

# Geosynthetics



## Innovative stormwater system

Geomembrane liner and subsurface stormwater system installed at new Minnesota stadium

Turning the Red River green  
Visit the eco-friendly Monterey House  
GCL shrinkage: A possible solution



Photos courtesy of Soil Retention



| This particular wall system is distinct due to the high form capacity (to resist lateral loads imposed by heavy equipment such as these scrapers). The block has a lip for high shear capacity and a “positive mechanical connection” between the block and the geogrid. Due to the strength of the system and practiced installation methods, the wall installation can be done concurrently with the grading operation.

## Project Showcase

### Project Highlights

**The Shops at Sycamore Creek (15.6-acre site)**  
**Corona, Calif.**

**Location:** Riverside County, Calif., Interstate-15 Freeway Frontage and Indian Truck Trail (adjacent to the Elsinore Fault zone)

**Purpose of retaining wall:** To create a construction pad allowing enough flat buildable land for the ensuing retail development. Due to the height and magnitude, Riverside County required a plantable wall.

**Timeline:** retaining wall and building pad completed in fall 2007; retail buildings, fall 2008

**Developer:** Fieldstone Communities

**Civil engineer:** Psomas Engineering

**Geotechnical engineer:** Christian Wheeler Engineering

**Retaining wall designer:** Southern California Geotechnical

**Retaining wall installer:** Soil Retention Systems

**Grading contractor:** Shelton Construction

**Total wall area:** 36,000ft<sup>2</sup>

**Maximum height:** 34ft

**Wall length:** 1,400 LF

**Backfill required for reinforced geogrid zone:** 46,000yd<sup>3</sup>

**Geogrid:** Miragrid 10XT, 20XT

(designed with V40 and V60 – break point at 26ft)

**Amount of geogrid used:** 59,000yd<sup>2</sup> of 10XT; 9,000yd<sup>2</sup> of 20XT

**Additional engineering information:** peak ground acceleration of 0.7g; grid ratios approximately 100% of height; designed with dead and live load surcharges for structures and fire/delivery access lane; grids at maximum spacing (2ft) to increase production

**Duration of wall construction:** 14.5 days, including footing excavation and subdrain installation — a new company record for installation time for a project of this size



| The walls were built in 8-in. lifts, per industry standards. The motor grader pictured here levels out the backfill dumped long and thin by the grading contractor.



| Due to the high form capacity, compaction can be achieved all the way out to the face of the wall. The plantable and free-draining system typically does not require gravel behind the blocks. While gravel is often justified as a drainage layer for closed face systems, it also serves to avoid the application of compaction stresses near the back of the fascia unit. Without proper compaction near the face of the retaining wall, future settlement near the fascia can significantly limit the integrity of the system.



| These photos highlight the importance of the wall delivery time. The site is primarily located in a fill condition and no building construction was possible before the pad delivery.

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**Jan Erik Jansson**  
**President and CEO, Soil Retention Systems Inc.**

- Born in Sweden
- Got into the segmental retaining wall business in 1987
- Has installed more than 8 million ft<sup>2</sup> of walls in the past 20 years without a failure
- Started with Loffel Retaining Walls before developing the Verdura Retaining Wall System
- Developed a reputation for delivering safe, efficient, and aesthetically pleasing grade transitions
- Expert in the field of segmental retaining wall installation and system development
- Developed the trademarked and patented permeable, flexible, and plantable concrete pavement system, Drivable Grass
- Developed Enviroflex, a tapered, permeable, and plantable articulated concrete block for scour protection 