1. Record Nr. UNINA9911007167503321

Titolo	ICE manual of geotechnical engineering . Volume 1 Geotechnical engineering principles, problematic soils and site investigation / / edited by Michael Brown (University of Dundee, UK), John Burland (Imperial College London, UK), Tim Chapman (UK), Kelvin Higgins (Geotechnical Consulting Group LLP, UK), Hilary Skinner (COWI, UK), David Toll (Durham University, UK)
Pubbl/distr/stampa	Leeds, England : , : Emerald Publishing Limited, , [2024] ©2024
ISBN	1-5231-5801-8 0-7277-6682-1
Edizione	[2nd Edition.]
Descrizione fisica	1 online resource (809 pages)
Collana	[ICE manuals]
Disciplina	624.151
Soggetti	Geotechnical engineering Technology & Engineering - Engineering (General) Civil engineering, surveying & building
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Includes index.
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Contents and Preliminary Pages -- Section 1: Context -- Introduction to Section 1 -- Foundations and other geotechnical elements in context - their role -- A brief history of the development of geotechnical engineering -- The geotechnical triangle -- Structural and geotechnical modelling -- Computer analysis principles in geotechnical engineering -- Geotechnical risks and their context for the whole project -- Health and safety in geotechnical engineering -- Foundation design decisions -- Codes and standards and their relevance -- Sustainable geotechnics -- Section 2 Fundamental principles -- Introduction to Section 2 -- The ground profile and its genesis -- Soils as particulate materials -- Groundwater profiles and effective stresses -- Groundwater flow -- Strength and deformation behaviour of soils -- Rock behaviour -- Settlement and stress distributions -- Earth pressure theory -- Bearing capacity theory -- Behaviour of single piles under vertical loads -- Slope stability -- Dynamic and seismic loading of soils -- The role of

ground improvement -- Building response to ground movements -- Geotechnical parameters and safety factors -- Section 3 Problematic soils and their issues -- Introduction to Section 3 -- Arid soils -- Tropical soils -- Glacial soils -- Collapsible soils -- Expansive soils -- Non-engineered fills -- Organics/peat soils -- Mudrocks, clays and pyrite implications -- Sulfates and sulfides in soils and rocks -- Soluble ground -- Section 4 Site investigation -- Introduction to Section 4 -- The ground as a hazard -- Man-made hazards and obstructions -- Roles and responsibilities -- Preliminary studies -- Planning, procurement and management -- Geophysical exploration and remote sensing -- Ground exploration -- Field geotechnical testing -- Geo-environmental testing -- Sampling and laboratory testing -- Geotechnical reporting -- Index.

Sommario/riassunto

ICE Manual of Geotechnical Engineering, Second edition brings together an exceptional breadth of material to provide a definitive reference on geotechnical engineering solutions. Written and edited by leading specialists, now revised and updated with the latest guidelines and references, each chapter provides contemporary guidance and best practice knowledge for civil and structural engineers in the field. It considers the higher importance attached to the effects of construction on the environment and society. Key features in this wide-ranging update include * comprehensive reference for the core geotechnical engineering principles * theoretical principles and practical techniques in geotechnical engineering * uncertainties that may arise during the process of ground investigation * topic-focused chapters, including problematic soils, foundations, earthworks and retaining structures * fundamental principles of site investigation, design and construction processes. Volume I covers fundamental geotechnical principles and concepts, problematic soils and their issues and site investigation. This knowledge is extended to inform design, construction processes and verification in Volume II. Part of the ICE Manuals series, ICE Manual of Geotechnical Engineering, Second edition is an essential guide and invaluable reference for practising civil and structural engineers, engineering geologists, architects, designers, consultants and contractors.