GEO-INSTITUTE
Delaware Valley Chapter

DELAWARE VALLEY GEO-INSTITUTE

DVGI February 2025 Volume 25 Issue 2

Inside this issue:

Feb 2025 1
Jan 2025.....2
Announcements 3-11
Corporate Sponsors 12-14
Universities 15

February 2025 Joint DVGI/SEI Dinner Meeting

SPEAKER: Sitotaw Y. Fantaye ,P.E, Mueser Rutledge Consulting Engineers, PLLC, (MRCE)

TOPIC: The Design and Construction of a Challenging Cofferdam for a Large Pump Station and Outfall Structure in Charleston, SC

DATE: Tuesday February 18, 2025 – Social Hour 5:30 PM to 6:30 PM EST; Dinner 6:30 PM to 7:30 PM; Presentation 7:30PM to 8:30PM

WHERE: Valley Forge Casino– Laurel Ballroom,1160 1st Ave,King of Prussia, PA 19406

COST: $60 Standard, $30 Government/Retired, $10 Students

MEETING ABSTRACT:

The Spring Fishburne Basins is a five-phase project to improve drainage, reduce the frequency of severity and duration of flooding for the Spring and Fishburne basins and move water from the surface through a network of surface collection pipes, vertical drop shaft and deep tunnels to a pump station where it will ultimately end up in the Ashley River. The Ashley River is a Blackwater / tidal river in South Carolina, rising from the Wassamassaw and Great Cypress Swamps in western Berkeley County. To construct the subterranean approximately 50ft deep pump station which is wedged between the north and south bound lanes of the I-17 with its outfall letting Stormwater into the Ashley River, a cofferdam was necessary. This presentation will focus on the structural, geotechnical and constructability challenges of the cofferdam design for the construction of the pump station located in difficult geologic conditions.

ABOUT THE SPEAKER:

Sitotaw Y. Fantaye is a licensed Professional Engineer in a dozen states and a Principal at Mueser Rutledge Consulting Engineers, PLLC (MRCE), a firm he joined in 2005 as a Senior Engineer. He holds a Bachelor of Science Degree from the City University of New York. He is a structural engineer specializing in the analysis and design of deep and shallow foundations for buildings and bridges, underpinning, platforms, waterfront structures, piers, wharfs, floodwalls, and complex support of excavation systems. His expertise includes internally and externally braced slurry (diaphragm) walls, secant pile walls, soldier pile tremie concrete walls, soil mix walls, deep shafts for tunnel boring machines, temporary shoring towers, cofferdams, and trestles. As a Principal in Charge, he is responsible for schematic designs, directing teams of geotechnical and structural foundation engineers, and participating in the analysis, design, and development of project drawings.

He has authored and co-authored a dozen papers that have been published or presented in major conference proceedings and prominent industry magazines within the geotechnical and foundation engineering community, such as ASCE journals and Met Section conferences, and DFI Deep Foundations Magazine.

Please register at dvgi.org by February 13th

DVGI February 2025
Volume 25, Issue 2

GEO-INSTITUTE
Delaware Valley Chapter

2025 JANUARY DVGI Dinner Meeting

Speaker : Glenn R. Santulli,P.E, Project Engineer at GRL Engineers, Inc.

Topic: The Jane Hotel Project, Manhattan NY

MEETING ABSTRACT:

The historic Jane Hotel located in Manhattan in New York City underwent renovations to modernize the hotel. This historic landmark was built in the early 1900's and was famous for housing ship crew members in the 20th century. Located right off the Hudson River, near many historic shipping piers, royalty often stayed at this hotel when entering the US. Titanic survivors were brought to this hotel once rescued.

Maintaining the historic building's character and exterior face were critical. Designs included a deep foundation for a new elevator shaft inside the existing building. Stelcor helical piles were selected for installation in 5 ft sections. Grout would be pumped into the helical pile during installation to create a "grout column" that would be similar in size to the helical flights at the bottom of the helical piles.

