

# **Identification of Subsurface Lithology in Sendang Mulyo, Purwoharjo Village, Samigaluh Subdistrict, Kulon Progo Regency**

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## **ABSTRACT**

This research aimed to determine the subsurface lithology of landslide-prone area in Sendang Mulyo, Purwoharjo Village, Samigaluh Subdistrict, Kulon Progo Regency, Yogyakarta using geoelectrical dan microseismic methods. It was conducted on one of hill slopes in Purwoharjo Village. Based on landslide history in the area, it has the longest landslide event and mostly affected the villagers who live under the hill slope. The measurement process used Syscal resistivity meter and TDL-303S Taide digital portable seismograph. The geoelectrical method used 5 lines, where 2 lines had length of 150 m spanned from north to south, 2 lines had length of 120 m and 1 line had length of 100 m spanned from east to west. The microseismic method used 17 measurement points with various spacing. The results from the geoelectric method showed that the lithology of the area is in the form of clay material with resistivity of 0.16 - 160  $\Omega$ .m, sand material with resistivity of 160 - 1093  $\Omega$ .m, sandstone material with resistivity of 1093 - 8000  $\Omega$ .m, and andesite material with resistivity of 8000 - 122165  $\Omega$ .m. While the results from the microseismic method showed that clay rock material has Vs value between 350 m/s to 750 m/s with a depth of up to 33 meters. The results from the modeling showed that subsurface lithology in the area is prone to landslides, because there is a sliding plane at a depth of 33 meters, which has remnants of andesite rocks starting at a depth of 20 meters and above it the clay material is quite thick.

Kata Kunci: *Subsurface Lithology, Geoelectrical, Microseismic, Kulon Progo Regency*