



BP Firewater Tank

Forest View, Illinois

The Geopier Armorpack® system allowed for a cost effective solution for supporting BP's firewater tank in clay and organic soils.

Description: The project consisted of the construction of a Fire Water Tank 59 feet in diameter supported on a concrete mat. The tank exerted contact pressures of 2000 psf.

Subsurface Conditions: The soil conditions for this project consisted of 2 to 4 feet of crushed stone fill underlain by 5 to 6 feet of silty clay fill. The fill materials were underlain by organic clays, extending 13 to 15 feet below existing grade. Stiff to hard silty clays underlie the organic deposits and extend to the top of rock which was encountered about 47 feet below existing grade.

Geopier Solution: The concrete mat for the tank was supported on 104 Armorpack elements with 15 foot shells, extending up to 18 feet below existing grade. A modulus load test was performed on a non-production Armorpack element. The design top of



element stress was 23,000 psf which corresponded to a design load of 72.3 kips. The load test results indicated a deflection of 1.42 inches at 100 percent of the top of Geopier stress which was less than the 3 inches allowed per the design requirements.

PROJECT TEAM

Geotechnical Engineer:

Patrick Engineering, Inc.

Structural Engineer:

INGENII, Inc.

General Contractor:

BP

Geopier Designer:

Geopier Foundations

Geopier Installer:

Foundation Service Corporation

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