THE INFLUENCE USAGE OF TYRESOIL AND GRANULAR MATERIAL TO THE SETTLEMENT OF SHALLOW FOUNDATION AS A RESULT OF DYNAMIC LOAD WITH THE LIQUIDITY INDEXS VARIATION SOIL STUDY IN BANTUL SUB-PROVINCE.

By : Sugiarto
Student Identify Number : 3108201004
Supervisor : Dr. Ir. Ria Asih Aryani Soemitro, M.Eng.

ABSTRACT

Geographically, Indonesia lay in meeting three especial plate, that is Plate Indies in side south relative toward north-east with movement about 7 cm / year, Plate of Eurasia in north relative to south with movement 9 cm / year and Pacific Plate in east relative to west with movement 11 cm / year. With geographical position archipelago of Indonesia represent area having earthquake activity which high enough.

A model made in laboratory to study effectiveness usage of Tyresoil and granular material if used as a reinforcement at the shallow foundation with horizontal dynamic load. Foundation model size is 10 x 10 cm. Bearing capacity this model above sandy silty soil, compared to bearing capacity which lay in sandy silty soil with Tyresoil and granular materials reinforcement. Tyresoil reinforcement with 1 layer, granular material reinforcement with h = B, h = 2B and h = 3B where B is wide of foundation and h is depth of foundation.

Result of laboratory indicate that the existence of reinforcement in the soil give contribution which is significant in changing mechanical absorber characteristic a soil, posed at from a least difference of settlement at acceleration of earthquake 0,3 g and 0,34 g. Effect of dynamic load is most effective used Tyresoil, the settlement by condition of without reinforcement equal to 186 mm, after given reinforcement the settlement become 139 mm where with this reinforcement reduction settlement of the biggest equal to 25,26%. Rate excelsior water content a soil assess ever greater settlement. The biggest of
settlement difference the yielded at reinforcement of Tyresoil a = 0,3 g where at Wc 20% settlement that happened equal to 139 mm while at Wc 35% settlement that happened equal to 202 mm. At Wc 35% difference settlement equal to 145,32% higher compared to Wc 20%. This condition happened because at Wc 35% its water content exceed value of Liquid Limit (32%) soil, so that bearing capacity its soil become to lower, as a result ever greater yielded settlement. Almost at all of sand reinforcement give result of more effective compared to copperslag reinforcement. Reduction settlement biggest yielded at sand reinforcement 20 cm dynamic a = 0,3 g, Wc 20% equal to 48,76% more high compared to copperslag, settlement at sand 20 cm = 162 mm while copperslag 20 cm yield settlement equal to 241 mm. Is evaluated from variation of deepness of material of granuler used, at static loading reinforcement with deepness 30 cm effective used, where with this reinforcement can be reduce settlement equal to 53,19% compare with condition without reinforcement. At dynamic loading of a = 0,3 g and a = 0,34 g reinforcement with deepness 10 cm effective used the sand and also the copperslag. Generaly ever greater dynamic load which applied at the condition of loading cause tension that happened at the soil become decrease, this happened effect of bearing capacity soil progressively lower.

*Keyword: Tyresoil, Dynamic load, granuler material, earthquake.*