

**Section 02515****WATER TAP AND SERVICE LINE INSTALLATION****1.0 GENERAL****1.01 SECTION INCLUDES**

- A Tapping existing mains and furnishing and installing new service lines for water.
- B References to Technical Specifications:
  - 1. Section 01200 – Measurement and Payment Procedures
  - 2. Section 02318 – Excavation and Backfill for Utilities
  - 3. Section 02520 – Valve Boxes, Meter Boxes, and Meter Vaults
- C Referenced Standards:
  - 1. American Society for Testing and Materials (ASTM)
    - a. ASTM D 2737, “Standard Specification for polyethylene (PE) Plastic Tubing”
  - 2. American Water Works Association (AWWA)
    - a. AWWA C800 Standard Underground Service Line Valves and Fittings
    - b. AWWA C900 Polyvinyl Chloride (PVC) Pressure Pipe, 4” – 12” for Water Distribution
- D Definitions:
  - 1. Short Side Connection - service line connecting proposed curb stop, located inside water meter box, to water main on same side of street.
  - 2. Long Side Connection - service line connecting proposed curb stop, located inside water meter box, to water main on opposite side of street or from center of streets where supply main is located in street center such as boulevards and streets with esplanades.

**1.02 MEASUREMENT AND PAYMENT**

- A Measurement for installation of 1 inch water taps and service lines is on a per each basis. Separate measurements will be made for "Short Side" and "Long Side" connections.
- B Measurement for installation of 2 inch water taps and service lines is on a per each basis. Separate measurements will be made for "Short Side" and "Long Side" connections.
- C Payment for installation of water taps and service lines includes locating water main, tap installation and connection to meter, restoring site, excavation, bedding, backfill, compaction, push-under, etc., and all other labor and materials required to complete installation as indicated on Plans.
- D Refer to Section 01200 – Measurement and Payment Procedures.

**1.03 SUBMITTALS**

- A Make Submittals required by this Section under the provisions of Section 01350 – Submittals.
- B Submit manufacturer’s product data for approval.

**2.0 PRODUCTS****2.01 MATERIALS**

- A Polyethylene Tubing - SDR 9 CTS.
- B Corporation Stops: AWWA C800 as modified herein:
  1. Inlet End: AWWA standard thread.
  2. Valve Body: Tapered plug type, O-ring seat ball type, or rubber seat ball type.
  3. Outlet End: Compression type fitting for use with type-K, soft copper as well as CTS.
- C Provide taps for various water main types and sizes in accordance with following schedule:

<b>PIPE TAPPING SCHEDULE</b>		
<b>WATER MAIN TYPE AND DIAMETER</b>	<b>SERVICE SIZE</b>	
	<b>1"</b>	<b>2"</b>
4" Cast Iron or Ductile Iron	DSS, WBSS	DSS, WBSS
4" Asbestos Cement	WBSS	DSS, WBSS
4" PVC (AWWA C900)	DSS, WBSS	DSS, WBSS
6" and 8" Cast Iron or Ductile Iron	DSS, WBSS	DSS, WBSS
6" and 8" Asbestos Cement	DSS, WBSS	DSS, WBSS
6" and 8" Cast Iron or Ductile Iron	DSS, WBSS	DSS, WBSS
6" and 8" PVC (AWWA C900)	DSS, WBSS	DSS, WBSS
12" Cast Iron or Ductile Iron	DSS, WBSS	DSS, WBSS
12" Asbestos Cement	DSS, WBSS	DSS, WBSS
12" PVC (AWWA C900)	DSS, WBSS	DSS, WBSS
16" and Up Cast Iron or Ductile Iron	DWBSS	DWBSS

16" and Up Asbestos Cement	DWBSS	DWBSS
16" and Up PVC (AWWA C900)	DWBSS	DWBSS

DSS – Dual Strap Saddles  
 WBSS – Wide Band Strap Saddles  
 DWBSS – Dual Wide Band Strap Saddles  
 \*Mueller H-15092, or equal

