



Sole Street denehole (mine)

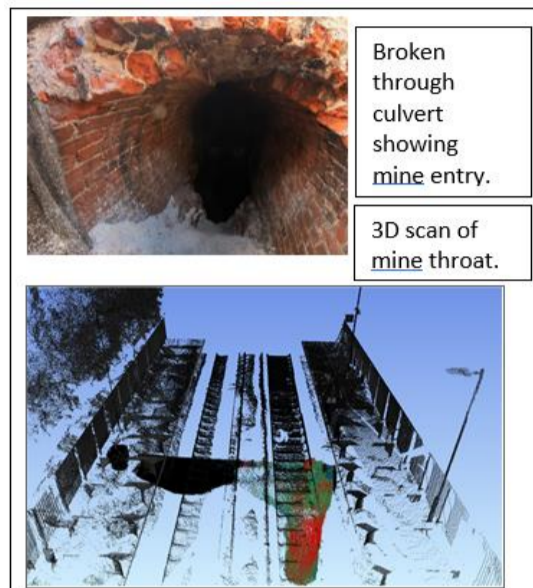
Issued to: All Network Rail line managers, safety professionals and accredited contractors

Ref: NRL25-06

Date of issue: 14/10/2025

Location: Sole Street, Kent, Southern region

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Overview

Old mineworks can create holes underneath the railway which when discovered can be very dangerous for trains and track workers, as well as disruptive to train services and expensive to repair. If we plan and prepare our engineering work thoroughly, we can avoid mines, or deal with them quickly and safely if we find them.

On Sunday 29 October 2024, during a track drainage renewal, a culvert was punched into by an excavator as part of the work. Following this, a vertical hole was noticed extending from the culvert base. This was measured as 9m deep and 2-3m wide.

NR/CIV/191 Mod 9 (Management of Mining Related Incidents) was followed on discovery as the incident had been reported to the B&C Engineering team on the day of discovery realising that it was a denehole*.

On further investigation it was revealed that the location was identified and capped over in 1999 following a similar unplanned exposure.

The location was separately subject to a mining risk assessment and evaluation in October 2023 and reports issued identifying the feature (from desk-based information) with geophysics and GI proposed to investigate it and potentially remediate the void.

Lessons Learnt Results

- The drainage project should have complied with NR/L2/CIV/191/05 Managing the risk from mining in design and construction (Issue 3 02/03/2024). The remit should have highlighted the risk of mining features which were recorded in GeoRINM.
- Initially the hole was thought by some to be a well, despite information existing showing it was more likely to be a denehole. This optimism led to an approach that was not in the best interests of the customer and did not balance the short term need to reopen the line with the long-term benefits of robust solution. In hindsight a longer line closure of perhaps 2 weeks (to investigate and remediate the feature) would have resulted in less disruption to the customer rather than weeks of speed restrictions and weekend possessions.
- Individuals involved in the drainage project and remediation of the mine were not assessed as competent to NR/L2/CIV/1000/07 Competence Management for Mining. As such there was a lack of knowledge of how to investigate / remediate a mine feature (individuals in the delivery team were not competent). This gap was plugged by bringing in a consultant later.
- A lack of awareness that the Technical Authority (National Mining Engineer) holds historic mine records and up to date mining risk assessments, and that features are identified on the Network Rail GIS platform GeoRINM.
- Mining related information is available free of charge from the both the Technical Authority National Mining Engineer and / or the Regional Asset Management. These teams should be contacted during the initial stages of projects where a mining risk exists

The remit for the track drainage renewal was issued in January 2023.

To reopen the line a thick (20mm) metal sheet was put over the void with ballast on top and the lines reopened with 2 x 20mph Emergency Speed Restrictions. However subsequent delays of over 8000 mins occurred due to TSR's on both lines at the site. Since then, the denehole* has been grouted up and the TSR's have been removed. Further ground investigation is required outside of the railway to confirm the extents of the denehole* and a permanent concrete cap installed.

A lessons learnt has been undertaken by the Regional B&C Engineering team. This Shared Learning highlights good practice for project teams to follow on discovery of mines and for asset management teams to follow when writing project remits.

**A denehole is an underground mine consisting of several small chalk caves entered by a vertical shaft. The word, is probably derived from the Anglo-Saxon den, a hole or valley.*

Key message

Network Rail staff have access to mining related information on GeoRINM and via the Technical Authority National Mining Engineer and Regional Asset Management Teams.

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

- Introduction to mining awareness
- Pathways in mining awareness
- Mining Geology

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

All Maintenance, Operations and Engineering staff should familiarise themselves with the Introduction to Mining Awareness course.

For further information please contact Regional or Route Geotechnical Asset Management teams or the Technical Authority National Mining Engineer on nationalminingengineer@networkrail.co.uk or access the following link - [Mining](#)

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