



# Earth Science Partnership

Consulting Engineers | Geologists | Environmental Scientists

## Case Study: Proposed Wind Turbine, Darrington, Yorkshire.

**Client:** Private

**Delivery Period:** Summer 2014

**Principal Staff and Points of Contact:**

- Jeremy Hucker, ROGEP Adviser & CGeol



### Project Description and Overview:

A landowner was proposing to construct a single wind turbine on part of his property. A previous investigation had suggested straightforward ground conditions. However, ESP identified features indicating an active gypsum karst environment, which posed potential risks to development not previously identified.

### Services Provided:

- Review of historical, geological, hydrogeological and previous investigation data.
- Detailed site reconnaissance visit including inspection of local quarry faces.
- Geomorphological and hydrogeological assessment of an active karst environment.
- Trial pitting and trenching.
- Geophysical surveying.
- Recommendations for foundation risk mitigation strategy and alternative turbine position.

### Outcomes:

A potential high risk of subsidence was identified beneath the proposed location in a geological environment which was likely to become more active in a few years' time due to changes in the hydrogeological setting. Recommendations for risk mitigation measures were provided. The project demonstrated the cost value to the Client of a desk study appropriate to the site setting and the potential dangers of the basic 'one size fits all' desk study commonly undertaken.

### Key skills

- Detailed desk study appropriate to site
- Geomorphological assessment
- Tailored Site Investigation
- Hydrogeological assessment
- Gypsum karst assessment
- Identification of potential subsidence risks not previously identified