

Relationships between C.B.R and D.C.P Testing for Different Soil Types

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When planning and design a highway. Assessment of sub grade shear strength is very important General practice adapts to measure the sub grade strength is called California Bearing Ratio (CBR). Standard CBR laboratory method testing requires sampling transport of soil to laboratory and then takes at least four day period for necessary testing procedures. Field CBR method is also time consuming method. Due to these reasons Dynamic Cone Panetrometer (DCP) is used and then correlated the DCP reading to a C.B.R value for design evaluation

The significant advantages of the DCP are that it is a low cost, robust apparatus that is quick and simple to use. Very little damage is done to the pavement being tested (effectively nondestructive) and very useful information is obtained. One of the major advantages of the test is that the pavement is tested in the condition at which it performs. The simplicity of the test allows repeated testing to minimize errors and also to account for temporal effects. It should be noted that there are inherent inaccuracies in most CBR test results and these coupled with the material dependency of the DCP results make the DCP interpretation a very good indicator, but it should never be used as an absolute indicator of the in situ CBR strength of a material in a pavement. However following factor will effect to change both field D.C.P and C.B.R; (1) Field Moisture content (2) Plasticity Index (3) Instrumental and other man made errors and (4) Field Density

These studies show that how far this DCP CBR relationship is viable .DCP had the most consistent results within the different layers. If there is any possibility to make good correlations between the DCP with the CBR. what are the other factors to be considered when preparing relationships between D.C.P and C.B.R.

However, the results of this study indicated that the DCP can give more reliable result to the field CBR values, when PI is less than 10. When PI increases it is very difficult to predict because soil characteristics drastically change with soil properties. Therefore, some detail soil investigation is necessary even to predict the design CBR at the particular locations.

Keywords:

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