

## ORIGINATION FORM

**THE INFORMATION BELOW IS TO BE PROVIDED BY THE ORIGINATOR**

(The person who receives or originates the issue and needs to forward the issue for action.)

Modify Specification \_\_\_\_\_ 430-4.8, 430-4.8.1\_\_\_\_\_  
Section/File number

New Section \_\_\_\_\_  
Section number

**Subject:** Final Pipe Inspection, and Video Report  
**Origination date:** 09-30-05

**Originator:** David A. Sadler  
**Office/Phone:** Construction, SC 994-5203  
**Email address/** [david.sadler@dot.state.fl.us](mailto:david.sadler@dot.state.fl.us)  
**Userid:** cn982da

**Problem statement:** These specifications are revised to introduce laser technology into the process of inspecting all pipe types. Also, changed specification to require submittal of DVD in lieu of VHS tapes.

**Information source:** David Sadler  
Rick Renna  
Rod Powers

**Background data:** This technology was first observed by State Construction in a presentation at the AASHTO Subcommittee on Construction Conference in Louisville, Kentucky in July/August of 2005. Technology appears to provide data on defects in pipe in a measurable format that will prove useful in the final acceptance of any pipe type used on FDOT projects.

**Recommended Usage Note:** Recommended for use on all projects.

**Desired implementation date:** Beginning with the January 2006 lettings.



Florida Department of Transportation

JEB BUSH  
GOVERNOR

605 Suwannee Street  
Tallahassee, FL 32399-0450

DENVER J. STUTLER, JR.  
SECRETARY

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

**DATE:** September 30, 2005  
**TO:** Specification Review Distribution List  
**FROM:** Duane F. Brautigam, P.E., State Specifications Engineer  
**SUBJECT: Proposed Specifications Change: 4300480 – Final Pipe Inspection.**

In accordance with Specification Development Procedures, we are sending you a copy of a proposed Specification change to Final Pipe Inspection.

This change is proposed by David Sadler of the State Construction Office to modify the current Final Pipe Inspection Specification.

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 to my attention via e-mail at SP965DB or duane.brautigam@dot.state.fl.us. Comments received after October 28, 2005 may not be considered. Your input is encouraged.

DFB/jho

Attachment

COMMENTS:

---

---

---

---

---

Submitted by:

Phone #:

---

**FINAL PIPE INSPECTION.**  
**(REV 9-30-05)**

SUBARTICLES 430-4.8 (of the Supplemental Specifications) is deleted and the following substituted:

**430-4.8 Final Pipe Inspection:** Based on Contract pavement type, upon completion of placement of concrete pavement or the placement of structural asphalt, but prior to placement of asphalt friction course, dewater installed pipe and provide the Engineer with a video ~~taping~~*recording* schedule. ~~Provide the Engineer with a video tape of pipe 48 inches [1,200 mm] or less in diameter, for examination. The Engineer may waive this requirement for side drains and cross drains which are short enough to inspect from each end of the pipe. The Engineer will inspect pipe for line and grade, joint gaps, joint misalignment, leaks, damage, and for debris.~~

*For pipe 48 inches [1,200 mm] or less in diameter, provide the Engineer a video DVD and report using laser profile technology and associated software that provides:*

- 1. Pipe ovality report.*
- 2. Deflection measurements and graphical diameter analysis report in terms of x and y axis.*
- 3. Flat analysis report.*
- 4. Representative diameter of the pipe.*
- 5. Pipe deformation measurements, leaks, debris, or other damage or defects.*
- 6. Pipe line and grade, joint gaps, and joint misalignment.*

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

*<http://www.dot.state.fl.us/construction/ContractorIssues/Laser.htm> .*

*Reports may be submitted in electronic media if approved by the Engineer.*

~~For metal and plastic video recorded, laser profiled pipe that indicates deflection that appears to be in excess of that allowed by Specification, the Engineer will also inspect for deflection. The Engineer may require further testing of the pipe as a result of the inspection using a mandrel. If so directed by the Engineer, test pipe 36 inches [900 mm] and less in diameter using a mandrel. The mandrel shall be pulled by hand and be approved by the Engineer prior to use. For pipe larger than 36 inches [900 mm] in diameter, deflection shall be determined by a method approved by the Engineer. If use of a mandrel is selected as the means of further testing, the mandrel's diameter, length, and other requirements shall conform to 430-4.8.2. Replace pipe failing to meet the specific deflection requirements for the type of pipe installed, at no cost to the Department. Should the deflection test prove that the pipe met Specifications, the Department will bear the cost of the deflection testing.~~

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

SUBARTICLE 430-4.8.1 and 430-4.8.2 (Pages 393-394) are deleted and the following substituted:

**430-4.8.1 Video Taping Report:** Provide a high quality ~~VHS-DVD~~ in a *MPEG2* format videotape with ~~a 460 lines of resolution~~ *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 videotape 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 tape speed shall be standard play.~~ The videotape will include an identification before each section of pipe filmed. The identification will include the project number, the structure number corresponding to the structure number on the set of 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 *taping recording process*. Provide the Engineer with copies of these notes along with the video.

Move the camera through the pipe at a speed not greater than 30 feet per minute [10 meters per minute]. Mark the videotape with the distance down the pipe. The distance shall have an accuracy of one foot per 100 feet [300 mm in 328 meters]. Stop the camera and pan when necessary to document defects. Film the entire circumference at each joint.

**430-4.8.2 Mandrels:** Use mandrels which are rigid, nonadjustable, odd-numbered legged (minimum 9 legs) having a length not less than its nominal diameter. The diameter at any point shall not be less than the allowed percent deflection of the certified actual mean diameter of the pipe being tested. The mandrel shall be fabricated of metal, fitted with pulling rings at each end, stamped or engraved on some segment other than a runner with the nominal pipe size and mandrel outside diameter.