



Earthworks and Foundations

Dike Improvements

Eagle Island Dike Improvements, Wilmington, NC

Installation with **Stabilenka®** and **Fornit®**



Stabilenka



Fornit

Task

The Eagle Island confined disposal facility (EICDF) located near Wilmington, NC is an approximately 700 acre site used to dispose of dredged material from upper portions of Wilmington Harbor. As the Wilmington Harbor deepening project continues, additional dredge storage capacity is required. To increase EICDF's storage capacity, the U.S. Army Corps of Engineers (USACE) proposed incremental increases to the perimeter dike elevations. For this phase, the USACE included vertical expansion construction of Eagle Island's existing perimeter dikes from 32 feet mean sea level (msl) to 36 feet msl.

Solution

Two issues had to be considered before dike construction could begin. First, a haul road and working platform would be required to access the areas of planned vertical expansion. Due to the poor condition of the site soils, ways to increase the shear strength of the haul road base material were considered. Opposed to over excavating the unsuitable soils, the USACE decided to use geotextile road base reinforcing material to increase the strength properties of the in place base

soil. Due to its excellent reinforcing and confining properties, a geogrid was selected to reinforce the haul roads and working platforms.

The second issue to be considered was the overall stability of the dike system. Like the road base and working platform base soil, the foundation soil is not suitable to support the proposed vertical expansion of the dikes. The USACE performed design calculations using the properties of a high strength polyester fabrics to reinforce the in place foundation soil. Because the USACE's design called for a reinforcing fabric with considerable strength at low strain, a woven was chosen to provide overall stability to the proposed dike system.

In conclusion, the used geogrid and woven products provided an economical and viable design and construction option for the vertical dike expansion on Eagle Island.

Project: Eagle Island Dike Improvements

Location: Wilmington, NC

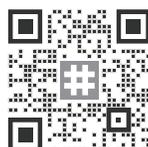
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HUESKER, Inc.

3701 Arco Corporate Drive
Suite 525
Charlotte, NC 28273
Phone: (704) 588-5500
Fax: (704) 588-5988
E-mail: marketing@HUESKERinc.com
Internet: www.HUESKER.com

Further Information:



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