

# **International Foundations Congress and Equipment Expo (IFCEE 2015)**

**Geotechnical Special Publication Nwo dgt 256**

**San Antonio, Texas, USA  
17-21 March 2015**

**Volume 2 of 3**

**Editors:**

**Magued Iskander  
Muhannad T. Suleiman**

**J. Brian Anderson  
Debra F. Laefer**

**ISBN: 978-1-5108-0133-2**

**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© (2015) by the American Society of Civil Engineers  
All rights reserved.

Printed by Curran Associates, Inc. (2015)

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

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

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

[www.asce.org](http://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: 845-758-2634  
Email: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

# TABLE OF CONTENTS

## VOLUME 1

<b>RECONSTRUCTION OF ROUTE 33 BRIDGES AT WEST POINT, VIRGINIA</b> .....	1
<i>J. Hartman, F. Pepe, R. Fahmy</i>	
<b>NUMERICAL MODELING IN MICROPILE DESIGN FOR A PUSHER FURNACE</b> .....	16
<i>T. Siegel, R. Bivens</i>	
<b>OVERBURDEN EFFECT ON THE AXIAL RESISTANCE OF INSTRUMENTED CFA PILES</b> .....	25
<i>T. Siegel, P. Faust</i>	
<b>THERMAL INTEGRITY PROFILING OF ACIP PILES</b> .....	34
<i>M. Becker, T. Coleman, D. Belardo</i>	
<b>COMPARISON OF IMAGE ANALYSES ALGORITHMS FOR VIDEO-BASED REMOTE STRUCTURE VIBRATION MONITORING SYSTEM</b> .....	49
<i>Y. Yang, N. Zimmer, X. Yu</i>	
<b>MONITORING MICROPILE FOUNDATIONS OF BRIDGE DURING CONSTRUCTION</b> .....	60
<i>R. Luna, D. Dixon, K. Kershaw, T. Siegel</i>	
<b>APPARENT LATERAL EARTH PRESSURES BELOW THE LOWEST SUPPORT LEVEL</b> .....	72
<i>D. Konstantakos</i>	
<b>LIQUEFACTION OF GRANULAR SOILS AT THE MICROSCALE</b> .....	85
<i>U. El Shamy, Y. Abdelhamid</i>	
<b>CASE STUDIES OF NEW YORK CITY PROJECTS WITH VARYING SITE CONSTRAINTS</b> .....	94
<i>A. Alzamora, L. Ford, A. Ciancia</i>	
<b>RESPONSE OF AN ENERGY FOUNDATION TO TEMPERATURE FLUCTUATIONS</b> .....	108
<i>J. McCartney, K. Murphy, K. Henry</i>	
<b>NUMERICAL SIMULATION OF PILE INSTALLATION AND SETUP FOR BAYOU LACASSINE SITE</b> .....	119
<i>F. Rosti, M. Abu-Farsakh</i>	
<b>EXPOSURE OF DEEP FOUNDATIONS FOR THE KENTUCKY LOCK ADDITION PROJECT</b> .....	129
<i>T. Weinmann, R. Nyren, A. Marr</i>	
<b>A METHODOLOGY FOR AXIALLY LOADED DRILLED SHAFT PERFORMANCE PREDICTIONS USING DFSAP</b> .....	143
<i>R. Motamed, K. Stanton, M. Nasimifar, N. Pearson, B. Kluzniak</i>	
<b>FOUNDATION FEATURES TALL BUILDINGS AND BRACED EXCAVATIONS IN HOUSTON</b> .....	158
<i>E. Ulrich</i>	
<b>TENSION TESTS ON DRIVEN H-PILES IN SAND AND CLAY</b> .....	173
<i>A. Lutenegeger, J. Khalili, T. Orszulak</i>	
<b>PHYTOREMEDIATION OF MIXED CONTAMINATED SOILS: ENHANCEMENT WITH BIOCHAR AND COMPOST AMENDMENTS</b> .....	183
<i>R. Chirakkara, K. Reddy</i>	
<b>SUSTAINABILITY ASSESSMENT OF TWO ALTERNATE EARTH-RETAINING STRUCTURES</b> .....	193
<i>R. Giri, K. Reddy</i>	
<b>RESPONSE OF BEAMS ON NONLINEAR FOUNDATION</b> .....	203
<i>S. Haldar, D. Basu</i>	
<b>RESPONSE OF RESILIENT MODULUS TO MOISTURE VARIATION IN UNSATURATED SUBGRADE SOILS</b> .....	213
<i>A. Mehrota, M. Abu-Farsakh, K. Gaspard</i>	
<b>LIQUEFACTION AND RESIDENTIAL FOUNDATIONS: LESSONS LEARNED FROM PAST EARTHQUAKES</b> .....	222
<i>L. Ekstrom, K. Franke, T. Youd, F. Fonseca, M. Francis</i>	
<b>USING THERMAL INTEGRITY PROFILING TO CONFIRM THE STRUCTURAL INTEGRITY OF FOUNDATION APPLICATIONS</b> .....	232
<i>G. Pisciak, D. Cotton, D. Belardo, G. Likins</i>	
<b>THE ICP DESIGN METHOD AND APPLICATION TO A NORTH SEA OFFSHORE WIND FARM</b> .....	242
<i>R. Jardine, A. Merritt, F. Schroeder</i>	
<b>EVOLUTION OF INTERPHASE CONTACT ANGLE IN PARTIALLY SATURATED GRANULAR SOILS USING DIGITAL ANALYSIS OF X-RAY COMPUTED TOMOGRAPHY IMAGES</b> .....	254
<i>K. Manahiloh, C. Meehan</i>	

<b>INFLUENCE OF PHYSICO-CHEMICAL PROPERTIES OF DIFFERENT BIOCHARS ON LANDFILL METHANE ADSORPTION</b> .....	264
<i>B. Sadasivam, K. Reddy</i>	
<b>CENTRIFUGE MODELING OF OFFSHORE WIND TURBINE WITH BUCKET FOUNDATION UNDER EARTHQUAKE LOADING</b> .....	274
<i>X. Wang, X. Zeng, H. Yu, H. Wang</i>	
<b>SIMULATION OF DYNAMIC RESPONSE OF OFFSHORE WIND TURBINE WITH GROUP-PILE FOUNDATION USING CENTRIFUGE TESTS</b> .....	284
<i>X. Wang, X. Zeng, H. Yu, J. Lian</i>	
<b>INITIAL STEPS TOWARD CHARACTERIZING PARTICLE MOBILIZATION USING PORE-SCALE PARTICLE MOBILIZATION IMAGING EXPERIMENTS</b> .....	294
<i>B. Adams, M. Xiao</i>	
<b>MOISTURE CONTENT AND RELATIVE COMPACTION INFLUENCES ON SWELL POTENTIAL AND STRENGTH OF A COMPACTED RESIDUAL SOIL</b> .....	304
<i>M. Boone, D. Gerken</i>	
<b>UPLIFT TESTS ON SHALLOW CAST-IN-PLACE ENLARGED BASE PEDESTAL FOUNDATIONS IN CLAY</b> .....	319
<i>A. Lutenegeger</i>	
<b>EXPERIMENTAL P-Y CURVES FOR A LATERALLY LOADED SINGLE PILE IN CEMENT-IMPROVED SOFT CLAY</b> .....	331
<i>H. Soltani, K. Muraleetharan</i>	
<b>FIRST KNOWN APPLICATION OF CUTTER SOIL MIXING FOR SUPPORT OF A HERITAGE BUILDING</b> .....	341
<i>C. Leach, F.-W. Gerressen</i>	
<b>ENZYME INDUCED CARBONATE PRECIPITATION (EICP) COLUMNS FOR GROUND IMPROVEMENT</b> .....	356
<i>E. Kavazanjian, N. Hamdan</i>	
<b>THERMAL STRESS AND DISPLACEMENT RESPONSE OF GEOTHERMAL ENERGY PILES IN SAND</b> .....	366
<i>R. Saggi, T. Chakraborty</i>	
<b>DESIGN AND CONSTRUCTION OF A SHEET PILE EARTH RETENTION SYSTEM IN SOFT CLAYS</b> .....	376
<i>J. Lewis, S. Farr</i>	
<b>STATNOMIC LOAD TEST FOR 30-INCH PRECAST PRESTRESSED SQUARE CONCRETE PILE: A CASE HISTORY</b> .....	390
<i>R. Mabnbadi, A. Ramakrishna</i>	
<b>NUMERICAL SIMULATION OF A GEOSYNTHETIC REINFORCED SOIL INTEGRATED BRIDGE SYSTEM DURING CONSTRUCTION AND OPERATION USING PARAMETRIC STUDIES</b> .....	403
<i>M. Talebi, C. Meehan</i>	
<b>FULL SCALE CRASH TEST ON A GROUP OF PILES IN CLAY</b> .....	413
<i>M. Pajouh, J.-L. Briaud, D. Alberson, D. Arrington, A. Mirdamadi</i>	
<b>FULL-SCALE FIELD TESTING OF ENERGY PILES</b> .....	423
<i>M. Sutman, C. Olgun, T. Brettmann</i>	
<b>CENTRIFUGE MODELING THE INFLUENCE OF SOIL ANISOTROPY ON SEISMIC RESPONSE OF FOUNDATIONS</b> .....	433
<i>J. Qin, X. Zeng, H. Ming</i>	
<b>GROUND IMPROVEMENT: DIFFICULTIES IN MEASURING SUCCESS</b> .....	443
<i>J. Pegues, J. Jordan, Y. Xu</i>	
<b>CORROSION STUDY OF EXISTING STEEL H-PILE INSTALLED THROUGH CINDER-ASH FILL</b> .....	455
<i>L. Gu, S. McInnes, J. Fenton, S. Welsh, A. Mouradian</i>	
<b>LABORATORY DETERMINATION OF THE TIME-DEPENDENT INTERFACE FRICTIONAL BEHAVIOR BETWEEN COHESIVE SOIL AND CONSTRUCTION MATERIALS</b> .....	467
<i>E. Steward, M. Shekouh</i>	
<b>A CASE STUDY AND LESSONS LEARNED RETAINING WALL DESIGN AND CONSTRUCTION OF THE MAID OF THE MIST WINTER STORAGE FACILITY</b> .....	476
<i>H. Salman, T. Lee, J. Fonzi, M. Bajorek</i>	
<b>FOUNDATION DESIGN AND CONSTRUCTION IN URBAN ENVIRONMENTS</b> .....	491
<i>A. Brand, K. Trivedi</i>	

