

SECTION 33 46 00
SUBDRAINAGE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Perforated-wall pipe, non-perforated wall pipe and fittings.
 - 2. Geotextile filter fabrics.

1.3 ACTION SUBMITTALS

- A. Product Data:
 - 1. Perforated pipe, non-perforated pipe and fittings, including rated capacities.
 - 2. Geotextile filter fabrics.

PART 2 - PRODUCTS

2.1 PERFORATED-WALL AND NON-PERFORATED WALL PIPE AND FITTINGS

- A. Perforated PE Pipe and Fittings:
 - 1. NPS 6 and Smaller: ASTM F 405 or AASHTO M 252, Type CP; corrugated, for coupled joints.
 - 2. Couplings: Manufacturer's standard, soil-tight type.
- B. Non-perforated PE Pipe and Fittings:
 - 3. NPS 6 and Smaller: ASTM F 405 or AASHTO M 252, Type C; corrugated, for coupled joints.
 - 4. Couplings: Manufacturer's standard, soil-tight type.

2.2 DRAINAGE FILL AND SOIL MATERIALS

- A. Drainage fill and soil materials are specified in Section 312000 "Earth Moving."

2.3 GEOTEXTILE FILTER FABRICS

- A. Description: Fabric of PP or polyester fibers or combination of both in accordance with ASTM D 4632, D 4533, D 4751, and D 6241, with flow rate range from 135 to 330 gpm/sq. ft. when tested according to ASTM D 4491.
- B. Sock (sleeve) fabric shall be in accordance with ASTM D 6707, Type A.
- C. Structure Type: Nonwoven, needle-punched continuous filament.
 - 1. Survivability: AASHTO M 288, Class 2.
 - 2. Styles: Flat and sock-sleeve, as indicated.

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PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine surfaces and areas for suitable conditions where subdrainage systems are to be installed.
- B. Locate and mark existing utilities, underground structures, and above-ground obstructions before beginning installation and avoid disruption and damage of services.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 EARTHWORK

- A. Excavating, trenching, and backfilling are specified in Section 312000 "Earth Moving."

3.3 FOUNDATION DRAINAGE SYSTEM INSTALLATION

- A. Where indicated, lay flat-style geotextile filter fabric in trench and overlap trench sides.
- B. Place supporting layer of drainage fill material over compacted subgrade, and geotextile filter fabric where indicated, to compacted depth of not less than 2 inches.
- C. Encase perforated pipe with sock-sleeve style geotextile filter fabric before installing pipe. Connect sock sections with suitable adhesive or tape.
- D. Install piping true to grades and alignment indicated, with unbroken continuity of invert. Install and bed piping with full bearing in drainage fill material.
- E. Join perforated and non-perforated PE pipe with couplings according to ASTM D 3212 for soil-tight coupled joints.
- F. Add drainage fill material to width of at least 6 inches on side away from wall and to top of pipe to perform tests.
- G. After satisfactory testing, cover drainage piping to width of at least 6 inches on side away from footing and above top of pipe with drainage fill material as indicated. Where indicated, meet perimeter insulation and drainage composite.
- H. Where indicated, wrap top of drainage fill material with flat-style geotextile filter fabric.
- I. Place satisfactory backfill material above compacted drainage fill material in accordance with Section 312000 "Earth Moving." Place soil material in loose-depth layers not exceeding 6 inches, and thoroughly compact each layer. Place final backfill to proposed finish grade elevations and slope away from building as indicated.

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3.4 CLEANOUT INSTALLATION

- A. Comply with requirements for cleanouts specified in Section 334100 "Storm Utility Drainage Piping."
- B. Cleanouts for Foundation, where indicated:
 - 1. Install cleanouts from piping to grade. Locate cleanouts at beginning of piping runs and at changes in direction. Install fittings so cleanouts open in direction of flow in piping.
 - 2. In non-vehicular-traffic areas, use NPS 4 PE pipe and fittings for piping branch fittings and riser extensions up to cleanout top where indicated.

3.5 CONNECTIONS TO SUMP PIPING

- A. Special Pipe Couplings: Join piping made of different materials and dimensions with special couplings made for this application. Use couplings that are compatible with and fit materials and dimensions of both pipes. Connect subdrainage system into non-perforated-piping which discharges into sump pit as indicated.
- B. Comply with requirements for sump pumps as specified in other sections.

3.6 FIELD QUALITY CONTROL

- A. Tests and Inspections:
 - 1. After installing drainage course to top of piping, test drain piping with water to ensure free flow before backfilling.
 - 2. Remove obstructions, replace damaged components, and repeat test until results are satisfactory.
- B. Drain piping will be considered defective if it does not pass tests and inspections.
- C. Prepare test and inspection reports.

3.7 CLEANING

- A. Clear interior of installed piping and structures of dirt and other superfluous material as work progresses. Maintain swab or drag in piping and pull past each joint as it is completed.
- B. Place plugs in ends of uncompleted pipe at end of each day or when work stops.

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