Appendix Q

Summaries for Geospec 1:
Model Specification for Prestressed Ground Anchors

Table Q1 - 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 12:1978 - Specification of Ordinary and Rapid-hardening Portland Cement. (Including amendment AMD 4259, 1983).						
Superseded, Withdrawn	BS EN 197-1:2011	Geospec1:12-2	21	Cements used for grouting anchors shall comply with BS 12 : 1978.	1978; Normative; Geospec1:12-2; The cited standard has been superseded. The citation should be replaced.	4a
BS 1881:Part 3:1970 - Methods of Making and Curing Test Specimens. (Including amendments AMD 1948, 1976 and AMD 3062, 1979).						
Superseded, Withdrawn	BS EN 12390-1:2012 BS EN 12390-2:2009	Geospec1:188 1A-2	37	Grout cubes of 100 mm size shall be prepared and cured in accordance with BS 1881 : Part 3 : 1970, and the strength of grout cubes shall be tested in accordance with BS 1881 : Part 4 : 1970.	1970a; Normative; Geospec1:1881A-2; The cited standard has been superseded, however the replacement standard has been taken into local practice through the introduction of Construction Standard CS1. The citation should be replaced.	4b
BS 1881:Part 4:1970 - Methods of Testing Concrete for Strength. (Including amendments AMD 782, 1971 and AMD 2167, 1976)						
Superseded, Withdrawn	BS EN 12390-3:2009	Geospec1:188 1B-2	37	Grout cubes of 100 mm size shall be prepared and cured in accordance with BS 1881 : Part 3 : 1970, and the strength of grout cubes shall be tested in accordance with BS 1881 : Part 4 : 1970.	1970b; Normative; Geospec1:1881B-2; The cited standard has been superseded, however the replacement standard has been taken into local practice through the introduction of Construction Standard CS1. The citation should be replaced.	4b
BS 1881:Part 6:1971 - Analysis of Hardened Concrete. (Including amendment AMD 763, 1971).						
Revised, Withdrawn	BS 1881-124:1988	Geospec1:188 1C-2	23	The total sulphate (SO_3), chloride and nitrate contents of the grout shall not exceed 4%, 0.1% and 0.1% expressed as a percentage between the respective ion content and the cement content by mass in the grout. The total sulphate (SO_3) and chloride contents shall be determined by the method described in BS 1881 : Part 6 : 1971. The total nitrate content shall be determined by the method described in ASTM D 4327-84.	1971a; Normative; Geospec1:1881C-2; The cited standard has been revised, however the replacement standard has been taken into local practice through the introduction of Construction Standard CS1. The citation should be replaced.	4a
BS 2494:1986 - Elastomeric Joint Rings for Pipework and Pipelines.						
Superseded, Withdrawn	BS EN 681-1:1996	Geospec1:249 4-2	25	Rubber rings used in the corrosion protection system shall be manufactured from materials which comply with BS 2494 : 1986.	1986; Normative; Geospec1:2494-2; The cited standard has been superseded. The citation should be replaced.	4a
Superseded, Withdrawn	BS EN 681-1:1996	Geospec1:249 4-3	25	Product identification details (including name of manufacturer, brand name, type and date of manufacture of product), and evidence that the product complies with BS 2494 : 1986, shall be provided.	1986; Normative; Geospec1:2494-3; The cited standard has been superseded. The citation should be replaced.	4a
BS 2782:Part 1:1976 - Method 120A. Determination of the Vicat Softening Temperature of Thermoplastics.						
Superseded, Withdrawn	BS EN ISO 306:2004	Geospec1:278 2A-2	77	Test method specified in Table 2.	1976a; Normative; Geospec1:2782A-2; The cited standard has been superseded. The citation should be replaced.	4a
BS 2782:Part 3:1976 - Method 320C. Tensile Strength, Elongation and Elastic Modulus.						
Superseded, Withdrawn	BS EN ISO 527-1:2012 BS EN ISO 527-2:2012	Geospec1:278 2B-2	77	Test method specified in Table 2.	1976b; Normative; Geospec1:2782B-2; The cited standard has been superseded. The citation should be replaced.	4a
Superseded, Withdrawn	BS EN ISO 527-1:2012 BS EN ISO 527-2:2012	Geospec1:278 2B-3	146	Test method specified in Table A.8.	1976b; Normative; Geospec1:2782B-3; The cited standard has been superseded. The citation should be replaced.	4a
BS 2782:Part 3:1981 - Method 365B. Detemination of Indentation Hardness by Means of a Durometer (Shore Hardness).						
