

# ORIGINATION FORM

## Proposed Revisions to the Specifications

(Please provide all information - incomplete forms will be returned)

Date:

Office:

Originator:

Specification Section:

Telephone:

Article/Subarticle:

email:

Associated Section(s) Revisions:

Will the proposed revision require changes to:

| Publication                                | Yes | No | Office Staff Contacted |
|--|-----|----|------------------------|
| Standard Plans Index                       |     |    |                        |
| Traffic Engineering Manual                 |     |    |                        |
| FDOT Design Manual                         |     |    |                        |
| Construction Project Administration Manual |     |    |                        |
| Basis of Estimate/Pay Items                |     |    |                        |
| Structures Design Guidelines               |     |    |                        |
| Approved Product List                      |     |    |                        |
| Materials Manual                           |     |    |                        |

Will this revision necessitate any of the following:

Design Bulletin

Construction Bulletin

Estimates Bulletin

Materials Bulletin

Are all references to external publications current?

Yes

No

If not, what references need to be updated? (Please include changes in the redline document.)

Why does the existing language need to be changed?

Summary of the changes:

Are these changes applicable to all Department jobs?

Yes

No

If not, what are the restrictions?

Contact the State Specifications Office for assistance in completing this form.

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## **M E M O R A N D U M**

**DATE:** June 3, 2021  
**TO:** Specification Review Distribution List  
**FROM:** Daniel Strickland, P.E., State Specifications Engineer  
**SUBJECT:** Proposed Specification: **4300201 Pipe Culverts.**

In accordance with Specification Development Procedures, we are sending you a copy of a proposed specification change.

This change was proposed by Elizabeth Weber from the State Materials Office to reflect updates to Section 948 and Materials Manual 6.1 Volume II.

Please share this proposal with others within your responsibility. Review comments are due within four weeks and should be sent to Mail Station 75 or online at

<http://fdotewp1.dot.state.fl.us/programmanagement/development/industryreview.aspx> .

Comments received after **July 1, 2021**, may not be considered. Your input is encouraged.

DS/ra

Attachment

**PIPE CULVERTS**  
**(REV 5-14-21)**

SUBARTICLE 430-2.1 is deleted and the following substituted:

**430-2 Materials.**

**430-2.1 Pipe:** Meet the following requirements:

|   |                    |
|---|--------------------|
| Concrete Pipe .....                                       | Section 449        |
| Steel Pipe .....  | 556-2.1            |
| Round Rubber Gaskets .....                                | Section 942        |
| Resilient Connectors* .....                               | Section 942        |
| Corrugated Steel Pipe and Pipe Arch.....                  | Section 943        |
| Corrugated Aluminum Pipe and Pipe Arch .....              | Section 945        |
| Corrugated Polyethylene Pipe.....                         | Section 948        |
| Steel Reinforced Polyethylene Ribbed Pipe .....           | Section 948        |
| <u>Steel Reinforced Polyethylene Corrugated Pipe.....</u> | <u>Section 948</u> |
| Corrugated Polypropylene Pipe .....                       | Section 948        |
| Corrugated Polyvinyl Chloride (PVC) Pipe .....            | Section 948        |
| Fiberglass Reinforced Polymer Pipe.....                   | Section 948        |
| Liner Repair Systems.....                                 | Section 948        |
| Metal Grates.....   | Section 962        |

\*Use resilient connector products listed on the Department's Approved Product List (APL).

SUBARTICLE 430-4.1 is deleted and the following substituted:

**430-4 Laying Pipe.**

**430-4.1 General:** Lay all pipe, true to the lines and grades given, with bells upgrade and spigot end fully entered into the bell. When pipe with quadrant reinforcement or circular pipe with elliptical reinforcement is used, install the pipe in a position such that the manufacturer's marks designating "top" and "bottom" of the pipe are not more than five degrees from the vertical plane through the longitudinal axis of the pipe. Do not allow departure from and return to plan alignment and grade to exceed 1/16 inch per foot of nominal pipe length, with a total of not more than 1 inch departure from theoretical line and grade. Take up and relay any pipe that is not in true alignment or which shows any settlement after laying at no additional expense to the Department.

Do not use concrete pipe with lift holes except round pipe which has an inside diameter in excess of 54 inches or any elliptical pipe.

Repair lift holes, if present, with hand-placed, stiff, non-shrink, 1-to-1 mortar of cement and fine sand, after first washing out the hole with water. Completely fill the void created by the lift hole with mortar. Cover the repaired area with a 24 inch by 24 inch piece of filter fabric secured to the pipe. Use a Type D-3 filter fabric meeting the requirements specified in Section 985.

Secure the filter fabric to the pipe using a method that holds the fabric in place until the backfill is placed and compacted. Use grout mixtures, mastics, or strapping devices to secure the fabric to the pipe.

Do not cut or drill into or through the corrugations or ribs of plastic pipe except when necessary to meet the dimensional requirements shown in the Plans.

When installing pipes in structures, construct inlet and outlet pipes of the same size and kind as the connecting pipe shown in the Plans. Use the same pipe material within each continuous run of pipe. Extend the pipes through the walls for a distance beyond the outside surface sufficient for the intended connections, and construct the concrete around them neatly to prevent leakage along their outer surface as shown on Standard Plans, Index 425-001. Keep the inlet and outlet pipes flush with the inside of the wall. Resilient connectors as specified in 942-3 may be used in lieu of a masonry seal.

Furnish and install a filter fabric jacket around all pipe joints and the joint between the pipe and the structure in accordance with Standard Plans, Indexes 425-001 and 430-001. Use fabric meeting the physical requirements of Type D-3 specified in Section 985. Extend the fabric a minimum of 12 inches beyond each side of the joint or both edges of the coupling band, if a coupling band is used. The fabric must have a minimum width of 24 inches, and a length sufficient to provide a minimum overlap of 24 inches. Secure the filter fabric jacket against the outside of the pipe by metal or plastic strapping or by other methods approved by the Engineer.

Meet the following minimum joint standards:

| Table 430-1            |                  |
|------------------------|------------------|
| Pipe Application       | Minimum Standard |
| Storm and Cross Drains | Water-tight      |
| Gutter Drain           | Water-tight      |
| Side Drains            | Soil-tight       |

When rubber gaskets are to be installed in the pipe joint, the gasket must be the sole element relied on to maintain a tight joint. Soil tight joints must be watertight to 2 psi. Water-tight joints must be water-tight to 5 psi unless a higher pressure rating is required in the Plans.

When laying pipes that pass through mechanically stabilized earth (MSE) reinforced fill, connect the portion of the pipe within the wall to the external portion of the pipe run only after the full height of the wall supported embankment is in place.

When Wall Zone Pipes are shown in the Plans, meet the following requirements:

1. Use resilient connectors on pipes entering and leaving drainage structures.
2. Provide a 2 to 4 inch pipe overhang beyond the drainage structure internal walls.
3. For pipes without welded joints, meet the following additional requirements:

- a. Pipe joints must be watertight to 10.8 psi when pulled out 2 inches from the fully home ~~ed~~ position in both straight joint alignment and 5% deflection.
- b. Do not allow the gap between sections of pipe to exceed 5/8 inch for all pipe diameters.