Behaviour of Laterally Loaded Pile Group in Clay with Stabilized Pond Ash Compaction Pile

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ABSTRACT

The behavior of piles under lateral loads, analysis and forms which is an important aspect in the design of piles. The design of the laterally loaded pile is mainly governed by the property of the soil present at the proximity of the pile. Highly compressible clays are always prone to long-term settlement (Consolidation) and subsequent failures. Hence, such types of clay deposit are essentially to be stabilized before commencing any type of construction activities. An innovative solution adding pond ash, will be adopted to stabilize this problematic soil. Because, due to rapid industrialization energy generation is increasing day by day which leads to generation of pond ash as waste product is a big threat to our society and environment. Due to specific advantages, pond ash have been considered as a replacement to natural soils. The properties of pond ash is depends upon the coal used and may vary from one power plant to other power plant. Pond ash has potential to improve the engineering behaviour of soil. Silica content in Pond ash is very high. Such high content of silica is reason for the pozzolonic activity up to some extent. The attempts are taken place to understand the behavior of laterally loaded piles in a soil (Soft Clay) stabilized with pond ash compaction pile. The primary advantage of these pond ash compaction piles is that the usage is often considerably cheaper when compared to other similar ground improvement techniques. These piles do not have sufficiently high permeability to function as effective vertical drains during earthquakes. The reported work is mainly for the pile embedded in uniform clay layer subjected to lateral load. Experimental results showed that the lateral load capacity of pile increases with increase the spacing of compaction pile from the pile group.

Keywords: *lateral loads, compressible clays, pond ash, compaction piles, pile, lateral load carrying capacity.*