World Academy of Science, Engineering and Technology
International Journal of Geotechnical and Geological Engineering
Vol:15, No:01, 2021

Effect of Deep Mixing Columns and Geogrid on Embankment Settlement on the Soft Soil

Authors : Seyed Abolhasan Naeini, Saeideh Mohammadi

Abstract : Embankment settlement on soft clays has always been problematic due to the high compaction and low shear strength of the soil. Deep soil mixing and geosynthetics are two soil improvement methods in such fields. Here, a numerical study is conducted on the embankment performance on the soft ground improved by deep soil mixing columns and geosynthetics based on the data of a real project. For this purpose, the finite element method is used in the Plaxis 2D software. The Soft Soil Creep model considers the creep phenomenon in the soft clay layer while the Mohr-Columb model simulates other soil layers. Results are verified using the data of an experimental embankment built on deep mixing columns. The effect of depth and diameter of deep mixing columns and the stiffness of geogrid on the vertical and horizontal movements of embankment on clay subsoil will be investigated in the following.

Keywords : PLAXIS 2D, embankment settlement, horizontal movement, deep soil mixing column, geogrid
Conference Title : ICGEIMA 2021 : International Conference on Geotechnical Engineering Investigation Methods and Applications
Conference Location : Istanbul, Türkiye
Conference Dates : January 28-29, 2021