

SECTION S604 - CATCH BASIN AND SEWER MANHOLE

S604-1 DESCRIPTION

Work consists of construction, modification or repair of catch basin and field inlet structures; and adjustment or replacement of sewer manhole frame and cover as required in Contract Documents and as directed by Project Manager.

References to NYSDOT specifications are to be in accordance with latest edition of *NYSDOT Standard Specifications (US Customary Units)*.

S604-2 MATERIALS

S604-2.01 General

Bar reinforcement is to be grade 60 in accordance with NYSDOT Section 709-01 Bar Reinforcement, Grade 60.

Brick is to be first quality, sound, hard-burned common sewer brick, culled of all irregular, unsound or damaged brick, in accordance with ASTM Designation C32 grade SS.

Exterior damp proofing material is to be two coats of Hi-Build Bituminous Coating 35-J-10 as manufactured by Mobil Corporation, or Koppers Bitumastic Super Service Black as manufactured by Koppers Company, Inc, or approved equivalent.

Interior damp proofing material is to be two coats of Tamms Duralkote 500 epoxy as manufactured by Dural International Corporation, or approved equivalent.

Grout is to be non-shrink type grout with minimum compressive strength of 4000 psi at 24 hours in accordance with NYSDOT Section 701-05 Concrete Grouting and Anchoring Material.

Joint compound is to be Mainstay Joint Compound, Sikaflex-1A, Sonolastic NPII as manufactured by Sonneborn, or approved equivalent.

Portland cement mortar is to be in accordance with ASTM Designation C270, Type M, Mortar for Unit Masonry.

Cement mortar for plugging abandoned lateral pipe is to be regular cement mortar, Type II cement.

Select granular backfill (sewer) material for backfilling around catch basin, field inlet and sewer manhole structures, is to be in accordance with Section S203 Excavation and Embankment.

Stone bedding material for leveling course under catch basin and field inlet structures is to be in accordance with Section S203 Excavation and Embankment.

S604-2.02 Catch Basin, Field Inlet

A. General

Concrete to be used for catch basin/field inlet structure is to have minimum 28 day compressive strength of 4,000 psi, constructed in accordance with NYSDOT Sections 704-03 Precast Concrete – General and 706-04 Precast Concrete Drainage Units.

Structure is to be supplied complete with frame and grate, and minimum 2 ton lifting eyes or hooks.

B. Type A and Type B Catch Basin Frame and Grate

Frame and grate are to be fabricated steel in accordance with Section R655 Frame and Grate.

C. Type A and Type B Catch Basin (Furnished)

Monroe County Pure Waters (MCPW) will furnish precast section of catch basin structure, complete with frame and grate. Furnished materials are to be picked-up from MCPW Stockroom, 444 East Henrietta Road, Rochester, New York, Monday through Friday, between hours of 8:00AM and 3:00PM, (585) 753-7574. MCPW Stockroom requires minimum of 2 working days advance notice to make arrangements for pick-up of furnished materials.

D. Type C Catch Basin

Type C catch basin is to be cast-in-place concrete structure, with frame and grate, trap and underdrain check valve.

Catch basin frame and grate is to be per Syracuse pattern NYSDOT No.9 as manufactured by Syracuse Castings, or approved equivalent.

Catch basin trap is to be cast iron hooded type per Neenah R-3701-8 as manufactured by Neenah Foundry Company, or tee wye with threaded clean-out plug on top side.

Underdrain check valve is to be capable of preventing water from backing up into underdrain pipe.

E. Type D Catch Basin

Type D catch basin is to be Type B catch basin structure, frame and grate; with additional access frame and cover.

Access frame is to be welded steel, and access cover 1/4 inch diamond plate, rib reinforced hot rolled steel, hot dipped galvanized, in accordance with ASTM A36, ASTM A48-83 Class 30B, and ASTM 123.

F. Field Inlet

Field inlet is to be cast-in-place Type A catch basin structure, with concave shaped frame and grate.

Frame and grate is to be heavy duty cast iron type per Neenah R-3205 as manufactured by Neenah Foundry Company, or approved equivalent.

S604-2.03 Sewer Manhole Frame and Cover

A. General

Concrete for encasement of sewer manhole frame and cover and riser section is to be class K concrete in accordance with Section S504 Portland Cement Concrete.

B. Adjustment Rings and Flat Top Slab

Adjustment rings and flat top slab are to be precast concrete with minimum 28 day compressive strength of 4,000 psi, constructed in accordance with NYSDOT Sections 704-03 Precast Concrete – General and 706-04 Precast Concrete Drainage Units.

Unit is to be supplied complete with minimum 4 ton lifting eyes or hooks.

