LOAD TRANSFER IN MICROPILES FOR SLOPE STABILIZATION FROM TESTS OF LARGE-SCALE PHYSICAL MODELS

Andrew Z. Boeckmann

Dr. J. Erik Loehr, Thesis Supervisor

ABSTRACT

The objective of this work is to provide experimental data to improve prediction of limit loads for micropiles in slope stabilization applications. The experimental data were obtained from tests of 1-*g* model slopes 8 ft by 14 ft in plan view with heights of 5 ft. A pore pressure control system wetted the models, which were tilted incrementally until failure. The testing program consisted of eight tests divided among three sets. For the first set, micropiles were installed perpendicular to the slope face. For the second, micropiles were installed in an A-frame arrangement. For the final set, micropiles were installed in an A-frame arrangement through a capping beam. Within each set, member spacing was varied. Pore pressures, soil movement, and loads in the micropiles were measured for each test. Results were analyzed using soil-structure interaction methods to evaluate the effect of member spacing, inclination and end restraint on load transfer.