

<b>JANUARY 1, 2007 UPDATES</b>	
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<b>CHAPTER</b>	<b>2-SIDED PAGES</b>
Color Cover	Complete
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# PLANS PREPARATION AND ASSEMBLY



**STATE OF FLORIDA  
DEPARTMENT OF TRANSPORTATION**

**CONTRACT PLANS**

FINANCIAL PROJECT ID 196058-1-52-01  
(FEDERAL FUNDS)  
MANATEE COUNTY (13160)  
STATE ROAD NO. 70

**COMPONENTS OF CONTRACT PLANS SET**

- ROADWAY PLANS
- STORM AND PREVENTION DRAINAGE PLANS
- COLLECTION PLANS
- LANDSCAPE PLANS
- LANDSCAPE PLANS
- ARCHITECTURAL PLANS
- STRUCTURE PLANS

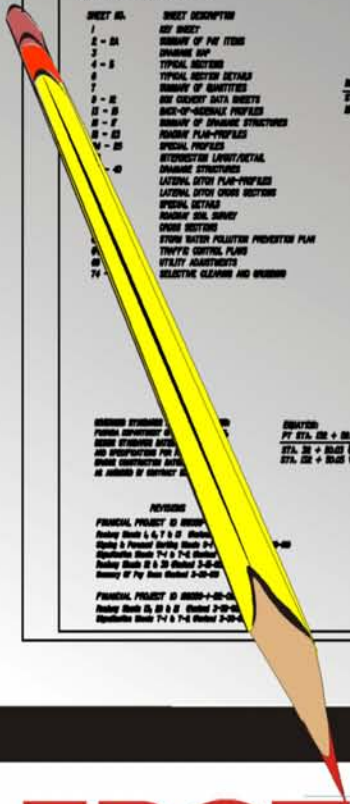
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3	DRAINAGE MAP
4 - 5	TYPICAL SECTIONS
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**LENGTH OF PROJECT**

	LINEAR FEET	MILES
ROADWAY	346579	6.401
BRIDGES	00	0.000
NET LENGTH OF PROJECT	346579	6.401
EXCEPTING	00	0.000
GROSS LENGTH OF PROJECT	346579	6.401

PROJECT BIDDING: THREE BIDS



**FDOT**



**DESIGN**

Volume  
**II**

Plans Preparation Manual

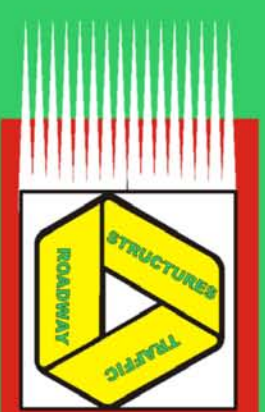
January 2006

**Revised – January 1, 2007**

# PLANS PREPARATION AND ASSEMBLY

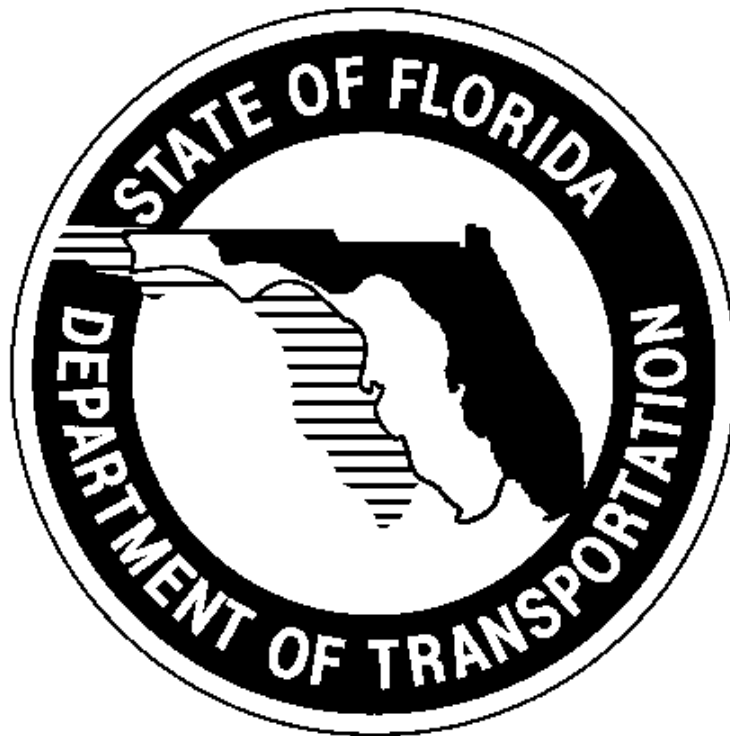


Florida Department Of Transportation



# PLANS PREPARATION MANUAL

## VOLUME II



### ROADWAY DESIGN OFFICE

TALLAHASSEE, FLORIDA

JANUARY 1, 2006

SECOND EDITION

REVISED – JANUARY 1, 2007

<http://www.dot.state.fl.us/rddesign/PPMManual/PPM.htm>

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## Introduction

# Plans Preparation Manual, Volume II

### PURPOSE:

This *Plans Preparation Manual, Volume II* 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 contract plans for both roadways and structures.

### AUTHORITY:

*Sections 20.23(3)(a) and 334.048(3), 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 334.048(3)*, 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** of the **Plans Preparation Manual (PPM) (Topic No. 625-000-007)**.

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 judgment. 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 - MANUAL ORGANIZATION
  - a. Background

The Florida Department of Transportation's **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** was produced using the same basic format, and closely paralleling, **Volume II - Metric**. This was 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** 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 on CD 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  
FAX Number (850) 414-8036  
<http://www.dot.state.fl.us/MapsAndPublications/>

For updates and manual registration information contact:

Roadway Design Office, Mail Station 32  
Telephone (850) 414-4310  
FAX Number (850) 414-5261  
<http://www.dot.state.fl.us/rddesign/>

## 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 Forms 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

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# 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.

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 Handbook*** 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 ***Design Standards, Index No. 001***.

Standard symbols for Roadway Design are shown in the ***Design Standards, Index No. 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:
  - a. Typical Section Elements, including lane widths and shoulder widths - in feet, generally as a whole number.
  - b. Horizontal control points on plans, including survey centerline, baseline, intersections and alignment - in feet to 2 decimal places.
  - c. Vertical alignment control points, (PVC, PVI, PVT) and profile grade elevations - in feet to 2 decimal places.
  - d. Profile Grade - in percent to 3 decimal places.
  - e. Proposed flow lines - in feet to 2 decimal places.
  - f. Manhole tops and grate elevations - in feet to 2 decimal places.
  - g. Ditch elevations - in feet to 1 decimal place (to nearest 0.05 when controlled by percent of grade).
  - h. Box or Three-sided 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.

Further information that may be useful in the converting Metric to English may be found in **Appendix A** of this volume.

## 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 that 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:

**Figure 1.1 Project Information Block**

		<i>STATE PROJECT NO.</i>		
		<i>STATE OF FLORIDA</i>		
		<i>DEPARTMENT OF TRANSPORTATION</i>		
		<i>ROAD NO.</i>	<i>COUNTY</i>	<i>FINANCIAL PROJECT ID</i>

The blank space immediately left of the box for Financial Project ID information is provided for the Engineer of Record information as required in **Section 19.2, Volume I**.

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 that 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 CAD Net plotting, are also available from the FDOT Engineering/CADD Systems Office.

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

## **1.5 Plan Notes**

Plan notes are intended to be used to clarify design detail, construction practices or method for payment. In general, plan notes should be kept to a minimum. Only those notes that are job specific should be used. Plan notes should only be used to detail uniqueness and not to broaden or curtail requirements in the specifications. Notes that restate the standard specifications or standard indexes shall not be used. This will help to place proper emphasis on those notes that are job specific and avoid discrepancy of documents.

## Chapter 2

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**STORMWATER POLLUTION PREVENTION PLANS (SWPPP)**

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

**MITIGATION PLANS**

Project Specific

**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)  
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)  
Engineer of Record  
Consultants name & address, if applicable

**ITS 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)  
Engineer of Record  
Consultants name & address, if applicable

**SIGNALIZATION PLANS - TABULATION OF QUANTITIES**

Project Specific

**ITS 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

**ITS PLANS - PLAN SHEETS**

Project Specific, but must include:  
North arrow and scale  
Basic Roadway Geometrics  
Begin/End Stations and Exceptions  
Station equations  
Conflicting utilities, lighting or drainage  
Applicable pay items

**ITS PLANS - DETAIL SHEETS**

Project Specific

**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)  
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  
Fiscal year and sheet number  
State Road Number  
County Name  
FDOT Project Manager's Name  
Begin/end stations & exceptions  
Station Equations (if location map is shown)  
Landscape Architect of Record name and registration number  
Consultants name, address, and contract number, if applicable  
Index of landscape plans

**LANDSCAPE PLANS - TABULATION OF QUANTITIES AND PLANT SCHEDULE**  
Project Specific

**LANDSCAPE PLANS - TABULATION OF QUANTITIES AND SCHEDULE FOR IRRIGATION AND SITE AMENITIES**  
Project Specific

**LANDSCAPE PLANS – PLANTING PLAN SHEETS**

Project centerline  
Edge of pavement (edge of traffic lanes)  
Curbs or curb and gutter  
Drainage systems  
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 which are noted in the plans  
Existing and proposed overhead and underground utility locations  
Clear Zone/Horizontal clearance (should be plotted or safety setback distances noted frequently on each plan sheet)  
View zones for permitted outdoor advertising signs  
Canopy limits  
Existing vegetation (to remain or be removed)  
Existing off site features and conditions that affect or are affected by the project  
Fence and gate locations  
Setbacks from structural elements or drainage system  
Limits of clear sight  
Transit facilities  
Proposed Planting Plan (Plant symbols and Plant quantities)

**LANDSCAPE PLANS - IRRIGATION PLAN SHEETS**

(if applicable)  
Type of system  
Location and size of mainlines and lateral lines  
Type and location of spray heads and rotors  
Type and location of valves, sleeves, controllers, water sources/point of connection, backflow preventers, and isolation valves

**LANDSCAPE PLANS –DETAILS SHEET**

Applicable landscape details  
Irrigation symbology with associative descriptions (if applicable)

### **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 of 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.

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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. Optional Materials Tabulation
10. Project Layout (optional)
11. Roadway Plan-Profiles
12. Special Profiles
13. Back-of-Sidewalk Profiles (optional)
14. Interchange Layout
15. Ramp Terminal Details
16. Intersection Layout/Detail
17. Drainage Structures
18. Three-Sided/Box Culvert Details (if **LRFD** design)
19. Outfall/Lateral Ditch Plan-Profiles
20. Outfall/Lateral Ditch Cross Sections
21. Special Details
22. Cross Section Pattern
23. Roadway Soil Survey

24. Cross Sections
25. Stormwater Pollution Prevention Plans (SWPPP)
26. Traffic Control Plans
27. Utility Adjustments
28. Selective Clearing and Grubbing
29. Signing and Pavement Marking Plans\*
30. Signalization Plans\*
31. ITS Plans\*
32. Lighting Plans\*
33. Landscape Plans\*
34. Mitigation Plans
35. Miscellaneous Structures Plans

\* When not separate component plans.

In addition, the roadway plans may contain sheets which were prepared separately (perhaps by a sub-consultant) and incorporated into the roadway plans early in the design process. These sheets will appear at the end of the numbered sequence of the roadway plans and must be identified with the following prefixes:

- GR-# Soil Survey and Report of Core Borings normally associated with the roadway plans set (including miscellaneous structures but excluding bridges and walls)
- CTL-# Project Survey Control Sheets
- TR-# Tree Survey Sheets
- UTV-# Verified Utility Locate Sheets

### **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, certificate of authorization 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.

## 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 lead key sheet of each plan set.

A document entitled ***Design Standards Modifications*** includes a listing of all Interim Design Standards issued since publication of the applicable booklet, plus all changes and corrections to notes and text within the booklet that do not warrant the issuance of Interim Indexes (previously handled by Special Provision). The Design Standards Modifications documents will be dated, and posted on the same web site as the Design Standards. The Design Standards Modifications will typically be updated and posted in January and July, 6 months prior to the effective letting date. For example, ***Design Standards Modifications*** dated July 1, 2005 will be posted on the web site in January 2005, but will be effective beginning with the July 2005 letting. Special updates to the Design Standards Modifications posted in between January and July will only be issued when necessary to address changes of immediate concern. When this occurs, email notification will be sent to the Districts and registered Plans Preparation Manual holders.

The applicable Design Standards Modifications and date, and Internet address shall be shown on the lower left corner of the lead key sheet of each plan set, below the Governing Specifications and Standards note, and above the Revisions area. Note that all Interim Indexes listed in the Design Standards Modifications document will be applicable. ***Interim Standards*** shall not be attached to the Contract Plans Set.

The Governing Specifications and Standards note and the Design Standards Modifications note shall not be shown on the key sheets of component plans that are listed on the lead key sheet of each plan set. ***Exhibit KS-1*** gives an example on how these notes are shown.

## 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.



### **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.

### **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. The unique numbered symbol that corresponds to the Revision Number on the Revision Memo and modified sheets shall be listed here as well.

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 in the “Revisions” area. Revisions to strung project sheets shall be listed here, under the respective Financial Project ID.

A Key Sheet Revisions Block 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 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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**COMPONENTS OF CONTRACT PLANS SET**

- ROADWAY PLANS
- SIGNING AND PAVEMENT MARKING PLANS
- SIGNALIZATION PLANS
- INTELLIGENT TRANSPORTATION SYSTEMS PLANS
- LIGHTING PLANS
- LANDSCAPE PLANS
- ARCHITECTURAL PLANS
- STRUCTURE PLANS

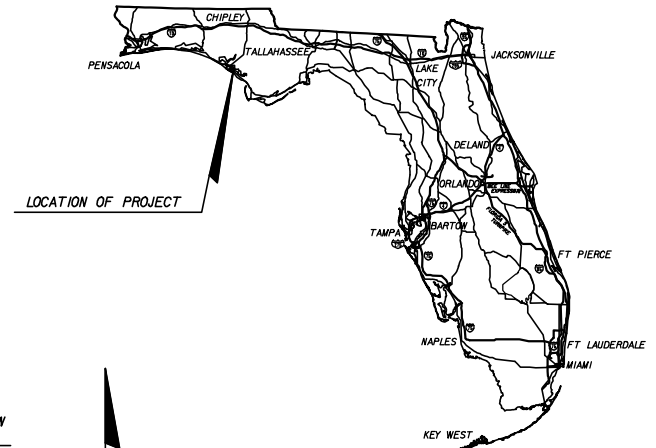
A DETAILED INDEX APPEARS ON THE KEY SHEET OF EACH COMPONENT

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

**STATE OF FLORIDA  
DEPARTMENT OF TRANSPORTATION**

**CONTRACT PLANS**

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



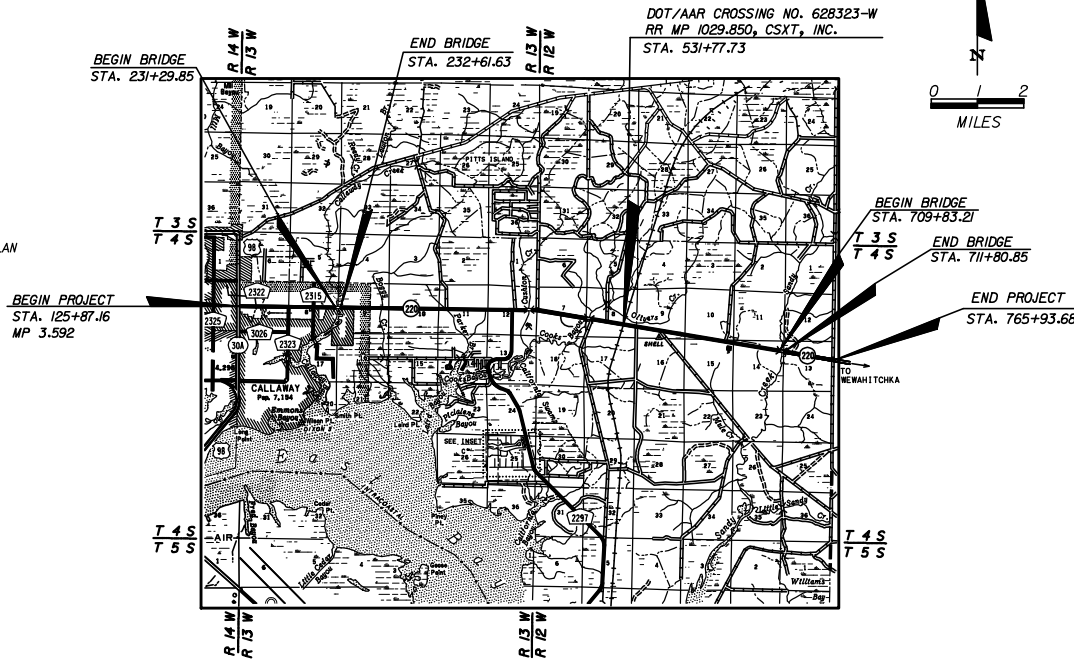
**INDEX OF ROADWAY PLANS**

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	STORMWATER POLLUTION PREVENTION PLAN
49-52	TRAFFIC CONTROL PLANS
53-57	UTILITY ADJUSTMENTS
58-62	SELECTIVE CLEARING AND GRUBBING

GOVERNING STANDARDS AND SPECIFICATIONS:  
FLORIDA DEPARTMENT OF TRANSPORTATION,  
DESIGN STANDARDS DATED 2006,  
AND STANDARD SPECIFICATIONS FOR ROAD AND  
BRIDGE CONSTRUCTION DATED 2007,  
AS AMENDED BY CONTRACT DOCUMENTS.

APPLICABLE DESIGN STANDARDS MODIFICATIONS: 1-1-07

For Design Standards Modifications click on  
"Design Standards" at the following web site:  
<http://www.dot.state.fl.us/rddesign/>



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, VENDOR NUMBER AND CERTIFICATE OF AUTHORIZATION 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 000002-1-52-02.

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

**EXHIBIT KS-1**  
Date: 1/1/07

- REVISIONS**
- FINANCIAL PROJECT ID 000001-1-52-01
  - ▲ Roadway Sheets 1, 6, 7 & 13 (Revised 01-10-07)
  - ▲ Signaling & Pavement Marking Sheets S-2 & S-3 (Revised 3-10-07)
  - ▲ Signalization Sheets T-1 & T-2 (Revised 3-10-07)
  - ▲ Roadway Sheets 14 & 33 (Revised 3-31-07)
  - ▲ Summary Of Pay Items (Revised 3-31-07)
  - FINANCIAL PROJECT ID 000002-1-52-02
  - ▲ Roadway Sheets 1, 8 & 10 (Revised 1-30-07)
  - ▲ Structure Sheets B-1 & C-1 thru C-10 (Revised 1-30-07)

LENGTH OF PROJECT		
	LINEAR FEET	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	DESCRIPTION
3-07	Revised sequence of contract plans.

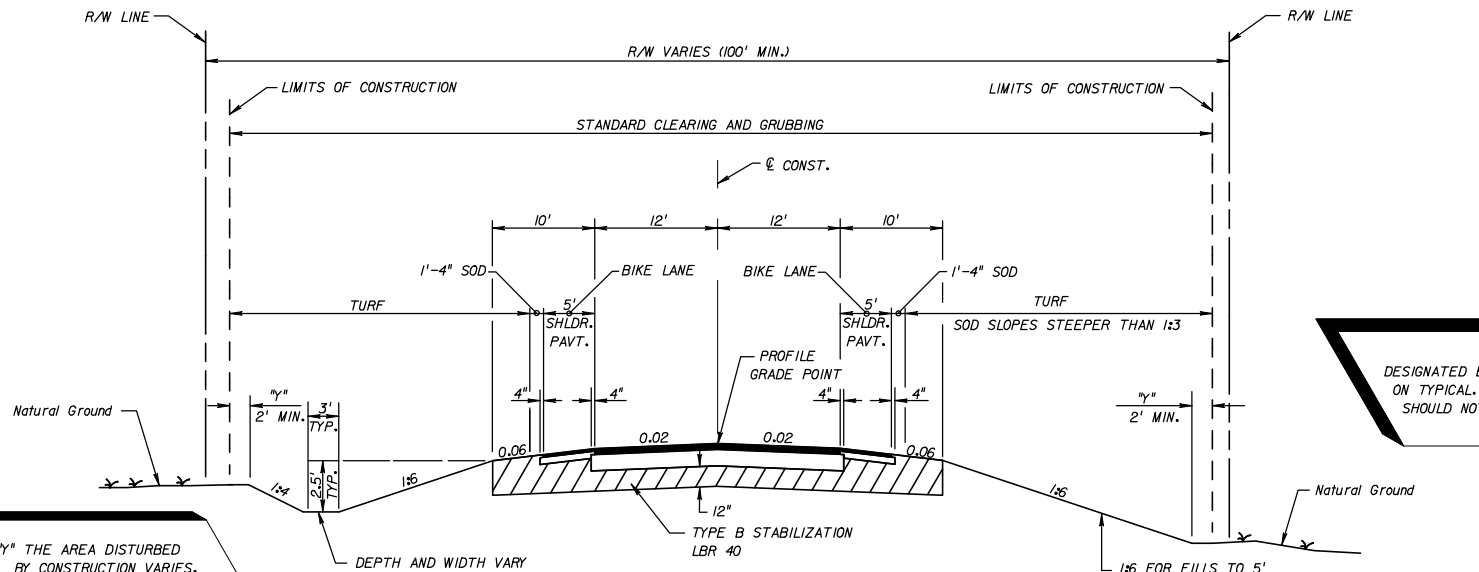
ROADWAY PLANS ENGINEER OF RECORD: \_\_\_\_\_  
P.E. NO. : \_\_\_\_\_

FISCAL YEAR	SHEET NO.

