



Hook Embankment Failure

Issued to: **All Network Rail line managers, safety professionals and accredited contractors**

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Location: Hook, Wessex, Southern region

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Overview

On Saturday 14th January 2023 a landslide occurred which closed the railway between Hook and Winchfield in Wessex Route (part of Southern Region). The landslip occurred during a possession for a track renewal.

Both the Down Fast and Down Slow lines were closed to traffic because of the landslip for a number of weeks causing disruption to passenger and freight operators.

A Level 2 (Local) Investigation has been completed and identified several underlying causes.

This Shared Learning highlights material available to familiarise employees and contractors of some of the risks associated with Earthworks

Underlying causes

Two days prior to event, there had been reports of a track defect and trains were required to be cautioned at 20mph until the Basingstoke P-Way attended to carry out an assessment and perform minor repairs by means of lifting and packing. The P-Way had not associated the track defects with a potential earthwork failure.

Based on the evidence available there was more than average rainfall at the time (5 months of rain fell in the 3 months prior to the landslip). This led to a loss of strength of the clay embankment and the softer alluvium below. The surrounding area at the bottom of the embankment and in surrounding fields was also pooled with water and a local river had overtopped.

The drainage at the bottom of the embankment was ineffective at removing the water and had not been maintained over a period of 10 years. The drainage had not been inspected prior to the failure occurring and this location was not listed as a priority.

The landslip required significant intervention and arrangements were put in place to run trains on two out of the four lines. There was effective co-operation and engagement between all key parties to plan what was required to make the site safe and to provide a suitable train service as soon as possible. This continued until the slope was fully repaired and normal working resumed.

Key message

Understanding where and when earthworks will fail is a complicated, highly technical subject. Earthworks failures can lead to safety incidents which impact on passenger and freight operations.

For Network Rail employees, there is a suite of training available to enrol on via Oracle. There are four course options available:

- Introduction to earthworks
- Introduction to earthwork examinations
- Soil slope examinations
- Introduction to slope stability

These can be accessed via NR eLearning <https://learn.networkrail.co.uk/login/index.php> (search 'geotechnical' in the main catalogue)

All Maintenance, Operations and Engineering staff should at least familiarise themselves with the Introduction to Earthworks course.

For further information please contact Regional or Route Geotechnical Asset Management teams.