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The Predicted Values of the California Bearing Ratio (CBR) by Using the Measurements of the Soil Resistivity Method (DC)

Authors : Fathi Ali Swaid

Abstract : The CBR test is widely used in the assessment of granular materials in base, subbase and subgrade layers of road and airfield pavements. Despite the success of this method, but it depends on a limited numbers of soil samples. This limitation do not adequately account for the spatial variability of soil properties. Thus, assessment is derived using these cursory soil data are likely to contain errors and thus make interpretation and soil characterization difficult. On the other hand quantitative methods of soil inventory at the field scale involve the design and adoption of sampling regimes and laboratory analysis that are time consuming and costly. In the latter case new technologies are required to efficiently sample and observe the soil in the field. This is particularly the case where soil bearing capacity is prevalent, and detailed quantitative information for determining its cause is required. In this paper, an electrical resistivity method DC is described and its application in Elg'deem Dirt road, located in Gasser Ahmad - Misurata, Libya. Results from the DC instrument were found to be correlated with the CBR values (r2 = 0.89). Finally, it is noticed that, the correlation can be used with experience for determining CBR value using basic soil electrical resistivity measurements and checked by few CBR test representing a similar range of CBR.

Keywords : California bearing ratio, basic soil electrical resistivity, CBR, soil, subgrade, new technologies
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