

Book review

In situ testing in geomechanics: the main tests. F. Schnaid. London: Taylor & Francis, 2008. 329 pp. ISBN 978 0 415 43385 3. £80.

As stated by the author, 'this book is intended to be viewed as a working reference by engineers in the civil engineering, geological, geotechnical and environmental fields'. Apart from an introductory section, and a chapter containing guidelines for design parameters, it contains chapters on the Standard Penetration Test (SPT), cone penetration test (CPT), the in-situ vane test, pressuremeter testing, and flat dilatometer (DMT) testing. As the reader will judge from the text below, I found this a very readable and useful book, and would strongly recommend it.

The review of SPT testing is timely; it is almost 15 years since the writer's CIRIA report on the SPT was published. The chapter gives a good review of the issues, and the author adds important information obtained from his own research, and from Brazilian ground conditions. However, here and elsewhere, the important effect of soil grain size on penetration test results was not emphasised sufficiently in the reviewer's opinion. Those of us that work in regions with coarse-grained soils need to be reminded that large-diameter dynamic penetrometers are needed if we are to be able to use empirical methods of design, and we need to be advised as to what to do when using the CPT.

Chapter 3 is headed 'Piezocone penetration test (CPTU)'. Although the chapter does briefly discuss the traditional mechanical (non-piezo) cone, it does not recognise the variability in equipment and test method that can exist in

different countries. It does not take the approach in the first chapter of asking what actually affects the results of CPT testing, and whether all these factors are well controlled. For example, in the reviewer's experience cone resistance is strongly influenced by particle size in granular soils, and in some ground it is not always easy to retain a saturated tip and thus obtain pore pressure measurements. The book is very good in reviewing the various (more or less sophisticated) methods of interpreting the test results in terms of soil parameters, but surprisingly places relatively little emphasis on its superb profiling capability, or on its potential for determining static pore pressure profiles. In addition, there is only a small section, referencing work elsewhere, on environmental cones.

Chapter 5, on the pressuremeter test, is particularly interesting, since this test was the subject of some of the author's early research. The contrast between the different types of pressuremeter is well described, and the different methods of analysis are carefully set out. But the less-well-informed reader might have benefited from some words on the selection of the appropriate type of pressuremeter to use under different geotechnical conditions, and for different purposes, and a section on what can go wrong with this type of test. The chapters on the vane test and on the DMT are useful, and appear comprehensive. Finally, the book concludes with information intended to allow the user to deduce the values of geotechnical parameters that might be expected, from experience, in different ground conditions. For the beginner, this information will be invaluable.

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