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American Society of Civil Engineers

DELAWARE VALLEY GEO-INSTITUTE

DVGI May 2014

Volume 14, Issue 5

May 2014 Dinner Meeting GARDNER LECTURE

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SPEAKER: Mr. Thomas L. Cooling, P.E., D.GE
TOPIC: Deep Foundations on the New Tappan Zee Bridge
DATE: Tuesday May 20, 2014

LOCATION: Valley Forge Casino (Radisson Valley Forge)
1160 First Avenue, King of Prussia, PA

TIME: 5:30 PM Social Hour, 6:30 PM Dinner and
7:15 PM Presentation

[Register online at www.asce-philly.org](http://www.asce-philly.org)

The \$3.2 billion New NY Bridge will replace the existing Tappan Zee Bridge that carries traffic over the Hudson River 25 miles north of New York City. Foundation design and construction for the 3.1 mile crossing was complex due to the high structural demands and difficult foundation conditions. Foundations for a portion of the new bridge will consist of 4-foot diameter steel friction piles up to 330 feet long that derive their support in a thick deposit of varved silt and clay. Other portions of the bridge will be supported on high capacity end-bearing pipe piles up to 6 feet in diameter and 280 feet long. An extensive load testing program involving 20 over-water load tests was completed during construction to verify the original tender design. This presentation covers the design, construction, and load testing program along with lessons learned.

Mr. Thomas L. Cooling, P.E., D.GE is a Vice President in URS Corporation and a Senior Geotechnical Engineer within the firm. His role on the Tappan Zee project is the Lead Foundation Engineer. Other major bridge experience involves six crossings of the Mississippi River, two over the Ohio River, and the Woodrow Wilson Bridge over the Potomac in Washington, D.C. He has served on four Transportation Research Board Committees and is a Diplomat of Geotechnical Engineering in ASCE's Academy of Geo-Professionals. Tom is a registered engineer in six states. He obtained a Bachelor's degree at the University of Illinois and a Masters' degree at the University of California at Berkeley, both in civil engineering.

**One Professional Development Hour (PDH) will be provided for attendance at any of following the three sessions*

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April 2014 Dinner Meeting

PennDOT Research Project
NDT Evaluations for Unknown Bridge Foundations
Joseph Thomas Coe, Jr., PhD Assistant Professor
Temple University

Dr. Coe presented on his current work for PennDOT District 6 in Philadelphia. His work is focused on the need for PennDOT to know bridge foundation geometry as it is an important input into a scour analysis, particularly the depth to the foundation bottom.



Dr. Coe reviewed several non-destructive testing (NDT) methods that have been developed to evaluate unknown foundations. The primary objective of his research was to identify the most current and robust NDT methods for determining the embedment depth of unknown bridge foundations and to compare these methods to a borehole ultrasonic P-wave reflection imaging system. The borehole ultrasound system has tremendous potential to provide more information and address several short-comings of the most common NDT methods in current practice. A laboratory study was initiated to explore aspects related to the P-wave system performance and to characterize the limitations of the system in evaluation of unknown foundations prior to deployment in field. Field testing was performed at two Pennsylvania Department of Transportation (PennDOT) bridge sites using the Borehole Ultrasound system, Parallel Seismic, Borehole Radar, and Electrical Resistivity Imaging. The results from all tests are compared and recommendations were made regarding utilization of these methods for unknown foundations.

Dr. Coe plans to return next year to give DVGI an update on his research work.

Prior to his arrival at Temple, he was an Assistant Professor for two years at The Citadel in Charleston, South Carolina. He was born in Managua, Nicaragua and grew up in Los Angeles, California. He obtained his degrees from UCLA in Civil Engineering with an emphasis in Geotechnical Engineering. His primary research interests focus on topics related to the development and rehabilitation of resilient and sustainable infrastructure systems, including nondestructive testing of bridge foundations, bridge resiliency against scour, site characterization for urban seismic risk, thermally active foundations, and dynamic properties of sands subjected to microbial induced calcite precipitation.

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Employment Opportunities

Kleinfelder has nearly 2,000 employee-owners with offices nationwide and abroad. With over 50 years of experience, Kleinfelder's reputation for providing innovative, commonsense solutions to the most complex challenges has solidified its status as a trusted partner to its global clients and a leader in the industry.

Working as a team, Kleinfelder's bright people will deliver the right solutions.

Kleinfelder's Cranberry office (Pittsburgh, PA) is seeking a Senior Geotechnical Engineer to lead its geotechnical engineering discipline in our exciting Marcellus-Utica Shale Program. We are currently providing our clients with multi-disciplinary professional engineering services on the most challenging pipeline, well-pad, **and facility development projects in the rapidly expanding Marcellus and Utica Shale plays.** Kleinfelder's Marcellus-Utica Program offers a wide range of challenging project work and a great opportunity to develop professionally.

The ideal candidate will have the following skills and experience:

- Pro-actively troubleshoot and problem-solve with practical, client-focused solutions
- Demonstrate technical expertise in geotechnics, slope stability, foundation design and earthwork
- Excellent verbal and written communication skills
- Lead a team of geotechnical engineers and professionally develop staff at all levels
- Interface with the civil design team to develop and value-engineer practical, fit-for-use grading plans
- Develop strategic pursuits and proposals
- Organize priorities and multi-task effectively
- Collaborate with Regional leadership and Project Managers to resource delivery effectively
- Manage projects from cradle-to-grave in a fast-paced and dynamic environment
- External focus to grow client relationships and develop business through the work

Possess a thirst to learn and achieve continuous improvement in a team environment
Requirements

- Candidates are required to have 12+ years of related experience.
- Proven experience in geotechnical design, slope stability, foundation design and earthwork
- Past experience in leading diverse project teams

Proven experience in business development opportunities and preparing proposals

Education: **Bachelor's degree in civil engineering, MS degree geotechnical engineering or equivalent required.**
Professional Engineering license required.

