

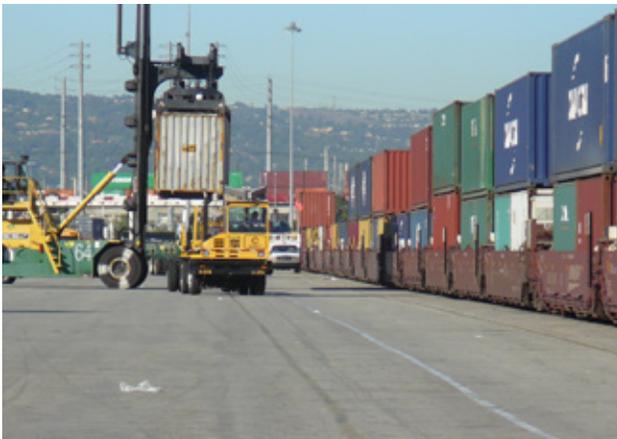


## Pier A Intermodal Facility

### Port of Long Beach, California

**APPLICATION:** In 1998 the Port of Long Beach (PoLB) used the Spectra® Rail Railway Improvement System to help expand and improve one of its intermodal facilities. The expansion included the construction of eight new rail lines for a total length of 14,000 linear feet.

**THE CHALLENGE:** The facility's rail tracks are used by the PoLB Marine Terminal for heavy Class 1 rail traffic. To ensure a long service life with minimum maintenance costs, the PoLB wanted a stabilization solution that could provide effective distribution of the applied loads onto the underlying subgrade soils.



*Tensor geogrids provided an optimal reinforcement solution for heavy Class 1 rail traffic.*

**SITE CONDITIONS:** Soils throughout the port facility are highly variable. Relatively competent sands and gravels occur in some areas while other areas are underlain by silts and weathered coral deposits. The weaker soils often contribute to high maintenance costs and premature track failure.

**ALTERNATIVE SOLUTIONS:** Settlement of rail lines constructed on marginal or poor soils is typically mitigated by the use of thick ballast and sub-ballast layers. However, as in other areas of the country, the PoLB was experiencing a significant increase in the costs associated with ballast/sub-ballast supply and haulage.

**THE SOLUTION:** To accommodate the Pier A rail corridor's variable soils, engineers from DMJM Harris specified five different cross sections. Four of these sections used one layer of Tensor® geogrid for sub-ballast stabilization. In this application, it increased the strength of the construction platform while reducing excavation and ballast requirements.

Because annual inspections had revealed that the stabilized sections were continuing to deliver high rigidity under load, PoLB transportation staff began to consider specifying geogrid as a standard strategy for alleviating settlement in areas with soft soils.

### PROJECT HIGHLIGHTS

**Project:**

Port of Long Beach  
Pier A, Berths A88-96

**Location:**

Long Beach, California

**Installation:**

1998

**Product/System:**

Tensor® Geogrid  
Spectra® Rail Railway Improvement  
System

**Quantity:**

20,000 square yards

**Owner/Developer:**

Port of Long Beach

**Design Engineer:**

DMJM Harris

**Materials Supplier:**

CONTECH Construction Products, Inc.

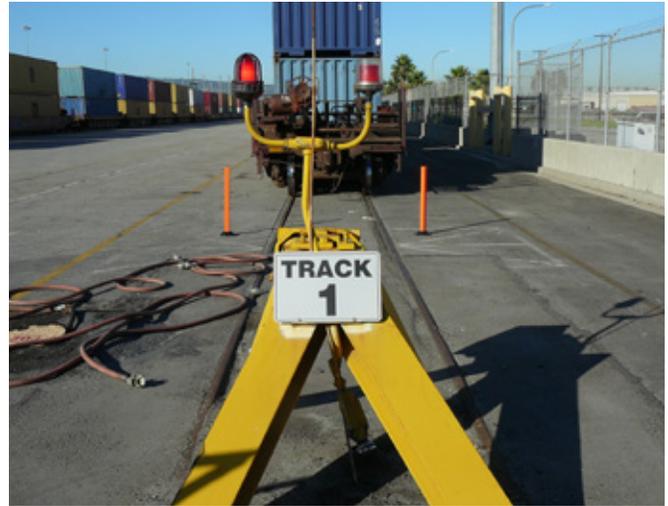
“After 10 years we generally find settlement or track-structure problems due to rail facilities near the water table,” says Carlo Luzzi, PoLB manager of rail transportation. “So we are asking our engineering consultants to determine how geogrids change track performance. We think using a geogrid could extend track service life by an additional 20 years before we see significant issues.”

“Anyone who visually inspects the track is really surprised,” says Tensar Regional Manager Lars Nelson. “They assume the track is brand new because the geogrid is doing such a good job supporting the structure.”

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

- ▶ Reduce the required thickness of the roadbed section, saving \$30,000 per linear mile of track.
- ▶ Extend the period between ballast maintenance operations by 3 to 5 times.
- ▶ Maintain good quality drainage of the roadbed section.
- ▶ Extend the life of mechanical track components (rail, ties, fasteners, etc.).

**ADDITIONAL INFORMATION AND SERVICES:** Tensar International Corporation, the leader in geosynthetic soil stabilization, offers systems for improving structures such as roadways, rail yards, construction



*By using the Spectra® Rail System, the Port of Long Beach was able to extend track service life and minimize maintenance costs.*

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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