

**SECTION 401**

**WATER PIPE AND FITTINGS**

**PART 2 MATERIALS**

2.2 POLYVINYL CHLORIDE (PVC) PIPE AND FITTINGS

- A. PVC Pressure Pipe sizes 4 inch through 12 inch: ANSI/AWWA C 900
  - 1. DR18
- B. PVC Pressure Pipe sizes 14 inch through 36 inch: ANSI/AWWA C 905
  - 1. DR25

2.10 LOCATING WIRE

- A. All locating wire and products shall be manufactured in the U.S.A. All locating wire shall have HDPE insulation intended for direct bury and color coated per APWA standard for the specific utility being marked.
  - 2. Open Trench - Locating wire shall be #12 AWG Copper Clad Steel, High Strength with minimum 300 lb. break load, with minimum 30 mil HDPE insulation thickness.
  - 2. Directional Drilling/Boring - Locating wire shall be #12 AWG Copper Clad Steel, Extra High Strength with minimum 1,150 lb. break load, with minimum 30 mil HDPE insulation thickness.
  - 3. Pipe Bursting/Slip Lining - Locating wire shall be 7 x 7 Stranded Copper Clad Steel, Extreme Strength with 4,700 lb. break load, with minimum 50 ml HDPE insulation thickness.
  - 4. Grounding wire – Grounding wire shall be #12 AWG Copper Clad Steel with red 30 mil HDPE insulation thickness.
- B. Connectors
  - 1. Direct bury wire connectors – shall include 3-way lockable connectors and mainline to lateral lug connectors specifically manufactured for use in underground locating wire installation. Connectors shall be dielectric silicon filled to seal out moisture and corrosion, and shall be installed in a manner so as to prevent any uninsulated wire exposure.

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2. All mainline locating wires must be interconnected in intersections, at mainline tees and mainline crosses. At tees, the three wires shall be joined using a single 3-way lockable connector. At Crosses, the four wires shall be joined using a 4-way connector. Use of two 3-way connectors with a short jumper wire between them is an acceptable alternative
3. Non locking friction fit, twist on, or taped connectors are only allowed for existing wire installations or areas where lockable connectors will not work.

#### 2.13 LOCATION TAPE

- A. 3 inch wide detectible blue tape marked appropriately for potable water.

### **PART 3 WORKMANSHIP**

#### 3.2 PIPE INSTALLATION

- J. Prepare pipe joint using specified gasket and manufacturer's recommended lubricant. Lubricant must be NSF approved.
- R. For hot taps, tapping saddle shall be air tested to maintain 100 psi for 5 minutes.
- S. Water pipe shall have 6 inches of pipe bedding (Type III) below the pipe and 6 inches above the pipe.
- T. When pipe joint deflection is used, contractor shall verify deflection angles with the City Inspector during or on completion of construction.

#### 3.6 PRESSURE TESTING

- A. Perform testing in the presence of the City Engineer or the City's authorized Resident Project Representative.

#### 3.7 LOCATING WIRE

- A. Locating wire shall be installed on the top of the pipe and secured at 10' intervals using materials and methods approved by the City Inspector.
- B. Locating wire systems must be installed as a single continuous wire, except where using approved connectors.

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- C. Any damage occurring during installation of the locating wire must be immediately repaired by removing the damaged wire and installing a new section of wire with approved connectors. Taping and/or spray coating shall not be allowed.
- D. All service lateral finder wire shall be connected to the main line finder wire using a main line to lateral lug connector, installed without cutting / splicing the main line finder wire.
- E. Mainline locating wire shall not be connected to existing conductive pipes.
- F. Connect to existing locating wire using approved splice connectors and properly ground at the splice location unless exceptions, as noted in section 2.10 B.
- G. At all accessible terminations, uncoiled length of finder wire and grounding wire shall extend at least 2 feet above finished grade.
- H. All new trace wire installations shall be located using typical low frequency (512Hz) line tracing equipment, witnessed by the City Inspector, City Engineer/Project Manager, or facility owner, as applicable, prior to acceptance of ownership. This verification shall be performed after final grading and prior to paving. Continuity testing in lieu of actual line tracing shall not be accepted.

