

FY 2019-20 Standard Plans Update Training

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Update Training Agenda

➤ General Overview

- Website
- Revision History Log
- Errata
- FDOT Design Manual (FDM) Updates

➤ Standard Plans Updates

- **Derwood Sheppard**
 - Misc. Indexes – Earthwork Details, Superelevation, Turnouts/Driveways, Sidewalk, & Curb Ramps
 - Misc. Traffic Control Signals and Devices
- **Richard Stepp**
 - Guardrail and Single-Slope Concrete Barrier
 - Opaque Visual Barrier
 - Crash Cushions
- **Ed Cashman**
 - Temporary Traffic Control
 - Signing, Signal & Pavement Marking
 - Lighting
- **Cheryl Hudson**
 - Structures Related Indexes



Standard Plans – New Website

<http://www.fdot.gov/design/standardplans/>

The screenshot shows a web browser window displaying the FDOT Standard Plans website. The browser's address bar shows the URL <http://www.fdot.gov/design/standardplans/>. The website header features the FDOT logo and the text "Florida Department of TRANSPORTATION". To the right of the logo is a search bar labeled "Search FDOT..." and links for "E-Updates | FL511 | Mobile | Site Map". Below the header is a navigation menu with links for "Home", "About FDOT", "Contact Us", "Maps & Data", "Offices", "Performance", and "Projects". The main content area is titled "Office of Design" and "Standard Plans for Road and Bridge Construction". It features a "Standard Plans" section with a "NEW" badge, listing "Standard Plans for Road and Bridge Construction" and "Developmental Standard Plans". Below this is a "Design Standards" section with links for "Design Standards (FY 2017-18 and earlier)" and "Developmental Design Standards". The "Support" section includes links for "Standard Plans CADD - DGN and Cell Libraries", "Standard Plans Training", and "Standard Plans History". The "Industry Review" section contains links for "Modification Request Origination Form - Form to Propose Revisions to a Standard Plans Index" and "Industry Review - Review and Response Packages for Proposed Revisions to a Standard Plans Index". Finally, the "Contact Information" section lists various design disciplines: "Roadway Design", "Structures Design", "Drainage Design", "Landscape Architecture", "Traffic Engineering and Operations (Traffic Ops)", and "Transportation Monitoring Program (TMP)".



<http://www.fdot.gov/design/standardplans/>

The screenshot shows the FDOT website for Standard Plans. The header includes the FDOT logo, the text "Florida Department of TRANSPORTATION", and a search bar. A navigation menu contains links for Home, About FDOT, Contact Us, Maps & Data, Offices, Performance, and Projects. The main content area is titled "Office of Design" and "Standard Plans for Road and Bridge Construction". It features a table of standard plans with columns for Year, Standard Plans, Support, Interim Revisions, Implementation Bulletin, and Effective Date.

STANDARD PLANS					
Year	Standard Plans	Support	Interim Revisions	Implementation Bulletin	Effective Date
FY 2019-20	Road Construction Bridge Construction	CADD/CEL	Interim	RDB18-10	07/01/19
FY 2018-19	Road Construction Bridge Construction	CADD/CEL	Interim	RDB17-13	07/01/18

Footer information includes social media icons for Facebook, Twitter, YouTube, WordPress, Instagram, and RSS. It also contains the text "Florida Department of Transportation Innovative, Efficient and Exceptional" and the copyright notice "© 1996 - 2018 Florida Department of Transportation".



Standard Plans – New Website

<http://www.fdot.gov/design/standardplans/>

Browser address bar: <http://www.fdot.gov/design/standardplans/Current/default.shtm>

Navigation: Home About FDOT Contact Us Maps & Data Offices Performance Projects

Office of Design

Office of Design / Standard Plans / Standard Plans FY 2019-20

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
Support Detail						
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		
Miscellaneous						
000-510		Superelevation Transitions - High Speed Roadways	510			Roadway
000-511		Superelevation Transitions - Low Speed Roadways	511			
000-525		Ramp Terminals	525			



Revision Log:

STANDARD PLANS FY 2019-20 REVISIONS LOG

<i>Standard Plans Index</i>	<i>Description</i>
000-506	<i>Changed to Index 160-001.</i>
000-510	<i>All Sheets: Changed Title. Sheet 1: Deleted "DESIGN SPEED" table and "RADIUS OF CURVE" table; Deleted subtitle. Sheet 2: Added Concrete Pavement note to clarify shoulder slope transitions.</i>
000-511	<i>All Sheets: Changed Title, Subtitles, and Renumbered. Sheet 1: Deleted Superelevations Rates Tabulated and Charted Values (information can be found in FDM); combined General Notes with Old Sheet 2; Deleted all callouts for "CHARTED VALUES" on Old Sheet 2. Sheet 2: Updated Subtitle.</i>
000-515	<i>Deleted Index, Criteria information moved to New FDM Chapter 214. Construction details moved to New Indexes 522-003 or 330-001.</i>
000-516	<i>Deleted Index and moved information to Index 330-001.</i>
102-200	<i>Sheet 1: "STORAGE FACILITY" Note; Changed phone number to 407-278-2727.</i>
102-600	<i>Sheet 3: Updated "LENGTH OF LANE CLOSURES" Note. Sheet 9: Changed "DROP-OFF CONDITION NOTES" Note 5.</i>
102-655	<i>Sheet 1: Changed Notes to remove limitations to Limited Access Facilities and Overhead work. Clarified "TRAFFIC PACING GUIDE" notes for the requirements of site specific traffic control plans. Added Note 6 to the "TRAFFIC PACING GENERAL NOTES" for short duration operations.</i>

Individual Chapter Webinars

- Coming Soon!!
- Announcement will be sent out



www.fdot.gov/roadway/fdm

Florida Department of TRANSPORTATION

Home About FDOT Contact Us Maps & Data Offices Performance Projects

Roadway Design

Roadway Design / Roadway Criteria / FDOT Design Manual

FDOT Design Manual

Subscribe to our **FDOT Contact Management Subscription Service** to receive the most current notices, bulletins, memoranda, and other important information. Submit FDOT Design Manual (FDM) questions, comments, or suggestions by email to: **Mary Jane Hayden, P.E.**

2018 FDOT Design Manual
Plans Preparation Manual (PPM)

2019 FDOT Design Manual
To view the Implementation Bulletin for the current FDM, please see **RDB18-09**

Development and Processes - Complete FDM Part 1 (Available for download Jan 1, 2019)

Chapter	Bulletin	Webinar	Description
Introduction			
100			Introduction
Link			Context Classification
102			Glossary of Terms
103			Standard Forms
104			Public Involvement
105			Aesthetic Design
106			Exempt Public Documents
Plans Development Processes			
110			Initial Engineering Design Process
111			Final Engineering Design Process
112			Update Engineering Design Process
113			Right of Way Requirements
114			Resurfacing, Restoration, and Rehabilitation (RRR)
115			Standard Plans and Standard Specifications
116			Roundabout Evaluation (Evaluation Forms)
Plans Submittal, Review, and Processing			
120			Design Submittals
121			Bridge Project Development

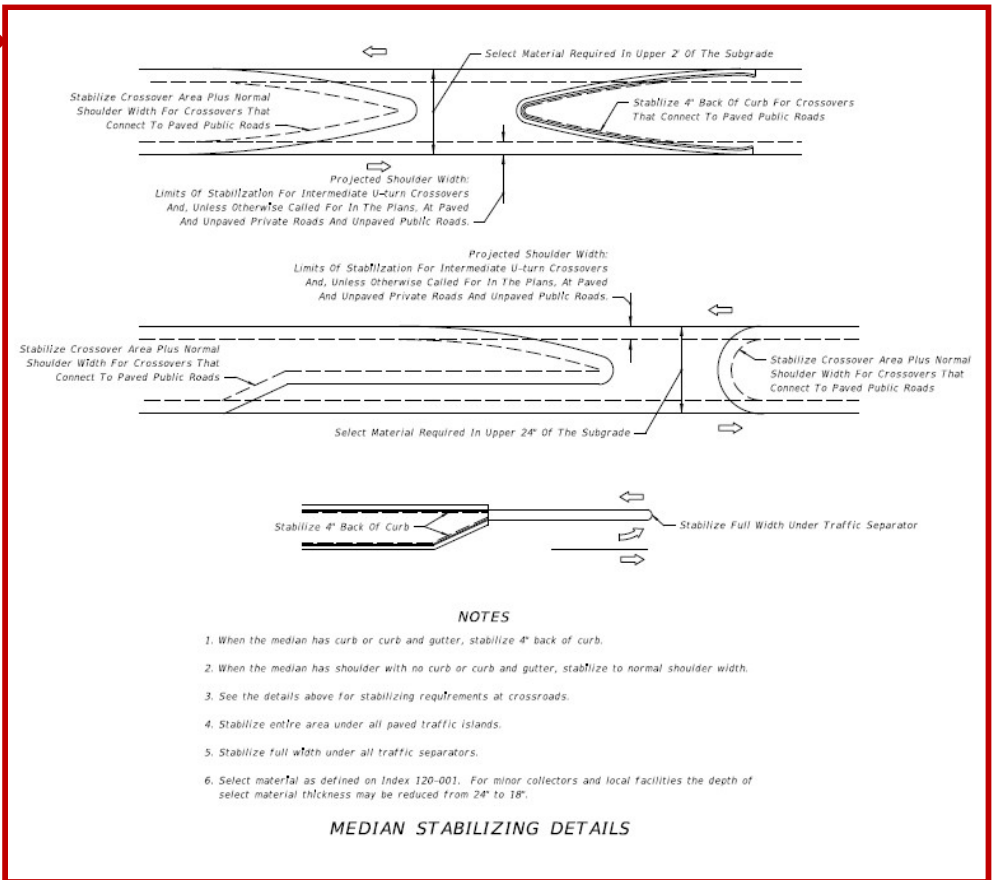
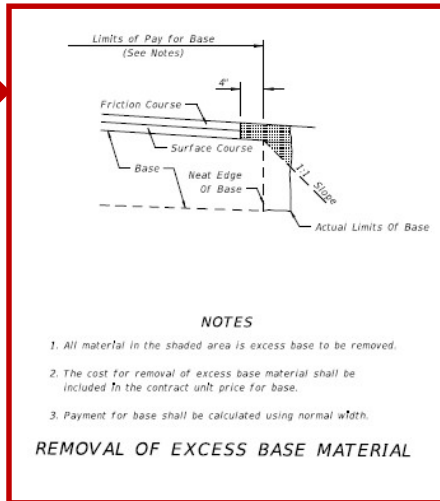
Standard Plans – Primary Updates:

- ✓ 1) *General Overview and Website*
- 2) *Misc. Indexes*
- ➔ a) *Index 000-506 - Miscellaneous Earthwork Details (Including: Indexes 160-001 & 120-001)*
- b) *Index 000-510 - Superelevation - High Speed Roadways*
- c) *Index 000-511 - Superelevation - Low Speed Roadways*
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- e) *Index 350-001 - Concrete Pavement Joints*
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- g) *Index 522-002 - Detectable Warnings and Sidewalk Curb Ramps*
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**Re-Indexed 160-001:
Stabilization Details**



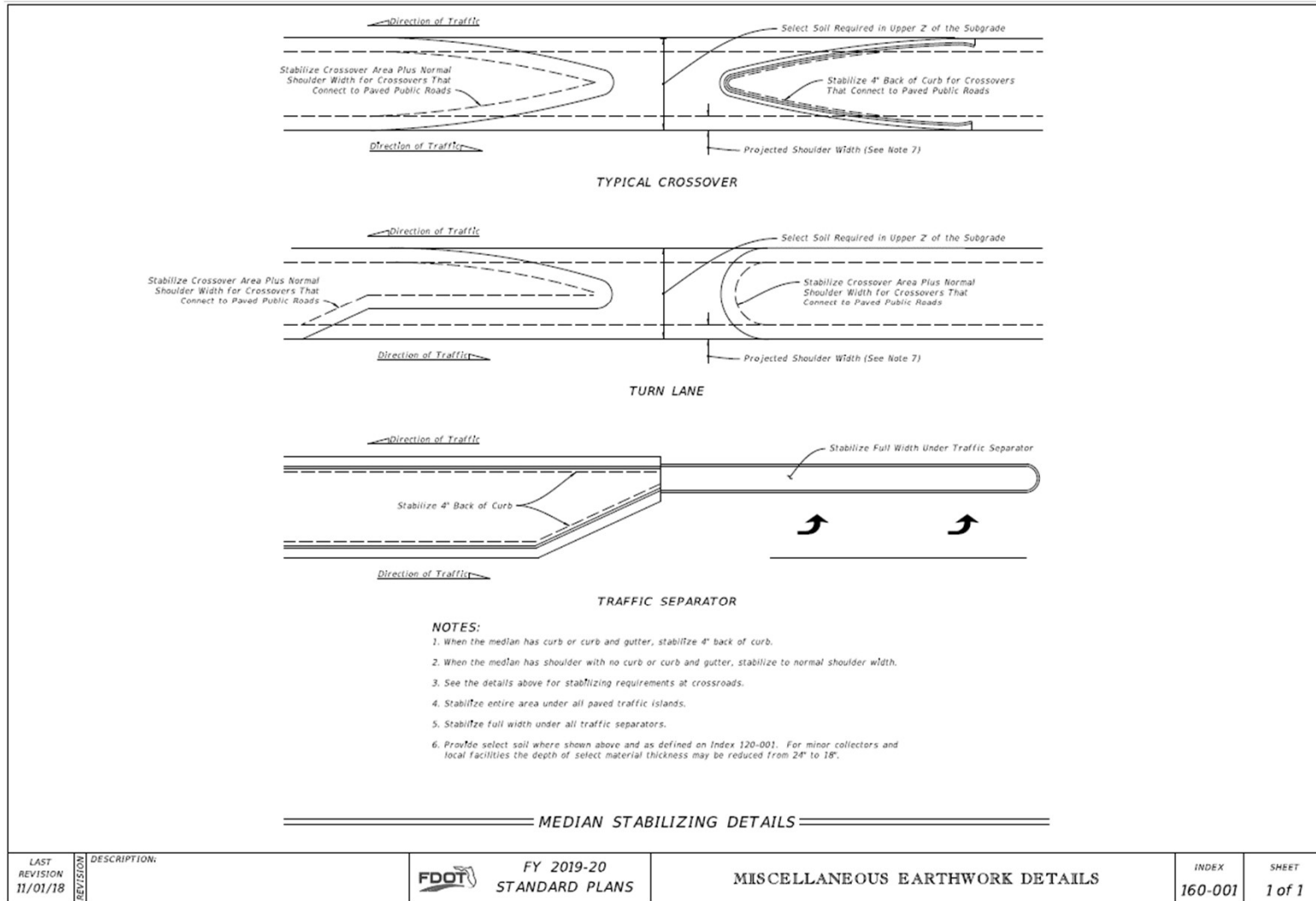
**Index 120-001:
Excess Base Materials
Information Relocated**



