

Section 560—Structural Plate Pipe, Pipe-Arch and Arch Culverts

560.1 General Description

This work includes furnishing and installing structural plate pipe, pipe-arch, and arch culverts. Use the type of structural plate structure shown on the Plans.

Install structures according to the Specifications and to Plan details, or as directed by the Engineer.

560.1.01 Definitions

General Provisions 101 through 150.

560.1.02 Related References

A. Standard Specifications

[Section 205—Roadway Excavation](#)

[Section 207—Excavation and Backfill for Minor Structures](#)

[Section 208—Embankments](#)

[Section 645—Repair of Galvanized Coatings](#)

[Section 840—Corrugated Aluminum Alloy Pipe](#)

[Section 844—Steel Pipe](#)

B. Referenced Documents

General Provisions 101 through 150.

560.1.03 Submittals

General Provisions 101 through 150.

560.2 Materials

Ensure that materials meet the requirements of the following Specifications:

Material	Section
Backfill Materials	207
Steel Structural Plate for Pipe, Pipe-Arches, and Arches	844.2.03
Corrugated Aluminum Alloy Structural Plate Pipe, Pipe-Arches and Arches	840.2.04

560.2.01 Delivery, Storage, and Handling

General Provisions 101 through 150.

560.3 Construction Requirements

560.3.01 Personnel

General Provisions 101 through 150.

560.3.02 Equipment

General Provisions 101 through 150.

560.3.03 Preparation

Prepare structure excavation and foundation according to [Section 207](#).

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Before installing structural plate pipe, pipe-arch, or arch culverts, shape their foundation material as shown on the Plans.

560.3.04 Fabrication

General Provisions 101 through 150.

560.3.05 Construction

A. Drainage

Provide necessary temporary drainage.

Immediately remove debris or silt that constricts the flow through a structural plate pipe, pipe-arch, or arch culvert to maintain drainage throughout the life of the Contract.

B. Protection and Repair

Before allowing traffic over a culvert, provide compacted backfill of a depth and width to protect the structure. Repair and correct damage or displacement from traffic, erosion, or negligence at no additional cost to the Department.

C. Installation

Erect structural plate pipe-arches and arches in the sequence recommended by the manufacturer.

1. Bolts

Tighten the bolts only after erecting the whole structure. Set bolts using drift pins or bars to line up the holes. Tighten bolts with torque wrenches to at least 150 ft·lbs (200 N·m), but not more than 200 ft·lbs (270 N·m) of torque.

2. Repair

If there are damaged spots in the galvanized coating of the pipe, pipe-arch, or culvert where the base metal is exposed, repair according to [Section 645](#).

If there are damaged spots in the bituminous coating of the pipe, pipe-arch, or arch culvert where the base metal is exposed, repair by recoating with asphalt before backfilling the structure.

3. Elongation

Elongate structural plate pipe as shown on the Plans. Have the vertical axis of the pipe elongated in the shop. Ensure that when erection is complete, the elongated axis is in a vertical position.

560.3.06 Quality Acceptance

Clean all structures before final acceptance of the Work.

560.3.07 Contractor Warranty and Maintenance

General Provisions 101 through 150.

560.4 Measurement

A. Excavation and Backfill

Backfill materials Types II and III are measured according to [Subsection 207.4, "Measurement."](#)

B. Circular Pipe (All Types)

The overall length of circular pipe in place and accepted is measured in linear feet (meters) along the central axis of the pipe diameter.

C. Pipe-Arches

The overall length of pipe-arch in place and accepted is measured in linear feet (meters) along the bottom center line of the pipe-arch.

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D. Multiple Installations

In multiple installations, each single line of culvert structure is measured separately.

E. Arch Culverts

Arch culverts of the dimensions and materials shown on the Plans, complete in place, are measured as a unit that includes necessary foundations, walls, and wings.

560.4.01 Limits

Excavation and normal backfill are not measured for payment.

560.5 Payment

A. Backfill

Backfill will be paid for according to [Section 207](#).

B. Structural Plate Pipe, Pipe-Arch, and Arch Culvert

Structural plate pipe and pipe-arch installations, complete in place and accepted, will be paid for at the Contract Price per linear foot(meter). Arch culvert installations, complete in place and accepted, will be paid for per Lump Sum. This payment will be full compensation for the Item, including:

- Excavating
- Furnishing and hauling materials
- Installing
- Cutting pipe where necessary
- Repairing or replacing damaged sections
- Making connections, strutting and elongating
- Providing temporary drainage
- Joining an extension to an existing structure, where required

Payment will also be full compensation for removing, disposing, or using excavated materials as directed by the Engineer.

Payment will be made under:

Item No. 560	Structural plate pipe ___ in (mm) H= ___	Per linear foot (meter)
Item No. 560	Structural plate pipe-arch (<u>span</u>) in (mm), (<u>rise</u>) in (mm)	Per linear foot (meter)
Item No. 560	Structural plate arch culvert, structure no. ___	Per lump sum

560.5.01 Adjustments

Excavation will not be paid for separately, but all of the other provisions of [Section 205](#) and [Section 208](#) shall govern.