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SAND: An Additive for Stabilization of Swelling Clay Soils

PDF (Size: 424KB) PP. 719-725 DOI : 10.4236/ijg.2012.34072

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ABSTRACT

An experimental program carried out in this study seeks to understand the physical mechanisms of stabilization of an expansive soil by adding an inert material (sand) at various forms; mixing and intercalation layers of sand. The first aim of the study is to analyze the effect of stabilization on the variation of soil consistency. The results show a marked improvement in soil consistency. Then a study of the effect of the additives on the variation of the swelling in order to solve the lifting structures caused by this phenomenon is carried out. It can be seen that the addition of sand is capable of reducing the swelling action. We complete the study using an ultrasonic device, measuring the propagation velocities of ultrasonic pulse through the tested clay samples. This shows a change occurring in the porosity of the clay when sand is added to it. As a result some interesting conclusions concerning the expansive soil-material amendment are drawn.

KEYWORDS

Clay Soils; Bentonite; Sand; Swell; Stabilization

Cite this paper

 B. Louafi and R. Bahar, "SAND: An Additive for Stabilization of Swelling Clay Soils," *International Journal of Geosciences*, Vol. 3 No. 4, 2012, pp. 719-725. doi: 10.4236/ijg.2012.34072.

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