

**SECTION 722 -- SEWERS**

**722.01 -- Description**

This work shall consist of excavating sewer trenches, constructing and laying pipe sewers, and backfilling sewer trenches to the dimensions shown in the plans.

**722.02 -- Material Requirements**

1. The type of sewer pipe required shall be designated in the bid proposal Schedule of Items. When the type of pipe is not designated in the Schedule of Items, the Contractor may use either reinforced concrete sewer pipe, polyethylene storm sewer pipe, polyvinyl chloride storm sewer pipe, or acrylonitrile butadiene styrene composite sewer pipe.
2. All sewer pipes shall conform to the requirements in Table 722.01.

**Table 722.01**

<b>Material Requirements</b>	
<u>Applicable Materials</u>	<u>Section</u>
Plastic Pipe.....	1038
Reinforced Concrete Sewer Pipe .....	1037
Cast Iron Pipe.....	1039
Ductile Iron Pipe .....	1039
Acrylonitrile-Butadiene-Styrene (ABS) Composite Sewer Pipe .....	1038
Corrugated Metal Pipe.....	1035

3. The Contractor shall not order any pipe until a correct list of sizes and lengths is furnished by the Engineer.
4. Approved bituminous plastic cement, type I, and other acceptable compounds for sewer joints are shown on the NDR Approved Products List.

**722.03 -- Construction Methods**

1.
  - a. Except for plastic sewer pipe installations, all excavation and backfilling shall be performed in accordance with the requirements of Section 702.
  - b. Plastic storm sewer pipe shall be installed in accordance with ASTM D 2321 and the manufacturer's recommendations.
2. The Contractor shall lay all pipe to the line and grade established in the plans.
3. The Contractor shall inspect and sound all pipes for cracks or other defects.
4. Pipe alignments shall be marked by the Contractor so that, when joined in the ditch, a smooth tube will be formed.

5. The general method of laying concrete pipe, as required in Section 721, shall apply to the Contractor when laying reinforced concrete sewer pipe, concrete sewer pipe, and clay sewer pipe, with the exception of the joints. When reinforced concrete sewer pipe or concrete sewer pipe is used, the following methods shall be used for sealing the joints:

a. When called for in the plans, full compression gaskets conforming to the requirements of ASTM C 361/C 361M or distorted-type flexible rubber gaskets conforming to the requirements of ASTM C 443/C 443M shall be used and installed on each section of the pipe in accordance with the manufacturer's recommendations and standards.

b. When the use of gaskets is not called for in the plans, all joints shall be filled and pointed up both inside and outside of the pipe with a troweling grade of fibered roof coating complying with the requirements of Federal Specification SS-C-153 for Bituminous Plastic Cement, Type I, Asphaltic Base.

c. The Engineer shall approve the Contractor's method for drawing the pipes together to close a gap.

6. The Contractor shall periodically check for pipe deflection during pipe installation and again not less than 30 days following completion of installation. The internal diameter of plastic storm sewer pipe shall not be reduced by more than 7.5 percent of its design diameter when measured within 30 days following installation.

7. Optional devices for deflection testing include electronic deflectometers, calibrated television or video cameras, or a properly sized "go, no-go" mandrel. Deflection measurements can be made directly with extension rulers or tape measures in lines that allow safe entry. To ensure accurate measurements, the lines should be cleaned before testing.

#### **722.04 -- Method of Measurement**

1. a. Sewer pipe shall be measured in place by the linear foot along the longitudinal axis of the pipe, and the measurement shall be taken between centers of new manholes, flush tanks, cleanouts, inlets, junctions with other sewers, or dead ends, as the case may be; except that in the case of installation of flared-end sections, the measurement shall be taken to the point at which the pipe is joined to the flared-end section.

b. When tapping a structure is called for in the plans, measurement for sewer pipe will terminate where the farthest extension of the pipes intersect the inside face of the structure.

2. Where a sewer reduces to a smaller size, the larger sewer will be measured to the point where the sewer is the exact size of the small sewer, unless otherwise provided in the plans.

3. Additional allowances for elbows and connecting bands will be made as provided in Tables 718.01 and 718.02.

4. Excavation for sewers shall not be measured for payment.

5. At the junction of a new sewer pipe and a new box culvert, measurement will terminate where the farthest extension of the new pipe intersects the inside wall of the new box culvert; and this extension shall be the total allowance for building the junction.

6. At the junction of sewers, measurement shall be taken along the axis of the pipe and shall extend to the points of intersection of the two sewers; and this measurement shall be the total allowance for building the junction.

**722.05 -- Basis of Payment**

- | 1. | <u>Pay Item</u>             | <u>Pay Unit</u>  |
|----|-----------------------------|------------------|
|    | _____ inch Sewer Pipe       | Linear Foot (LF) |
|    | _____ inch _____ Sewer Pipe | Linear Foot (LF) |
2. Excavation and backfill for sewers shall be subsidiary to the appropriate sewer pipe pay item.
3. Payment is full compensation for all work prescribed in this Section.