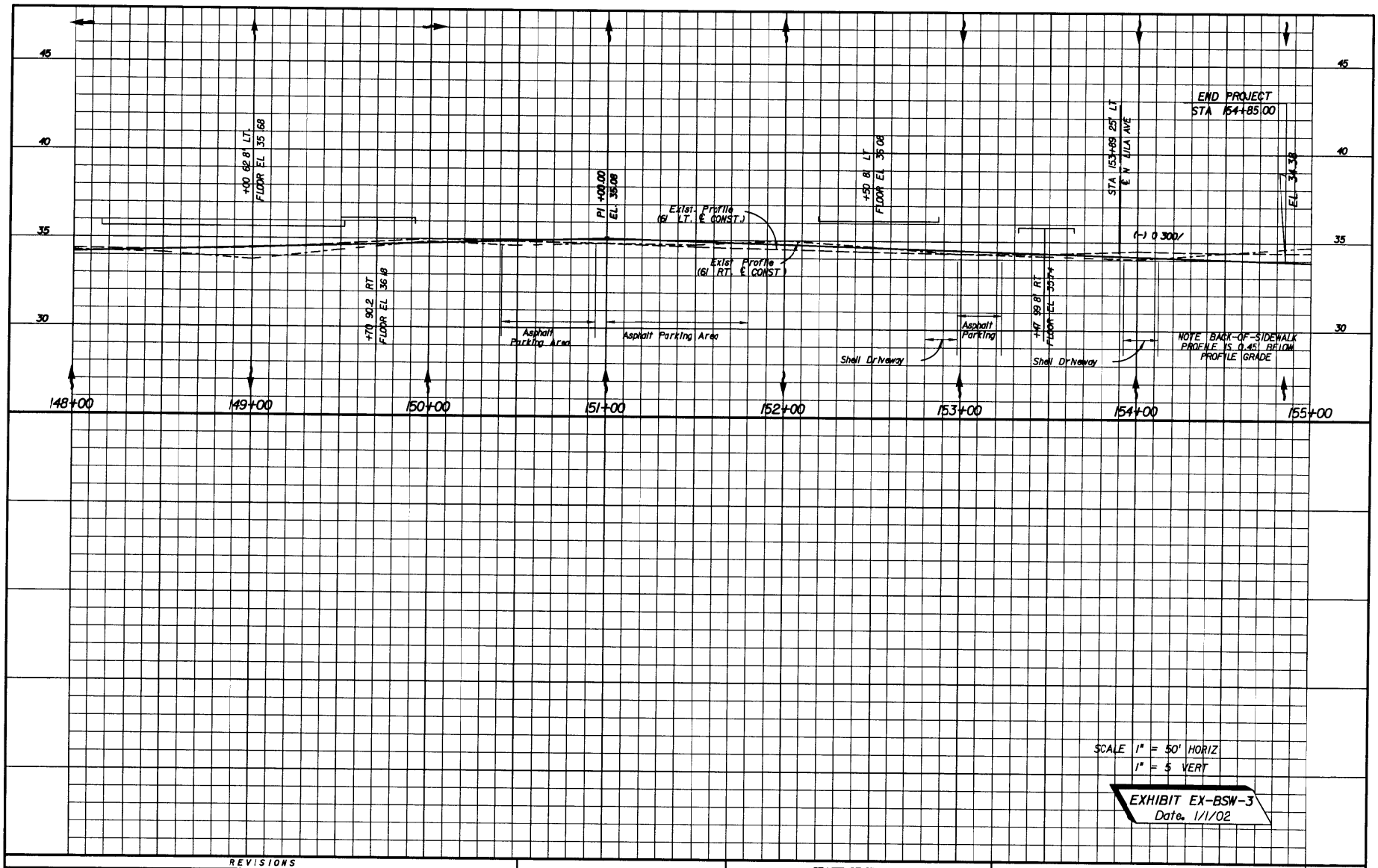
HILL & DALE ENGINEERING INC
P O BOX 2651
TAMPA, FLORIDA 33755
PE LICENSE NO 606655

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID
70	MANATEE	196058-1-52-01

BACK-OF-SIDEWALK PROFILES

SHEET NO 14



SCALE 1" = 50' HORIZ
1" = 5' VERT

EXHIBIT EX-BSW-3
Date. 1/1/02

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

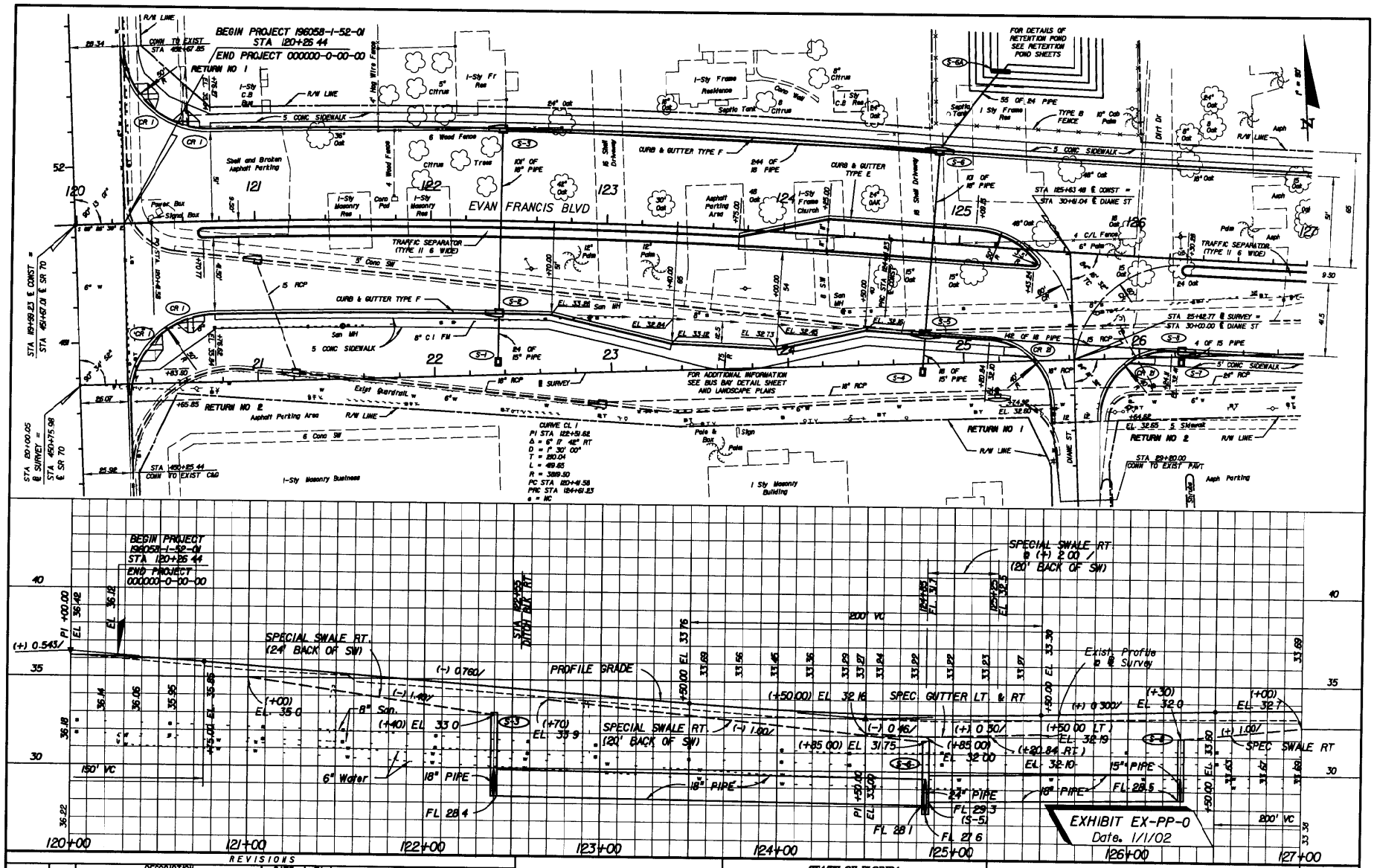
HILL & DALE ENGINEERING INC
P O BOX 2651
TAMPA, FLORIDA 33755
PE LICENSE NO 606655

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID
70	MANATEE	196058-1-52-81

BACK-OF-SIDEWALK PROFILES

SHEET NO
15



REVISIONS					
	DESCRIPTION	DATE	BY	DESCRIPTION	

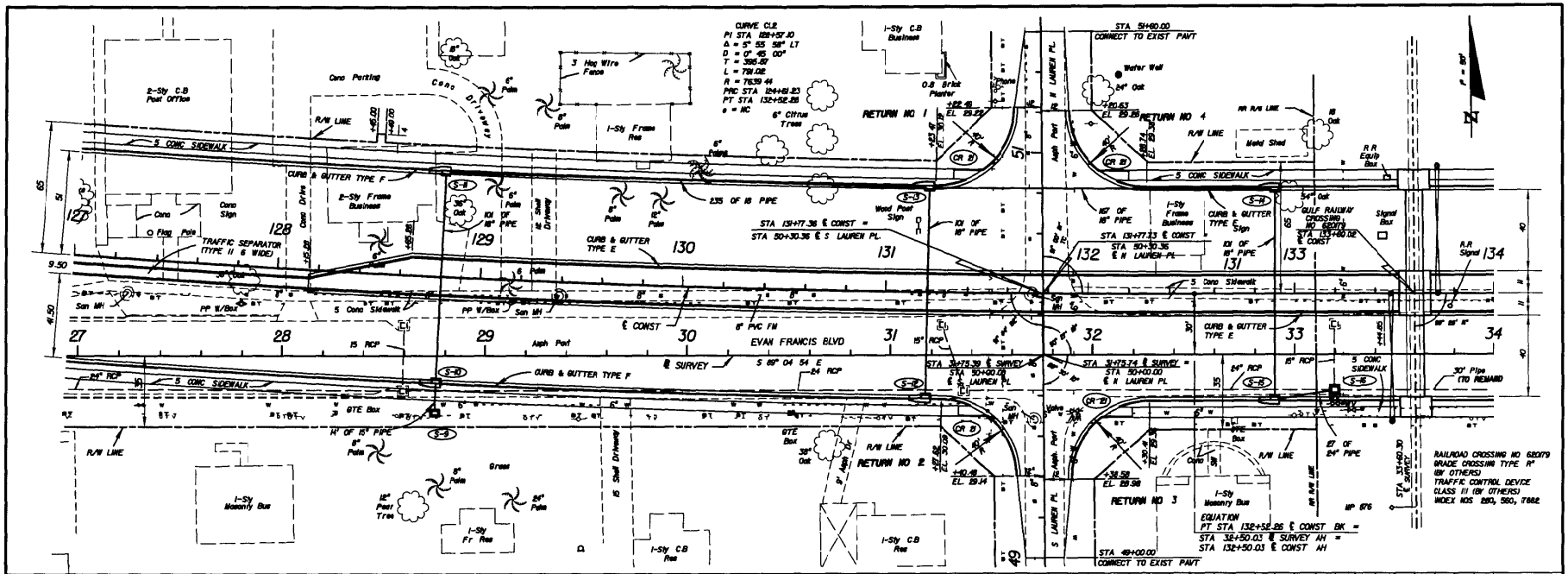
HILL & DALE ENGINEERING INC
P O BOX 2651
TAMPA, FLORIDA 33755
P E LICENSE NO 606655

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID
70	MANATEE	196058-1-52-01

PLAN-PROFILE
SR 70 (EVAN FRANCIS BLVD.)

SHEET NO 18



REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

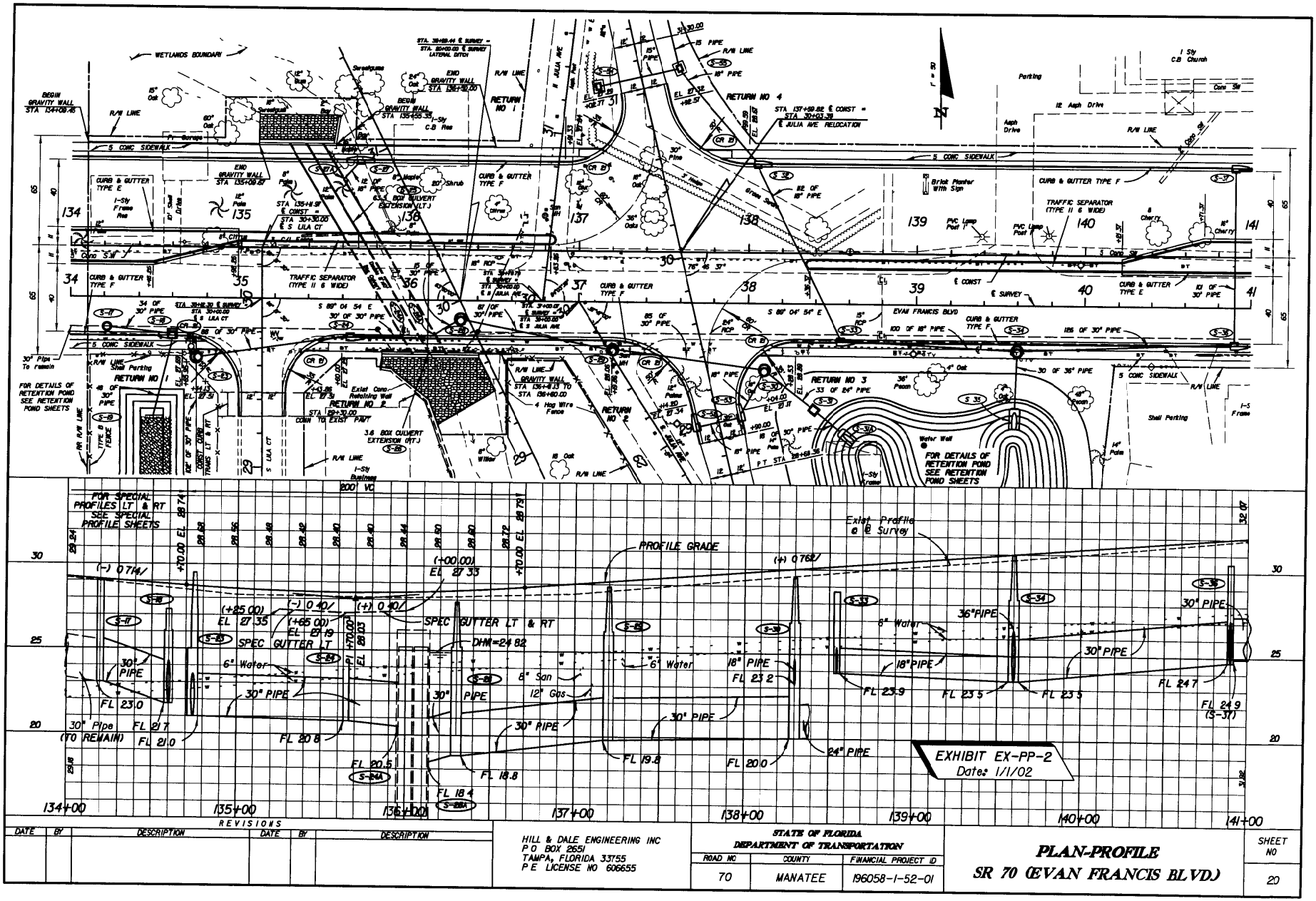
HILL & DALE ENGINEERING INC
P O BOX 2651
TAMPA, FLORIDA 33755
P E LICENSE NO 606655

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID
70	MANATEE	196058-1-52-01

PLAN-PROFILE
SR 70 (EVAN FRANCIS BLVD.)

SHEET NO 19



REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

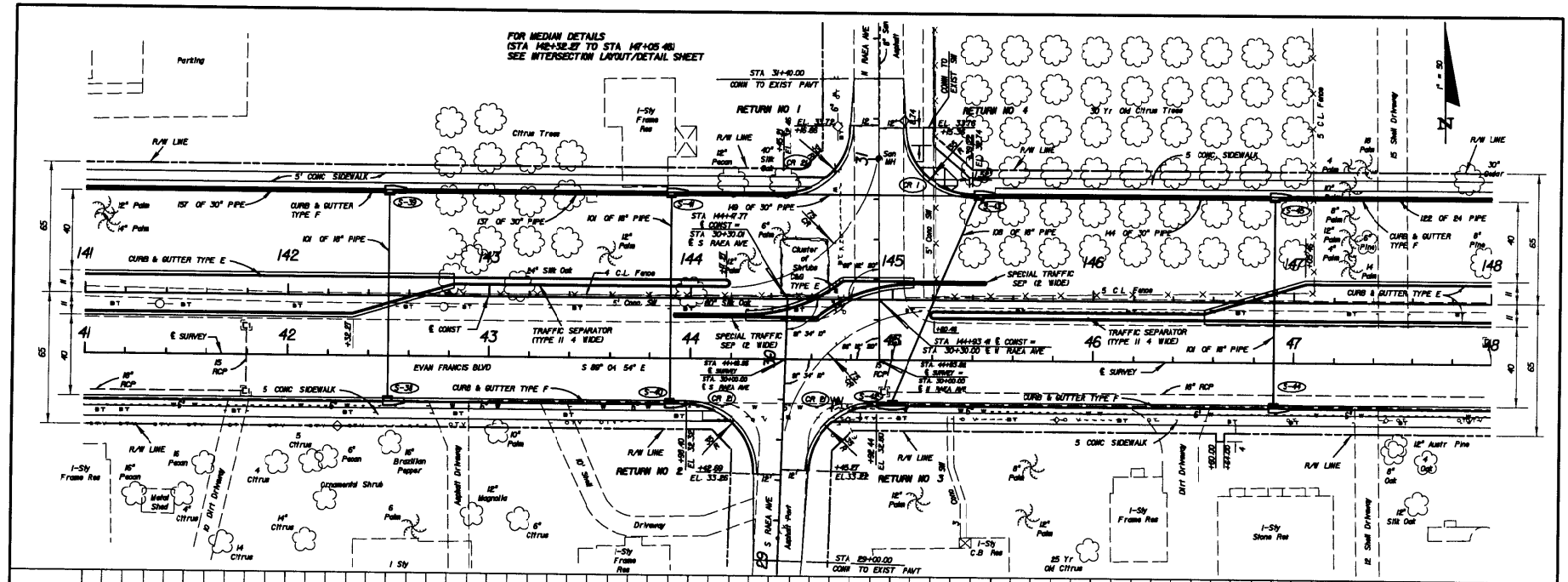
HILL & DALE ENGINEERING INC
P O BOX 2651
TAMPA, FLORIDA 33755
P E LICENSE NO 606655

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID
70	MANATEE	196058-1-52-01

PLAN-PROFILE
SR 70 (EVAN FRANCIS BLVD.)

SHEET NO 20



REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

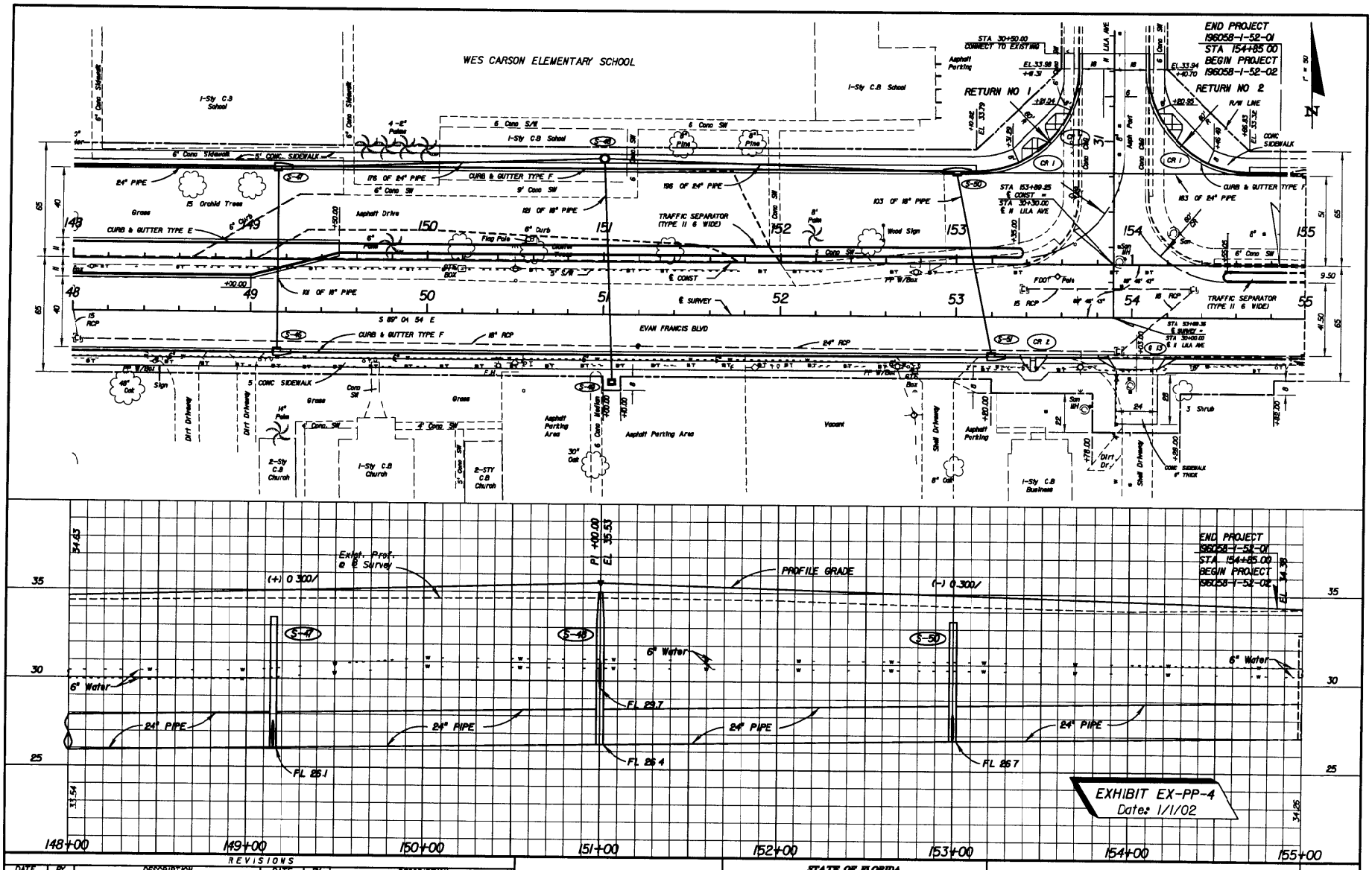
HILL & DALE ENGINEERING INC
P O BOX 2651
TAMPA, FLORIDA 33755
P E LICENSE NO 606655

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID
70	MANATEE	196058-1-52-01

PLAN-PROFILE
SR 70 (EVAN FRANCIS BLVD.)

SHEET NO 21



REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

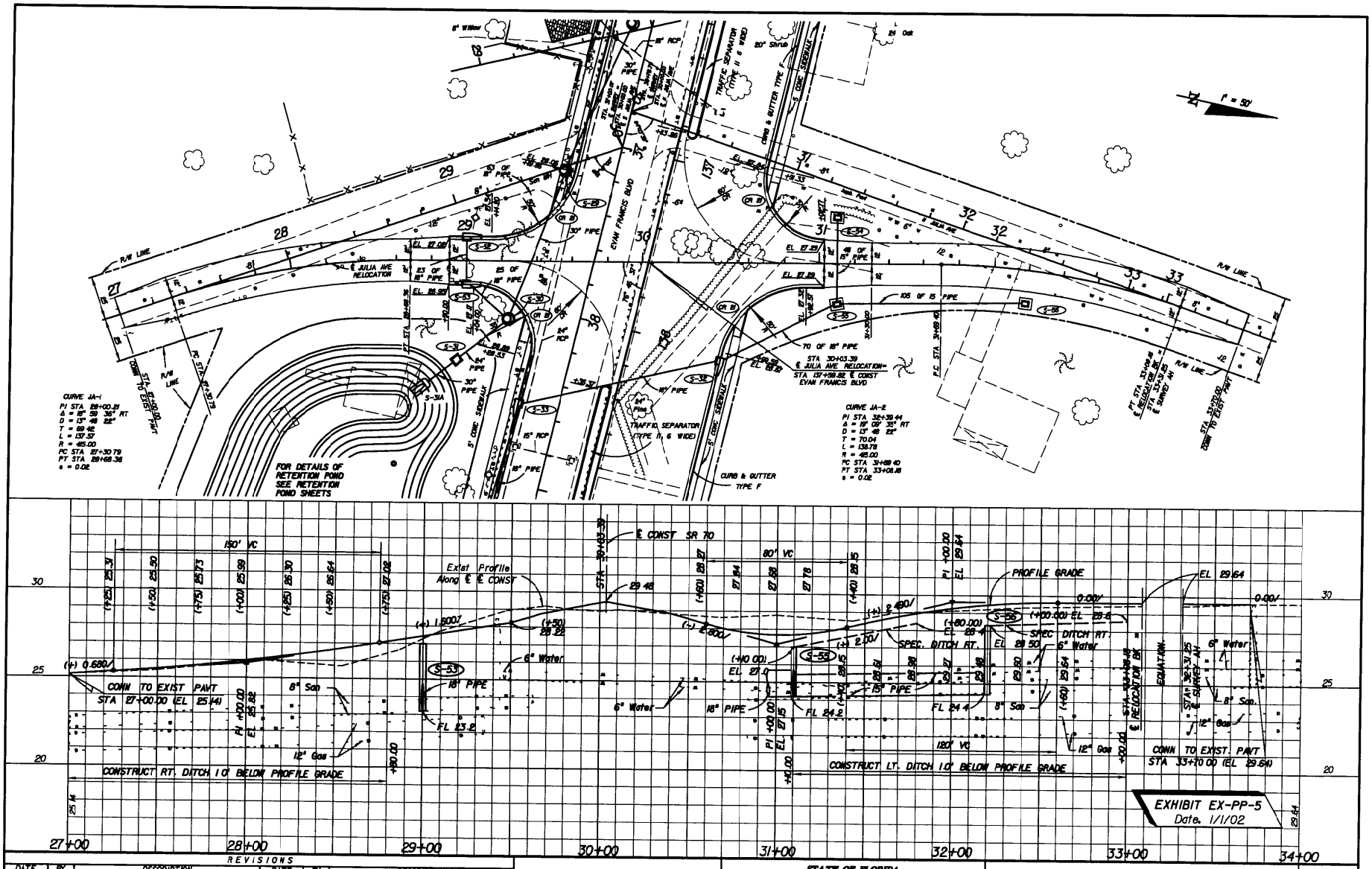
HILL & DALE ENGINEERING INC
P O BOX 2651
TAMPA, FLORIDA 33755
P E LICENSE NO 606655

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID
70	MANATEE	196058-1-52-01

PLAN-PROFILE
SR 70 (EVAN FRANCIS BLVD)

SHEET NO
22



REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

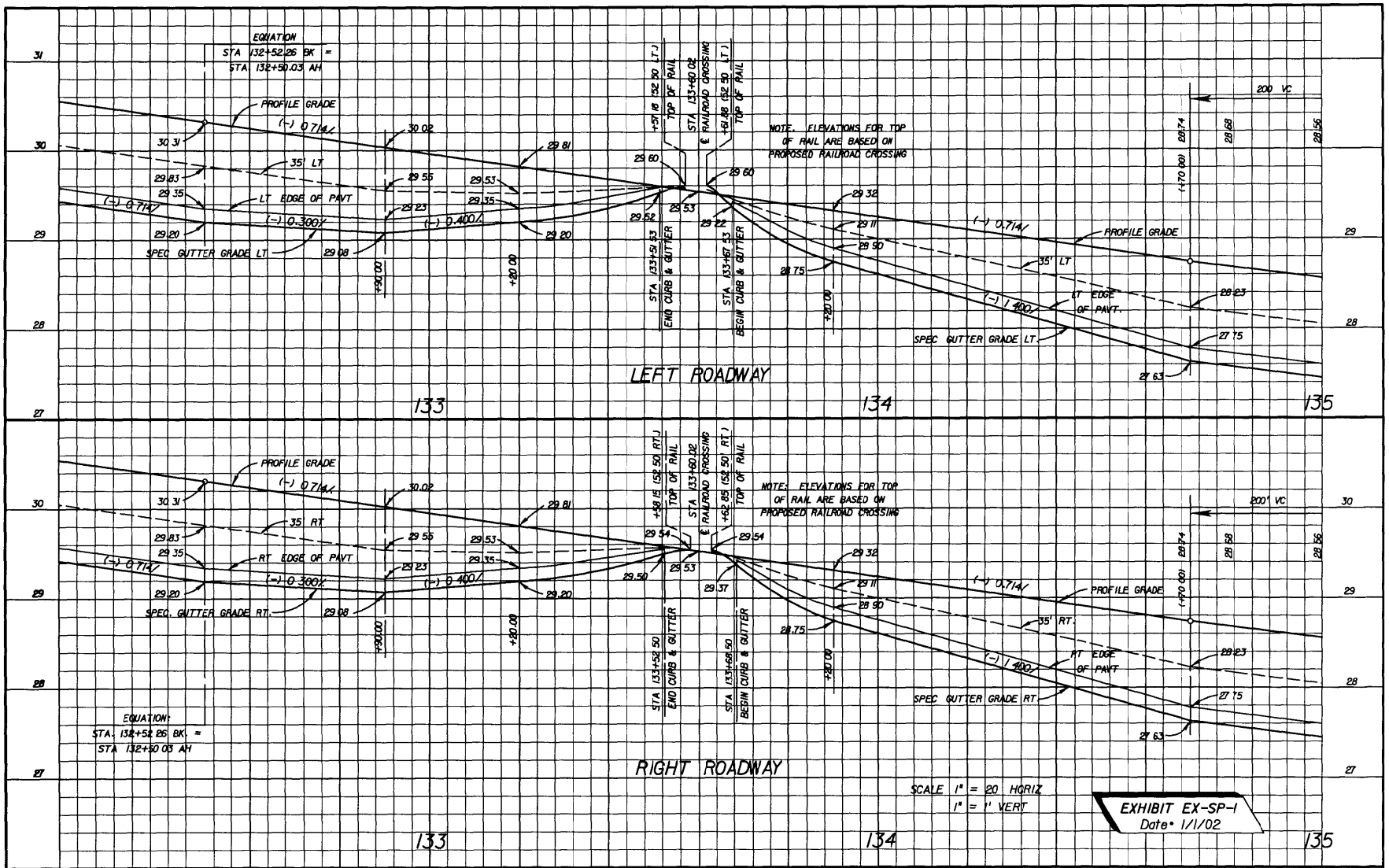
HILL & DALE ENGINEERING INC
P.O. BOX 2651
TAMPA, FLORIDA 33755
P.E. LICENSE NO 606655

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID
70	MANATEE	196058-1-52-01

PLAN-PROFILE
JULIA AVENUE RELOCATION

SHEET NO 23



REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

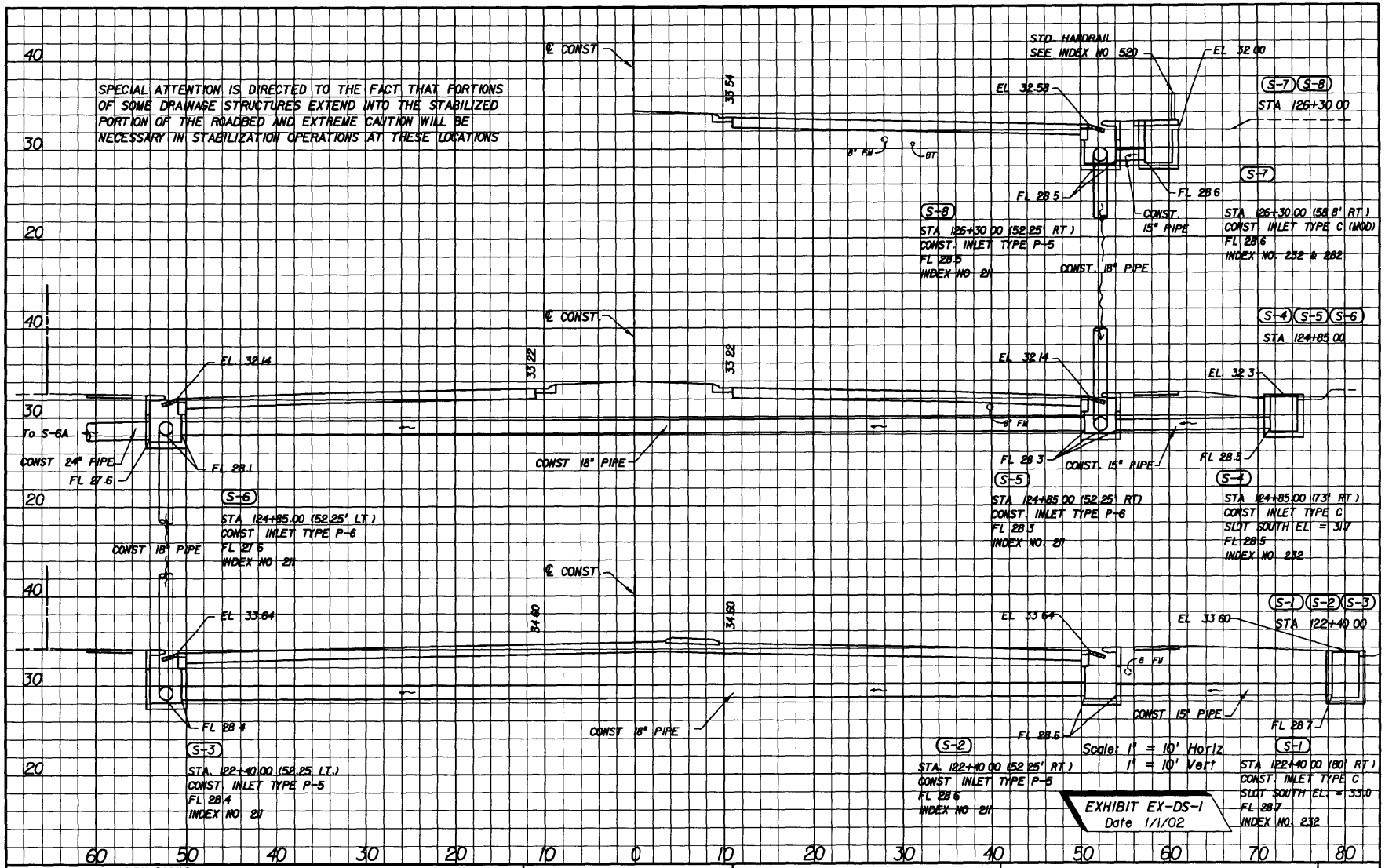
HILL & DALE ENGINEERING INC
P O BOX 2651
TAMPA, FLORIDA 33755
PE LICENSE NO 606655

