HOUSING DEVELOPMENT, SEATON

GROUND MOVEMENT MONITORING

Key achievements

- **High accuracy, long-term monitoring of ground settlement**
- **Robust, automated system for reliable data collection**

The Project

GEO-Instruments teams have returned to site for multiple phases of construction at an ongoing housing development site in Seaton.
Before construction can begin on each phase of the project it's necessary to prepare the ground. To help prevent structural damage to the buildings and infrastructure, the ground must be consolidated to minimise ground movement or settlement that could occur during or after construction.

The Challenge

The main contractor is using a surcharging method to achieve the necessary consolidation and stability of the soil. In this process, the ground is covered with a load (an earth mound) greater in mass than that of the final planned development. This surcharge is left in place for an extended period to allow the soil to compress and settle.
Accurate ground movement monitoring is required in order to confirm that the necessary settlement is achieved.

The Solution

GEO-Instruments installed a settlement monitoring system in the ground before the surcharge was placed.
This system consists of nine VW Liquid Settlement plates located around the surcharged area. The plates are connected via liquid filled tubing to a shared reservoir installed away from the monitored area.
Each plate is fitted with a vibrating wire pressure transducer that measures changes in pressure as the plates move relative to the liquid reservoir. The system then calculates liquid head in millimetres, for a precise measure of ground movement.
As these instruments use automated data collection, they will measure continuously, providing an ongoing, complete record of settlement over time without the need for manual intervention.

Application
Housing Construction

Technique
Settlement Monitoring

Market
Buildings

Client
Vertase FLI

Project Duration
5+ Years

Instrumentation
Liquid Settlement Plates

Keller companies
GEO-Instruments

GEO INSTRUMENTS

Geotechnical & Structural Monitoring Solutions

KELLER