FDOT PROJECT MANAGER :

ELECTRONIC SIGNATURE NOTE WHEN SHEET IS ELECTRONICALLY SIGNED AND SEALED





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.

"y" THE AREA DISTURBED  
 BY CONSTRUCTION VARIES.

**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

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 10 (U.S. 90-A)  
 STA. 10+00.00 TO STA. 267+34.89**

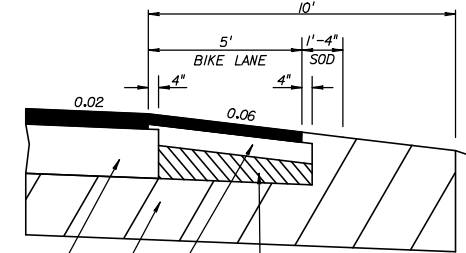
**NEW CONSTRUCTION**

OPTIONAL BASE GROUP 8 WITH  
 TYPE SP STRUCTURAL COURSE (TRAFFIC C) (2")  
 AND FRICTION COURSE FC-12.5 (TRAFFIC C) (1/2") (RUBBER)

**SHOULDER PAVEMENT**

OPTIONAL BASE GROUP 1 WITH  
 FRICTION COURSE FC-12.5 (TRAFFIC C) (1/2") (RUBBER)

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

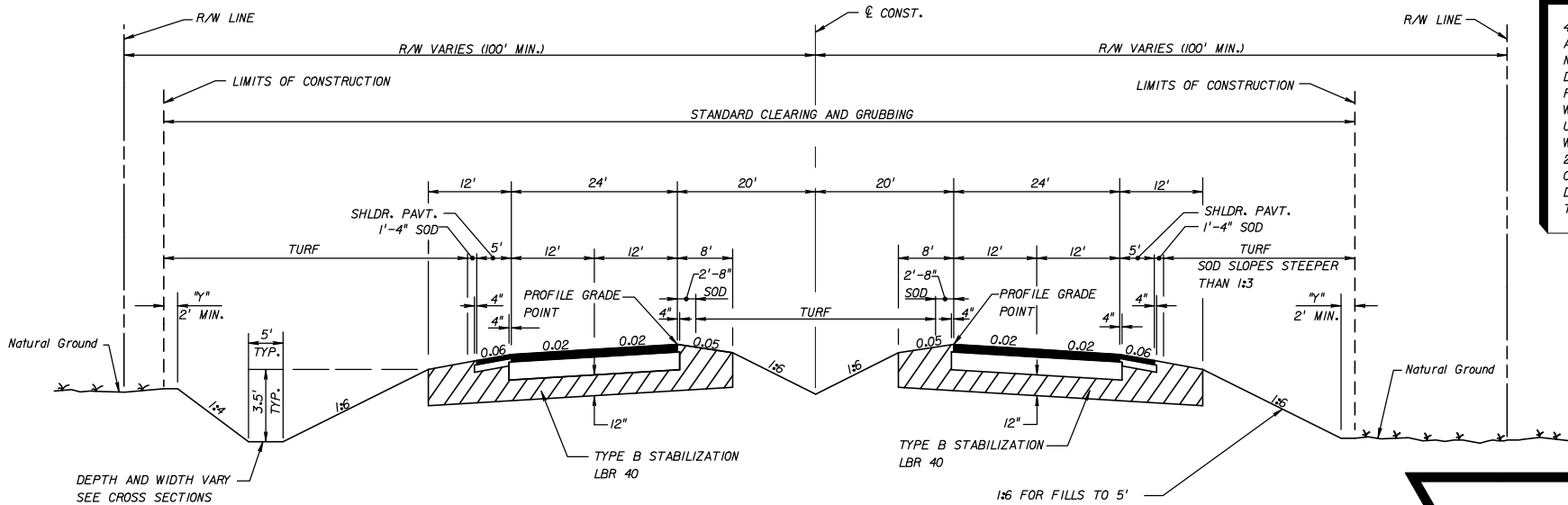


AT THE CONTRACTOR'S OPTION  
 THIS AREA MAY BE CONSTRUCTED  
 OF OPTIONAL BASE MATERIAL AT  
 NO ADDITIONAL COMPENSATION.

**SHOULDER PAVEMENT DETAIL**

EXHIBIT TYP-1  
 Date: 1/1/07

REVISIONS						STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			TYPICAL SECTION	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	ROAD NO.	COUNTY	FINANCIAL PROJECT ID		



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

**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

**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) (2")  
 TYPE SP STRUCTURAL COURSE (TRAFFIC D) (1 1/2") (PG 76-22)  
 AND FRICTION COURSE FC-5 (3/4") (PG 76-22)

**SHOULDER PAVEMENT**

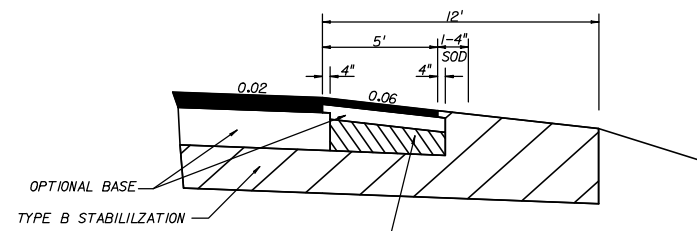
OPTIONAL BASE GROUP 1 WITH  
 TYPE SP STRUCTURAL COURSE (TRAFFIC D) (1 1/2") (PG 76-22)  
 AND FRICTION COURSE FC-5 (3/4") (PG 76-22)

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

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.



AT THE CONTRACTOR'S OPTION  
 THIS AREA MAY BE CONSTRUCTED  
 OF OPTIONAL BASE MATERIAL  
 AT NO ADDITIONAL COMPENSATION

**SHOULDER PAVEMENT DETAIL**

EXHIBIT TYP-2  
 Date: 1/1/07

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID

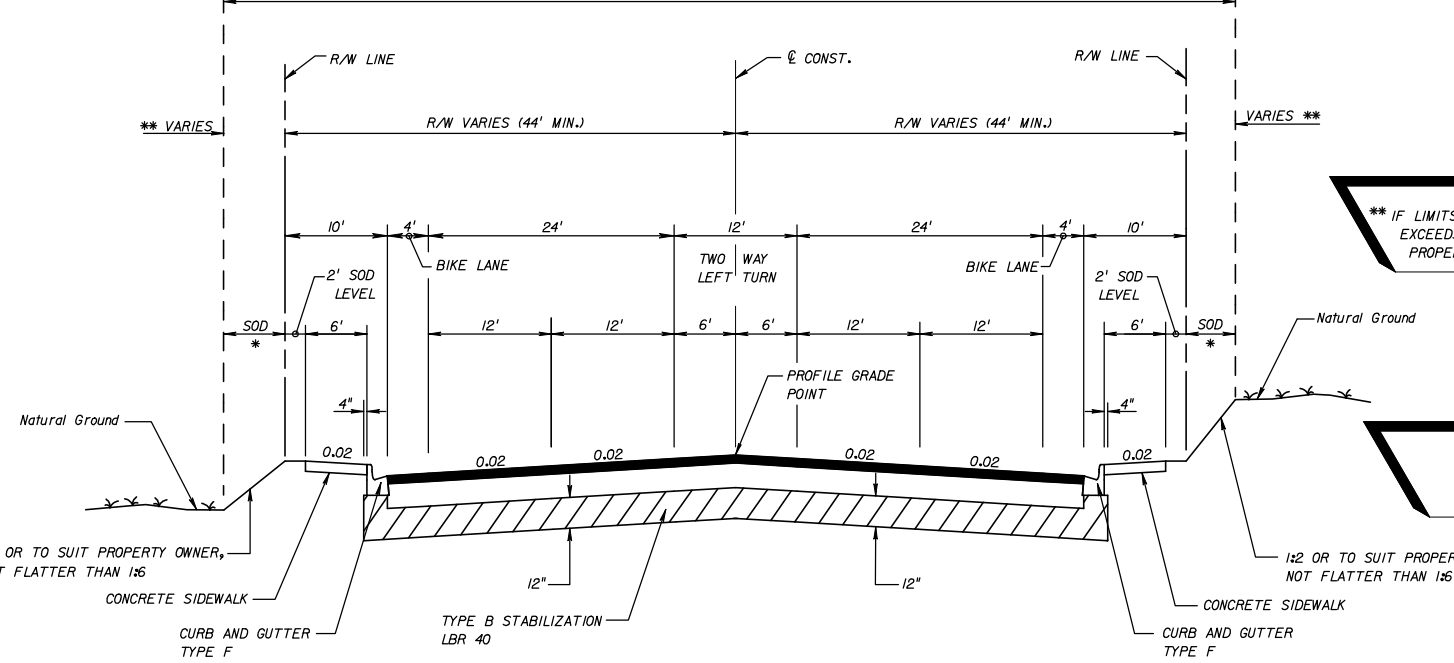
<b>TYPICAL SECTION</b>	SHEET NO.
------------------------	--------------

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

LIMITS OF CONSTRUCTION STANDARD CLEARING AND GRUBBING LIMITS OF CONSTRUCTION



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

\* TURF, SOD OR TURF, 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 = 40 MPH

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

**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) (1 1/2") AND FRICTION COURSE FC-12.5 (TRAFFIC B) (1 1/2") (RUBBER)

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

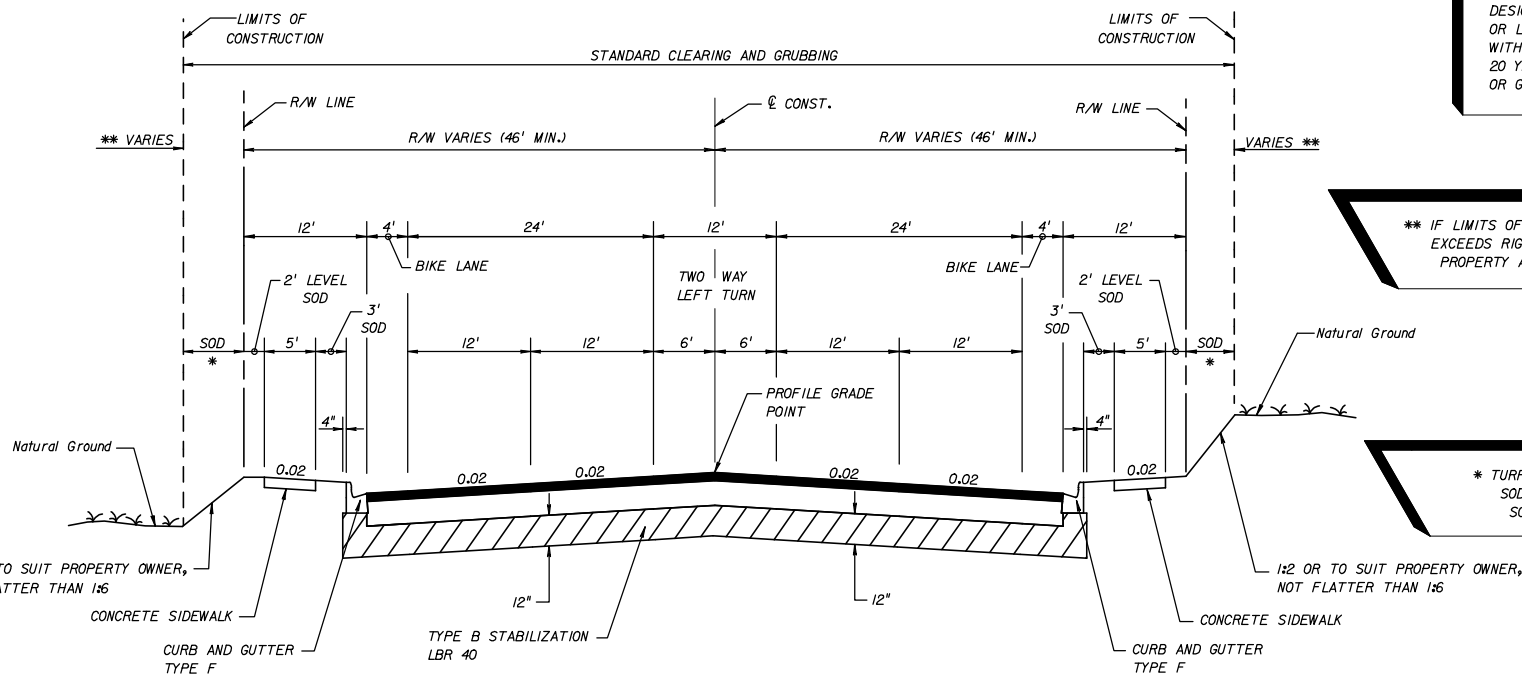
**EXHIBIT TYP-3  
 Date: 1/1/07**

REVISIONS				STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION		
						TYPICAL SECTION	

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.J.

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.

\* TURF, SOD OR TURF, SOD.

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

**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 = 1%  
 DESIGN SPEED = 40 MPH

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

**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) (1 1/2")  
 AND FRICTION COURSE FC-12.5 (TRAFFIC B) (1 1/2") (RUBBER)

EXHIBIT TYP-4  
 Date: 1/1/07

REVISIONS						STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	ROAD NO.	COUNTY	FINANCIAL PROJECT ID	

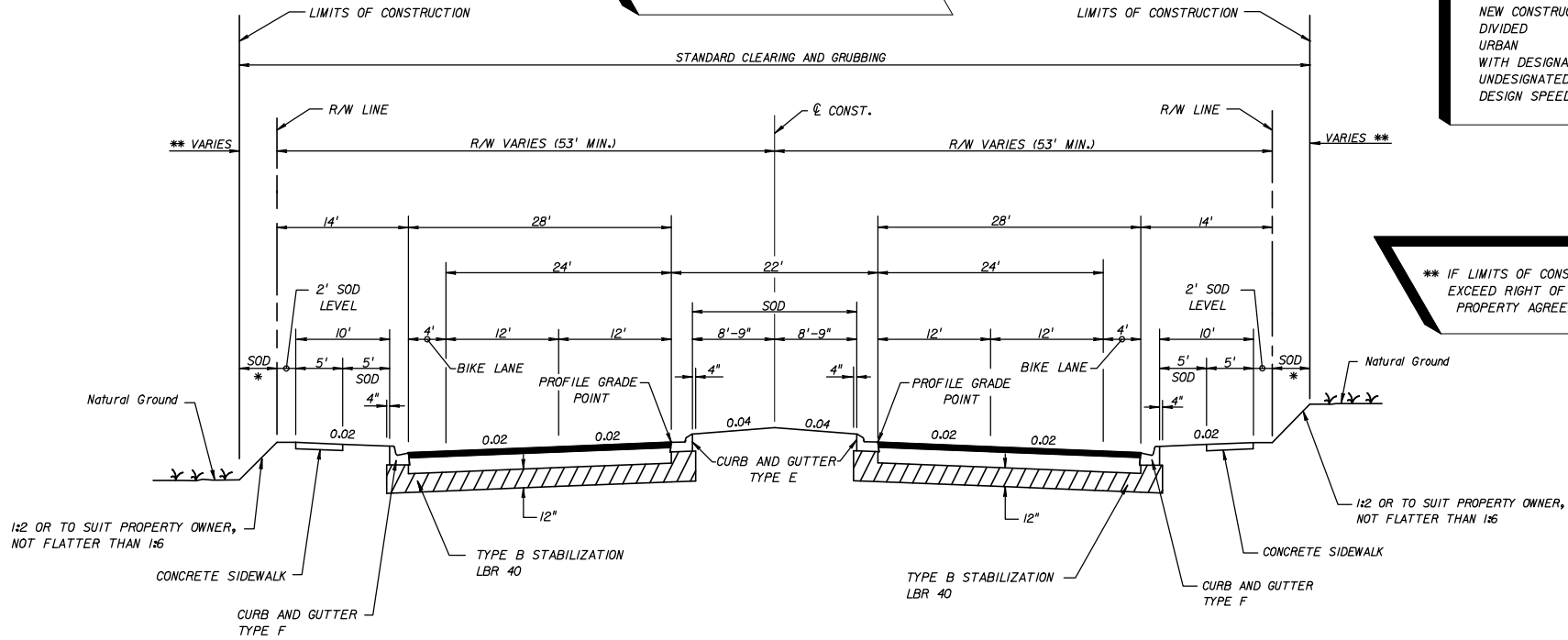
**TYPICAL SECTION**



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) (1 1/2")  
AND FRICTION COURSE FC-12.5 (TRAFFIC B) (1 1/2") (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.

\* TURF, SOD OR TURF, SOD.

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

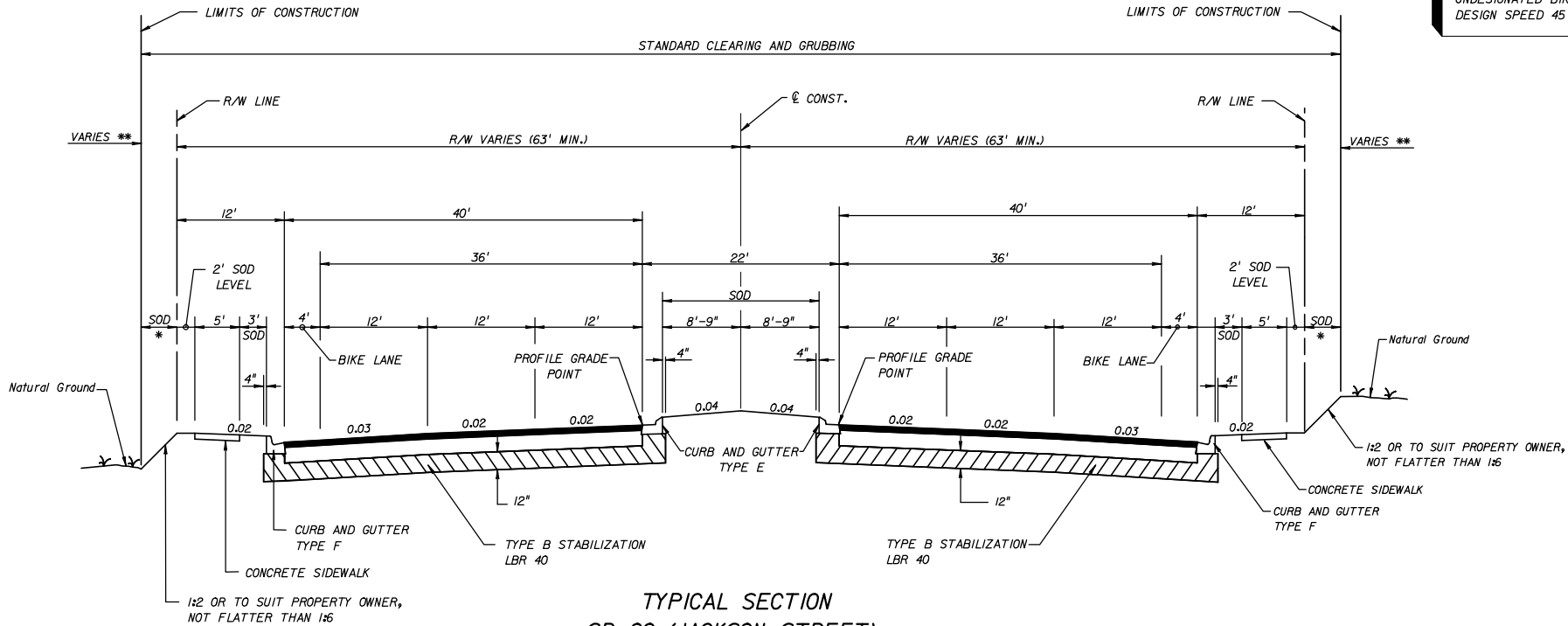
EXHIBIT TYP-5  
Date: 1/1/07

REVISIONS						STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			TYPICAL SECTION	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	ROAD NO.	COUNTY	FINANCIAL PROJECT ID		

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) (2")  
AND FRICTION COURSE FC-12.5 (TRAFFIC C) (1/2") (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.

\* TURF, SOD OR TURF, SOD.