<b>EVALUATION OF PILE SET-UP USING ICAP DYNAMIC RESTRIKE SOFTWARE ANALYSIS IN THE STATE OF ALABAMA .....</b>	<b>501</b>
<i>R. Jones, E. Steward</i>	
<b>SETTLING CHARACTERISTICS OF FINE-GRAINED DREDGED SEDIMENTS USED IN LOUISIANA COASTAL RESTORATION AND LAND BUILDING PROJECTS .....</b>	<b>511</b>
<i>M. Ghose-Hajra, C. Mebust, G. Mattson</i>	
<b>PILE SETUP AND AXIAL CAPACITY GAIN FOR DRIVEN PILES INSTALLED USING IMPACT HAMMER VERSUS VIBRATORY SYSTEM .....</b>	<b>518</b>
<i>M. Ghose-Hajra, R. Jensen, L. Hulliger</i>	
<b>USE OF FLUIDIZED BED COMBUSTION ASH IN FULL DEPTH RECLAMATION .....</b>	<b>529</b>
<i>S. Jahangirnejad, D. Morian, B. Scheetz, M. Solaimanian</i>	
<b>BENEFICIAL REUSE OF WASTE INSULATION MATERIAL IN DRILLING APPLICATIONS.....</b>	<b>539</b>
<i>M. Bertoch, N. Yesiller, J. Hanson</i>	
<b>TEMPERATURE EFFECTS ON SAND-STEEL INTERFACE SHEAR AND QUANTIFICATION OF POST-SHEAR SURFACE TEXTURE CHARACTERISTICS OF STEEL .....</b>	<b>549</b>
<i>J. Hanson, A. Flores, D. Manheim, N. Yesiller</i>	
<b>UPLIFT RESISTANCE OF COATED DRIVEN STEEL PILES .....</b>	<b>559</b>
<i>A. Lutenegger, J. Khalili</i>	
<b>CHARACTERIZATION AND SURFACE ANALYSIS OF COMMERCIALY AVAILABLE BIOCHARS FOR GEOENVIRONMENTAL APPLICATIONS .....</b>	<b>569</b>
<i>E. Yargicoglu, K. Reddy</i>	
<b>PREDICTION OF THE RESILIENT MODULUS OF UNSATURATED BASE-COURSE MATERIALS .....</b>	<b>579</b>
<i>Z. Han, S. Vanapalli</i>	
<b>INVESTIGATION OF CONSTRUCTION SPECIFICATION EFFECTS ON ENERGY PILE EFFICIENCY .....</b>	<b>589</b>
<i>R. Caulk, E. Ghazanfari</i>	
<b>ENHANCED UNICONE EXPRESSIONS FOR AXIAL PILE CAPACITY EVALUATION FROM PIEZOCONE TESTS.....</b>	<b>599</b>
<i>F. Niazi, P. Mayne</i>	
<b>PAVEMENT REPAIRS LONG-TERM PERFORMANCE OVER EXPANSIVE SOIL .....</b>	<b>614</b>
<i>S. Dessoutky</i>	
<b>THE EFFECTS OF PILE INSTALLATION ON VERTICAL AND LATERAL RESPONSE.....</b>	<b>622</b>
<i>L. Ni, M. Suleiman, A. Raich</i>	
<b>PROBABILISTIC SETTLEMENT ANALYSIS OF SHALLOW FOUNDATIONS ON HETEROGENEOUS SOIL STRATUM WITH ANISOTROPIC CORRELATION STRUCTURE .....</b>	<b>630</b>
<i>A. Kenarsari, R. Chenari</i>	
<b>SUSTAINABLE ALTERNATIVES IN LOW VOLUME ROAD BASE COURSE APPLICATIONS EVALUATED THROUGH ACCELERATED PAVEMENT TESTING .....</b>	<b>640</b>
<i>H. Kazmee, D. Mishra, E. Tutumluer</i>	
<b>UNCONFINED COMPRESSIVE STRENGTH AND DEFORMATION MODULUS RELATIONSHIP FOR TWO CARBONATE ROCK FORMATIONS .....</b>	<b>650</b>
<i>H. Sarhan, M. Askar</i>	
<b>GEOTECHNICAL PROPERTIES OF LIGHTLY STABILIZED RECYCLED DEMOLITION MATERIALS IN BASE-SUB-BASE APPLICATIONS.....</b>	<b>658</b>
<i>A. Mohammadinia, A. Arulrajah, J. Sanjayan, M. Disfani, M. Bo, S. Darmawan</i>	
<b>PROBABILISTIC SEISMIC DESIGN OF SOIL-PILE RAFT-SUPERSTRUCTURE SYSTEM.....</b>	<b>668</b>
<i>B. Das, R. Saha, S. Haldar</i>	
<b>IMPACT OF PROOF LOAD TEST PROGRAMS ON THE RELIABILITY OF FOUNDATIONS .....</b>	<b>678</b>
<i>Y. Abdallah, S. Najjar, G. Saad</i>	
<b>LARGE-SCALE BENDING TESTS ON SOIL MIX ELEMENTS .....</b>	<b>689</b>
<i>N. Denies, N. Huybrechts, F. De Cock, B. Lameire, J. Maertens, A. Vervoort</i>	
<b>UNDRAINED BEHAVIOR OF SAND BY DEM STUDY .....</b>	<b>705</b>
<i>H. Nguyen, M. Rahman, D. Cameron</i>	
<b>FINITE ELEMENT ANALYSIS FOR SPATIALLY STOCHASTIC SOIL – ANISOTROPIC STUDIES .....</b>	<b>715</b>
<i>H. Nguyen, M. Rahman</i>	
<b>CHARACTERIZATION OF COLLAPSIBLE SOILS .....</b>	<b>723</b>
<i>J. Lommler, P. Bandini</i>	
<b>DESIGN AND CONSTRUCTION OF A PERMANENT EARTH RETENTION SYSTEM IN STIFF FISSURED CLAY AND LANDSLIDE RUBBLE .....</b>	<b>731</b>
<i>R. Valentine, T. Brandon</i>	

