LOADTEST
O-Cell® Technology in Augercast Piles

Placing a multi-level Assembly

LOADTEST has inserted and performed the deepest Osterberg cell (O-cell) bi-directional load tests in Augercast piles in Miami, FL. HJ Foundation, Inc. has successfully installed numerous Augercast piles, complete with Osterberg Cell's mounted in the cage for load testing on what are believed to be the largest and deepest Augercast piles constructed.

AUGERCAST test pile O-cell assembly ready for placement

Loadtest was engaged by HJ Foundation, Inc., a leading Augercast contractor, to test some world class foundations on separate projects in Miami, Florida. These projects required Augercast piles to depths exceeding 100 ft. and for working loads of approximately 850 tons.

A 2,000 ton Augercast Test set up

The ground conditions on these projects are typical for South Florida, comprised mainly of a thin deposit of fill, sand or shore deposits, followed by a soft oolitic limestone of the Miami Formation.

Beneath the oolitic limestone are layers of sand of varying density intermixed and inter-bedded with the soft sedimentary rock formations including limestones, sandstones, cemented sands and shells.

+2,000 Ton Augercast Test in progress

The O-cells and instrumentation were assembled into the reinforcing cages in preparation for insertion into the wet piles. Crane-mounted hydraulic Augercast drill rigs advanced the 100+ ft. and the piles were backfilled with a cementitious grout mix during auger extraction as usual. The grout mixes used had typical strengths of 55MPa, slumps with flow cone rates of 15 seconds employed and small sized aggregate.

The full length reinforcing steel cages with the O-cells affixed were lowered into the grouted holes. The O-cell and cage assembly slipped smoothly through the grout with minimal resistance. These are the deepest O-cells installed and used in Augercast piles.

In 2006, Loadtest performed its first multilevel O-cell installation and test on an Augercast pile. Cages were able to reach tip elevations without incident or difficulty and the O-cells were placed precisely at their predetermined elevation. Testing started after the grout reached the required 28-day strength. All of the piles proved to be robust with test loads exceeding ultimate design capacities on each of the projects. If the load tests had been performed by application of load at the pile head, stresses in excess of 5800 psi would have been required.

Representative Augercast Tests – Miami, FL

Pile dia. in	*O-cell dia. in*	*Pile Depth ft*	*Test Load tons*
24	*13*	*102*	*1349*
30	*16*	*125*	*2023*
30	*16*	*168*	*1349*
28	*21*	*121*	*2472*