

Earthquake-Induced Settlement and Sand Blows

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ABSTRACT: This paper is concerned with the description of sand blow phenomenon. It is believed that sand blow phenomenon is an important mechanism causing structure-foundation failure. To study the associated problems with sand blow instability, the extended CANAsand constitutive model, which incorporates the concepts of critical state as well as compact state, is used in conjunction with the ID technique to evaluate an upper bound solution for the total subsidence of a sandy deposit subjected to earthquake type excitation. Numerical simulations are presented demonstrating the importance of the initial void ratio of the deposit on the evaluated magnitude of the settlement.

KEY WORDS: CANAsand model, critical state, compact state, earthquake, sand blow, ground subsidence, ID technique.

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