



# GRL NEWSLETTER

No. 12

INFORMATION GATHERED BY THE ENGINEERS OF  
GOBLE RAUSCHE LIKINS AND ASSOCIATES, INC.

DECEMBER 1989

## HAPPY HOLIDAYS

*As always since we started our GRL Newsletter in 1986, engineers and staff at Goble Rausche Likins and Associates, Inc. and Pile Dynamics, Inc. wish our readers a peaceful holiday season and a successful and healthy New Year.*

The eighties are over. They brought us the PC - the most widely accepted personal computer concept - and the GC - the most successful Pile Driving Analyzer concept.

Our progress has been greatly helped by both hardware and software developments. More important, however, was the experience of our users and clients as well as that of our own engineers. It is not surprising that the PDA Users Days became regularly scheduled events on three continents. We look forward to continuing with this tradition in the next decade, thereby maintaining a very personal contact with all of you involved in progress on the construction site.

## NEWS FROM PILE DYNAMICS (PDI)

PDI has delivered the first unit of the newly developed **GCPC Pile Driving Analyzer™ (PDA)**. Unique to this PDA is the self-contained design which makes tape recorder and oscilloscope unnecessary. It also has a 12V DC power option, a built-in printer, a fast graphics screen, and can operate in real time at speeds up to 120 blows/minute, and it can perform both **P.I.T.™** (Pile Integrity Tester) and **CAPWAPC™** if equipped with that software. A brochure is enclosed.

## PDI - GRL REPRESENTATIVES

We would like to inform our readers of new and/or renewed representations in the Far East:

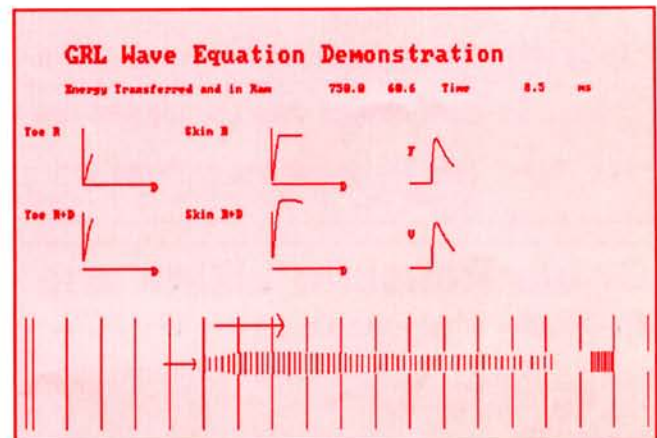
CHINA, HONG-KONG, KOREA, PHILLIPPINES  
Earth Products Ltd., Hong Kong, Phone 5 740222, Fax 5 8930411  
TAIWAN  
San Lien, Taipei, Taiwan, Phone (02) 708 0724, Fax 886 2 703 1561

## GRLWEAP NEWS

- It was brought to our attention that the IHC ram weight in both HAMMER.DAT and HAMMER.ALT should be corrected from 6.85 kips to 7.3 kips. To correct this value use the Hammer maintenance option in the GRLINP program, set the hammer ID to 320, Read the data, start modification with the I option, move the cursor to the ram weight, type the proper 7.3 value, Enter, Esc, Write the data (with Y confirmation) and then press Q twice to exit the program. Do this for both hammer files.
- GRL is currently working on several GRLWEAP improvements which will also necessitate changes in GRLINP and GRLGRF. The new versions will be released in early 1990. Among the new features will be the option for a second pile toe data input (say for concrete piles with steel stingers), expanded ranges for cross sectional area changes and skin friction distributions, new diesel hammer models, additional helmet and capblock data and other details.
- GRL has prepared a new brochure which describes the background and capabilities of the GRLWEAP program package. This may be of value to users who want to include background material with their reports; a copy is enclosed.

## WAVE EQUATION DEMONSTRATOR AVAILABLE

Have you ever attended a wave equation seminar where the instructor attempted to illustrate the stress wave propagation in piles by means of slinkies, suspended steel balls or other exotic media? Well, GRL prepared an animated program which *clearly* demonstrates stress travel and soil resistance development on a computer screen (see below). If you are interested in purchasing a copy of this program, please contact GRL.





## GRLWEAP Workshops

GRL will conduct three workshops in January and February 1990 in New York, Philadelphia and Oakland (see calendar). These workshops have limited attendance and we suggest timely registration. Course instructor will be G. G. Goble and - in Oakland - D. M. Holloway. The course will emphasize hands-on problem solving.

## BALTIMORE

According to GRL principal G. G. Goble, the most successful Deep Foundations Institute (DFI) conference to date was held in Baltimore, MD on Oct. 9-11. Major credit for the organization goes to Bill Lytle of Maryland General Construction.

## LOOOOOOONG...

(1300+ ft) were the piles that Garland Likins and GRL Philadelphia manager Wondem Teferra tested and analyzed.

