

# Contents

<b>Exfoliation and Extraction of Nanoclay from Montmorillonite Mineral Rich Bentonite Soil</b> . . . . .	1
Naman Kantesaria and Sudhanshu Sharma	
<b>Uncertainties in Water Retention Curve of Bentonite</b> . . . . .	13
A. Prakash, B. Hazra and S. Sreedeeep	
<b>Comparative Study of Backfill Retaining Systems for Onshore RCC Pile Berth Under Different Site Conditions</b> . . . . .	25
Soumyakanti Dhavala, Dhara Shah and Sanjeev Kapasi	
<b>The Effect of Saline Fluid on Hydraulic Properties of Clays</b> . . . . .	41
Koteswaraarao Jadda and Ramakrishna Bag	
<b>Influence of Shape of Cross Section on the Load–Settlement Behaviour of Strip Footings</b> . . . . .	55
J. Jayamohan, P. Sajith, Shilpa Vijayan, Anusha Nair, S. Chandni and Akhila Vijayan	
<b>Effect of Biopolymers on Soil Strengthening</b> . . . . .	65
Lekshmi P. Nair and K. Kannan	
<b>Examination of Present Subsurface Investigation Data for Valuation of Liquefaction Potential for Ahmadabad City by Means of SPT-N Value</b> . . . . .	73
Manali S. Patel and Tejas P. Thaker	
<b>Improving “Shrinkage-Swelling” Response of Expansive Soil Using Bio-calcite and Exopolysaccharide Produced by Bacillus sp.</b> . . . . .	83
V. Guru Krishna Kumar, Kaling Taki, Sharad Gupta and Ajanta Sachan	
<b>Mitigation of Soil Liquefaction Under Strip Footing by Densification: A Numerical Investigation</b> . . . . .	99
N. Dinesh, Subhadeep Banerjee and K. Rajagopal	

<b>Effect of Strain Rate on Strength Behaviour of Cohesionless Soil . . . . .</b>	<b>109</b>
Amit Singh and Manash Chakraborty	
<b>Compaction and Strength Characteristics of Bentonite Rock-Quarry Dust Mixtures. . . . .</b>	<b>121</b>
Hemanga Das, Tinku Kalita and Malaya Chetia	
<b>Synthesis of Bentonite Clay-Based Geopolymer and Its Application in the Treatment of Expansive Soil . . . . .</b>	<b>133</b>
Kaling Taki and Sudhanshu Sharma	
<b>A Micromechanical Study on the Effect of Initial Static Shear Stress on Cyclic Shearing Response . . . . .</b>	<b>145</b>
R. Kolapalli, M. M. Rahman, M. R. Karim and H. B. K. Nguyen	
<b>Study on the Behaviour of NATM Tunnel Face During Seismic Activities. . . . .</b>	<b>157</b>
R. B. Jishnu, Ramanathan Ayothiraman and Raghvendra Sahu	
<b>A PSO-Based Estimation of Dynamic Earth Pressure Coefficients of a Rigid Retaining Wall. . . . .</b>	<b>169</b>
Swarnima Subhadarsini, Sushree Paritweshha Pradhan, Jayanti Munda and Pradip Kumar Pradhan	
<b>Analytical Study on the Influence of Rigidity of Foundation and Modulus of Subgrade Reaction on Behaviour of Raft Foundation . . . . .</b>	<b>181</b>
Sujay Teli, Palak Kundhani, Virag Choksi, Pritam Sinha and Kannan K. R. Iyer	
<b>Numerical Study on the Undrained Response of Silty Sands Under Static Triaxial Loading . . . . .</b>	<b>195</b>
M. Akhila, K. Rangaswamy and N. Sankar	
<b>Seismic Hazard Estimation for Southwest India . . . . .</b>	<b>207</b>
C. Shreyasvi and Katta Venkataramana	
<b>Assessment of Bond Strength on Geosynthetic Interlayered Asphalt Overlays Using FEM . . . . .</b>	<b>221</b>
S. Shiyamalaa and K. Rajagopal	
<b>Influence of Variabilities of Input Parameters on Seismic Site Response Analysis . . . . .</b>	<b>233</b>
C. Shreyasvi, N. Badira Rahmath and Katta Venkataramana	
<b>3D-Continuum Numerical Analysis of Offshore Driven Pipe Pile Using Finite Difference Method . . . . .</b>	<b>245</b>
D. S. Murthy, Ramesh Gedela, Rajagopal Karpurapu and R. G. Robinson	

