

## Site investigation using integrated methods of borehole and resistivity imaging for silty soil – A case study

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Site investigation (SI) is an essential work that provides preliminary background of the site and information for the design, construction and environmental assessment. The purposes of site investigation are to evaluate the general suitability of the site for the proposed project, to enable an adequate and economical design, to disclose and make provision for difficulties that may arise during construction due to ground and other local condition (Budhu, 2007). In order to gather information of sub-surface, borehole technique is commonly used, where heavy machineries are used to drill shaft at site. The borehole data then recorded until it reaches the hard layer. This type of tedious works may bear a high cost and time consuming. However resistivity imaging is one of the geophysical methods that also can be used to determine the soil layer. Electrical resistivity permits the delineation of the main soil types and, when performed repeatedly over time, also provides information on soil properties. The information collected is usually very useful for civil engineering works (Lian, 2005). In order to obtain the best method in SI that can save time and cost, a case study was carried out in silty soil using borehole drilling and resistivity imaging methods. The results of resistivity profile and borehole data then were compared. Results of engineering properties that were included in the borehole data, i.e. SPT, N-value was correlated with resistivity value. From the result, it was found that SPT, N-value can be estimated by resistivity value. In consideration to time, the resistivity method showed that it can provide data quicker than borehole method.