NU Feinberg

Chicago, USA

The excavation and structural monitoring of a development at a university in central Chicago.

The project

To monitor a sheet piled wall, surrounding buildings and an existing steam tunnel during excavation works as part of the development. Site progress was also recorded 24/7 through the use of a live feed site camera located on the roof of a nearby building which took hourly panoramic photographs to create a stunning time-lapse video.

The challenge

The main challenge was installing the Hydrostatic Levelling Cells which were used to monitor an existing steam tunnel. Due to extreme temperatures many measures had to be implemented to ensure the system operated correctly.

The solution

A wireless network of six shape accel arrays were established around site. A higher grade of water and air tubing was used in the installation which would not deform under the immense heat which was present inside the tunnel. Regular checks on the data and inspections on site were carried out to check for sagging and data anomalies. The SAA data was used as part of real-time finite element analysis of design curves carried out by Northwestern University.

Project facts

Owner(s)
Northwestern University

Keller business unit(s)
Hayward Baker
GEO-Instruments

Main contractor(s)
Hayward Baker

Services
Automated monitoring
Software/web-based data presentation

Markets
Buildings

Technologies
Shape accel arrays
Hydrostatic levelling cells

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