



GEO-FOUNDATIONS Contractors Inc.

UWO Modular Animal Care



Date: 2003

Technology: Anchored Shotcrete

The University of Western Ontario's new animal research facility is a 5,000 square metre, 2-storey structure built into the side of a hill. The building's construction was made possible by a 6-metre high, 600 square metre face permanent anchored shotcrete wall constructed by Geo-Foundations. This project was unique in many ways, featuring back-wall chimney drains for permanent draw down of hydrostatic pressures, and 100-year design life soil anchors. Unlike the vast majority of buried building walls, where temporary shoring allows the safe construction of a buried wall until the time that the wall can itself, in conjunction with interior walls and slabs, withstand imparted earth pressures, this building's buried south wall relies on the capacity of its permanent soil anchors to resist all earth pressures.

Geo-Foundations' crew began this project in early August with the installation of permanent inclinometers and test nails for pre-production verification of soil anchor design parameters. Three hundred soil anchors, varying in embedment from 6 to 15 metres and all proof tensioned, were installed in highly varied stratigraphy ranging from very dense till to medium, water-bearing sand. This project was Geo-Foundations' first permanent anchored shotcrete wall installation.



Completed anchored shotcrete wall with waterproofing and studded plates



Versatile drill rig constructing soil anchors in tight quarters at southwest corner



West wall cut beginning to take form