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID
70	MANATEE	196058-1-52-01

SPECIAL PROFILES AT GULF RAILROAD CROSSING

SHEET NO 24



REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

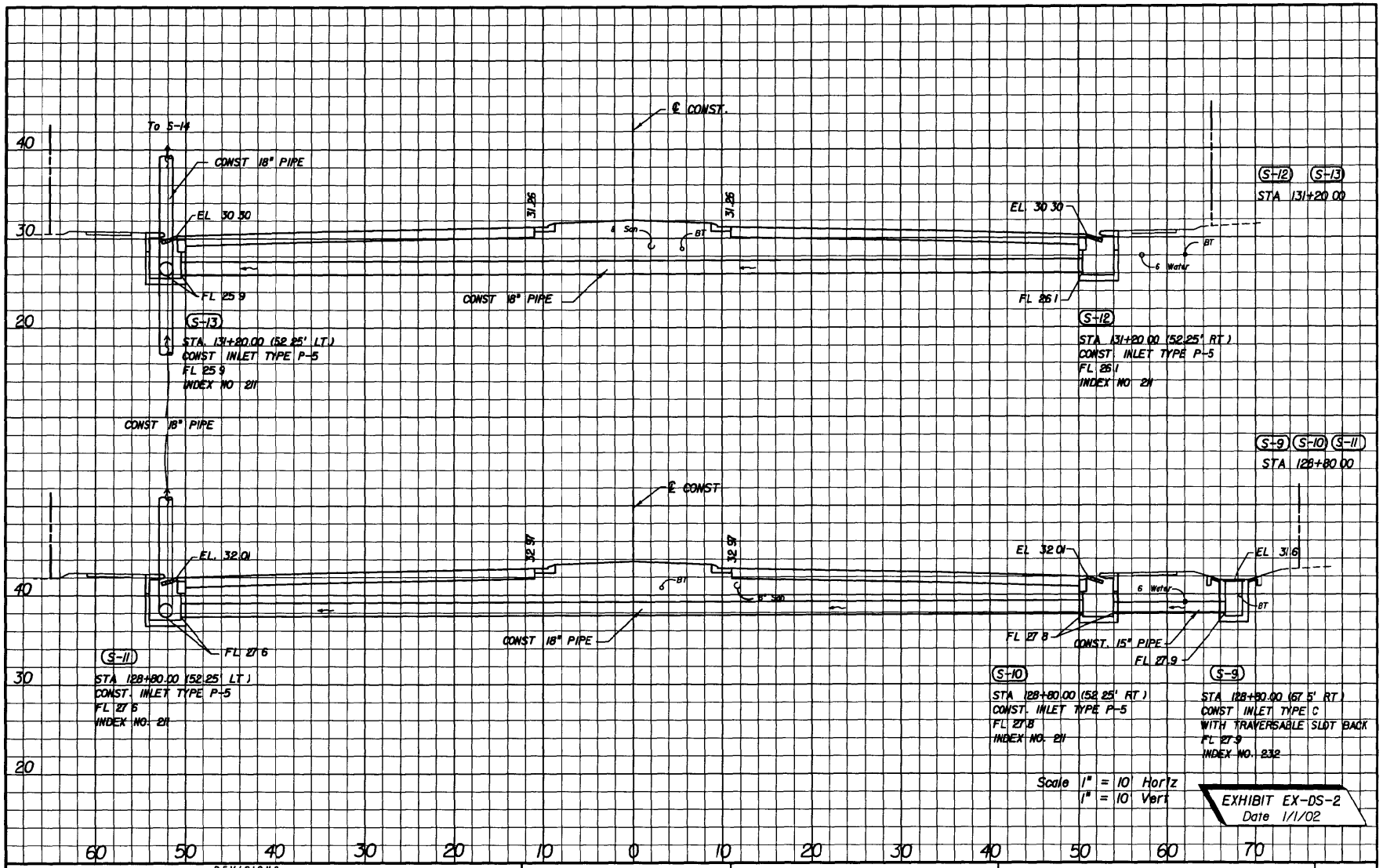
HILL & DALE ENGINEERING INC
P O BOX 2651
TAMPA, FLORIDA 33755
PE LICENSE NO 606655

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
70	MANATEE	196058-1-52-01

DRAINAGE STRUCTURES

SHEET NO
27



REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

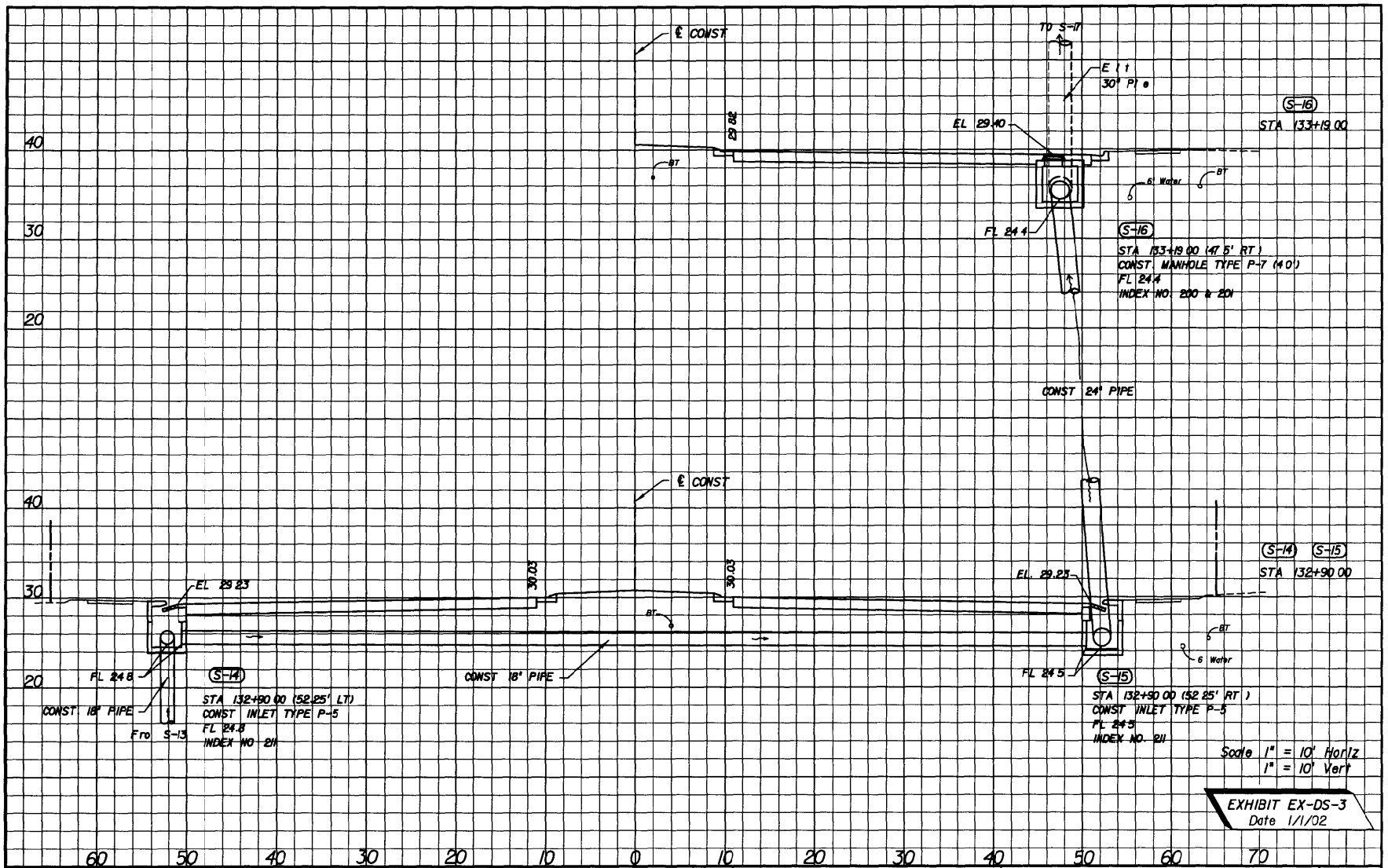
HILL & DALE ENGINEERING INC
P O BOX 2651
TAMPA, FLORIDA 33755
PE LICENSE NO 606655

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
70	MANATEE	196058-1-52-01

DRAINAGE STRUCTURES

SHEET NO
28



REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

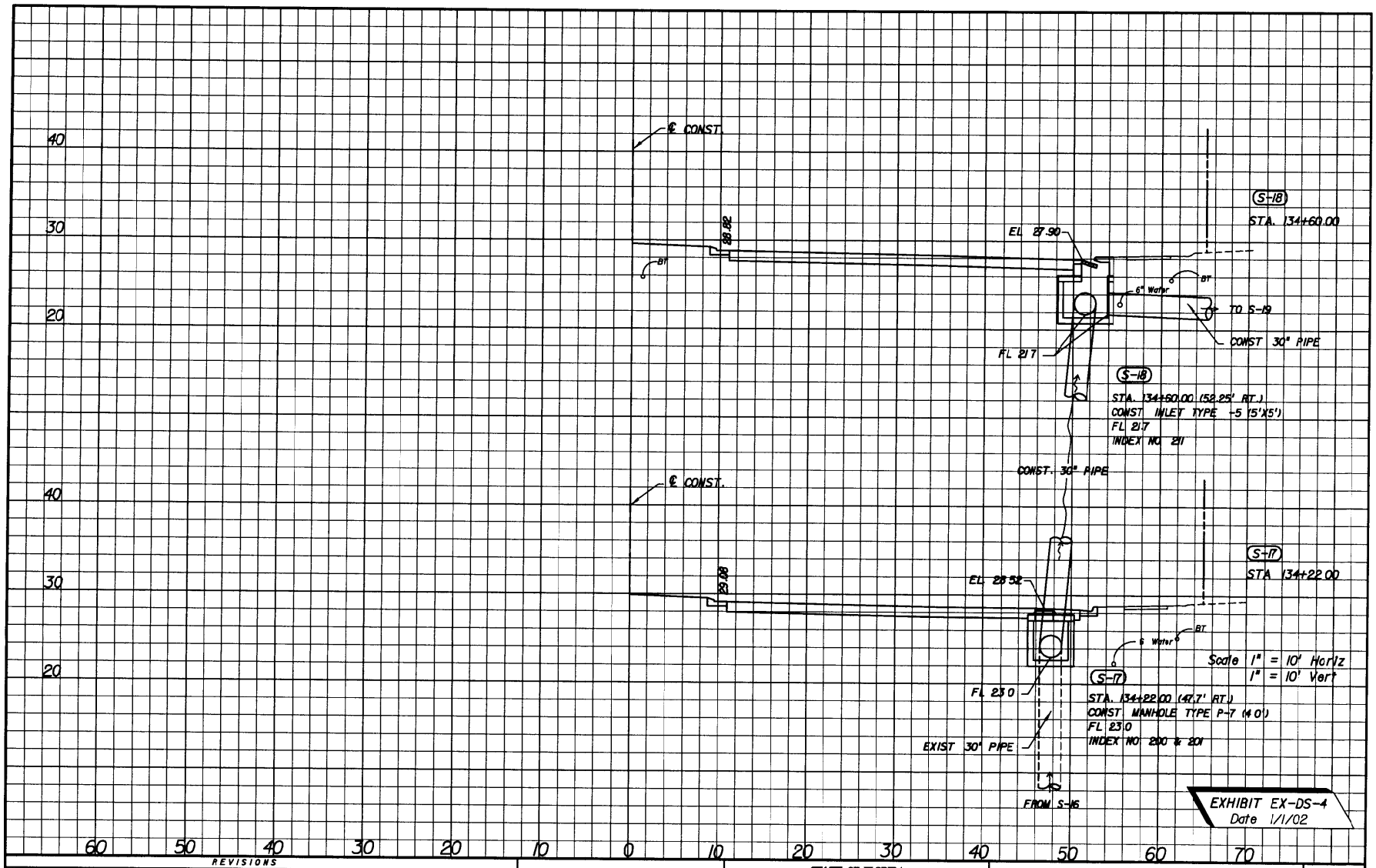
HILL & DALE ENGINEERING INC
P O BOX 2651
TAMPA, FLORIDA 33755
PE LICENSE NO 606655

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID
70	MANATEE	196058-1-52-01

DRAINAGE STRUCTURES

SHEET NO 29



REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

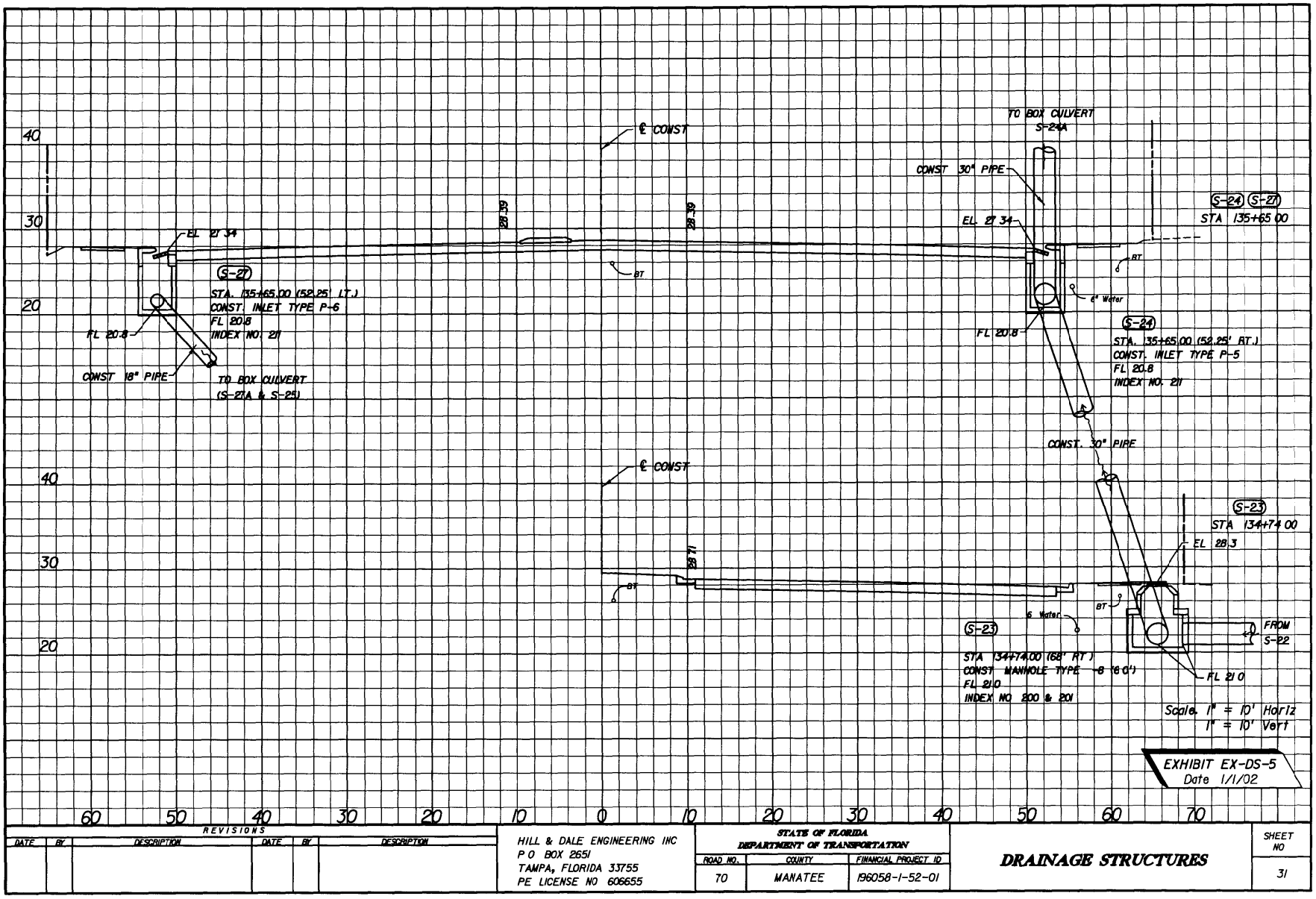
HILL & DALE ENGINEERING INC
P O BOX 2651
TAMPA, FLORIDA 33755
PE LICENSE NO 606655

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID
70	MANATEE	196058-1-52-01

DRAINAGE STRUCTURES

SHEET NO
30



REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

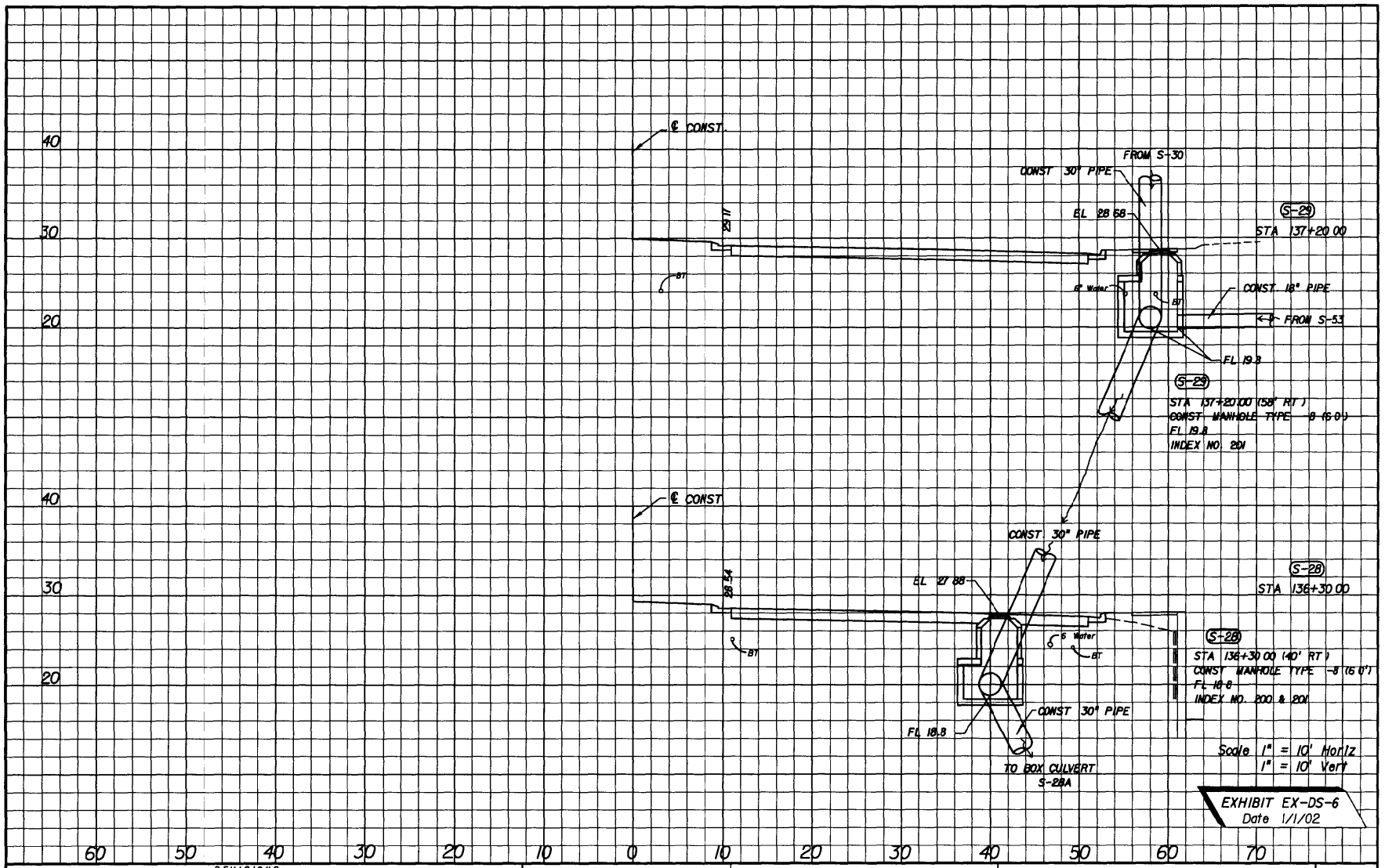
HILL & DALE ENGINEERING INC
P O BOX 2651
TAMPA, FLORIDA 33755
PE LICENSE NO 606655

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
70	MANATEE	196058-1-52-01

DRAINAGE STRUCTURES

SHEET NO
31



REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

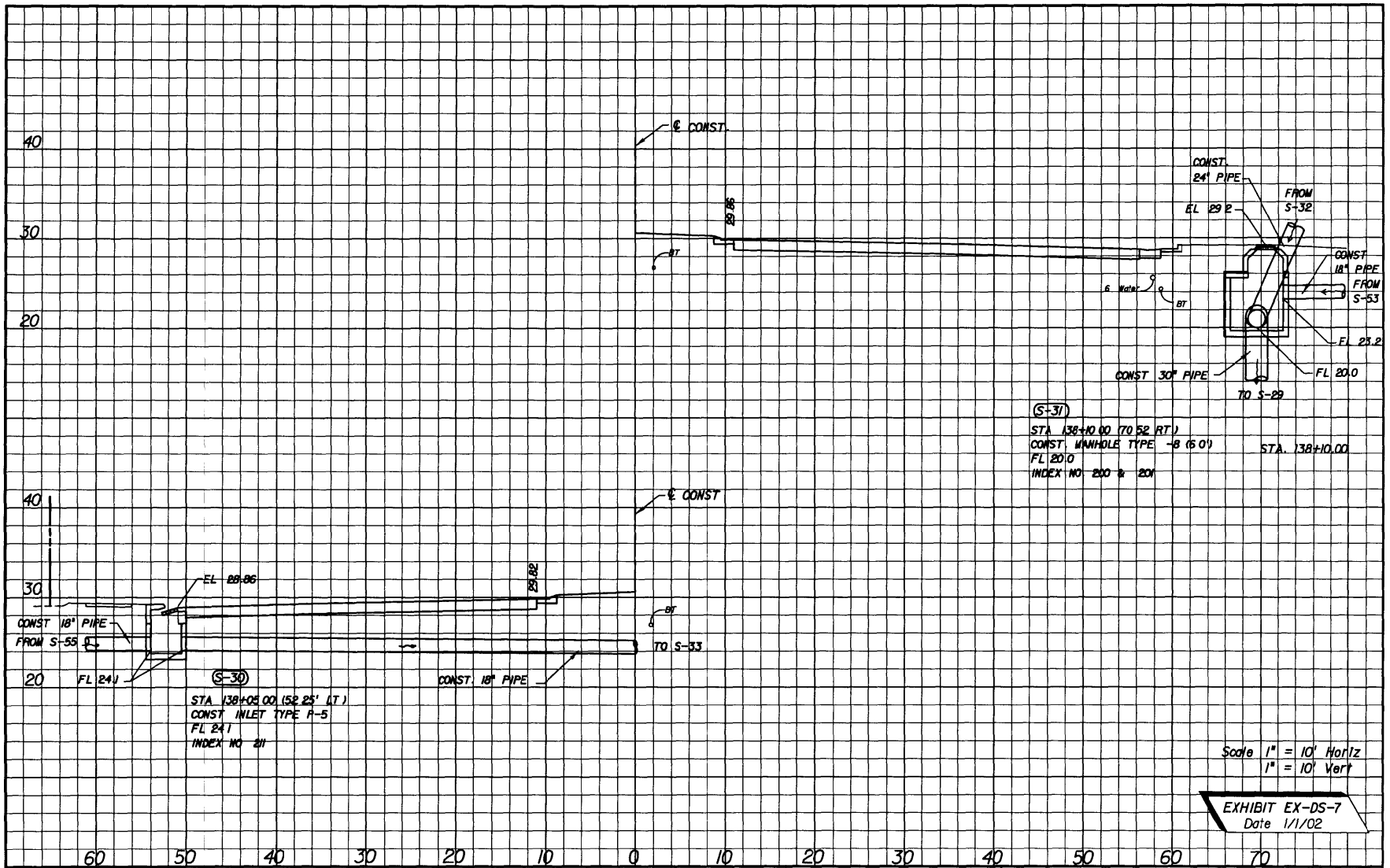
HILL & DALE ENGINEERING INC
P O BOX 2651
TAMPA, FLORIDA 33755
PE LICENSE NO 606655

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID
70	MANATEE	196058-1-52-01

DRAINAGE STRUCTURES

SHEET NO
32



Scale 1" = 10' Horiz
1" = 10' Vert

EXHIBIT EX-DS-7
Date 1/1/02

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

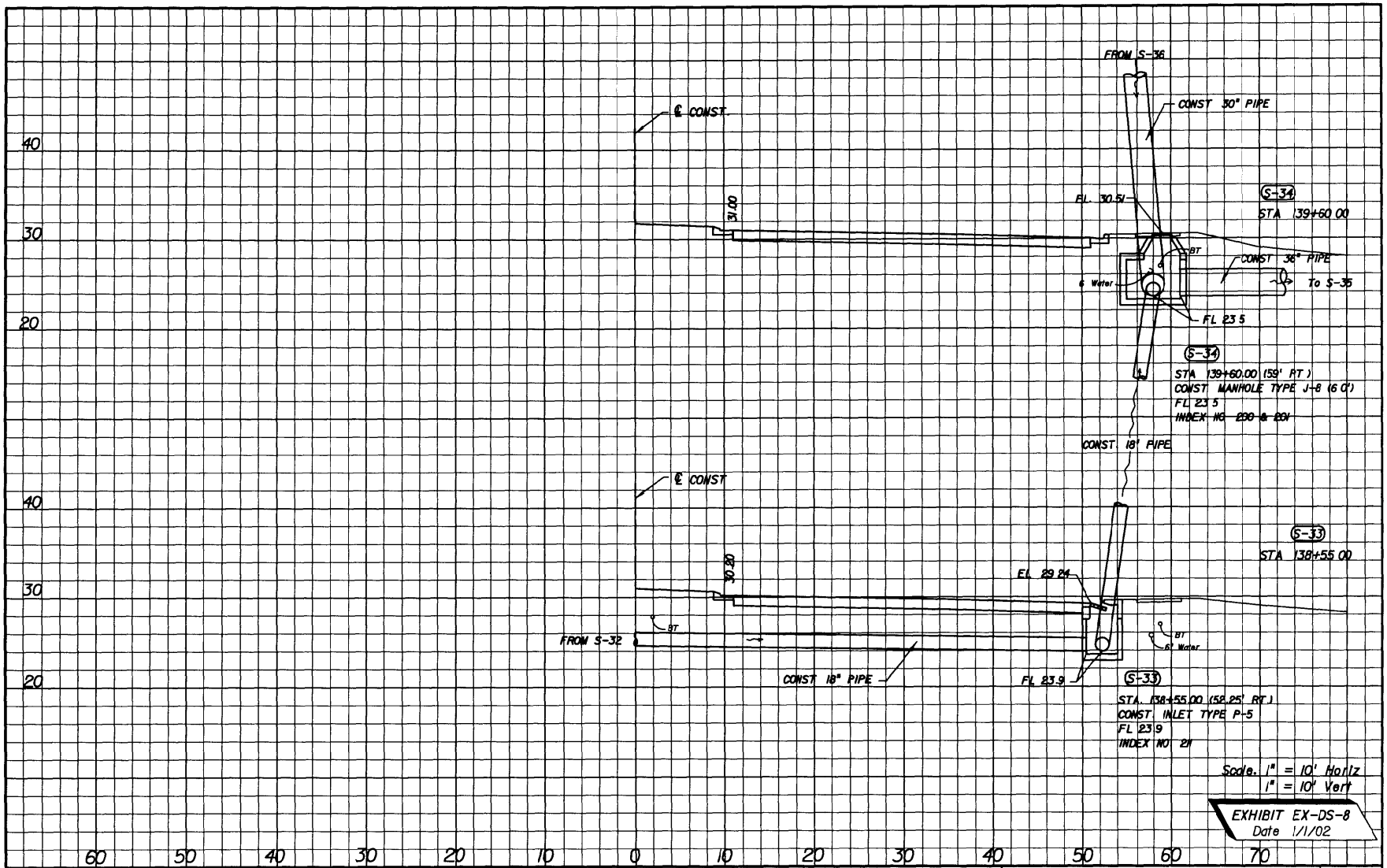
HILL & DALE ENGINEERING INC
P O BOX 2651
TAMPA, FLORIDA 33755
PE LICENSE NO 606655

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
70	MANATEE	196058-1-52-01

DRAINAGE STRUCTURES

SHEET NO
33



REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

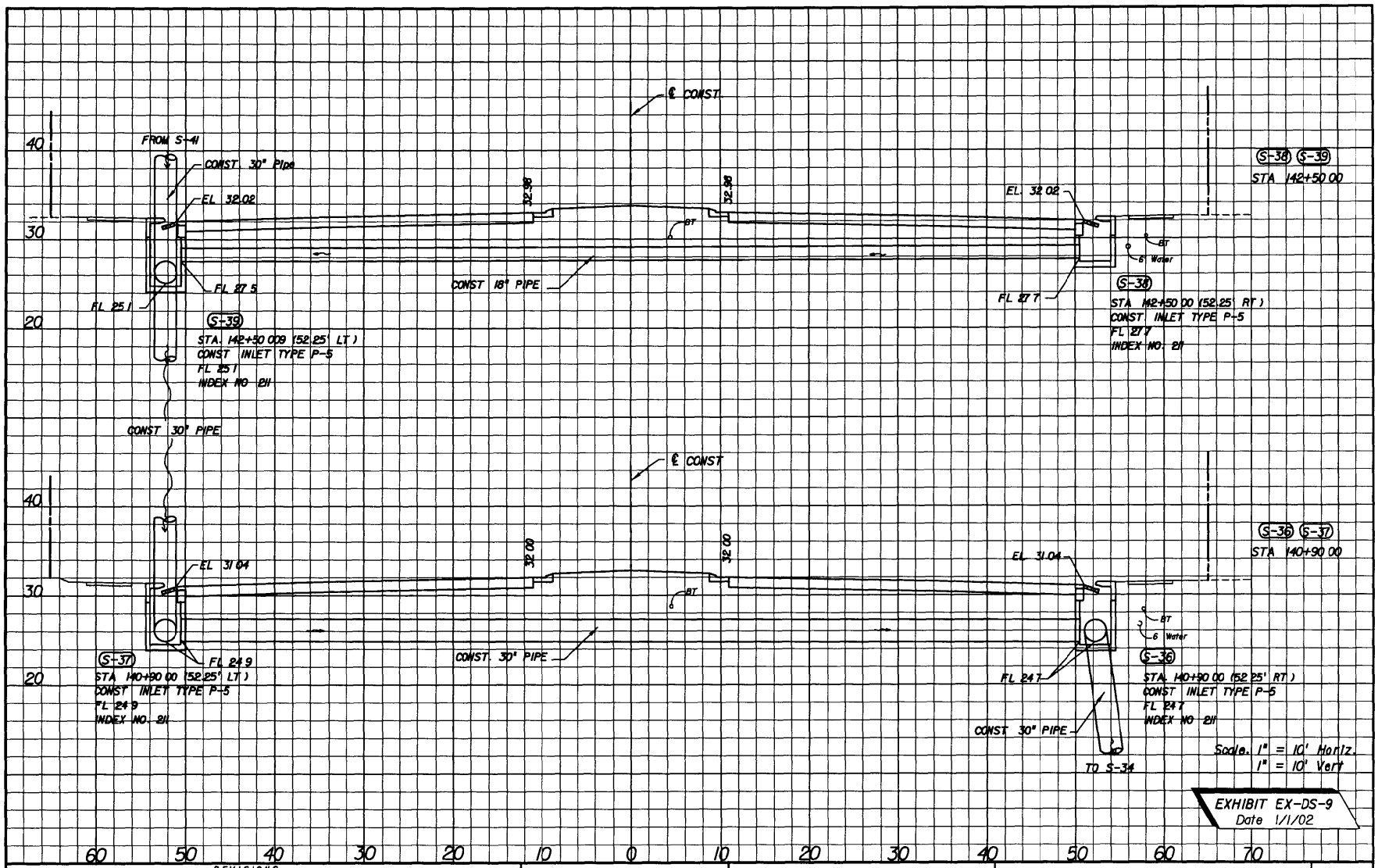
HILL & DALE ENGINEERING INC
P O BOX 2651
TAMPA, FLORIDA 33755
PE LICENSE NO 606655

