

EFFECT OF ADDITION OF COARSE SAND PARTICLES ON ENGINEERING PROPERTIES OF CLAY SOIL

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ABSTRACT

Expansive clay soils are known all around the world to be problematic due to its swelling and shrinking problem when wet and dry respectively. The project studies the effect of the addition of coarse sand particles on engineering properties of clay soil. Atterberg limit test and sieve particle size analysis were conducted on the clay soil to classify the clay soil in accordance to AASHTO soil classification system. The clay soil sample was simply classified as A-7-5 and sand particle as A-3 based on results from Atterberg limit test. Sand particles were added to clay soil at 5%, 10%, 15%, 20%, 25% and 30%. The following tests were conducted on the clay soil sample; compaction tests, Atterberg test and California bearing ratio (CBR). Compaction test had the following value; OMC of 12.1% at 0% of sand particles additives fell to lowest of 7.52% at 30% of sand particle additive, MDD of 17.1kN/m³ at 0% and rose to 18.95kN/m³. California bearing ratio test also shown an increase in CBR value. The following were the value gotten from the CBR test; CBR value of 6.63% at 0% of sand particles additive increased to 30.71% at 30% of sand particles additive.

KEYWORDS: OMC, MDD, CBR & Atterberg Limit Test

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