Public Abstract
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Title:Load Transfer in Micropiles for Slope Stabilization from Tests of Large-Scale Physical Models

Slope stabilization by micropiles is a relatively new technique, but uncertainties involving the development of forces within micropiles have prevented its widespread use. 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. This scale is large enough to permit construction of model slopes and stabilization schemes using techniques that mimic field procedures. Models were constructed in lifts before installing micropiles. A pore pressure control system was used to wet the models, which were tilted incrementally throughout testing 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 wherein successive members were installed 30 degrees upslope and 30 degrees downslope of perpendicular. 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. Test results were analyzed using soil-structure interaction methods. For each test, soil parameters to predict measured model performance were back-calculated and compared with values from other tests and values from literature to evaluate the effect of member spacing, inclination and end restraint on load transfer.