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
70	MANATEE	196058-1-52-01

DRAINAGE STRUCTURES

SHEET NO
34



REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

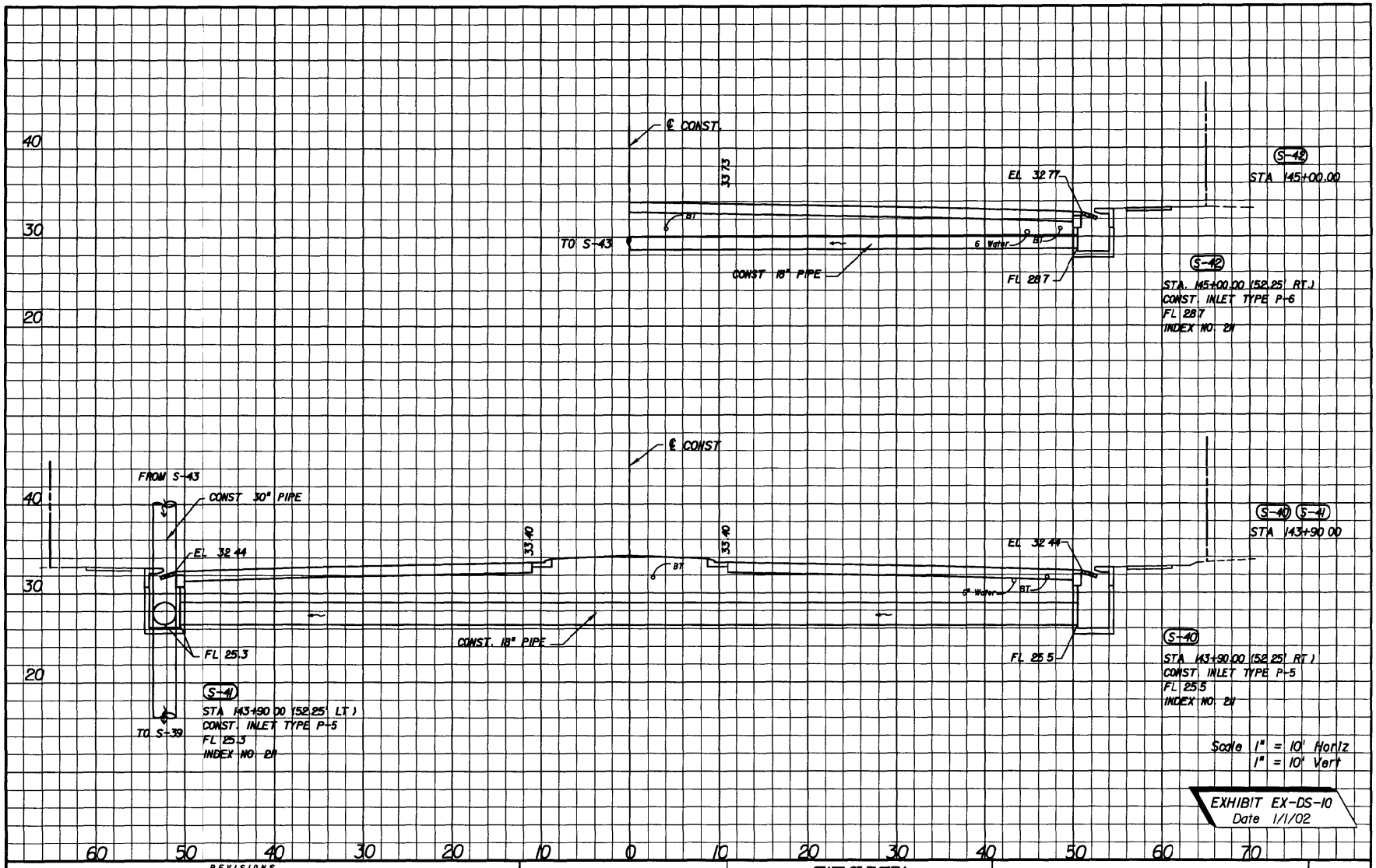
HILL & DALE ENGINEERING INC
P O BOX 2651
TAMPA, FLORIDA 33755
PE LICENSE NO 606655

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
70	MANATEE	196058-1-52-01

DRAINAGE STRUCTURES

SHEET NO
35



REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

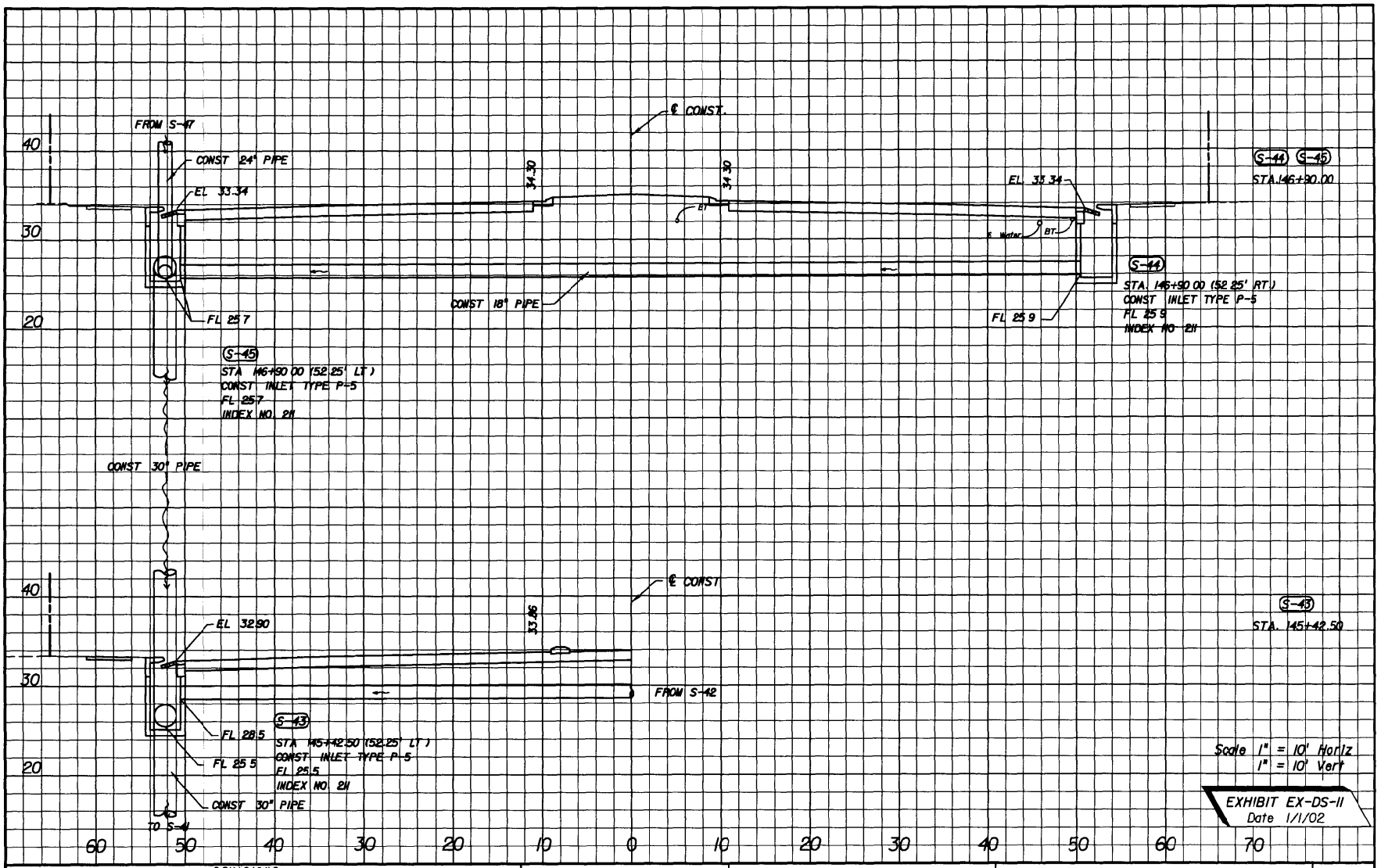
HILL & DALE ENGINEERING INC
P O BOX 2651
TAMPA, FLORIDA 33755
PE LICENSE NO 606655

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
70	MANATEE	196058-1-52-01

DRAINAGE STRUCTURES

SHEET NO
36



Scale 1" = 10' Horiz
1" = 10' Vert

EXHIBIT EX-DS-II
Date 1/1/02

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

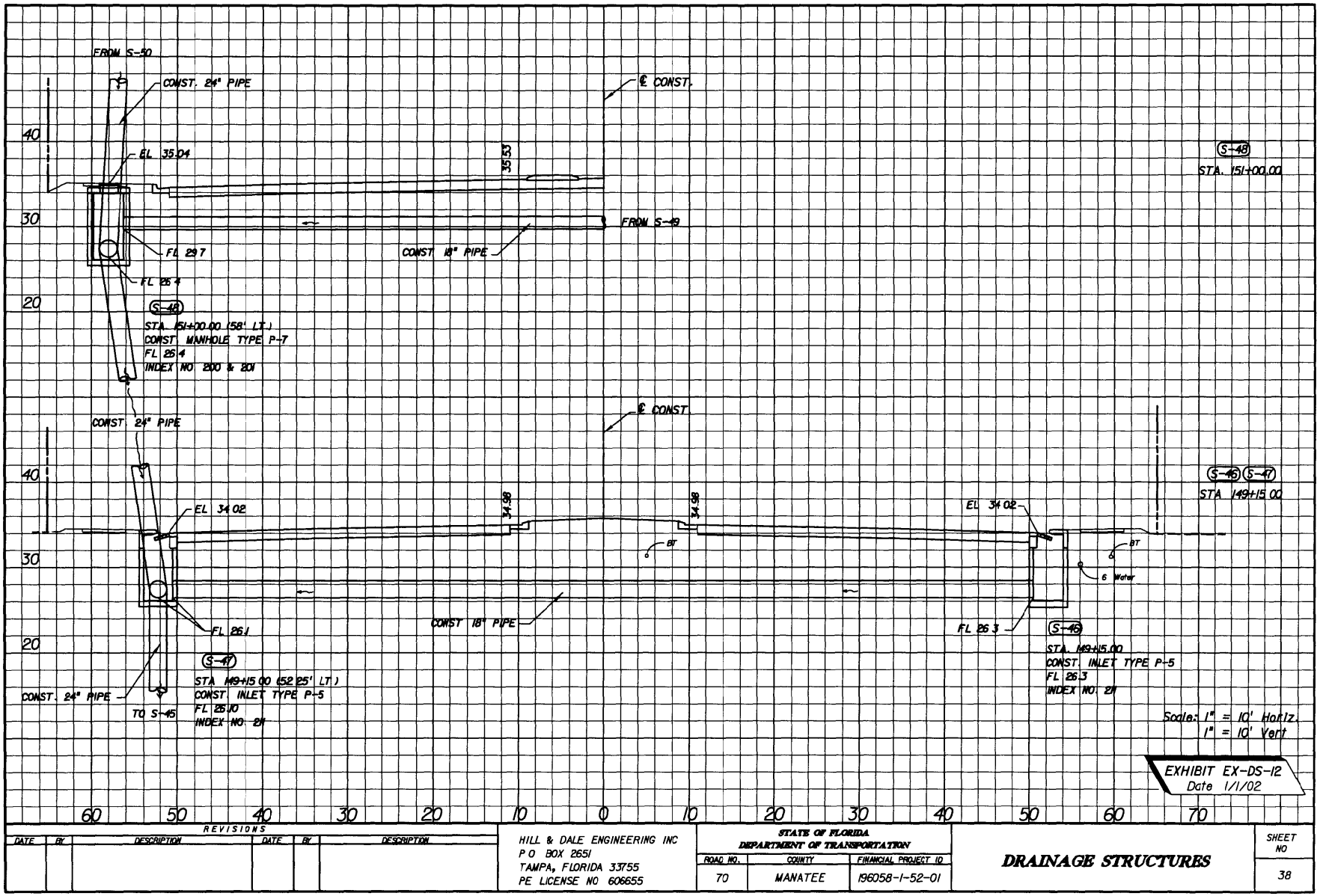
HILL & DALE ENGINEERING INC
P O BOX 2651
TAMPA, FLORIDA 33755
PE LICENSE NO 606655

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID
70	MANATEE	196058-1-52-01

DRAINAGE STRUCTURES

SHEET NO
37



REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

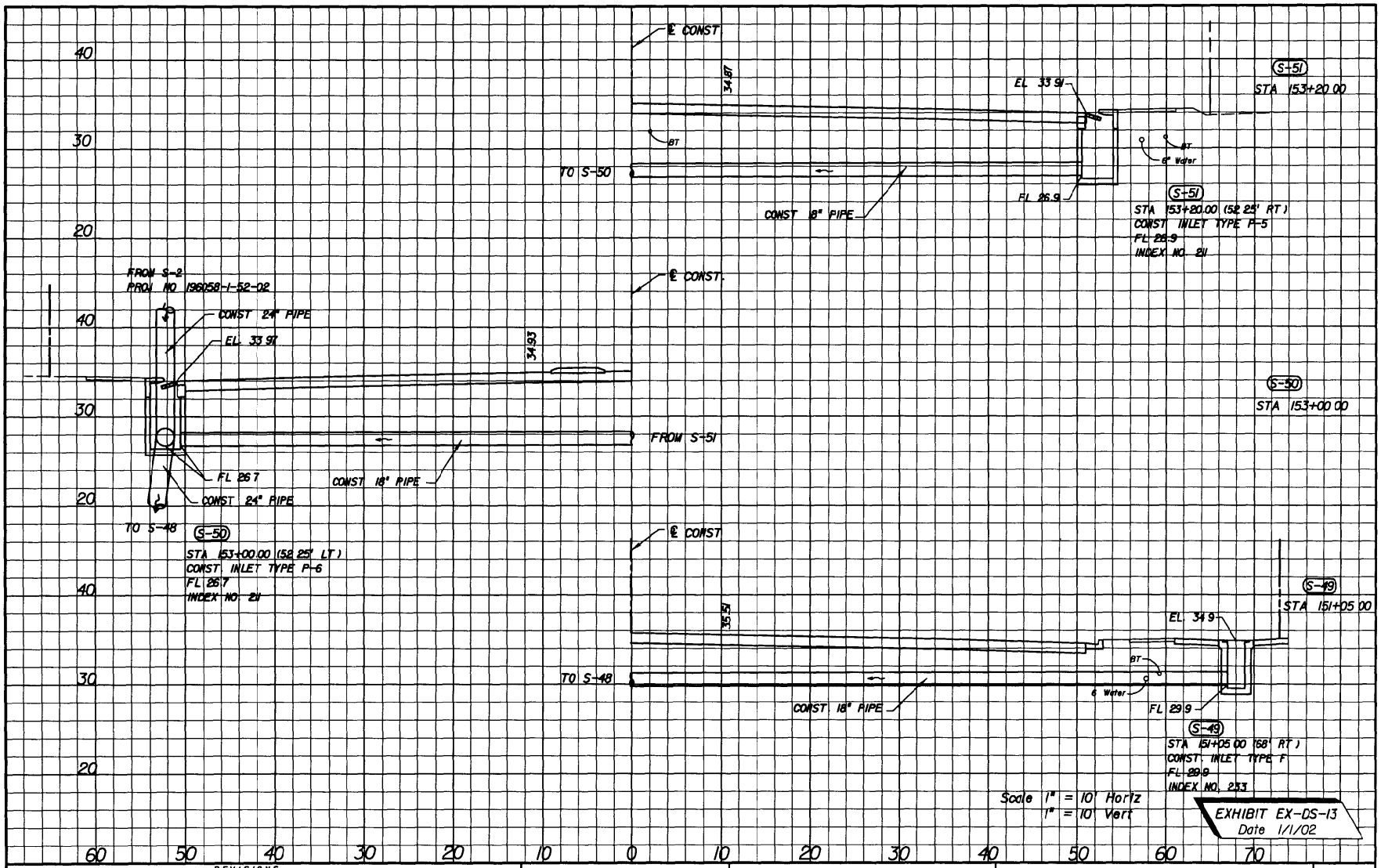
HILL & DALE ENGINEERING INC
P O BOX 2651
TAMPA, FLORIDA 33755
PE LICENSE NO 606655

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
70	MANATEE	196058-1-52-01

DRAINAGE STRUCTURES

SHEET NO
38



REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

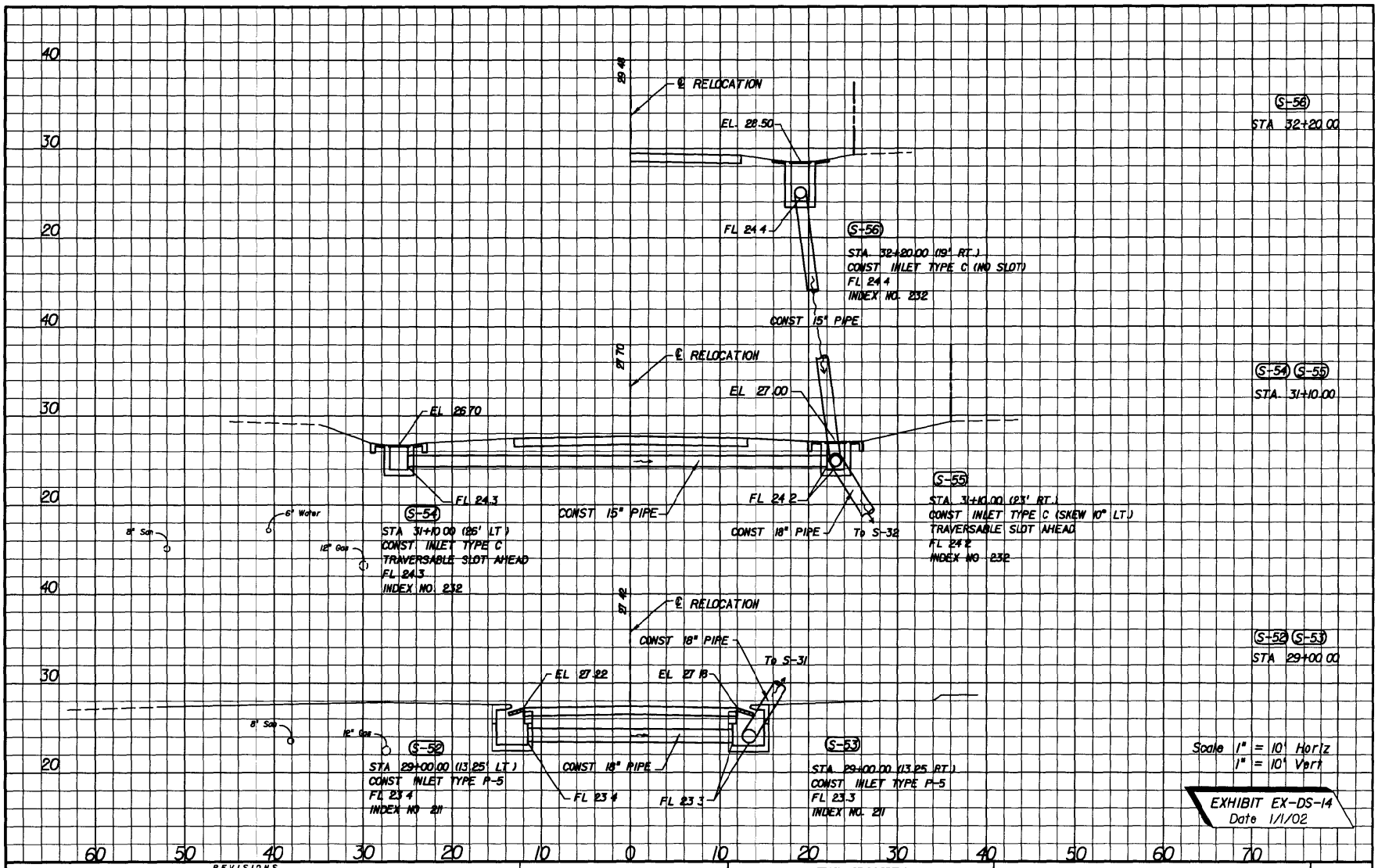
HILL & DALE ENGINEERING INC
P O BOX 2651
TAMPA, FLORIDA 33755
PE LICENSE NO 606655

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
70	MANATEE	196058-1-52-01

DRAINAGE STRUCTURES

SHEET NO
39



REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

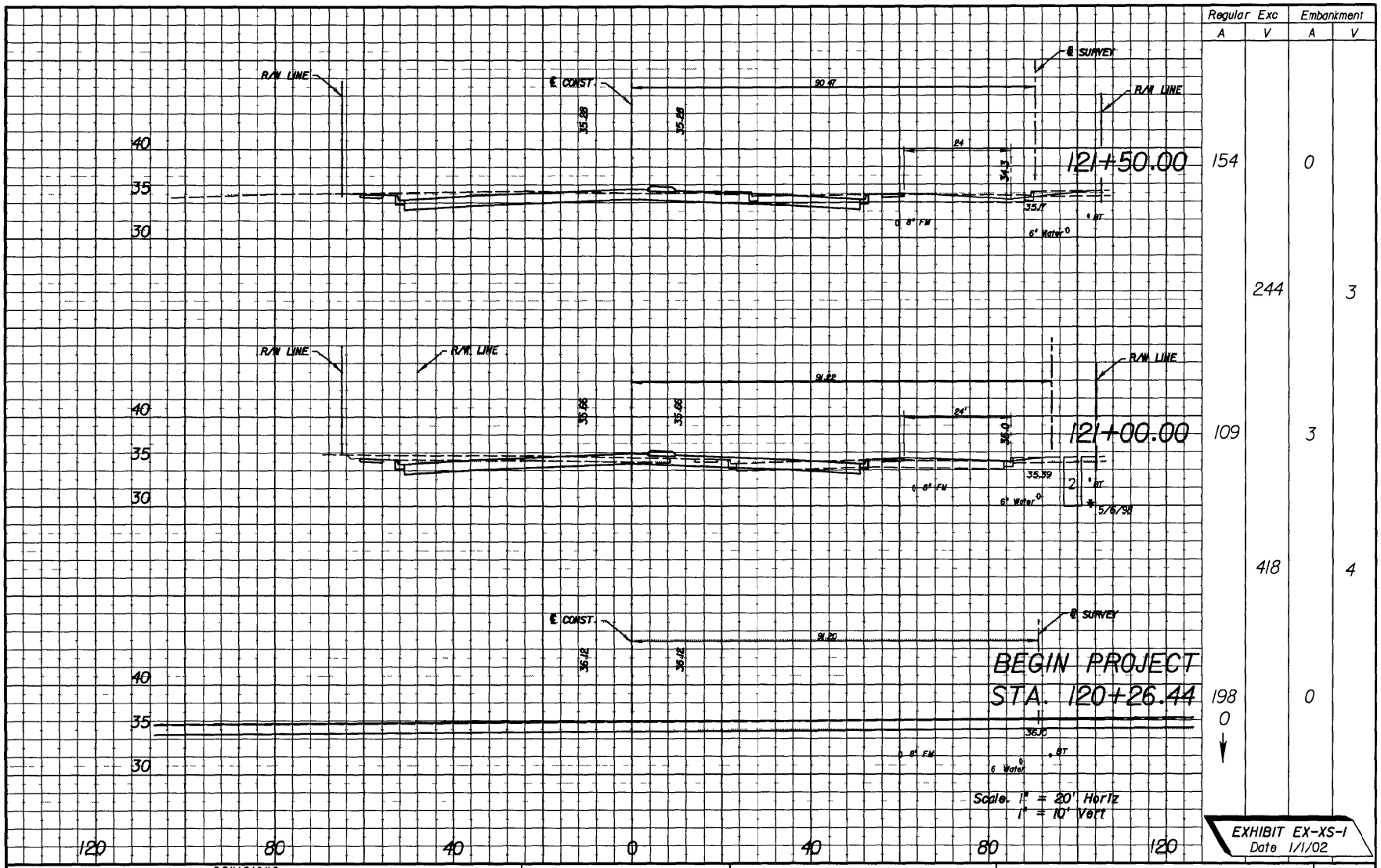
HILL & DALE ENGINEERING INC
P O BOX 2651
TAMPA, FLORIDA 33755
PE LICENSE NO 606655

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID
70	MANATEE	196058-1-52-01

DRAINAGE STRUCTURES
JULIA AVE. RELOCATION

SHEET NO 40



	Regular Exc		Embankment	
	A	V	A	V
	154		0	
		244		3
	109		3	
		418		4
	198		0	
	0			

EXHIBIT EX-XS-1
Date 1/1/02

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

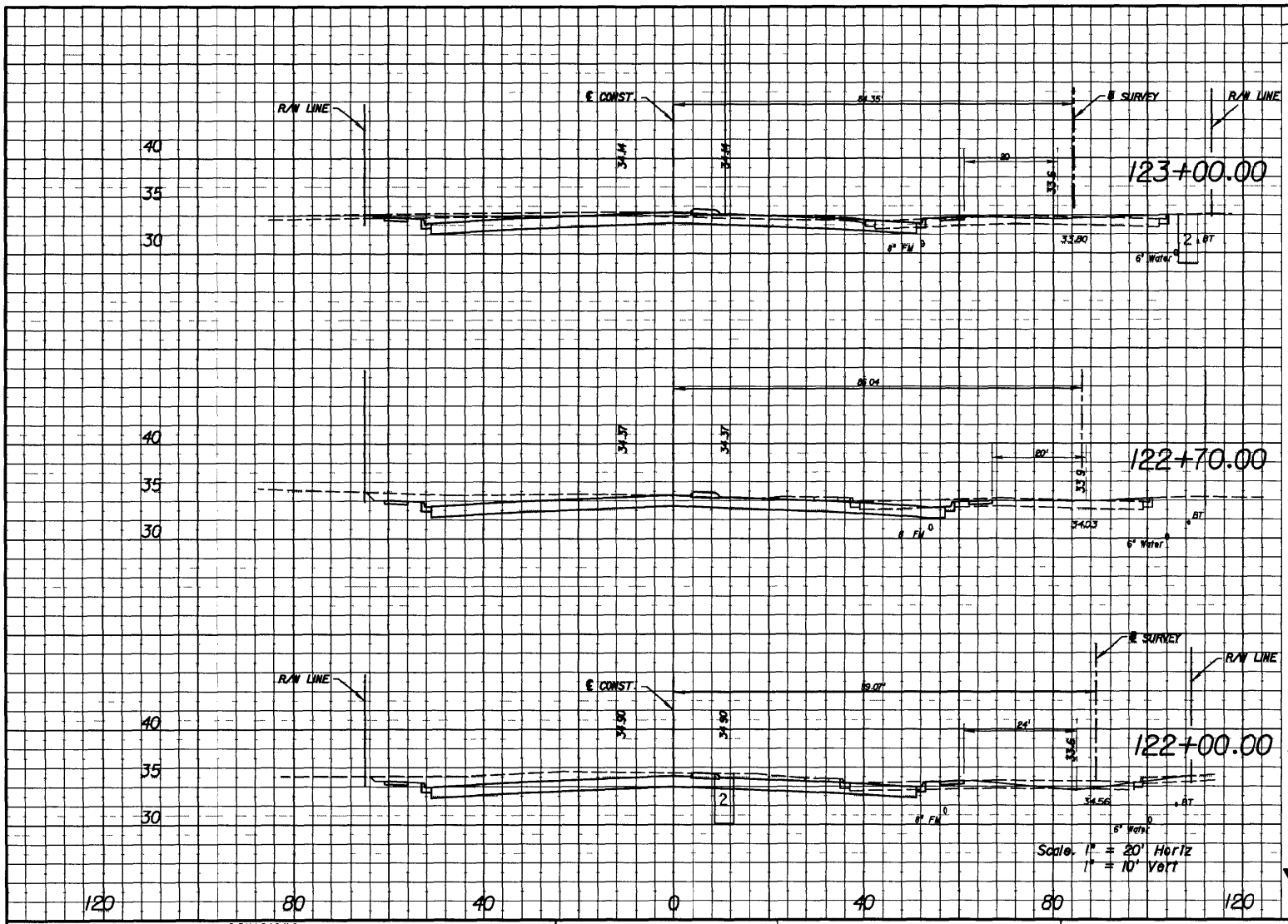
HILL & DALE ENGINEERING INC
P O BOX 2651
TAMPA, FLORIDA 33755
PE LICENSE NO 606655

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
70	MANATEE	196058-1-52-01

CROSS SECTIONS

SHEET NO
45



Regular Exc		Embankment	
A	V	A	V
149		0	
	188		0
190		0	
	512		0
205		0	
	332		0

EXHIBIT EX-XS-2
Date 1/1/02

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

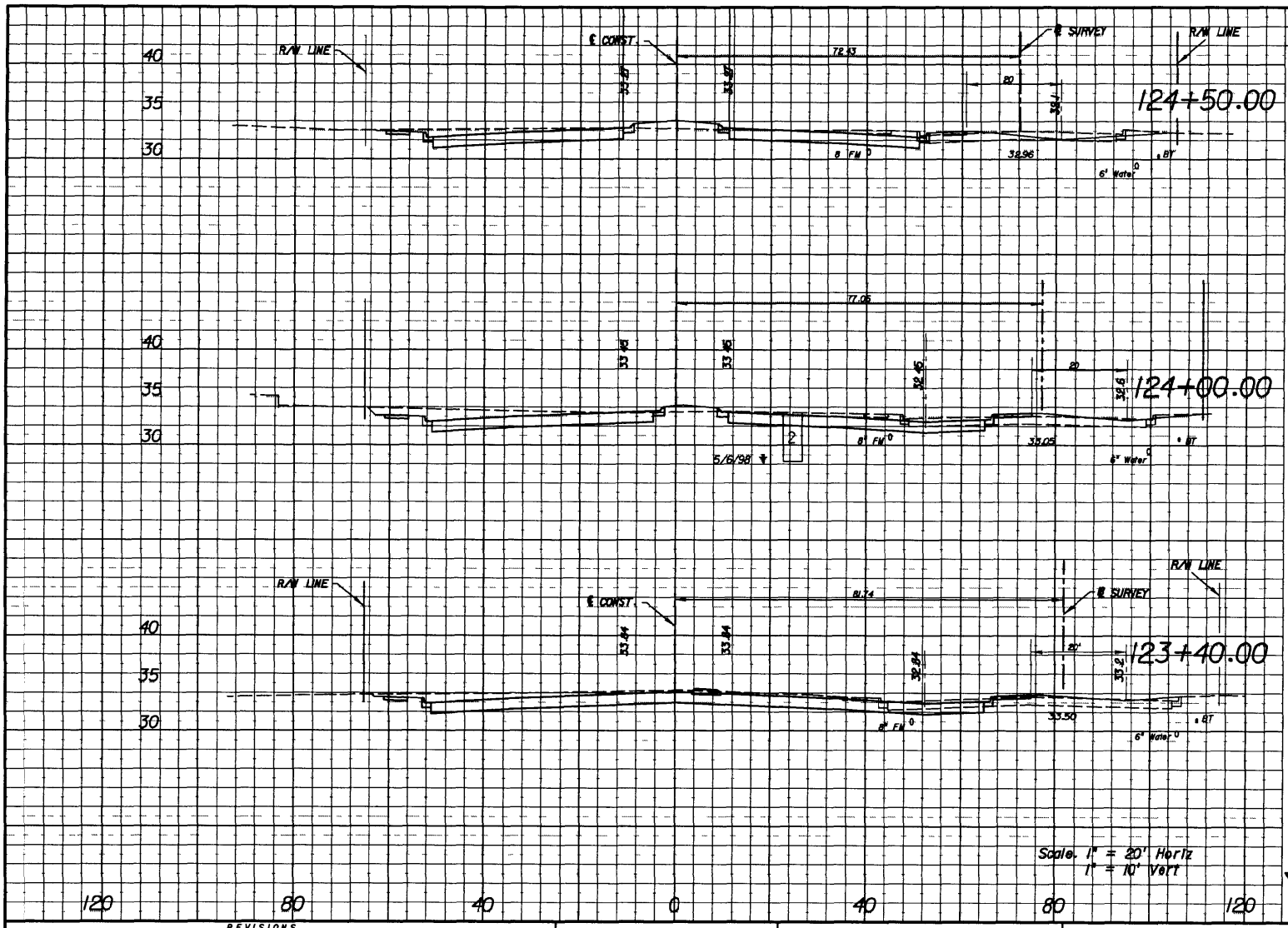
HILL & DALE ENGINEERING INC
P O BOX 2651
TAMPA, FLORIDA 33755
PE LICENSE NO 606655

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
70	MANATEE	196058-1-52-01

CROSS SECTIONS

SHEET NO
46



Regular Exc		Embankment	
A	V	A	V
132		13	
	265		20
154		9	
	361		12
171		2	
	237		1

EXHIBIT EX-XS-3
Date 1/1/02

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

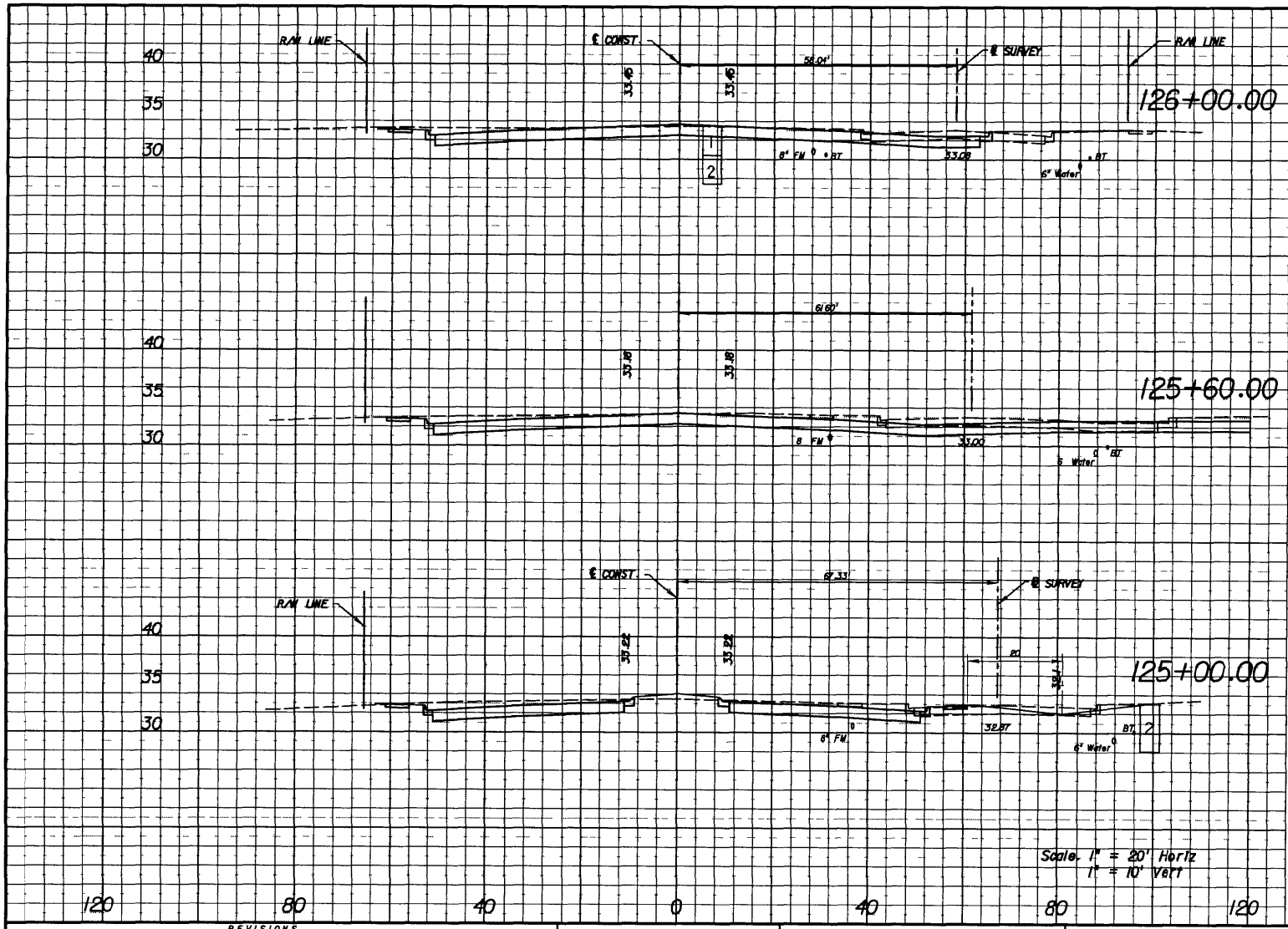
HILL & DALE ENGINEERING INC
P O BOX 2651
TAMPA, FLORIDA 33755
PE LICENSE NO 606655

