

**PRESTO**



**GEOSYSTEMS®**

GLOBAL LEADER • GLOBAL PARTNER

# smart earth solutions

■ SOIL STABILIZATION ■ POROUS PAVEMENTS ■ CONSTRUCTION MATS







*our commitment:  
providing the highest quality  
products/solutions*

**A RICH HISTORY OF INNOVATION.** Presto GEOSYSTEMS® long history of creating innovative products started as a partnership project with the US Army Corps of Engineers in the early 1980's, resulting in the development of the original patented "geocell" technology.







## WHO WE ARE

**GEOSYSTEMS®**

**PRESTO GEOSYSTEMS®** leads the stormwater and site development industry with eco-friendly, custom-tailored solutions to meet the most demanding soil and water problems.

We have been manufacturing high-quality, innovative products for over thirty years. Our proven solutions are designed to handle unique challenges, save cost, and reduce construction time with minimal environmental impact. Our products are backed by stringent research, internationally recognized testing and quality processes, ensuring high-performing and long-lasting solutions.



## WHAT WE DO

We are committed to the complete project cycle. We invest with partner engineers, contractors and owners to solve their site challenges. Our value starts with design assistance and we stay with you through project completion.

**QUALITY DRIVEN.** We hold ourselves to the highest quality standards. Presto GEOSYSTEMS® quality management system is certified to ISO 9001:2008 and CE-FP quality standards.

# SOLUTIONS PORTFOLIO

Presto GEOSYSTEMS® manufactures high quality products for meeting the most challenging soil stabilization, stormwater and site access needs.

## SOIL STABILIZATION

Presto is the original inventor of the three-dimensional geocell technology, working with the US Army Corps of Engineers.

Presto's high-quality, **Genuine GEOWEB® system** leads with innovations:

- Textured surface, perforations and tendon slots.
- ATRA® load transfer clips and tendons.
- ATRA® connection keys, ATRA® stake clips, ATRA® anchors, and ATRA® GAD & drivers.

## POROUS PAVEMENTS

Presto's quality solutions create grass and aggregate porous pavements for pedestrian and vehicular traffic use. The permeable systems deliver structural support for traffic loads and provide stormwater drainage benefits.

- **GEOBLOCK®** system protects turf for occasional-use pavements.
- **GEOPAVE®** system stabilizes open-graded aggregate pavements.
- **GEOWEB®** system stabilizes aggregate or aggregate/topsoil mix for economical aggregate and vegetated pavements.

## CONSTRUCTION MATS

Two mat types are available to support construction traffic.

- **GEOTERRA®** mats are extremely strong, lightweight and economical for use over soft subgrades.
- **GEORUNNER®** mats protect turf from concentrated pedestrian traffic or lightweight construction vehicles and equipment. They are also ideal for scour protection applications.

## MARKETS AND INDUSTRIES

We partner with engineers, architects, contractors and owners around the globe. Our solutions solve soil challenges in diverse areas of site construction:

- |                           |                           |
|---------------------------|---------------------------|
| • Infrastructure          | • Stormwater & Wastewater |
| • Mining                  | • Transportation          |
| • Oil & Gas               | • Wind Energy             |
| • Railroad and Intermodal | • Green Building          |

Presto's quality products add value by minimizing environmental impact and offering cost-effective means for creating sustainable, long-term solutions that hold up over time. With reduced life-cycle cost, sustainability, environmental and aesthetic benefits, we offer solution choices to best meet our customers' needs.



**A Guide to QR Codes:** Use your Smartphone or Tablet with a QR code reader to link to the website pages in each section. We suggest the free QR reader app Redlaser.





## THE ORIGINAL MOST COMPLETE GEOCELL

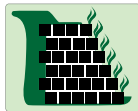
The **GEOWEB® system** is the original geocell developed by Presto GEOSYSTEMS® for soil stabilization challenges. The GEOWEB® brand is recognized as the industry's high-quality, high-performance solution and the **most complete geocell**, offering integral design components critical to the strength of the engineered solution.

## FOUR GEOWEB MAIN APPLICATIONS

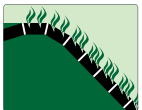
The GEOWEB® system is a versatile solution for a wide range of applications:



LOAD  
SUPPORT



RETAINING  
WALLS



SLOPE  
PROTECTION



CHANNEL  
SUPPORT

## INFILL OPTIONS

Infill type varies from vegetation to aggregate and hard-armored concrete.



