

A graphic of an open book is centered on the page. The pages are white with a subtle texture. The book is bound in the middle, and there are four colorful tabs (cyan, magenta, yellow, and red) sticking out from the right edge. The text "FY 2019-20 Standard Plans Update Training" is written in a blue, italicized, serif font across the center of the open pages.

*FY 2019-20 Standard Plans  
Update Training*

## Structures Design Office Updates

(December, 2018)

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Structures Design Standards Group

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- General Review
- Standard Plans Packager
- Editorial Changes
- Minor *Standard Plans* Revisions
- Major *Standard Plans* Revisions
- *SPI* Revisions
- *Cell* Revisions (Data Tables)
- *Developmental Design Standards/Standard Plans*
- Looking Ahead



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**Standard Plan Index Numbers are consecutive within each Section (Roadway, Bridge).**

**Standard Plans in the Bridge section must be included in the Structures Plan Set if utilized.**

**Walls:** all walls are in the Roadway section

**Box Culverts:** all are located in the Bridge section



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***<http://www.fdot.gov/design/standardplans/Current/default.shtm>***

**Revision Logs:** A table of revisions is created for each release and changes are combined (Roadway & Bridge) and are listed in numerical order and is available at the same location as the Standard Plans: <http://www.fdot.gov/design/standardplans/Current/default.shtm>

## Standard Plans - FY 2019-20



See the **FDOT Design Manual (FDM), Chapter 115**, for additional information on the use of **Standard Plans** within FDOT Contract Plans.

Skip to **Standard Plans for Bridge Construction**

(Last updated: **11/02/2018**)


## Standard Plans for Road Construction

Standard Plans Index	Interim Revision or Errata	Index Title	Design Standards Index	Standard Plans Instructions	Design Tools	Contact
<b>Support Detail</b>						
eBook		Standard Plans for Road Construction - Complete eBook				Roadway
Cover		Cover Sheet				
Abbrev		Abbreviations Sheet				
TOC Road		Table of Contents - Road Construction				
Crosswalk		Crosswalk of Design Standards Index to Standard Plans				
Revisions		Revision History Log		SPI		



Numerically: no separation for roadway/structures.

STANDARD PLANS  
FY 2019-20 REVISIONS LOG



Standard Plans Index	Description
521-010	<p>Redeveloped Standard</p> <p><b>New Sheet 1:</b> Updated designs for all variations of single-slope and existing F-Shape barriers; Updated spacing of vertical and horizontal reinforcing steel, Added a minimum transverse joint spacing; Added leave-out concept for measurement; Added accommodation for welded wire reinforcing and variable barrier heights.</p> <p><b>New Sheet 2:</b> Added detail for terminating at 56" height barrier sections; Added detail for continuing over 44" height barrier sections.</p>
521-422	<p><b>Sheet 1:</b> Changed Barrier Delineator Note.</p> <p><b>Sheet 2:</b> Editorial, sidewalk hook bars.</p>
521-423	<p><b>Sheet 1:</b> Changed Barrier Delineator Note.</p> <p><b>Sheet 2:</b> Editorial, "RAILING END DETAIL" and "VIEW A-A AND B-B".</p>
521-426	<p><b>Sheet 1:</b> Changed Barrier Delineator Note.</p>
521-427	<p><b>Sheet 1:</b> Changed Barrier Delineator Note.</p>
521-428	<p><b>Sheet 1:</b> Changed Barrier Delineator Note.</p> <p><b>Sheet 2:</b> Editorial</p>
521-509	<p><b>All:</b> Reorganized sheets and renumbered; Updated sheet # references.</p> <p><b>Sheet 1:</b> Added notes moved from other sheets; Added Note 6.</p> <p><b>Sheet 2:</b> Changed reinforcing.</p> <p><b>Sheet 3:</b> Changed reinforcing.</p> <p><b>Sheet 4:</b> Changed reinforcing.</p> <p><b>Sheet 5:</b> Changed Note references to new reinforcing bars.</p>
521-510	<p><b>All:</b> Reorganized sheets and renumbered; Updated sheet # references.</p> <p><b>Sheet 1:</b> Added notes moved from other sheets; Added Note 6.</p> <p><b>Sheet 2:</b> Changed reinforcing.</p> <p><b>Sheet 3:</b> Changed reinforcing.</p> <p><b>Sheet 4:</b> Changed reinforcing.</p> <p><b>Sheet 5:</b> Changed Note references to new reinforcing bars.</p>
521-511	<p><b>Sheet 1:</b> Updated Notes.</p> <p><b>Sheet 2:</b> Added Bar 5R3; Changed reinforcing.</p> <p><b>Sheet 3:</b> Added Bar 5R3; Changed reinforcing.</p>
521-512	<p><b>Sheet 1:</b> Updated Notes.</p> <p><b>Sheet 2:</b> Added Note 6; changed asphalt description in SECTION B-B.</p>



