

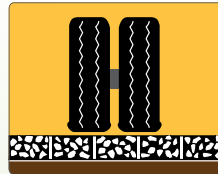


**PRESTO** | **GEOSYSTEMS®**

**STRENGTH. FROM THE GROUND UP.**

Since 1979

SOIL STABILIZATION



**GEOWEB®**

**load support**

OVERVIEW



# THE GEOWEB® SYSTEM

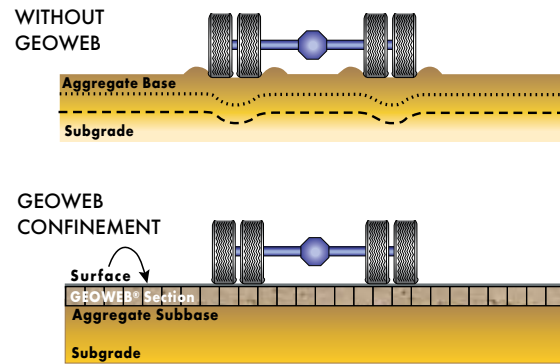
## LOW-COST LOAD SUPPORT SOLUTIONS

The GEOWEB load support system is a highly effective, economical solution for road, parking, and yard surface problems that result from subgrade material failure or surface or base material instability. Under concentrated or distributed loads, the 3D cellular structure confines infill material and controls shearing, lateral and vertical movement of the infill material.

**As a base stabilization system under pavement**, the GEOWEB system significantly improves pavement life cycle costs. When confined, **base material requirements can be reduced by 50% or more** by substantially reducing the loading on sub-surface soils. As a result, reduced excavation and granular infill needs reduce overall installation cost.

## GEOWEB System Benefits

- Produces a stiff base with high flexural strength; acts like a semi-rigid slab by distributing loads laterally.
- Minimizes impact of differential and overall settlement even on low-strength subgrades.
- Increases effective structural number, reducing fill depth requirement by 50%.
- May allow use of poor-quality granular fills in place of more costly imported materials.
- With permeable infill, reduces stormwater runoff, and may reduce need and costs for stormwater ponds.



**As a surface stabilization system**, the GEOWEB structure distributes surface pressures for dynamic and static loading, **controlling rutting and reducing long-term maintenance requirements and costs**. Using permeable infill with a high porosity, the system offers environmental and stormwater management benefits.

## COMPARED TO PLANAR GEOGRID SYSTEMS:

- The GEOWEB system's effect is immediate and works on a principle of hoop strength. Geogrids require tension to activate, initiated by partial deformation.
- A single layer of GEOWEB performs well over soft subgrades and allows heavy equipment to deliver structural fill right to the edge of construction. Geogrids require 2-3 layers for same benefit and require low-pressure equipment.



## Typical Applications

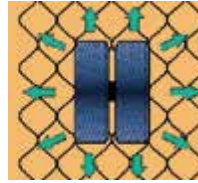
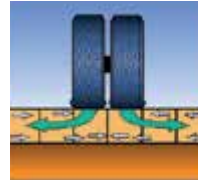
- Permanent and temporary site access roads
- Permeable, load-supporting surfaces
- Parking lots
- Intermodal/port facilities/storage yards
- Roadway shoulders (vegetated or porous aggregate)
- Base for asphalt, concrete, and modular block pavements
- Stabilized drainage layer
- Railroad track ballast/subballast structures
- Trails and walkways
- Boat ramps and low water crossings
- Pile cap structures
- Foundation mattresses and pipeline protection





## RESULTS SUPPORTED BY RESEARCH

Test results from numerous research initiatives confirm the benefits of confined aggregate within the GEOWEB® cellular confinement system vs. unconfined aggregate.



- Reduces thickness and weight of structural support elements by **50% or more.**
- Allows subgrade materials to **withstand more than 10 times** the number of cyclic-load applications before accumulating the same amount of permanent deflection.
- Provides **over 30% stress reduction** when supporting aggregate under pavement.

## KEY APPLICATION AREAS

The GEOWEB system creates a stabilized structural support system, providing considerable benefits to unstable soils in key areas:

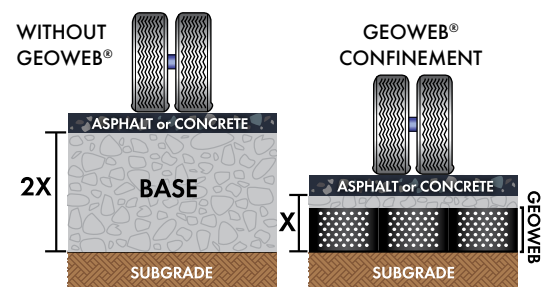
- 1 Base stabilization** under paved surfaces
- 2 Surface stabilization** for unpaved permeable surfaces

- 3 Over-excavation alternative** eliminates full depth removal
- 4 Hard-surface pavements** – flexible, poured-in-place

### 1 Base Stabilization UNDER PAVED SURFACES

As base support, the GEOWEB load support system creates a stabilized layer under asphalt, concrete or modular block pavements that hold up under heavy, repeated traffic.

Selection of infill materials for base stabilization is determined by anticipated load characteristics and overall performance requirements. The system is **especially effective in soft-soil areas** where substantial pavement problems and regular maintenance costs exist or are anticipated as a result.



