1. Record Nr. UNINA9910743264203321

Titolo	Ground improvement and reinforced soil structures . Volume 2 : proceedings of Indian Geotechnical Conference 2020 / / edited by C. N. V. Satyanarayana Reddy, Sireesh Saride, and A. Murali Krishna
Pubbl/distr/stampa	Singapore : , : Springer, , [2021] ©2021
ISBN	981-16-1831-3 981-16-1830-5
Descrizione fisica	1 online resource (764 pages)
Collana	Lecture Notes in Civil Engineering ; ; v.152
Disciplina	624.151363
Soggetti	Reinforced soils Soil stabilization
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Intro -- Contents -- About the Editors -- Improvement of Soft Clays Using Stone Columns with and Without Encasement -- 1 Introduction -- 2 Literature Review -- 3 Materials Used -- 3.1 Clay -- 3.2 Gravel -- 3.3 Sand -- 3.4 Leno-Netted Bag -- 4 Test Program -- 4.1 Load Test on Unreinforced Clay Bed -- 4.2 Load Tests on Stone Column -- 4.3 Load Tests on Encased Stone Column -- 5 Analysis and Discussion -- 5.1 Modulus of Elasticity of Clay from UCS Test -- 5.2 Single-Stone Columns of Diameter 6 and 7 cm -- 5.3 Single-Stone Column of 7 cm Diameter Using a Loading Plate of Diameter 6 cm -- 6 Conclusions -- References -- Geotechnical Properties of Soft Improved Ground from In Situ Time-Settlement Plots -- 1 Introduction -- 1.1 Mud Flats, South of Iraq [1] -- 1.2 Embankment on Soft Clay Treated with Sand Drains [3] -- 2 Results and Discussion -- 3 Conclusion -- References -- Settlement of a Square Footing on Dry Sand Bed Reinforced with Stone Columns Under Seismic Conditions: Effect of Frequency -- 1 Introduction -- 2 Materials and Method -- 2.1 Experimental Setup -- 2.2 Instrumentation -- 2.3 Materials Used -- 2.4 Model Preparation and Testing Procedure -- 2.5 Law of Similitude -- 3 Results and Discussion -- 4 Conclusions -- References -- Experimental Study on Parametric Influences of Stone Column Reinforced Foundation

Systems -- 1 Introduction -- 2 Material and Methodology -- 2.1 Preparation of Clay -- 2.2 Preparation of Clay Bed -- 2.3 Preparation of Stone Column -- 2.4 Test Procedure -- 3 Results and Discussion -- 4 Conclusions -- References -- Stabilization of Soft Clay Using Nylon Fiber and Fly Ash -- 1 Introduction -- 2 Materials -- 3 Experimental Work -- 4 Results and Discussion -- 4.1 Soil Treated with Fly Ash -- 4.2 Comparison of Test Results -- 5 Conclusions -- References. Experimental Investigation of Expansive Soil Mixed with Shredded Rubber Tyre -- 1 Introduction -- 2 Literature Review -- 3 Materials Used -- 3.1 Black Cotton Soil -- 3.2 Crumb Rubber Tyre (CRT) -- 4 Experimental Study -- 5 Results and Discussion -- 5.1 Sieve Analysis -- 5.2 Specific Gravity -- 5.3 Atterberg's Limits -- 5.4 Standard Proctor Test -- 5.5 Unconfined Compressive Strength Test -- 5.6 California Bearing Ratio Test -- 6 Conclusions -- References -- A Laboratory Study on the Stabilized Expansive Soil with Partial Replacement of Fly Ash and Palm Oil Fuel Ash -- 1 Introduction -- 2 Experimental Program -- 2.1 Materials Used -- 2.2 Sample Preparation -- 2.3 Laboratory Experimentation -- 2.4 Methodology -- 3 Results and Discussion -- 3.1 Effect of Stabilization on Differential Free Swell Index -- 3.2 Effect of Stabilization on the Atterberg's Limits -- 3.3 Effect of Stabilization on Compaction Properties -- 3.4 Effect of Stabilization on CBR -- 3.5 Effect of Stabilization on Unconfined Compressive Strength -- 4 Conclusions -- References -- Enhancing the Engineering Properties of Black Cotton Soil by Using Magnesium Chloride -- 1 Introduction -- 2 Literature Review -- 3 Materials Used -- 3.1 Black Cotton Soil -- 3.2 Magnesium Chloride -- 4 Experimental Program -- 5 Results and Discussions -- 5.1 Grain Size Analysis -- 5.2 Atterberg's Limit -- 5.3 Standard Proctor Compaction Test -- 5.4 Unconfined Compression Test -- 5.5 California Bearing Ratio Test -- 5.6 Swelling Pressure Test -- 6 Conclusions -- References -- Decontamination of Soil by Electro Kinetic Treatment -- 1 Introduction -- 1.1 Development of Electro Kinetic Process -- 2 Electro Kinetics -- 2.1 Process and Mechanisms -- 2.2 Electroosmosis -- 2.3 Electro Migration -- 2.4 Electrophoresis -- 2.5 Factors Affecting Electro Kinetic Technology -- 3 Materials Used for the Test -- 3.1 Sand.
