

CASE STUDY – SLOPE PROTECTION

Cell-Tek's Slope Grid consists of a 3D matrix of interconnected cells which form a blanket to protect the earth. Slope Grid prevents erosion, soil migration, and damaging shifting forces caused by water and wind.

Fortification is also possible through the restoration of natural vegetation. Slope Grid can be planted to preserve the beauty of the environment and root growth will substantially minimize soil erosion.

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Annapolis, Maryland
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The Challenge

Waterfront properties offer spectacular views. The only downside is that these ultra-valuable properties are often vulnerable to soil erosion; sometimes to the point at which owners are literally losing a portion of their property each year to erosion and ultimately compromising the foundation of their equally expensive homes. This case study explores the challenges facing a residential home situated on a cliff overlooking the Chesapeake Bay in Annapolis, Maryland. The westward facing steep slope is 45+ degrees and it doesn't receive enough sun for thick vegetation. Over the years, due to erosion of the slope, these homeowners have seen their backyard dwindle to the point at which the house and its foundation was

dangerously close to the cliff side. Not only have they lost their valuable property and useful backyard, they needed to halt erosion before the foundation and structural integrity of the house was jeopardized.

The Solution

Relms Landscaping of Harwood, Maryland presented several options for solving this issue. One of the obvious options was a block retaining wall but there was no access to the jobsite which meant all materials would need to be shipped by barge and lifted to the slope by a crane. By far, the most economical and easiest solution was to install Cell-Tek Geosynthetic's Slope Grid. Each unit can be hand carried to the site, no special equipment is needed, and any landscape contractor has the expertise needed for a successful installation. This option was a small fraction of the cost of a traditional block wall and offered greater benefits. Unlike a block wall, the Slope Grid system is integrated with the earth. Once installed, the slope can be planted to maintain a natural look and reap the benefits of root growth to minimize soil erosion.

The Installation

Vegetation, except for some established trees, was removed and the slope was leveled in the most eroded sections. They expanded the 4" cell depth Slope Grid (8' x 29' or 232 sf), connecting one panel to another with Quick Clips. The system was tethered via a simple tendon system that utilized earth anchors and 3000 lb. breakstrength polyester tendon. Rebar J hooks (24" H) were used to keep the grid pinned down around the perimeter and occasionally throughout the system. Cells were filled with soil and planted with loriope, a ground cover indigenous to the region. Installation took just two days for a crew of four to

install the grid on 1,620 sf (30' H x 54' W). Relms Landscape, who had no previous experience with the product, described the installation as “painless”.

The Results

The homeowners were thrilled with the low cost of the project. The slope, peppered with loriope, looked beautiful compared to the old rutted cliff side. To top it off, Slope Grid has held up extremely well under intense weather conditions. Several severe storms hit the mid-Atlantic region since the installation. In October, Category 1 Hurricane Sandy pummeled the Bay area, bringing a storm surge, high winds, and 2 days of torrential rains totaling over 10”. The section of the property which was treated with Slope Grid held firm. No erosion or damaged resulted. Adjacent property which was not treated experienced extreme erosion from this massive storm.

See more information about Slope Grid at www.celltekdirect.com