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Utilization of quarry dust in geotechnical applications

N H Priyankara*, R M S D Wijesooriya, W R M B E Wickramasinghe and S T A J Yapa
Department of Civil and Environmental Engineering, Faculty of Engineering, University of Ruhuna, Hapugala, Galle

Quarry dust is a byproduct of rubble crusher units and commonly available material due to the vast usage of crusher metal in construction industry. This product can be used to improve engineering properties of poor quality soils, in order to develop a cost effective method for highway sub grade construction. As such, research reported in this paper illustrates the effect of usage of quarry dust as an admixture to improve the engineering properties of poor quality soils with combination of cement.

Poor quality soils which were rejected by the one of the main road construction projects in Sri Lanka were selected as the test samples. These poor quality soils were mixed in the laboratory with different percentages of quarry dust and 2% of cement on the weight and left to harden for a period of seven days. Further, shear strength behavior of soil-quarry dust mixes were reported in this paper.

The results of the subsequent tests revealed that addition of quarry dust alone to improve engineering characteristics of poor quality soil is not much effective. In order to further improve the engineering characteristics, 2% of cement was recommended to mixing with soil-quarry dust mixture. Therefore, problems associated in the construction of highways over clayey sub grade can be reduced significantly by mixing with quarry dust and cement.

*nadeej@cee.ruh.ac.lk Tel: 091-2245766 Ext: 270