Introducing a New Committee and Chair

We are pleased to announce that DFI has formed our 25th technical committee — the DFI International Grouting Committee. The committee was formed following ongoing discussions on the sometimes-controversial differences in the international grouting industry. The primary initiative of the committee is to prepare general grouting guidelines and specific documents summarizing the different international approaches and procedures. In addition, the committee plans to review and summarize existing documents and specifications used in the worldwide grouting industry. The committee will involve representatives of the entire geo-foundation industry, including owners, engineers, contractors, manufacturers and academics, and is committed to communicate and cooperate with other existing grouting committees and groups.

The first chair of the DFI International Grouting Committee is Paolo Gazzarrini, P.Eng., D.GE, of Sea To Sky Geotech, an independent specialty foundation consultant based in Vancouver, B.C., Canada. Gazzarrini has more than 35 years of experience in specialty geotechnical contracting and engineering. He has been involved in grouting foundation works for major hydroelectric projects all over the world, with experience in foundation techniques, tunneling, tunneling consolidation, diaphragm walls, anchoring, rock/soil grouting and jet-grouting.

Gazzarrini received his M.S. degree in civil engineering at Milan Polytechnic, Italy. He is a member of DFI, ASCE-GI, ASDSO, USSD, ASTM and Canadian geotechnical organizations, and is past chair of ASCE GeoInstitute Grouting Committee. He participates as an educator at the University of Texas at Austin and at the university's annual Grouting Fundamentals & Current Practice course. He also lectures at the University of British Columbia on the topic of soil/rock improvement. In addition, he is editor of *Grout Line* at **www.groutline.com**.

Women in Deep Foundations – Technical Program Leaders

Women are holding lead roles for all DFI and other related technical events in 2019. Please join us in congratulating and thanking them for their efforts to provide high quality, state-of-practice programs for the industry.

- Pollyanna Cunningham, International Construction Equipment (ICE®), is the chair of the DFI Driven Pile Committee, which is the lead committee for SuperPile '19 in Seattle, Wash., May 1-3, 2019.
- Karen Dawson, P.E., Jacobs, is the program chair for the Helical Pile World-DFI Helical Piles-Tiebacks-Anchors Tradeshow and Educational Seminar, in Cincinnati, Ohio, June 4-5, 2019.

Mary Ellen Bruce Large, P.E., D.GE
Director of Technical Activities
melarge@dfi.org

- Johanna Mikitka Simon, P.E., Schnabel Engineering, is the program chair for DFI's S3: Slope-Support-Stabilization Seminar in Minneapolis, Minn., August 6-8, 2019.
- Helen Robinson, P.E., GEI Consultants, is the program chair for International Society for Micropiles' 14th Workshop in Gold Coast, Queensland, Australia, August 21-24, 2019.
- Dhooli Raj, P.E., Collins Engineers, is the chair of DFI's 44th Annual Conference on Deep Foundations in Chicago, Ill., October 15-18, 2019.
- Dr. Cassandra Rutherford, Iowa State University, is co-program chair with Raymond Franz, P.E., Hayward Baker, for DFI's 44th Annual Conference on Deep Foundations in Chicago, Ill.
- Mary Ellen Bruce Large, P.E., D.GE, is the deep foundations track co-chair with Walter Paniagua, Pilotec, and Jarbas Milititsky, Milititsky Consultants, for the XVI Panamerican Conference on Soil Mechanics and Geotechnical Engineering organized by the Society of Mexican Geotechnical Engineers and ISSMGE in Cancun, Mexico, November 17-20, 2019. Dr. Jennifer Nicks, P.E., FHWA, is also contributing to this event by working with Large on an industry-academic collaborative forum.
- Lucky Nagarajan, Skyline Steel, is organizing the first WiDF program at DFI-India 2019: 9th International Conference on Deep Foundation Technologies for Infrastructure Development in India, in Hyderabad, Telengana, India, November 14-16, 2019.

We are excited to have so many women actively involved in DFI's technical programs. Please join them. We are always welcoming new participants.

