PROJECT PROFILE

Project Basics

Project Name: HPTRM Testing-Task Force Hope, New Orleans Levee Protection
Installation Date: Fall 2011
Product Type: Western Excelsior Xtreme Armor System™ (XAS) utilizing PP5-Xtreme with Percussion Driven Anchors (PDAs)
Project Location: St. Charles Parish, Louisiana

Project Overview

After the devastation from Hurricane Katrina, the Army Corp of Engineers (ACOE) started an extensive evaluation of high-performance turf reinforcement mat (HPTRM) performance for levee armoring. The goal of the evaluation was to verify armoring systems ability to handle different overtopping events due to extreme weather scenarios and secondarily the ability of the HPTRM to establish grass and allow for vegetation maintenance, specially tractor mowing. The ACOE would install a selected group of HPTRMs, and the Western Excelsior XAS system was among those included for evaluation.

Large-Scale Flume Testing

The first step of evaluation, was to complete large-scale flume testing at the Colorado State University Hydrauliics Lab. A 6-hour wave overtopping hydraulic event was conducted to mimic a storm surge comparable to forces withstood during Hurricane Katrina. Vegetation plots from Louisiana were trucked to the CSU facility to allow site specific vegetation to establish through the HPTRM plots to be analyzed. The PP5-Xtreme HPTRM passed the large-scale testing, and advanced to field evaluation.

Field Performance

A curving, difficult section of levee was selected for the trial installation. The PP5-Xtreme was installed on the levee using percussion driven anchors (PDAs) and pins. As part of the evaluation, the HPTRM was vegetated using both sod and hydroseeding methods. 60 days after initial installation, the XAS system was analyzed for vegetation establishment, ability to withstand mowing and maintenance activities, and overall levee slope protection. The XAS passed the test, and was approved for use on future Army corp levee armoring projects. The XAS approval allowed for use on over 133-miles of perimeter levees throughout the greater New Orleans area; for protection up to 500 year storm surge events.

Large-scale flume testing at CSU gave initial performance results (top), field installation on a pilot levee would allow in-situ results (middle). Sod installed over the XAS was tested for resistance against maintenance activities 60 days after installation (bottom).

Western Green
4609 E. Boonville-New Harmony Rd., Evansville, IN 47725
(866) 540-9810 | www.westernexcelsior.com