

Seaside Rehabilitation and Healthcare Center
Portland, Maine

SECTION 02660 - WATER DISTRIBUTION SYSTEM

PART 1 - GENERAL

1.01 GENERAL PROVISIONS:

- A. Documents affecting Work of this Section include, but are not necessarily limited to, The CONDITIONS OF THE CONTRACT General Conditions, Supplementary Conditions, Addenda and all Sections of Division 1, which are hereby made a part of this Section.
- B. Coordinate Work with that of other trades affecting or affected by Work of this Section. Cooperate with such trades to assure the steady progress of the Work.
- C. The "*Standard Specifications*" referred to herein is the book entitled "*Standard Specifications, Highways and Bridges*" published by the State of Maine Department of Transportation (latest date), and Supplemental Specifications in Force, excluding the following portions thereof:

Division 100, Sections 102 through 109; numerical index of payment items included in each section.

Those Sections of the aforementioned *Standard Specifications* which are cited herein, are applicable to the Work of this Contract as they may be modified, amplified, or added to by this Section.

- D. Contractor shall Work in close cooperation with the Portland Water District, other affected utility companies and the City of Portland, to the end that all Work is constructed in accordance with their standard practices and regulations. The Portland Water District may require an inspection fee to cover the cost of its inspection of new water service installation Work.

1.02 DESCRIPTION OF WORK:

- A. Provide all labor, materials, equipment and services necessary for proper and complete installation of the following:
 - 1. Excavation, trenching, bedding and backfilling for new water service lines from the entrance drive to the new building addition, including all valves and other appurtenances, as shown on the Drawings.
 - 2. Coordination with the Mechanical Contractor, as necessary, for the installation or removal of service lines in trenches.

1.03 QUALITY CONTROL; SUBMITTALS:

- A. General: Comply with requirements of Division 1 sections for Submittals and Quality Control.
- B. Submittals: Submit product specification literature and/or shop Drawings for:
 - 1. All cast-iron water pipe, valves, fittings, etc.

1.04 AS-BUILT DRAWINGS:

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- A. As-built scale Drawings, accurately showing actual installed locations and burial depths of all underground and surface water lines and appurtenances, shall be produced by the Contractor and turned over to the Architect/Engineer at the completion of the project.

PART 2 - PRODUCTS

2.01 UTILITY TRENCHES:

- A. Bedding Material for Water Lines: Well-graded fine sand, as specified under Section 02220-Excavation, Backfill and Compaction (SS 2.01.E).
- B. Granular Backfill: Well-graded sand or gravel, as specified under Section 02220-Excavation, Backfill and Compaction (SS 2.01.C)

2.02 WATER SERVICE & FIRE PROTECTION:

Note: All water service materials shall be in conformance with Portland Water District standards and specifications, and as outlined herein:

- A. Pipe: Class 52, ductile iron pipe, cement lined and seal coated interior, bituminous coated exterior, with push-on joints. Meet or exceed AWWA C151, C104, and C111 standards. Pipe diameters as shown on drawings.
- B. Fittings: Class 350, ductile iron, cement lined and seal coated interior, bituminous coated exterior, mechanical joint. Meet or exceed AWWA C104 and C153. Furnish with D.I. glands, gaskets, Cor-Ten T-bolts and nuts.
- C. Gate Valves: Ductile iron, mechanical joint, resilient seat, open to right. All valves shall meet or exceed AWWA C509. Furnish with Cor-Ten bolts and nuts. Pressure rating - no leakage @200 psi.
- D. Valve Boxes: Two-piece, ductile iron, bituminous coated, sliding type, minimum 5" I.D., with the word "Water" cast into the top.

PART 3 - EXECUTION

3.01 PREPARATION:

- A. Notify "Dig-Safe"(811 or 1-888-DIG-SAFE) at least 3 days prior to beginning any excavation Work.
- B. Accurately locate any existing or previously installed utilities before beginning excavation.
- C. Check for conflict with underground utilities or structures. Notify the Architect/Engineer immediately of all discrepancies before proceeding with the Work.
- D. Fully coordinate with utility companies to insure timely Work by others so as not to hold up construction.

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3.02 WATER SERVICE:

Note: Coordinate all water service installation with the Portland Water District inspector.

- A. Trenching: Excavate trenches for water lines in locations shown on site utility Drawings. Trench cross-section and pipe installation shall be in accordance with details on Drawings.
- B. Handling pipe and fittings: Manufacturer's handling instructions shall be strictly adhered to. All pipe and fittings shall be kept clean and free of defects. Defective pipe shall be removed or repaired to the satisfaction of the Engineer.
- C. Laying pipe and fittings: Laying pipe and fittings shall be in accordance with the requirements of AWWA Standard Specifications for Installation of Cast Iron Water Mains, C600, and the Portland Water District, except as otherwise provided herein.
 - 1. Pipe shall be laid to a depth of between 5.5 and 6.0 feet to the top of pipe, generally according to lines and grades shown on the Drawings. Maintain minimum 10 ft. separation from all sanitary sewer lines and other underground utilities whenever possible. If water mains must cross within 12" over or under sewer lines, encase both pipes in concrete for 10 ft. in both directions. All pipes shall be laid to straight lines for horizontal alignment using mechanical joint bends, unless otherwise specified or indicated on Drawings. Alignment for water pipes shall not deviate from a straight line by more than 12 inches per 20-foot length of pipe for sizes up to 12 inches in diameter, or more than 6 inches per 20-foot length of pipe for sizes larger than 12 inches in diameter. Every possible precaution shall be taken to ensure that each joint is properly made up and fully seated.
 - 2. A firm even bearing throughout the length of the pipe shall be maintained. Pipe bedding shall be sand as specified herein and as shown on the Drawings, with thorough compaction.
 - 3. Pipe cutting shall be done by wheel cutter, acetylene torch or saw. Rough edges shall be removed and the pipe ends shall be tapered and ground smooth to conform with receiving pipe.
 - 4. Concrete thrust blocks in accordance with AWWA requirements shall be installed at all bends, tees, capped ends, etc., as indicated on Drawings or as directed by the Architect/Engineer or the Water District. Minimum bearing area shall be as required or as detailed on the Drawings. Joints must be protected by felt roofing paper prior to placing concrete. Concrete shall be 3,000 psi as specified in Section 03300. Concrete shall be placed against undisturbed material, and shall not cover joints, bolts or nuts, or interfere with the removal of any joint. Side forms shall be provided for thrust blocks.
 - 5. At all times when pipe laying is not in progress or the trench is unattended, the open ends of pipe shall be closed by watertight plugs or other approved means.
- D. Jointing Push-on Pipe: Pipe shall be laid with bell ends facing upstream. A thin film of lubricant supplied by the pipe manufacturer shall be used to facilitate joint assembly.
- E. Jointing Mechanical Joint Pipe: Mechanical joints at valves, fittings, and where designated shall be in accordance with the "Notes on Method of Installation" under ANSI Specification A 21.11 and the instructions of the manufacturer.

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- F. Testing and Disinfection: Water Service line shall be flushed, pressure tested and chlorinated by the Contractor under Portland Water District Supervision. Flush underground piping prior to connection to sprinkler piping as required by NFPA. Chlorination shall be in accordance with AWWA C651. Hydrostatically test underground piping to 150 psi for a 1 hour period; pressure testing and leakage rates shall be in accordance with AWWA standard C600 and Portland Water District Specifications. All costs associated with testing and disinfection shall be paid by the Contractor.

END OF SECTION