Superseded, Withdrawn	BS EN ISO 868:2003	Geospec1:278 2C-2	77	Test method specified in Table 2.	1981; Normative; Geospec1:2782C-2; The cited standard has been superseded. The citation should be replaced.	4a
BS 2782:Part 6:1980 - Method 620A. Determination of Density of Solid Plastics Excluding Cellular Plastics (Immersion Method).						
Superseded, Withdrawn	BS EN ISO 1183-1:2012	Geospec1:278 2D-2	77	Test method specified in Table 2.	1980a; Normative; Geospec1:2782D-2; The cited standard has been superseded. The citation should be replaced.	4a
Superseded, Withdrawn	BS EN ISO 1183-1:2012	Geospec1:278 2D-3	146	Test method specified in Table A.8.	1980a; Normative; Geospec1:2782D-3; The cited standard has been superseded. The citation should be replaced.	4a
BS 3148:1980 - Methods of Test for Water for Making Concrete (Including Notes on the Suitability of Water).						
Superseded, Withdrawn	BS EN 1008:2002	Geospec1:314 8-2	23	Water shall be taken from the public supply of potable water and shall be at least to the quality specified in BS 3148 : 1980.	1980b; Normative; Geospec1:3148-2; The cited standard has been superseded. The citation should be replaced.	4a
BS 4447:1973 - The Performance of Pre-stressing Anchorages for Post-tensioned Construction.						
Superseded, Withdrawn	BS EN 13391:2004	Geospec1:444 7-2	31	The anchor head components which retain the force in the stressed tendon shall comply with the requirements of BS 4447 : 1973.	1973; Normative; Geospec1:4447-2; The cited standard has been superseded. The citation should be replaced.	4a
Superseded, Withdrawn	BS EN 13391:2004	Geospec1:444 7-3	43	Stressing equipment shall be of the type applicable to the Anchor System and shall be capable of tensioning the complete tendon to more than 80% of its characteristic strength in one operation, except where otherwise agreed by the Engineer. The jack wedges shall meet the requirements of BS 4447 : 1973.	1973; Normative; Geospec1:4447-3; The cited standard has been superseded. The citation should be replaced.	4a
BS 4486:1980 - Specification for Hot Rolled and Hot Rolled and Processed High Tensile Alloy Steel Bars for the Pre-stressing of Concrete.						
Confirmed, Current	BS 4486:1980	Geospec1:448 6-2	21	Prestressing tendons shall comply with the following: (a) High tensile steel wire and wire strand to BS 5896 : 1980. (b) Nineteen wire steel strand to BS 4757 : 1971. (c) Hot rolled or hot rolled and processed high tensile alloy steel bars to BS 4486 : 1980.	1980c; Normative; Geospec1:4486-2; The cited standard is current. No change is required.	1

Table Q1 - 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
BS 4757:1971 - Nineteen-wire Steel Strand for Pre-stressed Concrete.						
Withdrawn	No replacement	Geospec1:4757-2	21	Prestressing tendons shall comply with the following: (a) High tensile steel wire and wire strand to BS 5896 : 1980. (b) Nineteen wire steel strand to BS 4757 : 1971. (c) Hot rolled or hot rolled and processed high tensile alloy steel bars to BS 4486 : 1980.	1971b; Normative; Geospec1:4757-2; The cited standard has been withdrawn without direct replacement. The requirement of its inclusion should be reviewed.	2
BS 5075:Part 1:1982 - Specification for Accelerating Admixtures, Retarding Admixtures and Water-reducing Admixtures. (Including amendments AMD 4183, 1983 and AMD 4910, 1985).						
