



**PRESTO**

**GEOSYSTEMS®**

**GOWEB®**

Channel Protection System

Design  
Engineering  
Resource  
Package



**CHANNEL STABILIZATION**



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## Design Resources

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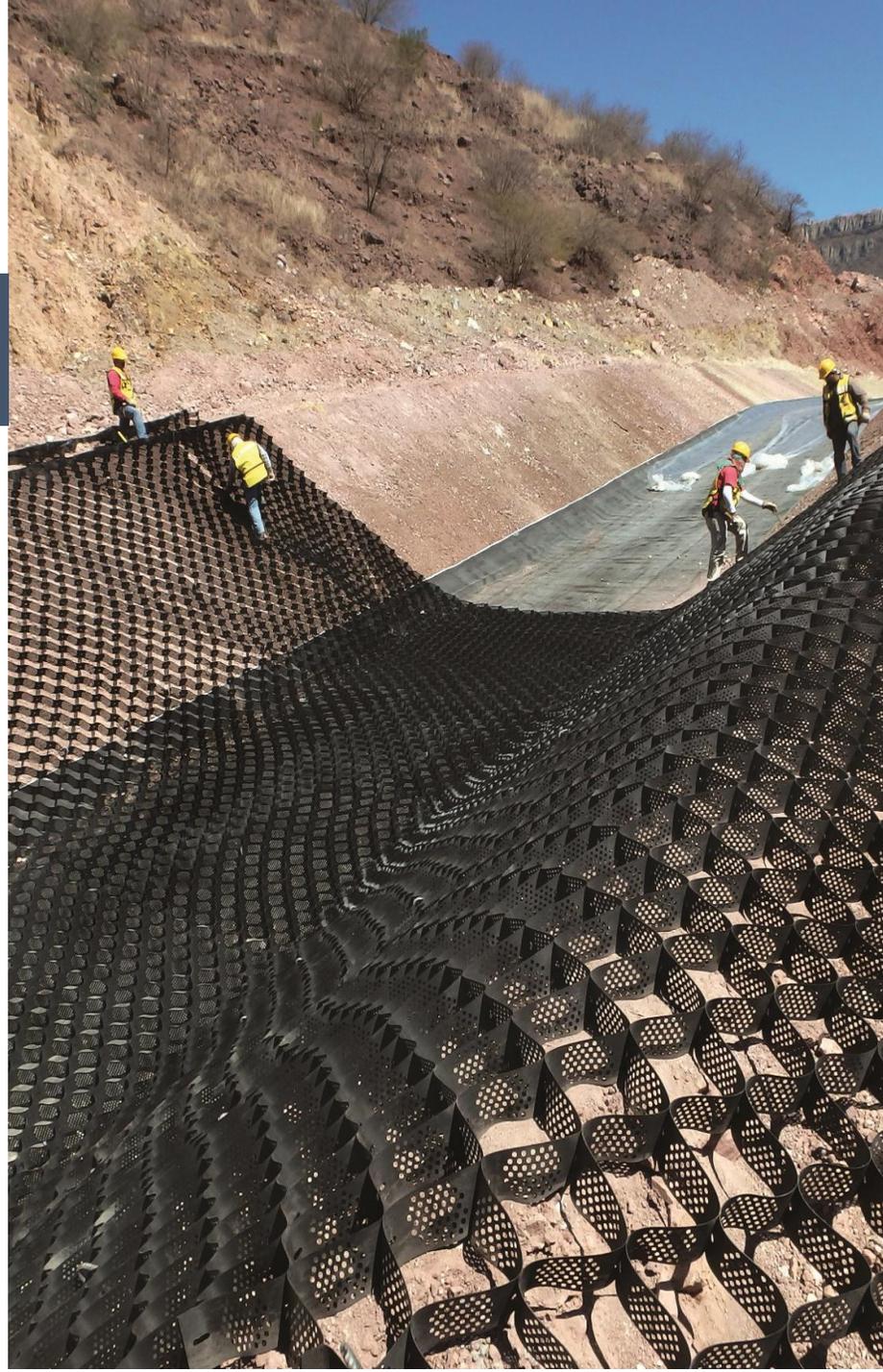
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# GEOWEB®

Channel Protection System

## DESIGN HIGH-PERFORMANCE CHANNELS

Design stable channels for unique water challenges. Control stormwater in open channels and hydraulic structures. Stabilize swales and drainage ditches--and resist high flowrates in flood control channels and spillways. Flexible system allows vegetation, aggregate and concrete.

