MICHIGAN

DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

FOR

**WATER MAIN MATERIALS AND CONSTRUCTION**

UTL:CJD 1 of 3 APPR:NJM:KSH:09-02-21

**a. Description.** This work consists of installing the following materials as part of the Meridian Township water system. Unless otherwise noted below, ensure all work, materials, construction requirements, and methods of measurement and payment are in accordance with the standard specifications.

**b. Submittals**. Submit PDF product data consisting of shop drawings and manufacturer’s literature to the Engineer and Meridian Township for approval at least 10 working days prior to construction.

1. The Contractor must submit a general work plan outlining the procedure and schedule to be used for installation of the water main.

2. The Contractor must be approved by Meridian Township to complete the water main work. The Contractor must also provide documentation of training and relevant experience of personnel that will be performing the work.

**c. Materials.** Furnish the listed materials below in accordance with current *AWWA* standards and the standard specifications. The specific items listed conform to the Meridian Township water system requirements and no substitutions are permitted. All pipes, piping fittings, plumbing fittings, and fixtures that are used for potable water must comply with lead-free requirements of the Federal Safe Drinking Water Act and must bear the mark *NSF/ANSI Standard 61, Annex G*.

1. Pipe and Fittings. Furnish Class 52 DI pipe meeting *ANSI/AWWA C151/A21.51*. Furnish DI mechanical joint or push-on type fittings as follows: DI fittings must meet *ANSI/AWWA C153/A21.53* or *ANSI/AWWA C111/A21.11* and be class 350. Ensure fittings are cement-lined in accordance with *ANSI/AWWA C104/A21.4*. Rubber gasket joints must meet *ANSI/AWWA C111/A21.11*. Furnish two brass wedges at each joint for electrical conductivity.

2. Restrained Joints. Furnish restrained mechanical joints from EBAA Iron, Inc. Megalug 1100 Series, Ford Meter Box Uni-Flange Series 1400, or Engineer-approved equal. Ensure all bolts for mechanical joints are in accordance with *ANSI/AWWA C111/A21.11*. Ensure gland body, wedges, and wedge-actuating components are cast from grade 65-45-12 DI material in accordance with *ASTM A536*. Ensure DI gripping wedges are heat treated within a range of 370 to 470 Brinell Hardness Number (BHN).

Ensure restraint devices are listed by *UL* (3-inch through 24-inch size) and approved by Factory Mutual (3-inch through 12-inch size). Ensure all wedge assemblies and related parts are processed as follows: a phosphate wash, rinse, and drying operation prior to coating application with a minimum of two coats of liquid thermoset epoxy coating with heat cure after each coat. Ensure all casting bodies are processed as follows: pretreat surfaces with a phosphate wash, rinse, and sealer before drying. Provide an electrostatically-applied and heat-cured polyester-based powder coating to ensure corrosion, impact, and UV resistance. Shop coating is not allowed.

3. Polyethylene Encasement. Polyethylene encasement of pipes is required in all areas. Furnish V-Bio Enhanced Polyethylene Encasement, installed per the manufacturer’s instructions.

4. Gate Valves. Furnish East Jordan Iron Works (EJ) FlowMaster resilient wedge gate valve. Ensure valves meet *AWWA C509* and are resilient wedge with DI body. Ensure surfaces are epoxy coated per *AWWA C550* inside and outside. Valves must have a bronze non-rising stem (NRS) with two-inch square nut and open left (counterclockwise). Furnish gate valve joints with mechanical joints in accordance with *ANSI/AWWA C110/A21.10*, *ANSI/AWWA C111/A21.11,* or *ANSI/AWWA C153/A21.53*.

5. Valve Boxes. Ensure valve boxes comply with *AWWA M44* for cast-iron valve boxes. Include a slide or screw-type top section, an adjustable extension length as required for depth of burial of the valve, and a plug with lettering “WATER.” Provide a bottom section with a base of adequate size to fit over the valve and an approximately five-inch diameter barrel. Furnish boxes manufactured by EJ 8550, Tyler Union 6860 series (manufactured in the United States), or Engineer-approved equal.

6. Hydrants. Furnish 5¼-inch, EJ Model 5BR250, traffic-model fire hydrant in accordance with *AWWA C502* and *UL 246*, painted OSHA red*,* meeting Meridian Township Standards. Hydrant head must have one 5-inch pumper nozzle, with Harrington integral Storz thread, two 2½-inch hose nozzles, *National Standard Thread (NST)*, and be able to face in any of eight positions without digging up the hydrant. Furnish a 1½-inch pentagon-operating nut, opening left (counterclockwise), nozzle caps attached with non-linking chains and mechanical joint (MJ) inlet as detailed on the plans. Ensure hydrant drains are plugged.

7. Water Services. Replace water services in the existing size, but no less than one inch. Use Type K, annealed, seamless copper tubing conforming to *ASTM B88*. Ensure corporation, curb stops, and unions, are Mueller 110, Ford Meter Box compression-style, or Engineer-approved equal. Corporation stops must be *AWWA* threaded inlet. For 1½-inch and 2-inch corporation stops, use double-strap service clamps for connection to the main. Provide Minneapolis pattern, telescoping, 4½-foot depth, cast iron curb boxes.

**d. Construction.** Ensure construction is in accordance with the current *AWWA* standards, the standard specifications, and as detailed on the plans. Construct water main with a minimum of five feet of cover.

Provide as-built plans in accordance with the Standard Specifications for Construction and with the additional requirement to record the GPS location of all main and service appurtenances for the as-built records. Ensure that the inspector for Meridian Township is allowed to witness and record the GPS as-built data as it becomes available.

Pressure test the new main in accordance with *AWWA C600* after installation of all corporation stops. Conduct bacteriological testing in accordance with *AWWA C651*.

**e. Measurement and Payment.** The completed work, as described, will be measured and paid for at the contract unit price in accordance with subsection 823.04 of the Standard Specifications for Construction.