Superseded, Withdrawn	BS EN 480-1:2006+A1:2011 BS EN 480-2:2006 BS EN 480-4:2005 BS EN 480-5:2005 BS EN 480-6:2005 BS EN 480-8:2012 BS EN 480-10:2009 BS EN 480-11:2005 BS EN 480-12:2005 BS EN 934-2:2009+A1:2012 BS EN 934-6:2001	Geospec1:5075A-2	23	Admixtures shall comply with the requirements of BS 5075 : Part 1 : 1982 and BS 5075 : Part 3 : 1985 and shall only be used with the prior agreement of the Engineer.	1982; Normative; Geospec1:5075A-2; The cited standard has been superseded by eleven separate standards. The method of citation requires consideration.	5
BS 5075:Part 3:1985 - Specification for Superplasticizing Admixtures.						
Superseded, Withdrawn	BS EN 480-1:2006+A1:2011 BS EN 480-2:2006 BS EN 480-4:2005 BS EN 480-5:2005 BS EN 480-6:2005 BS EN 480-8:2012 BS EN 480-10:2009 BS EN 480-11:2005 BS EN 480-12:2005 BS EN 934-2:2009+A1:2012 BS EN 934-6:2001	Geospec1:5075B-2	23	Admixtures shall comply with the requirements of BS 5075 : Part 1 : 1982 and BS 5075 : Part 3 : 1985 and shall only be used with the prior agreement of the Engineer.	1985; Normative; Geospec1:5075B-2; The cited standard has been superseded by eleven separate standards. The method of citation requires consideration.	5
BS 5896:1980 - Specification for High Tensile Steel Wire Strand for the Pre-stressing of Concrete.						
Revised, Withdrawn	BS 5896:2012	Geospec1:5896-2	21	Prestressing tendons shall comply with the following: (a) High tensile steel wire and wire strand to BS 5896 : 1980. (b) Nineteen wire steel strand to BS 4757 : 1971. (c) Hot rolled or hot rolled and processed high tensile alloy steel bars to BS 4486 : 1980.	1980d; Normative; Geospec1:5896-2; The cited standard has been revised. The citation should be updated.	3a
BS 6437:1984 - Polyethylene Pipes (Type 50) in Metric Diameters for General Purposes. (Including amendment AMD 5169, 1986).						
Superseded, Withdrawn	BS EN 12201-1:2011 BS EN 12201-2:2011	Geospec1:6437-2	77	Test method specified in Table 2.	1984; Normative; Geospec1:6437-2; The cited standard has been superseded. The citation should be replaced.	4b
BS 8081:1989 - British Standard Code of Practice for Ground Anchorages.						
Confirmed, Current, Partially replaced	BS8081:1989	Geospec1:8081-2	3	The technical standards incorporated in the second edition of the Model Specification have been adopted with due regard to existing local practice and after consideration of several relevant international and national codes. In particular, account has been taken of the requirements of the Fédération Internationale de la Précontrainte (FIP), the British Standard Code of Practice for Ground Anchorages, BS 8081 : 1989, and the Swiss and Austrian Codes.	1989; Historical; Geospec1:8081-2; The citation is placing the reference in a historical context. There is no need to change the citation.	1
Confirmed, Current, Partially replaced	BS8081:1989	Geospec1:8081-3	28	Clause 4.2.1 - Clause 8.1.1 and Appendix J.2 of BSI (1989) give guidance on the quality of pre-stressing steel and the maximum acceptable surface corrosion. Hong Kong conditions are sufficiently severe to promote stress corrosion failure at an area of apparently minor damage. It must be emphasised that steel which shows signs of pitting should be rejected.	1989; Informative; Geospec1:8081-3; The information cited is NCCI for use with BS EN 1997-1:2004 as defined in UK NA to BS EN 1997-1:2004.	1
Confirmed, Current, Partially replaced	BS8081:1989	Geospec1:8081-4	34	Clause 5.1 - The Engineer should advise the designer of any change in ground conditions that may require the relocation or realignment of the drillhole. Drillholes should be aligned and spaced to avoid their intersection or adverse interactive effects. Guidance is given in BSI (1989), Clauses 6.2.6, D.2.1 and D.3.5.3.	1989; Informative; Geospec1:8081-4; The information cited is NCCI for use with BS EN 1997-1:2004 as defined in UK NA to BS EN 1997-1:2004.	1

Table Q1 - 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
