

SECTION 5.07
CATCH BASINS, MANHOLES AND
DROP INLETS

5.07.01--Description: Under this heading shall be included the construction of all catch basins, junction boxes, manholes and drop inlets--and also the alteration, reconstruction or conversion of such existing structures--all in conformity with the lines, grades, dimensions and details shown on the plans, or as ordered, and in accordance with the provisions of these specifications for the various materials and work which constitute the completed structure.

When it becomes necessary to increase the horizontal dimensions of manholes, catch basins, junction boxes and drop inlets to sizes greater than those shown on the plans in order to provide for multiple pipe installations or large pipes or for other reasons, the Contractor shall construct such manholes, catch basins and drop inlets to modified dimensions as directed by the Engineer.

5.07.02--Materials: The materials to be used in the construction shall be those indicated on the plans or ordered by the Engineer and shall conform to Article M.08.02. Protective compound material shall conform to Subarticle M.03.01-11.

Mortar shall conform to Article M.11.04.

Pervious material shall conform to Article M.02.05.

Geotextile shall be of a type appearing on the [Department's Approved Products List](#) for Geotextiles, referred to in Subarticle M.08.01-26.

5.07.03--Construction Methods: These structures shall be constructed in accordance with the requirements contained herein for the character of work involved. The provisions of Article 6.02.03 pertaining to bar reinforcement shall apply except that shop drawings need not be submitted for approval, unless called for on the plans or directed by the Engineer. Welding shall be performed in accordance with the applicable sections of the AWS Structural Welding Code, D1.1.

The surfaces of the tops of all catch basins, junction boxes and drop inlets shall be given a coat of protective compound material immediately upon completion of the concrete curing period at the rate of 0.2 L/m^2 .

All masonry units shall be laid in full mortar beds.

Metal fittings for catch basins, junction boxes, manholes or drop inlets shall be set in full mortar beds or otherwise secured as shown on the plans.

Inlet and outlet pipes shall extend through the walls for a sufficient distance beyond the outside surface to allow for satisfactory connections, and the concrete or masonry shall be constructed around them neatly to prevent leakage along their outer surfaces. The pipe shall be cut flush with the inside face of the wall, or as shown on the plans.

When constructing a new drainage structure within a run of existing pipe, the section of existing pipe disturbed by the construction shall be replaced with new pipe of identical type and size extending from the drainage structure to the nearest joint of the existing pipe.

Pervious material shall be used for backfilling the upper portion of the excavation made for catch basins and drop inlets down to the elevation of the invert of the outlet pipe but in no case to a depth greater than 1 m below the top of the structure. Drainage openings shall be formed in the four walls of the structure at or immediately above the bottom of the pervious backfill to convey subsurface drainage. The openings shall be covered with geotextile. Depending on the masonry used in the walls, such openings shall be formed by the insertion of 50 mm pipes, omission of a header brick or by leaving two open vertical joints in the masonry.

Frames, covers and tops which are to be reset shall be removed from their present beds, the walls or sides shall be rebuilt to conform to the requirements of the new construction and the tops, frames and covers reset, or the grates or covers may be raised by extensions of suitable height approved by the Engineer.

Extensions shall not be used on catch basins or drop inlets at pavement low points or where adjacent curbing is being raised. Extensions for catch basins or drop inlets shall be tack welded to the frame in four locations approximately at the mid points of each side of the frame. If the frames, covers or tops are broken or so damaged as to be unfit for further use, they shall be replaced with new, sound material conforming to the above requirements for the material involved.

5.07.04--Method of Measurement: Construction, reconstruction and conversion of catch basins, manholes and drop inlets will be measured as units.

The depth of a unit shall be the total depth, measured from the highest point of the grate or cover to bottom of floor slab.

Conversion of catch basins to catch basins of the type specified or to manholes, as the case may be, will be measured for payment as a unit including excavation, cutting of pavement, removal and replacement of pavement, pervious material, backfill and all necessary alterations to the walls and furnishing and setting the frame and grate or cover, whichever applies.

There will be no measurement or direct payment for the application of the protective compound material, but the cost of this work shall be considered as included in the general cost of the work.

Resetting tops, frames and covers will be measured as units.

Replacement of tops, frames and covers will be paid for as a unit for resetting plus the unit for catch basin top or manhole frame and cover.

When resetting tops, frames and covers, there will be no measurement for excavation; cutting, removal and replacement of pavement; pervious material and backfill.

