عنوان مقاله:

The Relation Between Foundation Embedment and Peak Horizontal Input Acceleration: The Case of Strip Foundation with Partial Contact to Surrounding Medium

محل انتشار:

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خلاصه مقاله:

In the field of soil-structure interaction (SSI), kinematic interaction (KI) can potentially be a source of notable influence on dynamic response. Such influence takes place through alternation in free field motion (FFM) and results in new foundation input motions (FIM). In this paper, first, the effect of KI on horizontal input motion for the case of single rigid strip embedded foundation with incomplete contact between sidewall and nearby soil under vertical propagation of shear waves is investigated. Then, it is discussed that how this input-change would be reflected in peak horizontal input acceleration (PHIA). Results for different embedment depths and various soil-wall contact lengths are depicted. In this research, numerical analysis was conducted by ABAQUS finite element software. It is shown that the effects of kinematic interaction are significant for high frequencies of excitation. Besides, it is illustrated that foundation shape and its contact area to surrounding soil alter the PHIA usually conservatively with some exceptions in the case of zero contact lengths.

کلمات کلیدی:

Kinematic interaction, Strip embedded foundation, Incomplete side-wall contact, Peak acceleration