LAST REVISION 11/01/17	DESCRIPTION: REV 5/02	FY 2018-19 STANDARD PLANS	MISCELLANEOUS EARTHWORK DETAILS	INDEX 000-506	SHEET 1 of 1
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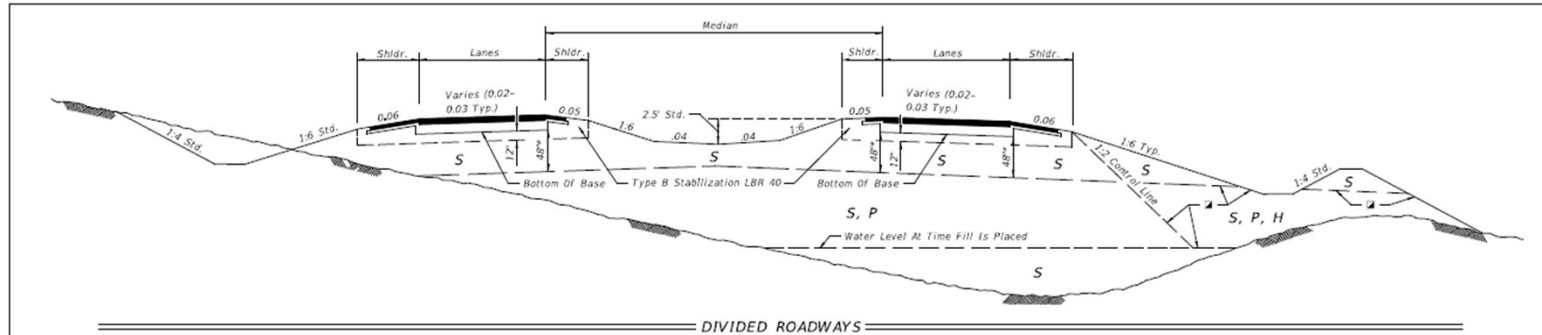
New Index 160-001: Median Stabilizing Details

Specification 160 (Stabilizing)



Updated:

- Layout Style
- General Notes

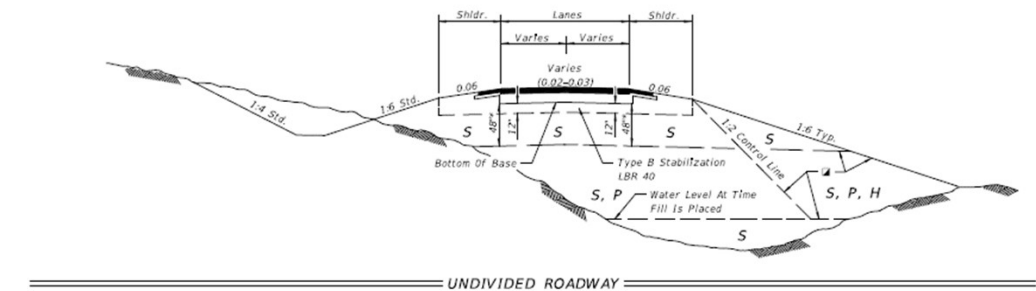


GENERAL NOTES:

- Roadway dimensions are representative. Subgrade dimensions and control lines are standard. The details shown on this Index do not supersede the details shown in the Plans or Indexes 120-002 and 160-001.
- Plastic (P) soils may be placed above the existing water level (at the time of construction) to within 4 feet of the proposed base. It should be placed uniformly in the lower portion of the embankment for some distance along the project rather than full depth for short distances.
- High Plastic (H) soils excavated within the project limits may be used in embankment construction as indicated on this Index. High Plastic soils are not to be used for embankment construction when obtained from outside the project limits.
- Select (S) soils having an average organic content of more than two and one-half (2.5) percent, or having an individual test value which exceeds four (4) percent, are not permitted in the subgrade portion of the roadbed. Select (S), Plastic (P), or High Plastic (H) soils having an average organic content of more than five (5) percent, or an organic content individual test result which exceeds seven (7) percent, are not permitted in the portion of embankment inside the control line, unless written authorization is provided by the District Geotechnical Engineer; these soils may be used for embankment construction outside the control line, unless restricted by the Plans or otherwise specified in the Plans, provided they can be compacted sufficiently to sustain a drivable surface for the intended use as indicated by the Engineer's Orders.

Three randomly selected samples from each stratum or stratum of a particular material. Perform tests in accordance with AASHTO T 267 on the portion of a sample passing the No. 4 sieve.

- Highly organic soils, composed primarily of partially decayed organic matter, often dark brown or black in color with an odor of decay, and sometimes fibrous, are designated as muck. Further, any stratum or stockpile of soil which contains pockets of highly organic material may be designated as Muck (M). Highly organic soils are not permitted within the subgrade or embankment portion of the roadbed.



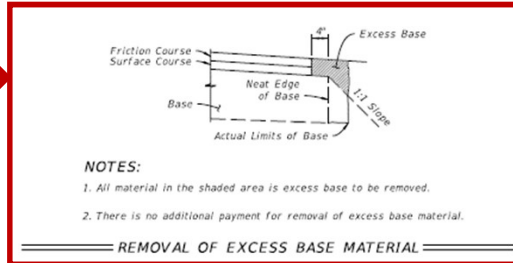
SYMBOL	SOIL	CLASSIFICATION (AASHTO M 145)
S	Select	A-1, A-3, A-2-4 **
P	Plastic	A-2-5, A-2-6, A-2-7, A-4, A-5, A-6, A-7 (ALL WITH LL < 50)
H	High Plastic	A-2-5, A-2-7, A-5 Or A-7 (ALL WITH LL > 50)
M	Muck	A-8

Classification listed left to right in order of preference.

See General Notes Nos. 4 & 5 for utilization of soils classified as organic material or muck.

** Certain types of A-2-4 material are likely to retain excess moisture and may be difficult to dry and compact. They should be used in the embankment above the water level existing at time of construction. They may be used in the subgrade portion of the roadbed when approved by the District Materials Engineer. A-2-4 material placed below the existing water level must be nonplastic and contain less than 15% passing the No. 200 U.S. Standard sieve.

* For cut sections this dimension may be reduced to 24"; see Index 120-002. For minor collectors and local facilities this dimension may be reduced to 18".



NOTES:

- All material in the shaded area is excess base to be removed.
- There is no additional payment for removal of excess base material.

REMOVAL OF EXCESS BASE MATERIAL

Removal of Excess Base Material

LAST REVISION	DESCRIPTION:
11/01/18	



FY 2019-20
STANDARD PLANS

EMBANKMENT UTILIZATION

GENERAL NOTES AND FLEXIBLE PAVEMENT

INDEX	SHEET
120-001	1 of 3

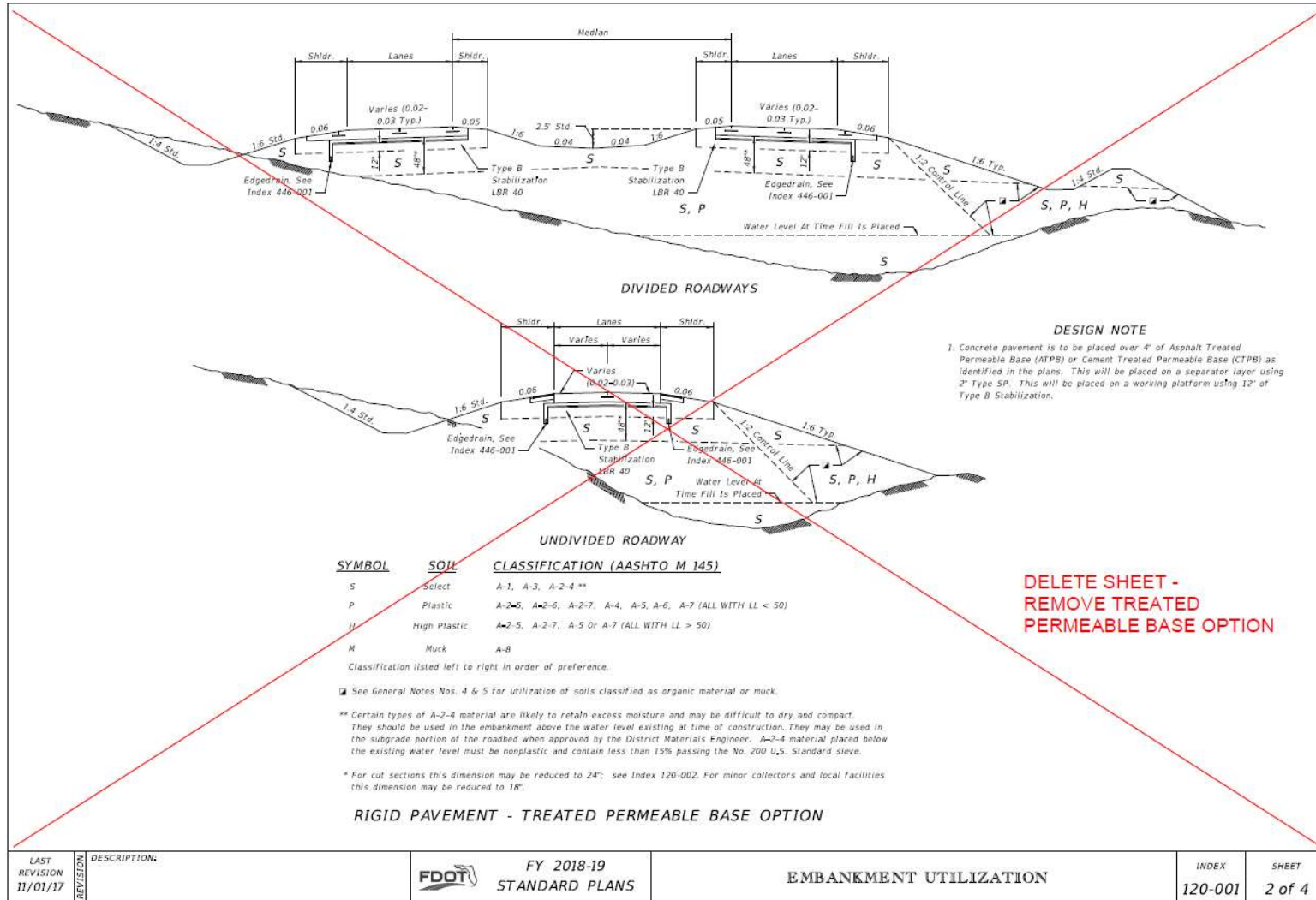
Removal of Treated Permeable Base Option

Departments Preference now:

- Asphalt Base
- Or
- Special Select Soils

Refer to:

Rigid Pavement Design Manual



Standard Plans – Primary Updates:

- ✓ 1) *General Overview and Website*
- 2) *Misc. Indexes*
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Superelevations – High Speed Roadways, Index 000-510

Removed Redundant Information Included in FDM 210.9

PROFILES

NORMAL CROWN SECTION AA

REVERSE CROWN SECTION BB

FULLY SUPERELEVATED SECTION CC

SLOPE RATIOS FOR SUPERELEVATION TRANSITIONS

SECTION	DESIGN SPEED, MPH		
	45-50	55-60	65-70
2 Lane & 4 Lane	1:200	1:225	1:250
6 Lane	1:160	1:180	1:200
8 Lane	1:150	1:170	1:190

The length of superlevation transition is to be determined by the relative slope between the travel way edge of pavement and the profile grade, except that the minimum length of transition shall be 100 ft.

* Short Vertical Curves Are To Be Used On Construction To Avoid Angular Breaks In Edge Profiles

PROFILES

NORMAL SECTION SECTION AA

FULLY SUPERELEVATED SECTION BB

SHOULDER ON HIGH SIDE: A shoulder slope of 0.06 downward from the edge of travel way will be maintained until a 0.07 break in slope at the pavement edge is reached due to superlevation of the pavement. As the pavement superlevation increases, the 0.07 break in slope will be maintained and the shoulder flattened until the shoulder slope reaches the minimum of 0.02 downward from the edge of travel way. Any further increase in pavement superlevation will necessitate sloping the inside half of the shoulder toward the travel way and the outer half outward, both at 0.03 for superelevations 0.06-0.09 and both at 0.03 for superelevations 0.06-0.09 and both at 0.03 for superelevations 0.10. For shoulders with paved widths 5 feet or less see Special Shoulder Break Over Details on Sheet 2 of 2.

SHOULDER ON LOW SIDE: 0.06 drop across inside shoulder until pavement cross slope reaches 0.06. For pavement cross slopes greater than 0.06, shoulder to have same slope as pavement.

NOTE:
These details apply to both paved and grassed shoulders. For median shoulders use 0.05 in lieu of 0.06.

