

Effect of Bamboo Chips in Cemented Sand Soil on Permeability and Mechanical Properties in Triaxial Compression

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Abstract : Cement utilization to improve the properties of soil is a well-known method applied in field. However, its addition in large quantity must be controlled. This study presents utilization of natural and environmental-friendly material mixed with small amount of cement content in soil improvement, i.e. bamboo chips. Absorbability, elongation, and flatness ratio of bamboo chips were examined to investigate and understand the influence of its characteristics in the mixture. Improvement of dilation behavior as a problem of loose and poorly graded sand soil is discussed. Bamboo chips are able to improve the permeability value that affects the dilation behavior of cemented sand soil. It is proved by the stress path as the result of triaxial compression test in the undrained condition. The effect of size and content variation of bamboo chips, as well as the curing time variation are presented and discussed.

Keywords : bamboo chips, permeability, mechanical properties, triaxial compression

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