Recommendations For Prestressed Rock And Soil Anchors

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Tentative Recommendations for Prestressed Rock and Soil Anchors Prestressed Concrete Institute 1974

Sustainable and Safe Dams Around the World / Un monde de barrages durables et s curitaires Jean-Pierre Tournier 2019-08-08 These proceedings include digital media with the full conference papers (3600+ pages). Sustainable and Safe Dams Around the World contains the contributions presented at the 2019 Symposium of the International Commission on Large Dams (ICOLD 2019, Ottawa, Canada, 9-14 June 2019). The main topics of the book include: 1. Innovation (recent advancements and techniques for investigations, design, construction, operation and maintenance of water or tailings dams and spillways) 2. Sustainable Development (planning, design, construction, operation, decommissioning and closure management strategies for water resources or tailings dams, e.g. climate change, sedimentation, environmental protection, risk management). 3. Hazards (design mitigation and management of hazards to water or tailings dams, appurtenant structures, spillways and reservoirs (e.g. floods, seismic, landslides). 4. Extreme Conditions (management for water or tailings dams (e.g. permafrost and ice loading, arid/wet climates, geo-hazards). 5. Tailings (design, construction, operation and closure for tailings dams; recent advancements and best practice) Sustainable and Safe Dams Around the World will be invaluable to academics and professionals interested or involved in dams. Un monde de barrages durables et s curitaires contiennent les contributions pr sent es lors du symposium de 2019 de la Commission internationale des grands barrages (CIGB 2019, Ottawa, Canada, 9-14 juin 2019). Les principaux sujets du livre incluent: 1. Innovation (Avanc es et techniques r centes pour l'investigation, la conception, la construction, l'exploitation et l'entretien de barrages hydrauliques, de barrages de st riles et d' vacuateurs de crues) 2. D veloppement durable (strat gies de gestion pour la planification, la conception, la construction, l'exploitation, la mise hors service et la fermeture de barrages hydrauliques ou des barrages de st riles, par exemple, changement climatique, s dimentation, protection de l'environnement, gestion des risques). 3. Risques (mesures d'att nuation et gestion des risques li s aux barrages hydrauliques et barrages de st riles, aux ouvrages annexes, aux vacuateurs de crues et aux r servoirs, par exemple, inondations, tremblements de terre, glissements de terrain). 4. Environnement extr me (gestion des barrages hydrauliques et barrages de st riles, par exemple, perg lisol et charge de glace, climats secs / humides, g orisques). 5. Barrages de st riles (conception, construction, exploitation et fermeture des barrages de st riles; avanc es r centes et meilleures pratiques). Un monde de barrages durables et s curitaires seront d'une valeur inestimable pour les universitaires et les professionnels int ress s ou impliqu s dans les barrages.

Anchoring in Rock and Soil L. Hobst 1983-01-01 Anchoring in Rock and Soil

Rock Slope Engineering, Fourth Edition Duncan C. Wyllie 2004-06-01 The stability of rock slopes is an important issue in both civil and mining engineering. On civil projects, rock cuts must be safe from rock falls and large-scale slope instability during both construction and operation. In open pit mining, where slope heights can be many hundreds of meters, the economics of the operation are closely related to the steepest stable slope angle that can be mined. This extensively updated version of the classic text, Rock Slope Engineering by Hoek and Bray, deals comprehensively with the investigation, design and operation of rock slopes. Investigation methods include the collection and interpretation of geological and groundwater data, and determination of rock strength properties, including the Hoek Brown rock mass strength criterion. Slope design methods include the theoretical basis for the

design of plane, wedge, circular and toppling failures, and design charts are provided to enable rapid checks of stability to be carried out. New material contained in this book includes the latest developments in earthquake engineering related to slope stability, probabilistic analysis, numerical analysis, blasting, slope movement monitoring and stabilization methods. The types of stabilization include rock anchors, shotcrete, drainage and scaling, as well as rock fall protecting methods involving barriers, ditches, nets and sheds. Rock Slopes: Civil and Mining Engineering contains both worked examples illustrating data interpretation and design methods, and chapters on civil and mining case studies. The case studies demonstrate the application of design methods to the construction of stable slopes in a wide variety of geological conditions. The book provides over 300 carefully selected references for those who wish to study the subject in greater detail. It also includes an introduction by Dr. Evert Hoek.

