

A meaningful correlation between shallow seismic refraction data to borehole data in site investigation work

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In site investigation work the subsurface characteristic is mainly determined from boreholes data such as the bore log, standard penetration test and other suitable test. Surface geophysical survey including seismic refraction has been routinely used to compliment the borehole data. In many small scale site investigation boreholes are made mainly using the wash boring method and are normally very shallow. The standard penetration test value $N = 50$ is used to end the borehole and it occurs normally within the weathered zone or above the bedrock surface. The seismic work determines the depth and characteristic of the bedrock as well as the strata above the bedrock. The seismic refraction data is compared to the boring data and often used to extrapolate the subsurface condition between the boreholes. Correlation of seismic refraction data to wash boring data is often difficult because the wash boring bore log description is mainly grain sized based and not lithological based. Comparison to both the bore log and the standard penetration test values allows a better correlation. In addition, at the shallower level the Mackintosh probe test value and the water table has been used. The two sites studied show that comparison of the seismic refraction data to an integrated data gives a more meaningful and useful correlation.