- D Dual Strap Saddles: Red brass body and straps; ductile-iron; vinyl-coated body and straps; or ductile-iron, vinyl-coated body and stainless-steel straps.
- E Taps for PVC Water Mains: Use dual-strap or single, wide-band strap saddles which provide full support around circumference of pipe and bearing area of sufficient width along axis of pipe, 2 inches minimum, ensuring that pipe will not be distorted when saddle is tightened. Romac Series 101N wide-band, stainless-steel tapping saddle with AWWA standard thread (Mueller thread) or equal.
- F Taps for Steel Pipe: Not allowed, unless specifically approved by Engineer. Use saddle only if tap is approved on steel pipe.
- G Curb Stops and Brass Fittings: All Brass fittings shall be lead free conforming to the latest EPA’s guideline. AWWA C800 as modified herein.
  - 1. Inlet End: Compression-type fitting.
  - 2. Valve Body: Straight-through or angled, meter-stop design equipped with the following:
    - a. O-Ring seal straight plug type.
    - b. Rubber seat ball type.
  - 3. Outlet End: Female, iron-pipe thread or swivel-nut, meter-spud thread on 1 inch stops and 2-hole flange on 2 inch sizes.
  - 4. Fittings: Ford or approved equal; use same size open end wrenches and tapping machines as used with respective Ford fittings.
  - 5. Factory Testing of Brass Fittings:
    - a. Submerge in water for 10 seconds at 85 psi with stop in both closed and open positions.
    - b. Reject any fitting that shows air leakage. Owner may confirm tests locally. Entire lot from which samples were taken will be rejected when random sampling discloses unsatisfactory fittings.
- H Angle Stops: In accordance with AWWA C800; ground-key, stop type with bronze lock-wing head stop cap; inlet and outlet threads conform to application tables of AWWA C800; and inlets compression connection.
  - 1. Outlet for 1-inch size: Meter swivel nut with saddle support.
  - 2. Outlet for 2 inch size: O-ring sealed meter flange, iron pipe threads.
- I Fittings: In accordance with AWWA C800 and:
  - 1. Castings: Smooth, free from burrs, scales, blisters, sand holes, and defects which would make them unfit for intended use.

2. Nuts: Smooth cast and have symmetrical hexagonal wrench flats.
3. Thread fittings, of all types, shall have N.P.T. or AWWA threads, and male threaded ends shall be protected in shipment by plastic coating or other equally satisfactory means.
4. Compression tube fittings shall have Buna-N beveled gasket.
5. Stamp of manufacturer's name or trademark and size on body.

### **3.0 EXECUTION**

#### **3.01 GENERAL**

- A Set service taps at right angles to proposed meter location and locate taps in upper pipe segment within 45 degrees of pipe springline unless otherwise approved by Engineer.
- B For service lines and lateral connections larger than those allowed in this Section, Part 2.01C, branch connections must be used.
- C All 2-inch and smaller service taps on pressurized water mains: Use tapping machine manufactured for pressure tapping purposes.
- D Install service lines in open-cut trench in accordance with Section 02318 – Excavation and Backfill for Utilities except that service lines under all paved roadways, other paved areas and areas indicated on Plans shall be installed in bored hole as specified in this Section.
- E Unless otherwise approved by Engineer, lay service lines with minimum of 30 inches of cover as measured from top of curb or, in absence of curbs, from centerline elevation of crowned streets or roads. Provide minimum of 18 inches of cover below flow line of all ditches to service lines, unless otherwise approved by Engineer.
- F Service lines across existing street (push-unders): Pull service line through prepared hole under paving. Only full lengths of tubing will be used. Take care not to damage tubing when pulling it through hole. A compression-type union is only permitted if Contractor cannot span underneath pavement with a full length of tubing. Contractor is allowed one compression-type union for each full length of tubing, provided it is not under the pavement.
- G Maintain service lines free of dirt, coupons and foreign matter at all times.
- H Install service lines per City of Pearland. Standard Details.
- I Locate water meters in accordance with City of Pearland Standard Details. Contact Engineer when major landscaping or trees conflict with service line and meter box location. No additional payment will be made for work on customer side of meter.
- J Joints
1. Minimum joint spacing for 1 inch tubing shall be in multiples of 60 feet and for 2 inch tubing shall be in multiples of 40 feet.

2. Cut tubing squarely by using an approved cutting tool and avoiding excessive pressure on the cutting wheels which might bend or flatten pipe walls.
3. For compression fittings, cut tubing squarely prior to insertion into the fitting. Final assembly shall be in accordance with manufacturer's recommended procedure.

**K Bends**

1. Gradual changes in direction may be made by bending PE pipe. The bending radius should not be less than the coil radius when bending with the coil.

### **3.02 CURB STOP INSTALLATION**

- A** Set curb stops or angle stops at outer end of service line inside of meter box. Secure opening in curb stop to prevent unwanted material from entering. In close quarters, make an "S" curve in the field. No flattening of tube. In all 1-inch services, install meter coupling, swivel-nut, or curb stop ahead of meter. Install straight meter coupling on outlet end of meter.

### **3.03 SEQUENCE OF OPERATIONS**

- A** Open trench for proposed service line in accordance with Section 02318 – Excavation and Backfill for Utilities.
- B** Install curb stop on meter end of service line.
- C** With curb stop open and prior to connecting service line to meter in slack position, open corporation stop and flush service line thoroughly. Close curb stop, leaving corporation stop in full-open position.
- D** Check service line for apparent leaks. Repair any leaks before proceeding.
- E** Call Project Representative to schedule inspection prior to backfilling. After inspection, backfill in accordance with Section 02318 – Excavation and Backfill for Utilities.
- F** Install meter box centered over meter with top of lid 3-inches above finished grade for grasses or landscaped areas, and flush with finished grade for paved areas. Meter box: Refer to Section 02520 – Valve Boxes, Meter Boxes, and Meter Vaults.

END OF SECTION