Due to the helical piles hitting refusal with the installation equipment and headroom constraints, the piles were installed and constructed shorter than initially designed for. These constraints also made basement made sampling soil difficult, as a typical drill rig could not be implemented to take samples. Nearby borings indicated that the required depth would need to be deeper than installed to obtain the required ultimate capacity for the new elevation shaft design. The New York city building code required one static load test to be completed for the required loads on the helical piles. This was not going to be feasible with the constraints of the basement and building footprint, however, the static load test could be waived if the piles were installed to the design depth.
Due to the location of the elevation shaft and existing foundation walls of the building, all typical means and methods (either dead weight or reaction piles) for a traditional static load test would not be achievable. The elevator shaft would need to be placed on hold, until another form of testing was implemented.
GRL Engineers was able to accommodate the project limitations by use of the GRL APPLE 7-2G model. The APPLE allowed for a dynamic load test on the helical piles in place of static load test. Due to the APPLE 7-2G weight and size, a mini helical piles drill rig was able to lift the APPLE frame inside the basement and set it on top of the piles.
Dynamic load testing was done on two of the installed piles (33% of all piles) to prove the required capacities could be achieved. Testing results indicated that the in-place condition of the piles had reached higher geotechnical capacities than the required design specification. It was taken into consideration that the initial boring utilized in the design may not have been representative of the foundation, or the unexpected refusal condition of the installation method may have indicated the soils encountered were different than initially expected or designed for. If not for dynamic testing via the GRL APPLE, the elevation shaft may have been abandoned, along with the piles which had capacities above the required resistances.

ABOUT THE SPEAKERS:

Glenn R. Santulli, P.E. is a project engineer at GRL Engineers, Inc. from the Pennsylvania office. Glenn has over 10 years of industry experience in deep foundations. He started his career as a field engineer for a general contractor in Philadelphia for a highway/bridge project and has now been with GRL Engineers for over 8 years. He has 8 years of experience in deep foundation testing, analysis and consulting services, where he focuses on static and dynamic testing of drilled and driven deep foundations, quality testing of drilled foundations, testing of existing deep foundations (static or dynamic), and offshore and nearshore dynamic pile testing and dynamic pile monitoring. Glenn has performed high strain dynamic testing on pile diameters ranging from 4-inches to over 30 ft. Glenn is a registered professional engineer in Pennsylvania, New Jersey, New York, and Washington D.C.

Glenn has published papers including "Load Testing Drilled Displacement Piles in Difficult Conditions: Jane Hotel Project in Manhattan New York" and has presented case studies at geotechnical seminars. Glenn holds a M.S. and B.S. in Civil Engineering from Drexel University in Philadelphia PA, where he concentrated in Structural Engineering.

DVGI February 2025
Volume 25, Issue 2

GEO-INSTITUTE
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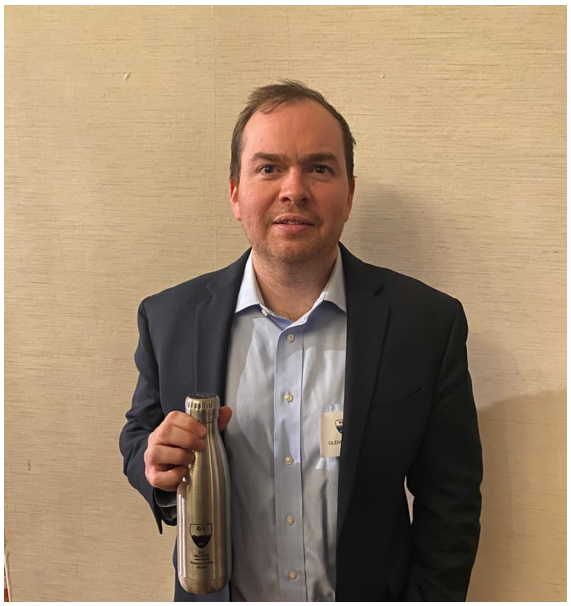

