VOL. 120 NO. 8 AUG. 1994

ISSN 0733-9410 CODEN: JGENDZ

Journal of Geotechnical Engineering

AMERICAN SOCIETY OF CIVIL ENGINEERS

GEOTECHNICAL ENGINEERING DIVISION

General Information

Journal of Geotechnical Engineering covers the broad area of practice known as geotechnical engineering. Papers are welcomed on traditional topics such as foundations, earth-supported structures, soil dynamics, consolidation, engineering behavior of soil and rock, slope stability, dams, and rock engineering. Authors are encouraged to submit papers on newer topics such as environmental geotechnics, geosynthetics, computer modeling, ground-water monitoring and restoration, and coastal and geotechnical ocean engineering. Theoretical papers dealing with geomechanics are welcome, but only if there is a clear and significant potential for practical application, in the present or future, for the theory. Practice-oriented papers and case histories are particularly welcomed and encouraged.

Journal of Geotechnical Engineering (ISSN 0733-9410) is published monthly by the American Society of Civil Engineers. Publications office is at 345 East 47th Street, New York, NY 10017-2398. All editorial correspondence should be directed to the Journals Department. Second-class postage is paid at New York,

NY, and at additional mailing offices.

Postmaster: Send address changes to Journal of Geotechnical Engineering,

ASCE, 345 East 47th Street, New York, NY 10017-2398.

Submission of papers. Submit five copies of papers and notes and three copies of discussions to the Journals Department. Maximum length for papers is 10.000 words; for notes, 3,500 words; for discussions, 2,000 words. Multiple submissions are not accepted for review. Indicate division and, if applicable, committee to which material is being submitted. The primary use of SI units is mandatory. When SI units are used, no other units are required. Units other than SI may also be given in parentheses or in an appendix. Write or phone the Journals Department for ASCE Authors' Guide to Journals, Books, and Reference Publications for complete instructions for manuscript preparation.

Reprints for authors can be ordered prior to publication using reprint order

forms provided by the Editorial Department.

Photocopies. Authorization to photocopy material for internal or personal use under circumstances not falling within the fair use provisions of the Copyright Act is granted by ASCE to libraries and other users registered with the Copyright Clearance Center, (CCC) Transactional Reporting Service, provided that the base fee of \$2.00 per article plus \$.25 per page copied is paid directly to CCC, 27 Congress Street, Salem, MA 01970. The identification for *Journal of Geotechnical Engineering* is 0733-9410/94 \$2.00 + \$.25. Requests for special permission or bulk copying should be addressed to the Permissions and Copyright Department, ASCE.

Subscriptions. 1994 rates are \$53.00 for members and \$212.00 for nonmembers. Postage outside the U.S.A. is \$28.00 additional. Single copies are \$24.00. Address all member subscription inquiries and correspondence to Member Records, ASCE. Address all nonmember inquiries and correspondence to Publications Fulfillment Department, ASCE. Subscriptions are filled for the calendar year and must be prepaid. Notify the appropriate ASCE department of an address change as soon as possible; allow six weeks for it to become effective.

This publication is abstracted in ASCE Publications Information (bi-monthly), Transactions of the ASCE (annually), and Civil Engineering Database (on-line), and indexed in ASCE Annual Combined Index. Address inquiries to Information

Products, ASCE.

The Society is not responsible for any statement made or opinion expressed in its publications.

Copyright ©1994 by American Society of Civil Engineers.

This journal is printed on an acid-free paper, which meets the ANSI requirements for permanence. ⊗™

Journal of

Geotechnical Engineering

EDITORIAL BOARD

Yalcin B. Acar Louisiana State University Farshad Amini University of the District of Columbia Sunirmal Banerice University of Washington Craig H. Benson University of Wisconsin Shobha K. Bhatia Syracuse University Ronaldo I. Borja Stanford University Gordon P. Boutwell Soil Testing Engineers, Inc. John J. Bowders West Virginia University Jonathan D. Bray University of California Dan A. Brown Auburn University Jose L. M. Clemente Rechtel Power Corporation James G. Collin Tensar Earth Technologies, Inc. Panos Dakoulas Rice University Andrew Drescher University of Minnesota R. Jeffrey Dunn GeoSyntec Consultants Mark D. Evans Northeastern University J. Ludwig Figueroa Case Western Reserve University Richard J. Finno Northwestern University Richard J. Fragaszy Consultant Geotechnical Engineer A. G. Franklin USAE Waterways Experiment Station Steven Glaser Colorado School of Mines Robert D. Holtz University of Washington Sandra L. Houston Arizona State University William M. Isenhower University of Arizona

