

Case Study

application | Geogrid Reinforced Slope
location | Point Richmond, CA
product | Miragrid® 2XT, 7XT & 8XT

job owner
engineer
contractor

Canal Quarry/East Bay Regional Parks
Gilpin Geo Sciences
North Bay Construction

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 challenge of this project was to redevelop a decommissioned quarry. The quarry owners were required to bring the site back into a more natural state before the property could be sold. Additionally, it was discovered that the quarry had accidentally encroached on regional parkland that was adjacent to the quarry. The quarry owner was also required to restore this part of their property back to its original state before returning it to the Park District.

THE DESIGN

Part of the site development required construction of 60' - 70' high 1:1 (H:V) slopes to conceal the existence of the old quarry. These steepened slopes would have been unstable without the addition of geosynthetic reinforcement to create a reinforced soil mass. The reinforced steepened slope (RSS) design required the placement of geogrid reinforcement horizontally within layers of compacted fill. To attain an acceptable slope stability factor of safety, primary geogrid reinforcement with long term design strengths of 3000 lbs/ft and 3700 lbs/ft were required. The design also required a biaxial geogrid for secondary (surfacial) reinforcement of 1000 lbs/ft. The completed slope faces were treated with erosion control measures to prevent surfacial erosion of the slope faces

before permanent vegetation could be established.

THE CONSTRUCTION

TenCate distributor, Stevenson Supply submitted Miragrid® geogrids due to their light weight, flexibility, and toughness that allowed ease of installation during slope construction. Miragrid® 7XT and 8XT were used as the primary reinforcement and Miragrid® 2XT was used as the secondary reinforcement. Construction of the project began in June of 2009 with a finish deadline of October 15, 2009, which marks the beginning of the rainy season in Northern California. Due in part to the ease of installation using Miragrid® geogrids, the contractor was able to complete the project on time and under budget.



Installing a layer of Miragrid® 8XT.



Imported fill being laid over Miragrid® 8XT.

THE PERFORMANCE

Using Miragrid® geogrids to construct the RSS proved to be the most economical way of putting the quarry back into a more natural state. Over 50,000 square yards of Miragrid® geogrids are performing perfectly to support the RSS.



Erosion blankets were used to prevent surface erosion on the manufactured slope.



Ease of Miragrid® geogrid installation helped bring the project in on time and under budget.



The quarry restored to its natural state.

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