DEGREE OF CURVE (D)	DESIGN SPEED, V MPH						
	30	40	45/50	55	60	65	70
0°15'	NC	NC	NC	NC	NC	NC	NC
0°30'	NC	NC	NC	NC	NC	NC	NC
0°45'	NC	NC	NC	NC	NC	NC	NC
1°00'	NC	NC	0.021	0.025	See Table To Right		
1°30'	NC	NC	0.021	0.025			
2°00'	NC	NC					

SHOULDER CONSTRUCTION WITH SUPERELEVATION

Shoulder Slope 0.06 (0.05 For Medians) until Pavt. Cross Slope Reaches That Rate

Superelevated Pavement (Rate of 0.05 or Flatter)

Shoulder Slope Not Flatter Than 0.02 Nor Steeper Than 0.06

Superelevated Pavement (Rate Steeper Than 0.05)

Note: Algebraic Difference in Cross Slope Not To Exceed 0.07

Shoulder Slope See SHOULDER ON HIGH SIDE Notation

Shoulder Slope To Match Pavt. Slope For Pavt. Slopes Greater Than 0.06 (0.05 For Medians)

RADIUS OF CURVE - FEET

Superelevation Rate (e) vs Degree of Curve

V = Design Speed

GENERAL NOTES:

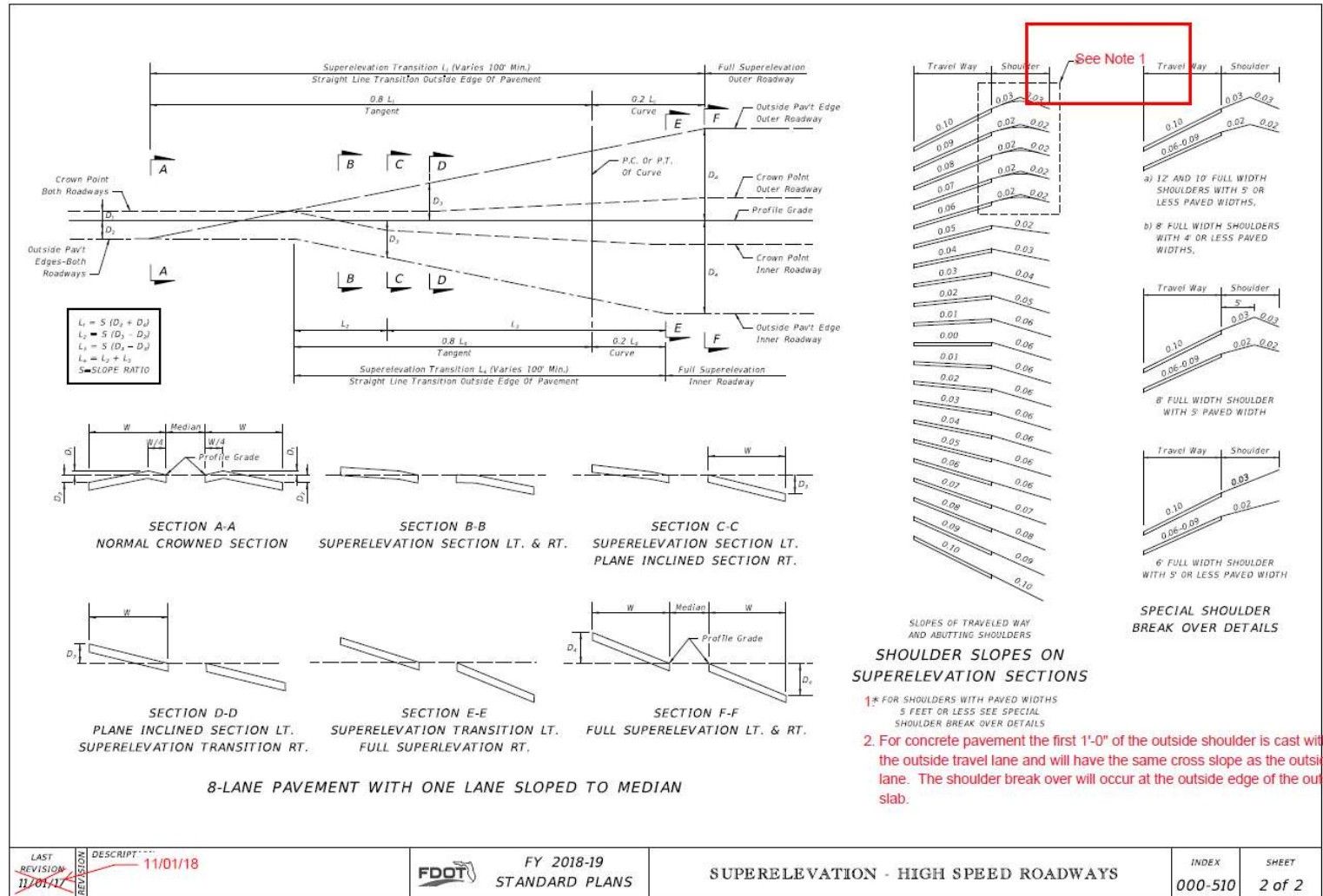
1. For curves in Urban Highways and high speed Urban Streets, see Index 000-511.

~~DESIGN SUPERELEVATION RATES FOR RURAL HIGHWAYS, URBAN FREEWAYS AND HIGH SPEED URBAN HIGHWAYS~~

TRANSTIONS

LAST REVISION 11/01/18	DESCRIPTION 11/01/18	FDOT FY 2018-19 STANDARD PLANS	SUPERELEVATION HIGH SPEED ROADWAYS	INDEX 000-510	SHEET 1 of 2
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Added Note for Location of Shoulder Break for Concrete Pavement



LAST REVISION 11/01/17
 REVISION 11/01/18

FDOT
 FY 2018-19
 STANDARD PLANS

SUPERELEVATION - HIGH SPEED ROADWAYS

INDEX 000-510
 SHEET 2 of 2

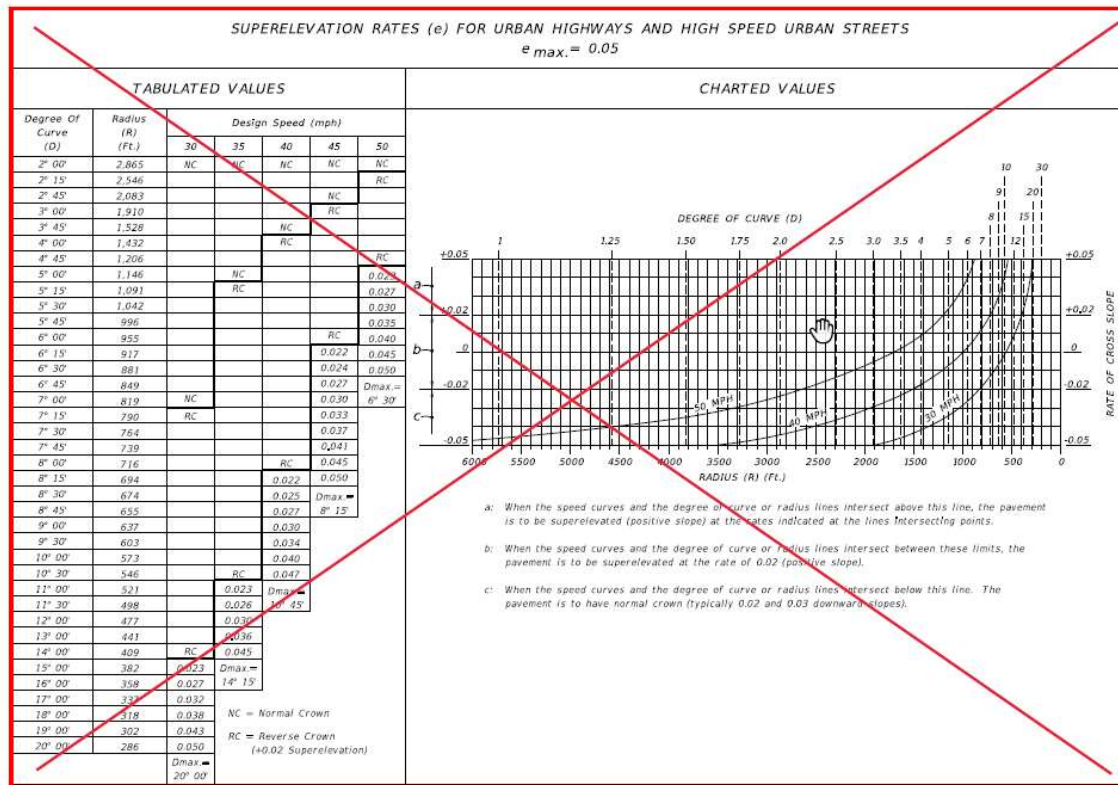
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Superelevations – Low Speed Roadways, Index 000-511

Removed Redundant Information Included in FDM 210.9



- GENERAL NOTES**
1. Maximum rate of superelevation for urban highways and high speed urban streets shall be 0.05.
 2. Superelevation shall be obtained by rotating the plane successively about the break points of the section until the plane has attained a slope equal to that required by the crown. Should the rotation traverse the entire section and further superelevation be required, the remaining rotation of the plane shall be about the low edge of the inside travel lane. Crown is to be removed in the adjoining travel lanes require positive superelevation. **Plans**
 3. When positive superelevation is required, the slope of the gutter on the high side shall be a continuation of the slope of the superelevated pavement.
 4. In construction, short vertical curves shall be placed at all angular profile breaks within the limits of the superelevation transition.
 5. The variable superelevation transition length 'L' shall have a minimum value of 50 feet for design speeds under 40 MPH and 75 feet for design speeds of 40 MPH or greater.
 6. Roadway sections having lane arrangements different from those shown, but composed of a series of planes, shall be superelevated in a similar manner.
 7. For superelevation of lower speed urban streets, see the FDOT Manual of Uniform Minimum Standards For Design, Construction And Maintenance For Streets And Highways. For superelevation of curves on rural highways, urban freeways and high speed urban highways, see Index 000-510.
- Moved to Sheet 2

DELETED SHEET

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Redevelopment Effort:

➤ Criteria vs Construction Information

- **e.g.: Geometric Requirements**
 - Connection Width
 - Flare Distance
 - Radial Return Radius
 - Setback
- **Definitions (i.e., Connection Categories)**
- **Florida Administrative Code (F.A.C.), R**
 - Maintenance vs. Permittee Responsibilities
 - Minimum Requirements

DESCRIPTION/PROJECTED AVERAGE VEHICLE TRIPS PER DAY OF SITE
Category A – Uses to 20 VTPD
Category B – Uses with 21 - 600 VTPD
Category C – Uses with 601 - 1,200 VTPD
Category D – Uses with 1,201 - 4,000 VTPD
Category E – Uses with 4,001 - 10,000 VTPD
Category F – Uses with 10,001 - 30,000 VTPD
Category G – Uses with 30,001 + VTPD

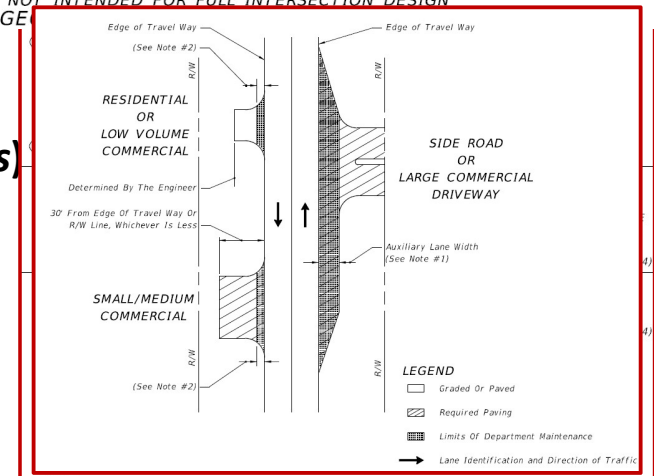
- **Index 522-003 (Concrete Driveways)**
- **Index 330-001 (Paved and Graded Driveways)**

ELEMENT DESCRIPTION	CURBED ROADWAYS			FLUSH SHOULDER ROADWAYS		
	1-20 Trips/Day or 1-5 Trips/Hour	21-600 Trips/Day or 6-60 Trips/Hour	601-4000 Trips/Day or 61-400 Trips/Hour	1-20 Trips/Day or 1-5 Trips/Hour	21-600 Trips/Day or 6-60 Trips/Hour	601-4000 Trips/Day or 61-400 Trips/Hour
		2-Way □	2-Way □		2-Way □	2-Way □
CONNECTION WIDTH W	12' Min. 24' Max.	24' Min. 36' Max. ☆	24' Min. 36' Max. ☆	12' Min. 24' Max.	24' Min. 36' Max. ☆	24' Min. 36' Max. ☆
FLARE (Drop Curb) F	10' Min.	10' Min.	N/A	N/A	N/A	N/A
RETURNS (Radius) R & U	N/A	△	25' Min. 50' Std. 75' Max.	15' Min. 25' Std. 50' Max.	25' Min. 50' Std. 75' Max.	25' Min. 50' Std. 50' Std. (Or 3-Centered Curves)
ANGLE OF DRIVE Y		60°-90°	60°-90°		60°-90°	60°-90°
DIVISIONAL ISLAND (Throat Median)		4'-22' Wide	4'-22' Wide		4'-22' Wide	4'-22' Wide
SETBACK G	12' Min., All categories. See General Note No. 5.					

■ Side road intersection design, with possible auxiliary lanes and channelization, may be necessary. Intersection design, with possible auxiliary lanes and channelization, should be considered for connections with more than 4000 trips/days.
 □ "2-Way" refers to one "in" movement and one "out" movement i.e., not exclusive left or right turn lanes on the connection.
 ☆ When more than 2 lanes in the turnout connection are required, the 36' max. width may be increased to relieve interference between entering and exiting traffic which adversely affects traffic flow. These cases require documented site specific study and design.
 △ Small radii may be used in lieu of flares as approved by the Department.
 DESIGN NOTE: 1-Way connections will be designed to effectively eliminate unpermitted movements.

