

Special Specification 4008

Trench Drain



1. DESCRIPTION

Construct cast in place surface drainage trench.

2. MATERIALS

Provide a trench with a slope as shown on the plans. Furnish forms capable of maintaining proper alignment during the concrete placement. Ensure connections to structures do not restrict the hydraulic flow of the trench drain.

- Use Class C Concrete conforming to Item 420, "Concrete Structures."

Furnish trench drain rails fabricated with structural steel meeting the requirements of ASTM A 36 with a minimum cross section of 2 in. x 2 in. x 3/16 in. Furnish trench drain rails having 1/4 in. minimum diameter steel anchoring rods at a maximum spacing of 20 in. between each rod, measured in the direction of travel, and a means for securing adjoining trench rails. Furnish steel that is galvanized per ASTM A 123, after fabrication.

Fabricate trench drain grates from ductile iron in accordance with ASTM A 536, Grade 65-45-12 and meet an AASHTO proof load rating of AASHTO M 306. Provide galvanized grates per ASTM A 123, after fabrication.

Furnish stainless grate retainers and rails that withstand the following loads:

- Vertical up-1,000 lbs.
- Transverse-6,000 lbs
- Longitudinal-6,000 lbs

Furnish trench drain grates that have a minimum of 66% open space of total top surface area and are held in place with a non-rigid, four-point locking system in the four corners of the grate. Provide approved trench drain grate retaining devices that do not obstruct the flow area of the trench. Furnish removable trench grates.

Provide shop drawings sealed by a professional engineer stating that trench drain system meets loading requirements or if a proprietary system, submit documents showing design loadings.

Furnish documentation in accordance with Item 471.2.3.

3. CONSTRUCTION

Perform excavation in accordance with Item 400, "Excavation and Backfill for Structures." Construct trench with a slope as shown on the plans. Submit shop drawings that provide enough detail to ensure seamless installation of the trench drain adjacent to the proposed or existing pavement structure.

If using a proprietary system, provide shop drawings that contain the manufacturer's installation guidelines and any sequential order of construction. Construct the trench drain with a maximum allowable tolerance of +/- 0.063 in. for dimensional accuracy and rail co-planarity. Provide a smooth finish on the surface of the trench that will convey runoff. Make connections to new or existing structures as shown on the plans or as directed.

Remove trench drain forms and dispose of properly. Install grates with retaining pins on each of the four corners. Remove all construction debris from the trench drain.

4. MEASUREMENT

This item will be measured by the foot, between the longitudinal ends of the trench drain along the pavement surface, as installed.

5. PAYMENT

The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit bid price for "Trench Drain".

This price is full compensation for furnishing the labor, materials (including forms, rails, anchorages, support bars, concrete, and grates), tools, equipment, and incidentals necessary to install the trench drain, complete in place, including structural excavation, reinforcement anchor, and other connecting devices as shown on the plans and as directed. Structures such as manholes, inlets, or junction boxes connected to the trench drain system will be paid for separately under their respective bid items.