UNIVERSITI TEKNOLOGI MARA

OPTIMIZATION OF CADASTRAL REFERENCE MARKS (CRM) NETWORK CONFIGURATION FOR CADASTRAL NETWORK ADJUSTMENT

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Thesis submitted in fulfilment of
requirements for the degree of
Bachelor of Surveying Science and Geomatics (Hons)

College of Built Environment

February 2023

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.

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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Thesis/Dissertation Title	:	Optimization of Cadastral Reference Marks (CRMs) Network Configuration for Cadastral Network Adjustment
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Date	:	31st JANUARY 2023

ABSTRACT

According to the Department of Survey and Mapping Malaysia (DSMM) ‘s circulars 5 and 6/2009, Global Navigation Satellite System (GNSS) can be used for network adjustment constraints or as a control for cadastral network control by establishing Cadastral References Marks (CRMs). According to DSMM’s circular 5 2021, the accuracy for the methods stated are in centimeter level. There are lack of information about the optimum distribution of CRMs to be use as cadastral network control in the circular. Without proper configuration in establishing CRMs using GNSS observation, the final product of the National Digital Cadastral Database (NDCDB) might not preserve positional accuracy. In order to investigate this issue, this study had performed an experiment and optimize distribution of cadastral reference mark (CRM) as satisfactory datum for cadastral network adjustment. Cadastral Control Network (CCN) a high-precision reference points were established to preserve the positional accuracy of CRMs. In light of this, the value of its precision was compared to the boundary mark datum measured by total station measurement in a small traverse network to identify the significant of CRMs as datum constraints for small traverse network. In addition, CRM points were established at varying distances in order to investigate the well-configured of CRMs distribution in constraining cadastral traverse network. As a result, distribution of centimeter – level datum constraints were3 optimized for cadastral network adjustment constraints. This study contributed to cadastral survey field in Malaysia by improving the cadastral positional accuracy.

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