

SECTION 15181
FIRE HYDRANTS
(Contractor Furnished)

PART 1: GENERAL

1.01 SCOPE

Furnish all labor, material, tools, and equipment required to install fire hydrants at the location shown on the Drawings and as described in Section 01000 Summary of Work and Section 01011 Specifications Special Conditions, or as designated by the Engineer.

PART 2: PRODUCTS

2.01 MATERIAL

- A. All fire hydrants shall be ductile iron and conform to the requirements of AWWA C502, traffic-model break-away type fire hydrants.
- B. All fire hydrants shall open left except hydrants that are specified open right in the Contract Drawings or as required in Section 01011 Specifications Special Conditions and be clearly marked on the top of the hydrant. The operating top nut shall be a 1-1/2" pentagon and the stem shall have a minimum of two O- ring stem seals. The hydrant shall be break-away traffic flange, 5-1/4" valve opening, 6" mechanical joint pipe connection. The hydrant interior and exterior shall be epoxy coated at the factory by the hydrant manufacturer in accordance with AWWA Standard C550 (6-8 mil average, 4 mil minimum).The CONTRACTOR shall contact the local water district and obtain written fire hydrant mechanical details from the water district prior to ordering any fire hydrants in accordance with the drawings.
- C. The number and sizes of hose nozzle outlets is dependent on the local regulation or as required by the Owner in Section 01011 Specifications Special Conditions. (Most typical is two (2) bronze male threaded 2-1/2" hose outlet nozzles and one (1) bronze male threaded 4-1/2" pumper outlet nozzle with American National Fire Hose Connection Screw Threads (NH).
- D. All hydrant materials shall meet the requirements of NSF 61.
- E. Acceptable manufacturers and models, subject to the specifications set forth, include:
 - American Darling B-84-B, 5-1/4" valve opening (by the American Flow Control Division of ACIPCO)
 - Kennedy Guardian, 5-1/4" valve opening (by Kennedy Valve Company Division of McWane, Inc.)
 - Mueller Super Centurion 250, Model A-423, 5-1/4" valve opening

PART 3: EXECUTION

3.01 INSPECTION PRIOR TO INSTALLATION

Contractor shall inspect all fire hydrants upon receipt. Cycle each hydrant to full open and full closed positions to ensure that no internal damage or breakage has occurred during shipment and handling. Check all external bolts for proper tightness.

After inspection, close the hydrant valves and replace the outlet nozzle caps to prevent the entry of foreign matter. Protect stored hydrants from the weather/elements with the inlets facing downward.

3.02 INSTALLATION

Locate hydrants on the plans or as directed by the Engineer and in compliance with local regulations. The location shall provide complete accessibility and minimize the possibility of damage from vehicles or injury to pedestrians. When placed behind the curb, the hydrant barrel shall be set so that no portion of the pumper or hose nozzle cap will be less than twenty-four (24") to thirty-six inches (36"), depending on local requirements, from the gutter face of the curb. All hydrants shall stand plumb with the pumper nozzle facing the curb. Set hydrants with nozzles at least eighteen inches above the finished grade as shown on the plans. Set the break flange at least two but no more than six inches above finished grade, or as directed by the Engineer. Connect each hydrant to the main with a six inch branch connection controlled by an independent six inch gate valve, unless otherwise shown on the plans. All hydrants assemblies must be restrained from the hydrant back to the main. Install hydrants on the end of dead end 8" or larger mains installations as shown on the plans or as directed by the Engineer.

The Engineer may authorize hydrant protection using steel pipe bollards when hydrant installations have a greater than normal exposure to vehicular damage (e.g. parking lot installations, unusual driving situation, etc.). Install all such protection designated by the Engineer per detail drawing 0201-0601-SD34. Locate bollards as necessary adjacent to the hydrant and in such a manner as to not interfere with the ability to connect hoses or operate the hydrant as per detail drawing. Additionally, locate the bottom of the bollard and encasement above the hydrant supply piping and valve to prevent the possibility of damage to the piping should the bollard be displaced when hit.

Unless otherwise directed by the Engineer, excavate a drainage pit two feet in diameter and two feet deep below but not beyond each hydrant. Fill the pit with compacted $\frac{3}{4}$ inch clean granular under and around the base of the hydrant to a level 12 inches above the hydrant drain opening. No hydrant drainage pit shall be connected to a sewer.

Cover the drainage area with geotextile fabric. The fabric shall completely isolate the gravel or stone so that no fill material or adjacent earth comes in contact with pit material.

Notify the Engineer of situations where the ground water table is above the drain opening of the hydrant barrel. If directed by Engineer, plug the drain opening using a method acceptable to the hydrant manufacturer. No drainage pit is required when the hydrant drain is plugged. Mark the hydrant, in a manner acceptable to the Owner, to indicate that the drain opening has been plugged. Operation of a hydrant with plugged drain leaves the hydrant barrel full of water. Pump the hydrant barrel dry after each use.

Provide reaction or thrust blocking at the base of each hydrant that does not obstruct the drainage outlet of the hydrant per detail drawing 0201-0601-SD35. The size and shape of concrete thrust backing and the number and size of tie rods, when required, shall be approved by the

Engineer. Use the thrust blocking material specified in Specification Section 3300. See Specification Section 15000 for tie rod requirements.

3.03 TESTING

After installation and before backfilling (and after pressure testing the water main) test the hydrant as follows:

A. Pressure Test

1. Open the hydrant fully and fill with water; close all outlets.
2. To prevent caps from being blow off dry-barrel hydrants and to prevent other possible damage, vent air from the hydrant by leaving one of the caps slightly loose as the hydrant is being filled. After all air has escaped, tighten the cap before proceeding.
3. Apply line pressure.
4. Check for leakage at flanges, nozzles and operating stem.
5. If leakage is noted, repair or replace components or complete hydrant until no leaks are evident.

B. Drainage Test for Dry-Barrel Hydrants

1. Following the pressure test, close hydrant.
2. Remove one nozzle cap and place pylon or hand over nozzle opening.
3. Drainage rate should be sufficiently rapid to create a noticeable suction.
4. After backfilling, operate the hydrant to flush out any foreign material.
5. Tighten nozzle caps, then back them off slightly so that they will not be excessively tight; leave tight enough to prevent removal by hand

3.04 PAINT

After installation and backfilling paint the hydrant as follows:

- A. Paint all of the hydrant that is above the bury line in accordance with the local operations standards. Touch up paint (as specified by the OWNER) shall be applied upon completion of installation as needed. Take extreme care to ensure that paint is not applied on the "O" ring under the top operating nut and not on the threads of the hydrant nozzles and caps. If paint comes in contact with the threads and/or O Ring the Contractor shall remove all paint from the threads of the hydrant nozzles and caps, and replace the "O" ring at the Contractor's expense.

END OF SECTION