Editorial

Carlos Lam DPhil, CEng, MICE, MHKIE

Geotechnical Engineer, Geotechnical Engineering Office, Civil Engineering and Development Department, The Government of the Hong Kong Special Administrative Region, Hong Kong

Welcome to the August issue of *Geotechnical Engineering*. In this issue, there are six standard papers, a Discussion with the authors' response and a Book review, all covering different aspects of geotechnical engineering. As this journal is aimed at industry practitioners as much as academics, I am pleased to see that practitioners are well represented in this issue, and that some of the papers are co-authored by geotechnical engineers from both industry and universities. Papers published in this journal all have a strong practical relevance, and it is this characteristic that makes this journal particularly popular with practitioners. I hope this feature will continue in the future.

There are two standard papers and a Discussion contribution that deal with the engineering properties of soft soils and the performance of structures built on them. The Discussion (Yang *et al.*, 2017) is based on a previous paper by Yang *et al.* (2015) that describes the design and construction challenges faced when building drainage structures on deep soft ground along a new access road to Brisbane Airport in Australia. In this Discussion contribution, the discussor Litwinowicz provides a different view on the performance of the constructed facilities in terms of their post-construction settlement behaviour. The original authors' reply can be found after the discussor's comments. Readers who have an interest in the construction of road embankments and drainage structures on soft ground may also want to read the original article by Yang *et al.* (2015) for a complete story of this interesting case history.

The first paper by Venda Oliveira *et al.* (2017) discusses the effect of organic matter on the effectiveness of preloading soft ground. To this end, oedometer tests were carried out by the authors on specimens with different organic matter contents. The results show that an increase in organic matter content leads to an increase in the void ratio, compressibility indices and creep deformations, but a decrease in the coefficient of consolidation. The results also indicate that preloading is more effective in the case of a higher loading level when the organic matter content is high. The findings presented in this paper will find applications in the design of embankments or foundations on soft soil with high organic matter content.

Again on the engineering behaviour of soft soil, the paper by Correia *et al.* (2017) deals with the effects of binder type and

quantity on the strength of soft soil treated with such materials. This topic is important because chemically treated soil can still have poor tensile and flexural strengths and can fail in a brittle manner. The authors' results show that both strength and stiffness of the treated soil increase with binder quantity, and that the addition of steel fibres changes the brittleness of the mixture though the actual effect also depends on the loading condition. The results presented in this paper will be useful for cases where additional flexural strength of the treated soil is required, such as when deep cement-mixed columns are subject to horizontal loading.

Underground pipelines such as water mains and sewers are commonly installed by the pipe-jacking method in many urban cities. To investigate the factors affecting the jacking loads, the paper by Cheng *et al.* (2017) presents the field monitoring results collected during the slurry pipe-jacking works at four drives in Taipei County, Taiwan. From the results, the authors conclude that there are four main factors affecting the jacking loads, including *i*) overcut annulus and volume of injected lubricant, *ii*) work stoppages, *iii*) geology and *iv*) misalignment. This case history should become a useful reference for future pipe-jacking projects both within and outside Taiwan.

Rock-socketed bored piles are commonly constructed to support heavy superstructures when the rock-head level is not too deep from the ground surface. The paper by Raja Shoib *et al.* (2017) presents the results of static axial load tests conducted on seven bored piles founded in decomposed granite at Kuala Lumpur, Malaysia. From the results, the authors conclude that the correlation equation proposed by Hovath and Kenny (1979) can be used to provide a good prediction of the shaft resistance of piles in decomposed granite. The authors also mention that their finding is in good agreement with the recommendation given in GEO Publication No. 1/2006 (GEO, 2006), which is published by the Hong Kong's Geotechnical Engineering Office for which this author works. This suggests that the findings presented in this paper are also applicable to other countries where granite with similar engineering properties can be found.

There are two papers in this issue that are related to chalk, which is an important geological and engineering material in many countries. The paper by Ciavaglia *et al.* (2017) presents the results of monotonic and one-way cyclic lateral load tests

conducted on open-ended steel piles driven into chalk, with the aim of producing design methodologies for offshore wind farm developments. Among other interesting findings, the authors concluded that the lateral pile response is not influenced by the chalk's set-up effect. This indicates that the stiffness of the remoulded chalk around the pile wall does not have a significant influence on the overall lateral behaviour of the pile. The different response of 'short' and 'long' piles in chalk is also discussed in this paper.

Again on the topic of chalk, the focus of the paper by Preene and Roberts (2017) is on construction dewatering in this material. This practice-oriented paper includes data on 49 case histories, from the literature and the authors' experience, of construction dewatering in chalk. This paper also presents guidance on dewatering methods to be used in different grades of chalk, forming an update of previous guidance provided by the same authors in 1990 (Roberts and Preene, 1990). Recommendations are also given for appropriate ground investigation techniques relevant to construction dewatering, including well pumping tests and dewatering trials. In my opinion, this paper is sure to become a must-read reference for those involved in dewatering in chalk. Talking of chalk, I would also like to remind our readers that the British Geotechnical Association will be hosting a major international conference on 'Engineering in Chalk' in London in September 2018. To provide a platform for researchers and industry practitioners to publish their findings in fuller detail, *Geotechnical Engineering* also intends to publish a special issue on the same theme near the end of 2018 and we are already accepting submissions of full papers for this issue at the time of this Editorial.

