

CONSTRUCTION SPECIFICATION

MI-156. CORRUGATED METAL PIPE CONDUIT INSTALLATION

1. SCOPE

The work shall consist of furnishing and placing circular, arched, or elliptical corrugated metal pipe and the necessary fittings as shown on the plans.

2. MATERIALS

Zinc-coated, aluminum coated, or aluminum-zinc alloy coated iron or steel corrugated pipe and fittings shall conform to the requirements of ASTM Specification A760 or A761 for the specified type of pipe, and to the following additional requirements:

- a. The sheet thickness, and the corrugation type and nominal size shall be as shown on the drawings.
- b. Unless otherwise specified, circumferential shop riveted seams shall have a maximum rivet spacing of 6 inches, except that 6 rivets will be sufficient for 12-inch diameter pipe.
- c. When close riveted pipe is specified: (1) the pipe shall be fabricated so that the rivet spacing in the circumferential seams shall not exceed 3 inches, except that 12 rivets will be sufficient to secure the circumferential seams in 12-inch pipe, and (2) in those portions of the longitudinal seams that will be covered by the coupling bands, the rivets shall have finished flat heads or the rivets and holes shall be omitted and the seams shall be connected by welding to provide a minimum of obstruction to the seating off the coupling bands.
- d. Double riveting or double spot welding of pipe less than 42 inches in diameter may be required. If specified, the riveting or welding shall be done in the manner specified for pipe 42 inches or greater in diameter.
- e. When specified, caulked seam corrugated metal pipe shall conform to the following additional requirements:
 - (1) Caulked seam corrugated metal pipe shall have all circumferential and horizontal seams caulked with an asphalt compound before riveting. This shall be accomplished by applying a uniform bead (1/4 inch minimum diameter) of the asphalt compound to the inner lap surface before riveting, such that when the rivets are in place, all voids are filled and a coating of asphalt is between the lap surfaces.
 - (2) The asphalt compound shall consist of an asphalt base combined with asbestos fiber and other inert filler material to form a heavy-bodied compound that will not sag or run out of the seam. The compound shall contain 63 to 68 percent solids by weight. It shall be similar in type and equal in quality to Trumbull 5W Asphalt Mastic, knife grade, as manufactured by the Trumbull Asphalt Company of Delaware.

3. HANDLING THE PIPE

The contractor shall furnish such equipment as is necessary to place the pipe without damaging the pipe or coating. The pipe shall be transported and handled in such a manner as to prevent bruising, scaling or breaking of the spelter coating or bituminous coating.

4. REPAIR OF DAMAGED COATINGS

Breaks or scuffs on bituminous coatings that are less than 36 square inches in area shall be repaired by the application of two coats of hot asphaltic paint or a coating of cold-applied bituminous mastic. The repair coating shall be at least 0.05 inches after hardening and shall bond securely and permanently to the pipe. The material shall meet the physical requirements for the original coating. Whenever individual breaks exceed 36 square inches in area or when the total area of breaks exceeds 0.5 percent of the total surface area of the pipe, the pipe will be rejected.

5. LAYING AND BEDDING THE PIPE

Unless otherwise specified, the pipe shall be installed in accordance with the manufacturer's recommendations. The pipe shall be laid with the outside laps of circumferential joints pointing upstream and with longitudinal laps at the sides at about the vertical midheight of the pipe. Field welding of corrugated galvanized iron or steel pipe will not be permitted. Unless otherwise specified, the pipe sections shall be joined with water-tight coupling bands, with a minimum width of 12 inches, or flanges for a flange-type connection. The area between pipe and coupling band shall be coated with either an asphalt cement to insure a water-tight joint or a rubber neoprene gasket 3/8 inch thick and as wide as the connecting band \pm 1 inch .

The trench or foundation width in or on which the pipe will be laid should be at least: 2 times the pipe diameter, or the pipe diameter plus 2 feet, whichever is the greater.

Pipe should be laid on a moist, compacted foundation (not wet nor hard and dry). Just before the pipe is laid, spread a 2 to 3 inch layer of moist loose soil for the pipe to be placed on. The pipe should make uniform contact with the soil along its entire length.

Perforated pipe shall be laid with perforations down and oriented symmetrically about a vertical centerline. Perforations shall be clear of any obstructions at the time the pipe is laid.

6. BACKFILLING

The pipe shall be loaded sufficiently during backfilling around the side to prevent its being lifted from the bedding.

Backfill around the pipe shall be placed in layers not more than 4 inches thick before compaction. Each layer of backfill shall be compacted with power tampers or hand tamping to the same density requirements as specified for the adjacent embankment. Backfill over and around the pipe shall be brought up uniformly on all sides and shall extend a minimum of 2 feet over the pipe before earthfill placed with earth moving equipment over the pipe is started. Special care shall be taken not to disturb the grade and alignment during backfill operations.