



RAMJACK[®]

2015 CASE STUDY

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**44 Ram Jack
Multi-Helix Piles
Installed with
Uninterrupted
Air Service**



RAM JACK LOCATION:

Ram Jack Foundation Repair - Jacksonville
www.floridaramjack.com | 877-726-6372
Jacksonville, FL

ORLANDO INTERNATIONAL AIRPORT

Orlando, FL

CASE STUDY 2015

Immediately following a Lunch and Learn presentation at a well-known Florida engineering firm, Ram Jack Foundation Repair was approached for remediation of a structure used as a taxiway bridge at the Orlando International Airport. The presentation contained a brief case study of a prior installation of helical piles for remediation of flood water control structures in fast moving waters. The case study piqued the interest of AVCON, Inc. representatives who recognized similar settlement in a box culvert at the airport.

PROBLEM

A large box culvert and abutment structure essential to flood water control at the Orlando International Airport, installed at least twenty years ago, experienced settlement over the past ten years. The settlement became evident in the overlying taxiway which would require permanent closure if remediation could not be achieved.

Soil boring data indicated low blow count soils not well suited for any shallow foundation solution. The engineers requested further consultation with Ram Jack to develop a permanent deep foundation for remediation and support of the large structure as well as the substantial live loads encountered during daily operations, often compounded by flood waters.

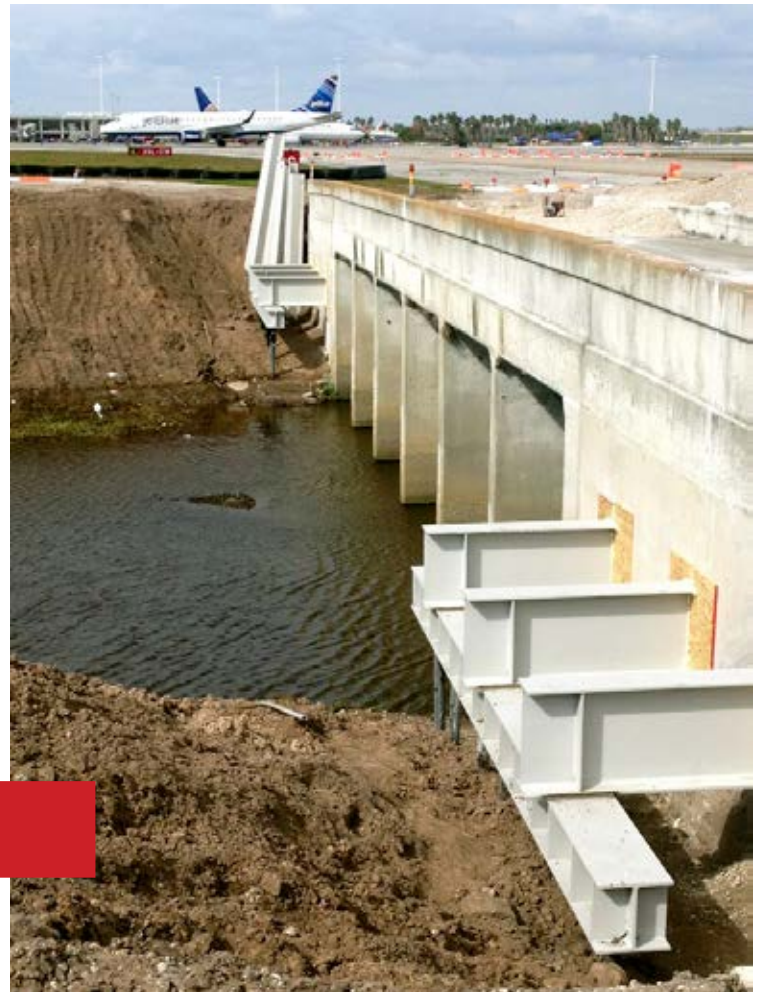


PROPOSED SOLUTION

The engineers ultimately agreed upon a deep foundation solution consisting of 44 Ram Jack helical piles, each configured in a 10"/12"/14" helix arrangement on a 3.5 in. diameter pile shaft. These piles were to be installed at a depth and torque appropriate for an ultimate capacity of 84.4 kips in axial compression. Ram Jack arrived on-site February 5, 2015 to begin installation of a load verification test pile in the area of anticipated work. The test pile was of the same 10"/12"/14" configuration on a 3.5 in. pile shaft. The test pile achieved target installation torque at an embedment depth of approximately 94 ft. Four reaction piles were also installed to facilitate a live load test of the pile. The following morning, successful tension and compression load tests were performed in the presence of the Parsons Brinkerhoff engineers and relevant airport personnel. Work commenced February 7 and progressed at the rate of approximately five completed pile installations per day. The powered equipment required for this installation consisted of one Takeuchi TB1140 excavator equipped with a Pro-Dig V55K drive head and Pro-Dig Intelli-Tork wireless monitoring system. Additional equipment included two Bobcat mini-excavators, used to facilitate preparatory soil work.

OUTCOME

Ram Jack Foundation Repair completed the installation in a 10-working-day period while contending with live airport operations in an extremely high security environment. Aircraft continued to operate uninterrupted at all times during work despite several challenges and frequent site visits by the various agencies involved. The diligence of a dedicated and professional crew resulted in an immediate reopening of the taxiway and permanent support of the culvert structures for all future operations.



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HELICAL PILE DESIGN SOFTWARE: FOUNDATION SOLUTIONS™

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- Simulate soil profiles, including peat
- Anchors with varying diameter and helix configurations
- Vertical/battered/tie-back pile design
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