### STABILIZING BASE MATERIALS WITHIN THE 3D GEOWEB SYSTEM:

- Requires 50% or less base material when material is confined to achieve the same load support requirements.
- Minimizes load-related deformation and settlement, and reduces pavement degradation and cracking common with soft subgrades.
- Allows the use of lower quality granular infill, even over soft subgrades.



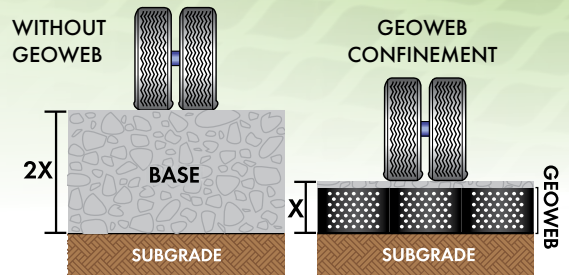
## 2

## Surface Stabilization

### FOR UNPAVED AND PERMEABLE SURFACES

With permeable infill, the GEOWEB® surface stabilization system provides a cost-effective alternative to hard surface pavements with many environmental benefits. By confining aggregate infill, the system improves the load distribution characteristics of unpaved roads and pavement areas, reducing long-term maintenance requirements and costs.

With topsoil/aggregate infill, the GEOWEB material creates a vegetated surface that supports occasional loads.



### STABILIZING INFILL MATERIALS WITHIN THE 3D GEOWEB SYSTEM:

- Distributes pressures from dynamic and static loadings throughout the system, reducing lateral and vertical displacement of the infill and surface rutting.
- With aggregate infill, performs double duty as an on-site water detention/retention storage "basin"; may eliminate requirements and costs for on-site stormwater containment systems.
- Reduces stormwater surface runoff, maximizes groundwater replenishment.
- Is a suitable solution for Low Impact Development (LID) design goals.

## 3

## Over-Excavation Alternative

### ELIMINATES FULL DEPTH REMOVAL

When faced with unsuitable soils requiring full depth removal, the GEOWEB system can significantly reduce excavation. The infilled GEOWEB system forms a stabilized base layer, highly effective in solving support challenges without full removal of poor soils. In many cases, lower cost onsite granular materials may be used in place of costly imported aggregate.



## 4

## Hard-Surface Pavements

### FLEXIBLE, POURED-IN-PLACE

Replace a deep cross-section of reinforced concrete with a thinner poured-in-place, non-reinforced GEOWEB solution that is easier and quicker to install, requires no forms, and controls cracking. Assures even, precise concrete depth as GEOWEB cell walls act as a continuous form.





# KEY COMPONENTS

The complete GEOWEB® load support system may include some or all of the following:

## TYPICAL COMPONENTS

- GEOWEB sections
- Cell infill materials
- Geotextile separation layer
- ATRA® Key connection device

## OPTIONAL COMPONENTS

- Geocomposite drainage materials
- ATRA Anchors (HDPE or Rebar)
- Polymeric tendons

# SIZE OPTIONS

GEOWEB sections are available in various cell sizes, cell depths and section lengths to address specific project needs. Load support system details are influenced by the characteristics of subsoil strength, applied load, available granular infill and surface type. Generally, the heavier the applied load and/or the poorer the quality of subsoils, the greater the required cell depth. **Presto Geosystems' free project evaluations can help determine suitable cell size and depth.**



# INTEGRAL SYSTEM COMPONENTS

The following components may be integrated to meet design requirements and to facilitate and expedite construction.

## 1 ATRA KEY CONNECTION DEVICE



For quick and easy connection of GEOWEB sections, exclusive ATRA keys significantly reduce contractor installation time.



## 2 ATRA ANCHORS

Anchors are typically not part of the permanent design requirements for load support, but are used to aid construction. With rebar stakes, ATRA Anchors are faster and easier to drive than J-hook stakes. HDPE ATRA Speed Stakes are corrosion-resistant.



## 3 TENDONS

Tendons may be required for providing additional hold-down and stability in the following applications:

- Traffic loadings on a grade
- Wet or saturated soil conditions on trails or access roads through wetlands
- Boat ramps or low-water-crossings





## COMPREHENSIVE SERVICES AND RESOURCES

Presto Geosystems and its distributors/representatives offer the most-complete services in the industry to support project design and installation requirements.

### Free Project Evaluation Service:

Our engineering team will analyze your specific project needs and provide a recommended preliminary evaluation for each project.

### Construction Services:

Qualified on-site field support specialists can be available for construction training and start-up installation supervision.

### RESOURCES:

- Engineering analysis/technical overviews
- CSI-Format product specification available
- Technical resources, webinars, and case studies
- Detailed construction guides and videos

### PRESTO GEOSYSTEMS COMMITMENT — To provide the highest quality products and solutions.

Geosystems is committed to helping you apply the best solutions to your soil stabilization problems. Contact Presto Geosystems or our worldwide network of knowledgeable distributors/representatives for assistance.

### LEADING-EDGE INNOVATION

Presto is the original developer of the geocell technology and leads the industry in research and development resulting in meaningful product improvements, innovative features, advanced engineering methodologies, proven field results and ultimately long-term solutions to challenging problems.

### UNSURPASSED QUALITY

Presto's commitment to quality begins with manufacturing and continues through final installation.

- Quality management system certified to ISO 9001:2015 and CE Certification.
- Sections manufactured from high-quality polyethylene provide consistent and maximum seam weld strength.
- Materials engineered to established geosynthetic industry guidelines.
- Sections backed by a 10-year limited warranty.



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