

VOL. 114 NO. 6. JUN. 1988

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 field of soil mechanics and foundations, with special emphasis on the relationship between the geologic environment and man-made works. Computer applications are also examined. Topics include dynamic response of foundations, earth-retaining structures, earth-supported structures, and dam construction and slope stability, as well as soil failures and their solutions.

*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 four copies of papers, notes, and discussions to the Journals Department. Maximum length for papers is 10,000 words; for notes, 2,500 words; for discussions, 1,250 words. Multiple submissions are not accepted for review. Indicate division and, if applicable, committee to which material is being submitted. The use of SI units is preferred; if other units are used, SI equivalents must also be given. Write or phone Journals Department for *ASCE Authors' Guide to Journals, Books, and Reference Publications* for complete instructions for manuscript preparation.

**Reprints** for authors are ordered prior to publication; others may order them by using the coupon published in *ASCE News* and *ASCE Publications Information* or contacting the Reprint Department, ASCE.

**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 \$1.00 per article plus \$.15 per page is paid directly to CCC, 27 Congress Street, Salem, MA 01970. The identification for *Journal of Geotechnical Engineering* is 0733-9410/88 \$1.00 + \$.15. Requests for special permission or bulk copying should be addressed to the Journals Reprint Department, ASCE.

**Subscriptions.** 1988 rates are \$26.00 for members and \$104.00 for nonmembers. Postage outside the U.S.A. is \$8.50 additional. Single copies are \$11.00. 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 address changes as soon as possible; allow six weeks for it to become effective.

**This publication is abstracted in** *ASCE Publications Information* (bimonthly), *Transactions of the ASCE* (annually), and Civil Engineering Database (online), 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 ©1988 by American Society of Civil Engineers.

# Journal of Geotechnical Engineering

Volume 114      Number 6      June 1988

---

## TECHNICAL PAPERS

Direct Determination of Permeability of Clay under Embankment.

**S. Leroueil, M. Diene, F. Tavenas, M. Kabbaj, and P. La Rochelle** .....645 ×

Three-Dimensional Stability Analysis of Concave Slopes in Plan View.

**Zhang Xing**.....658

Static Response of Deeply Buried Elliptical Tubes.

**Ian D. Moore** .....672

## TECHNICAL NOTES

Penetration and Liquefaction Resistances: Prior Seismic History Effects.

**Raymond B. Seed, Seung Rae Lee, and Hsing-Lian Jong** .....691 ×

Modified Calculation of Pile-Group Settlement Interaction.

**Harry G. Poulos** .....697

Correlation of Pipeline Damage with Ground Motions.

**Michael E. Barenberg** .....706

FEM Analysis of Elastic Stress Distributions in Embankments.

**Yalcin B. Acar, Hassan Hilal, and Mehmet T. Tumay** .....711

Compression Index: Misleading Parameter?

**Laurence D. Wesley** .....718 ×

## DISCUSSIONS

Settlement Analysis of Skirted Granular Piles. B. Govind Rao and Gopal Ranjan.

By **R. Robert Goughnour**. By **T. K. D. Munsif and R. K. M. Bhandari**. Closure by authors .....727

x Hydraulic Fracturing in Embankment Dams. James L. Sherard. By Yu-jiong Chen. By Bertil Lofquist. By G. Mesri and S. Ali. By Ervin Nonveiller .....	737
Soil Anchors and Constitutive Laws. Swami Saran, Gopal Ranjan, and A. S. Nene. By R. Kerry Rowe. Closure by authors .....	747