

## **SECTION S917 - HYDRANT**

### **S917-1 DESCRIPTION**

Work consists of installation of new hydrants, relocation or removal of existing hydrants as required in Contract Documents and as directed by Project Manager.

Work is to be in conformance with requirements of Section S900 General Water Provisions.

### **S917-2 MATERIALS**

#### **S917-2.01 Hydrant**

Hydrant is to be in conformance with requirements of ANSI/AWWA C502, and as approved by City of Rochester.

Hydrant is to be 5-1/4 inch, dry-barrel, break-away hydrant, manufactured for 5 feet 6 inches bury where hydrant branch pipe cover depth is 4 feet 6 inches, and 6 feet bury where hydrant branch pipe cover depth is 5 feet. Hydrant is to be open-left with one 1-1/2 inch pentagon operating nut, two 2-1/2 inch National Standard hose connections, and one 4-1/2 inch National Standard pumper connection. Inlet connection is to be 6 inch mechanical joint.

External bolting on hydrant is to be manufactured of 304 stainless steel. Furnish with corrosion resistant steel nozzle cap chains.

#### **S917-2.02 Extension Kit**

Extension kit for height adjustment of hydrant is to be available in 6 inch increments with maximum of 24 inches allowed, and is to be manufactured by same company that manufactures hydrant. Extension kit is to include rod and barrel units, with non-breakable rod and barrel couplings complete with gaskets and fasteners.

#### **S917-2.03 Hydrant Marker - Furnished**

Hydrant marker is to be supplied by and obtained from the City's Bureau of Water Materials and Equipment Section.

#### **S917-2.04 Miscellaneous**

Paint for hydrant is to be fusion bonded yellow epoxy or Insl-x Silathane Gloss Enamel Yellow No.520-35, or approved equivalent.

Paint for dome on Holly hydrant is to be fusion bonded white epoxy or Insl-x Silathane Gloss Enamel White No.520-00, or approved equivalent.

Interior coatings are to be in conformance with requirements of ANSI/AWWA C550.

Hydrant drain material is to be No. 2 crushed stone in conformance with requirements of NYSDOT Section 703-02 Coarse Aggregate.

Plastic barrier material is to be 6 mil polyethylene.

## **S917-3 CONSTRUCTION DETAILS**

### **S917-3.01 General**

Existing hydrants are property of City of Rochester, and upon removal are to be delivered to Bureau of Water Materials and Equipment Section. Upon delivery, Contractor is to obtain written receipt from Bureau of Water stating number of hydrants returned and who received them. Contractor is to provide Project Manager with copy of receipt.

### **S917-3.02 Installation**

Excavation is to be in conformance with requirements of Section R206 Trench and Culvert Excavation, and to appropriate depth to permit proper connection of hydrant to hydrant branch pipe.

Minimum cover over hydrant branch pipe and fittings, as measured between finished grade and top of exterior limit of hydrant branch pipe and fittings, is to be, unless otherwise shown in plans or ordered by Project Manager:

- × 4 feet 6 inches for domestic water pipe
- × 5 feet for Holly system water pipe

After installation of hydrant, there is to be resultant clearance of minimum of 2 inches and maximum of 6 inches between finished ground elevation and bottom of the breakaway flange coupling on hydrant.

Adjustment for proper height of hydrant may be accomplished by use of mechanical joint offset or hydrant extension kit. Hydrant extension kit is to be installed in accordance with manufacturer's recommendation and Bureau of Water standards and specifications. The installation of more than one extension kit on a hydrant must be approved by the Project Manager and will require replacement of the lower stem with a longer one that reaches the breakaway flange.

Generally, hydrant is to be located such that centerline of hydrant is at least:

- × 2 feet behind face of curb
- × 2 feet behind back edge of concrete gutter
- × 10 feet away from point of curvature of radius at street intersection
- × 10 feet away from outer edge of driveway
- × 10 feet away from outer edge of pole
- × 15 feet away from outer edge of tree

Minimum distance of 4 feet is to be maintained between hydrant and hydrant branch valve, and if necessary, use horizontal bend to achieve required minimum distance.

