

## SECTION 33 12 12

### WATER SERVICES

#### PART 1 GENERAL

##### 1.01 SUMMARY

A. Section Includes:

1. Construction of water service pipe, corporation stops, curb stops and boxes, and all appurtenances.

B. Related Sections:

1. Section 33 05 05 – Trenching and Backfilling
2. Section 33 10 00 – Water Utilities

##### 1.02 REFERENCES

A. American Society of Testing Materials (ASTM):

1. B88 – Class K Copper Water Service Pipe.
2. A674 – Standard Practice for Polyethylene Encasement for Ductile Iron Pipe for Water or Other Liquids.
3. D3035 – Standard Specification for Polyethylene (PE) Plastics Pipe (DR-Pr) Based on Controlled Outside Diameter.
4. F1290 – Standard Practice for Electrofusion Joining Polyolefin Pipe and Fittings.

B. American Water Works Association (AWWA):

1. C105 – American National Standard for Polyethylene Encasement for Ductile Iron Pipe Systems.
2. C900 – AWWA Standard for Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 Inches through 12 inches, for Water Distribution.
3. C901 – AWWA Standard for Polyethylene (PE) Pressure Pipe and Tubing, 1/2 Inch through 3 inches, for Water Service.

##### 1.03 SUBMITTALS

A. Submit the following items consistent with Section 01 33 00

1. Pipe and fittings.
2. Corporation stop and curb boxes.
3. Service saddles.

##### 1.04 SEQUENCING AND SCHEDULING

- A. Install sanitary sewer, water main, and all pipe deeper than the services prior to the installation of the services.

- B. Perform testing of new water main prior to reconnecting existing services.

## **PART 2 PRODUCTS**

### **2.01 SERVICE PIPE**

- A. Copper Water Tube: 3/4 inch through 2 inches for buried service shall be seamless, Type K water tube conforming to ASTM B88.
  - 1. Fittings shall be designed for working pressures up to 150 psi. Fittings used in service lines shall be designed for connection to the service line by threads, brazing, compression, and/or flaring.
  
- B. Cross-linked Polyethylene (PEX):
  - 1. Manufactured using high-pressure peroxide method of cross-linking.
  - 2. Manufactured to SDR9 copper tube sizes (CTS) according to ASTM F876, AWWA 904, and CSA B137.5.
  - 3. Certified to AWWA C904 Cross-linked Polyethylene (PEX) Pressure Pipe for Water Service.
  - 4. Certified to CSA B137.5 Cross-linked Polyethylene (PEX) tubing for Pressure Applications.
  - 5. Certified to NSF/ANSI Standards 14 and 61 (NSF-pw-g) for potable water applications.
  - 6. Certified to PPI TR-3 Category 3306 for long-term hydrostatic strength, chlorine and UV resistance.
  - 7. Co-extruded UV Shield made from UV-resistant high-density polyethylene, color Blue.
  - 8. Minimum recommended UV exposure time of one (1) year when tested in accordance with ASTM F2657.
  - 9. Pressure-rated for continuous use at 200 psi @ 73.4 °F based on a 0.63 design factor.
  - 10. Minimum markings: PEXa 3306, CSA B137.5, ASTM F876, F2023 and F2080, NSF-pw.

### **2.02 JOINTS**

- A. Compression fittings shall be used for all water services 2 inches in diameter or smaller (copper and PEX).
  - 1. Manufacturers: Compression fittings shall be Mueller 110 Compression, Ford Quick Joint, A.Y. McDonald McQuik, or approved equal.
  
- B. Underground fittings and insert-stiffeners used with PEX pipe must comply with the material and performance requirements of ANSI/AWWA C800 and must be recommended for use by the fitting manufacturer for CTS SDR9 PEX pipe per ANSI/AWWA C904. Insert-stiffeners shall be stainless steel.

### **2.02 CORPORATION**

- A. Approved Manufacturers: Mueller No. B-25000, Ford No. FB-600-4, FB-600-6, or A.Y. McDonald No. 4701-B.
- B. Threaded on outlet for flared connection with copper service pipe.
- C. Threaded on inlet end with standard tapered corporation cock thread.
- D. Saddles are required on all PVC water main.

#### 2.03 CURB STOP

- A. Approved Manufacturers
  - 1. Mueller, Ford, A.Y. McDonald, or approved equal.
- B. Same size and connection type for inlet and outlet.
- C. Full opening through the valve body with no smaller restriction allowed.

#### 2.04 CURB BOX

- A. Approved Manufactures: Mueller, Ford, A.Y. McDonald, or approved equal.
- B. Adjustable in height from 78 inches to 90 inches.
- C. Extension rods not allowed, if installed they will be removed at the Contractors expense.
- D. 1-1/4 inch upper section.

#### 2.05 SERVICE SADDLES

- A. Stainless steel
- B. Approved Manufacturers: Smith-Blair, Ford, or Cascade

#### 2.06 TRANSITION FITTINGS

- A. Polycam, or equal steel transition fittings or Polycam Flared Nut Aeries 912 shall conform to AWWA C901 for connections to PE Service Pipe.

#### 2.07 TRACER WIRE

- A. Conform to the requirements of Section 33 10 00.

### **PART 3 EXECUTION**

### 3.01 INSTALLATION

- A. Governing Code: Minnesota Plumbing Code and any local ordinances that may apply.
- B. Preparation: Conform to Section 33 05 05.
- C. New services shall be connected at the locations shown on the Drawings.
- D. Water Service Line
  - 1. Install at location shown on Drawings.
  - 2. Terminate water service as shown on Drawings.
- E. Corporation Stop
  - 1. Tap into main only when water main is under pressure.
  - 2. Use 2 layers of pipe tread sealant tape on corporations as a thread lubricant and sealant, or other product recommended by the manufacturer.
  - 3. Support corporation with 1/2 cubic yard 3/4-inch stabilization rock.
- F. Curb Box
  - 1. Support on full size pre-cast segmental manhole block.
  - 2. Place in a plumb, vertical position.
  - 3. Install to elevation matching finished grade.
  - 4. Grade stakes will be furnished to establish elevations.
- G. Tracer Wire
  - 1. Install tracer wire with PEX water services.
  - 2. Install tracer wire below pipe.
  - 3. Extend tracer wire vertically along the outside of the curb box.
  - 4. Taper wire to curb box and terminate wire 3 inches below finished ground. Cover end of wire to prevent corrosion.
- H. All trenches shall be backfilled and compacted in accordance to Section 33 05 05.

### 3.02 FIELD QUALITY CONTROL

- A. Do not backfill trench until the service has been inspected and approved by the Engineer.
- B. Pressure Testing: All water services will be pressure tested in conjunction with the water main, conforming to Section 33 10 00.
- C. Tracer Wire Testing: Demonstrate the electrical continuity of tracer wire.

