



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

UNDERGRADUATE THESIS

**Submitted as one of requirements to
Obtain Sarjana Teknik**

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ANALYSIS OF BEARING CAPACITY AND STABILITY OF SHALLOW FOUNDATION IN SULFURIC ACID TANK CONSTRUCTION
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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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Thesis Advisor Head of Civil Engineering Study Program iii PANEL OF EXAMINERS' APPROVAL The Panel of Examiners declares that the undergraduate thesis entitled Analysis of Bearing Capacity and Stability of Shallow Foundation in Sulfuric Acid Tank Construction that was submitted by Magdalena Novembrine Ngantu majoring in Civil Engineering from the faculty of Engineering was assessed and approved to have passed the Oral Examination on xxx-yyth 2023 Panel of Examiners Prof

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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

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