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Geotechnical Teaching Resources

New Teaching Laboratory Established - SILTS - *Soil Interaction Learning & Teaching Suite*

Geotechnical Engineering embraces the topic of soil/rock mechanics and it plays a pivotal role in supporting all engineering infrastructure development that underpins society. The practical nature of this discipline requires that students are not only well versed with the necessary theoretic understanding of soil behaviour; but also that they have a wider appreciation of the performance of geotechnical structures in practice. For this reason laboratory practical classes form an integral component in successfully delivering a holistic learning experience to undergraduate students as it enables them to challenge their theoretical understanding and develop a greater appreciation of the fundamentals of geotechnical design. To enhance educational capabilities, the Geotechnical Engineering Group established the vision for a bespoke state-of-the-art facility 'SILTS – Soil Interaction Learning & Teaching Suite' that would provide an interface to bridge the gap between geotechnical theory and design practice.

This project was made possible by funding provided by the University of Sheffield Alumni Fund (£8600) and Department of Civil & Structural Engineering (£1800) which enabled the transformation of an old laboratory into the new SILTS workroom. SILTS is well resourced with the latest test facilities in physical modelling that capitalise on recent advances in geotechnical research, data acquisition systems and instrumentation that provides feedback data from model test performance to conduct design assessment and computer facilities for complementary numerical design analysis. These facilities enable a range of geotechnical problems to be evaluated such as shallow foundations, pile platforms, slope stability and retaining walls, all of which are core components of the undergraduate curriculum. SILTS is also used as a dedicated facility where students undertake research as part of their undergraduate dissertation projects and thus has established itself as a central learning hub for students in Geotechnical Engineering. By embracing pro-active pedagogic learning and teaching strategy SILTS has delivered a distinctive educational experience that challenges and inspires students to achieve their greatest potential.

The success of SILTS was highlighted by the project leader Dr Jonathan Black, '*SILTS provides our students with the opportunity to observe and understand how geotechnical structures behave by enabling them to undertake a range of small scale physical model tests that simulate real life structures. This is a very powerful learning tool as it strengthens understanding of theory taught in lectures but also instils a holistic inquiry and problem based learning approach to geotechnical design. SILTS has made a positive contribution in enhancing our capabilities to deliver a first class*

learning experience in geotechnical engineering and is contributing to produce graduate engineers that are fully equipped to meet future engineering challenges that we as a society will face in the coming years. We would like to acknowledge the support provided by the University of Sheffield Alumni Fund in establishing SILTS and thank them for this positive contribution to our student learning experience.'

