

CORRUGATED ALUMINUM ALLOY PIPE AND ALUMINUM STRUCTURAL PLATE
HEADWALL:

(9-17-24)

SPI 3-10

Description

Furnish and install aluminum alloy pipe and aluminum structural plate (ALSP) headwalls for culverts and storm sewers for the types, sizes and designations as shown on the plans and as specified in this provision.

Materials

Fabricate the pipe from an aluminum alloy coil, conforming to AASHTO M 197 (ASTM B744) material specifications. The materials shall also meet or exceed Article 1032-2 of the *Standard Specifications* and shall be designed for a HL-93 Live Load.

Pipe shall be fully welded inside and out to headwalls using two root welds and two finish welds on either side of the wall. All finish welds shall be ground to a smooth finish.

Reinforce headwalls and pipe per AASHTO specifications.

All fabrication of the product shall occur within the United States.

Supplier shall provide all necessary hardware including wale beams, caps, gaskets, galvanized steel tieback rods with dead man anchor (DMA) plates, anchors, lugs, inserts, adjustable turnbuckles and all other materials relating to the pipe and headwall system necessary to complete the assembly.

Connect all joints with 1/4 inch thick aluminum flanges fully welded to each pipe connected with a 3/4 inch diameter, A307 galvanized steel bolts with 3/8 inch thick neoprene gaskets.

Construction Methods

During installation, a manufacturer's representative, with at least two (2) years of experience in the installation of this type of structure shall give technical advice with assembly of the pipe and headwalls prior to construction and during the installation and backfilling of the pipe and headwalls through completion.

Installation shall be in accordance with *AASHTO Standard Specifications for Highway Bridges*, Section 26 and the contract.

Backfill material shall be the following:

- (A) Use #57 Stone in accordance with Section 1005 of the *Standard Specifications* or an approved equal as per the Engineer in pipe bedding and where water is encountered.
- (B) When transitioning from #57 stone to ABC, use a minimum 4 oz. geotextile for separation of the different backfill materials.
- (C) Construction loads may be higher than final design loads. Follow manufacturer's recommendations for construction loads.

(D) Use aggregate approved by the Engineer for all backfill behind the headwalls and wing walls and extend a minimum specified distance behind the face of the walls and wings walls.

(E) For other backfill up to a minimum of 12 inches over the top of the pipe use ABC in accordance with Section 1005 of the *Standard Specifications* or an approved equal as per the Engineer.

Within five (5) days after ordering the pipe and headwall from the supplier, the Contractor shall submit an electronic (.pdf) copy, one (1) hard copy of detailed shop drawings and one (1) hard copy of design calculations for review and approval by the Engineer. These drawings and calculations shall be provided by an independent engineering firm sealed by an engineer licensed in the state of North Carolina. Inspection will occur prior to the pipe and headwall being delivered. The supplier shall ensure that the Engineer approves of the pipe and headwall prior to it being delivered.

Measurement and Payment

Aluminum Structural Plate Headwall (Contractor Designed) will be measured and paid as each for the actual number of headwalls incorporated into the completed and accepted work. Such prices and payment will be full compensation for all materials, labor, tools, equipment and incidentals necessary to complete the work.

60" C.A.A. Pipe (Contractor Designed) will be measured and paid in linear feet of all pipe that has been incorporated into the completed and accepted work. Measurement will be made along the pipe installation to the nearest foot. Such prices and payment will be full compensation for all materials, labor, tools, equipment and incidentals necessary to complete the work.

Payment will be made under:

Pay Item	Pay Unit
Aluminum Structural Plate Headwall, 0.15" Thick (Contractor Designed)	Each
60" Corrugated Aluminum Alloy Pipe, 0.105" Thick (12 Gauge Contractor Designed)	Linear Foot