

One Park Drive Building and Parking Garage

Research Triangle Park, Durham, NC



Project Description: The subsurface conditions at the site for a new four-story office building and two-story parking garage in Durham consisted of stiff residual sandy silts. The depth to partially weathered rock (PWR), which consisted of Triassic shale, varied from 3 to 25 feet across the site. Short caissons were initially proposed since the differential settlement of conventional spread footings would be excessive. The General Contractor and Geotechnical Engineer explored a Geopier alternative that would eliminate the differential settlement. The Geopier alternate cost about the same as the caissons but saved time over the caisson alternative. Since rock was shallow all the footing settlement would occur in the Geopier elements. Therefore the Geopier supported footings were able to be designed using an allowable bearing pressure of 10,000 psf and differential settlement was limited to less than ½ inch. Column loads for the two structures ranged from 160 to 500 kips. A total of 142 Geopier elements were installed to control settlement and 6 uplift anchors grouted into the rock were used to control uplift due to wind loading. The Geopier installation was successfully completed in May 1999.

THE GEOPIER ADVANTAGE

- Geopier Foundations saved construction time when compared to short caissons
- Geopier Foundations minimized differential settlement for footings on rock and soil
- Geopier elements provided allowable bearing pressure for footings up to 10,000 psf

Contractor: Bovis Construction Company, Raleigh, NC

Architect: Envirotek, Inc., Raleigh, NC

Structural Engineer: Morrison Sullivan Engineers, Raleigh, NC

Geotechnical Engineer: GeoTechnologies, Inc., Raleigh, NC