<b>IN-PLACE RECYCLING MOISTURE-DENSITY RELATIONSHIPS FOR HIGH-TRAFFIC APPLICATIONS</b> .....	746
<i>B. Cox, I. Howard, R. Battey</i>	
<b>INVESTIGATION OF THERMO-MECHANICAL LOAD TRANSFER (T-Z CURVES) BEHAVIOR OF SOIL-ENERGY PILE INTERFACE USING MODIFIED BOREHOLE SHEAR TESTS</b> .....	756
<i>S. Xiao, M. Suleiman</i>	
<b>ALTERNATIVE METHOD OF FLOW-BACK WATER TREATMENT IN SHALE GAS DEVELOPMENT FOR ENVIRONMENTAL PROTECTION</b> .....	766
<i>M. Peraki, E. Ghazanfari</i>	
<b>GROUND IMPROVEMENT OF MARINE CLAY FOR HIGHWAY CONSTRUCTION AT MUMBAI, INDIA</b> .....	776
<i>S. Desai, D. Choudhury, J. Salunkhe</i>	
<b>MERITS OF ASPHALT CONCRETE DURABILITY AND PERFORMANCE TESTS WHEN APPLIED TO COLD IN-PLACE RECYCLING</b> .....	788
<i>B. Cox, I. Howard</i>	
<b>ELASTIC ANALYSIS OF ROCK-SOCKETED PILES</b> .....	799
<i>H. Seo, M. Prezzi, R. Salgado</i>	
<b>PREDICTING IMMEDIATE SETTLEMENT ON SPREAD FOOTINGS FOR HIGHWAY BRIDGES</b> .....	806
<i>A. Ahmed, M. Szerszen, A. Nowak</i>	
<b>CREEP BEHAVIOR OF SHALE FORMATIONS IN SHALE GAS DEVELOPMENT</b> .....	821
<i>R. Lora, E. Ghazanfari</i>	
<b>BENEFICIAL REUSE OF FINE GRAINED SOILS FOR PORT, RIVER, AND SHORELINE APPLICATIONS</b> .....	831
<i>M. Bazne, F. Vahedifard, I. Howard</i>	
<b>FOUNDATION SUPPORT COST - APPLICATIONS TO DRIVEN-PILE DESIGN</b> .....	842
<i>V. Komurka</i>	
<b>MODEL TESTS OF LATERALLY LOADED PILES UNDER A HORIZONTALLY SCOURED CONDITION</b> .....	858
<i>O. Ismael, J. Han</i>	
<b>IMPLEMENTATION OF OPTIMIZED GROUND IMPROVEMENT TECHNIQUES FOR A PRIME REAL ESTATE LOCATION IN SOUTHERN CALIFORNIA</b> .....	865
<i>L. Stark, G. Taylor, L. Shao, T. Nguyen</i>	
<b>EFFECT OF DIFFERENT PARAMETERS ON STEADY STATE AND MONOTONIC LIQUEFACTION OF GRAVELLY SOILS</b> .....	880
<i>M. Payan, P. Ayoubi, S. Mirmo'azen</i>	
<b>USING CONE PENETRATION TESTING TO PREDICT THE CAPACITY AND DRIVABILITY OF TAPERED PILES IN SANDS</b> .....	895
<i>T. Carrol, S. Hu</i>	
<b>PRELIMINARY STUDIES OF THE USE OF ABANDONED MINE WATER FOR GEOTHERMAL APPLICATIONS</b> .....	909
<i>Z. Liu, J. Meldrum, P. Xue, C. Green</i>	
<b>CASE HISTORIES OF FULL-SCALE COMPARATIVE LOAD TESTING OF BASE GROUTED AND UNGROUTED TEST SHAFT PAIRS</b> .....	922
<i>J. Sinnreich, R. Simpson</i>	
<b>REMOVABLE COMPRESSIVE LOAD DISTRIBUTIVE STRAND ANCHORS: CASE HISTORY AND LESSONS LEARNED</b> .....	936
<i>J. Hertz, G. Moormann, M. Paquette, S. Shapiro, M. Gallagher</i>	

## VOLUME 2

<b>REGION-SPECIFIC LOAD TRANSFER MODEL FOR AUGERED CAST-IN-PLACE PILES IN GRANULAR SOILS</b> .....	947
<i>N. Adami, A. Stuedlein</i>	
<b>AN APPRAISAL OF A NEW GENERATION OF SURFACE WAVE TECHNIQUES AT A TEST SITE IN FLORIDA</b> .....	958
<i>P. Jiang, K. Tran, D. Hiltunen, N. Hudyma</i>	
<b>THE MEASUREMENT OF SUCTION STRESS CHARACTERISTIC CURVE FOR A HIGHLY COLLAPSIBLE LOESSIAL SOIL</b> .....	970
<i>S. Haeri, A. Khosravi, S. Ghazizadeh</i>	

<b>A NEW BOREHOLE TOOL FOR SUBSURFACE SEISMIC IMAGING - A FULL WAVEFORM INVERSION APPROACH</b> .....	980
<i>P. Jiang, D. Hiltunen</i>	
<b>MODELLING ETTRINGITE INDUCED HEAVING IN CEMENT STABILIZED SOILS WITHIN A CHEMO-MECHANICAL CONSTITUTIVE FRAMEWORK</b> .....	990
<i>P. Sigdel, L. Hu</i>	
<b>ENHANCEMENT OF PERVIOUS CONCRETE PILE SUBJECTED TO UPLIFE LOAD USING MICROBIAL INDUCED CARBONATE PRECIPITATION</b> .....	998
<i>H. Lin, M. Suleiman, H. Jabbour, D. Brown</i>	
<b>MITIGATION OF EARTHQUAKE-INDUCED LIQUEFACTION VIA MICROBIAL DENITRIFICATION: A TWO-PHASE PROCESS</b> .....	1007
<i>E. Kavazanjian, S. O'Donnell</i>	
<b>CURRENT LIMITATIONS AND CHALLENGES OF DRIVEN PILES IN ROCK AS DEMONSTRATED USING THREE CASE STUDIES IN WYOMING</b> .....	1017
<i>K. Ng, S. Yasrobi, T. Sullivan</i>	
<b>AN OVERVIEW OF SUSTAINABILITY APPLIED TO EARTH STRUCTURES</b> .....	1035
<i>D. VandenBerge, A. Esser, K. Bumpas</i>	
<b>LOAD DISPLACEMENT BEHAVIOR OF ACIP PILES IN MIXED SOIL PROFILE</b> .....	1045
<i>K. Vembu, C. Vipulanandan</i>	
<b>NUMERICAL SIMULATION OF A DRILLED SHAFT IN AN MSE WALL UNDER CYCLIC LOADING</b> .....	1053
<i>S. Rahman, J. Huang, S. Bin-Shafique</i>	
<b>CARBON FOOTPRINT OF TUTTLE CREEK DAM SEISMIC RETROFIT</b> .....	1063
<i>P. Gallagher, A. Cordi, S. Spatari</i>	
<b>STEEL SLAG: CHEMISTRY, MINERALOGY, AND MORPHOLOGY</b> .....	1073
<i>I. Yildirim, M. Prezzi</i>	
<b>GEO-CHARACTERIZATION OF BROWNFIELD SITE FOR MODERNIZATION OF A LARGE INDUSTRIAL FACILITY</b> .....	1083
<i>J. Clemente, D. Morgan, M. Lewis</i>	
<b>DRAINED SHEAR STRENGTH OF MICP SAND AT VARYING CEMENTATION LEVELS</b> .....	1097
<i>K. Feng, B. Montoya</i>	
<b>CENTRIFUGE TESTING OF LEVEES: SATURATION TECHNIQUES DURING MODEL CONSTRUCTION</b> .....	1107
<i>S. Yniesta, R. Cappa, A. Lemnitzer, S. Brandenburg</i>	
<b>OLD TECHNOLOGY ENHANCED BY DYNAMIC REPLACEMENT</b> .....	1117
<i>I. Oweis, J. Malak, T. Martin</i>	
<b>ASSESSMENT OF OLD STONE WALLS</b> .....	1135
<i>I. Oweis, A. Gutman, L. Oweis</i>	
<b>STATE OF PRACTICES IN DATABASES FOR DEEP FOUNDATION LOAD TESTS</b> .....	1149
<i>N. Abu-Hejleh, M. Abu-Farsakh, M. Suleiman, C. Tsai</i>	
<b>DUAL TIP PENETROMETER - A NEW IN-SITU APPROACH TO IDENTIFY CEMENTED SAND</b> .....	1159
<i>Z. Hu, M. Mcvay, D. Bloomquist, D. Horhota</i>	
<b>ALLOWABLE BEARING CAPACITY OF STRIP FOOTINGS ON JOINTED ROCK MASSES: A RELIABILITY BASED APPROACH</b> .....	1166
<i>B. Basha, K. Chandrakanth, A. Moghal</i>	
<b>OPTIMUM DIMENSIONS OF REINFORCED SOIL BERM FOR VERTICAL EXPANSION OF MUNICIPAL SOLID WASTE (MSW) LANDFILLS</b> .....	1176
<i>B. Basha, S. Mahapatra, B. Manna</i>	
<b>CONTACT FATIGUE: A KEY MECHANISM IN TIME-DEPENDENT BEHAVIOR OF SAND AFTER DYNAMIC COMPACTION</b> .....	1186
<i>R. Michalowski, S. Nadukuru</i>	
<b>ALLOWABLE DESIGN STRENGTH OF GEOSYNTHETIC REINFORCEMENT FOR VENEER STABILITY OF MSW LANDFILLS: A RELIABILITY BASED APPROACH</b> .....	1195
<i>B. Basha, S. Mahapatra, B. Manna</i>	
<b>CYCLIC PERFORMANCE OF SINGLE AND GROUP MICROPILES ON LOOSE SAND</b> .....	1205
<i>R. Matos, P. Pinto, C. Rebelo, L. da Silva, M. Veljkovic</i>	
<b>EXPERIMENTAL MODELING OF RAINFALL INDUCED SLOPE FAILURES IN COMPACTED CLAYS</b> .....	1218
<i>B. Tiwari, S. Caballero</i>	
<b>PRELIMINARY STUDY OF PORE WATER CHEMISTRY EFFECT ON THE PHYSICAL AND MECHANICAL BEHAVIOUR OF ARTIFICIAL MIXED SOIL</b> .....	1228
<i>T. Zhang, Y. Deng, S. Liu, D. Zhang</i>	

