CHANCE®

UNDERPINNING ANCHORING REPORT

A CASE HISTORY

Project:
Central Secondary School
London, Ontario

Geotechnical Investigation:
Golder Associates
London, Ontario

Consultant:
M.D. Morham Engineering, Inc.
London, Ontario

General Contractor:
EBS Engineering & Construction
Breslau, Ontario

Job Description:

The London Secondary School, originally constructed in 1922, required additional space. The existing boiler house was to be extended along with another level added above the entire boiler house. The existing walls did not indicate any evidence of significant settlement, cracking or other foundation-related distress in the areas examined. Results from boreholes and test pits indicated the existing west wall was founded on loose sand that was not capable of supporting the proposed increase in bearing pressure.

Repair:

A HELICAL PIER® Foundation Systems anchor was designed to increase the capacity of the existing foundation for the boiler room wall as well as support interior columns. This system was considerably less disruptive than traditional underpinning panels.

Each Type SS5 anchor consisted of a two helix (8- and 10-inch diameters) lead section followed by 5-foot extensions and, finally, a foundation-repair bracket. Installation depth varied from 7 to 22 feet. Once installed, the anchors transferred the additional load placed on the walls down through the loose fill and into the native fine to medium sand below. (Installation torque was monitored to ensure capacity.) All anchors were installed from inside the building using portable equipment. This required working around other column foundations as well as limited working space; however, the need for extensive shoring to expose the footing was no longer required. Anchors were preloaded to 75 per cent of the design load.

The proposed south building addition was to be founded on conventional spread or strip footings bearing on native, undisturbed sand. With the recently gained experience, it was decided that screw anchors with the new construction bracket would support the addition. This also eliminated any potential undermining of the existing building footing.

The cost of using this system was significantly less than other underpinning methods.