

ON THE CLASSIFICATION OF BANGKOK CLAY DEPOSITS AND THEIR COMPRESSIBILITY

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Abstract

Even though there are many researches on the engineering behavior of Bangkok clay, it has been investigated mainly on the effect of the stress history in which the effect of cementation is not included. The attempt to reclassify the Bangkok clay and to analyze the consolidation characteristic based on the microstructural consideration is made in this paper. It is found that the soft to stiff Bangkok clays are meta-stable cemented clay and the very stiff Bangkok clay is overconsolidated cemented clay. The consolidation path of naturally cemented clay is governed by the cementation and the fabric. At the post yield state (Break-up of cementation), the void ratio of the cemented clays is higher than that of the remolded clay at the same effective vertical stress. It is the summation of the void ratio sustained by fabric, e_r , and the additional void ratio due to cementation bond, e_b . The additional void ratio reduces with the increase in effective vertical pressure until it becomes constant when effective vertical pressure is higher than transitional stress, σ'_r . This constant is designated as residual additional void ratio. It is found that the value is practically the same for soft to very stiff clay and equal to 0.2. From this finding, a method for assessment of consolidation paths for both naturally cemented and overconsolidated cemented clay is proposed and verified.

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