## Standards Plans Packager Program (Tool):

For compiling Structures Standard Plans (Indexes) for the Structures Component Plans

<http://www.fdot.gov/structures/CADD/standards/CurrentStandards/MicrostationDrawings.shtm>



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### Structures Design

Structures Design

### Structures Design Standards Details & Data Tables



#### PLEASE READ THE FOLLOWING BEFORE DOWNLOADING MICROSTATION DRAWINGS

The official Design Standards are available at the Roadway Office website:

##### **Design Standards webpage**

Design Standards depict common structural components or elements suitable for standardization. Their use is by reference in the Contract Plans to the official Design Standards as specified in the Plans Preparation Manual (Volume II, Section 3.8). Some "Structures" Design Standards require the designer to complete a Data Table(s) and include in the Contract Plans. These Data Tables should be available on the FDOT Structures bar menu within the TTF\_V8semi-standards.cel cell library. If a Data Table is not included in the FDOT Structures bar menu, the latest cell library can be downloaded from the link provided below or individual cells can be downloaded from the **Standard Plans webpage** for FY2012/2013 and later.

#### 1.) Structures Related Design Standards Details:

(see **Standard Plans website** for FY 2012/2013 and later Design Standards Details & Revisions)

(see **Archived Drawings** for 2010/2011 and earlier Design Standards Details & Interims)

**Structures Standard Plans Packager Program** (used to bundle Bridge Standard Plans into a PDF file for Structures Component)

## Standards Plans Packager Tool:

Added a selection tool to choose the let date which selects the correct Standard Plans Book

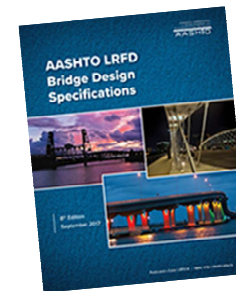
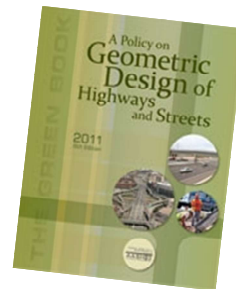


Continuing our work towards consistency - Indexes, Instructions, and Specifications.

**Editorial:** Insignificant changes such as spelling and grammar correction, font style and size. Revision date is not changed.

Railings vs. Barriers: (Editorial) Made changes to correct some references, in regard to the joint effort in cooperation with Roadway and Specifications - the following rule of thumb:

If located on a Bridge or Approach Slab = *Traffic Railing*  
If located on a wall or shoulder = *Concrete Barrier*





- **Index 102-200: Detour Bridge**
  - Changed Storage Facility phone number
- **Index 450 Series: 450-036 thru 450-096 Florida-I Beams**
  - Corrected Note # references in END VIEW
- **450-010 & 450-120: I Beam Notes**
  - Added Note 13 (holes in web)+
- **455-400: Precast Concrete Sheet Pile Walls**
  - Changed Table: Added Initial Jacking Force and moved Section Modulus and Prestress after Losses to SPI
- **455-440: Precast Concrete Sheet Pile Walls (corrosion resistant)**
  - Changed Table: Added Initial Jacking Force and moved Section Modulus and Prestress after Losses to SPI
  - Changed Dimension A for S4 thru S7 Bars

STORAGE FACILITY:  
 Contact  
 FDOT Statewide Aluminum Shop  
 2590 Camp Rd.  
 Oviedo, FL  
 407-278-2727  
 For shipping weights and dimensions of Temporary Bridge elements.

