

## Model HP288 Helical Piles

**Project:** *New Pool Deck and Retaining Wall*  
**Location:** *Cape Coral, FL*  
**Date:** *July 2016*

### Challenge:

A CMU-block retaining wall at Schooner Cove Condominiums ran along a canal seawall to support a section of elevated pool deck. Significant cracking and movement of the wall were observed over time. The owners opted for a more permanent repair solution and decided to have the retaining wall and connected pool deck replaced. The proposed retaining wall would run 54 feet along the adjacent seawall and return 14 feet at each end to support the new pool deck.

A geotechnical investigation identified very loose to loose sand extending several feet below the footing elevation of the failing wall. The weak soils observed prompted the need for deep foundation support of the proposed retaining wall; however, limited access to the work area due to the adjacent canal prevented conventional deep foundation installation equipment.

### Solution:

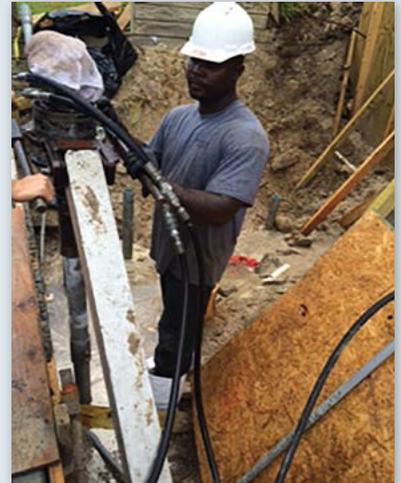
Helical piles proved to be the ideal deep foundation solution given the difficult installation conditions. Helical piles can be installed using handheld installation equipment powered by a remote hydraulic source. The deep foundation design included twenty-one (21) Model 288 (2.875-inch OD by 0.276-inch wall) round shaft helical piles with 10"-12" double-helix lead sections to support a design working load of 10 kips per pile. The helical piles were installed to torque-correlated ultimate capacities of at least twice the design working load (FOS  $\geq$  2). The installed piles were then fitted with new construction brackets to be cast within the poured concrete grade beam to support the proposed CMU-block retaining wall. The pile sections and brackets were hot-dip galvanized for corrosion protection. Despite limited access and tight working conditions, the helical piles were installed within three days.

## Project Summary

**Structural Engineer:** *Arnold/Sanders Consulting Engineers, Inc.*  
**Geotechnical Engineer:** *Velocity Engineering Services, LLC*  
**General Contractor:** *Orion Contracting West Coast*  
**Certified Pile Installer:** *N Square, Inc.*  
**Products Installed:** *(21) Foundation Supportworks HP288 Helical Piles, 10"-12" Helix Plate Configuration, Design Working Compression Load of 10 kips, Installed Depths from 12.5 to 14.5 feet Below Top of Seawall*



Original retaining wall and pool deck removed



Installing helical piles with handheld equipment



Piles installed and fitted with new construction brackets



New retaining wall supported by helical piles