



Seismic Slope Stability Analysis: Gulpinar (Istanbul) As A Case History

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Slope failures triggered by the earthquakes are one of the most important soil problems. In this study, dynamic (earthquake) slope stability analysis was carried out in Gulpinar area. For this aim, in situ tests (SPT) were carried out and laboratory samples were obtained from 6 boreholes (their max. dept 50.0m) to determine soil classification and strength characteristics. Moreover, geophysical studies (seismic refraction and MASW) were also carried out in the area to estimate the structure and strength characteristics of the slope to 50.0 m. All of data, obtained in field and laboratory, was used to construct the mechanical and structural (geometrical) behavior of the slope. To solve slope stability problem, tree soil slope model was considered for the area. In dynamic state, to estimate the earthquake acceleration seismic hazard analysis was carried out in the region. In the end of the analysis, while there is not any problem in static condition/loads, some slope stability problems was appeared with increasing earthquake acceleration. A geotechnical slope improvement project was proposed for the study area.