Confirmed, Current, Partially replaced	BS8081:1989	Geospec1:8081-5	42	Clause 5.6.3 - Wherever practical, the equipment should be such that the tendon may be stressed to its full test or working load in one operation. In some confined locations, the use of a smaller and lighter jack may prove necessary, resulting in the need for 'resets'. In these circumstances, mono-stressing may have application. Before agreeing to resets or mono-stressing, the Engineer must check the proposed procedure and verify that suitable results will be obtained. For further guidance, see Clause 10.6.3.4 of BSI (1989).	1989; Informative; Geospec1:8081-5; The information cited is NCCI for use with BS EN 1997-1:2004 as defined in UK NA to BS EN 1997-1:2004.	1
Confirmed, Current, Partially replaced	BS8081:1989	Geospec1:8081-6	119	The notes on design and construction given in this Appendix are intended to assist designers, contract engineers and others using this Model Specification, and should be read in conjunction with the notes given in Sections 1 to 8 opposite the specific clauses to which they refer. These notes supplement the recommendations of BSI (1989), and call attention to particular Hong Kong requirements.	1989; Informative; Geospec1:8081-6; The information cited is NCCI for use with BS EN 1997-1:2004 as defined in UK NA to BS EN 1997-1:2004.	1
Confirmed, Current, Partially replaced	BS8081:1989	Geospec1:8081-7	122	General advice on aggressive ground conditions in Hong Kong is given in GCO (1987), particularly in Chapter 13 and Table 12. Detailed information on ground aggressiveness towards ground anchors is given in BSI (1989) and FIP (1986).	1989; Informative; Geospec1:8081-7; The information cited is NCCI for use with BS EN 1997-1:2004 as defined in UK NA to BS EN 1997-1:2004.	1
Confirmed, Current, Partially replaced	BS EN 1537:2013	Geospec1:8081-8	127	As recommended in BSI (1989) and other Standards, the ground or rock conditions at the site may be such as to require the installation, stressing and testing of special trial anchors before the project commences in order to determine design parameters for the working anchors. Such trials may also be necessary to check assembly and installation procedures and may include trial insertion and withdrawal to check whether those procedures will damage the corrosion protection. For trial anchors, the anchor types, the assembly installation and testing procedures, the measuring dev ices and the stressing programmes should all be fully specified by the designer, in a manner dependent upon the particular requirements. Trial anchors and trial anchor tests may include features and procedures which are not covered in the Model Specification.	1989; Informative; Geospec1:8081-8; The requirement for trial anchors is stated in BS EN 1997-1:2004, however there is more relevant information provided in BS EN 1537:2013. Execution of anchor tests is covered by prEN ISO 22477-5, but this has been withdrawn by ISO. All the issues addressed in the these three standards are covered equally in BS 8081:1989. BS EN 1537:2013 provides the most concise information, but it refers to prEN ISO 22477-5 for conduct of the tests (including loading cycles and analysis). Overall, it is probably best to change this citation to BS EN 1537:2013 provided the subsequent phrase 'and other Standards' is retained.	4a
Relevant National Standards and Reference Section of Report						
Superseded, Withdrawn	BS EN 197-1:2011	Geospec1:12-1	136	BS 12:1978 - Specification of Ordinary and Rapid-hardening Portland Cement. (Including amendment AMD 4259, 1983).	1978; Reference; Geospec1:12-1; The reference document has one citation. It has been superseded and replaced by BS EN 197-1:2011, Cement. Composition, specifications and conformity criteria for common cements.	4b