NOT INTENDED FOR FULL INTERSECTION DESIGN
SUMMARY OF GEOMETRIC REQUIREMENTS

Driveways





Turnouts and Driveways, Old Indexes 000-515 & 000-516

Old SHEET 1 of 7:

Content Moved to
FDM 214

LEGEND

- Return Radius Point Or Flare Point
- Buffer Areas
- F.B. Line Frontage Boundary Line
- W Driveway Width
- Y Driveway Angle
- C Corner Clearance
- G Setback
- R Outside Radius
- U Inside Radius
- D Distance Between Connections
- F Flare

For Corner Clearance (C) Requirements see General Note 3.
For Additional Information Refer To FDOT Rules Chapters 14-96 And 14-97.

SKETCH ILLUSTRATING DEFINITIONS

ELEMENT DESCRIPTION	CURBED ROADWAYS			FLUSH SHOULDER ROADWAYS		
	1-20 Trips/Day or 1-5 Trips/Hour	21-600 Trips/Day or 6-60 Trips/Hour	601-4000 Trips/Day or 61-400 Trips/Hour	1-20 Trips/Day or 1-5 Trips/Hour	21-600 Trips/Day or 6-60 Trips/Hour	601-4000 Trips/Day or 61-400 Trips/Hour
CONNECTION WIDTH W	12' Min. 24' Max.	24' Min. 36' Max. ⚠	24' Min. 36' Max. ⚠	12' Min. 24' Max.	24' Min. 36' Max. ⚠	24' Min. 36' Max. ⚠
FLARE (Drop Curb) F	10' Min.	10' Min.	N/A	N/A	N/A	N/A
RETURNS (Radius) R & U	N/A	Δ	25' Min. 50' Std. 75' Max.	15' Min. 25' Std. 50' Max.	25' Min. 50' Std. 75' Max.	25' Min. 50' Std. (Or 3-Centered Curves)
ANGLE OF DRIVE Y		60°-90°	60°-90°		60°-90°	60°-90°
DIVISIONAL ISLAND (Throat Median)		4'-22' Wide	4'-22' Wide		4'-22' Wide	4'-22' Wide
SETBACK G	12' Min., All categories. See General Note No. 5.					

⚠ Side road intersection design, with possible auxiliary lanes and channelization, may be necessary. Intersection design, with possible auxiliary lanes and channelization, should be considered for connections with more than 4000 trips/days.
 □ "2-Way" refers to one "in" movement and one "out" movement i.e., not exclusive left or right turn lanes on the connection.
 ⚠ When more than 2 lanes in the turnout connection are required, the 36' max. width may be increased to relieve interference between entering and exiting traffic which adversely affects traffic flow. These cases require documented site specific study and design.
 Δ Small radii may be used in lieu of flares as approved by the Department.
 DESIGN NOTE: 1-Way connections will be designed to effectively eliminate unpermitted movements.

**NOT INTENDED FOR FULL INTERSECTION DESIGN
SUMMARY OF GEOMETRIC REQUIREMENTS FOR DRIVEWAY TURNOUTS**

GENERAL NOTES

- For definitions and descriptions of access connection categories and access classifications of highway segments and for other detailed information on access to the State Highway System refer to FDOT Rule Chapter 14-96, State Highway Connecting Permits Administration Rules Chapter 14-97, State Highway System Access Management Classification System And Standards.
- For this index the term turnout applies to that portion of driveways on side roads adjoining the outer roadway. For this index the term connection encompasses a driveway or side road and their appurtenant islands, separators, transition tapers, auxiliary lanes, travelway flares, drainage pipes and structures, crossovers, sidewalks, curb, cut ramps, signing, pavement markings, required signalization, maintenance of traffic, other means of access to or from controlled access facilities (the turnout requirements set forth in this index do not provide complete intersection design, construction or maintenance requirements).
- The location, positioning, orientation, spacing and number of connections and median openings shall be in conformance with FDOT Rule Chapter 14-97.
- On Department construction projects all driveways not shown on the plans shall be reconstructed at their existing location in conformance to these standards or in conformance to permits issued during the construction project.
- Driveways that have sufficient length and size for motor vehicle queuing, stacking, maneuvering, standing and parking to be carried out completely beyond the right-of-way line (except for vehicles stopping to enter the highway) the turnout areas and driveways with the right-of-way shall be used only for motor vehicles entering and leaving the highway.
- Connections with expected daily traffic over 4000 ypd shall be constructed as intersecting side roads. The design requirements of this index and that of the local government will be used to select appropriate connection width, radii and intersection design, subject to the approval of the Department. For connections with expected daily traffic less than 4000 ypd the Department will determine the drop curb or radius return as required in accordance with existing plans.
- Connections with expected daily traffic over 4000 ypd shall be designed and constructed in accordance with the standards of this index and that of the local government, subject to the approval of the Department.
- For connections that are intended to safely accommodate either multi-unit vehicles or single-unit vehicles exceeding 30' in length, returns with 50' radii shall be used unless otherwise called for in the plans or otherwise stipulated by permits. Where large numbers of multi-unit vehicles will use the connection, the connection width and flare shall be increased and auxiliary lanes, separators and islands may be necessary to facilitate turning movements.
- An connection requiring or having a specified median opening with left turn storage and served directly by that opening shall have radii of returns.
- Where a connection is intended to align with a connection across the highway, the through lanes shall align directly with the corresponding through lanes.
- For new connections and for connections on all new construction and reconstruction projects, pavement materials and thicknesses shall meet the requirements applicable to either that detailed for "Curbed Roadway-Flared Turnouts", or that described in "Table 515-1" for connections with radial returns and/or auxiliary lanes.
- The responsibility for the cost of construction or alteration to an access connection shall be in accordance with FDOT Rule Chapter 14-96.

DESIGN NOTES

- Prior to the adoption of FDOT Rules Chapters 14-96 and 14-97, connections to the State Highway System were defined and permitted by Classes. Connections have been redefined by Categories under Rule 14-96, and the term "Class" has been applied to highway segments of the State Highway System as defined under Rule 14-97.

Old SHEET 6 of 7:

Content Covered in
F.A.C., Rule 14-96

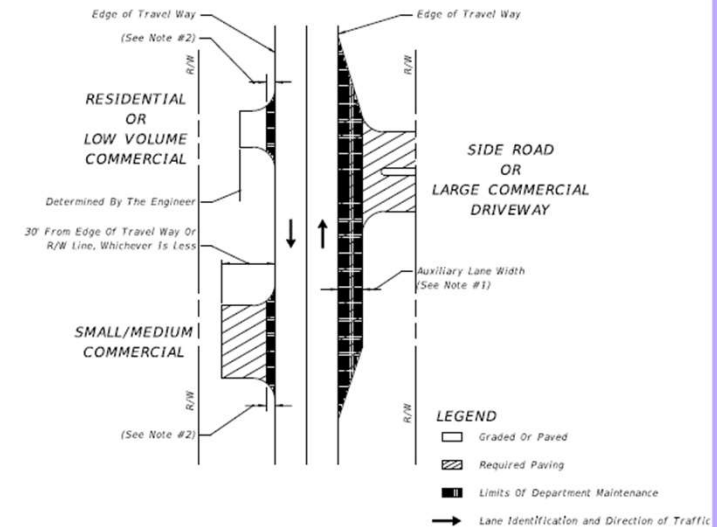
MATERIAL TYPES AND THICKNESSES IN DRIVING AREAS FOR ALL CONNECTIONS			
Course	Materials ①	Thickness (in.) ②	
		Connections ③	Roadway ④
Structural	Asphaltic Concrete	1'	1½'
Bases	Optional Base (See Spec. Section 285)	O.B.G. 1	O.B.G. 3

① Minimum thickness.
 ② All materials shall be approved by the Department prior to being placed.
 ③ Connection structure other than traffic lanes. See Notes 1 and 2 below.
 ④ Travel way flares (bypass lanes), auxiliary lanes serving more than a single connection, and all median crossovers including their auxiliary lanes and/or transition tapers. See Notes 1 and 2 below.

NOTES

- The pavement should be structurally adequate to meet the expected traffic loads and should not be less than that shown above, except as approved by the Department for graded connections. Other Department-approved equivalent pavements may be used at the discretion of the Engineer.
- Auxiliary lanes and their transition tapers shall be the same structure as the abutting travel way pavement thickness or any of the roadway structures tabulated above, whichever is thicker.
- If an asphalt base course is used for a turnout, its thickness may be increased to match the edge of travel way pavement thickness in lieu of a separate structural course. 6" of Portland cement concrete will be acceptable in lieu of the asphalt base and structural courses. See Notes 4 and 5 below.
- A structural course is required for flexible pavements when they are used for auxiliary lanes serving more than a single connection.
- Connections paved with Portland cement concrete shall be Class NS concrete at least 6" thick. The Department may require greater thickness when called for in the plans or stipulated by permit. Materials and construction shall conform with FDOT Standard Specifications Sections 347, 350 and 522.
- The Department may require other pavement criteria where local conditions warrant.

PAVEMENT STRUCTURE FOR TURNOUTS AND AUXILIARY LANES
TABLE 515-1



- NOTES**
- Auxiliary lane pavements and crossover pavements shall be maintained by the Department.
 - Department maintenance of turnout pavement extends 5' from edge of the travel way or to the edge of paved shoulder, whichever is greater. The remainder of any turnout paved area on the right of way shall be maintained by the owner or his authorized agent. As a function of routinely reworking shoulders, the Department may grade and shape existing material on nonpaved areas beyond the maintained pavement.
 - Control and maintenance of drainage facilities within the right of way shall be solely the responsibility of the Department, unless specified differently by Department permit.
 - The maintenance and operation of highway lighting, traffic signals, associated equipment and other necessary devices shall be the responsibility of a public agency.
 - All pavement markings on the State highways, including acceleration and deceleration lane markings, and signing installed for the operation of the State highway shall be maintained by the Department.
 - All signing and marking installed for the operation of the connection (such as stop bars and stop signs for the connection) shall be the responsibility of the permittee.

LIMITS OF CONSTRUCTION AND MAINTENANCE FOR FLUSH SHOULDER ROADWAY CONNECTIONS

LAST REVISION	DESCRIPTION
11/01/17	



FY 2018-19
STANDARD PLANS

TURNOUTS AND DRIVEWAYS

INDEX	SHEET
000-515	6 of 7



Turnouts and Driveways, Old Indexes 000-515 & 000-516

Old SHEET 7 of 7:

Content Moved to
FDM 214

FLUSH SHOULDER ROADWAY - TURNOUT PROFILES

Definitions
 G-Grade (%)
 A- Algebraic Difference In Grades (%)
 L- Transition (See Tabulated Lengths)
 A \leq 14%- Transition Not Required
 A > 14%- Straight Or Rounded Transition Required

Maximum Grades
 Commercial=10%
 Residential=28%

CURBED ROADWAY - TURNOUT PROFILES

Definitions
 G-Grade (%)
 A- Algebraic Difference In Grades (%)
 L- Transition (See Tabulated Lengths)
 A \leq 14%- Transition Not Required
 A > 14%- Straight Or Rounded Transition Required

Maximum Grades
 Commercial=10%
 Residential=28%

STORMWATER RUNOFF AND PROFILE OPTION NOTES

1. Turnouts shall neither cause water to flow on or across the roadway pavement, nor cause water ponding or erosion within the State right of way. In all Flush Shoulder Roadway turnouts the transition (L) nearest the roadway shall be sloped or crowned to direct stormwater runoff to the roadside ditch. Inlets, flumes or other appropriate runoff control devices shall be constructed when runoff volumes are sufficient to cause erosion of the shoulder. Similar runoff control devices shall be constructed as necessary to properly direct and control the stormwater runoff on Curbed Roadway turnouts.
2. The Option 1 profile is intended for locations where roadway, turnout taper and auxiliary lane stormwater runoff volumes are relatively large. The Option 2 profile is intended for locations where runoff volumes are relatively small and/or where there is no roadside ditch.

RECOMMENDED TURNOUT PROFILE TRANSITION LENGTHS (L) (FT.)

A	LENGTHS (L) (FT.)					
	CRESTS			SAGS		
	STRAIGHT	Minimum	ROUNDED	Minimum	STRAIGHT	Minimum
6-13%	3	0	5	0	3	0
14%	3	0	10	0	3	0
15%	3	2.5	10	3	5	3
16%	5	3	10	4	6	4
17%	6	3.5	10	5	8	5
18%	6	4	10	6	9	6
19%	7	4.5	10	7	11	7
20%	8	5	11	8	12	8
21%	9	5.5	12	9	13	8.5
22%	10	6	13	10	14	9
23%	10	6.5	14	10.5	14	9.5
24%	11	7	15	11	15	10
25%	12	7.5	15	11.5	16	10.5
26%	12	8	16	12	17	11
27%	13	8.5	17	12.5	17	11.5
28%	14	9	17	13	18	12
29%	NA	NA	22	14	NA	21
30-31%	NA	NA	23	15	NA	22
32-33%	NA	NA	24	16	NA	23
34-36%	NA	NA	26	17	NA	25
37-38%	NA	NA	27	18	NA	26
39-41%	NA	NA	29	19	NA	28
42-43%	NA	NA	30	20	NA	29
44-46%	NA	NA	32	21	NA	31
47-48%	NA	NA	33	22	NA	32
49-51%	NA	NA	34	23	NA	34
52-54%	NA	NA	36	24	NA	35
55-56%	NA	NA	37	25	NA	36

Rounded: Either circular, parabolic, or spline curvature. The plans or the Engineer may specify a particular type of curvature.
Desirable: Desirable minimum lengths (Greater lengths than minimum and desirable are recommended where practical for flatter and smoother profile.)
Minimum: Absolute minimum lengths

ROADWAY PAVEMENT SLOPES AND SLOPES OF ABUTTING FLUSH SHOULDER ROADWAY TURNOUT SURFACES (G₂) SUPERELEVATION SECTIONS

(Already included on Index 000-510)

LAST REVISION	DESCRIPTION
11/01/17	

FY 2018-19
STANDARD PLANS

TURNOUTS AND DRIVEWAYS

INDEX
000-515

SHEET
7 of 7

SHEET 1 of 4:

