2D in PD&E Guidebook





2D in PD&E Guidebook

Prepared for:

Florida Department of Transportation Office of Environmental Management

605 Suwannee Street Tallahassee, FL 32399

August 2021

TABLE OF CONTENTS

1	INTRODUCTION	. 1
	1.1 Purpose	. 1
	1.2 Goals	. 1
	1.3 Intended Use	2
2	GUIDEBOOK DEVELOPMENT	. 2
3	FEATURES (LAYERS/LEVELS) LIST	. 7
	3.1 Base Maps and Concept Plans	7
	3.2 Graphic Typical Sections	8
4	EXAMPLE TEMPLATES AND GUIDANCE	. 8
A	PPENDIX A – CONCEPT PLAN FEATURES LISTA	-1
A	PPENDIX B – TYPICAL SECTION FEATURES LISTB	-1
A	PPENDIX C – CONCEPT PLAN, ROLL PLOT, AND TYPICAL SECTION TEMPLATE	
	LIST OF FIGURES	
Fi	gure 3-1 – Using the Concept Plan Features List	. 7
	LIST OF TABLES	
Τá	able 2-1 – Data Collection Summary	. 4

1 Introduction

Graphic deliverables in Florida Department of Transportation (FDOT) Project Development and Environment (PD&E) Studies include base maps, concept plans, renderings, and many more innovative techniques. Visualizations are used to depict project information across a wide variety of topics including the proposed improvements, natural, physical, cultural, and community resources in the project area.

It was found after a nation-wide data search that there are very few guidelines for what information should be displayed on the National Environmental Policy Act (NEPA)/PD&E base maps, concept plans, roll plots, or renderings. There is a need for two dimensional (2D) graphic standards to provide consistency among project PD&E documentation across the state of Florida.

1.1 Purpose

The purpose of this guidebook is to support the preparation of base maps, alternative concept plans or plan/profiles and graphic typical sections for PD&E projects in alignment with the FDOT's plans preparation procedures and practices. The guidebook conforms with existing FDOT computer aided design and drafting (CADD) standards from the Design Phase whenever possible. This provides consistency throughout the project and allows for data to be quickly transferred and utilized in subsequent project phases. This guidebook will also describe how electronic data is to be delivered.

This guidebook applies to 2D graphic standards only – there is separate guidance for three dimensional (3D) during PD&E in FDOT's 3D in PD&E Guidebook.

Note that this Guidebook establishes best practices for 2D PD&E deliverables but is not mandatory. FDOT Districts, project managers, and graphics staff have flexibility based on their unique project parameters, target audience, and District preferences. Some FDOT Districts may have preferences on what their Public Information Office (PIO) prefers to see for public involvement materials and in that case, the District's PIO preferences would take precedence. Also, this guidebook is limited to graphics only and is not intended to provide guidance for technical information.

1.2 Goals

The goals of this document include the following topics:

- Define 2D graphic products common to PD&E studies
- Identify layers common to most 2D PD&E graphic products
- Provide graphic consistency between projects
- Illustrate graphic standards and areas where discretion may be required

Provide a seamless transition of CADD files into the design phase

1.3 Intended Use

This guidance is intended to be used by practitioners (FDOT staff and consultants) who scope, prepare, or review 2D graphic materials for PD&E studies. The guidebook assumes the practitioner has basic knowledge and experience with CADD and graphics programs. This guidance is not a replacement for templates from the CADD office (reference the CADD manual for latest guidance).

Although the guidance is aimed at PD&E studies, it can also be a resource for 2D graphics on other project types such as planning, corridor, and feasibility studies.

2 Guidebook Development

Relevant data was gathered identifying 2D graphic guidelines within existing FDOT manuals and scopes of services, federal guidance documents, FDOT District-specific guidelines, and other state Departments of Transportation (DOTs). FDOT manuals and scopes of services were readily available. For federal guidance documents, the United States Department of Transportation's (USDOT) websites were reviewed. For District-specific guidelines, FDOT Office of Environmental Management (OEM) emailed each district requesting any district-specific guidelines. For other state DOT guidelines, the Consultant Team reached out to their respective, internal NEPA/project development and environment leads in various states. **Table 2-1** provides a list of each document collected and reviewed including the chapter or section with relevant information and a summary of the guidelines contained in the document.

Federal guidance manuals reviewed only contained broad and basic guidelines for graphics in NEPA documents and are likely not detailed enough for this task.

FDOT District 3 was the only district to respond to FDOT OEM's email request regarding district-specific 2D deliverable standards. They provided district-specific exhibit guidelines for boards, location maps, typical sections and other public involvement graphics. FDOT OEM and the Consultant Team agreed that the lack of response from the other districts likely meant they had no 2D specific guidelines developed at this time.

Outside of Florida, guidance documents were collected from Kentucky DOT (KDOT), Colorado DOT (CDOT), and North Carolina DOT (NCDOT). Manuals from KDOT and CDOT only had basic guidance and were not applicable to this task. The NCDOT has detailed 2D graphic guidelines in multiple documents.

The most detailed 2D graphic guidelines existing for FDOT are within the CADD Manual. The FDOT Standard Scope of Services for PD&E Studies states in multiple locations that

the Consultant will comply with the CADD Manual. Additionally, the FDOT Design Manual 120.2.3.3 describes what should be shown in typical section packages, and the Turnpike Design Handbook contains example drawings. This guidebook was developed by building on these existing FDOT resources and by reviewing examples from FDOT Preliminary Engineering Reports and other state DOTs.

Table 2-1 – Data Collection Summary

Resource	Chapter and Section Reference	Summary of Guidelines Included
Activity 2.1 - List of Sources		
FDOT CADD Manual	5 CADD Standards	Naming, color, line type, line weight, True Type Font, text size and spacing.
	6.3 PD&E	States that design files in PD&E are to meet FDOT CADD standards.
	7.10.4 Print Borders	Dimensions for print borders.
	7.10.5 Print Image Files	Print naming conventions.
Standard Scope of Services for PD&E Studies	2.1.1 Governing Regulations	The CONSULTANT will use the latest edition of the CADD Manual.
	4.18.1 Base Map	The CONSULTANT will produce a base map of the project area using FDOT's CADD standards. The base map will contain an aerial photo and existing characteristics for the project. The base map must show environmental issues that are specific to the Study Area such as cemeteries, wetlands, historic properties, high-risk contamination sites, public parks, and property lines.
	4.18.2 Alternative Concept Plans	The concept plan must show potential location for bridges, culverts, retaining walls, right of way lines (existing and proposed), major utility facilities, intersection, critical driveways, and median openings, among other roadway elements, at appropriate scale according to the FDOT CADD Manual.
PD&E Staff Hour Estimation Guidelines	NA	Lists where graphics are needed but no guidelines.
PD&E Staff Hour Estimation Forms	NA	None