C. Sewer Manhole Frame and Cover

Castings are to be gray iron in accordance with ASTM A48-83 and AASHTO M105-82, with minimum tensile strength of 30,000 psi, (Class 30B). Castings are to be rated heavy-duty designed for AASHTO HS-20-44 highway loading plus 30 percent impact. As-cast dimensional tolerances are not to exceed $\pm 1/16$ inch per foot.

Standard manhole covers are to be heavy-duty 1-3/8 inch thick, 24 inch diameter, with 22-1/2 inch clear opening, per Syracuse pattern 1032.

Watertight outer manhole covers are to be heavy-duty 1-1/2 inch thick, 30 inch diameter, with 24 inch clear opening on inner cover, 1/4 inch thick gasket, and inner cover bolt and lock bar, per Syracuse pattern 6544.

D. Sewer Manhole Frame and Cover (Furnished)

Monroe County Pure Waters (MCPW) will furnish replacement sewer manhole and cover. Furnished materials are to be picked-up from MCPW Fleet Center, 145 Paul Road, Chili, New York, Monday through Friday, between hours of 8:00AM and 3:00PM, (585) 753-7626. MCPW Fleet Center requires minimum of 2 working days advance notice to make arrangements for pick-up of furnished materials.

S604-3 CONSTRUCTION DETAILS

S604-3.01 General

Manufacturer's shop drawings are to be submitted to City for approval as required in General Conditions Article 6, Section 6.13 Shop Drawings and Samples.

Construct all new sewer main and lateral pipes, catch basins, field inlets, sewer manholes, and any other related appurtenances in accordance with requirements of Rochester Pure Waters District (RPWD).

Existing sewer manhole frames and covers, catch basin and field inlet frames, grates, access covers and capstones are property of RPWD. All such appurtenances that are removed are to be cleaned of all extraneous material and returned to MCPW Fleet Center, 145 Paul Road, Rochester, New York, Monday through Friday, between hours of 8:00AM and 3:00PM, inquire at main gate.

Appropriate measures are to be taken to prevent any damage to, or dirt, debris, construction materials, and any other extraneous materials from entering existing sewer system including but not limited to sewer main, lateral and underdrain pipes, catch basins, field inlets, sewer manholes, junction chambers, and any other related appurtenances during construction of Project. Any such invasive materials are to be removed immediately and contaminated appurtenance thoroughly cleaned.

RPWD must be notified immediately in event of any damage to existing sewer pipes and appurtenances, by calling (585) 753-7600, option 1. All repairs are to be performed in presence of representative of RPWD and are to be made in accordance with requirements of RPWD.

Excavation is to be performed in accordance with requirements of Section R206 Trench and Culvert Excavation.

Stone bedding leveling course and select granular backfill (sewer) materials are to be placed in accordance with requirements of Section S203 Excavation and Embankment. No structure is to be backfilled until mortar has completely set.

Sewer manhole frame and cover, catch basin and field inlet frame and grate, and catch basin access frame and cover are to be placed true to line and grade. Suitable measures are to be taken to ensure that cover or grate has continuous, full and uniform bearing contact with corresponding frame. Cover or grate is to be non-rocking when in place and under influence of traffic or other loads. Suitable methods to achieve non-rocking fit between cover or grate and corresponding frame will include, but not be limited to, following:

- ground mating surfaces
- machined and milled mating surfaces (horizontal and vertical)
- match marked elements
- locking elements

If match marked elements are utilized, care is to be taken to retain identity of elements in order to correctly match them and assure proper fit.

Field repairs may include grinding or proper welding techniques for material involved. Repairs that involve welding will be allowed only on steel castings and only with prior approval of Project Manager. Repairs are to result in complete unit whose individual parts have continuous, full and uniform bearing contact with each other, and that cover or grate does not rock or move under influence of traffic or other loads.

Catch basin and field inlet grate, and catch basin access cover are to be bolted down to respective frame making sure that all bolts are completely tightened and unable to be loosened by hand.

Upon completion of work, structures are to be thoroughly damp proofed, cleaned of all extraneous material and kept clean until final acceptance of work.

S604-3.02 Catch Basin, Field Inlet

Prior to ordering precast portion of new structure, verify proposed invert elevation, and size and direction of all lateral and underdrain pipes.

Where existing lateral pipe is to be reconnected to new structure, existing lateral pipe is to be thoroughly cleaned of all extraneous material before and after making connection.

Lateral and underdrain pipe connections are to be made flush with inside face of structure and are to project outside of structure sufficient distance to allow for proper connection with adjoining lateral and underdrain pipe sections. Lateral and underdrain pipes are to fit neatly and tightly within structure wall, and connections are to be thoroughly sealed with epoxy grout and mortar.

