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Compaction Grouting Consensus Guide

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PREFACE

This new edition of the *Compaction Grouting Consensus Guide* aims to promote good practice in compaction grouting. Compaction grouting is a reliable methodology for improving soil density and strength. Similar to other grouting technologies, compaction grouting is based on sound engineering principles, not a "black magic" that only a chosen few can understand. And, like all other soil improvement techniques, compaction grouting needs to be applied competently.

Scope

This standard provides background for those interested in specifying, designing, and/or undertaking compaction grouting. This guide is not a manual and is not intended for use as a code of practice; hence, the use of nonmandatory language throughout the text is not accidental. The developers of this guide hope that it will become a useful reference for all those interested in compaction grouting.

Compaction grouting is a ground improvement technique that enhances the ground's strength and/or stiffness by slow and controlled injection of a low-mobility grout. The soil is displaced and compacted as the grout mass expands. Provided the injection process progresses in a controlled fashion, the grout material remains as a growing mass within the ground and does not permeate or fracture the soil. This behavior enables consistent densification around the expanding grout mass, resulting in stiff inclusions of grout surrounded by soil of increased density.

This guide focuses specifically on compaction grouting applications where the soil's increased strength and/or stiffness due to compaction is a primary element of ground improvement. Applications wherein a ground improvement design requires the injected grout to obtain strength greater than that of the surrounding soil, although potentially a valid application of low-mobility grout, are not considered to be compaction grouting for the purposes of this guide and hence are beyond the scope of this document.

This guide discusses both practical and theoretical aspects of compaction grouting.

In addition, this guide follows ASCE guidelines and uses the International System of Units (SI) as the primary system of units; customary units are also provided in parentheses. Compaction grouting in North America typically uses customary units in the field; hence many of the SI units have been calculated from the original customary equivalents. In these cases, an effort has been made to keep the "rule of thumb" values in their original form, and some loss of accuracy in the conversion between units may occur. This standard may involve hazardous materials, operations, and equipment. This standard does not purport to address the safety problems associated with its application. Whoever uses this standard is responsible for establishing appropriate safety and health practices and for determining the applicability of regulatory and nonregulatory limitations.