2D PD&E Materials Guidebook 4

Resource	Chapter and Section Reference	Summary of Guidelines Included
PD&E Manual P1 Ch11 Public Involvement	11.2.4.6 Visualization Techniques	No specific guidelines, just that visuals should be used.
	11.2.5.1 Public Hearing Format, page 11-28, Item 4	Use plain language.
PD&E Manual P2 Ch3 Engineering Analysis	NA	None
PD&E Manual P1 Ch14 Transit Project Delivery	NA	None
PD&E Manual P1 Ch15 Project File and Records Management	NA	None
FDOT Design Manual	120.2.3.3 Typical Section Sheet	Lists features to show in the TSP. (Referred to in the PD&E Manual)
Turnpike Design Handbook	Guide Drawings Instruction	Example drawings.
Activity 2.2 - Federal Guidelines		
American Association of State Highway and Transportation Officials (AASHTO) Preparing High- Quality NEPA Documents for Transportation Projects	Page 13, Section 7 - Figures	Basic guidelines such as scale, north arrow, appropriate labels and etc.
AASHTO Examples of Effective Techniques for Preparing High- Quality NEPA Documents	Section 7 - Figures	Examples of guidelines provided in manual listed above.
Federal Highway Administration (FHWA) Design Visualization Guide	NA	For 3D graphics.

2D PD&E Materials Guidebook 5

Resource	Chapter and Section Reference	Summary of Guidelines Included
Activity 2.3 - FDOT Districts		
FDOT District 3 Exhibit Guidelines	Attachment	District 3 preferences for boards, location maps, typical sections and other public involvement graphics. Contains example map legend.
Activity 2.4 - Other States		
Kentucky Environmental Analysis Guidance Manual	Page 295	States to provide sufficient legible exhibits.
CDOT NEPA Manual Style Guide	Appendix C Style Guide, Section 2.12.3, Graphics	Basic guidelines such as source citations, use of north arrows, etc.
NCDOT PD&E Policy	Consultant Guidance Tab (See Attachments)	Concept plan examples under the Consultant Guidance Tab in the Roadway section.
NCDOT Roadway Design Manual	Chapter 21, Section 2 - Public Hearing Maps	Provides guidelines for what to include and how to show it in the public hearing map.
NCDOT PD&E Analysis Branch	Requesting Visualization Assistance	Explains how to request and obtain visualization services for Public Involvement materials.
NCDOT Roadway Design Public Hearing Map 2012	Entire document (Attached)	Provides standards for meeting map displays and detailed "how-tos".
NCDOT Public Involvement and Mapping Guide and Checklist	Entire document (Attached)	Includes guidelines of what to show on public hearing maps, how to show it (legend provided), and checklists.

2D PD&E Materials Guidebook 6

3 Features (Layers/Levels) List

Existing and proposed features lists were prepared for PD&E base maps and concept plan/profile and graphic typical sections.

3.1 Base Maps and Concept Plans

The Concept Plan Features List in **Appendix A** contains suggested symbology that would apply to base maps and horizontal and vertical concept design plans, consistent with the FDOT CADD Manual. The list is categorized by features that:



The Concept Plan Features List is intended to be used in conjunction with the FDOT CADD Manual for consistency with overall guidance and potential future manual updates. This will also provide a consistent and efficient handoff of the CADD files to the design team in the next phase of project development.

The table in Appendix A includes the FDOT CADD Manual Layer/Level Name and Layer/Level Description so that the designer can reference the appropriate symbology in the FDOT CADD Manual. In addition to the standard symbology in the FDOT CADD Manual, the Concept Plan Features List includes suggestions for the fill and color of certain elements to encourage graphic consistency and quality. **Figure 3-1** demonstrates how the practitioner would use the Concept Plan Features List.

Step 2 - Reference Step 1 – Identify which Step 3 - Apply suggested **CADD Manual for** layers to include fill (if applicable) Level's Symbology Suggested Color of Fill Shape Roadway 3axCulvert Box Culver se this level for proposed bridge f Bridge 3ridge Use this level for proposed approach slab fi Roadway 2 Bridge Approachs and Slabs BridgeAppSlab Brown (color 9) BridgePiers Bridge Piers Canal CandG ex Curb and Gutter on Cross Sections (All Types) (Exis Use this level to fill concrete islands or othe Concrete Areas and Miscellaneous (All Types) Light gray(colors 16, 32 or 48) Roadway Concrete misc. concrete features. Use this level to fill ponds (high-level pond 2 CorrPond_dp Graphic Broudary for Pond Roadway Cvan (color 7) mphasis Crosswalk 6ft High imphasis Crosswalk 10ft High Back of Curb

Figure 3-1 – Using the Concept Plan Features List

3.2 Graphic Typical Sections

The Typical Section Features List includes the minimum required information and symbology for graphic typical sections, excluding typical sections developed as part of the Typical Section Package which are already clearly defined in the FDOT Design Manual. Because the Typical Section Package is the product passed on to the design team and graphic typical sections are for presentation purposes, specific levels from the FDOT CADD Manual are not used in the Typical Section Features List. Since specific levels are not required, consultant firms may bring the linework into graphic design software for enhancements, though this is not required. Note that when programs are used that do not utilize FDOT settings, care should be taken to mimic FDOT display settings for presentation consistency of FDOT 2D materials.

The Typical Section Features List includes a simple list of elements required for all typical sections and a list of elements required if present. The Typical Section Features List is included as **Appendix B**. Practitioners should use this list to verify that they have included all required features in PD&E graphic typical sections. Examples of graphical typical sections generated using both CADD and graphic design software are provided in **Appendix C**.

4 Example Templates and Guidance

Example Concept Plan, Roll Plot, and Typical Section templates were created to accompany the features list and provide a graphical representation of the intent of the features list. It should be noted that not all layers in the features list are represented in the templates and that the templates are intended for guidance only.

Practitioners should use discretion on the Concept Plans, Roll Plots, and/or Typical Sections that are prepared for each project. For example, aerial imagery may need to be made darker or lighter, shapes transparency may or may not be needed and line thicknesses may need to be adjusted to create a legible set of plans or roll plots. The Concept Plan, Roll Plot, and Typical Section templates are provided in Appendix C.

Note that when programs are used that do not utilize FDOT settings, care should be taken to mimic FDOT display settings for presentation consistency of FDOT 2D materials.

