

**Final Year Project  
Advanced Diploma In Civil Engineering,  
School Of Engineering,  
MARA Institute of Technology.**

**A Model Study on  
Bearing Capacity and Settlement  
of Single Pile in Sand.**

**By:**

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## SYPNOSIS.

This model study on Bearing Capacity and settlement of single pile in sand was performed to check on the Ultimate Bearing Capacity and settlement as calculated by various theoretical methods against actual values obtained by loading tests.

In order to achieve a comprehensive assessment on both parameters, especially the settlement behaviour, the loading test was documented to produce a relationship between Total load vs. Head settlement and Base load vs Head settlement. This was obtained by introducing condition of "embedded pile" and "encased pile".

From this study, it was found that for Ultimate Bearing Capacity, the available theoretical methods predict with reasonable accuracy especially for Barasantsev's method. As for settlement, the agreement between calculated and measured head settlement are poor.

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SYPNOSIS.

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## 1.0 INTRODUCTION.

Piles are vertical or slightly incline structural foundation members, having relatively small cross-sectional dimensions with respect to their length. They are introduced into the soil and transmit the loads from the superstructure to the subsoil. The length, method of installation and way of acting of piles can' vary greatly, and thus they are easily adaptable to various conditions and requirements.

Two of the aspect of piles foundation which always concern foundation engineers are the Bearing Capacity and Settlement. A number of investigator such as Terzaghi, Meyerhof, Beresantsev etc have introduced method to analyse them .From their analysis they even suggested some emperical solutions for application to practical piling problems. Unfortunately, the validity of these formulae are rather limited. This is because a pile foundation , even a single pile, is statically indetermine to a very high degree. There are a number of parameters which are difficult, if not impossible, to evaluate in numerical terms, for instance, the complex phenomenan of load transfer from pile to soil