Formatted to Resemble
Index 522-002 for Curb
Ramps

Construction
Information from
Sheet 2 of
Old Index 000-515

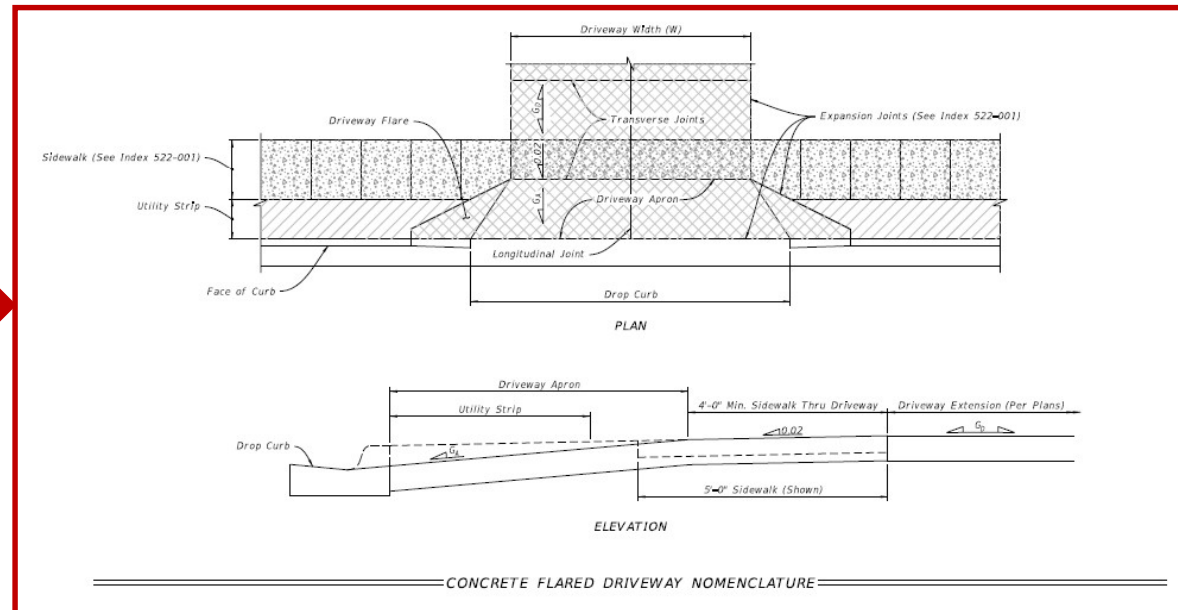
Added Nomenclature
Drawings to Define
Components

GENERAL NOTES:

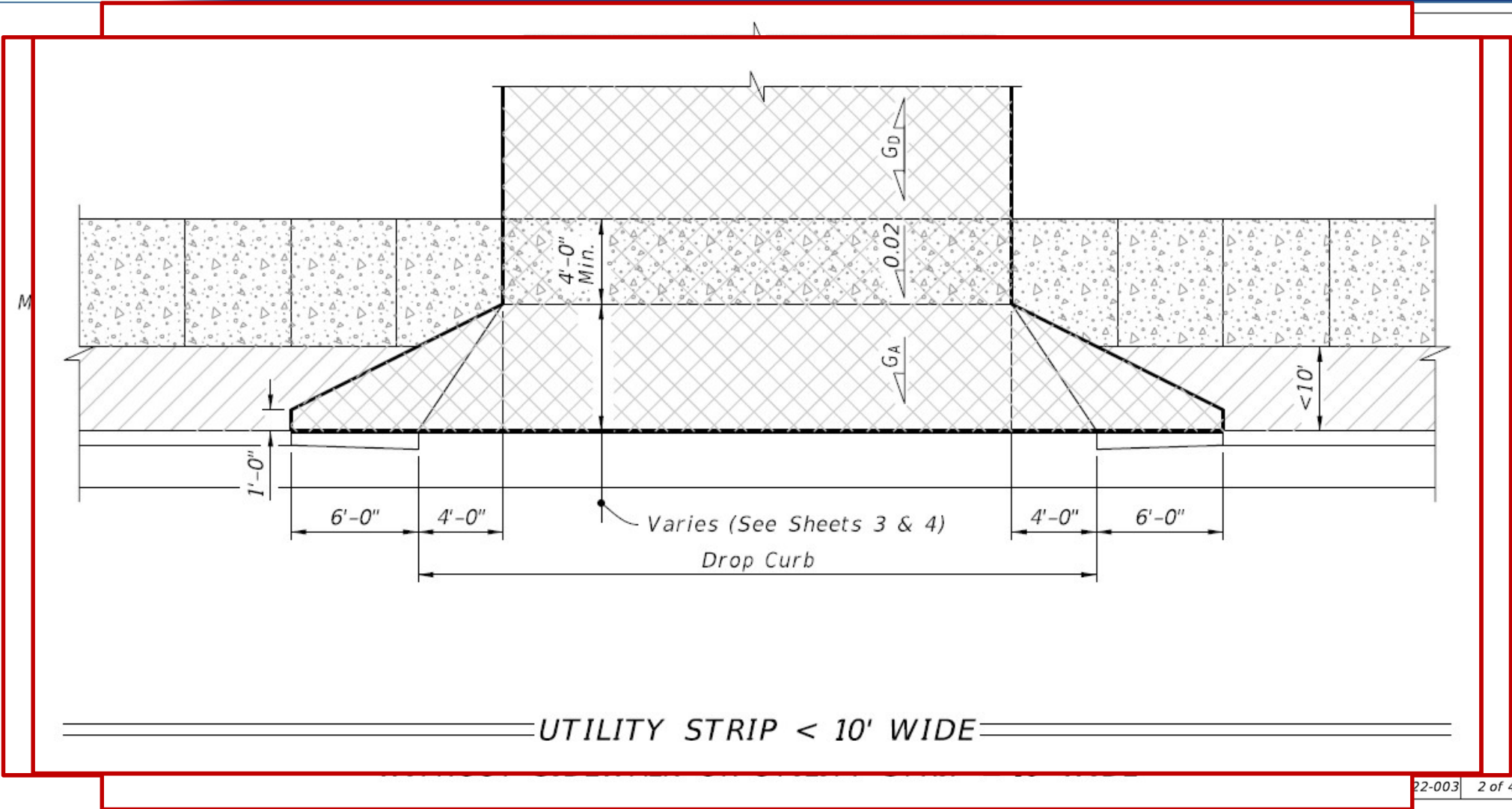
1. Work this Index with Specification 522.
2. Refer to Index 520-001 for drop curb details and Index 522-001 for joints between driveway, sidewalks, and curb.
3. Existing Curb and Gutter:
Remove existing curb and gutter to either the nearest joint beyond the flared point or to where no remaining section is less than 5 feet long.
4. Grades and cross slopes shown are maximums.
5. Longitudinal Joints:
Construct $\frac{1}{8}$ " open joints placed at equal (20' max.) intervals for driveways over 20' wide. Match joints in curb and gutter to match joints in driveways.
6. Transverse Joints:
Construct $\frac{1}{8}$ " open joints @ 10' Centers and $\frac{1}{2}$ " expansion joints with preformed joint filler every 5th joint.
7. Construct driveways (6" thick concrete) to a uniform width (W) to the R/W line or the extent shown in the Plans.
8. Width of Sidewalk Thru Driveway is 4'-0" minimum. Match sidewalk width when shown in Plans or when utility strip width is equal to or greater than the depth of the Driveway Apron.
9. Alpha-Numeric Identification:
Concrete Flared Driveway Alpha-Numeric Identifications (e.g. G4) are provided for reference purposes in the Plans.

LEGEND:

- Sidewalk
- Flared Driveway (6" Thick Concrete)
- Sidewalk Thru Driveway (6" Thick Concrete)
- Utility Strip
- G_A Grade of Apron
- G_D Grade of Driveway (Per Plans)



LAST REVISION 11/01/18	DESCRIPTION:	FDOT FY 2019-20 STANDARD PLANS	CONCRETE FLARED DRIVEWAYS	INDEX 522-003	SHEET 1 of 4
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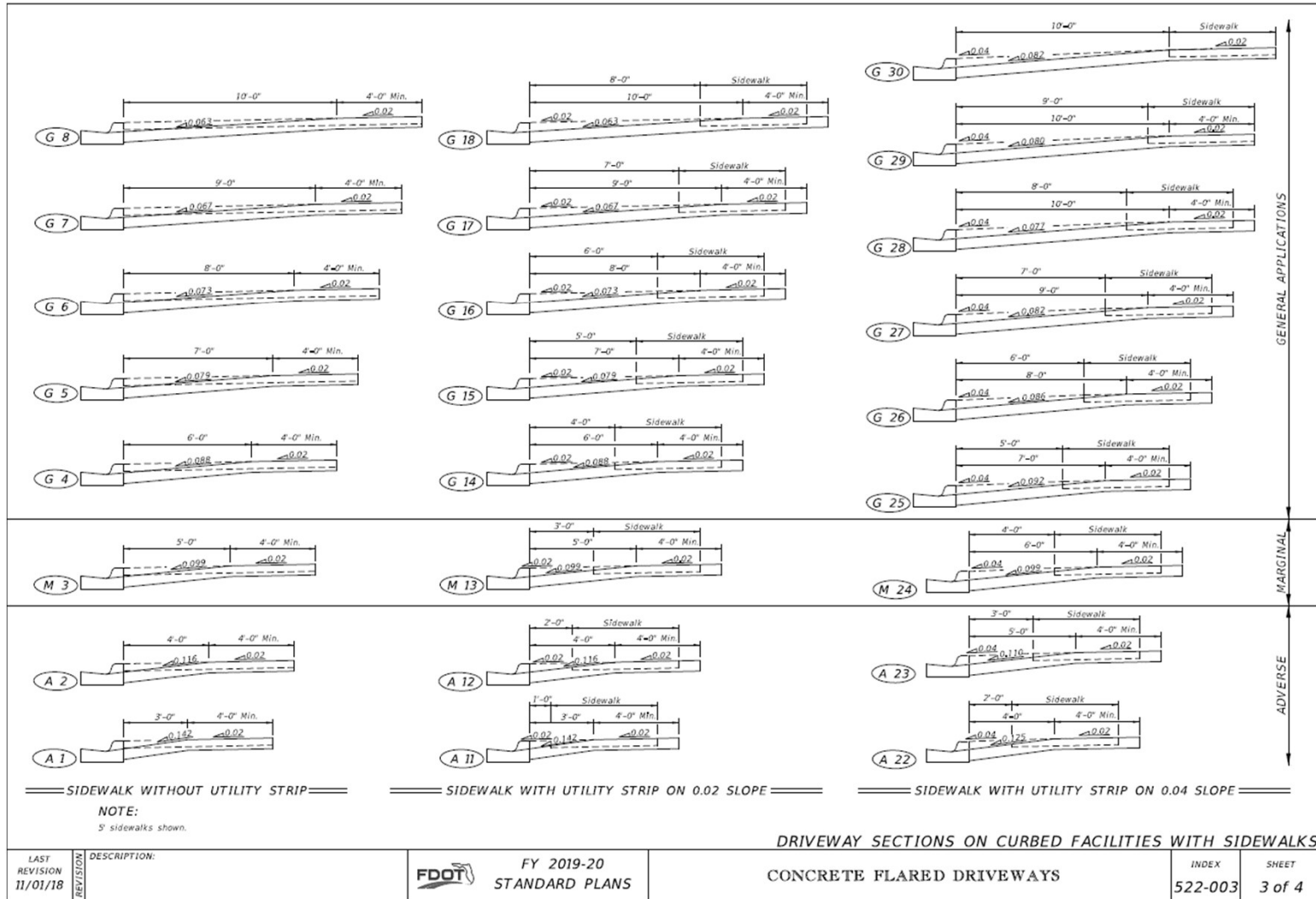


SHEET 3 of 4:

Typical Driveway Profiles: Alpha-Numeric Identifications

Details from Old Index 000-515

Sheet 4 of 4 Similar

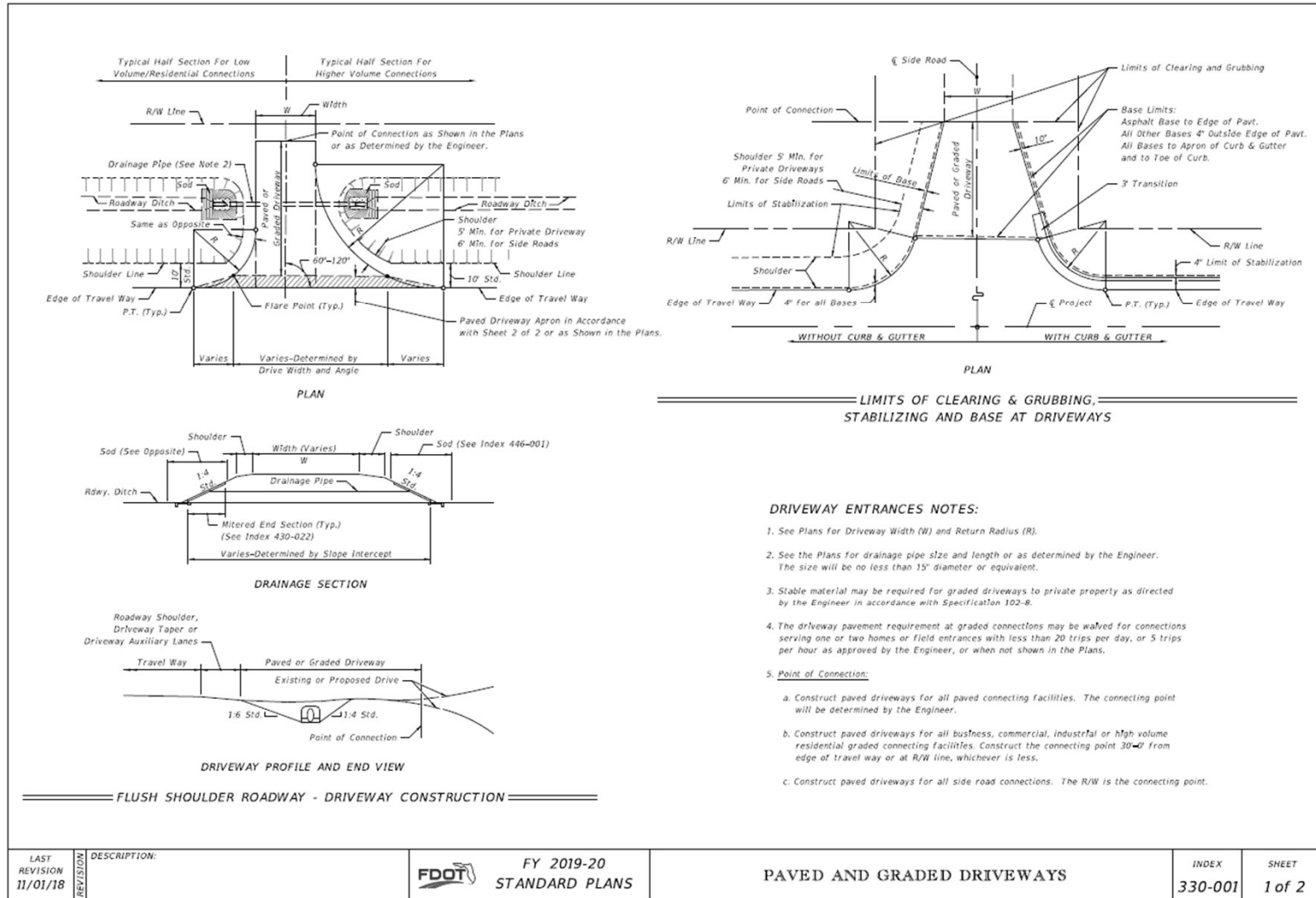


SHEET 1 of 2:

