PROJECT CASE STUDY

Location: Beverly Shores, Indiana
Engineer: Spaulding Engineering Group
Completed: December 2010

Description

A sloughing sand dune along Lake Michigan presented increased risk of the home incrementally sliding as a result of failing foundation walls supporting the exterior pool. These thickened concrete foundation walls supported the pool on all sides and were intended to serve as retention for the home.

Requirements & Challenges

The home is situated on the crest of protected dune land, which meant DEQ permitting. Wild dune grass was to be preserved, which further limited the allowable work area. Wind gusts directly off Lake Michigan would pose a challenge when working with loose aggregates. The pool foundation walls would need to be stabilized to prevent movement, including the construction of a large retaining wall at the top of the dune. The pool also had a steel I-beam cage running under and around its foundation walls.

Solution

Spaulding and 3D Structural designed a plan to underpin dune-facing side of the pool foundation and steel cage with A.B. Chance SS5 Helical piers, which included a 4” vertical lift.

Once the pool structure was leveled and stabilized, a 90’x8’ retaining wall was constructed at distance of 8’ from the pool foundation. The wall was laterally stabilized with 28 A.B. Chance Helical tieback anchors at both the base of the wall and at 6’ above grade. Using a telebelt conveyer system across a 150’ span, an additional 300CY of sand was added to the backside of the wall for additional support of the pool and home structures.

Results

The project was completed in 10 working days with no additional costs over the initial quote. Nearly 4 years after installation, the wall and pool foundation show no signs of lateral deflection or vertical settlement.

3D STRUCTURAL
20115 Jackson Rd.
South Bend, IN 46614
574-291-0771
888-321-7522
3dstructural.com

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