

## **Monitoring embankment performance during the raising of Abberton Reservoir**

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**SYNOPSIS.** The raising of the main dam at Abberton is one of the key elements of the Abberton Reservoir Enhancement Project, which aims to provide additional water for the Essex Supply Area and Greater London.

The original dam embankment was completed in 1938 and was 15m high and 680m in length. The dam was raised by 3.2m during the enhancement project by adding 300,000m<sup>3</sup> of locally won fill material over the crest and downstream shoulder of the original embankment. The reservoir remained fully operational throughout the operation.

A large section of the upstream shoulder of the original dam embankment failed during construction in the late 1930s. An extensive monitoring system was therefore installed in advance of the main earthworks raising in order to monitor the dam embankment, evaluate its performance in comparison to FEA model predictions and thereby enable the raising works to take place in a controlled and safe manner.

The paper describes the monitoring system and the observed performance during construction. The paper also discusses the benefits of a remote monitoring system and provides an insight into some of the lessons learnt from maintaining instrumentation during a major earthworks project.