



Courtyards Student Housing • Ann Arbor, Michigan

CHALLENGES

- Very narrow, long site with limited access to construction site
- Tight schedule required access road to be built next to and at the same time as the foundation for underground two-story parking structure
- Loose granular soils on part of property

SOLUTIONS

- Design a creative earth retention system that allowed safe and simultaneous construction of asphalt access road alongside parking structure foundation.
- Geotechnical investigations to pinpoint location of poor soils
- Design building foundation that significantly reduced construction costs by using shallower footings bearing on acceptable soil and deeper footings on poor soil

SERVICES

- Geotechnical engineering
- Earth retention system design
- Construction engineering services

G2 streamlines construction of Ann Arbor student apartments

G2 Consulting Group provided geotechnical investigations, creative earth retention system design and construction engineering services to help streamline construction of new off-campus student apartments on a very tight site in Ann Arbor, Mich.

The Courtyards student housing includes three four-story buildings with 896 beds adjacent to the University of Michigan's north campus. Fitting all three buildings on the long, narrow site presented several challenges for owner Allen & O'Hara Development Company, architect Neumann/Smith, general contractor T.H. Marsh and grading contractor Sunset Excavating.

Because access exists only from the property's narrow north and south sides, crews needed to construct an asphalt access road along the length of the property to reach all parts of the site. Meeting the developer's schedule meant building the access road and the structures at the same time – including a two-story underground parking structure beneath the north building. G2 designed an earth retention system to allow the road to be built alongside the parking structure foundation, so construction of both could proceed simultaneously and safely.

Loose, granular soils on the property's north end, revealed by G2's early geotechnical investigations, posed another issue. With a supplemental geotechnical investigation, G2 pinpointed the location of the poor soils under the north half of the north building's footprint, but found acceptable soils under the building's south half. G2 reduced the building's foundation construction cost significantly by recommending a foundation design that incorporated two different bearing capacities, using shallower footings bearing on the good soil and deeper footings on the poor soil.

G2's initial contributions and intimate knowledge of the site and construction plans led the development team to enlist G2's construction engineering services for the remainder of the job. A G2 field engineering technician at the site each day kept work running smoothly and assured that construction operations were performed according to plans and specifications.