

# **RESTAURANT UTILITIES PROJECT**

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TULALIP, WASHINGTON

## **SECTION 33 11 00 – WATER DISTRIBUTION SYSTEM**

### **PART 1 – GENERAL**

#### **1.01 SECTION INCLUDES**

- A. The work under this section shall consist of providing all work, materials, labor, equipment, and supervision necessary to provide water distribution system components and other work, as required in these specifications, on the drawings and as otherwise deemed necessary to complete the work.

#### **1.02 RELATED SECTIONS**

- A. Division 1 Specification Sections.
- B. Specification Section 31 20 00 – EARTHWORK
- C. Specification Section 31 23 19 – DEWATERING
- D. Specification Section 31 25 00 – EROSION AND SEDIMENT CONTROL
- E. Specification Section 32 12 00 – FLEXIBLE PAVING

#### **1.03 REFERENCE STANDARDS**

- A. Technical specifications, design details, construction details and materials shall conform to the following reference documents:
  - 1. Water Distribution Design and Construction Standards and Specifications, City of Marysville, November 1998, Revised May 2007.
  - 2. Standard Specifications for Road, Bridge and Municipal Construction, WSDOT/APWA, latest edition.
  - 3. Standard Plans for Road and Bridge Construction, WSDOT/APWA, latest edition.
- B. Where conflicts between Standards and specifications occur, the more stringent shall apply.

#### **1.04 SUBMITTALS**

- A. Provide manufacturers product information for the following:
  - 1. Pipe
  - 2. Fittings
  - 3. Valves and accessories
- B. Operations and Maintenance Data on the following:

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1. Valves
- C. Provide reports documenting pressure testing, bacteriological testing, and other inspections.
- D. Provide surveyed As-Built Plans.

### 1.05 DELIVERY, STORAGE, AND HANDLING

- A. Do not store plastic structures, pipe, and fittings in direct sunlight.
- B. Protect pipe, pipe fittings, and seals from dirt and damage.
- C. Handle pipe to prevent damage to the pipe, pipe lining and coating. Damage to the pipe, pipe lining or coating, shall be repaired to the satisfaction of the Quil Ceda Village Utilities and the Engineer, or replaced at no additional cost to the Owner.
- D. Protect threaded pipe ends by couplings or other means until the pipe is placed in its final position.
- E. At times when pipe laying is not in progress, the open ends of the pipe shall be closed by a watertight plug or by other means approved by the Quil Ceda Village Utilities and/or the Engineer to ensure absolute cleanliness inside the pipe.

### 1.06 PROJECT CONDITIONS

- A. Site Information:
  1. Contractor shall verify existing utility locations.
- B. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities.
  1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
  2. Provide alternate routes around closed or obstructed traffic ways.
- C. Existing Utilities:
  1. Locate and identify existing utilities and other below grade improvements that are to remain and protect these from damage.
  2. Locate, identify, disconnect and seal or cap off utilities and other below grade improvements indicated to be removed.
    - a. Arrange with utility companies to shut off indicated utilities.

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- b. Arrange with Owner to shut off indicated below grade improvements
  3. Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
    - a. Notify Owner not less than 10 days in advance of proposed utility interruptions.
    - b. Do not proceed with utility interruptions without Owner's written permission.
    - c. Arrange to shut off indicated utilities with utility companies and Owner's Representative

### 1.07 QUALITY ASSURANCE

- A. Provide at least one (1) person who shall be present at all times during execution of this portion of the work, be thoroughly familiar with the type of work being performed and the best methods for its execution and who shall direct all work performed under this section.
- B. Comply with the applicable provisions of all pertinent codes and regulations. References made herein for manufactured materials and installation refer "Standard Specifications for Road, Bridge and Municipal Construction", prepared by WSDOT/APWA.
- C. Comply with the requirements of the Quil Ceda Village.
- D. Contractor shall be responsible for all testing and inspections requirements, including all associated costs.

## PART 2 – PRODUCTS

### 2.01 PIPE, FITTINGS, VALVES AND APPURTENANCES

- A. Water Main and Fittings
  1. For all main line construction, all materials shall be in accordance with the City of Marysville's Water Distribution Design and Construction Standards and Specifications.
  2. Water main shall be ductile iron pipe conforming to AWWA C151-76. Pipe shall be thickness class 52 for 12-inch and smaller, and thickness class 50 or 52 for larger than 12-inch. Unless specified otherwise ductile iron pipe shall have flexible gasketed joints.

