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Procedia Environmental Sciences 12 (2012) 1055 – 1062

Procedia Environmental Sciences

2011 International Conference on Environmental Science and Engineering (ICESE 2011)

Settlement Characteristics of Pile Composite Foundation under Staged Loading

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Abstract

The settlement characteristics of pile composite foundation in soft soils were analyzed by staged loading tests. The results showed that the settlement of pile composite foundation, under different loads, comprised two stages: in the first stage, the pile composite foundation settled quickly. Ninety percent of the total settlement under a certain load occurred in this stage. The remaining 10% of the settlement finished slowly in the second stage. The relationship of settlement with time was fitted by an empirical formulation.

Keywords :Ppile composite foundation, staged loading, settlement characteristics

1. Introduction

Calculation and prediction of settlement of composite foundation are important issues for composite foundation design and research. The settlement of composite foundation is a compositive and complex process due to many factors [1-3]. The available calculation methods for the settlement of composite foundation are limited compared with that of bearing capacity of composite foundation,and the development of research on this lags behind the need of engineering practice[4].The settlement of composite foundation increases monotonically with time. The curve of settlement against time is normally in a “S” shape [5-7] derived analytical solutions for the deformation of the piles and the surrounding reinforced soils. A two dimension finite element method (FEM) was adopted to investigate the deformation of composite foundation under embankment [8].

*This work was supported by the National Natural Science Foundation of China, Project No.41002093, National Key Technologies R&D Program, Project No. 2008BAJ08B14-06, Shanghai Leading Academic Discipline Project, Project No.B308, the Program for Young Excellent Talents, Tongji University.

 doi:10.1016/j.proenv.2012.01.387