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Finite Element Modeling of Integral Abutment Bridge for Lateral Displacement

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Abstract : Integral Abutment Bridges (IAB) are defined as simple or multiple span bridges in which the bridge deck is cast monolithically with the abutment walls. This kind of bridges are becoming very popular due to different aspects such as good response under seismic loading, low initial costs, elimination of bearings and less maintenance. However, the main issue related to the analysis of this type of structures is dealing with soil-structure interaction of the abutment walls and the supporting piles. A two-dimensional, non-linear finite element (FE) model of an integral abutment bridge has been developed to study the effect of lateral time history displacement loading on the soil system.

Keywords : integral abutment bridge, soil structure interaction, finite element modeling, soil-pile interaction
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