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

EXHIBIT TYP-6  
Date: 1/1/07

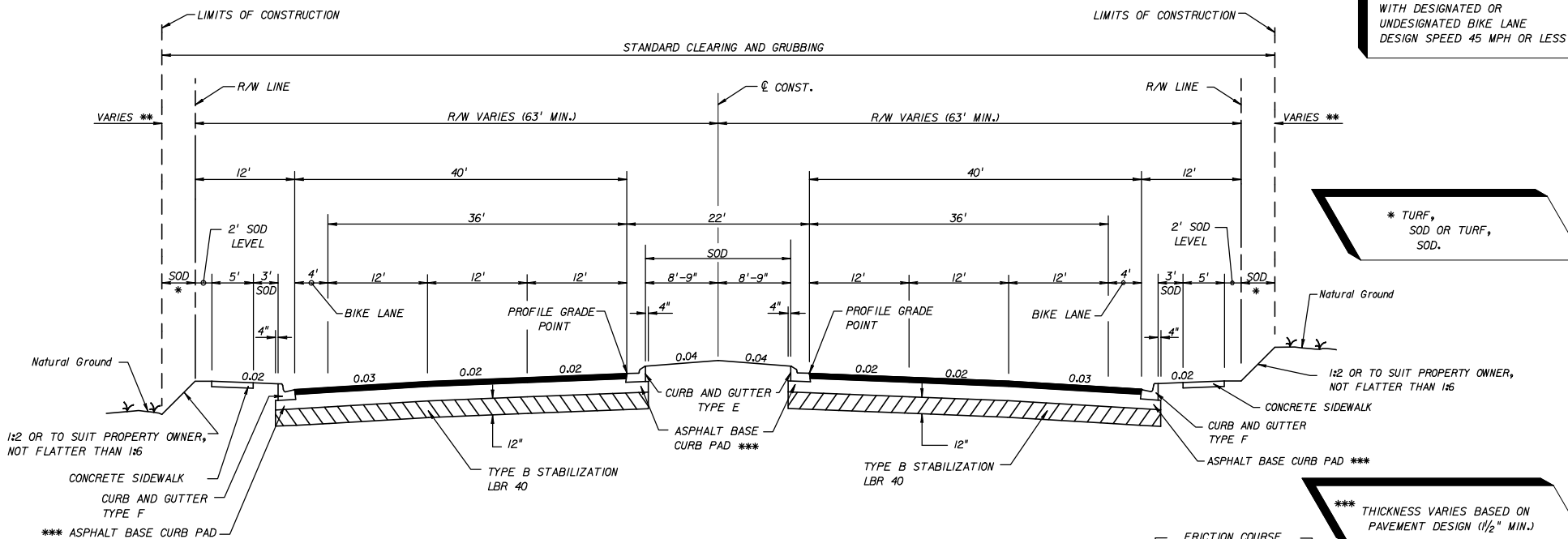
REVISIONS						STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	ROAD NO.	COUNTY	FINANCIAL PROJECT ID	

TYPICAL SECTION

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



\* TURF, SOD OR TURF, SOD.

1:2 OR TO SUIT PROPERTY OWNER, NOT FLATTER THAN 1:6  
CONCRETE SIDEWALK  
CURB AND GUTTER TYPE F  
\*\*\* ASPHALT BASE CURB PAD

\*\*\* THICKNESS VARIES BASED ON PAVEMENT DESIGN (1/2" MIN.)

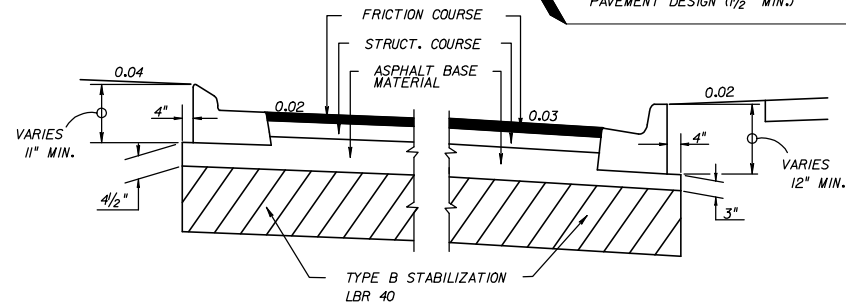
**TRAFFIC DATA**

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 = 12  
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 ONLY), WITH TYPE SP STRUCTURAL COURSE (TRAFFIC C) (3") AND FRICTION COURSE FC-12.5 (TRAFFIC C) (1/2") (RUBBER)



DETAIL OF ASPHALT BASE CURB PAD

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

TRAFFIC DATA IS REQUIRED TO BE NOTED FOR CURRENT YEAR, OPENING YEAR AND DESIGN YEAR.

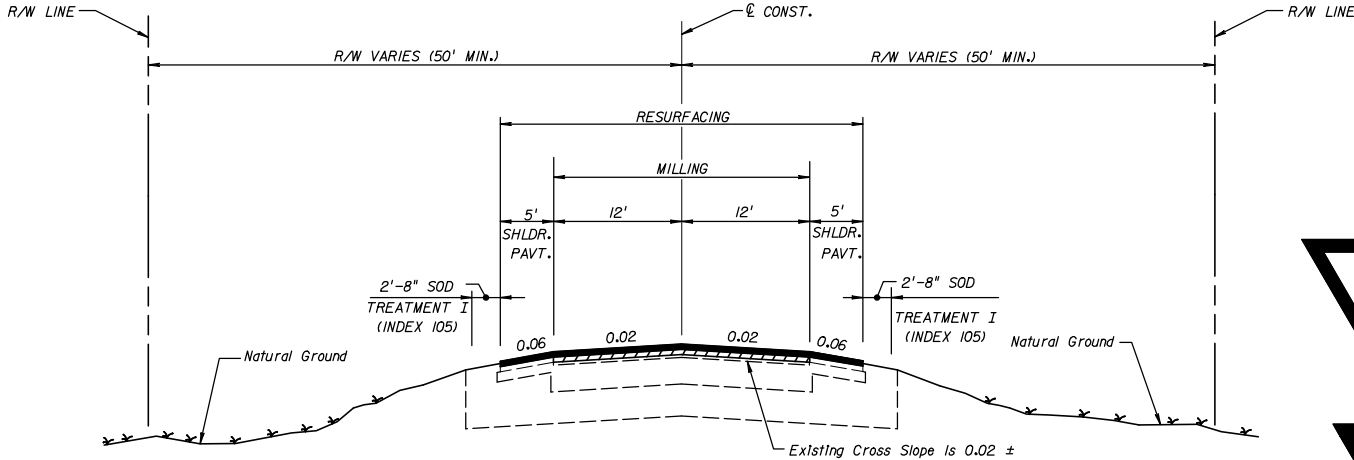
EXHIBIT TYP-6A  
Date: 1/1/07

REVISIONS						STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	ROAD NO.	COUNTY	FINANCIAL PROJECT ID	

**TYPICAL SECTION**

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+77.00**

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

**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) (2")  
AND FRICTION COURSE FC-9.5 (TRAFFIC B) (1") (RUBBER)

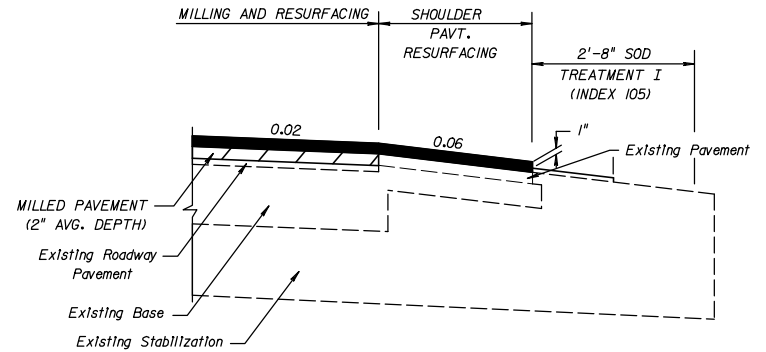
**SHOULDER PAVEMENT RESURFACING**

FRICTION COURSE FC-9.5 (TRAFFIC B) (1") (RUBBER)

**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.

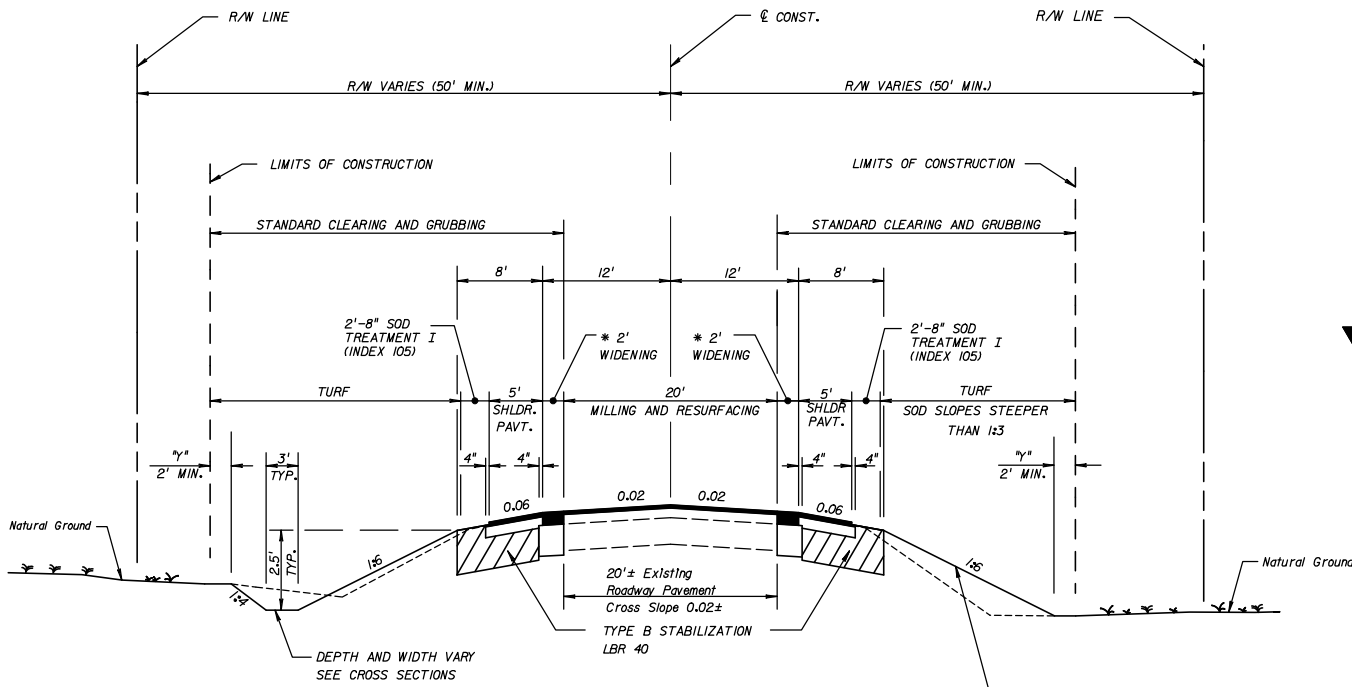


**SHOULDER PAVEMENT DETAIL**

**EXHIBIT TYP-7**  
Date: 1/1/07

REVISIONS						STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	ROAD NO.	COUNTY	FINANCIAL PROJECT ID	

**TYPICAL SECTION**



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

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

"n" THE AREA DISTURBED BY CONSTRUCTION VARIES.

**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) (1 1/2")  
AND FRICTION COURSE FC-12.5 (TRAFFIC C) (1 1/2") (RUBBER)

**WIDENING**  
OPTIONAL BASE GROUP II WITH  
TYPE SP STRUCTURAL COURSE (TRAFFIC C) (3")  
AND FRICTION COURSE FC-12.5 (TRAFFIC C) (1 1/2") (RUBBER)

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.

\* SEE SHEET 2 OF 2 FOR WIDENING  
AND SHOULDER PAVEMENT DETAIL

**EXHIBIT TYP-8**  
Date: 1/1/07  
SHEET 1 OF 2

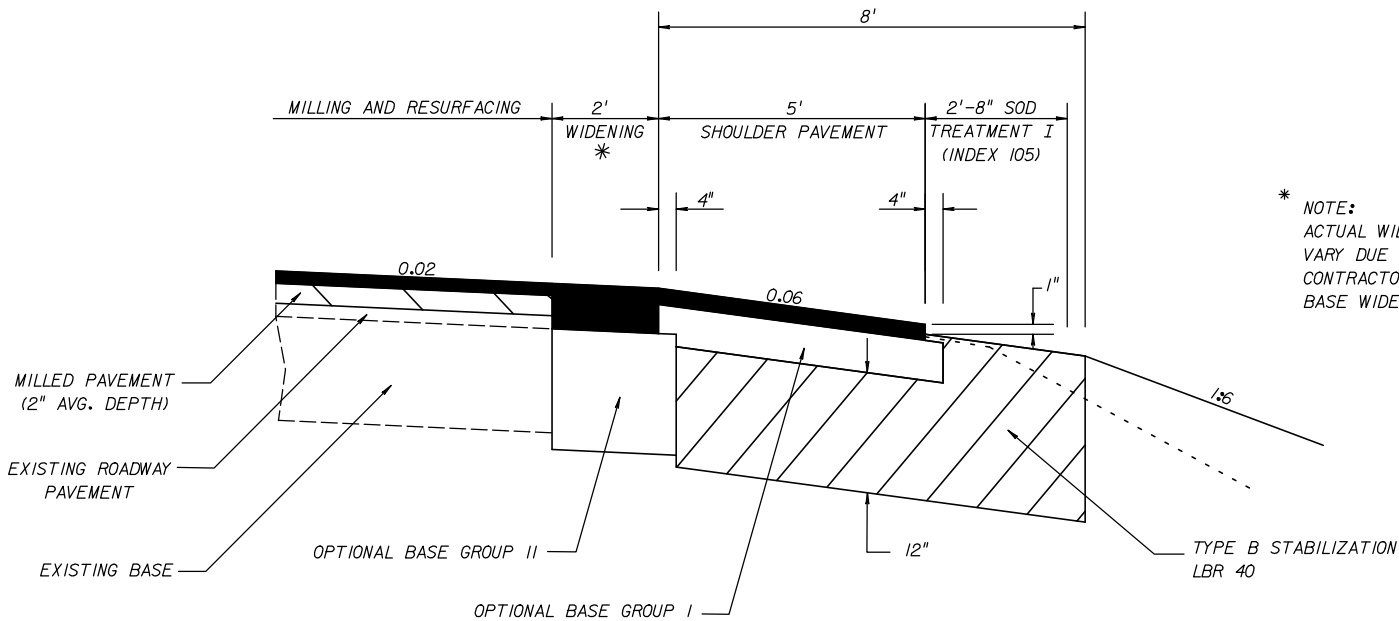
REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

<b>STATE OF FLORIDA</b> <b>DEPARTMENT OF TRANSPORTATION</b>		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID

<b>TYPICAL SECTION</b>	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

WIDENING

OPTIONAL BASE GROUP II WITH  
TYPE SP STRUCTURAL COURSE (TRAFFIC C) (3")  
FRICTION COURSE FC-12.5 (TRAFFIC C) (1/2") (RUBBER)

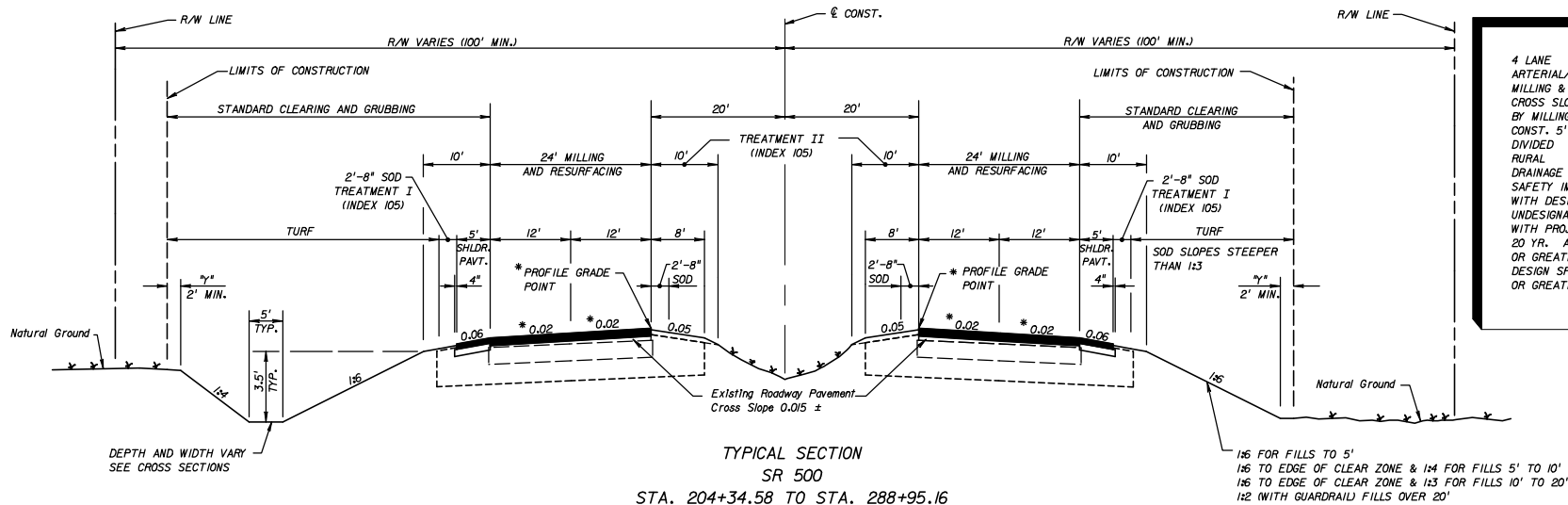
SHOULDER PAVEMENT

OPTIONAL BASE GROUP I WITH  
FRICTION COURSE FC-12.5 (TRAFFIC C) (1/2") (RUBBER)

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

EXHIBIT TYP-8A  
Date: 1/1/07

REVISIONS						STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			TYPICAL SECTION	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	ROAD NO.	COUNTY	FINANCIAL PROJECT ID		



4 LANE  
ARTERIAL/COLLECTOR  
MILLING & RESURFACING  
CROSS SLOPE CORRECTION  
BY MILLING OR OVERBUILD  
CONST. 5' SHLDR. PAV'T  
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.

**TRAFFIC DATA**  
CURRENT YEAR = 1998 AADT = 18100  
ESTIMATED OPENING YEAR = 2000 AADT = 21000  
ESTIMATED DESIGN YEAR = 2012 AADT = 30900  
K = 112 D = 58% T = 22% (24 HOUR)  
DESIGN HOUR T = 112  
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, OVERBUILD 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.

TYPICAL SECTION  
SR 500  
STA. 204+34.58 TO STA. 288+95.16

**MILLING**  
MILL EXISTING ASPHALT PAVEMENT (1/2" AVG. DEPTH)

**RESURFACING**  
TYPE SP STRUCTURAL COURSE (TRAFFIC D) (1/2")  
TYPE SP STRUCTURAL COURSE (TRAFFIC D) (1/2") (PG 76-22)  
AND FRICTION COURSE FC-5 (3/4") (PG 76-22)

**SHOULDER PAVEMENT**  
OPTIONAL BASE GROUP 1 WITH  
TYPE SP STRUCTURAL COURSE (TRAFFIC D) (1/2") (PG 76-22)  
AND FRICTION COURSE FC-5 (3/4") (PG 76-22)

STA. 316+53.67 TO STA. 527+82.00  
**MILLING**  
MILL EXISTING ASPHALT PAVEMENT (1/2" AVG. DEPTH)

**OVERBUILD**  
TYPE SP OVERBUILD (TRAFFIC D) THICKNESS VARIES (1" TO 1/2")

**RESURFACING**  
TYPE SP STRUCTURAL COURSE (TRAFFIC D) (1/2")  
TYPE SP STRUCTURAL COURSE (TRAFFIC D) (1/2") (PG 76-22)  
AND FRICTION COURSE FC-5 (3/4") (PG 76-22)

**SHOULDER PAVEMENT**  
OPTIONAL BASE GROUP 1 WITH  
TYPE SP STRUCTURAL COURSE (TRAFFIC D) (1/2") (PG 76-22)  
AND FRICTION COURSE FC-5 (3/4") (PG 76-22)

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

7" 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: 1/1/07

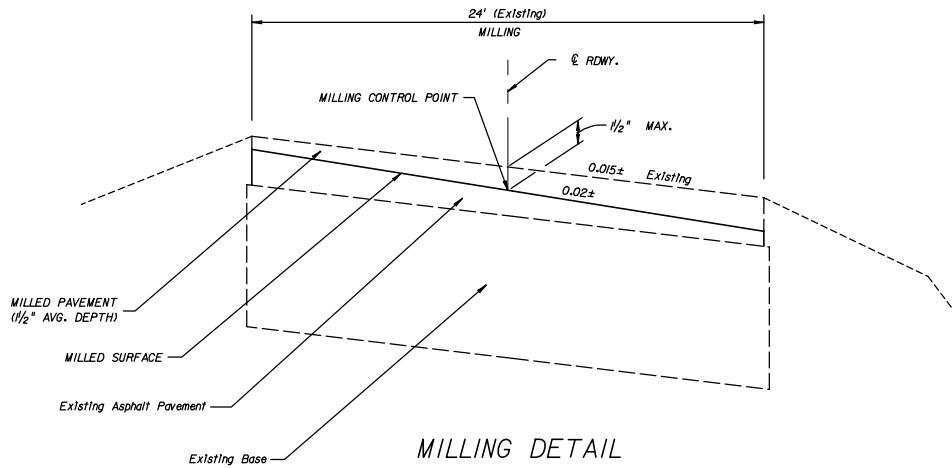
SHEET 1 OF 3

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID

TYPICAL SECTION

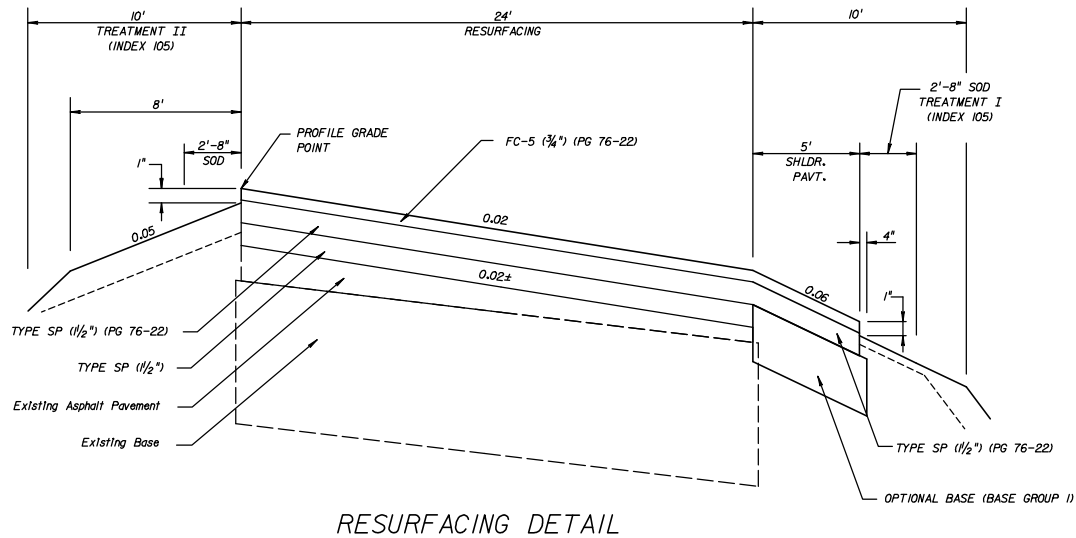
SHEET NO.



