PREDICTION OF CONSOLIDATION FROM REDUCED CONSOLIDATION TESTING TIME

MOHD HANAFFI BIN AYOP
(Advanced Diploma in Civil Engineering)

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under the supervision of

(Mr. Muhammad Mahibul Alam)

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CONTENTS

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PREFACE

This experimental project describes the results of consolidation test carried out on two different nature of testing procedure, that is a 'reduced consolidation testing time' and 'normal consolidation testing time'. The correlation between the two said testing procedure is being determined. This is an attempt to make a study on possibility of reducing the normal consolidation testing time.

Properties of soil related to consolidation are being investigate and their relation to consolidation are being sought.The results of total consolidation using S.B TAN method, which is a simpler approch for determination of total consolidation are being discussed.

Apart from consolidation test alone, the investigations also made used of the seive analysis test, hydrometer test, specific gravity test, atterberg limit test and moiture content test.

The sample used for this project are of disturbed sample taken from various boreholes at Kota Bahru, Kelantan and of undisturbed sample taken at the compound of Sewage Plant, ITM.

CHAPTER 1

1.0 INTRODUCTION

The construction of any structures such as multi-storey buildings, bridges and dams require a thorough soil investigation prior to its construction. Soil investigation is hence necessary to be carried out in order for the Engineers to determine and designing appropriate and proper sub-structure. The degree of investigation required however depends on the importance of the building in term of money invested and its functionality.

The properties of the soil which chiefly required such investigation are those which govern its reaction to stress changes, therefore.

1. Strength of the soil (shear properties)
2. Consolidation properties

The investigation of shearing resistance (strength of soil) is mainly required for the analysis of stability whilst the study of consolidation is mainly importance to settlement problems.

Settlement is the most common reason for failure of foundations and it is therefore of great important to understand the mechanic of it. Soil are aggregrates of mineral particles that cover extensive portion of earth surface. When forces are applied to such soil masses it produces a relative displacements between the particles. Such behaviour will determine the consolidation incurred or the settlement that a given structure will experience. The amount and rate of such settlement will depends on the nature of soil underlying such structures. For example, settlements of structures built above soft clay may take place slowly but may reach to a large magnitudes.