Title
CENTRIFUGAL MODEL TESTS FOR ULTIMATE BEARING CAPACITY OF FOOTINGS ON STEEP SLOPES IN COHESIONLESS SOIL [abstract]

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A symposium on Recent Advances in Geotechnical Centrifuge Modeling was held on July 18-20, 1984 at the University of California at Davis. The symposium was sponsored by the National Science Foundation's Geotechnical Engineering Program and the Center for Geotechnical Modeling at the University of California at Davis.

The symposium offered an opportunity for a meeting of the International Committee on Centrifuges of the International Society for Soil Mechanics and Foundation Engineering. The U.S. participants also met to discuss the advancement of the centrifuge modeling technique in the U.S. A request is being transmitted to the American Society of Civil Engineers to establish a subcommittee on centrifuges within the Geotechnical Engineering Division.

ABSTRACTS II

CENTRIFUGAL MODEL TESTS FOR ULTIMATE BEARING CAPACITY OF FOOTINGS ON STEEP SLOPES IN COHESIONLESS SOIL 1/

By

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Analytical methods that are frequently used to predict the ultimate bearing capacities for shallow spread foundations on slopes yield widely varying solutions. As a result, the allowable foundation bearing pressures used for design are selected conservatively. This leads to the construction of shallow spread foundations that may be larger and more costly than necessary.

To address this situation, the Department of the Interior, Bureau of Reclamation, initiated a research program to evaluate the state of the art as it pertains to predicting the ultimate bearing capacity of shallow spread foundations located on or near slopes; to experimentally determine the maximum bearing pressure of four prototype shallow spread footings using scaled models; and to compare test results with state-of-the-art analytical solutions.

Test equipment was fabricated to permit model footings to be loaded and their response to be measured at accelerations 100 times that of gravity. The model test results were compared with the results of theoretical solutions obtained using limit analysis and limit equilibrium, as well as methods suggested by G. G. Meyerhof, J. E. Bowles, J. B. Hansen, and J. P. Giroud.

1/ Gemperline, Mark C., Centrifugal Model Tests for Ultimate Bearing Capacity of Footings on Steep Slopes in Cohesionless Soil, Report No. REC-ERC-84-16, Bureau of Reclamation, Denver, Colorado, 1984.