Florida Department of Transportation

RICK SCOTT
GOVERNOR

605 Suwannee Street
Tallahassee, FL 32399-0450

JIM BOXOLD
SECRETARY

August 24, 2015

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

Re: State Specifications Office
Section **945**
Proposed Specification: **9450000 Aluminum Pipe, Including Underdrain, Pipe Arch and Structural Plate Pipe and Pipe Arch Corrugated Steel Pipe and pipe Arch (including Underdrain).**

Dear Mr. Nguyen:

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

The changes are proposed by Chase Knight of the State Materials Office (SMO) to clarify the language relating to certification and to add language relating to pipe gage for consistency with changes proposed to Section 430.

Please review and transmit your comments, if any, within two weeks. Comments should be sent via email to daniel.scheer@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 Scheer, P.E.
State Specifications Engineer

DS/dt
Attachment
cc: Florida Transportation Builders' Assoc.
State Construction Engineer

ALUMINUM PIPE, INCLUDING UNDERDRAIN, PIPE ARCH AND STRUCTURAL PLATE PIPE AND PIPE ARCH.
(REV ~~6~~8-24-15)

SECTION 945 is deleted and the following substituted:

SECTION 945
ALUMINUM PIPE, INCLUDING UNDERDRAIN, PIPE ARCH AND STRUCTURAL PLATE PIPE AND PIPE ARCH

945-1 General Requirements.

Aluminum-alloy culvert pipe and underdrains shall meet the requirements of AASHTO M196 and 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, ~~notarized certification of~~ 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 ~~in the certification~~ the minimum and maximum inside diameters used to ~~certify~~ 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, ~~when aluminum pipe is allowed and the Plans do not specify gage~~if no future maintenance concerns exist, the ~~Engineer may approve~~Contractor may propose the pipe gage~~s~~ based on the Department's Drainage Manual and Culvert Service Life Estimator for approval by the Engineer.

NON SI UNITS		
TABLE I 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

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.

945-2 Aluminum Alloy Structural Plate Pipe, Pipe Arch and Arches.

945-2.1 General Requirements: Aluminum alloy structural plate pipe, pipe arch, and arches shall conform to AASHTO M219, with the exceptions and additions specified herein. The nominal thickness of the plate shall be as shown in the Plans.

945-2.2 Bolts and Nuts: In lieu of shaped bolts and nuts, standard type bolts and nuts, with special shaped washers, may be used. For aluminum bolts and nuts the material shall conform to the chemical requirements shown in Table I of ASTM B211, for Alloy 6061. Nuts shall be lubricated at the factory, with a suitable wax compound. The bolts may be sampled and tested before erection or may be accepted on the basis of the manufacturer's certification.

For steel bolts and nuts, the material shall meet the requirements of either ASTM A307 or ASTM A325, as appropriate, and shall be hot double-dipped galvanized. Aluminized steel bolts, or other equally suitable devices for connecting the plates, may be used if approved by the Engineer.

945-2.3 Certification of Tests: For all aluminum materials, test certifications as specified in 965-2, shall be furnished.

945-2.4 Direct Purchases by the Department: The provisions of 944-9 shall also apply to Departmental purchases of aluminum alloy structural plate pipe, pipe arches and arches.

945-2.5 Pipe Markings: In lieu of the coined markings required by AASHTO M196, Section 14, information may be ink stamped on the pipe at the time of manufacture. A QC label with the pipe fabricator's identity, the date of corrugating or forming into pipe, and the date of final QC inspection shall be applied to the inside walls of pipe using indelible ink. The pipe markings must be clearly legible upon arrival at the jobsite and at the time of installation. Pipe with illegible or incomplete markings may be rejected.

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