

BMO Field Expansion

Toronto, Ontario, Canada

A significant amount of planning and input by Keller accelerated the construction schedule, satisfied the design requirements, and mitigated potential risks associated with existing buried and above-grade infrastructure.



The project

Renovation of BMO Field, an outdoor stadium located on the shores of Lake Ontario in Toronto, Canada, included an 8,400-seat expansion, significant upgrades to the hospitality zones, and twin canopies that provide cover to the east and west grandstands.

The challenge

While construction of foundations for the east grandstand was straight-forward – large-diameter drilled shafts bearing on the rock approximately 6 m below existing grade – design and construction of foundations for the west canopy was considerably more involved, primarily due to the presence of an existing, multi-million-dollar SubAir system crowding the footprint of the new foundations. Access restrictions from existing floor plans, small footprint, low headroom, and multiple buried services resulted in major foundation constructibility challenges.

The solution

An engineered excavation support system consisting of micropile soldier piles and lagging in lieu of standard driven piles allowed seamless relocation of underground utility services away from the trajectory of micropiles and expedited the construction of pile caps and grade beams, an important step in achieving the schedule goals of the general contractor. To support the columns for the west canopy, high capacity micropiles with the ability to withstand factored loads per micropile as high as 3000 kN in axial tension and 4000 kN in axial compression were installed from temporary suspended platforms with top-of-plate elevation coincident with the finished floor. Each micropile was permanently cased and socketed a minimum of 0.3 m into sound shale bedrock, with bundled-bar central reinforcing extending the full depth of pile.

Project facts

Owner(s)

Maple Leaf Sports & Entertainment Ltd. (MLSE)

Keller business unit(s)

Keller

Main contractor(s)

PCL Constructors Canada Inc.

Engineer(s)

Keller

Solutions

Deep foundations
Support of excavation

Markets

Institutional
Sports and entertainment

Techniques

Micropiles
Soldier piles and lagging

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