2019 FHWA National Geotechnical Team State-of-the-Program Report

At the Transportation Research Board Annual Meeting in Washington, D.C. in January 2019, Silas Nichols, P.E., principal geotechnical engineer for the Federal Highway Administration (FHWA), provided an update on the state of the FHWA geotechnical program. This summary highlights the pertinent technical programs that affect deep foundations practice.

Advanced Geotechnical Exploration Methods (The A-GaME)

The FHWA Geotechnical Team's signature achievement in 2018 was the Agency selection of Advanced Geotechnical Exploration Methods (The A-GaME) as an Every Day Counts (EDC) 5

DFI Technical Committee Chairs

DFI-ADSC Anchored Earth Retention
Co-Chair: Ed Laczynski, P.E.
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Co-Chair: Jeff Segar, P.E., S.E.
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Augered Cast-in-Place
Chair: Jonathan Huff, P.E.
Richard Goettle
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BIM/ Digitalisation (DFI Europe)
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Deep Foundations for Landslides and Slope Stabilization
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Seepage Control
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Slurry Wall
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Soil Mixing
Chair: David Miller, P.E.
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Sustainability
Currently Unchaired

Subsurface Characterization for Deep Foundations
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Testing and Evaluation
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DFI Technical Committees meet regularly.

Innovation. EDC is a program that identifies and rapidly deploys proven, yet underutilized, innovations to shorten project delivery, enhance roadway safety, reduce traffic congestion and integrate automation. The A-GaME focuses on assisting transportation partners to improve the scope and quality of site characterization work through the implementation of underutilized technologies, including Cone Penetration Test (CPT/SCPT), Electrical Methods (ER, IP, SP), Measurement While Drilling (MWD), Seismic Methods (Refraction, Surface Waves, FWI, Tomography, Reflection) and Optical and Acoustic Televiewers (OTV/ATV). The diverse implementation team consists of FHWA and state DOT personnel, practitioners and representatives from relevant industry organizations, including DFI. The team is experienced in construction, design, geophysics, risk, site variability and geostatistics, and will assist FHWA in working to elevate site characterization practices in project delivery. Mary Nodine, P.E., of GEI Consultants, and vice chair of DFI's Subsurface Characterization Committee, and Mary Ellen Bruce Large, P.E., D.GE, of DFI are representing DFI and actively supporting and transferring technology between the A-GaME team and the DFI membership.

www.GeoTechTools.org

- FHWA is updating the look and functionality of the web-based platform and developing marketing tools to assist new users to use the website. The new platform should debut in spring 2019.
- The GeoInstitute of ASCE (GI) will take over hosting responsibilities for the GeoTechTools website sometime in early spring 2019.

Service Limit State Calibration

- In 2018, FHWA worked closely with the AASHTO Committee on Bridges and Structures to ballot and approve new specifications for consideration of foundation settlement in bridge design based on the Second Strategic Highway Research Program (SHRP2) R19B research effort.
- Web-based training modules are being developed to provide users with step-by-step procedures for developing local calibrations at the service limit state. This self-paced training should be available by late spring 2019.

GRS-IBS

- A close-out synthesis report titled *Deployment of the Geosynthetic Reinforced Soil Integrated Bridge System from 2011 to 2017* (FHWA-HIF- 17-043) published in 2018 summarizes the EDC deployment effort for GRS-IBS. The report includes standard plans for use in project development and several case histories from the six-year deployment effort. Case histories can be found at **www.GeoTechTools.org**.
- An update to the *Design and Construction Guidelines for Geosynthetic Reinforced Soil Abutments and Integrated Bridge Systems* (FHWA-HRT-17-080) is complete, and a TechBrief titled *Geosynthetic Reinforced Soil-Integrated Bridge System – Bid Price Analysis and Cost Comparisons with Alternative Foundation Types* is in the final editing stage.

