Cite this article
Massarsch KR (2018)
Editorial.
Proceedings of the Institution of Civil Engineers – Geotechnical Engineering **171(5)**: 377–378,
https://doi.org/10.1680/jgeen.2018.171.5.377

Geotechnical Engineering

ice publishing

Editorial

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It is my great pleasure to introduce this issue of *Geotechnical Engineering*. It contains seven interesting papers covering a wide range of geotechnical engineering topics, with contributions from around the globe. However, it is not surprising that most of the papers reflect a clear trend in geotechnical engineering: the importance of geotechnical engineering in the design, construction and maintenance of the transportation infrastructure.

Before briefly introducing the papers, it may be appropriate to reflect on the large efforts required before publication of the papers. The papers are based on advanced theoretical studies (probabilistic concepts, numerical methods), extensive field and laboratory investigations and monitoring of construction projects. Preparing a manuscript, often in a foreign language, requires from many authors a major effort. However, the process does not stop with the submission of manuscripts! ICE Publishing applies a rigorous review process on several levels, which requires the dedicated work of experts in the respective fields. The effort and valuable contributions by the reviewers and the diligent work by the competent staff in the publishing department cannot be overestimated. The papers published in this issue are presented in alphabetical order by name of the first author.

The pull-out behaviour of vertical plate anchors in granular soil was studied by Choudhary *et al*. (2018) using carefully monitored and observed laboratory tests. The failure mechanism is described in an interesting model test. An empirical design model is proposed based on the regression analysis of the experimental data, which provides valuable design guidance.

Faustin *et al*. (2018) present 27 well-documented case studies of circular shaft construction in London, UK. Two categories of shaft construction were identified; support before excavation and excavation before support. Interpretation of the field observations showed the importance of the shaft construction method on ground movements. The field observations also confirm that ground movements are influenced by the size of the shaft. Field observations give a good indication of the magnitude of settlement that can be expected during circular shaft construction. Normalised charts are presented to help the industry make estimates of settlements due to circular shaft construction in London.

The deformation behaviour of subgrade on peaty soils under long-term cyclic traffic loadings has been studied by Gao *et al*. (2018) using a series of monotonic triaxial and long-term cyclic triaxial tests. A relationship between the peak axial strain and the excess pore water pressure is expressed by a unified exponentially decreasing function with different stress levels. Based on the experimental data, two empirical formulas were established to predict the long-term permanent strain and characterise the relationship between the peak axial strain and the peak excess pore water pressure. However, the actual stress conditions in a pavement incorporating peat are considerably more complicated and the empirical equations presented in this study should be used only as an initial guidance for design of pavements incorporating peat.

Khorasani *et al*. (2018) investigated the performance of an earth pressure balance tunnel-boring machine during tunnel construction. A probabilistic systems approach was utilised to interpret the interactions between pairs of parameters that influence its operations in soft ground. A comprehensive probabilistic analysis demonstrates the significant importance of some factors, such as the presence of mixed face conditions, soil type and water inflow, and the reduced importance of others. The results have been compared with real utilisation factor values from a project in Tehran, Iran, showing an excellent agreement between estimations and observations.

A detailed laboratory study was carried out by Sinha *et al*. (2018) to evaluate the physical, chemical and geotechnical characteristics of a waste material generated by the zinc industry (jarofix) to assess its applicability for embankment construction. Geotechnical parameters obtained from extensive laboratory studies were compared with those of other suitable embankment materials. The authors conclude that jarofix can be utilised as an alternative embankment material for sustainable road construction.

TolouKian *et al*. (2018) report a study on the effect of sand contamination on ballast shear strength, which is of particular importance in desert areas with frequent sand storms. Extensive laboratory tests on clean sand and sand-contaminated ballasts were conducted, using large-scale direct shear tests. The results show the negative effect of sand contamination on the shear strength and angle of effective shearing resistance of the ballast. The findings can help to

improve the maintenance approach by more accurate planning of ballast cleaning and renewal.

The consolidation behaviour of fine-grained soils using a relatively simple siphon drainage concept is described by Wu *et al.* (2018). Laboratory physical modelling tests were conducted to study and compare the consolidation behaviour with and without siphon drainage. The study suggests that the time required to stabilise the settlement rate can be reduced by 25% in the test with siphon drainage. The authors claim that this novel technique can improve the efficiency of consolidating and draining soft soil significantly, making it useful in practical applications.

I trust that this issue will be of interest to a wide readership as it contains novel and practically applicable concepts that may be of value, especially for practising geotechnical engineers.

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