



Key Achievements

- Hayward Baker, Inc. (HBI) offered a value-engineered alternative to the original earth support design that was less impactful to succeeding trades, saving the client time and money on the tight construction schedule.

The project

The multi-story Louis A. Simpson and Kimberly K. Querrey Biomedical Research Center at Northwestern University Feinberg School of Medicine covers a footprint of nearly 44,000 ft². Excavation extended to a maximum depth of 60 ft below sidewalk grade, making it one of the largest and deepest excavations in the history of the City of Chicago. Site soils consisted of approximately 30 to 35 ft of fill and saturated sands over soft Chicago clay. Groundwater was present at 19 ft below street grade.

The challenge

The site was between a medical research center with a basement approximately 38 ft below grade and a rehabilitation facility with a basement approximately 18 ft below grade. The primary challenge to the owner was the constructability of the new building's deep basement between these two sensitive facilities. The general contractor also had strict schedule requirements at each construction stage.

The solution

The new design utilized a 70-ft-deep steel sheet pile wall supported by three main levels of bracing and fourth and fifth levels of bracing in localized areas for deeper cuts. Bracing consisted of both grouted tieback anchors and corner bracing with struts. Within the saturated sands, HBI designed and installed internal corner bracing to avoid penetrating the sheeting. Automated total monitoring was instrumental in eliminating additional stabilization methods in the marginal soils.

“Hayward Baker did an outstanding job both in the technical analysis of the design and sequencing the construction to meet the demanding schedule.”

Sean Bowker, Project Executive, Power Construction Company

Application

Earth Retention & Shoring

Technique

Anchors
Sheet Piles

Market sector

Institutional – Education

Owner

Northwestern University

Main contractor

Power Construction Company, LLC

Engineer

Thornton Tomasetti

Keller business unit (s)

Hayward Baker, Inc.
GEO-Instruments, Inc.