

SECTION 02603 – FIRE HYDRANTS

PART 1 – GENERAL

1.1 DESCRIPTION

- A. The WORK under this Section includes providing all labor, materials, tools and equipment necessary for furnishing and installing fire hydrant assemblies, including the hydrant leg, auxiliary gate valve, valve box, electrical thaw wire and continuity straps, tie rods, and fire hydrants; for installing guard posts to protect fire hydrants; for installing the hydrant access pads; for furnishing and installing barrel extensions on existing fire hydrants and for removing, inspecting, salvaging, and delivering existing fire hydrant assemblies to the CBJ, Public Works Utilities Division.

1.2 SUBMITTALS

- A. Fire Hydrants: Catalogue cuts.

PART 2 – PRODUCTS

2.1 FIRE HYDRANTS

- A. Fire hydrants shall conform to the requirements of AWWA C502 for Dry Barrel Fire Hydrants. Fire hydrants shall be:
 - 1. Mueller Centurian A-423,
 - 2. Waterous 5¼” Pacer or
 - 3. Dresser M & H Style 929.
- B. Fire hydrants shall be supplied with a 5¼ inch main valve opening, and a main valve seat ring threaded into a bronze bushing.
- C. Fire hydrants shall be furnished with a six inch ASA Class 125 standard mechanical-joint inlet with two cast-on lugs for tie backs.
- D. Fire hydrants shall be provided with a weathercap and an epoxy or bituminous-coated shoe.
- E. Connections shall be mechanical joint with “Mega-lug” fittings, unless otherwise indicated on the Drawings.
- F. Fire hydrants shall be three-way and furnished with two 2½-inch hose nozzles and one 4½ -inch pumper nozzle. Fire hydrants shall be left hand opening (counter clockwise). Operating and nozzle nuts shall be National Standard pentagonal with weather cap. Hose nozzle threading shall be in conformance with NFPA No. 194 for national (American) Standard Fire Hose Coupling Screw Threads.
- G. Unless otherwise required by the Drawings, fire hydrants shall be furnished with a barrel length that will allow a five foot bury.
- H. The main hydrant valves shall be of the compression type where water pressure holds the main valve closed permitting easy maintenance or repair of the entire barrel assembly

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from above the ground without the need of a water shut-off. The main valve seat shall be an ether glycol urethane compound, or approved equal, that is abrasion and gravel resistant.

- I. Fire hydrants shall be furnished with a breakaway traffic flange of the type which allows both barrel and stem to break clean upon impact from any angle. Traffic flange design must be such that repair and replacement can be accomplished above ground.
- J. All working parts shall be bronze or non-corrosive metal in accordance with the requirements of AWWA C 502.
- K. Painting and coating shall be in accordance with applicable AWWA specifications. After installation, the fire hydrant section from the traffic flange to the top of the operating nut shall be painted “OSHA Yellow,” with wording stenciled in black. Refer to CBJ Standard Detail 403 – Fire Hydrant.
- L. Gate valves and valve boxes shall be furnished and installed in accordance with Section 02602 – Valves.
- M. Electrical thaw wire and continuity straps shall be No. 2 copper wire with THW insulation, and shall be connected with bolts with double nuts, to the tee at the main.
- N. Flag assemblies shall be Flexi-Flag Assembly by Nordic fiberglass, Inc., or approved equal.
- O. The CONTRACTOR shall provide the following spare parts for every group of ten (and fraction thereof) of Fire Hydrant Assemblies installed on the Project:
 - ✍ Break Flange Repair Kit One each
 - ✍ Valve Seat Rubber One each
 - ✍ Cover Gasket One each
 - ✍ O-Rings One set

2.2 HYDRANT ACCESS PADS

- A. Hydrant access pads shall be constructed in conformance with the CBJ Standard Detail 405 – Hydrant Pad as shown, or as described in the Drawings.
- B. Corrugated Metal Pipe (CMP) shall comply with the requirements of Section 02501 – Storm Sewer Pipe.
- C. Rigid Board Insulation shall comply with Requirements of Section 02607 – Pipe Insulation.
- D. Asphaltic concrete paving shall be furnished in accordance with Section 02801 – Asphalt Concrete Pavement.

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2.3 BARREL EXTENSION

- A. Barrel extensions shall conform to the requirements of AWWA C502 for Dry Barrel Fire Hydrants and shall include barrel extension, steel stem coupling, stainless steel clevis and cotter pins, solid flange, gasket, bolts and nuts, stem extension and lubricant.

