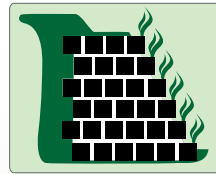


**PRESTO**



# **GEOWEB<sup>®</sup>** retaining walls

OVERVIEW



# GEOWEB® RETAINING WALLS

Retaining walls built with the GEOWEB® system are an economical, green alternative to MSE wall systems—creating a naturally-vegetated living structure while meeting all structural design requirements.

GEOWEB® walls are also highly adaptable; they provide exceptional performance in soft soil environments and seismic zones, tolerate reasonable differential settlement better than rigid wall systems, can be constructed as gravity structures in areas with space constraints, and are made from environmental degradation-resistant HDPE.

## Flexible Design Solution

The inherent flexibility of GEOWEB® retaining walls allow their design for various wall and reinforcement types, applications and site conditions.

- Wall designs are determined by the site soil conditions, space accessibility/restrictions, availability of suitable backfill materials, project budget and the desired completed wall aesthetics.
- Walls may be designed for a broad range of infill materials and foundation soils, groundwater and surcharge conditions.

## Wall Facing Options

Vegetation is the most common treatment for GEOWEB® retaining walls. Non-vegetated walls provide hard-armor protection and low maintenance for areas where vegetation is not desired.



### Vegetated Wall Facing

Topsoil with select vegetation and plantings.



### Hard-Armored Wall Facing

Granular materials, concrete, grout.



## Typical Applications

- vegetated retaining walls
- bioengineered walls
- steepened embankments
- dike & levee protection
- culvert headwalls
- vegetated channel structures
- change-in-grade landscape walls
- resource protection barriers
- sound berms

## Environmental & Performance Attributes

### NATURAL AESTHETICS & SUSTAINABLE VEGETATION

GEOWEB® walls feature horizontal terraces with exposed outer fascia cells that create a natural environment for select vegetation and plantings. Indigenous vegetation or specified plantings may be incorporated for aesthetic appeal and sustainability.



Aggregate or concrete fill provides hard-armor protection where vegetation is not desired.



### PERFORMANCE IN SOFT SOIL ENVIRONMENTS

Flexible and light weight GEOWEB® walls adapt to a wide range of design criteria and construction requirements—meeting site challenges even in soft soil environments.



### REDUCTION IN STORMWATER RUNOFF



GEOWEB® walls are highly permeable and act as a multitude of planting pots—allowing rain water to infiltrate through the wall face, minimizing runoff.

### LOW ENVIRONMENTAL IMPACT



GEOWEB® walls are a natural Low Impact Development (LID)/Best Management Practice (BMP) for reducing stormwater runoff and managing stormwater on site. LEED® green building credits can

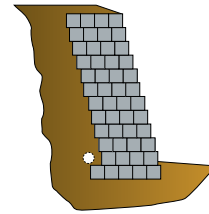
be earned for reducing site disturbance, reducing the heat island effect and for stormwater quality and quantity control. With a high percentage of open area, ability to use on-site fills and efficient transportation of materials, GEOWEB® walls are an eco-friendly solution for any site.

# DESIGN OPTIONS

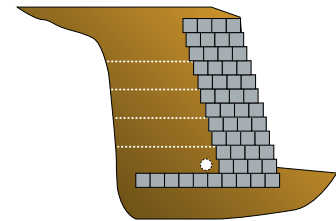
## GEOWEB® Wall Types

GEOWEB® walls can be designed in a variety of wall configurations to meet specific site and reinforcement requirements. Presto offers free licensed design software for GEOWEB® retaining walls.

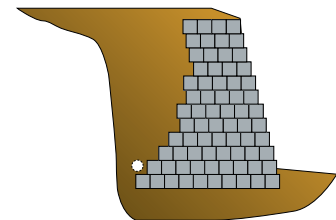
### 1 STEEPENED SLOPES



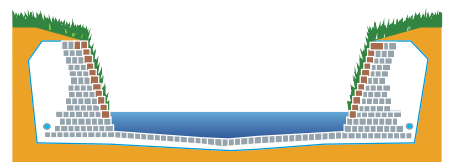
### 2 REINFORCED WALLS



### 3 GRAVITY WALLS



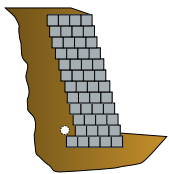
### 4 MULTI-LAYERED CHANNEL SYSTEMS



# DESIGN OPTION



## 1 Steepened Slopes

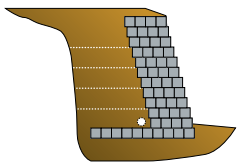


GEOWEB® walls may be designed as steepened slopes when simple fascia protection is required over a structurally-stable soil embankment.

The tiered wall structure is designed without the need for additional earth reinforcement.



## 2 Reinforced Walls



GEOWEB® reinforced retaining walls are designed when geogrid or other materials (geotextile or soil nails) are included for earth reinforcement. The reinforced wall system creates a fully-confined wall facing that is united with the backfill using the selected tie-back system at defined design intervals—typical of MSE wall systems.