Geotechnical Guidance Documents

In 2018, FHWA completed the following Geotechnical Engineering Circulars (GEC), which are being finalized for publication:

- *GEC-9 Design, Analysis, and Testing of Laterally Loaded Deep Foundations that Support Transportation Facilities* (FHWA-HIF-18-031)
- *GEC-10 Drilled Shafts: Construction Procedures and Design Methods* (FHWA-NHI-18-024)

Also completed are the following additional documents that support geotechnical program initiatives (to be available spring 2019):

- *Evaluation of Limit Equilibrium Analysis Methods for Design of Soil Nail Walls* (FHWA-NHI-17- 068)
- *Incorporation of Foundation Movements in AASHTO LRFD Bridge Design Process – Second Edition*
- *Implementation Report – Expanded Database for Service Limit State Calibration of Immediate Settlement of Bridge Foundations on Soil*

In 2019, the following significant developments will be addressed:

- GEC 15 – develop procedural guidelines for assuring quality in geotechnical construction based on best practice, applicable and innovative tools and modern contracting methods.
- GEC 1 – redevelop as a base guidance manual covering geotechnical design and construction. This work is pending available funding.
- GEC 11 – updated to address some errata and changes to guidance on design of MSE walls. This work is pending available funding.

To access the library of GECs, search online for FHWA geotechnical publications.

FHWA is undertaking the following additional initiatives to address long-term needs:

- Performance and Asset Management
  - Geohazards, Extreme Weather Events and Resilience
  - Unstable Slope Management
  - Assessment of Corrosion for Buried Metallic Foundations and Elements (in collaboration with the National Academies of Science)
  - Protocol for Identification and Risk-Based Assessment of MSE Walls
  - Communication of Data Sets and Data Protocols
  - Deployment of Innovations Deserving Exploratory Analysis (I.D.E.A.)
- Design and Construction Optimization
  - Bearing Resistance of Large Diameter Open Ended Piles
  - Lateral Load on Deep Foundations
  - High Performance (Tremie) Concrete for Geotechnical Applications
  - Geotechnical Aspects of Scour Design

Research Activities

In 2018, the following research activities were funded by FHWA:

- Service Limit State Design and Analysis of Engineered Fills for Bridge Support (complete and awaiting publication pending internal issues)
- Strength Characterization of Geotechnical Materials (completed. FHWA-HRT-18-048)
- Bearing Resistance of Large Diameter Open Ended Piles (completion in spring 2019)
- High Performance Concrete for Geotechnical Applications
- Development of Geohazards Program Framework (completion in fall 2019)
- Communication of Data Sets and Data Protocols (completion in summer 2019)
- Assessment of Corrosion for Buried Metallic Foundations and Elements (collaboration with National Academies of Science)
- Protocol for Identification and Risk-Based Assessment of MSE Walls (completion in spring 2019)
- Geotechnical Aspects of Pavements
- Evaluation of Geosynthetics for Use in Pavement Design
- Dry Cast Block Durability Assessment
- Develop Baseline Soil Constitutive Models for Open-Graded Aggregates
- Evaluation of Bridge Approach Transitions Using Inertial Profilers (completion in spring 2019)

Training Development and Delivery

National Highway Institute (NHI) maintains and delivers a broad curriculum of courses spanning the geotechnical discipline. NHI is streamlining the number of courses that are instructor-led and identifying alternate platforms for delivery. Currently, NHI is developing the following training products:

- NHI 132031 Geotechnical Site Characterization
- NHI 132014 Drilled Shafts: Construction Methods and Design Procedures
- NHI 132021 Design and Construction of Driven Piles (pending available funding)
- Geohazards, Extreme Weather Events and Resilience – Seminar (fall 2019)
- Unstable Slope Management (Completed training developed through WFLHD)
- Communication of Data Sets and Data Protocols – Workshop (summer 2019)
- NHI 132100 Incorporation of Foundation Movements in Structure Design – Web-based (spring 2019)

DFI partners with NHI on the delivery of geotechnical courses. Members interested in attending or organizing a course are encouraged to contact **events@dfi.org.**