

Amend **Section 604 - Manholes, Inlets and Catch Basins** to read as follows:

**"SECTION 604 - DRAINAGE STRUCTURES**

**604.01 Description.** This work includes constructing drainage structures.

**604.02 Materials.** Concrete for structures shall be of the class specified. Concrete shall conform to Section 601 - Structural Concrete. If concrete in structures is to come in direct contact with sewage or sewage gases, the Contractor shall modify the proportioning of concrete according to Section 625 - Sewer System.

Other materials shall conform to the following:

Asphalt Filler	702.07
Structural Backfill Material	703.20
Trench Backfill Material	703.21
Asphalt (Filler) Type C Asphalt	705.06(C)
Mortar for Manholes	705.08
Reinforcing Steel	709.01
Precast Concrete Units	712.06
Frames, Grates, Covers and Ladder Rungs	712.07
Cullet Materials for Utility Structures	717.03
Cullet Materials for Drainage Systems	717.04

When the location of manufacturing plants allows, the Engineer may inspect the plants periodically for compliance with specified manufacturing methods. The Engineer may get material samples to verify compliance with the contract. This may be the basis for acceptance of manufacturing lots regarding quality.

The condition of materials will be subject to inspection for acceptance before or during incorporation of materials into the work.

### **604.03 Construction Requirements.**

**(A) General.** Concrete construction shall conform to Section 503 - Concrete Structures.

Reinforcing steel work shall conform to Section 602 - Reinforcing Steel.

A certified welder shall do the shop and field welding according to Section 501 - Steel Structures.

The Contractor may furnish and install drainage structures as precast units or combined precast and cast-in-place units. Units completed in place shall conform to cast-in-place construction specified in the contract.

If the Contractor uses precast units or combination of precast and cast-in-place units, the Contractor shall submit shop drawings to the Engineer for acceptance before construction.

**(B) Drainage Structures.** Construct the concrete base according to the contract. Allow the concrete to set for at least 24 hours before constructing additional material on this base. Do not remove the forms for at least 24 hours after placing the concrete. Finish the concrete while the concrete is still fresh.

The contract requires rungs at 12 inches on centers when the height of the structure is greater than 4.5 feet. Measure the height of the structure from the invert to the top of the structure.

Install one rung 16 inches from the bottom or as specified by the Engineer if the height of the structure is 4.5 feet or less. Install additional rungs when specified by the Engineer.

Construct precast concrete storm drain manhole sections according to the contract and ASTM C 478.

Place reinforcing steel for precast sections according to ASTM C 478.

**(C) Setting Frames.** Place the frames in the concrete according to the contract. Carefully tamp the concrete around the frame.

Set the frame in full mortar beds. Bring the mortar up around the bottom of the frame.

**(D) Excavation and Backfill.** Excavate and backfill according to

Section 206 - Excavation and Backfill for Conduits and Structures.

**604.04 Method of Measurement.** The Engineer will measure drainage structures per each according to the various depths specified.

The depth measurement for new structures shall be the vertical measurement from the invert elevation to the top of the deck slab, grating, or manhole cover.

**604.05 Basis of Payment.** The Engineer will pay for the accepted drainage structures at the contract unit price per each complete in place.

The contract unit price paid shall be full compensation for furnishing and installing frames and grates, frames and covers, and rungs; demolishing and removing existing drainage structures; excavating and backfilling; placing concrete; furnishing and installing reinforcing steel, precast concrete, precast reinforced concrete walls, including the cone or tapered sections and cast-in-place walls vertically ; furnishing materials, equipment, tools, labor and other incidentals necessary to complete the work.

The Engineer will make payment under:

Pay Item	Pay Unit
Type ____ Inlet, ____ feet to ____ feet	Each
Modified Type ____ Inlet, ____ feet to ____ feet	Each "