<b>RECYCLING OF MUNICIPAL SOLID WASTE INCINERATION (MSWI) ASH AS AGGREGATE REPLACEMENT IN CONCRETE .....</b>	<b>1237</b>
<i>B. Muhit, J. An, B. Nam</i>	
<b>FIELD INVESTIGATION ON COMPACTION AND STRENGTH PERFORMANCE OF TWO COAL WASH-BOS SLAG MIXTURES .....</b>	<b>1247</b>
<i>S. Tasalotti, B. Indrarama, G. Chiaro, A. Heitor</i>	
<b>EFFECT OF PARAMETER UNCERTAINTY ON FACTOR OF SAFETY CALCULATIONS IN A SLOPE STABILITY PROBLEM .....</b>	<b>1257</b>
<i>N. Rabie, S. Akl, A. Hussien</i>	
<b>WET GRAB SAMPLES VS. CORED SAMPLES AS QC/QA METHODS AT THE RIO PUERTO NUEVO PROJECT IN SAN JUAN, PR .....</b>	<b>1265</b>
<i>F. Leoni, W. Shcmutzler</i>	
<b>APPLICATION AND ACCURACY OF STRUCTURE FROM MOTION COMPUTER VISION MODELS WITH FULL-SCALE GEOTECHNICAL FIELD TESTS.....</b>	<b>1277</b>
<i>L. Palmer, K. Franke, R. Martin, B. Sines, K. Rollins, J. Hedengren</i>	
<b>SEISMIC HAZARD CURVES FOR THE PROBABILITY OF LIQUEFACTION .....</b>	<b>1287</b>
<i>K. Ulmer, K. Franke, B. Peterson</i>	
<b>EVALUATION OF MOISTURE SUSCEPTIBILITY AND HEALING PROPERTIES OF NANOCCLAY-MODIFIED ASPHALT BINDERS .....</b>	<b>1297</b>
<i>Z. Hossain, M. Zaman, M. Saha, T. Hawa</i>	
<b>KENTUCKY LAKE PIPE PILE LOAD TEST PROGRAM .....</b>	<b>1307</b>
<i>R. Ebelhar, J. Dunlap, D. Beckett, J. DiMaggio</i>	
<b>NUMERICAL STUDY OF DEFORMATION BEHAVIOR FOR A GEOSYNTHETIC-REINFORCED SOIL BRIDGE ABUTMENT UNDER STATIC LOADING .....</b>	<b>1322</b>
<i>Y. Zheng, P. Fox, P. Shing</i>	
<b>SEISMIC SITE CHARACTERIZATION IN SUPPORT OF DRILLED SHAFT DESIGN IN SOUTHERN NEVADA .....</b>	<b>1332</b>
<i>R. Samuel, Y. Badrzadeh, B. Luke, A. Lawrence, R. Siddharthan, A. Bafghi</i>	
<b>PERFORMANCE OF DEEP EXCAVATIONS IN CLAY IN THE BOSTON URBAN ENVIRONMENT .....</b>	<b>1344</b>
<i>B. Sweeney, D. Siebert</i>	
<b>EXPERIMENTAL INVESTIGATION OF APPLICABILITY OF SAND TIRE CHIP MIXTURES AS RETAINING WALL BACKFILL .....</b>	<b>1354</b>
<i>P. Dammala, B. Sodom, M. Adapa</i>	
<b>ON FOUNDATIONS OVER SALT ENCRUSTED DESERT FLATS (SABKHA): PROPERTIES, CHALLENGES AND GUIDELINES .....</b>	<b>1364</b>
<i>W. Akili</i>	
<b>A NOVEL METHOD TO ESTIMATE THE COMPRESSION INDEX FOR GULF COAST CLAYEY SOIL.....</b>	<b>1375</b>
<i>M. Le, S. Endley, A. Puppala, C. Mings</i>	
<b>POST-GROUTING STABILITY OF BENTONITE SUSPENSIONS WITHIN SAND PORES .....</b>	<b>1386</b>
<i>C. Mohtar, M. ElKhattab, R. Sangroya</i>	
<b>VIEWS AND CONCERNS WITH REGARD TO TEACHING GEOTECHNICAL ENGINEERING: VIABLE STRATEGIES FOR THE CLASSROOM ENVIRONMENT .....</b>	<b>1396</b>
<i>W. Akili</i>	
<b>QUANTITATIVE COMPARISON OF DIRECT MONTE CARLO SIMULATION TO SIMPLIFIED RELIABILITY APPROACHES FOR EVALUATING THE STABILITY OF UNREINFORCED SLOPES.....</b>	<b>1407</b>
<i>M. Sleep, M. McGuire</i>	
<b>EFFECT OF COMPOST SOIL TREATMENT ON SURFICIAL SLOPE STABILITY IN FULLY SOFTENED CONDITION .....</b>	<b>1418</b>
<i>M. Le, A. Puppala, A. Pedarla</i>	
<b>SETTLEMENT OF A SHALLOW FOUNDATION RESTING ON PIEDMONT RESIDUAL SOILS OF NORTHERN VIRGINIA .....</b>	<b>1428</b>
<i>B. Amir-Faryar, R. Finnen</i>	
<b>ENHANCING STUDENTS' PROBLEM-SOLVING SKILLS THROUGH PROGRESSIVE INTEGRATION OF PROJECT-BASED LEARNING.....</b>	<b>1438</b>
<i>H. Jackson, K. Tarhini</i>	
<b>NUMERICAL INVESTIGATION OF GROUP ANCHORS .....</b>	<b>1448</b>
<i>B. Emirler, S. Bildik, M. Laman</i>	
<b>THE GREAT SALT LAKE CAUSEWAY—A CALCULATED RISK 50 YEARS LATER.....</b>	<b>1458</b>
<i>L. Salvati, S. Guarente, S. Douglas</i>	



