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COMPACTION GROUTING: FROM PRACTICE TO THEORY

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Abstract

Compaction grouting is a method of in-situ soil densification by grout injection under pressure. With almost no theoretical consideration, compaction grouting emerged from "mudjacking" applications, through deep slurry consolidation to evolve into a compaction idea that was perpetually perfected using available theory to reach today's state-of-the-art technology.

This paper presents the requirements for successfully implementing a compaction grout densification program (CGD Program). It presents what the geotechnical engineer should look for during the investigation campaign and how to develop findings into design parameters. Mathematical and physical models of the CGD method are reviewed. Improvement in bearing capacity, reduction of settlements, or density considerations are given with applications. Further research ideas and directions are discussed.

Introduction

Conceptually, compaction grout is injected under pressure to displace the soils and produce higher in-situ density. With today's state-of-the-art technology, compaction grouting requires a minimum of three main components: suitable knowledge of site soils, proper equipment, and the know-how to apply the technique to achieve the target results.

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