**Relocated Information
Relating to Paved and
Graded Driveways
From Indexes 000-515
and 000-516**

**Construction
Information from
Sheet 5 of
Old Index 000-515**

**Updated Notes to
Remove Construction
Phase Discussion
Making**



LAST REVISION 11/01/18	DESCRIPTION:	FDOT	FY 2019-20 STANDARD PLANS	PAVED AND GRADED DRIVEWAYS	INDEX 330-001	SHEET 1 of 2
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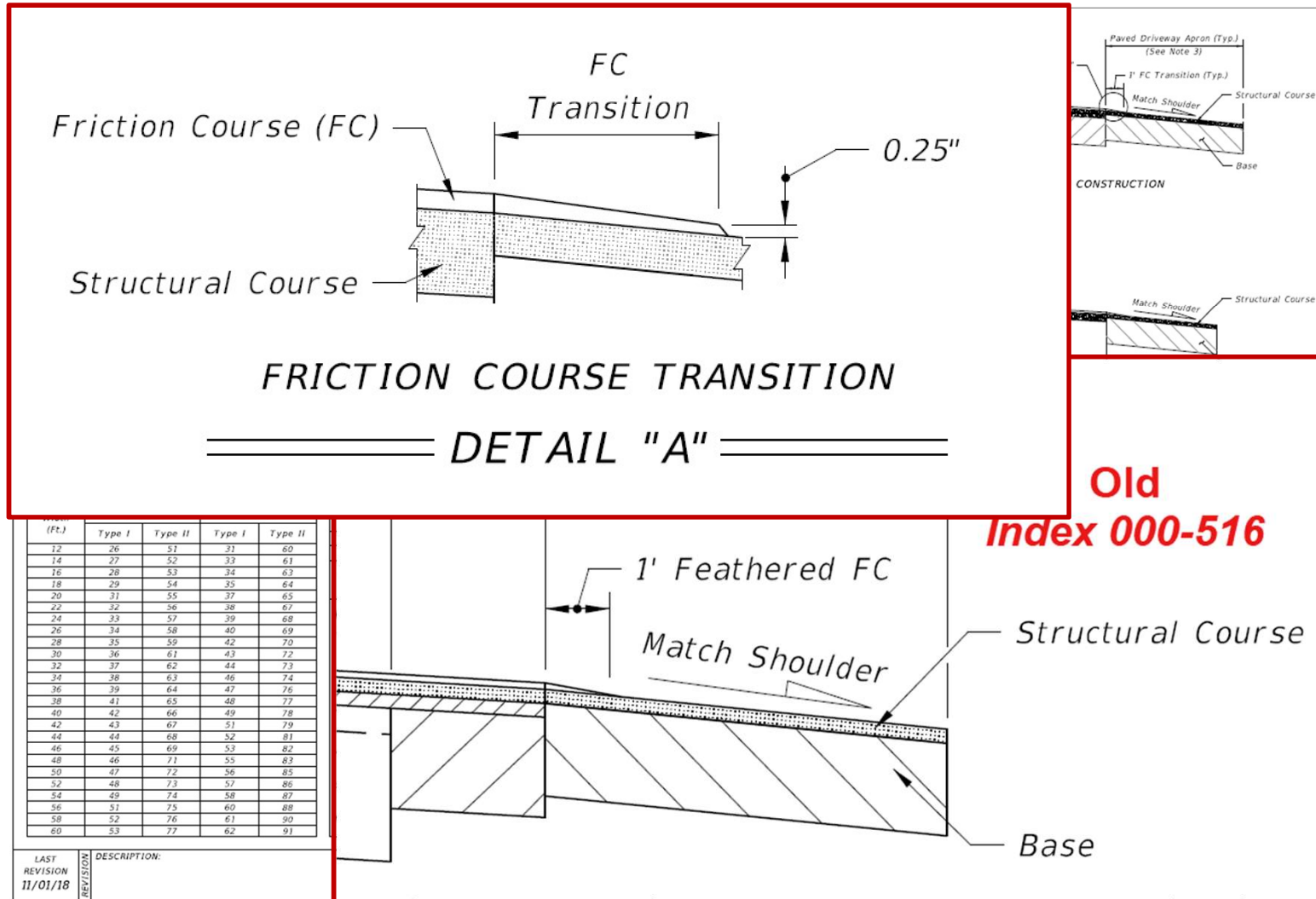
SHEET 2 of 2:

Construction Information from Old Index 000-516

Updated Material Requirements to Work for New Construction and Resurfacing Projects

Updated Cross-Sections

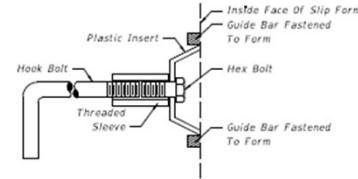
Added NEW Friction Course Transition Detail (DETAIL 'A')



Old Index 000-516

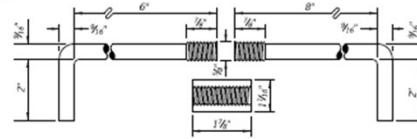
Standard Plans – Primary Updates:

- ✓ 1) *General Overview and Website*
- 2) *Misc. Indexes*
 - ✓ a) *Index 000-506 - Miscellaneous Earthwork Details (Including: Indexes 160-001 & 120-001)*
 - ✓ b) *Index 000-510 - Superelevation - High Speed Roadways*
 - ✓ c) *Index 000-511 - Superelevation - Low Speed Roadways*
 - ➔ d) *Index 000-515 - Turnouts and Driveways (Including: New Indexes 522-003 & 330-001)*
 - *Index 000-516 - Turnouts - Resurfacing Projects*
 - e) *Index 350-001 - Concrete Pavement Joints*
 - f) *Index 522-001 - Concrete Sidewalk*
 - g) *Index 522-002 - Detectable Warnings and Sidewalk Curb Ramps*
 - h) *Misc. Traffic Control Signals and Devices (Including: Indexes 630-001, 634-002, 635-001, 659-010, 660-001, and 676-010)*

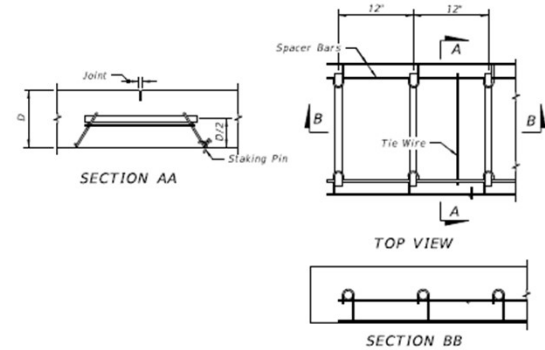


Note: After the concrete has set to the extent that the Keyway will retain its shape, the hex bolt and plastic insert shall be removed. The remaining portion of the hook bolt assembly shall be installed immediately prior to placing of concrete in the adjacent lane.

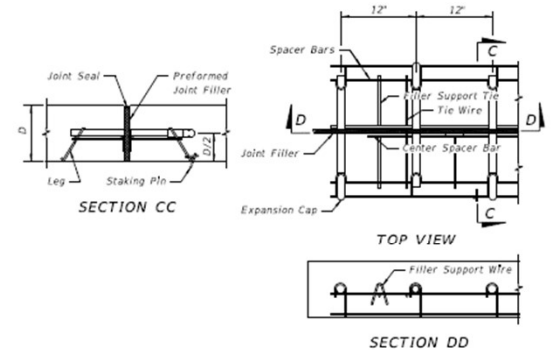
ALTERNATE KEYWAY AND HOOK BOLT
STEEL HOOK BOLT ASSEMBLY



Anchor bolts shall be Grade C in accordance with ASTM A 307.
Threaded sleeves shall develop the full strength of the bolt and meet the material and thread requirements of ASTM A 563.



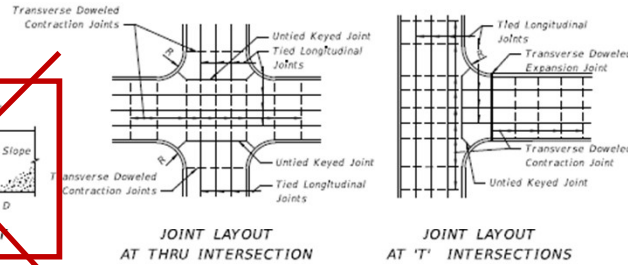
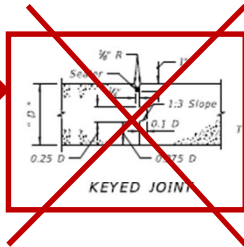
CONTRACTION ASSEMBLY



EXPANSION ASSEMBLY

Note: Proprietary contraction and expansion assemblies may be used. Products shall be introduced to the State Construction Office in accordance with section (C) of the Product Evaluation Procedure.

Deleted Keyed Joint



JOINT LAYOUT AT THRU INTERSECTION

JOINT LAYOUT AT 'T' INTERSECTIONS

JOINT ARRANGEMENT

NOTES

1. Longitudinal joints will not be required for single lane pavement 14' or less in width. For entrance and exit ramp joint details, see Sheet 4.
2. Arrangement of longitudinal joints are to be as directed by the Engineer.
3. All manholes, meter boxes and other projections into the pavement shall be boxed-in with 1/2" preformed expansion joint material.

LAST REVISION 11/01/17	DESCRIPTION:	FDOT	FY 2018-19 STANDARD PLANS	CONCRETE PAVEMENT JOINTS	INDEX 350-001	SHEET 3 of 4
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Standard Plans – Primary Updates:

- ✓ 1) *General Overview and Website*
- 2) *Misc. Indexes*
 - ✓ a) *Index 000-506 - Miscellaneous Earthwork Details (Including: Indexes 160-001 & 120-001)*
 - ✓ b) *Index 000-510 - Superelevation - High Speed Roadways*
 - ✓ c) *Index 000-511 - Superelevation - Low Speed Roadways*
 - ✓ d) *Index 000-515 - Turnouts and Driveways (Including: New Indexes 522-003 & 330-001)*
 - *Index 000-516 - Turnouts - Resurfacing Projects*
 - ➡ e) *Index 350-001 - Concrete Pavement Joints*
 - f) *Index 522-001 - Concrete Sidewalk*
 - g) *Index 522-002 - Detectable Warnings and Sidewalk Curb Ramps*
 - h) *Misc. Traffic Control Signals and Devices (Including: Indexes 630-001, 634-002, 635-001, 659-010, 660-001, and 676-010)*

SHEET 1 of 2:

Added Curb Inlets to Examples

Clarified Intent of Expansion Joint Locations

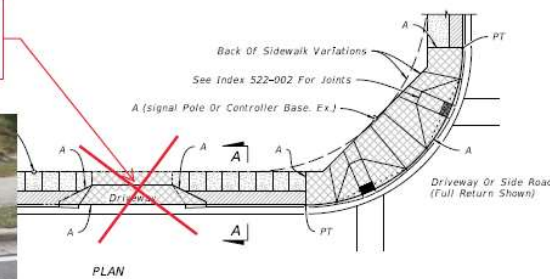
Revised: Specification 522

GENERAL NOTES:

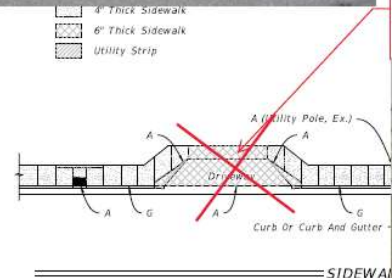
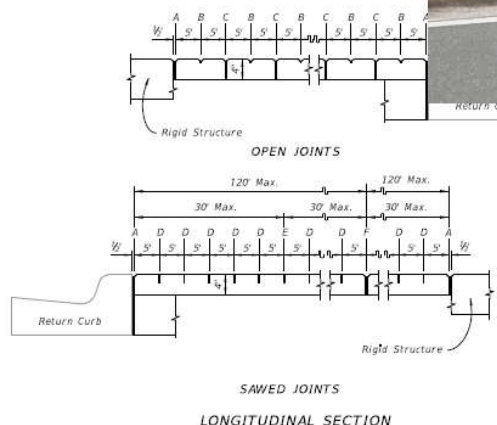
- Construct sidewalks in accordance with Specification 522. Use 6" concrete for Sidewalks and Curb Ramps Located within Curb Returns (See Plan View). Install all other concrete with thickness as shown, unless otherwise detailed in the Plans.
- Include detectable warnings on sidewalk curb ramps in accordance with Index 522-002.
- For TURNOUTS see Index 000-515.
- Bond breaker material can be any impermeable coated or sheet membrane having a thickness of not less than 6 mils not more than 1/2".
- Construct sidewalks with Edge Beam through the limits of any surface Railing or Pipe GuideRail shown in the plans. (See RAILING DETAILS)
- When roadways or driveways are newly constructed, construct:
 - Max. 0.05 cross slope for roadways or driveways controlled by traffic.
 - Max. 0.05 cross slope for roadways or driveways controlled by traffic.