<b>A Study on the Seismic Behaviour of Embankments with Pile Supports and Basal Geogrid</b> .....	257
Radhika M. Patel, B. R. Jayalekshmi and R. Shivashankar	
<b>Parametric Investigation of Bridge Piers Reinforced with Shape-Memory Alloys in Plastic Hinge Regions</b> .....	269
Kanan Thakkar and Anant Parghi	
<b>Response of Single Pile to Lateral Load with Constant Uplift</b> .....	283
Poulami Ghosh, Sibapriya Mukherjee, Narayan Roy and Subhadeep Banerjee	
<b>Correlation Between Shear Strength of Soils and Water Content Ratio as a Substitute for Liquidity Index</b> .....	299
Harshdeep Singh and Ashok Kumar Gupta	
<b>Numerical Study of Embankments Supported by Ordinary and Encased Granular Columns in Peat</b> .....	307
J. Jayapal and K. Rajagopal	
<b>Experimental Investigation for Damage Evaluation of Bridges Using Piezo-Transducers</b> .....	319
Umesh T. Jagadale, Rutuja D. Kharade, Chittaranjan B. Nayak and Wasudeo D. Deulkar	
<b>Effect of Magnesium Incorporation in Enzyme-Induced Carbonate Precipitation (EICP) to Improve Shear Strength of Soil</b> .....	333
Alok Chandra and K. Ravi	
<b>Performance of Structural Concrete Using Recycled Plastics as Coarse Aggregate</b> .....	347
P. R. Admle and P. D. Nemade	
<b>Effect of Ground Water Level and Seismic Intensity on Failure of a Slope</b> .....	361
Sreyashi Dutta, R. K. Dubey, Sibapriya Mukherjee and Narayan Roy	
<b>Stability of Two-Layered Earth Slope Under Varying Rainfall Intensity</b> .....	373
Dooradarshi Chatterjee and A. Murali Krishna	
<b>Studies on Embankment Foundations with Soft Soil Reinforced with Prestressed Geosynthetic Encapsulated in Thin Layer of Granular Soil</b> .....	385
R. Anciya Fazal, J. Jayamohan and S. R. Soorya	
<b>Influence of Reinforcement Pattern on the Performance of Geotextile-Reinforced Slopes</b> .....	397
Veerabhadra M. Rotte and Hardik V. Gajjar	

