عنوان مقاله:

Reliability Analysis of Static Soil Liquefaction Using Random Finite Element Method

محل انتشار:

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خلاصه مقاله:

Liquefaction of soils, defined as significant reduction in shear strength and stiffness due to increase inpore pressure. This phenomenon can be assessed in static or dynamic loading types. However, in eachtype, the inherent variability of the soil parameters dictates that this problem is of a probabilistic naturerather than being deterministic. In this research, a random finite element analysis is used for reliabilityassessment of static liquefaction potential of loose sand under monotonic loading. The Monte Carlosimulation was used for that purpose. The selected stochastic parameters are soil parameters such as unitweight, peak friction angle and initial plastic shear modulus. An elasto-plastic effective stress model isused that simulates the static liquefaction response of loose sands under monotonic loading. The modifiedNewton-Raphson method is used to consider the effect of changing material behavior in this .research.Analysis process was performed in MATLAB code

کلمات کلیدی:

Static soil liquefaction, Random Finite Element Method, Monte Carlo simulation, Monotonic loading