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
70	MANATEE	196058-1-52-01

CROSS SECTIONS

SHEET NO
47



	Regular Exc		Embankment	
	A	V	A	V
126+00.00	147		3	
		267		2
125+60.00	213		0	
		379		6
125+00.00	128		5	
		241		17

Scale: 1" = 20' Horiz
1" = 10' Vert

EXHIBIT EX-XS-4
Date 1/1/02

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

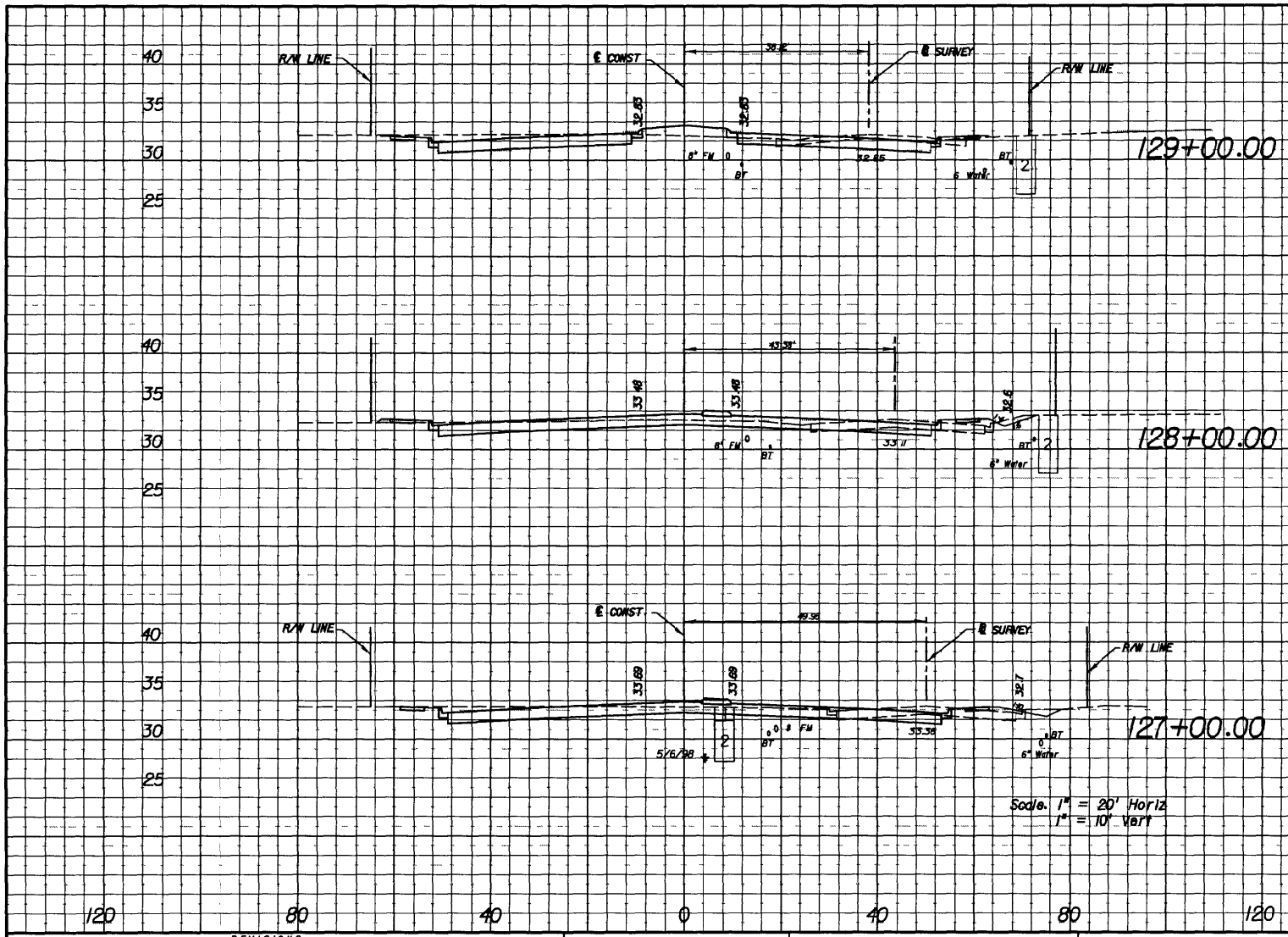
HILL & DALE ENGINEERING INC
P O BOX 2651
TAMPA, FLORIDA 33755
PE LICENSE NO 606655

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID
70	MANATEE	196058-1-52-01

CROSS SECTIONS

SHEET NO 48



	Regular Exc		Embankment	
	A	V	A	V
129+00.00	103		15	
		346		33
128+00.00	84		3	
		363		9
127+00.00	112		2	
		480		9

EXHIBIT EX-XS-5
Date 1/1/02

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

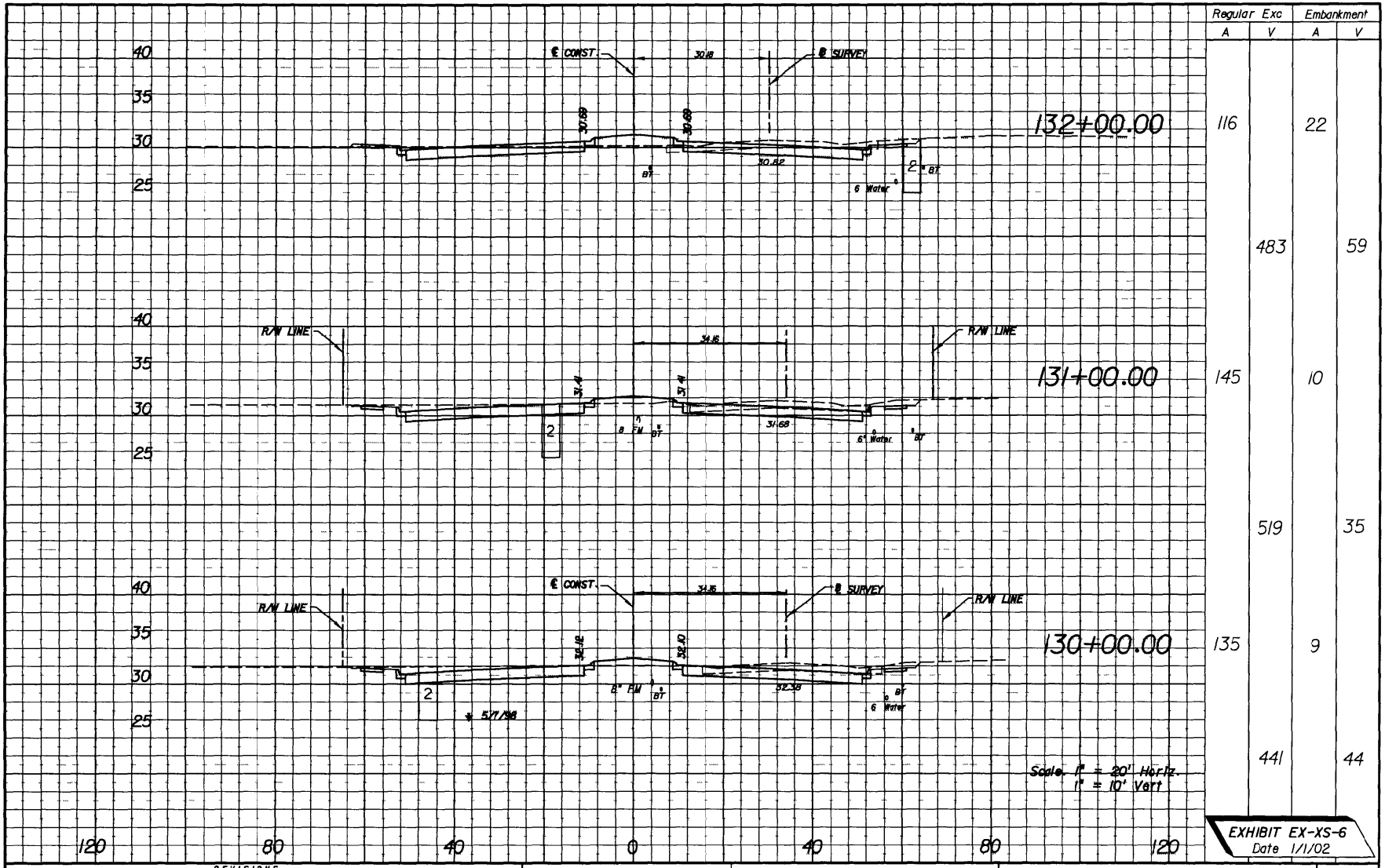
HILL & DALE ENGINEERING INC
P O BOX 2651
TAMPA, FLORIDA 33755
PE LICENSE NO 606655

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID
70	MANATEE	196058-1-52-01

CROSS SECTIONS

SHEET NO
49



	Regular Exc		Embankment	
	A	V	A	V
132+00.00	116		22	
		483		59
131+00.00	145		10	
		519		35
130+00.00	135		9	
		441		44

Scale 1" = 20' Horiz.
1" = 10' Vert

EXHIBIT EX-XS-6
Date 1/1/02

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

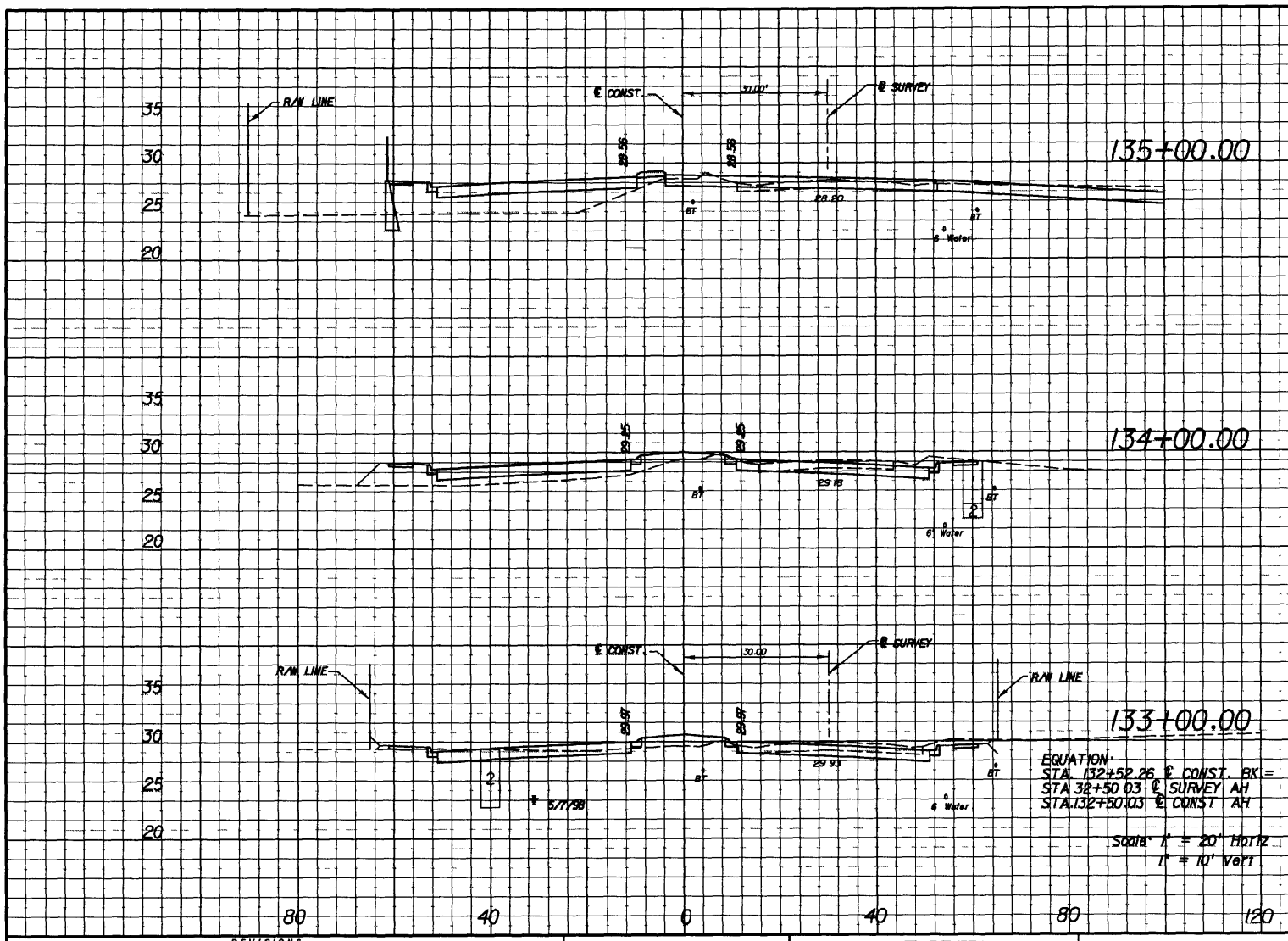
HILL & DALE ENGINEERING INC
P O BOX 2651
TAMPA, FLORIDA 33755
PE LICENSE NO 606655

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
70	MANATEE	196058-1-52-01

CROSS SECTIONS

SHEET NO
50



	Regular Exc		Embankment	
	A	V	A	V
135+00.00	135		106	
		346		335
134+00.00	52		75	
		280		174
133+00.00	99		19	
		407		78

EXHIBIT EX-XS-7
Date 1/1/02

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

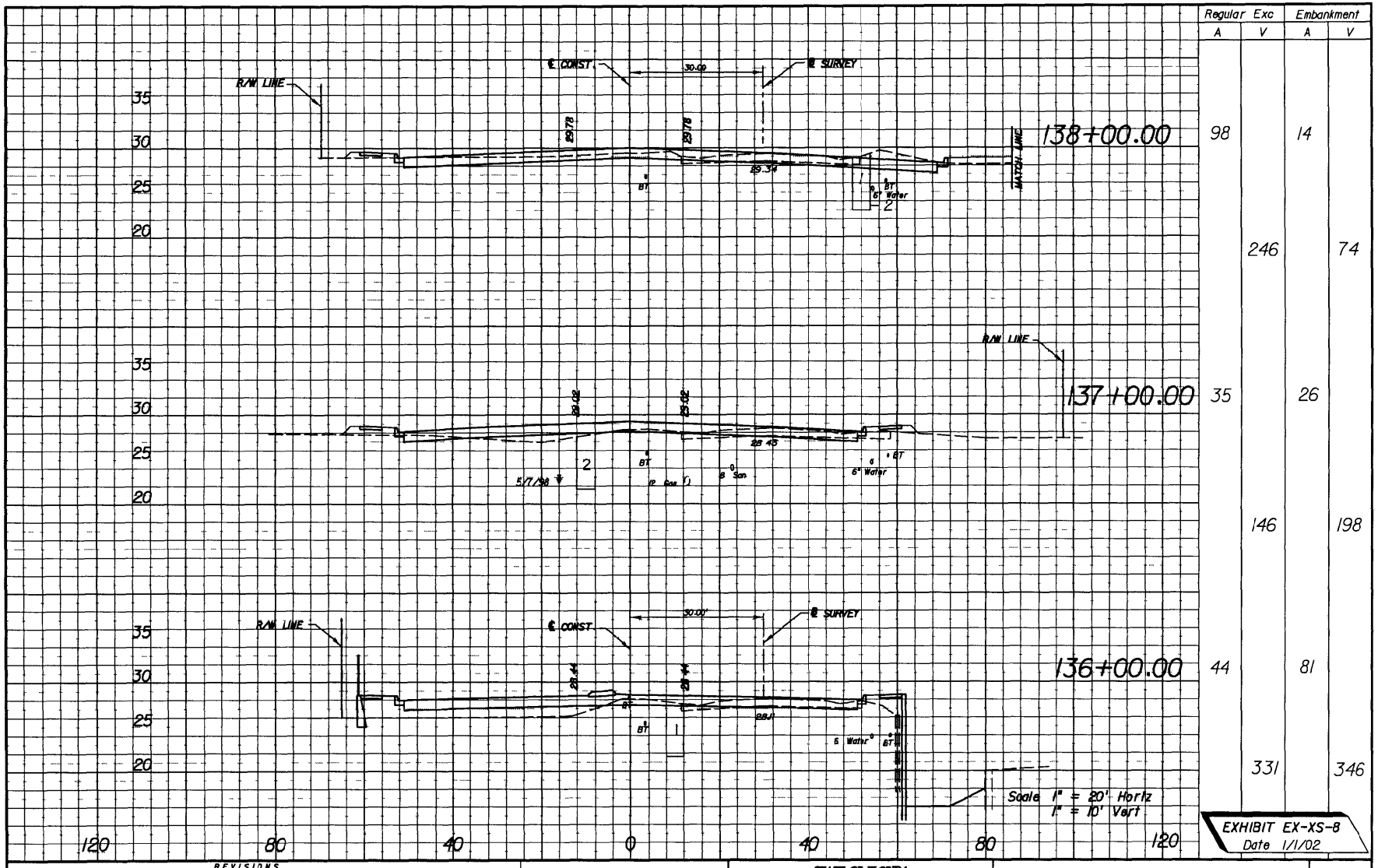
HILL & DALE ENGINEERING INC
P O BOX 2651
TAMPA, FLORIDA 33755
PE LICENSE NO 606655

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID
70	MANATEE	196058-1-52-01

CROSS SECTIONS

SHEET NO
51



	Regular Exc		Embankment	
	A	V	A	V
138+00.00	98		14	
		246		74
137+00.00	35		26	
		146		198
136+00.00	44		81	
		331		346

EXHIBIT EX-XS-8
Date 1/1/02

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

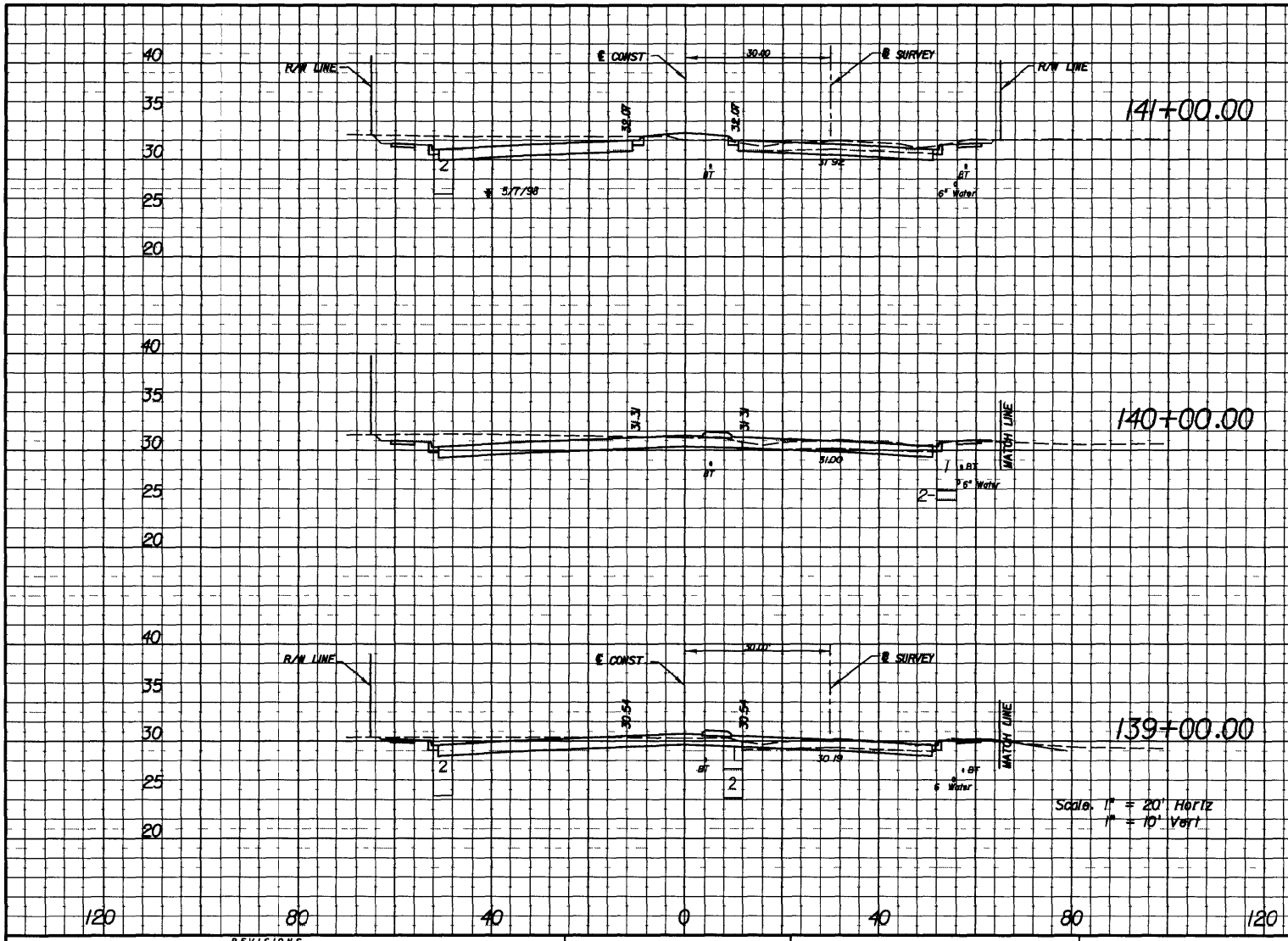
HILL & DALE ENGINEERING INC
P O BOX 2651
TAMPA, FLORIDA 33755
PE LICENSE NO 606655

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID
70	MANATEE	196058-1-52-01

CROSS SECTIONS

SHEET NO
52



Regular Exc		Embankment	
A	V	A	V
154		5	
	561		9
149		0	
	461		2
100		1	
	367		28

EXHIBIT EX-XS-9
Date 1/1/02

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

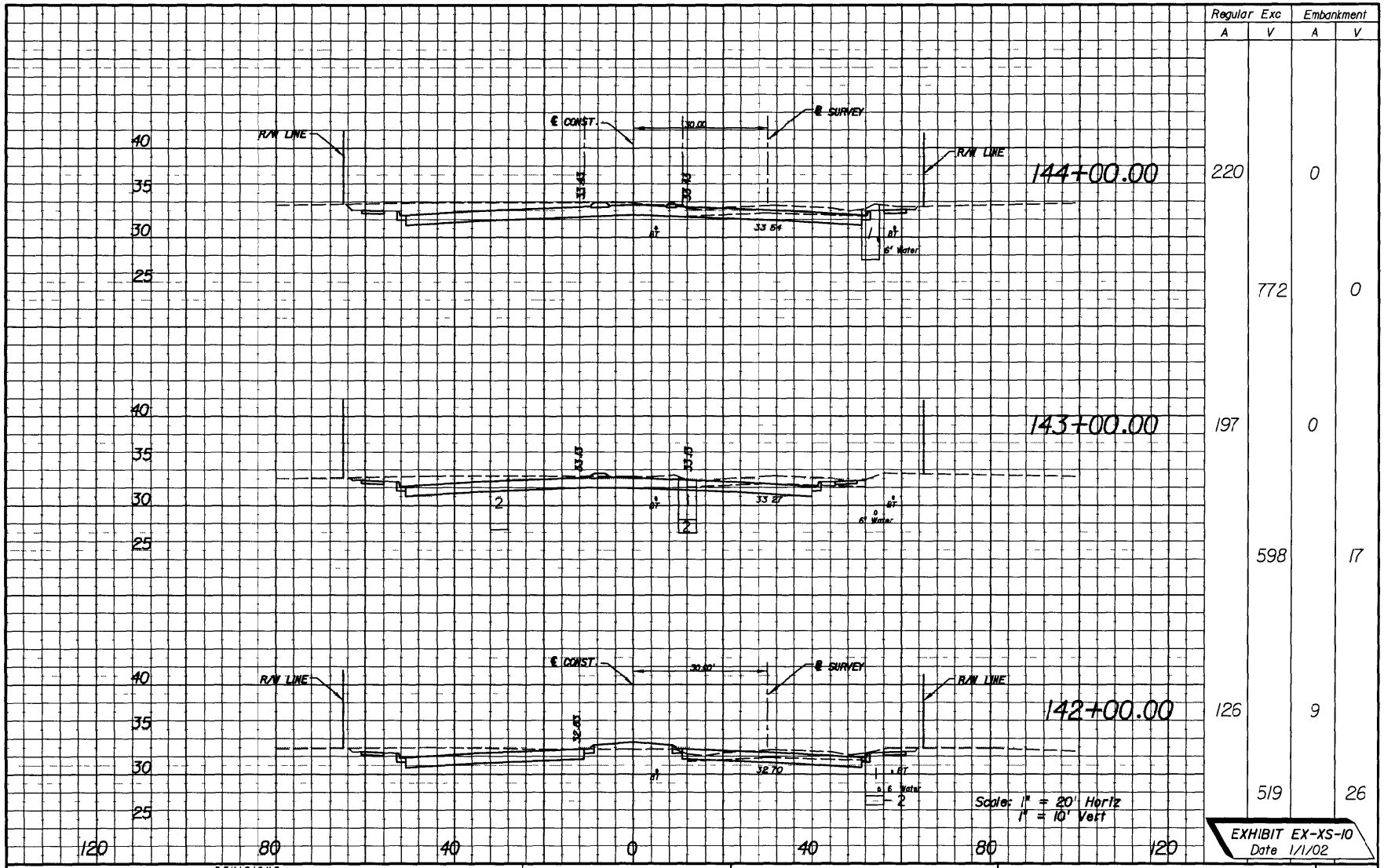
HILL & DALE ENGINEERING INC
P O BOX 2651
TAMPA, FLORIDA 33755
PE LICENSE NO 606655

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
70	MANATEE	196058-1-52-01

CROSS SECTIONS

SHEET NO
53



Regular Exc		Embankment	
A	V	A	V
220		0	
	772		0
197		0	
	598		17
126		9	
	519		26

EXHIBIT EX-XS-10
Date 1/1/02

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

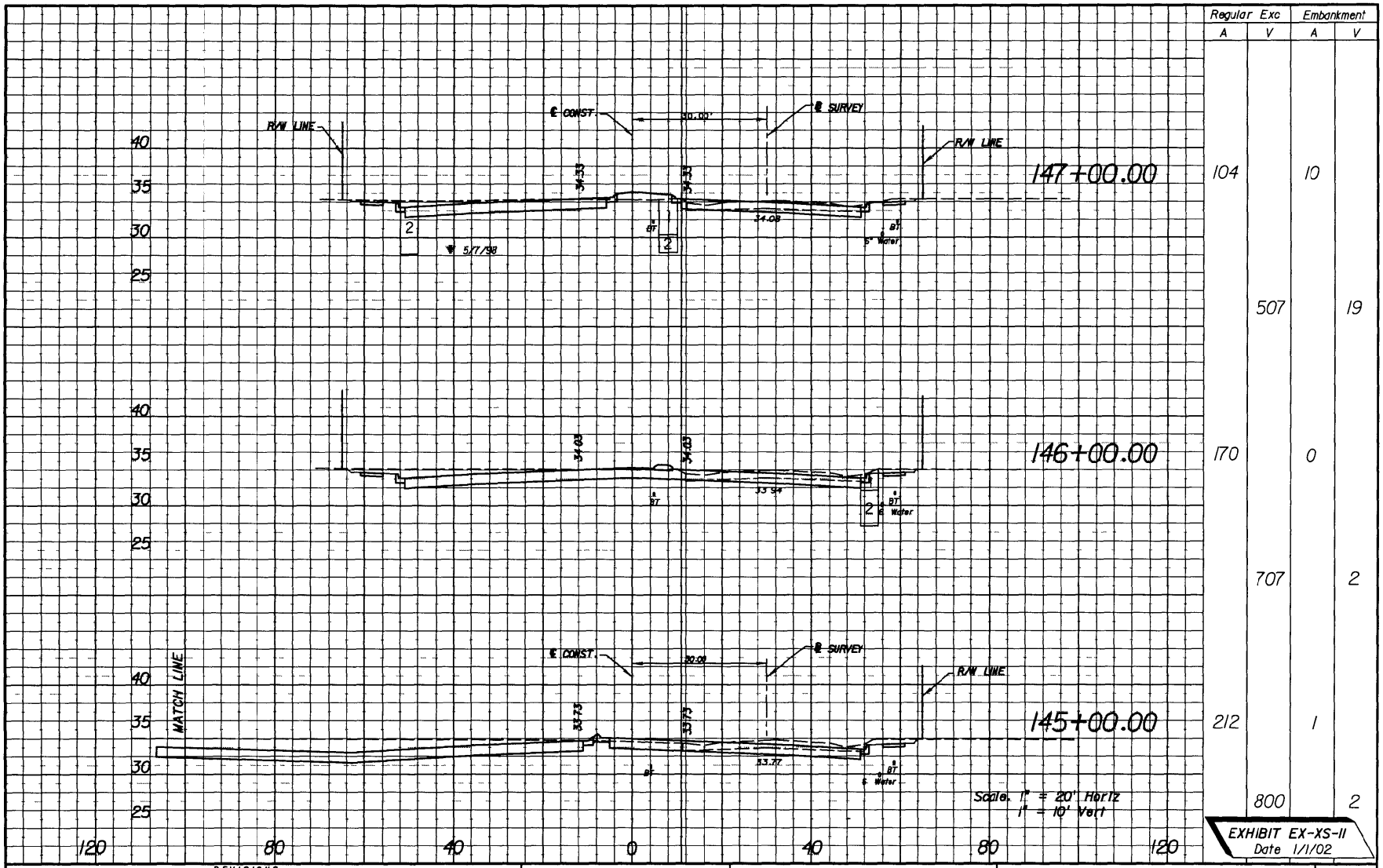
HILL & DALE ENGINEERING INC
P O BOX 2651
TAMPA, FLORIDA 33755
PE LICENSE NO 606655

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID
70	MANATEE	196058-1-52-01

CROSS SECTIONS

SHEET NO
54



	Regular Exc		Embankment	
	A	V	A	V
147+00.00	104		10	
		507		19
146+00.00	170		0	
		707		2
145+00.00	212		1	
		800		2

Scale. 1" = 20' Horiz
1" = 10' Vert

EXHIBIT EX-XS-11
Date 1/1/02

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

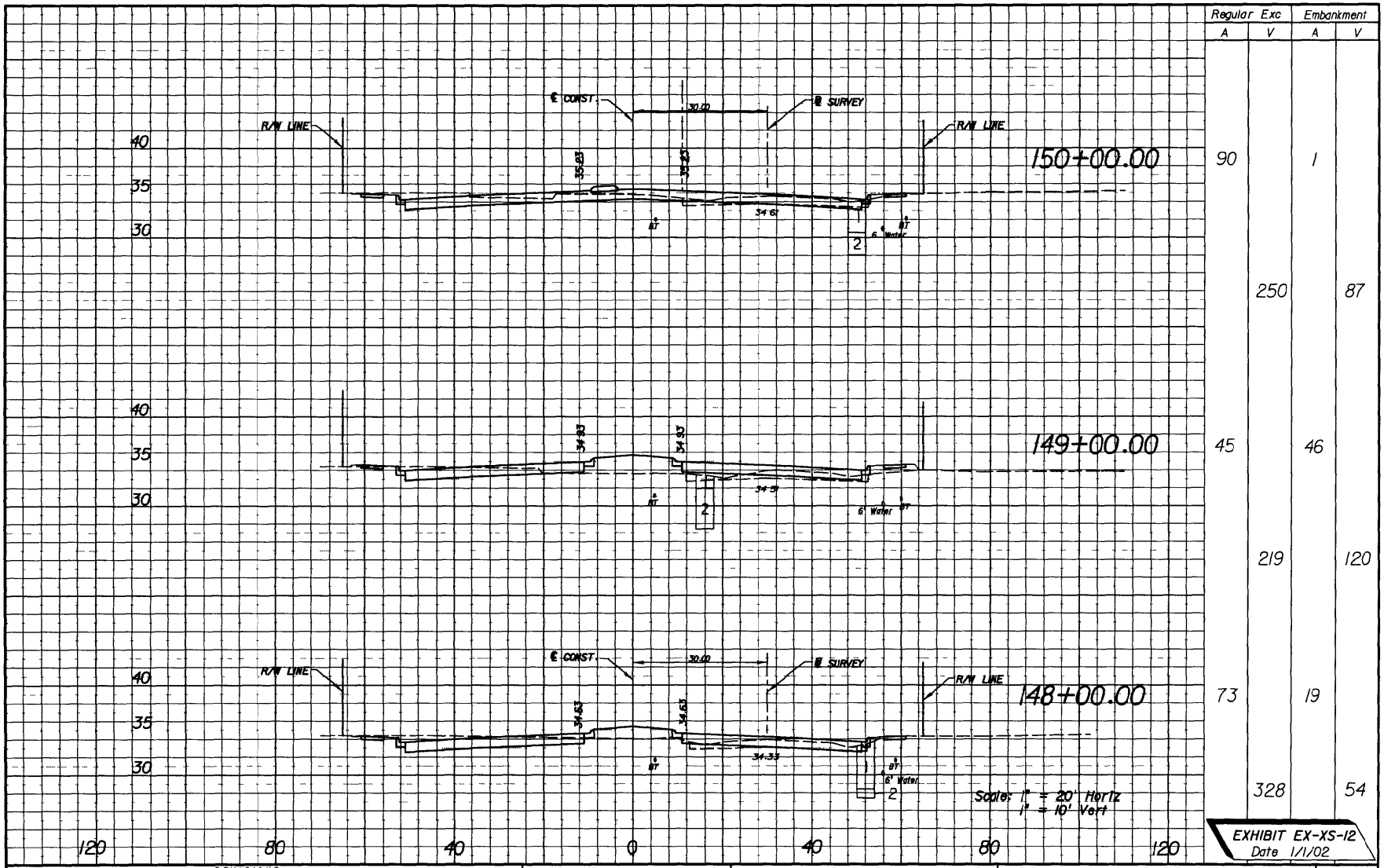
HILL & DALE ENGINEERING INC
P O BOX 2651
TAMPA, FLORIDA 33755
PE LICENSE NO 606655