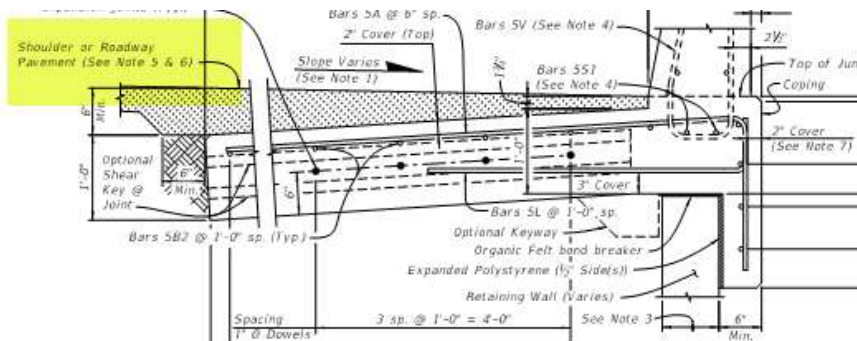
13. Holes in the beam web for temporary bracing or shipping devices must be formed prior to casting. Fill holes not meeting all the following criteria in accordance with Specification Section 450.  
 A. The superstructure environmental classification is slightly or moderately aggressive  
 B. Clear cover to adjacent steel reinforcing is 1" or greater  
 C. Hole inside diameter is 2" maximum  
 D. Non-metallic, non-water absorbing forming materials such as PVC, may be left in place permanently.

Strand Material	Wall Thickness	STRAND DIA. (in.)	MAXIMUM L *	n	D (in.)	TOTAL # OF STRANDS	Initial (Jacking) FORCE (Kip)
CFRP Strand	T=10 in.	0.49 (12.5mm)	26'-0"	4	4	10	28.7
		0.5 (12.7mm)	27'-0"	3	5 $\frac{1}{4}$ <sup>(2)</sup>	8	41.3
		0.6 (15.2mm)	27'-0"	3	5 $\frac{1}{2}$ <sup>(2)</sup>	8	42.7
	T=12 in.	0.49 (12.5mm)	31'-0"	5	3 $\frac{1}{2}$ <sup>(1)</sup>	12	28.7
		0.5 (12.7mm)	31'-0"	3	5 $\frac{1}{4}$ <sup>(2)</sup>	8	41.3
		0.6 (15.2mm)	31'-0"	3	5 $\frac{1}{2}$ <sup>(2)</sup>	8	42.7
HSSS Strand	T=10 in.	0.5 (12.7mm)	27'-0"	5	3 $\frac{1}{2}$ <sup>(1)</sup>	12	25.7
		0.6 (15.2mm)	26'-0"	3	5 $\frac{1}{4}$ <sup>(2)</sup>	8	36.5
	T=12 in.	0.5 (12.7mm)	32'-0"	6	2 $\frac{3}{4}$ <sup>(3)</sup>	14	25.7
		0.6 (15.2mm)	32'-0"	4	4	10	36.5

Concrete Sheet Pile Table was Changed



- **521-512: Concrete Barrier/Noise Wall**
  - Reorganized Notes (*read notes carefully – some have changed*)
  - Sheet 2: Added Note 6 (*Clarification on asphalt type*)



- 5. For Rigid Pavement (Concrete), Junction Slab may be thickened to match finished grade.
- 6. For Asphalt: Shoulder or Roadway Pavement will be SuperPave Structural asphalt. Variable thickness asphalt will be structural overbuild.

- **Index 521-610: Concrete Barrier/Junction Slab**
  - Same change as 521-512 to clarify asphalt.