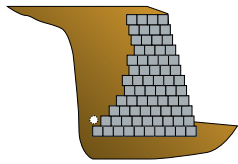
GEOWEB® wall sections form the wall fascia with a minimum of 3-cells deep, creating a deep integrated section resistant to movement.



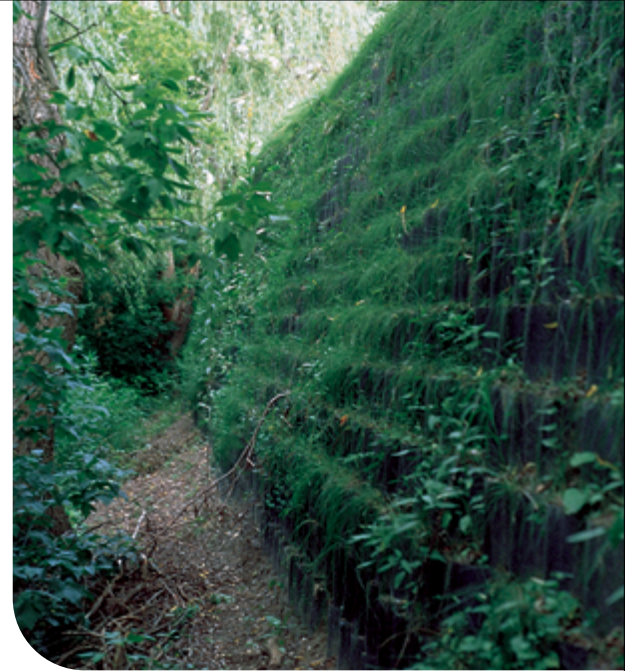
# DESIGN OPTION

3

## Gravity Walls

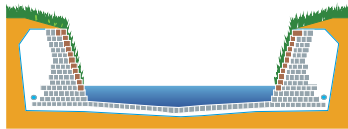


GEOWEB® gravity retaining walls are effective when space constraints prevent the use of earth reinforcement materials. The system is constructed as a layered gravity wall that resists lateral pressures and maintains structural integrity even when subgrade deformations occur.



4

## Multi-Layered Channels



GEOWEB® channel side slopes with vegetative infill offer a natural appearance, stability and protection to channels exposed to erosive conditions ranging from low-to-medium flows—intermittent or continuous.

GEOWEB® multi-layered channels tolerate differential settlement without loss of system integrity and can provide a near-vertical profile, reducing valuable land use.

When applied in areas of anticipated high-energy water impact, GEOWEB® wall sections can be filled with aggregate or concrete, or wrapped with coir fabric to reduce soil loss potential in the outer face while vegetation is being established.



GEOWEB® fascia cells filled with aggregate or concrete grout resist higher, continuous flows.

### *Concrete infill in outer fascia cells*





## **GEOWEB®** PERFORMANCE COMPARISONS TO MSE WALLS



*Early volunteer vegetation*

### **GEOWEB® retaining walls offer performance benefits compared to MSE block wall systems:**

- Vegetated fascia offers natural green aesthetics.
- Open-celled front fascia infiltrates stormwater.
- Flexible wall structure performs well in soft soil environments & seismic zones.
- Gravity walls require no reinforcement.
- Reinforced walls offer a 2X deeper fascia—resistant to movement.
- Installs 25-30% faster, with fewer injuries.
- Redundant sections allow cutting to form around obstructions.
- HDPE material is resistant to environmental degradation.

# KEY COMPONENTS

The complete GEOWEB® retaining wall system includes some or all of the following:

- GEOWEB® sections
- Cell infill and backfill materials
- Geocomposite drainage materials
- Geogrids, geotextile or other reinforcement
- Subdrain



## Natural Colored Facing

GEOWEB® wall sections are available with green, tan, or black fascia colors to blend with natural environments. The polyethylene material is ultraviolet-light stabilized to resist color fading, and increase system durability and quality performance to meet typical engineering requirements. The wall material is also extremely weather-resistant; it resists cracking, spalling, and corrosion that degrades and deteriorates concrete, steel and timber-based systems.



*Tan fascia*



*Green fascia*

# CONSTRUCTION

## COST-EFFECTIVE, SIMPLE INSTALLATION

GEOWEB® retaining walls are cost-competitive with conventional MSE walls and earth retention systems. Installed costs will vary with site-specific conditions, including accessibility, soil conditions, cost of infill and compaction, labor rates, surcharge loading, and length of wall.

## GEOWEB® WALL INSTALLATION BENEFITS

- Construction productivity can be greatly improved compared to conventional wall types.
- Flexible wall sections conform to differential settlement and allow natural conformance to landscape obstructions and contours.
- Lightweight, compact sections are easy to transport and construct in difficult access or remote locations.
- Allows use of permeable aggregate to minimize hydrostatic conditions.





## 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:

We analyze specific project needs and provide recommended preliminary designs 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
- SPECMaker® specification development tool
- Technical resources binder/case studies
- Detailed construction guides and videos

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

Presto 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 and accessories, 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 has CE marking.
- 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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## Design and Construction Resources

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