

Characteristics of Soil Using Geophysical Techniques in Atbara Area, Sudan

In Atbara area, many industrial factories, roads and bridges have been constructed. Geophysical techniques are mainly used in planning for these strategic projects and to study and determine the soil characteristics to avoid the associated problems during and after construction. In the present study shallow seismic refraction technique was carried out to determine the lateral extension and dynamics properties of the layers. A set of profiles with a 24 channel for vertical geophones were used to generate P-waves. Travel-time versus distance graphs were constructed, velocities and the thickness of the three subsurface layers in the study area were determined. The final results show that P- wave velocities ranges from 248 m/s to 498m/s , 596m/s - 1005m/s and 908 m/s -1896 m/s for the first, second and third layer, respectively. The subsurface layers stratigraphy was delineate using the geological cross sections which were obtained from boreholes data. The comparison between the geological cross sections and the H/V spectral ratio which was obtained from the previous study was performed. Finally, it will conclude that the shallow seismic refraction technique is one of the most effective methods which are very useful for building and other civil engineering purposes.

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