



Florida Department of Transportation

RON DESANTIS
GOVERNOR

605 Suwannee Street
Tallahassee, FL 32399-0450

KEVIN J. THIBAUT, P.E.
SECRETARY

January 8, 2020

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

Re: State Specifications Office
Section: **9450100**
Proposed Specification: **9450100 Aluminum Pipe, Including Underdrain, Pipe Arch
and Structural Plate Pipe and Pipe Arch.**

Dear Mr. Nguyen:

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

The changes are proposed by Chase Knight from the State Materials Office to add National Transportation Product Evaluation Program (NTPEP) certification requirement and to move hydrostatic testing to the Materials Manual.

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

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

Sincerely,

Signature on File

Daniel Strickland, P.E.
State Specifications Engineer

DS/vc

Attachment

cc: Florida Transportation Builders' Assoc.
State Construction Engineer

**ALUMINUM PIPE, INCLUDING UNDERDRAIN, PIPE ARCH AND STRUCTURAL PLATE PIPE AND PIPE ARCH
(REV 11-6-19)**

ARTICLE 945-1 is deleted and the following substituted:

945-1 General Requirements.

Aluminum-alloy culvert pipe and underdrains shall meet the requirements of AASHTO M196 [and shall include plant certification from the National Transportation Product Evaluation Program \(NTPEP\)](#) and [compliance with](#) the additional provisions contained herein. Except for underdrain, corrugated aluminum pipe including pipe arch shall be fabricated with helical corrugations with a minimum of two annular corrugations formed into each end of each pipe to accommodate a coupling band. Annular fabrication is not permitted unless specifically called for in the Plans or specifications. Provide, as part of the shipping ticket, the actual mean inside diameter and total measured lengths of each lot of pipe shipped to the project. Include the minimum and maximum inside diameters used to calculate the actual mean inside diameter.

~~Test the pipe joints hydrostatically at the specified pressure using test methods in ASTM D3212 with the exceptions of Sections 7.3 and 7.4. In lieu of Section 7.4, deflect one side of the pipe to a 5% reduction in internal diameter using the parallel plate testing methodology of ASTM D2412. Load the deflected pipe to within 1/2 the actual pipe diameter from the centerline of the gasket or just beyond the end of the hugger band, whichever is greater. Ensure that the loading mechanism does not contact the hugger band or associated hardware. Testing of pipe joints shall be done at the manufacturing plant and witnessed by the Engineer or designated representative.~~

For sidedrains, unless shown otherwise in the Plans the minimum thickness of the metal shall be as specified below. Alternatively, if no future maintenance concerns exist, the Contractor may propose the pipe gage based on the Department's Drainage Manual and Culvert Service Life Estimator for approval by the Engineer.

| Nominal Diameter or Equivalent (inches) | Sheet Gauge No. | Mean Thickness of Metal (inches) |
|---|-----------------|----------------------------------|
| 6 | 18 | 0.048 |
| 8 | 16 | 0.060 |
| 10 | 16 | 0.060 |
| 12 | 16 | 0.060 |
| 15 | 16 | 0.060 |
| 18 | 16 | 0.060 |
| 21 | 16 | 0.060 |
| 24 | 16 | 0.060 |
| 30 | 14 | 0.075 |
| 36 | 14 | 0.075 |
| 42 | 12 | 0.105 |

| Nominal Diameter or Equivalent (inches) | Sheet Gauge No. | Mean Thickness of Metal (inches) |
|---|-----------------|----------------------------------|
| 48 | 12 | 0.105 |
| 54 | 12 | 0.105 |
| 60 | 10 | 0.135 |
| 66 | 10 | 0.135 |
| 72 and over | 8 | 0.164 |

Where bituminous coated aluminum pipe is specified the bituminous coating shall meet the requirements as specified for corrugated steel pipe in 943-5. Bituminous coated and paved aluminum pipe shall meet the additional requirements specified in 943-6 and 943-7, as applicable.

Class IV pipe shall not be used.

**ALUMINUM PIPE, INCLUDING UNDERDRAIN, PIPE ARCH AND STRUCTURAL PLATE PIPE AND PIPE ARCH
(REV 11-6-19)**

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945-1 General Requirements.

Aluminum-alloy culvert pipe and underdrains shall meet the requirements of AASHTO M196 and shall include plant certification from the National Transportation Product Evaluation Program (NTPEP) and compliance with the additional provisions contained herein. Except for underdrain, corrugated aluminum pipe including pipe arch shall be fabricated with helical corrugations with a minimum of two annular corrugations formed into each end of each pipe to accommodate a coupling band. Annular fabrication is not permitted unless specifically called for in the Plans or specifications. Provide, as part of the shipping ticket, the actual mean inside diameter and total measured lengths of each lot of pipe shipped to the project. Include the minimum and maximum inside diameters used to calculate the actual mean inside diameter.

For sidedrains, unless shown otherwise in the Plans the minimum thickness of the metal shall be as specified below. Alternatively, if no future maintenance concerns exist, the Contractor may propose the pipe gage based on the Department's Drainage Manual and Culvert Service Life Estimator for approval by the Engineer.

| TABLE 1 THICKNESS OF METAL FOR SIDEDRAIN PIPE | | |
|--|-----------------|----------------------------------|
| Nominal Diameter or Equivalent (inches) | Sheet Gauge No. | Mean Thickness of Metal (inches) |
| 6 | 18 | 0.048 |
| 8 | 16 | 0.060 |
| 10 | 16 | 0.060 |
| 12 | 16 | 0.060 |
| 15 | 16 | 0.060 |
| 18 | 16 | 0.060 |
| 21 | 16 | 0.060 |
| 24 | 16 | 0.060 |
| 30 | 14 | 0.075 |
| 36 | 14 | 0.075 |
| 42 | 12 | 0.105 |
| 48 | 12 | 0.105 |
| 54 | 12 | 0.105 |
| 60 | 10 | 0.135 |
| 66 | 10 | 0.135 |
| 72 and over | 8 | 0.164 |

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Class IV pipe shall not be used.