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
70	MANATEE	196058-1-52-01

CROSS SECTIONS

SHEET NO
55



Regular Exc		Embankment	
A	V	A	V
90		1	
	250		87
45		46	
	219		120
73		19	
	328		54

EXHIBIT EX-XS-12
Date 1/1/02

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

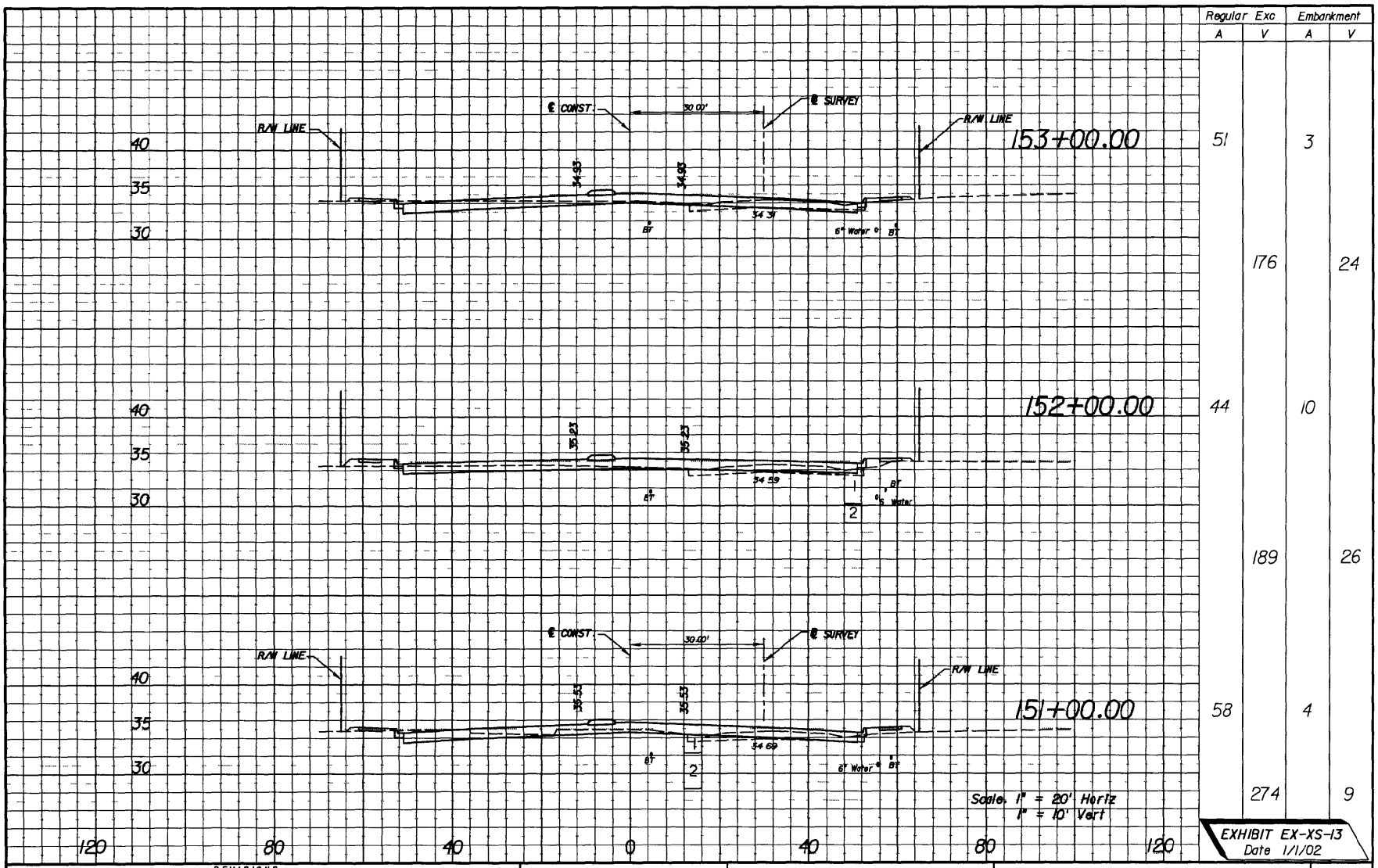
HILL & DALE ENGINEERING INC
P O BOX 2651
TAMPA, FLORIDA 33755
PE LICENSE NO 606655

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID
70	MANATEE	196058-1-52-01

CROSS SECTIONS

SHEET NO 56



Scale, 1" = 20' Horiz
1" = 10' Vert

Regular Exc		Embankment	
A	V	A	V
51		3	
	176		24
44		10	
	189		26
58		4	
	274		9

EXHIBIT EX-XS-13
Date 1/1/02

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

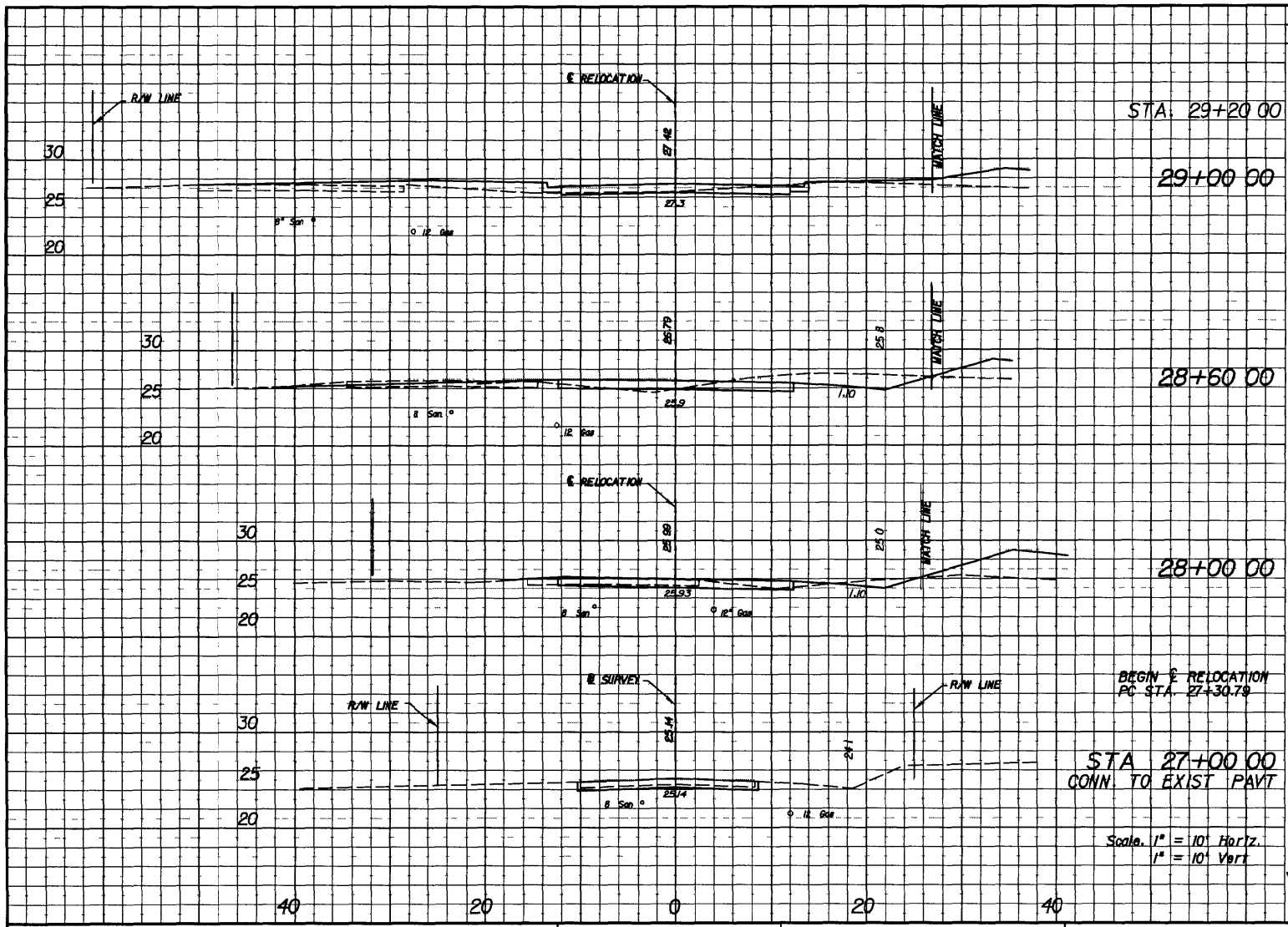
HILL & DALE ENGINEERING INC
P O BOX 2651
TAMPA, FLORIDA 33755
PE LICENSE NO 606655

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
70	MANATEE	196058-1-52-01

CROSS SECTIONS

SHEET NO
57



	Regular Exc		Embankment	
	A	V	A	V
	↑ 0		↑ 0	
STA. 29+20 00	12		14	
		7		12
29+00 00	8		19	
		26		15
28+60 00	27		1	
		54		3
28+00 00	22		2	
		72		4
BEGIN ℄ RELOCATION PC STA. 27+30.79				
STA 27+00 00 CONN. TO EXIST PAVT	17 ↓ 0		0 ↓	

Scale. 1" = 10' Horiz.
1" = 10' Vert

EXHIBIT EX-XS-15
Date 1/1/02

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

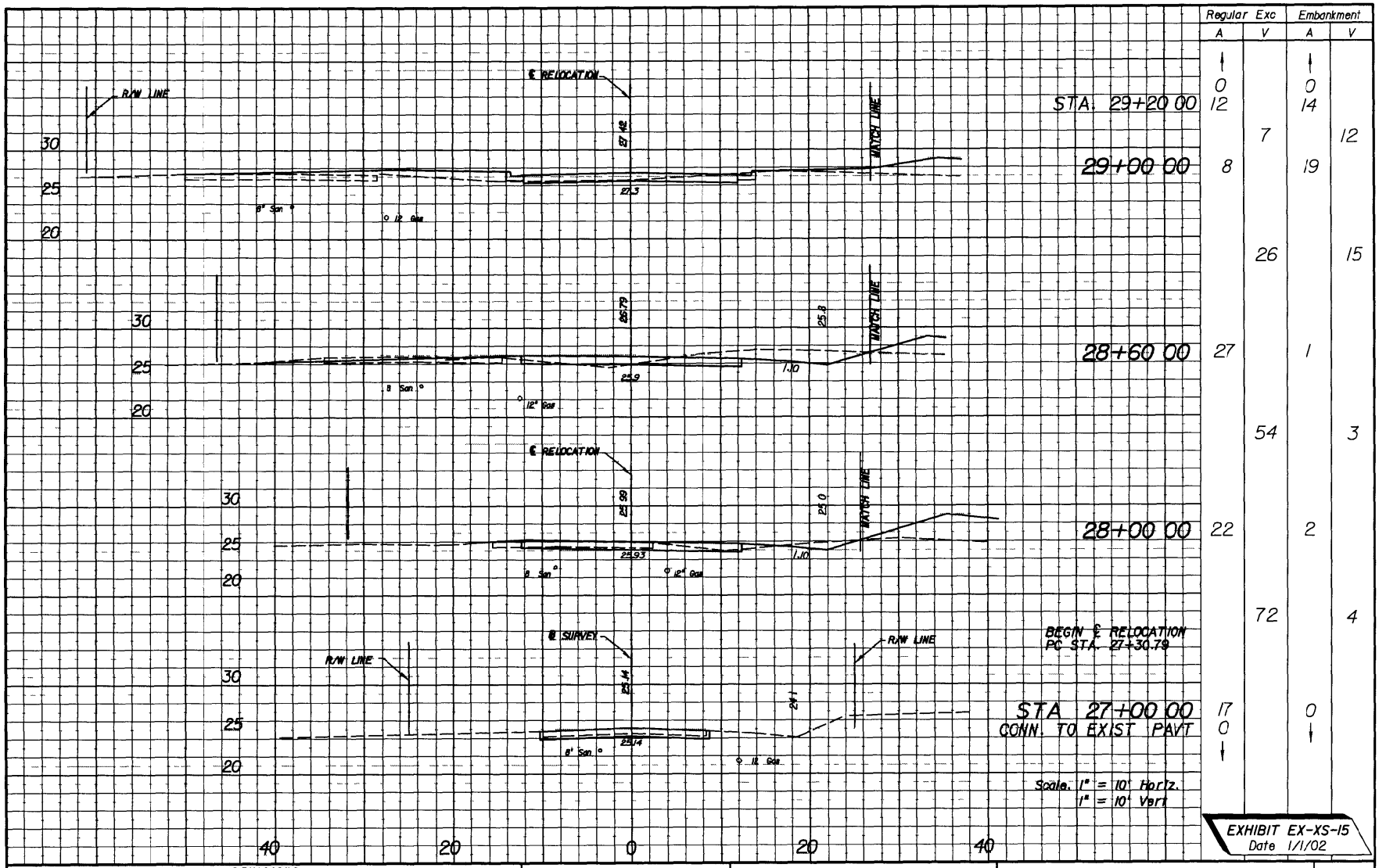
HILL & DALE ENGINEERING INC
P O BOX 2651
TAMPA, FLORIDA 33755
PE LICENSE NO 606655

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID
70	MANATEE	196058-1-52-01

CROSS SECTIONS
JULIA AVE. RELOCATION

SHEET NO 59



	Regular Exc		Embankment	
	A	V	A	V
	↑		↑	
	0		0	
STA. 29+20 00	12		14	
		7		12
29+00 00	8		19	
		26		15
28+60 00	27		1	
		54		3
28+00 00	22		2	
		72		4
BEGIN ℄ RELOCATION PC STA. 27+30.79				
STA 27+00 00 CONN. TO EXIST PAVT	17		0	
	0		↓	

Scale. 1" = 10' Horiz.
1" = 10' Vert

EXHIBIT EX-XS-15
Date 1/1/02

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

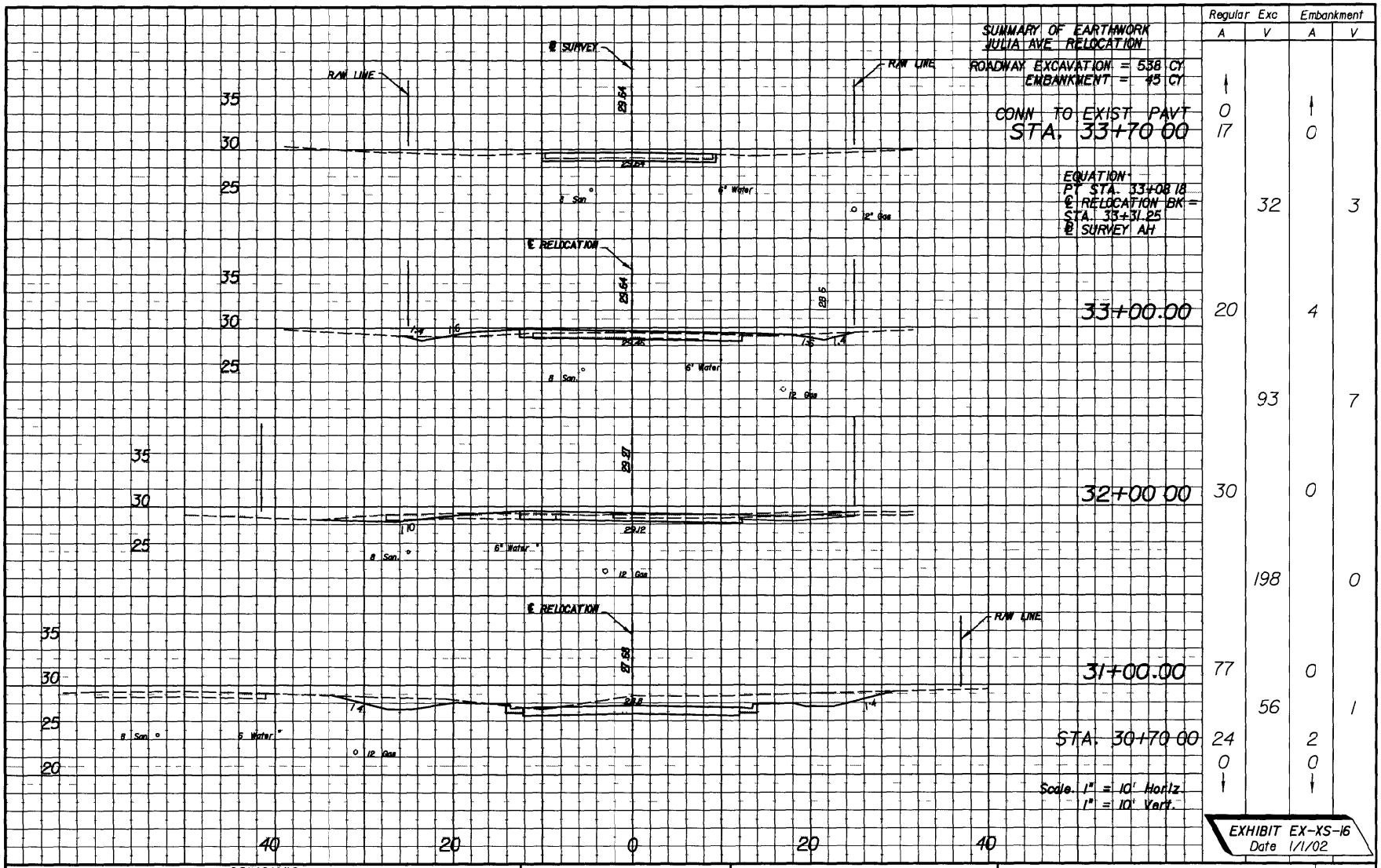
HILL & DALE ENGINEERING INC
P O BOX 2651
TAMPA, FLORIDA 33755
PE LICENSE NO 606655

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID
70	MANATEE	196058-1-52-01

CROSS SECTIONS
JULIA AVE. RELOCATION

SHEET NO 59



SUMMARY OF EARTHWORK
JULIA AVE. RELOCATION

ROADWAY EXCAVATION = 538 CY
EMBANKMENT = 45 CY

	Regular Exc		Embankment	
	A	V	A	V
	↑		↑	
CONN TO EXIST PAVT	0			
STA. 33+70.00	17		0	
EQUATION: PT STA. 33+08.18 ℄ RELOCATION BK = STA. 33+31.25 ℄ SURVEY AH		32		3
33+00.00	20		4	
		93		7
32+00.00	30		0	
		198		0
31+00.00	77		0	
		56		1
STA. 30+70.00	24		2	
	0		0	
	↓		↓	

Scale: 1" = 10' Horiz.
1" = 10' Vert.

EXHIBIT EX-XS-16
Date 1/1/02

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

HILL & DALE ENGINEERING INC
P O BOX 2651
TAMPA, FLORIDA 33755
PE LICENSE NO 606655

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID
70	MANATEE	196058-1-52-01

CROSS SECTIONS
JULIA AVE. RELOCATION

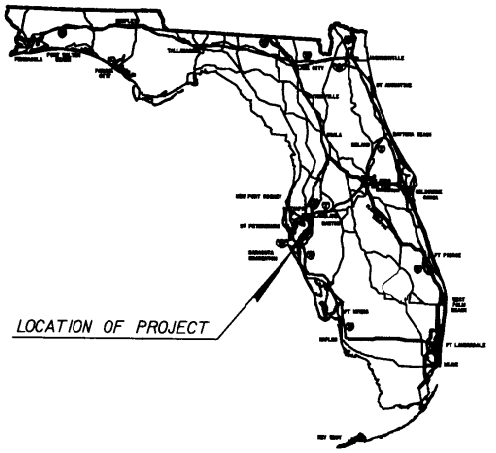
SHEET NO
60

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

CONTRACT PLANS

FINANCIAL PROJECT ID 196058-1-52-01
(FEDERAL FUNDS)
MANATEE COUNTY (13160)
STATE ROAD NO 70

SIGNING AND PAVEMENT MARKING PLANS



INDEX OF SIGNING AND PAVEMENT MARKING PLANS

Note
SHEET S-3 IS NOT INCLUDED IN EXHIBITS

PLANS PREPARED BY

HERSHEL ENGINEERING INC
P.O BOX 8825
CLEWISTON FLA 33555
CONTRACT NO C-0679
VENDOR NO 45

NOTE THE SCALE OF THESE PLANS MAY HAVE CHANGED DUE TO REPRODUCTION

GOVERNING STANDARDS AND SPECIFICATIONS
FLORIDA DEPARTMENT OF TRANSPORTATION
ROADWAY AND TRAFFIC DESIGN STANDARDS
DATED JANUARY 2000, AND
STANDARDS SPECIFICATIONS FOR ROAD AND BRIDGE
CONSTRUCTION DATED 2000
AS AMENDED BY CONTRACT DOCUMENTS

EXHIBIT EX-S-KS
Date 1/1/02

KEY SHEET REVISIONS		
DATE	BY	DESCRIPTION

SIGNING AND PAVEMENT MARKING PLANS
ENGINEER OF RECORD JEREMY S HERSHEL

PE NO 67901

FDOT PROJECT MANAGER STEWART J ERVING

FISCAL YEAR	SHEET NO
01	S-1

TABULATION OF QUANTITIES

FORM 625-000-02
ROADWAY DESIGN 01-2000

PAY ITEM NO	DESCRIPTION	UNIT	SHEET NUMBERS S-3 PLAN	S-3 FINAL	S-4 PLAN	S-4 FINAL	S-5 PLAN	S-5 FINAL	S-6 PLAN	S-6 FINAL	S-7 PLAN	S-7 FINAL	TOTAL THIS SHEET PLAN	TOTAL THIS SHEET FINAL	GRAND TOTAL PLAN	GRAND TOTAL FINAL	REF SHEET
700-40-1	Sign Single Post (Less than 12 Sq ft)	AS			6		6		3		7		22		22		
700-41-10	Sign Multi-Post (50 Sq ft or Less)	AS			1		1		1		1		4		4		
705-71	Tubular Delineator (Flexible)	EA					2		2		2		6		6		
706-3	Retro-Reflective Pavement Markers	EA			60		58		70		40		228		228		
710-6	Directional Arrows, Painted	EA					4		2		4		10		10		
710-7	Pavement Messages, Painted	EA			3		3				3		9		9		
710-21	Skip Traffic Stripe (White)	GM			530		452		532		300		1814		1814		
710-25-61	Solid Traffic Stripe (6") (White)	LF			1195		1020		1392		2085		5665		5665		
710-25-121	Solid Traffic Stripe (12") (White)	LF			235		349		206		540		1330		1330		
710-25-241	Solid Traffic Stripe (24") (White)	LF			192		141		34		129		496		496		
710-26-61	Solid Traffic Stripe (6") (Yellow)	LF			1810		1103		1480		1166		5559		5559		
710-30	Reflective Paint (Island Nose) (Yellow)	SY					6				6		12		12		

SHEET S-3 IS NOT INCLUDED IN EXHIBITS

Note Quantities and items shown are for sheet exhibits only and do not reflect the total quantities and items for a complete signing and pavement marking project

EXHIBIT EX-SQ-1
Date 1/1/02

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

HERSHEL ENGINEERING INC
P O BOX 8825
CLEWISTON FLA 32355
PE LICENSE NO 067901

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID
70	MANATEE	196058-1-52-01

TABULATION OF QUANTITIES

SHEET NO S-2

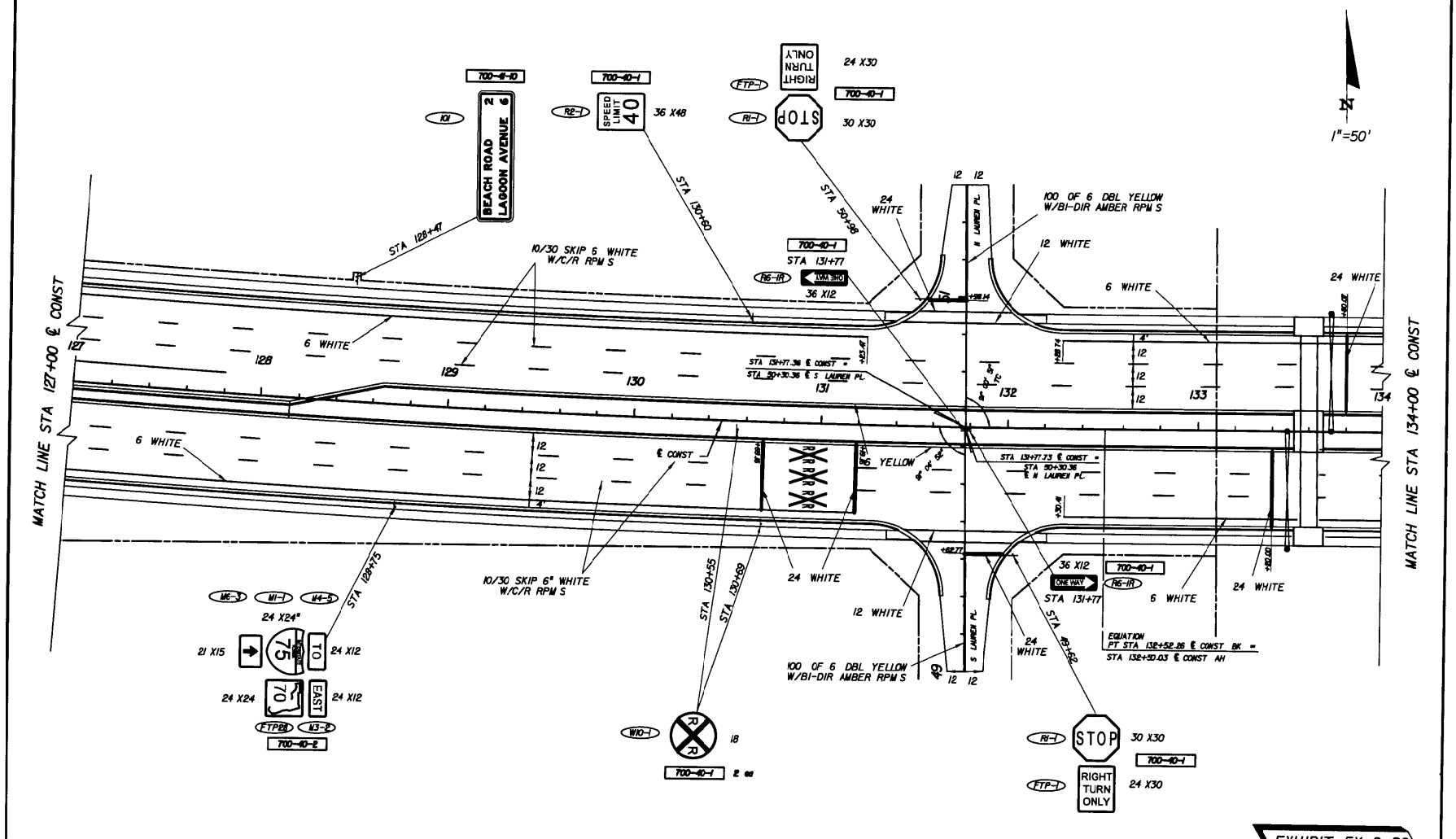


EXHIBIT EX-S-P2
Date. 1/1/02

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

HERSHEL ENGINEERING INC
P O BOX 8825
CLEWISTON FLA 32355
PE LICENSE NO 067901

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID
70	MANATEE	196058-1-52-01

SIGNING AND PAVEMENT MARKINGS

SHEET NO
S-4

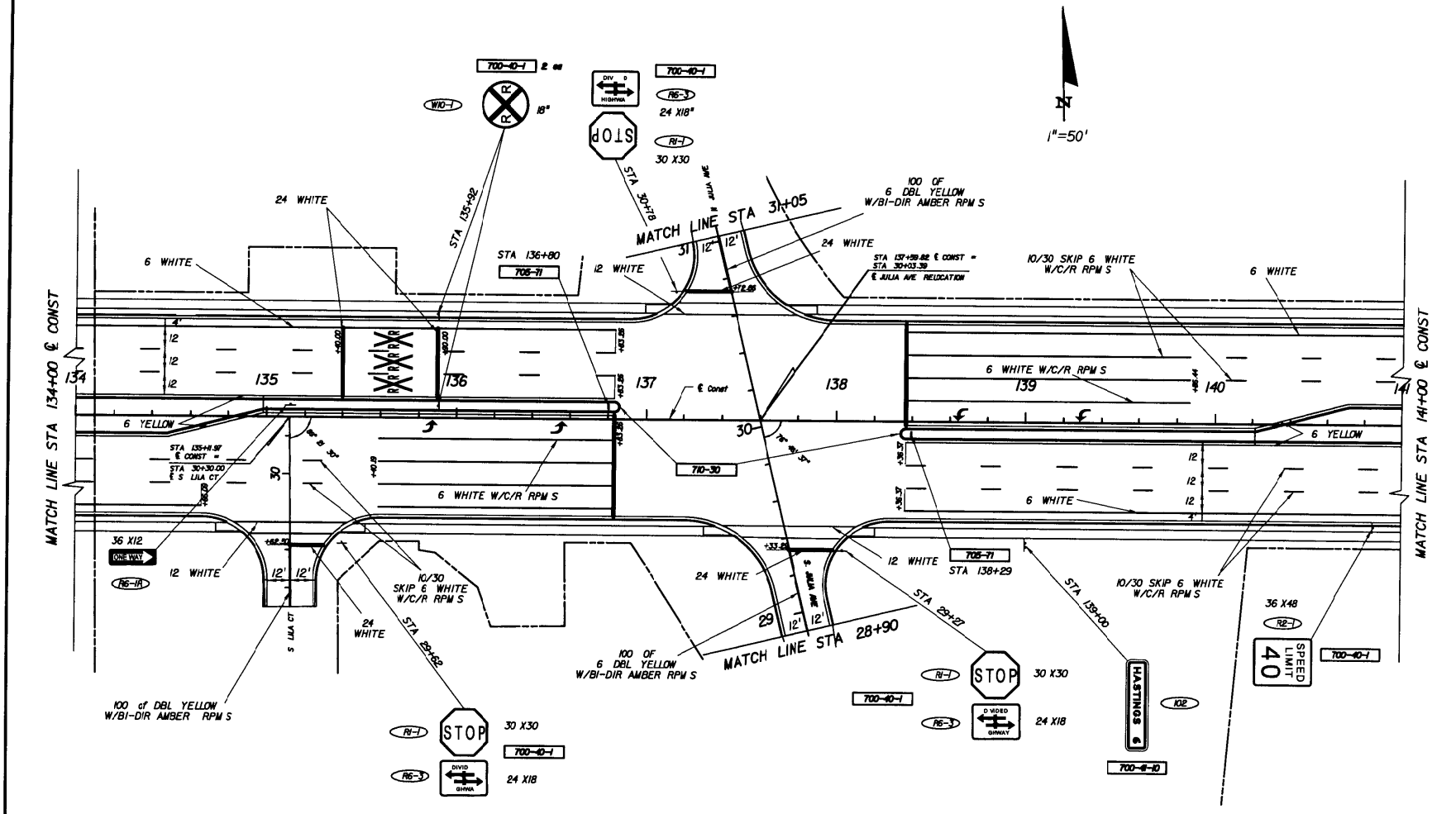


EXHIBIT EX-S-P3
Date. 1/1/02

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

HERSHEL ENGINEERING INC
P O BOX 8825
CLEWISTON FLA 33355
PE LICENSE NO 067901

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID
70	MANATEE	196058-1-52-01

SIGNING AND PAVEMENT MARKINGS

SHEET NO
S-5

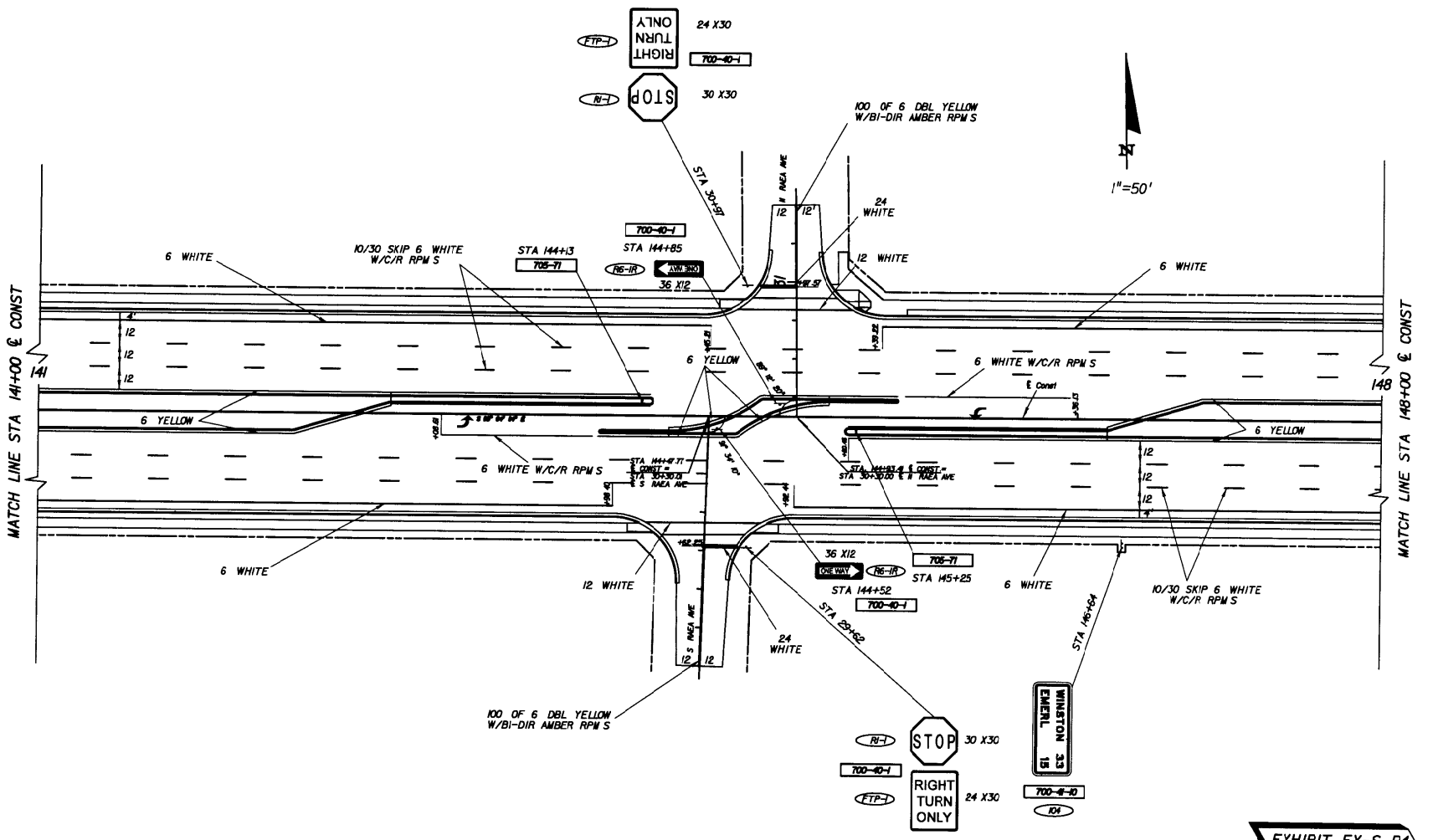


EXHIBIT EX-S-P4
Date. 1/1/02

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

HERSHEL ENGINEERING INC
P O BOX 8825
CLEWISTON FLA 32355
PE LICENSE NO 067901

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID
70	MANATEE	196058-1-52-01