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.

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: 1/1/07

SHEET 2 OF 3

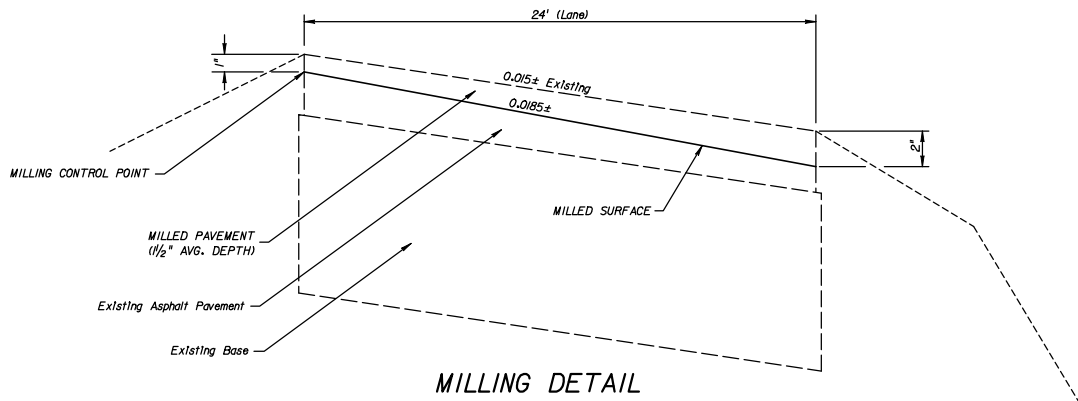
REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID

TYPICAL SECTION DETAILS

SHEET NO.



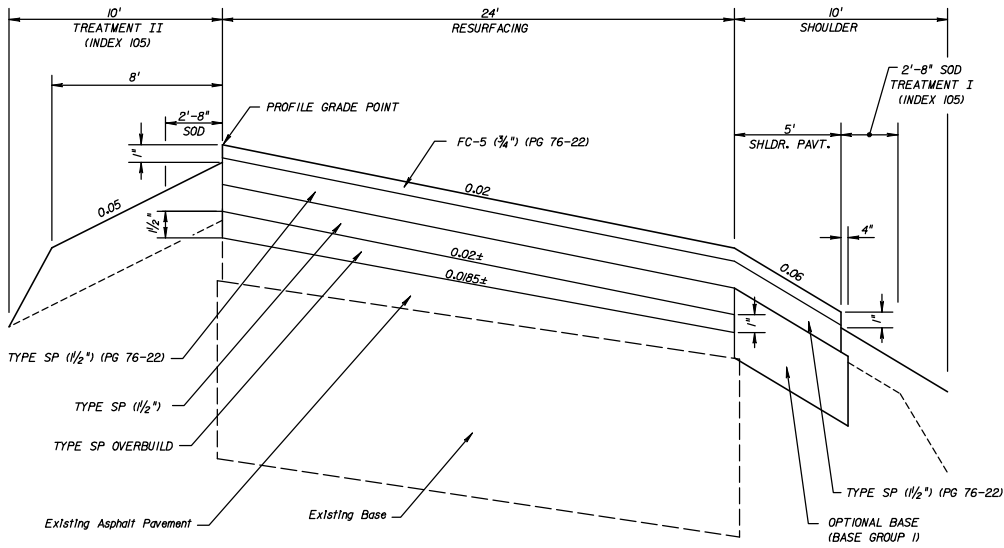


MILLING DETAIL

WHEN CROSS SLOPE CORRECTION IS NECESSARY SPECIAL MILLING, OVERBUILD AND LAYERING DETAILS MUST BE PROVIDED TO SUPPLEMENT TYPICAL SECTION. THE NEED FOR AND LOCATION OF PROFILE GRADES POINTS WILL DEPEND ON SITE SPECIFIC CONDITIONS.

EXAMPLE OF CROSS SLOPE CORRECTION BY MILLING AND OVERBUILD.

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



OVERBUILD AND RESURFACING DETAIL

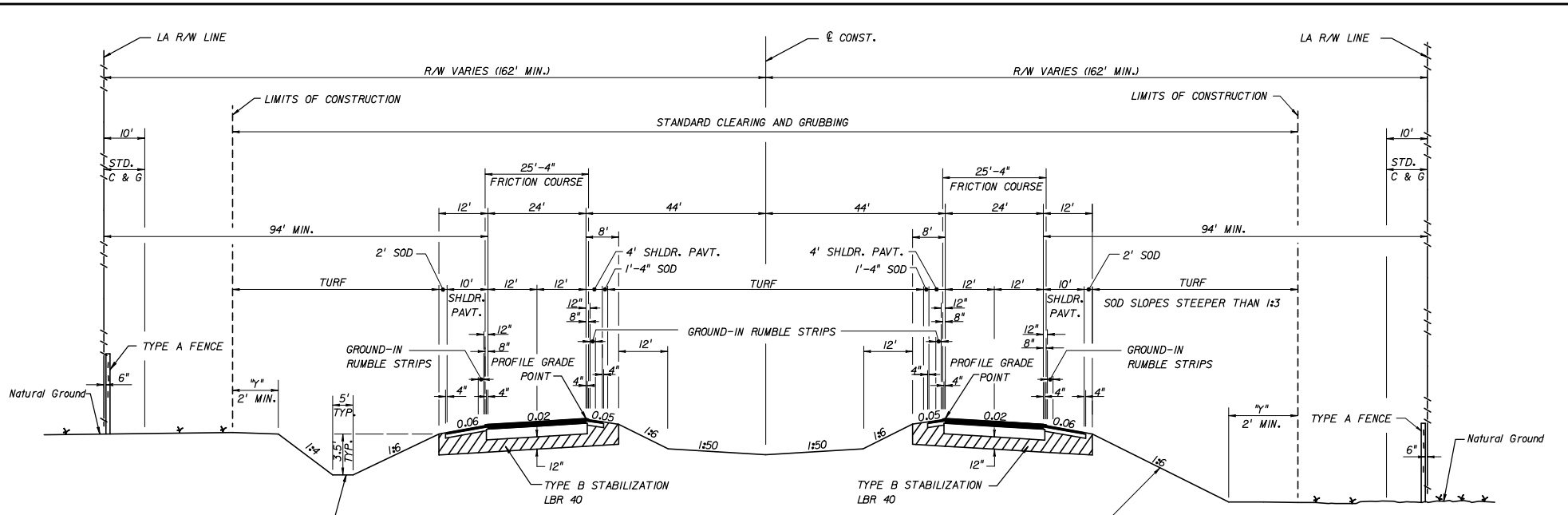
SUGGESTED CONSTRUCTION SEQUENCES SHOWN. OTHER SEQUENCES THAT MEET SPECIFICATIONS, THICKNESS AND CROSS SLOPE REQUIREMENTS MAY BE CONSIDERED BY THE ENGINEER.

STA. 316+53.67 TO STA. 527+82.00

EXHIBIT TYP-9B  
Date: 1/1/07

SHEET 3 OF 3

REVISIONS						STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			TYPICAL SECTION DETAILS	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	ROAD NO.	COUNTY	FINANCIAL PROJECT ID		



**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

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 8  
 STA. 567+25.67 TO STA. 1056+84.35**

**NEW CONSTRUCTION**  
 OPTIONAL BASE GROUP 9 WITH  
 TYPE SP STRUCTURAL COURSE (TRAFFIC D) (2 1/2")  
 TYPE SP STRUCTURAL COURSE (TRAFFIC D) (1 1/2") (PG 76-22) AND  
 FRICTION COURSE FC-5 (3/4") (PG 76-22)

**MEDIAN SHOULDER PAVEMENT**  
 OPTIONAL BASE GROUP 1 WITH  
 TYPE SP STRUCTURAL COURSE (TRAFFIC D) (1 1/2")  
 TYPE SP STRUCTURAL COURSE (TRAFFIC D) (1 1/2") (PG 76-22) AND  
 FRICTION COURSE FC-5 (3/4") (PG 76-22)

**OUTSIDE SHOULDER PAVEMENT**  
 OPTIONAL BASE GROUP 1 WITH  
 TYPE SP STRUCTURAL COURSE (TRAFFIC B) (1 1/2") AND  
 FRICTION COURSE FC-5 (3/4") (PG 76-22)

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

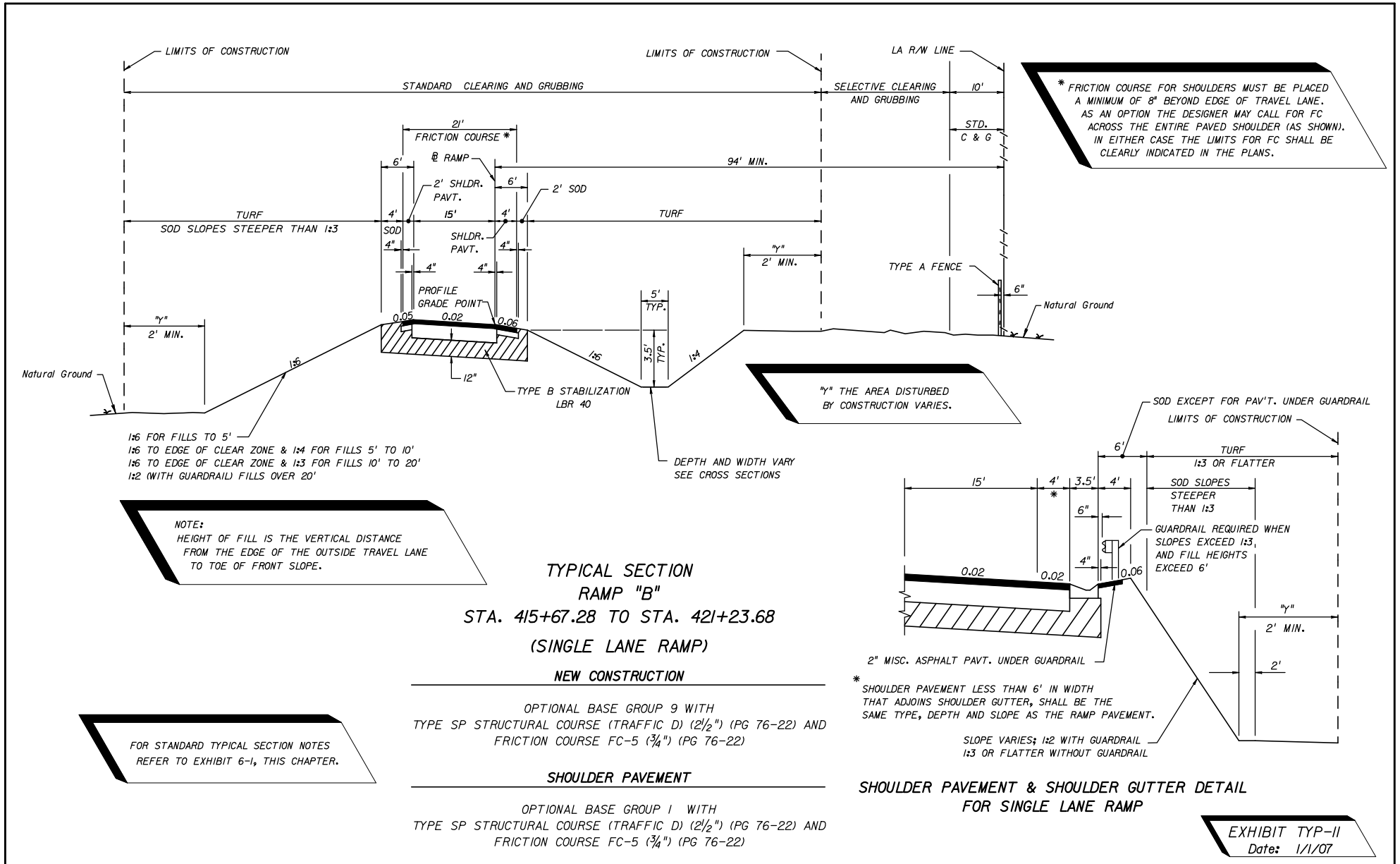
1:6 FOR FILLS TO 5'  
 1:6 TO EDGE OF CLEAR ZONE & 1:4 FOR FILLS 5' TO 10'  
 1:6 TO EDGE OF CLEAR ZONE & 1:3 FOR FILLS 10' TO 20'  
 1:2 (WITH GUARDRAIL) FILLS OVER 20'

4 LANE INTERSTATE SYSTEM NEW CONSTRUCTION DIVIDED RURAL WITH PROJECTED 20 YR. AADT OF 1500 OR GREATER DESIGN SPEED TO MPH

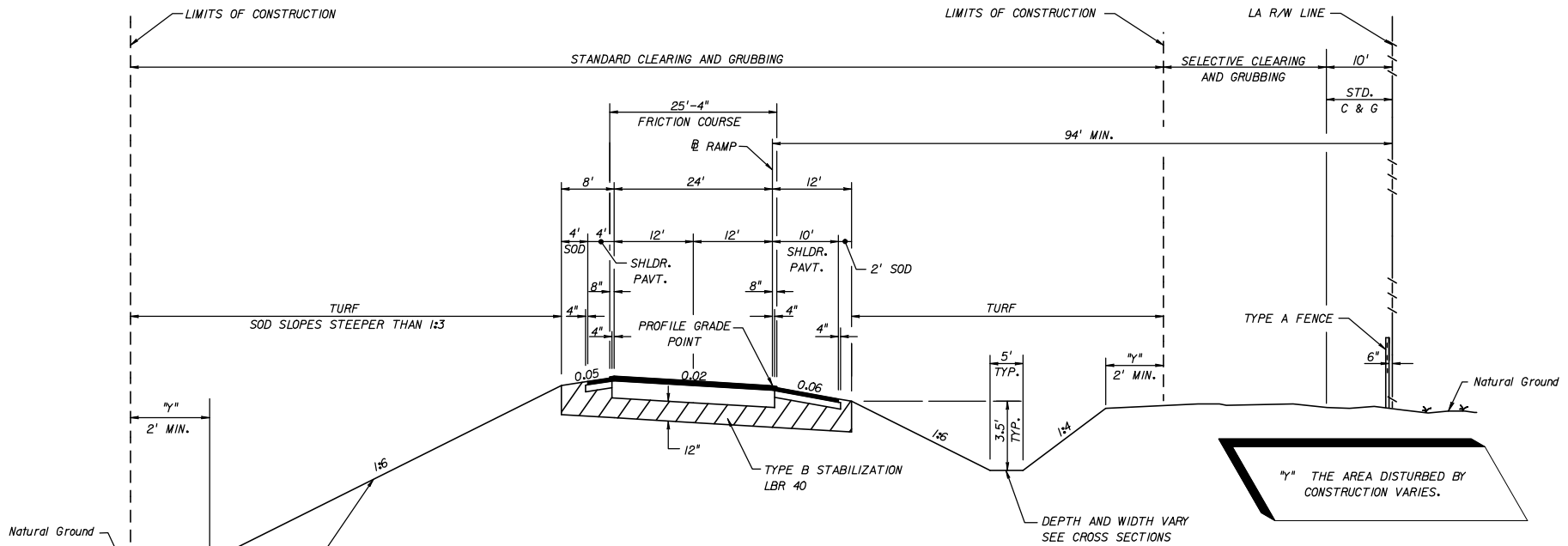
"y" THE AREA DISTURBED BY CONSTRUCTION VARIES.

**EXHIBIT TYP-10**  
 Date: 1/1/07

REVISIONS						STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			TYPICAL SECTION	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	ROAD NO.	COUNTY	FINANCIAL PROJECT ID		



REVISIONS					STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			RAMP TYPICAL SECTION	SHEET NO.	
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	ROAD NO.	COUNTY			FINANCIAL PROJECT ID



**TYPICAL SECTION  
RAMP "C"  
STA. 623+28.64 TO STA. 629+13.78  
(TWO LANE RAMP)**

**NEW CONSTRUCTION**

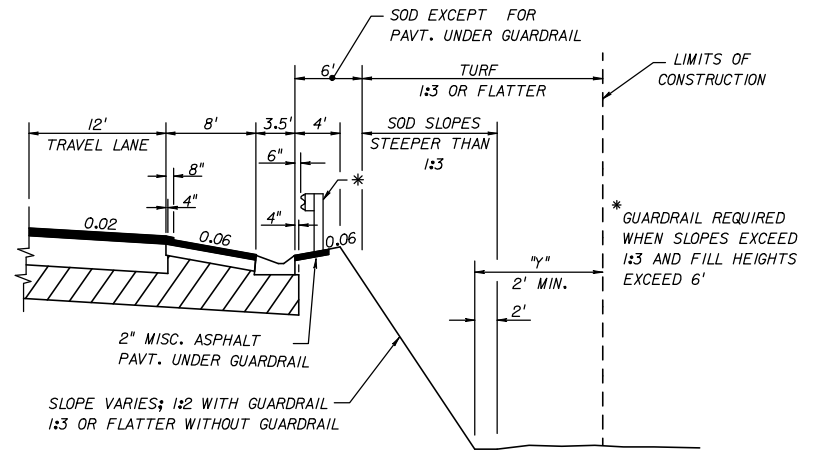
OPTIONAL BASE GROUP 9 WITH  
TYPE SP STRUCTURAL COURSE (TRAFFIC D) (2") (PG 76-22) AND  
FRICTION COURSE FC-5 (¾") (PG 76-22)

**LEFT SHOULDER PAVEMENT**

OPTIONAL BASE GROUP 1 WITH  
TYPE SP STRUCTURAL COURSE (TRAFFIC D) (2") (PG 76-22) AND  
FRICTION COURSE FC-5 (¾") (PG 76-22)

**RIGHT SHOULDER PAVEMENT**

OPTIONAL BASE GROUP 1 WITH  
TYPE SP STRUCTURAL COURSE (TRAFFIC B) (2") AND  
FRICTION COURSE FC-5 (¾") (PG 76-22)



**SHOULDER PAVEMENT & SHOULDER GUTTER DETAIL  
MAINLINE AND MULTILANE RAMPS**

**EXHIBIT TYP-12  
Date: 1/1/07**

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

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID

<b>RAMP TYPICAL SECTION</b>			

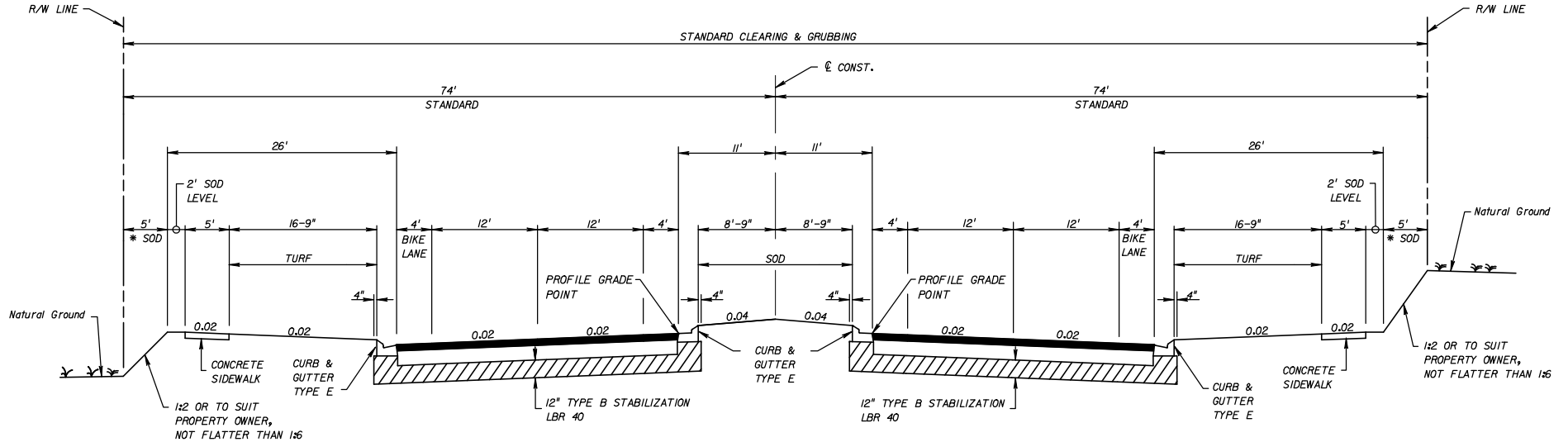
SHEET NO.

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

IF LANDSCAPING IS DESIRED, TREES SHALL BE TYPES THAT WILL NOT HAVE AN EXPECTED GROWTH GREATER THAN 4" IN DIAMETER MEASURED 6" ABOVE THE GROUND.

