



ABSTRAK

Pantai Samas di Kabupaten Bantul memiliki potensi untuk menjadi lokasi pembangunan Pantai Selatan Yogyakarta. Badan Geologi kementerian ESDM menjelaskan bahwa kawasan tersebut terletak dekat pertemuan lempeng tektonik yaitu Lempeng Eurasia dan Lempeng Indo-Australia serta memiliki kerentanan terhadap likuefaksi secara merata. Oleh karena itu, diperlukan kajian mengenai peta potensi likuefaksi untuk memberikan pemahaman atas kondisi lapangan serta sebagai pertimbangan yang diperlukan dalam mengoptimasi *safety* dan *cost* desain.

Penelitian ini berdasarkan 4 data uji bor sedalam 50 meter dan data uji laboratorium. Interpretasi lapisan tanah kawasan Pantai Samas dibuat dengan menggunakan perangkat lunak *Rockworks*. Analisis potensi likuefaksi menggunakan metode *simplified procedure* berdasarkan Youd, dkk. (2001), sedangkan derajat kerusakan akibat likuefaksi menggunakan *liquefaction severity index* menurut Sonmez dan Gokceoglu (2005). Kemudian dilakukan pemetaan peta potensi likuefaksi menggunakan perangkat lunak QGIS.

Hasil analisis distribusi tanah menunjukkan bahwa kawasan Pantai Samas tergolong sangat rentan terhadap likuefaksi akibat gradasi serta nilai *finer content* (butir halus) yang kurang dari 5%. Berdasarkan hasil analisis likuefaksi diperoleh 4 titik rentan terhadap likuefaksi dengan nilai *LSI* 66-96 berderajat kerusakan tinggi sampai sangat tinggi. Oleh karena itu, diperlukan penelitian lebih lanjut terkait upaya mitigasi untuk meminimalisir dampak terjadinya bencana likuefaksi.

Kata kunci: likuefaksi, *rockworks*, *simplified procedure*, *severity index*, QGIS



ABSTRACT

Samas Beach in Bantul Regency has the potential to be a location for the development of the South Coast of Yogyakarta.. The Geological Agency of the Ministry of Energy and Mineral Resources explained that it is located near the confluence of tectonic plates, namely the Eurasian Plate and the Indo-Australian Plate that cause this region has an even distribution of vulnerability to liquefaction. Potential maps are needed to provide an understanding of field conditions, as well as considerations needed to calculate safety and optimum design costs.

This research is based on 4 drill test data as deep as 50 meters and laboratory test data. The interpretation of the subsoil of the Samas Beach area was made using Rockworks. Analysis of the liquefaction potential using the simplified procedure method based on Youd, et al. (2001), while the degree of damage due to liquefaction uses the Liquefaction severity index based on Sonmez and Gokceoglu (2005). Then the liquefaction potential map was created using QGIS software.

The results of soil distribution analysis show that the Samas Beach area is classified as very vulnerable to liquefaction due to gradation and the value of fines content is generally below 5%. Liquefaction analysis showed that there were 4 points susceptible to liquefaction with an LSI value of 66-96 with a high-very high degree of damage. However, further steps are needed regarding mitigation efforts as an effort to avoid liquefaction disasters.

Keywords: liquefaction, rockworks, simplified procedure, severity index, QGIS