A time for thanks

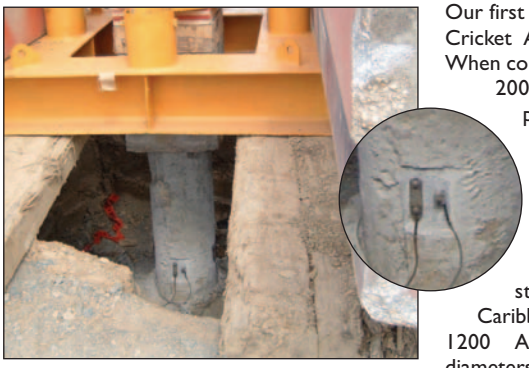
This year the United States celebrates the Thanksgiving holiday on November 23. This traditional American holiday is the perfect occasion for Pile Dynamics and GRL Engineers to extend their special thanks to all readers of this newsletter.

Continuous Flight – a tour of job sites

Edited by G.Beim from contributions from PDI customers and staff.

Auger Cast-In-Place (ACIP) piles are also known as Continuous Flight Auger Piles (CFA), describing the type of auger used in their installation. Indeed PDI technicians take frequent, if not continuous, flights around the world to install Pile Installation Recorders (PIR-A) on auger cast-in-place pile rigs. The PIR-A monitors the auger depth and torque during drilling as well as the pressure and incremental volume during grouting. Grout volumes are measured by a magnetic flow meter located in the grout line.

Many flights take PDI technicians to sites that are interesting from a technical point of view. Occasionally, they take them to sites that appeal to the general public as well. Please join us on a virtual tour of a selected few[1]:



Brian Lara Cricket Academy – dynamic load test on ACIP pile.

Our first stop is the Brian Lara Cricket Academy in Trinidad. When completed in December 2006, it will be the practice grounds for the upcoming World Cricket Tournament in March 2007, and will be among the largest Cricket stadiums in the Caribbean. It will rest on 1200 ACIP piles with diameters 457 mm and 610 mm (18" and 24"), and depths up to 20 m (66 ft). Simone Jardine of foundation contractor Gordon Winter Co Ltd. explained that ACIP piles were chosen due to the extremely hard consolidated clay on site. All piles were monitored with the PIR-A, that, according to Jardine, "proved to be an invaluable tool; particularly with respect to QC auditing and technical reviews, which by extension, saved QC personnel onsite. It was 100% reliable to the point where the torque per second was used as an indicative guide to clay hardness." At this site Geotech Associates Limited, under the direction of Ing. Andrew Budhram, performed 29 dynamic pile tests by dropping a 5.5 tonnes (12+ kips) ram up to 1.8 m (6 ft) onto the piles and measuring the response with a Pile Driving Analyzer®. CAPWAP® analyses, performed by GRL Engineers, yielded capacities of up to 3870 kN (870 kips) indicating that the piles had additional safety margins. Since correlation with 8 static load tests was excellent, the dynamic test results were used to optimize the foundation. Cricket fans can get ready to cheer next year in Trinidad.

From Trinidad, we move to the site of the expansion of the Los Angeles County Museum of Art in California, designed by renowned Italian architect Renzo Piano. Construction at this site continued without interruption despite the ongoing discovery of ancient fossils. The museum rests on the LeBrea deposit, composed of tar (or asphalt) so sticky that it has been entrapping thousands of animals and plants since the Ice Age. Fossils found during construction included saber tooth tigers, turtles and falcons, all dating to the last Ice Age. The foundation for the museum expansion consists of 125 ACIP piles with diameter 610 mm (24"), and lengths up to 18 m (60 ft). Shoring Engineers of Santa Fe Springs, CA, installed the piles with a Soilmec 412 rig. The PIR-A monitored all piles, as specified by the project structural and geotechnical engineers. According to Jason Weinstein P.E.,

Los Angles County Museum of Art

Vice President of Shoring Engineers, the use of the PIR-A on this project saved both time and money. He feels that "the project could not have been done without the PIR-A. It took away the guess work as there was no way to go by feel" due to the challenging soil conditions, a unique mixture of clay and tar sands. The integrity of the piles was later verified with the Pile Integrity Tester (PIT). We are happy to report that no persons or equipment were entrapped in the asphalt during pile installation or testing.

Sandow Unit 5 Power Plant

The next stop on our ACIP tour is in Rockdale, Texas, the site of the future Sandow Unit 5 Power Plant. This new coal fired power plant being built by Bechtel for TXU Energy will replace an older plant, significantly reducing plant emissions and thus contributing to the quality of the environment. Berkel & Company Contractors Inc. is installing 2000 ACIP piles up to 457 mm (18") diameter and up to 17 m (55 ft) long that will support all significant structures. Subsurface conditions consist of various layers of clay, sand and lignite. Tracy Brettman, Berkel's Texas Regional Manager, believes the PIR-A provided the highest level of quality control and quality assurance available (manual inspections are also being performed). The use of the PIR-A in all piles did not delay the construction schedule; the foundation work will be completed as planned in December 2006. The project has additional quality control specifications: 10 % of all piles will be subject to low strain integrity tests (PIT) and ten test piles were load tested for compression, tension and lateral capacity.