DVGI February 2025
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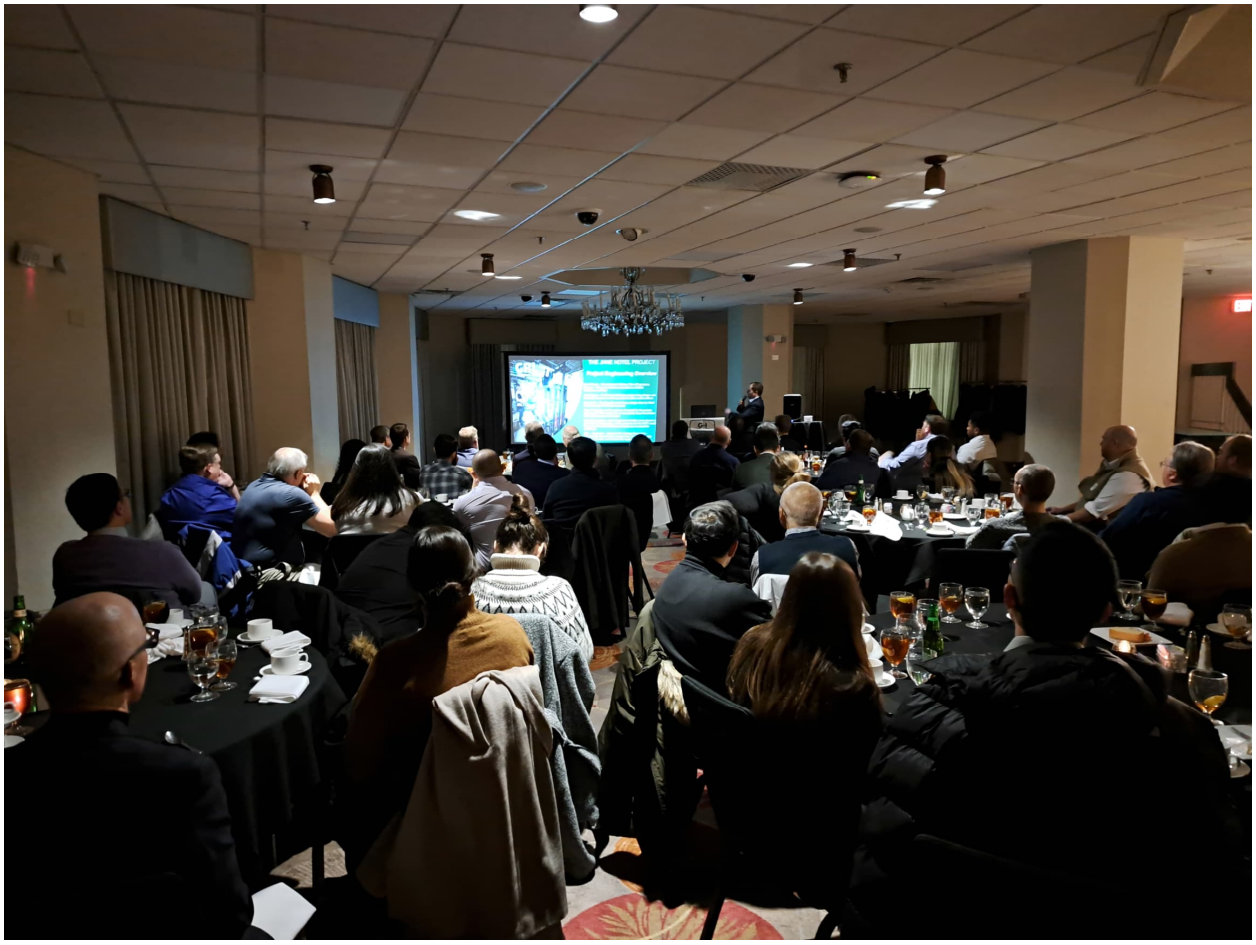

DVGI February 2025
Volume 25, Issue 2

GEO-INSTITUTE
Delaware Valley Chapter

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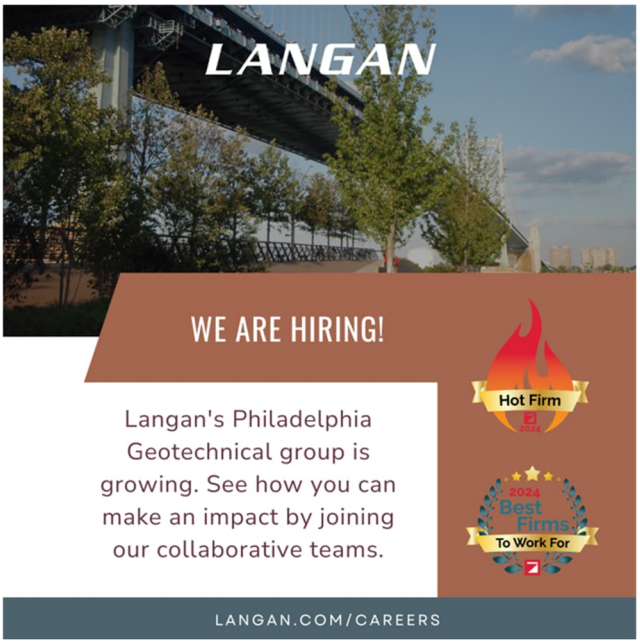
GEO-INSTITUTE
Delaware Valley Chapter

