

Reliability Analysis of Soil Liquefaction Based on Standard Penetration: A Case Study in Babol City

Authors : Mehran Naghizaderokni, Asscar Janalizadechobbasty

Abstract : There are more probabilistic and deterministic liquefaction evaluation procedures in order to judge whether liquefaction will occur or not. A review of this approach reveals that there is a need for a comprehensive procedure that accounts for different sources of uncertainty in liquefaction evaluation. In fact, for the same set of input parameters, different methods provide different factors of safety and/or probabilities of liquefaction. To account for the different uncertainties, including both the model and measurement uncertainties, reliability analysis is necessary. This paper has obtained information from Standard Penetration Test (SPT) and some empirical approaches such as: Seed et al, Highway bridge of Japan approach to soil liquefaction, The Overseas Coastal Area Development Institute of Japan (OCDI) and reliability method to studying potential of liquefaction in soil of Babol city in the north of Iran are compared. Evaluation potential of liquefaction in soil of Babol city is an important issue since the soil of some area contains sand, seismic area, increasing level of underground waters and consequently saturation of soil; therefore, one of the most important goals of this paper is to gain suitable recognition of liquefaction potential and find the most appropriate procedure of evaluation liquefaction potential to decrease related damages.

Keywords : reliability analysis, liquefaction, Babol, civil, construction and geological engineering

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