

Salem State College Residence Hall Salem, Massachusetts



Description: Construction of a 3 to 4 story residence hall with a 54,000 square foot footprint. Typical exterior column loads ranged from 50 to 85 kips while interior column loads ranged from 160 to 285 kips.

Subsurface Conditions: A 5 to 10 ft. thick layer of granular rubble fill was underlain by a 2 to 3 ft. thick deposit of stiff organic silt and fibrous peat over 15 to 30 ft. of marine clay. The upper clay was stiff to very stiff while the lower portion was soft, fat clay. Groundwater was noted at depths of 6 to 7 feet.

Design Details: A Geopier® soil reinforcement system was developed using 638 piers to support strip perimeter wall and interior footings at a bearing pressure of 6 ksf. Footing support piers were installed through the fill and organics, terminating 6 feet into the stiff clay providing load distribution without overstressing the clay or developing tip stresses in the piers. The resulting design effectively limited the volume of fill to be removed, precluded general excavation below groundwater level, and permitted the rapid excavation and construction of strip footings that kept the project on its aggressive construction schedule.

Geopier Licensee: Helical Drilling, Inc. - Braintree, MA

General Contractor: Dimeo Construction - Providence, RI

Owner: Massachusetts State College Building Authority - Boston, MA

Geotechnical Engineer: Haley & Aldrich, Inc. - Boston, MA

Structural Engineer: Odeh Engineers, Inc. - North Providence, RI

Architect: Bergmeyer Associates, Inc. - Boston, MA

Reference: Mr. Joel Mooney, Haley & Aldrich, Inc. (617) 886-7400

Mr. Craig Bolton, Dimeo Construction (401) 781-9800

Mr. Darryl Filippi, Bergmeyer Associates, Inc. (617) 542-1025