Remove Driveway & add Curb Inlet Type 2 w/ 'A' Joint between sidewalk

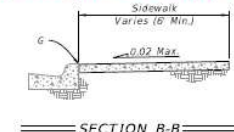
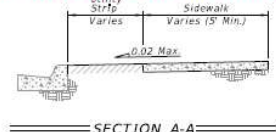


Remove Driveway & add Curb Inlet Type 6 w/ 'A' Joint between sidewalk



LEGEND:

- A- 1/2" Expansion Joints (Preformed Joint Filler) between the sidewalk and driveways, sidewalk-intersections, and all other fixed objects (e.g. drainage inlets and utility poles).
- B- 1/2" Dummy Joints, Tooled
- C- 1/4" Formed Open Joints
- D- 3/4" Saw Cut Joints, 1 1/2" Deep (within 96 hours) Max. 5' Centers
- E- 3/8" Saw Cut Joints, 1 1/2" Deep (within 12 hours) Max. 30' Centers Joint(s) Required When Length Exceeds 30'
- F- 1/2" Expansion Joint When Run Of Sidewalk Exceeds 120'. Intermediate locations when called for in the plans or at locations as directed by the Engineer.
- G- Cold Joint With Bond Breaker, Tooled



GENERAL NOTES AND CONCRETE SIDEWALK ON CURBED ROADWAYS

LAST REVISION 11/01/17	DESCRIPTION:	FY 2018-19 STANDARD PLANS	CONCRETE SIDEWALK	INDEX 522-001	SHEET 1 of 2
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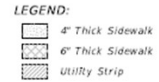
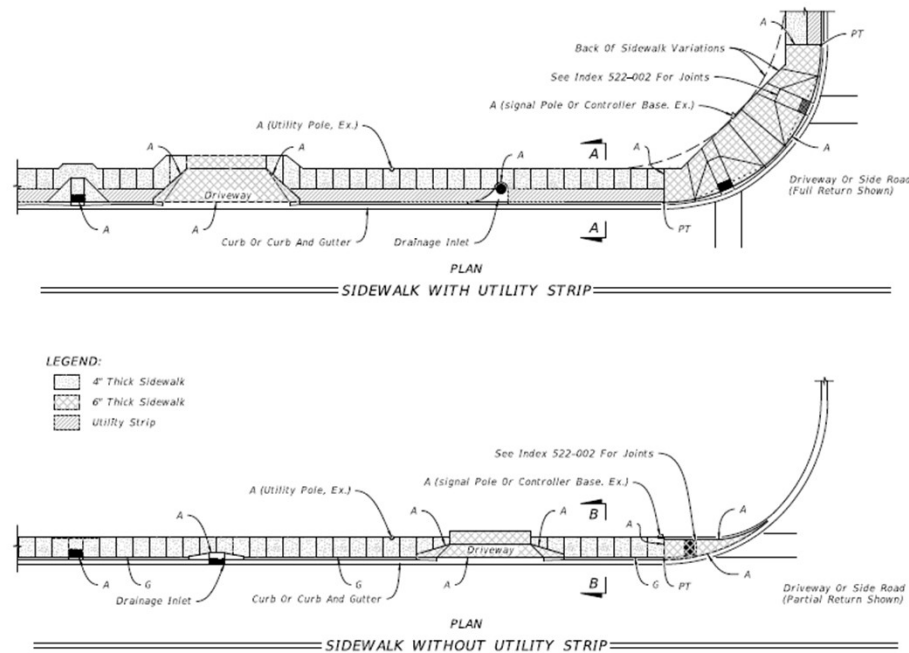
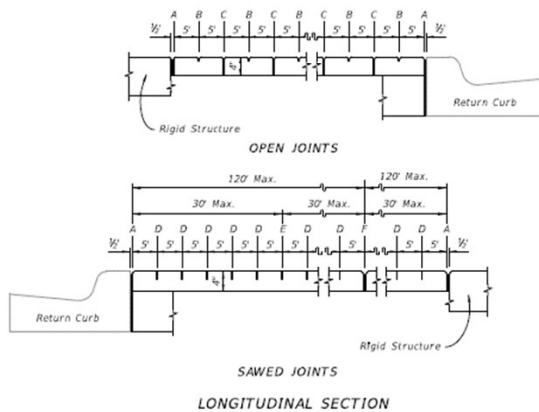
SHEET 1 of 2:

Added Curb Inlets to Examples

Clarified Intent of Expansion Joint Locations

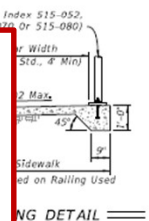
GENERAL NOTES:

1. Construct sidewalks in accordance with Specification 522. Use 6" concrete for Sidewalks and Curb Ramps located within Curb Returns (See Plan View). Install all other concrete with thickness as shown, unless otherwise detailed in the Plans.
2. Include detectable warnings on sidewalk curb ramps in accordance with Index 522-002.
3. For Driveways see Index 522-003.
4. Bond breaker material can be any impermeable coated or sheet membrane or preformed material having a thickness of not less than 6 mils not more than 1/8".



LEGEND:

A- 1/2" Expansion Joints (Preformed Joint Filler) between the sidewalk and; driveways, sidewalk-intersections, and all other fixed objects (e.g. drainage inlets and utility poles).



GENERAL NOTES AND CONCRETE SIDEWALK ON CURBED ROADWAYS

LAST REVISION 11/01/18	DESCRIPTION:	FDOT FY 2019-20 STANDARD PLANS	CONCRETE SIDEWALK	INDEX 522-001	SHEET 1 of 2
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Standard Plans – Primary Updates:

- ✓ 1) *General Overview and Website*
- 2) *Misc. Indexes*
 - ✓ a) *Index 000-506 - Miscellaneous Earthwork Details (Including: Indexes 160-001 & 120-001)*
 - ✓ b) *Index 000-510 - Superelevation - High Speed Roadways*
 - ✓ c) *Index 000-511 - Superelevation - Low Speed Roadways*
 - ✓ d) *Index 000-515 - Turnouts and Driveways (Including: New Indexes 522-003 & 330-001)*
 - *Index 000-516 - Turnouts - Resurfacing Projects*
 - ✓ e) *Index 350-001 - Concrete Pavement Joints*
 - ➔ ✓ f) *Index 522-001 - Concrete Sidewalk*
 - g) *Index 522-002 - Detectable Warnings and Sidewalk Curb Ramps*
 - h) *Misc. Traffic Control Signals and Devices (Including: Indexes 630-001, 634-002, 635-001, 659-010, 660-001, and 676-010)*

SHEET 1 of 8:

Updated Note 'C'

New Language

GENERAL NOTES:

1. Cross Slopes and Grades:

A. Sidewalk, ramp, and landing slopes (i.e. 0.02, 0.05, and 1:12) shown in this Index are maximums. With approval of the Engineer, provide the minimum feasible slope where the requirements cannot be met.

B. Landings must have cross-slopes less than or equal to 0.02 in any direction.

C. Maintain a single longitudinal slope along each side of the curb ramp. Ramp slopes are not required to exceed 15 feet in length.

D. Joints permitted at the location of Slope Breaks. Otherwise locate joints in accordance with Index 522-001. No joints are permitted within the ramp portion of the Curb Ramp.

GENERAL NOTES

FY 2018-19 Standard Plans, Index 522-001

1. Cross Slopes and Grades:

A. Sidewalk, ramp, and landing slopes (i.e. 0.02, 0.05, and 1:12) shown in this Index are maximums. With approval of the Engineer, provide the minimum feasible slope where the requirements cannot be met.

B. Landings must have cross-slopes less than or equal to 0.02 in any direction.

C. Install ramp slopes along a single linear plane (i.e. no warps or varying slope). Ramp slopes are not required to exceed 15 feet in length.

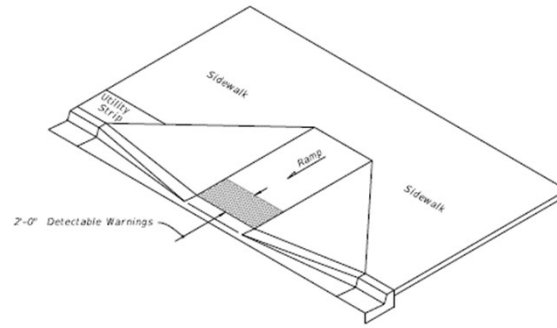
D. Joints permitted at the location of Slope Breaks. Otherwise locate joints in accordance with Index 522-001. No joints are permitted within the ramp portion of the Curb Ramp.

Old Language

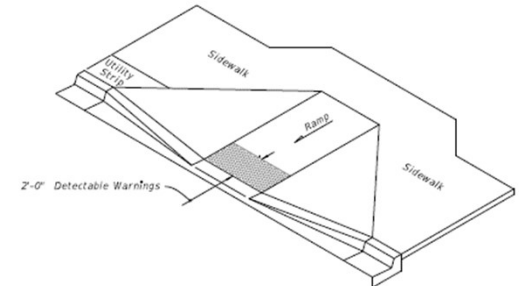
LAST REVISION 11/01/18	DESCRIPTION:		FY 2019-20 STANDARD PLANS	DETECTABLE WARNINGS AND SIDEWALK CURB RAMPS	INDEX 522-002	SHEET 1 of 8
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SHEET 2 of 8:

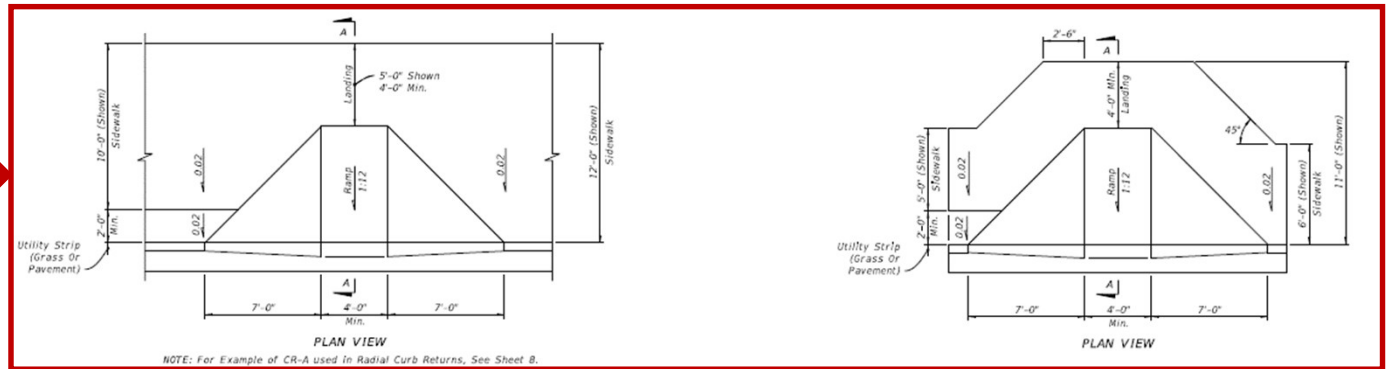
Updated CR-A and CR-B Plan View to Work With Current Sidewalk Width Requirements See FDM 222



