

Numerical Analysis of Shallow Footing Rested on Geogrid Reinforced Sandy Soil

Authors : Seyed Abolhasan Naeini, Javad Shamsi Soosahab

Abstract : The use of geosynthetic reinforcement within the footing soils is a very effective and useful method to avoid the construction of costly deep foundations. This study investigated the use of geosynthetics for soil improvement based on numerical modeling using FELA software. Pressure settlement behavior and bearing capacity ratio of foundation on geogrid reinforced sand is investigated and the effect of different parameters like as number of geogrid layers and vertical distance between elements in three different relative density soil is studied. The effects of geometrical parameters of reinforcement layers were studied for determining the optimal values to reach to maximum bearing capacity. The results indicated that the optimum range of the distance ratio between the reinforcement layers was achieved at 0.5 to 0.6 and after number of geogrid layers of 4, no significant effect on increasing the bearing capacity of footing on reinforced sandy with geogrid

Keywords : geogrid, reinforced sand, FELA software, distance ratio, number of geogrid layers

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