## INTEGRAL COMPONENTS

The complete **GEOWEB®** solution includes proper integral components with higher performance strength and faster installation than with alternative methods.

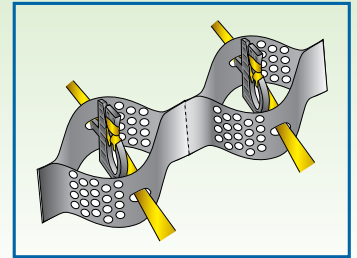
### ATRA® KEYS



#### GEOWEB® Connection Device.

ATRA® keys, made from weather-resistant polyethylene, are 3 times stronger and 3 times faster than stapling. Easy installation: ATRA® keys are inserted through adjoining GEOWEB® cell walls, turned and locked for the most secure connection.

### TENDONS & ATRA® TENDON CLIPS



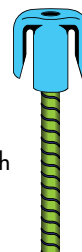
#### Support System

Tendons suspend the GEOWEB® material over geomembranes, hard surfaces, or steep slopes without anchors. Presto uses industry-leading tendons, as tendon type and density are critical to the design strength.

### ATRA® ANCHORS & DRIVERS



Presto's ATRA® anchors make a secure connection with the GEOWEB® cell wall and are fast and easy to drive with ATRA® drivers.



#### Load Transfer Device

Presto's ATRA® tendon clips make a secure connection with the GEOWEB® cell wall for transferring loads from the tendon to the cell wall.





# GEOWEB® LOAD SUPPORT

SOIL STABILIZATION

The **GEOWEB® Load Support System** is a proven, economical solution for challenging soil stability problems. The 3D structural system delivers benefits where soft soils are present, where inexpensive quality infill is unavailable or where traditional reinforcement methods are difficult to construct.

## ■ THE 3D GEOWEB® STRUCTURE ADVANTAGES

- Confines and stabilizes infill material and controls shear, lateral and vertical movement.
- Increases the effective structural number, allowing fill requirements and costs to be cut in half.
- May allow use of lesser-quality, less costly on-site infill materials.
- With permeable infill, is a **porous pavement** that reduces stormwater runoff and minimizes environmental impact.

## ■ GEOWEB® LOAD SUPPORT BENEFICIAL VALUE

- Load distribution system over weak soils
- Decreased rolling resistance
- Base stabilization for paved surfaces
- Rutting control for unpaved surfaces
- Maintenance reduction



## GEOWEB® RESEARCH RESULTS

The GEOWEB® load support system:

- reduces the thickness of structural support elements by **50% or more**.
- allows subgrade materials to withstand up to **10 times** the number of cyclic-load applications before accumulating permanent deflection.
- provides over **30% stress reduction** when used as a supporting layer under pavement.
- distributes load between pilings, **reducing intersoil stress by 40%**.

## GEOWEB® Key Applications

- Haul and Site Access Roads
- Laydown Yards/Drilling Pads
- Permeable, Load-Supporting Surfaces
- Intermodal/Port Facilities
- Transportation/Bulk-Handling Yards
- Roadway Shoulders
- Railroad Track Ballast/Subballast Structures
- Stabilized Base for Asphalt
- Trails and Walkways
- Boat Ramps and Low Water Crossings





# GEOWEB® SLOPE PROTECTION



SOIL STABILIZATION

The **GEOWEB® Slope Protection System** offers solutions for solving challenging slope stability problems. The 3D structure creates a stable environment for embankment infill materials, preventing severe erosion problems and offering deep earth solutions not delivered by surface treatments.

## ■ SUSTAINABLE SLOPE STABILITY

The benefits of 3D confinement are long-term vegetated sustainability, reinforcement of the upper soil layer and resistance to erosive conditions and sliding forces.

**The GEOWEB® system offers long-term protection of embankments of all types:**

### Sustainable Vegetation:

The system reinforces vegetation and increases the resistance to erosive forces with deep in-soil protection.

### Permeable Aggregate:

Confinement in the GEOWEB® structure allows smaller, less-expensive materials to be used on steeper slopes than when unconfined.



### Geomembrane Protection:

The system offers effective cover protection for impervious geomembranes. A tendoned-anchoring system offers structural support and protects the integrity of the liner.

### Hard-Armored Concrete:

With concrete infill, the GEOWEB® system is a less costly, flexible alternative to articulating block systems or bag systems.

