

PRESTO



SMART EARTH
SOLUTIONS

Dams, Dikes/Levees & Spillways

GEOWEB® SOIL STABILIZATION SYSTEM



Innovative Solutions for Designing & Building Earth Structures.



GEOWEB®

3D Soil Stabilization

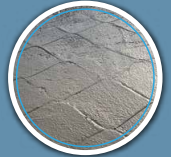
GEOWEB®
Infill Options



Topsoil
Vegetation



Aggregate

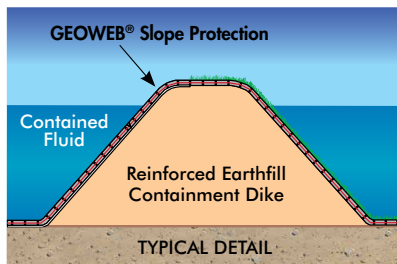


Concrete

Flexible Design Solutions

For Dams, Dikes and Spillways

Dam slopes, dike/levee embankments, and spillways benefit when constructed with the GEOWEB® 3D confinement system. The results are flexible design solutions that are more stable, durable and economical than traditional methods. Steep embankments and high velocities/shear stresses are easily accommodated by the GEOWEB® system.



GEOWEB® 3D Confinement Benefits:

- Naturally-vegetated earthen structures can replace rip rap or concrete structures.
- Smaller crushed aggregate infill can replace larger, expensive rip rap.
- Concrete depth can be reduced up to 50% for hard-armor protection.
- Protect geomembranes from UV degradation, puncture, water seepage, and water infiltration.
- Reduced maintenance.

Integration with Standard Designs

The GEOWEB® system meets specific project site requirements—conforming to a variety of site conditions, landscape curves and changes in grade with appropriately designed infill. Infill confined in the GEOWEB® 3D structure is more resistant to high velocities and shear stresses, and the forces of nature, including wave and ice action.

Driving Lanes and Access Benches

Maintenance trucks and heavy construction equipment can drive on the GEOWEB® system once installation is complete, including on easy-to-build access benches on the downstream side of the structure.



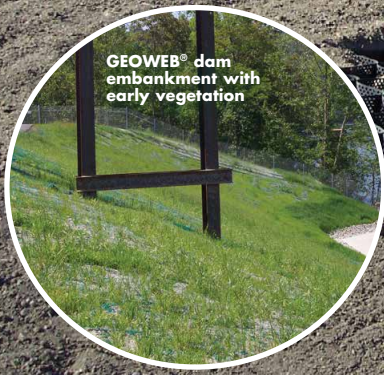
DAM APPLICATIONS

Better Built Dam Embankments

Earthen Dams

GEOWEB® 3D soil confinement utilized in earthen dams protects embankments from erosion and sloughing caused by sheet flow and overtopping. The effects of piping are minimized by maintaining a continuously confined surface, allowing for easy repair without reducing the integrity of the rest of the slope face.

By creating a protective surface layer over impervious geomembranes, the liner is protected from UV degradation and puncture. The GEOWEB® panels are highly resistant to degradation and are chemically inert, protecting any contained water from contamination.



GEOWEB® dam embankment with early vegetation



1) Erosion caused by overtopping



2) GEOWEB® slope erosion repair



3) Fully vegetated GEOWEB® slope

Hard-Armored Concrete Dams

The GEOWEB® 3D system with poured-in-place concrete delivers hard-armored protection with a thinner, more consistent cross-section, and without additional formwork or reinforcement required by conventional concrete. Higher slump concrete can be used because of the confinement by the cells, allowing for easier installation.

GEOWEB® designs for dams commonly integrate a tendon anchoring system to protect geomembranes from puncture or degradation—or where hard soils on the dam face prevent stake anchoring.



GEOWEB® tendon anchoring system



No additional formwork or reinforcement is required

DIKE & LEVEE APPLICATIONS



Flood Control & Spillway Management

Embankment Protection

GEOWEB® dikes and levees create earthen barriers to prevent flooding onto adjoining land. They also perform as protective barricades around containment tanks to hold potential spill material and prevent leakage of liquids and hazardous materials into the environment.

GEOWEB® dikes and levees are engineered structures designed as single layer slope protection, or multi-layered MSE retaining walls, ideal for saline or corrosive environments due to the durability of the HDPE material.

Vegetated MSE Walls

GEOWEB® structures perform as reinforced or gravity retaining walls. Because they are relatively lightweight and flexible, structural integrity is maintained even in poor base conditions. The wall fascia's open-celled terraces create a natural environment for sustainable vegetation and allow storm water infiltration.

 Presto offers free licensed MSE wall design software
[Request license on prestogeo.com](http://prestogeo.com)



The flexibility allows GEOWEB® wall systems to accommodate higher degrees of differential settlement than traditional solutions, without losing structural integrity.



Drivable surface of GEOWEB® hard-armored concrete dike.

Hard-Armored Protection

Armoring dikes and levees with an aggregate or concrete surface is an effective and low maintenance way to erosion-proof embankments and protect geomembranes. With GEOWEB® 3D confinement, aggregate remains stable, even on steep, erosion-prone embankments.

GEOWEB® confinement also allows use of a thinner, more consistent cross-section of concrete. The poured-in-place concrete is 'flexible', and resistant to cracking that is common with conventional concrete slabs.

Controlling uplift under concrete-filled GEOWEB® structures is accomplished through weep holes or geocomposites, which do not affect the integrity of the system.





SPILLWAY APPLICATIONS

Efficient and Erosion-Resistant Water Conveyance

GEOWEB® spillways direct water from embankments and dams in controlled areas and can be designed to resist hydraulic conditions with appropriate infill. The system delivers excellent resistance to sheet flow runoff, scour and erosion with a vegetated or hard-armored surface.

Naturally Vegetated Spillways

Intermittent spillways benefit from GEOWEB® 3D confinement. The topsoil layer confined in the 3D structure is highly resistant to washout and rill and gully formation, allowing for vegetation in place of higher cost rip-rap. With an ECB or TRM overlayment, GEOWEB® vegetated spillways withstand flows up to 30 ft/sec (9m/sec).



Severe scour in unprotected spillway



GEOWEB® vegetated spillway repair

Hard-Armored Protection

Higher velocity and shear stress spillways benefit from the GEOWEB® system's poured-in-place concrete. Because of the system's inherent flexibility, it conforms well to landscape contours—preventing large cracks from forming that result from soil movement and settlement.



GEOWEB® 3D Benefits with Concrete Infill:

- No additional formwork or reinforcement is required, so installation is fast and efficient, even in areas with difficult site access.
- Assures a consistent-depth and thinner cross-section of concrete.
- Allows for integrated components for controlling water flow, such as energy dissipaters and overflows.



Presto offers free project evaluations for GEOWEB® earth structures.





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