



Soil Improvement of Reclaimed Land and Weak Foundations by Vibroflotation

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1- Introduction

It was often noticed by engineers that a significant but unintentional improvement in the soil was obtained in loose cohesionless layers, when driving or vibrating casings during the construction of pile foundation. Consequently, compaction using vibratory probes with vibratory needles was introduced at first in Germany in the early 1930's [1]. With this deep compaction technique, one can reach very high and uniform relative densities ($D_r > 80\%$), unlike with the dynamic compaction or explosive technique. In marine projects which need to soil improvement of reclaimed land or for increasing the bearing capacity of gravity structure foundations such as blocky or caissons quay walls, in many cases, this compaction technique is the optimum or probably the exclusive practical method. In Fig. 1, improvement of the loose cohesionless layer under seabed by vibroflotation and from a shipboard is shown.

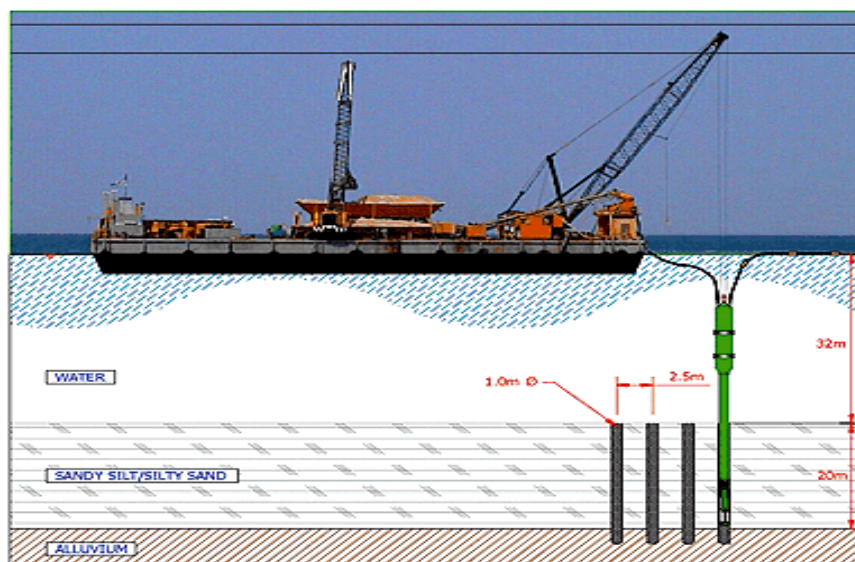


Fig. 1) Improvement of the loose cohesionless layer under seabed by vibroflotation

Compaction of granular soils by depth vibrators is known as Vibro Compaction. The method is also known as "Vibroflotation". Natural deposits as well as artificially reclaimed