

Analisis Kelayakan Saluran Drainase Pracetak Jenis *U-Ditch* pada Tanah Gambut di Desa Wonosari, Kabupaten Bengkalis

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ABSTRAK

Penelitian ini bertujuan untuk mengetahui karakteristik tanah gambut, menganalisis penurunan (*settlement*), serta mengevaluasi kelayakan penerapan saluran drainase pracetak jenis *U-Ditch* pada tanah gambut di Desa Wonosari, Kabupaten Bengkalis. Metode penelitian meliputi pengambilan sampel tanah menggunakan *hand boring*, pengujian laboratorium, serta analisis empiris *Compression Index* (C_c) dan *settlement* menggunakan persamaan Terzaghi. Hasil penelitian menunjukkan nilai rata-rata *Liquid Limit* (LL) sebesar 112,54%, Plastic Limit (PL) sebesar 88,56%, Plasticity Index (PI) sebesar 23,98%, void ratio (e_0) sebesar 3,795, dan *Compression Index* (C_c) sebesar 0,923, yang menunjukkan tanah gambut memiliki kompresibilitas tinggi. Nilai *settlement* rata-rata pada kondisi *U-Ditch* kosong, terisi sebagian, dan terisi penuh berturut-turut sebesar 3,84 cm, 4,72 cm, dan 5,51 cm. Berdasarkan hasil analisis dan acuan pembandingan USACE, saluran drainase pracetak jenis *U-Ditch* masih layak diterapkan pada lokasi penelitian dengan mempertimbangkan potensi penurunan tanah..

Kata kunci: Kata kunci: tanah gambut, *U-Ditch*, *settlement*, *Compression Index*, drainase pracetak.

ABSTRACT

This study aims to determine the characteristics of peat soil, analyze soil settlement, and evaluate the feasibility of applying precast U-Ditch drainage channels on peat soil in Wonosari Barat Village, Bengkalis Regency. The research methods included soil sampling using the hand boring method, laboratory testing, empirical analysis of the Compression Index (C_c), and settlement analysis using Terzaghi's consolidation equation. The results showed average values of Liquid Limit (LL) of 112.54%, Plastic Limit (PL) of 88.56%, Plasticity Index (PI) of 23.98%, void ratio (e_0) of 3.795, and Compression Index (C_c) of 0.923, indicating that the peat soil has high compressibility. The average settlement values under empty, partially filled, and fully filled U-Ditch conditions were 3.84 cm, 4.72 cm, and 5.51 cm, respectively. Based on the analysis and comparison with the USACE guideline, the precast U-Ditch drainage channel is considered feasible for application at the study site, provided that the potential for settlement due to peat soil characteristics is taken into consideration

Keywords: *peat soil, U-Ditch, settlement, Compression Index, precast drainage.*