SHELBY MACOMB MEDICAL MALL • Shelby Township, Michigan

CHALLENGES

- Soft clays at foundation bearing elevations and deeper (42- to 47-feet) deposit of soft clay
- High groundwater table made basement excavation difficult

SOLUTIONS

- Design a foundation with auger-cast piles extending through upper soft soils and bearing at a suitable depth above deeper soft clay
- Recommend clay dike to seal off groundwater into basement excavation

SERVICES

- Geotechnical engineering
- Foundation design
- Construction engineering services

G2 designs deep auger-cast foundation for new medical mall

An extensive foundation designed by G2 Consulting Group made it possible to build the newly opened 160,000-square-foot Shelby Macomb Medical Mall on a highly visible site with soft blue clay soils in Shelby Township, Mich.

The less-than-ideal soils required a deeper, sturdier foundation system than normal for the building, which is three stories with a full basement. G2 designed a foundation that used 325 auger-cast piles extending 20 feet below the basement – at least 18 feet deeper than a typical foundation for this kind of structure. A standard foundation for a building like this would extend around one to two feet below the foundation in more stable soils.

The 24-inch diameter piles were created by drilling holes down to the hardpan – very dense soils above the bedrock – and pumping grout into each hole as the drilling auger was pulled out. Spaced about six feet apart, these auger-cast piles are topped with pile caps, which support the grade beams of concrete reinforced with steel bars. The grade beams form a grid on which the basement was built.

G2 also provided geotechnical and construction engineering services for the building, located at the corner of 23 Mile and Schoenherr roads.