Editorial

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On behalf the Editorial Board, I welcome you to this month's issue of *Geotechnical Engineering*. Before we consider what papers this issue offers us, we bid a fond farewell to Trevor Orr, who has now stepped down as Chair and Honorary Editor of *Geotechnical Engineering*. Paul Vardanega, University of Bristol, UK, is now our new Chair and Honorary Editor, and we wish Paul a very successful tenure at the helm of a journal central to the sharing of information for the geotechnical engineering industry.

We begin this April 2018 issue of *Geotechnical Engineering* with two briefing notes. The first one by Zhang *et al.* (2018) suggests a new method to consider slope stability, the parallel–local strength reduction method, based on the concept of local strength reduction. Finite-element analyses and the yielding approach index undertaken support the proposed new method.

In the second briefing note, Pugh (2018) considers field measurements from stone-column groups installed in very soft clays, and concludes that theoretical methods may be inappropriate for predicting settlement reduction. A practical upper bound settlement reduction/stone replacement relationship is proposed for design purposes, and Pugh suggests that stone columns are unlikely to be effective in soils for which creep is the major component of settlement.

In the first of the six papers, Zamanian and Jafarzadeh (2018) consider the results of over fifty undrained cyclic torsional shear tests conducted on two uniformly graded sands, to investigate the effects of stress anisotropy on the cyclic resistance of sand. They find that for dense specimens, the direction of the major principal stress has no significant influence on the cyclic resistance, unlike testing carried out on loose anisotropically consolidated specimens. The authors further suggest that depending on the in situ loading conditions, the use of a constant cyclic resistance to represent the strength of an anisotropic soil may result in an unsafe design or analysis.

Rui and Yin (2018) then present a coupled hydro-mechanical finite-element model developed to interpret pressuremeter test

data, considering non-linear elasticity, tensile fracturing and consolidation of soil. The results of their modelling indicate that tensile fracturing is important in clays, with a possible overestimation of the stiffness and strength if the tensile failure is not considered. Furthermore, the authors suggest that consolidation needs to be considered for a certain range of material permeabilities.

Nguyen and Chung (2018) discuss the applicability of the ball penetration test (BPT) for identifying soil layering and evaluating several key geotechnical properties. In situ testing was undertaken at four Korean and Japanese clay sites, comprising BPT and piezocone tests, correlated with field and laboratory test results. The authors conclude that the BPT can be viably extended to identify soil layers and for geotechnical characterisation, to evaluate the preconsolidation stress, undrained shear strength and maximum shear modulus.

The next two papers consider aspects of statistical analysis in geotechnical engineering design. Firstly, De Koker and Day (2018) report on reliability analyses performed for a set of benchmark geotechnical design problems consisting of footings, piles and retaining walls, designed to the Eurocode limit states design method. Reliability index values derived using Monte Carlo calculations and from the first-order reliability method illustrate the robustness of the limit-state design approach implemented in Eurocode 7 (BSI, 2004) and highlight the importance of choosing reasonably conservative characteristic parameter values.

In the next paper, Wen *et al.* (2018) investigate the behaviour of concrete cut-off walls using statistical analysis applied to a set of monitoring records and construction details from over forty case histories of in-service concrete cut-off walls constructed in the past fifty years. Horizontal displacement, crest settlement, cracking behaviour and wall stresses are studied. The authors attempt to quantify major factors affecting the wall behaviour, including wall material, foundation deformation characteristics, wall depth and wall location. The paper provides useful insights into concrete cut-off wall behaviour

and valuable reference material for wall design and construction.

The final paper by Panchal and McNamara (2018) presents the results of a study to review guidance provided by the Federation of Piling Specialists (FPS) (FPS, 2010) in relation to the extraction of temporary casing installed during the construction of rotary bored piles. Five centrifuge tests were conducted to record loads as casings of various diameter, embedment and depth of overburden were extracted. The authors conclude that the FPS method over-predicts the pull-out force and indicate that various geotechnical parameters are not actually constant. The paper proposes a new method of predicting extraction forces, closely matching centrifuge tests undertaken.

Please remember that the most recent papers are published Ahead of Print on the ICE Virtual Library homepage, should you wish to have quicker access to new content.

Finally, allow me to remind you that we are only a few months away from the two-day Chalk conference organised in September 2018 at the Imperial College (London, UK) by the British Geotechnical Association with support from the Engineering Group of the Geological Society. This promises to be an exciting international event, and *Geotechnical Engineering* is pleased to be collaborating with this conference by producing a themed issue on Engineering in Chalk, to complement the Chalk 2018 conference.

We hope you will enjoy this month's issue of *Geotechnical Engineering*.

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