Fourth International Conference on Current and Future Trends in Bridge Design, Construction and Maintenance B. Barr 2006 This is a state-of-the-art reference, an exchange of innovative experience, creative thinking and industry forecasts. This volume presents the proceedings of the fourth international conference in this series based in the Asia Pacific region, in Kuala Lumpur in October 2005 and is applicable to all sectors of the bridge engineering community. BACKGROUND KNOWLEDGE AND FUTURE PERFORMANCE The Institution of Civil Engineers has collaborated with internationally renowned bridge engineers to organise three successful conferences to celebrate the enormous achievements made in the field of bridge engineering in recent years. As a discipline, bridge engineering not only requires knowledge and experience of bridge design and construction techniques but must also deal with increasing challenges posed by the need to maintain the long-term performance of structures throughout an extended service life. In many parts of the world natural phenomena such as seismic events can cause significant damage to force major repairs or reconstruction. Therefore, it is appropriate that the first plenary session of this conference is entitled Engineering for Seismic Performance. READERSHIP This compilation of papers will benefit practising civil and structural engineers in consulting firms and government agencies, bridge contractors, research institutes, universities and colleges. In short, it is of importance to all engineers involved in any aspect of the design, construction and repair, maintenance and refurbishment of bridges.

Specialty Construction Techniques for Dam and Levee Remediation Donald A. Bruce 2012-09-26 Dam and levee remediation has become more prevalent since the start of the twenty-first century. Given the vastness and complexity of the infrastructures involved, keeping up with maintenance needs is very difficult. Major surges in repair are usually triggered by nature's wake-up calls, such as hurricanes, floods, and earthquakes. The challenge has been to develop methods that ensure safe, effective, reliable, and robust solutions for current and future remediation issues. Specialty Construction Techniques for Dam and Levee Remediation presents the state of practice in North American dam and levee remediation as it relates to the use of specialty geotechnical construction techniques, such as anchors, grouting, cutoff (diaphragm) walls, and deep mixing. The book focuses on the actual construction processes, describing design and performance aspects of remediation where appropriate. Chapters deal with the application of drilling and grouting methods, methods to install mix-in-place (category 2) cutoff structures, excavated and backfilled trenches (category 1), composite cutoff walls, and stabilization using prestressed rock anchors. The book also provides a comprehensive guide to dam and levee instrumentation, covering planning, operating principles, data management, staffing, and automation. As an educational and salutary example of ineffective efforts, the final chapter presents a case history of a series of remediations performed on a single project, which ultimately proved unsuccessful. A wide range of methods has been developed in response to the challenges that arise in the dam and levee remediation arena and the need for a competitive edge. These new methods are designed and monitored using state-of-the-art techniques, giving rise to the emergence of new intensity and initiative in this field. This book captures this transformation by examining the theory and practice of contemporary remedial techniques, using recent U.S. case histories to provide knowledge and inspiration to readers, both in North America and around the world.

Ground Anchors and Anchored Structures Petros P. Xanthakos 1991-09-03 Treating anchorages as a direct application of the laws of statics and the theories governing the transfer of load, this book focuses on designs that are safe and reasonably priced. It is divided into two parts. Following a general introduction in the first chapter, Part One goes on to explore anchor systems, components, installation and construction details. Presents special anchor systems such as extractable, compression-type, multibell, and regroutable anchors. Analyzes the transfer of load and its relation to failure modes and anchor load capacity; deals with design considerations; covers mechanisms and types of corrosion; and details anchor stressing, testing programs, and

evaluation standards. Part Two considers uses and applications and design aspects of anchored structures; presents design examples of practical value and reasonable simplicity; and incorporates examples and case histories.

