

SEISMIC DESIGN OF FOUNDATIONS IN DIFFICULT SOIL CONDITIONS: EXAMPLES OF SOLUTIONS

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ABSTRACT

The development of large civil engineering projects in active seismic areas often faced the challenge of designing foundations that must sustain large seismic forces while preserving the functionality of the superstructure. The natural solution for such foundations seems to lie in the adoption of piles. However, end bearing piles are not always feasible and piled foundations are also subject to adverse effects which may not make them so attractive. Recent projects have shown that alternative, often innovative solutions, may lie in a combination of solutions coupling at least two of the following elements: shallow foundation, soil improvement, caissons, piles, etc... The lecture details the pros and cons of the “classical” foundation solutions and illustrate on actual projects how combination of solutions may advantageously get rid of adverse effects while still providing a safe design and preserving constructability of the foundations.