Appendix A – Concept Plan Features List

Discipline ¹	(1) Must include (2) Include if present/available (3) Include if important to project	Level/Layer Name ²	Level/Layer Description ²	Used in Concept Plan Fill Shapes?	Suggested Color of Fill Shape	Remarks
Common	1	ImageAttachment_dp	Image Attachments			Attach FDOT aerial panels on this level.
Common	1	LeaderLine_dp	Leader Line and Terminator with Text			
Common	1	PlotBorder_dp	Plot Border			
Common	1	PropertyLine_ep	Property Lines (Existing)			Use GIS property data from local property
Common	1	RWLine ep	Right of Way Lines (Existing)			appraiser if not surveyed.
Common	l l	KvvLine_ep	Right of Way Lines (Existing)			This level is included in FDOT plan sheet
Common	1	SheetBorder_dp	Sheet Border			border cell and would therefore be used in the concept plan sheet border.
Common	1	TextLabel	Text - Label			
Common	1	TextShtNo	Text - Sheet Number			This level is included in FDOT plan sheet border cell and would therefore be used in the concept plan sheet border.
Common	1	TextTitle	Text - Title			
Common	1	SheetLines_dp	Sheet Lines			This level is included in FDOT plan sheet border cell and would therefore be used in the concept plan sheet border.
Common	1	AdhocPoint_dp	Adhoc Points Placed by SheetInfo			This level is automatically placed if FDOT sheet labeling navigator is used.
Common	2	CLConst_dp	Center Line of Construction			Show a centerline if a surveyed baseline is not available.
Common	2	SheetLinesMisc1_dp	Sheet Lines			
Common	2	SheetLinesMisc2_dp	Sheet Lines			
Common	2	BaselineSurvey	Baseline Survey			If a surveyed baseline is not available in PD&E, show a centerline of construction at a minimum.
Common	2	CurveData_dp	Curve and Coordinate Data Elements Including PC, PT, PI Symbols			
Common	2	CurveDataLabel_dp	Curve Data Labels PC,PI, PT			
Common	2	EaseLine_ep	Easement Lines (Existing)			
Common	2	EaseTempLine	Easement Lines Temporary (Proposed)			
Common	2	LARWLine	Limited Access Right of Way Lines			
Common	2	LARWLine_ep	Limited Access Right of Way Lines (Existing)			
Common	2	MatchLines_dp	Match Lines with Text, Arrows for Station Notations			
Common	2	NonPlottingEle_dp	Non-Plotting Items - Construction Elements, Type 66 Elements, Etc.			
Common	2	RRBaseline	Railroad Center Line			
Common	2	RWLine	Right of Way Lines			
Common	2	TextBLStation	Text - B/L Station and Tics			
Common	2	TextCurveData	Text - Curve Data Note			
Roadway	2	PavtAsphalt	Asphalt Pavement Edge Line and Quantity Shapes	yes	Dark gray/black (colors 208, 224 or 240)	Use this level for asphalt pavement fill shapes.
Roadway	2	BikeLaneColorPavt	Green Bike Lane Pavement			
Roadway	2	BoxCulvert	Box Culvert			
Roadway	2	Bridge	Bridge	yes	Orange (color 6)	Use this level for proposed bridge fill shapes.
Roadway	2	BridgeAppSlab	Bridge Approachs and Slabs	yes	Brown (color 9)	Use this level for proposed approach slab fill shapes.
Roadway	2	BridgePiers	Bridge Piers			
Roadway	2	Canal	Canal			
Roadway	2	CandG_ex	Curb and Gutter on Cross Sections (All Types) (Existing)			
Roadway	2	Concrete	Concrete Areas and Miscellaneous (All Types)	yes	Light gray (colors 16, 32 or 48)	Use this level to fill concrete islands or other misc. concrete features.
Roadway	2	CorrPond_dp	Graphic Broudary for Pond	yes	Cyan (color 7)	Use this level to fill ponds (high-level pond analysis/corridor study).
Roadway	2	CrossWalk1	Emphasis Crosswalk 6ft High			
Roadway	2	CrossWalk2	Emphasis Crosswalk 10ft High			
Roadway	2	CurbBack	Back of Curb			

Discipline ¹	(1) Must include (2) Include if present/available (3) Include if important to project	Level/Layer Name ²	Level/Layer Description ²	Used in Concept Plan Fill Shapes?	Suggested Color of Fill Shape	Remarks
Roadway	2	CurbFace	Curb and Gutter (Face)			
Roadway	2	CurbRamp	Curb Cut Ramp			
Roadway	2	DirArrowsPavt	Pavement Marking Directional Arrows			
Roadway	2	Driveway	Driveway (Drive, Lane, Turnouts)	yes	Light gray (colors 16, 32 or 48)	Use this level for 6" concrete driveway shapes.
Roadway	2	Fence	Fence, Sand Fence			
Roadway	2	GradeLine_er	Grade Line Profile (Existing)			Use this level only if plan/profile is required for project.
Roadway	2	GradeLine_pr	Grade Line Profile			Use this level only if plan/profile is required for project.
Roadway	2	Grass	Grass, Seeding and Mulching Areas	yes	Green (color 98, 114 or 130)	Use this level for seeding and mulching fill shapes.
Roadway	2	Guardrail	Guardrail			
Roadway	2	GuardrailDbl	Guardrail (Double Face)			
Roadway	2	GuardrailEndAch	Guardrail (End Anchorage)			
Roadway	2	GuardrailLt	Guardrail (Left)			
Roadway	2	GuardrailRt	Guardrail Right			
Roadway	2	LaneDirArrow	Lane Directional Arrow			
Roadway	2	LaneLine	Lane Lines - Delineates Travel Lanes (Non-plotting)			
Roadway	2	PavtConcrete	Concrete Pavement Edge Lines and Quantity Shapes	yes	Tan (color 9)	Use this level for concrete pavement fill shapes.
Roadway	2	PavtMessage	Pavement Message (All Types)			
Roadway	2	PavtMilling	Milling and Resurfacing Limits and Quantity Shapes	yes	medium gray (colors 112, 128 or 144)	Use this level for milling and resurfacing fill shapes.
Roadway	2	PavtMisc	Asphalt Material (Miscellaneous)	yes	blue (color 1)	Use this level for misc. asphalt for guardrail or asphalt driveway/turnout fill shapes.
Roadway	2	PMStripe(10-10-20)	Pavement Marking 10/10/20 Skip Traffic Stripe 6in Contrast			
Roadway	2	PMStripe(2-2-2)	Pavement Marking 2/2/2 Skip Traffic Stripe 6in Contrast			
Roadway	2	PMStripe12B	Pavement Marking Traffic Stripe 12in Black			
Roadway	2	PMStripe12W	Pavement Marking Traffic Stripe 12in White			
Roadway	2	PMStripe12W(2-4)	Pavement Marking 2/4 Skip Traffic Stripe 12in White			
Roadway	2	PMStripe12W(3-9)	Pavement Marking 3/9 Skip Traffic Stripe 12in White			
Roadway	2	PMStripe12Y	Pavement Marking Traffic Stripe 12in Yellow			
Roadway	2	PMStripe16B	Pavement Marking Traffic Stripe 16in Black			
Roadway	2	PMStripe16W	Pavement Marking Traffic Stripe 16in White			
Roadway	2	PMStripe16Y	Pavement Marking Traffic Stripe 16in Yellow			
Roadway	2	PMStripe18B	Pavement Marking Traffic Stripe 18in Black			
Roadway	2	PMStripe18W	Pavement Marking Traffic Stripe 18in White			
Roadway	2	PMStripe18Y	Pavement Marking Traffic Stripe 18in Yellow			
Roadway	2	PMStripe24W	Pavement Marking Traffic Stripe 24in White			
Roadway	2 2	PMStripe24Y PMStripe6B	Pavement Marking Traffic Stripe 24in Yellow			
Roadway Roadway	2	PMStripe6B(10-30)	Pavement Marking Traffic Stripe 6in Black Pavement Marking 10/30 Skip Traffic Stripe 6in Black			
Roadway	2	PMStripe6BI	Pavement Marking Traffic Stripe 6in Blue			
Roadway	2	PMStripe6DY	Pavement Marking Traffic Stripe 6in Double Yellow			
Roadway	2	PMStripe6W	Pavement Marking Traffic Stripe 6in White			
Roadway	2	PMStripe6W(10-30)	Pavement Marking 10/30 Skip Traffic Stripe 6in White			
Roadway	2	PMStripe6W(2-4)	Pavement Marking 10/30 Skip Traffic Stripe 6in White			
Roadway	2	PMStripe6W(3-9)	Pavement Marking 3/9 Skip Traffic Stripe 6in White			
Roadway	2	PMStripe6W(6-10)	Pavement Marking 6/10 Skip Traffic Stripe 6in White			
Roadway	2	PMStripe6Y	Pavement Marking 0/10 Skip Tranic Stripe oil White			
Roadway	2	PMStripe6Y(10-30)	Pavement Marking 10/30 Skip Traffic Stripe 6in Yellow			
		1 140 tipeo (10-30)	I atomont marking 10/00 okip Hamic ourpe our reliew			

