



**DESIGN AND STABILITY CONSIDERATION OF SHALLOW
FOUNDATION OF SULFURIC ACID TANK CONSTRUCTION**

UNDERGRADUATE THESIS
Submitted as one of requirements to
Obtain Sarjana Teknik

By:

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OCTOBER, 2023

THESIS APPROVAL PAGE

This approval page is for the thesis in titled:

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of Sulfuric Acid Tank Construction**

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ANALYSIS OF BEARING CAPACITY AND STABILITY OF SHALLOW FOUNDATION IN SULFURIC ACID TANK CONSTRUCTION
Submitted as part of the requirements for Completing Bachelor Program By: MAGDALENA NOVEMBRINE NGANTU
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THESIS APPROVAL PAGE Analysis of Bearing Capacity and Stability of Shallow Foundation in Sulfuric Acid Tank Construction
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ABSTRACT

This final project presents the bearing capacity, settlement and rotation that occurs in the shallow foundations that are analyzed. This shallow foundation will support a tank load of 780,6 kN with a diameter of 3 m and a height of 6 m. The use of this shallow foundation is another alternative in foundation construction because in carrying out a project it will be better if the costs incurred can be minimized with a foundation design that remains optimal. Foundations are one of the most important elements in a building. Its function is to distribute structural loads and building floor loads to the ground below. Choosing the right type of foundation is very crucial because it can affect the stability, strength and overall performance of the building. Calculations of bearing capacity, settlement and rotation were analyzed on a foundation with a width of 4 m and a length of 6 meters with a depth of 0,5 m.

Based on SPT data using the Meyerhof method, The bearing capacity of a shallow foundation is 255,5 kN/m². This is said to be safe because the soil tension is 66,4 kN. Based on the results of calculations using Coduto foundation design principles, it was found that the decrease that occurred in shallow foundations was 0,02 mm. This is said to be safe because the allowable settlement in the tank structure is 25 mm. then regarding the rotation that occurs in shallow foundations with predetermined dimensions. The analysis used uses the Bowles method, then the rotation that occurs in the rectangular foundation analyzed is quite low with a value of 0,06 radians.

Keyword: Shallow foundation, SPT, Bearing capacity, Settlement, Rotation

ACKNOWLEDGEMENT

First of all, the author prays to God for the blessings and guidance you have given to her. Your grace has been my strength and my source of hope in difficult times. The author is truly grateful for your love and mercy so that the author can complete the thesis entitled "*Design and Stability Consideration of Shallow Foundation of Sulfuric Acid Tank Construction*" smoothly.

In completing this thesis, the author is aware that this thesis would not be completed without the guidance various parties' guidance, support, and assistance or wishes Dr-Ing. Erwin Sitompul, M.Sc as the Dean School of Engineering. Dr. Ir. B.M.A.S Anaconda Bangkara, M.T., M.S.M as the Head of Civil Engineering Department. The author would also like to thank Prof. Ir. Binsar Hariandja, M.Eng., M.S., Ph.D as her first thesis advisor for his guidance, encouragement, and valuable time in guiding her throughout the process of preparing this thesis. The same appreciation for all Civil Engineering lecturers who have provided valuable material and knowledge during this lecture. The author also wants to thank her self, for the hard work, perseverance, and dedication that the author has shown throughout this journey. It's not always easy, but the author stayed committed and got through the challenges. So, the author really appreciates, for believing in her self and making this achievement possible

The author always want to express her deepest gratitude to all of her family, especially her father, her mother, for their unwavering love, support and encouragement which has been the strength of her life journey. Thank you for the sacrifices you have made, and the endless trust you have in me.

Last but not least, hopefully, the results of this research can provide benefits and can be a reference for students who will make a similar report. Of course, there are still shortcomings and errors in completing this final project. For this reason, constructive criticism and suggestions are highly expected so that they can be useful in the progress of the world of education.

Cikarang, October 2023



Magdalena Novembrine Ngantu

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