

Midland Mainline, Kentish town, London UK



SUMMARY

Geobear was contacted to perform some urgent works for Network Rail on the Midland Mainline approach to St Pancras Station at Kentish Town.

The ground, for a stretch of 270 metres in the Kentish Town area, suffers from exaggerated water saturation and the line has previously required full replacement. A section of the line required some urgent repair work in November where the tolerances were below acceptable standards and the line speed was reduced from 70mph to 30mph.

The stretch of track features the up fast and down fast for the mainline and had previously been repaired over a decade before using concrete slabs. That replacement saw a single concrete slab base laid with a further two individual slabs on top for each of the lines.

A 15 metre section of the up fast and 25 metres of the down fast both experienced problematic tolerance levels of up to 8-9mm which exceeded safe operation. Consequently Network Rail had to act quickly to carry out an urgent repair to the ground, bringing the tolerances back within acceptable levels and repairing the cracks to the slabs.

OBJECTIVES

To address the tolerance issues, Geobear used their ground injection process to stabilise and relevel the slabs. The Geobear

method involves drilling and injecting expansive resins under the concrete base slab; as the resin expands it forces out ground water and raises the slab. The geopolymer resins then harden forming a safe and secure base layer for the existing slab and track.

TECHNOLOGY APPLIED

We injected at 1.5 metre depths at points down the 15/25 metre stretches on both the up fast and down fast. Each line had slightly different tolerances to meet, as the resin was injected changes were closely monitored by both the Geobear lasers and Network Rail's set gauge. The injection process was completed in a manner that would enable the slab to be raised in small increments on either side. The accuracy of the Geobear system meant the slab could be brought to within 1mm of the required levels for operation.

The Geobear injection method ensured complete control over the tolerances of the line and the efficiency of our processes meant our work was completed within 12 hours. Alternative methods require lengthy line closures whereas the resin injection option provides a sustainable, safe solution and in this case the full scope of work was completed in days.

OUTCOME

We completed the programme of work within the allocated closure, minimising disruption to timetables and have completely stabilised the section of line.