TURF SLOPES 1:3 OR FLATTER  
\* SOD SLOPES STEEPER THAN 1:3

4-LANE  
ARTERIAL  
NEW CONSTRUCTION  
DIVIDED  
SUBURBAN  
WITH DESIGNATED OR  
UNDESIGNATED BIKE LANE  
DESIGN SPEED 55 MPH



**TRAFFIC DATA**

CURRENT YEAR = 1999 AADT = 22800  
ESTIMATED OPENING YEAR = 2002 AADT = 25800  
ESTIMATED DESIGN YEAR = 2022 AADT = 30600  
K = 6% D = 55% T = 2% (24 HOUR)  
DESIGN HOUR T = 1%  
DESIGN SPEED = 55 MPH

**SUBURBAN TYPICAL SECTION**  
**SR 00 (SARA AVE.)**  
**STA. 50+40.00 TO STA. 125+50.00**

**NEW CONSTRUCTION**

OPTIONAL BASE GROUP 9 WITH  
TYPE SP STRUCTURAL COURSE (TRAFFIC C) (3 1/2")  
AND FRICTION COURSE FC-5 (3/4") (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.

EXHIBIT TYP-13  
Date: 1/1/07

REVISIONS				STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SUBURBAN TYPICAL SECTION	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION			

#USERS

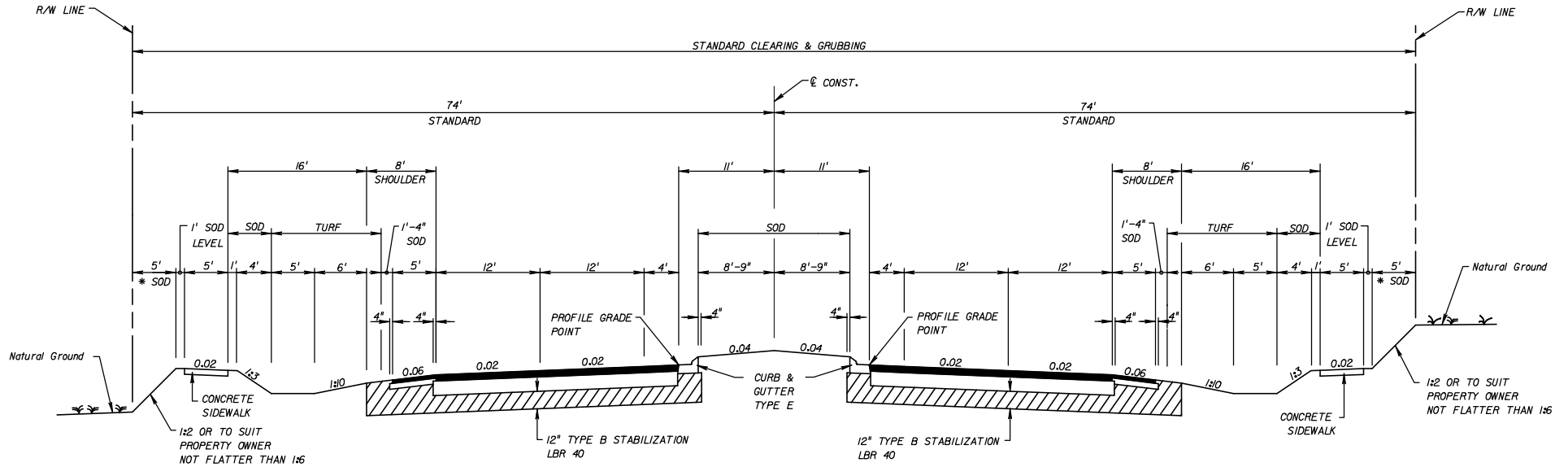
#DATES

#TIMES

#FILES

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

4-LANE  
ARTERIAL  
NEW CONSTRUCTION  
DIVIDED  
SUBURBAN  
WITH DESIGNATED OR  
UNDESIGNATED BIKE LANE  
DESIGN SPEED 55 MPH OR LESS



**TRAFFIC DATA**

CURRENT YEAR = 1999 AADT = 22800  
 ESTIMATED OPENING YEAR = 2002 AADT = 25800  
 ESTIMATED DESIGN YEAR = 2022 AADT = 30600  
 K = 6% D = 55% T = 2% (24 HOUR)  
 DESIGN HOUR T = 1%  
 DESIGN SPEED = 55 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.

**SUBURBAN TYPICAL SECTION  
 SR 00 (CODY ROAD)  
 STA. 100+40.00 TO STA. 225+50.00**

**NEW CONSTRUCTION**

OPTIONAL BASE GROUP 9 WITH  
 TYPE SP STRUCTURAL COURSE (TRAFFIC C) (3 1/2")  
 AND FRICTION COURSE FC-5 (3/4") (RUBBER)

**SHOULDER PAVEMENT**

OPTIONAL BASE GROUP 1 WITH  
 TYPE SP STRUCTURAL COURSE (TRAFFIC C) (1 1/2")  
 AND FRICTION COURSE FC-5 (3/4") (RUBBER)

TURF SLOPES 1:3 OR FLATTER  
 \* SOD SLOPES STEEPER THAN 1:3

IF LANDSCAPING IS DESIRED, TREES SHALL BE TYPES THAT WILL NOT HAVE AN EXPECTED GROWTH GREATER THAN 4" IN DIAMETER MEASURED 6" ABOVE THE GROUND.

**EXHIBIT TYP-14**  
 Date: 1/1/07

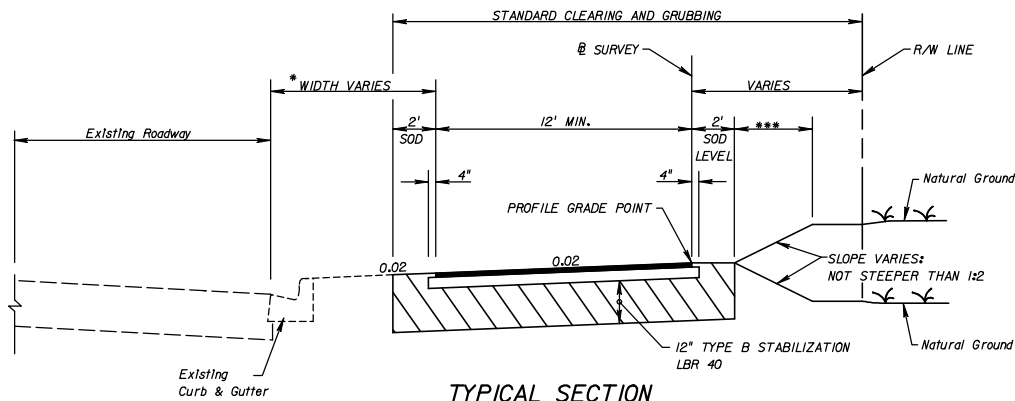
REVISIONS						STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SUBURBAN TYPICAL SECTION	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	ROAD NO.	COUNTY	FINANCIAL PROJECT ID		

#USERS

#DATES

#TIMES

#FILES



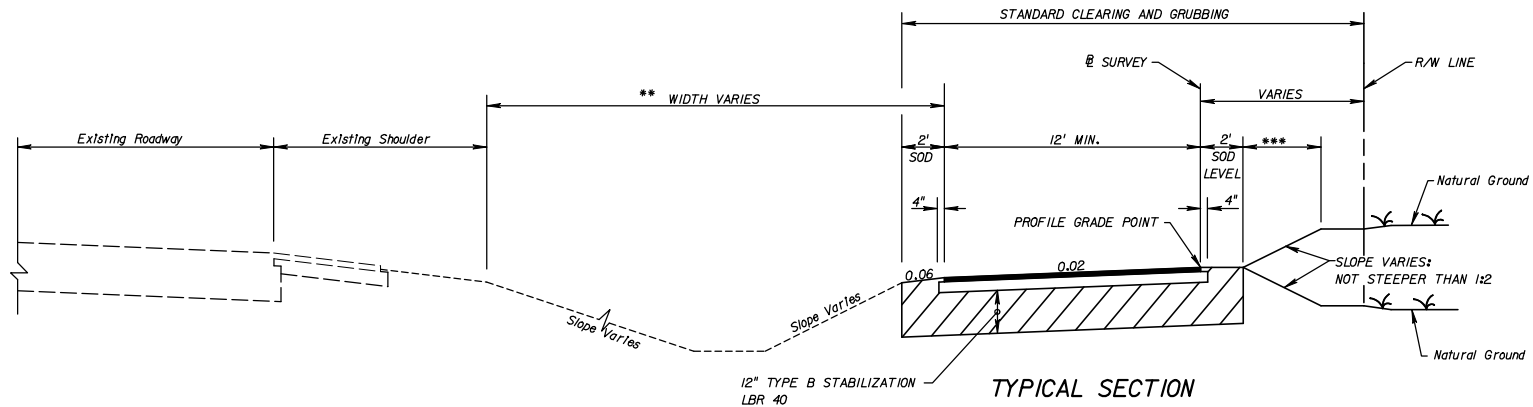
**TYPICAL SECTION  
SHARED USE PATH  
SR 00 (WILLOW WAY)  
STA. 122+00.000 TO STA. 210+65.000  
PATH**

OPTIONAL BASE GROUP I WITH  
TYPE SP STRUCTURAL COURSE (TRAFFIC A) (1")

\* FOR ROADWAYS WITH CURBS, A MINIMUM SEPARATION OF 5 FEET MEASURED FROM THE OUTSIDE EDGE OF TRAVELED WAY TO THE INSIDE EDGE OF THE SHARED USE PATH SHOULD BE PROVIDED.

\*\*\* TURF,  
SOD OR TURF,  
SOD.

NOTE:  
THE DESIGN SPEED FOR SHARED USE PATHS IS 20 MPH.



**TYPICAL SECTION  
SHARED USE PATH  
SR 00 (DEXTON HEIGHTS)  
STA. 22+00.000 TO STA. 51+65.000  
PATH**

OPTIONAL BASE GROUP I WITH  
TYPE SP STRUCTURAL COURSE (TRAFFIC A) (1")

\*\* FOR ROADWAYS WITH FLUSH SHOULDERS, A MINIMUM SEPARATION OF 5 FEET MEASURED FROM THE OUTSIDE EDGE OF SHOULDER TO THE INSIDE EDGE OF THE SHARED USE PATH SHOULD BE PROVIDED.

EXHIBIT TYP-15  
Date: 1/1/07

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

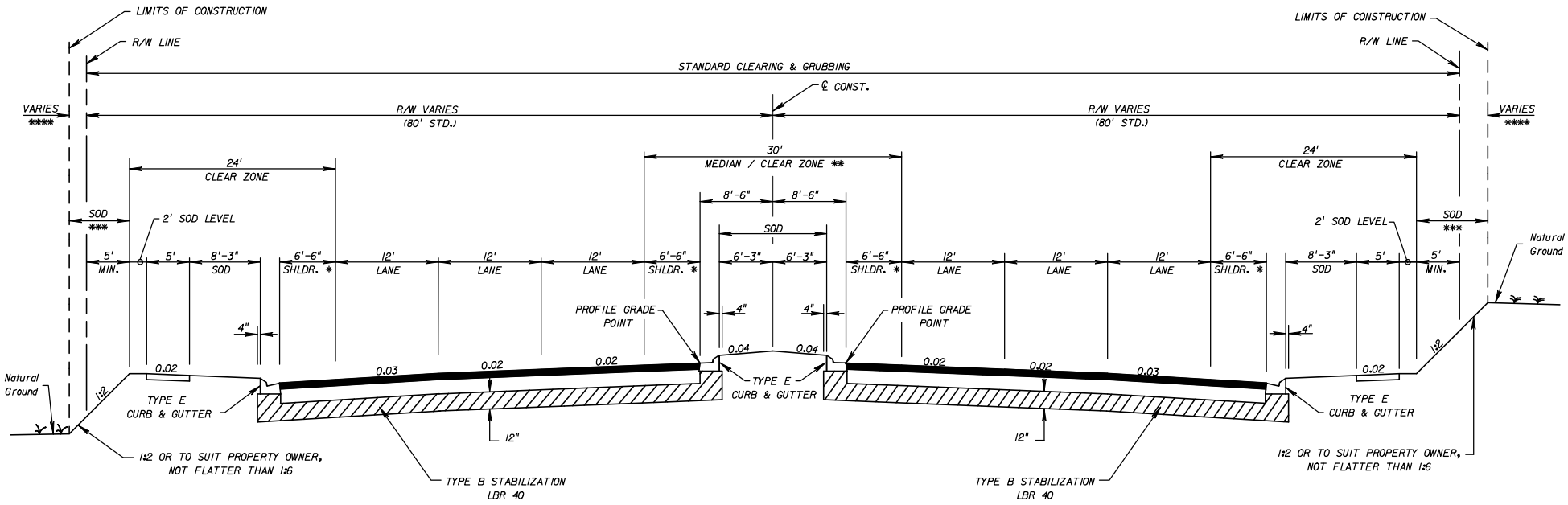
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID

**SHARED USE PATH**

SHEET NO.

\*\*\*\* IF LIMITS OF CONSTRUCTION EXCEED RIGHT OF WAY, A PROPERTY AGREEMENT IS REQUIRED.

6-LANE ARTERIAL  
NEW CONSTRUCTION  
DIVIDED  
URBAN  
DESIGN SPEED 50 MPH



**TYPICAL SECTION  
SR 00 (SOUTH INDEPENDENCE STREET)  
STA. 401+30.00 TO STA. 788+66.00**

**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 = 50 MPH

TRAFFIC DATA IS REQUIRED TO BE NOTED FOR CURRENT YEAR, OPENING YEAR AND DESIGN YEAR.

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

\* PROVIDES FOR 8' OF USABLE SHOULDER

\*\* THE 30' MEDIAN AREA PROVIDES SUFFICIENT WIDTH FOR:  
- 24' CLEAR ZONE  
- DUAL LEFT TURN LANES (3 lanes, 4' separator in median shoulder)  
- DIRECTIONAL MEDIAN OPENING (4' separators in median shoulder)

\*\*\* TURF, SOD OR TURF, SOD.

**NEW CONSTRUCTION**  
OPTIONAL BASE GROUP 9 WITH  
TYPE SP STRUCTURAL COURSE (TRAFFIC C) (3 1/2")  
AND FRICTION COURSE FC-5 (3/4") (RUBBER)

EXHIBIT TYP-16  
Date: 1/1/07

REVISIONS						STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			TYPICAL SECTION	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	ROAD NO.	COUNTY	FINANCIAL PROJECT ID		



## 7.3 Box Culvert Data Sheet

The structural design of box culverts may be done by one of two computer programs dependent on the applicable design specification as described in **Chapter 33**.

The first program is the **LRFD Box Culvert Program** and designs the culvert based on the details shown on **Index 289** of the **Design Standards**. When this program is used the Box Culvert Data Table (from the Structures Sitemenu CADD cells) and the Reinforcing Bar List shall be completed and placed on normally formatted plan sheets. These sheets should be placed together, behind the drainage structure sheets in the contract plans.

The second program is **PSTDN55** and designs the culvert based on the details shown on **Index 290** of the **Design Standards** using Load Factor Design (LFD). When this program 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).

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### **Exhibit 7-1 Standard Notes for Summary of Quantities Sheet Sheet 1 of 2**

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- 13- 1 Based on replacement every 12 months.
3. 110- 86- All salvageable material designated to be delivered by the contractor shall be delivered to:

(Provide address of nearest FDOT Maintenance Yard.)

(On applicable Utility JPA plans, also include the following note):

All utility infrastructure designated in the utility plans to be salvaged and delivered by the contractor shall be delivered to:

(Provide applicable Utility/Agency Owner address.)

4. 334- 1 Includes \_\_\_\_\_ TN for turnouts, connections to existing drives, streets, etc., as directed by the Engineer.
5. 400- 1- 15 Includes \_\_\_\_\_ CY for miscellaneous construction, as directed by the Engineer.
6. (For new construction projects with Asphalt Base, Type B-12.5 Only):  
520-1-7 or 520-1-10

Cost of asphalt curb pad and additional curb thickness required to be included in the cost of curb and gutter.

7. 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 Standard Notes for Summary of Quantities Sheet  
Sheet 2 of 2**

8. 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 538-5 of the Specifications.
9. Temporary Turf: When required by the project design, these items shall be included in the cost of the Performance Turf items (Note: When 570-1-A items are used in the plans, 104-4 (Mowing) shall not be used). A pay item note should show the approximate quantities. For example:
  - 570- 1- 1 Includes approximately \_\_\_\_\_ SY Turf for temporary erosion control.
  - 570- 1- 2 Includes approximately \_\_\_\_\_ SY Sod for temporary erosion control.
10. 639- 2- 1 Payment shall be based on the linear feet of a single conductor.
11. The following pay item note should be shown in the Roadway Plans:
  - 710- The totals shown on the Summary of Roadway Pay Items are for painted pavement markings used for Maintenance of Traffic.

**SUMMARY OF SODDING**

LOCATION STA. TO STA.	SIDE	P			F			FIELD BOOK REFERENCE
		L	W	SY	L	W	SY	
<i>NB I-00</i>								
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				
<i>SB I-00</i>								
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				
<i>RAMP A</i>								
182+99 - 187+24	LT	425	1.33	63				
180+87 - 187+74	RT	687	1.33	102				
<i>RAMP B</i>								
276+62 - 281+75	LT	513	1.33	76				
274+47 - 280+29	RT	582	1.33	86				
<i>RAMP C</i>								
382+45 - 386+88	RT	443	1.33	65				
381+95 - 388+30	LT	635	1.33	94				
<i>RAMP D</i>								
481+05 - 485+63	LT	458	1.33	68				
480+64 - 487+31	RT	667	1.33	99				
<i>DRAINAGE STRUCTURES</i>				807				
<i>PAVED DITCHES</i>				278				
<b>TOTAL</b>				<b>6536</b>				

**SUMMARY OF SIDEDRAIN & MITERED END SECTIONS**

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 160+85 - 161+21	LT			36	2						
P 176+36 - 176+78	LT							42	2		
F 181+46 - 181+98	RT					52	2				
P 192+46 - 192+82	LT	36	2								
F 194+50 - 195+14	RT									64	2
P TOTAL		76	4	36	2	52	2	42	2	64	2
F											
P											
F											
P											
F											

EXHIBIT SQ-1  
Date: 1/1/07

REVISIONS						STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SUMMARY OF QUANTITIES	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	ROAD NO.	COUNTY	FINANCIAL PROJECT ID		

### SUMMARY OF GUARDRAIL

LOCATION		GUARDRAIL (LF)						END ANCHORAGE ASSEMBLIES (EA)								REMARKS	FIELD BOOK REFERENCE		
STATION	SIDE	ROADWAY		ROADWAY, DOUBLE FACE		PEDESTRIAN SAFETY TREATMENT		RUBRAIL		FLARED		PARALLEL		TYPE II				TYPE CRT	
		P	F	P	F	P	F	P	F	P	F	P	F	P	F			P	F
FROM 600+50	RT	87.5				From		From 600+70		I									
TO 601+37			To				To		601+20										
FROM 600+10	LT	125.0				From		From											
TO 601+35			To				To		To										
FROM 602+25	RT	100.0				From 602+30		From		I									
TO 603+25			To				To 603+00		To										
FROM 600+50	MED			275.0		From		From											
TO 603+25			To				To		To										
FROM 604+25	RT	62.5				From		From		I									
TO 604+87			To				To		To										
FROM 602+45	LT	75.0				From		From											
TO 603+20			To				To		To										
FROM						From		From											
TO						To		To											
TOTAL		450		275						3		I		7		I			

### SUMMARY OF DITCH PAVEMENT AND SODDING

LOCATION	SIDE	RIPRAP (SAND CEMENT)		RIPRAP (RUBBLE)		CONCRETE		SODDING		REMARKS	FIELD BOOK REFERENCE
		CY		TN		SY		SY			
		P	F	P	F	P	F	P	F		
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: 1/1/07

REVISIONS				STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SUMMARY OF QUANTITIES	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION			
						ROAD NO. COUNTY FINANCIAL PROJECT ID		

SUMMARY OF EARTHWORK		
DESCRIPTION	P	F
	CY	CY
ROADWAY EXCAVATION, MAINLINE	10,000	
ROADWAY EXCAVATION, ADAMS ST.	800	
REGULAR EXCAVATION, POND #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	

SUMMARY OF EARTHWORK		
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	

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

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.

EXHIBIT SQ-3  
 Date: 1/1/07

REVISIONS						STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION	SUMMARY OF QUANTITIES	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION			

**SUMMARY OF PERMANENT CRASH CUSHIONS**

STATION	SIDE	DESIGN SPEED	OPTIONS ALLOWED	TRANSITION REQUIRED Y/N	PAY ITEMS								
					544-75-40		544-75-22		544-75-9		544-75-14		
					P	F	P	F	P	F	P	F	
100+50	Rt	60	QuadGuard	Y	1								
			TAU II	Y									
			TRACC	Y									
103+10	Med	60	WideTRACC	Y			1						
110+65	Med	60	BRAKEMASTER	N					1				
125+23	Rt	70	QuadGuard HS	Y	1								
			TAU II	Y									
			TRACC	Y									
1175+15	Rt	35	QuadGuard	Y								1	
1321+37	Lt	50	QuadGuard	Y	1								
			TAU II	Y									
<b>Total</b>					<b>3</b>		<b>1</b>		<b>1</b>		<b>1</b>		

**EXHIBIT SQ-4**  
Date: 1/1/07

REVISIONS						STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION	SUMMARY OF QUANTITIES	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION			





GENERAL NOTES

- 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.
- 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.
- 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.
- 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.
- 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.
- 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 NO. 14) OR WHEN NUMEROUS EXCEPTIONS OCCUR.