	(1) Must include					
	(2) Include if	2		Used in		
Discipline ¹	present/available	Level/Layer Name ²	Level/Layer Description ²	Concept Plan	Suggested Color of Fill Shape	Remarks
	(3) Include if			Fill Shapes?		
	important to project	DMO(: 0)((0.40)	D			
Roadway	2	PMStripe6Y(6-10)	Pavement Marking 6/10 Skip Traffic Stripe 6in Yellow			
Roadway	2	PMStripe8B	Pavement Marking Traffic Stripe 8in Black			
Roadway	2	PMStripe8W	Pavement Marking Traffic Stripe 8in White			
Roadway	2	PMStripe8W(3-9)	Pavement Marking 3/9 Skip Traffic Stripe 8in White			
Roadway	2	PMStripe8Y	Pavement Marking Traffic Stripe 8in Yellow			
Roadway	2	PMYieldL	Special Marking Area Yield Lines Large			
Roadway	2	PMYieldS	Special Marking Area Yield Lines Small			
Roadway	2	ShldrHatch	Shoulder Hatch Pattern			
Roadway	2	ShldrPaved	Shoulder Line (Paved)	yes	light blue (color X)	Use this level for paved shoulder fill shapes.
Roadway	2	ShldrUnpaved	Shoulder Line (Unpaved)			
Roadway	2	SidewalkBack	Back of Sidewalk			
Roadway	2	SidewalkConc	Sidewalk Concrete Shape	yes	Light gray (colors 16, 32 or 48)	Use this level for 4" concrete sidewalk fill shapes.
Roadway	2	SidewalkFront	Front of Sidewalk			enapee.
Roadway	2	SignCantilever ep	Sign Symbol Cantilever (Existing)			
Roadway	2	SignDMS	Dynamic Message Sign			
Roadway	2	SignSupport	Ground Mounted Sign Support Symbol (All Types)			
Roadway	2	SignTruss	Sign Symbol Truss			
Roadway	2	SignTruss ep	Sign Symbol Truss (Existing)			
	2	Sod Sod	Performance Sod	ves	Green (color 98, 114 or 130)	Use for performance sod fill shapes.
Roadway Roadway	2	Tower	High Mast Light Poles or Towers, Transmission Tower, Antenna	yes	Green (color 96, 114 or 130)	Ose for performance sou fill shapes.
Roadway	2		Traffic Separator (All Types)			
	2	TrafSeparator	Barrier Wall (All Types)			
Roadway		WallBarrier				
Roadway	2	WallBarrier_ex	Barrier Wall on Cross Sections (Existing)			
Roadway	2	WallGravity	Gravity Wall			
Roadway	2	WallRetain	Retaining Wall System			
Roadway	2	Wetland	Wetland Boundary			
Roadway	2	Widening	Widening Patterns and Miscellaneous Elements			
Roadway	2	SignMisc	Sign Symbols (Miscellaneous)			Use this level to fill sign shields the appropriate colors to show up in color on base maps and concept plans
Roadway	2	SignPanel	Sign Panels - Regulatory			Use this level for state road, U.S. Route and Interstate sign sheild to label roadways on base maps and concept plans
Structures	2	CL_ConsSurvey	Centerline Construction or Centerline Survey			
Structures	2	PedRail	Pedestrian Rail, Bullet, Picket and Guidrail			
Structures	2	RailRoad	Railroad			
Structures	2	RW_Line	Right of Way lines			
Structures	2	Signage	Bridge Mounted Signs and Cantilever Sign Structures			
Structures	2	TrafBarrierConc	Traffic Barrier Concrete			
Survey	2	ArchSite_ep	Archeological Site (Existing)			
Survey	2	BankMent_ep	Embankment (Manmade, Top or Bottom) (Existing)			
Survey	2	Basins_ep	Sediment Basins, Retention Ponds (Existing)			
Survey	2	Bench_ep	Bench (Existing)			
Survey	2	Bollard_ep	Bollards (Existing)			
Survey	2	BoxCulvert_ep	Box Culvert (Existing)			
Survey	2	Bridge ep	Bridge Approaches and Slabs (Existing)			
Survey	2	BridgeEle_ep	Bridge Elements (Existing)			
Survey	2	Building ep	Buildings (Existing)			
		BusStop_ep	Bus Stop (Chain for Larger Structures) (Existing)			
Survey	2					
	2					
Survey		Cemetery_ep	Cemetery, Grave Outlines (Existing)			
Survey Survey	2 2	Cemetery_ep CGBack_ep	Cemetery, Grave Outlines (Existing) Curb and Gutter (Back) (Existing)			
Survey	2	Cemetery_ep	Cemetery, Grave Outlines (Existing)			

