

## **Technical Specification - Slopetame3 Slope and Channel Protection**

### **CSI Master Format 31 25 14.16 Rolled Erosion Control Mats and Blankets** (Section 02370 Erosion and Sediment Control)

#### **PART 1 - GENERAL**

##### **1.01 General Provisions**

- A. The Conditions of the Contract and all Sections of Division 1 are hereby made a part of this Section.

##### **1.02 Description of Work**

###### **A. Work Included:**

- 1. Provide Slopetame3 units, anchors and installation per the manufacturer's instructions furnished under this section.
- 2. Provide and install "topsoil" fill material to fill the Slopetame3 units.
- 3. Provide vegetation materials and installation.
- 4. Provide maintenance for Establishment period.

###### **B. Related Work:**

- 1. Grade and prepare the slope and surface soils to receive and support Slopetame3 product and vegetation cover, under Section 02200 - Earthwork.

##### **1.03 Quality Assurance**

- A. Follow Section 01340 requirements.
- B. Installation: Performed only by skilled work people with satisfactory record of performance on landscaping or erosion control projects of comparable size and quality.

##### **1.04 Submittals**

- A. Submit manufacturer's product data and installation instructions.
- B. Submit a 10" x 10" section of Slopetame3 product for review. Reviewed and accepted samples will be returned to the Contractor.
- C. Submit material certificates for "topsoil" fill materials.

##### **1.05 Delivery, Storage, and Handling**

- A. Protect Slopetame3 material units from damage during delivery and store under tarp when time from delivery to installation exceeds one week. Fabric backing materials are photosensitive and can be permanently damaged by sunlight.

##### **1.06 Project Conditions**

- A. Review installation procedures and coordinate Slopetame3 work with other work affected.
- B. All hard surface construction adjacent to Slopetame3 areas, including concrete and asphalt, must be completed prior to installation of Slopetame3.
- C. Cold weather:
  - 1. Do not use frozen materials or materials mixed or coated with ice or frost.
  - 2. Do not build on frozen work or wet, saturated or muddy sub grade.
- D. Protect partially completed installation areas against damage from other construction traffic when work is in progress.
- E. Protect adjacent work from damage during Slopetame3 installation.

#### **PART 2 - PRODUCTS**

##### **2.01 Availability**

- A. Manufacturer: Invisible Structures, Inc., 3510 Himalaya Road, Suite 200, Aurora, CO 80011  
Phone 303-233-8383
- B. Local Sales Representative:  
(Contact Manufacturer, or visit [www.invisiblestructures.com](http://www.invisiblestructures.com))

##### **2.02 Materials**

- A. Slopetame3 Paving Units:

1. Lightweight injection-molded plastic units 1m x 1m x 0.025m (40" x 40" x 1" high) with hollow rings rising from an open grid with full depth crossbars extending down each row and a vegetation-permeable geotextile fabric fused to the bottom of the grid.
2. Unit weight (1m x 1m) = 1.45 kg (3.2lbs), volume = 8% solid.
3. The plastic shall be 100% post-industrial recycled HDPE plastic resins, with minimum 3% carbon black concentrate added for UV protection.
5. Units are shipped in pre-assembled roll sizes of 10m x 1m (1010) and 20m x 2m (2020).
6. Male/Female Fastener Tensile Strength, determined using a Pull Test, is equal to 80,208 N/m (450 lbsf/in).
7. Standard color is black.

*Any products failing to meet these standards will be rejected.*

B. Topsoil Fill: Shall consist of loose friable loam reasonably free of admixtures of subsoil, refuse, stumps, roots, rocks, brush, weeds, or other material which would be detrimental to the proper development of vegetative growth.

C. Anchors:

1. Primary anchorage shall be provided by Duckbill 68 anchors, or greater, with loop end of cable secured over 0.75" dia. steel reinforcing bar (with corrosion protection in aggressive soils). Duckbill anchor only to be supplied by Manufacturer at a rate of one anchor per 10 m<sup>2</sup>. Surfaces subjected to heavy water submersion or action, shall require Duckbill/rebar anchors spaced at 1 per 2 m (6.6') on center.
2. Secondary anchorage shall be anchor pins made of either heavy gauge (8 - 12) wire "U" shaped, or 8" long nails with "fender" type washers 5 x 30 mm od (0.25" id x 1.25" ), all galvanized metal or similar coating to resist corrosion.

## PART 3 - EXECUTION

### 3.01 Inspection

- A. Examine slope grading and soil compaction conditions. Do not start Slopetame3 installation until unsatisfactory conditions are corrected. Check for improperly compacted or prepared surface soils, debris, and/or improper gradients.
- B. Installation constitutes acceptance of existing conditions and responsibility for satisfactory performance. If existing conditions are found unsatisfactory, contact Project Manager for resolution.

### 3.02 Preparation

- A. Place Slopetame3 Units over prepared grades as shown on plans. Allow 25 mm (1.0") for Slopetame3 unit thickness and "topsoil" fill to reach Final Grade.

### 3.03 Installation of Slopetame3 Units

- A. Install the Slopetame3 units from the top of the slope to the bottom, by placing units with rings facing up, and using small posts/holes provided along each edge to maintain proper spacing and interlock the units. Crossbars on the product shall be installed to be in opposition to the direction of primary water flow. Cutting can be performed with pruning shears and knife. Units shall be anchored with Duckbill/rebar anchors across the top of the mat (top of slope) and across the middle of the mat. If any part of a Slopetame3 mat shall be covered by water (channel or pond surface), then the bottom and leading edges exposed to water flow shall receive additional Duckbill/rebar anchors as needed to prevent undercutting by water movement. Additional wire anchor pins shall be spaced at one per square meter, or more as required to secure units in place and resist sliding when filled. Tops of rings shall be flush, or slightly below the surface of adjacent hard surfaces. Remove Slopetame3 product where existing trees, shrubs, rocks, or similar elements will project above the surface, and secure cut edges with anchor pins.
- B. Install "topsoil" into rings after the units are anchored by "up-dumping" from a Gradall, or from buckets, taking care not to snag the mat with bucket edges or teeth. The "topsoil" is then spread using stiff bristle brooms in an uphill direction to fill the rings, with the finish grade no more than 6 mm (0.25") above top of rings. Do not allow

motorized equipment access over the Slopetame3 area during installation and Establishment.

- C. Identify locations of plant materials with root balls larger than 10 cm dia. (4”), remove topsoil and Slopetame3 from an area two times (2x) the diameter of the root ball, excavate hole large enough for the root ball, place new plant, and backfill with “topsoil” material. Set the crown of the root ball and backfill material 12 mm (0.5”) below the top of the adjacent rings. Place anchor pins into the Slopetame3 structure above and below the hole for the new plant.
- D. Install seeded vegetation by Hydro-seeding methods, incorporating an appropriate cellulose type mulch material in the hydro-seeding mixture. This mixture shall have a distinctive green color to visually show the distribution of the mixture on the slope.

#### 3.04 Cleaning

- A. Remove and replace segments of Slopetame3 units where nine or more adjacent rings are broken or damaged, reinstalling as specified, with no visible evidence of replacement.
- B. Perform cleaning during the installation of work and upon completion of the work. Remove from the site all excess materials, debris, and equipment. Repair any damage to adjacent materials and surfaces resulting from installation of this work.

END OF SECTION

If you have any questions regarding this specification, please call  
Invisible Structures, Inc. 303-233-8383