

SECTION S909 - WATER VALVE BOX

S909-1 DESCRIPTION

The work shall consist of the installation of a new water valve box assembly, removal or adjustment of existing water valve box, installation of new water valve box top section and lid or Rite-Hite style adapter, as required in the Contract Documents and as directed by the Project Manager.

The work shall be in conformance with the requirements of Section S900 General Water Provisions.

S909-2 MATERIALS

S909-2.01 Water Valve Box

Water valve box shall be two piece Buffalo Style, 5-1/4 inch shaft, cast iron boxes with a slip type extension with a flange on the top section, approximately 6-inches below top of top section and projecting 1-inch minimum beyond the outside wall of top section.

S909-2.02 Adjustment Ring

Adjustment ring shall be cast iron and capable of fitting on Buffalo Style water valve box. Minimum height shall be 1-inch with incremental heights of 1/2-inch or 1-inch.

S909-2.03 Water Valve Box Top Section

Replacement water valve box top section and lid shall be cast iron with a flange on the top section, approximately 6-inches below top of top section and projecting 1-inch minimum beyond the outside wall of top section.

S909-2.04 Water Valve Box (Pitometer)

Water valve box for pitometer shall be three piece Buffalo Style screw type, 7 inch diameter, with cast iron shaft.

S909-2.04 Water Valve Box Rite-Hite Style Adapter

Rite-Hite style slide-type adapters may be used to adjust an existing valve box in street pavement being milled and resurfaced.

S909-2.05 Concrete Encasement and Collar

Concrete for encasement and collar is to be Class D concrete, reinforced with synthetic micro-fibers. Concrete is to be in accordance with NYSDOT Section 501 Portland Cement Concrete – General

High early strength concrete may be used for placements required to satisfy open to traffic time requirements, as approved by Project Manager.

Synthetic micro-fiber reinforcement is to be in accordance with NYSDOT Section 501 Portland Cement Concrete – General, and ASTM Designation C 1116 Classification 4.1.3 Type III Synthetic Fiber-Reinforced Concrete or Shotcrete. Fiber reinforcement is to be 100 percent virgin fibrillated polypropylene micro-fibers engineered and designed for use in concrete, 1/2 to 1-1/2 inches, without containing any reprocessed olefin material. Application rate is to be per manufacturer's written instructions, but not less than 1.50 pounds per cubic yard.

S909-3 CONSTRUCTION DETAILS

S909-3.01 General

Prior to adjusting or installing water valve box on water valve which is to remain in service, water valve shall be operated by the Bureau of Water to ensure that it is functioning properly. A water valve that does not function properly shall be replaced only as approved by the Project Manager. Water valves are to be operated only by authorized representatives of the Bureau of Water.

S909-3.02 Installation

An existing water valve box that is found damaged, not of sufficient length to be raised to the required finished grade, not of the Buffalo Style or determined by the Bureau of Water to be in need of replacement, shall be removed and replaced with a new water valve box assembly.

Water valve box shall be carefully set over the stem. Top section shall be adjustable for elevation, and the base centered over the operating nut. Water valve box shall be carefully set and braced to insure that it remains in a vertical position centered on the stem during and after backfilling. Proper alignment and height of water valve box shall be maintained, until completion of the Project. Top of the water valve box shall be flush with the finished grade. Backfilling of the excavation shall be done in a manner so as to avoid damage to the water valve and water valve box. Concrete encasement at new valve boxes and new valve box top sections shall surround the top section flange.

Upon completion of the work, the excavation shall be backfilled and the surface area restored.

S909-3.03 Removal of Existing Water Valve Box Assembly

Existing water valve box on abandoned water valve shall be removed to a minimum of 18 inches below the finished grade.

S909-3.04 Installation of New Water Valve Box Assembly

Existing water valve box shall be removed and a new water valve box assembly installed. New water valve box shall be carefully set over the existing stem, the base centered over the operating nut and the top section adjusted for elevation.

S909-3.05 Replacement of Water Valve Box Top Section

A sufficient area shall be excavated to enable the upper section of the water valve box to be removed. No debris shall be allowed to fall into the existing water valve box. New top section shall be carefully set over the existing bottom section and adjusted to the proper elevation.

S909-3.06 Water Valve Box Adjustment

A. Water Valve Box Adjustment with Cast Iron Rings

Prior to resurfacing of a pavement surface, the top elevation of an existing water valve box shall be adjusted to finished grade by adding or removing a cast iron adjustment ring. Adjustment ring shall be secured into the existing water valve box with a fast setting adhesive. Adhesive shall be two-part epoxy, ET500 as manufactured by Permabond, or approved equivalent.

