



SECTION 02620

PREFABRICATED SUBSURFACE DRAIN (SYNTHETIC TURF FLAT LAY UNDERDRAINAGE)

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes: Geocomposite strip drainage system for hydrostatic water relief.

{NOTE TO SPECIFIER: Edit paragraph below to meet specific project requirements. Add/Delete/Edit section numbers and titles per project and in accordance with CSI MasterFormat™. If no related sections exist, delete paragraph in its entirety}

B. Related Sections:

1. Section 02610 – Pipe and Fittings
2. Section 02720 – Storm Sewer Systems
3. Section 03300 – Cast in Place Concrete
4. Section 31000 – Earthwork

1.02 REFERENCES

A. American Standard Testing Methods (ASTM)

1. ASTM D1777 Standard Test Method for Thickness of Textile Materials
2. ASTM D4355 Standard Test Method for Deterioration of Geotextiles by Exposure to Light, Moisture and Heat in a Xenon Arc Type Apparatus
3. ASTM D4491 Standard Test Methods for Water Permeability of Geotextiles by Permittivity
4. ASTM D4632 Standard Test Method for Grab Breaking Load and Elongation of Geotextiles
5. ASTM D4716 Test Method for Determining the (In-plane) Flow Rate per Unit Width and Hydraulic Transmissivity of a Geosynthetic Using a Constant Head
6. ASTM D4751 Standard Test Method for Determining Apparent Opening Size of a Geotextile
7. ASTM D6241 Standard Test Method for Static Puncture Strength of Geotextiles and Geotextile-Related Products Using a 50-mm Probe
8. ASTM D6364 Standard Test Method for Determining Short-Term Compression Behavior of Geosynthetics

B. American Association of State Highway and Transportation Officials (AASHTO)

1. AASHTO M 288 Geotextile Specifications for Highway Applications

1.03 SUBMITTALS

A. Product Data: Submit manufacturer's product data and installation instructions.

{NOTE TO SPECIFIER: Delete or modify shop drawing requirement as appropriate. If no project specific shop drawings are required, delete paragraph in its entirety.}

- B. Shop drawings: Submit project specific details for all conditions that are not covered by manufacturer's standard details.
 - C. Samples: Submit samples of each component of prefabricated edge drainage system.
 - D. Quality Assurance: Submit manufacturer's letter of certification that prefabricated edge drain meets or exceeds specified physical and performance properties.
 - E. Test Reports: Submit test reports from a qualified independent testing agency certifying:
 - 1. In-plane flow rate of prefabricated edge drain meets or exceeds specified value
 - 2. Compressive strength of prefabricated edge drain meets or exceeds specified value.
- 1.04 QUALITY ASSURANCE
- A. Pre-Installation Meeting:
 - 1. Prior to start of Work of this Section, a meeting shall be held to clarify and coordinate installation procedures
 - 2. Attendees shall include:
 - a. Contractor
 - b. Representative of the prefabricated edge drainage system
 - c. Representatives from related trades or trades with work adjacent to geocomposite strip drainage system.
- 1.05 DELIVERY, STORAGE, AND HANDLING
- A. Delivery: Materials shall be delivered in original, unopened, undamaged packing containers bearing manufacturer's name, and product identification
 - B. Storage and Protection
 - 1. Material shall remain in original packing containers until time of installation.
 - 2. Store materials in a protected environment.
 - 3. Protect material from exposure to direct sunlight during storage
 - 4. Limit material UV exposure to less than 30 days during installation

PART 2 - PRODUCTS

{NOTE TO SPECIFIER: Articles below meet proprietary specification method. Edit product attributes, performance characteristics, material standards and descriptions as applicable. Use of "or equal", "or approved equal", or similar terminology may result in ambiguity in specifications and should be avoided.}

2.01 Geocomposite Strip Drain

- A. Approved Manufacturers
 - 1. American Wick Drain Corporation
Corporate Address: 1209 Airport Rd., Monroe, NC 28110
Phone: (800) 242-9425 or (704) 238-9200
Fax: (704) 238-0220
Email: info@awd-usa.com.com
Website: www.awd-usa.com.com

- B. Approved Products

{NOTE TO SPECIFIER: Edit/Add/Delete products as appropriate for project. Contact American Wick Drain for product selection assistance}

