



## River's Edge Residence and Parking Garage

Medford, MA

**The Geopier solution was selected to provide high bearing pressure and settlement control for a large residential building and parking structure.**

**Description:** The project consisted of a 5-story residential building with slab-on-grade parking at ground level connected to an adjacent 4-level parking garage.

**Subsurface Conditions:** Soil conditions consisted of up to 15 feet of granular fill, underlain by up to 12 feet of organic soils and 2 to 12 feet of fluvial sand deposits. A thick deposit of marine clay was encountered beneath the sand deposits. As typical in the Boston area, the marine clay had a stiff, upper desiccated "crust" and became soft with depth. The soft marine clay was generally about 60-feet-thick and underlain by relatively dense glacial till and bedrock. Groundwater was encountered at a depth of about 4.5 feet below grade.

**Geopier Solution:** Geopier ground improvement was recommended by the geotechnical engineer and general contractor as a cost-savings alternative to overexcavation. The Geopier [Impact® Rammed Aggregate Pier® \(RAP\) system](#) was installed to provide support to the floor slabs. Column and wall footings were supported by 16-inch-diameter [GeoConcrete® Columns \(GCCs\)](#) to limit total post-construction settlement to less than 1-inch and to provide a



maximum allowable bearing pressure of 6,000 to 9,000 pounds per square foot (psf). Included in Geopier's design was a structural fill pad located beneath footings to help transfer foundation stresses to the GCCs and the matrix soils, which also served to provide a stable subgrade for footing construction. Over 2,000 GCCs and 500 RAPs were installed within 40 days. Prior to production, a full-scale field modulus test confirmed a stiffness of 2,000 pci for the GCCs at a pier design stress of 55 ksf.

[Watch project installation](#)

### PROJECT TEAM

**Owner:**

Criterion Development Partners

**Geotechnical Engineer:**

Haley and Aldrich, Inc.

**Structural Engineer:**

JML Engineering

**General Contractor:**

Callahan, Inc.

**Geopier Designer:**

Design/Build Geotechnical, LLC

**Geopier Installer:**

Helical Drilling, Inc.