

SECTION 63

STORM SEWER MANHOLES

63.1 MANHOLES

A. General

This work consists of the construction or reconstruction of manholes.

B. Related Work

Section 54	Pipe Culverts
Section 55	Concrete Masonry
Section 56	Concrete for Incidental Construction (Class M)
Section 57	Reinforcement for Concrete Masonry
Section 62	Drop Inlets
Section 100	Portland Cement
Section 106	Masonry Mortar Sand and Epoxy Resin Mortar Sand
Section 120	Reinforced Concrete Pipe
Section 121	Corrugated Metal Pipe
Section 200	Controlled Low Strength Material

63.2 MATERIALS

- A. Concrete shall conform to the requirements of Class M6, Section 56.
- B. Precast manhole units shall conform to the requirements of ASTM-C-478.
- C. Castings: Frames and covers shall consist of approved gray iron castings meeting the requirements of AASHTO M105, Class 30.
- D. Mortar shall consist of one (1) part Portland Cement and two (2) parts mortar sand conforming to Sections 100 and 106, respectively.

63.3 CONSTRUCTION REQUIREMENTS

Concrete for cast-in-place manholes shall be proportioned, mixed, hauled, and placed in accordance with Section 55.

When the foundation for a manhole is in new embankment, the embankment shall be constructed at least one (1) foot above the footing before the foundation is prepared. The foundation shall be compacted to the satisfaction of the Engineer.

Castings shall be set in full mortar beds or secured as shown on the plans. Castings shall be set to the correct elevation so subsequent adjustment will not be necessary.

Inlet and outlet pipe connections shall be the same size and kind and shall meet the same requirements as the pipe they connect. Unless otherwise permitted by the Engineer, pipe sections shall be flush on the inside of the structure wall and project outside for proper connection with the next pipe section. Masonry shall fit neatly and tightly around the pipe.

Upon completion and curing of the cast in place unit, sheeting, bracing, forms, and falsework shall be removed and the excavation backfilled. Pre-cast units shall be placed on a minimum of four (4) inches of bedding material. Backfill of either type shall be placed in layers not exceeding six (6) inches thick and compacted to the same degree as specified for adjacent embankment except, if Flowable Fill is utilized to backfill, the Flowable Fill shall be placed in accordance with Section 200 – Controlled Low Strength Material.

Installations shall be finished and left in a condition satisfactory to the Engineer.

The following specific provisions shall apply to the various types of construction:

A. Cast-in-Place Concrete

The foundation for manholes shall be thoroughly moistened immediately prior to placing concrete.

Steel reinforcement shall be placed in accordance with Section 57.

Concrete shall be protected and cured in accordance with Section 55. The minimum curing time shall be seventy-two (72) hours. The finished surface of the concrete shall present a neat and smooth appearance.

B. Pre-Cast Sectional Reinforced Concrete Units

The bottom-precast section shall be set in a full mortar bed and the joints between sections and around pipes shall be filled with mortar or an approved plastic cementing compound.

C. Adjusting Manholes

When the manhole ring and cover are to be lowered sufficiently to require reconstruction of the arch, or raised more than one (1) foot, or when the reconstruction of existing manhole is specified without change in grade, the manhole shall be reconstructed to the extent necessary to provide the adjustment specified.

When the ring and cover are to be lowered to an extent which does not require reconstruction of the arch, or when the ring and cover are to be raised one (1) foot or

less, the adjustment shall be made by removing the top as necessary and setting the ring at the proper elevation on a build-up of concrete.

D. **Manhole Steps**

Manhole steps shall not be installed.

Pipe culverts and storm drains (storm sewers) shall be tested in accordance with the provisions contained in Section 54 – Pipe Culverts.

63.4 METHOD OF MEASUREMENT

A. Pre-Cast Manholes

Manholes of pre-cast sectional reinforced units will be measured as a unit for each manhole constructed.

B. Cast-in-Place Concrete Manholes

Concrete and reinforcing steel for cast-in-place concrete manholes will be measured as provided in Sections 55 and 57, respectively.

Manhole rings and covers shall be included in construction of the manhole. No separate measurement will be made for manhole rings and covers.

C. Reconstructing or adjusting manholes will be measured as a unit for each manhole reconstructed or adjusted.

D. Flowable fill

Where no bid item for flowable fill is included in the Bid Proposal, such shall be incidental to the manhole.

63.5 BASIS OF PAYMENT

A. Pre-Cast Manholes

Manholes of pre-cast sectional reinforced concrete units will be paid for at the contract unit price bid per manhole, furnished and accepted, inclusive of materials, labor, equipment, excavation, and incidentals necessary.

B. Cast-in-Place Concrete Manholes

Concrete and reinforcing steel for cast-in-place concrete manholes will be paid for in accordance with Sections 55 and 57, respectively. The cost of excavation shall be absorbed in the cost of concrete.

The cost of manhole rings and covers shall be absorbed in the respective bid price for the type manhole to be constructed.

- C. Reconstructing or adjusting manholes will be paid for at the contract unit price bid per reconstruction or adjustment of manhole. Payment for this item will be full compensation for furnishing materials, labor, and equipment necessary.
- D. Flowable fill shall be paid in accordance with Section 200 – Controlled Low Strength Material.

END OF SECTION