

## ABSTRACT

PT. Semen Indonesia (Persero) Tbk. is located in Sumberarum Village, Kerek District, Tuban Regency, East Java. The company has been using *bench quarrying* method in their mining activities. In order to support mining activities, analysis of the slope stability is needed to determine the accuracy of the slope stability to reduce the potential for landslides.

This research conducted a geotechnical study on clay quarry in Tlogowaru 2. Mining activities can affect the slope stability; hence geotechnical study is necessary to identify the characteristics of the soil mass in the area. In addition, the geotechnical study also aims to determine the bench geometry which is safe and cheap for mining. The modeling in this research uses the limit equilibrium method using Slide 6.0 software by Rocscience with the safety factor (SF) minimum used for single slope is  $SF \geq 1,20$  and for the overall slope is  $SF \geq 1,30$  (CANMET, 1979).

Laboratory tests which have been carried out on rock samples consisted of rock physical properties test, direct shear test and compressive strength test. From compressive strength test results with  $< 1$  MPa (Bieniewski, 1973), it is known that the slope material is very weak, a *circular failure* may potentially occur in the study area.

Recommendation of geometry for a *single slope* with various geometrical configurations and various SF is 3 m height with  $40^\circ$  angle. While the recommendations given to the overall slope is 19 m height, 7 m *berm* width and  $16^\circ$  angle with an SF value of 1.354.