ANNOUNCEMENTS



DVGI February 2025
Volume 25, Issue 2

GEO-INSTITUTE
Delaware Valley Chapter

ANNOUNCEMENTS

ASCE METROPOLITAN SECTION Geo-Institute Chapter

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DELAWARE VALLEY GEO-INSTITUTE

PRESENT:
"Building Ruth's House: The Geotechnical History of the 1923 and 2009 Yankee Stadiums"

SPEAKER:
Michael Bennett, P.E.
Gannett Fleming TranSystems

WHERE:
GoToMeeting Lunchtime Webinar
Click HERE to register

WHEN:
Thursday, February 27, 2025
Lecture: 12:00 to 1:00pm

1.0 Professional Development Hour (PDH) is pending
Free for ASCE members and non-members

For more information, contact Erika Finan of Met G-I at 845-596-1146 or efinan@langan.com or Theresa Andrejack Loux of Delaware Valley G-I at 484-768-6296 or tloux@aeroaggregates.com

Click here for the Met Section Geo-Institute website and here for the Delaware Valley GeoInstitute website

LECTURE SUMMARY

Yankee Stadium's construction in the early 1920s heralded the dawn of perhaps the most remarkable dynasty in the history of professional sports, and geotechnical ingenuity was critical to making it happen. The park's South Bronx site consisted of debris-laden fill strewn with cobbles and boulders, soft organic silty clay, varved lacustrine silts and clays, and marble, gneiss, and schist bedrock at wildly varying depths. Fortunately, the Yankees had one of the US's foremost geotechnical firms, Spencer, White & Prentis, designing their park's foundation. SW&P used its patented foundation pretesting technique to build mammoth spread footings for the stadium that were jacked downward into the underlying soft soils as construction of the ballpark progressed. Yankee Stadium was thus decades ahead of its time geotechnically when it opened in 1923–complete with the Yankees' first World Series title.

The Yankees spent the next four decades as the kings of baseball, and Yankee Stadium hosted many memorable moments through it all. These ranged from athletic feats such as moonshot home runs by Babe Ruth and Mickey Mantle to the poignant ceremony where a dying Lou Gehrig nonetheless declared himself "the luckiest man on Earth." When the Yankees' fortunes faded, the Stadium received a $100M overhaul, but it left the 1923 foundation system intact, only postponing the inevitable. The Yankees moved to build a new stadium in the early 2000s, and geotechnical engineers drew upon the profession's modern state of practice to give the second Yankee Stadium a state-of-the-art subsurface exploration and foundation design. The original and new stadiums both serve as sterling examples of the interface between the technical aspects of geotechnical work and its impacts on the broader world around it.

The Speaker: Michael Bennett, P.E., is a geotechnical project engineer with Gannett Fleming TranSystems and is Webmaster of the Delaware Valley G-I. He has over 5 years of experience from both the private and public sectors and currently does infrastructure work on highway, rail, and water treatment projects. He has a BS in Civil Engineering and a BA in History from Lafayette College and an MS in Civil Engineering (geotechnical focus) from Virginia Tech.

Upcoming ASCE Met Section Geo-Institute Chapter Events:

49th Annual Met Section Geotechnical Seminar, Fri. 5/16

Upcoming ASCE Delaware Valley Geo-Institute Chapter Events:

Monthly dinner meeting, VF Casino, Tues. 2/18
Annual Student Night, Villanova Univ., Tues., 3/25

DVGI February 2025
Volume 25, Issue 2

GEO-INSTITUTE
Delaware Valley Chapter

ANNOUNCEMENTS

Upcoming Dates for 2024-25 Dinner Meetings and events are as follows:

2/18/2025 – Tuesday – Joint SEI Meeting – Sitotaw Fantaye, Mueser Rutledge

3/25/2025 – Tuesday – Student Night at Villanova

4/10/2025 – Thursday – Joint ASCE - Joint Multi-Technical Society Meeting

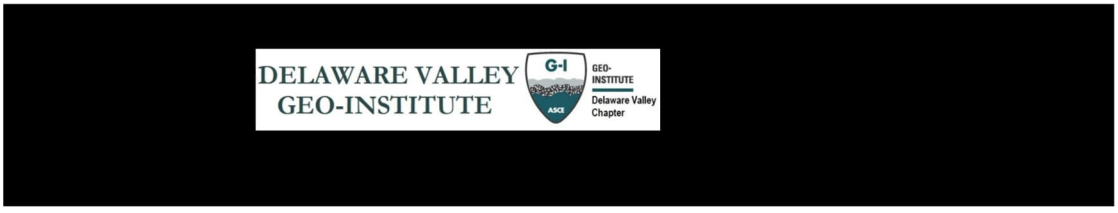
One PDH will be awarded for most meetings that you attend.

