IDENTIFIKASI ARAH ALIRAN AIR BAWAH PERMUKAAN TANAH DALAM ANALISA LONGSOR DI LERENG JALAN WAY RATAI MENGGUNAKAN METODE *SELF POTENTIAL*

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ABSTRAK

Keberadaan air tanah berpotensi menyebabkan bencana longsoran di daerah lereng akibat air hujan yang masuk ke dalam tanah. Aliran air bawah permukaan akan mempengaruhi arah longsoran karena aliran air berfungsi sebagai media untuk menggelincirkan material yang berada di atas bidang gelincir sehingga material akan bergeser dan bergerak keluar lereng. Jalan raya Way Ratai merupakan jalur yang terletak di Kecamatan Teluk Pandan dan satu-satunya jalur yang menuju daerah pariwisata di Pesawaran dan dapat diketahui bahwa sepanjang jalan raya Way Ratai memiliki keadaan topografi yang rentan terhadap longsoran. Salah satu metode geofisika yang bisa digunakan untuk mengetahui aliran air di bawah permukaan tanah adalah metode *self potential*. Penelitian ini bertujuan untuk mengetahui arah gradien potensial dan arah aliran air bawah permukaan tanah serta arah longsoran berdasarkan aliran air bawah permukaan di daerah penelitian. Data *self potential* diolah menggunakan perangkat lunak Ms. Excell dan *Surfer* 13. Data *self potential* dikoreksi dan diperhalus (*moving average*) sehingga didapatkan peta sebaran nilai potensial dan arah gradien potensial. Gradien potensial akan searah dengan arah aliran fluida. Gradien potensial mengarah pada nilai potensial terbesar (negatif) -10 hingga -35 mV. Aliran fluida ditunjukkan oleh gradien potensial yang mengarah ke potensial yang negatif dengan nilai berkisar -35 mV. Akumulasi nilai potensial negatif menunjukkan potensi arah longsoran dimana pada penelitian ini terletak di 9391000 UTM sebelah barat.

Kata kunci: Aliran air; Gradien potensial; Longsoran; *Self potential*.

IDENTIFICATION OF THE DIRECTION OF SUBSURFACE WATER FLOW IN LANDSLIDE ANALYSIS ON THE SLOPES OF WAY RATAI ROAD USING THE SELF POTENTIAL METHOD

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ABSTRACT

The existence of groundwater has the potential to cause avalanche disasters in the slope area due to rainwater entering the ground. The flow of subsurface water will affect the direction of the avalanche because the flow of water serves as a medium to derail the material that is above the field of the derailment so that the material will shift and move out of the slope. Way Ratai highway is a path located in Pandan Bay Subdistrict and the only path that leads to tourism areas in Pesawaran and it can be known that along the Way Ratai highway has topographic conditions that are vulnerable to avalanches. One geophysical method that can be used to determine the flow of water below the surface of the soil is the self-potential method. The study aims to find out the direction of potential gradients and the direction of subsurface water flows as well as the direction of avalanches based on subsurface water flows in the research area. Self-potential data is processed using Ms. Excell and Surfer 13 software. Self potential data is corrected and refined (moving average) so that a map of the distribution of potential values and potential gradient directions is obtained. The potential gradient will be in the direction of the fluid flow. The potential gradient leads to the largest potential value (negative)-10 to -35 mV. Fluid flow is indicated by a potential gradient that leads to a negative potential with a value ranging from -35 mV. The accumulation of negative potential values indicates the potential direction of the avalanche where the study is located at 9391000 UTM to the west.

Keywords: Flow of water; Potential gradient; Landslide; Self potential.