Geocomp
Trusted to help mitigate risk

Museum of Fine Arts Instrumentation & Monitoring

PROJECT PROFILE

CLIENT:
Schnabel Foundation Company

LOCATION:
Boston, MA

VALUE:
- Monitored deformations and loads during construction to reduce risk of unexpected performance

SERVICES PROVIDED:
- Designed, installed, and maintained an Automated Data Acquisition System (ADAS) for monitoring of support of excavation

- Numerical analysis to predict forces to design of secant pile wall and cross braces

- Numerical analysis to predict deformations of wall and adjacent museum

"Readings were taken from an array of vibrating wire strain gages installed on excavation props/struts across the project, and several in-place inclinometer sensor strings."

SUPPORT OF EXCAVATION AND DATA MANAGEMENT COLLECTION

Geocomp developed a numerical model of the support of excavation system that incorporated the varying stiffness of the foundation soils, and the loads from the adjacent buildings. The model was used to develop the design loads for the support system, and to predict the deformation. Geocomp assisted Schnabel Foundation Company with the owner's response to the design and final acceptance of the design. Geocomp also designed and installed an instrumentation system to monitor the performance of the support system. Readings were taken from an array of vibrating wire strain gages installed on excavation props/struts across the project, and several in-place inclinometer sensor strings. The ADAS was split into *i*Site® data loggers and a Campbell Scientific CR-10X and the data from both systems were integrated and automatically fed into *i*SiteCentral® for the project team in near-to real-time.

BACKGROUND

The extension to the Museum of Fine Arts in Boston required a 33-foot deep excavation located adjacent to existing museum buildings on two sides. The owner's designer required numerical modeling analysis of the excavation to take into consideration the existing museum foundation loads which are located on one side of the excavation but not the other side. A numerical model was also required to predict deformations and stresses in the support system. The analysis was challenging due to the non-symmetrical loading and the variable stiffness of the Boston Blue Clay which has a significant impact on the deformation prediction.