

IFCEE 2018

Case Histories and Lessons Learned

Selected Papers from Sessions of the International
Foundation Congress and Equipment Expo 2018

Geotechnical Special Publication Number 298

Orlando, Florida, USA
5 – 10 March 2018

Editors:

Armin W. Stuedlein
Anne Lemnitzer
Muhannad T. Suleiman

ISBN: 978-1-5108-6518-1

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2018) by American Society of Civil Engineers
All rights reserved.

Printed by Curran Associates, Inc. (2018)

For permission requests, please contact American Society of Civil Engineers
at the address below.

American Society of Civil Engineers
1801 Alexander Bell Drive
Reston, VA 20191
USA

Phone: (800) 548-2723
Fax: (703) 295-6333

www.asce.org

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2633
Email: curran@proceedings.com
Web: www.proceedings.com

Contents

Case Histories, Lessons Learned, and General Practice

Economy and Design of Augered Cast-In-Place Piles at the Fargo WTP	1
Jonathan Huff, L. Sebastian Bryson, and Jorge Romana Giraldo	
Augered Cast-In-Place Piles Embedded in Cobbles and Boulders in Honolulu	13
Andrew J. Hignite and Robin M. Lim	
Settlement Induced during CFA Pile Installation in Egyptian Nile Valley Region: Case Study	25
Mohamed G. Arab, Ahmed Elgamal, Maher Omar, and Waleed Zeiada	
Obstructed and Damaged Piles—Some Case Histories of Pile Repairs	39
Ali Azizian, Brian E. Hall, Arma Dhaliwal, and Robyn Barnett	
Drilled Shaft Foundation Design for Extreme Event: Sarah Mildred Long Bridge Replacement Project	55
A. M. Ramakrishna and R. R. Mankbadi	
Pile Group Effects and Soil Dilatancy at the Fort Lauderdale International Airport.....	64
David A. Rancman, Thai Nguyen, Daniel C. Hart, and Yves-Stanley Delmas	
Failure of Pile Foundations Driven into Bedrock through Hydrocollapsible Soils	79
John Montgomery Schultz and Siamak Jafroudi	
Rigid Inclusion Supported Embankments for New Jersey Turnpike Interchange 14A: A Case Study	94
Daniel V. Cacciola, Shafiq I. Siddiqui, Sarah Ramp, and Faisal Ahmed	
Compaction Grouting Beneath Brownstone Buildings Founded on Soft Ground.....	109
Chu E. Ho and Aaron Evans	
Half Mile Long Ore Shed: Ground Improvement in “Low Headroom”	125
Allen Cadden, Michael Arnold, Bob Faulhaber, and Johanna Simon	

Jet Grouting for Seepage Control at Lac Des Iles (LDI) Water Management Facility	139
Naresh Gurpersaud, Daniel Lees, and Frank Hu	
Deep Power Compaction Vibro-Compaction Testing Program at Treasure Island	150
Stefanos Papadopoulos and Uri Eliahu	
Role of Blended Cements and Slag Cement to Improve Sustainability of Geotechnical Projects	163
Charles M. Wilk and Gordon R. McLellan	
Design and Installation of Micropile Foundations for a Suspension Bridge.....	173
Justin R. Lewis	
High Capacity Macropiles™ for a New 70 Story Tower in Manhattan.....	184
John R. Grillo	
New Bronx-Whitestone Bridge Approach Foundations Design and Construction.....	196
Mangtao (Monty) Du, Daniela Zellers, Joe Wang, Frank Pepe, and Christopher Saladino	
Development of a Point-Based Index for Sinkhole Vulnerability Evaluation in Central Florida’s Karst Terrain.....	212
Ryan M. Shamet, Boo Hyun Nam, and David Horhota	
Establishing a Threshold Sustainability Index for a Geotechnical Construction	222
Jasaswee T. Das, Rinu A. Samuel, Anu M. George, Sayantan Chakraborty, Tejo V. Bheemasetti, and Anand J. Puppala	
Site Characterization with 3-D Full Seismic Waveform Tomography	233
Khiem T. Tran and Trung Dung Nguyen	
Field and Laboratory Characterization of the Operational Response of Wind Turbine Generator Foundation Soil	243
Christopher Enos, Mehmet Yilmaz, Zhenzhong Wu, James M. Tinjum, and Dante Fratta	
CPT Based Settlement Prediction over California Soft Rock, Stiff Alluvium, and Soft Alluvial Sites	254
S. Ali Bastani and Gregory P. Silver	

Measurement of Moisture and Temperature Profiles in Different Layers of Soil266
 F. Fazel Mojtahedi, Khosravi Ali, Ali Nazari, Saeed Rezvani, Azin Khatami, and Narges Ahmadi

Developing Smart Grouted Sand Columns for Real Time Monitoring of Earth Dams.....279
 C. Vipulanandan, I. Kula, D. Magill, and F. Aguilar

Effect of Microbial Induced Carbonate Precipitation on the Stability of Mine Tailings.....291
 Atefeh Zamani, Qianwen Liu, and Brina M. Montoya

The CET Method for Levee-Floodwall Erosion Evaluation.....301
 Sina Nassiri, Abdolreza Osouli, and Brent Vaughn