



Florida Department of Transportation

RON DESANTIS
GOVERNOR

605 Suwannee Street
Tallahassee, FL 32399-0450

JARED W. PERDUE, P.E.
SECRETARY

October 23, 2023

Khoa Nguyen
Director, Office of Technical Services
Federal Highway Administration
3500 Financial Plaza, Suite 400
Tallahassee, Florida 32312

Re: State Specifications Office
Section: 430
Proposed Specification: **4300201 Pipe Culverts.**
Associated Specification Revision: **9480203 Optional Drainage Products and Repair Systems**

Dear Mr. Nguyen:

We are submitting, for your approval, two copies of the above referenced Supplemental Specification.

The changes are proposed by Jason Russell to integrate language pertaining to new reporting requirements, gasket pipe sleeve adapters for thermoplastic pipes used in structures with resilient connectors, and conform to current standards requirements.

Please review and transmit your comments, if any, within two weeks (10 business days). Comments should be sent via email daniel.strickland@dot.state.fl.us.

If you have any questions relating to this specification change, please call me at (850) 414-4130.

Sincerely,

Signature on File

Daniel Strickland, P.E.
State Specifications Engineer

DS/dh

Attachment

cc: Florida Transportation Builders' Assoc.
State Construction Engineer

PIPE CULVERTS.
(REV 10-17-23)

SUBARTICLE 430-2.1 is expanded by the following:

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
Steel Reinforced Polyethylene Corrugated Pipe.....	Section 948
Corrugated Polypropylene Pipe	Section 948
Corrugated Polyvinyl Chloride (PVC) Pipe	Section 948
Fiberglass Reinforced Polymer Pipe.....	Section 948
Metal Grates.....	Section 962
<u>Pipe Sleeve Adapters.....</u>	<u>Section 948</u>

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

SUBARTICLE 430-4.8 is deleted and the following substituted:

430-4.8 Pipe Inspection: For pipes installed under the roadway, inspection is to be conducted when backfill reaches 3 feet above the pipe crown or upon completion of placement of the stabilized subgrade. For pipe installed within fills, including embankments confined by walls, inspection is to be conducted when compacted embankment reaches 3 feet above the pipe crown or the finished earthwork grade as specified in the Plans. Prior to conducting the inspection, submit to the Engineer an video recording inspection schedule for videoing, dewatering the installed pipe, and remove the removal of all silt, debris, and obstructions. Submit pipe videoing inspection videos and reports to the Department for review prior to the continuation of paving.

For pipe 48 inches or less in diameter, submit to the Engineer the video files and reports using low barrel distortion video equipment with laser profile technology, non-contact video micrometer and associated software. For all pipe types, provide a Pipe Observation Summary Report for each pipe run that shall includes:

1. Actual recorded length and width measurements of all cracks within the pipe.
2. Actual recorded separation measurement of all rigid pipe joints.
3. Detailed written observations of leaks, debris, or other damage or defects.

For flexible pipe types, submit a Pipe Ovality Report for each pipe run that includes:

1. Representative diameter of the pipe.
2. Pipe deformation/deflections measurements with the 5% deflection limit clearly delineated.

Laser profiling and measurement technology must be certified by the company performing the work to be in compliance with the calibration criteria posted at: <https://fdotwww.blob.core.windows.net/sitefinity/docs/default-source/construction/engineers/environmental/laser-profiling-calibration-criteria.pdf>. Reports submitted in electronic media are preferred.

For pipe larger than 48 inches, submit to the Engineer a detailed visual inspection summary report for each pipe run, including photos, locations and details of deficient cracks, joint separations, infiltration, and damage.

The Engineer may waive this requirement for side drains and cross drains which are short enough to inspect from each end of the pipe.

430-4.8.1 Video Report: Provide video files via digital media (DVD, flash drive, or other) or by online digital distribution with a minimum standard resolution of 720 x 480. Use a camera with lighting suitable to allow a clear picture of the entire periphery of the pipe. Center the camera in the pipe both vertically and horizontally and be able to pan and tilt to a ~~90-degree~~ **90-degree** angle with the axis of the pipe and rotating 360 degrees. Use equipment to move the camera through the pipe that will not obstruct the camera's view or interfere with proper documentation of the pipe's condition.

The video image shall be clear, focused, and relatively free from roll, static, or other image distortion qualities that would prevent the reviewer from evaluating the condition of the pipe. The video will include identification before each section of pipe filmed. The identification will include the project number, the structure number corresponding to the structure number in the Plans for the project, size of pipe, the date and time, and indicate which pipe is being filmed if multiple pipes are connected to the structure. Notes should be taken during the video recording process. Submit these notes along with the video.

Move the camera through the pipe at a speed not greater than 30 feet per minute. Mark the video with the distance down the pipe. The distance shall have an accuracy of one foot per 100 feet. Film the entire circumference at each joint. Stop the camera and pan when necessary to document and measure defects. Position the camera head perpendicular to all defects requiring measurement by the video micrometer.