**This engineering design package will equip you with tools & resources to design higher-performing channels.**

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# Learn About GEOWEB Channel Protection

## See how the System Works

Learn how the GEOWEB 3D Stabilization System works—and how it can work for your project.

- [Overview Brochure](#)
- [Visit our Photo Gallery](#)
- [See Project Case Studies](#)



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# Channel Infill Options



**VEGETATED CHANNELS**



**AGGREGATE CHANNELS**



**CONCRETE CHANNELS**



# COMPARE

[Compare GEOWEB channels to Rip Rip and Gabions>>](#)



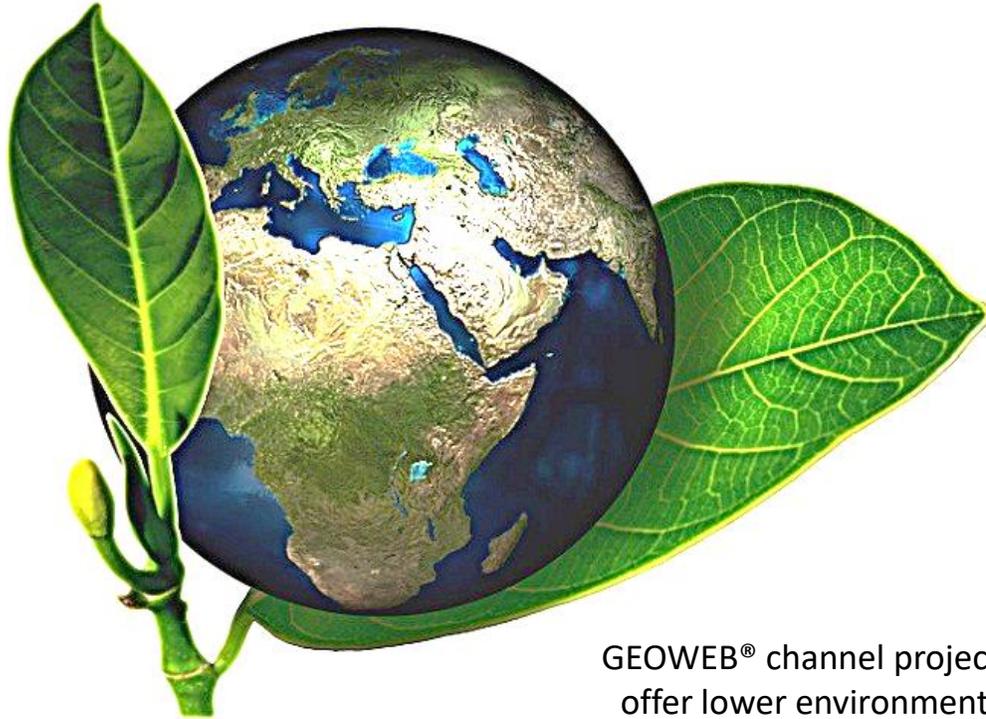
## Geoweb vs. Gabions Comparison



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# Environmental Benefits

[Download the Green Sheet >>](#)



GEOWEB® channel projects offer lower environmental impact than alternative solutions.



**Energy Use**



**Resource Savings**



**Land Use**



**Water Benefit**



View recorded webcast and earn PDH credits.

# WEBCAST

Modern Design of Hard Armored Stormwater Channels>>

## Causes of Channel Failure



- Gabion Failure
- Rock Net Failure
- Poorly Constructed
- Not Using The Right Materials For The Job

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# Technology Roots

## Development of 3D Geocells

Presto developed 3D geocells nearly 4 decades ago with the US Army Corps of Engineers. The original application was to provide fast access roads across dry sand beaches.

Since then, Presto has catapulted the geocellular technology into new landscapes, applications and markets.

The GEOWEB® system is the original—and most advanced geocell on the market.

- [Learn more about development of geocells >>](#)



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# Create a Specification

## Fast & Easy Specification Tools

Create your own custom specification or use industry-standard specifications from ARCAT.com and CADdetails.com

### **SPECMaker® Tool**

[Create a Custom CSI Spec in Minutes](#)

[CSI Specification \(Word doc\)](#)

[Specification Summary](#)

### **Industry Specifications**

[ARCAT](#)

[CADDetails](#)



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# CAD Detail Drawings

## Cross-Section Drawings

Find all the drawing details you need to include in your contract documents.

