World Academy of Science, Engineering and Technology
International Journal of Geotechnical and Geological Engineering
Vol:9, No:12, 2015

Influence of Intermediate Principal Stress on Solution of Planar Stability Problems

Authors : M. Jahanandish, M. B. Zeydabadinejad

Abstract : In this paper, von Mises and Drucker-Prager yield criteria, as typical ones that consider the effect of intermediate principal stress σ2, have been selected and employed for investigating the influence of σ2 on the solution of a typical stability problem. The bearing capacity factors have been calculated under plane strain condition (strip footing) and axisymmetric condition (circular footing) using the method of stress characteristics together with the criteria mentioned. Different levels of σ2 relative to the other two principal stresses have been considered. While a higher σ2 entry in yield criterion gives a higher bearing capacity; its entry in equilibrium equations (axisymmetric) causes substantial reduction.

Keywords : intermediate principal stress, plane strain, axisymmetric, yield criteria
Conference Title : ICGEG 2015 : International Conference on Geotechnical Engineering and Geomechanics
Conference Location : Sydney, Australia
Conference Dates : December 10-11, 2015

Open Science Index, Geotechnical and Geological Engineering Vol:9, No:12, 2015 publications.waset.org/abstracts/33903/pdf