PART 3 – EXECUTION

3.1 FIRE HYDRANTS

- A. The CONTRACTOR shall install the fire hydrant assemblies in accordance with applicable AWWA Standards, the manufacturer's recommendations and the CBJ Standard Details. The interior components of the fire hydrant shall be cleaned of all foreign matter prior to installation. Fire hydrant legs shall be installed level and the barrel shall be installed plumb. Any adjustments to the traffic flange shall be accomplished with barrel extensions, in accordance with the fire hydrant manufacturer's recommendations. The extensions shall be made between existing barrel and hydrant. Fire hydrants shall be tied back to the water pipe using tie rods. The size and number of tie rods shall conform to Section 02601 – Water Pipe. Stuffing boxes shall be tightened and the fire hydrants shall be opened and closed in the presence of the ENGINEER to see that all parts are in working condition.
- B. Remove the hydrant drain plugs, if any, prior to installation.
- C. The top cap on fire hydrants serviced from the high-pressure system shall be painted yellow.
- D. Fire hydrants installed, but not available for use, shall be covered with burlap or heavy plastic and security tied.
- E. Electrical continuity is required for fire hydrant assemblies. Electrical continuity tests shall be performed in accordance with Section 02601 – Water Pipe.
- F. After installation, all fire hydrant assemblies shall be flushed, field-tested, and disinfected as outlined in Section 02601 – Water Pipe. Each hydrant shall then be winterized by removing the water in the hydrant and barrel.

3.2 GUARD POSTS

- A. Guard posts shall be installed where directed by the ENGINEER in accordance with the CBJ Standard Detail 404 – Hydrant Guard Posts. Guard posts shall not be installed in State of Alaska Department of Transportation and Public Facilities road right-of-ways.

3.3 HYDRANT ACCESS PADS

- A. Hydrant access pads shall be installed where directed by the ENGINEER in accordance with the CBJ Standard Detail 405 – Hydrant Pad, and as shown or described on the Drawings. Culvert size shall be noted on the Drawings.

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3.4 GRADE ADJUST EXISTING FIRE HYDRANTS

- A. Grade adjustments to existing fire hydrants shall be accomplished with barrel extensions, in accordance with the fire hydrant manufacturer's recommendations. In addition, the existing fire hydrant shall be connected to the mainline water pipe with all necessary materials, including the tee at the mainline water pipe, thrust blocks, six inch gate valve, valve box, joint restraints, continuity wires, thaw wires, warning tapes, and any other required fittings, including pipe, to connect the hydrant leg to the mainline water pipe. After installation, the adjusted fire hydrant shall be flushed, field-tested, and disinfected as specified in Section 02601 – Water Pipe.

3.5 SALVAGE EXISTING FIRE HYDRANTS.

- A. The CONTRACTOR shall contact the effected fire district at least 24 hours prior to removing or interrupting service to existing fire hydrants.
- B. The components of the existing fire hydrant assemblies shall be carefully removed. Damage to the fire hydrant, valve, valve box, or barrel impairing re-use shall be determined by the ENGINEER. Damaged components shall be replaced by the CONTRACTOR using factory-supplied parts from the same manufacturer.
- C. The ENGINEER will determine the usefulness of the removed fire hydrant assembly components. The CONTRACTOR shall deliver the useful components to the CBJ Public Works Department, Water Utility Division. The remaining components shall be disposed of by the CONTRACTOR.
- D. If an existing fire hydrant assembly is removed at the tee, the tee shall be plugged in accordance with the CBJ Standard Details, and the existing water main shall be disinfected between isolating valves as specified in Section 02601 – Water Pipe.
- E. At the discretion of the ENGINEER, a hydrostatic pressure test conforming to Section 02601 – Water Pipe shall be conducted between isolating valves along the existing water main.
- F. The CONTRACTOR shall restore all surface features to preconstruction condition or better, including, but not limited to, sidewalks, curbs, gutters, mailboxes, culverts, and other facilities disturbed by the construction.

3.6 RELOCATE EXISTING FIRE HYDRANT

- A. Relocation of existing fire hydrant shall conform to the requirements of Article 3.5 in this Section, except the fire hydrant piping shall be connected to the existing water valve, or to the piping on the street side of the water valve. If the fire hydrant is connected to the existing valve, this valve shall be fully opened with the existing valve box removed.

END OF SECTION