	(1) Must include (2) Include if			Used in		
Discipline ¹	present/available (3) Include if important to project	Level/Layer Name ²	Level/Layer Description ²	Concept Plan Fill Shapes?	Suggested Color of Fill Shape	Remarks
Survey	2	ConcSlabs ep	Concrete Slabs (Existing)			
Survey	2	CurbRamp ep	Curb Cut Ramp (Existing)			
Survey	2	Ditch ep	Ditch (Top, Bottom and Flow Lines) (Existing)			
Survey	2	DitchPavt_ep	Ditch Pavement (Existing)			
Survey	2	Dolphins_ep	Dolphins and Fenders (Existing)			
Survey	2	Driveway_ep	Driveway (Drive, Lane, Turnouts) (Existing)			
Survey	2	EndangeredL_ep	Endangered Species Line			
Survey	2	Fence_ep	Fence (All Types) (Existing)			
Survey	2	FireHydrant_ep	Fire Hydrant (Existing)			
Survey	2	Gates_ep	Gates (Existing)			
Survey	2	GuardrailDbl_ep	Guardrail (Double Face) (Existing)			
Survey	2	GuardrailLt_ep	Guardrail Left (Existing)			
Survey	2	GuardrailRt_ep	Guardrail Right (Existing)			
Survey	2	GuyWireAnchor_ep	Guy Anchor (Existing)			
Survey	2	GuyWirePole_ep	Guy Pole (Dead-Man) (Existing)			
Survey	2	InletCurb_ep	Curb Inlets (Existing)			
Survey	2	InletDBI_ep	Ditch Bottom Inlet (Existing)			
Survey	2	InletGutter_ep	Gutter Inlets (All Types) (Existing)			
Survey	2	InletMedian_ep	Median Inlets (Existing)			
Survey	2	ITSCamera_ep	Intelligent Transportation System (ITS) Closed Caption TV Camera Pole (Existing)			
Survey	2	ITSFiberCableA_ep	Intelligent Transportation System (ITS) Fiber Cable Quality Level A Locate (Buried) (Existing)			
Survey	2	ITSFiberCableB_ep	Intelligent Transportation System (ITS) Fiber Cable Quality Level B Designate (Buried) (Existing)			
Survey	2	ITSFiberCableC_ep	Intelligent Transportation System (ITS) Fiber Cable Quality Level C Above Ground Evidence (Buried) (Existing)			
Survey	2	ITSFiberCableD_ep	Intelligent Transportation System (ITS) Fiber Cable Quality Level D Existing Records (Buried) (Existing)			
Survey	2	ITSFiberSpliceE_ep	Intelligent Transportation System (ITS) Fiber Spliced Enclosure (Existing)			
Survey	2	ITSFiberSpliceV_ep	Intelligent Transportation System (ITS) Fiber Spliced Vault (Buried) (Existing)			
Survey	2	ITSPwrSupply_ep	Intelligent Transportation System (ITS) Closed Caption TV Power Supply (Wired, Solar, etc) (Existing)			
Survey	2	ITSVehSensor_ep	Intelligent Transportation System (ITS) Vehicle Sensor (Infared) (Existing)			
Survey	2	LaneLine_ep	Lane Lines - Delineates Travel Lanes (Existing)			
Survey	2	Luminaire_ep	Street Light / Pole (Existing)			
Survey	2	Mailbox_ep	Mailbox (Existing)		<u> </u>	
Survey	2	ManholeSW_ep	Manhole (Storm Water) (Existing)			
Survey	2	Monument_ep	Monuments (All) (Set or Found)		·	
Survey	2	PavtAsphalt_ep	Asphalt Pavement Edge (Existing)			
Survey	2	PavtBreak_ep	Pavement Slope Break Line (Existing)			
Survey	2	PavtConcJoints_ep	Concrete Pavement (Joints) (Existing)			
Survey	2	PavtConcrete_ep	Concrete Pavement (Edges) (Existing)			
Survey	2	PavtMisc_ep	Pavement Parking Lot/Guardrail/Miscellaneous Pavement (Existing)			
Survey	2	PilingPt_ep	Pilings, Piers, or Columns (Existing)			
Survey	2	PipeCulvert_ep	Pipe Culvert (Existing)			
Survey	2	PMRK_ep	Pavement Markings (Exclude Travel Lanes) (Existing)			
Survey	2	PointLocator_ep	Point Locator Symbol (Existing)			
Survey	2	PoleElec_ep	Electrical Pole (Existing)			
Survey	2	PoleElecT_ep	Electrical Pole With Transformer (Existing)			
Survey	2	PoleShared_ep	Shared Pole (Existing)			
Survey	2	Post_ep	Post or Pole (Not Monument) (Existing)			

	(1) Must include (2) Include if			Used in		
Discipline ¹	present/available (3) Include if	Level/Layer Name ²	Level/Layer Description ²	Concept Plan Fill Shapes?	Suggested Color of Fill Shape	Remarks
	important to project		Raillings (All Types); Piperail, Guiderail, Handrail Used for Pedestrian			
Survey	2	Railing_ep	and Bicycles (Existing)			
Survey	2	RailroadTracks_ep	Railroad Tracks (Rail, Bed) (Existing)			
Survey	2	RailroadXing_ep	Railroad Crossing (Roadway Platforms), Railroad Signal w/ Gate (Existing)			
Survey	2	ShldrPaved_ep	Shoulder Edge (Paved) (Existing)			
Survey	2	ShldrUnpaved_ep	Shoulders (Unpaved) (Existing)			
Survey	2	Shrub_ep	Shrub, Bush (Existing)			
Survey	2	ShrubHedge_ep	Hedges and Shrubs (Boundary) (Existing)			
Survey	2	SidewalkBack_ep	Back of Sidewalk (Existing)			
Survey	2	SidewalkFront_ep	Front of Sidewalk (Existing)			
Survey	2	SignalControl_ep	Signal Controller (Existing)			
Survey Survey	2 2	SignalSupport_ep SignColumn ep	Signal Supports (Including Mast Arm) (Existing) Cantilever Sign Column (Large) (Existing)			
Survey	2	SignMulti ep	Multi-column Sign (Large Sign) (Existing)			
Survey	2	SignSingle ep	Sign (Single Pole Support) (Existing)			
Survey	2	SignSupport_ep	Ground Mounted Sign Support Symbol (All Types)(Existing)			
Survey	2	SignTrussOH ep	Trusses and Cantilevers for Overhead Signs (Existing)			
Survey	2	Slopes ep	Natural Slopes (Top or Bottom) (Existing)			
Survey	2	SpanWire ep	Signal / Span Wire (Existing)			
Survey	2	SpanWireP ep	Signal / Span Wire Pole (Existing)			
Survey	2	Stairs ep	Stairways, Steps (Existing)			
Survey	2	Stump ep	Stump (Existing)			
Survev	2	Survey Control Points	Control Point (Fixed Coordinate)			
Survey	2	TopoMisc ep	Topography (Miscellaneous) (Existing)			
Survey	2	Tower_ep	High Mast Lighting Poles or Towers (Existing)			
Survey	2	TrafSeparator_ep	Traffic Separator (Existing)			
Survey	2	Trail_ep	Roadway,Trail (Unpaved) (Existing)			
Survey	2	Tree_ep	Tree (Unknown) (Existing)			
Survey	2	TreeLineWoods_ep	Woods Line (Existing)			
Survey	2	Wall_ep	Walls (Existing)			
Survey	2	WallBarrier_ep	Barrier Wall Dividing Traffic (All Types) (Existing)			
Survey	2	WallRetainEarth_ep	Wall Holding Earth (All) (Existing)			
Survey	2	WallSea_ep	Sea Walls (Existing)			
Survey	2	Wetland_ep	Wetlands (Existing)			
Common	3	ConstLimits	Construction Limits			
Common	3	TextAlert	Text - Alert Label to Highlight a Problem			
Common	3	TextDetails	Text - Detail Notes			T
Common	3	TextMajor TextMinor	Text - Major Text - Minor			
Common	3	TextMisc	Text - Miscellaneous			
Common	3	TextNotes	Text - Notes			
Common	3	TextTables	Text - Notes Text - Key Sheet Indexes and Table Data			
Roadway	3	BillboardLoc	Billboard Location			
Roadway	3	CCTV	Closed Circuit TV Camera and Accessories			
Roadway	3	CCTV ep	Closed Circuit TV Camera and Accessories (Existing)			
Roadway	3	ClearingGrubbing	Clearing and Grubbing Limits and Quantity Items			
Roadway	3	ConcSlabs	Concrete Slabs			
Roadway	3	Ditch	Ditch Top			
Roadway	3	DitchBot	Ditch Bottom			
Roadway	3	DrainMisc	Drainage Items (Miscellaneous)			
Roadway	3	EnvImpact_ep	Locations for Potential Environmental Concerns (Existing)			Use this level for environmental impact shapes (wetland, contamination, Section 4 etc.)
Roadway	3	InletCurb	Curb Inlet (All Types)			
Roadway	3	InletDBI	Ditch Bottom Inlet (All Types)			

