TENCATE
Mirafi

Soil Reinforcement

Case Study

application	Stress Relief Segmental Retaining Wall
location	Minneapolis Convention Center, MN
product	Miragrid® geogrids
job owner	City of Minneapolis
engineer	Gale-Tec Engineering, Inc. & Anchor Wall Systems, Inc.
contractor	Veit and Company

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

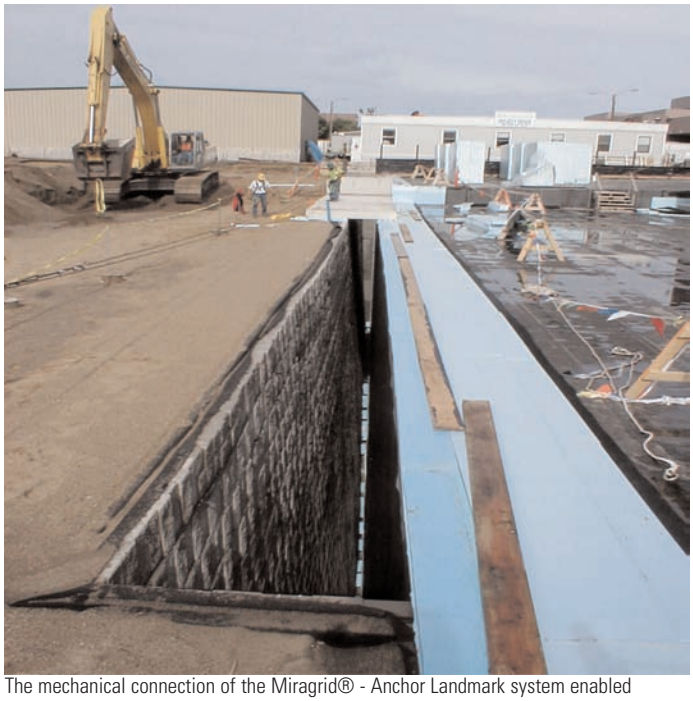
Find a cost-effective stree relief retaining wall option that could sufficiently bear the lateral pressure of over 50 feet of soil surrounding the Minneapolis Convention Center's new below-grade addition.

THE DESIGN

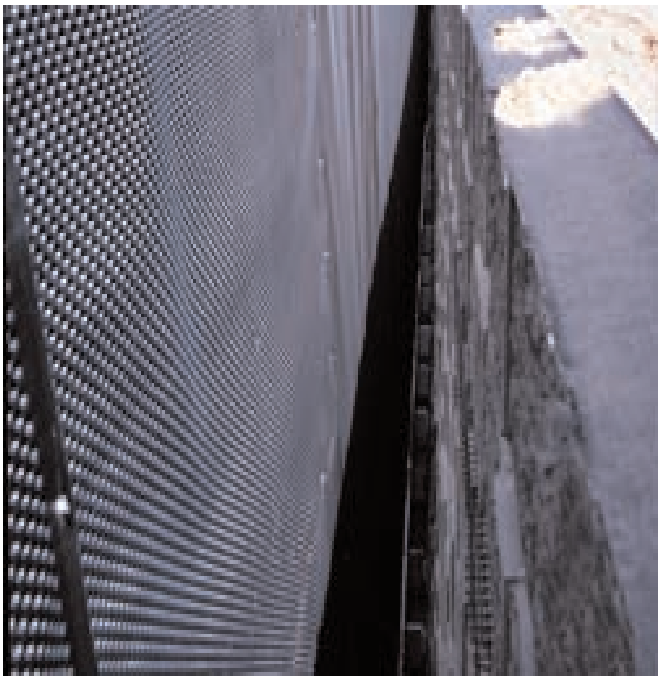
The Minneapolis Convention Center hosts thousands of visitors each year for a variety of trade shows and events. To meet demand for its facilities, the Convention Center added 670,000 gross square feet of exhibit hall, including a below-grade equipment storage area. A portion of the addition extended 50 feet below the ground, creating a challenging construction predicament. How could the engineers prevent lateral fill loads from being imposed on the new below-grade structure? A traditional solution would require very thick, labor- and equipment-intensive, cast-in-place, reinforced concrete walls with large, expensive buttresses. A team consisting of Gale-Tec Engineering, INC, Veit and Company, TenCate Geosynthetics and Anchor Wall Systems proposed a far more economical solution: A TenCate - Anchor Wall Systems Landmark Block with a mechanical connection reduced the required strength and number of layers of reinforcement.

THE CONSTRUCTION

First, knowing that the Mirafi® - Anchor stress relief wall would bear the lateral pressure of surrounding loads, the new Convention Center structure featured conventional 1 1/2 foot reinforced concrete walls. The stress relief wall, ranging in height from 41 to 44 feet, was built adjacent to the basement walls and extended approximately 175 feet in length.



The mechanical connection of the Miragrid® - Anchor Landmark system enabled near a vertical stress relief wall.



.Project site mid-wall construction

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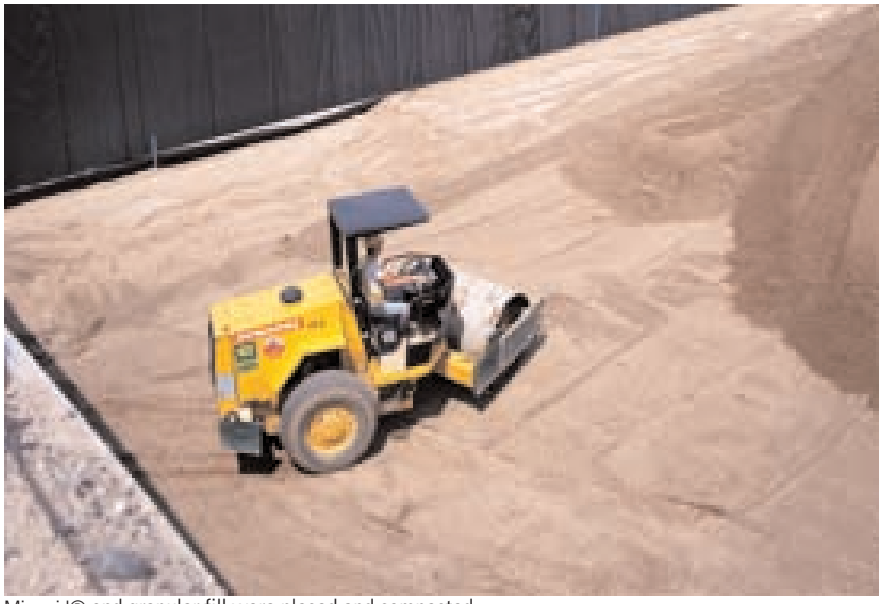
Miragrid® high- tenacity polyester geogrid was used as the integral reinforcing product. To ensure that the below-grade foundation wall was free from lateral soil pressures, an air space was left between the Convention Center wall and the stress relief wall. The wall was then buried. A pre-cast plank was placed over the top of both walls to span to void between the stress relief wall and Convention Center walls.

THE PERFORMANCE

Approximately 50 feet of fill and pavement was placed to create a truck loading area and a 100-car parking lot. This project demonstrates sound engineering principles, making use of current technology in ways that provide more economical solutions.



Miragrid® and granular fill were placed and compacted.

Forty-five (45) foot high Convention Center wall.

Project site prior to stress relief wall construction.

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