

**436 TRENCH DRAIN.**  
**(REV 7-21-03) (FA 8-6-03) (1-04)**

PAGE 405. The following new Section is added after Section 435:

**SECTION 436**  
**TRENCH DRAIN**

**436-1 Description.**

Construct Trench Drain, with one of the materials listed below, for the purpose of collecting and removing surface run-off from paved areas. Furnish and install trench drain in accordance with the Design Standards, at the locations shown in the plans or as directed by the Engineer.

**436-2 Materials.**

Provide preformed channels or pipe with sufficient strength to withstand construction handling and placement of concrete backfill without deforming or deviating from line and grade. Furnish the Engineer with certification from the manufacturer that the Trench Drain System meets the requirements of this Section.

**436-2.1 Channels/Pipe: Meet the following requirements:**

|                       |             |
|-----------------------|-------------|
| Steel Pipe .....      | Section 943 |
| Aluminum Pipe .....   | Section 945 |
| Polyethylene.....     | ASTM D3350  |
| Polymer Concrete..... | ASTM D6783  |
| Fiberglass .....      | ASTM D3517  |

**436-2.2 Concrete Backfill:** Use Class 1 concrete that meets the requirements of Section 347.

**436-2.3 Grates:** Provide steel grates and supporting frames that meet the requirements of Section 962. Ductile iron frames and grates must meet the requirements of ASTM A536. Ensure that ductile iron grates and frames are compatible and from the same manufacturer. Frames must be anchored into the concrete backfill with studs bolts or lugs. Grates must have at least 30% open area and fasten securely to frames to avoid rattling, Grates must be removable for the entire channel length and have vandal resistant locking devices. Ensure that frames have a minimum of 4 inch [100 mm] long studs, bolts or lugs at all four corners.

**436-2.4 Clean-Out covers for Type 1 Drains:** Install steel or ductile iron covers that meet the requirements of Section 962.

**436-2.5 Outlet Pipe:** Connect outlet pipe to the trench drain with standard manufactured connectors. Unless a particular type is called for in the plans, use any of the following types of pipe:

|                          |             |
|--------------------------|-------------|
| Concrete .....           | Section 449 |
| Steel.....               | Section 943 |
| Aluminum .....           | Section 945 |
| Polyvinyl Chloride ..... | 948-1.7     |
| Polyethylene.....        | 948.2.3     |

**436-3 Installation.**

Submit to the Engineer the proposed method of installation, noting any deviation from the manufacturer's recommendations. Place concrete backfill in the trench against undisturbed material at the sides and bottom of the trench in a manner that will prevent floating or shifting of the trench drain, and will prevent voids in, or segregation of the concrete. Tamp and spade to prevent honeycombing. Form the top surface to the lines shown in the plans. Remove any foreign material that falls into the trench prior to or during placement of concrete.

**436-4 Method of Measurement.**

The quantity to be paid for will be plan quantity, in place and accepted. The plan quantity will be measured from the inside wall of the structure as shown on the plans, along the centerline of the pipe/channel.

**436-5 Basis of Payment.**

Price and payment will be full compensation for all work specified in this Section, including all materials, tools, equipment, concrete backfilling, outlet pipe, connections to new or existing structures and all incidentals necessary to complete the work.

Payment will be made under:

- |          |       |    |                         |
|----------|-------|----|-------------------------|
| Item No. | 436-  | 1- | Trench Drain-per foot.  |
| Item No. | 2436- | 1- | Trench Drain-per meter. |