

**REKAYASSA LERENG TAMBANG BATUPASIR KALURAHAN
WUKIRSARI KAPANEWON IMOGIRI KABUPATEN BANTUL
INTISARI**

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Pertambangan yang umum di Indonesia adalah pertambangan skala kecil. Kontribusi pertambangan skala kecil terhadap ekonomi lokal seringkali mendapatkan tantangan dan permasalahan. Potensi gerakan massa batuan merupakan masalah yang sering timbul akibat perencanaan yang kurang baik. Tujuan penelitian ini adalah mengetahui faktor keamanan (*factor of safety*) kestabilan lereng tambang batupasir dan menentukan perencanaan lereng berdasarkan nilai faktor keamanan kestabilan lereng. Evaluasi faktor keamanan yang digunakan merupakan parameter statis sesuai Keputusan Menteri ESDM 1827/K/30/MEM/2018.

Metode yang digunakan adalah metode survei, pemetaan lapangan, dan *purposive sampling*. Hasil survei digunakan untuk menentukan klasifikasi *Rock Mass Rating* dan Sampel yang sudah didapatkan dianalisis di laboratorium untuk menguji sifat fisik dan *Uniaxial Compressive Strength*. Metode untuk menentukan faktor keamanan dilakukan melalui persamaan *Generalized Hoek Brown* dan diubah ke persamaan *Mohr Coulomb Criterion*. Hasil persamaan dihitung dengan metode fellenius dibantu aplikasi Rocscience Slide 6.0. Parameter yang digunakan untuk menentukan kestabilan lereng adalah bentuk lahan, struktur batuan, struktur geologi, kegempaan, pelapukan, air tanah, getaran, dan aktivitas penambangan.

Hasil perhitungan lereng didapatkan lereng keseluruhan LP 2 memiliki FK sebesar 5,735 masuk kategori stabil; lereng keseluruhan LP 3 memiliki FK sebesar 4,326 masuk kategori stabil; dan lereng keseluruhan LP 4 memiliki FK sebesar 13,325 masuk kategori stabil. Rekayasa untuk meningkatkan kestabilan lereng dilakukan menggunakan perencanaan penambangan *side hill quarry* dan pemotongan lereng. Hasil pemotongan lereng meningkatkan nilai faktor keamanan lereng keseluruhan LP 2 menjadi 6,284; lereng keseluruhan LP 3 menjadi 5,929; dan lereng keseluruhan LP 4 menjadi 11,698. Selain itu penambangan secara baik juga perlu dilakukan serta pengawasan pemerintah agar perencanaan pertambangan tetap sesuai.

Kata kunci :

Rekayasa lereng, gerakan massa batuan, faktor keamanan, *Rock Mass Rating*, *Generalized hoek brown*, *Mohr Coulomb Criterion*, metode fellenius,

**SLOPE ENGINEERING SANDSTONE MINING AT WUKIRSARI
VILLAGE, IMOIRI DISTRICT, BANTUL REGENCY**

ABSTRACT

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The common type of mining in Indonesia is small scale mining. The contribution of small scale mining to the local economy often faces challenges and problems. The potential for rock mass movement is a problem that often arises due to poor planning. The aim of this research is to determine the factor of safety for sandstone mine slope stability and determine slope planning based on the value of the slope stability factor of safety. The factor of safety evaluation used is a static parameter according to Minister of Energy and Mineral Resources Decree 1827/K/30/MEM/2018.

The method used is the field survey and mapping method, purposive sampling. The survey results are used to determine the Rock Mass Rating classification and the samples obtained are analyzed in the laboratory to test physical properties and Uniaxial Compressive Strength. The method for determining the safety factor is carried out using the Generalized Hoek Brown equation and converted to the Mohr Coulomb Criterion equation. The equation results were calculated using the Fellenius method assisted by the Rocscience Slide 6.0 application. The parameters used to determine slope stability are landform, rock structure, geological structure, seismicity, weathering, groundwater, vibration and mining activities.

The results of the slope calculation showed that the overall slope of LP 2 had a FK of 5.735, which was in the stable category; the overall slope of LP 3 has a FK of 4.326 in the stable category; and the overall slope of LP 4 has a FK of 13.325 which is in the stable category. Engineering to increasing slope stability is carried out using side hill quarry mining planning and slope cutting. The results of slope cutting increased the overall slope safety factor value of LP 2 to 6.284; overall slope of LP 3 to 5.929; and the overall slope of LP 4 to be 11.698. Apart from that, mining needs to be carried out properly as well as government supervision so that mining planning remains appropriate.

Keywords :

Slope engineering, rock mass movement, safety factor, Rock Mass Rating, Generalized hoek brown, Mohr Coulomb Criterion, fellenius method