IMPORTANCE OF DETAILED CONSIDERATION OF CONSTRUCTION SEQUENCE IN INSTALLATION OF RETAINING WALLS WITH EXCAVATION:

A CASE STUDY

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Thesis/Dissertation submitted in partial fulfillment of the requirements for the degree of Master of Science / Master of Engineering in Foundation Engineering and Earth Retaining Systems

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August 2022

DECLARATION

I, the undersigned P.G. Deepika Chathurangani hereby declare that I am the sole author of this thesis. To the best of my knowledge this thesis contains no material previously published by any other person except where due acknowledgement has been made. This thesis contains no material which has been accepted as part of the requirements of any other academic degree or non-degree program, in English or in any other language.

This is a true copy of the thesis, including final revisions.

Signature of the candidate : ……. Date: ……...

P.G. Deepika Chathurangani

Under my direction, the aforesaid candidate conducted research for her Master's dissertation.

Signature of the supervisor : .....……. Date: ……...

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ABSTRACT

Earth retaining structures are a key component in most engineering constructions. The present design practice as per the standard procedure is limited to analysis the structure under anticipated permanent design loads. However, in reality, the structure undergoes numerous loading patterns depending on the construction methodology as well as construction sequence that might be vary in type, magnitude, direction and distribution to that of design loads. The recent construction experience of some projects in Colombo indicates that these unaccounted loading patterns in construction stages could lead to failure modes that were not expected during design phase. In this study, a detailed forensic analysis is carried out for one case study by means of numerical modeling of different loadings undergone during various stages of the construction stage and root cause of failure for each case is identified. A gap analysis is carried out to ascertain that why the root causes had not been taken in to consideration during the design phase and recommendations are proposed to the design procedure currently practiced to avoid future such consequences.

Key Words – Construction Sequence

ACKNOWLEDGEMENTS

Prof. S.A.S. Kulathilaka, my study supervisor, deserves special thanks for his patient supervision, passionate support, and helpful criticisms of my research project. The various comments, suggestions, and help in keeping my efforts on track, as well as my extensive knowledge in the field of geotechnical engineering, all contributed significantly to the success of my study.

The course coordinator, Senior Lecturer, Dr. L.I.N. De Silva, deserves special thanks for his support with the Finite Element Analysis using Plaxis 2D software. His invaluable assistance enabled me to focus my studies in the right direction.

Mr.H.L. Prasanga, Project Engineer, thank you very much for your kind assistance in providing essential data which helped my study to get succeed. The encouragement you provided was extremely helpful in completing this study on time.

I would also like to extend my thanks to all the academic staff of Geotechnical Engineering, Prof. U.G.A. Puswewala, Dr. U.P. Nawagamuwa and Dr. (Mrs.) A.S. Ranathunga for helping in various ways to clarify the issues related to my academic works.

P.G. Deepika Chathurangani

01st September 2022

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