

Capability of Available Seismic Soil Liquefaction Potential Assessment Models Based on Shear-Wave Velocity Using Banchu Case History

Authors : Nima Pirhadi, Yong Bo Shao, Xusheng Wa, Jianguo Lu

Abstract : Several models based on the simplified method introduced by Seed and Idriss (1971) have been developed to assess the liquefaction potential of saturated sandy soils. The procedure includes determining the cyclic resistance of the soil as the cyclic resistance ratio (CRR) and comparing it with earthquake loads as cyclic stress ratio (CSR). Of all methods to determine CRR, the methods using shear-wave velocity (V_s) are common because of their low sensitivity to the penetration resistance reduction caused by fine content (FC). To evaluate the capability of the models, based on the V_s , the new data from Bachu-Jianshi earthquake case history collected, then the prediction results of the models are compared to the measured results; consequently, the accuracy of the models are discussed via three criteria and graphs. The evaluation demonstrates reasonable accuracy of the models in the Banchu region.

Keywords : seismic liquefaction, banchu-jianshi earthquake, shear-wave velocity, liquefaction potential evaluation

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