# Carthage Mills/Landlok® ECB and TRM Design Values

| | | Product | Functional Longevity (months) | | | | | ½ hr – Allowable Shear Stress (lb/ft²) and Velocity (ft/sec)[5] *(Derived from independent large scale flume testing)* | | | | Manning's "n" | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 0–12 | 12–18 | 12–24 | 24–36 | 36 + | Vegetated | | Unvegetated | | 0–6" | 6–12" | 12–24" |
| | | | | | | | | lb/ft² | ft/sec | lb/ft² | ft/sec | | | |
| Temporary | Erosion Control Blankets (ECB)[2] | Landlok® S2 | Degradable ECBs are effective to the performance limits of natural vegetation, which are generally considered to be: • 5-6 fps Velocity • 1.55 to 2 lbs/ft² Shear Stress | | | | | N/A | N/A | 2.2 | 10.0 | 0.0213 | --- | --- |
| | | Landlok® 407GR | | | | | | N/A | N/A | 1.5 | 5.0 | 0.027 | 0.021 | 0.017 |
| | | Landlok® CS2 | | | | | | N/A | N/A | 2.5 | 12.0 | 0.0213 | --- | --- |
| | | Landlok® C2 | | | | | | N/A | N/A | 3 | 15.0 | 0.0183 | --- | --- |
| Permanent | Turf Reinforcement Mat (TRM)[1] | Landlok® TRM 435 | TRMs 435 & 450 are generally installed non-soil filled, protecting soil and seed from sun burnout, rain-drops, wind, and sheet/channel flow erosion during germination. Provides permanent "Soft Armor" layer of protection. Green color provides immediate aesthetic benefits. May be soil or compost filled for optimum performance (Engineer's discretion). | | | | | 5 | 18.0 | 3.5 | 12.0 | 0.035 | 0.025 | 0.021 |
| | | Landlok® TRM 450 | | | | | | 8 | 18.0 | 5 | 18.0 | 0.035 | 0.025 | 0.021 |
| | | Landlok® TRM 1051[3] | 1051B's Geotextile backing protects against loss of fine-grained soil due to seepage or draw down forces. Generally used for Storm water basins, Estuaries / Tidal Areas, Clean water lagoons, Dams & Reservoirs. | | | | | 8 | 20.0 | 5 | 12.0 | 0.036 | 0.026 | 0.020 |
| | | Landlok® TRM 1060 | Three-dimensional matrix is easily and generally installed soil filled at engineer's discretion. Soil filling enhances intimate contact with soil, performance, and offers protection to seed and TRM. | | | | | 8 | 20.0 | 5 | 14.0 | 0.036 | 0.026 | 0.020 |
| | | Pyramat® High Performance TRM[4] | Pyramat High Performance TRM: combination of unique soil interface characteristic and 3,000 lb. tensile strength addresses the need for higher factors of safety, more demanding applications and installation or long term survivability. Generally, more factors are involved with Pyramat specification than hydraulic performance alone. | | | | | 12 | 25.0 | 8 | 20.0 | 0.027 | 0.021 | 0.017 |

1. Long term non-degradable rolled erosion control products composed of UV stabilized, non-degradable, synthetic fibers, nettings and/or filaments processed into three dimensional reinforcement matrices designed for permanent and critical hydraulic applications where design discharges exert velocities and shear stresses that exceed the limits of mature, natural vegetation. TRMs provide sufficient thickness, strength and void space to permit soil filling and/or retention and the development of vegetation within the matrix. Products must have 80% UV Resistance @ 1000 hours per ASTM D4355 (MARV Value).
2. Temporary degradable rolled erosion control products composed of processed natural or polymer fibers mechanically, structurally or chemically bound together to form a continuous matrix.
3. Landlok TRM 1051 must be soil filled.
4. At the engineer's discretion PYRAMAT may be soil filled to increase intimate contact with subgrade soil, seed germination and root entanglement. PYARMAT meets the definition of a high performance turf reinforcement mat (HPTRM) as defined by the Environmental Protection Agency (EPA) – Fact Sheet EPA 832-F-99-002, "Storm Water Technology Fact Sheet, and Turf Reinforcement Mats." Shear stress and velocity values shall be derived from large-scale channel/flume testing from an independent hydraulics laboratory.

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