Apply two coats of damp proof material to exterior and interior surfaces of structure, making sure that all surfaces are thoroughly covered.

S604-3.03 Adjust Existing Catch Basin, Field Inlet Frame and Grate, Access Frame and Cover

Existing frame and grate, and if required access frame and cover, is to be removed and cleaned of all extraneous material. Any portions of existing structure walls that are damaged are to be repaired consistent with original construction.

Scarify or otherwise remove as necessary top portion of existing structure walls to sufficient depth to accommodate new 12 inch concrete cap. Prior to forming and pouring new concrete cap, top surface of existing structure walls are to be coated with epoxy polysulfide grout meeting requirements of NYSDOT Material designation 721-03 Epoxy Polysulfide Grout. Number 5 rebar is to be installed to tie-in new concrete cap with existing structure walls, extending minimum of 6 inches into both new concrete cap and existing structure walls. Drill holes into existing structure walls to install rebar, grout in rebar to form tight fit. Install existing or new frame and grate.

Apply two coats of damp proof material to exterior and interior surfaces of structure, making sure that all surfaces are thoroughly covered.

S604-3.04 Modify Existing Capstone Catch Basin

Existing structure walls are generally constructed of brick and mortar, with portion of structure being located under and behind curb line and topped off with medina capstone.

Existing frame and grate are to be removed and cleaned of all extraneous material. Existing structure walls that are damaged are to be repaired consistent with original construction.

All existing solid and structurally sound capstones are to be carefully removed, cleaned of all extraneous material and returned to MCPW. Existing capstone is to be cleaned in such manner as to be non-deleterious to existing capstone. Existing capstone that is broken during excavation or salvage operations, or found to be unacceptable for re-use by Project Manager is to be disposed of.

Existing structure walls are to be dismantled by hand to depth sufficient to accommodate new reinforced Class A concrete lintel, and installation of full length piece of curb. New concrete lintel is to be constructed across portion of existing structure that is located behind and under curb line, is to be formed, and reinforced with number 4 rebar.

If necessary, use brick and mortar or concrete to adjust top of existing structure walls to grade before installing existing or new frame and grate.

Apply two coats of damp proof material to exterior and interior surfaces of structure, making sure that all surfaces are thoroughly covered.

S604-3.05 Relocate Existing Catch Basin, Field Inlet

Existing frame and grate, and if required access frame and cover, is to be removed and cleaned of all extraneous material. Any portions of existing structure walls that are damaged are to be repaired consistent with original construction.

Carefully excavate around existing structure in such manner as not to damage existing structure, completely exposing entire structure. Disconnect existing lateral and underdrain pipes. Carefully pick up, move and reinstall existing structure in its new location in such manner as not to damage existing structure. Existing structure that is damaged during excavation or salvage operations, or found to be unacceptable for re-use by Project Manager is to be disposed of.

If necessary, use brick and mortar or concrete to adjust top of structure walls to grade before reinstalling existing frame and grate, or installing new frame and grate.

Where existing lateral pipe is to be abandoned, open end of existing lateral pipe is to be plugged in accordance with Subsection S604-3.10 Abandon and Remove Existing Catch Basin, Field Inlet.

Connect existing or new lateral and underdrain pipes to structure. Where existing lateral pipe is to be reconnected, existing lateral pipe is to be thoroughly cleaned of all extraneous material before being reconnected. Connections are to be made flush with inside face of structure wall, and are to project outside of structure sufficient distance to allow for proper connection with adjoining lateral and underdrain pipe sections. Lateral and underdrain pipes are to fit neatly and tightly within structure wall, and connections thoroughly sealed with epoxy grout and mortar.

Unused openings in structure walls are to be blocked up with brick and mortar. Finish off with concrete, completely filling in all voids and thoroughly sealing up both exterior and interior sides of opening. Surfaces of blocked up openings are to be smooth, blend in with surrounding surface, without any excess projections, and damp proofed.

Apply two coats of damp proof material to exterior and interior surfaces of structure, making sure that all surfaces are thoroughly covered.

S604-3.06 Clean Existing Catch Basin, Field Inlet and Lateral Pipe

Existing structure and lateral pipe are to be cleaned of all extraneous material and kept clean until final acceptance of work.

S604-3.07 Damp Proof Existing Catch Basin, Field Inlet

Thoroughly clean entire interior surface area of structure by sand blasting or water pressure, removing all existing damp proofing and other extraneous materials so as to be in condition suitable for proper application of new damp proof material.

Apply two coats of damp proof material to interior surfaces of structure, making sure that all surfaces are thoroughly covered.

Apply two coats of damp proof material to exterior surfaces of structure that are exposed, making sure that all surfaces are thoroughly covered.