ISOMETRIC VIEW

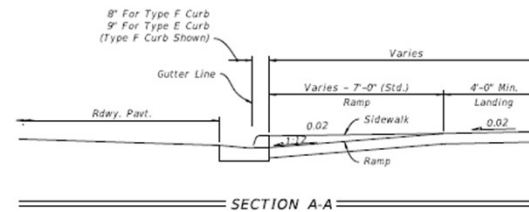


ISOMETRIC VIEW



CR-A

CR-B

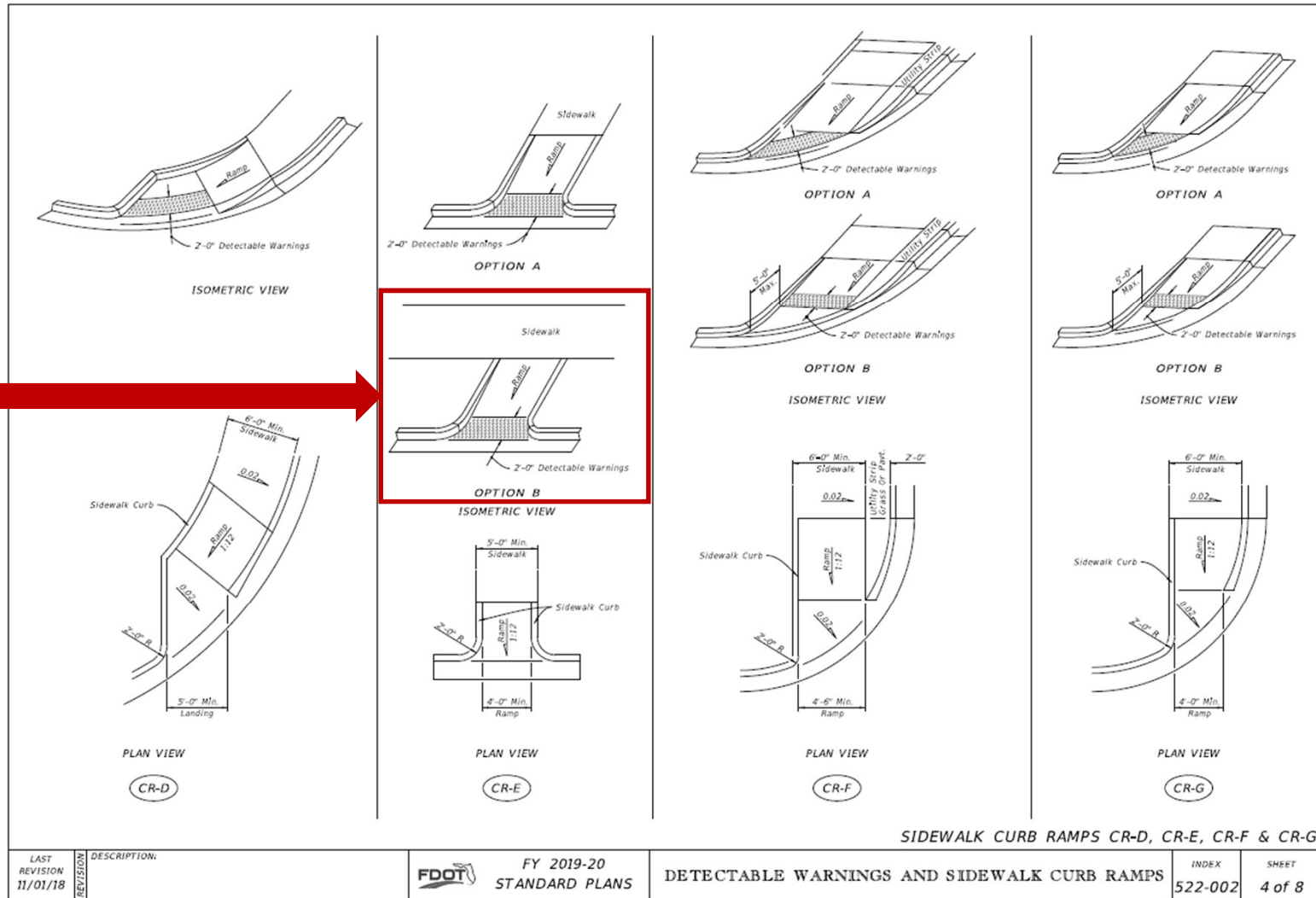


SIDEWALK CURB RAMPS CR-A AND CR-B

LAST REVISION	DESCRIPTION	FY 2019-20	INDEX	SHEET
11/01/18		STANDARD PLANS	DETECTABLE WARNINGS AND SIDEWALK CURB RAMPS	522-002
				2 of 8

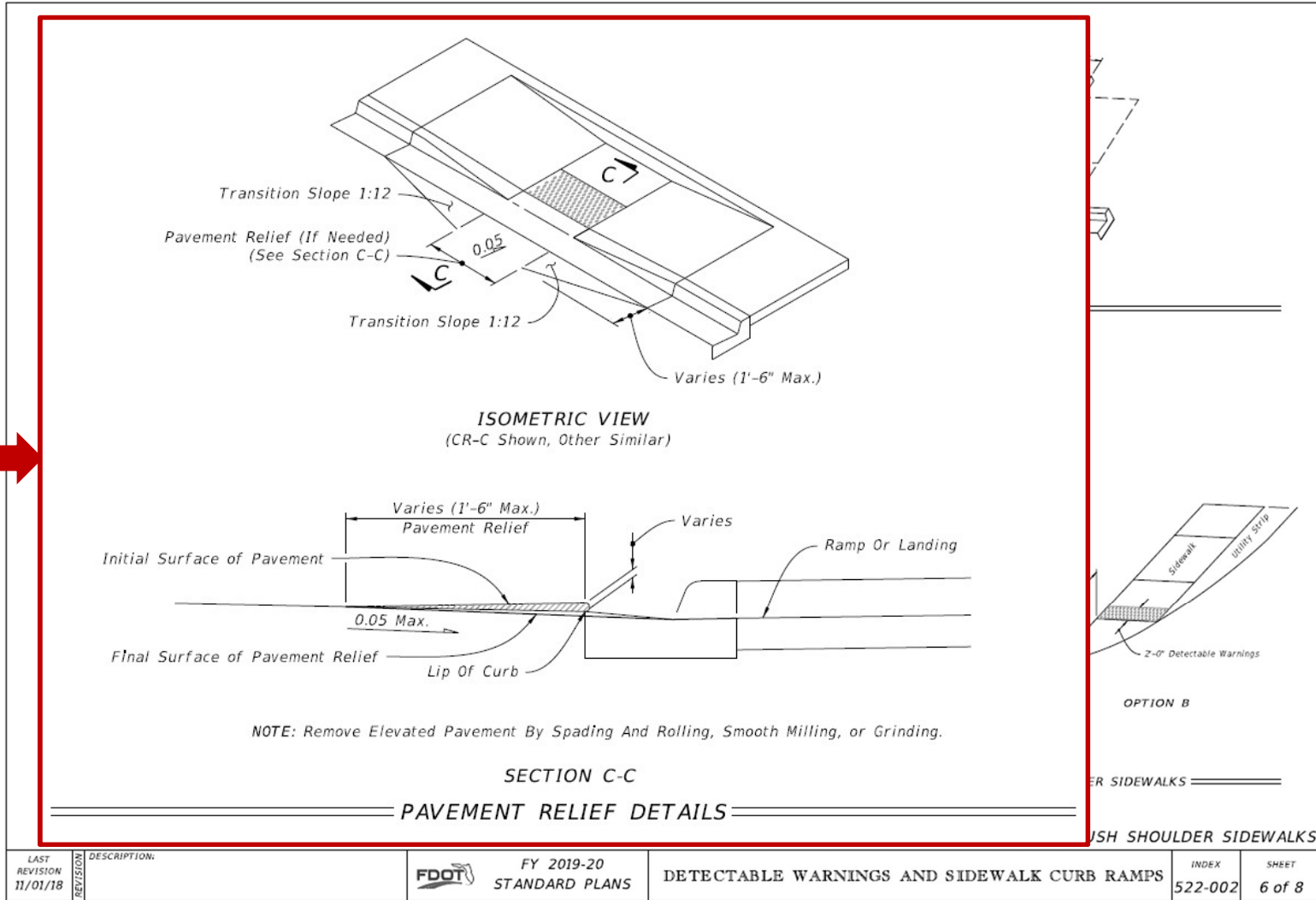
SHEET 4 of 8:

Added Option B for Parallel Sidewalk



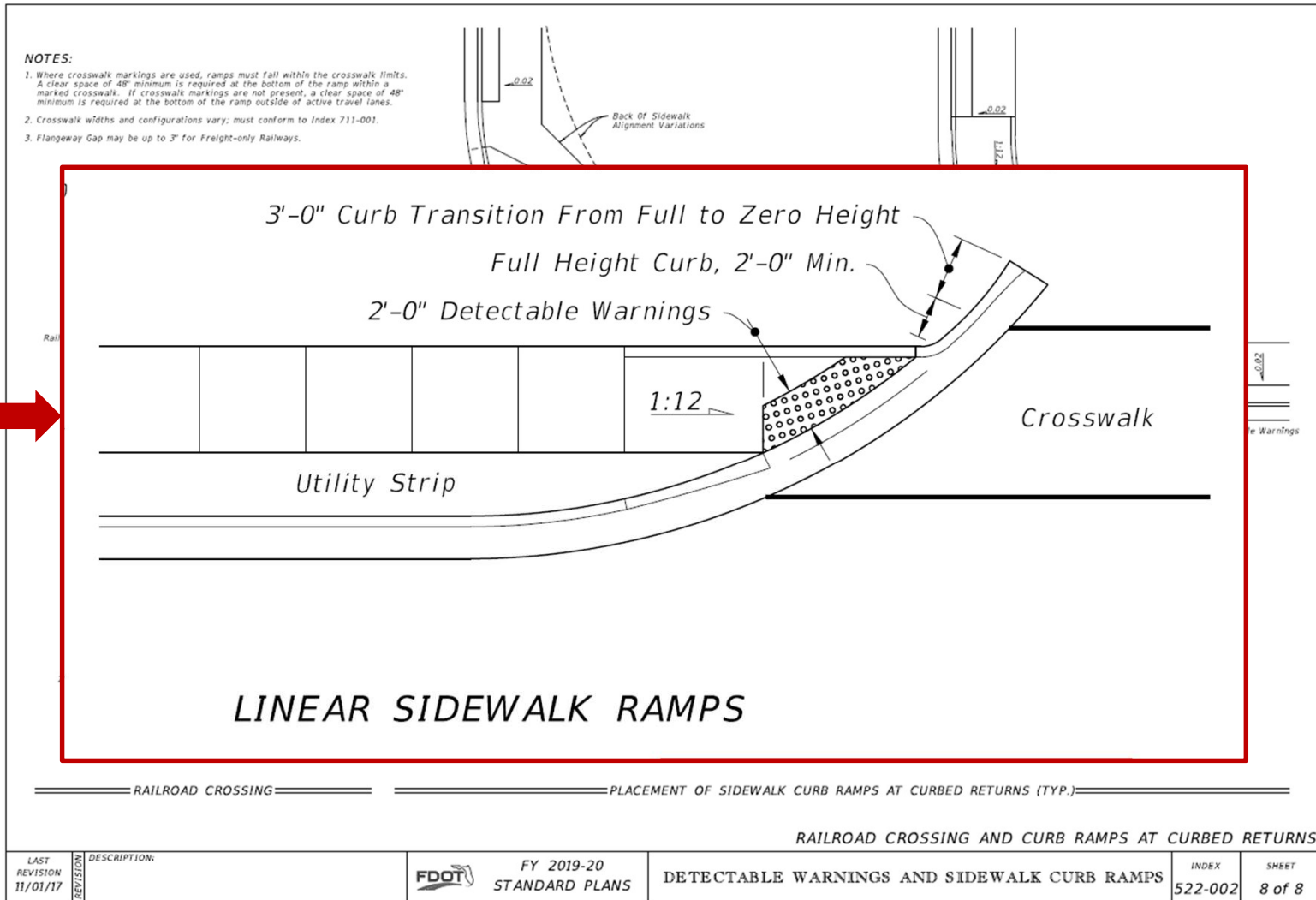
SHEET 6 of 8:

**Re-Indexed 160-001:
Stabilization Details**



SHEET 8 of 8:

Added Curb Transition Details from Old Index 000-515

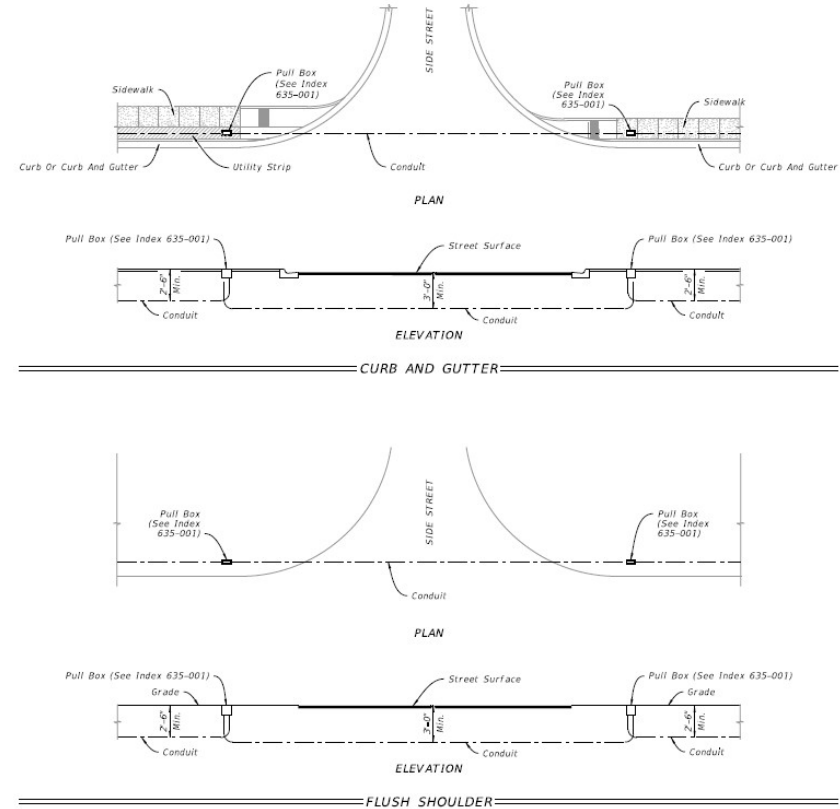


Standard Plans – Primary Updates:

- ✓ 1) *General Overview and Website*
- 2) *Misc. Indexes*
 - ✓ a) *Index 000-506 - Miscellaneous Earthwork Details (Including: Indexes 160-001 & 120-001)*
 - ✓ b) *Index 000-510 - Superelevation - High Speed Roadways*
 - ✓ c) *Index 000-511 - Superelevation - Low Speed Roadways*
 - ✓ d) *Index 000-515 - Turnouts and Driveways (Including: New Indexes 522-003 & 330-001)*
 - *Index 000-516 - Turnouts - Resurfacing Projects*
 - ✓ e) *Index 350-001 - Concrete Pavement Joints*
 - ✓ f) *Index 522-001 - Concrete Sidewalk*
 - ➔ g) *Index 522-002 - Detectable Warnings and Sidewalk Curb Ramps*
 - h) *Misc. Traffic Control Signals and Devices (Including: Indexes 630-001, 634-002, 635-001, 659-010, 660-001, and 676-010)*

Miscellaneous 600 Series Indexes:

- Updated Layout
- Consolidated Notes
- Detailed to Current CADD Standards
- Included:
 - **Index 630-001 (Conduit Installation Details)**
 - **Index 634-002 (Aerial Interconnect)**
 - **Index 635-001 (Pull and Splice Boxes)**
 - **Index 659-010 (Span Wire Mounted Sign Details)**
 - **Index 660-001 (Vehicle Loop Installation Details)**
 - **Index 676-010 (Cabinet Installation Details)**



CONDUIT INSTALLATION DETAILS

Questions?



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