Geotechnical properties of soil and its implication on the foundation design of park enclave, Chak Shehzad, Islamabad

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GEOTECHNICAL PROPERTIES OF SOIL AND ITS IMPLICATION ON THE FOUNDATION DESIGN OF PARK ENCLAVE, CHAK SHEHZAD, ISLAMABAD

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ABSTRACT

Islamabad, the capital city of Pakistan is a planned city constructed since 1960 at the foot of the Margalla Hills just north of the old city of Rawalpindi. Expert engineering is required for construction purposes because of increasing population of both Islamabad and Rawalpindi. This has resulted in ever-increasing demands of shelter for residence and other purposes.

The present research focuses on the geo-technical investigations outcome carried out by Earth Services, Islamabad in Chak Shahzad, Islamabad. The test samples were collected from different locations. Field and laboratory tests were performed on selected samples in the geo-technical laboratory to evaluate their geotechnical properties and their results have been compiled.

The standard penetration test data reveals that N-values vary to minimum of 16 at shallow depths to a maximum of 52 at greater depth. Geo-technical laboratory analyses for the representative soil samples have also been discussed. Grain size analysis data exhibit that gravel ranges from 0% to 30 %, sand ranges from 60 to 70%, and silt 10 to 15%. The natural moisture content varies from 3.54% to 16.67%. The soil consistency data reveals that liquid limit for studied samples varies 28% to 44%, plastic limit is in between 17% to 33% and the plasticity index is from 3% to 17%. Specific gravity for soil samples is 2.68 g/cc.

Geotechnical properties of soil samples reveals that these soil can prove as a reliable foundation base and their behavior under imposed load (buildings and roads) in Park Enclave is safe and chances for collapse or subsidence are minimum.

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