

THE EFFECTS OF SOIL CHARACTERISTIC ON RAINFALL INFILTRATION INDUCE SLOPE FAILURE

LES EFFETS DES CARACTERISTIQUES DU SOL SUR L'INFILTRATION DES PRECIPITATIONS INDUIT UNE RUTURE DE PENTE

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ABSTRACT - Slope failures happened at the Skudai campus in Johor, Malaysia. Two instrumented slopes were investigated for the effects of soil characteristics on the mechanism of rainfall infiltration in slope. One slope(Site-1) failed due to the rainfall while the other (Site-2) remained stable. Laboratory experiments were performed to examine one-dimensional rainfall infiltration behaviour for both sites soil. Analysis showed that for Site-1, the continuous rainfall has caused a significant increase in the soil's moisture, decrease in negative pore-water pressure (from 28 kPa to 0). On the other hand, the same rainfall induces a very small change in negative pore-water pressure. The results showed that the permeability of the soil mass plays an important role in slope instability. Comparison between predicted FOS based on SWCC curve and actual measurement showed that there are other factors that may influence the soil response to rainfall infiltration such as mineralogy of clay content and the dispersibility of the soil.