<b>INCLUSIONARY INSTRUCTIONAL METHODS ADDRESSING A DIVERSITY OF LEARNERS IN GEOTECHNICAL ENGINEERING EDUCATION</b> .....	1473
<i>T. Kunberger</i>	
<b>FAILURE MECHANISM OF EARTHEN LEVEE STRENGTHENED BY VEGETATED HPTRM SYSTEM AND DESIGN GUIDELINE FOR HURRICANE OVERTOPPING CONDITIONS</b> .....	1483
<i>P. Yi, F. Amini, L. Li</i>	
<b>DEVELOPMENT OF A FLEXIBLE MOLD FOR BIO-MEDIATED SOIL MATERIALS</b> .....	1493
<i>L. Li, F. Amini, Q. Zhao, C. Li, K. Wen, M. Li, U. Oghonnaya</i>	
<b>STONE COLUMNS: LESSONS LEARNED, SETTLEMENTS, AND FUTURE PROJECT CONSIDERATIONS</b> .....	1503
<i>S. Douglas, V. Schaefer</i>	
<b>RECONSTRUCTION OF TSUNAMI-RAVAGED LEVEES BY THE PRESS-IN PILING METHOD IN JAPAN'S NORTHEAST</b> .....	1518
<i>T. Takuma, H. Nishimura, S. Kambe</i>	
<b>INVESTIGATION ON CLOGGING POTENTIAL OF RECYCLED CONCRETE AGGREGATE IN FRENCH DRAIN SYSTEMS</b> .....	1530
<i>B. Nam, Z. Behring, M. Chopra, J. Shoucair, S. Nam</i>	
<b>GROUND IMPROVEMENTS FOR A SLOPED RUNWAY EXPANSION</b> .....	1540
<i>C. Cook, M. Plaskett, E. Garbin</i>	
<b>SHEAR WAVE VELOCITY MEASUREMENTS OF STONE COLUMN IMPROVED GROUND AND EFFECT ON SITE RESPONSE</b> .....	1550
<i>A. Stuedlein, A. Abdollahi, H. Mason, R. French</i>	
<b>MULTISCALE MODELING OF FINE PARTICLES MIGRATION IN GRANULAR FILTERS</b> .....	1562
<i>Y. Abdelhamid, U. El Shamy</i>	
<b>SCOUR CHARACTERISTICS OF SATURATED LEVEES DUE TO FLOODWALL OVERTOPPING</b> .....	1572
<i>M. Karimpour, K. Heinzl, E. Stendback, K. Galle, S. Zamiran, A. Osouli</i>	
<b>SETTLEMENT OF EMBANKMENT CONSTRUCTED WITH GEOFOAM</b> .....	1582
<i>B. Umashankar, S. Mouli, C. Hariprasad</i>	
<b>INTERFACE PROPERTIES OF METAL-GRID AND GEOGRID REINFORCEMENTS WITH SAND</b> .....	1592
<i>B. Umashankar, C. Hariprasad, S. Mouli</i>	
<b>SENSITIVITY STUDY ON FACTORS AFFECTING THE HEAT EXCHANGE IN GEOTHERMAL HEAT PUMP SYSTEM</b> .....	1601
<i>C. Han, X. Yu</i>	
<b>A NEW APPROACH TO MEASURE WATER FILM DUE TO VOID REDISTRIBUTION IN LAYERED SOIL</b> .....	1611
<i>Q. Gao, Y. Yang, X. Yu</i>	
<b>SOIL PLUGGING MECHANISM ON LARGE DIAMETER PIPE PILES: INSIGHT FROM DISCRETE ELEMENT SIMULATIONS</b> .....	1625
<i>Y. Guo, X. Yu</i>	
<b>THE IMPORTANCE OF INTERFACES IN GEOTECHNICAL FOUNDATION SYSTEMS</b> .....	1637
<i>A. Martinez, J. Frost, J. Su</i>	
<b>ON DESIGN AND INSTALLATION OF DRIVEN PILES IN CORAL DEPOSITS: A CASE STUDY FROM THE RED SEA COAST OF SAUDI ARABIA</b> .....	1647
<i>W. Akili</i>	
<b>ASSESSMENT OF SHEAR FAILURE PARAMETERS FOR SAND-CLAY LINERS</b> .....	1663
<i>M. Dafalla, M. Al-Shamrani</i>	
<b>COMPRESSIVE STRENGTH VARIATIONS OF LIME-TREATED EXPANSIVE SOILS</b> .....	1671
<i>M. Dafalla, E. Mutaz, M. Al-Shamrani</i>	
<b>SEISMIC SOIL-PILE-STRUCTURE INTERACTION IN IMPROVED SOFT CLAY: CENTRIFUGE TESTS</b> .....	1679
<i>A. Taghavi, K. Muraleetharan, G. Miller, A. Cerato</i>	
<b>STABILITY ANALYSIS OF EMBANKMENTS SUPPORTED BY GEOSYNTHETIC ENCASED STONE COLUMNS</b> .....	1689
<i>S. Kadhim, R. Parsons, J. Han</i>	
<b>THREE DIMENSIONAL EFFECTS OF VERTICAL STIFFENERS ON INFINITELY-LONG SHEET-PILES IN COHESIONLESS SOIL</b> .....	1699
<i>K. Lotfy, R. El-Sherbiny, A. Salem</i>	
<b>PRELIMINARY DESIGN OF SUCTION PILE FOR MOORING OF CONCRETE FLOATING STRUCTURES</b> .....	1714
<i>J. Lee, D. Baek, C. Park</i>	

<b>LESSONS LEARNED FROM GROUND IMPROVEMENT ON BART FREMONT CENTRAL PARK SUBWAY PROJECT IN FREMONT, CALIFORNIA .....</b>	<b>1722</b>
<i>R. Vedantham, K. Tung, T. Lee, M. Fong</i>	
<b>ANALYSIS OF REINFORCED SOIL WALL CONSIDERING OBLIQUE PULLOUT OF REINFORCEMENT RESTING ON TWO-PARAMETER PASTERNAK SUBGRADE .....</b>	<b>1736</b>
<i>S. Patra, J. Shahu</i>	
<b>THE RANDOM FINITE ELEMENT METHOD (RFEM) IN PROBABILISTIC SLOPE STABILITY ANALYSIS WITH CONSIDERATION OF SPATIAL VARIABILITY OF SOIL PROPERTIES.....</b>	<b>1745</b>
<i>P. Allahverdizadeh, D. Griffiths, G. Fenton</i>	
<b>GROUP EFFECTS ON PILES BEHAVIOR UNDER LATERAL LOADING .....</b>	<b>1755</b>
<i>P. Allahverdizadeh</i>	
<b>EFFECT OF SINGLE AND DOUBLE ANCHORED SYSTEMS ON THE BEHAVIOUR OF CELLULAR REINFORCED FLY ASH WALLS .....</b>	<b>1765</b>
<i>B. Lal, A. Padade, J. Mandal</i>	
<b>SEISMIC PERFORMANCE OF CANTILEVER RETAINING WALLS WITH CLAYEY BACKFILLS .....</b>	<b>1775</b>
<i>S. Zamiran, A. Osouli</i>	
<b>RELIABILITY OF COAL MINE ROOF RATING IN MINING APPLICATIONS .....</b>	<b>1785</b>
<i>I. Shafii, A. Osouli</i>	
<b>DRY SOIL MIX COLUMN SHEAR PANELS CONSTRUCTED BENEATH LOST LAKE DREDGE DISPOSAL ISLAND LEVEE.....</b>	<b>1795</b>
<i>T. Deklavs</i>	
<b>VISUALIZING THE FUNDAMENTAL PHYSICS OF RAPID EARTH PENETRATION, USING TRANSPARENT SOILS.....</b>	<b>1803</b>
<i>Z. Chen, M. Omidvar, M. Iskander, S. Bless</i>	
<b>MASS SOIL MIXING FOR WIND TOWER TURBINE FOUNDATIONS .....</b>	<b>1813</b>
<i>B. Zitny, T. Deklavs</i>	
<b>A STUDY OF PLANE STRAIN PILE JACKING AND DRIVING IN GRANULAR MEDIA .....</b>	<b>1822</b>
<i>F. Boccalini, Z. Chen, M. Omidvar, M. Iskander</i>	
<b>MODEL FOR CONSOLIDATION ANALYSIS OF LAYERED SOILS UNDER DEPTH-DEPENDENT LOADING .....</b>	<b>1832</b>
<i>H. Pu, P. Fox</i>	
<b>STRAIN RATE DEPENDENCY OF SAND RESPONSE UNDER UNIAXIAL MONOTONIC LOADING .....</b>	<b>1842</b>
<i>M. Baamer, E. Suescun-Florez, N. Machairas, M. Iskander</i>	
<b>ARE THERE GENDER DIFFERENCES IN THE VALUE THAT CIVIL AND ENVIRONMENTAL ENGINEERING STUDENTS PLACE ON SERVICE PROVIDED THROUGH SERVICE-LEARNING PROJECTS? .....</b>	<b>1853</b>
<i>J. Lens, M. Dewoolkar</i>	
<b>SEPARATING CONTRIBUTIONS FROM PRE-MOBILIZATION AND GROUND IMPROVEMENT FOR POST-GROUTED DRILLED SHAFTS.....</b>	<b>1863</b>
<i>T. Day, A. Boeckmann, J. Loehr</i>	
<b>IMPACT OF COMPACTION LEVEL AND DEPTH OF FILL ON THE PULLOUT RESISTANCE OF RIBBED STRIP MSE REINFORCEMENT.....</b>	<b>1873</b>
<i>P. Jayawickrama, W. Lawson, T. Wood, J. Surles</i>	
<b>GEOMECHANICAL PROPERTIES OF COAL MINE ROOF ROCKS IN ILLINOIS.....</b>	<b>1883</b>
<i>A. Osouli, B. Moradi</i>	
<b>ANALYSIS OF DRILLED SHAFT SETTLEMENT CAUSED BY LIQUEFACTION .....</b>	<b>1892</b>
<i>B. Turner, S. Brandenburg, J. Stewart</i>	

