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" Interpretation Of CPTu in Consolidating Soils "

by

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Time: **11:00AM – 12:00PM**

Venue: **E11 – G015**

Abstract

The interpretation of CPTu for normally consolidated clay soils and slightly, or strongly overconsolidated soils have been published in many papers. For both conditions of soils (normally consolidated and overconsolidated clay), there is hydrostatic pore water pressure, however no initial excess pore water pressure exists. Hence the assumption that excess pore water pressure due to cone penetration only is valid. In soils where consolidation still on going which could be due to natural deposition of the soils or soft soils under reclamation fill material, the excess pore pressure still exists, which means that pior to penetration testing, the initial excess pore pressure has not completely diminished. In this case, the measured excess pore water pressure shall be interpreted as combined existing pore water pressure and the additional excess pore water pressure due to cone penetration. In case of testings conducted at certain interval time such as during the course of consolidation in reclamation area, then the excess pore pressure response as well as the tip resistance and the frction ratio will change toward a normally consolidated condition. This paper represents research results of CPTu in reclaimed soils and the authors have developed methods for interpretation of these combined excess pore water pressures. In the end, the methods can separate between the excess pore water pressure due to penetration and the prior existing pore water pressure. The methods include the use of Schmertmaan method (which is found not suitable for reclamation case histories), the Use of Bq value and the dissipation curve with considering the existing excess pore water that still exists. The tip resistance in underconsolidating soft soils subjected to fill placement will not form a linear tip resistance (not straight line) when carefully examined (Schmertmann assumption not applicable in such cases) and hence the interpretation were done considering the initial (remaining) excess pore pressure or the effective stress at certain time. The methods have been proved to be consistent and has the potensial for more accurate interpretation.

Biography

Prof Paulus P. Rahardjo completed undergraduate study at Universitas Katolik Parahyangan (Unpar) and since then has been faculty members at the university. He pursued graduate study in highway engineering at Bandung Institute of Technology (ITB), then Master's Degree and Ph.D degree from Virginia Tech (USA). He has been actively engaged in teaching, research as well as hundreds of geotechnical

consultancy. He works for design and advising clients on many geotechnical problems including building foundations, highways, tunnels, bridges, jetys and wharfs, dams, coal minings etc. Among his specialies with intense experience in research and practice are in the field of insitu testings and landslides or slope protections. He has written more than 200 articles/ papers, research reports and manuals. He has served the university as Department Head, Vice Dean of Faculty of Engineering, Director of the Graduate Program and Vice Rector for Academic Affairs. Currently, he is the coordinator of Geotechnical Engineering Division and Director of Research Center for Infrastructure and Urban Development. His affiliation include the Indonesian Geotechnical Society (HATTI), American Society of Civil Engineers in the Geo-Institute, the Indonesian Experts on Disasters (IABI) and Board Representative of International Consortium on Landslides (ICL), currently responsible for project IPL-195 Study for Mitigation and Recovery of Mud Eruption Disaster in East Java and Modeling for Risk Reduction Mudflow Hazards.

ALL ARE WELCOME!