

Section 4143. Subdrain Pipe

4143.01 GENERAL REQUIREMENTS.

Use the size and type shown in the contract documents. When not designated, meet the following requirements:

A. Pipe for Horizontal Drains.

Use plastic pipe complying with the requirements of ASTM D 1785, Schedule 80. Comply with the following:

1. Unless specified otherwise, 3 rows of slots, 0.010 inch \pm 0.005 inch (254 μ m \pm 127 μ m) wide, on 120 degree centers around the circumference.
2. Minimum of 0.75 square inch (1588 mm²) of slot opening per linear foot (meter).
3. Provide with a suitable cap at the inlet end. Obtain Engineer's approval for caps and couplings.

B. Pipe for Longitudinal Subdrains.

1. Use perforated corrugated PE tubing and fittings manufactured and marked according to AASHTO M 252 with the following modification:

Use tubing perforated with slots according to AASHTO M 252. Circular perforations will not be approved.

2. Outlet subdrains using one of the following options:
 - a. Corrugated metal pipe meeting the requirements of [Article 4141.01](#), including tapered ends when required.
 - b. Corrugated PE pipe, type S, approved per [Materials I.M. 443 Appendix A, Part B](#).
 - c. Corrugated PVC pipe, Type S, approved per [Materials I.M. 443 Appendix A, Part C](#).
3. When special connections are required for subdrain outlets, they will be detailed in the contract documents.
4. Cover outlet with a rodent guard meeting the requirements of [Materials I.M. 443.01](#). Attach as shown in the contract documents. Engineer will inspect and accept according to [Materials I.M. 443.01](#).

C. Standard Subdrains.

1. Use one of the following:
 - Subdrain meeting the requirements of AASHTO M 196/M 196M or M 36/M 36M Type I or Type III.
 - Drain tile ([Section 4148](#)) or Plastic Pipe ([Section 4146](#)).
 - Polyethylene tubing meeting the requirements of [Article 4143.01, B](#).
2. If furnishing subdrains that comply with AASHTO M 196/M 196M, use a specified sheet thickness of 0.048 inch (1.22 mm) for 6 inch (150 mm) diameter and 0.060 inch (1.52 mm) for larger diameters. If furnishing subdrains that comply with AASHTO M 36/M 36M, use a specified sheet thickness of 0.052 inch (1.32 mm) for 6 inch (150 mm) diameter and 0.064 inch (1.63 mm) for larger diameters.
3. Use perforated subdrains only when specified. As an option, AASHTO M 36/M 36M subdrains may be perforated with slots formed on the outside crests of helical corrugations, approximately 1 inch (25 mm) in length and 0.1 inch (2.5 mm) in width, spaced at 2 inches (50 mm) on centers.
4. When corrugated steel subdrains are specified, coated subdrains may also be specified. If so, ensure the coating complies with [Article 4141.02](#).

5. If using plastic pipe meeting the requirements of ASTM F 758, D 3034, or D 2751, ensure perforations are as specified in ASTM F 758. Plastic pipe meeting the requirements of ASTM F 949 with slots may also be used.
6. If embedding the subdrain in granular or porous backfill material, use slotted plastic pipe meeting the requirements of ASTM F 949 or perforated, corrugated polyethylene (PE) tubing meeting the requirements of [Article 4143.01, B](#).

D. Patch Subdrains.

Follow requirements for [Article 4143.01, B](#), except that subdrain outlets will not be required.