











Case Study

application location product Subgrade Stabilization
Nansemond Parkway, Suffolk, VA
Mirafi® RS580*i* & HP270

job owner engineer contractor date of installation City of Suffolk, VA / VDOT GET Solutions Branscome, Inc. March 2012

TenCate® develops and produces materials that function to increase performance, reduce costs and deliver measurable results by working with our customers to provide advanced solutions.

THE CHALLENGE

During the construction of the pavement in a section of the Nansemond Parkway widening project, the contractor and geotechnical firm encountered soft subgrade conditions. They consisted of high plasticity clays that held water. They initially undercut to a depth of 3 feet below the base course elevation and replaced the material with structural quarry sand. While this helped the situation, it still did not achieve proof roll conditions. They also tried using a light weight separation geotextile that

met VDOT standards with a higher quality fill in a small area with little improvement.

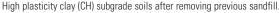
THE DESIGN

The geotechnical firm investigated using a higher strength geosynthetic option to see if it would help stiffen up the sub-base section. After discussing options, they decided on installing a layer of TenCate Mirafi® RS580i* woven geosynthetic on the subgrade with 12"-15" of #57 stone to allow for groundwater to dissipate. On top of this, Mirafi® 160N was initially considered to provide separation between the gap graded #57 stone and the well graded base course aggregate. Needing something to provide separation and additional reinforcement, they also considered Mirafi® 160N and

Mirafi® HP270. After reviewing the cost difference between Mirafi® 160N and Mirafi® HP270, they opted for Mirafi® HP270. An additional 8"-10" of well graded recycled concrete completed the sub-base section.

Since the project receives funding from both the City of Suffolk and Virginia Department of Transportation (VDOT), both agencies were required to approve the design change. After reviewing the information, the subgrade stabilization design was approved.







Mirafi® RS580i placed over the soft subgrade areas.





THE CONSTRUCTION

The construction went extremely well and was completed quickly. Ferguson Waterworks had the TenCate Mirafi® geosynthetics stocked in nearby Chesapeake and was able to quickly get the products on site. The structural sand placed had to be excavated in sections and then Mirafi® RS580i was placed along with the #57 stone. Once the roughly 500' of road section was completed, Mirafi® HP270 was rolled out on the #57 stone, before placement of the recycled concrete aggregate.

THE PERFORMANCE

While over 3 feet of structural sand did not achieve the proof roll requirement, the 20" section with TenCate Mirafi® geosynthetics did provide enough support for the pavement section to be placed. This allowed the project to continue on track. While they hope to not encounter similar conditions along the widening, they now know that this sub-base section will solve their problems for future construction.



Placement of #57 stone over Mirafi® RS580i



Placement of the base course aggregate over Mirafi® HP270 prior to the proof roll.

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*Patent pending





