

1801 L Street Mixed Use
18th & L Street
Sacramento, CA



- Four levels of apartments over below-grade parking and storefront retail
- “Green Building Construction” using recycled concrete in the Geopier Foundation System
- Low installation vibrations at this downtown construction project reduced neighbor disturbance
- A cost effective solution that saves time and replaced “noisy” driven concrete piles

Project Description: New construction of a 5-story retail and residential apartments building in downtown Sacramento, CA. Construction consists of 4-stories of wood frame over a 1-story steel and concrete parking garage.

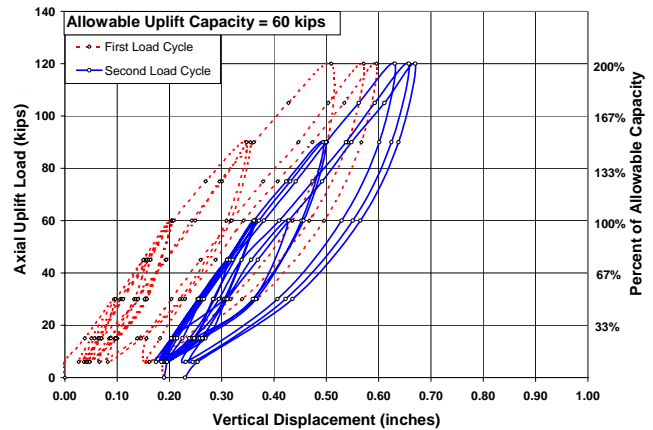
Subsurface Conditions: Loose sandy silt and soft silty clay extend 25 feet below site grades and are underlain by inter-bedded, dense, alluvial, silty sand, stiff clay, and sandy gravel layers. SPT “n-values” ranged from 2 to 5 blows per foot in the upper sandy silt and silty clay soil. Ground water was encountered about 18 feet below pad grade.

Design Details: Geopier® rammed aggregate piers (RAP) were selected as a cost-effective alternate to 35 foot long driven pre-cast concrete piles. Geopier elements, installed to support high bearing capacity spread footings and perimeter shear walls, increased the allowable bearing capacity from 1,500 psf to 6,500 psf. Geopier elements equipped with high-grade steel anchors were used to control seismic overturning forces at the shearwalls.

Full-scale load tests showed a Geopier bearing stiffness modulus of 1,269 pci for one 30-inch diameter by 12 foot long Geopier bearing element. Full scale uplift load tests showed an allowable uplift capacity of 60 kips for one 33-inch diameter by 15 foot long Geopier uplift element with a factor of safety greater than 2.

Cyclic test circuits (11 cycles each) were performed to measure cyclical behavior of the Geopier uplift elements under repeated “over-stress load cycles” after two distinct test events. The cyclic uplift tests showed repeatable linear behavior with less than ¼ inch permanent plastic deflection after 2 complete full-scale test events.

Cyclic Load Testing: 33-inch by 15-foot deep Geopier Uplift Element



Project Team:

- Sundt Construction Inc. - Northern CA
- Kuchman Architects
- Point 2 Structural Engineers, Inc.
- Wallace-Kuhl & Associates, Inc.
- Farrell Design-Build Companies, Inc.

Geopier soil reinforcement for high bearing capacity spread footings with Geopier uplift elements have been used throughout California and the United States. For more information regarding Geopier and its use please contact Tom Farrell at (530) 621-4867 or visit us at www.farrellinc.com/gp1.

Build your next project on a Rock Solid Foundation ... Build it on GEOPIER®!