

DETERMINING THE IDEAL FILL  
MATERIAL  
TO BE USED IN SOIL COMPACTION

by

Panikos Michael

and

Andreas Michaelides

Project Report

Submitted to

the department of Civil Engineering

of the Higher Technical Institute

Nicosia Cyprus

in partial fulfillment of the requirements

for the diploma of

TECHNICIAN ENGINEER

in

CIVIL ENGINEERING

JUNE 1993

HIGHER TECHNICAL INSTITUTE	PROJECT NO 2097
----------------------------------	--------------------

## ACKNOWLEDGEMENT

We would like to give our great thanks to:

- Mr. Petro Kaula (Cybarco Co.)
- Mr. Kyriako Kyriakou (Cybarco Co.)
- Mr. Panteli Loukaide (J & P LTD)
- Mr. Hadjilouca (P.W.D, Nicosia)
- Mr. Kyriako Kyrrou (P.W.D, Nicosia)
- Mr. Michalaki Poulaide (Lecturer in H.T.I)
- Mr. Economides (Lecturer in H.T.I)

Their great assistance, quittance and their additional informations have help us to carry out this project.

We would also like to give our thanks to Mr. Argyris who have helped us in typing and binding this project.

## SUMMARY

The objectives of this project were to:

- (1) To determine the ideal fill material to be used in soil compaction.
- (2) To explain why compaction of soil is of importance.
- (3) To comment on the different methods of compaction of soils with special emphasis on Cyprus practices.

In order to carry out the objectives, experiments were carried out on different types of soil samples, determining the grading, optimum water content and the corresponding maximum dry density.

From the results it can be concluded that the ideal fill material to be used in soil compaction is described as well-graded material with some clay.

## CONTENT

Dedication	I-II
Acknowledgment	III
Summary	IV
Introduction	V

## CHAPTER

CHAPTER 1 - THEORY OF COMPACTION	1 - 9
CHAPTER 2 - SCHEMATIC REPRESENTATION OF CONSTITUENT PHASES OF A SOIL ELEMENT	10 - 14
CHAPTER 3 - AIR VOIDS LINES	15 - 18
CHAPTER 4 - COMPACTION OF SOILS IN THE FIELD	19 - 25
CHAPTER 5 - COMPACTION EQUIPMENT	26 - 36
CHAPTER 6 - OTHERS METHODS OF SITE COMPACTION	37 - 40
CHAPTER 7 - SOIL STABILISATION WITH ADMIXTURES	41 - 41
CHAPTER 8 - SPECIFICATION AND CONTROL OF COMPACTION AND MIX DESIGN	48 - 54
CHAPTER 10- EXPERIMENTS	55 - 65
CHAPTER 11- DISCUSSION	66 - 78
CHAPTER 12- COMPACTION IN CYPRUS	79 - 84
CHAPTER 13- CONCLUSIONS	85 - 88
EXPERIMENTAL RESULTS	85 - 88

APPENDIXES

REFERENCES