STR. NO.	DSL YEARS	SIZE (Inches)	PLOTTED	MATERIAL & THICKNESS	FL	FL	AS BUILT	REMARKS
1	100	18	X	SRCP CLASS II				
2	100	18	X	SRCP CLASS II				
3	100	15	X	SRCP CLASS II SRAP	7.0			
4	100	36	X	SRCP CLASS II SRSP, 12 GA. SRAP, 12 GA. SRASP, 16 GA.	5.7			
5	100	15	X	SRCP CLASS II SRAP	7.7			
6	100	36	X	SRCP CLASS II SRSP, 12 GA. SRAP, 12 GA. SRASP, 16 GA.	6.4	5.7		
7	100	36	X	SRCP CLASS II	6.5	6.4		
8	100	42	X	SRCP CLASS II SRAP SRSP	7.9	7.7		
9	100	30	X	SRCP CLASS II SRAP, 16 GA. SRSP, 16 GA.	6.8	6.5		
10	100	18	X	SRCP CLASS II SRAP, 16 GA. SRSP, 14 GA. SRASP, 16 GA.	7.6	7.2		
11	100	18	X	SRCP CLASS II SRAP, 16 GA. SRSP, 14 GA. SRASP, 16 GA.	8.0	7.6		
12	100	24	X	SRCP CLASS III				ENDWALL
13	100	24x38 35x24	X	ERCP CLASS II ASPA, 14 GA.	10.4	10.3		
14	50	30	X	SRCP CLASS III SRASP 14 GA. SRAP, 14 GA. PEP-1 PVC CAP, 16 GA. CSP, 16 GA. BIT. COATED	6.0	5.9		
14A	50	19x30 28x20	X	ERCP CLASS III ASPA 14 GA.	5.9	5.8		

EXHIBIT SDS-2a  
Date: 1/1/06

REVISIONS						STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			OPTIONAL MATERIALS TABULATION	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	ROAD NO.	COUNTY	FINANCIAL PROJECT ID		





## 10.2.6 Drainage Structures and Bridges

Proposed cross drain pipes and box and three-sided 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 and three-sided culvert lengths shall be shown on the drainage structure sheets).

Box and three-sided 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 *Quality 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.

# 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*). See *Chapter 22* for additional requirements for box and three-sided culverts utilized as drainage structures.

### 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 *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 Materials Tabulation Sheet. (See **Exhibits SDS-2a** and **SDS-3a** 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**.







## Chapter 19

### Temporary Traffic Control Plan

19.1	General .....	19-1
19.2	Required Information.....	19-1
19.3	Levels of Complexity to be Anticipated for Temporary Traffic Control Plans.....	19-2
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19.3.2	Level II .....	19-2
19.3.3	Level III .....	19-3
19.4	Format.....	19-4

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# Chapter 19

## Temporary Traffic Control Plan

### 19.1 General

A Temporary Traffic Control (TTC) plan will accompany all plans for a construction project. The TTC plan 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 TTC plan 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 TTC 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 temporary traffic control plans are required on all projects. The information provided on the TCP plans may consist of nothing more than notes and references to the ***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:

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

When a project requires more than one phase of construction, the temporary traffic control plans should address each individual phase. MOT quantities should be tabulated by phase in the temporary traffic control plans or shown in the computation book.

## **19.3 Levels of Complexity to be Anticipated for Temporary 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 TTC Plan**

1. General Notes (including references to the applicable indexes in the **Design Standards**)
2. Phase Typical Section(s)
3. 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 TTC Plan**

1. General Notes
2. Phase Notes (including references to the applicable indexes in the **Design Standards**)
3. Phase Typical Section(s)
4. Detailed plan sheets (when an index in the **Design Standards** does not apply)
5. Cross Sections as determined necessary (Example: diversions, temporary drainage, temporary bridge structure)
6. 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 TTC Plan**

1. General Notes
2. Phase Notes (including any references to the applicable standard indexes)
3. Phase Typical Section(s)
4. Detailed Plan Sheets
5. Cross Sections
6. Special Details may include - Temporary Drainage; Temporary Signalization; Intersection Details; etc.

## 19.4 Format

TTC plans 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 Handbook***.

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



## Chapter 22

### Miscellaneous Structures Plans

22.1	General .....	22-1
22.2	Approach Slabs .....	22-2
22.3	Retaining Walls (Cast in Place, Proprietary, Temporary).....	22-3
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Exhibits		
Exhibit 22-1	Three-sided Concrete Culvert Notes.....	22-7

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## 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 or three-sided 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 **Design Standards** (available as Interim Index Drawings).

## 22.4 Concrete Box Culverts

Complete design and construction details, including pay items and quantities are required in the contract plans for concrete box culverts. Include the following minimum design details:

1. Plan view (usually shown on the Plan-Profile sheet – see **Chapter 10, Exhibit PP-2**) showing: Grid north arrow; scale bar; existing highway boundaries including existing ROW monuments; new right of way line(s) including proposed ROW monuments; culvert or bridge identification number; culvert and highway alignment; survey baseline; profile grade line; direction of stationing; stream channel alignment; stream flow direction; skew angle of the culvert relative to the centerline of roadway; stationing along the profile grade line including begin and end station of culvert (outside face of sidewalls); length of culvert; subsurface exploration locations (e.g., boring locations); culvert end treatment (headwall and wing wall orientation); scour protection; slope protection; limit of stream work; utilities; traffic railing and pedestrian/bicycle railing type.
2. Elevation view (usually shown on the Plan-Profile sheet – see **Chapter 10, Exhibit PP-2**) showing: Elevation vertical scale; profile grade line and vertical data; existing stream bottom and ground line (along PGL); utilities.
3. A longitudinal section along the culvert centerline (usually shown on the Drainage Structures sheet – see **Chapter 14, Exhibit DS-2**) showing: Culvert or bridge identification number; invert elevations; existing stream bottom or original ground; culvert stationing at centerline; typical highway section (including rail treatment); design earth cover height (measured from the top of the top slab to the top of pavement); limits of scour protection (including any keyways or geotextile fabric lining); channel work; culvert end treatments; utility (either attached to the fascia, or in the embankment, traffic railing or sidewalk); wing walls; headwalls; cutoff walls; reference to the appropriate Design Standard Indexes.
4. Data Sheets (see **Chapter 7.3**):
  - a) For LRFD Designs: Box Culvert Data Table and Reinforcing Bar List.
  - b) For LFD Designs: Box Culvert Data Sheet.
5. Miscellaneous details showing (usually shown on Box Culvert Detail sheets, located after the Drainage Structure sheets): Construction phasing information (affects lengths of precast segments and potential need for skewed segments) including appropriate excavation support and protection systems (e.g., critical temporary walls); traffic railing details including connection details; slope and/or stream bank protection; channel section detail; culvert-end safety grate, guardrail or fencing details when applicable; removal of existing culvert(s); cofferdams or water diversion.

6. Notes (usually on the Box Culvert Data Sheets) indicating: Live loading requirements (HL-93 or HS-25); hydraulic data (show 100-year design flow or the design flow used and the minimum hydraulic area perpendicular to flow below the Design High Water); environmental classification for durability; minimum concrete class and reinforcing steel grade; assumed soil weight, angle of internal friction and nominal bearing capacity; differential soil settlement height and effective length (when significant); precast culvert limitations; any special joint waterproofing requirements; erosion and sediment control and stormwater pollution prevention plan requirements; restrictions for work in streams; estimated quantities.

## 22.5 Three-Sided Concrete Culverts

Complete footing, wingwall and channel lining designs and construction details are required for three-sided culverts. However only conceptual culvert barrel and headwall design details need to be provided. Include the following minimum design details in the roadway plans and place directly after the Drainage Structure sheets:

1. Plan view showing the orientation of the ends of the structure. The two most typical options for culverts on a skew are ends parallel to the centerline of the roadway (skewed ends) or ends perpendicular to the centerline of the structure (square ends). The end treatment depends upon the skew, whether it is in a fill section or at grade, the location within the right of way, conflicts with utilities, phased construction details, the alignment of the feature crossed, and other site limitations.
2. Elevation view showing the configuration of the most appropriate type unit (e.g., frame or arch). Any limitations on using a larger span must be shown. (Some manufacturers only fabricate units at fixed increments of span length, therefore showing the limitations will allow the manufacturers to bid using special units or the next larger span length of their standard units). Show other acceptable structure types in separate partial elevation views. Limiting spans and heights must be shown for all alternatives.
3. No precast manufacturer should be eliminated from consideration for a given project. However, specific project requirements that may exclude some manufacturers must be identified (such as fabrication on a skew or a desired arched appearance).
4. Complete details for a cast-in-place footing design, including design loads and assumptions for the spread footings.
5. Complete details for cast-in-place wingwalls, including geometry and reinforcement details.
6. Estimated quantities for concrete and reinforcing steel for cast-in-place elements, but do not include separate pay items.
7. Payment limits shall be identified as the length of the total structure along a longitudinal centerline of the structure.
8. The applicable details in **Section 22.4** shall also be included.
9. See **Exhibit 22-1** for a list of applicable notes that may be required.



### **Exhibit 22-1 Three-sided Concrete Culvert Notes**

The following notes shall be included adjacent to the plan or elevation views, as applicable:

1. The assumed foundation vertical reaction is \_\_\_\_ kips/ft. The assumed foundation horizontal reaction is \_\_\_\_ kips/ft. The Contractor must submit a revised foundation design to the Engineer if the actual loads of the supplied structure exceed these assumed values. Any revised foundation design must be included in the shop drawings and submitted for approval at the same time as the design calculations for the three-sided structure.
2. (In cases where squaring of the unit ends would create a geometric conflict with right of way, utilities, phase construction or site geometry, include the following note):  
Due to site restrictions, only skewed end units are acceptable.
3. (If site constraints do not eliminate the squaring of the ends, include the following note):  
Squared end units may be substituted for skewed end units with no change in the payment limits and no additional cost to the Department.
4. (When traffic railings are attached to skewed headwalls and site constraints do not eliminate the squaring of the ends, include the following note):  
If the Contractor proposes to substitute square ends, details of the traffic railing attachment must be provided in the shop drawings and approved by the Engineer.

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PERMANENT RETAINING WALL SYSTEM DATA TABLES

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 (ft.)	Wall No. 1 & 2	—	0'-6'	6'-33'	33'-39'	—
	Wall No. 3	—	0'-10'	10'-26'	—	26'-39'
Effective Unit Weight (pcf)		110 (moist weight in-place)	118	118	120	110
Cohesion (psf)		0	0	0	122	122
Internal Friction Angle		30°	30°	32°	0	0

NOTE:  
If the unit weight and/or internal friction angle of the fill proposed by the Contractor differs from that shown above, the Project Engineer will contact both the District Geotechnical Engineer and the Wall Designer for a possible redesign.

RETAINING WALL VARIABLES			
Wall No.	Wall Settlement		
	Long Term Settlement (in.)	Short Term Settlement (in.)	Differential Settlement (in./ft.)
1 & 2	2" to 3"	1" to 2"	1/16"/1'
3	2" to 3"	1" to 2"	1/16"/1'

NOTE:  
Design walls for the settlements noted in the table.  
Long term settlement is measured from the beginning of wall construction.

SOIL REINFORCEMENT LENGTHS FOR EXTERNAL STABILITY												
Wall No. 1 & 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
	Factored Bearing Resistance (psf)	1984	2295	2546	2857	3108	3419	3671	3980	4233	4543	4851
Wall No. 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	—	—	—	—
	Factored Bearing Resistance (psf)	2467	2467	2467	2467	2467	2467	2467	—	—	—	—

NOTES:  
1. The reinforcement strap lengths shown above are the minimum lengths required for external stability. The reinforcement lengths used in the construction of the retaining walls will be the longer of that required for external or internal stability (determined by proprietary wall companies).  
2. The Factored Bearing Resistances shown above are the critical (lowest) values from all the load cases analyzed using LRFD methodology.

NOTES:

- Concrete facing panels surfaces treatment will be a fluted, trapezoid, V-groove, fractured rib 3/4" on 1 1/2" centers similar to Burke Form Liner, Pattern No. BG312 (Waterfall).
- If required, the soil reinforcement and fasteners for the abutment back wall will be designed and furnished by proprietary wall company. The soil reinforcement will be designed to resist a factored horizontal load of 3.5 kips/ft of back wall width. The cost of soil reinforcement and fasteners will be included in the cost of the retaining wall system.
- Applicable FDOT Wall Types for each wall location are listed below. See the Qualified Products List for approved wall systems and the Table of FDOT Wall Types on Index No. 5300 of the Design Standards for allowable wall type substitutions.

Wall No. 1, 2 & 3 - FDOT Wall Type 2B

- See Design Standards Index No. 5300 for General Notes And Details.
- 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.

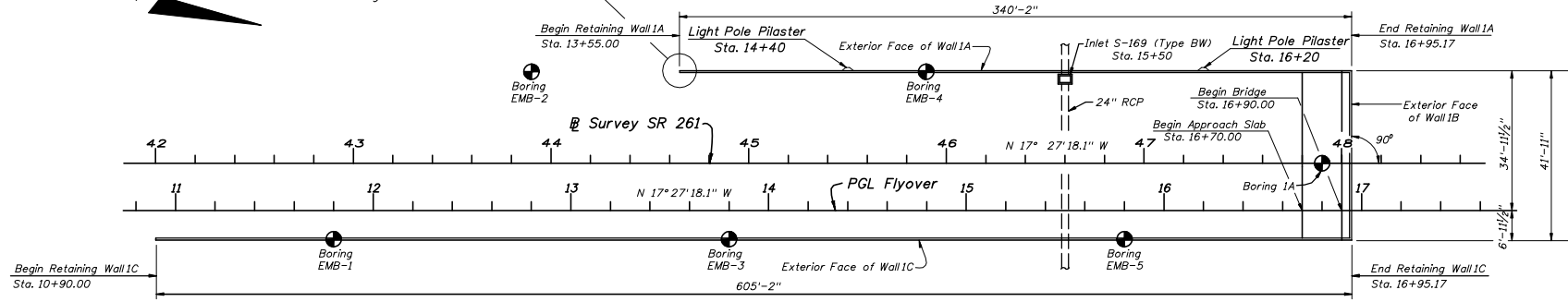
Note: Use CADD Cell "05300".  
Work this cell with Design Standards, Index No. 5300.

EXHIBIT CP-1  
Date: 1/1/07

REVISIONS					ENGINEER OF RECORD		FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET TITLE		
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	NAMES	DATES	ROAD NO.	COUNTY	FINANCIAL PROJECT ID	PROJECT NAME	SHEET NO.

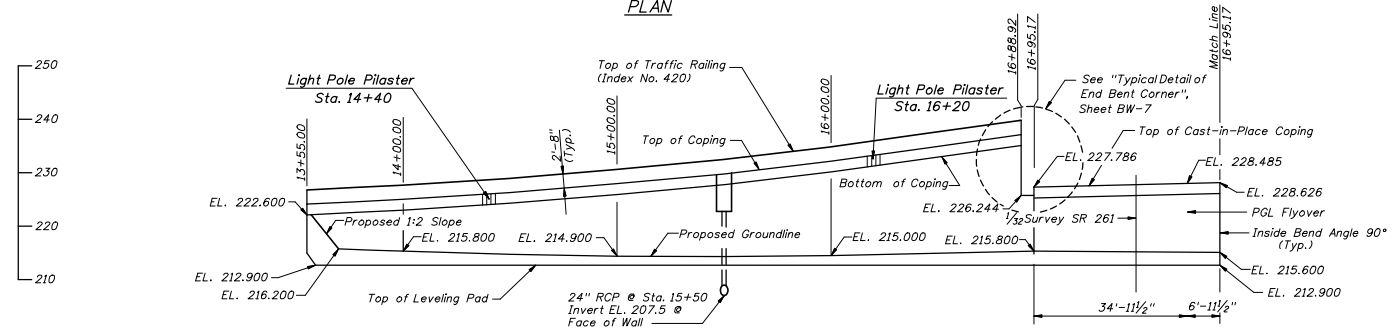


Provide guardrail approach transition.  
See Design Index No. 400 Detail J.

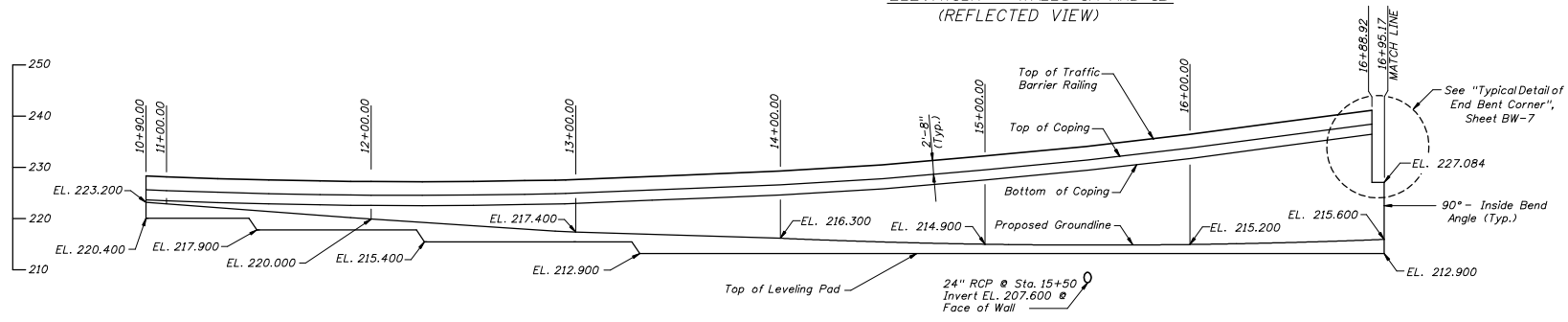


PLAN

- NOTES:
1. For Top of Coping Elevations see sheet BW-6.
  2. Top of footing embedment depth shall be a minimum of 2'-0" (See Sheet BW-1 for details).
  3. Provide 3/4" 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.



ELEVATION - WALLS 1A AND 1B  
(REFLECTED VIEW)



ELEVATION - WALL 1C

EXHIBIT CP-2  
Date: 1/1/06

REVISIONS				NAMES		DATES		ENGINEER OF RECORD			SHEET TITLE	
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	FLORIDA DEPARTMENT OF TRANSPORTATION	ROAD NO.	COUNTY	FINANCIAL PROJECT ID	PROJECT NAME

MSE WALL NO. 1

SHEET NO.

#USER# #DATE# #TIME# #FILE#



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. 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	235.969
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. 3

SR 61 @ Construction Station	Exposed Face of Wall 3 Offset from SR 61 (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	211.400
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

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. 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

NOTES:

- Offsets are given to the exterior face of the proprietary wall (See Sheet BW-1 for detail).
- Top of Coping Elevation detail shown on Sheet BW-1.
- For existing and proposed ground elevations for all walls, see Sheets BW-2 thru BW-5.

EXHIBIT: CP-4  
Date: 1/1/06

REVISIONS				ENGINEER OF RECORD			FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET TITLE		
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	NAME	DATE	ROAD NO.	COUNTY	FINANCIAL PROJECT ID	MSE WALL ELEVATIONS	
											PROJECT NAME	SHEET NO.

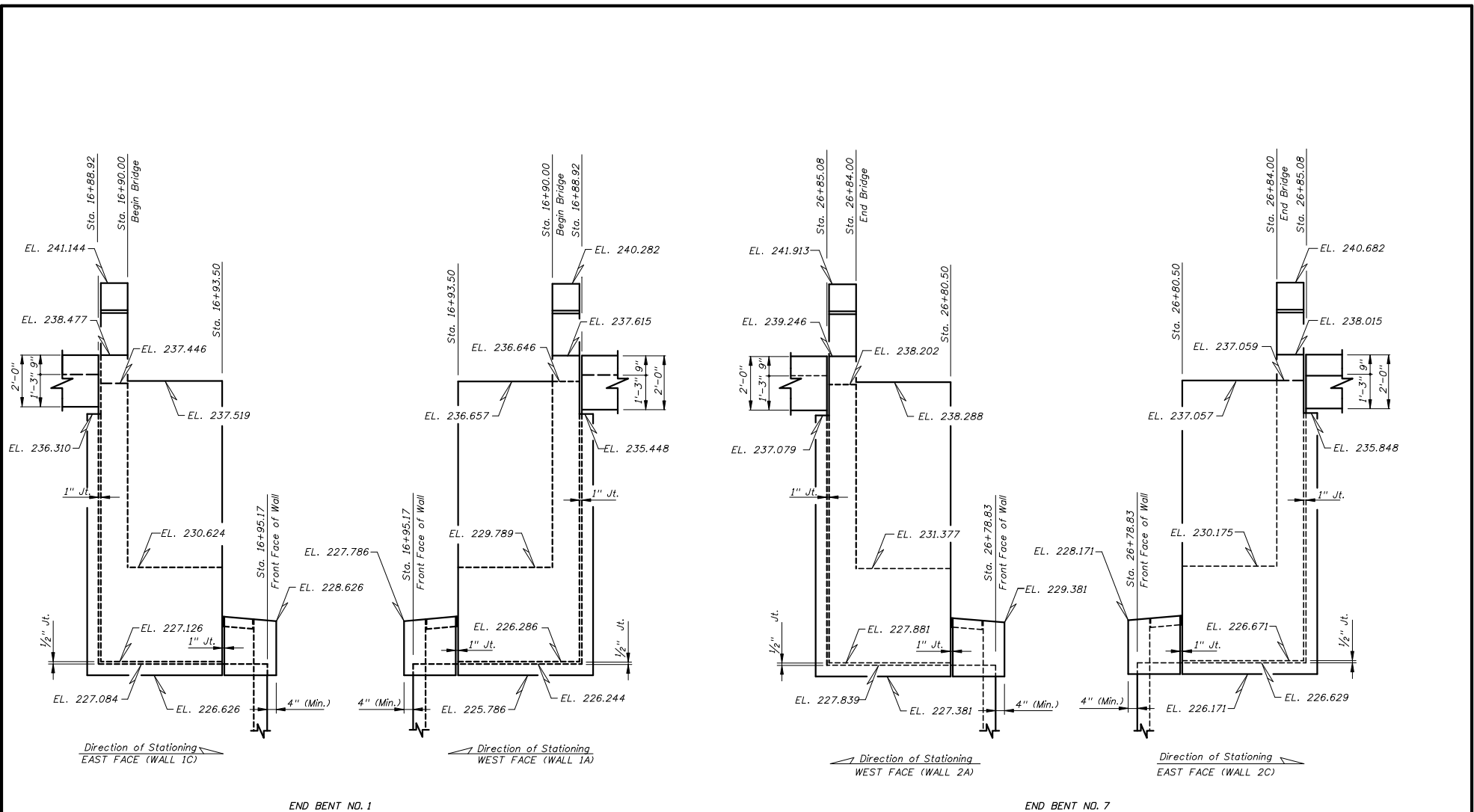


EXHIBIT CP-5  
Date: 1/1/06

REVISIONS				NAMES		DATES		ENGINEER OF RECORD			SHEET TITLE	
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DATE	BY	DATE	DESCRIPTION	SHEET NO.

