

## **SECTION 500 STORM SEWER**

### **501.0 DESCRIPTION**

Storm sewer installation shall be performed in accordance with the provisions of the latest published edition of the MnDOT Standard Specifications and the City Engineers Association of Minnesota Standard Specifications, 2018 Edition, except as modified herein.

All materials must be domestically manufactured in the U.S.A.

### **502.0 MATERIALS**

#### **502.1 MANHOLES AND CATCH BASINS**

Manholes shall be precast concrete manholes at the size noted on the plans. Manhole precast top sections shall be flat slab as indicated in the Drawings.

Catch Basins shall be precast concrete catch basins. Catch Basins shall be 2 ft x 3 ft "Type B" structures unless otherwise noted on the plans.

The adjusting rings and castings of each manhole shall be sealed with an external rubber sleeve as manufactured by Infi-Shield, Inc. or approved equivalent. The seal shall be made of EPDM rubber and have a minimum thickness of 65 mils. The sleeve shall be sealed to the top of the cone or top slab of the manhole/ catch basin and over the top of the casting with non-hardening butyl rubber mastic. A concrete collar must be poured around the adjusting rings per the catch basin city detail plate. All labor and materials necessary to install the concrete collar and rubber-sealing sleeve will be incidental to the installation of each manhole or catch basin.

#### **502.2 CASTINGS**

Manhole and catch basin castings shall be Neenah Foundry, ESS Bros., or approved equal, and shall be as noted on plans, details, or in the storm sewer schedule. Unless otherwise noted, manhole castings shall have a solid cover with one 1-1/4 inch diameter lift hole. The cover shall be marked STORM SEWER.

#### **502.3 MANHOLE ADJUSTING RINGS**

HDPE manhole adjusting rings manufactured by Ladtech Inc., or approved equal, shall be used.

#### **502.4 CORRUGATED METAL PIPE (CMP)**

Corrugated metal pipe is not allowed for storm sewer or any other stormwater infrastructure.

### **503.0 CONSTRUCTION REQUIREMENTS**

#### **503.1 INSPECTION AND RESPONSIBILITY OF MATERIALS**

The Contractor shall be responsible for all Contractor furnished material and all such material that is found to be defective in manufacture or that has become damaged in handling after delivery by the manufacturer shall be replaced at the Contractor's own expense. This shall include the furnishing of all material and labor required for the replacement of installed material discovered defective prior to the final acceptance of the work.

#### **503.2 REMOVALS**

##### **503.2.1 SALVAGE MANHOLE OR CATCH BASIN CASTING**

The castings indicated for salvage shall be removed from the structure, and, unless marked for reuse on the Drawings, delivered to the City of St. Louis Park Municipal Service Center at 7305 Oxford Street. This work shall be coordinated with the Project Representative.

### 503.3 PIPE

#### 503.3.1 PIPE LAYING OPERATIONS

No deviation from the required line or grade will be allowed except with the consent of the Engineer.

No pipe material shall be laid in water or when the trench or bedding conditions are otherwise unsuitable or improper.

All pipe shall be laid using laser equipment, furnished and set by the Contractor according to the grade stakes established by the Engineer or a designated representative. The Contractor shall provide and use a suitable grade rod to insure the proper grade of the pipe. The Contractor shall check the grades at a frequency not to exceed 100 feet. The Contractor shall provide competent workmen to operate the laser equipment.

Whenever existing utility structures or branch connections leading to main sewers or to main drains, or other conduits, ducts, pipes, or structures present obstructions to the grade and alignment of the pipe, they shall be permanently supported, removed, relocated or reconstructed by the Contractor involved. In those instances where their relocation or reconstruction is impractical, a deviation from line and grade will be ordered, and the change shall be made in the manner directed by the Engineer and with extra compensation allowed therefore.

When watermain and water services, whether lowered or existing, are in danger of freezing due to the proximity of storm sewers, catch basin leads, or storm sewer structures, the Engineer may direct the placement of insulation between the storm sewer and the watermain or service pipe.

### 503.4 APRONS

All aprons will be tied to the next two upstream pipes or as directed by the Engineer using "U" bolt fasteners as shown on the detail sheet of the plans.

### 503.5 MANHOLES, CATCH BASINS AND CASTINGS

#### 503.5.1 MANHOLE AND CATCH BASIN PLACEMENT PROCEDURE

All manholes and catch basins will be set plumb. All openings along the line of storm sewer shall be securely closed, as directed, and at the suspension of work at any time, suitable stoppers shall be placed to prevent earth or any substance from entering the storm sewer. If water is present in the trench, the seals shall remain in place until the trench is completely dry.