If you are interested in presenting at one of our monthly meetings or have ideas about potential speakers, please get in touch with a DVGI board member.

NEW DVGI.ORG WEBSITE

Check out our revamped website at DVGI.ORG!

A big thanks to our webpage advisor Michael Bennett, P.E. for all the hard work!



Welcome to Delaware Valley Geo-Institute!

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DVGI February 2025
Volume 25, Issue 2

GEO-INSTITUTE
Delaware Valley Chapter

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DVGI February 2025
Volume 25, Issue 2

GEO-INSTITUTE
Delaware Valley Chapter

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Geosynthetic Institute

GSI RECORDED WEBINARS

- Topics, and Registration at www.geosynthetic-institute.org/webinar.htm
- Each Webinar Carries 1.5 Professional Development Hours Upon Completion of a 10-Question Multiple Choice Test
- Each presentation lasts approximately 90 minutes

ALL WEBINARS WILL BE RECORDED AND CAN BE PURCHSED FOR VIEWING AT YOUR CONVENIECE

GSI/GMA Members $200.00 USD per each Webinar

Follow Delaware Valley Geo-Institute @ https://dvgi.org/

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DVGI February 2025
Volume 25, Issue 2

GEO-INSTITUTE
Delaware Valley Chapter

ANNOUNCEMENTS

HAVE DVGI PUBLISH YOUR ARTICLE, ADVERTISEMENT, OR JOB POSTING

- 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?
- Would you like to get the word out about a job opening, new venture, etc. to our membership via the newsletter?

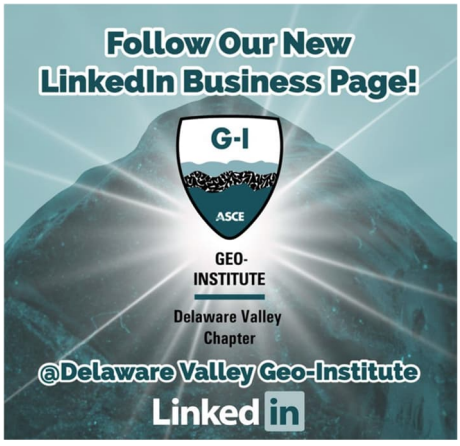
Please submit your articles or news items for consideration in the next edition of the newsletter or get in touch about our reasonably priced advertising by contacting Neil Scafonas (neil.scafonas@aecom.com).

Geo-Institute

Books Rock! is a series celebrating the publications of ASCE and the Geo-Institute - you might learn more about our standards, a book on dams, or anything in between! Each episode will feature an in-depth interview with one of our authors so you can go behind the publication! The January episode will feature an interview with Mike McGuire and Elise Hummel, two of the editors of Theory Manual for the Load Displacement Compatibility Method (LDC) for Design of Column-Supported Embankments: A Companion to GeogridBridge 3.0. Hear about the contents of the manual, what the editors left out, how it can help your work, and a lot more! :

https://www.youtube.com/watch?v=AQcJ0p2D6y4

Follow our Social Media @ https://www.linkedin.com/company/delaware-valley-geo-institute



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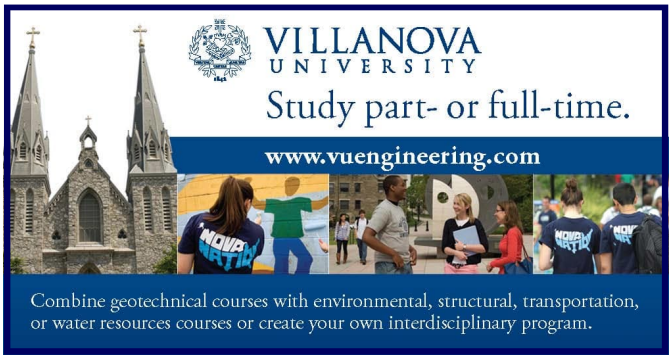

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