

ABSTRAK

Rizaldi Putra Ginting: *Efek Penambahan Kapur Tohor Sebagai Bahan Stabilisasi Tanah Lempung Terhadap Nilai California Bearing Ratio (Cbr), Kuat Tekan Bebas Dan Kuat Geser Langsung*” (Studi Kasus: Tanah Lempung Jalan Sibolga – Tarutung, Kecamatan Adian Koting, Kabupaten Tapanuli Utara). Skripsi. Fakultas Teknik Universitas Negeri medan. 2025.

Penelitian ini menjelaskan tentang kejadian longsor di wilayah adian koting. Fokus penelitian tentang stabilisasi tanah menggunakan kapur tohor sebagai stabilisator. Tanah longsor diambil dengan cara *disturbed sampling* dan *undisturbed sampling*. Diuji indeks propertis, *California Bearing Ratio*, Kuat Tekan Bebas Tanah dan Kuat Geser Langsung. hasil yang dikorelasikan antara CBR *unsoaked*, UCS dan *Direct Shear test*, dimana terdapat kenaikan nilai cbr dimulai dari tanah asli hingga pada variasi 15% tetapi pada CBR *unsoaked* densitas kering maksimum (ρ_d) berada pada variasi 10% dengan nilai 1.30 g/cm^3 hal ini berkorelasi dengan pengujian UCS dan *direct shear test*, bahwasanya kepadatan tanah maksimal berada di pengujian CBR dengan variasi 10% dan berkesinambungan dengan hasil kuat tekan pada variasi 10% adalah 6.72(Kpa) merupakan nilai tertinggi penggunaan kapur tohor, begitu juga dengan *Direct Shear test* hasil tertinggi tegangan geser berada pada variasi 10% dengan nilai 5.24 Kpa dan sudut geser ϕ dengan nilai 22.56 kpa. Hasil tersebut membuktikan teori Batas Penggunaan Kapur di Lapangan, yaitu titik rentang tertinggi berdasarkan (Broms, 1993) dalam (Hardiyatmo, 2020) rentang 6 – 12 %, dimana pada penelitian ini persentasi 10% merupakan persentasi paling baik dan efektif berdasarkan pengujian CBR *unsoaked*, UCS dan *Direct Shear test*.

Kata Kunci : *California Bearing ratio*, Kuat Tekan Bebas, Kuat Geser Langsung, Stabilisasi, Tanah Lempung

ABSTRACT

Rizaldi Putra Ginting: The Effect of Addition of Tohor Lime as a Stabilization Material for Clay Soil on the Value of California Bearing Ratio (Cbr), Free Compressive Strength and Direct Shear Strength” (Case Study: Clay Soil of Sibolga - Tarutung Road, Adian Koting District, North Tapanuli Regency). Thesis. Faculty of Engineering, Medan State University Medan. 2025.

This research describes a landslide in the adian koting area. The research focuses on soil stabilization using quicklime as stabilizer. Landslide soil was taken by disturbed sampling and undisturbed sampling. The results are correlated between unsoaked CBR, UCS and Direct Shear test, where there is an increase in the cbr value starting from the original soil to the 15% variation but in the unsoaked CBR the maximum dry density (ρ_d) is in the 10% variation with a value of 1.30 g/cm³ this correlates with the UCS test and direct shear test, that the maximum soil density is in the CBR test with a 10% variation and is continuous with the results of the compressive strength at 10% variation is 6.72 (Kpa) is the highest value of the use of quicklime, as well as the Direct Shear test the highest result of shear stress is in the 10% variation with a value of 5.24 Kpa and shear angle ϕ with a value of 22.56 kpa. These results prove the theory of Limits of Lime Use in the Field, namely the highest range point based on (Broms, 1993) in (Hardiyatmo, 2020) ranges from 6 - 12%, where in this study the 10% percentage is the best and most effective percentage based on unsoaked CBR testing, UCS and Direct Shear test.

Keywords: California Bearing Ratio, Unconfined Compression Strength, Direct Shear Test, Stabilization, clay Soil.