

Effect of fly ash on the strength values of air cured stabilized tropical peat with cement

ABSTRACT

This article describes laboratory research done on strength evaluations for stabilized samples made of tropical fibrous peat. The stabilizing agents used were ordinary Portland cement (OPC) as binding agent and fly ash as additive. Stabilized samples were tested for their strength through unconfined compressive strength (UCS) and California bearing ratio (CBR). Different dosage rates of OPC and fly ash were used in trial and error experiments for the most effective combination for stabilized peat samples that were at their natural moisture content. Strength tests used for the trial samples were UCS and they were air cured for 90 days. After detecting the most effective dosage rate in the trial samples, their values were used to prepare CBR samples at their optimum moisture content. CBR samples were then air cured from 1 to 90 days and tested under un-soaked and soaked conditions. The most effective dosage rate for the stabilized peat samples was found to be close to 50% for each. If less than (100 kg/m³) of ordinary Portland cement with the same amount (100 kg/m³) of fly ash are mixed with peat soil and compacted at their optimum moisture content, after 90 days of air curing the soft peat soil having a field CBR of less than unity, will have a CBR of 28 % for un-soaked and 15% for soaked conditions.

Keyword: Fibrous peat; Unconfined compressive strength; California bearing ratio; Air curing; Ordinary Portland cement; Fly ash