The issue also includes a review by Lacasse (2017) of the book *Risk and Reliability in Geotechnical Engineering*, edited by Phoon and Ching (2015). In her review, Lacasse opines that the profession needs to adopt reliability approaches in order to move forward and to provide improved solutions for society. Lacasse also appraises this book as a 'must-read' not only for those interested in risk and reliability in geotechnical engineering but also for the geotechnical practitioners. Readers who are interested in risk and reliability methods and their applications in geotechnical engineering are encouraged to read Lacasse's review in full.

A recent correspondence between Dr Trevor Orr (Chairman of the Editorial Advisory Panel) and myself reveals that we both sometimes have difficulty in finding the time required to write technical research papers due to family and work reasons. I am sure we are not alone in this. For those of you who are in a similar situation, please be reminded that in addition to standard papers and Discussion contributions, *Geotechnical Engineering* also publishes Briefing articles that are shorter in length and can be used to provide authoritative updates of technical developments or simple short case histories. If you

are interested in making a contribution to the development of geotechnical engineering, please consider writing for us. Author instructions can be found at the end of each paper and on our website: www.geotechnicaljournal.com.

I hope you enjoy reading this issue of *Geotechnical Engineering*.

REFERENCES

- Cheng WC, Ni JC, Shen JSL and Huang HW (2017) Investigation into factors affecting jacking force: a case study. *Proceedings of the Institution of Civil Engineers – Geotechnical Engineering* **170**(4): 322–334, <http://dx.doi.org/10.1680/jgeen.16.00117>.
- Ciavaglia F, Carey J and Diambra A (2017) Monotonic and cyclic lateral tests on driven piles in Chalk. *Proceedings of the Institution of Civil Engineers – Geotechnical Engineering* **170**(4): 353–366, <http://dx.doi.org/10.1680/jgeen.16.00113>.
- Correia AAS, Venda Oliveira PJ, Teles JMNPC and Pedro AMG (2017) Strength of a stabilised soil reinforced with steel fibres. *Proceedings of the Institution of Civil Engineers – Geotechnical Engineering* **170**(4): 312–321, <http://dx.doi.org/10.1680/jgeen.16.00200>.
- GEO (Geotechnical Engineering Office) (2006) *Foundation Design and Construction*. GEO Publication No. 1/2006, GEO, Civil Engineering and Development Department, the Government of the Hong Kong Special Administrative Region, Hong Kong.
- Hovath RG and Kenny TC (1979) Shaft resistance of rock socketed drilled piers. In *Proceedings of a Symposium on Deep Foundations, Atlanta, GA, USA* (Fuller FM (ed.)). American Society of Civil Engineers (ASCE), New York, NY, USA, pp. 182–214.
- Lacasse S (2017) Book review. *Proceedings of the Institution of Civil Engineers – Geotechnical Engineering* **170**(4): 391, <http://dx.doi.org/10.1680/jgeen.17.00080>.
- Phoon KK and Ching J (2015) *Risk and Reliability in Geotechnical Engineering*. CRC Press, Boca Raton, FL, USA.
- Preene M and Roberts TOL (2017) Construction dewatering in Chalk. *Proceedings of the Institution of Civil Engineers – Geotechnical Engineering* **170**(4): 367–390, <http://dx.doi.org/10.1680/jgeen.16.00142>.
- Raja Shoib RSNS, Rashid ASA and Armaghani DJ (2017) Shaft resistance of bored piles socketed in Malaysian granite. *Proceedings of the Institution of Civil Engineers – Geotechnical Engineering* **170**(4): 335–352, <http://dx.doi.org/10.1680/jgeen.15.00186>.
- Roberts TOL and Preene M (1990) Case studies of construction dewatering in Chalk. In *Chalk: Proceedings of the International Chalk Symposium, Brighton, UK* (Burland JB, Mortimore RN, Roberts LD, Jones DL and Corbett BO (eds)). Thomas Telford, London, UK, pp. 571–575.
- Venda Oliveira PJ, Vieira AFV and Correia AAS (2017) Effect of organic matter in soft soils on the effectiveness of preloading for foundations. *Proceedings of the Institution of Civil Engineers – Geotechnical Engineering* **170**(4): 305–311, <http://dx.doi.org/10.1680/jgeen.16.00082>.
- Yang D, Ameratunga J, Dunstan J and Shipway I (2015) Innovative design for drainage structure on deep soft ground. *Proceedings of the Institution of Civil Engineers – Geotechnical Engineering* **168**(6): 483–497, <http://dx.doi.org/10.1680/jgeen.14.00115>.
- Yang D, Ameratunga J, Dunstan J, Shipway I and Litwinowicz A (2017) Discussion: Innovative design for drainage structure on deep soft ground. *Proceedings of the Institution of Civil Engineers – Geotechnical Engineering* **170**(4): 301–304, <http://dx.doi.org/10.1680/jgeen.17.00003>.