SIGNING AND PAVEMENT MARKINGS

SHEET NO
S-6

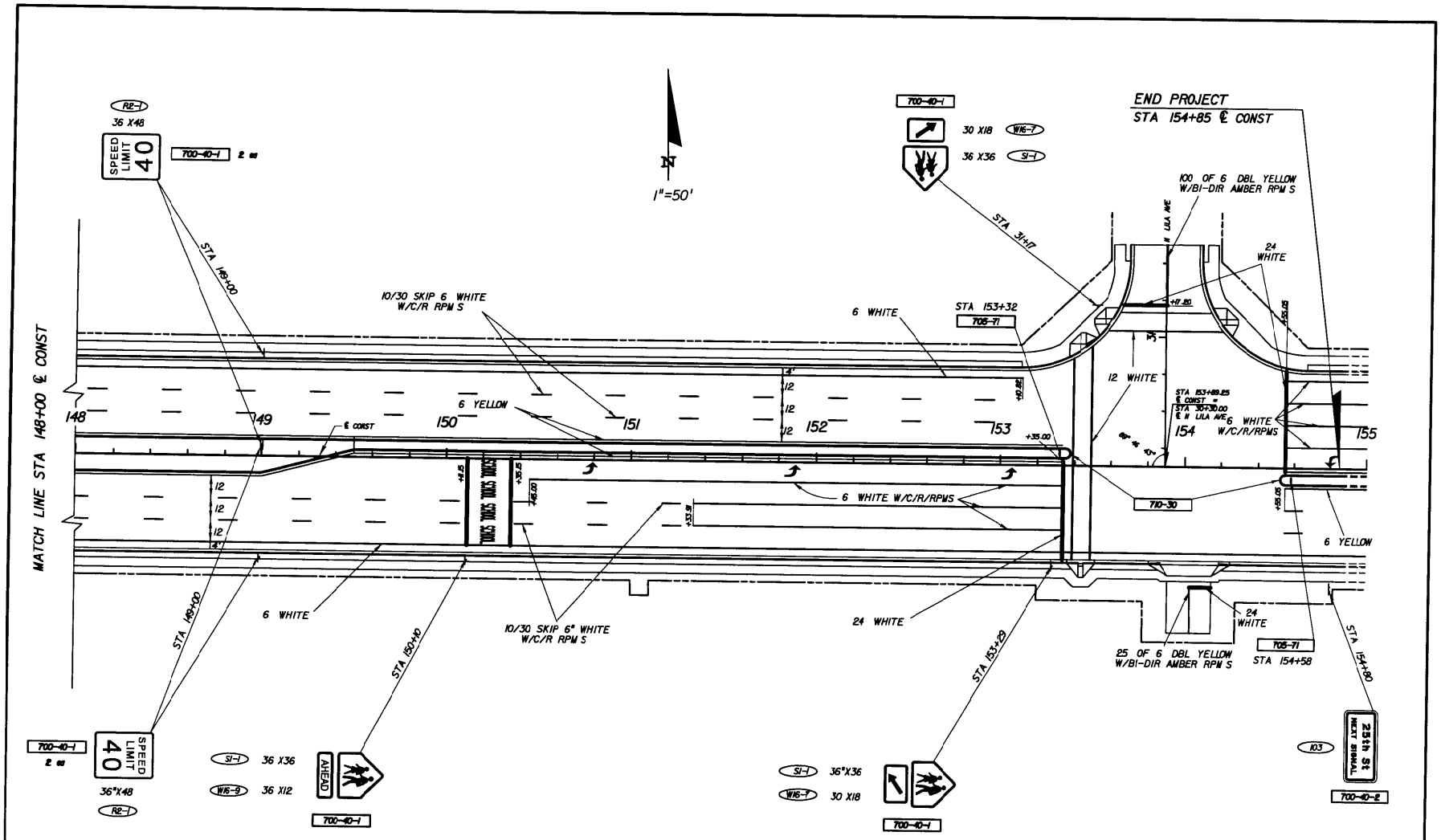


EXHIBIT EX-S-P5
Date. 1/1/02

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

HERSHEL ENGINEERING INC
P O BOX 8825
CLEWISTON FLA 32355
PE LICENSE NO 067901

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID
70	MANATEE	196058-1-52-01

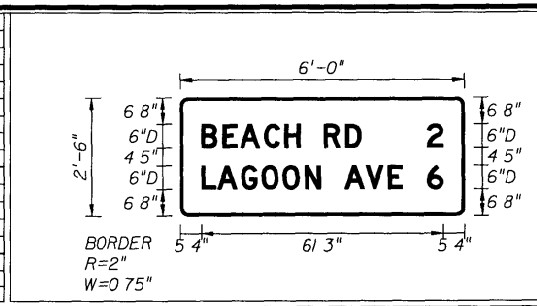
SIGNING AND PAVEMENT MARKINGS

SHEET NO
S-7

SIGN NUMBER	101
QUANITY	1
WIDTH	6 -0
HEIGHT	2 -6
BORDER WIDTH	0 75
BORDER RADII	2
BACKGROUND COLOR	White
LEGEND & BORDER COLOR	Black
STATIONS(S)	128+47 LT

SYMBOL(S)	X	Y	WID	HT

SIGN NUMBER	CLEARANCE EDGE OF LANE	COLUMN SIZE		AVERAGE LENGTH
101	11.7 FT	3lb U CHNL		12.5 FT

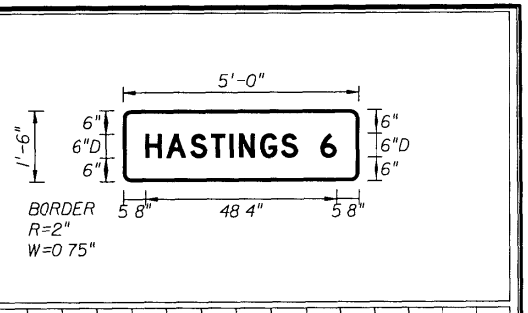


COPY	B	E	A	C	H	R	D		L		
SPACE	5 4	10 8	15 2	21 4	26 5	36 6	42 1		40 7		
COPY	2		L								
SPACE	62 6		4 1								
COPY	L	A	G	O	D	N	A	V	E		L
SPACE	5 4	9 4	15 5	20 7	26 1	31 7	41 8	47 2	52 8		51 1
COPY	6		L								
SPACE	62 5		4 1								
COPY											
SPACE											
COPY											
SPACE											

SIGN NUMBER	102
QUANITY	1
WIDTH	5 -0
HEIGHT	1 -6
BORDER WIDTH	0 75
BORDER RADII	2
BACKGROUND COLOR	White
LEGEND & BORDER COLOR	Black
STATIONS(S)	139+00 RT

SYMBOL(S)	X	Y	WID	HT

SIGN NUMBER	CLEARANCE EDGE OF LANE	COLUMN SIZE		AVERAGE LENGTH
102	10.65 FT	3lb U CHNL		12.5 FT

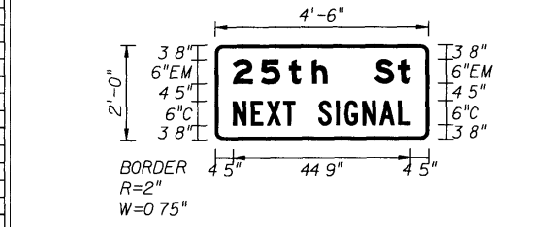


COPY	H	A	S	T	I	N	G	S		L	
SPACE	5 8	10 9	17 1	22 2	27	29 4	34 9	40		38 3	
COPY	6		L								
SPACE	50 1		4 1								
COPY											
SPACE											
COPY											
SPACE											
COPY											
SPACE											
COPY											
SPACE											

SIGN NUMBER	103
QUANITY	1
WIDTH	4 -6
HEIGHT	2 -0
BORDER WIDTH	0 75
BORDER RADII	2
BACKGROUND COLOR	White
LEGEND & BORDER COLOR	Black
STATIONS(S)	154+80 RT

SYMBOL(S)	X	Y	WID	HT

SIGN NUMBER	CLEARANCE EDGE OF LANE	COLUMN SIZE		AVERAGE LENGTH
103	11.0 FT	2.5lb U CHNL		12 FT

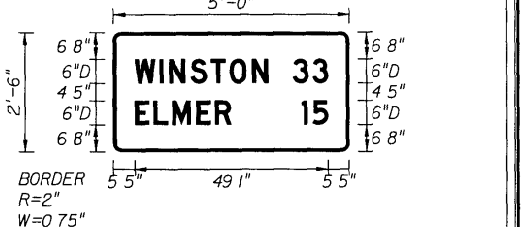


COPY	S	T		L							
SPACE	40 4	46 4		9 1							
COPY	2	5	T	H		L					
SPACE	4 5	11 7	18 8	24 6		23 9					
COPY	N	E	X	T		L					
SPACE	4 5	9 1	13 1	17 3		15 8					
COPY	S	I	G	N	A	L		L			
SPACE	25 2	30 8	12 9	37 4	41 7	46 4		23 3			
COPY											
SPACE											
COPY											
SPACE											

SIGN NUMBER	104
QUANITY	1
WIDTH	5 -0
HEIGHT	2 -6
BORDER WIDTH	0 75
BORDER RADII	2
BACKGROUND COLOR	White
LEGEND & BORDER COLOR	Black
STATIONS(S)	146+64 RT

SYMBOL(S)	X	Y	WID	HT

SIGN NUMBER	CLEARANCE EDGE OF LANE	COLUMN SIZE		AVERAGE LENGTH
104	11.8 FT	2.5lb U CHNL		12.5 FT



COPY	W	I	N	S	T	O	N		L		
SPACE	5 5	11 8	14 2	19 7	24 8	29 5	35 3		33 9		
COPY	3	3		L							
SPACE	45 3	50 5		9 2							
COPY	E	L	M	E	R		L				
SPACE	5 5	10 2	15	21 1	25 9		24 5				
COPY	I	S		L							
SPACE	47 6	50 5		7							
COPY											
SPACE											
COPY											
SPACE											

EXHIBIT EX-S-GSI
Date. 1/1/02

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

HERSHEL ENGINEERING INC
P O BOX 8825
CLEWISTON FLA 32355
CONTRACT NO C-0679
VENDOR NO 45

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID
70	MANATEE	196058-1-52-01

GUIDE SIGN WORK SHEET

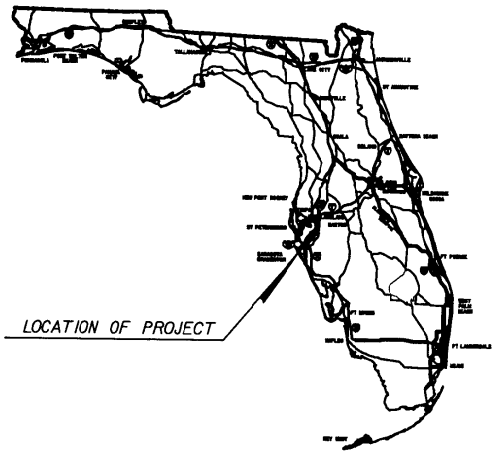
SHEET NO
S-8

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

CONTRACT PLANS

FINANCIAL PROJECT ID 196058-1-52-01
(FEDERAL FUNDS)
MANATEE COUNTY (13160)
STATE ROAD NO 70

SIGNALIZATION PLANS



INDEX OF SIGNALIZATION PLANS

Note
SHEET T-3 IS NOT INCLUDED IN EXHIBITS

PLANS PREPARED BY

HERSHEL ENGINEERING INC
P.O BOX 8825
CLEWISTON FLA 33355
CONTRACT NO C-0679
VENDOR NO 45

NOTE THE SCALE OF THESE PLANS MAY HAVE CHANGED DUE TO REPRODUCTION

GOVERNING STANDARDS AND SPECIFICATIONS
FLORIDA DEPARTMENT OF TRANSPORTATION
ROADWAY AND TRAFFIC DESIGN STANDARDS
DATED JANUARY 2000, AND
STANDARDS SPECIFICATIONS FOR ROAD AND BRIDGE
CONSTRUCTION DATED 2000
AS AMENDED BY CONTRACT DOCUMENTS

EXHIBIT EX-TKS-1
Date 1/1/02

KEY SHEET REVISIONS		
DATE	BY	DESCRIPTION

SIGNALIZATION PLANS
ENGINEER OF RECORD JEREMY S HERSHEL

PE NO 67901

FDOT PROJECT MANAGER STEWART J ERVING

FISCAL YEAR	SHEET NO
01	T-1

TABULATION OF QUANTITIES

FORM 625-000-02
ROADWAY DESIGN 01-2000

PAY ITEM NO	DESCRIPTION	UNIT	SHEET NUMBERS T-3 PLAN	T-3 FINAL	T-4 PLAN	T-4 FINAL											TOTAL THIS SHEET PLAN	TOTAL THIS SHEET FINAL	GRAND TOTAL PLAN	GRAND TOTAL FINAL	REF SHEET
630-1-12	CONDUIT (UNDERGROUND)	LF			794												794		794		
630-1-13	CONDUIT (UNDER PAVEMENT)	LF			247												247		247		
632-7-1	SIGNAL CABLE	PI			1												1		1		
635-1-11	PULL AND JUNCTION BOXES	EA			10												10		10		
639-1-22	ELECTRICAL POWER SERVICE	AS			1												1		1		
639-2-1	ELECTRICAL SERVICE WIRE	LF			45												45		45		
641-41-112	CONCRETE STRAIN POLE	EA			1												1		1		
649-112-002	MAST ARM ASSEMBLY	EA			1												1		1		
649-113-003	MAST ARM ASSEMBLY	EA			2												2		2		
649-114-004	MAST ARM ASSEMBLY	EA			1												1		1		
650-51-312	TRAFFIC SIGNAL (3-SECTION)	AS			8												8		8		
650-51-512	TRAFFIC SIGNAL (5-SECTION)	AS			2												2		2		
653-171	PEDESTRIAN SIGNALS	AS			2												2		2		
653-172	PEDESTRIAN SIGNALS	AS			1												1		1		
659-101	SIGNAL HEAD AUXILIARIES	EA			4												4		4		
659-118	SIGNAL HEAD AUXILIARIES	EA			2												2		2		
660-1-103	INDUCTIVE LOOP DETECTOR (2 CHANNEL)	EA			6												6		6		
660-2-101	LOOP ASSEMBLY (TYPE A)	AS			6												6		6		
660-2-106	LOOP ASSEMBLY (TYPE F)	AS			4												4		4		
665-11	PEDESTRIAN DETECTOR	EA			4												4		4		
670-5-110	ACTUATED SOLID STATE CONTROLLER ASSEMBLY	AS			1												1		1		

SHEET T-3 IS NOT INCLUDED IN EXHIBITS

Note Quantities and items shown are for sheet exhibits only and do not reflect the total quantities and items for a complete signalization project

EXHIBIT EX-TQ-1
Date. 1/1/02

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

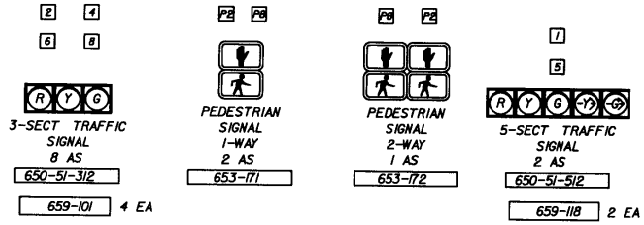
HERSHEL ENGINEERING INC
P O BOX 8825
CLEWISTON FLA 33935
PE LICENSE NO 06790

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID
70	MANATEE	196058-1-52-01

TABULATION OF QUANTITIES

SHEET NO
T-2



SIGNAL HEADS 1 AND 6, 2 AND 5 REQUIRE BACKPLATES

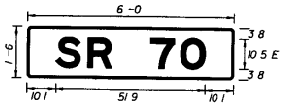
SIGNAL HEAD DETAIL

CONTROLLER OPERATIONS:

1 MAJOR STREET IS SR 70 (MOVEMENTS 2 AND 6), AND MINOR STREET IS N LILA AVE, (MOVEMENTS 4 AND 8)

2 STANDARD SIGNAL OPERATING PLAN NO 7 WITH THE FOLLOWING

(A) CONCURRENT/ ACTUATED PEDESTRIANS FOR MOVEMENTS 2 (P2) AND MOVEMENT 8 (P8) THE FORCE-OFF FUNCTION FOR PHASE 2 SHALL NOT BE EFFECTIVE DURING THE TIMING OF PEDESTRIAN CLEARANCE INTERVAL FOR P8



CONTROLLER TIMINGS					
TIMING FUNCTION		1		2	
MOVEMENT NUMBER		2	6	4	8
TIMING FUNCTION	MINIMUM GREEN	5	5	7	7
	EXTENSION	5	5	3	3
	MAXIMUM GREEN 1	30	30	15	15
	MAXIMUM GREEN 2				
	YELLOW CLEARANCE	4	4	4	4
	ALL RED	1 5	1 5	1 5	1 5
	PEDESTRIAN WALK	9			15
	PED CLEARANCE	18			30
	RECALL	MIN	MIN.		

DETECTORS FOR LOOPS				
LOOP	NO OF LOOPS	NO OF NEW DETS	NO OF EXIST DETS	DELAY TIME (SEC)
L-2	3	1		
L-5	1	1		
L-4	1	1		
L-6	3	1		
L-1	1	1		
L-8	1	1		

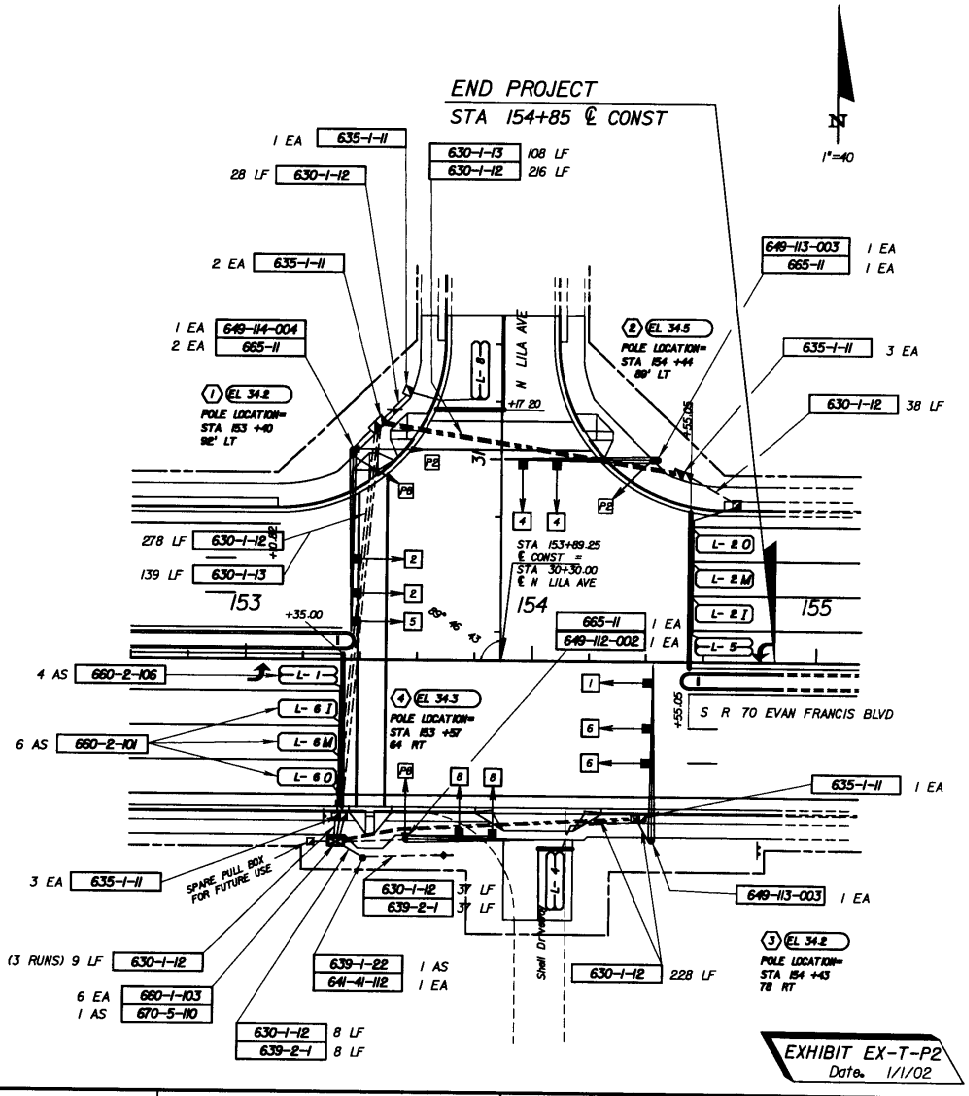


EXHIBIT EX-T-P2
Date. 1/1/02

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

HERSHEL ENGINEERING INC
P O BOX 8825
CLEWISTON FLA 32355
PE LICENSE NO 067901

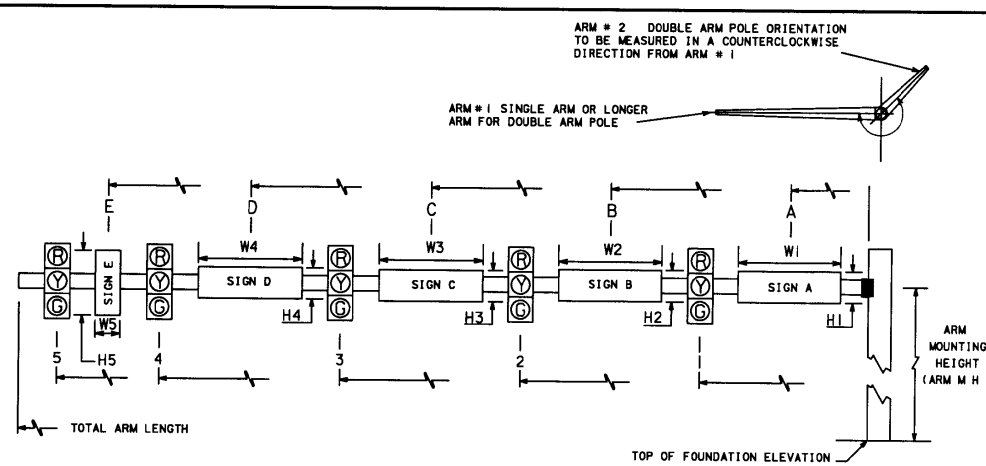
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID
70	MANATEE	196058-1-52-01

SIGNALIZATION

SHEET NO
T-4

SPECIAL INSTRUCTIONS					
ID NO	PED BUTTON		PED SIGNALS		HANDHOLE LOCATION
1	90	180	0	90	
2	270		0		
4	180		90		



* DENOTES NUMBER OF SECTIONS IN SIGNAL HEAD ASSEMBLY

ID NO	SHEET NO	LOCATION BY STA	TOP OF FOUNDATION ELEVATION	RDWY ARM NO	CROWN ELEV	SIGNAL DATA: SIGNAL V/H	BACK PLATES Y/N	PED SIGNAL Y/N	DISTANCE FROM POLE: 1	*	2	*	3	*	4	*	5	*	TOTAL ARM LENGTH	ARM M H	∠ BETWEEN DUAL ARMS 90/270	SIGN DATA: DISTANCE FROM POLE / HEIGHT AND WIDTH OF SIGN: A	H1	W1	B	H2	W2	C	H3	W3	D	H4	W4	E	H5	W5	PAINT COLOR
1	T-3	153+40	34 20	1	35 10	H	Y	Y	37 0	3	49 0	3							62	19																	
				2																																	
2	T-3	154+44	34 50	1	34 90	H	N	Y	34 5	3	46 5	3							52	19																	
				2																																	
3	T-3	154+43	34 20	1	34 75	H	Y	N	26 0	3	38 0	3							60	19'																	
				2																																	
4	T-3	153+57	34 30	1	35 10	H	N	Y	17 5	3	29 5	3							44	19																	
				2																																	
				1																																	
				2																																	
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EXHIBIT EX-T-MA
Date. 1/1/02

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

HERSHEL ENGINEERING INC
P O BOX 8825
CLEWISTON FLA 32355
PE LICENSE NO 067901

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO	COUNTY	FINANCIAL PROJECT ID
70	MANATEE	196058-1-52-01

MAST ARM TABULATION

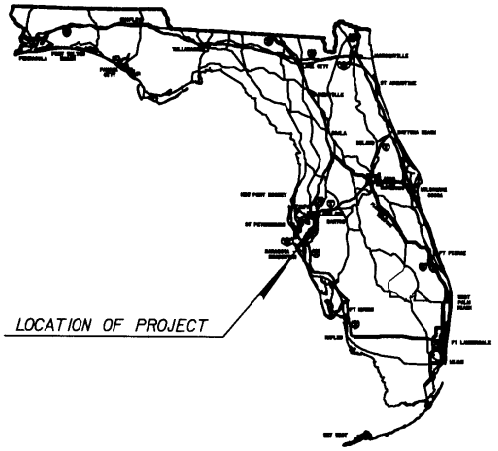
SHEET NO
T-5

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

CONTRACT PLANS

FINANCIAL PROJECT ID 196058-1-52-01
(FEDERAL FUNDS)
MANATEE COUNTY (13160)
STATE ROAD NO 70

LIGHTING PLANS



INDEX OF LIGHTING PLANS

PLANS PREPARED BY
HERSHEL ENGINEERING INC
P O BOX 8825
CLEWISTON FLA 33435
CONTRACT NO C-0679
VENDOR NO 45

NOTE THE SCALE OF THESE PLANS MAY HAVE CHANGED DUE TO REPRODUCTION

GOVERNING STANDARDS AND SPECIFICATIONS
FLORIDA DEPARTMENT OF TRANSPORTATION
ROADWAY AND TRAFFIC DESIGN STANDARDS
DATED JANUARY 2000, AND
STANDARDS SPECIFICATIONS FOR ROAD AND BRIDGE
CONSTRUCTION DATED 2000
AS AMENDED BY CONTRACT DOCUMENTS

EXHIBIT EX-LKS-1
Date 1/1/02

KEY SHEET REVISIONS		
DATE	BY	DESCRIPTION

LIGHTING PLANS
ENGINEER OF RECORD JEREMY S HERSHEL

PE NO. 67390

FDOT PROJECT MANAGER STEWART J ERVING

FISCAL YEAR	SHEET NO
01	L-1

TABULATION OF QUANTITIES

FORM 625-000-02
ROADWAY DESIGN 01-2000

PAY ITEM NO	DESCRIPTION	UNIT	SHEET NUMBERS L-5 PLAN	L-5 FINAL	L-6 PLAN	L-6 FINAL	L-7 PLAN	L-7 FINAL	L-8 PLAN	L-8 FINAL	L-9 PLAN	L-9 FINAL					TOTAL THIS SHEET PLAN	TOTAL THIS SHEET FINAL	GRAND TOTAL PLAN	GRAND TOTAL FINAL	REF SHEET
555-1-1	DIRECTIONAL BORE (LESS THAN 6")	LF	168		111		316		115		100						810		810		
620-1-1	GROUNDING ELECTRODE (FURNISH & INSTALL)	LF	100		110		170		130		90						600		600		
715-1-113	CONDUCTOR (FURNISH & INSTALL) (INSULATED NO 6)	LF	3264		3525		4755		4365		3537						19446		19446		
715-2-114	CONDUIT (FURNISH & INSTALL UNDERGROUND) (PVC SCHEDULE 40) (1½")	LF	920		1064		1249		1340		1097						5670		5670		
715-7-11	LOAD CENTER (FURNISH & INSTALL) (SECONDARY VOLTAGE)	EA	0		0		1		0		0						1		1		
715-14-11	PULL BOX (FURNISH & INSTALL) (ROADSIDE) (MOULDED)	EA	12		11		16		13		10						62		62		
715-500-1	POLE CABLE DISTRIBUTION SYSTEM (CONVENTIONAL)	EA	8		7		9		9		8						41		41		
715-612-222	LIGHTING POLE COMPLETE (ALUMINUM, STANDARD) (FURNISH & INSTALL) (MOUNTING HEIGHT 40')	EA	8		7		9		9		8						41		41		

Note Quantities And Items Shown Are For Sheet Exhibits Only And Do Not Reflect The Total Quantities And Items For A Complete Lighting Project

THE PAY ITEM FOR GROUNDING ELECTRODES WILL NOT BE REQUIRED, BEGINNING WITH THE JULY 2002 LETTING DUE TO THE IMPLEMENTATION OF NEW GROUNDING REQUIREMENTS SEE CHAPTER 7, VOLUME 1 OF THE PLANS PREPARATION MANUAL FOR INFORMATION REGARDING THIS CRITERIA

EXHIBIT EX-LQ-1
Date 1/1/02

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

HERSHEL ENGINEERING INC
P O BOX 8825
CLEWISTON FLA 32355
PE LICENSE NO 067901

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID
70	MANATEE	196058-1-52-01

TABULATION OF QUANTITIES

SHEET NO L-2

FORM 625-000-01
ROADWAY DESIGN 01-2000

POLE DATA

POLE NO	CIRCUIT	STATION & OFFSET	DIST OR ARM	LUMINAIRE WATTAGE	MOUNTING HEIGHT	POLE SETBACK FROM EDGE OF PAVEMENT	PAY ITEM
1	A-I	121+00 60 75 LT ℄ Const	10	250	40	9 75	715-612-222
2	A-III	121+90 60 75 RT ℄ Const	10	250	40	9 75	715-612-222
3	A-I	122+60 60 75 LT ℄ Const	10	250	40	9 75	715-612-222
4	A-III	123+30 75 RT ℄ Const	10	250	40	9 75	715-612-222
5	A-I	124+20 60 75 LT ℄ Const	10	250	40	9 75	715-612-222
6	A-III	125+15 60 75 RT ℄ Const	10	250	40	9 75	715-612-222
7	A-I	126+00 60 75 LT ℄ Const	10	250	40	9 75	715-612-222
8	A-III	125+15 60 75 RT ℄ Const	10	250	40	9 75	715-612-222
9	A-I	127+63 60 75 Lt ℄ Const	10	250	40	9 75	715-612-222
10	A-III	128+50 60 75 Rt ℄ Const	10	250	40	9 75	715-612-222
11	A-I	129+46 60 75 Lt ℄ Const	10	250	40	9 75	715-612-222
12	A-III	130+36 60 75 Rt ℄ Const	10	250	40	9 75	715-612-222
13	A-I	131+32 60 75 Lt ℄ Const	10	250	40	9 75	715-612-222
14	A-III	132+25 60 75 Rt ℄ Const	10	250	40	9 75	715-612-222
15	A-I	133+16 60 75' Lt ℄ Const	10	250	40	9 75	715-612-222
16	A-III	134+14 60 75 Rt ℄ Const	10	250	40	9 75	715-612-222
17	A-I	134+94 63 Lt ℄ Const	10	250	40	12 0	715-612-222
18	A-III	135+69 60 75 Rt ℄ Const	10	250	40	9 75	715-612-222
19	A-I	136+54 60 75 Lt ℄ Const	10	250	40	9 75	715-612-222
20	A-III	137+29 60 75 Rt ℄ Const	10	250	40	9 75	715-612-222
21	A-II	138+14 60 75 Lt ℄ Const	10	250	40	9 75	715-612-222
22	A-IV	139+00 60 75 Rt ℄ Const	10	250	40	9 75	715-612-222
23	A-II	139+76 60 75 Lt ℄ Const	10	250	40	9 75	715-612-222
24	A-IV	140+46 60 75 Rt ℄ Const	10	250	40	9 75	715-612-222
25	A-II	141+32 60 75 Lt ℄ Const	10	250	40	9 75	715-612-222
26	A-IV	142+12 60 75 Rt ℄ Const	10	250	40	9 75	715-612-222
27	A-II	142+92 60 75 Lt ℄ Const	10	250	40	9 75	715-612-222
28	A-IV	143+72 60 75 Rt ℄ Const	10	250	40	9 75	715-612-222
29	A-II	144+52 60 75 Lt ℄ Const	10	250	40'	9 75	715-612-222
30	A-IV	145+37 60 75 Rt ℄ Const	10	250	40'	9 75	715-612-222
31	A-II	146+22 60 75 Lt ℄ Const	10	250	40'	9 75	715-612-222
32	A-IV	147+07 60 75 Rt ℄ Const	10	250	40	9 75	715-612-222
33	A-II	147+92 60 75 Lt ℄ Const	10	250	40	9 75	715-612-222
34	A-IV	148+77 60 75 Rt ℄ Const	10	250	40	9 75	715-612-222
35	A-II	149+62 60 75 Lt ℄ Const	10	250	40	9 75	715-612-222
36	A-IV	150+47 60 75 Rt ℄ Const	10	250	40	9 75	715-612-222
37	A-II	151+32 60 75 Lt ℄ Const	10	250	40	9 75	715-612-222
38	A-IV	152+37 60 75 Rt ℄ Const	10	250	40	9 75	715-612-222
39	A-II	153+12 60 75 Lt ℄ Const	10	250	40	9 75	715-612-222
40	A-IV	154+22 60 75 Rt ℄ Const	10	250	40	9 75	715-612-222
41	A-II	154+82 60 75 Lt ℄ Const	10	250	40	9 75	715-612-222

