

ITEM W39

WATER SERVICE CONNECTIONS

1.0 DESCRIPTION. The Contractor shall, under this item furnish and install all corporation stops, curb stops, curb boxes and piping required to service those structures designated on the plans.

2.0 SUBMITTALS. The contractor shall submit the following information:

A. Reference Standards. Latest revisions:

1. ASTM B88.
2. ASTM D2737.
3. ASTM D3350
4. AWWA C800.
5. AWWA C901.
6. NSF/ANSI Standard 61.

B. Shop Drawings.

1. All shop drawings submitted electronically for review and approval shall be returned within two weeks either approved or marked up for further design.
2. After examination of such drawings by the Engineer and the return thereof, the Contractor shall make such correction to the shop drawings as have been indicated and shall furnish the Engineer with electronic corrections.
3. Shop drawings shall be complete in details and indicate all materials as specified herein, including:
 - a. Pipe and valve sizes.
 - b. Dimensionality.
 - c. Pressure class per applicable standard.
 - d. Color.
 - e. Recommended minimum bending radius.
 - f. Recommended maximum safe pull force.
4. Manufacturer's catalog or general web-site information will not be sufficient to fulfill shop-drawing requirements.
5. Post-construction submittals, "as-recorded" data:

C. Calculations. This section is not applicable.

D. Certifications.

1. Certification of Compliance:
 - a. Obtained from the pipe manufacturer, stating that all pipe and associated fittings have been manufactured and tested in accordance with these specifications and the current standards.

- b. Submit results of factory testing and inspection regardless of whether or not they were witnessed by the Engineer.
- 2. Certificates of Qualification for fusible HDPE:
 - a. Certification from pipe and/or the fusion machine manufacturer that Contractor is qualified to join, lay, and handle pipe.
 - b. Certificates of qualification for persons to be fusing pipe to verify that persons fusing pipe shall be certified under 49 CFR and have a minimum of 2 years of experience with fusing pipe.
 - c. Experience and training record of persons to be fusing pipe.
 - d. Submit written certification from the fusible pipe manufacturer and/or fusion machine manufacturer from a test-based certification program that the fusion technician has received training in the proper use of the fusion equipment and pipe/fusion machine manufacturer's recommended fusion procedures.
 - e. Written certification shall be submitted for each technician working on the project.
 - i. Technicians shall not be permitted to work on the project until proper certification is received.
 - f. Training or requalification shall have been obtained within 12 months prior to beginning work on the project.
 - g. The Contractor shall perform trial fusion welds and submit samples to the SCMSD for review prior to installation of the pipe.
 - i. Full penetration welds shall provide homogenous material across the cross section of the weld.
 - ii. The fusion machine employed for the trial welds shall be the same machine to be utilized for the installation work.

3.0 MATERIALS. Only materials approved by the Stark County Metropolitan Sewer District may be used for this project.

A. Service Piping – General.

- 1. All service piping shall be either:
 - a. Type K Copper compound conforming to ASTM B-88.
 - b. Polyethylene tubing, copper tube size (CTS), SDR 9, PE4710 cell classification and a minimum pressure class rating of 200 psi.
 - i. Polyethylene tubing requires the use of insert stiffeners (stainless steel) or liners as applicable.
- 2. Pipe shall be marked as follows:
 - a. Nominal pipe size. (1" minimum).
 - b. Dimension Ratio, Standard Dimension Ratio, or Schedule.
 - c. AWWA pressure class.
 - d. AWWA standard designation number.
 - e. NSF-61 mark verifying suitability for potable water service.
 - f. Extrusion production-record code.
 - g. Trademark or trade name.

- h. Pipe shall not consist of any rework compound, even that obtained from the manufacturer's own production using the same formulation.
3. Pipe shall be homogeneous throughout and be free of visible cracks, holes, foreign material, blisters, or other visible deleterious faults.
4. Pipe shall be blue in color for potable water use.
5. Pipe shall meet the requirements of NSF/ANSI 61.
6. The Sanitary Engineer, at his option, may send his inspector to observe the manufacture and testing of materials supplied for this specification and, as such, the manufacturer shall give ample notice of a production run.

B. Corporation Stop.

1. The corporation stop shall be installed per plan or as directed by the Engineer.
2. The corporation stops shall be lead free Male/AWWA Taper Pipe Thread x compression outlet as manufactured by Mueller B-25008N or Ford FB1000-x-NL.

C. Curb Stop.

1. The curb stop shall be installed per plan or as directed by the Engineer.
2. The curb stop shall be installed in the street right of way, one to three feet from the right-of-way line.
3. The curb stop shall be lead-free Mueller B-25209N or Ford B44-xxx-Q-NL.

D. Curb Boxes.

1. The curb boxes shall be an extension type such as Buffalo Type "C" or an approved equivalent.

4.0 EXECUTION.

A. Pipe Installation.

1. SCMSD water line requirements govern where this specification is silent.
2. Excavation for the tap shall be performed by the permitted contractor. Tapping of the main shall be performed by the contractor; witnessed and inspected by the SCMSD. At least 24 hour notice is required.
3. The service shall not be installed within ten feet horizontal distance of a sanitary sewer or five feet horizontally to all other utilities.
4. Piping from the corporation stop to the curb stop shall be one continuous segment of piping. From the curb stop to the structure served/approved termination point, one "splice" is permitted:
 - a. An approved compression coupling is permitted on copper piping for the "splice".
 - b. For polyethylene piping, fused joints shall be in accordance with the standards above.

B. Backfill.

1. Backfill around the water service and appurtenances shall be natural sand (ODOT-703.06).
2. Minimum cover (distance to final grade) over the top of the service piping shall be 4'.
3. Pavement cuts must be approved in advance by the SCMSD and governing road authority. Trenchless methods underneath as much pavement as possible are encouraged.

5.0 ELECTRICAL. This section is not applicable.

6.0 QUALITY ASSURANCE. The items covered under this section of the Specification is intended to be the materials as described above. All material used on this project shall be new, approved for potable water and unused unless otherwise specified and all workmanship shall be of the best quality.

A. Testing.

1. Services from the tap through the curb stop shall be tested/observed for leaks.
 - a. To supplement testing of services, an approximately 15' long pipe segment ("tail") shall be installed from the curb stop valve outlet. A temporary, 1" compression ball valve shall be connected at the end of the tail pipe and remain until county observation of the test and shut-off of the curb stop.
 - b. Upon successful completion of service testing, the tail pipe's open end shall be capped with an approved fitting. The piping from the curb stop shall then be temporarily secured/coiled and accessible for future connection/extension to the structure.
2. **Under no circumstances shall air testing be performed on plastic pipe.**

B. Observation. This section is not applicable.

C. Warranty.

1. Refer to Item W34 - Water Line Construction, for warranty requirements.

7.0 MEASUREMENT. The unit of measurement of the water service(s) shall be the number of services installed and accepted in place, including one (1) corporation valve, one (1) curb valves and valve box, and any other necessary fittings and appurtenances.

8.0 PAYMENT. The unit price stipulated for each of the various items included in Water Service Connections shall be considered full compensation for furnishing and installing the materials to make a completed connection.

Item
W39

Unit
EA

Description
—” Water Service, Complete

END OF SECTION