MICHIGAN

DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

FOR

**POLYVINYL CHLORIDE WATER MAIN MATERIALS AND CONSTRUCTION**

UTL:ABW 1 of 3 APPR:RPB:DMG:07-07-23

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

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

Submit a general work plan outlining the procedure and schedule to be used for installation of the water main and associated appurtenances.

**c. Materials.** Furnish the materials listed below in accordance with the standard specifications. The specific items listed conform to City of Gaylord water system requirements and no substitutions are permitted.

1. Pipe. Furnish PVC pipe manufactured in accordance with *ANSI/AWWA C900*, of the sizes shown on the plans, with a pressure rating of 150 psi or higher and a Dimension Ratio (DR) of 18 or less. Furnish a manufacturer’s certification that all delivered PVC pipe is in accordance with the requirements of *ANSI/AWWA Standard C900*. Ensure that all PVC pipe meets EGLE *Suggested Practice for Water Works Design, Construction and Operation for Type I Public Water Supplies.*

Ensure that the PVC pipe is marked in accordance with *AWWA Standard C900* with the following information:

Nominal Size and Outside Diameter base

Standard Material Code Designation

Standard Dimension Ratio

*AWWA* Pressure Class

*AWWA* Standard Designation Number (*AWWA C900*)

Manufacturer's identification

NSF International Standard 61 and 14 approvals

“NSF International-potable water” designation

Ensure joints are integral wall-thickened bell and spigot with elastomeric-gasket in accordance with *ASTM D3139*. Ensure fitting body material is DI in accordance with *ASTM A536* with an exterior bituminous coating. Ensure fittings are cement lined and seal coated in accordance with *ANSI/AWWA C104/A21.4*.

2. Gate Valves. Furnish EJ FlowMaster resilient wedge gate valves in accordance with *AWWA C515.* Ensure surfaces are epoxy coated in accordance with *AWWA C550* inside and outside. Valves must have a bronze non-rising stem (NRS) with operating nut, fully encapsulated ductile iron wedge in accordance with *ASTM D429*, and stainless-steel bonnet bolts. Gate valves must have a clear waterway equivalent in area, when fully open equal to that of the connecting pipe. Ensure valves are made to open when turned to the left, or 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*.

3. Restrained Joints. Furnish restrained mechanical joints in accordance with EBAA Iron Megalug 1100 Series, Ford Meter Box Company Uni-Flange 1400 Series Retainer or Engineer approved equal. Ensure all bolts for mechanical joints are made of high-strength low-alloy weathering steel in accordance with *ASTM A242/A242M*.

4. Valve Boxes. Furnish cast iron, screw type, three piece EJ product number 6880. Valve box assembly must include EJ Classic Series 8555 self-level valve box riser unless otherwise approved by the Engineer. Ensure valve boxes are in accordance with *ASTM A48/A48M* for cast-iron valve boxes. Include a top section, an adjustable extension length as required for depth of burial of the valve, and a plug with lettering “WATER”. Also, furnish a bottom section with a base of adequate size to fit over the valve and an approximately 5¼ inch diameter barrel.

5. Fire Hydrants. Furnish EJ Model 5BR250 dry barrel hydrants in accordance with *AWWA C502* with two 4-inch pumper connections and stems opening counterclockwise.

6. Corporation Stops. Furnish Mueller series H-15000, Ford F600, A. Y. McDonald 4701, Mueller P15008, Ford F100, A. Y. McDonald 74701-22 or Engineer approved equal in accordance with *AWWA C800* for 1 and 2 inch corporation stops.

7. Curb Stops. Furnish Mueller Oriseal® curb valves series H-25204, Ford B22, A. Y. McDonald 76100, Mueller P-25209, Ford B44, A. Y. McDonald 6100-22 or approved equal in accordance with *AWWA C800*. Ensure curb stops are of the quarter turn positive shut-off type.

8. Curb Boxes. Furnish Mueller H-10385 for 1 inch curb valves and Mueller H-10386 for 1½ inch and 2 inch curb valves similar items by A. Y. McDonald or Engineer approved equal. Ensure curb boxes have a minimum of 1¼ inch riser diameter and be equipped with a stationary rod. Ensure curb boxes are adjustable height, all cast iron construction and coated inside and out with tar-based enamel. Furnish a cast iron lid, stamped “WATER” with finger holes, or plug in center with rod. Ensure boxes are in accordance with *AWWA C800*.

9. Tapping Saddles. Furnish brass tapping saddles in accordance with *ASTM B62* with optional stainless-steel double straps for all PVC water main and service connections to DI water main larger than 1 inch. Ensure saddles are manufactured by Mueller BR2S, A.Y. McDonald or Engineer approved equal in accordance with *AWWA C800*.

10. Tracer Wire and Boxes. Furnish insulated 10 gauge solid copper tracer wire and tracer wire box with cast iron cover in accordance with *ASTM A48/A48M* *Class No. 25* or higher. Use properly sized splices with waterproof connectors rated for underground service. Make connections at every hydrant or approximately every 400 feet.

**d. Construction.** Ensure construction is in accordance with the standard specifications, as shown on the plans and as specified herein. Construct water main with a minimum of 6 feet of cover. Install thrust restraint as shown on the plans. Perform chlorination and hydrostatic testing in accordance with *AWWA C600* and *AWWA C605* for PVC pipe, respectively.

Install water main on chocks in the steel casing at the location shown on the plans. Bulkhead the ends of the casing in accordance with subsection 402.03.E of the Standard Specifications for Construction. Grout the annular space between the casing and carrier pipe in accordance with subsection 401.03.G of the Standard Specifications for Construction.

Relocate hydrants in accordance with section 823 of the Standard Specifications for Construction. Remove the hydrant and install at the temporary location shown on the plans or as directed by the Engineer. Reinstall the hydrant to the original location upon completion of the road construction or as directed by the Engineer.

**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 except as follows:

**Pay Item Pay Unit**

Water Main, PVC, \_\_ inch, Tr Det \_\_ Foot

Water Main, PVC, \_\_ inch Foot

Hydrant, Relocate, Case\_\_, Spec Each

1. **Water Main, PVC, \_\_ inch, Tr Det \_\_** and **Water Main, PVC, \_\_ inch** is to be measured in place along the centerline of the pipe. The price includes payment in full for installing the water main within steel casing pipe including bulkheading the casing ends and grouting the annular space.

Steel casing will be paid for separately.

2. **Hydrant, Relocate, Case\_\_, Spec** is measured as each andincludes the cost ofthe temporary and final relocations.