FLORIDA DEPARTMENT OF TRANSPORTATION

ROAD NO. COUNTY FINANCIAL PROJECT ID

PROJECT NAME SHEET NO.

#USER# #DATE# #TIME# #FILE#

TEMPORARY RETAINING WALL SYSTEM DATA TABLES

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 (ft.)	Wall No. 1	—	0'-9'	9'-23'	23'-37'	37'-45'
	Wall No. 2	—	0'-9'	9'-23'	23'-37'	37'-45'
Effective Unit Weight (pcf)		110	118	118	120	110
Cohesion (psf)		0	0	0	0	0
Internal Friction Angle		30°	34°	34°	35°	30°
Depth Below Existing Ground Line (ft.)	Wall No. 3	—	0'-10'	10'-15'	15'-17'	17'-45'
	Wall No. 4	—	0'-10'	10'-15'	15'-17'	17'-45'
Effective Unit Weight (pcf)		110	116	118	120	116
Cohesion (psf)		0	0	0	4177	0
Internal Friction Angle		30°	32°	34°	0	34°

NOTES:  
 1. See the Qualified Products List for approved Wall Systems (Type 3).  
 2. See Design Standards Index No. 5301 for General Notes and Details

NOTE:  
 If the unit weight and/or internal friction angle of the fill proposed by the Contractor differs from that shown above, the Project Engineer will contact both the District Geotechnical Engineer and the Wall Designer for a possible redesign.

RETAINING WALL VARIABLES				
Wall No.	Wall Settlement			Air Contaminants Classification
	Long Term Settlement (in.)	Short Term Settlement (in.)	Differential Settlement (in./ft.)	
1 & 2	1/2"	3/8"	1/16"/1'	Extremely Aggressive
3 & 4	1/2"	1/4"	1/16"/1'	Extremely Aggressive

Note: Use CADD Cell "05301".  
 Work this cell with Design Standards, Index No. 5301.

NOTE:  
 Design walls for the settlements noted in the table.  
 Long term settlement is measured from the beginning of wall construction.

SOIL REINFORCEMENT LENGTHS FOR EXTERNAL STABILITY											
Walls 1 thru 4	Wall Height (ft.)	5'-0"	5'-6"	6'-0"	6'-6"	7'-0"	7'-6"				
	Reinforcement Length (ft.)	7'-0"	7'-0"	7'-0"	7'-0"	7'-0"	7'-0"				
	Factored Bearing Resistance (psf)	1082	1241	1426	1648	1454	1623				

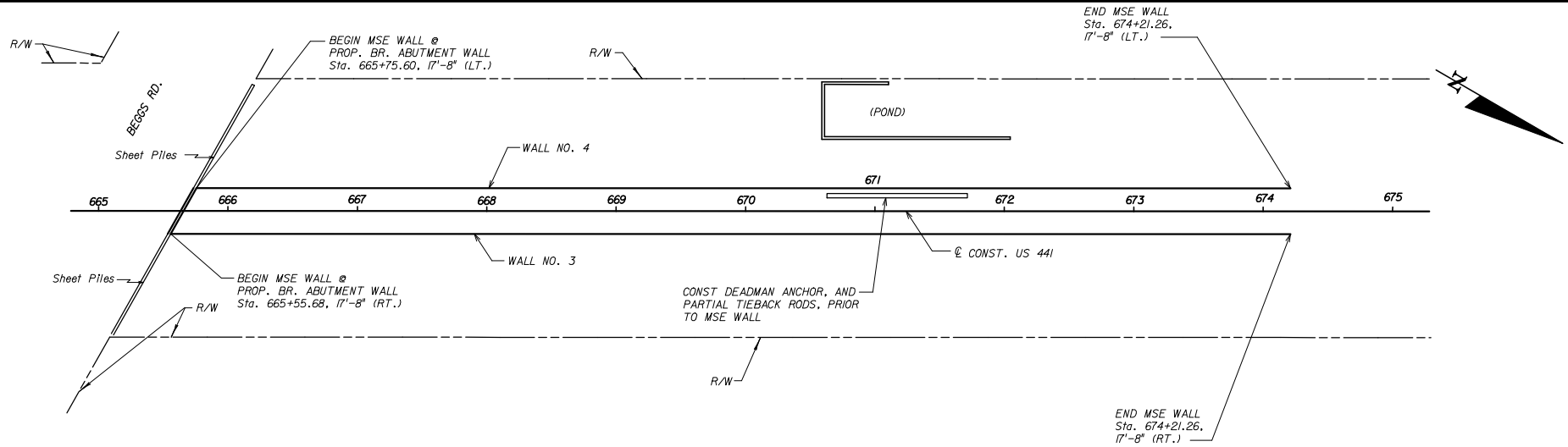
NOTES:  
 1. The reinforcement strap lengths shown above are the minimum lengths required for external stability. The reinforcement lengths used in the construction of the retaining walls will be the longer of that required for external or internal stability (determined by proprietary wall companies).  
 2. The Factored Bearing Resistances shown above are the critical (lowest) values from all the load cases analyzed using LRFD methodology.

EXHIBIT CP-6  
 Date: 1/1/07

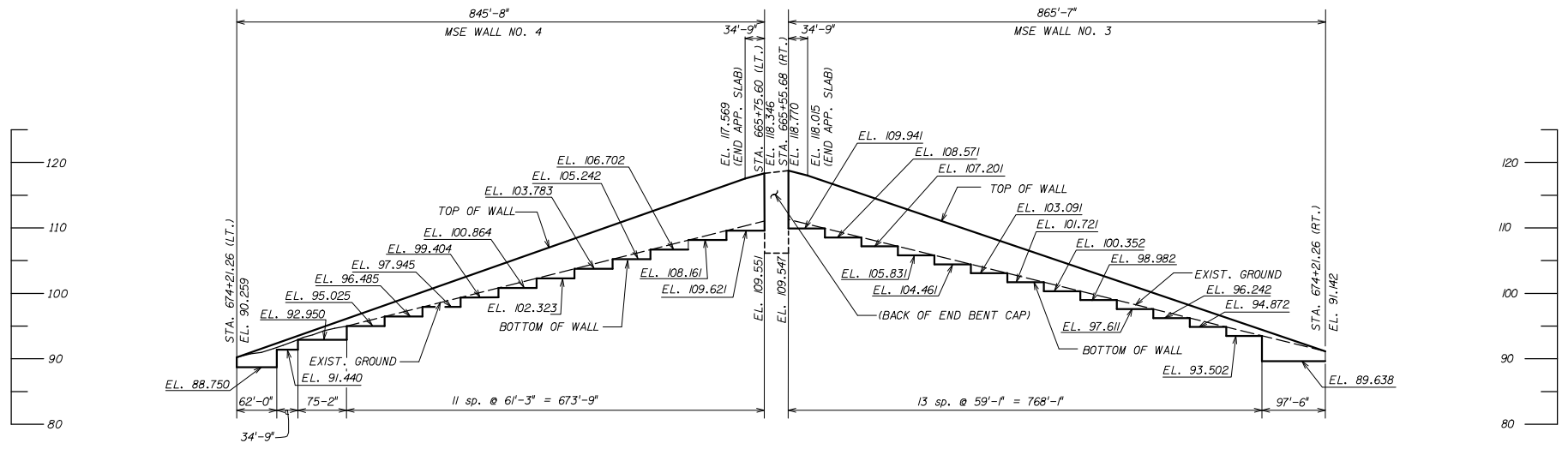
REVISIONS						ENGINEER OF RECORD			FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET TITLE		
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	NAME	DATE	ROAD NO.	COUNTY	FINANCIAL PROJECT ID	TEMPORARY WALL CONTROL DRAWINGS GENERAL NOTES		PROJECT NAME	SHEET NO.







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: 1/1/06

REVISIONS				NAMES		DATES		ENGINEER OF RECORD			FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET TITLE	
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION						ROAD NO.	COUNTY	FINANCIAL PROJECT ID	PROJECT NAME	SHEET NO.

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## 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. When prepared as component plans, 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:

1. Key Sheet
2. Tabulation of Quantities
3. Plan Sheets
4. Guide Sign worksheet (if required)
5. Overhead Sign Cross Section Sheet (if required)
6. Overhead Sign Support Design (if required)
7. Foundation Details (if required)
8. Boring Data Sheets (if required)

In addition, the signing and pavement marking plans may contain sheets which were prepared separately (perhaps by a sub-consultant) and incorporated into the roadway plans early in the design process. These sheets will appear at the end of the numbered sequence of the roadway plans and must be identified with the following prefixes:

GS-#      Soil Survey and Report of Core Borings normally associated with the signing and pavement marking plans set (including miscellaneous structures but excluding bridges and walls)

Pavement marking material on projects that 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 that 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** of this volume. 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.

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

If shop drawings are anticipated, 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.

## 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 (or in another component plans set or on that component's sheets when appropriate). 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. When prepared as component plans, 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:

1. Key Sheet
2. Tabulation of Quantities
3. Plan Sheets
4. Mast Arm Details (if required)
5. Foundation Details - Mast Arms (if required)
6. Boring Data Sheets - Mast Arms (if required)

In addition, the signalization plans may contain sheets which were prepared separately (perhaps by a sub-consultant) and incorporated into the roadway plans early in the design process. These sheets will appear at the end of the numbered sequence of the roadway plans and must be identified with the following prefixes:

- GT-# Soil Survey and Report of Core Borings normally associated with the signalization plans set
- PTM-# Portable Traffic Monitoring Site Sheets

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

If shop drawings are anticipated, 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.

## 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. When prepared as component plans, 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:

1. Key Sheet
2. Tabulation of Quantities
3. Pole Data and Legend Sheet
4. Plan Sheets or Layout Sheets
5. Foundation Details - High Mast (if required)
6. Boring Data Sheets - High Mast (if required)

In addition, the lighting plans may contain sheets which were prepared separately (perhaps by a sub-consultant) and incorporated into the roadway plans early in the design process. These sheets will appear at the end of the numbered sequence of the roadway plans and must be identified with the following prefixes:

GL-#      Soil Survey and Report of Core Borings normally associated with the lighting plans set

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

If shop drawings are anticipated, 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.



## Chapter 26

### Landscape Plans

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## Chapter 26

### Landscape Plans

#### 26.1 General

“Landscape” or “landscaping” means any vegetation, mulches, irrigation systems, and any site amenities, such as street furniture, decorative paving, fences, and lighting (excluding public utility street and area lighting). The Legislature has requested that the Department commit program dollars to landscaping. In order for the Department to capture that information, it is critical that all landscape pay items shall be placed in TRNS\*PORT Category 0600 whether the landscape plans are a component set of plans, or prepared independently. Projects with minor 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, schedule, and all other relevant landscape sheets. When prepared as component plans, 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:

1. Key Sheet
2. Tabulation of Quantities and Plant Schedule
3. Tabulation of Quantities and Schedule for Irrigation and Site Amenities
4. Plan Sheets
5. Details Sheet
6. Other relevant plan sheets as outlined in this chapter

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

## 26.3 Tabulation of Quantities and Schedule

### 26.3.1 Tabulation of Quantities and Plant Schedule

The tabulation of quantities and plant schedule sheet or a similar sheet should be utilized to tabulate the materials required for the construction of the landscaping and provide the description, size and quantity of materials in a tabular format. The tabulation of quantities and plant schedule sheet is required to conform with the format of **Exhibit LD-1** and shall be prepared separately from the tabulation of quantities for irrigation and site amenities.

### 26.3.2 Tabulation of Quantities and Schedule for Irrigation and Site Amenities

The tabulation of quantities and schedule for irrigation and site amenities shall utilize the standard tabulation of quantities sheet and provide the additional information given in the example in **Table 26.1**.

**Table 26.1 Example Tabulation of Quantities and Schedule for Irrigation and Site Amenities**

Symbol	Quantity	Unit	Description / Remarks
LP	5000	LF	½" PVC Sch 40 (or C-160) zone / lateral pipe & appropriate fittings
PR	100	EA	6" pop-up rotor, nozzle, riser & appropriate fittings
CM	1	EA	Control module, latching solenoid, run shut-off device & appropriate fittings
ABB	5	EA	Arcata, backless bench, PolySite recycled plastic, Powdercoat 'Frost'
WCB	10	EA	Wausau Conical Bollard TF6071, B1 finish

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 General Notes**

General notes pertaining to landscape plans may be shown on a separate plan format sheet. This sheet shall be placed behind the tabulation of quantities in the plans assembly.

## **26.5 Plan Sheets**

Plan sheets shall be prepared in a manner that is consistent with a set of construction documents rather than an illustrative plan. Therefore plan sheets shall utilize simplified symbols depicting the location of materials in a legible manner. Plan sets shall employ a level of detail and clarity that allow the reviewer to assess the relationship between the proposed landscape design, the roadway plans, utilities, outdoor advertising signs, and adjoining land use.

### **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 shall be stacked from top to bottom. Irrigation plan sheets may be prepared at a larger scale than the planting plan sheets. Clarity and legibility shall be preserved in all cases.

A north arrow and 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 Plan Sheets**

The base information required is as follows:

1. Project centerline
2. Edge of pavement (edge of traffic lanes)
3. Curbs or curb and gutter
4. Drainage systems
5. Guardrails

6. Right of way and/or limited access fence line
7. Sidewalks or other planned or existing structures
8. Lighting, signs and signal poles
9. Intersections and driveways which are noted in the plans
10. Existing and proposed overhead and underground utility locations
11. Clear Zone/Horizontal clearance (should be plotted or safety setback distances noted frequently on each plan sheet)
12. View zones for permitted outdoor advertising signs
13. Canopy limits
14. Existing vegetation (to remain or be removed)
15. Existing off site features and conditions that affect or are affected by the project
16. Fence and gate locations
17. Setbacks from structural elements or drainage system
18. Limits of clear sight (***Index No. 546*** of the ***Design Standards***)
19. Transit Facilities

Planting plan sheets shall also provide at a minimum the plant symbols and the plant quantities. Additional information such as the common name and botanical name of each plant may be provided.

Site amenities, such as street furniture, decorative paving, fences, and lighting (excluding public utility street and area lighting) shall be included on the planting plan sheets with appropriate annotation.

Irrigation plan sheets shall be prepared using the planting plan sheets (devoid of unnecessary text and labeling) and shall contain information pertaining to the irrigation system. Information on the sheet shall include the approximate location of spray heads and rotors, valves, mainlines, lateral lines, sleeves, controllers, water sources / point of connection, backflow preventers, and isolation valves.

## 26.6 Details Sheet

This sheet shall show all landscape details, hardscape details and irrigation details, which are applicable to the project and not addressed in the ***Design Standards***.

The details sheet shall include a legend clearly depicting the symbology used in the irrigation plan sheets and an associative description for each entry. Additional information such as the nozzle schedule and irrigation zone / lateral schedule can be included on these sheets.



THIS EXHIBIT IS AN EXAMPLE NARRATIVE OF A STORMWATER POLLUTION PREVENTION PLAN (SWPPP) FOR A MAJOR RECONSTRUCTION PROJECT. ACTUAL PROJECT CONDITIONS OFTEN DICTATE DIFFERENT APPROACHES THAN SHOWN HERE. THE ENGINEER IS RESPONSIBLE FOR DEVELOPING A SITE SPECIFIC SWPPP THAT COMPLIES WITH VOLUME I CHAPTER II OF THE PLANS PREPARATION MANUAL.

The following narrative of the Stormwater Pollution Prevention Plan contains references to the Standard Specifications for Road and Bridge Construction, the Design Standards, and other sheets of these construction plans. The first sheet of the construction plans (called the Key Sheet) contains an Index to the other sheets. The complete Stormwater Pollution Prevention Plan includes several items: this narrative description, the documents referenced in this narrative, the contractor's approved Erosion Control Plan required by Specification Section 104, and reports of inspections made during construction.

**1.0 SITE DESCRIPTION:**

**1.a. Nature of Construction Activity:**

The project is the reconstruction of SR 007 (James Bond Boulevard) to a major urban roadway. This involves constructing roadway surface, curb and gutter, sidewalk, underground storm sewer systems, and stormwater management facilities. The project extends from north of Paul Russell Road to Perkins Street, a distance of approximately 1.1 miles.

**1.b. Sequence of Major Soil Disturbing Activities:**

In the Section 104 Erosion Control Plan, the contractor shall provide a detailed sequence of construction for all construction activities. The contractor shall follow the sequence of major activities described below, unless the contractor proposes a different sequence that is equal or better at controlling erosion and trapping sediment and is approved by the Engineer.

For each construction phase, install perimeter controls after clearing and grubbing necessary for installation of controls but before beginning other work for the construction phase. Remove perimeter controls only after all upstream areas are stabilized.

1. Clearing and grubbing, earthwork, and storm sewer construction for the outfall from the ponds.
2. Clearing and grubbing, earthwork for pond construction.
3. Storm sewer and roadway underdrain construction. Construct the storm drain pipe in the upstream direction.
4. Earthwork associated with roadway, and construction of gravity wall, curb, subgrade, base, pavement, and sidewalk.
5. Construct underdrain in pond bottom.

**1.c. Area Estimates:**

Total site area: 19.6 acres.  
Total area to be disturbed: 19.6 acres.

**1.d. Runoff Data:**

Runoff Coefficients: Before: 0.62.  
During: varies from 0.62 to 0.76.  
After: 0.76.

Soils Data: The results of the soil borings along the roadway are shown in the Roadway Soil Survey Sheet(s). The results of soil borings done in the ponds are shown on the Pond Detail Sheets. The numbers for these are identified on the Key Sheet of these construction plans. In general, the soils are clayey sands.

Outfall Information: There are 4 outfalls.

#1 Description: Existing pond at Laura Lee.  
Location: Latitude 30° 24' 30", Longitude, 84° 16' 45".  
Est. Drainage Area Size: 13.6 acres.  
Receiving Water Name: Not applicable.

#2 Description: Pond 1. This discharges to the storm sewer system that runs under Orange Avenue. This system in turn discharges to the box culvert at Sta. 531+00.  
Location: Latitude 30° 24' 45", Longitude 84° 17' 00".  
Est. Drainage Area Size: 7.3 acres.  
Receiving Water Name: East Ditch.

#3 Description: Box culvert at Sta. 531+00.  
Location: Latitude 30° 24' 45", Longitude 84° 17' 00".  
Est. Drainage Area Size: 4.2 square miles.  
Receiving Water Name: East Ditch.

#4 Description: Pond 2. This discharges to the SR 007 storm sewer system that drains to the box culvert at Sta. 531+00.  
Location: Latitude 30° 25' 00", Longitude 84° 17' 00".  
Est. Drainage Area Size: 15.4 acres.  
Receiving Water Name: East Ditch.

**1.e. Site Maps:**

The construction plans are being used as the site maps. The location of the required information is described below. The sheet numbers for the plan sheets referenced are identified on the Key Sheet of these construction plans.

\* Drainage Patterns: The drainage basin divides and flow directions are shown on the Drainage Maps. The Back of Sidewalk Profile Sheets show overland flow direction at the right of way line. The arrows above and below the profile represent the flow direction at the left and right property line, respectively. Arrows pointing to the profile indicate runoff coming to the site. Pointing away from the site indicate runoff leaving the site.

\* Approximate Slopes: The slopes of the site can be seen in the Cross Section Sheets and the Plan-Profile Sheets. There are pond cross sections located with the Pond Detail Sheets.

\* Areas Of Soil Disturbance: The areas to be disturbed are indicated on the Plan-Profile Sheets, the Cross Section Sheets, and the Pond Detail Sheets. Any areas where permanent features are shown to be constructed above or below ground will be disturbed.

\* Areas Not To Be Disturbed: Essentially the whole project will be disturbed during construction.

\* Locations of Temporary Controls: These are shown on the Erosion Control Sheets except for the controls associated with the box culvert replacement which are shown on the Box Culvert Construction Detail Sheet. Tables providing summaries of temporary erosion and sediment control items are provided in the Summary of Quantity Sheets.

\* Locations of Permanent Controls: The stormwater ponds are the primary permanent stormwater management controls. These are shown on the Pond Detail Sheets.

\* Areas To Be Stabilized: Temporary stabilization practices are shown in the same location as the temporary controls mentioned above. Permanent stabilization is shown on the Typical Section Sheets, the Plan-Profile Sheets and the Pond Detail Sheets.