S604-3.08 Temporary Adjustment of Catch Basin, Field Inlet Frame and Grate

Where required for an extended layover, or for winter shut down, temporary riser section is to be built on top of existing structure walls to temporarily set frame and grate to grade.

Fill existing keyway with sand, construct temporary riser with brick and mortar to proper height necessary to set frame and grate to grade and on sound bearing.

Apply one coat of damp proof material to exterior and interior surfaces of temporary riser section.

Prior to final paving, remove temporary riser section and sand fill, and properly dispose of all materials.

After removal of temporary riser section, construct permanent riser section and install frame and cover in accordance with Subsection S604-3 Construction Details.

S604-3.09 Catch Basin Wall, Field Inlet Repair

Dismantle and remove damaged area of existing structure wall to be dismantled to point where wall is structurally sound. Work to repair damaged area is to be consistent with original construction.

Entire structure and lateral pipe are to be cleaned to main sewer of all construction and any other extraneous debris, and maintained clean for duration of project. All debris removed is to be promptly disposed of.

Apply two coats of damp proof material to interior surfaces of structure, making sure that all surfaces are thoroughly covered.

Apply two coats of damp proof material to exterior surfaces of structure that are exposed, making sure that all surfaces are thoroughly covered.

S604-3.10 Abandon and Remove Existing Catch Basin, Field Inlet

Existing frame and grate, and if required access frame and cover, are to be removed, cleaned of all extraneous material and returned to MCPW.

Existing lateral and underdrain pipes are to be disconnected, and existing structure completely removed and disposed of.

Where existing lateral pipe is to be abandoned in place, disconnected end is to be plugged. For lateral pipe 6 inch diameter and smaller, insert rubber gasketed mechanical type permanent plug into open end of lateral pipe. For lateral pipe over 6 inch diameter, fill open end of lateral pipe with brick until opening is plugged as much as possible. Completely fill and seal any remaining void with cement mortar.

Where existing lateral pipe is to remain active and extended to new structure, disconnected end is to be connected to new lateral pipe in accordance with Section S601 Sewer Lateral and Connection.

Where existing underdrain pipe is to remain, and separated pieces connected with new underdrain pipe.

S604-3.11 Adjust or Replace Existing Sewer Manhole Frame and Cover

Existing frame and cover are to be removed and cleaned of all extraneous material. If existing frame and cover is to be replaced, clean and return frame and cover to MCPW.

Remove portion of existing riser section as necessary to retrofit frame and cover to finished grade and on sound bearing. For adjustment use either new concrete adjustment ring or bricks/concrete blocks set in mortar leveling course.

Where necessary, install new concrete top slab in accordance with Subsection S604-3.13 Sewer Manhole Flat Top Slab.

After setting frame, encase frame and rebuilt riser section all around with 12 inches of concrete. Top of concrete encasement is to be at least 3-1/2 inches below grade in pavement area, 5 inches below grade outside of pavement area.

Where necessary, install new concrete top slab in accordance with Subsection S604-3.13 Sewer Manhole Flat Top Slab.

Apply two coats of damp proof material to interior surfaces of new riser section, making sure that entire surface area is thoroughly covered.

S604-3.12 Temporary Adjustment of Sewer Manhole Frame and Cover

Where required for an extended layover, or for winter shut down, temporary riser section is to be built on top of existing structure walls to temporarily set frame and cover to grade.

Remove portion of existing riser section as necessary to retrofit frame and cover to grade. Construct temporary riser with brick and mortar to proper height necessary to set frame and cover to grade and on sound bearing.

Where necessary, install new concrete top slab in accordance with Subsection S604-3.13 Sewer Manhole Concrete Flat Top Slab.

After setting frame, encase frame and rebuilt riser section all around with 12 inches of concrete. Top of concrete encasement is to be at least 3-1/2 inches below grade in pavement area, 5 inches below grade outside of pavement area.

Apply one coat of damp proof material to interior surface of temporary riser section.

Prior to final paving, remove temporary riser section and concrete encasement, and properly dispose of all materials.

After removal of temporary riser section, construct permanent riser section and install frame and cover, in accordance with Subsection S604-3 Construction Details.

After removal of temporary riser section, construct permanent riser section and install frame and cover in accordance with Subsection S604-3.11 Adjust or Replace Existing Sewer Manhole Frame and Cover.

S604-3.13 Sewer Manhole Flat Top Slab

Remove portion of existing riser section as necessary to retrofit new flat top slab on sound bearing. Install new precast concrete flat top slab in mortar leveling course onto existing manhole structure.

Apply two coats of damp proof material to exterior and interior surfaces of structure, making sure that all surfaces are thoroughly covered.

