



# GRL NEWSLETTER

Information gathered by  
the engineers of  
GOBLE RAUSCHE LIKINS  
AND ASSOCIATES, INC.

NUMBER 8

AUGUST 1988

## 1988 PDA USERS DAY • INTERNATIONAL EVENT

Participants from 14 different countries gathered at the Honors Hotel and PDI headquarters in Cleveland to update their knowledge of dynamic pile testing equipment and software. Attendees contributed with the following topics:

"Wave Equation Analyses and Use of GRLWEAP Blow Count vs Depth Option" (Holloway, USA); "Dynamic Testing of Slurry Wall Panels and Cast-in-Situ Piles" (Seidel, Australia and Mendez, Mexico); "Capacity Time Dependence and Partial Safety Factors" (Skov, Denmark); "Measurements on Concrete Pile and Steel Follower" (Romell, Sweden).

Demonstrations and hands-on workshops included the new PDAPLOT program which automatically plots recorded PDA (Pile Driving Analyzer™) results like Case Method capacity, maximum force, maximum transferred energy, etc. as a function of depth. Low strain testing on PDI's four new 20-inch diameter cast-in-situ piles with known defects was demonstrated. CAPWAPC was used for both high and low strain signal matching.

After an informative bus ride through the suburbs, a memorable evening was spent at the "Top of the Town" in Cleveland. Participants were impressed with the beauty of the city on USA's North Coast.

## NEWS FROM PILE DYNAMICS, INC. (PDI)

The new Saximeter™ is a miniaturized version of the original 1977 unit. It does not contain a printer like the Saximeter II, but it contains an improved display and is very easy to operate with a complete instruction set on the front panel.

GCX Pile Driving Analyzers™ with digital storage and complete output through RS232 have been successfully used in the field. In many cases, this capability can eliminate the need for expensive tape recorders. The associated PDAPLOT program was demonstrated at the Users Day (see box).

## GRLWEAP NEWS

GRLWEAP was sent out as an update to WEAP87. GRLWEAP now includes the Constant Capacity - Variable Stroke and the Blow Count vs Depth options. We were also made aware that this program as well as its predecessors is underpredicting blow count when the Constant Stroke - Variable Capacity Option is used with a rather low capacity in the first analysis. Also for small pile segment lengths, instability may occur under certain diesel hammers. Corrected versions will be shipped to all GRLWEAP users within the next few weeks. Users of WEAP87 and earlier versions, should contact GRL for update information.

## NEW BOOK

GRL Newsletter reader John Dunicliff reports that his book, "Geotechnical Instrumentation for Monitoring Field Performance", is now available through John Wiley & Sons, Inc.

## ★ COMING EVENTS ★ WITH GRL AND PDI PARTICIPATION

- 1988
- Aug. 24-26 DFI\* Seminar at University of Michigan in Ann Arbor, MI
  - Sept. 7-8 Developments in Geotechnical Eng. 1988 Harrisburg, PA
  - Oct. 2-3 DFI\* Short Course on Inspection and Testing of Piles, Atlanta, GA
  - Oct. 3-6 SE Transportation Geotechnical Eng. Conf., Raleigh, NC
  - Oct. 3-5 DFI\* Annual Members Meeting, Atlanta, GA
  - Oct. 25-27 Ecole National des Ponts et Chaussées, Paris; Continued Education Program on Pile Driving and Testing
  - Oct. 27 PDA\*\* Seminar, Bangkok
  - Oct. 31-Nov. 1 PDA\*\* Users Day, Singapore
  - Nov. 3 PDA\*\* Seminar, Tokyo
  - Nov. 9-11 6th Nat'l Conf. on Microcomputers in C.E., Orlando, FL
  - 1989
  - June 25-29 ASCE Foundation Eng. Congress, NW University, Evanston, IL

\* The Deep Foundations Institute  
P.O. Box 281, Sparta, NJ 07871  
Phone 201 727 9679

\*\* To be organized by GRL in co-operation with Goteborgs Betongpolar of Kungsbacka, Sweden

## OTTAWA CONFERENCE DYNAMICALLY ENRICHING

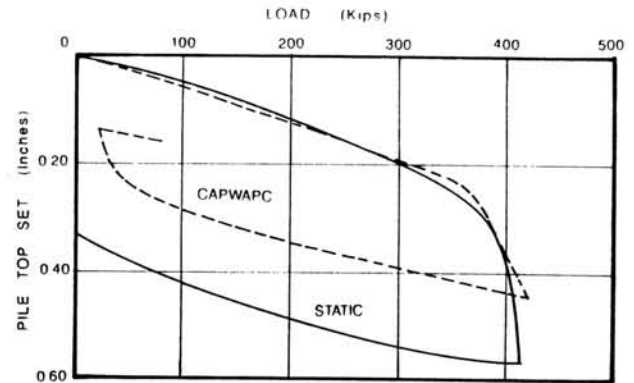
Nearly 200 engineers presented papers, discussed and asked questions on the application of stress wave measurements on piles. Research, development and field applications of dynamic pile test methods apparently occur nearly everywhere in the world where piles are needed.