\* Surface Waters: The only surface water within the site is the East Ditch, which flows through the culvert at Station 531+00. This is located on the Plan-Profile Sheets and the Box Culvert Construction Detail Sheet.

\* Discharge Points To Surface Waters: There is only one. This is shown on the Plan-Profile Sheets at the East Ditch (culvert at Station 531+00).

**1.f. Receiving Waters:**

See Item 1.d for the outfall locations and receiving water names. There are no wetland areas on the project site.

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**2.0 CONTROLS:**

**2.a. Erosion And Sediment Controls:**

In the Section 104 Erosion Control Plan, the contractor shall describe the proposed stabilization and structural practices based on the contractor's proposed Traffic Control Plan. The following recommended guidelines are based on the Traffic Control Plan (TCP) outlined in the construction plans. Where following the Traffic Control Plan (TCP) outlined in these construction plans, the contractor may chose to accept the following guidelines or modify them in the Section 104 Erosion Control Plan, subject to approval of the Engineer. As work progresses, the contractor shall modify the plan to adapt to seasonal variation, changes in construction activities, and the need for better practices.

For each construction phase, install perimeter controls after clearing and grubbing necessary for installation of controls but before beginning other work for the construction phase. Remove perimeter controls only after all upstream areas are stabilized.

**Phase I of Traffic Control Plans.**

**Roadway, Station 501+10 to 520+40 Right:**

Immediately after constructing the temporary pavement, stabilize the entire area between the temporary pavement and the right of way line using temporary sod.

**Outfall of Pond 1:**

Construct the outfall pipe from S-106 towards the pond. The contractor shall have sandbags available at all times during the pipe construction to substantially block runoff in the trench from entering the pipe. Construct pipe to the pond and construct the outlet structure of the pond.

**Pond 1 Construction:**

Clear and grub the pond site. Initially excavate the pond only enough to construct Type IV Silt Fence as detailed in the TCP. Then excavate the pond to approximate proposed dimensions. Turf all disturbed areas of the pond site above elevation 51.0. Final grading will be done at the end of phase two of the TCP.

**Roadway, Station 510+10 to 523+70 Left:**

Construct the storm sewer from the pond to the roadway and then in the upstream direction along the left side of the project. During the subsoil excavation, and construction of the roadway underdrain, storm sewer, and wall, use S-19 as the primary Inlet for conveyance to the pond. Stage construct the Inlet as detailed in the TCP.

**Roadway, Station 501+10 to 510+40 Left:**

During the subsoil excavation, and construction of the underdrain, storm sewer, and wall, use S-12 as the primary Inlet for conveyance to the Laura Lee pond. S-12 should be constructed before disturbing soil upstream. Stage construct and protect the Inlet as detailed in the TCP.

**Phase II of the Traffic Control Plans:**

**Roadway, Station 510+10 to 523+10 Right:**

During the subsoil excavation, and construction of the roadway underdrain, and storm sewer, use S-20 as the primary Inlet for conveyance to Pond 1. Stage construct and protect the Inlet in a manner similar to S-19 in Phase I of the TCP.

**Roadway, Station 501+10 to 510+40 Right:**

During the subsoil excavation, and construction of the underdrain, storm sewer, and walls, use S-10 as the primary Inlet for conveyance to the Laura Lee pond. Stage construct and protect the Inlet in a manner similar to S-12 in Phase I of the TCP.

**Pond 1 Construction:**

After entire basin is permanently stabilized, construct underdrain in the pond bottom.

**2.a.1 Stabilization Practices:**

In the Section 104 Erosion Control Plan, the contractor shall describe the stabilization practices proposed to control erosion. The contractor shall initiate all stabilization measures as soon as practical, but in no case more than 7 days, in portions of the site where construction activities have temporarily or permanently ceased. The stabilization practices shall include at least the following, unless otherwise approved by the Engineer.

THE PARAGRAPH ABOVE REFERS TO A 7 DAY LIMIT BEFORE INITIATING STABILIZATION. THE DEP GENERIC PERMIT SPECIFIES 7 DAYS, BUT STRICTER REQUIREMENTS FROM OTHER PERMITTING AGENCIES WILL OFTEN APPLY AND SHOULD BE NOTED. FOR EXAMPLE, ST. JOHNS RIVER WATER MANAGEMENT DISTRICT HAS A 7 DAY LIMIT IN 40C-42 F.A.C.

**Temporary:**

- \* Artificial coverings in accordance with Specification Section 104.
- \* Turf and sod in accordance with Specification Section 104.

**Permanent:**

- \* Asphalt or concrete surface.
- \* Sod in accordance with Specification Section 570.

**2.a.2 Structural Practices:**

In the Section 104 Erosion Control Plan, the contractor shall describe the proposed structural practices to control or trap sediment and otherwise prevent the discharge of pollutants from exposed areas of the site. Sediment controls shall be in place before disturbing soil upstream of the control. The structural practices shall include at least the following, unless otherwise approved by the Engineer.

**Temporary:**

- \* Silt fence in accordance with Design Standard 102 and Specification Section 104.

- \* Synthetic Bales in accordance with Design Standard 102 and Specification Section 104.

- \* Sandbags to control erosion and trap silt.

- \* Inlet protection in accordance with Design Standard 102 and special details shown in the TCP.

- \* Sediment Basin. The permanent stormwater ponds will be temporarily modified according to the details in the TCP.

**Permanent:**

- \* Stormwater ponds.

- \* Sod.

**2.b Stormwater Management:**

Several storm sewer systems will be constructed to convey runoff to three (3) stormwater retention / detention ponds. The facilities have been permitted by the Florida Department of Environmental Protection (FDEP) and the City of Narcoossee and comply with applicable design standards.

EXHIBIT SWP-2  
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2.c Other Controls:

2.c.1 Waste Disposal:

In the Section 104 Erosion Control Plan, the contractor shall describe the proposed methods to prevent the discharge of solid materials, including building materials, to waters of the United States. The proposed methods shall include at least the following, unless otherwise approved by the Engineer.

- \* Providing litter control and collection within the project during construction activities.
- \* Disposing of all fertilizer or other chemical containers according to EPA's standard practices as detailed by the manufacturer.
- \* Disposing of solid materials including building and construction materials off the project site but not in surface waters, or wetlands.

2.c.2 Off-Site Vehicle Tracking & Dust Control:

In the Section 104 Erosion Control Plan, the contractor shall describe the proposed methods for minimizing offsite vehicle tracking of sediments and generating dust. The proposed methods shall include at least the following, unless otherwise approved by the Engineer.

- \* Covering loaded haul trucks with tarpaulins.
- \* Removing excess dirt from roads daily.
- \* Stabilizing construction entrances according to Design Standard 106.
- \* Using roadway sweepers during dust generating activities such as excavation and milling operations.

2.c.3 State and Local Regulations For Waste Disposal, Sanitary Sewer, Or Septic Tank Regulations:

In the Section 104 Erosion Control Plan, the contractor shall describe the proposed procedures to comply with applicable state and local regulations for waste disposal, and sanitary sewer or septic systems.

2.c.4 Fertilizers and Pesticides:

In the Section 104 Erosion Control Plan, the contractor shall describe the procedures for applying fertilizers and pesticides. The proposed procedures shall comply with applicable subsections of either Section 570 or 577 of the Specifications.

2.c.5 Toxic Substances:

In the Section 104 Erosion Control Plan, the contractor shall provide a list of toxic substances that are likely to be used on the job and provide a plan addressing the generation, application, migration, storage, and disposal of these substances.

2.d.4 Approved State and Local Plans and Permits:

- \* FDEP Rule Chapter 62-25 F.A.C.
- \* City of Narcoossee Environmental Management Ordinance Number 90-0-0044aa.

3.0 MAINTENANCE:

In the Section 104 Erosion Control Plan, the contractor shall provide a plan for maintaining all erosion and sediment controls throughout construction. The maintenance plan shall at a minimum, comply with the following.

- \* Silt Fence: Maintain per Section 104. The contractor should anticipate replacing silt fence on 12 month intervals.
- \* Synthetic Bales : Remove sediment when it reaches 1/2 height of bales or when water ponds in unacceptable amounts or areas.
- \* Ponds One and Two: The ponds are temporary sediment basins until the areas that drain to them are stabilized, so until then, remove sediment from the pond when it becomes 1.5' deep at any point.

4.0 INSPECTIONS:

Qualified personnel shall inspect the following items at least once every seven calendar days and within 24 hours of the end of a storm that is 0.50 inches or greater. To comply, the contractor shall install and maintain rain gages and record the daily rainfall. Where sites have been permanently stabilized, inspections shall be conducted at least once every month. The contractor shall also inspect that controls installed in the field agree with the latest Stormwater Pollution Prevention Plan.

- \* Points of discharge to waters of the United States.
- \* Points of discharge to municipal separate storm sewer systems.
- \* Disturbed areas of the site that have not been finally stabilized.
- \* Areas used for storage of materials that are exposed to precipitation.
- \* Structural controls.
- \* Stormwater management systems.
- \* Locations where vehicles enter or exit the site.

The contractor shall initiate repairs within 24 hours of inspections that indicate items are not in good working order.

If inspections indicate that the installed stabilization and structural practices are not sufficient to minimize erosion, retain sediment, and prevent discharging pollutants, the contractor shall provide additional measures, as approved by the Engineer.

5.0 NON-STORMWATER DISCHARGES:

In the Section 104 Erosion Control Plan, the contractor shall identify all anticipated non-stormwater discharges (except flows from fire fighting activities). The contractor shall describe the proposed measures to prevent pollution of these non-stormwater discharges. If the contractor encounters contaminated soil or groundwater, contact Dave Letterman, District Hazardous Materials Coordinator at 305-63BR549.

EXHIBIT SWP-3  
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## Chapter 29

### Intelligent Transportation Systems Plans

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## Chapter 29

# Intelligent Transportation Systems Plans

### 29.1 General

The incorporation of Intelligent Transportation Systems (ITS) Plans is a relatively new development, yet it is becoming more widespread. This chapter was developed to introduce some standardization for ITS Plans. ITS Plans are usually a component set of plans. Projects with minor ITS involvement may include these features on sheets in the roadway plans set or on the roadway sheets (or on sheets in the signalization plans set or on the signalization sheets if applicable). 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 ITS sheets. When prepared as component plans, the sheets shall be numbered consecutively with the sheet numbers prefixed by the letters "IT".

A complete set of ITS Plans shall include the following sheets:

1. Key Sheet
2. Tabulation of Quantities
3. Plan Sheets or "letter type" plan sets
4. Detail Sheets (as required)

The ITS Plans show the construction details, electrical circuits, and other data relevant to an ITS project. Some of the different systems that may be produced under the ITS component set of plans include, but are not limited to, the following:

- |                                 |   |
|---------------------------------|---|
| 1. Freeway Management System    | 6. Electronic Toll Collection                                 |
| 2. Incident Management System   | 7. Electronic Fare Payment                                    |
| 3. Arterial Management System   | 8. Highway Rail Intersections (under electronic surveillance) |
| 4. Emergency Management Systems | 9. Regional Multimodal Traveler Information                   |
| 5. Transit Management Systems   |   |

The Districts have been gravitating toward utilizing a modified plans format for ITS projects. The modified plans format would allow for "letter type" plans and include a table to locate the devices by mile post to three decimal places, plus an offset dimension given for each

above-ground structure. Global positioning system (GPS) coordinates can be utilized as supplemental information in the table.

For construction purposes the plans should include the following:

1. Table (spreadsheet) to locate devices by mile post to three decimal places.
2. For above-ground installations, give an offset dimension from the edge of the travelway to the ITS device.
3. For such devices as DMS that require overhead structures, include a cross section using “assumed” elevation.
4. For conduit, include number and sizes.
5. For fiber optic cable, include number of fibers.

Regarding as-built records, aerial photographs may be furnished with the table above to provide supplementary information. The aerials will not include the extra features of the ROW, baseline, or roadway edges being drawn in. The aerials are to be used as a base for the as-built plans with the mile post and offset dimensions provided by the Contractor.



## 29.2 Key Sheet

The key sheet is the first sheet in the component plans set and shall be prepared as described in **Chapter 3** of this volume. 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 ITS plans shall be shown on the left of the sheet.

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

If shop drawings are anticipated, 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.

## **29.3      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.

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 a 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.

## **29.4 General Notes**

General notes pertaining to ITS may be shown on a separate plan format sheet. The general notes sheet lists special ITS design information 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.

## 29.5 Plan Sheets

### 29.5.1 Format and Scale

ITS Plans shall be prepared on standard plan format. The scale shall be such that all details are clear and legible. See the requirements of **Section 10.1** of this volume as a guide. A north arrow and scale shall be shown at a point of maximum visibility on the sheet.

### 29.5.2 Required Information

The basic information requirements include roadway geometrics, project limits, 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 ITS components shall be shown. All locations, including existing trees, should be checked for potential conflicts.

If letter type plans are utilized, the table should include at a minimum the device ID, description, milepost, offset, and a comment field. Add an extra column to the table if GPS coordinates are provided for the devices.

All equipment shown on the plan shall be clearly labeled and their respective pay item numbers and quantity indicated. In addition, the following plan elements should be shown:

1. Cabling, fiber optic splicing, and interconnects.
2. System communication devices.
3. Electrical power service equipment and interconnects.
4. Grounding and transient voltage protection details.
5. Structure-mounted or ground-mounted field cabinets for system electronics, maintenance service points, and interconnect.

### **29.5.2.1 Dynamic Message Sign**

Plans for a DMS installation should illustrate the location, placement, and typical details of the following components:

1. DMS display enclosure.
2. DMS controller.
3. DMS support structures (including external walkways, safety railings, ladders, etc.).
4. DMS mounting brackets and hardware.
5. A ground-level access point for maintenance personnel to perform diagnostic work on the sign.

### **29.5.2.2 Highway Advisory Radio**

The design for an HAR installation should illustrate the location, placement, and typical details of the following components:

1. HAR operator workstation and central recording facility.
2. HAR antennas.
3. HAR transmitter and electronics.
4. HAR support structures, signage, and beacons.
5. HAR mounting brackets and hardware.

### **29.5.2.3 Video Display Equipment**

Provide mounting and installation plan sheets for each color video monitor, flat panel display, and rear projection video unit in the video display system. Depict in the mounting plans detailed structural mounting information, including support structures, wall attachment methods, and the weights of the display units. Provide cable routing plan sheets and diagrams for the devices, along with maintenance/service points and structural certification.

The plans should illustrate the location, placement, and typical details of the following video display system components:

1. Video display controller.
2. Operator workstations.

3. Encoders, decoders, multiplexers, and routing equipment.

Develop sheets that detail cross-sections and elevations for all modifications to existing wall systems in the TMC facility and submit them to the Engineer.

For the rear projection video unit mounting and installation plans, include details that illustrate stacking configuration and support design, along with a ventilation and climate control plan. Provide cable routing plans that include detailed connection diagrams for individual and stacked configurations.

### **29.5.2.4 Network Devices**

Plans including network devices should illustrate the following system attributes:

1. System diagrams illustrating network and device interconnect.
2. General network topology.
3. Notes regarding any special configurations or options for specific devices that are required to achieve a specific system function.

### **29.5.2.5 Fiber Optic Cable and Interconnect**

The plans for fiber optic cable systems should illustrate the location, placement, and typical details of the following components:

1. Fiber optic conduits.
2. Fiber optic cables.
3. Fiber optic splices and terminations.
4. Fiber optic cable designating system.
5. Fiber optic cable access points.

## **29.5.2.6 Vehicle Detection and Data Collection**

The plans for vehicle detection systems should illustrate the location, placement, and typical details of the following components:

1. Diagrams illustrating detection system interconnect.
2. General network topology.
3. Notes regarding any special configurations or options for specific devices that are required to achieve a specific system function.

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## METRIC PRACTICE

### GENERAL

This Appendix was originally included in the Metric PPM and was used as guidelines for the development of Metric plans. This was a useful tool especially for the English to Metric conversion of design information. This Appendix has now been included in the English PPM as a tool for use in cases where the designer may need to obtain information from Metric plans. This may provide the designer some insight as to how those Metric plans were developed.

### SUMMARY OF RULES

1. Convert values related to surveys, right of way and other geometric alignment using 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:

$$1 \text{ foot} = 0.3048 \text{ meters}$$

2. Display direct mathematical (soft) converted values to the nearest 0.001 m or 1 mm.
3. Do not use commas to separate digits if a number has more than 4 digits. For numbers with more than 4 digits either right or left of the decimal, leave a space when practical. (Where the displayed number must be used in a mathematical operation on a computer the space may not be recognized properly and should not be used).

Example: 10 000 or 0.609 35 or 13 471.359

4. To the extent practical, use the following rules for dimensioning roadway plans:
  - a. For dimensions in meters, display values to at least one decimal place.

- b. For dimensions in millimeters, display values as whole numbers with no decimal place.
  - c. Do not use the centimeter.
  - d. Using the above rules, do not show the unit symbols "m" and "mm" unless needed for clarification. Show even dimensions in meters with a decimal and following zero digit, e.g. 300.0 to avoid confusion with 300 mm.
5. If a dimensioned item has a numerical quantity that is part of a group of numbers in a different range, select the unit that most adequately covers the range without unduly large or small numbers. For example, if 300 mm is part of a group of numbers shown in meters, show it as 0.3 m.
6. Show long dimensions, including all horizontal and vertical geometry, wall lengths, bridge span lengths and box or three sided culvert lengths, spans and heights in meters.
7. In general, show cross section dimensions of structural members in millimeters. This will normally include most drainage structures (except box culverts), drainage pipe, and special drainage structure details. (Note: The actual size of drainage pipe and standard drainage structure boxes will remain the same. However, label these items in nominal size based on 1" = 25 mm. Example: Label 24" pipe as 600 mm pipe; Label a 4' diameter structure as a 1200 mm structure.)
8. Show pavement thickness descriptions in millimeters.
9. Use 0.1 m for both base extension on rural sections (formerly 3") and for stabilization extension on curbed sections (formerly 6").
10. On typical sections, show type of curb, "E" or "F", not the dimension.
11. As a general rule, display metric dimensions to one more decimal place than the corresponding dimension in English units:
  - a. Typical Section Elements, including lane widths and shoulder widths - in meters, generally to 1 decimal place.
  - b. Horizontal control points on plans, including survey centerline, baseline, intersections and alignment - in meters to 3 decimal places. The normal station interval for centerlines and baselines is 100 meters. (1 + 00.000 = 100

- m)
- c. Vertical alignment control points, (PVC, PVI, PVT) and profile grade elevations - in meters to 3 decimal places.
  - d. Profile Grade - in percent to 4 decimal places.
  - e. Proposed flow lines - in meters to 2 decimal places.
  - f. Manhole tops and grate elevations - in meters to 2 decimal places.
  - g. Ditch elevations - in meters to 2 decimal places.
  - h. Box Culvert or Three-sided Spans and Heights - in meters to 1 decimal for new construction; in meters to 2 decimal places for extensions of existing box culverts originally constructed to English dimensions.
12. Where practical, round short radius curves (<150.0 m), including curb returns and control radii, to the nearest meter. Round longer radius curves to the nearest 5 meters. (See attached tables.)
13. Display alignment bearings and delta angles in curve data in degrees, minutes and seconds, rounded to the nearest second.
14. Omit "degree of curvature" from curve data. It has no definition in the metric system. Instead, use the radius definition. Equations:

$$\text{Tangent } T = R \tan\left(\frac{\Delta}{2}\right)$$

$$\text{Length } T = R (\Delta \text{ in Radians})$$

$$\text{Long Chord } LC = 2 R \sin\left(\frac{\Delta}{2}\right)$$

15. On resurfacing projects, hard convert typical section dimensions (lane widths, shoulder widths, etc.) where existing conditions permit. Exception: Use direct mathematical (soft) conversion (Rule Number 2) for existing pavement widths in curbed sections, existing right of way widths, and existing median widths.

16. Continue to post sign messages for speed limits and distances in English units. Note: The posted speed for curb and gutter sections with design speed of 80 km/h (corresponds to 50 mph), should not exceed 45 mph.
17. A "hard" metric project is defined as one where metric standard index drawings and metric specifications are used, and the design complies with adopted metric criteria.
18. Beginning with metric projects express slope ratios in vertical to horizontal (V:H) format. For example, show roadside slopes as 1:6, 1:4, rather than past convention as 6:1 or 4:1.
19. As a general guideline for new construction and reconstruction, show cross sections in 20 meter intervals for urban projects and 50 meter intervals for rural projects. Project specific factors may dictate greater or lesser intervals.
20. When project limits are identified by kilometer point location on the Key Sheet, show the equivalent milepost using direct mathematical conversion.  
  
(example: kp 1.609 = MP 1.000)
21. Label existing and proposed utilities in metric. Use the FDOT Basis of Estimates Handbook utility pay item list of metric sizes as a guide.

### PLAN SCALES

ENGLISH SCALE	METRIC SCALE
1" = 2'	1: 25
1" = 5'	1: 50
1" = 10'	1: 100
1" = 20'	1: 200
1" = 40'	1: 400 or 1: 500
1" = 50'	1: 500
1" = 100'	1: 1000
1" = 200'	1: 2000
1" = 400'	1: 5000

Plan sheet size will remain the same. The viewing area of a plan sheet will be 800 mm long on "D" size sheets and 400 mm on "B" size sheets. Allowing for open space at each side, this provides a coverage of 140 m at 1:400 scale, 350 m at 1:1000 and 700 m at 1:2000 on "B" size sheets.