



Key achievements

- **Monitoring of London Underground tunnels and Thames Water assets**
- **Real time monitoring of Peak Particle Velocity (PPV) during sheet piling**

The Project

The proposed scheme included the construction of a hotel building along with a single-storey basement.

The basement substructure will be directly adjacent to London Underground tunnels running under the nearby street.

The Challenge

The basement excavation works mean that the London Underground tunnels and Thames Water assets running adjacent to the site could be susceptible to vibration caused by the installation of sheet piles. GEO-Instruments were tasked with installing vibration monitors at 4 key locations at specified distances from the sheet piling works to monitor their influence.

The Solution

A proposal to bury the vibration monitors was agreed with the project design team, allowing for the vibration monitors to be installed at the required distances from the sheet piling and remain protected from potential damage or disturbance from other site activity.

Trenches were dug and robust cable ducting was laid prior to GEO-Instruments' arrival on site. Digital BUS cabling was routed between each monitoring location and connections made to transmit the monitoring data to a rugged IP67 data logger designed for reliability in harsh conditions.

GEO-Instruments engineers marked and recorded instrument locations during the installation to allow for easy retrieval at the end of the project.

Collection of monitoring data was fully automated and presented within GEO-Instruments' QuickView online platform.

Alert triggers were set at limits defined by the specification and automated alerts were configured so the site team could receive instantaneous alarm emails if thresholds were breached.

Application

Environmental Monitoring

Technique

Vibration Monitoring

Market

Buildings
Rail
Infrastructure

Project Duration

2 years

Instrumentation

4no. Triaxial Geophones

Keller companies

GEO-Instruments