

# GEOWEB®

## TRACK BALLAST REINFORCEMENT



GEOWEB 3D Soil Confinement System stabilizes track subballast layer and reduces cross-section depth up to 50%.



### British Rail Eastern Region Northumberland, England



## Solid Foundation for Better Track Performance

### PROJECT CHALLENGE

Soft sub-soils created problems for the highspeed British Rail Eastern Region rail line in Northumberland, England. Rail speed on the Intercity line from Edinburgh to London had to be significantly reduced because of the soft peat sub-base.

### TRACK BALLAST STABILIZATION

The GEOWEB® 3D soil stabilization system was installed to stabilize the sub-ballast over soft soils, reduce subsoil movement by stiffening the sub-ballast and greatly reduce maintenance costs.

Stabilization with the GEOWEB system resulted in better track performance and savings many times over traditional reinforcement methods. **The GEOWEB system has proven to be the cost effective solution to the most demanding track stabilization problems.**

# GEOWEB®

## TRACK BALLAST REINFORCEMENT



Placing GEOWEB sections over a geocomposite drainage layer.



Stone is deposited, spread, graded and compacted in the GEOWEB sections.



Additional stone is brought in to complete the ballast. The track is then repositioned in place.

Request a **FREE**  
Project Evaluation



# GEOSYSTEMS

## PRESTO GEOSYSTEMS

Ph: 1-920-738-1328 | [www.prestogeo.com](http://www.prestogeo.com)

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## RAIL LINE IMPROVEMENT

### Utilizes GEOWEB® Ballast Solution

As part of an ongoing line improvement program, British Rail Eastern Region chose the GEOWEB soil confinement system to upgrade the track sub-ballast on their Edinburgh to London Intercity line in Northumberland.

### SOFT SUB-BASE SLOWS SPEED ON BUSY RAIL LINE

British Rail planned an upgrade to their track sub-ballast on the line from Edinburgh to London. With peat present to depths of 5 m (16 ft) in the Newham Bog area, a high compression factor was experienced when traveling over the soft sub-base. The Intercity concept, which is based on long distance, high speed travel, was **forced to reduce train speeds** by as much as 72 km/hr (45 mph) in the Newham Bog area, lengthening travel times and wasting energy. **To alleviate this problem, British Rail needed to “stiffen” the track system in the shortest possible time.**

### GEOWEB TRACK STABILIZATION

Conventional solutions were too expensive and disruptive to be considered for the nearly 1.2 km (.75 mile) section of track improvement. The 3D GEOWEB system was utilized to strengthen and stabilize the sub-base by confining sub-ballast materials in the system's deep cells.

### COORDINATED INSTALLATION

**Work on the Northbound and Southbound lines was completed in two stages.**

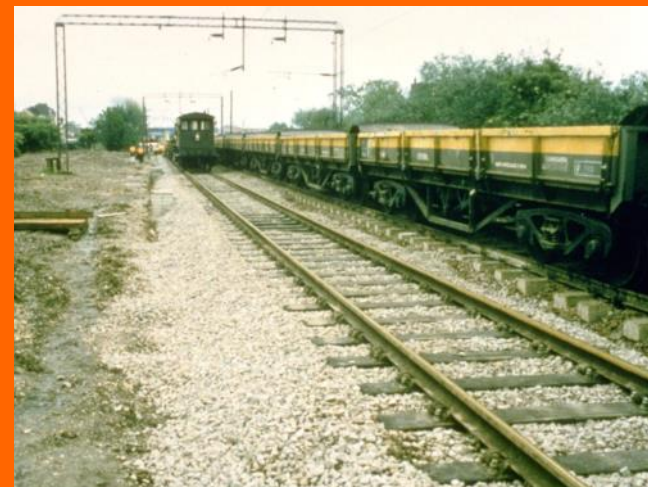
In the first stage for the Northbound section of track, only half of each GEOWEB section was fully expanded and infilled. Nearly a year later, the Southbound track was completed by expanding and infilling the other half of the GEOWEB sections—creating a continuous formed layer beneath both lines. The entire project was a highly coordinated and well-timed operation.

For each section, the old track was removed, and the line was excavated to the required depth. Two layers of the GEOWEB system were required for this project because of the soft sub-grade. The first layer of the GEOWEB system was placed on top of a geocomposite drainage layer. Single size clean stone “chippings” were poured into the cells. A second layer of the system was added, infilled with the same material and then evenly graded and compacted. Additional stone was brought in to complete the ballast and the track was then repositioned in place.

### TRACK PERFORMANCE

Because of the GEOWEB system's fast and easy installation, British Rail completed the project well within their time schedule. **Speed on both lines was increased to 200 km/hr (125 mph).**

British Rail continues to use the GEOWEB system on other areas, allowing passengers on the Intercity line to **GET THERE FASTER!**



**Completed rail line. Speed increased to 200 km/hr (125 mph).**