Discipline ¹	(1) Must include (2) Include if present/available (3) Include if important to project	Level/Layer Name ²	Level/Layer Description ²	Used in Concept Plan Fill Shapes?	Suggested Color of Fill Shape	Remarks
Roadway	3	InletGutter	Gutter Inlet (All Types)			
Roadway	3	InletMedian	Median Barrier Inlet			
Roadway	3	InletProt	Rock Bags, Sand Bagging, etc.			
Roadway	3	Luminaire	Luminaires (Decorative) (All Types)			
Roadway	3	Manhole	Manhole (Drainage and Unknown)			
Roadway	3	ManholeSW	Manhole (Storm Water)			
Roadway	3	Miscellaneous0	Undefined Proposed Item - Color Blue Weight 0			Use these levels for environmental ³ and or RW impact fill shapes
Roadway	3	Miscellaneous1	Undefined Proposed Item - Color Blue Weight 1			Use these levels for environmental ³ and or RW impact fill shapes
Roadway	3	Miscellaneous2	Undefined Proposed Item - Color Blue Weight 2			Use these levels for environmental ³ and or RW impact fill shapes
Roadway	3	Miscellaneous3	Undefined Proposed Item - Color Green Weight 0			Use these levels for environmental ³ and or RW impact fill shapes
Roadway	3	Miscellaneous4	Undefined Proposed Item - Color Green Weight 1			Use these levels for environmental ³ and or RW impact fill shapes
Roadway	3	Miscellaneous5	Undefined Proposed Item - Color Green Weight 2			Use these levels for environmental ³ and or RW impact fill shapes
Roadway	3	Miscellaneous6	Undefined Proposed Item - Color Red Weight 0			Use these levels for environmental ³ and or RW impact fill shapes
Roadway	3	Miscellaneous7	Undefined Proposed Item - Color Red Weight 1			Use these levels for environmental ³ and or RW impact fill shapes
Roadway	3	Miscellaneous8	Undefined Proposed Item - Color Red Weight 2			Use these levels for environmental ³ and or RW impact fill shapes
Roadway	3	Miscellaneous9	Undefined Proposed Item - Color Red Weight 3			Use these levels for environmental ³ and or RW impact fill shapes
Roadway	3	OverheadStr	Mast Arm, Truss Assemblies, Signal Arms and Supports			
Roadway	3	OverheadStr_ep	Mast Arm, Truss Assemblies, Signal Arms and Supports (Existing)			
Roadway	3	PipeCulvertSS	Pipe Culvert Storm Sewer			
Roadway	3	PoleConc	Concrete Strain Pole			
Roadway	3	PoleConc_ep	Concrete Strain Pole (Existing)			
Roadway	3	PoleLight	Light Pole			
Roadway	3	PoleLight_ep	Light Pole (Existing)			
Roadway	3	PoleLightHM	High Mast Light Pole			
Roadway	3	PoleLightHM_ep	High Mast Light Pole (Existing)			
Roadway	3	Railing	Railings; Piperail, Guiderail, Handrail Used for Pedestrian and Bicycles (All)			
Roadway	3	RailroadXing	Railroad Crossing Elements			
Roadway	3	RetentionArea	Retention Area	yes	cyan (color 7)	Use this level for detailed pond site fill shapes (pond siting report level and above).
Roadway	3	RoadwayMisc	Roadway Items (Miscellaneous)			
Roadway	3	WallNoise	Noise Wall (All Types)			
Structures	3	CL_Major	Use as needed			
Structures	3	Lighting	Lighting Bridge/Sign Mounted			
Structures	3	WallSoundConc	Precast Soundwall Concrete			

¹All levels/layers listed under the Survey Discipline are listed to include if available but will ultimately be dependent on the Scope of the Survey task of each study.

²Refer to the latest FDOT CADD manual for the current list of levels and the level number, color, linestyle/linetype and weight of that level.

³Include any environmental elements that influence the design.

