

Yorkshire Geotechnical Group

Learning the Lessons from Groundwater Control Problems

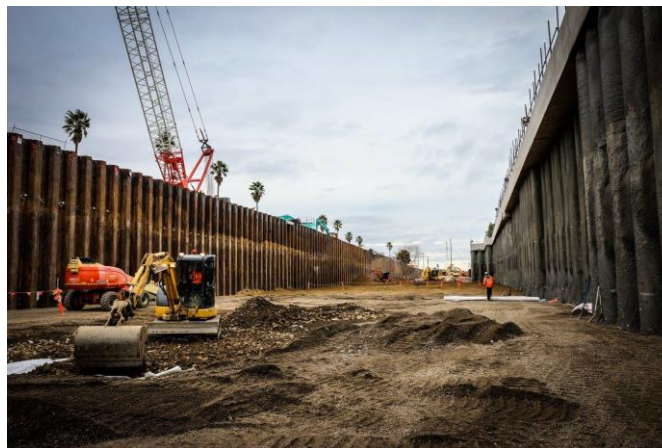
ice
Institution of Civil Engineers

Tuesday, 9th February 2021, 18.00 - 19.30 – Online meeting

Speaker: Dr Martin Preene, Dewatering Specialist, Preene Groundwater Consulting

ABSTRACT

Groundwater is a common problem in excavations associated with basements, foundations and tunnels. If not adequately controlled and managed during construction, groundwater can cause a range of geotechnical problems, including running sands, excessive ground loss, base heave and collapse of excavations, resulting in additional costs and time delays. However, with good planning, design and execution, below ground works can be successfully and efficiently carried out even in very challenging groundwater conditions.



This presentation will describe a series of case studies where groundwater control problems occurred, including excessive groundwater inflows into excavations and the hydraulic failure of the base of a shaft. The importance of representative and relevant conceptual models will be discussed. Prior to construction, conceptual models can aid the planning of ground investigations to help select borehole depths, borehole locations and hydrogeological testing methods. During construction the effectiveness of groundwater control techniques will vary with different hydrogeological conditions and the permeability of the strata. A sound conceptual model reduces the risk of designs being developed using inappropriate approaches to groundwater control. The presentation will describe common misconceptions including the assumption of a single aquifer (where multiple aquifers and aquitards exist) and cases where significant transmissive zones (which may act as aquifers) are not identified.

Dr Martin Preene is a civil engineer with 35 years' experience of dewatering and groundwater control with contractors and consultants worldwide and has worked extensively on major tunnel projects in the construction and mining sectors. He widely published in the field of groundwater engineering and is the lead author of the CIRIA Report C750, the UK industry guidance on groundwater control and dewatering, and the author of the textbook Groundwater Lowering in Construction, now in its 3rd edition.

This meeting will be held via Microsoft Teams – links to the meeting are given on the ICE and BGA websites.

For further information contact:

email: will.frampton@bylandengineering.com

t: 01904 476366

ice.org.uk/yorkshireandhumber