Tiny... pipes (128mm OD) were tested by Jon Cannon of Maunsell, Australia. They were of high strength but too slender for easy driving.

## FUTURE EVENTS WITH GRL-PDI PARTICIPATION

1989

Dec. 15, 16 GRL Yearly Engineers' Days; we will discuss new methods, equipment, technologies and recent experiences.

1990

Jan. 12 GRLWEAP Workshop, New York, NY - place TBA; please call GRL

Jan. 15 GRLWEAP Workshop, Philadelphia, PA - place TBA; please call GRL

Feb. 9, 10 Seminar on "Dynamic Methods for Engineering Deep Foundations," and GRLWEAP Workshop, Oakland, CA - place TBA; please call D. M. Holloway of Insitutech at 415-839-6567 for details.

Feb. 5-9 14th Annual Fundamentals of Deep Foundation Design, Radisson Inn, Orlando, Florida. For information call Continuing Education University of Missouri-Rolla, 1-800-752-5057.

Feb. 26,27,28 Seminar on the Dynamic Analysis and Testing of Piles and GRLWEAP Workshop, Boise, Idaho organized by the Department of Transportation

Spring 1990 PDA Users Day in Gothenburg, Sweden, Cleveland, OH and Hong Kong, for information in Hong Kong please contact Chris Wilkinson of Earth Products China Ltd, Tel: 5-8951504, Fax: 5-776062

May 15,17 Deep Foundations Institute/Ottawa University Joint Seminar, for info. contact DFI: 201 729 9679 or Prof. Fellenius: 613-564-5409

## BRAZIL

Brazil hosted the 12th International Conference on Soil Mechanics and Foundation Engineering. G. G. Goble participated in a symposium on pile drivability chaired by M. Randolph of Australia. Gina Beim and Jorge Beim of PDI Engenharia exhibited and demonstrated PDI hardware and GRL software.

## CANADA

ANNA Geodynamics' Bengt Fellenius and Robert Edde received the very first GCPC Pile Driving Analyzer. Congratulations.

## FLORIDA

Florida's large volume pile driving regularly requires dynamic testing. Also GRL Florida manager Mohamad Hussein recently addressed the ASCE geotechnical group in Orlando and contributed to a workshop on pile foundations organized by State Geotechnical engineer Joe Caliendo.

## CLEVELAND

GRLWEAP workshops were held covering both basic and advanced subjects. GRL engineer Steve Abe worked on a number of PDA and P.I.T. projects, including the Ouachita Bridge in Arkansas.

## PERSONNEL NEWS

Congratulations to PDI chief electronics engineer Dean Cotton and wife Laura on the arrival of their daughter, Elena Mercedes, and to PDI systems engineer Dave Peterman and wife Karen on the arrival of their son.

C. Michael Morgano began studies for a MS degree in geotechnical engineering at the University of Akron.

Bert Miner is currently taking steps to establish a GRL office in Seattle, WA.

## AUSTRALIA

Julian Seidel of Piletest, Brisbane reports flying in military airplanes because of a strike by Australian pilots. Still, they are busy driving and testing piles and a seminar was held at the University of Queensland where testing and CAPWAPing was demonstrated.

## FINLAND

After three days of CAPWAPC work at LOHJA BETONILA OY, Frank Rausche conducted a comprehensive seminar on PDA-CAPWAPC-GRLWEAP-P.I.T. for Finland's researchers, contractors and engineers organized by Esa Hakämies and Kari Toikka both of Lohja.

## COLORADO

At the Intern. Conf. on Wood Poles and Piles, GRL Colorado manager Jay Berger presented research on timber strength. A paper on innovative timber pile testing by M. Hussein was presented by G. G. Goble.

## UNITED KINGDOM

Roger Bullivant Ltd. manned their second PDA with Keith Nation who together with veteran Steve Burton received further CAPWAP training. Piling manager Norman Harris treated everybody to tour and taste at the Heritage Brewery in Burton-on-Trent.

## GCPC PDA

GRL engineers have already used the new GCPC Pile Driving Analyzer on a number of test sites and were impressed with its capabilities. Many advanced features suggested by experienced PDA engineers were recognized and built or programmed into the unit. Our engineers were most impressed by the GCPC's speed (equivalent to a Model GCX) and powerful options for screen display, printer control, disk storage and data retrieval. Thanks to PDI systems engineer Dave Peterman.

# Goble Rausche Likins and Associates, Inc.

Specializing in the dynamic testing and analyses of piles

4535 Emery Industrial Parkway  
Cleveland, OH 44128 USA  
Telex: 985-662

	Phone	Fax
Cleveland:	216-831-6131	216-831-0916
Denver:	303-494-0702	303-494-0704
Houston:	713-932-6305	713-789-1347
Orlando:	407-826-9539	407-859-8121
Philadelphia:	215-544-2770	215-543-0843