



Attack the Threat



CASE STUDY

Reconstructing Frost Heave Roads in Weare, NH

PRODUCT

Mirafi[®] H₂Ri

APPLICATION

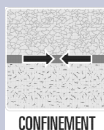
Base Reinforcement & Moisture Management

LOCATION

Weare, NH



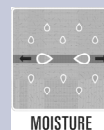
DRAINAGE



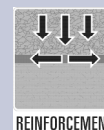
CONFINEMENT



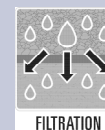
SEPARATION



MOISTURE
MANAGEMENT



REINFORCEMENT



FILTRATION

THE CHALLENGE

Addressing significant frost heave issues while keeping construction costs down.

As part of the Road Reconstruction Program in the Town of Weare, NH, 4200 lf of Flanders Memorial Road was scheduled for reclaiming and reconstruction of the base course followed by a shim and pavement overlay. Flanders Memorial Road meandered through various steep grade changes that created extreme pavement distress. The existing roadway was showing signs of fatigue due to drainage issues, rutting caused by high water tables and reduced shear strength, and most concerning was the frost heave issues that were detrimental to the roadway. The challenge for the town was to address the frost heave issue and rebuild the road with better rideability quality while making it safer for the increased amount of traffic. It was also important to reconstruct the roadway rapidly and within a tight budget while providing a robust roadway that lasts for years.



JOB OWNER Town of Weare, NH
ENGINEER Town of Weare, NH
CONTRACTOR Weare DPW
DATE OF INSTALLATION June 2013

 **TENCATE**
GEOSYNTHETICS

THE DESIGN

Due to the varying base conditions, it was determined that the roadway sections be excavated 3 feet. In addition, drainage pipe was to be installed and daylighted to alleviate water issues. In order to improve the base conditions and help with the frost heave issues the Town decided to use Mirafi® H₂Ri, a high strength reinforcement geosynthetic which would provide the much needed separation, reinforcement, drainage and confinement of the base materials and provide moisture management of the wet soils.



THE CONSTRUCTION

Once excavation of the existing 3' was completed, a perforated drainage pipe was installed on the edge of the cut. A layer of Mirafi® H₂Ri was rapidly installed on the subbase and a 12" thick lift of 1 ½" minus aggregate was placed and compacted. Mirafi® H₂Ri was placed such that the roll ends ended in a trench drain to rapidly manage the moisture of the system. After compacting this base layer, Mirafi® 160N nonwoven geotextile was placed to act as a separator for another 12" lift of 3" minus crushed ledge rock road base. This layer was rolled and capped with another 12" layer of 1 ½" minus crushed bank run gravel. This layer was compacted and then the shim and pavement overlay was constructed.

THE PERFORMANCE

Thanks to Mirafi® H₂Ri geosynthetic, the Flanders Memorial Road is performing much better than previous rehabilitated sections which did not incorporate the moisture management system. The redundancy of moisture management and reinforcement provides a sustainable road system. The resourcefulness of the moisture management system provided the Town of Weare with a roadway that will last for years to come saving them considerable maintenance dollars which can be used elsewhere.



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