

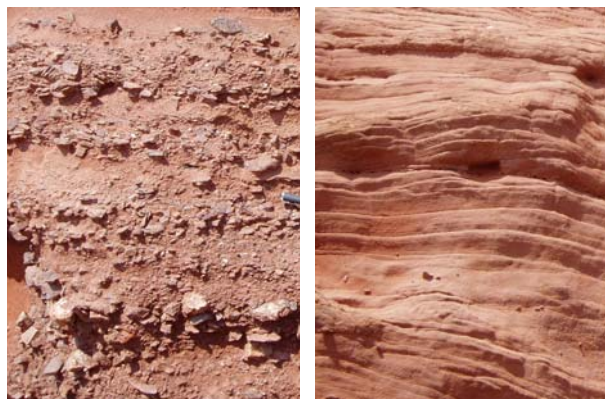
Expert Evidence in Tunnel Ground Conditions Claim – Exeter

A gas pipeline tunnel constructed beneath the River Exe estuary near Exeter, between Lympstone and Powderham, encountered some difficult tunnel ground conditions which led to a claim for additional payments. Byzak, the tunnel subcontractor, commissioned David Roche GeoConsulting to prepare and present expert evidence on the engineering geology and ground conditions, and how these varied from the information available at time of tender.

The tunnel was excavated by a tunnel boring machine (TBM) through mainly Permian red rock strata comprising mainly breccias and also some sandstones and mudstones, between two access shafts on either sides of the estuary. Progress was slowed by clay clogging and by the rapid variability of the geology attributable to faulting which had not been anticipated. Also buried river channels were locally encountered which had not been expected.

Expert evidence and advice on a range of issues provided by David Roche GeoConsulting included:

- Initial review of the relative strengths and weaknesses of the Client's claim and the counter arguments.
- Review and comparison of information available pre-tender and post-construction.
- Preparation of geological section models to illustrate various pre-tender and post-construction interpretations, including major step faulting with repeated variable strata.
- Detailed examination and description of samples obtained during tunnelling.
- Review and interpretation of specialist XRD clay mineralogical analyses.
- Review and interpretation of geophysical survey data in post construction monitoring.
- Risk Assessment for the ground conditions anticipated pre-tender.
- Preparation of Reports of Evidence.
- Rebuttal of Reports of Evidence by others in counter argument.
- Presentation of expert evidence and expert discussion at Adjudication Hearings.



Exe Breccia and Dawlish Sandstone – 'New Red' rock strata exposed in nearby cliffs at Lympstone.

TBM emerging from tunnel drive into the reception shaft at Powderham



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