

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

SUPPLEMENTAL SPECIFICATION

FOR

SECTION 715

MISCELLANEOUS MATERIALS

**ADD THE FOLLOWING SECTION(S) TO THE SECTION:**

**715.10-PREFABRICATED DRAINAGE SYSTEMS:**

**715.10.1-Prefabricated Pavement Edge Drain:**

**715.10.1.1-General:** Prefabricated pavement edge drain shall be a flexible rectangular hollow mat consisting of a supporting polymeric drainage core encased in an engineering fabric envelope and having sufficient flexibility to withstand installation bending and handling without damage.

**715.10.1.2-Core:** The drainage core shall be constructed from a polymeric material, have a minimum thickness of  $\frac{3}{4}$  inch (19 mm) and a minimum compressive strength of 3,000 pounds per square foot (145 kPa) with a maximum deflection of 20 percent determined by ASTM D 1621, except the sample size may be increased to a maximum of 12 in. by 12 in. (300 mm by 300 mm) The edge drain shall permit inflow on both sides of the drain and produce a minimum flow rate of 10 gal/minute/ft (123 liters/minute/meter) of width as determined by ASTM D 4716. Flow rates shall be based on a hydraulic gradient of 0.1 and a confining pressure of 10 psi (69 kPa) using a closed-cell foam rubber layer on both sides. The height of the edge drain shall be as shown on the Plans.

**715.10.1.3-Fabric:** The fabric shall be suitable for subsurface drainage applications and shall meet the requirements of 715.11 except the minimum tensile strength shall be 90 lbs. (400 N). The fabric shall be bonded to or stretched tightly over the core support contact points.

**715.10.1.4-Fittings:** All fittings shall be in accordance with the manufacturer's published specifications.

**715.10.1.5-Outlet Pipe:** The outlet pipe shall be a smooth inner wall unperforated pipe meeting the requirements of 714.19 (AASHTO M252, Type S only) or 714.22

**715.10.1.6-Acceptance:** All components of the edge drain shall be approved before use. The Contractor shall furnish certified test data with the material supplied for each project. Tests for all required properties shall be performed in accordance with the

procedures specified. Compliance of this data with the requirements specified will be the basis of acceptance.

## **715.11-ENGINEERING FABRIC:**

**715.11.1-General:** Engineering fabric shall meet the applicable requirements of AASHTO M 288.

**715.11.2-Acceptance:** All engineering fabric shall be approved before use. When using a fabric not on the Division's approved list, the Contractor shall furnish certified test data with each shipment of fabric. Compliance of this data with the requirements of the specific application will be the basis of acceptance.

The test results submitted shall be derived from testing samples representing the fabric contained in each shipment. Tests for all required properties shall be performed in accordance with the procedures specified. Each roll shipped shall be identified so as to show its relationship to the test data submitted.

**715.11.3-Maintenance and Repairs:** Any fabric damaged or displaced shall be replaced or repaired at the Contractor's expense. Any fabric, other than that used for silt fence, not covered within 14 days after installation shall be removed and replaced at no expense to the Division. Minor tears or ruptures in the fabric may be repaired by sewing or by placing another piece of fabric over the damaged area so that the overlap is at least 2 feet (600 mm) in each direction or as directed by the Engineer.

**715.11.4-Engineering Fabric For Subsurface Drainage:** Engineering fabric for subsurface drainage shall meet the applicable requirements of AASHTO M 288, Section 7, Class 2. Additionally, the permittivity shall be a minimum of  $0.2 \text{ sec}^{-1}$  and the apparent opening size shall be no larger than No. 60 (250 $\mu\text{m}$ ) sieve.

**715.11.5-Engineering Fabric For Sediment Control (Silt Fence):** Engineering fabric for sediment control shall meet the applicable requirements of AASHTO M 288, Section 8.

**715.11.6-Engineering Fabric For Erosion Control:** Engineering fabric for erosion control shall meet the applicable requirements of AASHTO M 288, Section 7, Class 1.

**715.11.7-Engineering Fabric For Paving:** Engineering fabric for paving shall meet the applicable requirements of AASHTO M 288, Section 9.

**715.11.8-Engineering Fabric For Separation:** Engineering fabric for separation shall meet the applicable requirements of AASHTO M 288, Section 7, Class 2.

**715.11.9-Engineering Fabric For Stabilization:** Engineering fabric for stabilization shall meet the applicable requirements of AASHTO M 288, Section 7, Class 1.

**715.11.10-Engineering Fabric for Pumped Sediment and Erosion Control (Dewatering Device):** Each standard Dewatering Device shall have a fill spout large enough to accommodate a 4 inch (100 mm) discharge hose with attached straps to secure the hose and prevent pumped water from escaping without being filtered. The device must be able to accommodate a minimum flow rate of 1000 gal per minute (4 546 liters per minute) for the application for which it is to be used and a minimum size of 100 square feet (9 square meters).

The Dewatering Device shall be a nonwoven bag, which is sewn with a double needle stitching using a high strength thread.

The Dewatering Device seams shall have an average wide width strength per ASTM D 4884 of 100 LB/IN (1.15 kg/meter).

The geotextile fabric shall be nonwoven fabric with the following properties:

Properties	Test Method	English	Metric
Grab Tensile	ASTM D-4632	250 Lbs.	113 kg
Puncture	ASTM D-4833	165 Lbs.	75 kg
Flow Rate	ASTM D-4491	70 Gal/ Min/ Square Foot	25 liters/ Min/ Square meter
Permittivity	ASTM D-4491	1.3 Sec.-1	1.3 Sec.-1
Mullen Burst	ASTM D-3786	550 LBS. / square inch	3.79 MPa
UV Resistant	ASTM D-4355	70 %	70 %
AOS % Retained	ASTM D-4751	100 %	100 %

\* All properties are minimum average roll value.

**715.12-CONCRETE FOR MISCELLANEOUS USES:**

Concrete specified in this Section is intended for such uses a cast-in-place footers for right-of-way fence and footers for guardrail breakaway cable terminals and special trailing end terminals. The concrete may be mixed with or without air entrainment at the option of the Contractor. Batching and mixing may be by hand, by portable mixer, or by a commercial plant. At the time of placement, the concrete shall be of a workable consistency which can be consolidated satisfactorily by spading or vibrating. Indications of initial set in the concrete to such an extent as to adversely affect the workability of the concrete during placement shall be cause for rejection. The concrete shall be in accordance with one of the following:

- i. Concrete produced for other construction items under an approved mix design.
- ii. Concrete produced from premixed ingredients sold commercially in acceptable sacks, such as "Sacrete", or "Quickrete", "Handicrete or approved equal. Premixed commercial preparations shall be mixed in accordance with the manufacturer's instructions.
- iii. Concrete produced from separate components proportioned by volume in the ratio of one part Portland cement to two parts sand to three parts coarse aggregate. Sand and coarse aggregate shall be visually inspected for deleterious substances, and such matter shall be removed prior to mixing.