

600 INCIDENTALS

ITEM 604 - MANHOLES, CATCH BASINS AND INLETS

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604.01 Description. This work shall consist of furnishing all materials for manholes, catch basins, inlets, endwalls, headwalls, inspection wells, junction chambers or monuments of the types and sizes specified, and constructing the same, or adjusting existing manholes, catch basins, inlets or water valve boxes to grade, and reconstruction of manholes to grade. All work shall meet the material and dimension requirements as shown on the referenced standard drawings and details.

604.02 Materials. Materials shall be:

Structure concrete.....	499, 511
Mortar	602.03
Brick and masonry units.....	704
Reinforcing steel.....	509
Frames, grates, covers.....	711.12
Precast reinforced concrete manhole riser sections, catch basins, inlet tops, manhole adjusting rings, catch basin tops and temporary barrier	706.13
Manhole joints	706.10 or 706.11
Manhole connections	706.15
Frames, grates, covers.....	711.12 and 711.13
Manhole steps.....	711.30 or 711.31

When precast structures such as manholes, inlets, headwalls, endwalls, catch basins or any similar structures are proposed to be incorporated into the work, the Contractor shall submit the following:

- (a) Manufacturer's name.
- (b) Detail design plans.

(c) Material specifications.

Approval will also be based on complete inspection of manufacturer's facility and production, materials to be used, and final product. All products delivered to the job site will also be subjected to functional tests and must be marked with a "COC" stamp.

All castings are to be delivered to the project unpainted.

604.03 Construction Methods, General. The construction for the item specified shall conform to the plans and be placed at the locations and elevations shown *on the plans or directed by the Engineer. If the Engineer changes the structure elevation by more than 1 foot (0.3 m), compensation or deductions for the work involved, whether increased or decreased, will be provided for in a supplemental agreement.* All sanitary or combined sewer manholes shall be precast concrete manhole sections or poured-in-place.

No flat top or flat slab transition section will be permitted for any sanitary manholes unless shop drawings accompanied by calculations, and stamped and signed by a Professional Engineer registered in the State of Ohio are submitted and approved.

All connections for lateral sewers including, stubs with bulkheads, drops and leads, except pipe included in Items 603 and 901, will be considered a part of all manholes, inlets and catch basins. In lieu of cast-in-place concrete, precast bottoms may be used provided the bottoms are constructed with lifting lugs and are reinforced for handling. They shall have a uniform bearing on at least 3 inches (76 mm) of compacted sand foundation, or as shown on the standard drawings. The invert channel shall be the true shape of the lower half of the pipe or sewer, and if required shall be lined with split pipe.

Adequate precautions shall be taken to prevent concrete and/or mortar from freezing: Brick, concrete block, etc. having a temperature of 40°F (4°C) or less shall not be set with mortar until heated for a period sufficient to insure a temperature of 50° to 80°F (10° to 26°C) throughout the entire mass of the material.

Iron frames, tops and covers of the type called for on the plans shall be set in a mortar bed at the locations and to the elevation specified.

Special care shall be exercised to prevent the entrance of earth or debris into the pipeline connecting with the manhole, catch basin or inlet. All such earth or debris resulting from construction operations shall be removed from the pipeline.

When manholes, inlets or catch basins are being raised or lowered more than 9 inches (228 mm), they shall be reconstructed to grade.

Reconstruction shall consist of the careful removal and cleaning of existing castings; the removal of existing walls down to the spring line or below as necessary for

manholes, and down below the window openings, grates or any points of wall failure for catch basins and inlets; and reconstruction of the units to the new grades, conforming as nearly as practicable to the existing dimensions and type of construction, using the salvaged castings.

Adjustment to grade shall be accomplished by one of the following methods:

1. Carefully remove and clean the existing frame; adjust the height of supporting walls as necessary; and reset the existing frame in a bed of mortar or concrete.
2. Carefully remove the existing cover or grate and furnish and install a metal adjusting ring or casting in accordance with the plan details.

604.04 Excavation and Backfill. All excavation for manholes, catch basins, inlets, etc., shown on the plans, shall be in accordance with Section 901.03, and be of such dimensions in all cases as will give ample room for construction. The removal of any obstruction or relocation of any utility within 1 foot (0.3 m) outside the outer edge of the structures, if not specifically called to be removed or relocated by the plans, shall be done by the Contractor at no additional cost to the City. All backfilling around these structures shall be in accordance with Item 203 and Section 901.17.

604.05 Brick and Precast Concrete Block Masonry. Brick or block walls shall be 8 inches (203 mm) thick. Brick or block shall be thoroughly wetted before laying in the mortar. Brick or block shall be laid up with full mortar joints. Mortar shall be as specified in Section 602.03. Special shaping of walls and bottoms shall be included in the unit price bid.

The outside surfaces of all brick or block masonry shall be plastered with a 1/2 inch (13 mm) coat of mortar and shall be cured with wet burlap for a period of 48 hours. Inside joints of masonry structures shall be wiped clean with a glove or other approved method. The exposed surfaces of all brick or block masonry shall be cured with wet burlap for a period of 48 hours, or by applying curing membrane in accordance with 511.14.

604.06 Precast Concrete Modular Construction for Manholes, Catch Basins and Inlets. Precast concrete modular units shall be in accordance with the applicable standard drawing, or as approved by the Engineer. Precast bases shall be placed on a foundation as noted on the standard drawings, a minimum of 3 inches (76 mm) of compacted sand, or as approved by the Engineer. The compacted foundation shall be leveled to provide a uniform support for the entire area of the base.

Catch basins and inlets manufactured with knock-out panels will only be permitted where the construction drawings show a pipe entering the structure that will replace the panel

All joints between modules shall be as follows:

Sanitary manholes shall conform to the requirements of ASTM C443 as it pertains to the use of a confined gasket.

Storm sewer applications shall be in conformance with ASTM C443, 706.10 or 706.11.

Pipe entrances to the precast modular sections for sanitary sewers 8 inches (203 mm) to 48 inches (1.2 m) in diameter shall be a flexible watertight joint in accordance with 706.15.

Pipe entrances to the precast modular sections for storm sewers shall be in accordance with 706.15, or neatly grouted in place.

All lift holes and other openings in the structure shall be thoroughly and neatly grouted with cement mortar or other suitable material approved by the Engineer, after all pipes are placed into the structure.

All sanitary manholes shall be watertight structures.

604.07 Orifice Plates. All orifice plates shall be made of noncorrosive metal and manufactured to the dimensional specifications as shown on the plans.

604.08 Concrete (Cast-In-Place). Concrete of the classes specified shall be as set forth under Items 499 and 511.

604.09 Method of Measurement. The number of manholes, catch basins, or inlets will be the actual number of each, completed or adjusted to grade and accepted.

604.10 Basis of Payment. Payment will be made at the contract price for:

Item	Unit	Description
604	Each	Manhole, Type ____
604	Each	Manholes, as Per Plan
604	Each	Inlets, Type ____
604	Each	Catch Basins, Type ____
604	Each	Manholes Adjusted to Grade
604	Each	Inlets Adjusted to Grade
604	Each	Catch Basins Adjusted to Grade
604	Each	Manholes Reconstructed to Grade
604	Each	Endwall for ____ Inch (mm) Pipe
604	Each	Headwall for ____ Inch (mm) Pipe
604	Each	Monument Assemblies

604	Each	Reference Monuments
604	Each	Inspection Wells
604	Each	Junction Chambers