

Concrete Lifting

Magnum Helix Piers

CASE HISTORY

Project

On a much-cherished Island in the heart of Virginia Beach, a custom residence was showing signs of settlement. Engineers were called to evaluate the problems.

- Geotechnical Engineer – Herbert and Associates
- Structural Engineer – Donald Coghlan P.C.

Job Description

During construction of the building the intermediate pilings and grade beams called for on the structural drawings were excluded. The floating pier and footings that were installed had settlement of as much as 6". In addition, the right front corner of the house and masonry fireplace had 1" of settlement. A soils investigation showed that organic peat materials existed down to a depth of 8' below grade. This home was built on a crawl space with a height of 36".

Solution - Magnum Helix Piers

Crawl Space Piering

The contractor proposed the installation of modified 60 Kip Magnum Standard duty Helix piers to replace the failed footings and piers. The helix piers were manufactured to 24" lengths with a 12" flight to allow installation in the low crawl space. Each girder line required 5 helix piers with an ultimate capacity of 16 Kips and a working capacity of 8 Kips. Average pier depths were 14' below grade. After installation, 60 Kip wall pier caps were installed with a 12" diameter cast in place pier cap to the new 6"X10" laminated girder. After concrete placement and a curing period, the interior was lifted and loaded onto the piers, then shimmed to correct the floor beam deflections.

Exterior Piering

Due to the affected area being supported on wood pilings with grade beams, a decision was made to stabilize this area with 6 Magnum Standard Duty Helix piers. Each pier section was a standard 5' length, galvanized, with a 10" and 12" diameter flight. Each had dual cutting edges with moment-balanced blades for cutting through debris and to lesson wobble during installation. The result was an average pier depth of 13' with an ultimate capacity of 38 kips and a working capacity of 19 kips.

