

# **SHEAR BEHAVIOR OF RICE HUSK ASH – CEMENT KILN DUST STABILIZED CLAY**

Final Project Report

as a requirement to obtain Bachelor degree from

Universitas Atma Jaya Yogyakarta

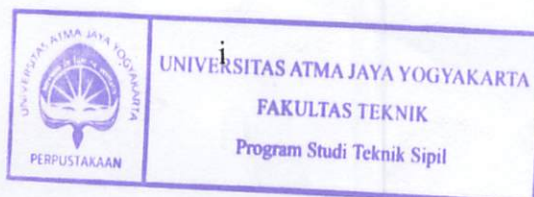
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UNIVERSITAS ATMA JAYA YOGYAKARTA  
YOGYAKARTA  
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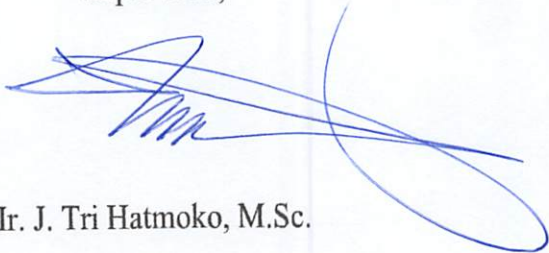
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**APPROVAL**

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I realized that this report is far from perfect. Therefore, I will accept any suggestions and advice for this final project improvement. At last, I hope this report will be useful for the readers.

Yogyakarta, April 2017

Patrick Dharmasaputra

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## ABSTRACT

**SHEAR BEHAVIOR OF RICE HUSK ASH – CEMENT KILN DUST STABILIZED CLAY**, Patrick Dharmasaputra, Student ID Number 14.13.15719, year of 2018, Geotechnical Engineering, International Civil Engineering Program, Department of Civil Engineering, Universitas Atma Jaya Yogyakarta.

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Problematic soils such as clay, inhibits the worst possible characteristics that are avoided by engineers for instance, low shear strength. Cement kiln dust (CKD) and (RHA) is a by-product from their respective industry, it is hoped that utilization of CKD and RHA as a soil stabilizer will improve clay shear and plasticity characteristics. Purpose of this research was to investigate changes in clay shear behavior with the addition of CKD and RHA. Parameters that are observed in this research are shear strength parameters and plasticity index. Those parameters are observed by varying the CKD content, RHA content, and curing time. CKD and RHA content are varied between 10% to 20%, and the specimen were cured for 7, 28, and 36 days respectively. Result of the experiment showed that addition of 20% CKD, lead to plasticity index decrement from 34.4744% to 10.5%. Specimen with the lowest plasticity index then added with variation of rice husk ash content. In general, addition of CKD and RHA to the soil will eventually lead to plasticity index decrement. Addition of CKD and RHA did not only improve the soil in term of plasticity index. Shear strength of the mixtures also improved, by means of improved friction angle ( $\phi$ ). On the other hand, cohesion shows a little contribution to the overall shear strength of the mixture.

**Key Words:** Shear Behavior, Plasticity Index, Curing Time, Cement Kiln Dust, Rice Husk Ash.