

SECTION 33 11 16.02**FACILITY WATER DISTRIBUTION PIPING (Valves and Fire Hydrants)****PART 1 GENERAL****1.1 DESCRIPTION**

- A. The work of this section includes, but is not limited to:
 - 1. Water valves
 - 2. Fire hydrants
- B. Related Work Specified Elsewhere:
 - 1. Earth Moving (Trenching, Backfilling and Compacting): Section 31 20 00.02
 - 2. Facility Water Distribution Piping (Water Mains): Section 33 11 16.00
- C. Definitions: NONE
- D. Applicable Standard Details: NONE

1.2 QUALITY ASSURANCE

- A. Reference Standards:
 - 1. American Water Works Association (AWWA):
 - C500 Gate Valves, 3" through 48", for Water and Other Liquids
 - C502 Dry-Barrel Fire Hydrants
 - C504 Rubber-Seated Butterfly Valves
 - C509 Resilient Seated Gate Valves for Water and Sewerage Systems
 - C512 Air-Released, Air/Vacuum, and Combination Air Valves for Waterworks Service

1.3 SUBMITTALS

- A. Certificates:
 - 1. Submit two copies of manufacturer's certification attesting that valves, hydrants, and accessories meet or exceed AWWA Standards and specification requirements.
- B. Product Data:
 - 1. Submit two copies of manufacturer's latest published literature including illustrations, installation instructions, maintenance instructions and parts lists.

1.4 JOB CONDITIONS: Section not utilized.**1.5 PRODUCT DELIVERY, STORAGE, AND HANDLING**

- A. Prepare valves, hydrants, and accessories for shipment according to AWWA Standards and:
 - 1. Seal valve, hydrant, and meter ends to prevent entry of foreign matter into product body.
 - 2. Box, crate, completely enclose, and protect products from accumulations of foreign matter.
- B. Store products in areas protected from weather, moisture, or possible damage.
- C. Do not store products directly on ground.
- D. Handle products to prevent damage to interior or exterior surfaces.

PART 2 PRODUCTS**2.1 GATE VALVES**

- A. AWWA C509. Mueller, or approved equal.
- B. Iron body, bronze trim.
- C. Resilient wedge.
- D. Non-rising stem; O-ring stem seals.

| Pipe Size | Outside Diameter | Number of Bolt Holes | Bolt Hole Diameter | Bolt Circle |
|-----------|------------------|----------------------|--------------------|-------------|
| 2" | 6" | 4 | 3/4" | 4-3/4" |
| 2-1/2" | 7" | 4 | 3/4" | 5-1/2" |
| 3" | 7-1/2" | 4 | 3/4" | 6" |
| 3-1/2" | 8-1/2" | 8 | 3/4" | 7" |
| 4" | 9" | 8 | 3/4" | 7-1/2" |
| 5" | 10" | 8 | 7/8" | 8-1/2" |
| 6" | 11" | 8 | 7/8" | 9-1/2" |
| 8" | 13-1/2" | 8 | 7/8" | 11-3/4" |
| 10" | 16" | 12 | 1" | 14-1/4" |
| 12" | 19" | 12 | 1" | 17" |
| 14" | 21" | 12 | 1-1/8" | 18-3/4" |
| 16" | 23-1/2" | 16 | 1-1/8" | 21-1/4" |

- E. 2" square operating nut; open counterclockwise unless otherwise indicated.
- F. Mechanical joint connections.
- G. Provide valves 16" and larger with bypass valves and gear operators.

2.2 VALVE BOXES

- A. 12" valves and smaller:
 1. Domestic cast iron, two-piece, screw type.
- B. Cast iron lid marked with "W".

2.3 FIRE HYDRANTS

- A. Dry-barrel break-away type conforming to AWWA C502.
 1. Bury depth: Match existing, or 4'-6" minimum.
 2. Inlet Connection: 6".
 3. Valve Opening: 5-1/4".
 4. Mechanical Joint End.
 5. Corrosion resistant bolts and nuts.
 6. One pumper, two hose nozzles.
 - a. Attach nozzle caps by separate chains.
 7. Threads: Reuse existing hydrant. If replacement is required, replace in-kind, matching existing. Coordinate with ENGINEER.

2.4 TAPPING SLEEVES AND VALVES

- A. Tapping Sleeves:
 1. Mechanical joint, or as indicated on the Contract Drawings.
 2. 200 psi working pressure, 2" - 12" size.
 3. 150 psi working pressure, 14" - 24" size.
 4. Outlet flange: ANSI B16.1, Class 125. See Table 1.
- B. Tapping Valves:

1. AWWA C500.
2. Inlet flange, Class 125.

2.5 JOINT RESTRAINTS

- A. Joint restraints shall be EBAA MEGALUG products. No other products shall be considered equal.

PART 3 EXECUTION

3.1 GENERAL

- A. Determine the exact location and size of valves and hydrants from the Contract Drawings.
- B. Perform trench excavation, backfilling and compaction in accordance with Section 31 20 00.02.
- C. Install pipe and tubing in accordance with Sections 33 11 16.00 and 33 11 16.01 and the applicable Contract Drawing details.
- D. Carefully remove, store, and reinstall existing fire hydrant.

3.2 GATE VALVES

- A. Install valves in conjunction with pipe laying. Set valves and valve boxes plumb.
- B. Place concrete block under valve.
- C. Provide buried valves with valve boxes installed flush with finished grade.
- D. Furnish one tee wrench to the OWNER.

3.3 FIRE HYDRANTS

- A. Install fire hydrants as shown on Contract Drawings. Provide support blocking and drainage gravel as shown.
 1. Set hydrants plumb with pumper nozzle facing the curb or street.
 2. Set hydrants with nozzles at least 12 inches above the ground and the safety flange not more than 6 inches nor less than 2 inches above grade.
 3. Do not block drain hole.
 4. CONTRACTOR shall strip, clean, and repaint hydrant, after reinstallation. Color to be yellow, matching existing color. Paint shall be as recommended by the hydrant manufacturer.
- B. After hydrostatic testing, flush hydrants and check for proper drainage.

3.4 SURFACE RESTORATION

- A. Restore unpaved areas in accordance with Section 33 20 00.02.
- B. Restore other areas in accordance with Section 32 13 13.02.

END OF SECTION