## GEOWEB® Key Applications

- Vegetated & Permeable Embankments
- Geomembrane Protection
- Stormwater Basins & Wastewater Lagoons
- Shoreline Revetments
- Dikes & Levees
- Abutment Protection
- Landfill Linings & Covers
- Dam Faces & Spillways





# GEOWEB® SHORELINE PROTECTION

SOIL STABILIZATION



The **GEOWEB® Shoreline Protection System** stabilizes soils on shoreline embankments, creating a structurally-stable environment for infill. The system minimizes erosion problems caused by water contact, surface flow and wave action.

## ■ BENEFITS OF THE 3D STRUCTURE:

- Confines and reinforces the upper soil layer.
- Provides resistance to erosive conditions and slip forces.
- May be integrated with a turf reinforcement mat (TRM) for higher protection for vegetation.
- Protects geomembranes on ponds, or stormwater/wastewater containment basins.

## ■ SUSTAINABLE SHORELINE STABILITY

The GEOWEB® system can be designed to provide long-term stability with sustainable vegetation, permeable aggregate or hard-armored concrete.

### **Vegetated Protection:**

The GEOWEB® system with established vegetation protects embankments against mild wave and tidal forces. With a TRM cover, offers better resistance to soil loss caused by soil saturation.

### **Aggregate Protection:**

Confinement in the GEOWEB® structure allows smaller, less-expensive materials to be used, and on steeper slopes than when unconfined.

### **Concrete Hard-Armor Protection:**

With concrete infill, the GEOWEB® system is a less costly, flexible alternative to articulating block systems or bag systems, and can be an effective solution to damaging wave action.



## **GEOWEB® Key Applications**

- Shoreline Revetments & Embankment Protection
- Shoreline Restoration & Bioengineered Solutions
- Geomembrane Protection
- Stormwater or Wastewater Containment Basins
- Seawalls







Tiered **GEOWEB® Retaining Wall Systems** are designed to deliver natural aesthetics, and are valuable for projects with site constraints and challenging site conditions.

## ■ STRUCTURAL BENEFITS

The GEOWEB® system creates economical and structurally sound retaining walls that perform well when exposed to differential settlement in soft-soil environments. In fact, GEOWEB® retaining walls have been exposed to severe earthquakes without sustaining damage. Depending on the design, GEOWEB® retaining walls may be constructed with or without geosynthetic reinforcement layers.

## ■ ENVIRONMENTAL BENEFITS

The GEOWEB® retaining wall system's open-celled horizontal terraces create a natural environment for sustainable vegetation. The vegetated system allows rain water to collect through the wall fascia, minimizing runoff. The highly permeable wall surface is a natural Low Impact Development (LID)/Best Management Practice (BMP) for reducing runoff and managing stormwater on site.

If vegetation is not desired, the system also supports aggregate or concrete infill.

## ■ ECONOMIC BENEFITS

- Use of less expensive on-site infill materials saves cost.
- Construction productivity improvements speed up project completion.
- Compact and lightweight sections are easier to handle, transport and construct, even in difficult access or remote locations.

## ■ DESIGN SOFTWARE

Presto offers free, licensed MSE software to design GEOWEB® reinforced slopes, and gravity and reinforced walls.



## Typical GEOWEB® Wall Structures

- Reinforced Slopes
- Gravity Walls
- Reinforced Retaining Walls
- Multi-layered Channel Systems





The **GEOWEB® Channel Protection System** stabilizes and protects channels exposed to erosive conditions and can be designed with appropriate infill types to withstand even the highest velocities.

## ■ CHANNEL OPTIONS:

### **Vegetated Protection:**

Replaces costly, higher-maintenance rip-rap with lower-maintenance, less expensive, stabilized vegetation. Effective in low-flow channels and when low-to-high intermittent flows occur.

With a TRM, the vegetated GEOWEB® system can withstand velocities as high as 30 ft/sec (9m/sec) and 16 psf shear stresses. Ideal for drainage ditches, swales and stormwater channels.

### **Aggregate Protection:**

Aggregate confined in the GEOWEB® system is far more stable than when unconfined. As a result, rather than using large, difficult to handle rip-rap, smaller and less expensive infill can be used in low-to-challenging flow conditions.



### **Concrete Hard-Armor Protection:**

Concrete-filled GEOWEB® structures are ideal for channels exposed to severe hydraulic stresses. Concrete is poured in the structure onsite, creating an easy-to-install, flexible yet hard-armored system that is less costly than pre-formed concrete systems.

