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DESIGN/BUILD
SPECIALTY CONTRACTOR

SCHNABEL
PRINCIPLED. PROVEN.

GENERAL
CONTRACTOR



HENSEL PHELPS
Plan. Build. Manage.

BACKGROUND INFORMATION

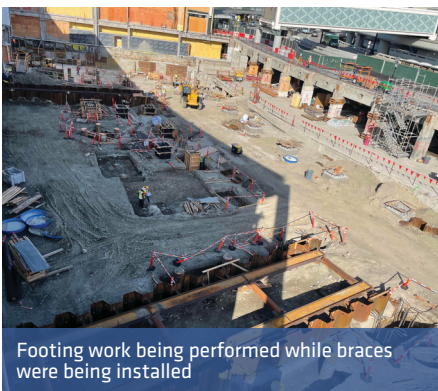
In 2016, the San Francisco International Airport unveiled plans to redevelop Terminal 1 and its associated boarding areas. The main goal of this project was to upgrade the oldest terminal at the airport, better accommodate the increasing number of people using the airport, and modernize the facilities. The renovation project included additional passenger check-in areas, TSA security checkpoints, new baggage handling system, and a secure connector to customs in the International terminal.



Credit: Hensel Phelps

Rendering of the new and improved Terminal 1

SCHNABEL'S ROLE



Footing work being performed while braces were being installed

In 2017, Schnabel was contracted by Foundation Contractors, one of the general contractors managing the project, for two phases of work. Schnabel's task was to design and build 122,000 square feet of excavation shoring to facilitate the construction of the new utilidor and baggage collection system for Terminal 1. Schnabel selected a shoring system that used steel sheet piling with corner, cross-lot, and raker braces for lateral support. Braces were used instead of tiebacks due to the numerous utilities and poor soil conditions at the site. The longest brace in these excavations was 30 feet, and the maximum load was 300 KIPS.

CHALLENGES

Schnabel's work took place in two phases. Obstacles were encountered during both phases of the project, presenting various challenges. However, Phase 2 proved to be more challenging due to the increased amount of demolition debris resulting from the removal of the old terminal. Additionally, for the new terminal, Schnabel faced the challenge of dealing with a greater density of existing drilled piles, requiring careful navigation or adjustment. Accessing the job site also posed difficulties, as all drivers and passengers needed identification to enter the live airport tarmac, enforced by the Airport's Operations Officers. This led to delays in deliveries and company vehicles, either due to identification issues or non-compliant load restraints, as traffic into the job site shared the same pathway as aircraft entering the airport.



Crane access road backfilled over fingers 6 & 7

TEMPORARY TIEBACK WALL



Closing off finger 6 with corner sheet

To facilitate access for equipment and a crane road into the closed-off section of work, Schnabel built a temporary tieback wall using sheet piles, known as a deadman, at the Utilidor's crossing. This wall included a waler positioned across the face of the sheets, along with horizontal ties inserted through the waler and sheets, crossing beneath the access road through the deadman sheets. After the wall was constructed, the dirt contractor filled in the access area, bringing it up to the intended elevation for the new access road.

CONCLUSION

In November 2022, Schnabel completed the construction of 122,000 square feet of braced sheet pile shoring, a crucial element for building the new Terminal 1 utilidor and baggage collection system as part of the San Francisco International Airport's renovation project. Despite encountering various challenges such as obstructions on the jobsite and restricted access, Schnabel successfully overcame these obstacles. The project was delivered on time, within budget, and achieved an outstanding safety record.



Excavation in the Utilidor at fingers 8 and 9



Installed foundation piles influenced the sheet pile clamping technique