- **Index 515-052 & 515-062: Pedestrian/Bicycle Railings**
  - *Corrected specification reference.*

- **Index 521-400 & 500 Series: Traffic Railings**
  - *Added color information back into the Barrier Delineator note*

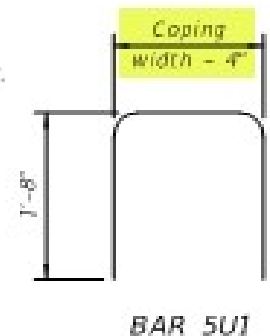
*BARRIER DELINEATORS: Install Barrier Delineators on top of the Traffic Railing 2" from the face on the traffic side in accordance with Specification Section 705. Match the Barrier Delineator to the color (white or yellow) of the near edgeline.*

- **Index 521-620: Concrete Barrier/Raised Sidewalk –Wall Coping**
  - *Sheet 2: Added Notes 7 & 8 +*

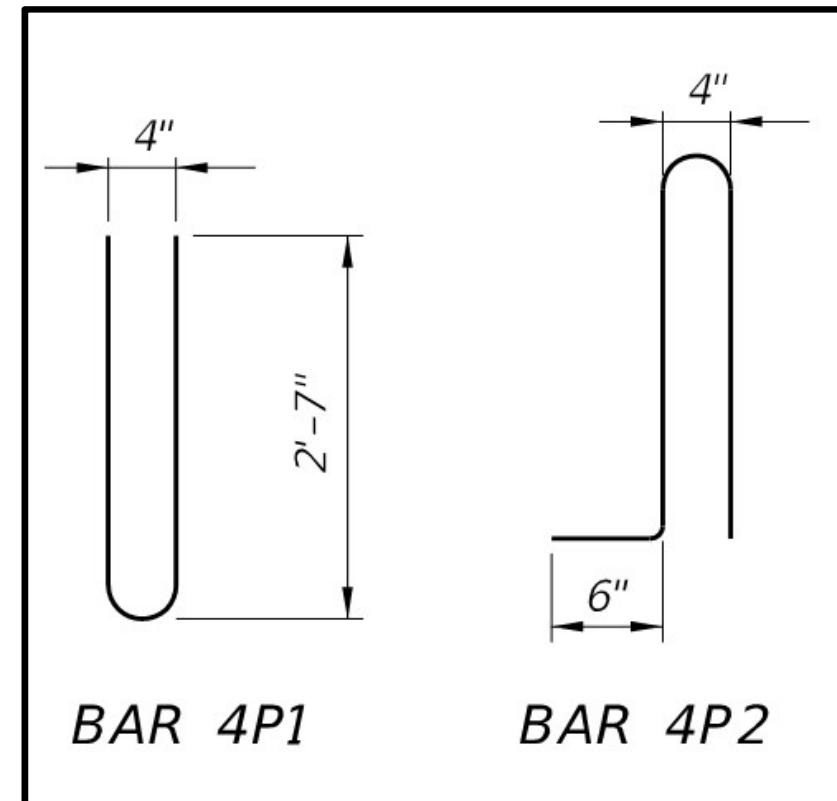
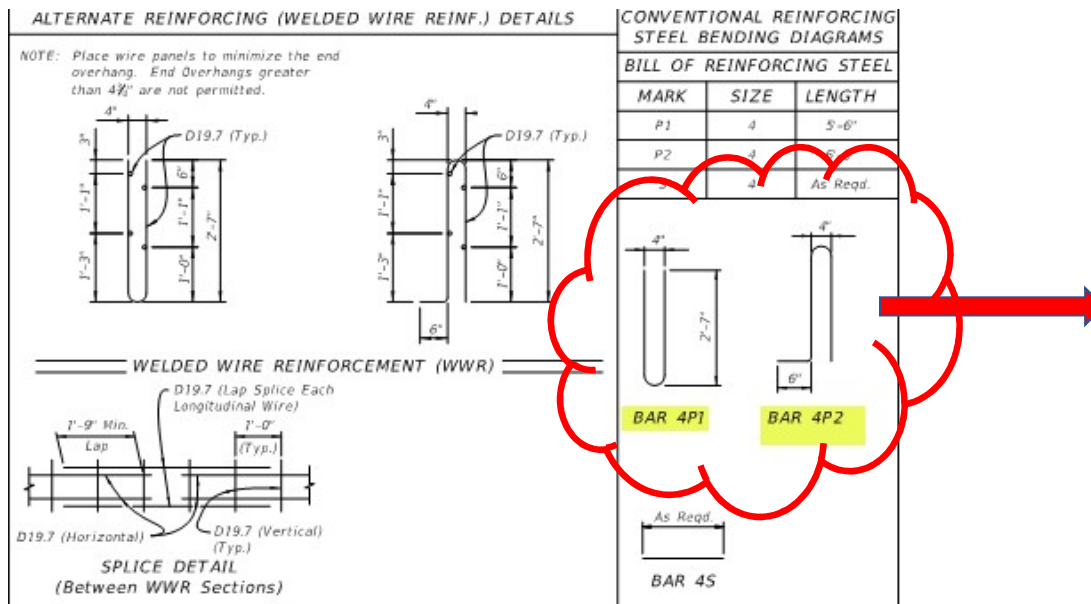
*7. For Bullet Railings, see Index 515-821 and 515-822.*