Kleinfelder offers an excellent compensation and benefits package, including: medical, dental, vision, life insurance, 401(k) plan, paid holidays, and employee-ownership. Kleinfelder is an Equal Opportunity Employer.



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Employment Opportunities

Kleinfelder is seeking Geotechnical Engineers with 0-2 years' experience to join us in our Exton, PA and Cranberry, PA offices.

Skills required for this position include:

- **strong verbal and written communication skills,**
- **the ability to organize priorities and multi-task effectively, and**
- **a thirst to learn and achieve continuous improvement in a team environment.**

A can-do attitude and problem-solving mindset is essential.

The candidate should have at a minimum, experience in, or the ability to readily learn, all basic components of the delivery of a fundamental geotechnical investigation including:

- **organization and performance of the field investigation,**
- **assignment of the appropriate lab testing,**
- **performance of the associated engineering analyses under the PE's guidance,**
- **preparation of the geotechnical report, and**
- **ability to work with design teams to incorporate geotechnical aspects into site designs**

The candidate should also demonstrate experience with, or the ability to readily learn earthwork and foundation construction observation.

Experience with CAD is strongly desired. Experience with gINT, Lpile and SlopeW software is preferred.

A BS in Civil Engineering with EIT is required and MS in geotechnical Engineering is preferred.

Some travel to project sites and other Kleinfelder offices is required. The Exton and Cranberry offices offer a wide range of challenging project work and a great opportunity to develop professionally.



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DVGI Golf Outing

FIRST ANNUAL DVGI GOLF OUTING



You are invited to participate in the Inaugural Delaware Valley Geo-Institute Golf Outing on June 27, 2014. Proceeds from the outing will benefit the scholarship fund. This event is an excellent opportunity for you to demonstrate your support for the DVGI.

Come join us to get some fresh air, network, and have a good time!

Who: ASCE and DVGI Members, Friends, Clients
All Skill Levels Welcome
Prizes for Best and Worst Team Scores

Where: Jeffersonville Golf Club
2400 W. Main Street
Jeffersonville, PA 19403

When: Friday, June 27, 2014
Tee times starting at 12:30 pm, Scramble Format

Cost: Golf Registration: \$90/person
Cost includes Cart along with Beef and Beer Buffet following Golf

Sponsorships: Individual Hole \$100
Closest to the Pin \$100
Long Drive \$100
Happy Hour \$150
Dinner \$150
Prize Donations Appreciated
Sponsorships include Company Signage at the Tee Area

Registration: Online at www.DVGI.org

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Earn PDHs at 2014-2015 DVGI Events

Upcoming Dates for 2014 Dinner Meetings and events are as follows:

- ◆ *May 20th—Gardner Lecture— Mr. Thomas L. Cooling, P.E., D.GE*
- ◆ *June 27th—First Annual DVGI Golf Outing*

One PDH will be awarded for most dinner meetings that you attend.

Looking for a Geotechnical Career Opportunity?

Have you considered a student internship or a co-op position? It's a great way to "get your foot in the door" while gaining practical professional experience. Check the new geotechnical co-op and internship links on the G-1 Student page at: <http://content.geoinstitute.org/student.html>.

G-I Chapters and Local Geotechnical Groups

As a 21st Century professional organization, the G-I aims to collaborate with local, national, and international geo-professional organizations. To meet that goal, the G-I has developed a strategic plan for outreach to local geotechnical groups to assist them in becoming a Geo-Institute Chapter. Check out this great link to other G-I Chapters and local Geotech Groups across the country:

<http://content.geoinstitute.org/groups/index.html>.



The University of Delaware has a Student Chapter. Please contact the Chapter President, Lauren Lobo at email address llobo@udel.edu for more information. *Congratulations to the GIUD!*

G-I Twitter Brings You Quick News Updates

Twitter is a social networking tool for posting very brief updates, or "tweets." The G-I launched its Twitter feed in April 2009 to announce updates to its website and other relevant news items. Since then, over 150 updates have been posted and more than 144 persons have become registered G-I followers. Visit our Twitter feed at <http://twitter.com/GeoInstitute>. You can check for updates or "follow" us using a Twitter account, an RSS reader, or one of the many other web applications that work with Twitter. Spread the word. Also check out the DVGI link at www.linkedin.com. Set up an account and keep up to date with business associates.

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UPDATE: New DVGI Website

Over the last several months we have added some additional content to the DVGI web site located at www.dvgi.org. The web site now includes links to our corporate sponsors web pages, past newsletters, the 2013-2014 DVGI events calendar, industry related links and events, and most notably a form for online reservations to our monthly meetings.

Please e-mail any of the DVGI Board members if you would like additional information added to the website.

HAVE DVGI PUBLISH YOUR ARTICLE

Do you have an interesting article on a project or individual in your organization that you would like to have published in the DVGI newsletter? Please submit your articles for consideration in an upcoming edition to Archie Filshill at archie_filshill@golder.com

DVGI Merchandise Available for Purchase

1 GB memory sticks (\$12); coffee mugs (\$8); and lapel pins with the DVGI logo (\$5) are available for purchase. See Ara Mouradian if you are interested in purchasing any of these items.

ASCE/G-I Members:
Read past and present issues of Geo-Strata magazine online at www.asce.org

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