

降雨導致填土邊坡破壞之數值分析

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摘要

Recently, the occurrences of extreme torrential rain have increased frequently and caused many instabilities of fill slope, resulting greater threatening for people around hillside. This paper studies rainfall-induced instability for unsaturated fill slope using commercial programs PLAXIS and STEDwin. The study has showed that conventional stability analysis tended to be erroneous if using the mode of groundwater rising only. The effect of strength reduction caused by the rainfall infiltration should not be neglected. In comparison with STEDwin, PLAXIS presents rational results for the predictions of mode and range of failure. However, by considering the effect of strength reduction, STEDwin also was able to get similar results. Most of instabilities caused by the rainfall were surficial failure and the safety factor dropped significantly as soon as the infiltration reached a depth of 0.5~1.0m. This paper proposes a rational solution for the prediction of safety for rainfall-induced failure of fill slope.

關鍵字 : Rainfall, Fill Slope, Unsaturated Soil, PLAXIS, STEDwin.