

Geotechnical Properties and Compressibility Behavior of Organic Dredged Soils

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Abstract : Sustainable development is one of the most important topics in today's world, and it is also an important research topic for geoenvironmental engineering. Dredging process is performed to expand the river and port channel, flood control and accessing harbors. Every year large amount of sediment are dredged for these purposes. Dredged marine soils can be reused as filling materials, road and foundation embankments, construction materials and wildlife habitat developments. In this study, geotechnical engineering properties and compressibility behavior of dredged soil obtained from the Izmir Bay were investigated. The samples with four different organic matter contents were obtained and particle size distributions, consistency limits, pH and specific gravity tests were performed. The consolidation tests were conducted to examine organic matter content (OMC) effects on compressibility behavior of dredged soil. This study has shown that the OMC has an important effect on the engineering properties of dredged soils. The liquid and plastic limits increased with increasing OMC. The lowest specific gravity belonged to sample which has the maximum OMC. The specific gravity values ranged between 2.76 and 2.52. The maximum void ratio difference belongs to sample with the highest OMC ($e_{11\%} = 0.38$). As the organic matter content of the samples increases, the change in the void ratio has also increased. The compression index increases with increasing OMC.

Keywords : compressibility, consolidation, geotechnical properties, organic matter content, dredged soil

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