ABSTRAK

Desa Kemiri, Kecamatan Panti, Kabupaten Jember merupakan wilayah yang berada pada lereng Gunung Argopuro dan memiliki potensi longsor cukup tinggi akibat kondisi topografi yang curam serta karakteristik tanah vulkanik yang mudah mengalami penurunan kestabilan. Penelitian ini bertujuan menganalisis stabilitas Dinding Penahan Tanah (DPT) tipe kantilever sebagai upaya mitigasi terhadap potensi kelongsoran lereng, baik pada kondisi statis maupun saat menerima beban gempa. Metode penelitian yang digunakan adalah penelitian terapan dengan memanfaatkan data geoteknik hasil pengujian lapangan dan laboratorium, meliputi berat volume tanah, kohesi, serta sudut geser dalam tanah. Analisis dilakukan berdasarkan ketentuan SNI 8460:2017 melalui pemeriksaan faktor keamanan terhadap bahaya guling, geser, dan daya dukung tanah. Hasil penelitian menunjukkan bahwa DPT kantilever dengan tinggi total 4,2 m dan lebar pondasi 3 m mampu memberikan tingkat keamanan yang memadai. Pada kondisi statis diperoleh faktor keamanan terhadap guling sebesar 4,37 dan terhadap geser sebesar 2,30. Sementara pada kondisi gempa, faktor keamanan terhadap guling sebesar 1,47 dan terhadap geser sebesar 1,49. Nilai tersebut masih berada di atas batas minimum yang dipersyaratkan oleh standar yang berlaku. Dengan demikian, desain DPT kantilever yang direncanakan dinilai layak diterapkan sebagai solusi pengendalian stabilitas lereng di kawasan Desa Kemiri.

Kata Kunci: Dinding Penahan Tanah, Gempa, Faktor Keamanan, Kantilever, Stabilitas Lereng

ABTRACT

Kemiri Village, Panti Subdistrict, Jember Regency is an area located on the slopes of Mount Argopuro and has a high potential for landslides due to its steep topography and volcanic soil characteristics that are prone to instability. This study aims to analyze the stability of cantilevertype retaining walls as a mitigation measure against potential slope failures, both under static conditions and when subjected to seismic loads. The research method employed is applied research utilizing geotechnical data from field and laboratory tests, including soil unit weight, cohesion, and internal friction angle. The analysis was conducted in accordance with SNI 8460:2017 by examining safety factors against the hazards of overturning, sliding, and soil bearing capacity. The results indicate that a cantilever RWS with a total height of 4.2 m and a foundation width of 3 m provides an adequate level of safety. Under static conditions, the safety factor against overturning was 4.37 and against sliding was 2.30. Meanwhile, under seismic conditions, the safety factor against overturning was 1.47 and against sliding was 1.49. These values remain above the minimum limits required by the applicable standards. Thus, the planned cantilever retaining wall design is deemed suitable for implementation as a slope stability control solution in the Kemiri Village area.

Keywords: *Retaining Walls, Earthquakes, Safety Factors, Cantilevers, Slope Stability*