Book reviews

Environmental Assessment of Steel Piling.

The Steel Construction Institute, Publication No. SCI-P-199,
Steel Construction Institute, 1999. ISBN 1 85942 088 5, 43 pp.

This publication outlines the environmental issues concerning piling and sub-structures and the potential advantages that steel sub-structures offer. It looks in particular at retaining structures and bearing piles, and focuses mainly on the construction and demolition stages of a sub-structure's life. By identifying environmental impacts in the whole life costing of sub-structures, from manufacture and construction through to demolition and re-cycling significant benefits can be achieved in terms of both costs and environmental sustainability.

The report describes in clear text with plenty of illustrations the environmental issues to be considered when evaluating sub-structures using *Life cycle assessment* techniques. This is a very useful guide identifying environmental issues and will provide decision makers, particularly those involved in asset management of existing highway and rail sub-structures, with information which identifies opportunities for environmental improvements together with cost benefits.

Driver behaviour and fired soil nails.

M. W. Pickett, G. J. Harris, S. Burton and S. M. Gray. TRL Report 432. Transport Research Laboratory, 2000. ISSN 0 968 4107, 23 pp.

This report describes research undertaken on the noise produced by the firing of soil nails into highway embankments and the safety implications to road users. The main risk to road users is the startle reaction from the firing action that propels the nail into embankments as a means of stabilizing them. The results of the experimental study, which involved simulated drive and field trials on human subjects. In summary, the results of the study have shown that noise levels from the nail firing operation were well in excess of the limits specified by the Health and Safety Executive. At these levels it is expected that motorists would be affected to an extent which would compromise safety. The use of machine silencers are advocated to reduce noise levels where soil nailing techniques using fired nails are to be used near highways.

Reservoir stimulation.

M. J. Economides and K. N. Nolte. Third edition, John Wiley & Sons Ltd, 2000. ISBN 0 471 49192 6, 592 pp.

This very comprehensive work is the third edition of the

original book published some 13 years ago on enhancement technology for the recovery of petroleum and related products from deep wells. It covers the fields of hydraulic fracturing, well acidising and chemical treatment. Although essentially written for scientists and engineers in the petroleum industry the book contains a wealth of data on fluid dynamics through porous media. The book is well written with clear and relevant figures.

G. B. CARD

Faulting in brittle rocks: an introduction to the mechanics of tectonic faults.

G. Mandl. Springer-Verlag, Berlin, 2000. ISBN 3540 66436 X, 434 pp.

Faulting in brittle rocks is a textbook based on a postgraduate-level course at the Technical University at Graz, in Austria. The book sets out to consider the mechanical processes that lead to tectonic faulting, rather than taking a geometrical approach to describe and catalogue the structures formed. Its title should certainly be added to the 'must buy' list of libraries of universities that offer advanced research courses in rock mechanics or engineering geology, and of individuals embarking on research in the field.

A particular attribute of the book is that, unusually for a textbook, it is willing to discuss and question established orthodoxies—an approach which a good postgraduate student should begin to develop. Densely written and functional rather than aesthetic, it is not a book that can be dipped into lightly by someone seeking a ready answer to a question about the formation of tectonic faults. In its explanation of concepts, it demands full attention from the reader but in return offers a thorough and effective introduction to its subject.

V. HOPE

Drainage of earthwork slopes: a review

D. M. Farrar and K. C. Brady. Transport Research Laboratory. TRL Report 454, 2000.

This report reviews the information and advice available on the drainage of earthworks, identifies the limitations of current knowledge and provides recommendations on how these might be addressed. In view of the inclement weather experience by the UK in the autumn of 2000 and the problems experienced by many infrastructure owners I think that the publication of this document will prove to be well timed.

A. M. RIDLEY

Unsaturated soils for Asia, proceedings of the Asian conference on unsaturated soils

H. Rehardjo, D. G. Toll and E. C. Leong (eds). A. A. Balkema, 2000. ISBN 9 058091392, £63. 872 pp.

Conference proceedings of the first conference on unsaturated soils that was specifically aimed at the Asian continent. Presented in 10 sections including keynote lectures, fundamentals, numerical modelling, suction measurement, soil-water characteristics, permeability, flow, strength, volume and engineering applications. The conference theme of 'From theory to practice' was chosen on the basis that the theoretical frameworks, equipment and measuring techniques used with unsaturated soils are now readily available. This is reinforced by the proceedings, which also demonstrate that interest in this subject is still very high from all parts of the world.

A. M. RIDLEY

BS 5930: 1999 code of practice for site investigations

British Standards Institution

This is the updated standard that supercedes the 1981 version. Many of the changes are cosmetic or organisational and give the standard a better feel. However there have been significant expansions of the sections on geophysics and description/classification of soils and rocks. There is also a new appendix on site investigation for contaminated land. Notable omissions from the earlier version are the often-useful standard data sheets for various tests and a section on safety issues.

A. M. RIDLEY

Model specification for tunnelling

British Tunnelling Society. Thomas Telford Publishing, 1997. ISBN 0 7277 2588 2, 140 pp.

The *Model specification for tunnelling* was originally produced by the British Tunnelling Society in conjunction with the Ground Board of the Institution of Civil Engineers. It was written to establish a common standard for the design and construction of tunnels in the United Kingdom and in other areas where no such specification existed.

The first edition of the specification drew heavily on the experience of both corporate and individual members of the Society. This new edition has taken into account the comments, criticisms and suggestions of the specification users as far as possible within the contractual framework for which it was designed. Although the title has changed to bring it into line with other ICE specialist specifications, it is intended to remain as a model specification, to be adapted and modified to suit a particular project.

With so many cross-references to other standards, the maintenance of such a document is a real challenge. Some aspects appear to have been fairly briefly covered, such as compensation grouting and monitoring, for example, and I would expect to see further definition in a specification. Nevertheless, it provides an invaluable checklist for the specification of tunnelling and contains many useful items of reference and guidance.

D. BEADMAN