UNIVERSITI TEKNOLOGI MARA

THE ANALYSIS ON MATERIAL CLASSIFICATION AND DENSITIFICATION FOR GPR APPLICATION

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Thesis submitted in fulfillment
of the requirements for the degree of
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AUTHOR'S DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Post Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

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ABSTRACT

This study examined the uses of Ground Penetrating Radar (GPR) to determine the material of underground utility. This study focused on analysis of material class and the density of each material. The GPR was used to scan buried pipe in different material and different parameter by using different frequency of GPR to analyses the resolution of different types of pipes. Based on the problem, it sparked the idea to produce an image comparison between the material type of utility pipes. To complete this research, it also includes position and coordinates the pipeline and it is the goal of this study. This study only focuses on pipeline in Gurun, Kedah. The main objectives for this research are to determine the material of utility pipeline that buried on the underground surface and to compare the frequency uses to know the depth. The method that uses during the data collection is grid method. GPR are uses to collect subsurface data. The data will be representing in radargram image and must go through the process of processing. The final output for the research is image comparison between each pipe and the depth comparison. It is important because the material, position and depth of pipe can be used as a reference for future development such as the excavation and dredging of the soil without damaging the pipe.

TABLE OF CONTENT