### VOLUME 3

<b>DEVELOPMENT OF VERY LOW HEAD ROOM PRESS-IN SHEET PILE DRIVER.....</b>	<b>1905</b>
<i>T. Takuma, H. Nishimura, S. Kambe</i>	
<b>STRUCTURAL EFFECTS ON EFFECTIVE CONDUCTIVITY OF COMPACTED CLAYS .....</b>	<b>1917</b>
<i>W. Tabet, A. Cerato</i>	
<b>A SYNTHESIS OF PILE PERFORMANCE MONITORING PROJECTS IN DOWNDRAG ENVIRONMENTS IN MINNESOTA .....</b>	<b>1927</b>
<i>A. Budge, D. Dasenbrock, D. Mattison</i>	

<b>DESIGN AND MONITORING OF A SHEET PILE WALL INSTALLED IN SOFT INDUSTRIAL WASTE</b> .....	1942
<i>M. Zhu, A. Ebrahimi, M. Viswanath, L. Brussel, J. Beech</i>	
<b>BENDER ELEMENT TESTING AND DISCRETE ELEMENT MODELING OF SHEAR WAVE IN GRANULAR MEDIA</b> .....	1951
<i>A. Pradhan, X. Yu</i>	
<b>LABORATORY STUDY OF ELECTROMAGNETICALLY INDUCED CONTAMINANT REMOVAL</b> .....	1961
<i>V. Bolvardi, A. Farid, A. Najafi, J. Browning, E. Smith</i>	
<b>MACROPORE FLOW MODELING USING THE ROOT ZONE WATER QUALITY MODEL</b> .....	1971
<i>D. Saravanathiiiban, M. Khire</i>	
<b>HIGH-STRAIN DYNAMIC PILE TESTING FOR THE I-40/I-240 INTERCHANGE IN MEMPHIS, TENNESSEE</b> .....	1981
<i>A. Elsayed, C. Kaibel, I. Engstrom, D. Arellano</i>	
<b>RISK ANALYSIS ON BRIDGE SCOUR FAILURE</b> .....	1996
<i>C. Yao, J.-L. Briaud, P. Gardoni</i>	
<b>SIMPLIFIED EQUIVALENT LINEAR AND NONLINEAR SITE RESPONSE ANALYSIS OF PARTIALLY SATURATED SOIL LAYERS</b> .....	2006
<i>M. Mirshekari, M. Ghayoomi</i>	
<b>INSTALLATION AND LOAD CAPACITY OF TORPEDO ANCHORS IN OFFSHORE APPLICATIONS</b> .....	2016
<i>A. De, D. Pecorini, A. Morgante</i>	
<b>RECENT DISCUSSIONS OF P-Y FORMULATIONS FOR LATERAL LOAD TRANSFER OF DEEP FOUNDATIONS BASED ON EXPERIMENTAL STUDIES</b> .....	2026
<i>C. Favaretti, A. Lemnitzer, A. Stuedlein, J. Turner</i>	
<b>PILE DRIVING FORMULAS REVISITED</b> .....	2038
<i>R. Allin, G. Likins, J. Honeycutt</i>	
<b>PERFORMANCE OF TANKS SUPPORTED ON DMM COLUMNS IN THE GULF COAST: HYDROTEST MONITORING AND SETTLEMENT ANALYSIS</b> .....	2050
<i>M. Galagoda, K. Rhee, C. Fuentes</i>	
<b>STREAMLINING OF BRIDGE PIER AS A SCOUR COUNTERMEASURE: A FEASIBILITY STUDY</b> .....	2064
<i>J. Li, J. Tao, X. Yu</i>	
<b>STORMWATER SEDIMENT FILTRATION USING SAND VERSUS SYNTHETIC FIBERS</b> .....	2075
<i>M. Khire, D. Saravanathiiiban, M. Verwiel, C. Prucha, T. Johnson</i>	
<b>DEVELOPMENT OF AN IMPROVED CALIBRATION PROCEDURE FOR THE ELECTRICAL DENSITY GAUGE</b> .....	2085
<i>L. Bryson, S. Embry, K. Jenkins</i>	
<b>ELASTIC ANALYSIS OF DRILLED SHAFT FOUNDATIONS IN SOIL PROFILES WITH INTERMEDIATE CALICHE LAYERS</b> .....	2095
<i>M. Karakouzian, R. Afsharhasani, B. Kluzniak</i>	
<b>VERTICAL PRESSURES PRODUCED BY CONTROLLED LOW STRENGTH MATERIAL (CLSM) POURED INTO PIPE TRENCHES</b> .....	2102
<i>M. Sama, D. Sykora, A. Vytiniotis</i>	
<b>SUPPORT OF WOMEN GEOTECHNICAL ENGINEERING FACULTY; HISTORY AND INITIATIVES</b> .....	2115
<i>S. Alestalo, S. Bhatia, B. Sukumaran</i>	
<b>DURABILITY OF LIGHTLY STABILISED GRANULAR MATERIAL SUBJECTED TO FREEZE-THAW AND WET-DRY CYCLES</b> .....	2129
<i>M. Theivakularatnam, C. Gnanendran</i>	
<b>SOIL CRUST DEVELOPMENT THROUGHOUT A TWO-DIMENSIONAL PROFILE BY DISCRETE ELEMENT METHOD</b> .....	2139
<i>S. Yeom, K. Sjoblom</i>	
<b>THE SUBJECTIVE ELEMENT IN DYNAMIC LOAD TESTING RESULTS</b> .....	2148
<i>G. Verbeek, D. Tara, P. Middendorp</i>	
<b>SOIL, FOUNDATION, AND SUPERSTRUCTURE INTERACTION (I): ADVANCED ANALYSES OF SHALLOW FOUNDATIONS</b> .....	2155
<i>H. Farouk, M. Farouk</i>	
<b>NORTH AMERICAN TRENDS AND DEVELOPMENTS OF COMPLEX SUPPORT OF EXCAVATION SYSTEMS</b> .....	2165
<i>R. Jameson, J. Starcevich, R. Hanke, N. Turus</i>	

