

October 2020 ASCE Midlands Branch Newsletter



When

Wednesday, October 21st, 2020
Presentation: 12:00 PM to 1:00 PM

Contact

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[Register Here!* - WebEx](#)

**Click "Register" on the left-hand side of the page next to "Event Status" - You will be prompted with a form to fill out. Once you submit, you should receive an email saying your registration was approved and an invite to add to your calendar.*

Virtual Presentation

Speakers:

Ryan N. Keiper, P.E.

Susheel R. Kowalkar, Ph.D., P.E.

Hugh K. Leatherman Terminal – Buildings & Canopies – Value Engineered Foundations

North Charleston, South Carolina

Speaker Bios

Ryan N. Keiper, P.E.



From transportation projects to commercial development to earthquake engineering, Mr. Keiper brings strong geotechnical expertise and experience to bear for diverse clients. He has worked as a geotechnical engineer and consultant in the greater Charleston, South Carolina since graduating from The Citadel. He also completed his MS at University of California, Berkeley, where he studied geotechnical and seismic engineering. His expertise includes soft soil design and CEUS seismic analysis, in addition to shallow and deep foundation design, embankment and stability analyses, and retaining structures. His projects serve both governmental agencies, especially SCDOT and South Carolina State Ports Authority, and commercial enterprises. Over the past several years, Ryan has served as geotechnical EOR for several aspects of the Hugh K. Leatherman, Sr. project.

Susheel R. Kowalkar, Ph.D., P.E.



Dr. Kowalkar's 24 years of deep foundation testing and evaluation work experience spans over domestic regions of South Carolina, North Carolina, Florida, Ohio, Illinois, Indiana and Wisconsin as well as internationally in India, Oman and offshore oil-platforms in Saudi Arabia. He is a Senior Consultant and a deep foundation testing leader for Insight Group, Certified PDA Engineer who holds a PDCA/PDI rank of Expert Level Certification. His expertise are in the areas of dynamic testing on driven pile foundation projects using Pile Driver Analyzer (PDA), pile capacity determination using CAPWAP software, wave equation of driven piles using GRLWEAP, Cross-hole Sonic Logging (CSL) on drilled shafts, and integrity testing using Pile Integrity Tester (PIT) on drilled shafts and auger cast piling foundations. His current role involves providing technical direction, conducting training and performing data analyses associated with PDA, CSL and PIT test methods for Insight Group.

Abstract

The South Carolina Ports Authority (SCPA) is currently building the Hugh K. Leatherman Terminal (HLT), which is a state-of-the-art, three-berth container terminal located along the Cooper River in North Charleston, SC. The project is one of the nation's largest port expansion projects. The new terminal is built on historic marsh, dredge spoils, even an abandoned Navy airfield runway, where post-construction settlement is anticipated up to 12 inches (304.8 mm) over 25 years. As a result of the challenging site conditions, the site was surcharged with rock for multiple years and the project installed some of the most linear feet of wick drains as any project in the United States. The significant post-construction settlement will impart downdrag forces on the driven piles planned at the site. The project specifications for the buildings and canopies require that a pre-production test pile program should be performed. The proposed 14-inch (355 mm) square prestressed concrete (PSC) test pile lengths varied from 86 feet (26.2 m) to 130 feet (39.6 m), which qualified them to be some of the longest uniform concrete piles installed in the Lowcountry. Accordingly, forty (40) piles were dynamically tested during initial drive and restrike test sequences utilizing a Pile Driving Analyzer (PDA).

Further review of geotechnical analyses indicated that a traditional pile design approach was used to address soil downdrag effects, which was the primary reason for the longer estimated pile lengths. In order to minimize cost and constructability considerations of the long piles, Insight Group recommended an alternate design approach, referred to as 'Neutral Plane Method' to SCPA, which was subsequently approved. The traditional downdrag method treats drag load as an additional load that must be supported. Alternatively, the neutral plane method as described in FHWA-NHI-16-009 uses the Siegel et al. (2013) method within LRFD framework and considers drag force as a settlement consideration in the geotechnical service limit state and as a structural consideration in the pile strength limit state. The neutral plane design was verified using the soil resistance distribution obtained from PDA data analyses. High strain dynamic test results in conjunction with neutral plane analyses findings were used to develop production pile driving criterion for each structure. As a result, production pile length reductions ranging from 6 feet (1.8 meters) to 27 feet (8.2 meters) were achieved on the project. PDA testing and neutral plane analyses results for one representative building will be presented and the benefits of shorter piles in terms of constructability and overall project cost-savings will be discussed.



President's Pen

Hi there Midlands Branch! I hope everyone is staying healthy and things are getting somewhat back to normal in these different times! I know I'm enjoying this cooler weather that we're having and some apple cinnamon donuts!!

Moving forward, we will still be hosting virtual meetings until further notice in place of our regularly scheduled lunch and learns. For the second of these, please join us on October 21st as Ryan Keiper and Susheel Kolwalkar with Insight Group will be giving us a presentation on the Hugh K. Leatherman Terminal-Buildings and Canopies-Value Engineered Foundations.

I hope everyone is enjoying the website found here: [New ASCE Midlands Branch Website](#). Please keep checking this moving forward to stay up to date on all things ASCE Midlands Branch and to check any upcoming events we have!

I hope you all can join us on October 21st! We look forward to "seeing" you there!



ASCE Younger Member Fall Events

Virtual Trivia Night

Join us for a fun night of virtual trivia on **Thursday, October 29 at 7pm!**

Put your thinking caps on and try to win some fun prizes, and socialize with other younger members around the state!

[Register for Trivia Night Here!](#)

~Socially Distanced~ Annual Cornhole Tournament

Mark your calendars! The next ASCE Midlands Branch younger member cornhole tournament will be **Thursday, November 19th at [Steel Hands Brewery](#) from 6-8pm.**

[Directions \(Google Maps\)](#)

The event will be free to attend/watch/drink/eat. Feel free to invite your spouse/significant other! Everyone will get one drink ticket and one food ticket to exchange from a selective menu at the bar. Steel Hands also has LIVE MUSIC on Thursdays!

For the cornhole tournament, the registration cost is \$20 per team of two, and \$10 as a free-agent who is willing to pair up with another free-agent. Half of the money raised by the registration fees will be donated to the United Way of the Midlands, with the other half becoming prize money to split between the top two teams!

An email will go out in the following weeks to register for the tournament.

Come join us and socialize with your fellow young members of the Midlands, we hope to see you there!



- Bobby Ley
Midlands Branch Younger Member Chair

NEW ASCE Midlands Branch Website!



The ASCE South Carolina Midlands Branch has a new website! Please follow the link to the right to view events, contacts, awards, a newsletter archive, and other resources. A big thank you to **Meghan Franco**, our social media chair, for setting the site up and keeping it up to date!

[ASCE Midlands Branch Website](#)



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ASCE Midlands Branch | [*New* Website!](#)



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