Geotechnical Special Publication No. 188

Advances in Ground Improvement

Research to Practice in the United States and China

Proceedings of the U.S.–China Workshop on Ground Improvement Technologies

Edited by Jie Han, Gang Zheng, Vernon R. Schaefer, and

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RESEARCH TO PRACTICE IN THE UNITED STATES AND CHINA

PROCEEDINGS OF THE US–CHINA WORKSHOP ON GROUND IMPROVEMENT TECHNOLOGIES

March 14, 2009
Orlando, Florida

SPONSORED BY
Soil Improvement Committee
of The Geo-Institute of the American Society of Civil Engineers

Chinese Institution of Soil Mechanics and Geotechnical Engineering

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Published by the American Society of Civil Engineers

Library of Congress Cataloging-in-Publication Data

US-China Workshop on Ground Improvement Technologies (2009 : Orlando, Fla.)
Advances in ground improvement research to practice in the United States and China : proceedings of the US-China Workshop on Ground Improvement Technologies, March 14, 2009, Orlando, Florida / sponsored by Soil Improvement Committee of the Geo-Institute of the American Society of Civil Engineers [and] Chinese Institution of Soil Mechanics and Geotechnical Engineering ; edited by Jie Han … [et al.].
p. cm. -- (Geotechnical special publication ; no. 188)
Includes bibliographical references and indexes.
ISBN 978-0-7844-1025-7
1. Soil stabilization--United States--Congresses. 2. Soil stabilization--China--Congresses. I. Han, Jie, 1964- II. American Society of Civil Engineers. Geo-Institute. Soil Improvement Committee. III. Chinese Institution of Soil Mechanics and Geotechnical Engineering. IV. Title.

TA749.U82 2009
624.1'51363--dc22 2009002123

American Society of Civil Engineers
1801 Alexander Bell Drive
Reston, Virginia, 20191-4400

www.pubs.asce.org

ISBN 978-0-7844-1025-7
Manufactured in the United States of America.

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Preface

This special publication contains 33 technical papers which cover recent advances in research and practical applications in ground improvement technologies including column-supported embankments, column technologies for ground improvement, and ground modification and accelerated consolidation. The first invited keynote paper by Professor V. Schaefer (co-authored with Professor G.M. Filz, and Mr. L.S. Vanzler) summarizes technical and non-technical issues and project development pros and cons for ground improvement technologies used in the United States for highway renewal. The second invited keynote paper by Professor G. Zheng (co-authored with Professors. S.Y. Liu, and R.P. Chen) summarizes recent advances in column-type reinforcement element and its applications in China. Eighteen technical papers in the slope stability section present technologies for stabilizing, monitoring, and analyzing slope movement and stability. Ten technical papers in the "column-supported embankments" section focus on analytical or numerical analysis and experimental evaluation of column-supported embankments. The "column technologies for ground improvement" section contains ten technical papers presenting stone columns, deep mixed columns, jet grouted columns, and piles used to mitigate the issues related to bearing capacity, deformation, stability, and liquefaction. Eleven technical papers in the "ground modification and accelerated consolidation" section present recent research findings on chemical, mechanical, and biological modification of soil and accelerated consolidation of soil by vertical drains, vacuum preloading, and explosion.

Each paper published in this ASCE Geotechnical Special Publication (GSP) was evaluated by at least two reviewers including the editors. The authors of the accepted papers have addressed all the reviewers' comments to the satisfaction of the editors. All published papers are eligible for discussion in the Journal of Geotechnical and Geoevironmental Engineering and are also eligible for ASCE awards.

The papers in this publication were presented during the U.S.-China Workshop on Ground Improvement Technologies held in Orlando, Florida on March 14, 2009. This workshop was jointly organized by ASCE Geo-Institute Soil Improvement Committee and the Chinese Institution of Soil Mechanics and Geotechnical Engineering.

We are thankful to Dr. Zuyu Chen, the president of the Chinese Institution of Soil Mechanics and Geotechnical Engineering, Professor Jean-Louis Briaud, the president of ASCE Geo-Institute, Prof. Jianmin Zhang, the vice president and secretary general of the Chinese Institution of Soil Mechanics and Geotechnical Engineering, Professor Richard D. Woods, the chair of ASCE Geo-Institute International Activities Council, and Ms. Carol W. Bowers, the director of ASCE

Geo-Institute for their great support for this workshop. In producing this Geotechnical Special Publication, the editors also would like to acknowledge the assistance of Donna Dickert at ASCE.

The editors wish to thank the following individuals who reviewed one or more papers for this geotechnical special publication. For any reviewers whose names were inadvertently missed, we offer our sincere apologies.

Andy Anderson
Jianfeng Chen
Bhaskar Chittoori
Tuncer Edil
Jie Han
James Hussin
Michael McGuire
Anand Puppala
Vern Schaefer
Shuilong Shen
David Yang
Zehong Yuan
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