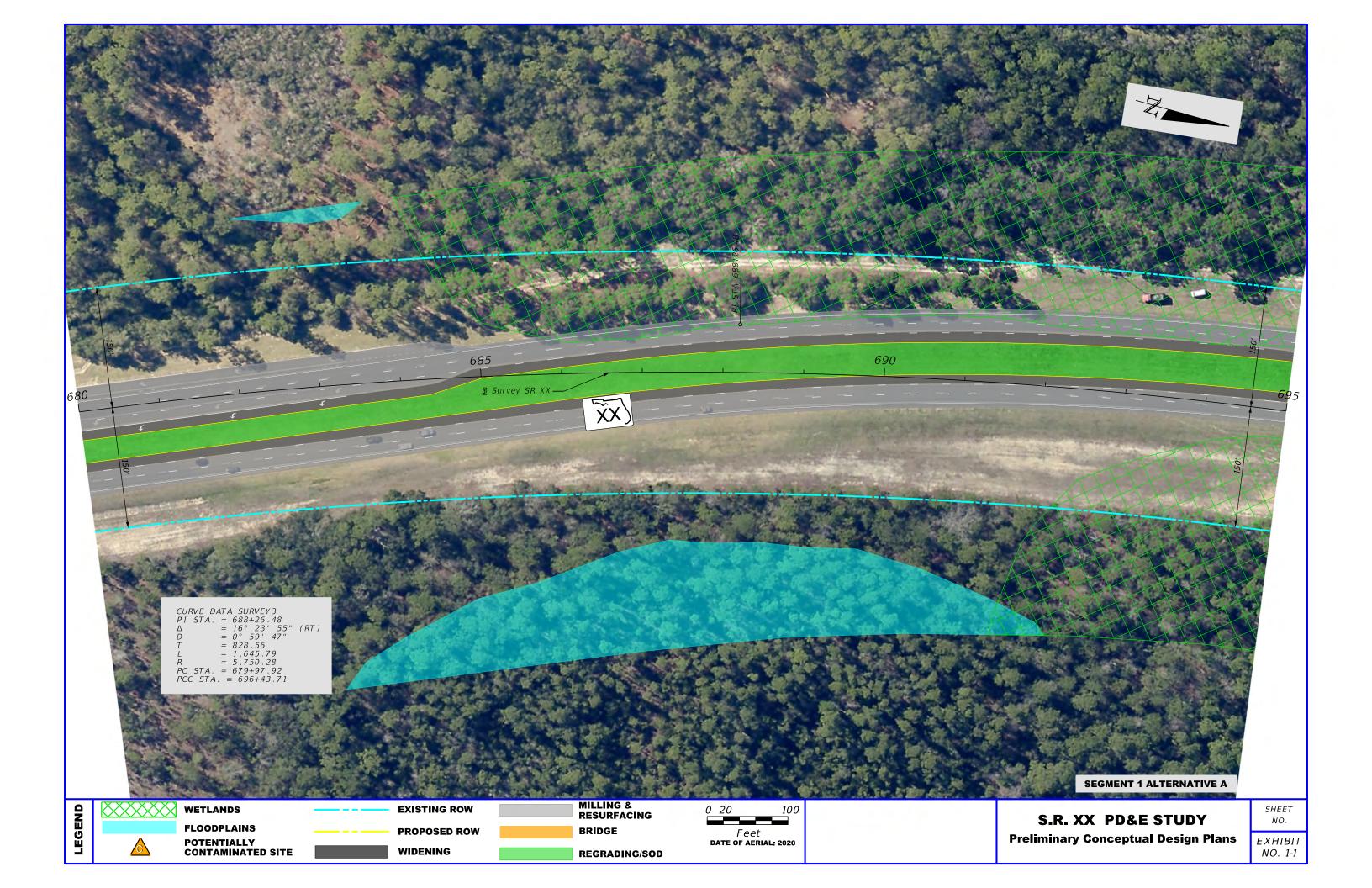
Appendix B – Typical Section Features List

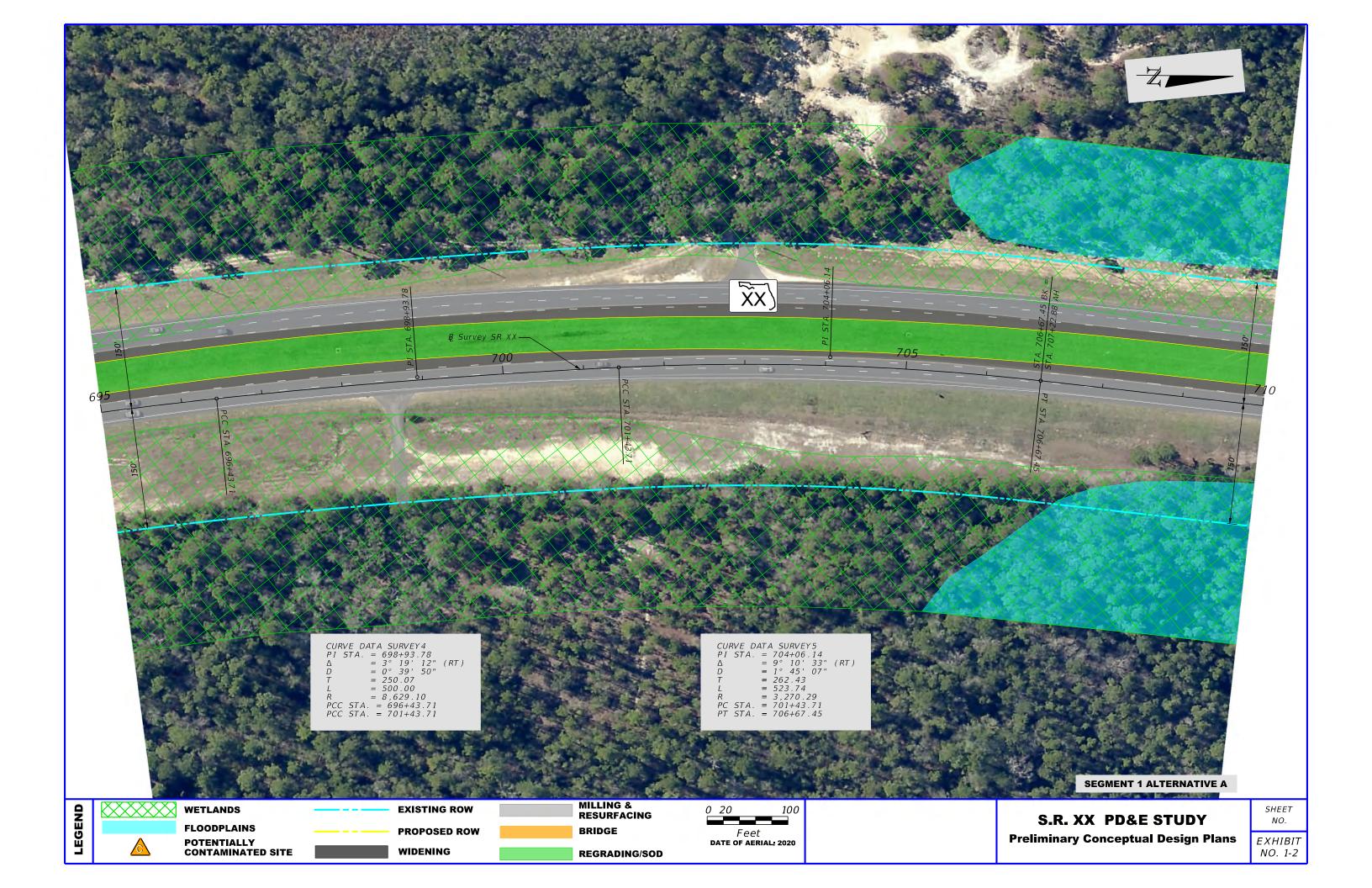
Table B-1 – Graphic Typical Section Features List

