

ILLINOIS GULCH SITE

Time-Critical Removal Action (TCRA)

ENGINEERING CHANGE ORDER (ECO)

ECO # 2	DATE: 07/19/21
TITLE: FOUNDATION IMPROVEMENTS FOR A PORTION OF ACCESS DRIVEWAY	
<p>DESCRIPTION OF MODIFICATION: During vegetation grubbing for the new access driveway, soft and compressible peat deposits were encountered for an approximate 150-foot distance along the driveway alignment between the base of the ramp departing Boreas Pass Road and the point at which the alignment crosses the old existing railroad grade (see attached photos).</p> <p>To improve the foundation conditions in this area, a geogrid material (Tensar Biaxial Geogrid BX1100; see attached spec sheet) will be placed on top of the compacted peat and 4" to 8" cobble will be placed on top of the geogrid in an approximate 6" lift. Then, per the approved design, the cobble layer will be overlain with a 6" layer of 2" minus material and then a final 6" layer of class 6 base course.</p> <p>This modification will not materially affect the function of the TCRA.</p>	
JUSTIFICATION/BENEFIT: The geogrid and cobble layer will distribute the weight of the driveway and truck traffic over the peat layer, reducing the potential for differential settlement resulting in more stable driveway configuration.	
<p>PREPARED BY: Formation Environmental, LLC and/or The Sanitas Group on behalf of TABR Realty Services Inc.</p> <p><i>Brian G. Hansen</i> Brian G. Hansen, PE – Formation Environmental, LLC</p> <p><i>Curtis C. Stevens</i> Curtis C. Stevens, PE – The Sanitas Group</p>	<p>APPROVED BY:</p> <p>U.S. EPA ON-SCENE COORDINATOR</p>



GRUBBED DRIVEWAY ALIGNMENT LOOKING SOUTH



GRUBBED DRIVEWAY ALIGNMENT LOOKING NORTH SHOWING EXPOSED PEAT

Product Specification - Biaxial Geogrid BX1100

Tensar International Corporation reserves the right to change its product specifications at any time. It is the responsibility of the specifier and purchaser to ensure that product specifications used for design and procurement purposes are current and consistent with the products used in each instance.

Product Type: Integrally Formed Biaxial Geogrid
Polymer: Polypropylene
Load Transfer Mechanism: Positive Mechanical Interlock
Primary Applications: Spectra System (Base Stabilization, Subgrade Improvement)

Product Properties

Index Properties	Units	MD Values ¹	XMD Values ¹
▪ Aperture Dimensions ²	mm (in)	25 (1.0)	33 (1.3)
▪ Rib Thickness ²	mm (in)	0.76 (0.03)	0.76 (0.03)
▪ Tensile Strength @ 2% Strain ³	kN/m (lb/ft)	4.1 (280)	6.6 (450)
▪ Tensile Strength @ 5% Strain ³	kN/m (lb/ft)	8.5 (580)	13.4 (920)
▪ Ultimate Tensile Strength ³	kN/m (lb/ft)	12.4 (850)	19.0 (1,300)
Structural Integrity			
▪ Junction Efficiency ⁴	%	93	
▪ Overall Flexural Rigidity ⁵	mg-cm	250,000	
▪ Aperture Stability ⁶	m-N/deg	0.32	
Durability			
▪ Resistance to Installation Damage ⁷	%SC / %SW / %GP	95 / 93 / 90	
▪ Resistance to Long Term Degradation ⁸	%	100	
▪ Resistance to UV Degradation ⁹	%	100	

Dimensions and Delivery

The biaxial geogrid shall be delivered to the jobsite in roll form with each roll individually identified and nominally measuring 4.0 meters (13.1 feet) in width and 75.0 meters (246 feet) in length and 3.93 meters (12.9 feet) in width and 75.0 meters (246 feet) in length.

Notes

1. Unless indicated otherwise, values shown are minimum average roll values determined in accordance with ASTM D4759-02. Brief descriptions of test procedures are given in the following notes.
2. Nominal dimensions.
3. Determined in accordance with ASTM D6637-10 Method A.
4. Load transfer capability determined in accordance with ASTM D7737-11.
5. Resistance to bending force determined in accordance with ASTM D7748/D7748M-14.
6. Resistance to in-plane rotational movement measured in accordance with ASTM D7864/D7864M-15.
7. Resistance to loss of load capacity or structural integrity when subjected to mechanical installation stress in clayey sand (SC), well graded sand (SW), and crushed stone classified as poorly graded gravel (GP). The geogrid shall be sampled in accordance with ASTM D5818 and load capacity shall be determined in accordance with ASTM D6637.
8. Resistance to loss of load capacity or structural integrity when subjected to chemically aggressive environments in accordance with EPA 9090 immersion testing.
9. Resistance to loss of load capacity or structural integrity when subjected to 500 hours of ultraviolet light and aggressive weathering in accordance with ASTM D4355-05.