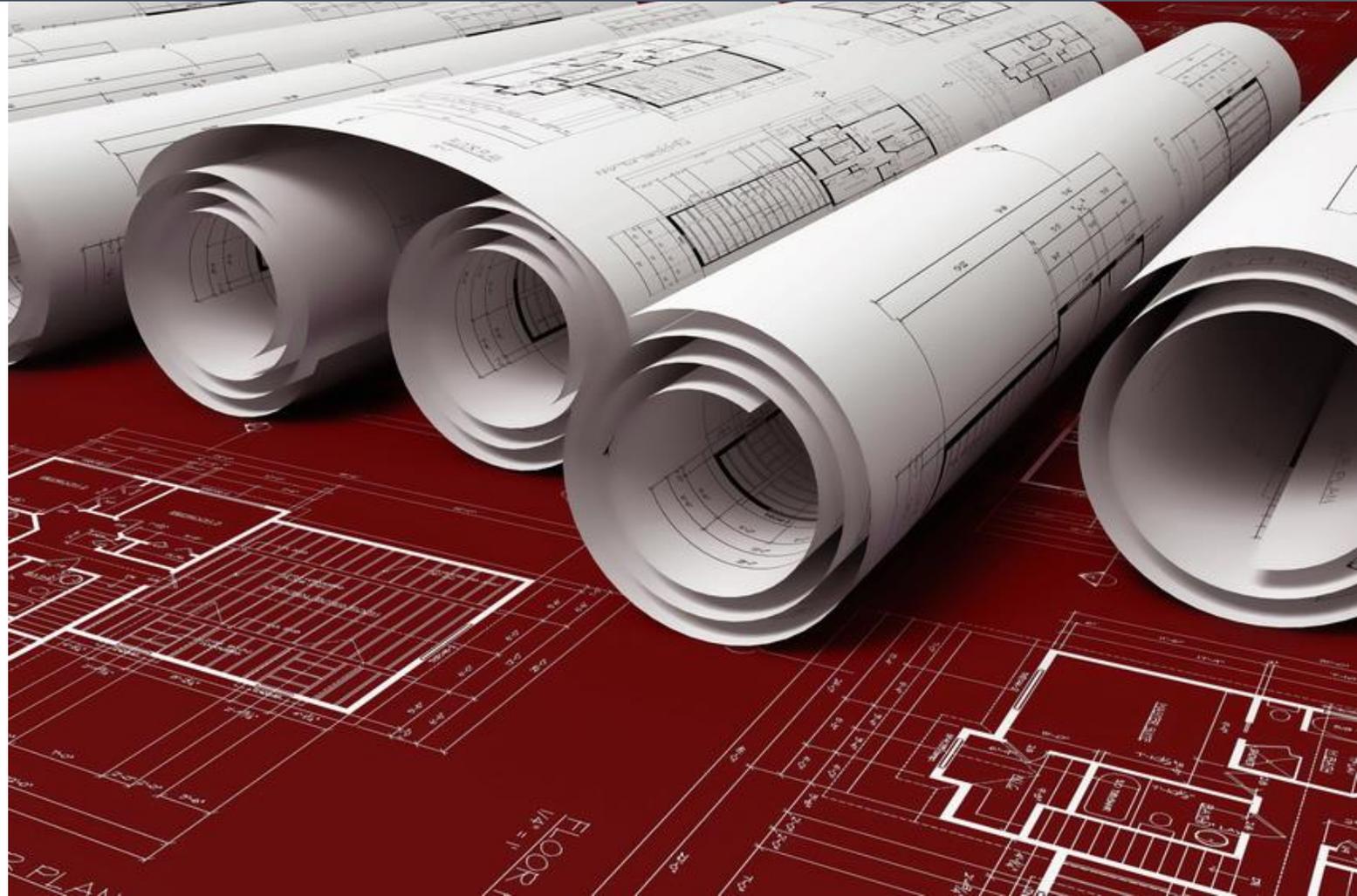
## Geoweb Channel Details

[CAD Drawings](#)

## Industry CAD Details

[ARCAI](#)

[CADDetails](#)



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# Watch Videos

See GEOWEB in Action



[Visit our Video Gallery >>](#)

[Watch Cross-Section Animation>>](#)

[Watch Simple Installation Video >>](#)  
(Anchors)

[Watch Simple Installation Video >>](#)  
(Tendons & Tendon Clips)

[See Colorado Canal Project Installation>>](#)



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# Free Project Evaluation

## Assistance with Your Design

We can provide design support for your project. Take advantage of our technology experience and let us perform a free evaluation for your GEOWEB® project.