An Introduction to Improving Stability of Existing Concrete Structures J. Paul Guyer, P.E., R.A. 2018-09-30 Introductory technical guidance for civil, geotechnical and structural engineers interested in stabilization of existing, massive concrete structures such as dams, locks and flood walls. Here is what is discussed: 1. EVALUATION 2. PROCEDURES 3. IMPROVING STABILITY 4. CASE HISTORIES 5. ANCHORING STRUCTURES 6. ANCHORING STRUCTURES TO ROCK 7. TENSIONED ANCHOR LOADS 8. STRUCTURAL ANCHOR DESIGN 9. CLASSIFICATION OF STRUCTURES.

Foundations on Rock Duncan C. Wyllie 2003-09-02 This second edition of the successful Foundations on Rock presents an up-to-date practical reference book describing current engineering practice in the investigation, design and construction of foundations on rock. An extra chapter on Tension Foundations has been included. The methods set out are readily applicable to high rise buildings, bridges,

Prestressed Concrete Foundations and Ground Anchors F? d? ration internationale de la pr? contrainte. Congr? s 1974

Rock Mechanics: Meeting Society's Challenges and Demands, Two Volume Set Erik Eberhardt 2007-05-17 Ore extraction through surface and underground mining continues to involve deeper excavations in more complex rock mass conditions. Communities and infrastructure are increasingly exposed to rock slope hazards as they expand further into rugged mountainous terrains. Energy needs are accelerating the development of new hydroelectric dams and exploit

Design of Post-tensioned Slabs-on-ground 2008

Soil Dynamics, Deep Stabilization, and Special Geotechnical Construction 1983

California Code of Regulations 2013 "This document is Part 2 of 12 parts of the official triennial compilation and publication of the adoptions, amendments and repeal of administrative regulations to California Code of Regulations, Title 24, also referred to as the California Building Standards Code. This part is known as the California Building Code"--Preface.

Field Procedures Manual for Unbonded Single Strand Tendons Post-Tensioning Institute 2016

Soil Mechanics and Geotechnical Engineering D.L. Shah 2003-01-01 Dealing with the fundamentals and general principles of soil mechanics and geotechnical engineering, this text also examines the design methodology of shallow / deep foundations, including machine foundations. In addition to this, the volume explores earthen embankments and retaining structures, including an investigation into ground improvement techniques, such as geotextiles, reinforced earth, and more

Piling and Deep Foundations J. B. Burland 1989

Principles and Practice of Ground Improvement Jie Han 2015-05-26 Gain a stronger foundation with optimal ground improvement Before you break ground on a new structure, you need to analyze the structure of the ground. Expert analysis and optimization of the geo-materials on your site can mean the difference between a lasting structure and a school in a sinkhole. Sometimes problematic geology is expected because of the location, but other times it's only unearthed once construction has begun. You need to be able to quickly adapt your project plan to include an improvement to unfavorable ground before the project can safely continue. Principles and Practice of Ground Improvement is the only comprehensive, up-to-date compendium of solutions to this critical aspect of civil engineering. Dr. Jie Han, registered Professional Engineer and preeminent voice in geotechnical engineering, is the ultimate guide to the methods and best practices of ground improvement. Han walks you through various ground improvement solutions and provides theoretical and practical advice for determining which technique fits each situation. Follow examples to find solutions to complex problems Complete homework problems to tackle issues

that present themselves in the field Study design procedures for each technique to simplify field implementation Brush up on modern ground improvement technologies to keep abreast of all available options Principles and Practice of Ground Improvement can be used as a textbook, and includes Powerpoint slides for instructors. It's also a handy field reference for contractors and installers who actually implement plans. There are many ground improvement solutions out there, but there is no single right answer to every situation. Principles and Practice of Ground Improvement will give you the information you need to analyze the problem, then design and implement the best possible solution.

Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects United States. Federal Highway Administration 2014 Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects is issued primarily for constructing roads and bridges on Federal Highway projects under the direct administration of the Federal Highway Administration. It is also used by the U. S. Forest Service and other Federal agencies on their projects. These specifications are cited as "FP-14" indicating "Federal Project" Standard Specifications issued in 2014 and contain both United States Customary and Metric units of measure. This book outlines the contractual process, including bids, Scope of Work for projects, including materials, construction requirements, equipment, glossary of terms, and much more. Road construction companies, and supply management vendors for the equipment, tools, and pipes needed for constructing Federal highways, as well as engineers, Federal, state, and local Government agencies may be interested to have a copy of this authoritative work available as a reference for any current, and/or future road construction projects

Deep Excavation Chang-Yu Ou 2014-04-21 Accelerating economic development and urbanization has led to engineers becoming increasingly ambitious, carrying out excavations in more difficult soils, so that excavations are deeper and more extensive. These complex conditions require advanced analysis, design methods and construction technologies. Most books on general foundation engineering i

Proceedings fib Symposium in Prague Vol2 Czech Republic FIB - International Federation for Structural Concrete 1999-10-01

Ground Anchorages and Anchored Structures Institution of Civil Engineers (Great Britain) 1997 This volume presents the proceedings of the first major international conference for over twenty years on the state-of-the-art of ground anchorage technology. Leading researchers and practitioners from around the world came together to discuss all the aspects of design, construction and performance of ground anchorages for the use in stabilisation of structures, excavations and slopes. Practical issues relating to construction and installation of anchorages are considered in a series of examples of engineering projects from around the world. Reviews of new national and international standards of construction are also presented along with current practice in different countries.

Ground Control and Improvement Petros P. Xanthakos 1994-06-14 A comprehensive compilation concerned with a variety of modern methods being used worldwide to improve soil and rock conditions supporting new and remedial construction. Ground water lowering and drainage techniques, soil compaction, excavation support methods, permeation and jet grouting are among the many topics discussed. More than 100 tables and 650 figures illustrate the text.

An Introduction to Miscellaneous Considerations for Concrete Gravity Dams J. Paul Guyer, P.E., R.A. 2018-01-03 Introductory technical guidance for civil engineers and other professional engineers, planners and construction managers interested in design and construction of concrete gravity dams. Here is what is discussed: 1. TEMPERATURE CONTROL OF MASS CONCRETE 2. STRUCTURAL CONSIDERATIONS 3. REEVALUATION OF EXISTING DAMS 4. ROLLER COMPACTED CONCRETE GRAVITY DAMS.

Fundamentals of Deep Excavations Chang-Yu Ou 2021-10-26 Excavation is an important segment of foundation engineering (e.g., in the construction of the foundations or basements of high-rise buildings, underground oil tanks, or subways). However, the excavation knowledge introduced in most books on foundation engineering is too simple to handle actual excavation analysis and design. Moreover, with economic development and urbanization, excavations go deeper and are larger in scale. These conditions require elaborate analysis, design methods and construction technologies. This book is aimed at both theoretical explication and practical application. From basic to advanced, this book attempts to achieve theoretical rigor and consistency. Each chapter is followed by a

problem set so that the book can be readily taught at senior undergraduate and graduate levels. The solution to the problems at the end of the chapters can be found on the website (http://www.ct.ntust.edu.tw/ou/). On the other hand, the analysis methods introduced in the book can be used in actual analysis and design as they contain the most up-to-date knowledge. Therefore, this book is suitable for teachers who teach foundation engineering and/or deep excavation courses and engineers who are engaged in excavation analysis and design.

Geotechnical Engineering Handbook, Procedures Ulrich Smoltczyk 2003-03-14 Volume 2 of the Handbook covers the geotechnical procedures used in manufacturing anchors and piles as well as for improving or underpinning foundations, securing existing constructions, controlling ground water, excavating rocks and earth works. It also treats such specialist areas as the use of geotextiles and seeding.