Superseded, Withdrawn	BS EN 12390-1:2012 BS EN 12390-2:2009	Geospec1:1881A-1	136	BS 1881:Part 3:1970 - Methods of Making and Curing Test Specimens. (Including amendments AMD 1948, 1976 and AMD 3062, 1979).	1970a; Reference; Geospec1:1881A-1; The reference document has one citation. It has been superseded and replaced by BS EN 12390-1:2012, Testing hardened concrete. Shape, dimensions and other requirements for specimens and moulds and BS EN 12390-2:2009, Testing hardened concrete. Making and curing specimens for strength tests. However, the new standards have been taken into local practice through the publication of Contract Standard CS1. This reference should be deleted and replaced by reference to CS1.	4b
Superseded, Withdrawn	BS EN 12390-3:2009	Geospec1:1881B-1	136	BS 1881:Part 4:1970 - Methods of Testing Concrete for Strength. (Including amendments AMD 782, 1971 and AMD 2167, 1976)	1970b; Reference; Geospec1:1881B-1; The reference document has one citation. It has been superseded and replaced by BS EN 12390-3:2009, Testing hardened concrete. Compressive strength of test specimens. However, the new standards have been taken into local practice through the publication of Contract Standard CS1. This reference should be deleted and replaced by reference to CS1.	4b
Revised, Withdrawn	BS 1881-124:1988	Geospec1:1881C-1	136	BS 1881:Part 6:1971 - Analysis of Hardened Concrete. (Including amendment AMD 763, 1971).	1971a; Reference; Geospec1:1881C-1; The reference document has one citation. It has been revised and the updated standard is BS 1881-124:1988, Testing concrete. Methods for analysis of hardened concrete. However, the new standards have been taken into local practice through the publication of Contract Standard CS1. This reference should be deleted and replaced by reference to CS1.	4b
Superseded, Withdrawn	BS EN 681-1:1996	Geospec1:2494-1	136	BS 2494:1986 - Elastomeric Joint Rings for Pipework and Pipelines.	1986; Reference; Geospec1:2494-1; The reference document has two citations. It has been superseded and replaced by BS EN 681-1:1996, Elastomeric seals. Material requirements for pipe joint seals used in water and drainage applications. Vulcanized rubber.	4b
Superseded, Withdrawn	BS EN ISO 306:2004	Geospec1:2782A-1	136	BS 2782:Part 1:1976 - Method 120A. Determination of the Vicat Softening Temperature of Thermoplastics.	1976a; Reference; Geospec1:2782A-1; The reference document has one citation. It has been superseded and replaced by BS EN ISO 306:2004, Plastics. Thermoplastic materials. Determination of Vicat softening temperature (VST).	4b

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Superseded, Withdrawn	BS EN ISO 527-1:2012 BS EN ISO 527-2:2012	Geospec1:2782B-1	136	BS 2782:Part 3:1976 - Method 320C. Tensile Strength, Elongation and Elastic Modulus.	1976b; Reference; Geospec1:2782B-1; The reference document has two citations. It has been superseded and replaced by BS EN ISO 527-1:2012 Plastics. Determination of tensile properties General principles and BS EN ISO 527-1:2012 Plastics. Determination of tensile properties Test conditions for moulding and extrusion plastics.	4b
Superseded, Withdrawn	BS EN ISO 868:2003	Geospec1:2782C-1	137	BS 2782:Part 3:1981 - Method 365B. Determination of Indentation Hardness by Means of a Durometer (Shore Hardness).	1981; Reference; Geospec1:2782C-1; The reference document has one citation. It has been superseded and replaced by BS EN ISO 868:2003, Plastics and ebonite. Determination of indentation hardness by means of a durometer (Shore hardness).	4b
Superseded, Withdrawn	BS EN ISO 1183-1:2012	Geospec1:2782D-1	137	BS 2782:Part 6:1980 - Method 620A. Determination of Density of Solid Plastics Excluding Cellular Plastics (Immersion Method).	1980a; Reference; Geospec1:2782D-1; The reference document has two citations. It has been superseded and replaced by BS EN ISO 1183-1:2012, Plastics. Methods for determining the density of non-cellular plastics. Immersion method, liquid pyknometer method and titration method.	4b
Superseded, Withdrawn	BS EN 1008:2002	Geospec1:3148-1	137	BS 3148:1980 - Methods of Test for Water for Making Concrete (Including Notes on the Suitability of Water).	1980b; Reference; Geospec1:3148-1; The reference document has one citation. It has been superseded and replaced by BS EN 1008:2002, Mixing water for concrete. Specification for sampling, testing and assessing the suitability of water, including water recovered from processes in the concrete industry, as mixing water for concrete.	4b