[Request Free Project Evaluation >>](#)

(online form)

[Download the Request Form >>](#)

(Word fill form)





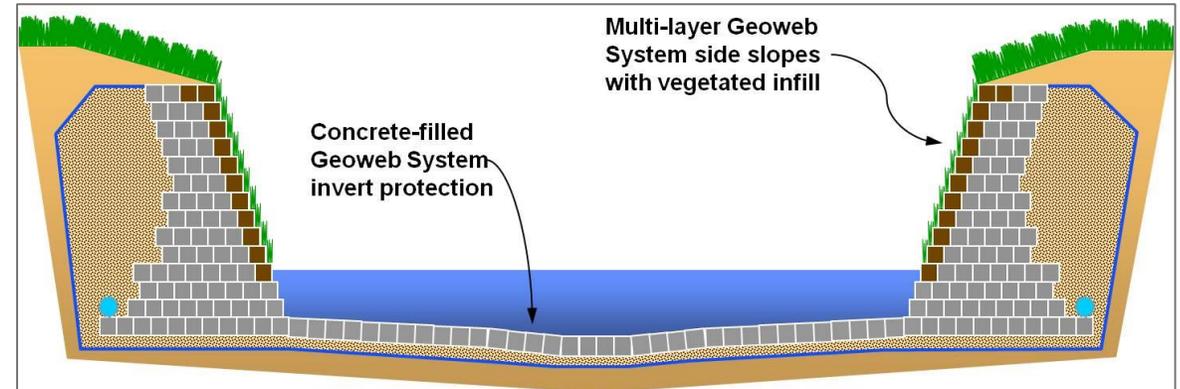
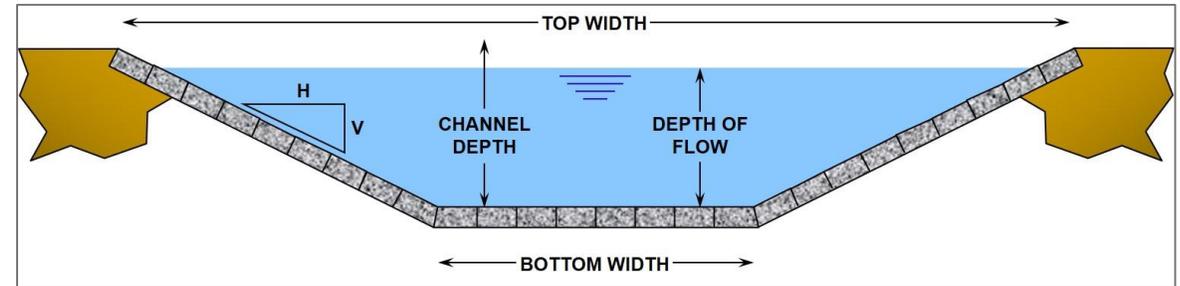
## Evaluate how the 3D Confinement Technology Works

Learn about the technical details, and design considerations and methods of GEOWEB confinement.

Read Comprehensive  
Technical Overview>>



Critical velocities, Manning's "n" and other hydraulic design parameters have been established for GEOWEB® channels and are incorporated in Presto's proprietary design modeling tools.



