Editorial

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Welcome to the October issue of *Geotechnical Engineering*. Before we introduce the papers we would like to bring you up to date on journal news and current opportunities for authors and readers of *Geotechnical Engineering* (GE).

As you will be aware the journal publishes an annual themed issue (most recently: Geotechnical Challenges for Renewable Energy Developments, Volume 166, GE2, April 2013). We would like to make readers and potential authors aware of the call for papers for the 2014 themed issue: Construction Processes and Installation Effects. Construction processes are an area of continual innovation but few of these innovations are described in the literature. Construction processes and installation effects are also highly relevant to the making of sensible geotechnical predictions, with new methods for explicit modelling of these effects being continually developed. Often though engineers still rely on empirical correlations to avoid explicitly modelling stress history and stress path dependence. However, empirical methods will only take us so far, and explicit physical or numerical modelling of construction processes or installation effects can give us new insights and inform engineering decisions. The issue is designed to capture papers on relevant topics of diaphragm wall installation; helical, driven and bored pile installation; sheet pile installation; piled walls; pipe jacking and microtunnelling; conventional and mechanised tunnelling; shaft construction; dynamic penetrating anchors; drag anchors and other anchorages; and temporary works schemes for ground support. Engineering practitioners and researchers engaged in any of these general topics are invited to submit abstracts for consideration by 22 November 2013 with completed papers, which will be subject to the usual refereeing procedures, by 31 March 2014. Relevant papers outside the main themes outlined above will also be considered. Please see the flyer included with this issue or the journal web page for more detail of the call themes.

There are many ways the readership of GE can contribute to its continuing success for example through the submission of high-quality papers and discussions of the published papers. To make a more active contribution there are also regular opportunities for new panel members. For instance, we are currently looking for members to begin duties in the New Year. We are particularly interested in receiving short CVs (four pages maximum) from the

UK, Northern Europe, the USA and China. To maintain a balanced panel membership of practitioners and academics we are looking for new members predominantly from the contracting and consulting sectors (senior level and above) although all CVs submitted will be considered. If you are interested please send a short CV to Ben Ramster (ben.ramster@icepublishing.com).

In compiling this editorial, we were delighted to see a wide range of papers, applicable to both the practitioner and researcher alike. The papers are of a truly international nature with a total of six full papers presented with topics ranging from soil sampling and testing to the design of tapered piles, in addition to an excellent briefing note and an interesting discussion paper. The briefing note, by Atkinson (2013), discusses how designers might choose a variety of soil parameters in accordance with the requirements of Eurocode 7. The note considers how strength and stiffness depends on the sample quality, preparation and indeed the test itself, something that is often overlooked. It also reiterates the difficulty of obtaining the high quality samples required to comply strictly with Eurocode 7. The note contains some interesting points that are of immediate practical use as the application of Eurocode 7 continues to increase at pace in the UK and across Europe. This paper continues the recent Eurocode 7 theme in GE started by the prize winning review paper by Orr (2012) and discussion by Markham *et al.* (2012).

The first three papers tentatively follow the theme of the briefing note and cover a broad range of issues related to soil characteristics, strength and quality. The first paper, by Consoli *et al.* (2013), presents a study that assesses the strength controlling parameters of a sandy soil treated with industrial by-product and lime, considering a variety of material types and mix ratios. The authors present distinct relationships between unconfined compressive strength, porosity and by-products for a range of mix ratios. While the paper is research based it is easy to see how the findings could be applied in practice when considering a soil stabilisation solution for a sandy soil. The important re-use of industrial by-products can only be encouraged by this paper.

The second paper, by Ebrahimi and Edil (2013), is based on the use of a light-weight deflectometer (LWD) to assess the compaction quality of pavement base course layers. A large-scale

laboratory model and two LWD devices were used to develop a procedure for validating design input parameters in the field. A relationship is presented between the corrected elastic deflection measured by the LWD and the resilience modulus of the base course material, providing a clear basis for the use of such easy to use and portable equipment in estimating as-constructed base course quality for both natural and recycled material.

A third paper, by Briggs *et al.* (2013), demonstrates the influence of extreme wet winter weather on pore water pressures within clay fill railway embankments in temperate climates. The paper uses both field measurements and numerical modelling in the investigation, with access to considerable piezometer data from London Underground. A correlation between the maximum pore water pressure and the permeability of the embankment foundation soil was found and is presented, with numerical modelling used to support the findings. The ability to compare such extensive field data with a numerical model is rare and this paper provides a good insight into the main factors affecting embankment and cutting stability.

Prediction of ground movements in London Clay is the subject of the fourth paper. Jurečič *et al.* (2013) emphasise the necessity of accounting for small-strain behaviour of soils in numerical models, particularly when considering the serviceability limit states of geotechnical structures. Although this is well understood both nationally and internationally, this paper considers recent laboratory research into the behaviour of London Clay in conjunction with field data from the ground works at Heathrow Airport Terminal 5. Interestingly, the paper shows the small-strain response of such clays to be different to that assumed previously and in particular to that typically determined from commercial testing. The finite element analysis carried out considers data for a completed section of the Jubilee Line extension at St James's Park and a deep excavation for a section of the Crossrail Project to be constructed, both in London.

Paper five, by Hosseinzadeh *et al.* (2013), provides a case study of the Karun III concrete arch dam, concentrating on the mechanisms of the foundation rock behaviour. The dam has a height of 205 m and is currently the second largest in Iran. The work includes an effective stress numerical analysis of the dam foundation rock, considering normal water levels, importantly with the results compared to and calibrated against the actual data recorded by field instrumentation. Readers interested in dam should also refer to the previous themed issue Geotechnical Engineering for Embankment Dams, Volume 165, GE3, June 2012.

The subject of tapered piles features in the final paper. Paik *et al.* (2013) describe the results of a number of laboratory tests on tapered and cylindrical piles. The work includes a useful comparison with full-scale field tests. There have been few recent studies on the behaviour of tapered piles and they are not used widely in practice. Interestingly this paper presents a new design

method for estimating the bearing capacity of tapered piles in sandy soils that takes account of both soil state and taper angle and may encourage the consideration of such piles.

This issue concludes with a discussion (Vinod *et al.*, 2013b) on the remoulded shear strength at plastic and semi-solid states. The contributors discuss the paper by Vinod *et al.* (2013a) and comment on the use and appropriateness of shear vanes to assess the strength of brittle materials.

ICE Publishing has asked us to make you aware of some of the changes regarding access to research output that have occurred recently in the UK. Hopefully UK authors are aware that from the 1 April 2013 all papers published which are wholly or partly funded by RCUK (Research Councils UK) will be required to make their final project outputs (e.g. peer-reviewed papers) available somewhere on the web for free. RCUK's recommendation is that authors pay a fee (article publication charge) to make their paper free on a journal publisher's website ('Gold' Open Access). Alternatively, they will accept a second option which is that it is placed in a nominated repository (often hosted by a university) without a fee being paid ('Green' Open Access). GE offers both of these access options and full details can be found on our webpage (www.geotechnicaljournal.com). As we are an international journal we would urge authors to check the requirements of their home funding bodies.

For up to date information on GE including a preview of latest content and Ahead Of Print (AOP) papers please visit www.geotechnicaljournal.com

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