

CASE STUDY:

RAIL

Southdown Rail Yard 35/36 Road Upgrade

PENROSE, AUCKLAND
DECEMBER 2016
CLIENT: KIWIRAIL AND
MCKENZIE & PARMA LTD

TRACKTEX®

FEATURES & BENEFITS

The micro-porous filter of Tracktex® prevents rainfall penetrating into the ballast and instead is drained laterally to the side of the track. Pore water pressure generated under cyclic loading below the Tracktex® is relieved through drainage and filtration from the geocomposite. This dries out any residual slurry as the pore water is dissipated.

Tracktex® conforms to surface depressions in the formation layer and prevents the creation of slurry pockets. Fast installation rates reduce construction costs and possession time.

Geofabrics also provides a high level of technical support for designers, engineers and contractors to ensure your project runs smoothly.

GEOFABRICS®
Smarter Infrastructure

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In October 2016, Geofabrics New Zealand Ltd met with Senior KiwiRail engineering staff to present and propose the use of Tracktex® for the upcoming Southdown Freight Yard track upgrade project. The presentation was designed to educate everyone present on the development and use of Tracktex® to prevent mud pumping up from the subgrade and contaminating expensive rail ballast aggregates.

Tracktex® is a multi-layered geosynthetic consisting of a unique micro-porous filter sandwiched between two highly robust protection geotextiles.

The Southdown Freight Yard project in Penrose included several hundred metres of track that needed to be upgraded with up to 3 contractors on site for the construction. The majority of the work, 900m of track, was carried out over a 10 day period during Christmas 2016. Time was a big issue and the advantage of replacing a 75mm sand layer with Tracktex® was of huge interest to KiwiRail and this resulted in Tracktex® being approved for use.

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> Southdown Rail Yard Case Study – Continued.

The track supports 12 x 2000 tonne trains per day and averages 84 trains per week. This equates to 8.7 million gross tonnes per annum, so limiting track maintenance downtime was of huge consideration.

Tracktex® was seen as a huge advantage versus the traditional 75mm sand layer method. A 30m section of track was lined with Tracktex® in under 10 minutes while the same length of track done with the traditional sand layer would have taken over half a day according to the contractor on site.

Tracktex® was also supplied in custom made widths and roll lengths to suit the project requirements.

Other Geofabrics products used in this project included Megaflo® subsoil panel drain, bidim® geotextile and Tensar Triax® 160 geogrid.

Tracktex®

When installed at the base of the ballast layer it prevents the penetration of rainwater through to the underlying formation whilst allowing a controlled upward movement of water through capillary action and also filtering and retaining any fine particles that could contaminate the ballast layer.

Pumping Prevention

The consequence of erosion pumping is the loss of “line and level”. Tracktex® prevents the “mud pumping” phenomenon of fine grained particles in the formation layer beneath the ballast being mobilised upwards into the ballast layer above.

Research into the phenomenon of mud pumping under a million cycles of an equivalent train load. This research identified that geotextiles on their own allowed for two way water movement. Geomembranes didn’t allow for any water movement resulting in a slurry forming in the capping layer which subsequently weakened the support for the ballast. Tracktex® on the otherhand offered both separation of water infiltrating from above and relieving pore pressures from below resulting in significant performance benefits over the traditional heavyweight nonwoven geotextiles tested.

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ROLLING OUT TRACKTEX®

Placement of Tracktex® on prepared capping layer



TRACK FORMATION

Tracktex® over capping followed by ballast and track



OTHER PRODUCT USE

Bidim geotextile separation layer under concrete formation

Find your solution today

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