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# System Accessories

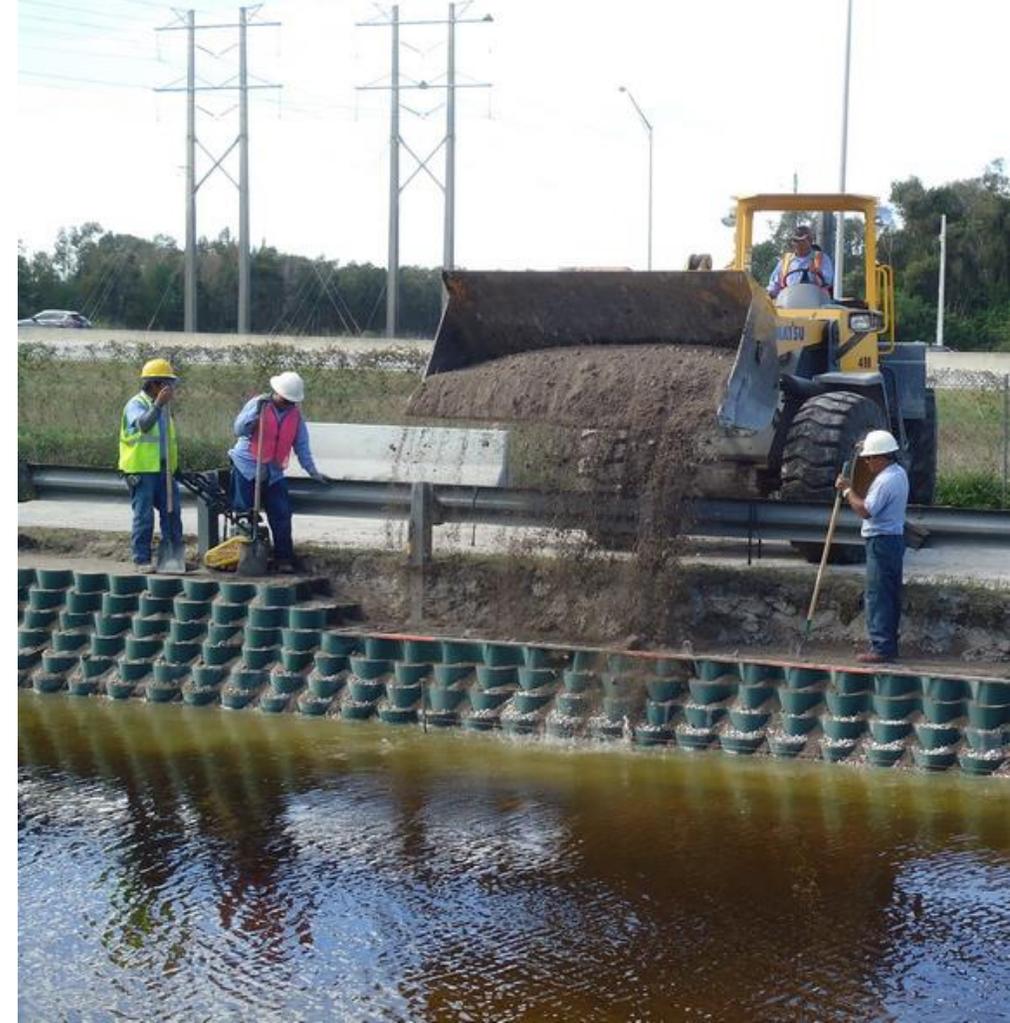
## Fully Integrated for Performance

**Ensure your project performs under any condition.**

GEOWEB® projects may be designed with connection and anchoring components for a 'complete system' solution.

- Weather-resistant, 3X stronger ATRA® connection keys.
- Corrosion and weather-resistant ATRA® anchors.
- Tendons and ATRA® Tendon Clip load transfer.
- Fast anchor driving tools.

See How the System  
Components Work



# Transforming Markets & Industries

Learn how the GEOWEB® 3D soil confinement system's versatility and capabilities will benefit your project's performance in a wide range of applications and industries.



