

Myrtle Beach, SC USA

Airport Taxiway

Myrtle Beach International Airport

International Technology and Aerospace Park



Soil Stabilization Case Study

Background

In May of 2013, The Myrtle Beach International Airport (MBIA) & Horry County began planning an expansion project for the International Technology and Aerospace Park (or ITAP). This first phase required construction of a taxiway to connect the ITAP terminal to the general aviation ramp of MBIA.

Problem and Objective

The \$5.45 million project included removing soil, preparing the subgrade, and installing concrete with the ultimate goal of constructing a service road to connect to the general aviation ramp. Tight budgets and challenging soil conditions caused the engineers to think outside of the box and consider options to reduce the required thicknesses of materials. The original design called for 30" of aggregate subbase, 8" of cement stabilized base, capped with 24" of Portland cement concrete.

Design Solutions

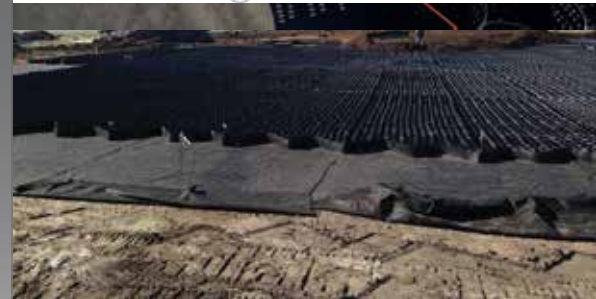
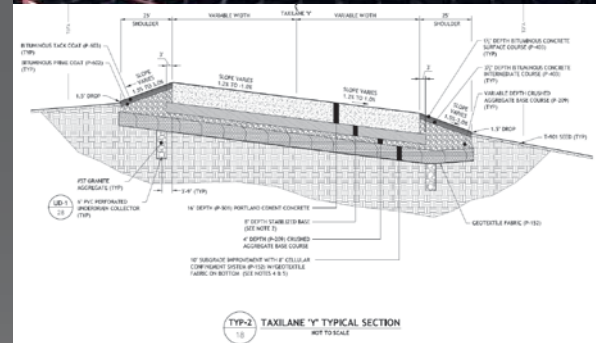
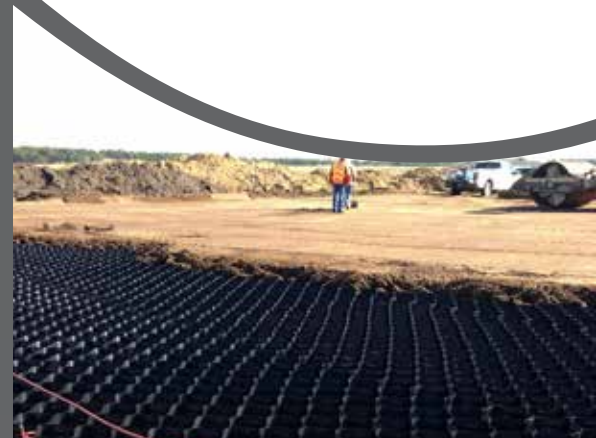
The subgrade on site consisted of sandy soil. After a full on-site geotechnical analysis the project engineers, Castle Engineering, decided to utilize the 8" EnviroGrid EGA308 material within the cross section of the taxiway. The full system consisted of a nonwoven geotextile fabric on top of the subgrade, the EnviroGrid Layer, a cement stabilized base layer and a Portland Cement Concrete cap. A 42% reduction in system depth, from 62 inches to 36 inches, was achieved by utilizing the EnviroGrid system.

Construction Overview

Construction took place in December of 2013. The subgrade was prepared and materials were brought onto site. A nonwoven geotextile fabric (SCDOT Class 2, Type A) was rolled out onto the prepared subgrade. The 8" EnviroGrid EGA308PT was then staked out with straight rebar and filled with a sandy soil, leaving an overfill of 2" after compaction to achieve a depth of 10". On top of the EnviroGrid Layer, a 4" drainage layer of #57 stone crushed aggregate base was installed. The contractor came in with 8" cement-stabilized base and finished the system with 16" deep layer of Portland Cement Concrete. A bond breaking tack coat material was sprayed on between the two cement layers. Construction was finished in January of 2014.

Results

The EnviroGrid system was chosen for this airport taxiway in order to reduce the layer thickness, add stability to the cross-section, and reduce costs on the project. As mentioned above, alternative options would have involved a 72% increase in total system layer thickness with additional costs in transportation and materials. Both MBIA and Horry County were happy with construction, the project was completed on time, and the EnviroGrid cellular confinement system is outperforming expectations.



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