Editorial

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It is a pleasure to welcome our readers to the June issue of *Geotechnical Engineering*. This issue includes seven full papers covering a range of geotechnical engineering topics and structures, comprising embankment dams, tunnels, landslides, piles and ground improvement. The approaches used are also varied, including analysis of existing databases, analytical solutions, design methods, laboratory tests and full-scale tests.

The first contribution of the issue deals with embankment dams, particularly the criteria for filter design. Tabatabaie Shourijeh *et al.* (2018) analyse a database on soils with more than 35% fines content and look for correlations between a range of selected properties of the soils and results from no-erosion filter tests. They revisit existing filter criteria and propose adjusting them for soils with more than 35% of fines.

Do *et al.* (2018) introduce a simplified approach to a method for the analysis of segmental tunnel linings. They present a simplified approach to the hyperstatic reaction method in which the influence of segmental joints is represented by a reduction in the transversal section. For a case study on the Bologna–Florence railway line project, Do *et al.* (2018) compare the original and the simplified versions of their method to a three-dimensional numerical analysis to illustrate how the simplified approach estimates the response of the segmental lining effectively.

The third contribution looks at the characterisation of soil profiles with several thin layers. Van der Linden *et al.* (2018) perform cone penetration tests on small scale models and analysed the data using existing analytical methods. They conclude that there is a variety of parameters influencing the cone resistance of deposits formed by several thin soil layers, related to the layers (their resistance and thickness relatively to the cone diameter) and to the volume of soil affected by the cone (namely the number of layers within it).

Helle *et al.* (2018) analyse how salt-treatment of highly sensitive leached marine clays influence their geotechnical properties. A quick clay in Trondheim, Norway, was treated using

wells filled with potassium chloride. The salt treatment influences the pore water chemistry and changes the clay response, which is no longer considered quick. Helle *et al.* (2018) report improvements in geotechnical properties that are sufficient to inhibit the development of retrogressive landslides, and they estimate that the treated clays will maintain the non-quick behaviour in the future, even at low salt contents.

The two following papers are on the theme of piled foundations. Kou *et al.* (2018) report a load test on an open-ended pile jacked into clay. They analyse the soil plugging and identify two different conditions: during jacking the pile is partially plugged, while during the static load test the prestressed high-strength concrete pile is fully plugged. The estimates of both the shaft and the base pile capacity using methods from the literature are higher than those measured in the load tests. Ren *et al.* (2018) use a load-transfer model to represent the non-linear response of piles with extended cross-section when combined with jet-grouting. Equations of force equilibrium and displacement compatibility are implemented, including three models to represent the interactions between the different materials (soil–cement, pile and natural soil). The approach is validated using two load tests from the literature, followed by a parametric study. From the results, they recommend a pile lay-out and propose an equation to estimate its capacity.

The use of grouting is also covered in the last paper, which reports on the tunnelling solution used to build an underpass at Victoria station in London, UK. The surrounding structures and assets, together with the geotechnical conditions, created a set of challenging conditions. Packer *et al.* (2018) describe the construction sequence that allowed stabilisation of the water-bearing sands and gravels of river terrace deposits using permeation grouting. They report different aspects of the project, which used an observational approach to monitor ground movements in real-time, and include discussions of the design of the grouting systems based on soil characterisation, the permeation grouting and the grout selection to promote permeation without uncontrolled fracturing.

This issue of *Geotechnical Engineering* does include an interesting mix of material. Thus, we hope you find the papers useful and interesting and we welcome comments on the papers published.

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