Supportworks

CASE STUDY Commercial

Model 288 Helical Piles

Project: Warehouse Construction
Location: Red Bud, Illinois
Date: December 2016

Installing battered lead section

Challenge:

A local automotive parts distributor planned to have a new 113,000-square foot distribution warehouse built. The proposed metal building would include 20 structural column locations. The general soil profile at the site was known to consist of 12 to 15 feet of marginal surficial soils, underlain by consistently competent bearing materials (N-values ≥ 40 bpf).

Adding extension

Solution:

Helical piles were selected to support the proposed columns by transferring the column loads to the deep competent bearing soils. Each column would be supported by a pair of helical piles cast within column spread footings (pile caps). The helical pile configuration consisted of the Model 288 (2.875-inch O.D. by 0.276-inch wall) hollow round shaft with a 10”-12” double-helix lead section to support a service load of 22 kips per pile.

Prior to installation, a load test was performed to verify installation torque and the chosen helix plate configuration. Based on the test pile performance, the project engineer approved a minimum safety factor of 1.5 times the specified design working load. The production piles were therefore installed to achieve torque-correlated ultimate capacities of at least 34 kips. Each helical pile was installed at a 10-degree vertical batter away from the proposed column. The installed helical piles were fitted with new construction caps and cast within the individual column footings. All helical pile components were hot-dip galvanized for corrosion protection. Despite encountering heavy rains, the helical pile installation was completed ahead of schedule; all forty piles were installed and capped in just one day.

Helical piles installed to specified elevation

Project Summary

Architect: Quadrant Design, Inc.
Structural Engineer: Kreher Engineering, Inc.
Geotechnical Engineer: Holcomb Foundation Engineering Company
General Contractor: IMPACT Strategies
Certified Pile Installer: Foundation Supportworks® by Woods
Products Installed: (40) Foundation Supportworks® HP288 Helical Piles, 10”-12” Lead Section, Design Working Load of 22 kips

Installed piles fitted with new construction brackets to be cast within reinforced pile cap