Editorial

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This special issue of *Ground Improvement* contains eight selected papers covering various themes, including Ground improvement for railroad infrastructure, soft soil consolidation and ground improvement methods including chemical stabilisation, vacuum preloading and rigid inclusions. The first five papers were initially presented at the Third International Conference on Ground Improvement and Ground Control (3rd ICGI) held in Hangzhou, China, in October 2017, and they have been extended to the desired journal standard upon rigorous peer-review prior to acceptance and publication herein. A short summary of each paper is given below.

Sun *et al.* (2019) demonstrate the use of recycled rubber tyres with infill material as an alternative to conventional capping (sub-ballast layer) for rail tracks. Plate load tests have been performed and validated using an appropriate finite element model. The results show that a capping layer reinforced with rubber tyres can substantially reduce the level of stress transmitted to the subgrade and further enhance the damping properties of the track substructure.

The study by Quan *et al.* (2019) investigates the effect of temperature on soft soil consolidation. The laboratory results show that the change in temperature can affect soil compressibility and permeability. These effects have been incorporated in the classical consolidation equation for a more rigorous analysis and data interpretation.

Gargano *et al.* (2019) have developed a numerical model to simulate the coupled mechanical and electro-osmotic consolidation process of soft clayey soils capturing both large strain and small strain conditions. The model has been validated using the laboratory data obtained from a unique oedometer device. Their analysis shows that at very low stress levels with recognisable soil non-linearity, large strain theory is required to obtain better accuracy of prediction.

The paper by Ding *et al.* (2019) analyses the vibration response of soft clay. A model test with vacuum preloading has been performed to study the vibration propagation in soft soil considering the effects of frequency, foundation stiffness and embankments dimensions.

Hu *et al.* (2019) present a study using centrifuge model tests. They show that water depth, vacuum application system and

sealing method play very important roles on the efficiency of the vacuum consolidation. It is indicated that a larger overburden pressure by the water on the top of membrane can provide further reduction in pore water pressure in the improved zone. The stress path at the boundary is observed to be between k_0 and isotropic consolidation lines.

Consolidation tests on double porosity clay samples consisting of clay slurry and lumps have been conducted by Juneja and Chafale (2019). Based on these test results, a constitutive model with structured clay framework has been formulated to model the behaviour of double porosity fill. They show that two additional parameters are required to capture the lump properties and inter-lump voids.

Next, Chompoorat *et al.* (2019) reuse the sediment dredged from lake mixed with portland cement as a road subbase. They show that the mixture with 10% cement can provide sufficient strength and durability as required by the Thailand Department of Highways Standards. The treatment can also prevent the heavy metal leachate from the stabilised soil.

An experimental program using plate load tests has been carried out by Phanikumar *et al.* (2019) to study the effects of density and gradation of granular media in stone columns installed in a soft marine clay. The authors have found that the ultimate load carrying capacity of the composite ground can be significantly increased when the aggregates are densely compacted.

The aforementioned eight papers have been rigorously peer-reviewed to meet the high technical standards of the Journal. The time and efforts of the Reviewers as well as the cooperation of Gene Seabolt and Cherise Lopes-Baker of the ICE Publishing editorial team are kindly acknowledged. The Guest Editors also wish to extend their sincere appreciation to the Chief Editor of *Ground Improvement*, Distinguished Professor Buddhima Indraratna, for providing the opportunity and his guidance during the preparation of this special issue.

We earnestly anticipate that the set of references encompassed in this special issue will benefit researchers and practitioners alike, and anyone who is interested in the latest research advances and technological developments in the ever-evolving field of ground improvement.

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