Ain Shams University
Faculty of Engineering
Department of Structural Engineering

Behavior of Large Diameter Piles

By

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B.Sc, Civil Engineering "public work" (2008)
Ain Shams University - Faculty of Engineering

THESIS

Submitted in partial fulfillment of the requirements for Degree of Master of Science in Civil Engineering Structural Engineering Department(Geotechnical Engineering)

Supervised By

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in
Civil Engineering (Structural)

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Abstract of the M.Sc. Thesis submitted by: **Ibrahim Mohamed Mahmoud**

Title of Thesis:

Behavior of large diameter piles

Supervisors:

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ABSTRACT

Piles are types of deep foundations that transfer some or all of the structural loads to deeper soils. The main objective of research is studying the behavior of single large diameter pile in different stratified soil conditions. The research is concerning the behavior of large diameter Piles and some of the factors affecting their behavior. The results of five pile load test for five locations in delta of Egypt are presented in this study. The results of five pile loads, numerical analysis using 2D finite element program (Plaxis program), and empirical equations using four cods are compared. A parametric study have been done to study the main parameters which effect on behavior of large pile and obtain the optimum dimensions of large pile using field and numerical analysis results.

Five compression load tests of pile have been performed. The length of these tested piles ranged between 15 and 34 meter and their diameter ranged between 0.8 and 1.08 meter. The soil profile in these sites consists of successive layers of clay and sand based from the results of five deep mechanical borings. Giza (i) site chosen for parametric study. The pile load-settlement, pile diameter-settlement, and pile length-settlement relationships for different piles are presented. The optimum length and diameter for large pile is obtained at settlement equal 10|% of pile diameter for ultimate load.

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STATEMENT

This dissertation is submitted to Ain Shams University for the degree of Master of Science in Structural Engineering.

The work included in this thesis has been carried out by the author in the Department of Structural Engineering, Ain Shams University, from 2009 to 2015.

No part of this thesis has been submitted for a degree or a qualification at any other university or institution.

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