EXPECTED IMPLEMENTATION JANUARY 2015

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943 CORRUGATGED STEEL PIPE AND PIPE ARCH (INCLUDING UNDERDRAIN).

(REV 7-15-14) (FA 8-4-14) (1-15)

SECTION 943
CORRUGATED STEEL PIPE AND PIPE ARCH
(INCLUDING UNDERDRAIN)

943-1 General Requirements.

Corrugated steel pipe, including round culvert pipe, pipe arch and underdrain and coupling bands for each type shall conform to AASHTO M36. Except for underdrain, corrugated steel pipe including pipe arch shall be fabricated with helical corrugations with a minimum of two annular corrugations formed on 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 the actual mean inside diameter and lengths of pipe shipped to the project. Include in the certification the minimum and maximum inside diameters used to certify 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.

943-2 Round Culvert Pipe.

For round culvert pipe used as sidedrain, unless shown otherwise in the Plans, the minimum thickness of the metal (including galvanizing - AASHTO M218, or aluminum coating - AASHTO M274), shall be as specified below.

TABLE I
THICKNESS OF METAL FOR SIDEDRAIN PIPE

Nominal Diameter (Inches)	Metal Sheet Gauge No.	Mean Thickness Metal (Inches)
6	18	0.0516
8	16	0.0635
10	16	0.0635
12	16	0.0635
15	16	0.0635
18	16	0.0635
21	16	0.0635
24	16	0.0635

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TABLE I THICKNESS OF METAL FOR SIDEDRAIN PIPE		
Nominal Diameter (Inches)	Metal Sheet Gauge No.	Mean Thickness Metal (Inches)
30	14	0.0785
36	14	0.0785
42	12	0.1084
48	12	0.1084
54	12	0.1084
60	10	0.1382
66	10	0.1382
72	10	0.1382
78	8	0.1681
84	8	0.1681
90	8	0.1681
96 and over	8	0.1681

TABLE II PERMISSIBLE VARIATION IN THICKNESS OF METAL FOR PIPE AND CONNECTING BANDS		
Metal Sheet Gauge No	Mean Thickness of Metal (Inches)	Permissible Variation (Inches)
18	0.0516	0.007
16	0.0635	0.007
14	0.0785	0.008
12	0.1084	0.009
10	0.1382	0.009
8	0.1681	0.009

943-3 Pipe Arch.

For corrugated metal pipe arch, in addition to the requirements shown in AASHTO M36, thickness of the metal shall be as shown for the equivalent size round pipe in Tables I and II, above, and the fabrication of the pipe arch sections shall be such as to insure a substantially flat invert.

943-4 Alternate Connecting Bands.

In addition to the connecting bands as specified in AASHTO M36, alternate types of connecting bands are specified in 430-8.1.3, for use with the types of installations as shown.

943-5 Bituminous Coating and Paved Invert.

When bituminous coating is specified, the pipe, or pipe arch, shall be coated in accordance with the requirements of AASHTO M190, for Type A (Fully Bituminous Coated).

When bituminous coated and paved invert are specified the pipe or pipe arch shall be coated and paved in accordance with AASHTO M190, for Type C (Fully Bituminous Coated and

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Paved). The temperature of the asphalt at the time of coating and the duration of the pipe submerged time shall be optimized such that excess coating does not adhere to the pipe.

943-6 Paved Interior.

When bituminous coated and paved interior are called for, the coating and paving shall meet the requirements specified above for bituminous and paved invert (Type C), with the following additions and exceptions:

(a) The smooth pavement formed by the asphalt cement shall extend over the entire interior of the pipe.

(b) The exterior coating and the interior paving shall be applied.

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(c) No markings will be required on the outside of the pipe to designate the center line of the top of the pipe.

(d) Lifting lugs shall be attached to the pipe, and shall be suitably placed to facilitate moving the pipe without damage to the exterior or interior bituminous material.

943-7 Basis of Acceptance of Bituminous Coating and Paving.

The acceptance of the bituminous coating, paved invert, and paved interior will be based on the manufacturer's certified mill tests.

943-8 Underdrain Pipe.

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Corrugated metal pipe for underdrain shall conform to the requirements of AASHTO M36 except that Class IV pipe, as specified in Section 18.1.1.4 therein, shall not be used.

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