3.2 Leachate -- 4 Methodology -- 4.1 Electro Kinetic Treatment -- 4.2 Procedure -- 5 Results -- 5.1 Variation of Current and Voltage -- 6 Conclusions -- References -- Desiccation Cracking Behavior and Strength Characteristics of Areca Fiber-Reinforced Fine Grained Soils -- 1 Introduction -- 2 Materials and Methods -- 2.1 Soil and Bottom Ash -- 2.2 Areca Fiber -- 3 Experimental Program -- 3.1 Compaction Tests -- 3.2 Unconfined Compressive Strength -- 3.3 Image Analysis -- 4 Results and Discussions -- 4.1 Compaction Tests -- 4.2 Unconfined Compressive Strength Tests -- 4.3 Image Analysis -- 5 Conclusions -- References -- Numerical Analysis and Experimental Study on Reinforcement Using PVC Rod in the Vicinity of Pressure Bulb in Sand -- 1 Introduction -- 1.1 General -- 2 Experimental Program -- 2.1 Materials Used -- 2.2 Test Setup -- 2.3 Modeling and Analysis -- 3 Results and Discussion -- 3.1 Effect of Length and Diameter on Pressure-Settlement Response Using Plate Load Test -- 3.2 Effect of Length and Diameter on Pressure-Settlement Response Using Numerical Analysis -- 3.3 Validation -- 4 Conclusions -- Reference -- Strength and Deformation Characteristics of Subgrade Soil Stabilized with Plastic Covers -- 1 Introduction -- 2 Experimental Studies -- 2.1 Materials Used -- 2.2 Methodology -- 3 Results and Discussion -- 3.1 Effect of Thickness and Aspect Ratio of Plastic Strips on Strength Characteristics -- 3.2 Comparison of Results -- 4 Conclusions -- References -- Enhancement of Soil Stabilization

by Electrokinetic Process -- 1 Introduction -- 2 Materials -- 3 Methodology -- 3.1 Electrokinetic Cell Setup -- 3.2 Procedure for Dewatering of Remolded Clay Through Electrokinetic Cell -- 4 Results and Discussion -- 4.1 Effect of Voltage -- 4.2 Effect of Initial Moisture Content (IMC) -- 5 Conclusions -- References.
