

## CASE STUDY *Beyond Repair: JES Provides Structural Solutions for Veteran's Sinking Home*

A soon-to-be-retired veteran had run out of options for salvaging his sinking house. His hopes of enjoying some much-deserved downtime after 31 years in the Navy were dissipated when the City found his house to be structurally unsafe. The Building Inspection Report recommended "demolition of the home," further adding to his woes. Forced to move out, he could not afford the extensive structural work necessary to improve the property's condition. He decided to share his seemingly insurmountable situation on a local news program. His story caught the attention of JES owners, Jesse and Stella Waltz, who were watching the special news report that evening. The Waltzes quickly sprang into action to help save his sinking home and assembled a team of partners that included engineers, an international manufacturer, the original homebuilders and the City. The coalition donated labor and materials and worked together to perform the structural and cosmetic repairs needed to restore his residence.

### The Challenge

For over 20 years, the weak bearing capacity of the soils underneath the home allowed for severe settlement (the front of the house was 18 inches lower than the back). A soil report commissioned by the homeowner's insurance company, confirmed the lot on which the house was built had not been adequately prepared to support the structure. Stair-step cracking on bricks, cracked walls and the cracked concrete driveway at the home corroborated the report's findings. After JES engineers performed an inspection, they recommended a foundation piercing system to hydraulically lift the structure and polyurethane injections to raise the garage slab.

### The Solution

During their first day on the job, JES installed test piers and took pressure readings to determine anticipated depths and compare to the soil borings. Once the appropriate readings were ascertained, the footings around the house were prepared to receive the steel brackets for the piercing assembly. After the brackets were secured to the foundation's footings, JES installed the piercing system, which consisted of 42 Foundation Supportworks, Inc.® Slab Piers and 45 three-inch Foundation Supportworks, Inc.® Push Piers around the perimeter of the foundation to depths of more than 100 feet. Based on site conditions, JES deviated as necessary from the pre-identified pier locations to best suit the overall project. The piercing system successfully lifted the perimeter foundation back towards its original elevation. Over the course of seven hours, the house was lifted, with the most lift that occurred documented as 15 inches.

PolyLEVEL, a specially formulated high-density polymer, was injected beneath the interior concrete slab to fill voids created by the lifting operation and to raise the slab to former levels. The production team also completed masonry work on the concrete masonry unit foundation wall between the garage and the main house, and backfilling. Having secured the foundation and the structural integrity of the house, the City rescinded the Notice of Condemnation. The original contractor agreed to provide the cosmetic repairs caused by the foundation settling and the veteran was able to retain ownership of the house.



1. JES professionals survey the scene (L to R): Brad Hibbard, Gustavo Copado and Scott Davis, P.E. review pressure readings.

4. PolyLEVEL is used to fill gaps in the concrete slabs after the lifting operation.

2&3. Push piers are strategically placed around the perimeter of the foundation.

5. Due to severe settlement, an interior wall is separated from the floor.

6. After the foundation is lifted, the wall and floor are significantly closer.

#### JES PROJECT ENGINEERS

Jesse Waltz, P.E.  
Scott Davis, P.E.  
Dave Stinnette, P.E.

#### GENERAL CONTRACTOR

Ashdon Builders

#### PRODUCT MANUFACTURER

Foundation Supportworks, Inc.

## JES: MEET OUR PROFESSIONAL ENGINEERS

We're proud of our professional engineers – they help us stand out from other foundation repair companies. With professional engineers on staff, JES is able to better design lasting solutions for structural repair, new commercial, construction underpinning, waterproofing and moisture management projects.

JES engineers specialize in soil testing, geotechnical services, structural integrity testing and foundation design. With nearly 80 years of combined industry experience, our engineering team is fully prepared to identify and resolve a range of structural and moisture problems.

### **JESSE WALTZ, P.E.** *Owner & President*

Jesse Waltz is the owner and president of JES. Since earning his B.S. in Civil Engineering from Virginia Military Institute in 1985, Jesse has designed and implemented structural repair and new construction solutions for military, commercial and residential applications. Before founding JES in 1993, Jesse worked with the United States Navy. He oversaw all areas of construction including budgeting, administration of contracts, and construction management for commercial and residential structures on Navy property. After finishing his Navy contracts, Jesse founded JES Foundation Repair. JES is the mid-Atlantic region's leader in foundation repair, basement waterproofing and crawl space moisture management solutions. In order to streamline JES operations, optimize overall productivity, and improve efficiency, Jesse developed Bizwiz® - a single business management and workflow software used by over 200 contractors and home service companies across the country.

### **SCOTT DAVIS, P.E.** *Vice President*

Scott Davis received his B.S. in Civil Engineering from Old Dominion University, and is licensed in Virginia and Maryland. In his role as vice president, Scott oversees the construction operations. He works closely with customers and the team of professional inspectors to resolve structural problems. His expertise is critical to the successful installation of foundation stabilization solutions. Scott manages and approves all solutions for settlement problems and other structural and waterproofing issues. Throughout the installation, he reviews pressure readings and depths to ensure that the foundation stabilization solution is being installed safely, correctly and is properly supporting the foundation. Scott has designed cost-effective, permanent solutions for more than 10,000 commercial and residential projects. Before joining the JES team, Scott was a construction manager for the Naval Facilities Engineering Command.

