Duke Shore Wharf

London

The small but critical site at Duke Shore Wharf is part of the Environment Agency's 10-year plan to strengthen and repair tidal flood defences through London and along the Thames estuary.

The project

Team 2100, a collaboration of key industry contractors led the flood defence repair works. The 30 metre section of concrete wharf had shown significant signs of disrepair and was made a priority by the project.

Keller was brought in as a subcontractor to undertake the piling works with GEO-Instruments providing Instrumentation and monitoring.

The challenge

The site was very limited on space, directly adjacent to residential buildings and had limited access to the section of unstable river wall in need of repair.

Mobilising and maneuvering on site was very difficult and significant attention had to be paid to efficient use of space.

The solution

Keller employed a controlled grouting exercise to backfill and seal the wharf, preventing leakage of grout and other pollutants into the river. After this, Pali Radice minipiles were installed to strengthen the river wall.

In order to verify the effectiveness of the strengthening measures, it was necessary to monitor groundwater levels inside the river wall after completion of the works. GEO-Instruments installed 6 piezometers across two boreholes at 3, 4.5 and 7 metre depths.

The wireless data collection from the VW (vibrating wire) piezometers was automated using a system of wireless nodes and a Gateway.
Data was collected from the Piezometers by the nodes and sent to the local gateway. From here, the data is transferred to a database via mobile data and could then be viewed and analysed on our web app QuickView.

The system had minimal energy requirements and was powered by a solar panel and battery instead of mains electricity.

Wireless technology is beneficial on this and similar sites with restricted space and access, avoiding the need for intrusive cable runs across site. In many applications it is more efficient to install a system using wireless data transfer and a solar power supply, even in central London.

Project facts

Owner(s)
Environment Agency

Keller business unit(s)
Keller
GEO-Instruments

Main contractor(s)
Team 2100

Services
Automated monitoring

Markets
Building Monitoring

Technologies
Geotechnical instrumentation

Email address
enquiries.uk@geo-instruments.co.uk

Phone number
+44 (0)207 709 2030