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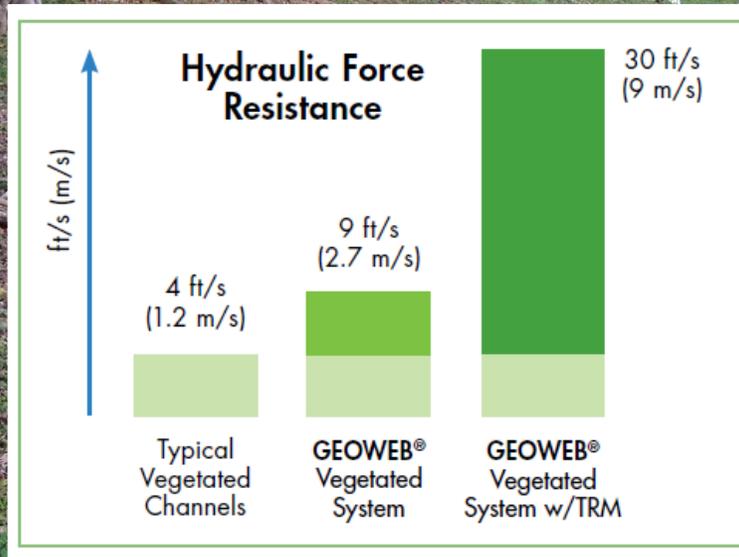
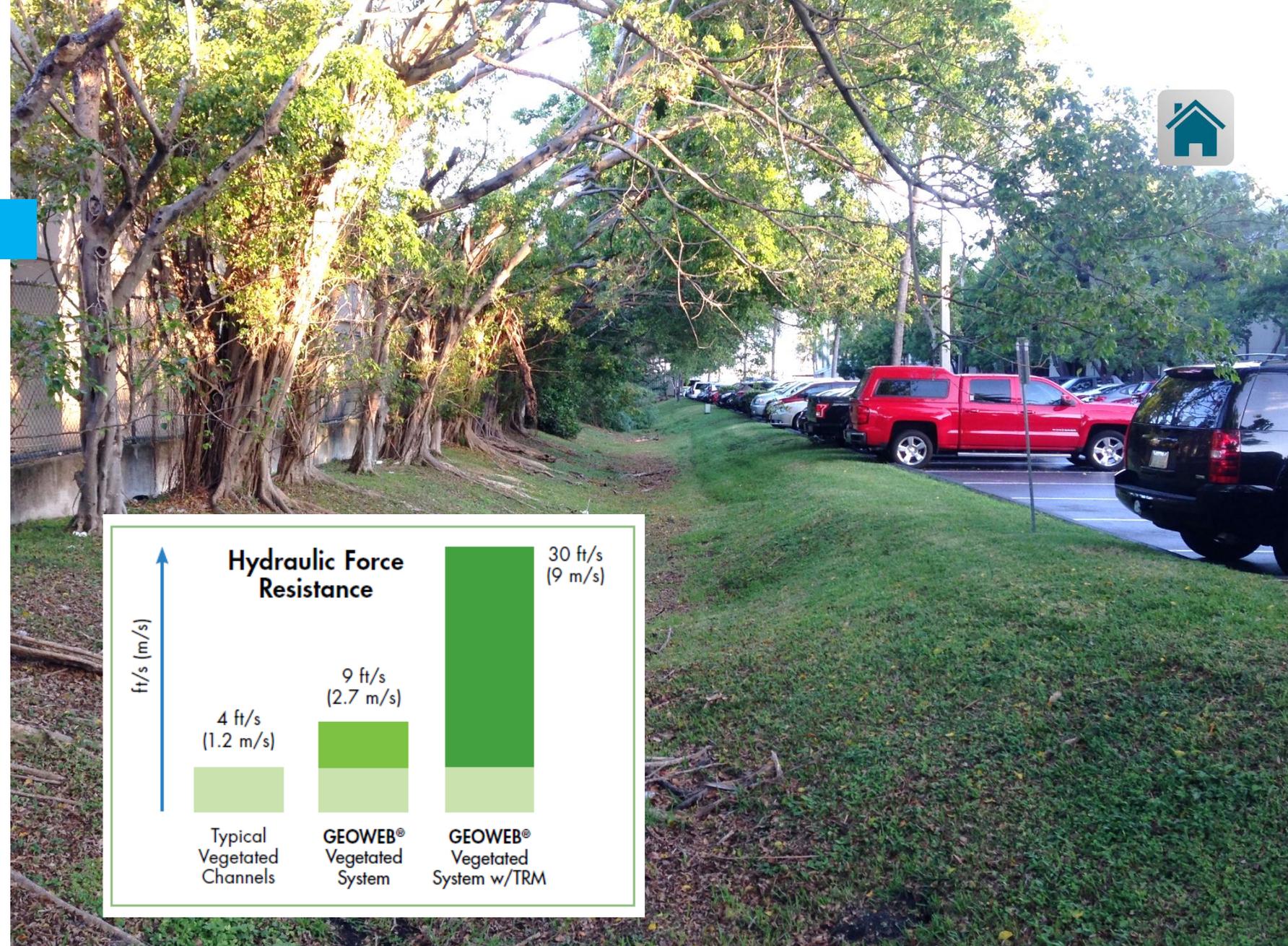
## Drainage / Parking Lot Runoff

# Drainage Swales Natural Vegetation

- Design naturally-vegetated channels to protect low-flow drainage swales in place of high-maintenance rip rap.
- Build GEOWEB vegetated channels adjacent to parking lots and roads for natural runoff infiltration.
- The GEOWEB/TRM system can withstand velocities as high as 30 ft/s (9 m/s) and 16 psf shear stresses.

[LEARN MORE](#)

See Colorado State University Research Results



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## Drainage/Flood Volume Control

# Stormwater Drainage Natural Vegetation

- Design deep multi-layered vegetated channels to maximize stormwater volume and mitigate flooding potential.
- Build vegetated channels for natural aesthetics in place of higher-maintenance rip rap.



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## Embankment Erosion Control

### Streambanks Natural Vegetation

- Design naturally-vegetated streambank embankments to resist erosive forces caused by water fluctuations and storm events.
- Flexible channel system conforms along the contour of streambanks.



[LEARN MORE](#) 



**GEOWEB Embankments  
with Early Vegetation**

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## Culvert Outfall

# Stormwater Channel Natural Vegetation

- Design culvert outfall area to resist short-term, high-velocity flows & turbulence with naturally-vegetated upper embankments.
- Flexible system allows integration of coir fabric wrapped around the channel face to resist infill loss.