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3. Fittings for ductile iron pipe shall be ductile iron short body fittings conforming to AWWA C153 or class 250 gray iron conforming to AWWA C110 and C111. Flanges shall be class 125.
- B. Fire hydrants shall be 5-1/4 –inch MVO, M & H Reliant or Mueller Centurion. Pumper port shall have a 5-inch Storz quick connect fitting.
- C. Valves
1. Gate valves shall be resilient wedge non-rising stem conforming to AWWA C509-80, Mueller or M & H.
  2. Check valves shall be iron body, bronze mounted, full opening with rubber faced clappers, and conforming to AWWA C508, Mueller or M & H.
  3. Valves for Wet Tapping the existing water main shall be per the City of Marysville Standard Detail for cut-in and live taps.
  4. Air and vacuum release valves (ARV) shall be APCO 145C combination air release valve.
- D. Valve Boxes
1. All valves shall have a standard APWA cast iron water valve box set to grade with two-piece, extension type cast iron riser from valve. Valve box shall have a lug type cover, 8” top and 24” bottom. Valve box lids shall have the word “WATER” cast in the upper surface.
  2. If valves are not set in paved area, a 4-inch thick 2-foot square concrete pad shall be set around each valve box at finished grade. In areas where valve box galls in road shoulder, the ditch and shoulder shall be graded before placing asphalt or concrete pad. The valve and valve box shall be set plumb with the valve box centered on the operator nut. Valve boxes shall be set flush in pavement or road shoulder. See Marysville standard drawings 2-070-001 and 2-070.004.
  3. A valve stem extension shall be installed whenever the valve operating nut is more than 48 inches below finished grade. Extensions are to be a minimum of 12 inches with only one extension per valve. The operator nut extension shall extend into the top section of the valve box and shall clear the bottom of the lid by a minimum of 10 inches.
- E. Water service lines shall be Type K copper, ASTM B88.
- F. Miscellaneous water fittings and appurtenances shall be as specified in the Marysville Standards and the standard plans and materials lists contained therein.

### PART 3 – EXECUTION

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#### 3.01 SURFACE CONDITIONS

- A. Prior to all work of this section, carefully inspect the installed work of all other trades. Verify that all such work is complete to the point where this installation may properly commence. Verify that water system may be installed in accordance with the original design, all pertinent codes and regulations, and all pertinent portions of the referenced standards.
- B. In the event of discrepancy, immediately notify the Owner. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.

#### 3.02 CONNECTION TO EXISTING UTILITY SYSTEM

- A. Connections to the municipal water system shall be coordinated with the Quil Ceda Village Utilities Department. A minimum of 48 hours advance notice is required. Quil Ceda Village personnel shall operate all valving for construction, filling and testing of all water system construction. Live taps to the municipal water system shall be performed by the Quil Ceda Village Utilities Department, or as directed by the Quil Ceda Village Utilities Department's inspection personnel.
- B. Contractor shall schedule the work and coordinate payment of any fees.
- C. The Quil Ceda Village will supply and install the domestic water meters. The Owner will pay Quil Ceda Village for meter material and installation costs as determined by the Quil Ceda Village Utilities Department. Meters will not be set until all lines have been constructed, tested, approved and a letter of acceptance issued.

#### 3.03 BACKFLOW PREVENTION

- A. Provide double detector and double detector check valve assemblies according to the City of Marysville Standards and as indicated on the Drawings.

#### 3.04 INSPECTIONS

- A. Inspections of the water system will be performed by the Quil Ceda Village Utilities department.
- B. Tests will be performed by the Quil Ceda Village Utilities department on the domestic water system from the Water Main connection to the building side of the water meters and detector checks.

#### 3.05 BLOCKING OR BRACING:

- A. Provide blocking and bracing according to the City of Marysville standards and as indicated on the Drawings.

#### 3.06 CONTAMINATION PREVENTION:

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- A. Carefully clean all pipe fittings and valves of all dirt and foreign material as they are placed. Plug the open ends of pipe and fittings with a temporary watertight plug whenever work is stopped and when water in the trench threatens to enter the pipe. Exclude groundwater from the pipe at all times.

### 3.07 TRENCHING AND BACKFILL

- A. All earthwork shall conform to the requirements of Section 31 20 00 – EARTHWORK. Trench width shall not exceed the City of Marysville standards.
- B. Backfilling of trench shall be made with the same materials excavated from the trench providing it meets requirements for fill material called for in Section 31 20 00 – EARTHWORK.
- C. Piling or shoring to be added as required for depth of excavations.

### 3.08 DEWATERING OF TRENCH:

- A. Reference Specification Section 31 23 19 – DEWATERING for dewatering requirements.
- B. In the event water is encountered or accumulates in the trench, it shall be removed during the pipe-laying operation. Maintain the trench in a water-free condition until the ends of the pipe are sealed and provisions are made to prevent floating of the pipe. Do not allow trench water to enter the pipe.

### 3.09 HANDLING THE PIPE

- A. During installation, handle the pipe as specified in paragraph 1.05 of this section. Remove pipe which has become damaged or contaminated from the trench. Clean, repair, and reinstall as required by the Quil Ceda Village.

### 3.10 REMEDIAL MEASURES

- A. Upon direction of the Quil Ceda Village Utilities department's inspector remove, reconstruct and reinstall all components of the water supply system which do not meet the requirements of this section.

### 3.11 TESTING AND DISINFECTION

- A. Contractor shall provide all equipment necessary to pressure test water line. Contractor shall provide the Quil Ceda Village Utilities department a minimum of 48 hours notice before testing a section of line. Test procedure shall follow WSDOT/APWA section 7-09.3(23); test pressure is 225 psi. Test shall be monitored by the Quil Ceda Village Utilities department.
- B. Sterilization and flushing of all water lines shall be performed in accordance with the City of Marysville's Water Distribution Design and Construction Standards and Specifications. The Quil Ceda Village Utilities department's inspector will be present for all tests and will take purity samples.

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### **3.12 CLEAN-UP**

- A. Upon completion of the work of this section, leave all components of the system completely free from silt, debris, and obstructions and restore all surfaces to the condition they were in at the start of this Section.

**END OF SECTION 33 11 00**