KANSAS DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION TO THE
STANDARD SPECIFICATIONS, 2015 EDITION

Delete SECTION 1904 and replace with the following:

SECTION 1904

CORRUGATED METAL PIPE AND END SECTIONS

1904.1 DESCRIPTION

This specification governs corrugated steel pipe and pipe-arches, corrugated aluminum alloy pipe and pipe-arches, and the associated end sections and accessory items for use in drainage systems and other applications.

1904.2 REQUIREMENTS

a. General. Provide circular pipe (Type I or IR), pipe-arches (Type II or IIR), end sections, and accessory items that comply with the design, dimensions, alloy designation and thermal treatment, requirement for supplemental corrosion protection, and specific fabrication requirements as specified or in the Contract Documents. The components of pipe systems are to comply with **subsection 1904.2b**. The selected specification(s) is (are) denoted in the Contract Documents.

b. Material Specifications.

1) Comply all corrugated steel (galvanized and aluminized) pipe, pipe-arches, and accessory items with AASHTO M 36. Comply all steel sheet utilized to fabricate the pipe and pipe-arches with AASHTO M 218 when zinc coated, or AASHTO M 274 when aluminum alloy coated. The type of pipe, and type and class of coating will be specified in the Contract Documents. Provide only helical corrugations with continuous (lock or welded) seams, annular corrugations with riveted (no spot welding) lap joints, or outward projecting helical ribs with continuous lock seams. Do not interconnect components with differing coating types within a piping system.

(2) Comply all corrugated aluminum alloy pipe, pipe-arches, and accessory items with AASHTO M 196. The type of pipe will be specified in the Contract Documents. Provide only helical corrugations with continuous lock seams, annular corrugations with riveted lap joints, or outwardly projecting helical ribs with continuous lock seams. Do not interconnect metal aluminum alloy pipe with metal steel pipe or accessory items except as permitted through M 196.

(3) Comply all polymer coated corrugated steel pipe (polymer over galvanized) pipe, pipe-arches, and accessory items with AASHTO M 245. Comply all zinc-coated steel sheet utilized to fabricate the pipe and pipe-arches with AASHTO M 218 and M 246. The type of pipe will be specified in the Contract Documents. Unless stated otherwise in the contact documents, provide a minimum polymer coating thickness corresponding to Grade 10/10. Provide only helical corrugations with continuous lock seams, annular corrugations with riveted lap joints, or outwardly projecting helical ribs with continuous lock seams. Do no interconnect with aluminum alloy or aluminum alloy coated pipe.

(4) Repairs to the high frequency resistance welded (HFRW) seam in steel continuous welded helical corrugated metal pipe (CMP) are to be adherent to the following guidelines:

(a) For pipes with a nominal diameter of 24 inches or greater, the maximum allowable total length of manual weld repair for the helical weld seam in a section of steel CMP is ½-inch of weld per 1-inch of nominal pipe diameter per 20 feet (or fraction thereof) of pipe section length.

(b) For pipes with a nominal diameter of less than 24 inches, the maximum allowable total length of the manual weld repair referenced in (a) is 12 inches.

(c) For pipes with a nominal diameter of 24 inches or greater, the maximum allowable length of a single weld repair for the helical weld seam in a section of steel CMP is 1/4 -inch of weld per 1-inch of nominal pipe diameter, not to exceed 18 inches.

(d) For pipes with a nominal diameter of less than 24 inches, the maximum allowable length of the single weld repair referenced in (c) is 6 inches.

(e) Do not space repair welds closer than 1 helix length of welded seam. One helix length is the distance traversed by a point on the weld seam during 1 revolution of the pipe.
(f) Repair welds are not permitted within the re-roll areas at the ends of a steel CMP section.
(g) No visible discontinuities, e.g., hot or cold cracks, porosity, entrapped slag, voids, etc., are permitted within the total weld length, repair and coil splice welds included, of the finished section of steel CMP.
(h) The preferred weld repair method is, but not restricted to, gas metal arc welding (GMAW). Any method that utilizes a ferrous based filler metal compatible with the parent coil steel and provides an acceptable repair weld is adequate. Weld repair without the use of filler metal, such as by Gas Tungsten Arc Welding (GTAW), is also acceptable when practical.
(i) Minimize the number of plant coil splices within a section of steel CMP. This is subject to the judgment of the KDOT inspector and based on the steel CMP section size. In no instance is the number of coil splices to exceed 3 per steel CMP section.

(5) Reform ends of pipe with helical corrugations or ribs to form annular corrugations designed to engage matching corrugations on coupling bands. Other methods of coupling will be permitted only at end sections.

(6) Produce end sections from the same metal and provide with the same coating as the pipe to which they are to be attached. Comply with the design and dimension requirements as stated in **subsection 1904.2a**. However, the thermal treatment, denoted by the temper designation for aluminum alloys, must not reduce the ductility of the metal to the degree that forming tears or cracks occur during production of the end section. A section of CMP that is an integral component of the end section is subject to **subsection 1904.2b**.

1904.3 TEST METHODS

Conduct all tests required by the applicable AASHTO, ASTM or other specification of **subsection 1904.2b** according to the procedures specified in that standard.

1904.4 PREQUALIFICATION

Not applicable.

1904.5 BASIS OF ACCEPTANCE

a. Receipt and approval of a Type A certification as specified in **DIVISION 2600** for all corrugated metal pipe (CMP) and the associated end sections and accessory items provided through this specification.

b. Inspection, and testing when applicable, by field personnel of CMP, end sections and accessory items for compliance with corrosion protection coating thickness requirements as well as mechanical, welded or riveted seam quality, and dimensional requirements. Abrasion of polymer coating at lock seams is cause for rejection.

c. The final disposition of CMP and end sections and accessory items will be completed at the final destination as the result of inspection for the quality of workmanship, the delivery condition, and receipt and approval of the associated required documentation. Corrugated metal pipe and end sections and accessory items may also require inspection during the production process at the fabrication facility.