**CITY OF DETROIT**

**SPECIFICATIONS**

**FOR**

**DRAINAGE STRUCTURES**

DET: GJM 01-19-2016

**Description**: The work shall consist of constructing manhole and catch basin structures to the size and type, as shown on the specified plans and details, to the line and elevation of final grade, of Portland cement concrete block masonry, brick masonry or precast concrete units (with or without steel reinforcement as provided); furnishing and placing metal frames and covers; removal of existing drainage structures; and shall include complete restoration of any disturbed lawns or grassy areas.

**Materials**: The materials used for constructing sanitary and storm sewer manholes and catch basins shall conform to the requirements of the 2012 MDOT Standard Specifications Section 403.02 Materials, unless otherwise specified herein.

Backfill for sanitary and storm sewer manholes and catch basins shall be Class IIIA granular material as specified in Table 902.3 of the 2012 MDOT Standard Specifications.

Pavement subgrade backfill shall be Class II or 21A aggregate and shall conform to the Michigan Department of Transportation 2012 Standard Specifications for Construction, Section 902.05

Gray Iron Castings shall be as specified in Section 908.05. Gray Iron Castings of the 2012 MDOT Standard Specifications for Construction, City of Detroit DPW/CED DWSD Manhole and Catch Basin Drawings No’s. 101 thru 113, and as specified herein.

The manhole and catch basin frame and its cover or grate shall constitute one unit. Each unit shall conform to the detailed requirement of the respective DPW/CED DWSD drawing. Each unit shall have a weight, with a tolerance of plus or minus 3 percent, of that specified below:

Manhole Frame and Cover

 East Jordan ERGO Assembly or Approved Equal

Product Number: 00104051L01 (Sewer) Weight 235 Lb

Catch Basin Rectangular Frame and Flat Grate

East Jordan Assembly or Approved Equal

Product Number: 00500063B01 Weight 219 Lb

Product Number 00500063B02 Weight 241 Lb

**Construction**: Manholes and Catch Basins shall be constructed in accordance with Section 403.03 Construction, of the 2012 MDOT Standard Specifications and MDOT Road and Bridge Standard Plan R-1-F Drainage Structures, for “Typical Manhole”, “Inlet”, and, “Catch Basin” unless otherwise specified herein.

The Contractor shall comply with all Federal, State, and local laws and regulations governing construction methods and the furnishing and use of all safeguards, safety devices, protective equipment, and pollution controls. It shall be the Contractor’s responsibility to protect, as reasonably necessary, the life and health of all personnel on the job, the safety and health of the public, and to protect property during the construction of the project.

The Contractor shall inform the local Fire and Police Departments 48 hours in advance of his program of street obstruction and detours, so that the Fire and Police Departments can set up plans for servicing the area in case of an emergency.

Pavement, curbs, sidewalks and driveways which are required to be removed, shall be removed as specified in the applicable sections of the 2012 MDOT Standard Specifications for Construction. Pavement, curbs, sidewalks and driveways shall be sawed in straight lines parallel or perpendicular to the line of work or removed to the nearest joint and shall be limited to the minimum area necessary to do the required underground work. Any broken or damaged walks or driveways shall not be patched but shall be entirely replaced.

Excavation for constructing manholes and catch bsasins shall conform to Section 206.03.A of the 2012 MDOT Standard Specification for Construction unless otherwise specified herein.

Backfilling for structures shall be as specified in Section 401.03.D of the 2012 MDOT Standard Specifications. The Backfilling around structures shall not begin any sooner than 12 hours after the structure has been completed, except precast structures which may be backfilled immediately.

Excavation shall be made in such a manner so as to protect the side walls from caving in, and so as not to incur damage to either private or public property. Excavated material shall be hauled away from the trench area continually as part of the trenching operation.

Excavation beyond the minimum dimensions specified or shown on the Plans, when not so directed by the Engineer, will be deemed unauthorized, and the space of excess excavation shall be filled in the same manner as specified above at no increase in Contract Price.

Adequate pumping equipment and drainage facilities shall be provided and maintained, to dewater the work area, and water entering the work from whatever source shall be promptly removed and properly disposed of. All required pumping and drainage shall be done without damage to adjacent property or structures, or to the operations of other contractors, and without interference with the rights of public or private owners or pedestrian and vehicular traffic.

Bottoms for structures may be of precast units or poured in place concrete and shall be supported by a compacted six (6) inch granular base. If the bottoms are poured in place, they shall be allowed to set for 24 hours before placing masonry or otherwise working on top of it.

Manhole and catch basin base slabs shall have a nominal diameter and thickness, and be reinforced, as shown on the MDOT Standard Plans.

All ground surfaces shall be left by the Contractor in essentially as good condition as before manhole or catch basin removal or construction started and any pavements, sidewalks, trees, or other things damaged or destroyed on account of the removal or construction shall be repaired, replaced, or settled for at the Contractor’s expense unless otherwise noted on the plans.

Where called for on the Plans or as directed by the Engineer, manholes and catch basins shall be removed, disposed of, and backfilled as specified in Section 203 Removing Drainage Structures, Culverts and Sewers of the 2012 MDOT Standard Specifications for Construction.

The metal frames, covers, and grates on existing manholes and catch basins that are to be reused shall be carefully removed to prevent damage. Any reusable casting damaged by the Contractor shall be replaced with a new casting without additional cost to the City. All salvaged castings that are not to be used on the work shall become the property of the Contractor and shall be promptly removed from the job site.

**Measurement and Payment**: The completed work as described for constructing new “Manholes”, “Catch Basins” and “Inlets” of the size and type specified will be measured as units, and will be paid for at the Contract unit price per each. This price shall be full compensation for all labor, equipment, materials, excavation, including removal and disposal of all materials encountered, openings, and backfilling, required to complete the construction as specified herein.

The unit price for Dr Structure, Add Depth, 8 foot to 15 foot, of the diameter required includes the cost of the drainage structure portions greater than 8 feet deep, but no greater than 15 feet deep.

Drainage Structure Cover unit prices shall include the furnishing and installation of the manhole, catch basin and inlet covers of the appropriate type.

Pavement removal and replacement, when required will be paid for separately.

Pay Item Pay Unit

Dr Structure, \_\_\_\_ inch dia, Each

Dr Structure, Add Depth of \_\_\_ inch dia, 8 foot to 15 foot Foot

Dr Structure Cover, Modified Each

Dr Structure, Rem Each