SECTION 02554

FIRE HYDRANTS

02554.01 GENERAL

A. Description

Fire hydrant installation shall include, but not necessarily be limited to, furnishing and installing fire hydrants or relocating fire hydrants in accordance with the Contract Documents.

B. Related Work Included Elsewhere

1. Trench excavation, backfill, and compaction; Section 02250.

2. Water pipe, fitting, and appurtenance installation; Section 02551.

3. Water valve and appurtenance installation; Section 02552.

C. Quality Assurance

1. Materials

The Engineer will inspect all materials before and after installation to ensure compliance with the Contract Documents.

2. Field Tests

a. Fire hydrants installed at the same time as a new water main shall be tested, after installation, by the Contractor along with the water main in accordance with Section 02551.01.

b. Fire hydrants installed on an existing water main will be visually inspected for leakage by the Engineer at the existing water main line pressure before the excavation is backfilled. The hydrant, valve, and connecting pipe shall be leak free under line pressure.

D. Submittals

Shop drawings shall be submitted as specified in the "General Provisions" for the fire hydrants furnished and shall include the following information: product description, parts list, valve and hose connection sizes, operating nut style, coating/painting, and direction of opening.

02554.02 MATERIALS

A. Materials Furnished by the County

The County will not furnish any materials for fire hydrant installation or relocation.

B. Contractor's Options

The Contractor may furnish fire hydrants manufactured by American Darling, Model B-62-B; Mueller Super Centurion 250; Kennedy Valve, Model K-81-A; American Flow Control or Clow (powder coated).

C. Fire Hydrants

1. Hydrant valve opening shall be at least 5-inch diameter net. The inlet connection shall be 6-inch mechanical joint with accessories (glands, plain rubber gaskets, bolts and nuts).

2. Hose connections shall consist of two 2 1/2-inch diameter hose connections and one 4 1/2-inch diameter steamer or pumper connection threaded as shown on Anne Arundel County Standard Water Detail W/15A.

3. Operating nut shall be 5 sided, 1 5/16 inches from point to flat, and shall tum left (counterclockwise) to open.

4. Outer casing shall be one-piece cast iron, designed to permit its extension without excavating.

5. Hydrant design shall be such that when the barrel is broken, it may be replaced without excavating or breaking adjacent pavement; that the entire barrel, including all working parts along with the main and waste valve seats, may be removed for inspection or repair without excavating or disturbing the ground; and that underground flanges with bolts and nuts are eliminated.

6. The main valve seal shall be compression type sealing against a bronze seat and the valve shall open against pressure.

7. Between elbow and top cap, the barrel shall be made in two parts connected by a swivel segment to permit facing the nozzles in any direction.

8. Bonnet shall be bolted to the standpipe and shall have cast on the top an arrow and the word "Open" indicating the direction for opening.

9. Bonnet construction shall utilize a one-piece construction that isolates the stem's operating threads from the wet p01iion of the barrel. The internal p01iion of the bonnet shall be factory filled with grease to lubricate the operating threads. O-rings shall be provided where the stem penetrates the bonnet to prevent water from entering the grease cavity and to prevent exfiltration of the lubricant.

10. A self-opening drain valve shall be provided.

D. Hydrant Tee

1. Tee for fire hydrant connection shall be mechanical joint swivel tee. Branch connection shall be mechanical joint plain end with retained mechanical joint gland. All materials shall be of ductile iron complying with the requirements of AWWA C111 and AWWA C153.

E. Gravel or crushed stone for hydrant foundation shall meet the gradation requirements of AASHTO M 43, Size number 57, as specified in Section 02621.

F. Retainer glands or tie rods and appurtenances for fire hydrant restraint, and pipe caps and plugs for existing fire hydrant lead abandonment shall be as specified in Section 02551.

G. Portland cement concrete for hydrant and cap blocking shall be Mix No. 1 as specified in Section 03310.

H. The outside of all public fire hydrants above the breakaway flange shall be factory painted or powder coated with two coats of safety yellow industrial enamel paint B54 Series Y27 (Lead Free) as manufactured by Sherwin Williams, or equal. Field painting of hydrants shall not be allowed.