Effect of Modification on Coir Fiber in Durability and Shear Parameters in Flyash Soil Mixture -- 1 Introduction -- 2 Literature Review -- 3 Experimental Studies -- 3.1 Materials -- 3.2 Nano Modification of Coir Fiber -- 3.3 Testing Program -- 4 Results and Discussion -- 4.1 SEM Analysis -- 4.2 Water Absorption -- 4.3 Tensile Test and Elongation -- 4.4 Effect of Treated Fiber on Unconfined Compression Test -- 4.5 Effect of Treatment on Durability of Fiber and UCC Value -- 5 Conclusions -- References -- Dynamic Compaction of Sandy and Silty Soils Near Delhi for Liquefaction Mitigation -- 1 Introduction -- 2 Subsoil Profile -- 3 Liquefaction Susceptibility Analysis -- 3.1 Methodology and Design Parameters -- 3.2 Results -- 4 Ground Improvement -- 4.1 Design Concept -- 4.2 Site Execution -- 5 Field Testing and Improvement -- 6 Conclusions -- References -- Lateral Displacements of Soft Ground Under Embankment Loading -- 1 Introduction -- 2 Methodology -- 3 Results and Discussion -- 3.1 Settlements -- 3.2 Lateral Displacements -- 3.3 Construction Control Chart -- 4 Conclusions -- References -- Influence of Eco-Sand Drains on the Performance of Consolidation Characteristics Founded on Soft Clay Deposits -- 1 Introduction -- 2 Materials -- 2.1 Soil Sample -- 2.2 Eco-Sand -- 3 Experimental Works -- 3.1 Experimental Setup -- 3.2 Installation of Drains -- 4 Results and Discussion -- 5 Conclusions -- References -- Effect of Fiber Reinforcement on the Strength of Geopolymerised Soil: An Experimental Investigation and Numerical Modeling -- 1 Introduction -- 2 Materials and Methods -- 2.1 Raw Materials -- 2.2 Alkali Activated Binder (AAB) -- 2.3 Sample Preparation -- 2.4 Geotechnical Characteristics -- 2.5 Numerical Modeling -- 3 Results and Discussion -- 3.1 Fourier Transform Infrared Spectroscopy (FTIR) -- 3.2 Stereomicroscope and SEM Images.
3.3 Unconfined Compression Strength (UCS) -- 3.4 Split Tensile Strength (STS) -- 3.5 Flexural Strength (Sf) -- 4 Conclusions -- References -- Strength Behavior of Polypropylene Fiber Reinforced GGBS Based Geopolymer Clay Blends -- 1 Introduction -- 2 Experimental Investigation -- 2.1 Materials -- 2.2 Sample Preparation -- 2.3 Methods -- 3 Results and Discussion -- 3.1 Effect of GGBS Based Geopolymers on Unconfined Compressive Strength -- 3.2 Effect of GGBS Based Geopolymers and Polypropylene Fibers on Split Tensile Strength -- 3.3 Micro-Analysis -- 4 Conclusions -- References -- Effect of Marble Dust on Strength Characteristics of Rice Husk Stabilized Soil -- 1 Introduction -- 2 Experimental Work and Methodology -- 2.1 Expansive Soil -- 2.2 Rice Husk Ash (RHA) -- 2.3 Marble Dust -- 2.4 Sample Preparation and Experimental Program -- 3 Results and Discussion -- 3.1 Geotechnical Properties of Soil-RHA Mix -- 3.2 Geotechnical Properties of Marble Dust Treated RHA -- 4 Conclusions -- References -- Swelling Characteristics of Fly Ash Based Geopolymer Expansive Clay Blends -- 1 Introduction -- 2 Experimental Investigation -- 2.1 Materials -- 2.2 Laboratory Tests -- 3 Results and Discussion -- 3.1 Swell-Shrink Behaviour -- 3.2 Micro-Structure Studies -- 4 Conclusions -- References -- A Critical Review on Stabilisation of Expansive Soils with Compensating Materials -- 1 Introduction -- 2 Different Types of Compensating Materials and Their Mechanism in Controlling the Volume Change of Expansive Soils -- 2.1 Gravel Material -- 2.2 Sand Material -- 2.3 Non-swelling Soil -- 2.4 Cohesive Non-swelling Soil (CNS) -- 2.5 Chemically Stabilised Soil (CSS)

-- 3 Cyclic Swell-Shrink Behaviour of CNS/CSS Stabilised Expansive -- 3.1 Soil -- 4 Depth of Active Zone -- 4.1 Thickness of Soil Removal in the Active Zone.
5 Laboratory Constraints in Understanding the Behaviour of Expansive Soil Stabilised with Compensating Material.