S604-3.14 Abandon and Remove Existing Sewer Manhole

Existing frame and cover are to be removed, cleaned of all extraneous material and returned to MCPW.

Existing sewer pipe(s) is to be disconnected, and existing structure completely removed and disposed of.

Where existing sewer pipe(s) is to be abandoned in place, open end(s) is to be plugged. For existing sewer pipe 6 inch diameter and smaller, insert rubber gasketed mechanical type permanent plug into open end(s) of sewer pipe. For existing sewer pipe over 6 inch diameter, fill open end(s) with brick until opening(s) is plugged as much as possible. Completely fill and seal any remaining void with regular cement mortar Type II cement.

Where inline manhole structure has been removed and existing sewer pipe is to remain active, open ends are to be interconnected with new sewer pipe.

S604-4 METHOD OF MEASUREMENT

S604-4.01 Catch Basin, Field Inlet

Quantity to be measured for payment will be number of new structures constructed; or existing structures modified, relocated, cleaned, or abandoned.

For type D catch basin, measurement will be made with frame and grate, including access frame and cover, counted as one complete unit.

Under this pay unit, maximum invert depth for new structure construction will be up to 4 feet 6 inches (4.50'), as measured between elevation of top of grate and elevation of interior floor of new structure.

S604-4.02 Additional Depth of New Catch Basin, Field Inlet

Quantity to be measured for payment will be number of linear feet of additional depth for new structure construction, where maximum invert depth exceeds 4 feet 6 inches (4.50') as specified in Subsection S604-4.01 Catch basin, Field Inlet, as measured to nearest tenth (0.10) of foot.

S604-4.03 Adjust Existing Catch Basin, Field Inlet Frame and Grate, Access Frame and Cover

Quantity to be measured for payment will be number of existing structure frame and grate units, including type D catch basin access frame and cover, adjusted. For type D catch basin, measurement will be made with frame and grate, including access frame and cover, counted as one complete unit.

S604-4.04 Damp Proof Existing Catch Basin, Field Inlet

Quantity to be measured for payment will be number of existing structures where exterior and/or interior portion is required to be completely damp proofed. Measurement will be made separately for both interior and exterior damp proofing, they will not be counted as one complete unit.

Separate payment for damp proofing will be limited only to those existing structures that are not already damp proofed, or where existing damp proofing needs to be completely replaced.

No separate payment will be made for damp proofing of new structure construction.

S604-4.05 Temporary Adjustment of Catch Basin. Field Inlet Frame and Grate

Quantity to be measured for payment will be number of structures topped with temporary brick riser section.

S604-4.06 Catch Basin Wall, Field Inlet Repair

Quantity to be measured for payment will be number of linear feet of structure wall repaired as measured to nearest tenth (0.10) of foot. Linear feet of structure wall repaired will be measured vertically along area repaired, and will include all sides of structure.

i.e.: Four walls of structure that are repaired for 1 foot in height will be measured as 1 linear foot of repair.

S604-4.07 Sewer Manhole

Quantity to be measured for payment will be number of existing sewer manhole frames and covers adjusted, replaced, or temporarily adjusted; or sewer manholes abandoned.

S604-4.08 Sewer Manhole Flat Top Slab

Quantity to be measured for payment will be number of sewer manhole flat top slabs installed.

S604-5 BASIS OF PAYMENT

S604-5.01 Catch Basin, Field Inlet

A. General

Unit price bid includes cost of: sheeting; shoring; verifying existing and proposed top of grate and invert elevations; furnishing and installing precast structure; constructing cast-in-place structure; concrete; forms; key way; rebar; mortar; epoxy grout; damp proofing; frames and grates; stone bedding leveling course; field repair of improperly fitting frame and grate; providing openings for connection of lateral and underdrain pipe; connecting and sealing lateral and underdrain pipes to structure; cleaning out structure and lateral pipe; disposing all extraneous material; and furnishing all labor, material and equipment necessary to complete work.

Where an existing structure is being replaced and existing structure falls within general trench excavation limits for new structure and/or lateral pipe, removal of existing structure is considered to be part of general trench excavation for new structure and/or lateral pipe.

Where an existing structure is being replaced and existing structure falls outside of general trench excavation limits for new structure and/or lateral pipe, removal of existing structure will not be considered to be part of general trench excavation for new structure and/or lateral pipe, and will be paid for separately under Section R206 Trench and Culvert Excavation.

Excavation including hand and tunnel excavation, and furnishing and placing of select granular backfill (sewer) will be paid for under separate bid items or included in unit price bid for item as indicated in item description.

Pavement base or full pavement restoration, will be paid for under separate bid items or included in unit price bid for item as indicated in item description.

B. Type C Catch Basin

Unit price bid also includes cost of: furnishing and installing hooded trap and underdrain check valve.

