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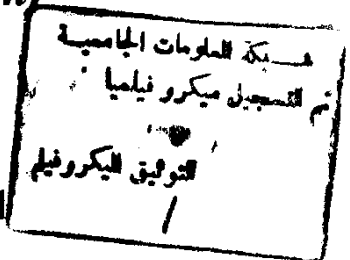
# Behavior of Sand Under Seismic Effect

*(Densification and liquefaction)*

By



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B. Sc. Civil Eng. - Hon. (1991)  
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A Thesis

53083



624.1513  
M. A

Submitted in Partial Fulfillment for  
the Requirements of the Degree of Master of Science  
in Civil Engineering

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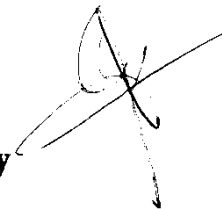
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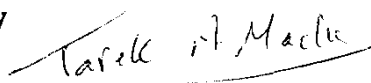
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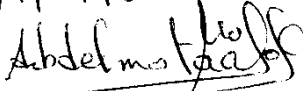
## **STATEMENT**

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

The work included in this thesis was carried out by the author in the Department of Structural Engineering, Ain Shams University, from January, 1993 to November, 1994.

No part of this thesis has been submitted for a degree of qualification at any University or Institution.

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Title of thesis :

**Behavior of Sand Under Seismic Effect  
(Densification and Liquefaction)**

Supervisors : 1) **Prof. Dr. Ing. Farouk Ibrahim El-Kadi.**

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Registration date : /01/1993

Examination date : /01/1995

## **ABSTRACT**

During the Earthquake of October 12, 1992, in Dahshour, near Cairo, Egypt, extensive damage to engineering structures occurred as a result of liquefaction and densification of the sandy soil on which they were supported. At El-Aiiat and the surrounding villages, liquefaction had taken place in a form of "sand fountains" and excessive settlement in a major highway.

In this search, laboratory test programme was prepared to perform the laboratory tests and the experimental studies concerning the behavior of sand under seismic effect (cyclic loading effect). A simple shear device and a shaking table were locally fabricated and used for this experimental study. Different parameters, such as relative density, base acceleration, frequency, percentage of fine, and shear strain amplitude, were changed to study its effect on both liquefaction and densification of three different soil samples. Conclusions and recommendations were listed at the end of this search.

## **ACKNOWLEDGEMENT**

The author wishes to express his deep gratitude and sincere appreciation to **Professor Dr. Ing. Farouk I. El-Kadi**, Professor of Soil Mechanics and Foundation, Faculty of Engineering, Ain Shams University, for his guidance, supervision and review of this work.

The author is also very grateful to **Professor Dr. Eng. Tarek A. Macky**, Professor of Soil Mechanics and Foundation, Faculty of Engineering, Ain Shams University, for his helpful and constructive suggestions, and for continuous encouragement he generously offered during this work. Also, he devoted much of his precious time and effort in order to achieve this work in a successful form.

The author is very thankful to the technicians of Soil Mechanics Laboratory, Faculty of Engineering, Ain Shams University, for their valuable help which have greatly contributed in presenting this work.

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