430-4.8.2 Reinspection: At any time after reviewing the submitted pipe inspection reports, the Engineer may direct additional inspections. If no defects are observed during the reinspection, the Department will pay for the cost of the reinspections in accordance with 4-3. If defects are observed, the reinspection and all work performed to correct the defects will be done at no cost to the Department. Acceptance of all replacements or repairs will be based on video documentation of the completed work prior to Final Acceptance.

SUBARTICLE 430-9.2 is expanded by the following:

430-9.2 Field Joints: Use gasketed joints to seal side drain, and storm and cross drain. Use gaskets meeting the requirements of Section 449. Ensure that the pipe manufacturer provides a joint design approved by the Engineer before use.

430-9.2.1 Requirements For Use In Structures With Resilient Connectors:

Use pipe sleeve adapters in accordance with Section 948-2 and 948-7.

PIPE CULVERTS.
(REV 10-17-23)

SUBARTICLE 430-2.1 is expanded by the following:

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
Steel Reinforced Polyethylene Corrugated Pipe.....	Section 948
Corrugated Polypropylene Pipe	Section 948
Corrugated Polyvinyl Chloride (PVC) Pipe	Section 948
Fiberglass Reinforced Polymer Pipe.....	Section 948
Metal Grates.....	Section 962
Pipe Sleeve Adapters.....	Section 948

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

SUBARTICLE 430-4.8 is deleted and the following substituted:

430-4.8 Pipe Inspection: For pipes installed under the roadway, inspection is to be conducted when backfill reaches 3 feet above the pipe crown or upon completion of the stabilized subgrade. For pipe installed within fills, including embankments confined by walls, inspection is to be conducted when compacted embankment reaches 3 feet above the pipe crown or the finished earthwork grade as specified in the Plans. Prior to conducting the inspection, submit to the Engineer an inspection schedule for dewatering the installed pipe, and the removal of all silt, debris, and obstructions. Submit pipe inspection videos and reports to the Department for review prior to the continuation of paving.

For pipe 48 inches or less in diameter, submit to the Engineer the video files and reports using low barrel distortion video equipment with laser profile technology, non-contact video micrometer and associated software. For all pipe types, provide a Pipe Observation Summary Report for each pipe run that shall include:

1. Actual recorded length and width measurements of all cracks within the pipe.
2. Actual recorded separation measurement of all rigid pipe joints.
3. Detailed written observations of leaks, debris, or other damage or defects.

For flexible pipe types, submit a Pipe Ovality Report for each pipe run that includes:

1. Representative diameter of the pipe.

2. Pipe deformation/deflections measurements with the 5% deflection limit clearly delineated.

Laser profiling and measurement technology must be certified by the company performing the work to be in compliance with the calibration criteria posted at:

<https://fdotwww.blob.core.windows.net/sitefinity/docs/default-source/construction/engineers/environmental/laser-profiling-calibration-criteria.pdf>. Reports submitted in electronic media are preferred.

For pipe larger than 48 inches, submit to the Engineer a detailed visual inspection summary report for each pipe run, including photos, locations and details of deficient cracks, joint separations, infiltration, and damage. The Engineer may waive this requirement for side drains and cross drains which are short enough to inspect from each end of the pipe.

430-4.8.1 Video Report: Provide video files via digital media (DVD, flash drive, or other) or by online digital distribution with a minimum standard resolution of 720 x 480. Use a camera with lighting suitable to allow a clear picture of the entire periphery of the pipe. Center the camera in the pipe both vertically and horizontally and be able to pan and tilt to a 90-degree angle with the axis of the pipe and rotating 360 degrees. Use equipment to move the camera through the pipe that will not obstruct the camera's view or interfere with proper documentation of the pipe's condition.

The video image shall be clear, focused, and relatively free from roll, static, or other image distortion qualities that would prevent the reviewer from evaluating the condition of the pipe. The video will include identification before each section of pipe filmed. The identification will include the project number, the structure number corresponding to the structure number in the Plans for the project, size of pipe, the date and time, and indicate which pipe is being filmed if multiple pipes are connected to the structure. Notes should be taken during the video recording process. Submit these notes along with the video.

Move the camera through the pipe at a speed not greater than 30 feet per minute. Mark the video with the distance down the pipe. The distance shall have an accuracy of one foot per 100 feet. Film the entire circumference at each joint. Stop the camera and pan when necessary to document and measure defects. Position the camera head perpendicular to all defects requiring measurement by the video micrometer.

430-4.8.2 Reinspection: At any time after reviewing the submitted pipe inspection reports, the Engineer may direct additional inspections. If no defects are observed during the reinspection, the Department will pay for the cost of the reinspections in accordance with 4-3. If defects are observed, the reinspection and all work performed to correct the defects will be done at no cost to the Department. Acceptance of all replacements or repairs will be based on video documentation of the completed work prior to Final Acceptance.

SUBARTICLE 430-9.2 is expanded by the following:

430-9.2 Field Joints: Use gasketed joints to seal side drain, and storm and cross drain. Use gaskets meeting the requirements of Section 449. Ensure that the pipe manufacturer provides a joint design approved by the Engineer before use.

430-9.2.1 Requirements For Use In Structures With Resilient Connectors: Use pipe sleeve adapters in accordance with Section 948-2 and 948-7.