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PLATE LOAD TEST FOR MULTILAYER SOIL SYSTEM

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SYNOPSIS

For shallow foundation design, the prediction of actual performance are normally done by several methods such as ;

Method 1 : Actual field load test.

Method 2 : Using static bearing capacity

Method 3 : Using plate load test (i.e. model foundation test)

In this study, plate load test were used to analyse and examine the performance of isolated footing test. Results obtained were examined in term of : the relationship between size of plate and settlement ; the prediction of bearing capacity ; and load settlement relationship. From the test results obtained, the settlement of the plate is between 2.08 to 2.50 times more than those computed theoretically for homogeneous soil (by Boussinesq's method) and 1.46 times more than those computed theoretically by Egorov's method for two-layered soil system. The percentage difference in the predicted ultimate bearing capacity between plate load test and those computed by static formula is 5.6 % for homogeneous soil and 8.0 % for two layered soil system.

Keywords : Plate Load Test ; Settlement ; Bearing Capacity.

Chapter 1 Introduction

Plate load test is the oldest method use to predict the in-situ strength behaviour of supporting soil. They were normally used for predicting the behaviour of isolated shallow foundations. In this research, plate load test were used to find the relationship between the size of various loadings plates and settlement produced.

1.1 Problem Statement :

The analysis of plate load test results generally follows the relationship between size of plate and settlement. Among them are Terzaghi's and Peck's (1948) recommendation that state :

" In the design of isolated footing, the maximum settlement, S = 1 in.(25 mm), the allowable soil pressure is equal to the load per unit area at which the settlement of the bearing plate in inches is

$$S_b = S_B [(B + b) / 2B]^2 \quad \text{----------} \quad \text{EQ 1.1}$$

where S_b = settlement of a test plate side dimension, b

S_B = settlement of a foundation of side dimension B

at a same intensity of loading. "