



PREPA Power Plant

Mayaguez, Puerto Rico

The Geopier Impact® system was chosen to provide superior mat and footing settlement control, while also reducing the potential for liquefaction

Description: Improvements to existing power plant by providing mat foundation support for three different projects - two 500,000 gallon, 47-foot diameter steel tanks with static and transient pressures of 2.5 ksf and 5.14 ksf, respectively; 1,250 square foot transformers with static and transient conditions of 1.5 ksf and 2.1 ksf, respectively; and two, 6,600 square foot gas turbine units with static and transient conditions of 0.61 ksf and 0.74 ksf, respectively.

Subsurface Conditions: Subsurface conditions in the tank and transformer area consist of stiff clay fill underlain by loose to medium dense silty sand or soft clay over weathered rock to 30 feet. Subsurface conditions in the gas turbine area consist of loose sand fill underlain by loose silty sand or soft clayey silt over weathered rock to 50 feet. Groundwater was encountered between 5 and 10 feet.

Geopier Solution: The Geopier Impact® system was chosen to provide superior mat and footing settlement control. This system was also chosen to reduce the potential for liquefaction if an earthquake with design magnitude of 7.5 and peak ground acceleration of 0.30g occurred. A total of 878 Impact Pier elements were



installed in 15 days to a depth of 18 feet to control total and differential settlement to 1" and 1/2" respectively, and to provide significantly greater liquefaction mitigation protection.



PROJECT TEAM

Owner:

Puerto Rico Electrical Power Authority

Geotechnical Engineer:

Metropolitan Soils

Structural Engineer:

Loomis & Loomis

General Contractor:

Bates Engineers/Contractors Inc.

Geopier Installer:

MR Drilling Corp.

Geopier Designer:

GFC-Puerto Rico