*8. Begin placing Railing Bars 5T and 5X at the railing end and proceed toward Retaining Wall to avoid conflict with guardrail bolt holes. If required, adjustments to the bar spacing for Bars 5T and 5X shall be made immediately adjacent to Begin or End Bridge. Cut, shift and rotate Bars 5T and 5X as required to maintain cover in End Transition.*

- **Index 521-630: Parapet with C-I-P Sidewalk – Wall Coping**
  - *Sheet 2: Corrected Bar 5U dimension*



- **Index 521-820: 27" Concrete Parapet**
  - Added a Sheet to declutter.
  - Added an **optional 4P2 bar shape**;
    - Flips Bars 4P1 bar upside down
    - Eliminates the need for protective rebar caps during construction.

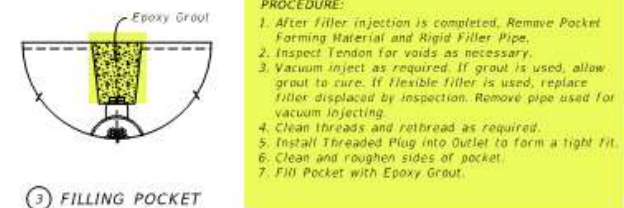
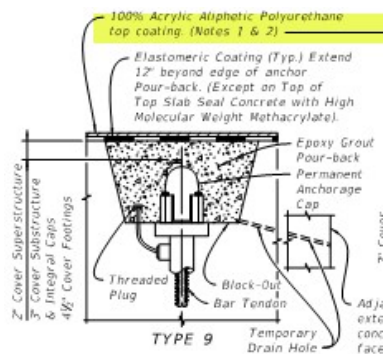
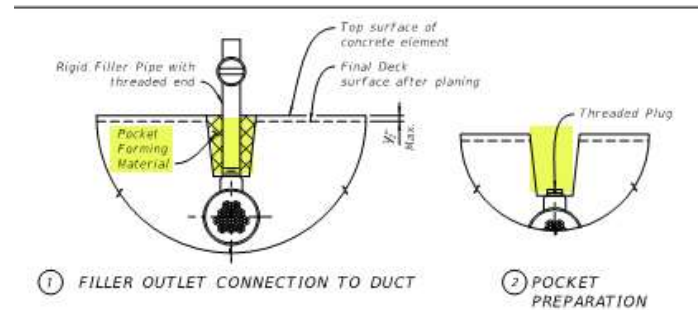
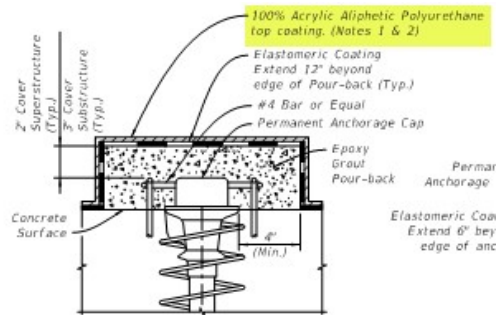
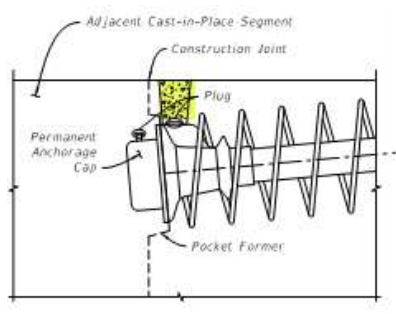