Superseded, Withdrawn	BS EN 13391:2004	Geospec1:4447-1	137	BS 4447:1973 - The Performance of Pre-stressing Anchorages for Post-tensioned Construction.	1973; Reference; Geospec1:4447-1; The reference document has two citations. It has been superseded and replaced by BS EN 13391:2004, Mechanical tests for post-tensioning systems.	4b
Confirmed, Current	BS 4486:1980	Geospec1:4486-1	137	BS 4486:1980 - Specification for Hot Rolled and Hot Rolled and Processed High Tensile Alloy Steel Bars for the Pre-stressing of Concrete.	1980c; Reference; Geospec1:4486-1; The reference document has one citation. It is current.	1
Withdrawn	No replacement	Geospec1:4757-1	137	BS 4757:1971 - Nineteen-wire Steel Strand for Pre-stressed Concrete.	1971b; Reference; Geospec1:4757-1; The reference document has one citation. It has been withdrawn with no replacement.	2
Superseded, Withdrawn	BS EN 480-1:2006+A1:2011 BS EN 480-2:2006 BS EN 480-4:2005 BS EN 480-5:2005 BS EN 480-6:2005 BS EN 480-8:2012 BS EN 480-10:2009 BS EN 480-11:2005 BS EN 480-12:2005 BS EN 934-2:2009+A1:2012 BS EN 934-6:2001	Geospec1:5075A-1	137	BS 5075:Part 1:1982 - Specification for Accelerating Admixtures, Retarding Admixtures and Water-reducing Admixtures. (Including amendments AMD 4183, 1983 and AMD 4910, 1985).	1982; Reference; Geospec1:5075A-1; The reference document has one citation. It has been superseded and replaced by eleven separate standards.	5
Superseded, Withdrawn	BS EN 480-1:2006+A1:2011 BS EN 480-2:2006 BS EN 480-4:2005 BS EN 480-5:2005 BS EN 480-6:2005 BS EN 480-8:2012 BS EN 480-10:2009 BS EN 480-11:2005 BS EN 480-12:2005 BS EN 934-2:2009+A1:2012 BS EN 934-6:2001	Geospec1:5075B-1	137	BS 5075:Part 3:1985 - Specification for Superplasticizing Admixtures.	1985; Reference; Geospec1:5075B-1; The reference document has one citation. It has been superseded and replaced by eleven separate standards.	5
Revised, Withdrawn	BS 5896:2012	Geospec1:5896-1	137	BS 5896:1980 - Specification for High Tensile Steel Wire Strand for the Pre-stressing of Concrete.	1980d; Reference; Geospec1:5896-1; The reference document has one citation. It has been revised and the updated standard is BS 5896:2012, High tensile steel wire and strand for the prestressing of concrete. Specification.	3b

Geospec 1 - Model Specification for Prestressed Ground Anchors

Table Q1 - 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
Superseded, Withdrawn	BS EN 12201-1:2011 BS EN 12201-2:2011 BS EN 12201-5:2011	Geospec1:6437-1	137	BS 6437:1984 - Polyethylene Pipes (Type 50) in Metric Diameters for General Purposes. (Including amendment AMD 5169, 1986).	1984; Reference; Geospec1:6437-1; The reference document has one citation. It has been superseded and replaced by BS EN 12201-1:2011, Plastics piping systems for water supply, and for drainage and sewerage under pressure. Polyethylene (PE). General and BS EN 12201-2:2011, Plastics piping systems for water supply, and for drainage and sewerage under pressure. Polyethylene (PE). Pipes.	4b
Confirmed, Current, Partially replaced	BS8081:1989 BS EN 1997-1:2004 BS EN 1537:2013	Geospec1:8081-1	137	BSI (1989). British Standard Code of Practice for Ground Anchorages. British Standards Institution, BS8081, London, 180 p.	1989; Reference; Geospec1:8081-1; The reference document has seven citations. It is current but partially replaced. Those parts not replaced are considered NCCI. The reference can be retained unchanged.	1

Table Q2 - 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 superseded British Standard(s)	Extracts of Relevant Sections or Clauses of the replacement British/European Standards
Technical Clauses in Report					
BS 12:1978 - Specification of Ordinary and Rapid-hardening Portland Cement. (Including amendment AMD 4259, 1983).					
BS EN 197-1:2011	Geospec1:12-2	21	4a	Whole document.	Whole document.
