

Patipat Booncharoenpanich 2010: Investigation of the Erosion Protection Mechanisms for Soil Slope Covered with Kaolin Mixtures and Vegetated Natural Geotextile.

Master of Engineering (Civil Engineering), Major Field: Civil Engineering, Department of Civil Engineering. Thesis Advisor: Mr. Apiniti Jotisankasa, Ph.D. 107 pages.

This research is divided into two parts. The first part is the study about mechanical behavior of decomposed-granite silty soil that was improved by mixing with kaolin for the purpose of erosion protection. The second part is the study about behavior of soil protected by using Erosion Control Blanket - Erosion Control Log with ruzi grass compared with the Erosion Control Log with vetiver grass. These studies focus on the mechanics behavior both in saturated and unsaturated condition, their erodibility and application to slope stability.

As for the first part of this study, the range of kaolin percentage used to improve the decomposed-granite silty soil was 0, 10, 15 and 20% by weight. At 10% by weight of kaolin, shear strength has the highest value in both saturated and unsaturated conditions (matric suction range of 0 to 32 kPa.). Erodibility appeared to decrease with increasing kaolin quantity. As for slope stability, mixture of 10% kaolin has the highest value of F.S. for matric suction more than 4 kPa. But for matric suction lower than 4 kPa and in saturated condition, F.S. for slope stability has the highest value at 20% kaolin. Regarding the second part of this study, the use of Erosion Control Blanket - Erosion Control Log with ruzi grass, yields a highest shear strength at unsaturated condition in matric suction 0 to 30 kPa. On the contrary, saturated shear strength of this method is lower. Nevertheless, by using Erosion Control Blanket and Erosion Control Log with ruzi grass, the possibility of erosion is lower, and slope tended to be more stable than using Erosion Control Log with vetiver grass.

---

Student's signature

---

Thesis Advisor's signature