## A Case Study of the Ground Collapse due to Excavation Using Non-Destructive Testing

Ki-Cheong Yoo[1], Yushik Han[1], Heejeung Sohn[1], Jinwoo Kim[1]

*(1) Geotechnical Engineering Research Institute of Korean Geotechnical Society, Seoul, Korea*

keywords: Ground collapse, Non-destructive Testing, Ground Penetrating Radar(GPR), Relative dielectric permittivity

A ground collapse can be caused by natural and artificial factors. Ground collapses that have occurred frequently in Korea were observed and classified into different types by the main contributing factor. In this study, ground collapse induced by groundwater level disturbance in an excavation site was analyzed. Also, ground loosening region around the excavation site was detected and analyzed using non-destructive testing, such as GPR (Ground Penetrating Radar) survey and Electrical Resistivity. The result of the surveys showed that the ground was loosened widely over the surrounding area of the excavation due to groundwater discharge.

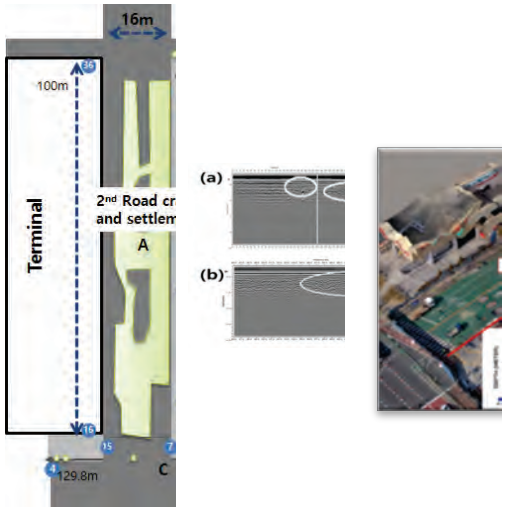


Figure: Outline of the ground sinking in the OO area in Korea(Left), GPR Exploration Result(a) A: Second road crack and settlement, (b) B: First road crack , (c) C: First ground sinking and Third road crack)(Center), Electrical Resistivity Result(Right)

ACKNOWLEDGEMENTS

This research was supported by the Korea Agency for Infrastructure Technology Advancement under the Ministry of Land, Infrastructure and Transport of the Korean government. (Project Number: 15SCIP-B108153-01)

REFERENCES

Han, Y. and Yoo, K. (2017): “Analysis of the Ground Sinking around an Excavation Site Using GPR Exploration,” in Proc. of 6th Int. Conf. on Green Buildings, Civil and Architecture Engineering, Paris, France, April 25, 2017, pp. 195-197.