Hydrant is to be oriented with pumper connection nozzle at right angles to and facing pavement.

Hydrant is to be installed in vertically plumbed position on solid concrete block support. Proper alignment of hydrant is to be maintained until completion of Project.

For new hydrant installation, hydrant branch pipe material will be as required and with restrained joints.

For hydrant being replaced or relocated on existing hydrant branch pipe that is ductile iron anchor pipe, any extension of existing hydrant branch pipe is to be done using ductile iron anchor pipe.

For hydrant being replaced or relocated on existing hydrant branch pipe that is not ductile iron anchor pipe, solid concrete blocks are to be used for temporary thrust blocking to allow hydrant to be immediately pressurized. Temporary thrust blocking is to be incorporated in permanent poured concrete thrust blocks.

Embed hydrant within crushed stone material from bottom of excavation to point 12 inches above hydrant weep holes (drains), cover crushed stone material with plastic polyethylene sheet barrier, then backfill remaining portion of excavation.

Should ground water be encountered within 7 feet of finished grade, hydrant weep holes (drains) are to be plugged and Bureau of Water notified in writing that weep holes (drains) have been plugged.

Hydrant is to be brush painted with approved yellow paint. All scrapes and other bare patches on hydrants are to be repaired by repainting, then one overall coat of paint applied to hydrant. Dome on Holly hydrants is to be painted with approved white enamel paint.

Hydrant installation is to be pressure tested and made watertight. Hydrant installation is to be red tagged until hydrant is put into active service. Red tag will be supplied by and obtained from Bureau of Water, and is to be installed on hydrant by Contractor.

If one or more bollards are installed to protect the hydrant, bollards must be located at least 3 feet from the hydrant and must not be on the same alignment as any of the nozzles.

Upon completion of work, excavation is to be backfilled and disturbed surface area restored.

### **S917-3.03 Relocate Existing Hydrant**

Existing hydrant and hydrant marker or hydrant marker post are to be removed and hydrant reinstalled at new location. Reinstallation of hydrant is to be in conformance with requirements of Subsection S917-3.02 Installation. Operating stem, main valve, valve seat, drain and drainage passages are to be cleaned and inspected. Prior to installation and after reassembly, hydrant is to be checked for proper operation.

Contractor is to notify Project Manager if existing hydrant is unsuitable to be relocated. Project Manager will determine whether or not existing hydrant can be relocated, or new hydrant should be installed.

Existing hydrant marker post is to be disposed of and a new hydrant marker is to be installed on relocated hydrant.

### **S917-3.04 Remove Existing Hydrant**

Existing hydrant branch valve box and hydrant marker post are to be removed and disposed of. The branch valve box shall remain only if the branch valve is to remain in use and the valve box is properly aligned over the valve and not damaged.

Expose existing water main and hydrant branch pipe, disconnect and remove existing hydrant. Hydrant is to be delivered to Bureau of Water Materials and Equipment Section. On existing water main to be abandoned, open end of hydrant branch pipe is to be completely plugged with concrete to depth of 12 inches. On existing water main to remain in service, hydrant branch pipe is to be either cut and plugged at tee in conformance with requirements of Section S908 Cut and Plug Existing Water Main, or tee removed and replaced with new section of water main pipe in conformance with requirements of Section S906 Insertion Sleeve, as indicated in Contract Documents.

### **S917-3.06 Hydrant Marker - Furnished**

The City will supply hydrant markers. The Contractor will obtain hydrant markers from the Bureau of Water Materials and Equipment Section and install them on the hydrant, only as indicated in Contract Documents. Hydrant markers are not required to be installed within general limits of Central Business District.

