Public Abstract

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Title:Load Transfer in Reticulated and Non-Reticulated Micropiles from Large-Scale Tests

Slope stabilization by micropiles is a relatively new technique, but certainties 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 data were obtained from tests of 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. A pore pressure control system was used to wet the models, which were tilted incrementally throughout testing until failure. The testing program consisted of six tests divided among three sets with varying reinforcement geometries. 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 literature to evaluate the effect of member spacing, inclination and geometry. Using these back-calculated soil modeling parameters and measured loads in the micropiles, a trend of increasing loads with decreasing spacing ratios with spacing ratios less than 5 and increasing loads with increasing spacing ratios with spacing ratios greater than 5.