BS 1881:Part 3:1970 - Methods of Making and Curing Test Specimens. (Including amendments AMD 1948, 1976 and AMD 3062, 1979)					
BS EN 12390-1:2012 BS EN 12390-2:2009	Geospec1:1881A-2	37	4b	Whole document.	Whole document.
BS 1881:Part 4:1970 - Methods of Testing Concrete for Strength. (Including amendments AMD 782, 1971 and AMD 2167, 1976)					
BS EN 12390-3:2009	Geospec1:1881B-2	37	4b	Whole document.	Whole document.
BS 1881:Part 6:1971 - Analysis of Hardened Concrete. (Including amendment AMD 763, 1971).					
BS 1881-124:1988	Geospec1:1881C-2	23	4a	Whole document.	Whole document.
BS 2494:1986 - Elastomeric Joint Rings for Pipework and Pipelines.					
BS EN 681-1:1996	Geospec1:2494-2	25	4a	Whole document.	Whole document.
BS EN 681-1:1996	Geospec1:2494-3	25	4a	Whole document.	Whole document.
BS 2782:Part 1:1976 - Method 120A. Determination of the Vicat Softening Temperature of Thermoplastics.					
BS EN ISO 306:2004	Geospec1:2782A-2	77	4a	Whole document.	Whole document.
BS 2782:Part 3:1976 - Method 320C. Tensile Strength, Elongation and Elastic Modulus.					
BS EN ISO 527-1:2012 BS EN ISO 527-2:2012	Geospec1:2782B-2	77	4a	Whole document.	Whole document.
BS EN ISO 527-1:2012 BS EN ISO 527-2:2012	Geospec1:2782B-3	146	4a	Whole document.	Whole document.
BS 2782:Part 3:1981 - Method 365B. Detemination of Indentation Hardness by Means of a Durometer (Shore Hardness).					
BS EN ISO 868:2003	Geospec1:2782C-2	77	4a	Whole document.	Whole document.
BS 2782:Part 6:1980 - Method 620A. Determination of Density of Solid Plastics Excluding Cellular Plastics (Immersion Method).					
BS EN ISO 1183-1:2012	Geospec1:2782D-2	77	4a	Whole document.	Whole document.
BS EN ISO 1183-1:2012	Geospec1:2782D-3	146	4a	Whole document.	Whole document.
BS 3148:1980 - Methods of Test for Water for Making Concrete (Including Notes on the Suitability of Water).					
BS EN 1008:2002	Geospec1:3148-2	23	4a	Whole document.	Whole document.
BS 4447:1973 - The Performance of Pre-stressing Anchorages for Post-tensioned Construction.					
BS EN 13391:2004	Geospec1:4447-2	31	4a	Whole document.	Whole document.
BS EN 13391:2004	Geospec1:4447-3	43	4a	Whole document.	Whole document.
BS 4486:1980 - Specification for Hot Rolled and Hot Rolled and Processed High Tensile Alloy Steel Bars for the Pre-stressing of Concrete.					
BS 4486:1980	Geospec1:4486-2	21	1	Whole document.	Whole document.
BS 4757:1971 - Nineteen-wire Steel Strand for Pre-stressed Concrete.					
No replacement	Geospec1:4757-2	21	5	Whole document.	No replacement identified.
BS 5075:Part 1:1982 - Specification for Accelerating Admixtures, Retarding Admixtures and Water-reducing Admixtures. (Including amendments AMD 4183, 1983 and AMD 4910, 1985)					
BS EN 480-1:2006+A1:2011 BS EN 480-2:2006 BS EN 480-4:2005 BS EN 480-5:2005 BS EN 480-6:2005 BS EN 480-8:2012 BS EN 480-10:2009 BS EN 480-11:2005 BS EN 480-12:2005 BS EN 934-2:2009+A1:2012 BS EN 934-6:2001	Geospec1:5075A-2	23	5	Whole document.	Whole document.

Table Q2 - 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 superseded British Standard(s)	Extracts of Relevant Sections or Clauses of the replacement British/European Standards
BS 5075:Part 3:1985 - Specification for Superplasticizing Admixtures.					
BS EN 480-1:2006+A1:2011 BS EN 480-2:2006 BS EN 480-4:2005 BS EN 480-5:2005 BS EN 480-6:2005 BS EN 480-8:2012 BS EN 480-10:2009 BS EN 480-11:2005 BS EN 480-12:2005 BS EN 934-2:2009+A1:2012 BS EN 934-6:2001	Geospec1:5075B-2	23	5	Whole document.	Whole document.