#### 503.5.2 CONNECT TO EXISTING MANHOLE OR CATCH BASIN

When connection to an existing storm sewer is made at an existing or proposed manhole or catch basin, the Contractor shall expose and verify the elevation of the existing sewer prior to laying any storm sewer to, or from, the connection point. If the elevation of the existing sewer does not match the elevation shown on the plans, the Contractor shall notify the Engineer, at which time the Engineer may adjust the proposed grades.

#### 503.5.3 ADJUST MANHOLE FITTED STEEL RING

This item shall include installation of a fitted steel ring on manhole casting to adjust the elevation of the manhole to the new wear course on mill and overlay streets. The fitted steel rings shall be glued in place with manufacturer recommended adhesive.

**503.5.4 ADJUST MANHOLE FRAME AND RING**

The item “Adjust Manhole Frame and Ring” shall include excavation around the structures indicated on the plans; removal of existing rings, installation, and gluing of new rings; salvaging and re-setting the casting and the addition of external rubber sleeve as manufactured by Infi-Shield, Inc. or approved equivalent.

Pavement patching of the excavated area shall be the same material type and depth as shown in the plans and specifications. The backfill of the excavated area shall use aggregate base material consistent with the requirements of the plans and specifications. The excavation area shall be sufficient to allow for compaction methods that achieve densities as outlined in Section 700 Bituminous Paving and Street Construction.

**503.5.5 REHABILITATE MANHOLE (INTERIOR)**

The item “Rehabilitate Manhole (Interior)” shall include all materials and labor to complete interior rehabilitation work on existing manholes. This includes invert repairs, doghouse repairs, joint mortaring, and mortaring of existing rings.

**503.6 TELEWISE SEWER**

All newly constructed sewers must be jetted clean and televised after the storm sewer system is installed and within 15 days after the manholes are raised as directed by the Engineer. The Contractor shall provide the owner with a DVD and detailed report prior to paving base course.

**503.7 STORM SEWER SYSTEM CLEANING**

At the City’s discretion, the storm sewer system in the project area may be televised at the conclusion of the project to determine if system requires cleaning due to the Contractor’s operations. If debris is found and cleaning is required, the Contractor must reimburse the City for the cost of televising and perform the necessary cleaning at their own cost.

The Contractor will be responsible for all costs incurred by the City to correct situations related to Contractor’s failure to properly clean storm sewer structures, and for Contractor’s work creating obstructions in the system. The cost incurred by the City will be deducted from the money due or coming due to the contractor.

**504.0 METHOD OF MEASUREMENT**

All items will be measured separately according to design designation as indicated in the pay item name and as may be detailed and defined in the Drawings, Specifications, or Special Conditions.

**504.1 STORM SEWER PIPE (NEW INSTALLATION AND REPLACEMENT)**

Elbows, tees, reducers, wyes, sections and connectors will be incidental to the pipe.

**504.2 SALVAGE MANHOLE OR CATCH BASIN CASTING**

Salvaged castings will be measured by the unit.

**504.3 MANHOLE AND CATCH BASIN CASTINGS**

Castings installed on existing structures will be measured by the unit.

504.4 CONNECT TO EXISTING MANHOLE

Connect to existing manhole will be measured by the unit. When constructing a new structure to existing pipes, one connect to existing manhole will be paid for connecting to existing pipes regardless of the number of existing pipes being connected to the new structure.

504.5 ADJUST MANHOLE FITTED STEEL RING

This item will be measured by the unit.

504.6 ADJUST MANHOLE FRAME AND RING

This item shall be measured as a unit and shall include all materials and labor necessary to adjust manhole frame and ring on existing manholes.

504.7 REHABILITATE MANHOLE OR CATCH BASIN (INTERIOR)

This shall be measured as a unit and shall include all materials and labor to complete interior rehabilitation work on existing structures.

**505.0 BASIS OF PAYMENT**

Payment for construction of storm sewer facilities will be made as detailed in the method of measurement and as shown in the Contract Documents or detailed in the Special Conditions.

Payment shall include all costs of furnishing and installing the complete facility as required by the Drawings, Specifications, and Special Conditions.

Payment for sewer pipe and service pipe items at the Contract prices per linear foot of pipe of each design shall be compensation in full for all costs of providing a complete-in-place pipeline, including excavation, foundation preparation, backfilling, leakage testing, televising, disposal of surplus or waste materials, and such other work as may be specified, but excluding the construction of other structures or special sections and the placement of special fittings, appurtenances or materials specifically designated for payment under other Contract Items.

All other work under this section is incidental to the contract unless specifically listed in the Special Conditions.