



Geotechnical Investigation of Landslides in Gurpinar Region

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Gürpinar in Beylikdüzü district in İstanbul, Rapid and uncontrolled construction have been exposed due to the current visual. Although to the previous zoning plan to covered a large part of the study area was recommended to use as green space, today's regulations have begun to define these areas as the areas mostly precautionary. With the development of engineering technology and knowledge, these areas were allowed to open of new structures to take necessary precautions. With increase in the effective construction in these regions, the existing slopes has led to start due to imbalance of mass movements.

By using topographic map (1 / 5000 scale) and satellite images were examined in the region, the boundaries of existing landslides have been identified within the scope of this study. These areas are Çukurlar, Pinarkent, Pekmez and Onbeşevler. In addition to geophysical studies previously performed in the region; Seismic Reflection, Surface Wave Analysis (Active and Passive Source) and ground penetrating radar measurements were done. The geometry of surface planes and its depth, sand-gravel lenses, border of saturated clay units and the dynamic elastic parameters have been determined by using geophysical studies. The target depth of each method related to the properties of used sources or antenna and features of equipment. In Onbeşevler selected as pilot regions for georadar measurements, different water saturation at different depths s have been identified by using information taken from a depth of 30 meters. As a result of the geophysical studies, each in a landslide area, many slip plane have been identified and are given in sections.

Geological cross-sections created for the workspace by using the drilling data and the pits belong to private companies and government agencies in the region. Inside the border of each landslides, the slope stability analysis done by using geological cross-sections and its physical parameters. Slope stability analysis made by using Slide program, safety coefficient were calculated using different slip planes obtained from geophysical parameters. Analysis were repeated for each slip plane for static and dynamic conditions.

Examined to results of these slope stability analysis, safety coefficient have been identified below the limit values or very close to the border of even static conditions in Çukurlar, Pinarkent, Pekmez ve Onbeşevler's slope.