



## *Florida Department of Transportation*

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SECRETARY

### **MEMORANDUM**

DATE: December 18, 2014

TO: Holders of the FDOT Drainage Manual

FROM: Rick Renna, P.E. (State Drainage Engineer)

SUBJECT: FDOT Drainage Manual – January 2015

The Drainage Manual has been revised for the January 2015 scheduled release date. The revised 2015 Drainage Manual policies should be implemented on all design projects, when possible, without impacting production schedules. Significant revisions and pertinent details are listed below.

#### **Table of Contents**

Updated as necessary to reflect the revisions shown below.

#### **Chapter 2 – Open Channel**

Section 2.4.3 and Table 2.4 – Deleted the reference to Design Standard Index 199 and replaced it with a reference to Standard Specifications for Road and Bridge Construction Section 985. Design Standard Index 199 was removed from the 2015 Design Standards and the relevant geotextile information was added to Specification 985.

Section 2.4.4 – Added a statement that V-Ditches can only be used if the slopes are 1:6 or flatter.

Section 2.4.5 – Language was revised to clarify what design stage shall be used when referring to channel freeboard.

Section 2.5 – Added reference to the Standard Specifications in addition to the Design Standards in reference to ditch liners.

### Chapter 3 – Storm Drain Hydrology and Hydraulics

Section 3.3 – The table was revised for clarity regarding the interstate facilities. “Sag vertical curves” was revised to read “sag inlets”. Also the statement on pumping stations was separated into its own bullet.

Section 3.6.2 – Added language to the last paragraph regarding minor losses on long systems and when to include the minor losses in the design.

Section 3.7.1.1 – Removed the reference to a maximum 300 ft spacing between inlets and added statement that inlet spacing shall be based on spread criteria.

#### Section 3.7.3 – Shoulder Gutter

- Bullet 2 referring to the use of guardrail with embankment was eliminated as this criteria is covered in a later bullet within this section.
- Bullet 3 was revised to remove the statement “Unless site specific experience indicates that slopes are resistant to erosion.”
- Bullet 5 was rewritten to require shoulder gutter in areas of guardrail when any pavement slopes toward an embankment that is sloped steeper than 1:4. The criteria to require shoulder gutter in areas of landscaping was deleted as this should be called for by the Landscape Architects on a project to project basis.
- Bullet 6 was deleted as this is a non-factor in current designs.
- Bullet 7 was revised for clarity. A statement was added that this a requirement if shoulder gutter is required per the other criteria in this section.

Section 3.9.1 – Deleted Figure 3-2 and replaced with a reference to Design Standard Index 400. This data is detailed in the Design Standard Index and doesn’t need to be repeated in the Drainage Manual.

Section 3.10.2 4-d – Replaced reference to “Vactor trucks” with vacuum trucks.

Section 3.11.1 – Revised language on MSE Walls based on current information in the Structural Design Manual.

Figure 3-1 – Footnote added to clarify that minor losses are only required in the table when minor losses are to be included in the design.

## **Chapter 4 – Cross Drain Hydraulics**

### Section 4.3.1 – Permanent Facilities

- Added Pedestrian Bridges and Trail Bridges as a 10 year design frequency.

### Section 4.9.3.1 – Scour Protection Considerations - General

- Revised the 3<sup>rd</sup> paragraph to require polyester cabling instead of metal with ACB's.
- Added a reference to the Structures Manual for the environment classification type.

Section 4.9.3.2 – Revised section on bulkhead abutments to instruct designer to consult Structural Engineer.

Section 4.9.3.4 – Added a new section titled “Use of Bedding Stone with Revetments”. This section will replace the notes that were previously found in Design Standard Index 199 regarding the use of bedding stone.

Section 4.10.4 – Added reference to Chapter 3 regarding maximum lengths of pipes.

## **Chapter 5 – Stormwater Management**

Section 5.3 – Added new section for Environmental Look Aounds (ELA).

Section 5.3 through Section 5.4 renumbered to incorporate the addition of the new Section 5.3 Environmental Look Aounds (ELA).

Section 5.4.1.2 – Revised section on watersheds with positive outfalls for clarification.

Section 5.4.4.2 – Detention and Retention Ponds

- Added language on the new Bold Landscaping initiative, or “Highway Beautification Policy”.
- In Section 5.4.4.2 - 3, Freeboard, a statement was added to specify the minimum freeboard of 0.5' for linear treatment swale based on our Annual DDrE meeting.
- Text was added to Section 5.4.4.2 – 4 to outline typical citations in requesting a design variation for pond fencing.

Section 5.5 – Added landscaping, fencing and ELA justification language to the documentation requirements for Stormwater Management Facilities.

**Chapter 6 – “Optional Culvert Materials”**

Section 6.7 – Table 6-1 on culvert material applications and design service life was updated to include Steel Reinforced Polyethylene Pipe (SRPE) and to allow for 100 year application for Polypropylene Pipe (PP).

**Appendix E** – Steel Reinforced Polyethylene Pipe (SRPE) was added.