

Stabilization of Clay Soil Using A-3 Soil

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Abstract : A clay soil which classified under A-7-6 soil according to AASHTO soil classification system and CH according to the unified soil classification system was stabilized using A-3 soil (AASHTO soil classification system). The clay soil was replaced with 0%, 10%, 20% to 100% A-3 soil, compacted at both the BSL and BSH compaction energy level and using unconfined compressive strength as evaluation criteria. The MDD of the compactions at both the BSL and BSH compaction energy levels showed increase in MDD from 0% A-3 soil replacement to 40% A-3 soil replacement after which the values reduced to 100% A-3 soil replacement. The trend of the OMC with varied A-3 soil replacement is similar to that of MDD but in a reversed order. The OMC reduced from 0% A-3 soil replacement to 40% A-3 soil replacement after which the values increased to 100% A-3 soil replacement. This trend was attributed to the observed reduction in the void ratio from 0% A-3 soil replacement to 40% A-3 soil replacement after which the void ratio increased to 100% A-3 soil replacement. The maximum UCS for clay at varied A-3 soil replacement increased from 272 and 770kN/m² for BSL and BSH compaction energy level at 0% A-3 soil replacement to 295 and 795kN/m² for BSL and BSH compaction energy level respectively at 10% A-3 soil replacement after which the values reduced to 22 and 60kN/m² for BSL and BSH compaction energy level respectively at 70% A-3 soil replacement. Beyond 70% A-3 soil replacement, the mixture cannot be moulded for UCS test.

Keywords : A-3 soil, clay minerals, pozzolanic action, stabilization

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