TECHNICAL SPECIFICATION – GrassGuard HDX– Grass Reinforcement Mesh

CSI Master Format **32 12 43** *Porous Flexible Paving*,
or
Section **02795** *Porous Pavement System*,

PART 1 - GENERAL

1.1 SECTION INCLUDES

- Grass reinforcement mesh system.

1.2 RELATED SECTIONS

- Section 02300 - Earthwork.
- Section 02620 - Subdrainage System.
- Section 02700 - Bases, Ballasts, Pavements, and Appurtenances.
- Section 02800 - Site Improvements and Amenities.
- Section 02810 - Irrigation System.
- Section 02900 - Planting.
- Section 02920 - Lawns and Grasses.

1.3 REFERENCES

- DOT Standards - _____ State Department of Transportation Standard Specifications.

1.4 DESIGN / PERFORMANCE REQUIREMENTS

- Sub-base and base design shall conform to the applicable requirements of the DOT Standards for **STATE** and the sub-base recommendations of the manufacturer.

1.5 SUBMITTALS

- Submit under provisions of Section 01300.

• Product Data: Manufacturer's data sheets on each product to be used, including:

  • Preparation instructions and recommendations.

  • Storage and handling requirements and recommendations.

  • Installation methods.

• Shop Drawings: Submit manufacturer's shop drawings including laying pattern and anchoring.

• LEED Submittals: Provide documentation of how the requirements of Credit will be met:

  • List of proposed materials with recycled content. Indicate post-consumer recycled content and pre-consumer recycled content for each product having recycled content.

  • Product data and certification letter indicating percentages by weight of post-consumer and pre-consumer recycled content for products having recycled content.

• Samples: Submit manufacturers samples of each product specified.

• Manufacturer's Certificates:

  • Certify products meet or exceed specified requirements.

1.6 QUALITY ASSURANCE

• Installer Qualifications: Installer experienced in performing work of this section that has specialized in installation of work similar to that required for this project. Installer must also be able to provide skilled workman with satisfactory record of performance on landscaping, erosion control, scour protection, or paving projects of comparable size and quality.

Pre-installation Meetings:

• Convene a pre-installation meeting a minimum of two weeks prior to start of grass reinforcement mesh systems.

• Verify project requirements, subbase and base conditions, manufacturer's installation instructions and coordination with other related work

• Require attendance of parties directly affecting work of this section, including the contractor, engineer, installer, and manufacturer's representative.

• Comply with Division 1 requirements.

1.7 DELIVERY, STORAGE, AND HANDLING

• Store products in manufacturer's unopened packaging until ready for installation.

• Protect materials during handling and installation to prevent damage.

1.8 PROJECT CONDITIONS

• Maintain environmental conditions recommended by manufacturer for desired results. Do not install products under conditions outside manufacturer's absolute limits.

• Do not begin installation of grass reinforcement mesh until all hard surface paving adjacent to grass reinforcement mesh, including concrete walks and asphalt paving, is completed.

• In cold weather, do not use frozen materials or materials coated with ice or frost, and do not build on frozen base or wet, saturated or muddy subgrade.

• Protect partially completed grass reinforcement mesh against damage from other construction traffic when work is in progress.

• Protect grass reinforcement mesh from traffic until grass root system has matured for 3 to 4 weeks. Use barricades to only permit accessible by emergency and fire equipment during and after installation.

1.9 SEQUENCING

• Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

• Acceptable Manufacturer: Industrial Fabrics, Inc., 510 O'Neal Land, Baton Rouge, LA 70819. 800-848-4500 www.grassguard.biz

• Substitutions: Not permitted or must be approved 30 days prior to bid date.

2.2 MATERIALS

Grass Reinforcement Mesh: GRASSGUARD HDX.

GrassGuard HDX is a composite grass reinforcement system with a geogrid mechanically attached. The geogrid layer and GrassGuard must be mechanically attached at the factory.

GrassGuard HD Properties

Index properties	**Test Method**	**Units**	**MD Values**
Weight	Direct Measurement	lbs/sf	0.41
Thickness	Direct Measurement	in	0.55
Tensile Strength	ISO 10319	lb/ft	1,150
Resideual Thickness @ 500 kPa	ASTM D1621	%	60
Strain at Max Tensile Load	ISO 10319	%	16.5
Slip Risk OTV Value	ASTM E303		>40 (low slip potential)

Dimensions	**Length (ft)**	**Width (ft)**
Standard Roll Size	66	7

TX160 Geogrid Properties

Index properties	**Units**	**Longitudinal**	**Diagonal**	**Transverse**	**General**
Rib pitch (1)	mm (in)	40 (1.60)	40 (1.60)	-	
Mid-rib depth (1)	mm (in)	-	1.6 (0.06)	1.4 (0.06)	
Mid-rib width (1)	mm (in)	-	1.0 (0.04)	1.2 (0.05)	
Rib shape					rectangular
Aperture shape					triangular
Structural Integrity					
Junction efficiency (2)	%				93
Aperture stability (3)	kg-cm/deg @ 5.0 kg-cm				3.6
Radial stiffness at low strain (4)	kN/m @0.5% strain				300
	(lb/ft @0.5% strain)				(20,580)
Durability					
Resistance to chemical degredation (5)					100%
Resistance to ultra-violet light and weathering (6)					100%

1. Nominal dimensions.

2. Load transfer capability determined in accordance with GRI-GG2-87 and GRI-GG1-87 and expressed as a percentage of ultimate tensile strength.