- **Index 534-250: Perimeter Walls**
  - *Changed the Grout strength for ACP to match the Noise Walls*
  - *Issued as an ERRATA earlier this year*
  
- **Index 630-010: Conduit Details – Embedded**
  - *Clarified that EJB “A” is for double or triple conduit.*

# MAJOR REVISIONS

## • Index 462-002 & 462-003: Post Tensioning Details

- Added Pockets around Plugs for constructability
- Added polyurethane top coating to drawings (specification requirement)



== FILLER OUTLET DETAIL AT HORIZONTAL SURFACES ==

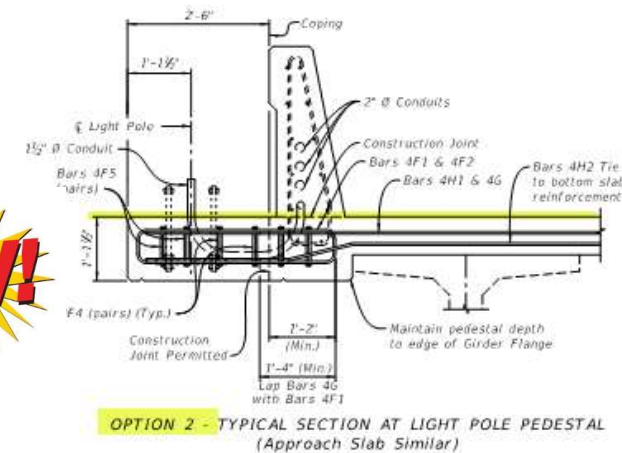
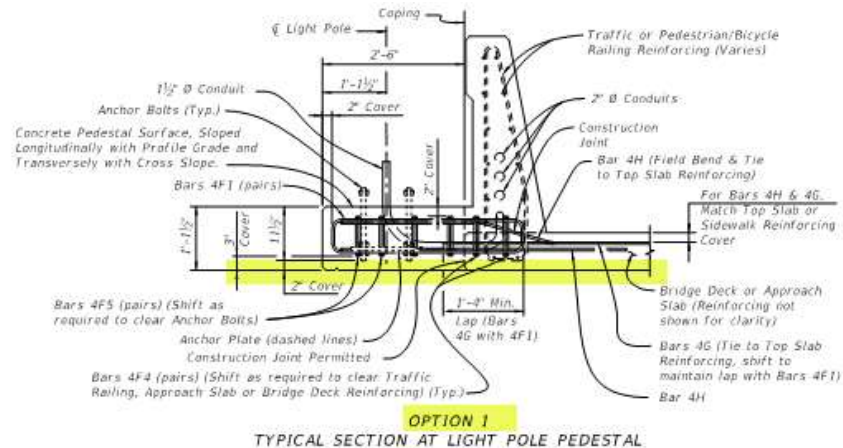




## Index 521-660: Light Pole Pedestal - Bridge

Added Options for forming pedestal when deck thickness is less than 1'-5"

- Option 1 is old design with bottom of deck and bottom of pedestal at the same level
- Option 2 is new (added sheet). The top of the pedestal is at the same level as the deck with the bottom of the pedestal below the bottom of the deck level



**OPTION 2**

## Index 548-020: MSE Retaining Wall Systems - Permanent Added Durability Requirements for FRP Reinforcing to Table

	Carbon Steel			FRP									
	FDOT MSE RETAINING WALL CLASSIFICATION TABLE												
Applicable FDOT Wall Type *	Durability Requirements (Carbon-Steel Reinforcing)			Durability Requirements (FRP Reinforcing)			Soil Reinforcement Type	Other Allowable FDOT Wall Types					
	Concrete Cover (in.)	Concrete Class for Panels	Pozzolan Additions? **	Concrete Cover (in.)	Concrete Class for Panels	Pozzolan Additions? **		2A	2B	2C	2D	2E	2F
Type 2A	2	II	No	1.5	II	No	Metal		✓	✓	✓	✓	✓
Type 2B	2	IV	No	1.5	IV	No	Metal			✓	✓	✓	✓
Type 2C	3	IV	No	1.5	IV	No	Metal				✓	✓	✓
Type 2D	3	IV	Yes	2	IV	No	Metal					✓	✓
Type 2E	3	IV	No	2	IV	No	Plastic						✓
Type 2F	3	IV	Yes	2	IV	No	Plastic						

\* See Data Table in Contract Plans.

