



SECTION 727

**STRUCTURAL PLATE PIPE AND STRUCTURAL
PLATE PIPE-ARCH CULVERTS**

727.1 Description. This work shall consist of furnishing and installing built-up structural plate round pipe or built-up structural plate pipe-arch with a full metal bottom of galvanized corrugated metal plate curved sections bolted together to form the required shape shown on the plans. The thickness of the structural plate shall be as specified in the contract.

727.2 Material.

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

Item	Section
Structural Plate Pipe and Pipe-Arches	1023
Corrugated Aluminum Alloy Structural Plate	1024

727.2.2 The size and shape of the plates shall be such that the finished structure will have the dimensions shown on the plans.

727.3 Construction Requirements.

727.3.1 Handling. All pipe shall be handled with care to avoid damage. Pipe having damaged coating, any localized bends in excess of five percent of the specified pipe diameter or any dent in excess of 1/2 inch will be rejected at the site of the work, regardless of previous approvals. Rejected damaged pipe may be used, if repaired to the satisfaction of the engineer.

727.3.2 Laying Pipe. The structure shall be carefully laid true to lines and grades. Any structure that is not in true alignment or that shows undue settlement shall be taken up and relaid at the contractor's expense. If shown on the plans or directed by the engineer, camber shall be built into the structure to compensate for settlement from embankment loads.

727.3.3 Bedding and Backfill Material. The bed for structural plate pipe and pipe-arch culverts shall be formed in accordance with [Sec 725.4](#), except if rock is encountered, the trench shall be excavated to a minimum depth of 8 inches below the bottom of the pipe.

727.3.4 Backfilling.

727.3.4.1 Except where the backfill or embankment is to be formed of stone or rock fill, the material shall be placed in accordance with [Sec 725.4](#), except as modified herein. Layers of backfill or embankment shall be kept at approximately the same elevation on opposite sides of the structure at all times during the progress of the work in order to equalize the loading. This method of filling and compacting shall be continued until the top of the embankment is at an elevation level with the top of the structure.

727.3.4.2 If the backfill or embankment over and around the structural plate pipe or pipe-arch is specified to be formed of stone or rock fill, a protective inner layer of backfill material, in accordance with AASHTO M 145, Classification A-1, A-2-4, A-2-5 or A-3, preferably mixed

with earthy material, tamped into place in contact with the structure, and surrounded by a carefully placed outer layer of rock, shall be built up as the work proceeds around the perimeter of the structure above a specially prepared foundation. The protective layer shall be placed during the progress of the backfilling and placing of the embankment or rock fill in a manner and of sufficient thickness to protect the surface of the structure from injury to the coating.

727.3.5 Shop Elongation. The contractor shall maintain elongation during backfilling and embankment construction such that the vertical height of the opening after the embankment has been completed shall be no less than the diameter of the pipe or greater than the pre-elongated height. Steel and aluminum structural plate round pipe shop elongation, if required, shall be as shown on the plans. Pipe arches shall not be elongated.

727.3.6 Beveled End Sections. The plans will indicate where beveled end sections are required and the slope of the cutting line. On skewed round structures with beveled end sections, the end sections shall be rotated as required to better fit the adjacent roadway slope. Shop elongation shall be in accordance with [Sec 727.3.5](#).

727.4 Inspection and Replacement. Inspection and replacement of structural plate pipe and pipe-arch culverts shall be in accordance with [Sec 725.4](#), except deflection testing and maximum deflection allowed will not apply.

727.5 Method of Measurement.

727.5.1 Measurement of structural plate pipe, complete in place, will be made to the nearest foot along the geometrical center of the structure.

727.5.2 Measurement of structural plate pipe-arch, complete in place, will be made to the nearest foot along the center of the vertical dimension of the structure.

727.5.3 Excavation for placing structural plate pipe and pipe-arches will not be measured, except when the excavation for the installation is shown on the plans as Class 3 Excavation.

727.6 Basis of Payment.

727.6.1 The accepted quantities of structural plate pipe or structural plate pipe-arch culverts, complete in place, will be paid for at the contract unit price for each of the pay items included in the contract.

727.6.2 Unless specified otherwise, no direct payment will be made for the following:

- (a) Beveling, skewing or for any additional work required in laying structural plate structures with beveled or skewed ends.
- (b) Work involved in elongating.
- (c) Backfilling, except as specified in [Sec 206.6.3](#).
- (d) Construction of bedding or for bedding material.
- (e) Excavation and backfilling, except when Class 3 Excavation is shown on the plans in accordance with [Sec 206](#).
- (f) Furnishing and installing plugs.

(g) Work or equipment to perform deflection testing.
Specifications Section 30 and as shown on the plans and specifications. When conflicts occur between AASHTO Section 30 and the plans and specifications the plans and specifications shall apply.