

## **SECTION 719 -- CORRUGATED METAL PIPE CULVERTS**

### **719.01 -- Description**

This work shall consist of furnishing and installing new corrugated galvanized metal pipe, helical corrugated galvanized metal pipe and pipe-arches, corrugated aluminum alloy pipe, and helical corrugated aluminum alloy pipe and pipe-arches, and the relaying of existing corrugated galvanized metal pipe, helical corrugated metal pipe and pipe-arches or corrugated aluminum alloy pipe, or helical corrugated aluminum alloy pipe and pipe-arches at locations shown in the plans or ordered by the Engineer in accordance with the requirements of these *Specifications*.

### **719.02 -- Material Requirements**

1. Corrugated galvanized metal pipe and helical corrugated metal pipe and pipe-arches shall conform to the requirements of Sections 1035 and 1036.
2. Corrugated aluminum alloy pipe and helical corrugated aluminum alloy pipe, pipe-arches, and aluminum alloy end sections shall meet the requirements of AASHTO M 196/M 196M and all specifications referenced therein. Unless otherwise specified in the plans, the minimum gauge or sheet thickness shall conform to Sections 1035 and 1036.
3. Flap gates shall conform to the requirements of Section 1043.
4. The Contractor shall not order or deliver the pipe until a list of sizes and lengths is furnished by the Engineer.

### **719.03 -- Construction Methods**

1. Excavation and backfilling shall be performed by the Contractor in accordance with the requirements of Section 702.
2. The Contractor shall lay the pipe true to the lines and grades shown in the plans. Any pipe which is not true in alignment or to the established grade or which shows any settlement after laying shall be taken up and relaid by the Contractor at no additional cost to the Department.
3. If the plans call for the extension of a corrugated metal pipe culvert, the pipes shall be connected by the Contractor with a connecting band. In all cases where an existing concrete headwall is in place, the old concrete shall be completely removed by the Contractor.
4. The Contractor shall clean accumulations of soil and debris, haul, and relay all culvert pipe designated to be relaid in accordance with the methods herein described for installing new pipe.
5. The Contractor shall strut or take other action recommended by the manufacturer for all corrugated metal culverts with diameters greater than 48 inches to insure that the pipe's final shape is properly aligned.

6. Instead of strutting corrugated metal pipe 48 inches or larger in diameter, the Contractor may furnish corrugated metal pipe with the vertical axis fabricated out of round 5 percent of the normal diameter from end to end of the pipe. The elongation shall be made by approved shop methods, and any coating damaged or destroyed shall be repaired or replaced. If helical corrugated metal pipe 48 inches or larger in diameter is furnished with the vertical axis fabricated out of round instead of strutting, then field connections shall be made with match-marked connecting pipe to assure that the helical sections match when the vertical axis of the pipe sections are brought together.

7. The Contractor shall install flap gates on the ends of corrugated metal pipe or pipe-arch culverts when required in the plans. They shall be installed in accordance with the manufacturer's recommendations and standards.

8. All areas of aluminum alloy pipe and end sections which may come in contact with portland cement concrete shall be completely covered with a heavy coating of an aluminum-filled, resilient, sealing compound by the Contractor. Acceptable sealing compounds are on the NDR Approved Products List.

**719.04 -- Method of Measurement**

1. Excavation, concrete, and reinforcement for headwalls will be measured for payment in accordance with the provisions in Table 719.01.

**Table 719.01**

<b>Method of Measurement</b>	
<u>Requirement</u>	<u>Subsection</u>
Excavation for Structures .....	702.04
Concrete.....	704.04
Reinforcement.....	707.04

2. Corrugated pipe shall be measured as described in Subsection 718.04.

3. Flap gates shall be measured for payment by the each, complete in place. The pay item is "\_\_\_\_\_ inch Automatic Flood Control Gate".

**719.05 -- Basis of Payment**

1. Payment for excavation, concrete, and reinforcement for headwalls shall be made in accordance with the provisions shown in Table 719.02.

**Table 719.02**

<b>Basis of Payment</b>	
<u>Requirement</u>	<u>Subsection</u>
Excavation for Structures .....	702.05
Concrete.....	704.05
Reinforcement.....	707.05

2.	<u>Pay Item</u>	<u>Pay Unit</u>
	_____ inch Corrugated Metal Pipe	Linear Foot (LF)
	Relaying Corrugated Metal Pipe	Linear Foot (LF)
	_____ inch Automatic Flood Control Gate	Each (ea)
	_____ inch Round Equivalent Corrugated Metal Pipe	Linear Foot (LF)
	_____ inch Corrugated Metal Slotted Pipe	Linear Foot (LF)

3. Flap gates shall be paid for at the contract unit price per each under the item, "Automatic Flood Control Gate". Each different size is a separate pay item.

4. Payment is full compensation for all work prescribed in this Section.