

UNIVERSITI TEKNOLOGI MARA

**DETERMINATION OF UNDERGROUND PIPE DEPTH
AT DIFFERENT TYPE OF SOIL USING HIGH AND
LOW FREQUENCY**

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Thesis submitted in fulfillment
of the requirements for the degree of
Bachelor Science of Geomatics (Hons)

Faculty of Architecture, Planning and Surveying

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AUTHOR'S DECLARATION

I declare that the work in this thesis/dissertation 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.

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ABSTRACT

This study examined to identify the depth of pipe at different type of soil by using different frequency. The frequency for this research were 250MHz and 800MHz antenna. Accuracy was a main factor to penetrate the underground utility. Ground Penetrating Radar was an interesting measurement technique for mapping underground surface. GPR using different frequency which were 250MHz and 800Mhz used to scanning underground utilities at different type of soil. Beside that, the research was helping by software 2D Reflex for the data collection, data processing and analysing the outcome result. The depth was known before scanning and compare between actual depth with the observation depth from GPR given. The data must be do the correction by using software cause by the other factor such as noise. After do the process in software, the true depth will appear. If the higher of the antenna, the penetration was shallower the depth of penetration. The actual depth had been measure by using conversional method which were measure using tape and levelling method. The result show the suitable frequency that good to use for utilities underground was 250MHz because the frequency can penetrate deeper depth which was more than 1 metre depth. The GPR antenna more can penetrate to both of soil but the sand soil much more detected pipe. Lastly, apart from the aim study was to The aim of this study is to analyse the good frequency for depth measurement of buried pipe from different type of soil, it was also done in intention to help other surveyor to get the quality of accuracy by using this research.

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