

**TECHNICAL SPECIFICATION 305
CATCH BASINS, DRAINAGE MANHOLES, AND YARD DRAINS**

305.1 SCOPE OF WORK

This technical specification covers the furnishing of all labor, materials, testing, submittals, tools, and equipment necessary to construct, alter, reconstruct, reset, convert and/or replace catch basins, drainage manholes, yard drains, inlets or such existing structures, in accordance with the plans, detail drawings, specifications or as directed by the Engineer. This work shall include excavation, sawcutting, removal and disposal of unsuitable material (which shall include existing manhole or catch basin structures), any necessary base material, suitable backfill material, dewatering, frames, grates, tops and covers, cleaning and incidentals necessary to complete the work as specified or as directed.

305.2 MATERIALS

Materials for this work shall conform to the applicable provisions of Form 817, Section 5.07.02. Red brick is not to be used. Ladder rungs shall conform to AASHTO M 199 (ASTM C478).

Processed aggregate shall be medium gradation conforming to Technical Specification 210 – “Processed Aggregate Base”.

Yard drain grates shall be Campbell Foundry R-918 or equivalent, as approved by the Engineer.

305.3 SUBMITTALS

The following submittals shall be submitted to the Engineer for review and approval prior to installation:

- Material certifications for all pre-cast concrete
- Material certifications for all metal components
- Gradation test results for processed aggregate base

305.4 CONSTRUCTION METHODS

Drainage structures shall be built in accordance with Form 817, Section 5.07.03 and as specified herein or as shown on the plans.

A. Catch basins, Manholes, and Yard Drains - General

Ends of all pipes shall extend to and be cut flush with inside face of structures. The edges of pipes shall be mortared to cover the reinforcing.

Ladder rungs shall be installed in all catch basins and manholes when the depth of the structure from the top of the frame to the lowest flow line exceeds 4 feet. Ladder rungs shall be spaced a maximum of eighteen (18) inches apart, in straight alignment and firmly cemented into the structure walls.

Where precast sump units or slabs are used, the Contractor shall prepare and level the base with a minimum depth of 8 inches of processed aggregate per Technical Specification 210-Processed Aggregate Base.

Sump depths for catch basins are normally 2 feet but shall be increased to 4 feet when catch basins outlet to a drywell, and infiltrator system, or when directed by the Engineer.

Poured in-place concrete floor slabs shall be a minimum of 6 inches thick and shall be installed on leveled, compacted undisturbed soil. In case of overexcavation, compacted processed aggregate shall be used to bring the elevation to the bottom of the slab.

Backfill with suitable material approved by the Engineer.

The Contractor shall achieve a minimum compaction density of 95% of the dry density achieved by ASHTO T180, Method D. Water may be used in combination with mechanical methods on lifts which shall not exceed 12 inches. During compaction, care should be taken to avoid damaging the structure.

Frames shall be set to finished grade when constructed. If adjacent paving is not completed prior to winter, asphalt shims shall be installed as directed by the Engineer.

The interior floors and sumps shall be cleaned prior to acceptance.

B. Precast Units

All precast concrete products must have the casting date clearly labeled on each product. No precast concrete product shall be delivered to the site within the 7 day period following the casting date.

All weakened areas or knockouts that are not used shall be bricked and mortared to maintain design wall thickness.

Riser sections shall have sealed connections as recommended by the manufacturer and approved by the Engineer. Precast sections shall contain knockouts or weakened wall sections only at the required locations for pipes.

The exterior joints of precast catch basins shall be wrapped with geotextile covering at least 12 inches on both sides of the joint.

C. Concrete Masonry Units

Where concrete masonry units are used, corbelling will be allowed at a maximum of one inch per course on the last 3 courses. On Type C basins, only the front and side walls shall be corbelled. The top course of masonry block shall be turned 90 degrees on the front and side walls only. (On Type CL basins, all 4 sides shall be corbelled and the top course shall be turned 90 degrees).

When the total exterior depth of the catch basin exceeds 10 feet, the wall thickness shall be increased to 12 inches.

The exterior of all concrete masonry catch basins and manholes shall be wrapped with geotextile. All fabric joints shall be overlapped 6" minimum. Backfill shall only be accomplished after inspection and approval of the structure and connectors by the Engineer.

All masonry units and metal fittings for catch basins, manholes and inlets shall be set in a full ½ inch minimum bed of mortar.

In sandy soils, and prior to geotextile application, the portion of the walls between the floor and the elevation of the invert of the outlet pipe shall be coated with damp-proofing material in accordance with the requirements of Form 817, Section 7.08.

D. Sanitary Manholes

All work performed on sanitary manholes will be in conformance with the technical specifications of the Metropolitan District Commission (MDC). Any materials furnished by MDC shall be picked up by the Contractor at 125 Maxim Road, Hartford, CT or at other locations designated by MDC.

305.5 MEASUREMENT

Measurement for this item will be based on the actual number of catch basins, manholes or inlets, constructed or reconstructed, altered or converted as shown on the plans, or as ordered by the Engineer.

305.6 PAYMENT

Payment for these items will be based on the unit price for Each structure completed and accepted in place, including all labor, materials, testing, submittals, tools, and equipment necessary to complete the work as specified.

PAY ITEM	PAY UNIT
(Type) Catch Basin	EA.
(Type) Catch Basin Over 10' Deep	EA.
(Type) Manhole	EA.
(Type) Manhole Over 10' Deep	EA.
Reset Catch Basin Top	EA.
Reset Manhole Top	EA.
Convert Catch Basin to (Type) Catch Basin	EA.
Convert Catch Basin to Manhole	EA.
Convert Manhole to (Type) Catch Basin	EA.
Replace (Type) Catch Basin Grate & Top	EA.
Replace Manhole Frame & Cover	EA.
Install Catch Basin or Manhole Riser	EA.
Yard Drain	EA.