The conference was highly successful and GRL commends Prof. Bengt Fellenius who single-handedly organized and sponsored the conference. Proceedings of the Third International Conference will be available from Prof. Fellenius at the University of Ottawa, phone 613-564-3432.

## ★ CLASS A CAPWAPC PREDICTION IS FIRST CLASS ★

The Deep Foundation Institute (DFI) held a seminar in Raleigh, NC on March 7-9, 1988. Dynamic and static testing of a 54' long, 12" prestressed concrete pile was organized by Jim Harmston of Foundation Services, Inc. Three days after initial drive, GRL's C. Michael Morgano first performed the restrrike dynamic test for a crowd of 120. Then he analyzed the data by CAPWAPC. A Quick Test was conducted following the dynamic test.

The "Class A" CAPWAPC prediction of 420 kips capacity was presented by Dr. G. Goble one day after the test. The static test results were only then revealed. The capacity determined from the static load test by four distinguished panelists ranged from 380 to 410 kips (Davisson's criterion). Thus, CAPWAPC was 2.5% high. The agreement between measured static and dynamically predicted load set curves was impressive (see Figure).



## FROM AROUND THE WORLD

### BRAZIL

PDI's Carl Webb and Noronha's Nelson Galgoul report that the seventh and last of a series of oil platform installations is now being completed for Petrobras.

PDI Engenharia's Gina Beim and Jorge Beim attended the Symposium on New Concepts in Field and Laboratory Soil Tests in Rio de Janeiro. They exhibited their PDA testing equipment and capabilities. They report pile testing activities throughout Brazil, primarily on precast cylindrical piles.

### INDIA

GRL's Frank Rausche delivered a PDA to PD India's managing director Dhanvin Mehta. Together they conducted 18 high and 65 low strain tests on drilled shafts at the Bombay Port Trust.

### UNITED KINGDOM

GRL's Garland Likins delivered a complete set of dynamic testing equipment (PDA, PIT Integrity Tester and CAPWAP) to Roger Bullivant Ltd. and conducted a one-week training session in April. The company installs a wide variety of pile types, including minipiles and drilled shafts.

Testing and Analysis Ltd. has added another PDA unit to their fleet.

Fugro-McClelland Ltd. received a PDA in June. The Fugro engineers have been using the GRL CAPWAPC™ program for a long time.

### MALAYSIA

Wondem Teferra recently participated on an oil platform installation through Dames & Moore International. A seminar on dynamic pile testing was conducted in Kuala Lumpur for the sponsoring oil company.

### SINGAPORE

A PDA was delivered to the Port of Singapore Authority. Training is to be conducted by the engineers of Goteborgs Betongpolar of Sweden.

### FLORIDA

Mohamad Hussein, manager of GRL's Florida office, reports a busy testing schedule on both augercast and driven piles up to 144 ft length. Mohamad was also a guest speaker for a deep foundation class at the University of Florida in Gainesville; his talk covered wave equation analyses and field dynamic pile measurements and analyses.

The area code for Orlando has been changed; Mohamad's phone number is now 407-826-9539. !

### PHILADELPHIA

Wondem Teferra, manager of GRL's Philadelphia office, gave a presentation on dynamic testing of piles to the local Geotechnical group of ASCE at their section meeting in May. Recently, he obtained a safety training for hazardous waste sites in conjunction with a pile test program for Woodward Clyde New Jersey.

### GRL COLORADO HAS MOVED

Jay Berger, manager of GRL Colorado, reports that his new address and telephone are:

5398 Manhattan Circle  
Boulder, Colorado 80303  
phone: 303-494-0702  
fax: 303-494-0704 !

## DRILLED SHAFT SEMINAR AT UNIVERSITY OF COLORADO

In July Dr. G.G. Goble organized a seminar on High and Low Strain Dynamic Testing of Cast in situ Piles. Speakers included Clyde Baker, Senior Principal Engineer with STS Consultants, Ltd.; Lymon Reese, Professor Emeritus at the University of Texas at Austin; Alan Macnab, Vice President for Structures with DBM Construction of Seattle; and GRL's Frank Rausche and Garland Likins.

Wave equation workshops for both beginners and advanced users were also given. Participants received individual instruction after general introductions.

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