



Design Data and Test Results



Specifications

A variety of test methods are utilized to determine performance and conformance values for Rolled Erosion Control Products (RECPs). Information within this document is presented to provide conformance values and recommended design values. Test results obtained for the Excel PP5-10 Turf Reinforcement Mat (TRM) and general design values are presented in Tables 1-4. For specific information detailing testing protocols, results and application of design values, refer to document number WE_EXCEL_PERF_GEN.

Table 1 - Bench Scale Testing / NTPEP

Test Method	Condition	Result
ASTM D7101 Bench Scale Rainfall and Rainsplash Test	2 in per hour	8.63
	4 in per hour	6.42
	6 in per hour	4.78
ASTM D7207 Bench Scale Shear Resistance Test	2.8 psf (132 PA)	0.5 in (12 mm)
ASTM D7322 Bench Scale Vegetation Establishment Test	Top Soil, Fescue, 21 Day Incubation	321 %
NTPEP Report Number	ECP-2013-04-004	

Table 3 - Recommended Design Values*

Design Value	Unvegetated	Vegetated
Typical RUSLE Cover Factor (C Factor)**	0.03	N/A
Maximum Slope Gradient (RUSLE)	1H : 1V	N/A
Max Allowable Velocity (0.5 in (12mm) soil loss)***	7.0 ft/s (2.1 m/s)	15.0 ft/s (4.6 m/s)
Max Allowable Shear Stress (0.5 in (12mm) soil loss)***	2.3 psf (110 PA)	12.0 psf (575 PA)
CF _{veg} /CF _{TRM}	N/A	0.32

C Factor value compliant with ASTM D6459. * Shear Stress and Velocity values compliant with ASTM D6460.

Table 2 - Texas Transportation Institute (TTI) Results

Class	Test Condition	Result
A	< 3H:1 Clay Slope Test	Approved
B	< 3H:1 Sand Slope Test	Approved
C	> 3H:1 Clay Slope Test	Approved
D	> 3H:1 Sand Slope Test	Approved
E	2 psf Partially Vegetated Channel Test	Approved
F	4 psf Partially Vegetated Channel Test	Approved
G	6 psf Partially Vegetated Channel Test	Approved
H	8 psf Partially Vegetated Channel Test	Approved

Table 4 - HEC-15 Resistance to Flow Values

Design Value	Unvegetated
Manning's n @ Tau lower (0.6 psf (28 PA))	0.035
Manning's n @ Tau mid (1.2 psf (55 PA))	0.028
Manning's n @ Tau upper (2.3 psf (110 PA))	0.027

*Recommended Design Values are based on results of standardized industry full-scale testing and may not be applicable for all field conditions. For most accurate computation of field performance, consult Excel Erosion Design (EED) at www.westernexcelsior.com.

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