C. Type D Catch Basin

Unit price bid also includes cost of: furnishing and installing access frame and cover; field repair of improperly fitting access frame and cover.

D. Type A and Type B Catch Basin (Furnished)

For structures to be furnished by MCPW, unit price bid also includes cost of: making arrangements for and picking-up precast structure, including frame and grate.

E. Type A, Type B and Type D Catch Basin – Installed

Unit price bid also includes cost of: excavation, backfill, select granular backfill (sewer); either pavement base or full pavement restoration.

F. Type A, Type B and Type D Catch Basin – Installed (Furnished)

For structures to be furnished by MCPW, unit price bid also includes cost of: making arrangements for and picking-up precast structure, including frame and grate; excavation, backfill, select granular backfill (sewer); either pavement base or pavement restoration..

G. Additional Depth of Catch Basin, Field Inlet

Unit price bid also includes cost of: furnishing and constructing additional cast-in-place portion that exceeds maximum invert depth of 4 feet 6 inches (4.50').

H. Adjust Existing Catch Basin, Field Inlet Frame and Grate, Access Frame and Cover

Unit price bid also includes cost of: excavation; backfill; select granular backfill (sewer); removing, cleaning and resetting existing frame and grate; access frame and cover; repairing existing structure walls; scarifying or removal of existing concrete riser section; removal temporary brick riser; furnishing and installing concrete cap; epoxy polysulfide grout; drilling holes.

S604-5.02 Modify Existing Capstone Catch Basin

Unit price bid includes cost of: excavation; backfill; removing, cleaning, returning or disposing existing capstone; removing, cleaning, resetting or disposing existing frame and grate; repairing existing capstone catch basin walls; hand dismantling or otherwise preparing top portion existing capstone catch basin walls; furnishing and installing concrete lintel; brick and mortar or concrete cap; masonry; forms; epoxy polysulfide grout; rebar; grout; damp proofing; cleaning capstone catch basin structure and lateral pipe; disposing all extraneous material; and furnishing all labor, material and equipment necessary to complete work.

Furnishing and installing new frame and grate will be paid for under separate bid items.

S604-5.03 Relocate Existing Catch Basin, Field Inlet

Unit price bid includes cost of: removing, moving, resetting and cleaning existing structure; frame and grate; access frame and cover; repairing existing structure walls; disconnecting existing pipes; plugging existing pipes to be abandoned in place; furnishing and installing permanent mechanical plug; brick; cement mortar; furnishing and installing brick and mortar or concrete cap; concrete; forms; epoxy polysulfide grout; rebar; grout; drilling holes; blocking up and sealing excess openings; damp proofing; cleaning structure and pipes; disposing all extraneous material; and furnishing all labor, material and equipment necessary to complete work.

Furnishing and installing new frame and grate, access frame and cover, lateral pipe and underdrain pipe will be paid for under separate bid items.

S604-5.04 Clean Existing Catch Basin, Field Inlet and Lateral Pipe

Unit price bid includes cost of: cleaning existing structure and lateral pipe; disposing all extraneous material; and furnishing all labor, material and equipment necessary to complete work.

S604-5.05 Damp Proof Existing Catch Basin, Field Inlet

Unit price bid includes cost of: furnishing and applying damp proof material; cleaning existing structure surfaces by sand blasting, water pressure, or any other acceptable method; disposing all extraneous material; cleaning existing lateral pipe; and furnishing all labor, material and equipment necessary to complete work.

S604-5.06 Temporary Adjustment of Catch Basin, Field Inlet Frame and Grate

Unit price bid includes cost of: excavation; backfill; select granular backfill (sewer); furnishing, installing, removing and disposing temporary brick and mortar riser section; sand fill; setting, removing, maintaining and installing structure frame and grate; access frame and cover; damp proofing; cleaning existing lateral pipe; and furnishing all labor, material and equipment necessary to complete work.

Final adjustment or replacement of structure frame and grate, access frame and cover, will be paid for under separate bid items.

S604-5.07 Catch Basin, Field Inlet Wall Repair

Unit price bid includes cost of: excavation; furnishing and installing select granular backfill (sewer); dismantling and repairing damaged structure walls; cleaning existing structure and lateral pipe; disposing of all debris; furnishing and applying damp proofing; and furnishing all labor, material and equipment necessary to complete work.

S604-5.08 Abandon and Remove Existing Catch Basin, Field Inlet

Unit price bid includes cost of: removing, cleaning and returning existing frame and grate; access frame and cover; removing and disposing existing inlet structure; disconnecting, abandoning and plugging existing pipes; furnishing and installing permanent mechanical plug; brick; regular cement mortar Type II cement; filling and sealing void at plugged end; disposing all extraneous material; and furnishing all labor, material and equipment necessary to complete work.

