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Behavior of the Foundation of Bridge Reinforced by Rigid and Flexible Inclusions

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Abstract : This article presents a comparative study by numerical analysis of the behavior of reinforcements of clayey soils by flexible columns (stone columns) and rigid columns (piles). The numerical simulation was carried out in 3D for an assembly of foundation, columns and a pile of a bridge. Particular attention has been paid to take into account the installation of the columns. Indeed, in practice, due to the compaction of the column, the soil around it sustains a lateral expansion and the horizontal stresses are increased. This lateral expansion of the column can be simulated numerically. This work represents a comparative study of the interaction between the soil on one side, and the two types of reinforcement on the other side, and their influence on the behavior of the soil and of the pile of a bridge.

Keywords : piles, stone columns, interaction, foundation, settlement, consolidation
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