



The
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North West Regional Group

Meeting

Thursday 28th March 2019

The Importance of Geological Modelling from 1D to 6D

By Thomas Clifford and Maisie Mansfield, Atkins

This evening lecture will look at the importance of geological modelling to help manage ground related risk, whilst looking at the capability of new technologies to offer more insight into ground characterisation.



Through several project examples ranging from a dam foundation to quarry excavations, a highway cutting to a reservoir wall, Thomas Clifford will show how both traditional methods, and established and emerging technologies were used to understand the geological problem or communicate the risk to stakeholders. The presentation will begin with stressing the importance of geological modelling using an example of traditional methods to identify theoretical geological hazards. We will then consider how computer aided modelling and drone technologies have helped better understand geological features to aid design.

Case studies will look at the use of LiDAR to help design rock excavations and assess the risk from rockfall. We will then look at several examples of using AR and VR technologies to enable stakeholders to better understand the link between geology, mining, construction and design. The final case study presented by Maisie Mansfield, considers the role of remote sensing mapping, utilising multiple sources of data including hyperspectral aerial imagery to provide a better understanding of ground conditions between

intrusive ground investigation locations, to inform design and reduce geological risk.

Thomas Clifford is a Principal Geotechnical Engineer at Atkins and specialises in managing geotechnical risk and large excavation design. He joined international quarrying operator Aggregate Industries where he obtained a good grounding in field mapping, mineral exploration, quarry development and 2D to 4D modelling. He has a Masters in Geotechnical Engineering from the University of Birmingham and became a Geotechnical Specialist under the Quarries 1999 and Mines 2014 Regulations. He used his quarrying knowledge and design capability to help develop a new assessment method for rockfall. His work won awards from The Geological Society (The Glossop Award), The Institute of Quarrying and The British Geotechnical Association. Thomas joined Atkins in 2013 and has worked on a range of projects from landslide remediation to major infrastructure earthworks whilst continuing his keen interest in quarrying.

Maisie Mansfield is a Geotechnical Engineer at Atkins who since joining in July 2018 has specialised in coastal geomorphology mapping and the application of this to engineering projects.

Sandwiches and Chips from 6pm

Lecture starts promptly at 6.30pm

Venue: The Pied Bull, 54 High St, Newton-le-Willows WA12 9SH

<https://www.piedbull.com/location>

Organised by the North West group of the Geological Society of London

For further information contact the group secretary, Catherine Kenny at: Geologicalsociety.northwest@gmail.com

CPD: These events may be considered for contributing to a recognised Continuing professional Development (CPD) scheme as part of personal development. Delegates should check their individual scheme requirements.

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