



## Utah Transit Authority, Light Rail Project

### Weber County to Salt Lake City, UT

**APPLICATION:** The Utah Transit Authority (UTA) is relying on the Spectra® Rail System to stabilize large sections of a 44-mile-long commuter-rail line.

**THE CHALLENGE:** The FrontRunner commuter rail line is intended to alleviate automobile congestion on regional roads. To keep the project on budget and schedule, the design-build general contractor had to use fast, affordable strategies for installing track, ties, sub-ballast and ballast.

**SITE CONDITIONS:** The rail line is located on an existing right-of-way that runs parallel with the Wasatch Mountains. The area is part of a natural drainage basin that includes abundant soft soils



The transition zone is stabilized by incorporating Tensor's Geogrid.

and shallow groundwater. The subgrade consists of low-to medium-strength cohesive soils and loose to dense sand.

**ALTERNATIVE SOLUTIONS:** A traditional design would have used thick sections of sharp stone, sub-ballast and ballast to help bridge the soft soils. Given the extensive soft-soil conditions and costs associated with importing high-quality stone, this approach would have increased the construction budget considerably.

**THE SOLUTION:** Tensar International Corporation and Terracon Consultants, Inc., the project's geotechnical engineering firm, recommended using Tensor® geogrid to reduce the thickness of the sub-ballast.

"We were able to show that Tensar Geogrids could provide a strong construction platform with a thinner section," says Branden Reall, Tensar Mountain West regional manager. "It would provide the stabilization needed to carry heavy-rail traffic while reducing the sub-ballast layer from 12 inches to 8 inches."

Terracon's project engineer Rick Chesnut developed the Spectra® Rail System design.

### PROJECT HIGHLIGHTS

**Project:**

Railroad Sub-Ballast Reinforcement Project

**Location:**

Weber County to Salt Lake City, Utah

**Installation:**

Spring 2005 to mid-2008

**Product/System:**

Tensar® Geogrid  
Spectra® Rail Railway Improvement System

**Quantity:**

300,000 square yards

**Owner/Developer:**

Utah Transit Authority

**Design Engineer:**

Terracon Consultants, Inc.

**General Contractor:**

Commuter Rail Constructors (a joint venture of Stacy and Witbeck Inc., and Herzog Contracting Corp.)

**Materials Supplier:**

CONTECH Construction Products, Inc.

Following his specifications, the contractor's crew graded and proof-rolled the subgrade. They then covered the subgrade with filter fabric followed longitudinally with Tensar geogrid. Where the stabilization zone needed to be wider, the geogrids were overlapped by 18 inches to provide a stable transition zone.

"Going with Tensar Geogrids allowed us to stay out of the soft subsoil conditions," says Chesnut. "It prevented having to dig down deeper and helped us avoid groundwater. In one case, it also allowed the general contractor to avoid moving over 900 feet of buried utilities. That was a huge saving all on its own."

With the Spectra® Rail System, the work on the line is proceeding more quickly and with a significant reduction in material and labor costs.

**SPECTRA® RAIL SYSTEM ADVANTAGE:** More owners are selecting the Spectra Rail System to:

- ▶ Reduce ballast and sub-ballast requirements.
- ▶ Reduce or eliminate subgrade excavation.
- ▶ Extend the design life of ballast layers by up to a factor of 5.
- ▶ Simplify and speed construction while increasing subgrade performance.
- ▶ Decrease labor and equipment requirements.
- ▶ Enable construction to proceed even in difficult working conditions.



*By using Tensar's Geogrid the Utah Transit Authority had significant reduction in material and labor costs.*

**ADDITIONAL INFORMATION AND SERVICES:** Tensar International Corporation, the leader in geosynthetic soil stabilization, offers systems for improving structures such as roadways, rail yards, construction platforms and parking lots. Our products and technologies, backed by the most thorough quality assurance practices, are at the forefront of the industry. Highly adaptable, cost effective and installation-friendly, they provide exceptional, long-term performance under the most demanding conditions. Our support services include site evaluation, design consulting and site construction assistance.

For innovative solutions to your engineering challenges, rely on the experience, resources and expertise that have set the industry standard for three decades.

**For more information on Tensar Geogrids or other Tensar Systems, call 800-Tensar-1, email [info@tensarcorp.com](mailto:info@tensarcorp.com) or visit [www.tensarcorp.com](http://www.tensarcorp.com)**

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