ABSTRAK

Arta Romauli Hutasoit. NIM 5173250005: Stabilisasi Tanah Gambut Kabupaten Humbang Hasundutan Dengan Menggunakan Semen. Skripsi. Fakultas Teknik-Universitas Negeri Medan. 2022

Tanah gambut merupakan salah satu jenis tanah yang memiliki daya dukung yang buruk dan kurang baik untuk tanah dasar kontruksi. Untuk memperbaiki daya dukung tanah yang buruk maka dilakukan stabilisasi. Stabilisasi yang dilakukan dalam penelitian ini dengan menambahkan bahan pencampur yaitu semen Portland pada tanah yang akan distabilisasi.

Tujuan dari penelitian ini adalah untuk mengetahui pengaruh penambahan semen terhadap nilai indeks plastisitas (PI) dari tanah gambut. Pada penelitian ini dilakukan campuran tanah gambut dan semen (5%, 10%, 15% dan 20%) dari berat kering tanah. Setelah dilakukan pencampuran, tanah gambut dilakukan pemeraman selama 14 hari. Setelah dilakukan pemeraman selama 14 hari maka dilakukan pengujian batas cair dan batas plastis tanah dimasing-masing campuran.

Dari hasil penelitian diperoleh bahwa sampel tanah asli memiliki kadar air 96,243%; berat jenis 1,451; batas cair 51, 188%; batas plastis 22,879% dan indeks plastisitas (PI) 28,309%. Setelah dilakukan pencampuran dan pemeraman selama 14 hari maka diperoleh batas cair tanah pada penambahan 5%, 10%, 15%, dan 20% yaitu 50,346%, 45,827%, 44,701% dan 42,872%. Dan batas plastis pada penambahan 5%, 10%, 15%, dan 20% yaitu 227,386%, 29, 273%, 31, 371% dan 35,371%.

Setelah distabilisasi dengan penambahan semen dengan variasi 5%, 10%, 15% dan 20% diperoleh kesimpulan bahwa batas cair tanah mengalami penurunan dan batas plastis tanah mengalami kenaikan sehingga indeks plastisitas (PI) mengalami penurunan.

Kata Kunci: tanah gambut, indeks plastisitas, semen, stabilisasi.

ABSTRACT

Arta Romauli Hutasoit ID number 5173250005: Stabilization of Peat Soil in Humbang Hasundutan District Using Cement. Thesis. Faculty of Engineering – State University of Medan. 2022.

Peat soil is one type of soil that has poor bearing capacity and is not good for construction subgrade. To improve the bearing capacity of the poor soil, stabilization is carried out. Stabilization is carried out in this study by adding a mixing material, namely Portland cement, to the soil to be stabilized.

The purpose of this study was to determine the effect of adding cement to the value of the plasticity index (PI) of peat soil. In this study, a mixture of peat soil and cement (5%, 10%, 15% and 20%) of the dry weight of the soil was carried out. After mixing, the peat soil is cured for 14 days. After curing for 14 days, the liquid limit and plastic limit of the soil were tested in each mixture.

From the results of the study, it was found that the original soil sample had a moisture content of 96.243%; specific gravity 1,451; liquid limit 51, 188%; the plastic limit is 22.879% and the plasticity index (PI) is 28.309%. After mixing and curing for 14 days, the soil liquid limit was obtained at the addition of 5%, 10%, 15%, and 20%, namely 50.346%, 45.827%, 44.701% and 42.872%. And the plastic limits for the addition of 5%, 10%, 15%, and 20% are 227,386%, 29, 273%, 31, 371% and 35,371%.

After being stabilized with the addition of cement with variations of 5%, 10%, 15% and 20%, it was concluded that the liquid limit of the soil decreased and the plastic limit of the soil increased so that the plasticity index (PI) decreased.

Keywords: *peat soil, plasticity index, cement, stabilization.*