

SUBSTATION STABILIZATION

EASTERN VIRGINIA

INITIAL CONCERN

An emergency spillway, slope and outfall channel near a local substation were experiencing costly erosion issues, as the sod frequently had to be fixed or replaced after big storm events. A previous attempt to use turf reinforcement mats had not proved effective. The sod never had time to establish a strong root system before another heavy rain event would occur. In order to eliminate the costly repairs, the client desired a permanent erosion control and soil stabilization solution that would withstand any high-flow events prior to vegetation being established.

Goal

Permanently resolve erosion concerns on the emergency spillway, slope and outfall channel without the need for established vegetation.

Installation/Solution

Rip rap was initially selected to resolve the slope failure, blown-out outfall channel and emergency spillway vegetation concerns. Unfortunately, 100 truckloads of rip rap would have been required on a jobsite where truck access was limited. A local county engineer recommended ShearForce 10 due to its ease of installation (45 rolls were required to cover 13,000 sf, taking up a 1/2 of a truck load), immediate protection from erosion, ease of maintenance (mowable with no other maintenance required) and more aesthetically pleasing appearance.

All three applications were outfitted with ShearForce 10. The installation process was simple with the ground ALREADY prepared and seeded prior to the installation of the mats. When the prep work was complete, the mats were simply unrolled and pinned into place with anchor trenches dug upstream to prevent uprooting of the matting. 12-in pins with washers were used to anchor the mats down, and 6-in U staples were used to hold the mats together along the seams.



Before hurricane—outfall channel.



After hurricane—outfall channel.

RESULTS

While the owner was thrilled with the results following installation, the installation and term “immediate protection” was put to the test almost 2 weeks later when Hurricane Isaias came through, dumping 6" of rainfall on the site with wind gusts of 50+ mph. This storm would have devastated the existing sod or a newly installed TRM. As the pictures above and on the back show, the newly installed ShearForce successfully protected all areas from erosion and was not affected by the storm. After experiencing this success, the owner is now installing this product on other sites as well.

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ADDITIONAL PHOTOS



Before hurricane—emergency spillway.



After hurricane—emergency spillway.



Additional photos after Hurricane Isaias.



Anchored using pins and washers.



Vegetation growth 3 weeks after installation.