

GROUTING, SOIL IMPROVEMENT AND GEOSYNTHETICS

VOLUME 2

Geotechnical Special Publication No. 30

Proceedings of the conference
sponsored by the
Geotechnical Engineering Division
of the American Society of Civil Engineers

In cooperation with the
International Society of Soil Mechanics
and Foundation Engineering — ISSMFE, TC-17

New Orleans, Louisiana
February 25-28, 1992

Edited by Roy H. Borden, Robert D. Holtz and Ilan Juran



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ABSTRACT

The proceedings of the 1992 ASCE Specialty Conference on Grouting, Soil Improvement and Geosynthetics, addresses advances in the state-of-practice, research and technological developments in four rapidly expanding geotechnical areas: 1) Grouting techniques and materials, 2) soil improvement technologies, 3) geosynthetics engineering, and 4) ground modification for geo-environmental applications. The 105 contributed papers and 4 invited keynote papers provide a broad-based technical discussion of design practice, innovative construction technologies and products, and monitored case studies of new engineering applications. Overall, these proceedings represent a significant contribution to the state-of-the-art, which will effectively assist practicing engineers, manufacturers, potential users, and researchers to recognize the limitations of current practice, evaluate the feasibility of innovative technologies, and address the technical challenges that will undoubtedly face the profession in the next century.

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French Research Program CLOUTERRE on Soil Nailing

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and C. Plumelle³

Abstract

In 1986, a four year, four million dollars national research project named CLOUTERRE was initiated by the French Minister of Transport. The main objective was to develop design specifications on soil nailing for temporary and permanent soil nailed walls in excavations. In this article CLOUTERRE design specifications are presented. Four topics are developed: (1) limit state design of soil nailed structures using partial safety factors, (2) estimations of in service deformations of soil nailed walls, (3) design of the facing, and (4) durability and provisions for corrosion. Classical limit equilibrium methods adapted to soil nailed structures and completed with the "Multicriterion Rule" have proved to be efficient in predicting the failure of three full scale experimental soil nailed walls. A new procedure for taking into account safety in the design has been proposed to replace the classical global safety factor. New results have been obtained that allow to design the facing thickness as a function of the spacing between the nails. For permanent structures, recommendations have been developed to dimension the nails as a function of the service life of the structure.

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