

SPECIFICATION 31 00 00

Anti-Ballast Fouling Geocomposite

1. SCOPE

- A. The Contractor shall furnish all the materials, labor, and equipment necessary to construct, install, and maintain the geogrid/geotextile system (henceforth called BallastGuard®) until the aggregate is placed and accepted according to the Plans and these Specifications.

2. SUBMITTALS

- A. Submit representative Anti-Ballast Fouling Geocomposite product sample. Each sample size required shall be a minimum of one (1) foot wide with a one (1) square foot minimum area.
- B. Submit Anti-Ballast Fouling Geocomposite product data sheet and certification from the Manufacturer that the product supplied meets the requirements of this specification.
- C. Submit Manufacturer's installation instructions and general recommendations.

3. MATERIALS

- A. The Anti-Ballast Fouling Geocomposite shall be an integrally formed composite structure manufactured of a stress resistant polypropylene geogrid material, laminated on top of a proprietary blended fiber non-woven geotextile fabric. The Geogrid shall meet the physical requirements listed in the table below. The Geogrid shall have molecular weight and molecular characteristics which impart: (a) high resistance to loss of load capacity or structural integrity when subjected to mechanical stress in installation; (b) high resistance to deformation when subjected to applied force in use; and (c) high resistance to loss of load capacity or structural integrity when subjected to long-term environmental stress such as UV exposure. The Geogrid shall be formed by a regular network of integrally connected tensile elements with apertures of sufficient size to allow interlocking with overlying subballast or ballast material and function primarily as reinforcement. Proposed equals must be submitted to the Engineer at least 30 days before bid date to be considered for approval.

4. APPROVED PRODUCT

- A. The Anti-Ballast Fouling Geocomposite shall be **BaseLok® BallastGuard®** or approved equal. **BaseLok® BallastGuard®** can be obtained from Industrial Fabrics, Inc. 800-848-4500. Proposed equals must be approved by the engineer a minimum of thirty (30) days prior to bid date. Alternate submitted products must include a geogrid that conforms to the geogrid properties in the following table and have at least 5 successful installations within the United States with the exact Anti-Ballast Fouling Geocomposite being submitted. The engineer reserves the right to accept or reject any proposed equals.

TABLE 1 - GEOGRID PROPERTIES				
	Physical Property (GEOGRID)		MARV MD	MARV XMD
ASTM D4759	Aperture Dimensions	inch (mm)	1.3 (33)	1.3 (33)
ASTM D4759	Minimum Rib Thickness	inch (mm)	0.1 (2.5)	0.08 (2.1)
ASTM D6637	Tensile Strength at 2%	lb/ft (kN/m)	900 (13)	960 (14)
ASTM D6637	Tensile Strength at 5%	lb/ft (kN/m)	1,650 (24)	1,713 (25)
ASTM D6637	Ultimate Tensile Strength	lb/ft (kN/m)	2,125 (31)	2,195 (32)
ASTM D6637	Radial Stiffness including at 0.5% Strain	lb/ft (kN/m)	45,000 (657)	
GRI-GG1	Junction Efficiency	%	93	
ASTM D7748	Flexural Stiffness	mg-cm	3,250,000	
ASTM 7864	Torsional Stiffness / Aperture Stability	m-N/deg	0.98	
ASTM D5818	Installation Damage GC	%SC / %SW / %GP	95 / 93 / 90	
EPA 9090	Resistance to long term Degradation	%	100	
ASTM D4355	Resistance to UV Degradation	%	100	

5. SHIPMENT AND STORAGE

- A. Each Anti-Ballast Fouling Geocomposite roll shipped shall be individually identified and maintained in a protective cover(s) prior to placement. It shall be rejected during installation if defects, rips, flaws, deterioration, or damage occurred during manufacture, transportation, or storage. During shipment and storage, it shall be protected from moisture, dust, debris, ultraviolet light, and other contaminants following the guidelines of ASTM D 4873.

6. PREPARATION

- A. The subgrade soil shall be prepared as indicated on the construction drawings or as directed by the Engineer.

7. INSTALLATION

- A. The Anti-Ballast Fouling Geocomposite shall be placed in continuously overlapped panels below and parallel to the centerline of the track as shown on the Plans. The Contractor shall prepare the surface to receive the Anti-Ballast Fouling Geocomposite, ensuring the surface is relatively smooth and free of all debris, stumps, plant growth, and other deleterious materials. At the time of installation, the Anti-Ballast Fouling Geocomposite shall be rejected if defects, rips, holes, flaws, deterioration, or damage incurred during manufacture, transportation, or storage. The Anti-Ballast Fouling Geocomposite shall be protected at all times during construction to ensure the Geogrid Composite's original chemical and physical properties are unchanged.

The Anti-Ballast Fouling Geocomposite shall extend beyond the toe of the subballast by approximately (1) foot on both sides. Adjacent panels of Anti-Ballast Fouling Geocomposite shall have a minimum two (2) foot overlap, unless specified otherwise, to maintain alignment during placement of the subballast. Care shall be taken to ensure that Anti-Ballast Fouling Geocomposite panels do not separate during construction. All wrinkles and sags shall be stretched out immediately before subballast is placed on the Anti-Ballast Fouling Geocomposite.

The Anti-Ballast Fouling Geocomposite shall be protected from damage during placement of subballast. Any Anti-Ballast Fouling Geocomposite rejected or damaged shall be replaced by the Contractor at no additional cost to the Owner.

Tracked construction equipment shall not be operated directly on the Anti-Ballast Fouling Geocomposite. A minimum subballast thickness, as recommended by the manufacturer based on the foundation soils, shall be required prior to operation of tracked or rubber-tired vehicles over the Anti-Ballast Fouling Geocomposite. Turning of tracked vehicles shall be kept to a minimum to prevent tracks from displacing the subballast and damaging the Anti-Ballast Fouling Geocomposite.

8. DAMAGES AND REPAIRS

- A. The Anti-Ballast Fouling Geocomposite shall be protected at all times to ensure the original chemical and physical properties. The Contractor shall check the Anti-Ballast Fouling Geocomposite upon delivery to verify that the proper materials have been received. Damaged Anti-Ballast Fouling Geocomposite shall be either removed and replaced or covered with a second layer of Anti-Ballast Fouling Geocomposite which extends three (1) foot in each direction from the damaged area. Any Anti-Ballast Fouling Geocomposite that is rejected or damaged due to the fault or negligence of the Contractor shall be repaired or replaced at no additional cost to the Owner.

9. MEASUREMENT AND PAYMENT

- A. Payment for this item will be made at the contract unit price per square yard. The Anti-Ballast Fouling Geocomposite will be measured in place to the nearest square yard as shown on the Plans. Overlaps will be measured as a single layer and no payment will be made for Anti-Ballast Fouling Geocomposite placed outside of the minimum specified area. Price and payment shall constitute full compensation for providing all labor, material, and equipment and performing all operations necessary for the complete and satisfactory installation of the Anti-Ballast Fouling Geocomposite. No payment shall be made for Anti-Ballast Fouling Geocomposite that is rejected or damaged due to Contractor fault or negligence.

PAY ITEM

PAY UNIT

Anti-Ballast Fouling GeocompositeSquare Yard