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A LEED award-winning project at SD International Airport: See page 8



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Soil Retention offers concrete systems that can be combined with vegetation to soften the overall look: See page 16

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Close-up of Soil Retention's Verdura® wall for the north access road to the Robert B. Diemer Water Treatment Plant in Yorba Linda, CA.

## Family-owned Soil Retention pioneers plantable retaining wall blocks and systems

Twenty-six years ago, Jan Erik Jansson, started Soil Retention, a Plantable Concrete Systems® company, in Southern California. After licensing the Loffel retaining wall block for several years, Jansson began extensive research and development to create the strongest mechanically stabilized earth (MSE) retaining wall block system in the industry, Verdura®.

The name Verdura® comes from combining VERdant (green with vegetation) and DURAbility, and Verdura® offers the opportunity to create "living walls"—providing the strength and function of a standard retaining wall plus the added ability to sustain live plantings, Jansson said.

The Verdura® retaining wall system is designed with a "positive mechanical connection" between the block and the geosynthetic reinforcement. This mechanical connection provides a uniform distribution of tensional strength that does not rely solely upon frictional forces generated from a stack-height of the block-units, or

point load from pins or clips.

Combined with the high shear strength from the lip of the block, Verdura® allows for soil compaction directly behind the block units facilitating the use of heavy construction equipment within close proximity to the wall face.

Larger walls are built concurrently with grading, and backfill is placed with scrapers. This allows for jobs such as the 36-foot Verdura® wall that was constructed for the north access road for the Robert B. Diemer Water Treatment Plant in Yorba Linda, CA.—an emergency access road for the water treatment plant. The project required plantable walls to maintain aesthetics; it is perched above Yorba Linda and Black Gold Golf Course. The project consisted of five walls, with a total area of 70,000 square feet; a total length of 3,400 linear feet. Soil Retention built the entire wall under difficult logistical conditions in only 70 days.

The Verdura® system is Caltrans-

approved, Jansson said, and San Diego County projects using it in San Diego County include the Sunrise Powerlink, San Marcos High School, Target Vista, Costco San Marcos, Valley View Casino, and the San Diego Zoo, among others.

Soon after developing Verdura®, Soil Retention continued to be an innovator of Plantable Concrete Systems® with Enviroflex®—a tapered interlocking articulating concrete block (ACB) revetment system designed for erosion control use in areas with high velocity flows that are subject to scour. It offers a cost-effective and environmentally friendly alternative to rip-rap, gabion mattresses, solid concrete or asphalt linings, and other hard armor systems. Each block vertically interlocks with an overlapping connection, eliminating block-to-block protrusions in the direction of the flow.

The Enviroflex® system design reduces surface drag on the block during flow events, which minimizes overturning potential, creating the most stable ACB surface in the market. The ability for Enviroflex® to accept sediment infill from storm events allows the establishment of riparian plants and enables cyclical natural habitat while providing a stable and scour proof bottom.

Enviroflex® applications include channel lining, dam/spillway overtopping protection, culvert outlets, detention/retention basins, embankments, levee stabilization, wetland traffic crossings, boat ramps, pipeline protection, bridge pier protection, and drainage swales. In addition, Enviroflex® is FHWA-tested.

The most remarkable project using Enviroflex® in San Diego County was the Forester Creek Channel Improvement Project in the City of Santee.

The most recent Plantable Concrete System® developed by Soil Retention is Drivable Grass®—a permeable, flexible and plantable concrete pavement system that is environmentally friendly and a beautiful alternative to poured concrete and asphalt.

Drivable Grass® offers the same strength and durability as conventional pavers, has a concrete compressive strength of 5,000 psi and maintains its load supporting characteristics even when saturated.

A cast-inside engineered polymer grid allows Drivable Grass® to flex and conform to irregular ground surface contours along pre-defined linear grooves and will



not crack or break like rigid concrete, or pop up and wear like plastic paving.

Drivable Grass® offers a simple and reliable solution to storm water management through biofiltration, infiltration, and storage while not sacrificing valuable site area and promotes superior root penetration and moisture containment beneath the product, resulting in healthy turf.

It can be used for a wide variety of applications, including driveways, parking areas, fire lanes, pathways, access roads, green roofs, slope armor, trickle channels, stream bank installation, culvert outlets, bio-swales, ditches, RV and boat storage, golf card paths, drainage channels, and more.

Contractors nationwide utilized Drivable Grass® in their award-winning projects including the Sanford Consortium for Regenerative Medicine in La Jolla, (winner of the Golden Nugget Award for architecture and design), The Charmer project in San Diego, (Residential Architect magazine “Project of the Year”), and Lambert Ranch in Orange County, (Builder and Developer magazine’s “Community of the Year”). Other San Diego County projects include the new Legoland Hotel in Carlsbad and the Oceanside Fire Department.

Soil Retention is a family-owned and operated company with the corporate office located in Carlsbad and its main manufacturing plant located in Perris, CA. For more information, contact Soil Retention at [www.soilretention.com](http://www.soilretention.com) or (800) 346-7995.



Top photo: an overview of the north access road to the Diemer Water Treatment Plant that uses Soil Retention’s patented system.

Above: Enviroflex® in use for the creek channel improvement done for the City of Santee.

Left: Drivable Grass® was used in the Gold Nugget-award winning Sanford Consortium for Regenerative Medicine facility in La Jolla.

Photos courtesy of Soil Retention