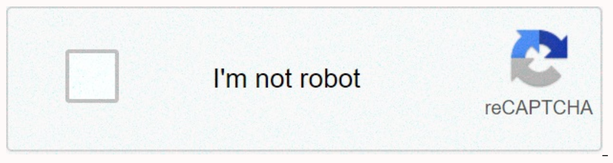

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Drilled shaft design and construction guidelines manual

Print this Drilled Shaft Design and Construction - Part I Course Outline Page Once considered a specialty base for urban environments where vibrations could not be tolerated or where shallow foundations could not develop sufficient capacity, the use of perforated shafts as structural support have increased significantly due to increased lateral strength requirements for bridge foundations and the capacity of perforated shafts to withstand these charges , especially huge side loads from extreme states limit of events that often govern the design of the bridge foundation, such as the ship's impact charges. The construction of the perforated shaft is not relatively affected by depth needs and the tremendous lateral rigidity has made it the preferred type of base for bridge foundations by many designers. In addition, recent developments in the methods of designing and building perforated axles have provided considerably more economy to their use in all scenarios, including foundations for bridge docks, abutments, high-masted lighting, cantilevered signals, mobile phone and communication towers. This course is entirely based on the non-publication of the U.S. Department of Transportation. FHWA-NHI-10-016, perforated axles: construction procedures and LRFD design methods. This two-part series talks about both the construction and the design of perforated axles, and addresses the applications of perforated axles for the foundations of the transport structure; general requirements for subsurficial investigations; means and methods of construction; LRFD principles and global design process; geotechnical design of perforated axles for axial and lateral load; extreme events such as scourge and earthquake; LRFD structure design; field load testing; construction specifications; inspection and records; non-destructive integrity tests; remediation of deficient axes; estimate of costs. This is one of the series covering the following chapters: Chapter 1 - Overview - Selection and Use of Perforated Axis Foundations Chapter 2 - Characterization of Site Chapter 3 - Geomaterial Properties Chapter 4 - General Building Methods Chapter 5 - Tools and Equipment Chapter 6 - Casing and Coatings Chapter 7 - Drilling fluids in the construction of the perforated axis Chapter 8 - Bar cages Chapter 9 - Placement and design of concrete for perforated axles This course includes a questionnaire multiple choice at the end, which is designed to improve understanding of course materials. Learning objectives At the end of this series, the student will learn: Definitions and terminologies; Historical background; Type; Applications; Advantages and limitations; Geotechnical conditions of the site; Geomaterial properties; Construction methods; Tool and equipment; Drilling; The rejuny; Housing and coatings; Drilling fluid; Bars Concrete placement; Design of concrete mixtures; LRFD design concept; LRFD design procedures; Side loading design; Axial load design; Load combinations; Group effect; Rubbing design; Seismic design; Vehicle collision design; Structural design; structural risk; focus; Structural design; Loading test; Inspection; Poor perforated axles; Specifications; estimate of costs. Public Planned This course is designed for geotechnical engineers, civil engineers, structural engineers, construction professionals and contractors. Benefit for attendees Attendees will acquire a general knowledge of the design, construction and realization of the system of perforated axis foundations. Introduction course perforated axles are deep, cylindrical, foundations of melted concrete at the site poured and formed by a boring excavation (i.e. drilled.). They can vary from 2 to 30 feet in diameter and can be more than 300 feet in length. Perforated axles are typically high capacity deep base elements built with a auger. A hole that has the design diameter of the planned axis is first drilled into the depth of the design. If the hole requires help to stay open, the casing or drilling liquid is used. The full-length reinforcement steel is reduced to the hole and the hole is filled with concrete. The finished base element resists compressive, lifting and side loads. The technique has been used to support buildings, tanks, towers and bridges. Course content Course content is entirely based on the non-publication of the U.S. Department of Transportation. FHWA NHI-05-039, Design and Construction of Micropile. For this course, you are required to study chapters 1 to 9 of the following document. Publication USDOT No. FHWA-NHI-10-016, Perforated axes: Construction procedures and LRFD design methods (30 MB PDF Document) Click on the above underlined hypertext to view, download or print the document for your study. Due to the large file size, we recommend that you first save the file to your computer by right-clicking and choosing Save Destination as ..., and then open the file in Adobe Acrobat Reader from your computer. Course summary This course presents the general guidelines on micropile selection, application, benefit, design, construction, cost and testing of micropile fundamentals. Once the study of the previous content of the course is finished, a questionnaire is necessary to obtain the credits of the PDH. DISCLAIMER: The materials contained in the online course are not intended as representation or guarantee by PDHonline.org or any other person/organization named in this document. The materials are for general information only. They are not a substitute for competent professional advice. The application of this information to a specific project must be reviewed by a registered professional engineer. Anyone who makes use of the information here here here does so at their own risk and assumes any resulting liability a resulting from it. Perforated axles have been used on a limited scale for many years as an alternative to batteries in a variety of basic problems. However, uncertainty regarding the behaviour of the perforated axis has forestalled widespread adoption. The thematic package, by Dr. Lymon C. Reese of the University of Texas, is meant to be bridge engineers, geotechnical engineers and stack foundation builders. The manual contains rational procedures and practical guidelines for the design and construction of perforated axis foundations. Volume I presents a rational design procedure for axes drilled under axial load and includes guidelines on building methods, inspection, load testing, specifications and cost estimates. Volume II presents alternative methods for calculating the axis response to side load and presents the structural design of the axis for axial and/or lateral load. What are you doing? Media Information Subject/Index Conditions Presentation Information