<b>Use of Polypropylene Fibres for Cohesive Soil Stabilization</b> . . . . .	409
Trudeep N. Dave, Dhavalkumar Patel, Gafur Saiyad and Nirmal Patolia	
<b>Analytical Investigation on High and Low Seismic Response of Zero Liquid Discharge Steel Structure</b> . . . . .	419
B. Nambiyanna, Mohammed Younus Salman and R. Prabhakara	
<b>Chemical Compatibility of Fly Ash–Bentonite Based Hydraulic Barrier</b> . . . . .	429
G. Suneel Kumar, Kami Venkata Balaiah and Rabi Narayan Behera	
<b>Retrofitting of Beam–Column Joint Under Seismic Excitation</b> . . . . .	441
Marimuthu Sumathi and Sivasankarapillai Greeshma	
<b>Study on Effect of Particle Shape on Interlocking</b> . . . . .	455
Ashwani Kumar Bindal, Arghya Das and Animesh Das	
<b>Correlation of Shear Wave Velocity with Standard Penetration Resistance Value for Allahabad City</b> . . . . .	467
Manjari Singh, S. K. Duggal, Kumar Pallav and Keshav Kr. Sharma	
<b>Experimental Studies on Controlled Low Strength Materials Using Black Cotton Soils and Comparison of Results with Taguchi Model</b> . . . . .	483
B. N. Skanda Kumar, M. P. Naveena, Anil Kumar, A. Shashishankar and S. K. Darshan	
<b>Strength Improvement of Locally Available Sand Using Enzymatically-Induced Calcite Precipitation</b> . . . . .	495
P. B. Kulkarni and P. D. Nemade	
<b>Bio-treatment of Fly Ash</b> . . . . .	505
Archika Yadav, K. Vineeth Reddy, Md. Muzzaffar Khan, G. Kalyan Kumar and Amitava Bandhu	
<b>A Review of Expansive Soil—Effects and Mitigation Techniques</b> . . . . .	519
Trudeep N. Dave and Arshad K. Siddiqui	
<b>Vibration Control of Flexible Retention Systems</b> . . . . .	529
Nisha Kumari and Ashutosh Trivedi	
<b>Sequential Drawdown and Rainwater Infiltration Based Stability Assessment of Earthen Dams</b> . . . . .	541
Priyanka Talukdar and Arindam Dey	
<b>Water-Soluble Super Absorbent Polymer as Self-curing Agents in High-Strength Cement Concrete Mixes</b> . . . . .	553
N. T. Suryawanshi and S. B. Thakare	

<b>Pounding Probability of Three-Span Simply Supported Bridge Subjected to Near-Field and Far-Field Ground Motions</b> . . . . .	565
Lopamudra Mohanty, Rahul Das and Goutam Mondal	
<b>Review of Seismic Performances of Partial Infill RC Frames</b> . . . . .	577
Narayan Muduli, Suresh R. Dash and Goutam Mondal	
<b>An Artificial Intelligence Approach for Modeling Shear Modulus and Damping Ratio of Tire Derived Geomaterials</b> . . . . .	591
Siavash Manafi Khajeh Pasha, Hemanta Hazarika and Norimasa Yoshimoto	
<b>Rutting Performance of PPA-Modified Binders Using Multiple Stress Creep and Recovery (MSCR) Test</b> . . . . .	607
Shivani Rani, Rouzbeh Ghabchi, Musharraf Zaman and Syed Ashik Ali	
<b>2D Coupled Poro-Elastic Analysis for Dynamic Behaviour of CPRF</b> . . . . .	617
Patchamatla J. RamaRaju, Pavan K. Emani and Shashank Kothari	
<b>Performance-Based Evaluation of Building With and Without Soil Flexibility</b> . . . . .	625
S. Deepa, I. R. Mithanthaya and S. V. Venkatesh	
<b>Application of TS Method in Dynamic UH Model</b> . . . . .	637
Zheng Wan, Chenchen Song and Wensheng Gao	
<b>Effect of Lime and Cement on Strength and Volume Change Behavior of Black Cotton Soil</b> . . . . .	651
Majid Hussain	
<b>Strength and Deformation Characteristics of Jointed Block Rock Matrix Using Triaxial System</b> . . . . .	665
Manish Shah and Arpit Patel	
<b>Fundamental Time Period of Vibration in Seismic Analysis</b> . . . . .	679
Prabhat K. Soni, Prakash Sangamnerkar and S. K. Dubey	
<b>Case Studies on Ground Improvement for Heavy Infrastructure on Soft Soil Using Basal Reinforcement</b> . . . . .	691
Vikalp Kamal, Minimol Korulla and P. S. Meenu	
<b>Effect of Fascia Gravity on the Design of Reinforced Soil Walls</b> . . . . .	709
Homit Singh Pal and Mohan Krishna Kolli	
<b>Geotechnical and Electrical Resistivity Properties of Gypsum Rich Sands</b> . . . . .	717
Raghava A. Bhamidipati and Michael E. Kalinski	