\*\* Silica fume, metakaolin or ultrafine fly ash.

## Standard Plan Instructions (SPI)

- **102-200 Temporary Detour Bridge Series**
  - ✓ Updated wind pressure coefficients to AASHTO LRFD 8<sup>th</sup> Edition
- **400-289 Concrete Box Culverts**
  - ✓ Removed references to Roadway Plan Set (must be in Structures Plan Set)
  - ✓ Added references to FDM & SDM sections with more details on what to include in the plan set and where to place the information.
- **450-010 Florida-I Beam**
  - ✓ Noted that beam cambers in the example graphs may not meet SDG camber requirements
- **455-400 & 455-440 Precast Concrete Sheet Pile Walls**
  - ✓ Added Section Modulus and prestress after losses
  - ✓ Information came from SP Index
- **521-509, 510, 513, 514 & 515 Concrete Barrier/Noise Walls**
  - ✓ Changed to allow up to 3 conduits
  - ✓ Added slip forming information

## Standard Plan Instructions (SPI)

- **521-660 Light Pole Pedestal – Bridge**
  - ✓ *Clarified Anchor Bolt requirements*
  - ✓ *Clarified pedestal loads.*
  
- **534-200 Noise Walls**
  - ✓ *Added information/requirements for Alternate Technical Proposals*

## Structures Cell Library/Data Tables

<http://www.fdot.gov/design/StandardPlans/Current/DGNs.shtm>

- **Only 2 Updates:**
- ***“Prestressed I-Beam Temporary Bracing Minimum Requirements” (450-010 & 450-120):***  
Changed Note 2b – some information moved to SP Indexes.
- ***“Standard Mast Arm Assembly Data Table” (Index 649-030): Deleted Notes 3 & 4 from the cell.***

Update your cells!!

### 2.) FDOT Structures Menu Data Table Cell Libraries:

(in Microstation format. PDF examples are available in the **Standard Plans Instructions** (SPI).)

**TTF-V8semi-standards.cel v2016.3** (Jan 2016 - For use with FY 2016-17 Design Standards. Included in FDOTSS4 MR1 CADD Software Releases)  
(0.9MB zip)

**TTF-V8semi-standards.cel v2016.4** (Nov 2016 - For use with FY 2017-18 Design Standards. Included in FDOTSS4 MR2 CADD Software Releases, plus missing Data Table 17743 and updated Data Tables 21800B & 21800T)  
(0.9MB zip)

**TTF-StdDataTables.cel v2017.1** (Nov 2017 - For use with FY 2018-19 Standard Plans. Included in FDOTSS4 MR4 CADD Software Releases, plus updated Data Tables 450-199 & 450-299)  
(0.9MB zip)



## Updates on other *Developmental Standards*:

- **All**– Updating to new numbering plan as Developmental Designs are refined.
- **D20450 series** – Florida Slab Beam:
  - May be added to Standard Plans Next Year.
  - Developing details for attaching exterior beam form work and
  - Details for a Link Slab



## Structures Innovation Web-Site - Updates

Ultra-High Performance Concrete just added!

<http://alpha.dot.state.fl.us/structures/innovation/UHPC.shtm>

**We are here to assist you with your questions and concerns. Please contact us:**

- **If you have a suggestion:**
  - for a new standard or
  - for an improvement to an existing standard
  - Find an error (of any type).
  
- **If you have any issues during design or construction:**
  - Fully explain the issue (photos/drawings help);
  - Provide suggestions (if you have any);
  - Provide any documentation that might support a proposed change.
  
- **Anytime you have questions or concerns** (*but, we recommend always thoroughly reviewing the SPI first*).
  
- **Remember there is a long lead time to publishing**



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- **Who do you call?**

- **Andre Pavlov – Supervisor: Design Technology**
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- **Cheryl Hudson – Standards**
- **Tharu Koshy – Programs & Standards**