

POTENSI LIKUIFAKSI MENGGUNAKAN METODE *HORIZONTAL TO VERTICAL SPECTRAL RATIO* (HVSR) DI DESA TEGALREJO, BAYAT, KLATEN

MONIKA HOLY MERGENSIVANI PUSPITA RINY
12/334630/PA/14863

INTISARI

Telah dilakukan pengukuran mikrotremor dan pengukuran kedalaman muka air tanah sebagai salah satu pendekatan mengenai analisis potensi likuifaksi di Desa Tegalrejo. Likuifaksi atau fenomena tanah terdeformasi dapat terjadi pada jenis tanah tersaturasi dan berusia Kuarter. Desa Tegalrejo merupakan daerah lingkungan pengendapan Kuarter dan tersaturasi sehingga berpotensi mengalami likuifaksi.

Pengolahan data mikrotremor dilakukan dengan metode *Horizontal to Vertical Spectral Ratio* (HVSR). Parameter hasil pengolahan berupa Frekuensi Dominan, Amplifikasi, Ketebalan lapisan lapuk, indeks kerentanan tanah, percepatan getaran tanah (PGA) dan Ground Shear-Strain (GSS) yang dikorelasikan dengan peta geologi dan peta tata guna lahan. Pengukuran kedalaman muka air tanah dan pengolahan data mikrotremor selanjutnya diintegrasikan sehingga diketahui zona potensi likuifaksi di Desa Tegalrejo.

Hasil penelitian menunjukkan bahwa kedalaman muka air tanah di Desa Tegalrejo berkisar 1,4-8,2 meter. Pengolahan data mikrotremor menunjukkan bahwa bagian utara daerah penelitian memiliki tingkat kerawanan terhadap bahaya gempabumi dibanding bagian lain di daerah penelitian. Zonasi potensi likuifaksi di Desa Tegalrejo menunjukkan bahwa bagian utara merupakan daerah berpotensi kritis atau menengah terjadi fenomena likuifaksi dan bagian selatan merupakan daerah aman dari fenomena likuifaksi.

Kata kunci : Likuifaksi, HVSR, dan Mikrotremor.

LIQUEFACTION POTENTIAL USING HORIZONTAL TO VERTICAL SPECTRAL RATIO (HVSR) METHOD AT DESA TEGALREJO, BAYAT, KLATEN

MONIKA HOLY MERGENSIVANI PUSPITA RINY
12/334630/PA/14863

ABSTRACT

Microtremor and ground water level measurement had been done as one of method for analyze the liquefaction potential at Desa Tegalrejo. Liquefaction or ground deformed can occur in saturated and Quarternary age soil. Desa Tegalrejo was an area where quarternary deposition environment happened and saturated so that had a potential to have liquefaction.

Microtremor data was processed using Horizontal to Vertical Spectral Ratio (HVSR) method. The parameter results were Dominant Frequency, Amplification, Weathered layer depth, land vulnerability index, Peak Ground Acceleration (PGA) dan Ground Shear-Strain (GSS) which will be correlated with geologic map and land use map. Ground water level measurement and microtremor data processing were then integrated to the potential liquefaction in Desa Tegalrejo

This research showed that ground water level at Desa Tegalrejo was at level 1.4-8.2 m. At microtremor data processing showed that the north area had higher vulnerability to earthquakes than other parts of the study area. Zoning of liquefaction potential in Desa Tegalrejo resulted northern part with a moderate potential area of liquefaction phenomenon and southern of the research area was the safe area of liquefaction phenomenon.

Keywords: Liquefaction, HVSR, and Microtremor.