

Effectiveness of Utilization of Flyash for Embankment Construction

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ABSTRACT

The requirement of structural fill materials for embankment construction is in great demand in India. The problem is more acute in megacities, due to non-availability of suitable soil in the vicinity of construction site. In such situations, one of the alternatives is to utilize solid waste materials (like flyash) as structural fill in embankment construction. In this paper, the slope stability and settlement aspects of embankment constructed with three different fill materials were investigated analytically. Three fill materials include locally available silty soil, murrum and flyash. The engineering properties of three fill materials were analyzed in laboratory and the results were used for the analytical investigations. The slope stability analysis were carried by using Bishop's method of slices and the settlements were predicted for a given embankment loading from the centerline of the embankment by assuming the elastic - isotropic medium below the embankment. The analyses were performed by varying the type of structural fill material, slope and height of the embankment. It was found that with an increase in embankment height, the embankment made-up of flyash subjected to less settlements when compared with other structural fill materials used. Based on the basis set by the analytical investigations, the effectiveness of utilization of flyash as structural fill material for embankment construction has been evaluated. In addition, the significance of encapsulation of flyash embankment with soil cover is discussed.