Experimental study on the L-shaped anchorage capacity of the geogrid by the pullout test

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Abstract

The soil reinforcement by geosynthetics has been extensively applied in covers and liners of landfills. The stability of this structure is especially dependent on the effectiveness of the anchorages holding the geosynthetic sheets. The simple run-out and L-shaped anchorages are the two most commonly used approaches. For increasing the available knowledge of the anchorage system behavior, experimental studies have been conducted. This paper shows the results of the experimental analysis that are based on the results of large-scale pullout apparatus on geogrid embedded in simple run-out and L-shaped anchorage in two modes (fixed length and fixed space). The influence of different geometric parameters of the trench on the behavior of the geogrid is also examined. Based on the results, the values of pullout force were approximately ٦٩٪ and ١٩٦٪ higher in the case of the fixed length mode and the fixed space mode, in the respective order, compared to the simple run-out anchorage. In the L-shaped anchorage, it is observed that for the initial length (L) constant, the mode is optimized with a small value of the geogrid rear heel length (B) and a greater value of the depth of the buried geogrid (D) when D+B is constant.

keywords :

Experimental study, Pullout test, L-shaped anchorage, Low confinement stresses, Geosynthetics