CONVENTIONAL LIGHTING DESIGN CRITERIA		HIGH MAST LIGHTING DESIGN CRITERIA (N/A)	
Average Initial Intensity	1 5 F C	Average Initial Intensity	___ to ___ F C
Uniformity Ratio Avg /Min	4 1 Or Less	Uniformity Ratio Avg /Min	3 1 Or Less
Max /Min	10 1 Or Less	Max /Min	10 1 Or Less
Wind Speed	90 MPH	Wind Speed	MPH

LEGEND

SYMBOLS — **DESCRIPTION**

- 250 Watt High Pressure Sodium Luminaire, Designed For Medium Semi-Cutoff Type III Distribution Integral Auto-Regulator Type Ballast Wired For 480 Volt Operation Single Arm Pole (Mounting Height 40 Feet) Use GE Curve 7321 Or Equal
- Size 1/2" Schedule 40 PVC Conduit With THW Or THWN Conductors Inside (Conduit And Conductor Size As Shown On Plan Sheets Run One (1) No 6 AWG Copper Bond Conductor (TW Green Insulation) Inside Conduit With Other Conductors
- Size 2" Schedule 40 PVC Conduit Or Equal, Directional Bored Under Pavement With THW Or THWN Conductors Inside (Conduit And Conductor Size As Shown On Plan Sheets Extend Conduit Beyond Edge Of Pavement To Pull Boxes Run One (1) No 6 AWG Copper Bond Conductor (TW Green Insulation) Inside Conduit With Other Conductors
- Distribution Point For Requirements See Index No 17504 Of Design Standards
- Pull Box For Specifications See Section 635 Of The Standard Specifications For Road And Bridge Construction And The Minimum Specifications For Traffic Control Signal Devices

EXHIBIT EX-LPD-1
Date 1/1/02

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

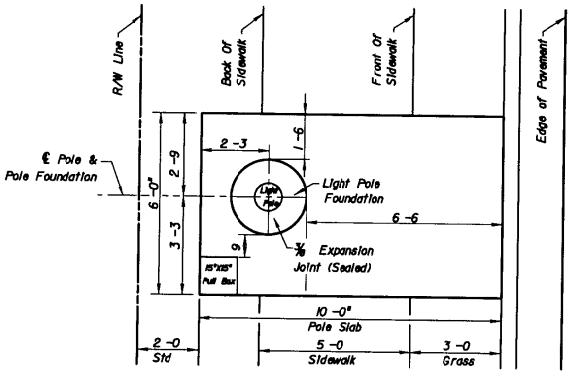
HERSHEL ENGINEERING INC
P O BOX 8825
CLEWISTON FLA 32355
PE LICENSE NO 067901

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

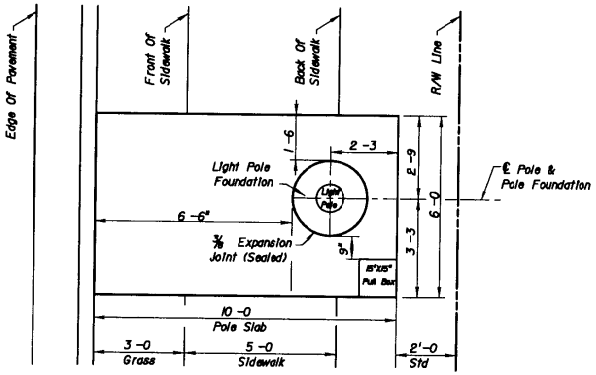
ROAD NO	COUNTY	FINANCIAL PROJECT ID
70	MANATEE	196058-1-52-01

POLE DATA AND LEGEND

SHEET NO
L-3



POLE SLAB DETAIL



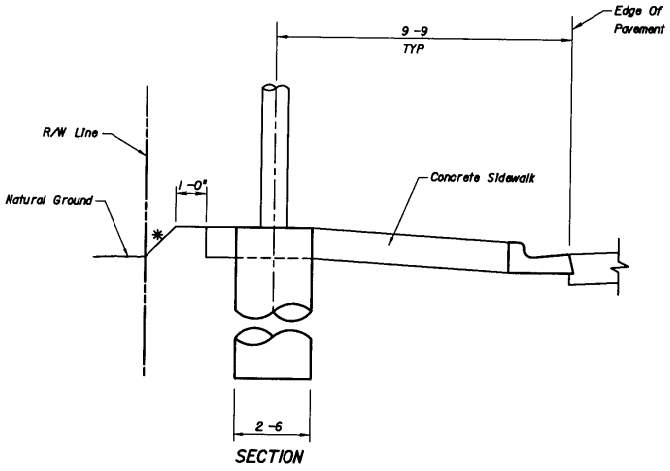
POLE SLAB DETAIL

NOTES

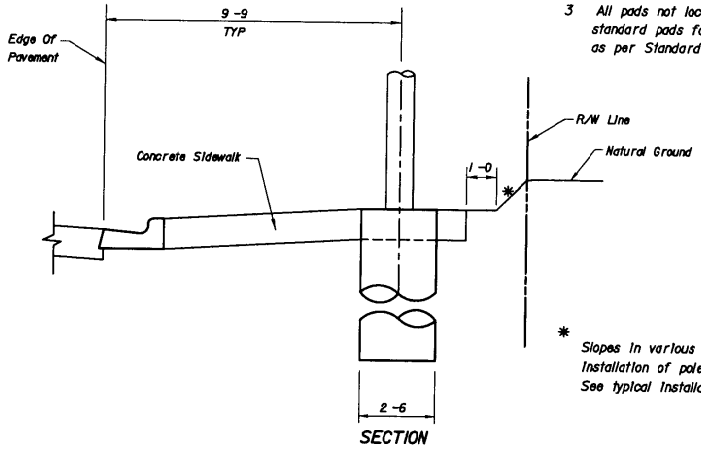
1 The pole slab details shown on this sheet are for those areas where R/W and/or slopes prevent the use of the standard slab detail, as shown on Index No 17500

2 For pole locations in or adjacent to the sidewalk, concrete slabs are to be paid for as Concrete Sidewalk 4" (thick)

3 All pads not located in sidewalk area, are standard pads for pull boxes and shall be installed as per Standard Index No 17500, sheet 2 of 3



POLE INSTALLATION FOR CUT SECTIONS



POLE INSTALLATION FOR FILL SECTIONS

* Slopes in various locations are to be adjusted to accommodate installation of poles Dress slopes 1' back of pole slab See typical installation details for these adjustments

EXHIBIT EX-LD-1
Date 1/1/02

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

HERSHEL ENGINEERING INC
P O BOX 8825
CLEWISTON FLA 32355
PE LICENSE NO 067901

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID
70	MANATEE	196058-1-52-01

LIGHTING DETAILS

SHEET NO
L-4

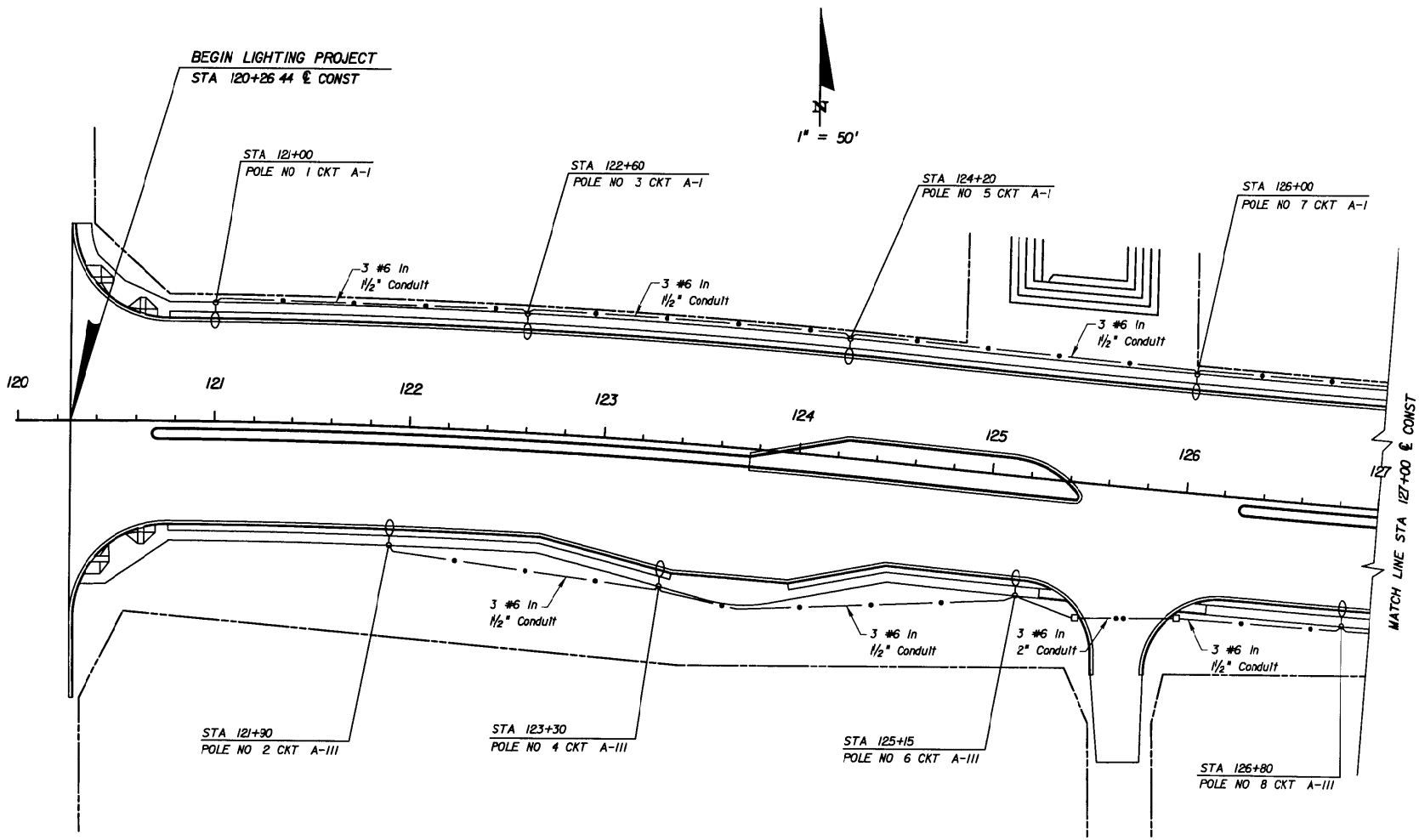


EXHIBIT EX-L-P1
Date 1/1/02

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

HERSHEL ENGINEERING INC
P O BOX 8825
CLEWISTON FLA 32355
PE LICENSE NO 067901

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID
70	MANATEE	196058-1-52-01

LIGHTING PLAN

SHEET NO
L-5

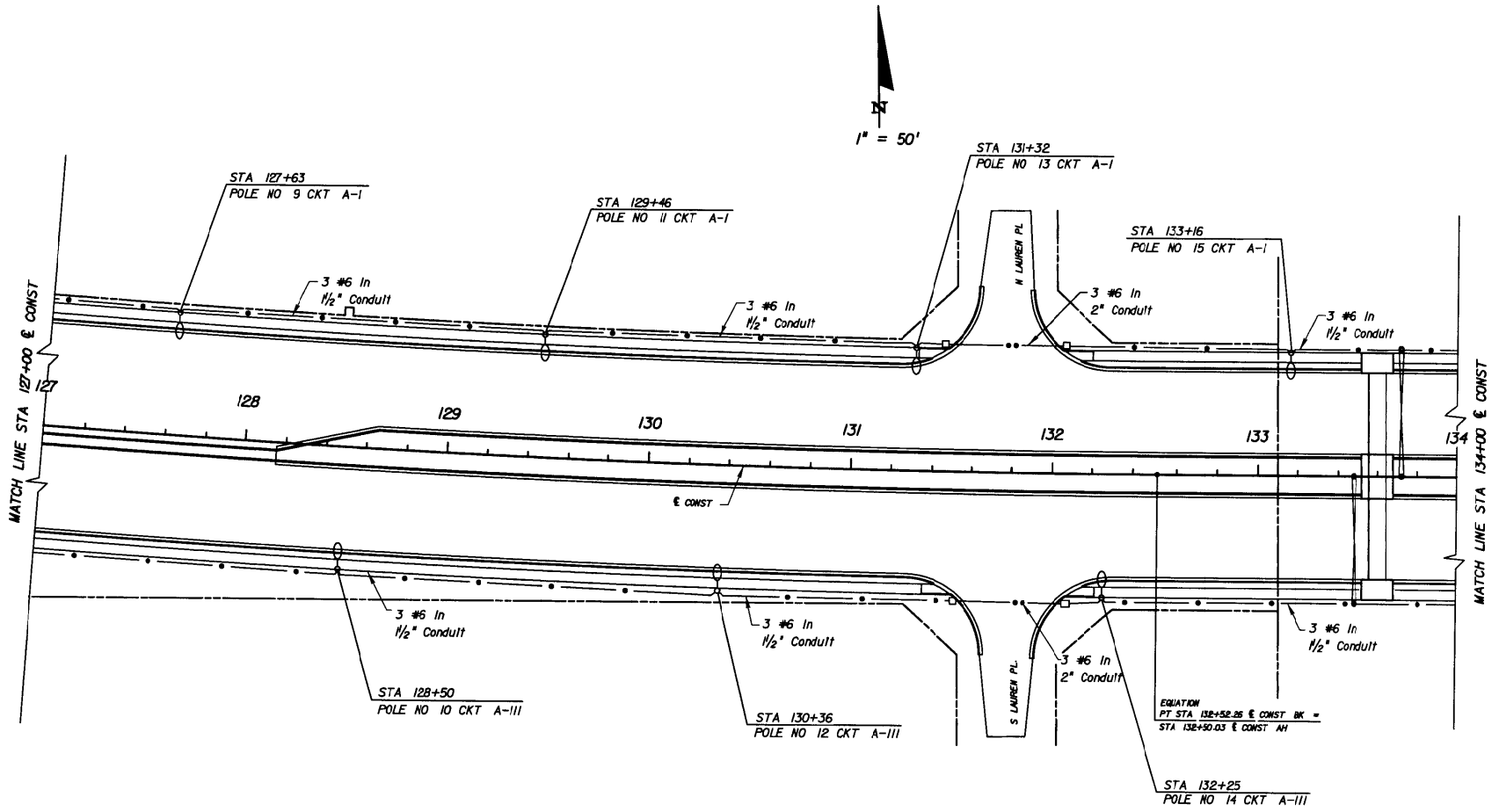


EXHIBIT EX-L-P2
Date 1/1/02

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

HERSHEL ENGINEERING INC
P O BOX 8825
CLEWISTON FLA 32355
PE LICENSE NO 067901

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID
70	MANATEE	196058-1-52-01

LIGHTING PLAN

SHEET NO
L-6

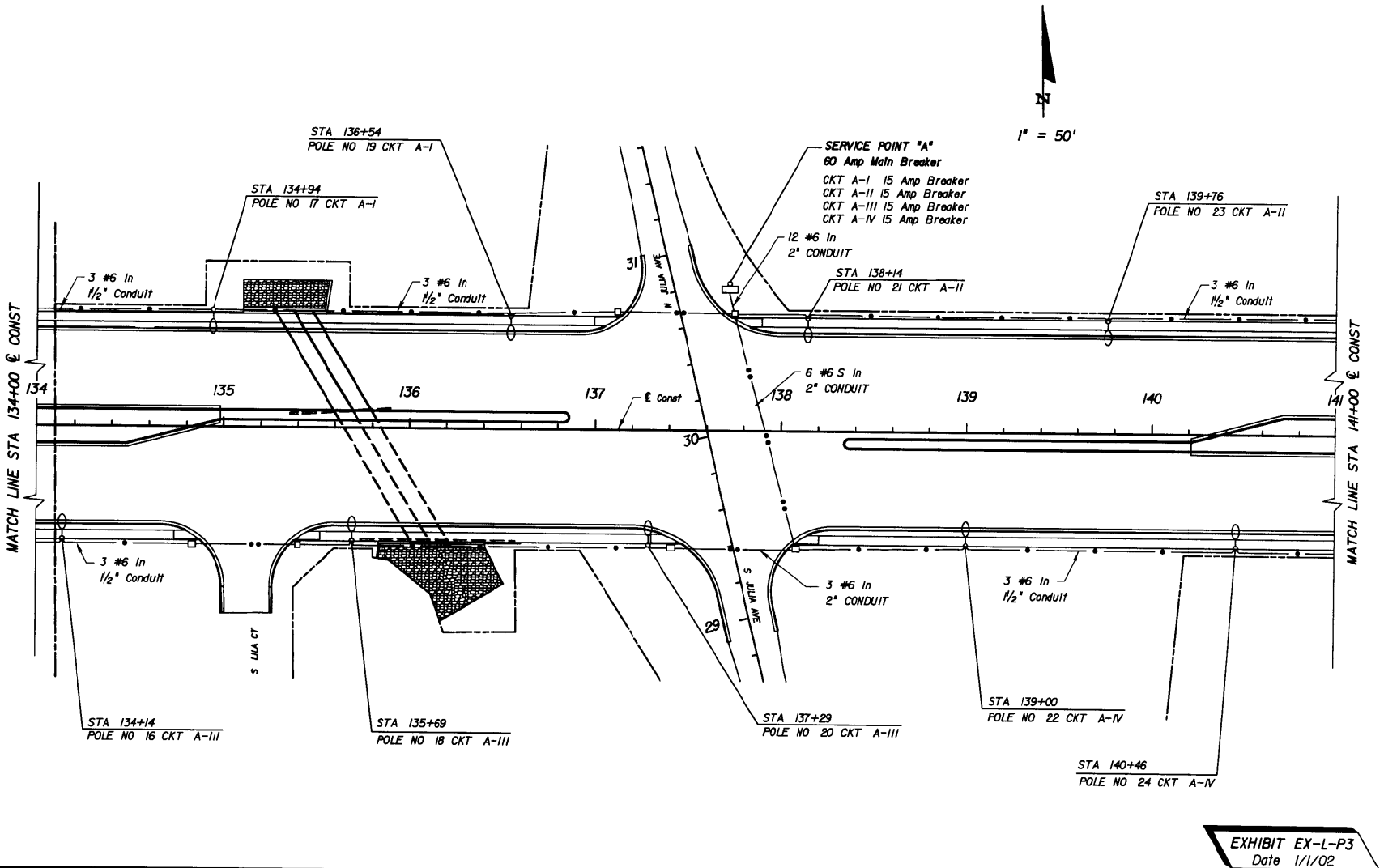


EXHIBIT EX-L-P3
Date 1/1/02

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

HERSHEL ENGINEERING INC
P.O BOX 8825
CLEWISTON FLA 33555
PE LICENSE NO 067901

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID
70	MANATEE	196058-1-52-01

LIGHTING PLAN

SHEET NO
L-7

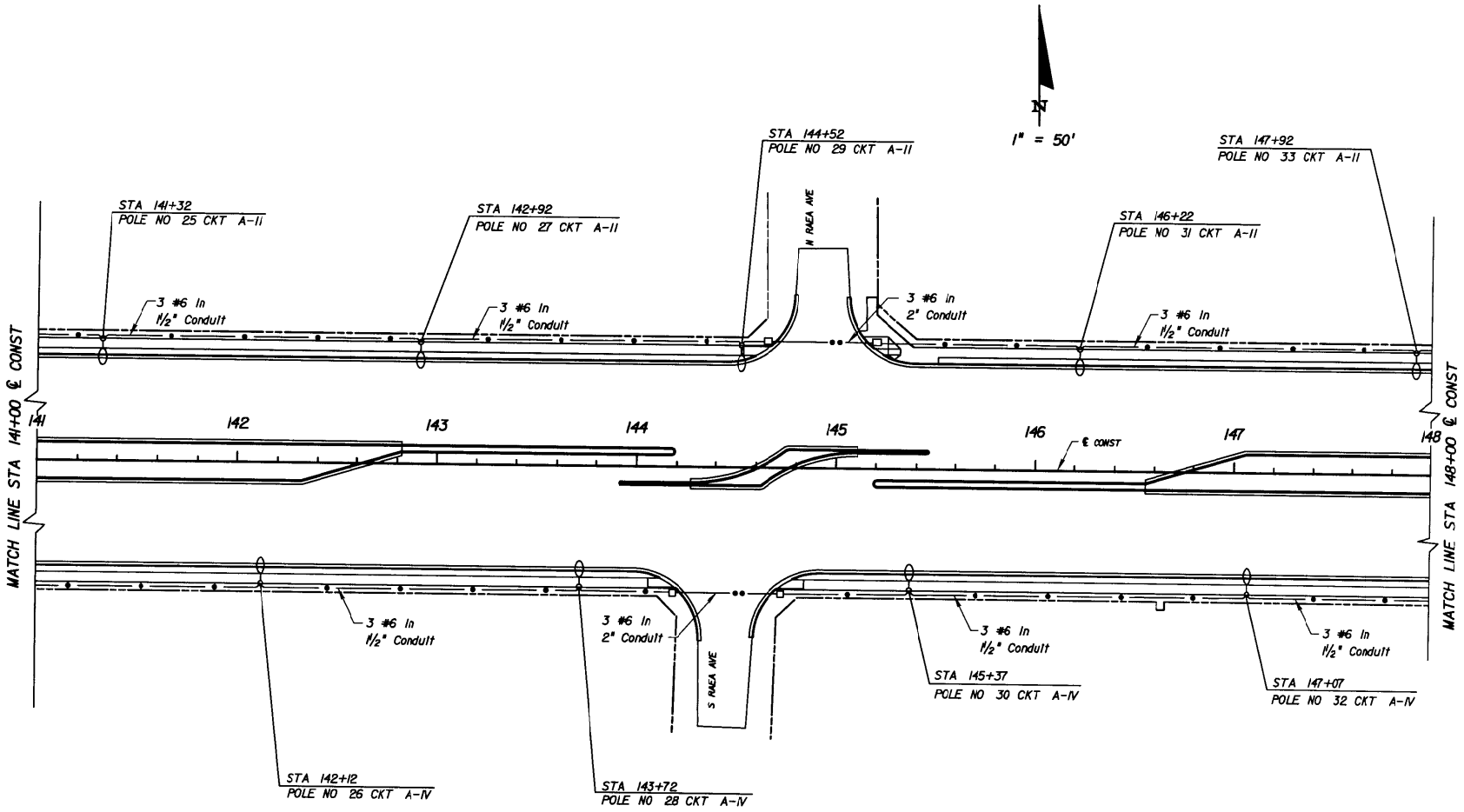


EXHIBIT EX-L-P4
Date 1/1/02

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

HERSHEL ENGINEERING INC
P O BOX 8825
CLEWISTON FLA 33455
PE LICENSE NO 057901

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID
70	MANATEE	196058-1-52-01

LIGHTING PLAN

SHEET NO
L-8

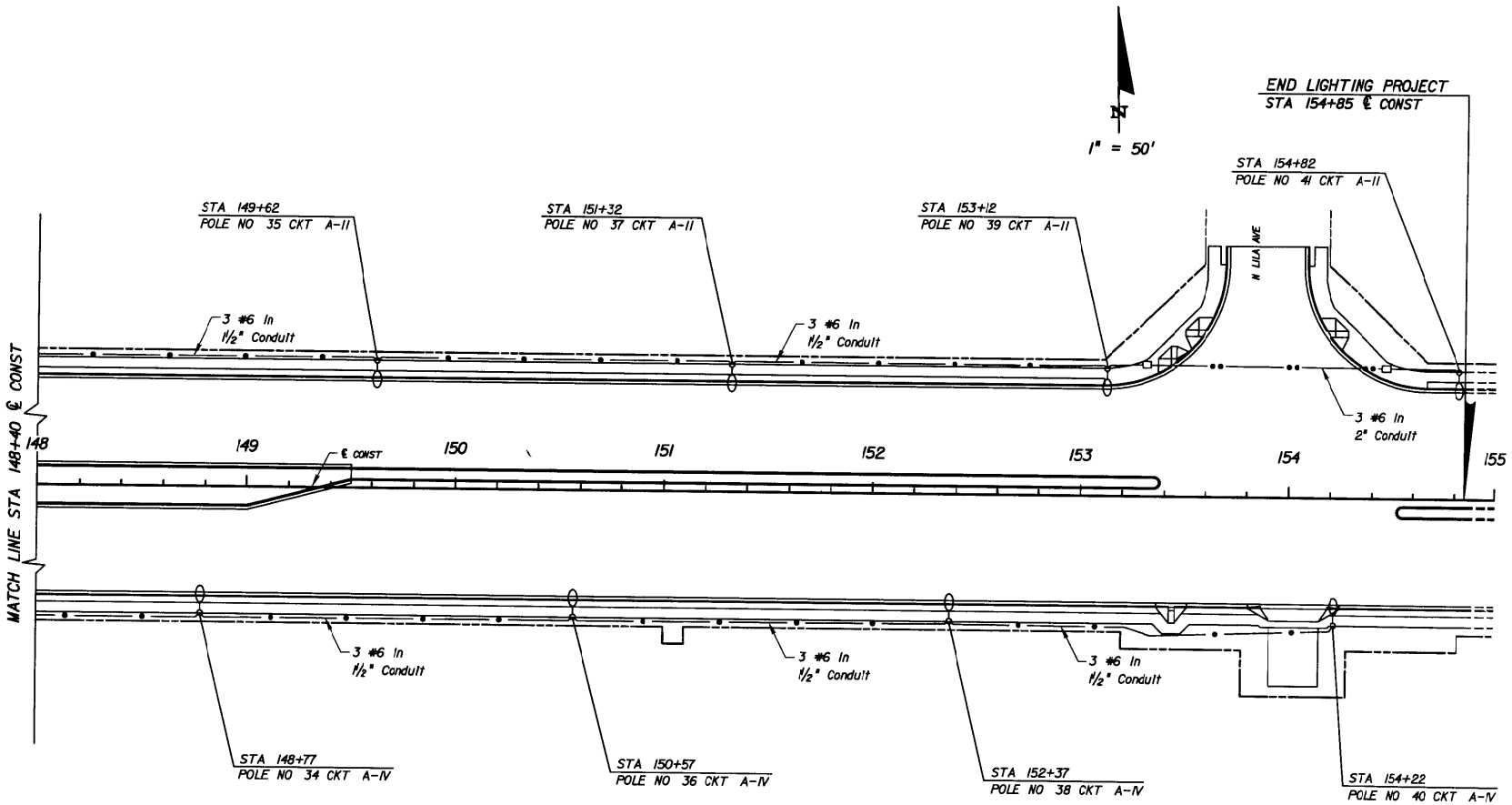


EXHIBIT EX-L-P5
Date 1/1/02

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

HERSHEL ENGINEERING INC
P.O BOX 8825
CLEWISTON FLA 33455
PE LICENSE NO 067901

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID
70	MANATEE	196058-1-52-01

LIGHTING PLAN

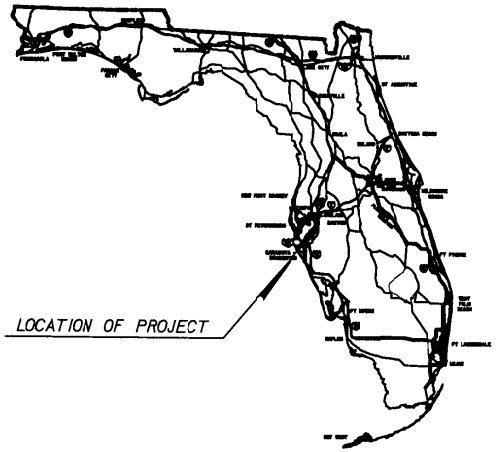
SHEET NO
L-9

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

CONTRACT PLANS

FINANCIAL PROJECT ID 196058-1-52-01
(FEDERAL FUNDS)
MANATEE COUNTY (13160)
STATE ROAD NO 70

LANDSCAPING PLANS



INDEX OF LANDSCAPE PLANS

PLANS PREPARED BY
LANDSCAPE DESIGNS, INC
13455 S W 137th St SUITE 100
MIAMI, FLORIDA 33186
CONTRACT NO C-3099
VENDOR NO 88

NOTE THE SCALE OF THESE PLANS MAY HAVE CHANGED DUE TO REPRODUCTION

GOVERNING STANDARDS AND SPECIFICATIONS
FLORIDA DEPARTMENT OF TRANSPORTATION
ROADWAY AND TRAFFIC DESIGN STANDARDS
DATED JANUARY 2000, AND
STANDARDS SPECIFICATIONS FOR ROAD AND BRIDGE
CONSTRUCTION DATED 2000
AS AMENDED BY CONTRACT DOCUMENTS

EXHIBIT EX-LS-KS
Date 1/1/02

KEY SHEET REVISIONS		
DATE	BY	DESCRIPTION

LANDSCAPE PLANS
ENGINEER OF RECORD HELENE MC DULL, PE

PE NO. 06654

FDOT PROJECT MANAGER ALBERT M SIMPSON

FISCAL YEAR	SHEET NO
01	LS-1

TABULATION OF QUANTITIES

FORM 625-000-02
ROADWAY DESIGN 01-2000

PAY ITEM NO	SYM	DESCRIPTION	SIZE	UNIT	SHEET NUMBERS										TOTAL THIS SHEET				REF SHEET
					LS-4		LS-5		LS-6		LS-7		LS-8						
					PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	
581-1		GROUND COVERS	BARE ROOT MATERIAL																
	IH	IRIS HEXAGONA (IRIDACEAE)	3 BIB MINIMUM	PL							50				50				
581-2		GROUND COVERS	1 GALLON TO LESS THAN 5 GALLON CONTAINERS																
	GP	BLANKET FLOWER (GAILLARDIA PULCHELLA)	6 SPREAD MINIMUM	PL					900						900				
	HES	DUNE SUNFLOWER (HELIANTHUS DEBILIS)	6 SPREAD MINIMUM	PL			3294		1000						4294				
	LEG	EVERGREEN GIANT LIRIOPE (LIRIOPE MUSCARI EVERGREEN GIANT)	9" SPREAD MINIMUM	PL					1555		865		2000		3820				
	AJ	ASIATIC JASMINE (TRACHYLOSPERMUM ASIATICUM)	8 HT	PL	400		723								1123				
	LMA	AZTEC GRASS ('VARIEGATED GIANT)	9 SPREAD MINIMUM	PL					1685						1685				
582-2		SHRUBS	1 GALLON TO LESS THAN 5 GALLON CONTAINERS																
	RI	INDIA HAWTHORNE (RAPHIOLEPSIS INDICA ALBA)	13 SPREAD MINIMUM	PL															
582-3		SHRUBS	5 GALLON CONTAINER, 18" TO 7' HT																
	MC	WAX MYRTLE (MYRICA CERIFERA)	25 HT MINIMUM	PL					22		22				44				
	NO	ORLEANDER (NERIUM OLEANDER PINK)	25 HT MINIMUM	PL							21				21				
583-4		TREES	15 GAL CONTAINER OR LARGER, 8' TO 20' HT																
	IAE	EAST PALATKA HOLLY (ILEX ATTENUATA EAST PALATKA')	100 GALLON , 11 HT 6 SPREAD, 3½ TO 4 CALIPER	PL			4								4				
	LIN	NATCHEZ CRAPE MYRTLE (LAGERSTROEMIA INDICA NATCHEZ)	65 GAL , 11 HT 6 SPREAD, 8 CLEAR TRUNKS	PL					4				3		7				
			1½ CALIPER TRUNKS, 3 TO 7 TRUNKS																
	QVH	HERITAGE LIVE OAK (QUERCUS VIRGINIANA HIGH RISE)	45 GALLON, 11 HT 6 SPREAD, 2½ TO 3 CALIPER	PL			7				1				8				
			8 CLEAR TRUNK																
	PP	LONGLEAF PINE (PINUS PALUSTRIS)	B&B 8 HT, 2 SPREAD, 1.5 CALIPER	PL							5		2		7				
	TD	BALD CYPRESS (TAXODIUM DISTICHUM)	30 GAL, 10 HT, 3 SPREAD MIN, 3 CAL, 4 CLEAR TRUNK	PL							10				10				
584-4		SINGLE TRUNK PALMS	8' TO 20 CLEAR TRUNK																
	SP	SABAL PALM (SABAL PALMETTO)	12 CLEAR TRUNK, SHOWN IN PLANS	PL	9		7		6						22				
	SP	SABAL PALM (SABAL PALMETTO)	16 CLEAR TRUNK, SHOWN IN PLANS	PL					1						1				
	SP	SABAL PALM (SABAL PALMETTO)	20 CLEAR TRUNK SHOWN IN PLANS	PL					1						3				

Note Quantities And Items Shown Are For Sheet Exhibits Only And Do Not Reflect The Total Quantities And Items For A Complete Landscape Project

EXHIBIT EX-LSQ-1
Date 1/1/02

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

McDULL LANDSCAPE DESIGNS INC
13455 S.W. 137th St SUITE 100
MIAMI FLORIDA 33186
PE NO 06654

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID
70	MANATEE	196058-1-52-01

