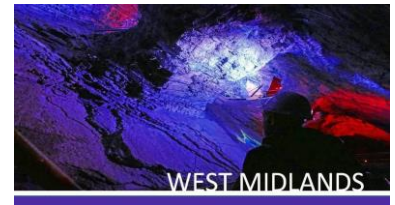




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Instrumentation and Monitoring Feedback on Ground Movement Response during tunnelling activity through Mercia Mudstone Group strata, on HS2 Project

Mr Ioannis Papadatos

(Geotechnical Manager on Balfour Beatty – Vinci JV/Tunnels Sublot - HS2 Project)

11th Feb 2025 | Mott Macdonald offices in Birmingham city centre | 6:30pm start

Abstract:

Balfour Beatty—Vinci Joint JV (BBV) is delivering for HS2, a 90-km route in the Midlands that runs between Long Itchington in Warwickshire, the centre of Birmingham, and Handsacre in Staffordshire, where trains will join the West Coast mainline.

The project includes, among other structures, two twin-bore tunnels, Long Itchington Wood 1.58km long and Bromford 5.79km long, which are constructed by Variable-Density Tunnelling Boring Machines (TBM), through Mercia Mudstone stratigraphy of different weathering grades.

Due to the presence of critical structures and assets along the tunnel routes, a comprehensive Instrumentation and monitoring system has been implemented, measuring multiple parameters and recording ground response during tunnelling activity. This system safeguards the different types of structures and maintains them serviceable throughout the tunnelling period.

The speaker will present the geological setting of the 2 tunnels, the Instrumentation and Monitoring arrangement as well as several cases of interested records of ground response, during tunnelling activity which is still ongoing.

As there is a limited precedent experience for large diameter bored tunnels in the Midlands area, the available ground monitoring data through the HS2 project, would be a useful information for a future reference and fine tuning of tunnelling design assumptions, such as trough width parameter and coefficient of earth pressure, on future construction projects built in the Mercia Mudstone Group of rocks.



The photograph shows Sidmouth Formation Weathering Grade I/II of Mercia Mudstone Group, as exposed through the Tunnelling Boring Machine (TBM) cutterhead, during a maintenance intervention of the Bromford Tunnel Project.

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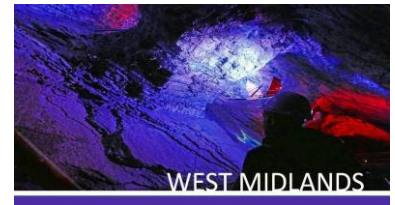
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About the Speaker:

Ioannis Papadatos is a Geotechnical Engineer, with more than 25 years of experience mainly in tunnelling and earthworks, working in Europe, Middle East and Asia, for various Motorway, Rail, Metro and Marine Projects, as Geotechnical Manager, Geotechnical Expert, and Resident Engineer.

He holds a Geology Degree from University of Athens and an MSc Degree in Engineering Geology from Newcastle University.

Since 2021, Ioannis has joined the Balfour Beatty – Vinci Joint Venture (BBV) in UK, to participate on HS2 project, managing the Geotechnical and Instrumentation and Monitoring Teams on the tunnelling sections.



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