B. Water Valve Box Adjustment with Slip or Screw Type Extensions

Existing water valve box shall be raised or lowered to the finished grade. Prior to adjustment, the water valve box shall be checked for proper alignment. If a water valve box is found to be out of alignment, the Project Manager shall be notified immediately.

Flanges on existing water valve box sections are not to be broken to facilitate adjustment.

C. Water Valve Box Adjustment with Rite-Hite Style Adapters

If the existing valve box is too low, place an adapter inside the existing box. Pour stiff Class D concrete mortar around it and push down until the adapter is flush with the pavement surface. If the existing valve box is too high, break off the top of the box and insert the adapter. Extreme care must be taken to prevent any broken valve box parts from falling into the valve box. The contractor is responsible to remove any debris that falls into the valve box. Pour stiff Class D concrete around the adapter and push down until the adapter is flush with the pavement surface.

S909-2.06 Water Valve Box – with Concrete Collar

Concrete collar is required when a valve box is located within asphalt, concrete, brick or other stone paver type street pavement areas when: installing a new valve box at an existing valve, replacing a valve box top section at an existing valve or making an extension adjustment or adjustment with Rite-Hite style adapter to an existing valve box top section.

Concrete collar will not be required where valve box is located within concrete gutter section, sidewalk, driveway, lawn or landscaped area.

In lieu of Class D concrete, high early strength concrete may be used for placements required to satisfy open to traffic time requirements, as approved by Project Manager.

For square shaped concrete collar, saw cut pavement full depth along neat lines around outer extents of concrete collar with power saw with diamond or abrasive blade designed for such work – do not overcut corners. Only remove pavement section to depth sufficient to construct concrete collar – do not over excavate.

For round shaped concrete collar, cut pavement full depth along neat lines around outer extents of concrete collar with power hole cutter system that has heavy-duty auger driven cutter/excavator, and adjustable cutting diameter that is capable of cutting out and removing cut pavement section to required diameter and depth in one operation. Do not overcut or over excavate pavement section.

Care is to be taken not to damage any portion of adjacent pavement section. Any damage to adjacent pavement section caused by Contractor's operations is to be repaired by Contractor at their expense.

Round and square concrete collars shall completely encompass valve box casting and shall extend from the outer edge of the casting a minimum of 8 inches. Outer edge of concrete collar is to be parallel with and perpendicular to pavement edge. Depth of concrete collar is to be a minimum of 12 inches as measured from top of pavement and shall completely encase the flange on new valve box top sections. Exact depth will be based on actual field conditions, as recommended by Contractor and as approved by Project Manager. Provide scored and tooled joints extending out from the casting to the outer edge of concrete collar.

After concrete has completely set, thoroughly seal all edges and joints, including around valve box casting, with highway joint sealant.

Apply asphalt pavement joint adhesive between top of concrete collar and adjacent asphalt pavement top course, thoroughly sealing joint.

Where Contractor elects to cut pavement area for concrete collar installation and leave core in place for removal at a later time, void must be filled-in or otherwise plated over by end of that day.

S909-4 METHOD OF MEASUREMENT

The quantity to be measured for payment shall be the number of water valve boxes actually installed, removed, or adjusted.

No separate measurement or payment will be made for concrete collars. Concrete collars will be included in respective bid item as indicated in item description.

S909-5 BASIS OF PAYMENT

S909-5.01 General all Items

The unit price bid for all items shall include the cost of: furnishing and installing new water valve box assemblies, cast iron adjustment rings or Rite-Hite style adapters; having existing water valves checked; removal and disposal of existing water valve boxes; removal of debris from existing water valve boxes; adjustment of new or existing water valve boxes to finished grade and verification of proper alignment over valve operating nut; pavement saw cutting; and furnishing all labor, material and equipment necessary to complete the work.

S909-5.02 Remove Existing Water Valve Box

Separate payment for removal of water valve box will be made only if water valve box is permanently removed and not replaced and only if water valve box is located outside of pavement reconstruction or trench and culvert excavation area, and only if removal of the water valve box is not being done in conjunction with salvaging of an existing valve or removal of an existing hydrant.

Payment for those water valve boxes permanently removed that are located in pavement trench and culvert excavation area, or are removed in conjunction with salvaging of an existing water valve, or removal of an existing hydrant, will be included in unit price bid for Items 203.02 Unclassified Excavation and Disposal, R206.04 Trench and Culvert Excavation, S902.03XX Salvage Existing Water Valve, or S917.05 Remove Existing Hydrant.

