



Erosion Protection



Soil Reinforcement

Case Study

application	Reinforced Slope
location	Castleberry Community, Cumming, GA
product	Mirafi® MMESH, HS400PP, & HS800PP

job owner	Villages at Castleberry
engineer	Soil Reinforcement Design, Inc.
contractor	ECM

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 major challenge on this reinforced slope project was the sheer size of the wall. This slope started at the base of the project and peaked at about 9m (30ft) tall in several areas. The main purpose of the slope was to provide more build space for condominiums and residential homes using an economical solution. Hence, a vegetated slope was determined to be the most cost effective.

THE DESIGN

The wall was designed to allow loading at the top of the slope. There was over 6,596m² (71,000ft²) of face. Mirafi® MMESH, a biaxial geogrid, was installed as the face wrap material with wire baskets to provide secondary reinforcement. Mirafi® HS400PP and HS800PP are blended polypropylene/polyester high strength geosynthetics used to provide primary reinforcement to the slope.

The total square yards required for each material were: 35,535m² (42,500yd²) of the Mirafi® MMESH, 44,733m² (53,500yd²) of the HS400PP and 48,495m² (58,000yd²) of the HS800PP. The primary reinforcement in this system consists of Mirafi®'s HS400PP and HS800PP, which are blended polyester/polypropylene high strength geotextile.



Above: The HS400PP and HS800PP high strength geotextiles were embedded between 4.5-6m (15-20ft) in length.
Below: The 9m (30ft) reinforced slope was an economical solution for providing more building space for residential homes.



THE CONSTRUCTION

The base was a well compacted subgrade and the Mirafi® HS geosynthetics were installed as primary reinforcement. Mirafi® MMESH was placed inside the .91m (3ft) welded wire baskets to provide a stable platform for hydroseeding. The HS400PP embedment lengths varied, but were around 4.5 -6m (15 – 20 ft). The wall was seeded immediately after completion to allow grass to grow as quickly as possible. The project installation lasted approximately 10 months.

THE PERFORMANCE

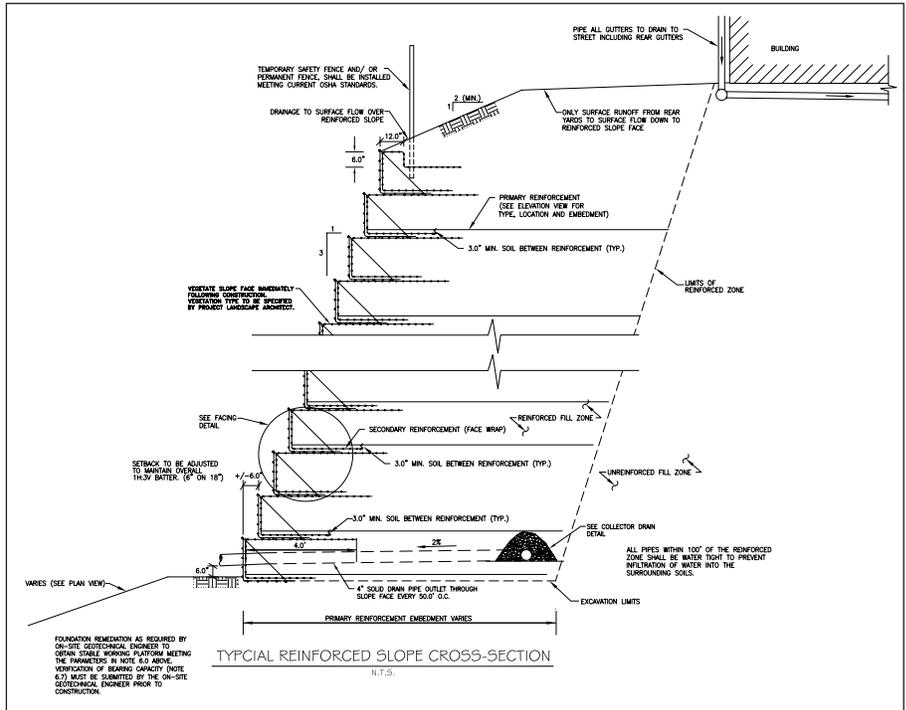
The wall was designed to allow loading at the top of the slope. The wall has been completed for several months and the grass has taken to the wall very well. The condominiums and homes are being constructed and the project seems to be moving forward with no problems.



To complete this reinforced slope, 44,733m² (53,500yd²) of the HS400PP and 48,495m² (58,000yd²) of the HS800PP were installed as primary reinforcement.



Mirafi® MMESH biaxial geogrid is specifically designed for secondary reinforcement and erosion protection in steepened slopes.



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