### 3.8 PIPE MARKERS

- A. Install service line markers per City of Meridian Standard Drawing SW3.
- C. Where a concrete sidewalk is constructed across the service line from main to meter can, sidewalk shall be marked with a stamped 4 inch high "W" at the location of the meter lid.

### 3.9 FLUSHING AND DISINFECTION

- B. Disinfection of Water Pipes.
  - 3. Methods of chlorination used are to be pre-approved by the City Engineer.

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- a. Tablet or Granule Method.
  - 5) Placement When Using Tablets: During construction, place 5g calcium hypochlorite tablets in each section of pipe and also place one tablet in each hydrant, hydrant branch and other appurtenance. Attach tablets to the inside of the pipe using an approved adhesive. The City of Meridian does not allow Permatex No. 2 as an adhesive for chlorine tablets. Assure no adhesive is on the tablet except on the broad side attached to the surface of the pipe. Attach all the tablets at the inside tip of the main, with approximately equal numbers of tablets at each end of a given pipe length. If the tablets are attached before the pipe section is placed in the trench, mark their position on the section so it can be readily determined that the pipe is installed with the tablets at the top.
  - 7) Filling Procedure: When granule or tablet installation has been completed, fill the main with clean water at a velocity not exceeding 1 fps. Take precautions to assure that air pockets are eliminated. Leave this water in the pipe for at least 24 hours. If the water temperature is less than 41°F, leave the water in the pipe for at least 48 hours. Position valve so that the chlorine solution in the main being treated will not flow into water mains in active service. Check for presence of at least 10 mg/l chlorine residual at each sampling point after the 24-hour period and document.
- d. Swabbing
  - 1) Swabbing may be used for disinfection; however, methods, materials, and equipment must be preapproved and witnessed by the City's authorized Resident Project Representative.

C. Final Flushing.

- 3. Heavily chlorinated water (above normal system residuals) shall be flushed through a dechlorinator such as a Romac Dechlorinator (378-032) or other commercial device capable of dechlorinating the disinfection water concentration and flow encountered.

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3.12 WATER MAIN HOT TAPPING REQUIREMENTS FOR CONTRACTORS

- A. Hot taps shall be performed only by contractors approved by the City of Meridian Public Works Department Inspection Services. They must also possess a valid Public Works Contractor's License for utility installation.
- B. Hot taps will only be performed according to the Transmate TapMate Pipe Drilling Machine manual. The manual will be on-site during hot taps.
- C. The contractor shall furnish all tools and materials required for a complete installation including testing.
- D. The tapping saddle shall be air tested by holding 100 psi for 5 minutes in the presence of the City Engineer or the City's authorized Resident Project Representative.

3.13 LOCATION TAPE

- A. Place location tape 18"-24" above pipe.

●● END OF SECTION ●●

**SECTION 402**

**HYDRAULIC VALVES**

**PART 1 GENERAL**

1.4 SUBMITTALS

- D. Submit no-lead brass certification for all components in contact with potable water to comply with the Safe Drinking Water Act.

**PART 2 MATERIALS**

2.2 RESILIENT SEATED GATE VALVES

- A. Resilient Seated Gate Valves for Water Supply Service: ANSI/AWWA C 509/C 515.
7. Resilient seated gate valves shall be manufactured by Waterous, Clow, Mueller, or approved equal.
8. Nuts and bolts shall be stainless steel.
9. Fire hydrants supplied shall have a Storz connection, at the 4 ½” outlets. The Storz connection may be either integrated into the hydrant or an approved adapter may be used on the 4 ½” outlets.

2.5 BLOW-OFF ASSEMBLY

- A. Refer to City of Meridian Standard Drawings W12 and W13.

2.7 VALVE BOXES

- A. See City of Meridian Standard Drawing W11.
- D. Cover: Cast iron stamped “Water”. All gate valves shall be fitted with a standard adjustable valve box and lid as manufactured by Tyler, No. 6855, or approved equal.
- E. Detail: City of Meridian Standard Drawing W11.
- F. If top of valve nut is more than 5 feet below ground surface, then valve nut extensions shall be provided in order to meet the 5 foot standard.

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**PART 3      WORKMANSHIP**

3.2      INSTALLATION

- B.      Install valves plumb and vertical. Set valve box centered and plumb over wrench nut and flush with ground or street surface. Install box per City of Meridian Standard Drawing W11.
  
