

SUMMARY

SOIL-STRUCTURE INTERACTION IN SINGLE PILE-RAFT FOUNDATION

Combined pile raft foundation is applied for many types of structures. It is a solution, which has economic advantages, low cost of materials and low labor costs in comparison to other foundation types like shallow foundations and deep foundations (pile foundation).

Based on the literature research can be stated, that the mathematical description of the problem does not exist, which would consider the interdependence and interaction between slab, pile and soil and would base on the nonlinear behavior load-settlement.

The possibility of utilizing of the Meyer-Kowalow method has been verified for the description of the interaction between single combined pile raft foundation and soil with consideration of nonlinear settlement. For this purpose, many experimental test loads of this foundations have been carried out in the laboratory. The results have been used for verification of the mathematical model. Based on the results of the research a mathematical model for practical purposes has been proposed, which can be used for engineering calculations.

The conducted research has confirmed the thesis of this work:

- a) due to the pressure under the slab increases the skin friction of the single combined pile raft foundation in comparison to a pile foundation without a slab.
- b) the M-K method can be used (now used just for single piles) for description of interdependence between single combined pile raft foundation and soil.

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