

U.S. Army Uses Mirafi® Products To Solve Levee Issues On The Gulf Coast

Mirafi® HS900PP and Mirafi® FW404 Provide Subgrade Stabilization and Separation at the Port of Lake Charles in Louisiana.

The Gulf Coast of the United States is one of the most challenging and vulnerable environments in the world. This area of the country requires dependable dike and levee solutions that consistently perform under the most extreme conditions. When the U.S. Army Corps of Engineers (USACE) needed to build a rock dike at the Calcasieu River in Louisiana, TenCate™ Geosynthetics provided innovative products that greatly lowered initial construction and annual maintenance costs, and provided a long-term globally stable foundation.

The Calcasieu River is a vital link between the Gulf of Mexico and the Port of Lake Charles, the 12th largest seaport in the United States, encompassing 203 square miles in Calcasieu Parish. Since the early 1800s, the Calcasieu River has been dredged to allow ships and barges to pass between the Port and the Gulf. Sitting 12 miles inland, the Port yearly accommodates five million tons of cargo, resulting in dredged material disposal sights reaching near capacity, with several sights spilling into nearby rivers, lakes and water sources.

The USACE decided to construct a rock dike that would be approximately five miles long, 70 feet wide at its base, and about 500 feet from the Eastern Calcasieu River shore to reclaim some of the eroded shoreline and to provide a containment area for the dredged material. The plan called for the area between the rock dike and the shoreline to be backfilled with the dredged material from the ship channel for the next two decades.

Subgrade stability was extremely important as the soils below the dike were soft. This dike also had several challenges to overcome from withstanding ship and tidal wave action, passing water freely, maintaining constant elevation, and retaining the dredged material.

The contractor, Luhr Brothers, Inc. chose TenCate™ Geosynthetics to be the geosynthetic supplier. Mirafi® HS900PP, a woven polyester and polypropylene hybrid geotextile that provides high-tensile strengths at low strains, was placed directly on the bottom of the Calcasieu River for stabilization and to evenly distribute overall settlement. This geotextile has a specific gravity that allows the material to float for a short time and then sink on its own.

Mirafi® FW404, a high-flow separation geotextile, was installed to form the outer shell of the dike. This geotextile suspended the dredge material while allowing water to freely flow through it.

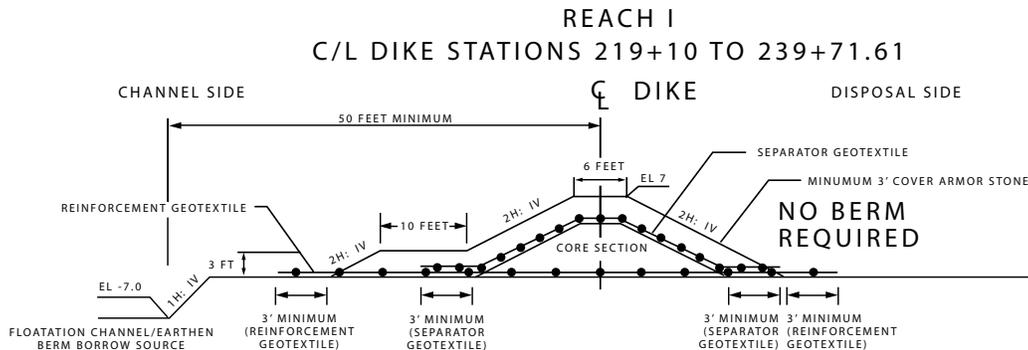
To learn more about the construction process for the Calcasieu River Foreshore Dike in Louisiana, go to www.mirafi.com to view this case study or call 1.800.685.9990 for more information. This dike is another example of how TenCate™ provides innovative product solutions throughout the world. TenCate™ continues to develop and produce materials that function to increase performance, reduce costs and deliver measurable results by working with customers to provide advanced solutions. Think TenCate™.



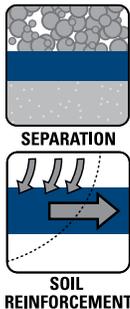
Mirafi® geosynthetics work to provide global stabilization and separation for the Calcasieu River Foreshore Dike in Louisiana.

Mirafi® HS900PP and Mirafi® FW404 Performance:

Since construction of the rock dike, TenCate's™ Mirafi® HS900PP is providing the high-tensile strengths at low strains the dike needed for overall long-term global stability. To date, consistent settlements have been measured with Mirafi® HS900PP. Without the use of this geotextile, settlement amounts would be greater and inconsistent, requiring large amounts of rock to maintain constant dike elevation. And, Mirafi® FW404 is aiding in the storage of the dredged material, providing stability to the core of the dike while preventing the rip-rap from pushing and settling into the aggregate.

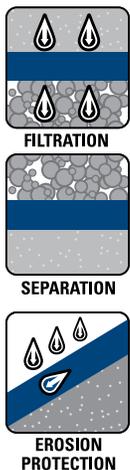


The Difference Mirafi® HS Woven High-Strength Polyester Geotextiles Make:



- **Reinforcement** – Delivers higher tensile strength capabilities than comparable reinforcement products.
- **Separation** – Confines soil structures for greater load distribution.
- **Durability** – Provides excellent creep resistance, strength and soil interaction.

The Difference Mirafi® FW Woven Monofilament Polypropylene Geotextiles Make:



- **Stability** – Consists of highly UV-stabilized monofilament and multifilament yarns that possess unique physical and hydraulic properties not found in other woven or nonwoven geotextiles.
- **Functionality** – Functions for filtration, separation, and erosion protection and is used in erosion control, waste management and water management system solutions.
- **Performance** – Provides high strengths for durability and survivability; consistent, measurable pore sizes; high flow rates; long-term clogging resistance; and superior soil confinement.



1x4 aggregate and 2,200 lb. rip rap with Mirafi® FW404 used as a separation geotextile



Field sewing of Mirafi® HS900PP



Installation of Mirafi® HS900PP



Installed plate for monitoring settlement

Mirafi® is a registered trademark of TenCate™ Geosynthetics North America

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