Measurement for payment for work and materials involved with installing pipes to connect new drainage structures into a run of existing pipe will be as provided for under the applicable contract items.

5.07.05--Basis of Payment: These structures will be paid for as follows:

1--Excavation will be paid for as "Trench Excavation" in accordance with the provisions of Article 2.05.05.

2--Catch Basins, Junction Boxes and Manholes having a depth of not over 3 m will be paid for at the contract unit price each for "Junction Box," "Catch Basin," of the type specified, or "Manhole," of the type specified, complete in place, which price shall include all materials, equipment, tools and labor incidental thereto.

3--Catch Basins, Junction Boxes and Manholes having a depth of more than 3 m will be paid for at the Contract unit price each for "Catch Basin over 3 m deep", "Junction Box over 3 m deep", or "Manhole over 3 m deep," of the type specified, complete in place, which price shall include all materials, equipment, tools and labor incidental thereto.

4--Drop Inlets will be paid for at the contract unit price each for "Drop Inlet," of the type specified, complete in place, which price shall include all materials, equipment, tools and labor incidental thereto.

5--Reset Units will be paid for at the contract unit price each for "Reset Manhole," "Reset Catch Basin," or "Reset Drop Inlet," of the type specified, respectively, complete in place, which price shall include excavation, pervious material, backfill, cutting of pavement, removal and replacement of pavement structure, and all materials, equipment, tools and labor incidental thereto, except that when the work requires reconstruction

greater than 1 m measured vertically, then the entire cost of resetting the unit will be paid for as extra work in accordance with the provisions of Article 1.04.05.

6--Manholes, Catch Basins, and Drop Inlets, constructed to modified dimensions as directed by the Engineer, will be paid for as follows:

Where the interior floor area, as measured horizontally at the top of the base of the completed structure, does not exceed 125 percent of the interior floor area as shown on the plans for that structure, the structure will be paid for at the contract unit price for "Manhole," "Catch Basin," or "Drop Inlet" of the type specified. The increase in the unit price for the individual structure shall be in direct proportion to the increase of the completed interior floor area over the interior floor area as shown on the plans for that structure. Such increased unit price shall include all materials, equipment, tools, and labor incidental to the completion of the structure.

Where shown on the plans or where directed by the Engineer, catch basins shall be constructed with paved inverts and no sumps. Paved inverts in catch basins without sumps shall be formed as shown on the plans for manholes. These will be paid for as catch basins of the type specified, as provided above.

7--Pervious Material, Dampproofing and Geotextile: will not be paid for directly, but the cost thereof shall be included in the contract unit price each for the type of drainage structure where used.

8--"Frames, Covers and Tops" when required in connection with reset units, will be paid for at the contract unit price each for such "Manhole Frame and Cover or (Type) Catch Basin Top", complete in place, including all incidental expense; or when no price exists, the furnishing and placing of such material will be paid for as extra work.

When the catch basin top has a stone or granite curb in its design, this curb or inlet shall be included in the cost of the top.

9--Conversion of drainage structures will be paid for at the contract unit price each for "Convert Catch Basin to (Type) Catch Basin," "Convert Catch Basin to Manhole," or "Convert of Manhole to Catch Basin," complete in place, which price shall include excavation, cutting of pavement, removal and replacement of pavement, pervious material, backfill, all alterations to present catch basin, all materials including catch basin frame and grate of the type specified, or manhole frame and cover, all equipment, tools and labor incidental thereto.

The maximum change in elevation of frame under these items shall not exceed 1 m. Greater changes if required will be paid for as extra work, in accordance with the provisions of Article 1.04.05, unless otherwise provided.

Pay Item	Pay Unit
(Type) Catch Basin	EA.
(Type) Catch Basin Over 3 m Deep	EA.
(Type) Drop Inlet	EA.
Manhole (Type)	EA.
Manhole (Type) Over 3 m Deep	EA.
Reset Catch Basin (Type), Drop Inlet (Type), Reset Manhole	EA.
Manhole Frame and Cover	EA.
Convert Catch Basin to (Type) Catch Basin	EA.
Convert Catch Basin to Manhole	EA.
Convert Manhole to Catch Basin	EA.
(Type) Catch Basin Top	EA.
(Type) Junction Box	EA.
(Type) Junction Box - Over 3 m Deep	EA.