TABULATION OF QUANTITIES

SHEET NO
LS-2

TABULATION OF QUANTITIES

FORM 625-000-02
ROADWAY DESIGN 01-2000

PAY ITEM NO	SYM	DESCRIPTION	SIZE	UNIT	SHEET NUMBERS										TOTAL THIS SHEET		GRAND TOTAL		REF SHEET
					LS-9		LS-10												
					PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	
581-1		GROUND COVERS	BARE ROOT MATERIAL																
	IH	IRIS HEXAGONA (IRIDACEAE)	3 BIB MINIMUM	PL													50		
581-2		GROUND COVERS	1 GALLON TO LESS THAN 5 GALLON CONTAINERS																
	GP	BLANKET FLOWER (GAILLARDIA PULCHELLA)	6" SPREAD MINIMUM	PL													900		
	HES	DUNE SUNFLOWER (HELIANTHUS DEBILIS)	6 SPREAD MINIMUM	PL													4,294		
	LEG	EVERGREEN GIANT LIRIOPE (LIRIOPE MUSCARI EVERGREEN GIANT)	9" SPREAD MINIMUM	PL	2200										2200		6,080		
	AJ	ASIATIC JASMINE (TRACHYLOSPERMUM ASIATICUM)	8 HT	PL													1,123		
	LMA	AZTEC GRASS ('VARIEGATED GIANT)	9" SPREAD MINIMUM	PL													1,685		
582-2		SHRUBS	1 GALLON TO LESS THAN 5 GALLON CONTAINERS																
	RI	INDIA HAWTHORNE (RAPHIOLEPSIS INDICA ALBA)	13 SPREAD MINIMUM	PL	270										270		270		
582-3		SHRUBS	5 GALLON CONTAINER, 18" TO 7' HT																
	MC	WAX MYRTLE (MYRICA CERIFERA)	25 HT MINIMUM	PL													44		
	NO	ORLEANDER (NERIUM OLEANDER PINK)	25 HT MINIMUM	PL													21		
583-4		TREES	15 GAL CONTAINER OR LARGER, 8' TO 20' HT																
	IAE	EAST PALATKA HOLLY (ILEX ATTENUATA "EAST PALATKA")	100 GALLON , 11 HT 6 SPREAD, 3½ TO 4 CALIPER	PL	6										6		10		
	LIN	NATCHEZ CRAPE MYRTLE (LAGERSTROEMIA INDICA NATCHEZ)	65 GAL , 11 HT 6 SPREAD, 8 CLEAR TRUNKS	PL	6										6		13		
			1 ½ CALIPER TRUNKS, 3 TO 7 TRUNKS																
	QVH	HERITAGE LIVE OAK (QUERCUS VIRGINIANA HIGH RISE)	45 GALLON, 11 HT 6 SPREAD, 2½ TO 3 CALIPER	PL													8		
			8 CLEAR TRUNK																
	PP	LONGLEAF PINE (PINUS PALUSTRIS)	B&B 8 HT 2 SPREAD, 1.5 CALIPER	PL													7		
	TD	BALD CYPRESS (TAXODIUM DISTICHUM)	30 GAL 10 HT, 3 SPREAD MIN, 3 CAL, 4 CLEAR TRUNK	PL													10		
584-4		SINGLE TRUNK PALMS	8 TO 20 CLEAR TRUNK																
	SP	SABAL PALM (SABAL PALMETTO)	12 CLEAR TRUNK, SHOWN IN PLANS	PL													22		
	SP	SABAL PALM (SABAL PALMETTO)	16 CLEAR TRUNK, SHOWN IN PLANS	PL													1		
	SP	SABAL PALM (SABAL PALMETTO)	20 CLEAR TRUNK SHOWN IN PLANS	PL													3		

Note Quantities And Items Shown Are For Sheet Exhibits Only And Do Not Reflect The Total Quantities And Items For A Complete Landscape Project

EXHIBIT EX-LSQ-2
Date 1/1/02

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

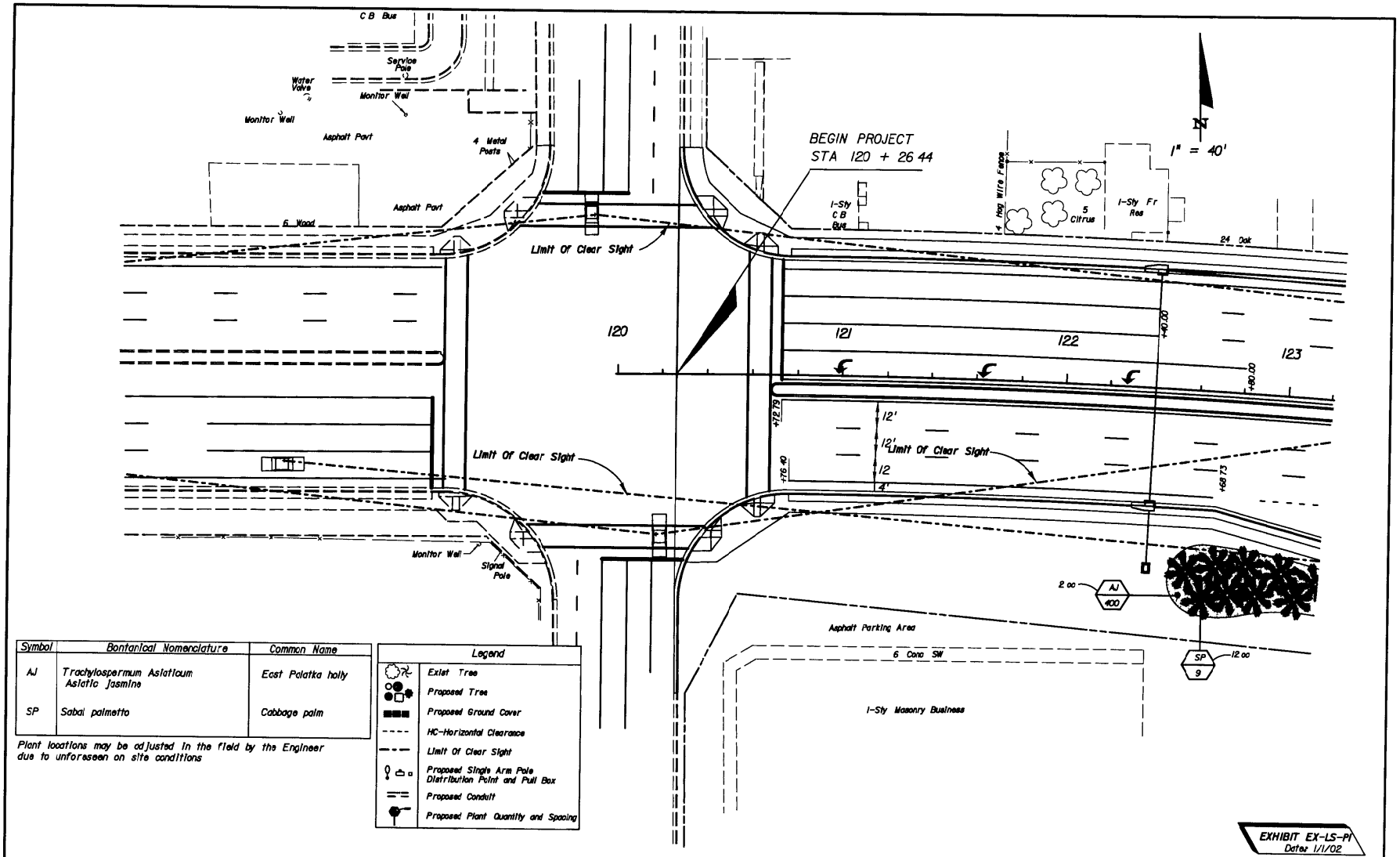
McCULL LANDSCAPE DESIGNS INC
13455 SW 137th St SUITE 100
MIAMI, FLORIDA 33186
PE NO 06654

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID
70	MANATEE	196058-1-52-01

TABULATION OF QUANTITIES

SHEET NO
LS-3



Symbol	Bontanical Nomenclature	Common Name
AJ	Tractylospermum Asiaticum Asiatic Jasmine	East Palatka holly
SP	Sabal palmetto	Cabbage palm

Plant locations may be adjusted in the field by the Engineer due to unforeseen on site conditions

Legend

- Exist Tree
- Proposed Tree
- Proposed Ground Cover
- HC-Horizontal Clearance
- Limit Of Clear Sight
- Proposed Single Arm Pole Distribution Point and Pull Box
- Proposed Conduit
- Proposed Plant Quantity and Spacing

EXHIBIT EX-LS-P1
Date: 1/1/02

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

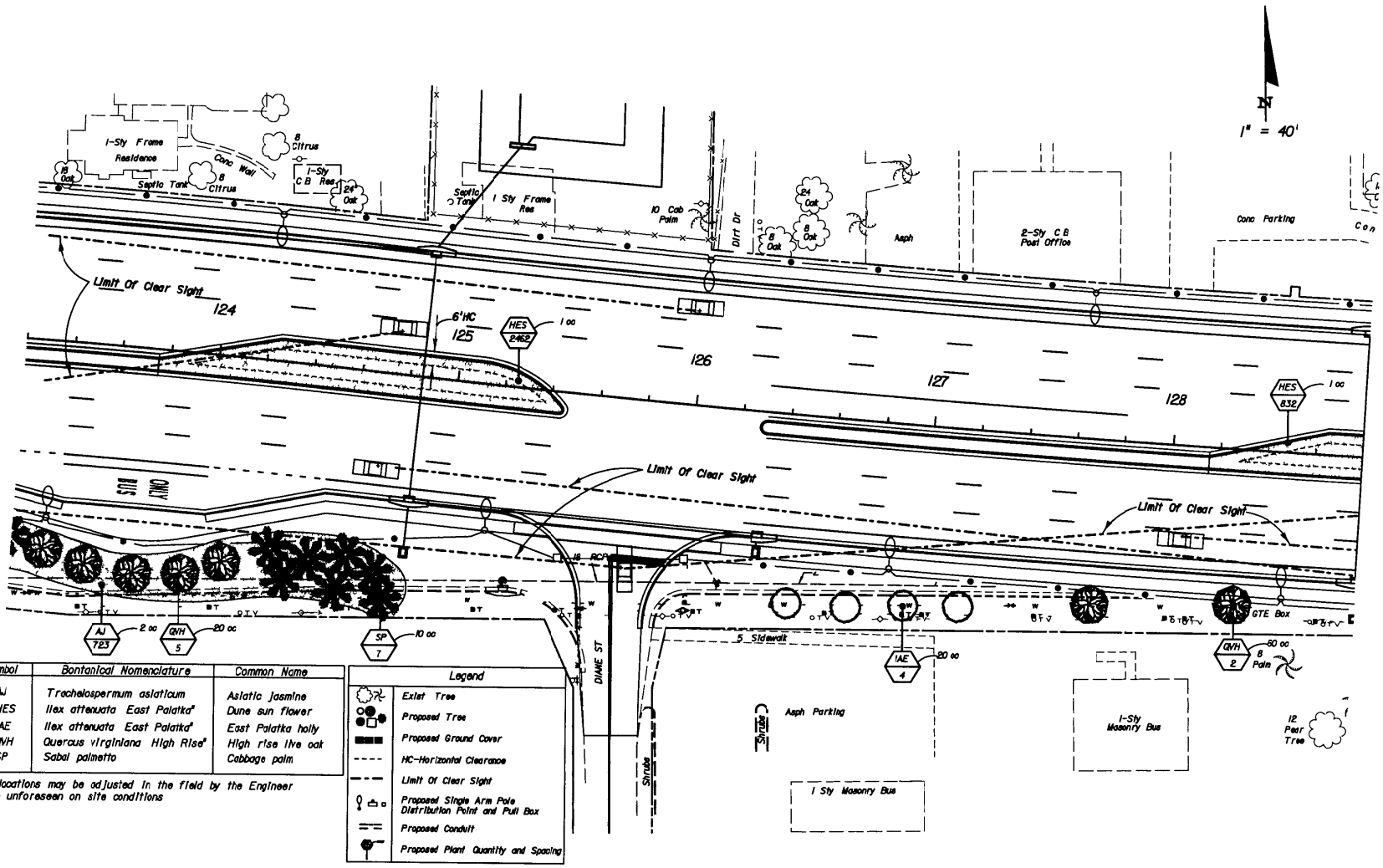
McCULL LANDSCAPE DESIGNS, INC
13455 S W 137th St SUITE 100
MIAMI, FLORIDA 33186
PE NO 06654

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID
70	MANATEE	196058-1-52-01

LANDSCAPE PLAN

SHEET NO
LS-4



Symbol	Bontanical Nomenclature	Common Name
AJ	Trachelospermum asiaticum	Asiatic jasmine
HES	Ilex attenuata East Palatka'	Dune sun flower
IAE	Ilex attenuata East Palatka'	East Palatka holly
QVH	Quercus virginiana High Rise'	High rise live oak
SP	Sabal palmetto	Cabbage palm

Plant locations may be adjusted in the field by the Engineer due to unforeseen on site conditions

Legend

- Exist Tree
- Proposed Tree
- Proposed Ground Cover
- HC-Horizontal Clearance
- Limit Of Clear Sight
- Proposed Single Arm Pole Distribution Point and Pull Box
- Proposed Conduit
- Proposed Plant Quantity and Spacing

EXHIBIT EX-LS-P2
Dated 1/1/02

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

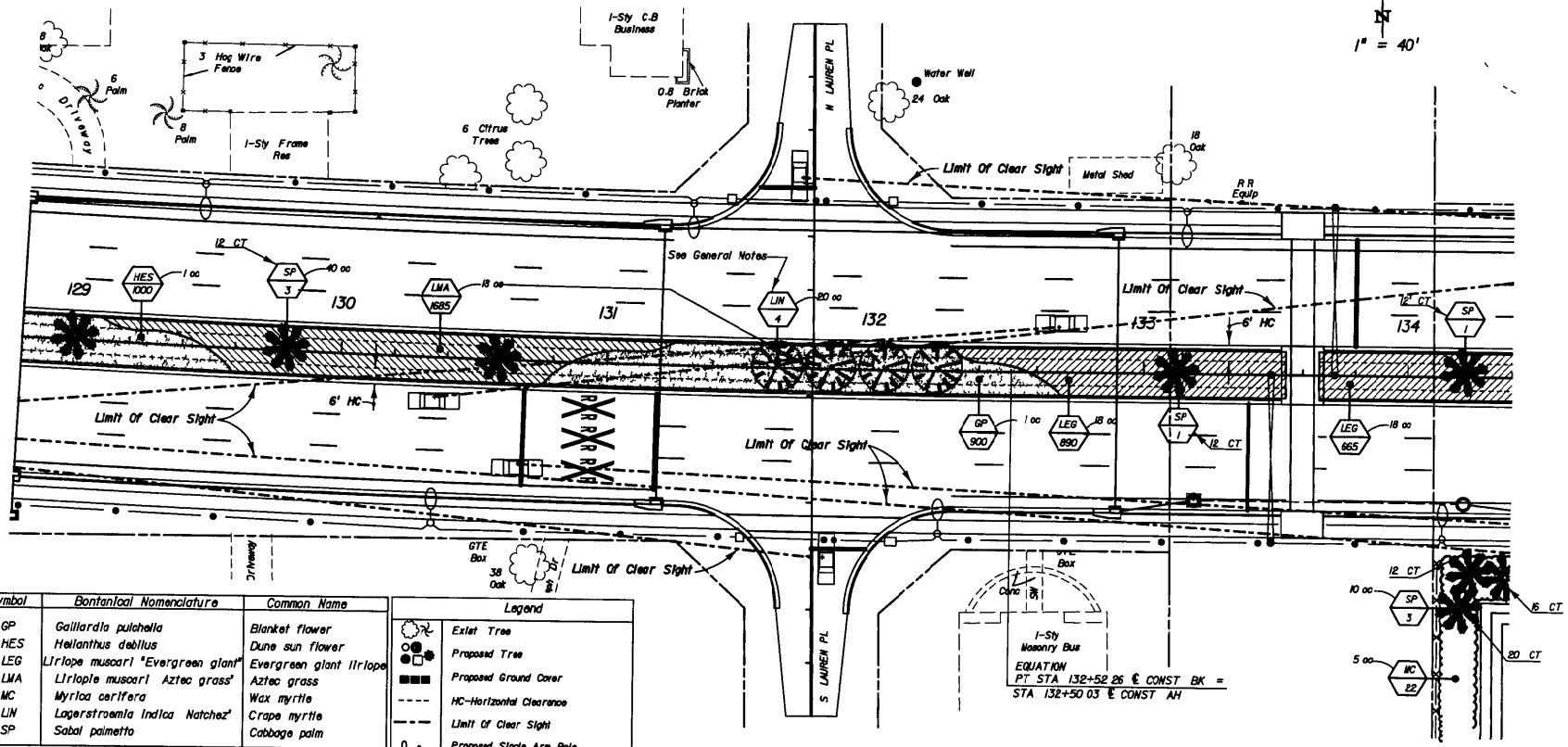
McDULL LANDSCAPE DESIGNS, INC
13455 S W 137th St SUITE 100
MIAMI, FLORIDA 33186
PE NO 06654

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID
70	MANATEE	196058-1-52-01

LANDSCAPE PLAN

SHEET NO
LS-5



Symbol	Botanical Nomenclature	Common Name
GP	Gaillardia pulchella	Blanket flower
HES	Helianthus debilus	Dune sun flower
LEG	Liriope muscari "Evergreen giant"	Evergreen giant liriope
LMA	Liriope muscari Aztec grass'	Aztec grass
MC	Myrica cerifera	Wax myrtle
LIN	Lagerstroemia Indica Natchez'	Crape myrtle
SP	Sabal palmetto	Cabbage palm

Plant locations may be adjusted in the field by the Engineer due to unforeseen on site conditions

Legend	
	Exist Tree
	Proposed Tree
	Proposed Ground Cover
	HC-Horizontal Clearance
	Limit Of Clear Sight
	Proposed Single Arm Pole Distribution Point and Pull Box
	Proposed Conduit
	Proposed Plant Quantity and Spacing

EXHIBIT EX-LS-P3
Dated 1/1/02

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

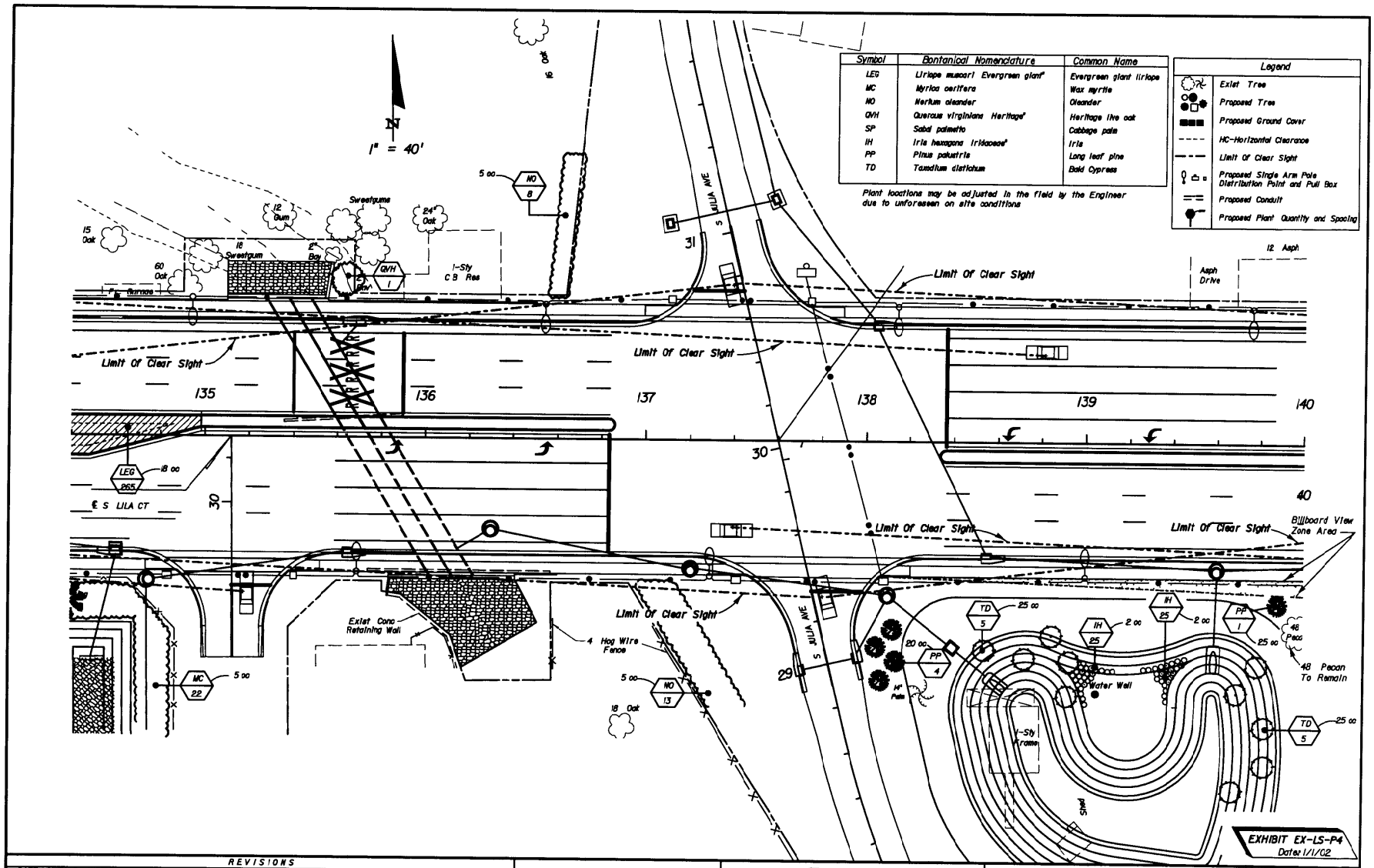
McDULL LANDSCAPE DESIGNS, INC
13455 S W 137th St SUITE 100
MIAMI, FLORIDA 33186
PE NO 06654

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID
70	MANATEE	196058-1-52-01

LANDSCAPE PLAN

SHEET NO
LS-6



REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

McDULL LANDSCAPE DESIGNS, INC
13455 S W 137th St SUITE 100
MIAMI, FLORIDA 33166
PE NO 06654

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID
70	MANATEE	196058-1-52-01

LANDSCAPE PLAN

SHEET NO
LS-7

Symbol	Botanical Nomenclature	Common Name
LEG	Liriope muscari "Evergreen giant"	Evergreen giant liriope
LIN	Lagerstroemia Indica Natchez"	Crape myrtle
PP	Pinus palustris	Long leaf pine

Plant locations may be adjusted in the field by the Engineer due to unforeseen on site conditions

Legend

- Exist Tree
- Proposed Tree
- Proposed Ground Cover
- HC–Horizontal Clearance
- Limit Of Clear Sight
- Proposed Single Arm Pole Distribution Point and Pull Box
- Proposed Conduit
- Proposed Plant Quantity and Spacing

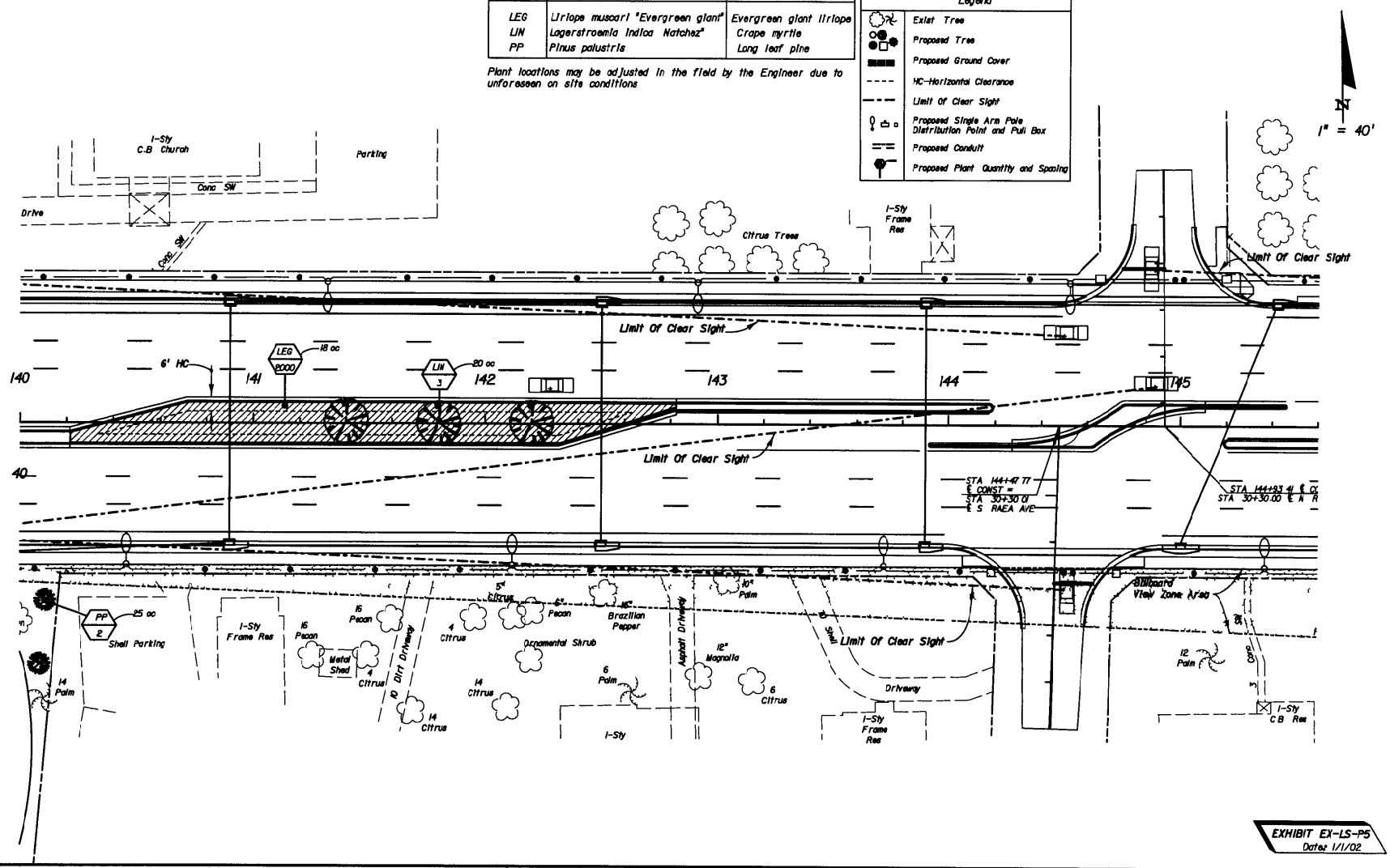


EXHIBIT EX-LS-P5
Date: 1/1/02

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

McDULL LANDSCAPE DESIGNS, INC
13455 S W 137th St SUITE 100
MIAMI, FLORIDA 33186
PE NO 06654

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID
70	MANATEE	196058-1-52-01

LANDSCAPE PLAN

SHEET NO
LS-8

Symbol	Botanical Nomenclature	Common Name
LEG	Liriope muscari Evergreen giant	Evergreen giant liriope
RI	Rapheolepis indica	Dwarf India hawthorn
IAE	Ilex attenuata "East Palatka"	East Palatka holly
LIN	Lagerstroemia Indica Natchez	Crape myrtle

Plant locations may be adjusted in the field by the Engineer due to unforeseen on site conditions

Legend

- Exist Tree
- Proposed Tree
- Proposed Ground Cover and Scrub
- HC-Horizontal Clearance
- Limit Of Clear Sight
- Proposed Single Arm Pole Distribution Point and Pull Box
- Proposed Conduit
- Proposed Plant Quantity and Spacing

N

1" = 40'

WES CARSON ELEMENTARY SCHOOL

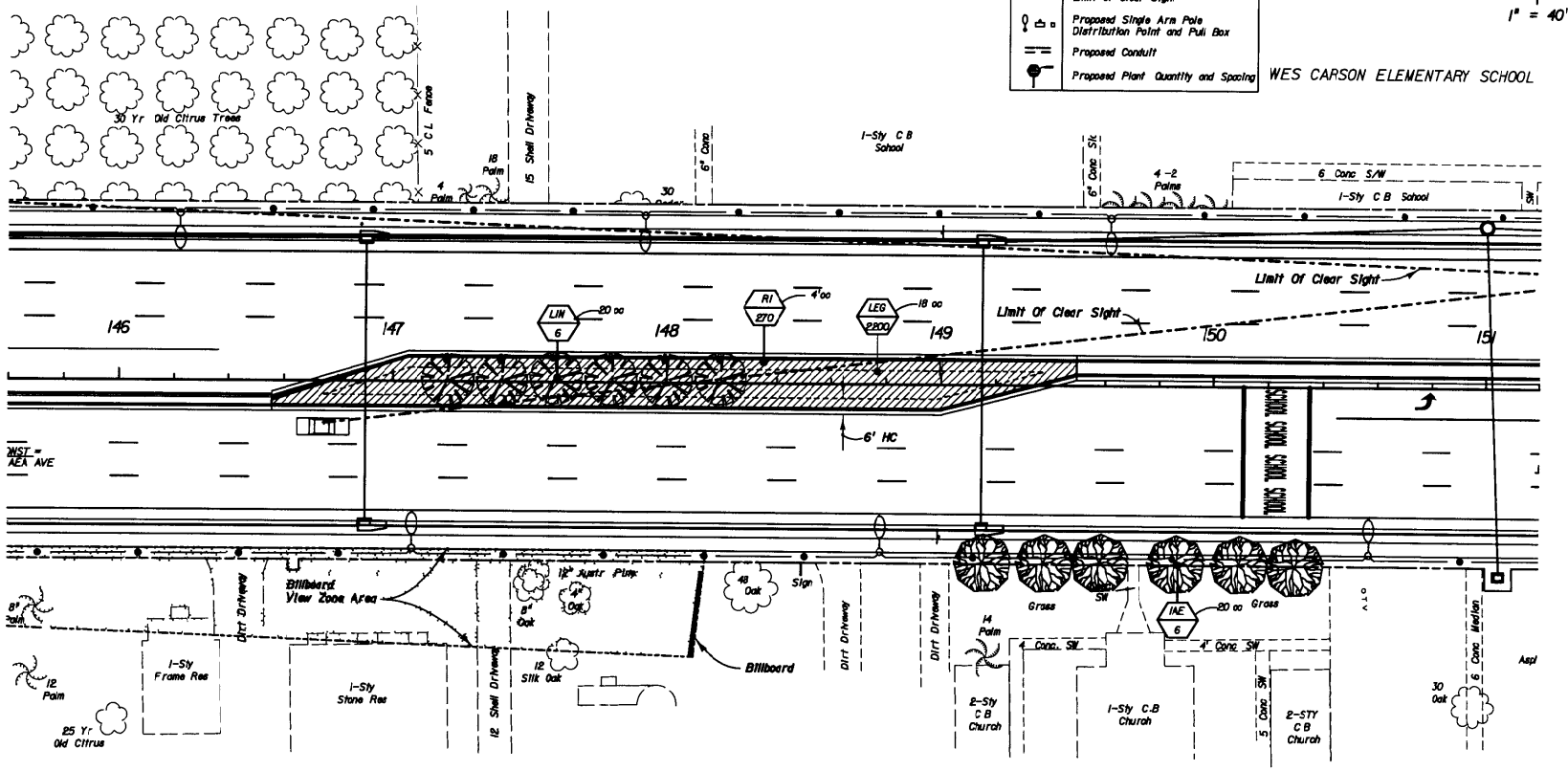


EXHIBIT EX-LS-P6
Date 1/1/02

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

McDULL LANDSCAPE DESIGNS, INC
13455 S W 137th St SUITE 100
MIAMI, FLORIDA 33186
PE NO 06654

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO	COUNTY	FINANCIAL PROJECT ID
70	MANATEE	196058-1-52-01

LANDSCAPE PLAN

SHEET NO
LS-9

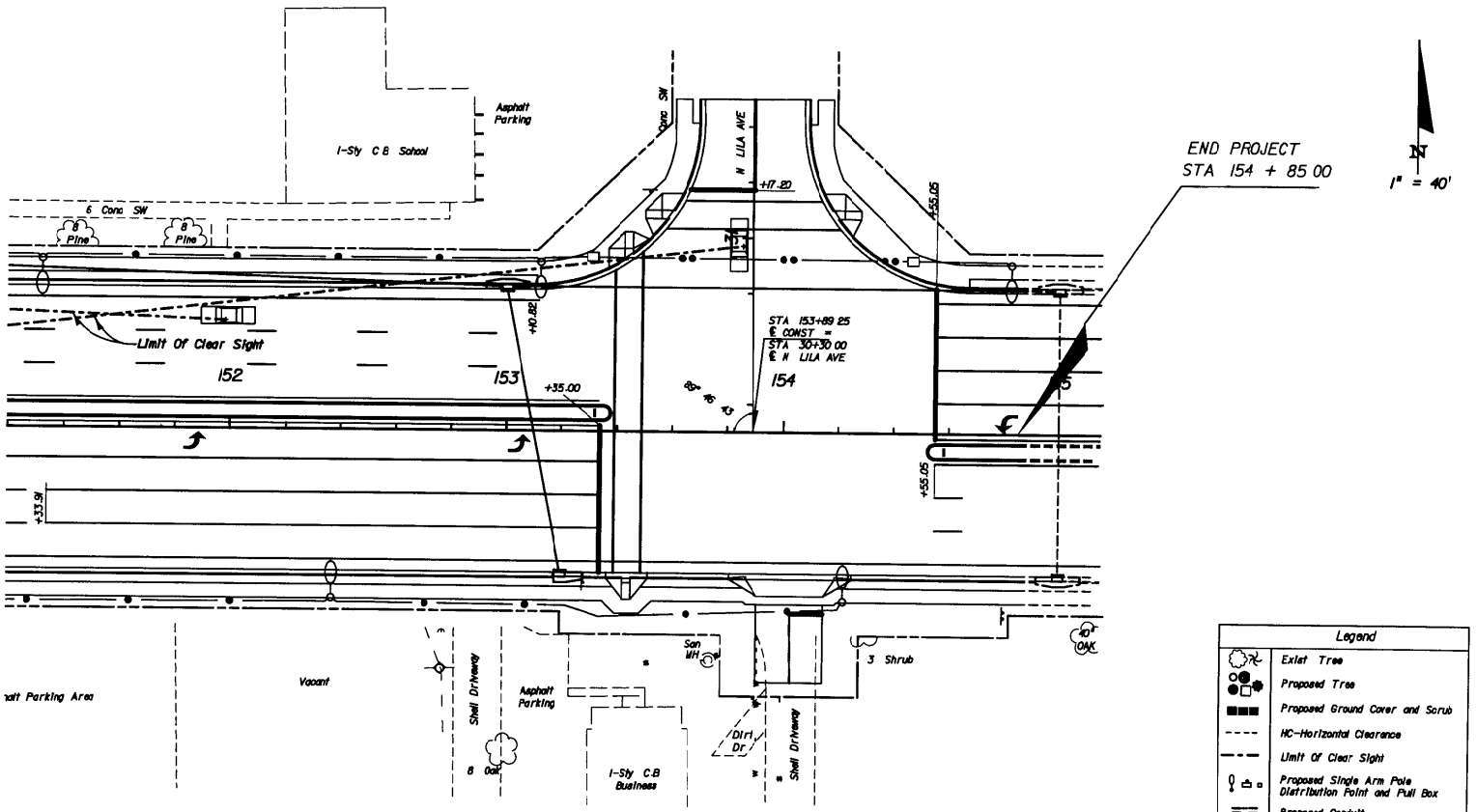


EXHIBIT EX-LS-PT
Date: 1/1/02

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

McDULL LANDSCAPE DESIGNS, INC
13455 S.W. 137th St. SUITE 100
MIAMI, FLORIDA 33186
PE NO. 06654

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID.
70	MANATEE	196058-1-52-01

LANDSCAPE PLAN

SHEET NO.
LS-10