

Undrained Shear Strength Prediction Based on SPT for Kalimati Formation of Kathmandu Valley

Abstract—Standard Penetration Test (SPT) as a common tool of soil investigation has been increasing extensively in the Kathmandu valley, which has predominant thickness of clayey silt and silty clay in the Kalimati formations. A bulk database of SPT at various sites of Kathmandu valley is readily available. Although there are various correlations and predictive methods for estimating the Undrained Shear strength of cohesive soil from the SPT, the appropriate prediction applicable in the context of the Kathmandu has not yet been reviewed properly. This paper highlights the application of newly developed energy conservation based prediction models in the context of clayey silts of the Kathmandu valley, which has a great significance for the development of undrained shear strength profile with respect to depth using the SPT profiles. The review shows that, the energy based approaches are quite useful in preliminary tasks.

Keywords—*SPT, Undrained Shear Strength, UCS, correlation, prediction, energy approach, Kalimati formation, Cohesive soil, Fine-grained soil, Clayey silt, Kathmandu valley*