



A Study on the Stability of the Ground around the Excavation Site Using Geophysical Exploration.

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Geophysical Exploration is a method that distinguishes the type of physical quantity measured by physical characteristics, such as gravity exploration, magnetic force exploration, electricity, and elastic wave exploration. Elastic wave refraction method, electric shock port, and elastic tomography are also actively used these days. The use of physical exploration in the ground survey process is largely aimed at selecting good geological and ground conditions for the construction of a particular facility, and can also be used to exclude bad conditions. Data collection, processing, and interpretation of the results will allow valid data to be presented for the review of the stability around a particular target (such as a high-rise city building, radioactive waste disposal site, hazardous material storage, etc.).

In this study, we are planning to prepare a plan to review the stability of surrounding ground such as urban excavation site (open-cut and tunnel excavation etc) in urban through analysis of the results of exploration data using GPR and tomography during physical exploration. In order to do so, exploration of the ground surface (GPR) and the Mediterranean (Tomography) was conducted to review the stability of the ground. In particular, this is a useful method for determining the distribution of fault or cutting and the condition of the ground. Through these studies, it has been found that the size, depth of exploration, precision of measuring instruments, and noise level have a significant impact on the results of the survey, and accurate understanding of the results is necessary. Also, it is believed that the method of physical exploration will be sufficiently utilized to assess the stability of the surrounding ground for large-scale facilities such as large-scale underground structures, nuclear power facilities, and underground storage facilities, which are being promoted in Korea at the national level.

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