

Book review

Fundamentals of soil mechanics for sedimentary and residual soils. L. D. Wesley. Chichester: Wiley, 2010, 431pp. ISBN 978-0-470-37626-3. £90-00

It is obvious from its title that this book differs from any others on the fundamentals of soil mechanics, in that it examines these fundamentals in terms of both sedimentary and residual soils. As far as the reviewer is aware, this is the first textbook to do so. While emphasising the key differences between sedimentary and residual soils, and in particular their formation and stress history, the book demonstrates that the key concepts of effective stress and failure criteria apply equally to both.

The book deals with concepts and principles rather than methods. Its content is drawn from Dr Wesley's teaching in New Zealand, Indonesia and Chile, and distils his vast experience in the analysis and design for construction in residual soils. The content is very nicely presented, with very clear text and figures. Many of the chapters finish with exercises, illustrating that one of the book's targets is students. However, the book will be of great value to

practising geotechnical engineers, particularly those who deal with residual soils.

The coverage is wide ranging, involving 16 chapters in 431 pages, and the progression through the chapters is logical. The early chapters deal with soil formation and composition, basic definitions and phase relationships, soil classification, and stresses and pore pressures in the ground. Then follow the principle of effective stress, permeability and seepage, consolidation and settlement, and the shear strength of soils. The final chapters deal with applications: bearing capacity and foundation design, earth pressure and retaining walls, stability of slopes, and soil compaction. Although there is a chapter on special soil types, there are no separate chapters on residual soils; instead, material on residual soils is included throughout the book, demonstrating that the special characteristics of these soils can be incorporated into conventional soil mechanics teaching.

The book provides a valuable partner for Dr Wesley's second book, entitled *Geotechnical engineering in residual soils*, which has been published this year.

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