

Case Study

application	Reinforced Steepened Slope
location	Lewiston, Maine
product	Miragrid® 5XT, 7XT, 8XT, & Mirafi® 180N

job owner	Wal-Mart
engineer	Carter-Burgess & S.W. Cole
contractor	H.E. Sargent, Inc.

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

Due to significant material cost increases, a regional distribution center site was in jeopardy. The owner and contractor had to find cost efficient alternatives to keep the project proceeding on schedule and within budget. One cost saving method was to replace two SRW walls with two reinforced slopes which would still maximize the use of the property and enhance the available building site and adjacent parking area.

THE DESIGN

The original design called for two SRW walls approximately 24.4m (80ft) in height and 91m (300ft) and 183m (600ft) in length. The redesign consisted of slopes at a 1.5:1 angle and called for Miragrid® 5XT, 7XT, and 8XT to be placed at 1.2m (4ft) height vertical spacing as the primary reinforcement with embedment lengths from 14m (45ft) to 18m (60ft). Miragrid® 2XT was installed as the secondary reinforcement and was centered between the primary grid with 3.7m (12ft) embedment lengths. To protect the slope from erosion, Mirafi® 180N was placed on the slope face and covered with rip rap.

THE CONSTRUCTION

Construction on the 57 ha (144 acre) site began in the fall moving 1.3M m³ (1.8M yd³) of material. Construction of the reinforced slopes began in the second week of November. Despite extremely cold weather and several snow events, construction of the slope progressed smoothly and in a timely manner. Utilizing an excavator, dozer, loader, roller and small crew, the slopes were completed in the second week of January.



ABOVE: The finished Miragrid® reinforced slopes.

BELOW: The Miragrid® reinforced slope saved approximately 30% compared to the original SRW design.

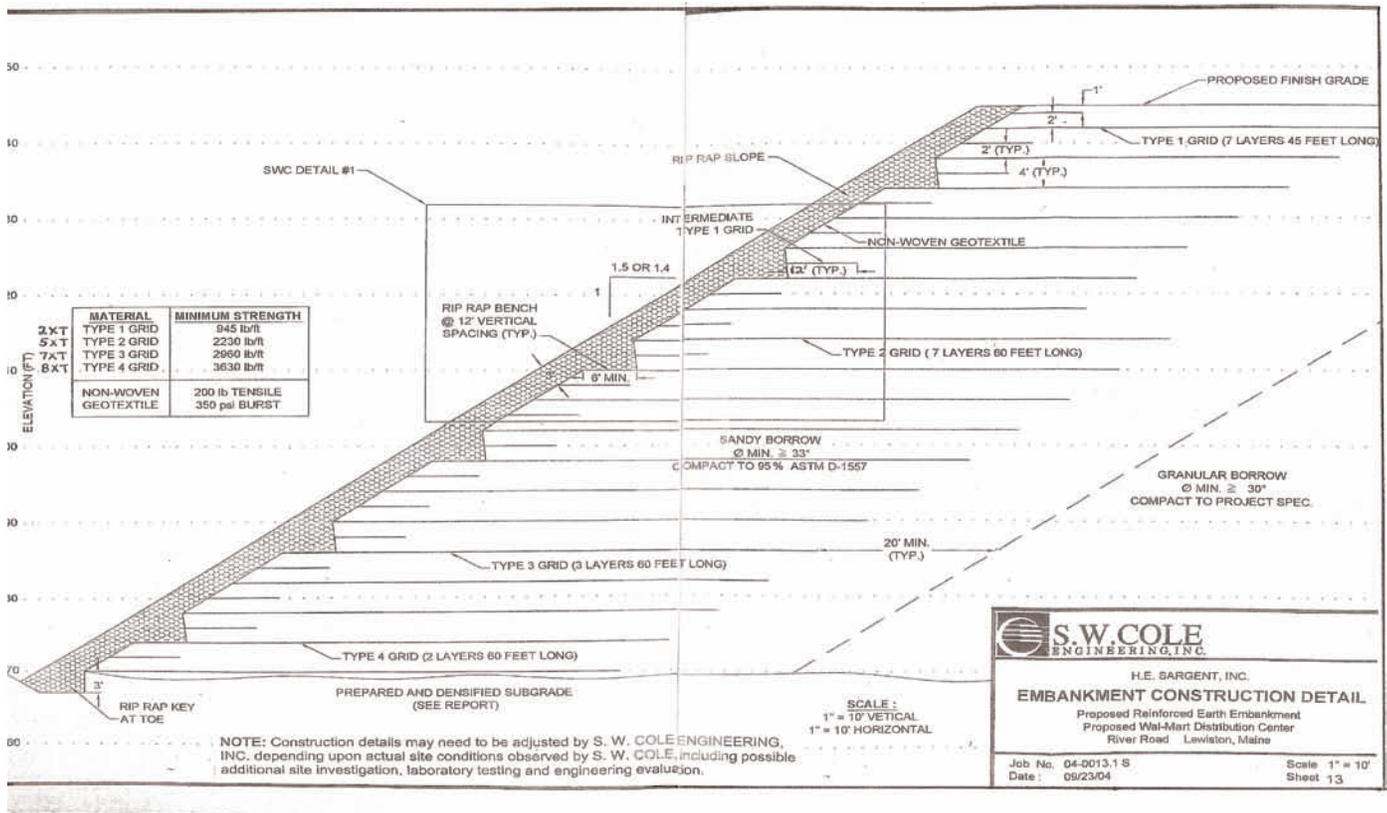


THE PERFORMANCE

According to the contractor, the Miragrid® XT polyester geogrids outperformed HDPE geogrids they had previously used in similar weather conditions. Because there is no recoil, deployment of the Miragrid® was quick and easy allowing them to keep to their tight construction schedule. The reinforced slopes are performing as they were designed and support a 45,050m² (485,000ft²) refrigerated building and a 38,550m² (415,000ft²) dry goods building. Both buildings have loading docks and adjacent parking to support 900 tractor trailers per week, as well as parking for 500 employees. The Miragrid® steepened slope alternative played a big part in keeping the project moving forward and the design saved approximately 30% versus the original SRW wall.



Mirafi® 180N was placed on the slope face and covered with riprap to protect the slope from erosion.



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