## UNIVERSITAS INTERNASIONAL BATAM

Undergraduate Thesis Department of Civil Engineering Odd Semester 2019/2020

## THE STUDY OF FLY ASH EFFECT UTILIZATION ON LAND STABILITY OF BATAM MEISTERSTADT PROJECT

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## ABSTRACT

Land is one of the important factors in the world of construction, where land functions to receive and hold the burden that is on it. To keep the soil stable, one way to handle it is to mix the soil with the addition of chemical materials, namely fly ash. Fly ash is waste from coal combustion which is used as one of the ingredients to help bind the soil to become more stable.

In this study, the authors used a mixture of fly ash with a content of 10%, 15%, and 20% of the weight of the soil with a ripening period of 0, 3, 7, and 10 days. The purpose of this study was to determine the type of soil being tested, to determine OMC and MDD values, and to determine the effect of adding fly ash mixture to soil stability that seen from changes in shear strength values and cohesion values of soils taken from the Batam Meisterstadt Project.

The results of this study concluded that the land in the Batam Meistersadt Project according to the USCS classification is CL (clay), according to the AASTHO classification, the gravels are in silty or sandy and sandy A-2-6. The optimum moisture content value is 16% and the dry weight content is 1.26. The highest shear angle value obtained for mixing fly ash is 10% with a value of 75.78 which is allowed to stand for 7 days, for mixing fly ash 15% with a value of 78.52 which is allowed to stand for 14 days, for mixing fly ash 20% with a value of 78, 28 which was left for 0 days. The highest inner shear angle value is obtained by mixing fly ash 10% with a value of 67.3 with a curing period of 7 days, fly ash 15% with a value of 64.64 with a curing period of 14 days, fly ash 20% with a value of 60.4 with a long time curing 3 days. The highest cohesion was obtained by mixing fly ash 10% with a value of 1.33 with a curing duration of 0 days, fly ash 15% with a value of 1.26 with a curing period of 7 days, fly ash 10% with a value of 0.97 with a curing period of 7 days.

Keywords: soil, fly ash, soil stability, soil shear strength