

Efficiency of micropiles group using mohr - coulomb model with a parameter for controlling dilatancy

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Abstrak

ABSTRACT

The finite element method has been applied to the study the behavior of vertically loaded single micro pile, the nine piles in a close group, the three piles in a row group in a homogeneous non linearly behavior medium, that is cohesion less soil.

Bidimensional and axis metric elements have been used in the analysis to determine the stress and the strain state in the soil around the piles and the deformation of the pile due to the grouting pressure of the micropiles.

This paper uses Mohr Coulomb model with a parameter controlling dilatancy.

The effect of grouting pressure in the soil around the member of piles group at three-diameter spacing are presented and analyzed. The efficiency of each piles and piles group at two until five spacing diameter, at 10% up to 50% deformation of pile are shown and studied. Those efficiency graphs are compared with the efficiency of driven pile group and bored pile group.

The effect of dilatancy to the deformation of pile at different grouting pressure is presented.

Using super positioned method that efficiency graph can be used for evaluating the efficiency of bigger micro piles group.