Our virtual job site tour highlighted future sites of relevant structures – be it for their significance to sports, the arts or the environment. From an engineering point of view, they all share the implementation of quality assurance and control procedures during the foundation installation phase, and for that their specifying engineers should be commended.

[1]disclaimer: PDI did not travel to the Texas site; Berkel & Company performed the installation themselves

Event Highlights 2007

please visit www.pile.com/events for a complete listing

January 31-February 3, 2007, Orlando, FL: Annual Meeting & Expo 2007. Sponsored by The International Association of Foundation Drilling (ADSC). For more information visit www.adsc-iafd.com

February 18-21, 2007, Denver, CO: Geo-Denver 2007 New Peaks in Geotechnics. Sponsored by Geo-Institute of ASCE. For more information visit www.geoinstitute.org

March 7, 2007, Orlando Florida: Seminar on Foundation Testing. For more information visit www.piledrivers.org or email Stevan Hall at execdir@piledrivers.org

March 8-9, 2007, Orlando, Florida: High Strain Dynamic Pile Testing Workshop. Sponsored by PDCA. Foundation QA HSDPT Exam will be offered on March 10. For more information visit www.piledrivers.org/ or email Stevan Hall at execdir@piledrivers.org

March 22-23, 2007, Tampa, FL: Deep Foundations: Design, Construction & Quality Control. Sponsored by ASCE. Mohamad Hussein instructing. For more information visit www.asce.org/conted/seminars or email ASCE at conted@asce.org

March 28, 2007, Nashville, TN: Short Course: Deep Foundation Design, Construction, Testing and Quality Control. Sponsored by PDCA. For more information visit www.piledrivers.org or email Stevan Hall at execdir@piledrivers.org

March 28-31, 2007, Nashville, TN: PDCA 11th Annual Conference. Sponsored by PDCA. For more information visit www.piledrivers.org or email Stevan Hall at execdir@piledrivers.org

May 2007 – GRLWEAP Seminar and Seminar on Foundation Testing in Los Angeles, CA. Sponsored by Pile Dynamics. Date and location to be determined.

July 16-20, 2007, Margarita Island, Venezuela: 13th Panamerican Conference on Soil Mechanics and Geotechnical Engineering: Integration of research, practice and education in Geoengineering sponsored by The Venezuelan Society of Geotechnical Engineering. For more information visit www.xiiicpmsig.org/ or email svdg@telcel.net.ve

GRL welcomes the following engineers

Brent Gildberg to the Illinois office;
Murali Ravi to the main office;
Darrell Fortune to the Florida office;
Robin Givet to the main office.

3rd Edition of FHWA's Design and Construction of Driven Pile Foundations Reference Manual

FHWA has recently published the 3rd Edition of the Design and Construction of Driven Pile Foundations Reference Manual. This new document, in 2 volumes, represents a major and significant update from the 1997 edition. FHWA is distributing the document nationally through its Office of Bridge Technology. For more information, and to obtain a copy, refer to publication numbers FHWA-NHI-05-042 and 043 when contacting the FHWA report center at www.fhwa.dot.gov/engineering/geotech/pubs/hydorder.cfm

GRL Florida has moved

GRL Florida has moved to a different suite in the same building where it was previously located. Phone and fax numbers, as well as email addresses, remain unchanged.
The new address is:
8000 South Orange Ave, Suite 225
Orlando, Florida 32809 USA

Acoustic Concrete Tester

Pile Dynamics launches Acoustic Concrete Tester

Pile Dynamics is capitalizing on its 30+ years of experience developing precision instruments for the deep foundations industry to offer a thickness measuring device for pavements, slabs, tunnels, footings and other concrete structures. The Acoustic Concrete Tester – ACT – uses ultrasonic technology to determine thickness and confirm the absence of flaws. This technology is innovative for this type of instrument in that it electronically generates an excitation on the structure and permits automatic calculation of its wave speed. More detailed technical information is available at www.pile.com/pdi/products/act. PDI engineers Ed Pristov, Wayne Dalton, George Piscsalko and Garland Likins discuss the advantages of this new technology in *Comparison of Impact-Echo with Broadband Input to Determine Concrete Thickness*, presented at the NDE Conference on Civil Engineering in St Louis this past August. The paper is available at www.pile.com/reference.

New PDI commercial representatives

PDI welcomes its new representatives –
Japan: Jibanshikenjo Company Limited
Italy: Eurosit Srl
Sales to Spain, Portugal, Singapore, Thailand, Indonesia, Cambodia, Bangladesh and Philippines are currently being serviced directly from the US.

Visit us at WWW.PILE.COM

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