

Supporting Structures Reinforced by Geogrids – the Engineering Challenge

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ABSTRACT: Due to their various functions, geosynthetics have recently been used in many applications in geotechnical engineering. The employment of geosynthetics as reinforcing materials in earth works such like retaining walls, dams and embankments has led to creative developments in their design calculations and dimensioning methods, yielding wide-range improvements in their mechanical behavior. In this paper, the stability of embankments constructed of soft clayey soil retained by soil constructions of improved material and reinforced using geosynthetics has been numerically analyzed. The stability analyses were carried out by means of the shear strength reduction technique implemented in a numerical finite element environment. The influences of the embankment slope angle and the geosynthetics properties such as the tensile stiffness and the distance between the geosynthetics layers on the embankments stability and deformations have also been studied and discussed.

Keywords: geosynthetics, slope stability, shear strength reduction, factor of safety, tensile stiffness.