3. In-plane torsional rigidity measured by applying a moment to the central junction of a 225mm x 225mm specimen restrained at its perimeter in accordance with U.S. Army Corps of Engineers Methodology for measurement of Torsional Rigidity, (Kinney, T.C. Aperture stability Modulus ref 3, 3.1.2000).

4. Radial stiffenss is determined from tensile stiffness measured in any in-plane axis from testing in accordnace with ASTM D6637-01.

5. Resistance to loss of load capacity or structural integrity when subjected to chemically aggressive environments in accordance with EPA 9090 immesion testing.

6. Resistance to loss of load capacity or structural integrity when subjected to 500 hours of ultravoliot light and aggressive weathering in accordance with ASTM D4355-05.

Accessories:
Sod Staples: U shaped, 6 inches by 1 inch by 6 inch – 11-gauge wire
Sod Stapels: U shaped, 8 inches by 1 inch by 8 inch – 11-gauge wire
Sod Staples: U shaped, 8 inches by 2 inches by 8 inches – 11-gauge wire
Sod/Fabric Pins, 12 inch with washer

PART 3 - EXECUTION

3.1 EXAMINATION

• Before beginning installation, verify site conditions are as indicated on the Drawings. Notify the Architect if site conditions are not acceptable. Do not begin preparation or installation until unacceptable conditions have been corrected.

3.2 GRASS REINFORCING MESH INSTALLATION

• Install GRASSGUARD grass reinforcement mesh in accordance with grass reinforcement mesh system manufacturer's instructions.

• Install on newly landscaped areas and existing grassed areas as indicated on the Drawings.

Existing Grassed Area Installation

1 – Install product with geogrid face down directly onto prepared grass surface. Fix as required to ensure the product lies flat using metal U-pins.

2 – The surface must be reasonably level, firm, and free draining. Fill shallow depressions with free draining (non-clay) soils. With low spots on existing turf, utilize cut and fill, i.e., cut out small, localized areas of turf, fill depression, and replace turf to desired level.

3 – As rolled products tend to have “memory”, it is advisable to unroll the mesh and allow at least 1 hour (more in cold / less in hot weather) for the material to regain its natural flatness. For immediate, intimate contact of product to ground, use of a spreader bar may be necessary and is acceptable.

4 – For the most effective pinning, a single roll of mesh will require a minimum of 250 per roll; two or more rolls will require a minimum of 200 per roll.

5 – Outer edges of mesh will require pins at 12" maximum centers. Pins in the body (middle) of the will be placed in a "checkerboard". Along the middle of each roll, fix mesh every 1.5 to 3 feet or as required to ensure the mesh lays flat. Ensure 1"-1.5" gap with adjacent rolls - with no overlapping. Span the gap by using the fixing pins/pegs every 1 to 1.5 feet so each metal U-pin can join both edges. Fix the middle of each new roll every 1.5 to 3 feet as required. Repeat using additional pins/pegs to secure any raised areas or where any bridging or rippling of the rolls is evident.

6 – Additional pins may be required as determined by, inspector and or site and weather conditions.

7 – It is not advisable to fill or cover the mesh with soil.

8 – Fertilizer and irrigation will vary with seasons and geography. Consult local landscape / horticulture professional for best results.

9– Optimum performance is obtained by restricting traffic until grass has grown completely through the mesh and has been cut at least twice. This process is dependent on season and geography, but will generally take 6-8 weeks during the growing season. Caution is advised with exposed mesh, as wet or frosty conditions may reduce traction. Advisory signage may be appropriate and/or required.

10 – Mowing speeds and patterns may be conducted as conditions require. Blade heights should be as high as possible to ensure zero contact with mesh. Site specific conditions will determine when site can be mowed normally.

Newly Sown Area Installation

A newly sown or sodded area will take significantly longer to achieve desired results. Immediate trafficking on newly sown or sodded areas is strongly discouraged.

Follow steps 1 through 7 for installation on newly sown or sodded areas. An entire growing season may be required before normal mowing and trafficking.

Notes and Recommendations

- Weak or saturated soils may require improvement prior to installing GrassGuard.

- In climates with broad, daily temperature swings, expansion / contraction may occur. Installations in these climates should include a gap of 1" - 1.5" between adjoining blankets.

• Prior to full vegetated maturity, GrassGuard may become slippery when wet. GRASSGUARD STRONGLY RECOMMENDS THAT ACCESSIBILITY BE DISCOURAGED OR DENIED, AND APPROPRIATE SLIP-HAZARD WARNING SIGNAGE BE ERECTED AT ALL INSTALLATIONS PRIOR TO FULLY VEGETATED MATURITY.

• Questions or additional information? Please contact local GrassGuard distributors or Industrial Fabrics, Inc. 800-848-4500.

3.3 SEED AND GRASSING

• Finish in accordance with manufacturer's instructions.

• Seeding:

• Follow good seeding, fertilizing, and watering procedures for turf establishment based on regional practices.

• Increase watering frequency when free draining base materials are used.

• Seeding: As specified in Section 02920 - Lawns and Grasses.

• Sodding:

• Install young sod free from netting materials.

• Press sod into the soil surface using a roller or other suitable equipment and follow normal watering procedures.

• Sodding: As specified in Section 02920 - Lawns and Grasses.

3.4 MAINTENANCE

• Maintain grass in accordance with manufacturer's instructions and as specified in Section 02920 - Lawns and Grasses.

END OF SECTION
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