Furnishing and installing new pipe(s) to reconnect open ends of existing pipe(s) will be paid for under separate bid item.

S604-5.09 Adjust Existing Sewer Manhole Frame and Cover

Unit price bid includes cost of: excavation; backfill; removing, cleaning, resetting existing manhole frame and cover; field repair of improperly fitting manhole frame and cover; preparing existing sewer manhole riser including removal of portion of existing sewer manhole structure as necessary; furnishing and installing either concrete adjustment ring or bricks/concrete blocks; mortar leveling course; concrete encasement; damp proofing; cleaning existing manhole structure; disposing all extraneous material; and furnishing all labor, material and equipment necessary to complete work.

Furnishing and installing new concrete top slab will be paid for under separate bid item.

S604-5.10 Replace Existing Sewer Manhole Frame and Cover

Unit price bid includes cost of: excavation; backfill; removing, cleaning and disposing or returning existing manhole frame and cover; furnishing and installing new manhole frame and cover; field repair of improperly fitting manhole frame and cover; preparing existing sewer manhole riser including removal of portion of existing sewer manhole structure as necessary; furnishing and installing either concrete adjustment ring or bricks/concrete blocks; mortar leveling course; concrete encasement; damp proofing; cleaning existing manhole structure; disposing all extraneous material; and furnishing all labor, material and equipment necessary to complete work.

For units to be furnished by MCPW, unit price bid also includes cost of: making arrangements for and picking-up manhole frame and cover.

Furnishing and installing new concrete top slab will be paid for under separate bid item.

S604-5.11 Temporary Adjustment of Sewer Manhole Frame and Cover

Unit price bid includes cost of: excavation; backfill; removing, cleaning and resetting existing sewer manhole frame and cover; preparing existing sewer manhole riser including removal of portion of existing sewer manhole structure as necessary; furnishing, installing and removing temporary brick riser section, mortar leveling course and concrete encasement; damp proofing; cleaning existing sewer manhole structure; disposing of all removed materials; and furnishing all labor, material and equipment necessary to complete work.

Final adjustment or replacement of sewer manhole frame and cover will be paid for under separate bid item.

Furnishing and installing new concrete top slab will be paid for under separate bid item.

S604-5.12 Sewer Manhole Flat Top Slab

Unit price bid includes cost of: excavation; backfill; removing portion of existing sewer manhole structure as necessary; furnishing and installing flat top slab, mortar leveling course; damp proofing; concrete encasement; cleaning existing sewer manhole structure; disposing of all removed materials; and furnishing all labor, material and equipment necessary to complete work.

Final adjustment or replacement of sewer manhole frame and cover will be paid for under separate bid item.

S604-5.13 Abandon and Remove Existing Sewer Manhole

Unit price bid includes cost of: removing, cleaning and returning existing sewer manhole frame and cover; removing and disposing existing sewer manhole structure; disconnecting, abandoning and plugging existing sewer pipe(s); furnishing and installing permanent mechanical plug; brick; regular cement mortar Type II cement; filling and sealing void at plugged end(s); disposing all extraneous material; and furnishing all labor, material and equipment necessary to complete work.

Furnishing and installing new sewer pipe to reconnect open ends of existing pipe(s) will be paid for under separate bid item.

S604-5.14 Excavation, Backfill, Pavement Base Restoration and Pavement Restoration

Excavation including hand and tunnel excavation, furnishing and placing of stone bedding and select granular backfill (sewer), and either pavement base or full pavement restoration, will be paid for under separate bid items or included in unit price bid for item as indicated in item description.

No separate payment will be made for placement of select backfill material excavated from trench.

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

Where bid item includes cost of pavement base restoration, pavement base may consist of either concrete base or asphalt base course, as required in Contract Documents. Unit price bid will be same regardless of which type of pavement base is used, and bid items will include cost of: subbase courses type 1 and type 2; either Class C concrete foundation or asphalt base course.

Where bid item includes cost of pavement restoration, pavement base may consist of either concrete base or asphalt base course, as required in Contract Documents. Unit price bid will be same regardless of which type of pavement base is used, and bid items will include cost of: subbase courses type 1 and type 2; either Class C concrete foundation or asphalt base course; asphalt binder course; asphalt top course; and asphalt tack coat.

