



Key achievements

- **Combined instrumentation solution for comprehensive ground monitoring**
- **Automated sensors and software supply for fully automated monitoring and reporting**

- **The Project**

GEO-Instruments were required to provide a geotechnical monitoring scheme for a large housing development on the outskirts of Maidenhead in Berkshire. Working with the ground works contractor who were undertaking surcharging works across the development, GEO-Instruments engineers supported multiple project phases.

- **The Challenge**

Surcharge monitoring is essential for verifying the performance of the surcharging techniques and ensuring the ground is appropriately prepared prior to the construction of residential properties. Each phase required a carefully designed and installed monitoring scheme to adequately measure achieved settlement.

- **The Solution**

The monitoring scheme was comprised of two types of geotechnical instrumentation: 24 Settlement plates installed in several systems spread over multiple phases of works and five IP-Xs (extensometers), one for each surcharging area. Settlement plates are fitted with vibrating wire pressure sensors interlinked with a common liquid circuit that calculates vertical movement using relative changes in pressure. Locations are chosen carefully to support monitoring and understanding ground settlement that may occur during and after the loading phase. In-Place Extensometers (IP-X) are instruments designed to measure vertical movement of the ground. Unlike the settlement plates, IP-Xs are able to measure movement at multiple, greater depths. They are used to get more detail and better characterise the ground movement observed during the works.

Application

Surcharge Monitoring

Technique

Geotechnical Monitoring
QuickView Monitoring Software

Market

Construction

Project Duration

1+ years

Instrumentation

Settlement Plates
Extensometers

Keller companies

GEO-Instruments