## **GEOWEB® CHANNEL RESEARCH RESULTS**

- Used with a TRM, able to withstand **30 ft/sec (9 m/sec)** velocity flow.
- **Doubles** resistance to shear stress and velocity for TRMs and ECBs.
- Reduces rip rap sizing by **up to 10 times**.



## **GEOWEB® Key Applications**

- Swales & Drainage Ditches
- Storm Water Diversion or Containment
- Process Water Channels or Containment
- Spillways/Downchutes/Drop Structures
- Culvert Outfalls
- Intermittent or Continuous/  
Low- to High-Flow Channels





# GEORUNNER® SURFACE FLOW PROTECTION

SOIL STABILIZATION



**GEORUNNER® Flow Protection Mats** are a low-cost solution for protecting embankments from scour and the erosive effects caused by water flow.

## ■ PROTECTS HIGH IMPACT AREAS

The series of lightweight, durable mats protects surfaces from intermittent and concentrated surface flows, water fluctuations and light wave action. They offer resistance to shear stresses and protect more efficiently than typical vegetation or rip-rap systems.

### GEORUNNER® RESEARCH RESULTS

Shear stress resistance of TRMs increase by **six times** and velocity by **2.6 times** when used with GEORUNNER®—even when unvegetated!



## GEORUNNER® Key Applications

- Culvert Outfalls
- Stormwater Channels
- Containment Ponds
- Swales & Drainage Ditches
- Shoreline Embankments
- Spillways, Down Chutes & Drop Structures
- Parking Lot Point Discharges



## ■ GEORUNNER® ADVANTAGES

- Effective in areas where erosion control blankets and turf reinforcement mats alone are not sufficient.
- Open mesh design promotes dense grass growth, increases system stability, reduces visibility and blends naturally with its environment.
- Mats are fully secured unit-to-unit, creating a fully integrated, flush surface, versus shingling found in other products.
- Anchored with industry-standard components to resist pull-out caused from saturated soils. A pneumatic driver allows quick driving of anchors, reduces worker fatigue.
- When anchored, the flexible system allows full contact with ground over landscape contours.
- Fully anchored system can be driven on by mowing or other lawn maintenance equipment.





# GEOBLOCK®/GEOBLOCK®5150 TURF PROTECTION

POROUS PAVEMENT



## ■ EXCEPTIONAL TURF PROTECTION

The **GEOBLOCK® Porous Pavement System** is the industry's strongest and most proven high performing turf protection system for occasional vehicular and pedestrian traffic. It's a green solution that offers exceptional aesthetics, dependable load support and high permeability. The system contributes to green building goals and LEED® credits.

Large GEOBLOCK® paving units are designed for maximum load transfer and support, resistance to traffic stresses and maximum turf protection.

Two GEOBLOCK® styles address all loading and stormwater requirements:

- **GEOBLOCK®** - Regular duty, 1.2" wall height
- **GEOBLOCK®5150** - Heavy duty, 2" wall height



## ■ GEOBLOCK® ADVANTAGES

**High Flexural Strength:** A rigid panel design with interconnected cell walls offers the industry's highest flexural strength.

**Load Transfer:** The large rigid surface area and strong interlocking connections between units maximize load transfer and distribution of vehicle loads to 80,000 lbs.

**Resistance to Torsional Loads:** The rigid design is resistant to movement or breakage from vehicle turning stresses and torsional loads, as well as concentrated rutting.

**Turf Protection:** Deep, interconnected cells protect grass from damage caused by repeated loading. Topsoil infill supports healthy grass that establishes faster, is hardier, and performs better than flexible systems with sand infill.

**Low Base Requirement:** Strong unit strength lowers installation costs by requiring less base depth than lighter-weight or rolled systems to achieve H-20 loading.



## GEOBLOCK® Key Applications

- Emergency & Utility Access Lanes
- Auxiliary Parking Areas
- Trails & Trail-hardening
- Pedestrian Walkways & Barrier-Free ADA Access
- Golf Cart Pathways, Medians, Shoulders





# GEOPAVE® STABILIZED AGGREGATE



## ■ STABILIZED AGGREGATE PAVEMENTS

The **GEOPAVE® Porous Pavement System** offers an economical way to confine and stabilize open-graded aggregate for highly-porous pavements. This system reduces stormwater runoff, stores stormwater on-site naturally and is a low-cost, durable option offering low maintenance.