Excavation, Support and Monitoring J.A. Hudson 2016-04-06 Comprehensive Rock Engineering: Principles, Practice, & Projects, Volume 4: Excavation, Support, and Monitoring focuses on rock mechanics research and engineering, including excavation, drilling, blasting, and collapse mechanisms of boreholes. The selection first offers information on the construction process, mechanisms of rock fragmentation by blasting, and methods of improving blasting operations. Discussions focus on excavation, support, monitoring, stress wave mechanics, crater blasting, applications in construction and quarry blasting, fragmentation, damage, and environmental aspects. The text also ponders on the regulations, methods, and control techniques of blast monitoring and blast vibration monitoring for rock engineering. The publication takes a look at computer modeling and simulation of percussive drilling of rocks, mechanics of rock cutting, theoretical and practical rules for mechanical rock excavation, and use of water jets for rock excavation. Topics include drag pick cutting, excavating machines, adaptation of mechanical excavation to a harsh environment, abrasive water jets, and combined use of high pressure jets and mechanical cutting tools. The manuscript also examines design of support for underground excavations; development of tunnel support philosophy; and an overview of tunnel, underground excavation, and boreholes collapse mechanisms. The selection is a valuable reference for readers and rock engineering practitioners interested in pursuing research on rock engineering.

Ground Support in Mining and Underground Construction Ernesto Villaescusa 2004-09-15 The purpose of ground support is to safely maintain excavations for their expected lifespan. The effectiveness of ground support can be seen both in terms of personnel and equipment safety, and in terms of allowing the most economic extraction. Scientists, practitioners and technology developers have contributed to this volume, which covers rock ma

Report No. FHWA-RD. United States. Federal Highway Administration. Offices of Research and Development 1976

Ground Anchors and Anchored Systems Federal Highway Administration 2006-08-01 This book presents state-of-the-practice information on the design and installation of cement-grouted ground anchors and anchored systems for highway applications. The anchored systems discussed include flexible anchored walls, slopes supported using ground anchors, landslide stabilization systems, and structures that incorporate tiedown anchors. This book draws extensively in describing issues such as subsurface investigation and laboratory testing, basic anchoring principles, ground anchor load testing, and inspection of construction materials and methods used for anchored systems. This book provides detailed information on design analyses for ground anchored systems. Topics discussed include selection of design earth pressures, ground anchor design, design of corrosion protection system for ground anchors, design of wall components to resist lateral and vertical loads, evaluation of overall anchored system stability, and seismic design of anchored systems. Also included in this book are two detailed design examples and technical specifications for ground anchors and for anchored walls.

Problem Solving in Soil Mechanics A. Aysen 2021-07-14 Written for university students taking first-degree courses in civil engineering, environmental and agricultural engineering, Problem Solving in Soil Mechanics stimulates problem-solving learning as well as facilitating self-teaching. Generally assuming prior knowledge of subject, necessary basic information is included to make it accessible to readers new to the topic. Filled with worked examples, new and advanced topics and with a flexible structure that means it can be adapted for use in second, third and fourth year undergraduate courses in soil mechanics, this book is also a valuable resource for the practising professional engineer as well as undergraduate and postgraduate students. Primarily designed as a supplement to Soil Mechanics: Basic Concepts and Engineering Applications, this book can be used by students as an independent problem-solving text, since there are no specific references to any equations or figures in the main book.

Proposed Specifications for LRFD Soil-nailing Design and Construction Carlos Arias Lazarte 2011 This report contains proposed specifications for the design and construction of soil-nailed retaining structures. Despite their advantages in cut applications, these structures are not available to some state DOTs, due to the lack of guidance for their use in AASHTO's standard specifications based on load and resistance factor design (LRFD).

Rock Mechanics Jaak J.K. Daemen 1995-01-01 This volume presents the proceedings of a symposium on rock mechanics, held in the USA in 1995. Topics covered include: rock dynamics; tool-rock interaction; radioactive waste disposal; underground mining; fragmentation and blasting; theoretical and model studies; hydrology; and rock creep.

