



## SECTION 733

### PRECAST CONCRETE BOX CULVERTS

**733.1 Description.** This work shall consist of furnishing and installing precast concrete box culverts as shown on the plans or as directed by the engineer. Unless otherwise required in the contract, where the construction of cast-in-place single or multi-cell reinforced concrete box culverts is specified, the contractor shall have the option of constructing such culverts using precast reinforced concrete box sections and headwalls subject to the conditions specified in the contract.

**733.2 Material.** All material shall be in accordance with Division 1000, Material Details, and specifically as follows:

Item	Section
Precast Concrete Box Culverts	1049
Plastic Joint Compound for Vitrified Clay and Concrete Pipe	1057
Tubular Joint Seal	1057
Mortars and Grout	1066

#### 733.3 Construction Requirements.

**733.3.1 Subgrade Preparation and Bedding.** The excavation and backfilling for the precast box sections and end sections shall be in accordance with [Sec 206](#), except a layer of granular material at least 6 inches thick shall be placed immediately below the elevation of the bottom of the box and end sections. The granular material shall be in accordance with [Sec 1007](#) for Type 1 aggregate and shall be placed to extend at least 18 inches on each side of the structure. The bedding shall be compacted to provide uniform support for the bottom of the box and end sections.

**733.3.2 Placement.** The individual box section shall be placed as shown on the plans with the groove end upstream and the spigot end extended full length into the adjacent downstream section of box.

**733.3.2.1 Joints.** All joints between individual box sections shall be sealed with an approved plastic joint compound or a tubular joint seal. Trowel grade compounds shall be applied to both mating surfaces. Rope or tape-type plastic joint compounds and tubular joint seals shall be applied in accordance with the manufacturer's recommendations. Excess compound shall extrude from both the inside and outside of the joint when box sections are assembled. Excess compound shall be removed from the interior surface. The joint gap between individual box sections shall be uniform for the full perimeter.

**733.3.2.2 Lift Holes.** Lift holes shall be filled with expansive mortar or tapered precast mortar plugs to provide a permanent watertight section, and shall be finished flush on the inside of the box.

**733.3.2.3 Multi-Cell Box Culvert.** When multi-cell box culverts are used, a 1 1/2-inch minimum space shall be left between the adjacent precast sections. Following the installation of the end sections, the 1 1/2-inch space between the parallel sections shall be entirely filled

with mortar for grout. After the mortar has attained sufficient strength, sections shall be backfilled in accordance with [Sec 206](#).

#### **733.4 Method of Measurement.**

**733.4.1** If the contractor chooses to construct the alternate precast box culvert, measurement will be made as provided for the equivalent cast-in-place structure.

**733.4.2** Final measurement will not be made except for authorized changes during construction or where appreciable errors are found in the contract quantity. Where required, if a precast box culvert is specified in the contract, the precast box culvert, complete in place including end sections, will be measured to the nearest foot along the geometrical center of the culvert floor. The revision or correction will be computed and added to or deducted from the contract quantity.

#### **733.5 Basis of Payment.**

**733.5.1** The accepted optional precast concrete box culvert, including end sections, will be paid for at the contract unit price for each of the pay items included in the contract.

**733.5.2** If a precast box culvert is specified in the contract, the accepted quantities for the precast box culvert, complete in place including end sections, will be paid for at the contract unit price for each of the pay items included in the contract.

**733.5.3** No direct payment will be made for furnishing, placing or compacting the Type 1 granular bedding material. Replacement of unsuitable material below the 6-inch bedding will be paid for in accordance with [Sec 206](#).