- G.      When valve boxes are located in undeveloped land, they shall be marked with a blue fiberglass utility marker projecting at least 48 inches out of the ground with approved City water identification graphic.

●● END OF SECTION ●●

**SECTION 403**

**HYDRANTS**

**PART 2 MATERIALS**

2.2 FIRE HYDRANT

A. Dry Barrel Fire Hydrants: ANSI/AWWA C 502.

2. Nozzle Configuration

- a. One 4-1/2 inch diameter National Standard Thread pumper nozzle.
- b. Two 2-1/2 inch diameter National Standard Thread fire hose nozzles.
- c. The valve operator shall open left (counterclockwise) and be so indicated on the top casting.
- d. Manufacturer shall be Waterous, Mueller, Clow, or approved equal.

8. Distance from top of hydrant shoe flange to bottom of hydrant flange shall not exceed 6 feet.

9. Fire hydrants supplied shall have a Storz connection, at the 4 1/2" outlets. The Storz connection may be either integrated into the hydrant or an approved adapter may be used on the 4 1/2" outlets.

2.3 COLOR

A. Hydrants shall be furnished with two layers of factory-applied red polyurethane epoxy, Alkyd, or epoxy base coat. Acrylic top coat shall be Rustoleum Professional High Performance Protective Enamel K 7764 Safety Red or approved equal.

2.5 PIPE AND FITTINGS

A. Conform to Section 401 – Water Pipe and Fittings, with end connections per City of Meridian Standard Drawing W8 – Fire Hydrant Detail.

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**PART 3      WORKMANSHIP**

3.2      INSTALLATION

- B.      Set hydrants to the established grade with center of nozzles at least 18 inches above the ground level. See City of Meridian Standard Drawing W8.
  
- G.      See also City of Meridian Standard Drawings W9 and W10.

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**SECTION 404**

**WATER SERVICE LINE AND METERS**

**PART 2 MATERIALS**

2.2 SERVICE PIPE

- A. Polyethylene (PE) Pressure Pipe for Water Service: ANSI/AWWA C 901
  - 2. Inside dimension Ratio: SIDR 7
  - 3. Delete
  - 4. Standard PE Code Designation: PE 4710 per ASTM D 2239
- B. Seamless Copper Water Tube not allowed in City of Meridian.
  - 1. Delete
  - 2. Delete

2.3 WATER METER

- A. Cold Water Meters
  - 1. Product: In accordance with the Contract Documents.
  - 2. See City of Meridian Standard Drawings W1 through W5

2.4 APPURTENANCES

- A. Service Saddles.
  - 1. In accordance with City of Meridian Standard Drawing W1 & W4.
  - 2. In accordance with City of Meridian Standard Drawing W1 & W4
- B. Corporation Stops.
  - 1. In accordance with City of Meridian Standard Drawing W1& W4.
  - 2. Delete
  - 3. Delete
- C. Couplings:
  - 1. No splices are allowed on service lines. Service lines may be fused.

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D. Meter Setters.

1. See Standard Drawings W1 & W4.
2. Delete
3. Delete
4. Delete
5. Delete

E. 2. 316 stainless steel fitting with iron pipe threads are allowed.

F. Locating Wire

1. According to Section 401 and Standard Drawings W1-W4.

G. Meter Box (Vault).

1. For  $\frac{3}{4}$  inch (single and dual) and 1 inch single services:
  - a. See Standard Drawing W1.
  - b. Delete
2. For 1-1/2 inch to 2 inch service:
  - a. See Standard Drawing W4

H. Meter Box Cover.

1. See Standard Drawings W1 & W4
2. Delete
3. Delete
4. Delete

2.5 HEALTH REQUIREMENTS

- B. Submit no-lead brass certification for all components in contact with potable water. Comply with the Safe Drinking Water Act.

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**PART 3      WORKMANSHIP**

3.1      EXAMINATIONS

- C.      Maintain at least 36 inches of cover from the corporation stop to the curb stop.

3.2      INSTALLATION

- C.      Install pipe, fittings, and meter boxes in accordance with the manufacturer's recommendations and City of Meridian Standard Drawings W1 through W9.
  
- M.      Where a concrete sidewalk is constructed across the service line, the service line locations shall be marked with a stamped 4 inch high "W".

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