



AMSTERDAM CONFERENCE

ABSTRACTS

A selection of 100 papers submitted were chosen for presentation at the conference. Here, EF publishes the abstracts of those selected to give a flavour of the conference programme.

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Dynamic analysis of follower driven piles for the Venice floodgate project

F Rausche, G Pezzetti, C Jannacci, A Klesney

Without doubt, driven piles are the most economical deep foundation element for a nearshore environment, providing for high bearing capacities and stiffness, quick installation times, assured quality by simple monitoring and inexpensive dynamic load testing during re-strike testing.

However, when the pile top elevation is several metres below the water surface, questions often arise as to the most reliable and economical pile installation method.

Frequently encountered, yet relatively expensive, solutions include driving inside a dewatered cofferdam, driving long piles that are later cut off below water surface, or using an underwater hammer.

Arguably, the most economical

solution is driving the piles with a follower or chaser. However, many foundation engineers shy away from this solution because of the uncertainty associated with the transfer of energy through the interface between follower and pile, the associated potential driveability problems and maybe the limited fatigue life of the follower.

This paper will demonstrate how the driveability of a hammer-follower-pile-soil system should be analysed before installation and how to model the pile-follower interface both for steel and concrete piles. As an example, results will be presented which were obtained for both

steel pipe piles and precast concrete piles, driven by a single-acting diesel hammer through a steel follower for a pre-construction test pile program in Venice, Italy.

While analysis of the steel pile follower system was straightforward, for the concrete piles, the presence of a soft cushion material whose material properties changed continuously posed some difficulty.

Pile driving analyser measurements and CAPWAP analysis yielded not only realistic stresses and transferred energy values in the pile, but also reasonable model parameters for further use in a pure wave equation analysis.

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