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Laboratory Evaluation of Geogrids Used for Stabilizing Soft Subgrades

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Abstract : This paper aims to assess the efficiency of using geogrid reinforcement for subgrade stabilization. The literature of applying geogrid reinforcement technique for pavements built on soft subgrades and the previous experiences were reviewed. Laboratory tests were conducted on soil reinforced with geogrids in one or several layers. The soil specimens were compacted in four layers with or without geogrid sheets. The California Bearing Ratio (CBR) test, in soaking condition, was performed on natural soil and soil-geogrid specimens. The test results revealed that the CBR value is much affected by the geogrid sheet location and the number of sheets used in the soil specimen. When a geogrid sheet was placed at the 1st layer of the soil, there was an increment of 26% in the CBR value. Moreover, the CBR value was significantly increased by 62% when geogrid sheets were placed at all four layers. The high CBR value is attributed to interface friction and interlock involved in the geogrid/ soil interactions. It could be concluded that geogrid reinforcement is successful and more economical technique.

Keywords : geogrid, reinforcement, stabilization, subgrade
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