



Park Summit Apartments

St. Louis Park, Minnesota

The Geopier Densipact® system provides cost-effective, verifiable ground improvement to deliver site designed with high bearing pressures

Description: Plans for an 11-story, 56,000 square foot apartment building with below ground parking and street level retail space in St. Louis Park, Minnesota. The design featured column loads up to 2,100 kips and wall loads up to 100 klf in the elevator core. Foundations were designed with improved bearing pressures up to 14,000 psf. Design pressures of up to 6 ksf at retaining walls were also included.

Subsurface Conditions: Soil conditions at the site consisted of loose to medium dense sand to 70 feet with some silt seams.

Geotechnical Challenge: A high allowable bearing pressure (14,000 psf) was required to make a shallow foundation design feasible and economical. Loads were significant in some areas, such as elevator core, requiring tightly spaced compaction points to achieve the high design pressures.

Geopier Solution: Vibrocompaction was considered for this project, but ultimately, the Geopier Densipact® system was selected as the best solution for ground improvement. The Densipact® system was designed to provide densification of upper sands. The project relied on close oversight and cooperation with project team to utilize real time CPT verification test data to



establish and adjust installation procedures to maximize improvement, especially for near surface soils where confinement was limited. The site was terraced at different working elevations, to improve performance and constructibility of the Rammed Compaction® Points (RCPs). Shallow supplemental RCP's were performed to enhance near surface improvement in elevator core. 504 Rammed Compaction® points were installed in eleven days, to complete the soil densification.

PROJECT TEAM

Geotechnical Engineer:

Braun Intertec

Structural Engineer:

Pierce Engineers

General Contractor:

Stevens Construction

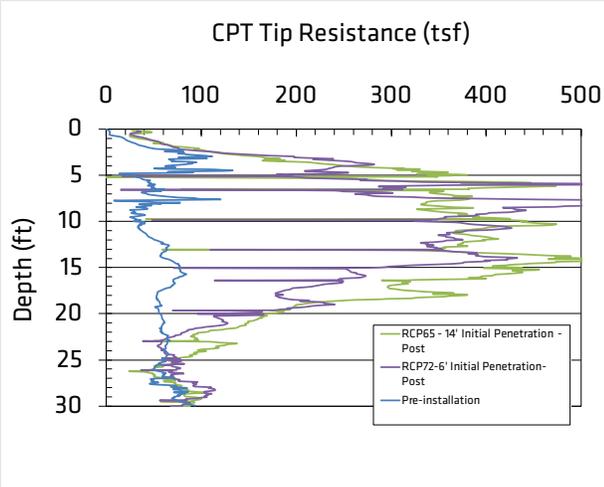
Geopier Designer:

Ground Improvement Engineering

Geopier Installer:

Peterson Contractors, Inc.

DESIGN VERIFICATION



Performance: The effectiveness of the Densipact® system was verified by performing Cone Penetration Tests (CPTs) before and after installation. The results of the post-installation CPTs indicate that the loose sand strata was effectively densified, attaining tip resistance values of over 300 tsf after densification.



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