



## Key achievements

- Installation of custom manufactured load cells to match the client's specification.
- Supply monitoring data from different sources through a single monitoring platform for simplified and efficient reporting

## The Project

A sheet pile retaining wall has been built next to Network Rail lines to support a vehicle access ramp for a worksite. The wall is being stabilised using more than 200 multi-strand ground anchors. Monitoring is required on a portion of the anchors to verify loading of the anchors and the stability of the wall.

## The Challenge

The demands of the specification required the custom manufacture of the load cells to particular measurement ranges. The sensors must provide reliable data at the designed lock off load while also capable of measuring potential excess stress in the anchors (up to 300 kN). Detailed temperature information must also be recorded to monitor and understand the effect of temperature on the anchors over short and long-term periods.

## The Solution

Working with the manufacturer, GEO-Instruments custom-ordered 13no. Load Cells to specification and installed the them at regular locations along the retaining wall. The monitored anchors were then stressed to designed load by Keller's anchoring and stressing specialists. Thermistors were installed to provide the real time temperature data for comparison of load and temperature variations and identification of seasonal trends over short and long timescales. GEO-Instruments' QuickView software was used to collate and manage data. The software made it easy to analyse visible trends related to temperature changes.

## Application

Structural and Geotechnical monitoring

## Technique

Strain Gauge Load Cells

## Market

Retaining Walls  
Network Rail

## Client

SCS JV

## Project Duration

7 years

## Instrumentation

13no. Multi Anchor Load Cells  
13no. Thermistors

## Keller companies

GEO-Instruments  
Keller