## ■ STRUCTURAL FRAMEWORK

GEOPAVE® units hold open-graded base course in place through a unique herringbone cell pattern and monolithic mesh bottom. Using beam discontinuity through use of the herringbone pattern and unique “mouse holes”, the GEOPAVE® system was developed specifically for gravel infill and is proven not to lift up like many aggregate paver systems.

## ■ GEOPAVE® ADVANTAGES

GEOPAVE® pavements are designed for maximum load transfer and support, resistance to traffic stresses, maximum infill stabilization and stormwater storage.

- Performs to an H-20 loading with minimal base.
- Reduces overall installation costs by requiring far less depth of base than lighter-weight or rolled systems.
- Resists movement or breakage from vehicle turning stresses and torsional loads.
- Benefits of integral mesh-bottom:
  - Stronger than glued-on fabric solutions
  - Prevents “lifting” effect of granular fill downward migration
  - Creates “snowshoe effect”, spreads loads



## GEOPAVE® Key Applications

- Emergency & Utility Access Lanes
- Porous Roadways & Parking Areas
- Trails & Pedestrian Walkways
- Road Shoulders
- Golf Cart Pathways, Medians, Shoulders
- Barrier-Free ADA Access





# GEOTERRA®/GEOTERRA® GTO CONSTRUCTION MATS

CONSTRUCTION MATS

## ■ PORTABLE AND REUSABLE ACCESS MATS

**GEOTERRA® Construction Mats** offer contractors a better way to access sites for less cost. The mats are durable and reusable and eliminate the installation safety hazards and expense associated with classic timber or heavy mat systems. They are lightweight, have high flexural strength, and are easy to transport and deploy.

Two styles meet differing site demands:

- **GEOTERRA® - PADLOC®** locking system
- **GEOTERRA® GTO** - Bolt-tight system

## ■ ECONOMICAL FOR HEAVY LOAD SUPPORT

GEOTERRA® mats create an economical ground surface-reinforcement layer that supports vehicle and equipment loads. Their lighter weight reduces transportation costs, especially when deploying to difficult-to-access locations. They are extremely cost-effective compared to other mat systems.

## ■ GEOTERRA® ADVANTAGES

**High Structural Strength:** Supports heaviest loads over soft subgrades.

**Design Flexibility:** Compatible with other filter or drain products.

**Low Environmental Impact:** Convenient reusability; allows quick removal and reclamation of the site.

### **Portability & Reusability:**

Reduces handling, transportation and life cycle costs.

### **Light & Safe to Deploy:**

Reduces on-site injury potential.

### **Construction Flexibility:**

Can customize mat layout to site needs.



## **GEOTERRA® RESEARCH RESULTS**

- Structurally **equivalent to 12 inches of aggregate** over high-strength geotextile.
- The system significantly reduces rutting and the rate of surface degradation due to cyclical loading.

## **GEOTERRA® Key Applications**

- Site Protection Mats
- Site Access & Tracking Pads
- Oil Drilling Platforms & Roadways
- Wind Farm Roadways & Staging Areas
- Large Construction Pads
- Heavy Vehicle & Equipment Storage
- Tower Construction using Heavy Cranes
- Utility & Cemetery Access
- Helipads





# GEORUNNER® SURFACE PROTECTION MATS



CONSTRUCTION MATS

**GEORUNNER® Surface Protection Mats** are portable, economical and drivable construction mats. Their light weight (8 lbs.), easy-to-handle size makes them ideally suited for transporting and deploying on construction sites.

## ■ BENEFICIAL GROUND PROTECTION

GEORUNNER® mats minimize turf damage and soil compaction caused by light-to-medium loads from pedestrians, equipment and vehicles. The mats reduce mud tracking from construction site entrances and bridge across sandy areas for lightweight access of vehicles, wheelchairs or foot traffic.

## ■ GEORUNNER® ADVANTAGES

- Preferred over plywood because they can be quickly removed from sites, cleaned, stored and reused many times. Will not wet or dry rot.
- When left in place, supports dense, stabilizing grass growth through the open design.
- The open mesh allows sunlight and water to permeate, maintaining healthy turf.



## GEORUNNER® Key Applications

- Lightweight Temporary or Permanent Applications
- Construction Vehicles & Landscape Equipment Access over Turf or Sandy Areas
- Barrier-Free Access
- Concentrated Foot Traffic
- Sports Fields, Sidelines
- Storage Pads for Boats and Trailers







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