

North America's leader of complete geosynthetic solutions

**terrafix**<sup>®</sup>  
geosynthetics inc.

An aerial photograph of a lush green golf course. In the foreground, a calm pond reflects the sky. The middle ground features a well-maintained green with several sand traps. The background is a dense forest of tall, green trees under a bright sky.

# Golf Course Solutions

To view our complete product line visit us at [www.terrafixgeo.com](http://www.terrafixgeo.com)

A golf course requires attentive and competent management. Without that, a course will progressively deteriorate. Proper planning and use of Best Management Practices (BMP's) during course construction and maintenance will reduce the chance of adverse environmental impacts within the course and ongoing maintenance costs.



**TerraFix offers a variety of cost-effective and aesthetic solutions to assist course architects and superintendents in the design and maintenance of their golf courses.**

**Bentofix** Thermal Lock Geosynthetic Clay Liners (GCLs) are effective as a hydraulic barrier even under high gradient conditions. Ideal for lining golf course ponds.

**TerraBunker** is a soil separator which limits the migration of fines from the subgrade subsoils and prevents them from rising to the base base of the bunker, thereby avoiding the contamination of the bunker.

**TerraFirm HD** includes cutting edge systems for erosion control, shoreline restoration, and slope stabilization throughout the course.

**Grass Paver & Gravel Paver** are permeable pavement solutions that performs the functions of asphalt or concrete pavement but with the aesthetics of a lawn or decorative gravel surface.

# Bentofix® Thermal Lock Clay Liners

## Superior GCL Performance

Since the late 1980s, GCLs have been specified and used by design engineers, contractors, agencies, and owners as an alternative to soil barriers in various applications.

The growing interest in these products stems from the unique properties and advantages they offer. They are very effective as a hydraulic barrier even under high gradient conditions; they are easy to install; more robust against installation stresses and can withstand elongation as well as settlement stresses without significant impact on hydraulic performance.

The wide range of GCL uses include landfill caps and base liner applications, dams, canals, ponds, rivers and lakes, and even waterproofing of buildings and similar structures. Numerous laboratory studies have shown the excellent performance provided by GCL's containing natural sodium bentonite.



## Multi-Functional

By needle-punching fibres through the sodium bentonite clay layer, a completely uniform, reinforced GCL is produced - with shear strength and stability advantages important to any application, such as:

- Golf course ponds.
- Stormwater management ponds.
- Recreational ponds.
- Dams/dikes.
- Vertical trench cutoff Barrier.
- Groundwater protection cover.
- Environmental protection barrier under roads and railways.
- Secondary containment for above ground tanks.

Simple, cost-effective installation techniques make Bentofix® Thermal Lock GCL a practical alternative to a compacted clay liner or other lining systems. GCLs do not require an experienced installation contractor and can be installed by a local general contractor. Site supervision is offered by either your local geosynthetic representative and/or provided by our technical staff.

# TerraBunker

## Soil Separation / Sand Retention Matting

Sand Bunker construction on golf courses can be hampered by the movement of bunker sand on steep inclines, creating washouts, and leading to repetitive labour maintenance and expensive sand replacement. **Terrafix** offers **TerraBunker** as a solution for golf course designers and architects, when creating and/or replacing golf course bunkers.

**TerraBunker** is in fact a liner which enjoys absorbing water, hence keeping the sand in the bunkers relatively dryer than bunkers without **TerraBunker**.

**TerraBunker** is a soil separator which limits the migration of fines from the subgrade subsoils from rising to the base of the bunker to avoid contamination of the sand bunker.

**TerraBunker** - the only draw back is that the material is heavy. Heavy - a great quality to have in bunkers. This dense liner mat eliminates the need for anchors.

The growing interest in **TerraBunker** stems from the unique properties and advantages it offers, easy to install and shows a high robustness against installation stresses.

Since it's initial installation in 2009 in Toronto, Ontario, Canada installers and designers are quickly finding that **TerraBunker** made and supplied by **Terrafix** Geosynthetics is finally the solution to Sand Bunker Mats that the Golf Industry has been looking for.



# TerraBunker installation

TERRABUNKER – SAND/SOIL SEPARATOR FOR SAND BUNKERS



Subgrade preparation.



Drainage preparation.



TerraBunker Panel – 5ft x 14ft –  
Weight 1 lb/sqft – no staples required.



Overlap by six inches.



Overlaps are heat burnished with a handheld propane burner. Excess panels are cut with a utility knife (box cutters).



# Grass Paver & Gravel Paver

## Permeable Paver Characteristics

Manufactured from recycled HDPE (high density polyethylene) with UV inhibitors and extreme PH tolerances, the confined cell structure allows for flexibility, ideal for freeze thaw cycles, and stability. The cells are engineered to withstand significant structural loads; that is, point load pressures and transferred from the top of the cells, through the fill material and to the engineered base course.

For Grass Paver, exceptional grass growth can be achieved. Root development is not interrupted from growing laterally and through the sand gravel base, while still being protected by the cells from harm. Grass Paver has the ability to transfer water, oxygen and carbon dioxide through the cross-section which are important for root growth.

For Gravel Paver, water is also permitted to percolate through the system. A filter fabric is integrated with the cells preventing particle migration and rutting.



**Grass Paver – Place sod over cells filled with clean concrete sand**



**Gravel Paver – Fill cells with clean angular stone**

# terrafix®

North America's leader of complete geosynthetic solutions

**Flexamat®** consists of concrete shapes, rectangular or round, that are tied together with high strength geogrid. This product results in the geogrid and the concrete becoming a high strength flexible hard armor against erosion. Flexamat enables vegetation to become established while remaining a permanent erosion control solution. Eventually, vegetation will cover the entire mat.

**Terraweb®** is a light-weight, flexible, polyethylene confinement system consisting of three-dimensional cells in a honeycomb-like structure. Terraweb® creates an economical erosion barrier or structural foundation.

**terrafix® Coir Mats and Coir Logs** are made of pure coconut husk fiber-100% natural, organic, biodegradable and safe to wildlife. Coir Mats are more flexible than matting made from bristle coir fiber. This characteristic allows Coir Mats to interface with the soil surface. Coir Mats and Logs are used for slope and channel stabilization, stream and river bank stabilization, wetland construction, dams, detention ponds, highway and rail embankments, mining operations and landfills, ski slopes and ski lift tracks, pipelines, high altitude planting reservoirs and construction sites.

**FLEXICRETE®** is an articulated concrete block (ACB) revetment system consisting of a matrix of solid precast concrete blocks connected together to form continuous inter-connected areas which can be used for a variety of applications. The innovative design provides the system the flexibility to conform to the subgrade movement and grade changes while offering long term erosion control.

**Erosion control blankets** provide a mechanically stabilized form of immediate cover, functioning as a barrier against both the detachment and transportation phase of erosion process until vegetation or reinforced vegetation assume this function.



**terrafix®**  
geosynthetics inc.

455 Horner Avenue  
Toronto, Ontario • M8W 4W9

Telephone (416) 674-0363  
Fax (416) 674-1159

To view our complete  
product line visit us at  
[www.terrafixgeo.com](http://www.terrafixgeo.com)