Thesis Title	Observation and Prediction of Settlement of The New Bangkok - Chonburi Highway Project , (section 2-A/2)
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Abstract

In this study, the consolidation deformation behavior of the new Bangkok - Chonburi Highway Project (section 2-A/2), which is improved by prefabricated vertical drains (PVD), is analyzed. Predictions of ground movement are compared with the measured data from the field observations. The back-calculated soil parameters from the field data and the laboratory test results, namely: Coefficient of consolidation (C_h) , undrained Young's modulus (E_u) , were investigated. The C_h values were overestimated by the method of Asaoka(1978) when the during-construction time-settlement curved was used. The C_h values should be back-calculated from the post-construction field data. The following correlation is found : $E_u = 133S_u$; where S_u is corrected undrained shear strength. Predicted values have been compared with field data in terms of settlement, lateral movement and excess pore water pressure. For construction settlements, the one-dimensional consolidation method (Terzaghi, 1943) , the Skempton & Bjerrum (1957) method and the finite element method (FEM) overpredicted the settlement of during-construction stage but give good agreement at post-construction stage. The Asaoka (1978) method shows good agreement. The FEM overpredicted the lateral movement at early stage of construction but underpredicted at the end of construction. It also underpredicted the excess pore water pressure of both during-construction and the end of construction stage. For the case analyzed, the PVD can improved the mass permeability(k) about 20 - 200 times higher than the original permeability, and the increase of Young's modulus (E_s) values in the fill material can reduced the lateral movement.

Keywords : Settlement / Lateral Movement / Excess Pore Water Pressure / Preloading / Vertical Drains.