



## Key achievements

- Complex system providing monitoring data of the slope stability adjacent to the Transport for London line.
- Provide real time access to the slope monitoring data through one monitoring platform for a simple and efficient reporting method

### • The Project

Ongoing slope stability issues adjacent to a Transport for London rail line required a soil nailing system to strengthen the slope and improve ground conditions.

### • The Challenge

The soil nails required monitoring to provide the client with the accurate measurements of the applied load and stresses within the nails. The monitoring scheme needed a data acquisition system that would collect and transmit data for all instrumentation unattended, as there would be minimal access to site after the installation works.

### • The Solution

Strain gauges were installed on the top and bottom of the single strand bars to show the changes in strain in multiple directions. Sensors were installed at multiple points along the strand. This is similar in principle to the installation of a strain gauges within a pile. Load cells were also installed at the top of the monitored anchors to measure applied stress. GEO-Instruments' QuickView visualisation software was provided for visualisation and management of the project data. GEO-Instruments worked with the client to develop new software features to assist with reporting requirements.

### Application

Geotechnical Monitoring

### Technique

Strain Gauges and single anchor Load Cells

### Market

Slope Stability

### Client

Transport for London (TfL)

### Project Duration

1 Year

### Instrumentation

48no. Vibrating Wire Strain Gauges  
3no. Single Anchor Load Cells

### Keller Companies

GEO-Instruments UK