



CENTRAL ALLIANCE

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J Murphy use Central Alliance as strategic pre-construction partner at Harbury Cutting, Leamington Spa.

Technology unlocks ground movement and geospatial information.

Project Background

Harbury cutting was built in 1847 by Brunel as part of the construction of the main Oxford to Birmingham line and at the time, was considered to be a significant engineering feat. At over 34 metres deep, the cutting was the largest man-made cutting in the world that was dug entirely by hand!

There is a history of geotechnical failures associated with the cutting, in fact it has suffered from persistent stability issues for the last 20-30 years and landslips have been a regular occurrence. J Murphy were working on a scheme designed to resolve these stability issues.

Whilst working on the project, small cracks started opening up in the slope above the cutting and investigations of the incident showed that there was a previously unrecorded vertical fault at the back of the cutting that had not shown up on previous geological maps and investigations.

Heavy rains caused a large landslide that resulted in the movement of 350,000t of material. J Murphy had already moved 30,000t from the failed slope.



Project Scope

Geo Central were brought in to accelerate the progress of the slope stability project. Initially, the remit was to help speed up ground investigation works and also to install ground movement and ground water monitoring instruments. After the large landslide, the project scope widened and accurate geo-referenced survey data was required.

Deliverables

1. Initial GI work (rotary drilling) for J Murphy was carried out prior to the landslide to establish further information on the ground conditions of the cutting.
2. We were then commissioned to carry out a UAV aerial topographical survey and also used HD aerial video photography in order to establish the scale of the landslide that would enable remediation works to be planned efficiently.
3. In addition, we installed de-watering wells and a full dewatering system in order to ensure ground water levels were reduced to try and minimise the risk of further instability. Inclinometers were also installed and daily monitoring of the ground water was carried out and reported on.
4. Our senior team were also part of the Harbury emergency working party, contributing and consulting from a GI and geology perspective.
5. We introduced our satellite monitoring solution to establish land movements over time on various areas of the Harbury site. Regular long term monitoring would help to establish how the land responded to the remediation works.

Benefits

- Major works completed within specific time frame to a high standard
- Pre-construction services including GI, surveying, instrumentation and monitoring are managed through one organisation, minimising risk, and improving communication and overall operations.
- Central Alliance's expertise and experience delivered high quality pre-construction services on such a high profile project and provided J Murphy with peace of mind and confidence throughout.
- New and innovative technology used to give comprehensive site data and improve knowledge so that the best recommendations/solutions could be put in place.