Michael G. Katona HO AFCESA/RA Demetrious Koutsoftas Dames and Moore William D. Kovacs University of Rhode Island Richard P. Kummerle Tectonic Engineering Joseph F. Labuz University of Minnesota Dov Leshchinsky University of Delaware Sam S. C. Liao Bechtel/Parsons Brinckerhoff James H. Long University of Illinois Emir Jose Macari Georgia Institute of Technology David K. Marble Utah Dept. of Natural Resources Lelio H. Meija Woodward-Clyde Consultants R. L. Michalowski The Johns Hopkins University Edward A. Nowatzki California Polytechnic State University Ermel Quevedo Cornforth Consultants, Inc. Glenn J. Rix Georgia Institute of Technology Fred A. Romani Romani & Associates R. Kerry Rowe University of Western Ontario Sukhmander Singh Santa Clara University Cetin Soydemir Halev & Aldrich Timothy D. Stark University of Illinois Stein Sture University of Colorado Mehmet T. Tumay National Science Foundation C. Vipulanandan University of Houston Andrew J. Whittle

Massachusetts Institute of Technology

Journal of

Geotechnical Engineering

Volume 120

Number 8

August 1994

TECHNICAL PAPERS

Structural Capacity of Precast Piles with Grouted Base. Osamu Kusakabe, Masaaki Kakurai, Katsutoshi Ueno,	
and Yoshinao Kurachi	. 1289
Passive Earth Pressures with Various Wall Movements. Yung-Show Fang, Tsang-Jiang Chen, and Bin-Ferng Wu	. 1307
Laterally Loaded Piles in Elastic Media. Keming Sun	. 1324
Seismic Parameters from Liquefaction Evidence. James R. Martin II and G. Wayne Clough	
Uplift Capacity of Small-Diameter Drilled Shafts from In Situ Tests. Alan J. Lutenegger and Gerald A. Miller	1362
Mechanical Properties of Kaolinite/Fiber Soil Composite. M. H. Maher and Y. C. Ho	1381
Impact of Weight Falling onto the Ground. Jose M. Roesset, Eduardo Kausel, Vicente Cuellar, Jose L. Monte, and Julian Valerio	1394
Early Detection of Rock Movement with Time Domain Reflectometry. Charles H. Dowding and Fei-Chiu Huang	1413
TECHNICAL NOTES	
Estimating Basal-Heave Stability for Braced Excavations in Soft Clay.	
A T C Coh	1/130

Influence of Horizontal Stresses on Gilgai Landforms. Britt Maxwell	1437
Discussions	
Human Factors in Civil and Geotechnical Engineering Failures. George F. Sowers. By C. D. F. Rogers, T. A. Dijkstra, and I. J. Smalley. Closure by author	1446
Mechanisms of Shaft Friction in Sand from Instrumented Pile Tests. B. M. Lehane, R. J. Jardine, A. J. Bond, and R. Frank. By R. Hobbs. Closure by authors	1449
Effect of Permeability on Surficial Stability of Homogeneous Slopes. Daniel Pradel and Glen Raad. By Robert W. Day. Closure by authors	1452
Estimating Autocovariance of In Situ Soil Properties. Don J. DeGroot and Gregory B. Baecher. By K. S. Li. Closure by authors	1454
Hydraulic Conductivity of Compacted Clay Frozen and Thawed In Situ. Craig H. Benson and Majdi A. Othman. By Nandakumaran Paruvakat. Closure by authors	1458
Compacted Clay Liners and Covers for Arid Sites. David E. Daniel and Yung-Kwang Wu. By John S. Horvath. Closure by authors	1461
P-Ultimate for Undrained Analysis of Laterally Loaded Piles, James D. Murff and Jed M. Hamilton. By M. Maugeri, F. Castelli, and E. Motta. Closure by authors	1462
ERRATA	1466