The color of the hydrant marker to be installed on each hydrant shall be determined by the Bureau of Water based on the anticipated maximum flow rate available at the hydrant. Blue markers are to be installed where available flows are 1,500 gallons per minute (gpm) or greater; green markers where flows are between 1,000 gpm and 1,500 gpm; orange or yellow markers where flows are between 500 gpm and 1,000 gpm and red markers where flows are less than 500 gpm.

Hydrant marker is to be installed in accordance with manufacturer's instructions.

## **S917-4 METHOD OF MEASUREMENT**

Quantity to be measured for payment will be number of hydrants, hydrant markers, and hydrant extension kits installed, relocated, replaced, or removed.

## **S917-5 BASIS OF PAYMENT**

### **S917-5.01 General all Items**

Unit price bid for all items includes cost of: furnishing all labor, material and equipment necessary to complete work.

Excavation, rock excavation, furnishing and placing of bedding and select granular backfill, and surface restoration will be paid for under separate bid items.

Extension kits used for height adjustment of hydrant will be paid for under respective pay item for extension kits.

New hydrant branch pipe will be paid for under Section S901 Water Main Pipe and Fittings. New branch valve and valve box will be paid for under Section S903 Resilient Seat Gate Valve with Valve Box.

### **S917-5.02 New Hydrant**

Unit price bid also includes cost of: furnishing and installing hydrant; concrete block support; concrete thrust block; crushed stone; plastic sheet barrier; plugging weep holes (drains) if required; painting hydrant; pressure testing; and connecting hydrant branch pipe to hydrant.

### **S917-5.03 New Hydrant (Including Removal of Existing Hydrant)**

In addition to requirements of Subsection S917-5.02 New Hydrant, unit price bid also includes cost of: removing and delivering existing hydrant to Bureau of Water Materials and Equipment Section; and connecting new hydrant branch pipe to existing hydrant branch pipe.

New hydrant (including removal of existing hydrant) item will only be paid where existing hydrant is being replaced by new hydrant on same hydrant branch pipe.

### **S917-5.04 Relocate Existing Hydrant**

Unit price bid also includes cost of: removing, cleaning, inspecting, reinstalling and repainting hydrant; removing and disposing existing hydrant marker post; concrete block support; concrete thrust block; crushed stone; plastic sheet barrier; pressure testing; connecting hydrant branch pipe to hydrant; and connecting new hydrant branch pipe to existing hydrant branch pipe.

### **S917-5.05 Remove Existing Hydrant**

Unit price bid also includes cost of: disconnecting and delivering existing hydrant to Bureau of Water Materials and Equipment Section; removing and disposing of existing branch valve box and hydrant marker post; and plugging open end of hydrant branch pipe with concrete.

Remove existing hydrant item will only be paid when existing hydrant is removed and new hydrant is not set on same hydrant branch pipe.

Plugging or removing existing tee and installation of insertion sleeve will be paid for under separate bid items.

**S917-5.06 Hydrant Marker - Furnished**

Unit price bid also includes cost of: obtaining hydrant marker from Bureau of Water Materials and Equipment Section and installing hydrant marker on hydrant.

**S917-5.07 Extension Kit**

Unit price bid also includes cost of: furnishing and installing extension kit; removing and reinstalling existing hydrant and replacing lower stem, where required.

Payment will be made under:

<b>ITEM NO.</b>	<b>ITEM</b>	<b>PAY UNIT</b>
S917.01	New Hydrant	Each
S917.02	New Hydrant (Including Removal of Existing Hydrant)	Each
S917.04	Relocate Existing Hydrant	Each
S917.05	Remove Existing Hydrant	Each
S917.0601	Hydrant Marker (Furnished)	Each
S917.07	6" Hydrant Extension Kit	Each
S917.08	12" Hydrant Extension Kit	Each
S917.09	18" Hydrant Extension Kit	Each
S917.10	24" Hydrant Extension Kit	Each