



Case Study

application Subgrade Stabilization
location Falls Avenue SE, Snoqualmie, WA
product Mirafi® RS580i

job owner Washington Department of Transportation
engineer GeoDesign of Seattle
date of installation July 2013

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

The purpose of the Falls Avenue project was to repair the existing pavement section. Like most cities across the United States, the City of Snoqualmie, Washington is faced with an aging infrastructure that was not designed to handle the increasing population growth/traffic. To compound the problem the city of Snoqualmie, Washington averages more than 60" of rainfall per year. The challenge was to provide a stable subgrade for the new pavement section.

THE DESIGN

GeoDesign was retained by the City of Snoqualmie to aid in the design of the new pavement section. The original design was to use a 315-lb slit tape material similar to TenCate Mirafi® 600X. However, because it was expected that there would be soft soils encountered during the repair of these old roadways, and slit tape has such a limited amount of strength and permittivity, the engineers contacted TenCate Geosynthetics to develop a better solution. They were familiar with using a separation fabric and a geogrid to bridge soft soils, however there were problems on a previous project with the size of the rolls not matching up and the limited strength that a roadway geogrid can provide. The engineer wanted a product that would come in wider rolls, have high strength at low strain, and be permeable (able to bridge the potential soft soils with a thin rock section below the pavement). TenCate recommended the use of the new innovative TenCate Mirafi® RS580i* woven geosynthetic, which comes in both 15' and 17' wide rolls to match the roadway section, has high strength at low-strain particularly in the cross direction, has a high interaction coefficient, and a high permittivity.



Installing crushed rock subgrade over mismatched sizes of fabric and geogrid.



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THE PERFORMANCE

Soft soils were encountered on the project as expected and the call was made to find a few rolls of Mirafi® RS580i on short notice. The geosynthetic was delivered to the site in a very timely manner because of TenCate's readily available distribution network. The first thing that the contractor noticed when the material showed up at the jobsite was its orange color. The color in the textile is uniquely orange, to distinguish the innovative material from other geotextiles on the market. Thus making it easier for the engineer to know which product is being used on the jobsite. The contractor also noticed the ease of installation with this product compared to other solutions he had tried in the past. They only had to install one layer, not two as in using a geogrid and separation fabric and because of the 15' and 17' rolls widths, they were able to achieve full coverage across the roadway while minimizing overlap and waste. TenCate Mirafi® RS580i held up well to the installation of the stone subballast and helped to achieve a long-lasting roadway section in difficult soils.



Above pictures: Mirafi® RS580i being installed over soft subgrade with the addition of crushed rock over the geosynthetic. This subgrade provided full width reinforcement across the roadway.

*Patent Pending

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