Payment will be made under:

ITEM NO.	ITEM	PAY UNIT
S604.30	Type A Catch Basin	Each
S604.31	Type B Catch Basin	Each
S604.32	Type C Catch Basin	Each
S604.33	Type D Catch Basin	Each
S604.34	Field Inlet	Each
S604.35	Type A Catch Basin (Furnished)	Each
S604.36	Type B Catch Basin (Furnished)	Each
S604.3701	Type B Catch Basin - Installed (Including Excavation, Backfill and Pavement Base Restoration)	Each
S604.3702	Type B Catch Basin - Installed (Including Excavation, Backfill and Pavement Restoration)	Each
S604.3703	Type D Catch Basin - Installed (Including Excavation, Backfill and Pavement Base Restoration)	Each
S604.3704	Type D Catch Basin - Installed (Including Excavation, Backfill and Pavement Restoration)	Each
S604.3801	Type B Catch Basin - Installed (Furnished) (Including Excavation, Backfill and Pavement Base Restoration)	Each
S604.3802	Type B Catch Basin - Installed (Furnished) (Including Excavation, Backfill and Pavement Restoration)	Each

ITEM NO.	ITEM	PAY UNIT
S604.40	Additional Depth Type A Catch Basin	Linear Foot
S604.41	Additional Depth Type B Catch Basin	Linear Foot
S604.4101	Additional Depth Type B Catch Basin (Including Excavation and Backfill)	Linear Foot
S604.42	Additional Depth Type C Catch Basin	Linear Foot
S604.43	Additional Depth Type D Catch Basin	Linear Foot
S604.44	Additional Depth Field Inlet	Linear Foot
S604.50	Adjust Existing Catch Basin Frame and Grate (Including Excavation and Backfill)	Each
S604.5001	Adjust Existing Field Inlet Frame and Grate (Including Excavation and Backfill)	Each
S604.5002	Adjust Existing Catch Basin Access Frame and Cover (Including Excavation and Backfill)	Each
S604.5004	Adjust Existing Catch Basin Frame and Grate (Including Excavation, Backfill and Pavement Base Restoration)	Each
S604.5005	Adjust Existing Catch Basin Frame and Grate (Including Excavation, Backfill and Pavement Restoration)	Each
S604.51	Modify Existing Capstone Catch Basin (Including Excavation and Backfill)	Each
S604.52	Relocate Existing Catch Basin	Each
S604.5201	Relocate Existing Field Inlet	Each
S604.53	Clean Existing Catch Basin and Lateral Pipe	Each
S604.5301	Clean Existing Field Inlet and Lateral Pipe	Each
S604.54	Damp proof Existing Catch Basin	Each
S604.5401	Damp proof Existing Field Inlet	Each
S604.55	Temporary Adjustment of Catch Basin Frame and Grate (Including Excavation and Backfill)	Each
S604.5501	Temporary Adjustment of Field Inlet Frame and Grate (Including Excavation and Backfill)	Each
S604.560101	Abandon and Remove Existing Catch Basin	Each
S604.560201	Abandon and Remove Existing Catch Basin (Including Excavation and Backfill)	Each
S604.560301	Abandon and Remove Existing Catch Basin (Including Excavation, Backfill and Pavement Base Restoration)	Each
S604.560401	Abandon and Remove Existing Catch Basin (Including Excavation, Backfill and Pavement Restoration)	Each
S604.570101	Abandon and Remove Existing Field Inlet	Each
S604.570201	Abandon and Remove Existing Field Inlet (Including Excavation and Backfill)	Each
S604.58	Catch Basin Wall Repair	Linear Foot
S604.59	Field Inlet Wall Repair	Linear Foot
S604.60	Adjust Existing Sewer Manhole Frame and Cover (Including Excavation and Backfill)	Each
S604.61	Replace Existing Sewer Manhole Frame and Cover (Furnished) (Including Excavation and Backfill)	Each
S604.62	Temporary Adjustment of Sewer Manhole Frame and Cover (Including Excavation and Backfill)	Each
S604.63	Replace Existing Sewer Manhole Frame and Cover (Including Excavation and Backfill)	Each
S604.64	Replace Existing Sewer Manhole Frame and Cover with New Watertight Manhole Frame and Cover (Including Excavation and Backfill)	Each
S604.65	Clean Existing Manhole	Each

ITEM NO.	ITEM	PAY UNIT
S604.6601	Abandon and Remove Existing Sewer Manhole	Each
S604.6701	Abandon and Remove Existing Sewer Manhole (Including Excavation and Backfill)	Each
S604.6801	Abandon and Remove Existing Sewer Manhole (Including Excavation, Backfill and Pavement Base Restoration)	Each
S604.6901	Abandon and Remove Existing Sewer Manhole (Including Excavation, Backfill and Pavement Restoration)	Each
S604.70	Sewer Manhole Precast Concrete Flat Top Slab – 48” Diameter	Each
S604.71	Sewer Manhole Precast Concrete Flat Top Slab – 60” Diameter	Each

REVISED December 1, 2015