<b>CHARACTERIZATION OF SMEAR ZONE CAUSED BY MANDREL ACTION</b> .....	2177
<i>B. Indraratna, C. Rujikiatkrajorn, M. Ardana</i>	
<b>BEARING AND FRICTION DESIGN CAPACITY SOFTWARE FOR HELICAL ANCHORS AND PILES</b> .....	2185
<i>G. Seider</i>	
<b>AXIAL TENSION AND LATERAL CAPACITY OF STEP-TAPERED HELICAL PILES FOR TRANSMISSION POLE STRUCTURES</b> .....	2202
<i>M. Fairbairn, L. Goen, J. Herron, G. Seider</i>	
<b>CASE HISTORY: MARGARET MCDERMOTT BRIDGE OVER I-30</b> .....	2214
<i>B. Walker, A. Smith</i>	
<b>SOIL COMPRESSIBILITY IN TRANSIENT UNSATURATED SEEPAGE ANALYSES</b> .....	2228
<i>T. Stark, N. Jafari, A. Leopold, T. Brandon</i>	
<b>INVESTIGATION OF RHEOLOGICAL PROPERTIES OF ASPHALT RUBBER TOWARD SUSTAINABLE USE OF SCRAP TIRES</b> .....	2243
<i>B. Bairgi, Z. Hossain, R. Hendrix</i>	
<b>BEHAVIOUR OF REINFORCED STONE DUST MODEL WALLS UNDER UNIFORMLY DISTRIBUTED LOADING</b> .....	2253
<i>S. Kandolkar, J. Mandal</i>	
<b>RELIABILITY-BASED ROBUST GEOTECHNICAL DESIGN OF ROCK BOLTS FOR SLOPE STABILIZATION</b> .....	2263
<i>L. Wang, W. Gong, Z. Luo, S. Khoshnevisan, C. Juang</i>	
<b>MAGNITUDES OF PREHISTORIC EARTHQUAKES AT THE HOLLYWOOD, SOUTH CAROLINA SITE</b> .....	2273
<i>E. Gheibi, S. Gassman</i>	
<b>LATERAL PERFORMANCE OF LARGE-CAPACITY HELICAL PILES</b> .....	2284
<i>M. Elkasabgy, M. Naggari</i>	
<b>EFFECT OF CONTAINER WALL FRICTION ON THE CONSOLIDATION OF CLAY SPECIMEN</b> .....	2294
<i>O. Mir, Y. Kolekar, D. Murty, B. Viswanadham</i>	
<b>RESPONSE OF SOIL-FOUNDATION-STRUCTURE SYSTEMS TO MULTIDIRECTIONAL SEISMIC MOTION: A MICROMECHANICAL APPROACH</b> .....	2304
<i>U. El Shamy, N. Zamani</i>	
<b>STRENGTH AND STRESS ESTIMATION IN SOIL BENTONITE SLURRY TRENCH CUTOFF WALLS USING CONE PENETRATION TEST DATA</b> .....	2314
<i>D. Ruffing, J. Evans, C. Ryan</i>	
<b>SETTLEMENT ESTIMATIONS OF PEAT DURING CENTRIFUGE EXPERIMENTS</b> .....	2324
<i>R. Cappa, S. Yniesta, A. Lemnitzer, S. Brandenberg, A. Shafiee</i>	
<b>SEISMIC THRUST VS WALL INERTIA IN NON-YIELDING RETAINING WALLS UNDER EARTHQUAKE LOADING: SYNCHRONOUS OR ASYNCHRONOUS ACTION?</b> .....	2333
<i>V. Kitsis, V. Vlachakis, G. Athanasopoulos, A. Athanasopoulos-Zekkos</i>	
<b>NUMERICAL SIMULATION OF EARTHQUAKE INDUCED SOIL LIQUEFACTION: VALIDATION AGAINST CENTRIFUGE EXPERIMENTAL RESULTS</b> .....	2342
<i>Z. Karimi, S. Dashti</i>	
<b>SOIL, FOUNDATION, AND SUPERSTRUCTURE INTERACTION (II): SUPERSTRUCTURE AND FOUNDATION'S TIE BEAMS ANALYSES</b> .....	2352
<i>H. Farouk, M. Farouk</i>	
<b>NUMERICAL ANALYSIS OF VERTICAL MOISTURE BARRIERS IN CONTROLLING EXPANSIVE SOILS IN PRESENCE OF SOIL CRACKS</b> .....	2363
<i>L. Chen, R. Bulut</i>	
<b>VISUALIZING THE SHALLOW FAILURE MECHANISM OF THE T-BAR PENETROMETER</b> .....	2373
<i>J. Wallace, C. Chini, C. Rutherford, J. Peschel</i>	
<b>ROBUST DESIGN OPTIMIZATION APPLIED TO BRACED EXCAVATIONS</b> .....	2382
<i>S. Khoshnevisan, L. Wang, W. Gong, H. Juang</i>	
<b>DEFORMATION NON-UNIFORMITY OF AN UNSATURATED SOIL DURING TRIAXIAL TESTING</b> .....	2391
<i>L. Li, X. Zhang</i>	
<b>RESPONSE OF A SILTY SAND CENTRIFUGE DEPOSIT TO REPEATED EARTHQUAKES</b> .....	2399
<i>W. El-Sekelly, T. Abdoun, R. Dobry</i>	
<b>CONSTITUTIVE MODELING OF UNSATURATED SOILS USING RESULTS FROM SUCTION CONTROLLED ODOMETER TESTS</b> .....	2410
<i>X. Zhang</i>	

<b>SOIL-STRUCTURE INTERACTIONS IN A SKEWED INTEGRAL ABUTMENT BRIDGE .....</b>	<b>2419</b>
<i>K. Kirupakaran, K. Muraleetharan, G. Miller</i>	
<b>THEORY ON MEASURING ORIENTATION WITH MEMS ACCELEROMETERS IN A CENTRIFUGE.....</b>	<b>2429</b>
<i>R. Beemer, M. Murali, G. Biscontin, C. Aubeny</i>	
<b>FULL SCALE CRASH TEST OF A 36 TONS TRUCK AGAINST A BARRIER ON TOP OF AN MSE WALL .....</b>	<b>2439</b>
<i>D. Saez, L. Maddah, R. Bligh, A. Mirdamadi, J.-L. Briaud</i>	
<b>R-LRFD: ROBUST LOAD AND RESISTANCE FACTOR DESIGN .....</b>	<b>2449</b>
<i>W. Gong, S. Khoshnevisan, H. Huang, C. Juang, J. Zhang</i>	
<b>ASSESSING LIQUEFACTION-INDUCED LATERAL SPREADS USING CPT CASES FROM THE CHRISTCHURCH, NEW ZEALAND EARTHQUAKES.....</b>	<b>2459</b>
<i>S. Khoshnevisan, H. Juang, Y.-G. Zhou, C.-S. Ku, L. Wang, H.-J. Ding</i>	
<b>UPDATING SINGLE PILE CAPACITY BY LOAD TESTS.....</b>	<b>2467</b>
<i>J. Huang, R. Kelly</i>	
<b>IMPROVING THE SHEAR STRENGTH OF SOILS BY ADDING AGRICULTURAL BY-PRODUCTS .....</b>	<b>2474</b>
<i>K. Schaefers, S. Nam</i>	
<b>MONITORING A DRILLED SHAFT RETAINING WALL IN EXPANSIVE CLAY: LONG-TERM PERFORMANCE IN RESPONSE TO MOISTURE FLUCTUATIONS .....</b>	<b>2484</b>
<i>A. Brown, G. Dellinger, A. Helwa, C. El-Mohtar, J. Zornberg, R. Gilbert</i>	
<b>REGIONAL GEOLOGY AND SEISMIC SITE AMPLIFICATION IN THE WASHINGTON, D.C. METROPOLITAN AREA.....</b>	<b>2494</b>
<i>M. Tilashalski, C. Olgun, A. Rodriguez-Marek, E. Godfrey, M. Chapman, S. Shamsalsadati, M. Eddy</i>	
<b>TACTILE PRESSURE SENSORS IN CENTRIFUGE MODELING OF ROCKING FOUNDATIONS.....</b>	<b>2504</b>
<i>P. Kokkali, T. Abdoun, I. Anastasopoulos</i>	
<b>VALIDATION OF A NUMERICAL MODEL TO ANALYZE PILE-SUPPORTED T-WALLS.....</b>	<b>2514</b>
<i>A. Reeb, G. Filz, J. Johnson, R. Varuso, P. Kokkali, A. Tessari, T. Abdoun</i>	
<b>FIELD CALIBRATION AND DATA INTERPRETATION OF A SETTLEMENT CELL SYSTEM .....</b>	<b>2524</b>
<i>A. Ebrahimi, M. Viswanath, M. Zhu, J. Beech, R. Bachus</i>	
<b>AGING IN SAND: FATIGUE AT GRAIN CONTACTS AND MODELING USING DISCRETE ELEMENT METHOD .....</b>	<b>2535</b>
<i>Z. Wang, R. Michalowski</i>	
<b>DISCIPLINARY DIVERSITY IN THE DEVELOPMENT OF GEOTECHNICAL ENGINEERING UNDERGRADUATE EDUCATION MATERIALS .....</b>	<b>2545</b>
<i>A. Ornelas, S. Houston, W. Savenye, C. Zapata, E. Ramirez, A. Corral</i>	
<b>SERVICE LIMIT STATE DESIGN FOR INDIVIDUAL DRILLED SHAFTS IN SHALE USING T-Z METHOD.....</b>	<b>2553</b>
<i>T. Vu, J. Loehr</i>	
<b>DEVELOPMENT OF A FULL-SCALE SOIL-BOREHOLE THERMAL ENERGY STORAGE SYSTEM.....</b>	<b>2563</b>
<i>T. Baser, J. McCartney</i>	
<b>STRESS-STRAIN BEHAVIOR OF CEMENT-IMPROVED CLAYS .....</b>	<b>2573</b>
<i>A. Quiroga, K. Muraleetharan, A. Cerato, G. Miller</i>	
<b>EXPERIMENTAL STUDY OF INSTALLATION OF CONCRETE SUCTION CAISSON IN CLAY.....</b>	<b>2584</b>
<i>W. Guo, J. Chu</i>	
<b>INTELLIGENT COMPACTION OF STABILIZED SUBGRADE OF FLEXIBLE PAVEMENT.....</b>	<b>2592</b>
<i>M. Barman, S. Imran, M. Nazari, S. Commuri, M. Zaman</i>	
<b>EFFECT OF PH ON THE LEACHING OF ELEMENTS FROM HIGHWAY BASE LAYERS BUILT WITH RECYCLED CONCRETE AGGREGATES.....</b>	<b>2605</b>
<i>J. Lewis, B. Cetin, A. Aydilek</i>	
<b>EFFECT OF THE UNSATURATED SOIL CONDITION ON THE THERMAL EFFICIENCY OF ENERGY PILES.....</b>	<b>2614</b>
<i>G. Akrouch, M. Sanchez, J.-L. Briaud</i>	
<b>DYNAMIC CENTRIFUGE TESTS ON SOFT CLAY REINFORCED BY SOIL-CEMENT GRIDS.....</b>	<b>2624</b>
<i>M. Khosravi, S. Tamura, R. Boulanger, D. Wilson, C. Olgun, D. Rayamajhi, Y. Wang</i>	
<b>A FRAMEWORK FOR PREMATURE PAVEMENT DISTRESS EVALUATION .....</b>	<b>2634</b>
<i>N. Chowdhury, Z. Hossain, S. Yang, A. Braham</i>	
<b>EXPERIMENTAL INVESTIGATION OF BRIDGE DECK DEICING USING ENERGY PILES.....</b>	<b>2644</b>
<i>G. Bowers, C. Olgun</i>	