S909-5.03 Water Valve Box Adjustment with Cast Iron Rings

The unit price bid shall also include the cost of furnishing and installing cast iron adjustment rings up to a total height of 6 inches, adhesive and reinstalling existing lid.

S909-5.04 Replacement of Water Valve Box Top Section

The unit price bid shall also include the cost of: removal of existing water valve box top sections and lids; furnishing and installing new water valve box top sections and lids.

S909-5.05 Water Valve Box Adjustment with Rite Hite Style Adapter

The unit price bid shall also include the cost of furnishing and installing the Rite-Hite Style adapter; breaking off top of existing water valve box top section; furnishing and installing stiff concrete around Rite-Hite Style adapter and reinstalling existing lid.

S909-5.06 New Water Valve Box, New Top Section, Extension Adjustment, Adjustment with Rite-Hite Style Adapter – with Concrete Collar

Furnishing and installing concrete collar will be included in unit price bid for item as indicated in item description.

Unit price bid also includes cost of: excavation; full depth pavement cutting and removal; backfill; repair and compaction of pavement subbase; furnishing and installing concrete; fiber reinforcement; scored and tooled joints; setting castings; and furnishing and applying highway joint sealant and asphalt pavement joint adhesive.

S909-5.07 Excavation, Backfill and Surface Restoration

Excavation, furnishing and placing of select granular backfill and surface restoration will be paid for under separate bid items or included in the price bid for the items as indicated in the payment item description.

Bid items that include concrete collar as indicated in item description, will always include excavation and backfill.

Excavation that is included in the pay item does not include rock excavation. Rock excavation will be paid for under separate bid item.

Payment will be made under:

ITEM NO.	ITEM	PAY UNIT
S909.01	Furnish and Install New Water Valve Box	Each
S909.02	Furnish and Install New Water Valve Box (Including Excavation and Backfill)	Each
S909.03	Furnish and Install New Water Valve Box (Including Excavation, Backfill and Surface Restoration)	Each
S909.0301	Furnish and Install New Water Valve Box (Including Concrete Collar)	Each
S909.04	Remove Existing Water Valve Box	Each
S909.05	Remove Existing Water Valve Box (Including Excavation and Backfill)	Each
S909.06	Remove Existing Water Valve Box (Including Excavation, Backfill and Surface Restoration)	Each
S909.07	Adjust Existing Water Valve Box to Grade - Extension Adjustment	Each
S909.08	Adjust Existing Water Valve Box to Grade - Extension Adjustment (Including Excavation and Backfill)	Each
S909.09	Adjust Existing Water Valve Box to Grade - Extension Adjustment (Including Excavation, Backfill and Surface Restoration)	Each
S909.0901	Adjust Existing Water Valve Box to Grade – Extension Adjustment (Including Concrete Collar)	Each
S909.10	Adjust Existing Water Valve Box to Grade with Adjustment Rings	Each
S909.12	Replace Existing Water Valve Box Top Section	Each
S909.13	Replace Existing Water Valve Box Top Section (Including Excavation and Backfill)	Each
S909.14	Replace Existing Water Valve Box Top Section (Including Excavation, Backfill and Surface Restoration)	Each
S909.1401	Replace Existing Water Valve Box Top Section (Including Concrete Collar)	Each
S909.1501	Furnish and Install New Water Valve Box (Pitometer)	Each
S909.1502	Furnish and Install New Water Valve Box (Pitometer) (Including Excavation and Backfill)	Each
S909.1503	Furnish and Install New Water Valve Box (Pitometer) (Including Excavation, Backfill and Surface Restoration)	Each
S909.1504	Furnish and Install New Water Valve Box (Pitometer) (Including Concrete Collar)	Each
S909.1601	Replace Existing Water Valve Box Top Section (Pitometer)	Each
S909.1602	Replace Existing Water Valve Box Top Section (Pitometer) (Including Excavation and Backfill)	Each

ITEM NO.	ITEM	PAY UNIT
S909.1603	Replace Existing Water Valve Box Top Section (Pitometer) (Including Excavation, Backfill and Surface Restoration)	Each
S909.1604	Replace Existing Water Valve Box Top Section (Pitometer) (Including Concrete Collar)	Each
S909.17	Adjust Existing Water Valve Box to Grade – Rite-Hite Style Adapter	Each
S909.18	Adjust Existing Water Valve Box to Grade – Rite-Hite Style Adapter (Including Excavation and Backfill)	Each
S909.19	Adjust Existing Water Valve Box to Grade – Rite-Hite Style Adapter (Including Excavation, Backfill and Surface Restoration)	Each
S909.1901	Adjust Existing Water Valve Box to Grade – Rite Hite Style Adapter (Including Concrete Collar)	Each

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