

A New Correlation between SPT and CPT for Various Soils

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Abstract : The Standard Penetration Test (SPT) is the most common insitu test for soil investigations. On the other hand, the Cone Penetration Test (CPT) is considered one of the best investigation tools. Due to the fast and accurate results that can be obtained it complaints the SPT in many applications like field explorations, design parameters, and quality control assessments. Many soil index and engineering properties have been correlated to both of SPT and CPT. Various foundation design methods were developed based on the outcome of these tests. Therefore it is vital to correlate these tests to each other so that either one of the tests can be used in the absence of the other, especially for preliminary evaluation and design purposes. The primary purpose of this study was to investigate the relationships between the SPT and CPT for different types of soil in Florida. Data for this research were collected from number of projects sponsored by the Florida Department of Transportation (FDOT), six sites served as the subject of SPT-CPT correlations. The correlations were established between the cone resistance (q_c) and the SPT blows (i.e., N) for various soils. A positive linear relationship was found between f_s and N for various soils. In general, q_c versus N showed higher correlation coefficients than f_s versus N . q_c/N ratios were developed for different soil types and compared to literature values, the results of this research revealed higher ratios than literature values.

Keywords : in situ tests, correlation, SPT, CPT

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