ULTIMATE LOAD CAPACITY OF
VERTICAL PLATE ANCHOR IN SAND

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A report Submitted to the School of Civil Engineering
in Partial Fulfilment of the Requirement for the award of the Degree of
Bachelor of Engineering (Honours)(Civil)

May 1997

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AKNOWLEDGEMENTS

The author gratefully acknowledges **Ir. Mohd Salleh bin Mohd Noh**, Dean of the School of Civil engineering, Institut Teknologi MARA for giving the opportunity to carry out the research described in this report.

The author is indebted to his supervisor **Dr. Ideris bin Zakaria**, Lecturer in the School of Civil Engineering, ITM for his continuing advice, guidance, supervision and interest shown without which the shown might not have been possible to its final stage.

Thanks are also due to Civil Engineering Department's lecturers, technicians and friends who involved directly or indirectly to complete this thesis.

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(April 1997)

SUMMARY

In Civil Engineering works, anchors are sometimes used to support uplift liad such as transmission tower footing, retaining wall, anchored sheet piles etc. The theories an anchor pullout - as well - document such as those due to Meyerhof, Adams, Balla etc. The theories are based on circular.

A study of the Ultimate Load Capacity of Vertical Plate Anchor in sand to find the relationship between the Breakout factor (Pu/γd) and ratio of Depth/Diameter (D/B). The experiments were totally done in the Laboratory of Civil Engineering Department, ITM.

To investigate the pullout load capacity of vertical anchors, two values of relative density of the sand were is 47.67% and 62%. The anchor were embedded in the medium dense homogeneous sand bed which was compacted to the desire relative density. The ratio of the depth/diameter of the anchors was varied from 1.0 to 11.0. The bulk unit weights of the sand bed where 14.42 kN/m^3 and 15.46 kN/m^3 respectively.

The pullout test on the anchors were performed under load control method in which a constant load 40, 60, 170 and other was added during 10 minutes. From the tests, the breakout factors was expressed in terms of Pu/γD and a relationship existed between D/B and Pu/γD for the range of D/B testes, the relationship was a curvilinear.

CHAPTER ONE

INTRODUCTION

1.1   Introduction

Anchor are primarily designed and constructed to resist tensile loads imposed on the foundation of a structure.

Buried anchors, are some of important Civil Engineering Structure. Buried anchors have been used for thousands of years to stabilise structures. Typical uses of anchors are found is as transmission tower and anchored bulkheads.

In this chapter various types of anchor and methods of installation will be discussed. The types of anchors and their installation will influence their ultimate holding capacity especially in regions where the soil conditions are unfavourable and they are susceptible to external disturbance.

Although several types of prefabricated earth anchor are commercially available they cause serious disturbance to the surrounding soil during installation.

Anchors may be used in single or in groups depending on the magnitude of the applied load, the ground conditions and the type of structure. The size of an anchor varies widely and anchors of a few to several hundred tons working capacity are in use.

Many structures cannot tolerate movements. For this reason the practice of preloading the individual anchor units to a load value of up to the theoretical design load is often adopted. Such anchors are prestressed while those which are not preloaded are known as dead anchors.