I. The outside of all private fire hydrants above the breakaway flange shall be factory painted or powder coated with two coats of safety red industrial enamel paint B54 Series Y27 (Lead Free) as manufactured by Sherwin Williams, or equal. Field painting of hydrants shall not be allowed.

02554.03 EXECUTION

A. General

1. Excavation, foundation preparation, backfill, and compaction shall be as specified in Section 02250.

2. Construction methods shall be in accordance with Section 02551.

B. Fire Hydrant Installation

1. Fire hydrants shall be installed and restrained in accordance with the Standard Details, at the locations shown, and to elevations directed by the Engineer. Hydrants shall be set within a gravel or crushed stone drainage well extending the full width of the trench.

2. Hydrant leads shall be laid level on a firm foundation to ensure that the hydrant is set plumb. Hydrant leads shall be DIP; PVC not permitted. Backfill around the hydrant shall be compacted so as to obtain a density of a least 95% of maximum when measured in accordance with AASHTO Tl 80, Method D.

3. Where hydrants are to be relocated, the Contractor shall ascertain whether or not the hydrant valve has been restrained before removing the hydrant to be relocated. The

lead shall be capped and blocked so that service can be restored to the parent main pending the removal or plugging of the mainline tee.

4. Fire hydrants to be shipped from the manufacturer in bubble wrap or equal; if new fire hydrant coating is damaged, the damaged fire hydrant must be shipped back to the factory for factory coating or replaced with a new, undamaged fire hydrant. No field painting of the factory coating will be allowed.

5. The riser pipe from ground to breakaway flange shall be painted with two coats gloss black lead free industrial enamel paint as manufactured by Sherwin Williams, or equal before installation.

6. Fire hydrants that are not yet in service will be bagged or tagged with indicator stating "Hydrant not in service".

7. Fire hydrants with a depth of more than 5 feet shall have a vertical flange shoe installed at maximum 5 depth.

02554.04 METHOD OF MEASUREMENT

A. Measurement for fire hydrant installations or relocations will be made of the number of hydrants satisfactorily installed or relocated as shown on the Plans or directed by the Engineer.

B. Measurement for fire hydrant lead pipe, fittings, valves, and appurtenances will be made as specified in Sections 02551 and 02552.

02554.05 BASIS OF PAYMENT

A. General

1. Payment will be made at the unit price bid. The price bid shall include furnishing all labor, tools, equipment, and materials necessary to satisfactorily complete the work as shown and specified in strict accordance with the Contract Documents, and accepted by the Engineer.

2. The price(s) bid for furnishing and installing or relocating fire hydrants shall include the following:

   a. Excavation and backfill as specified in Section 02250.

   b. Furnishing and installing crushed stone, gravel, tie rods, retainer glands, and concrete thrust blocking as shown on the Standard Details or elsewhere in the Contract Documents.

3. Payment will be made for contingent items when ordered by the Engineer. Payment will be as specified in Sections 02951, 02952, 02953, 02954, 02955, 02956, and

02957.

B. Fire Hydrants

Payment for furnishing and installing or relocating fire hydrants complete and operational will be made per hydrant for the total number placed or relocated. The price(s) bid shall include investigation of existing restraint in the case hydrant relocation; the handling of the hydrant to and into the trench; furnishing and installing hydrant barrel and operating stem extensions required to set the hydrant to the proper grade, or adjusting hydrant length in the case of a relocation, and returning any spare parts to the County; furnishing and installing pipe cap or

plug and buttress for relocated hydrants when specified in the "Special Provisions"; the testing and painting of the complete installation; and all items necessary to satisfactorily complete the work

C. Fire Hydrant Lead Pipes

Payment for furnishing and installing fire hydrant lead pipe, fittings, valves, and appurtenances, including strapping the valve to the water main fitting, will be made as specified in Sections 02551 and 02552.

END OF SECTION