Editorial

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On behalf the Editorial Board, I welcome you to the October issue of *Geotechnical Engineering*. In this issue, you will find six quite diverse but very interesting papers, followed by four Discussions. Do bear in mind that if you wish quicker access to new content, the journal publishes its most recent articles Ahead of Print on its Virtual Library homepage.

The first two papers assess certain geotechnical properties of two soils. Firstly, Georgiannou *et al.* (2017) present the findings of their investigations into the geotechnical properties of a natural crushed and ground zeolite used as a compacted soil liner in geoenvironmental applications. Testing undertaken suggested that the material behaved as a granular material. Additional testing was performed on samples of quartz sands of similar mean diameter and varying gradations and grain shape, which showed comparable results for zeolite and sand of similar gradation and grain shape. For a possible use of the zeolite as an engineering fill material, particle crushing was not observed to be significant for stress levels typical of common earthworks construction, and increasing the moisture content of the material had no noticeable impact on its shear strength.

Al-Mahbashi and Elkady (2017) then report on their work to predict the unsaturated shear strength of two locally expansive clays available in Saudi Arabia over a wide suction range. Semi-empirical or micromechanical prediction models were considered, with soil water characteristic curves and effective shear strength parameters as inputs. Predicted unsaturated shear strength functions were compared with experimental data obtained from unconfined compression strength testing on samples with varying moisture content. The comparison showed significant discrepancy, particularly at elevated suction values, which was attributed to desiccation cracks appearing during drying.

The next two papers describe experimental work undertaken to model geotechnical structures. In Gao *et al.* (2017), an analytical solution is proposed for limiting earth pressure on pre-stressed anchor-shotcrete retaining structures. The authors' work included centrifuge testing to investigate the feasibility of the proposed analytical solution, and a verification using centrifuge testing reported by others. Test results indicated

satisfactory agreement with the analytical solution and suggested that pre-stress has little influence on the pre-stress angle of diffusion.

Dynamic analysis work for an offshore wind turbine supported on a monopile is reported by Abhinav and Saha (2017). The analysis work was performed by modelling various soil conditions (a medium-dense sand, a stiff clay and a layered profile) using a non-linear ground-to-spring model, and considered operational and extreme wind and wave conditions. Results indicate that the dynamic response mainly depends on the stiffness of the soil and the authors reiterate the need for detailed site-specific geotechnical investigations before designing such foundations.

The last two papers report on field testing of geotechnical works. Sun *et al.* (2017) studied the use of vacuum preloading combined with short prefabricated vertical drains to form a working platform on a site reclaimed using soft dredged marine clay in Tianjin, China. The drains were connected using three methods and installed with different spacing. Ground surface settlement, pore water pressures, water content and the undrained shear strength of the clay soil were measured during vacuum preloading. The test results indicated that short drains connected using embedded vacuum pipes and installed at close spacing were the most suitable method to form a working platform on the surface of the dredged marine clay reclamation. The method is deemed to yield substantial cost and time savings compared with conventional vacuum preloading, whilst exhibiting similar efficiency.

Pre-tensioned, spun, high-strength concrete (PHC) piles are the most common piles in South Korea. However, it is considered to be a relatively inefficient pile type, and Kim *et al.* (2017) present work done in connection with the extended end pile, a new composite pile type combining a PHC pile with a larger diameter steel base plate. Field testing reported by the authors demonstrated that the estimated bearing capacity of the extended end pile is approximately one-third to one-half better than that of the PHC pile, thereby having beneficial project cost and programme impacts on foundation works.

Finally, we are now less than one year away from the British Geotechnical Association's two-day International Engineering in Chalk conference (also known as Chalk 2018 (BGA, 2017)), taking place in September 2018 at Imperial College, London, UK, organised with support from the Engineering Group of the Geological Society. We are very pleased to be collaborating with the conference organising committee, and *Geotechnical Engineering* is planning to publish a themed issue on Engineering in Chalk towards the end of 2018 to complement the Chalk 2018 conference.

We hope you will enjoy this issue of *Geotechnical Engineering*, and I wish you happy reading on behalf of the Editorial Board.

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