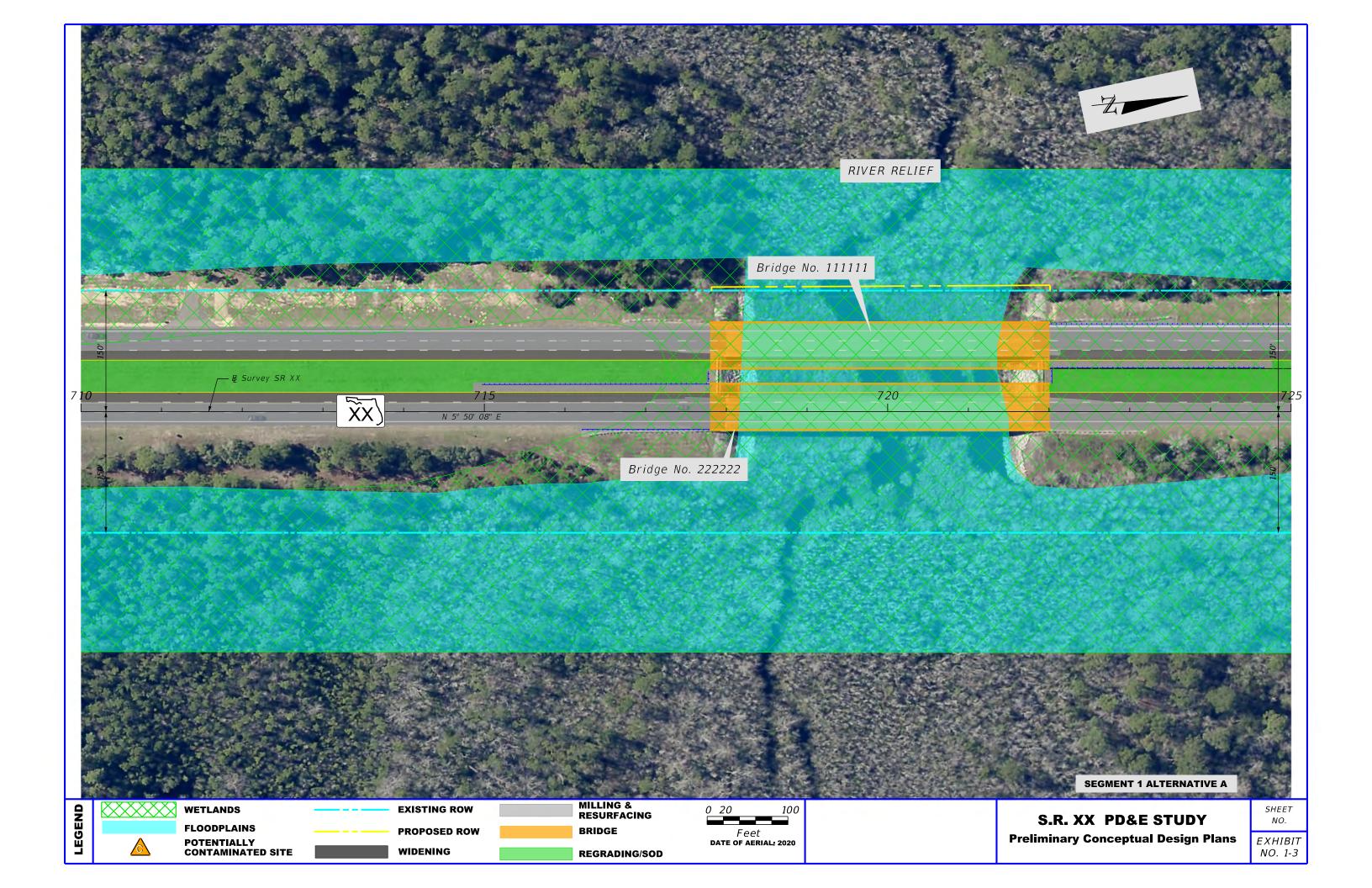
Features Required for All Typicals*	Features Required if Present*
Existing Right of Way Line	Curb
Proposed Right of Way Line	Gutter
Lanes	Barriers
Shoulders	Sidewalk
Median	Bicycle lane
	Shared Use Path

^{*}Label dimension widths for all features.

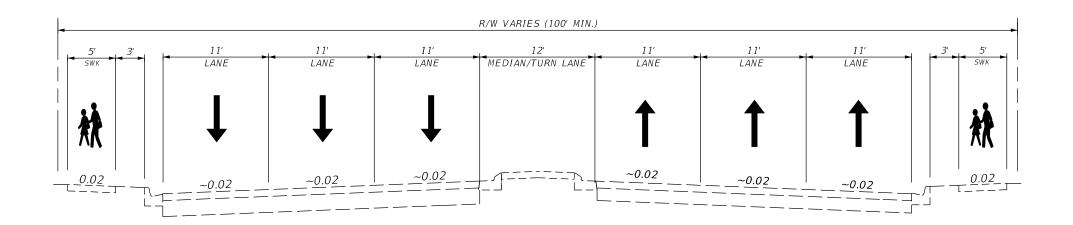
Appendix C - Concept Plan, Roll Plot, and Typical Section Templates



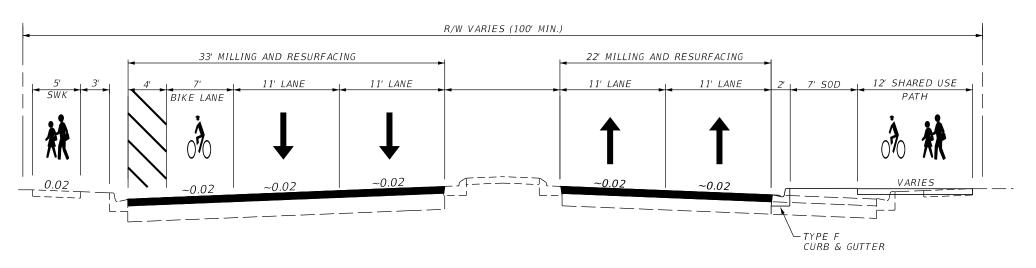








EXISTING TYPICAL SECTION AVENUE FROM BOULEVARD TO DD STREET



PROPOSED TYPICAL SECTION AVENUE FROM BOULEVARD TO DD STREET

	1	REVISIONS			STATE OF FLORIDA				SHEET
DATE	DESCRIPTION	DATE	DESCRIPTION	D	DEPARTMENT OF TRANSPORTATION				NO.
				ROAD N	10.	COUNTY	FINANCIAL PROJECT ID	TYPICAL SECTION	
									1

100' **EXISTING RIGHT-OF-WAY** 11' 11' 19' - 6" 11' 11' TRAVEL LANE TRAVEL LANE TRAVEL LANE TRAVEL LANE SIDEWALK BIKE LANE MEDIAN BIKE LANE SIDEWALK