



Case Study

application Base Reinforcement and Drainage
location Boston Logan International Airport
product Mirafi® HP570 & 140N & 140NL

job owner Massport
engineer HNTB
contractor J.F. White Contracting/W.L French

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

Boston Logan International Airport is the largest transportation center in New England. As the gateway to the region, Logan handles over 28 million passengers on approximately 400,000 flights per year, and roughly 630 million pounds of freight. Logan is ranked 19th in volume and 16th in flight movement. Logan has 6 runways, 14 miles of taxiways and 237 acres of concrete

and asphalt aprons. The challenge was to construct a new taxiway over areas that were built on tidal flats and land reclaimed from Boston Harbor. In 2007, the FAA approved construction of a new center field taxiway (Taxiway Mike) to alleviate airfield congestion. The runway is 9,300' in length as is located directly between and parallel to Runway 4R-22L and 4L-22R.

THE DESIGN

To provide reinforcement over the very soft areas, a biaxial geogrid had been specified. However, considering the very low CBR values of the soil it was determined that Mirafi® HP570

would provide a better alternative to the biaxial grid. Mirafi® HP570 not only provided reinforcement, it also provided separation between the low strength soils and base aggregate, as well as drainage and confinement of the base material. Mirafi® 140NL was used as a lightweight separator in areas of very firm subbase soils. To collect water from the runways and help keep the subbase dry, french drains incorporating Mirafi® 140N were constructed along the taxiway edges.



Constructing taxiway edge drain with Mirafi® 140N drainage fabric.



Deploying Mirafi® HP570



Deploying Mirafi® HP570

THE CONSTRUCTION

Construction began in Spring of 2008 and is scheduled to finish in 2009. Over 40,000 sy of Mirafi® HP570 has been installed in the very soft areas and 175,000 sy of Mirafi® 140NL has been installed in areas of a firm sub base.

THE PERFORMANCE

Mirafi® HP570 eliminated the need to over excavate areas of low strength sub base soils saving the contractor a considerable amount of time and money which has ultimately saved Massport money while providing a taxiway that will last a considerable amount of time and reduce maintenance in the long run.



Spreading the base course aggregate.



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