

Stabilization of Fly Ash Slope Using Plastic Recycled Polymer and Finite Element Analysis Using Plaxis 3D

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Abstract : The model tests were conducted in the laboratory without and with plastic recycled polymer in fly ash steep slopes overlaying soft foundation soils like fly ash and power soil in order to check the stability of steep slope. In this experiment, fly ash is used as a filling material, and Plastic Recycled Polymers of diameter = 3mm and length = 4mm were made from the waste plastic product (lower grade plastic product). The properties of fly ash and plastic recycled polymers are determined. From the experiments, load and settlement have measured. From these data, load-settlement curves have been reported. It has been observed from test results that the load carrying capacity of mixture fly ash with Plastic Recycled Polymers slope is more than that of fly ash slope. The deformation of Plastic Recycled Polymers slope is slightly more than that of fly ash slope. A Finite Element Method (F.E.M.) was also evaluated using PLAXIS 3D version. The failure pattern, deformations and factor of safety are reported based on analytical programme. The results from experimental data and analytical programme are compared and reported.

Keywords : factor of safety, finite element method (FEM), fly ash, plastic recycled polymer

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