Editorial

M Isabel M Pinto PhD

Assistant Professor, CEMUC, Department of Civil Engineering, University of Coimbra, Coimbra, Portugal

This last issue for 2015 comprises five very interesting papers on important topics on ground improvement techniques. Although they are all about vertical inclusion of elements installed in situ, readers will find that the theme of this November issue is much broader because the different authors worked on different construction techniques, different functions and, therefore, different behaviour aspects are focused herein. After a study on non-conventional installation patterns for prefabricated vertical drains, a very interesting literature review, a comprehensive analysis of a large experimental database on granular columns, a novel numerical way to simulate the rammed piers construction, this issue ends with a design procedure based on probabilistic analysis for dry deep mixing columns. Due to all this, readers will find that the time spent on this issue of *Ground Improvement* was worthwhile.

In a briefing paper, Rujikiatkamjorn and Indraratna (2015) evaluate the effectiveness of two non-conventional installation patterns for prefabricated vertical drains by using analytical solutions. The new patterns are the parallel drain wall and circular ring and the effectiveness was examined by a comparison of the rate of consolidation and the equivalent drain spacing with the conventional square pattern.

The first full paper by Han (2015) presents a literature review on ground columns technology. The author describes the different functions, types of columns and associated different construction techniques. Failure is always an important issue and the different possible modes and load transfer mechanisms are presented. Design is also addressed for the different columns functions, namely for increasing bearing capacity, reducing settlements, accelerating consolidation and enhancing stability.

The second paper by Najjar and Skeini (2015) is a study of a soft clay reinforced with granular inclusions regarding the response of the rating of loading and drainage conditions. The study was based on a compilation of 114 tests reported in literature, some of which undrained, some partially drained and the majority drained. The authors performed an analysis on the effect of confining pressure, the area replacement ratio and the friction characteristics of the granular column on the load carrying capacity improvement. The effect of the ratio of the column height to diameter was also verified during the study.

The third paper by Sasar *et al.* (2015) deals with rammed aggregate piers and their load-displacement characteristics when construction is simulated as a fully dynamic process. The cavity gradual expansion in successive lifts was simulated by a numer-

ical model in opposition to the traditional process that considers a sudden expansion of the cavity as a single step. A parametric study allowed the authors to propose a simple design methodology for preliminary design and that is based on the limit equilibrium approach commonly used for determining the load-bearing capacity of shallow foundations.

In the fourth paper, Larsson and Bergman (2015) are concerned with probabilistic analysis applied to dry deep mixing columns. The idea is to allow the acceptance criteria update to account better for unpredictability during construction and that design must be validated during construction. The authors present a procedure that provides a simple way of using probabilistic analysis, which can be used for ultimate limit state as well as serviceability limit state, and it is based on a combination of design calculations and observational method. An example is given to demonstrate the proposed design procedure.

Hopefully these studies make this issue one of the most interesting issues of *Ground Improvement* and it will be the starting point or a useful tool for further developments. Comments and discussion towards the clarifying important aspects are strongly encouraged and welcomed.

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