### **DAVID STINETTE, P.E.** *Director of Engineering*

David Stinnette is JES Foundation Repairs' Director of Engineering. He's responsible for business development and engineering support on commercial foundation stabilization projects. David also develops and conducts professional Continuing Education (CE) seminars on foundation structural support systems for engineers and architects. After graduating from the Virginia Military Institute in 1985 with a B.S. in Civil Engineering, David served in the United States Navy for three years. After the Navy, he pursued a geotechnical engineering career in the civilian world. David has been practicing engineering since 1989. He has experience in geotechnical engineering and construction inspection. His expertise includes: subsurface investigations using borings, test pits and geophysical methods, site development evaluation and assessment, foundation design, roadway design, retaining wall design, dam design, slope stability evaluation and construction material testing.





# JES SEMINAR ATTENDEES RECEIVE A SWEET DEAL DURING NATIONAL ENGINEERS WEEK

Our commercial division conducted a series of presentations to engineers during National Engineers Week 2016. The week long celebration culminated in the presentation of a cake designed to resemble an official professional engineer stamp. At the close of our *Foundation Damage and Repair: Science and Techniques* seminar, JES employees, Scott Davis, P.E., George Frates and Dave Stinnette, P.E., surprised attendees with a buttercream-frosted chocolate cake from Sugar Plum Bakery, located in Virginia Beach.



From L to R: Scott Davis, P.E. - Vice President,  
George Frates - Hampton Roads Business Manager  
and Dave Stinnette, P.E. - Director of Engineering



Scott Davis, P.E. presents to a group of  
engineers during National Engineers Week.

*National Engineers Week recognizes the myriad ways engineers make a difference while reinforcing the importance of STEM education and careers. Established in 1951 by the National Society of Professional Engineers, it has evolved into a formal coalition of over 120 schools, community organizations, corporations, government agencies and engineering groups. This year, National Engineers Week was observed during February 22-28.*

## HELICAST™ GROUDED HELICAL PILE SYSTEM

Helical piles are factory-manufactured steel deep foundation elements used to penetrate weaker or otherwise unsuitable near-surface material for end-bearing within deep competent soils. The most common solid square and hollow round shaft sizes have outer dimensions generally less than five inches. These piles can be advanced with smaller installation equipment, yet can achieve torque-correlated allowable capacities up to about 65 kips. However, when slender helical piles are advanced through loose, soft, or fluid soils, buckling analyses are considered, which may result in either down-rating the pile capacity and requiring more piles, or upsizing to a larger shaft diameter that can support the design working loads.

The Helicast™ Grouted Helical Pile System generates capacity as a combination of end-bearing and skin friction and may be considered to address a buckling concern or for its other potential benefits.

### Design Considerations

Helicast piles consist of standard solid square shaft lead and extension sections with a lead displacement plate generally at the first coupler location, and extension displacement plates at each coupler location thereafter. The pile is advanced through a grout reservoir at the surface. The lead displacement plate pushes soil outward and away from the central shaft and allows specialty micropile grout from the reservoir to flow by gravity into the void being created. Extension displacement plates help to maintain the size and shape of the grout column as the pile is advanced.



### Helicast Advantages:

- Helicast piles can be advanced with smaller equipment in limited access areas. Installation is vibration free and does not generate spoils.
- The grout column surrounds the pile shaft to create a pile that is more resistant to buckling.
- The grout column offers additional corrosion protection in aggressive soil profiles.
- A grouted helical pile may develop capacity in marginal soil conditions where a standard end-bearing helical pile may not. There is additional "frictional" capacity at the grout/soil interface.
- Frictional piles typically deflect less than end-bearing piles for a given load.
- Where favorable soil conditions exist, a Helicast pile may achieve allowable capacities exceeding 100 kips, which may then be considered as an economical alternative to large diameter helical shaft sizes or other deep foundation options.

## NEED A SOLID SOLUTION?

Contact us for a free consultation: 1.877.537.9675



## JES SEMINAR COMING OCTOBER 2016

Increase your knowledge and strengthen your connections during our five-hour PDH/ LU/CE seminar. Stay tuned for details!

## ENGINEER HUMOR

If you are an optimist,  
the glass is half full.

If you are a pessimist,  
the glass is half empty.

To the engineer, the  
glass is twice as big  
as it needs to be.



## LET'S DO LUNCH!

Hungry for knowledge? As a registered continuing education provider with the Engineering Registered Continuing Education Program (RCEP), the American Institute of Architects (AIA) and their Continuing Education System, the American Society of Home Inspectors (ASHI) and the Virginia Association of Realtors (VAR), we provide free continuing education classes, seminars and “lunch & learns” to engineers, architects, home inspectors, real estate agents, property managers and insurance adjusters.

During our “lunch & learn” presentations, we educate the professional community about common commercial and residential foundation problems, crawl space design and moisture management issues as well as basement waterproofing. We delve into causes, symptoms and solutions while attendees enjoy a free lunch. For more information, contact Eric Lackey.

## CONTACT:

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