

Experimental Study on Stabilization of Black Cotton Soil using Plastic Waste and Coconut Shell

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Abstract: *Black cotton soils are known for their suitability in agriculture; however, they exhibit lower bearing capacity compared to other soil types, making them less ideal for constructing high-rise buildings and highways. These soils possess high swelling properties during the rainy season and experience significant shrinkage during the summer season. To address these challenges, soil stabilization techniques have been developed over the years to mitigate the swelling and shrinkage tendencies of black cotton soil. Stabilization methods involve the use of various materials such as waste material, Coconut shell & Plastic waste, fly ash, lime, cement, and admixtures, which enhance the physical characteristics of the soil, including increased bearing capacity and shear resistance. This paper presents a study focused on improving the stability of black cotton soil through soil stabilization using Coconut shell & Plastic waste only. Different proportions of Coconut shell & Plastic waste i.e., fusing Coconut shell & Plastic waste with Black cotton soil in 4%, 8%, 12% with the total soil the study involved laboratory tests to evaluate the strength properties of black cotton soil with varying compositions of Coconut shell & Plastic waste.*

Keywords: Black cotton soil (BCS), Stabilization, Coconut shell & Plastic waste, increasing stability, increasing Unconfined Compression Strength

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