- 1. SITEDRAIN Strip 9400 Series
 - a. Model
 - 1) SITEDRAIN Strip 9406
 - a) Roll width: 6 in
 - b) Roll length: 150 ft
 - 2) SITEDRAIN Strip 9412
 - a) Roll width: 12 in

- b) Roll length: 150 ft
 - 3) SITEDRAIN Strip 9418
 - a) Roll width: 18 in
 - b) Roll length: 150 ft
 - 4) SITEDRAIN Strip 9424
 - a) Roll width: 24 in
 - b) Roll length: 150 ft
 - 5) SITEDRAIN Strip 9436
 - a) Roll width: 36 in
 - b) Roll length: 100 ft
- b. Fabric Properties (Typical Values)
 - 1) Material: Polypropylene, Needle-punched nonwoven
 - 2) Survivability: Class 3 per AASHTO M288
 - 3) Grab Tensile Strength: 135 lbs per ASTM D4632
 - 4) Grab Elongation: 60% per ASTM D4632
 - 5) CBR Puncture: 365 lbs per ASTM D6241
 - 6) Trapezoidal Tear: 60 lbs per ASTM D4533
 - 7) UV Resistance: 70% after 500 hours per ASTM D4355
 - 8) Apparent Opening Size: 70 sieve per ASTM D4751
 - 9) Permittivity: 2.4 sec⁻¹ per ASTM D4491
 - 10) Water Flow Rate: 175 gpm/ft² per ASTM D4491
- c. Core Properties (Typical Values)
 - 1) Compressive Strength: 9,500 psf per ASTM D6364
 - 2) Thickness: 1.0 in per ASTM D5199
 - 4) In-Plane Flow Rate: 21 gpm/ft per ASTM D4716 when tested at 3,600 psf compressive load and hydraulic gradient of 0.1
 - 5) Minimum Water Inflow Area, primary collection side: 75%
 - 6) Minimum water inflow area, secondary collection side: 15%

PART 3 – EXECUTION

3.01 EXAMINATION

A. Site Verification of Conditions

1. Verify that site conditions are acceptable for installation of geocomposite strip drain material.
2. Do not proceed with installation of geocomposite strip drain material until unacceptable conditions have been corrected.

{NOTE TO SPECIFIER: Select the appropriate detail for installation of prefabricated edge drainage system for project. Edit/Delete installation requirements as appropriate. Contact American Wick Drain for installation method assistance}

3.02 SUBBASE PREPARATION

- #### A. Subbase to be prepared (leveled, stabilized, compacted, etc.) per project specifications prior to placement of geocomposite strip drain.

3.03 GEOCOMPOSITE STRIP DRAIN INSTALLATION

- #### A. Place strip drain in horizontal orientation (laid flat) on the prepared subbase, with primary collection (dimple) side of strip drain facing upwards.
- #### B. Connections
1. Splice Connection:
 - a) Peel back fabric from end of each roll to be spliced.

- b) Overlap two rows of dimpled core. Secure dimples in place by gently tapping with rubber hammer.
 - c) Overlap fabric over joint and secure with underground-rated tape.
2. Tee Outlet:
- a) Use manufacturer standard Universal Tee Outlet fitting to connect strip drain to 4" PVC (Schedule 40) pipe or 4" corrugated HDPE pipe for outlet perpendicular to strip drain.
 - b) Slide end of outlet pipe no less than 2" into connector.
 - c) Secure fitting connections with 3" polyethylene underground-rated tape to maintain connection and prevent soil intrusion during backfill and compaction.
3. End Outlet:
- a) Use manufacturer standard Universal End Outlet fitting to connect strip drain to 4" PVC (Schedule 40) pipe or 4" corrugated HDPE pipe for outlet parallel (in-line) with strip drain.
 - b) Slide end of outlet pipe no less than 2" into connector.
 - c) Secure fitting connections with underground-rated tape to maintain connection and prevent soil intrusion during backfill and compaction.

3.04 BACKFILLING AND COMPACTION

- A. While keeping the geocomposite strip drain in a secure position, begin backfilling with designer-approved select fill by way of back dumping and spreading the backfill. Caution should be taken to not allow any construction equipment to make direct contact with the geocomposite strip drain prior to full coverage with the select fill material.
- B. Compact backfill material using a method approved by the project engineer, ensuring that the geocomposite strip drain is not damaged during compaction.

END OF SECTION