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بسم الله الرحمن الرحيم

مركز الشبكات وتكنولوجيا المعلومات

قسم التوثيق الإلكتروني



Salwa Akl



جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

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Salwa Akl



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وبالرسالة صفحات لم ترد بالأصل



Minufiya University
Faculty of Engineering
Civil Engineering Department

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**ANALYSIS OF THE COMBINED BEHAVIOR
OF PILE GROUPS UNDER VERTICAL LOADING**

By

MOHAMED ABDEL HAMID MOSTAFA

B.Sc., M.Sc Civil Engineering.

*A Thesis submitted in partial fulfillment for the requirements of
the degree of*

PhD Degree in Engineering

(Structural Engineering)

In the field of Soil Mechanics and Foundations


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1999

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STATEMENT

This thesis is submitted to the Department of civil engineering faculty of engineering El Meniofia University for the award of Ph. D

Thesis title

***ANALYSIS OF THE COMBINED BEHAVIOR
OF PILE GROUPS UNDER VERTICAL LOADING***

The work in this thesis has been carried out by the author.

No part of this thesis has been submitted to any other university or institute for the award of a degree or qualifications

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ABSTRACT

The development during the last decades created a great demand for use pile foundations. One of the most important factors in the analysis of piles is the settlement of the pile groups. This thesis is concerned about the study of the settlement of piles groups. A numerical method has been proposed in order to analyses a pile group embedded in arbitrary soil formation with non-linear soil behavior and considering the installation effect. The proposed method has been compared to other rigorous solutions as well as filed loading tests and satisfactory results were obtained.

The proposed method has been used to develop an easy and practical approach, which is, called "Equivalent single pile approach". In this approach the pile group is converted to an equivalent single pile for case of concrete floating piles in uniform soil and end bearing piles. The equivalent single pile will have the same load-settlement behavior and the same total base load of the pile group. Series of design charts have been developed for determining the dimensions of the equivalent single pile. The factors affecting the load-settlement behavior of the pile group are presented and discussed herein.

The equivalent single pile approach has been used in order to study the interaction between different pile groups in an easy way. A parametric study has been carried out in order to evaluate the factors affecting the interaction between different groups.

Finally, based on the study and the analysis presented in the course of this thesis, a series of conclusions and recommendations was drawn regarding the settlement analysis and prediction of pile groups.

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