<b>ELECTRONIC THICKNESS GAUGE MEASUREMENTS ON A 36-YEAR OLD STEEL BAR MAT REINFORCED MSE WALL.....</b>	<b>2654</b>
<i>J. Nicks, M. Adams, M. Runion</i>	
<b>PROBABILISTIC METHODOLOGY FOR DEVELOPING REGIONAL AND SITE-CLASS DEPENDENT SEISMIC SITE AMPLIFICATION FACTORS .....</b>	<b>2666</b>
<i>E. Godfrey, A. Rodriguez-Marek, G. Olgun</i>	
<b>EFFECTS OF DEMOLISHING THE DEEP EXCAVATION SUPPORT SYSTEM USED FOR TALL BUILDING CONSTRUCTION ON ADJACENT METRO LINE: MODELING AND FIELD COMPARISON .....</b>	<b>2676</b>
<i>B. Liu, W. Xu, K. Reddy</i>	
<b>A NUMERICAL STUDY OF THE INSTALLATION-INDUCED STRESSES AND EXCESS PORE-WATER PRESSURE AROUND RIGID INCLUSIONS USING A LINEAR-ELASTIC PERFECTLY-PLASTIC SOIL .....</b>	<b>2691</b>
<i>A. Rivera, C. Olgun, T. Brandon, F. Masse</i>	
<b>LARGE DIAMETER TRIAXIAL TESTING OF AASHTO OPEN GRADED AGGREGATES AND THE EFFECT OF RELATIVE DENSITY ON STRENGTH.....</b>	<b>2702</b>
<i>T. Gebrenegus, J. Nicks, M. Adams</i>	
<b>PERFORMANCE OF SKEWED ABUTMENTS FROM LARGE-SCALE TESTING.....</b>	<b>2712</b>
<i>K. Rollins, K. Palmer, A. Fredrickson</i>	
<b>SUITABLE SHEARING RATE FOR TRIAXIAL TESTING OF INTERMEDIATE SOILS UNDER VAPOR CONTROLLED MEDIUM TO HIGH SUCTION RANGE.....</b>	<b>2723</b>
<i>U. Patil, L. Hoyos, A. Puppala</i>	
<b>COMPARISON OF SOIL RESPONSE DURING EARTHQUAKE EXCITATION AND UNIFORM CYCLIC LOADING .....</b>	<b>2733</b>
<i>S. Kamalzare, C. Olgun</i>	
<b>NUMERICAL INVESTIGATION OF GRAVITY WALL – GRANULAR SOIL INTERACTION .....</b>	<b>2743</b>
<i>D. Loukidis, R. Salgado</i>	
<b>THERMAL ACTIVITY OF GEOSYNTHETIC REINFORCED SOIL PIERS.....</b>	<b>2753</b>
<i>M. Adams, J. Nicks, T. Stabile</i>	
<b>SOIL-STRUCTURE INTERACTION EFFECTS ON SEISMICALLY ISOLATED NUCLEAR POWER PLANTS .....</b>	<b>2766</b>
<i>V. Drosos, N. Sitar</i>	
<b>THERMAL OPERATION OF GEOTHERMAL PILES INSTALLED IN SAND - A COMPARATIVE ASSESSMENT USING NUMERICAL AND PHYSICAL MODELS .....</b>	<b>2777</b>
<i>O. Ghasemi-Fare, P. Basu</i>	
<b>NUMERICAL MODELING OF THERMALLY INDUCED PORE WATER FLOW IN SATURATED SOIL SURROUNDING GEOTHERMAL PILES.....</b>	<b>2787</b>
<i>O. Ghasemi-Fare, P. Basu</i>	
<b>CONSTRUCTION MONITORING FOR THE TRANSBAY TRANSIT CENTER EXCAVATION IN SAN FRANCISCO, CALIFORNIA .....</b>	<b>2797</b>
<i>Y. Hashash, M. Jammoul, K. Fleming, S. McLandrich, A. Yeskoo, N. O’Riordan, P. Gouvin, M. Riemer</i>	
<b>SHRINKAGE INDUCED PRESSURE MEASUREMENT TO ADDRESS DESICCATION CRACKING IN EXPANSIVE SOILS .....</b>	<b>2807</b>
<i>R. Acharya, A. Pedarla, T. Bheemasetti, A. Puppala, N. Zhang</i>	
<b>DEVELOPMENT OF REMOVABLE LOAD DISTRIBUTIVE COMPRESSIVE ANCHOR TECHNOLOGY .....</b>	<b>2816</b>
<i>C. Englert, J. Gomez, C. Wilkinson, V. Godet</i>	
<b>LARGE SCALE SIMULATION OF GRANULAR MATERIALS VIA IMPULSE-BASED DISCRETE ELEMENT METHOD .....</b>	<b>2831</b>
<i>S. Lee, Y. Hashash, E. Park</i>	
<b>AXIAL LOAD TESTS ON DRILLED SHAFTS SOCKETED IN HARD CLAYS AND SHALES .....</b>	<b>2841</b>
<i>T. Burkett, R. Gilbert, R. Simpson, J. Wooley, A. Marinucci, J. Arrellaga</i>	
<b>Author Index</b>	