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**Speakers:**

WSP|Parsons  
Brinckerhoff

**Athena Livesey**

Principal

**Tristan Morgan**

Principal

**Refreshments  
sponsored by:**



**Date:**

**Wednesday 17<sup>th</sup>  
May 2017**

**Details:**

**Tea / coffee:  
17:30**

**Meeting**

**Commences:  
18:00**

**Location:**

**Burlington House**

**Free to attend.**

**Registration not  
required.**

For further information  
and registration, please  
contact:

Event Convenor: Dr  
Ursula Lawrence

email:

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# A1 Widening Scheme, Tyneside

## An evening meeting by the Engineering Group of the Geological Society (EGGS)

### Synopsis

Economic regeneration in the Tyneside area, has led to increasing traffic congestion on the A1 and surrounding roads. The project involves the widening of a 6.2km long section between Coal House to Metro Centre, with steepened reinforced earthworks, gabions and sheet piled walls. The scheme traverses the Pennine Middle Coal Measures Formation (PMCM) which comprises interbedded sandstone, siltstone and mudstone, commonly with coal seams. This in turn is overlain by Glacial Till.

Tyneside has a legacy of extensive abandoned mine workings. A ground investigation, directed by the results of the desk study and civil structure locations, was completed along the alignment. The Conceptual Ground Model inferred that a 1km section traverses mine workings with cover thickness as little as 4m beneath the surface.



The rock cutting is 300m long and cuts through 8m of PMCM. The desk study and site investigation suggested sub-horizontal strata dipping to the northeast. However, during the construction phase numerous fault structures; Normal, Strike-Slip and Thrust Faults were identified of which only three coincided with the 1:10000 geological map. The stability of the rock cutting was further complicated by the curved plan of the cut, the presence of mine void collapse structures and deeply incised rock head. The slope stabilisation measures were redesigned to deliver a range of options to suit the changing rock mass quality along the cut face.

The talk will cover the importance and benefits of maintaining a 'live geological model' from concept through to the construction phase, the mine consolidation works and the rock cutting stabilisation works. It will also highlight the importance of having the relevant specialist supervising the Construction Phase works.



