

PROJECT HIGHLIGHT

PORT OF TEXAS CITY, SE TEXAS RAIL MAINTENANCE TEST SECTION

BALLAST PRESERVATION

PROJECT TEAM

OWNER:

Port of Texas City

ENGINEER:

NA

CONTRACTOR:

Non-Disclosed Contractor
Southeast Texas

SUPPLIER:

Industrial Fabrics, Inc. (IFI)

TECHNICAL DESCRIPTION:

Product: **BASELOK®**
BALLASTGUARD™



BaseLok® BallastGuard™ Installation



Ballast Fouling Under Track



BallastGuard™ Test Section
One year later

PROJECT DESCRIPTION

A port facility with more than 10 miles of rail in Southeast Texas needed to address ballast that had been contaminated with fines from the subgrade. This problem known as ballast fouling, is common in areas with high silt contents and high water tables.

CHALLENGES

Ballast fouling is an issue that is challenging for rail owners to deal with throughout the United States and the world. It is caused by the pumping action created when railcars repeatedly pass over railways built over weak and saturated soils. Sites located at port facilities, oftentimes experience saturated soil subgrades, due to their proximity to water. The subgrade typically remains saturated and when the dynamic weights of loaded rail cars pass over these areas, water jets up (pumps) into the clean subballast and ballast. This water causes degradation of the subgrade with fines contaminating the subballast, thus weakening the subballast and ballast stone resulting in failures. This degradation eventually leads to potentially causing track systems to fail prematurely. As such, routine maintenance in these areas is required and often at a much higher frequency. These maintenance costs are detrimental to all rail operations.

INNOVATIONS

IFI recognized the need for a domestically produced solution to this ongoing issue and decided to develop a product to address the need. Working with a premium geotextile manufacturer, we developed **BaseLok® BallastGuard™**. The key to a product to perform successfully is the ability of the product to resist the pumping effect of the water found in the subgrade, yet still drain and keep water from being trapped in the section. **BaseLok® BallastGuard™** is a 240 mil (0.24in) thick geocomposite comprised of BaseLok® BL6 Geogrid and a needle punched, non-woven geotextile comprised of a proprietary blend of virgin polyester and polypropylene fibers specifically modified to address anti-pumping phenomena in rail applications. The **BaseLok® BallastGuard™** not only prevents the pumping, but also repels water to help the system drain more efficiently. Additionally, the BaseLok® BL6 Geogrid interlocks with the overlying aggregate, reinforcing the subballast and enhancing the performance of the overall section.

For our port/rail facility project, construction crews undercut the track sections, repaired the subgrade, and then placed the **BallastGuard™** material in each of the repaired sections. The placement of the **BallastGuard™** in these problematic areas protected each of the repaired sections from future pumping of fines into the subgrade, and preserved the ballast integrity.

RESULTS

The port manager at this facility has been extremely impressed with the performance of the **BaseLok® BallastGuard™**. This particular test section was installed early May, 2021, and no additional maintenance has been required in any of the repaired sections. Ballast preservation has been achieved in all locations where **BallastGuard™** was installed. The port plans to incorporate **BaseLok® BallastGuard™** whenever additional maintenance is needed, and will specify **BallastGuard™** on all future expansion projects.