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## Concentrated Scour Protection

### Spillways

### Natural Vegetation

- Design vegetated spillways to minimize scour in concentrated runoff areas.
- Support naturally-sustainable vegetation on mild spillway slopes. Design robust protection with GEOWEB/TRM overlayment to resist flows up to 30 ft/s (9 m/s).



See Colorado State University  
Research Results



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## Conveyance Between Ponds

### Stormwater Conveyance Aggregate

- Design low-flow conveyance channels and drainage ways with aggregate to reduce bank erosion from water fluctuations and wave chop.
- Aggregate fill offers low maintenance. Decorative angular rock delivers aesthetic appeal.



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## Storm Event Flood Control

# Peak Conveyance Aggregate

- Design flood control channels to accommodate high flow conditions during peak storm events.
- Aggregate fill offers low maintenance channel with lower cost, smaller particle size.



See Colorado State  
University Research  
Results >>



**LEARN MORE** >>>



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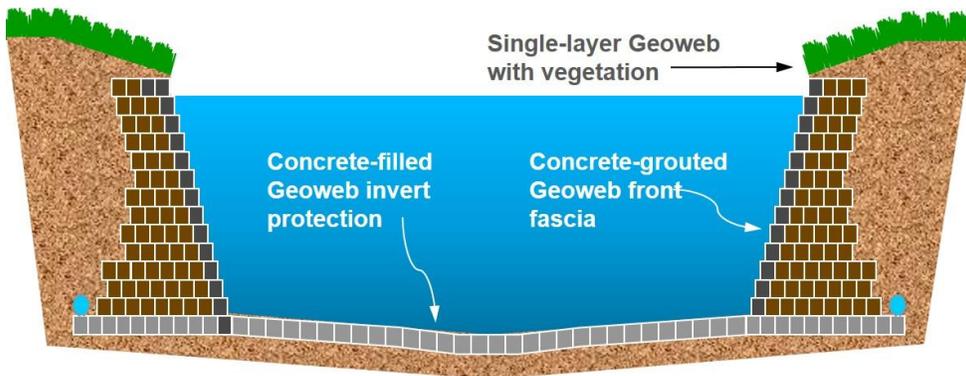


## Narrow Profile Flood Control

# Stormwater Channels

## Mixed Infill

- Design space-constrained flood control channels with deep, narrow profiles to contain higher stormwater volume during peak events.
- Seamlessly integrate a single-layered vegetated upper embankment with tiered, hard-armored wall to the high water level for maximum resistance.



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Flexible Hard-Armored Conveyance

## Irrigation Canals Concrete

- Design hard-armored canals to protect liners, resist freeze-thaw expansion and contraction issues.
- Build low-maintenance 'flexible' concrete channels to flex and conform to minor subgrade movement without cracking.



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## Control/Capture Parking Lot Runoff

### Stormwater Runoff Concrete

- Design hard-armored channels adjacent to parking areas to control/capture runoff.
- Lower cost solution than reinforced or articulated concrete block systems--No additional formwork or reinforcement required.



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Spillways / Pipe Discharge

## Golf Courses

- Design concrete spillways at golf courses to direct stormwater flow to ponds.
- Protect pipe discharge areas with hard-armored system.
- More economical solution than reinforced concrete or articulated concrete block systems.



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## Stormwater Down Chutes

# Landfills

- Design landfill drainage channels and down chutes to protect impervious liners.
- 'Flexible' hard-armored GEOWEB system conforms well to large settlement and subgrade movement—an inherent problem at landfills.



