



WINNIPEG ART GALERY [WAG] INUIT ART EXHIBITION

Design and Build of Shoring, Installation of Precast Driven Piles

CANADA



Owner

The Winnipeg Art Gallery

Engineer

Topping Engineering Ltd.

General contractor

PCL Constructors Canada INC

Period of works

June 2018-August 2018

Main figures

Steel driven piles

Installation of 36 steel soldier piles for 340sq meters of temporary shoring.



Project description

General contractor PCL contracted Soletanche Bachy Canada to complete the temporary shoring and foundation work for the Winnipeg Art Gallery's Inuit Art Gallery expansion project. This involved the shoring excavation of an approximately 35 m by 25m x 5 m to install 114 prestressed precast concrete piles in the basement area, and 55 piles at existing grade. The site was situated in a very tight urban area next to the existing art gallery, limiting access.

Ground conditions

Sand Fill to 3m

Clay; silty, firm to soft, high plasticity, brown/grey to 6.5m

Clay; firm, high plasticity, brown/grey, trace till, sand, and gravel inclusions to 12m

Clay; silty, stiff to firm to soft to 13.5m

Silt Till; moist, compact to 14.5m

Bedrock; Red River Formation dolomitic mudstone, strong to very strong, below 14.5m

Solution

SB Canada mobilized a Watson 1100 Drill Rig to install shoring soldier piles, which were set in concrete. To prevent damage to the shoring wall, all 55 piles located outside of the excavation area were driven before mechanical excavation began.

Two excavators were used to mechanically excavate the basement area. After excavation two cranes were used to place and drive the remaining prestressed precast concrete piles in the excavation area.

The shoring wall was monitored daily for movement to ensure the safety of all workers present within the excavation.

Driven piles were cut using a mechanical pile cutter then backfilled to allow for more space within the working areas prior to eventual capping.

