

Shaw's Supermarket New Bedford, Massachusetts



Description: Site grade was raised approximately 6 feet to construct a 70,000 SF, 1-story supermarket and loading dock area and an adjoining 7500 SF retail building at the site of a former mill building. Typical interior column loads ranged from 35 to 183 kips with perimeter foundation walls and combination foundation/retaining walls bearing at 2 to 7.2 KLF. Floor loading ranged from 150 to 250 psf.

Subsurface Conditions: A discontinuous layer of very soft to medium stiff, fibrous peat and organic silt up to 9 ft thick was encountered beneath a 3 to 14 ft. layer of variable "Urban Fill". Beneath these compressible organic deposits was a thick layer of medium dense to dense outwash sand and gravel. Groundwater was encountered at 7 feet below grade.

Design Details: As an alternative to over excavation/replacement or timber piles and a structural floor slab, *Geopier*[®] soil reinforcement was selected to limit post-construction building settlement to less than 1 inch in the compressible organic soils. A total of 1469 *Geopier* elements were installed to support spread footings bearing at 3.5 KSF and a slab-on-grade floor bearing on the pier supported compacted fill. In addition to providing cost effective foundation support, the piers, each constructed with open-graded stone, served as radial drains to quickly dissipate the excess pore pressure developed in the organic soils in response to fill placement. Optical survey data obtained from settlement platforms installed immediately prior to fill placement indicated that primary consolidation of the organic deposits was completed in less than 3 weeks permitting staged construction to proceed rapidly to maintain an aggressive project construction schedule.

Geopier Licensee: Helical Drilling Inc., Braintree, MA

Owner: Shaw's Supermarkets, Inc., East Bridgewater, MA

Developer: Tedeschi Realty Corporation, Rockland, MA

Geotechnical Engineer: Jaworski Geotech, Inc., Manchester, NH

Structural Engineer: Cubellis Associates, Inc., Boston, MA

References: Charlie Heath, Shaw's Supermarkets, Inc. - (508) 894-7000
Larry Dwyer, Jaworski Geotech, Inc. - (603) 647-9700