

SARI

Jalan Pacitan – Ponorogo merupakan ruas jalan yang menghubungkan antara Kabupaten Pacitan dan Ponorogo. Ruas jalan ini seringkali mengalami bencana longsor terutama yang berada pada Desa Kemuning dan sekitarnya pada Kecamatan Tegalombo akibat struktur geologi yang berkembang secara intensif sehingga memengaruhi kondisi geomekanikanya. Oleh sebab itu penelitian ini dilakukan untuk mengetahui kondisi geologi teknik dan tingkat kestabilan lereng yang berada di Desa Kemuning dan sekitarnya sebagai upaya mitigasi bencana longsor. Penelitian ini dilakukan dengan pemetaan geologi teknik skala 1:12.500, pengujian sifat keteknikan tanah dan batuan, analisis kinematika untuk menentukan tipe runtuh lereng, dan *Slope Mass Rating* (SMR) untuk menentukan tingkat kestabilan lereng. Hasil penelitian menunjukkan daerah penelitian memiliki dua satuan geomorfologi yaitu satuan punggung lava tersesarkan tererosi dan satuan tubuh sungai. Litologi penyusun daerah penelitian berupa breksi vulkanik dan lava andesit. Kondisi geologi teknik tingkat pelapukan batuan terdiri dari breksi vulkanik lapuk sedang, lava andesit lapuk sedang, lava andesit lapuk tinggi, dan lava andesit lapuk sangat tinggi. Kualitas massa batuan berdasarkan *Geological Strength Index* (GSI) terbagi menjadi empat zona yaitu, zona 56 – 75, zona 41 – 55, zona 21 – 40, dan zona <20. Struktur geologi yang berkembang berupa sesar geser sinistral mengiri dan kekar gerus yang memiliki orientasi timur laut – barat daya. Kemudian kondisi hidrogeologi berupa pola pengaliran *rectangular* dan rembesan pada beberapa titik pengamatan. Berdasarkan analisis kinematika didapatkan dua tipe runtuh berupa runtuh baji dan runtuh guling. Tingkat kestabilan lereng berdasarkan SMR terbagi menjadi dua satuan, yaitu lereng stabil sebagian dan lereng tidak stabil.

Kata Kunci: Jalan Pacitan – Ponorogo, karakteristik geologi teknik, kinematika, keruntuhan lereng, *Slope Mass Rating* (SMR)

ABSTRACT

The Pacitan – Ponorogo highway is a lane that connects Pacitan and Ponorogo regencies. This route often faces landslides, especially in Kemuning Village and its surroundings in Tegalombo Sub-district due to the intensively developed geological structure that affects its geomechanical conditions. Therefore, this research was conducted to determine the engineering geology condition and slope stability in Kemuning village and its surroundings as an effort to mitigate landslides. The research was conducted with 1:12,500 scale engineering geology mapping, soil and rock engineering properties testing, kinematics analysis to determine the type of rock slope failure, and Slope Mass Rating (SMR) to determine the level of slope stability. The results showed that the study area has two geomorphological units, namely a eroded-faulted lava ridge and a river body unit. The lithology of the study area is volcanic breccia and andesite lava. The engineering geological condition of the rock weathering consists of moderately weathered volcanic breccia, moderately weathered andesite lava, highly weathered andesite lava, and very highly weathered andesite lava. The quality of rock mass based on Geological Strength Index (GSI) is divided into four zones, namely, zone 56 – 75, zone 41 – 55, zone 21 – 40, and zone <20. Geological structures that develop are normal left slip fault and joints that have a northeast – southwest orientation. Then the hydrogeological conditions are rectangular flow patterns and seepage at several locations. Based on kinematics analysis, two types of slope failure were obtained, namely wedge failure and toppling failure. The level of slope stability based on SMR is divided into two units, namely partially stable slopes and unstable slopes.

Keywords: *Pacitan – Ponorogo highway, engineering geology characteristics, kinematics, rock slope failures, Slope Mass Rating (SMR)*