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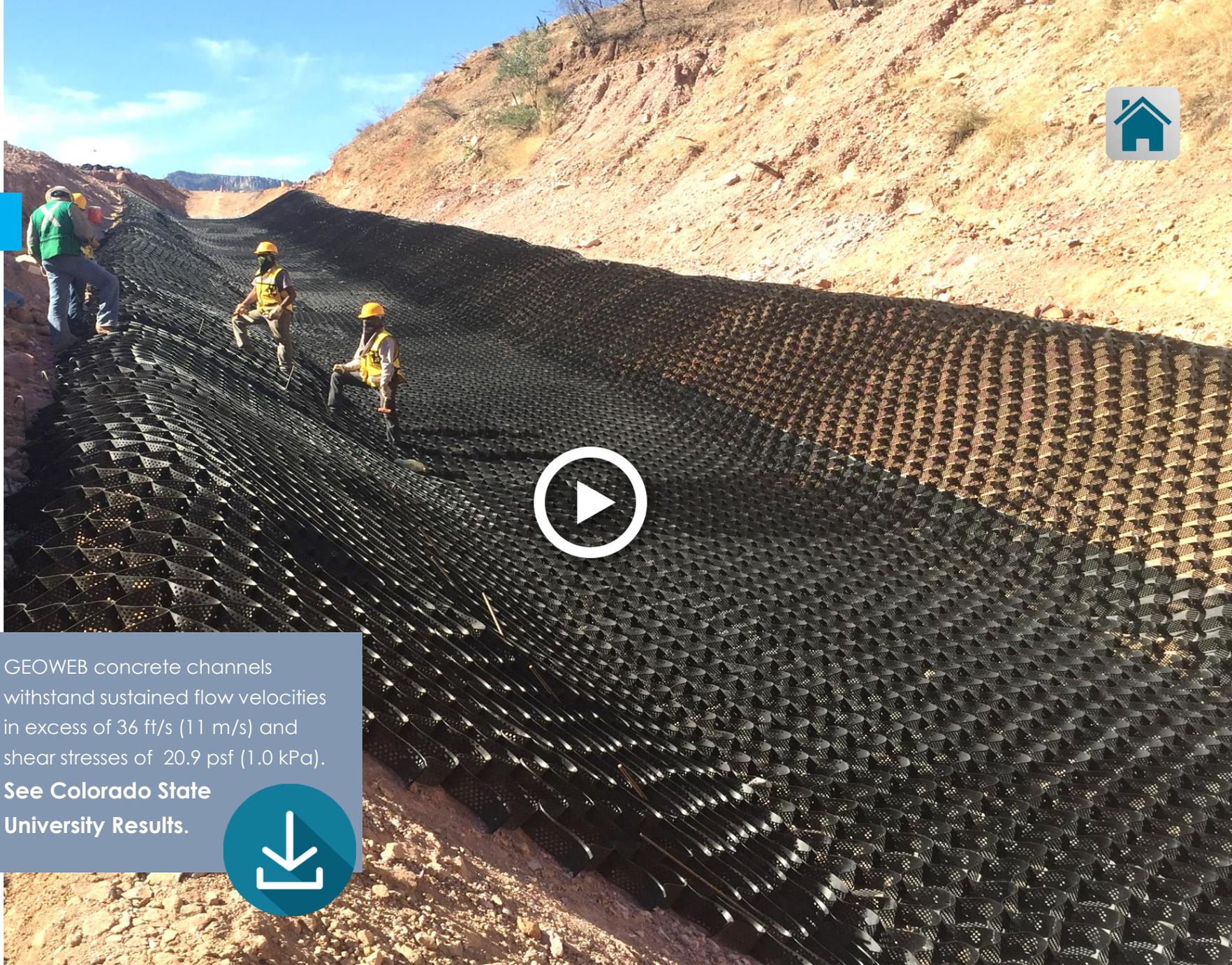
## Stormwater & Process Channels

# Mines

- Design drainage & diversion channels to convey higher flowrates across tailings on mine sites.
- Use on-site aggregate fill and reduce rock size 10X.
- Build flexible, hard-armored concrete channels to resist higher velocities and continuous flows.



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GEOWEB concrete channels withstand sustained flow velocities in excess of 36 ft/s (11 m/s) and shear stresses of 20.9 psf (1.0 kPa).

**See Colorado State University Results.**



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## Stormwater Down Chute

# Mines Down Chutes

- Convey stormwater over steep slopes at mines with hard-armored down chutes.
- Flexible system allows placement of energy dissipaters to control high flowrates.
- No additional reinforcement or formwork required. Installation is fast and efficient.



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## High Flow-Flood Control

# Railroads Stormwater Channel

- Design hard-armored flood control channels at rail sites to convey high flowrates and mitigate flooding potential.
- Protect impervious liners with a tendoned anchoring system (no puncturing anchors).



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Your Project is Important. See How We Can Help.

## THE PRESTO ADVANTAGE

See how our advanced, adaptable geocells, porous pavers and mats put your project on track for success, and keeps your projects on time and on budget.

[WATCH THE VIDEO](#)



# Customized Technical Presentations

Learn more about how the  
GEOWEB® 3D technology can  
work on your upcoming  
projects.

Learn & Earn PDH  
Credits.

[SCHEDULE a Lunch & Learn Presentation >>](#)





# Local Support Get an Estimate

Our global network of distributors and representatives will work with you to provide a price estimate.

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## Design with Certainty.

Get answers to your questions and help with your design. Our solution will be tailored for your unique project and site challenges. You can rely on our experience, tools & resources to help you create a quality design package



**Certainty and Peace of Mind—  
from project start to finish.**

**Contact Us**

**1-800-548-3424 | [www.prestogeo.com](http://www.prestogeo.com)**