North American Tunneling: 2014 Proceedings Davidson, Gregg 2014-06-17 The North American Tunneling Conference is the premier forum to discuss new trends and developments in underground construction in North America. With every conference, the number of attendees and breadth of topics grows. North American Tunneling: 2014 Proceedings reflects the theme for the 2014 conference, "Mission Possible." The authors share new theories, novel innovations, and the latest tools that make what once may have been perceived as impossible, now possible. The authors of 128 papers share the latest case histories, expertise, lessons learned, and real-world applications from around the globe on a wide range of topics. They cover the successes and failures of challenging construction projects. Read about challenging design issues, fresh approaches on performance, future projects, and industry trends as well as ground movement and support, structure analysis, risk and cost management, rock tunnels, caverns and shafts, TBM technology and selection, and water and wastewater conveyance.

Tentative Recommendations for Prestressed Rock and Soil Anchors Prestressed Concrete Institute. Post-Tensioning Committee 1974

Dam Maintenance and Rehabilitation M. Cabrera 2017-12-04 During the life of a dam, changes in safety standards, legislation and land use will inevitably occur, and functional deterioration may also appear. To meet these challenges, these Proceedings from a panel of international experts assess, define and re-evaluate the design criteria for the construction of dams and the many attendant issues in on-going maintenance and management. Authors include international specialists: academics, professionals and those in local government, utilities and suppliers. Practitioners from these same fields will find the book a useful tool in acquiring a comprehensive knowledge of managing and retrofitting dams, so that they can continue to meet society's needs.

An Introduction to Engineering of Dams 2021-09-09 Introductory technical guidance for civil engineers and construction managers interested in design and construction of dams. Here is what is discussed: 1. ARCH DAMS 2. GRAVITY DAMS 3. COFFER DAMS 4. ARCH DAM EARTHQUAKE ANALYSIS 5. ARCH DAM CONCRETE PROPERTIES 6. ARCH DAM CONSTRUCTION 7. FOUNDATION INVESTIGATIONS FOR ARCH DAMS 8. ARCH DAM INSTRUMENTATION 9. MANUAL LAYOUT OF ARCH DAMS 10. ARCH DAM OUTLETS 11. STATIC ANALYSIS OF ARCH DAMS 12. TEMPERATURE STUDIES FOR ARCH DAMS 13. CONCRETE CONDUITS 14: ANALYSIS OF CONCRETE GRAVITY DAMS 15. MISCELLANEOUS CONSIDERATION FOR GRAVITY DAMS

Foundation Engineering Handbook Hsai-Yang Fang 2013-06-29 More than ten years have passed since the first edition was published. During that period there have been a substantial number of changes in geotechnical engineering, especially in the applications of foundation engineering. As the world population increases, more land is needed and many soil deposits previously deemed unsuitable for residential housing or other construction projects are now being used. Such areas include problematic soil regions, mining subsidence areas, and sanitary landfills. To overcome the problems associated with these natural or man-made soil deposits, new and improved methods of analysis, design, and implementation are needed in foundation construction. As society develops and living standards rise, tall buildings, transportation facilities, and industrial complexes are increasingly being built. Because of the heavy design loads and the complicated environments, the traditional design concepts, construction materials, methods, and equipment also need improvement. Further, recent energy and material shortages have caused additional burdens on the engineering profession and brought about the need to seek alternative or cost-saving methods for foundation design and construction.

Recommended Practice for Evaluation of Metal-tensioned Systems in Geotechnical Applications James Lawrence Withiam 2002

Hydraulic Structures Sheng-Hong Chen 2015-06-09 This book discusses in detail the planning, design, construction and management of hydraulic structures, covering dams, spillways, tunnels, cut slopes, sluices, water intake and measuring works, ship locks and lifts, as well as fish ways. Particular attention is paid to considerations concerning the environment, hydrology, geology and materials etc. in the planning and design of hydraulic projects. It also considers the type selection, profile configuration, stress/stability calibration and engineering countermeasures, flood releasing arrangements and scouring protection, operation and maintenance etc. for a variety of specific hydraulic structures. The book is primarily intended for engineers, undergraduate and graduate students in the field of civil and hydraulic engineering who are faced with the challenges of extending our understanding of hydraulic structures ranging from traditional to groundbreaking, as well as designing, constructing and managing safe, durable hydraulic structures that are economical and environmentally friendly.