Appendix F

Summaries for Geoguide 4: Guide to Cavern Engineering

Table F1 - Summary of Current British Standard References and Replacement Eurocodes

BS Status	Relevant Updated Code for Citation	ID No.	Page no.	Existing Content of Technical Guidance Document	General Comments to define Scope of Updating / Specific Clauses in EN (s) / UK NA(s)	Scope of Updating
Technical Clauses in Report						
BS 1377-3:1990 Methods of test for soils for civil engineering purposes - Chemical and electro-chemical tests						
Current	Geospec3	GEO4:1377-1	34	Insitu weathered rocks and their associated soils in Hong Kong are generally not chemically aggressive (GCO, 1987), and the same applies to the groundwater derived from these materials. Nevertheless, routine tests should be carried out on soil and groundwater for sulphate content and pH-value in accordance with BS 1377: Part 3: 1990, Methods 5 and 9 (BSI, 1990). Other chemicals that have caused problems elsewhere are sulphuric acid produced by alum shales upon exposure, and sulphates that react with Ordinary Portland Cement. Where salt water is present, it can cause severe corrosion of construction steel including concrete reinforcement. Sulphur minerals can react detrimentally with oil products. Appropriate tests should be carried out for these and any other special cases.	BS 1377:1990 Part 3 is still current. BS EN 1997-2:2007, Clause 5.6 (sub-cl. 5.6.5 refers) and Annex N contain details for chemical testing of soil UK NA to BS EN 1997-2 notes that Annex N may not be used, except for pH testing. However, as per the National Foreword to BS EN 1997-2:2007, laboratory testing in the UK will continue to be undertaken using the relevant BS 1377 tests. Current practice in Hong Kong is to specify this testing in accordance with Geospec 3 (GEO, 2001)	4a
Reference Section of Report						
Current	Geospec3	GEO4:1377-2	92	BSI (1990). *Methods of Testing Soils for Civil Engineering Purposes (BS 1377: 1990)* . British Standards Institution, London, 9 parts.	As above BS 1377:1990 Part 3 is still current but this testing should be carried out in accordance with Geospec 3 (GEO, 2001).	4a

Table F2 - Extracts of Relevant Sections or Clauses of the British Standards and Eurocodes / National Annexes

Relevant Updated Code for Citation	ID No.	Page no.	Scope of Updating	Extracts of Relevant Sections or Clauses of the British Standard(s)	Extracts of Relevant Sections or Clauses of the Eurocode(s) / UK National Annex(es)
Technical Clauses in Report					
BS 1377-3:1990 Methods of test for soils for civil engineering purposes - Chemical and electro-chemical tests					
Geospec3	GEO4:1377-1	34	4a	BS 1377:1990 Scope 3	Geospec 3, clause 9 tests.

Table F3 - Description of Standards, Differences and Recommended Amendments

ID No.	Page no.	Scope of Updating	Description of Design, Specification and/or Testing Required		Effects of differences in Adopting Eurocode(s) / UK National Annex(es)	Recommended Amendments
			British Standard(s)	Eurocode(s) / UK National Annex(es)		
Technical Clauses in Report						
BS 1377-3:1990 Methods of test for soils for civil engineering purposes - Chemical and electro-chemical tests						
GEO4:1377-1	34	4a	Description of method of test.	Description of method of test.	No change	Revise reference to Geospec 3.
Reference Section of Report						
GEO4:1377-2	92	4a	--	--	Although the reference document remains current, it has been superseded in Hong Kong	Change reference document to Geospec 3.

Table F4 - Recommended Revisions to Existing Clauses referring to British Standards

Page no.	BS Referenced in Technical Guidance Document	Scope of Updating (1)	ID No.	Existing Content of Technical Guidance Document	Recommended Content for Updated Technical Guidance Document
34	BS 1377: 1990	4a	GEO4:1377-1	Insitu weathered rocks and their associated soils in Hong Kong are generally not chemically aggressive (GCO, 1987), and the same applies to the groundwater derived from these materials. Nevertheless, routine tests should be carried out on soil and groundwater for sulphate content and pH-value in accordance with BS 1377: Part 3: 1990, Methods 5 and 9 (BSI, 1990). Other chemicals that have caused problems elsewhere are sulphuric acid produced by alum shales upon exposure, and sulphates that react with Ordinary Portland Cement. Where salt water is present, it can cause severe corrosion of construction steel including concrete reinforcement. Sulphur minerals can react detrimentally with oil products. Appropriate tests should be carried out for these and any other special cases.	Insitu weathered rocks and their associated soils in Hong Kong are generally not chemically aggressive (GCO, 1987), and the same applies to the groundwater derived from these materials. Nevertheless, routine tests should be carried out on soil and groundwater for sulphate content and pH-value in accordance with Geospec 3, Clause 9 (GEO, 2001). Other chemicals that have caused problems elsewhere are sulphuric acid produced by alum shales upon exposure, and sulphates that react with Ordinary Portland Cement. Where salt water is present, it can cause severe corrosion of construction steel including concrete reinforcement. Sulphur minerals can react detrimentally with oil products. Appropriate tests should be carried out for these and any other special cases.
92	BS 1377: 1990	4a	GEO4:1377-2	BSI (1990). Methods of Test for Soils for Civil Engineering Purposes (BS 1377: 1990). British Standards Institution, London, 9 parts.	GEO (2001) Model Specification for Soil Testing (Geospec 3). Geotechnical Engineering Office, Hong Kong, 340 p.