

# Geotechnical Frontiers 2017: Transportation Facilities, Structures, and Site Investigation



Selected Papers from the  
Proceedings of Geotechnical Frontiers 2017

**GSP 277**



**Edited by**  
Thomas L. Brandon, Ph.D., P.E.  
Richard J. Valentine, P.E.



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GEOTECHNICAL SPECIAL PUBLICATION NO. 277

# GEOTECHNICAL FRONTIERS 2017

## *TRANSPORTATION FACILITIES, STRUCTURES, AND SITE INVESTIGATION*

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SELECTED PAPERS FROM SESSIONS OF  
GEOTECHNICAL FRONTIERS 2017

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March 12–15, 2017  
Orlando, Florida

SPONSORED BY

Industrial Fabrics Association International

Geo-Institute of the American Society of Civil Engineers

EDITED BY

Thomas L. Brandon, Ph.D., P.E.

Richard J. Valentine, P.E.



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# Preface

Geotechnical Frontiers 2017 was held in Orlando, FL, on March 12-15. It is the third conference co-sponsored by the Industrial Fabrics Association International (IFAI) and the American Society of Civil Engineers' Geo-Institute (G-I). Other supporting organizations are acknowledged below.

The conference includes topics which illustrate that our understanding of traditional subjects, such as the physical properties of soils, the stability of slopes, the details of mechanically-stabilized earth, the design of roadways and the efficacies of geosynthetics remains far from complete. It also includes topics that reflect the dynamic and evolving nature of our industry, such as thermal properties of soils, energy geostructures, coastal engineering and measures to process coal combustion residuals.

The conference was organized with eight concurrent technical sessions over a period of three days. Most sessions are 90-minutes-long, and ideally, contain five to six presentations. These constraints limited the total number of slots that are available for paper presentations, and consequently, the total number of papers that can included in the proceedings. This is because, according to the conference rules, a paper must be presented in order to be published in the proceedings.

We received 893 abstracts for the conference. Each abstract was reviewed by the two technical session co-chairs and by at least one of the conference technical co-chairs. Of the 689 abstracts that were accepted, 583 resulted in draft manuscript submittals. Each manuscript received at least two reviews. At the end of this process, 361 manuscripts were recommended for publication in the six volumes of these proceedings. Unfortunately, the limited number of presentation slots made it necessary to decline many fine papers. We encourage the authors to submit at other venues.

Geotechnical Frontiers is also the venue for special presentations of invited and award lectures. Prof. Kerry Rowe presented the Terzaghi Lecture, Prof. Vaughan Griffiths presented the Seed Lecture, and Prof. Ning Lu presented the Peck Lecture. The inaugural Robert. M. Koerner Award and Lecture debuted at this conference and George Koerner was the speaker. There was also a special honorary symposium in recognition of the distinguished career and countless contributions of Professor Mike Duncan.

**Thomas L. Brandon and Richard J. Valentine**, Editors  
**Barbara J. Connett**, Secretary General

## Conference Organizing Committee

The conference organizing committee started planning in March, 2015. The individuals listed below have been actively involved in the planning and production of the conference.

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## Additional Organizational Assistance

Many professional organizations contributed to the many components necessary to hold a conference like Geotechnical Frontiers 2017. These are listed below.

## Supporting Organizations

Academy of Geo-Professionals (AGP)  
International Association of Foundation Drilling (ADSC)  
Association of Environmental and Engineering Geologists (AEG)

Association for Metallically Stabilized Earth (AMSE)  
 American Society of Civil Engineers – FL Section East Central Branch Geo-Institute (ASCE FL)  
 ASTM International (ASTM)  
 Bombay Textile Research Association (BTRA)  
 Business Co-ordination House (BCH)  
 Canadian Geotechnical Society (CGS)  
 Deep Foundations Institute (DFI)  
 Erosion Control Technology Council (ECTC)  
 Fabricated Geomembrane Institute (FGI)  
 Federal Highway Administration (FHWA)  
 GeoProfessional Business Association (GBA)  
 Geosynthetic Institute (GSI)  
 International Association of Geosynthetic Installers (IAGI)  
 The Nonwovens Institute (NWI)  
 Pile Driving Contractors Association (PDCA)  
 Transportation Research Board (TRB)  
 United States Universities Council on Geotechnical Education and Research (USUCGER)

### **Supported by**

North American chapter of the International Geosynthetics Society (IGS-NA)

### **Under the Auspices of**

International Geosynthetics Society (IGS)

### **Supporting Media**

GeoChannel  
 geoengineer.org  
*GEOSTRATA* magazine  
*Geosynthetics* magazine  
*Pile Buck* magazine  
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