BS 5896:1980 - Specification for High Tensile Steel Wire Strand for the Pre-stressing of Concrete.					
BS 5896:2012	Geospec1:5896-2	21	3a	Whole document.	Whole document.
BS 6437:1984 - Polyethylene Pipes (Type 50) in Metric Diameters for General Purposes. (Including amendment AMD 5169, 1986).					
BS EN 12201-1:2011 BS EN 12201-2:2011	Geospec1:6437-2	77	4b	Whole document.	Whole document.
BS 8081:1989 - British Standard Code of Practice for Ground Anchorages.					
BS8081:1989	Geospec1:8081-2	3	1	General reference to whole document.	N/A
BS8081:1989	Geospec1:8081-3	28	1	Clause 8.1.1 and Appendix J.2	N/A
BS8081:1989	Geospec1:8081-4	34	1	Clauses 6.2.6, D.2.1 and D.3.5.3	N/A
BS8081:1989	Geospec1:8081-5	42	1	Clause 10.6.3.4	N/A
BS8081:1989	Geospec1:8081-6	119	1	General reference to whole document.	N/A
BS8081:1989	Geospec1:8081-7	122	1	General reference to ground aggressiveness.	N/A
BS EN 1537:2013	Geospec1:8081-8	127	4a	General reference to testing procedures.	Section 9, specifically sections on testing.

Table Q3 - 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 Up-to-date Standard(s)	Recommended Amendments
			Quoted Standard(s)	Up-to-date Standard(s)		
Technical Clauses in Report						
BS 12:1978 - Specification of Ordinary and Rapid-hardening Portland Cement. (Including amendment AMD 4259, 1983).						
Geospec1:12-2	21	4a	Material specification.	Material specification.	No change.	Replace the citation.
BS 1881:Part 3:1970 - Methods of Making and Curing Test Specimens. (Including amendments AMD 1948, 1976 and AMD 3062, 1979).						
Geospec1:1881A-2	37	4b	Test related specification.	Test related specification.	No change.	Replace the citation and amend text.
BS 1881:Part 4:1970 - Methods of Testing Concrete for Strength. (Including amendments AMD 782, 1971 and AMD 2167, 1976)						
Geospec1:1881B-2	37	4b	Test related specification.	Test related specification.	No change.	Replace the citation and amend text.
BS 1881:Part 6:1971 - Analysis of Hardened Concrete. (Including amendment AMD 763, 1971).						
Geospec1:1881C-2	23	4a	Test related specification.	Test related specification.	No change.	Replace the citation and amend text.
BS 2494:1986 - Elastomeric Joint Rings for Pipework and Pipelines.						
Geospec1:2494-2	25	4a	Material specification.	Material specification.	No change.	Replace the citation.
Geospec1:2494-3	25	4a	Material specification.	Material specification.	No change.	Replace the citation.
BS 2782:Part 1:1976 - Method 120A. Determination of the Vicat Softening Temperature of Thermoplastics.						
Geospec1:2782A-2	77	4a	Test related specification.	Test related specification.	No change.	Replace the citation.
BS 2782:Part 3:1976 - Method 320C. Tensile Strength, Elongation and Elastic Modulus.						
Geospec1:2782B-2	77	4a	Test related specification.	Test related specification.	No change.	Replace the citation.
Geospec1:2782B-3	146	4a	Test related specification.	Test related specification.	No change.	Replace the citation.
BS 2782:Part 3:1981 - Method 365B. Detemination of Indentation Hardness by Means of a Durometer (Shore Hardness).						
Geospec1:2782C-2	77	4a	Test related specification.	Test related specification.	No change.	Replace the citation.
BS 2782:Part 6:1980 - Method 620A. Determination of Density of Solid Plastics Excluding Cellular Plastics (Immersion Method).						
Geospec1:2782D-2	77	4a	Test related specification.	Test related specification.	No change.	Replace the citation.
Geospec1:2782D-3	146	4a	Test related specification.	Test related specification.	No change.	Replace the citation.
BS 3148:1980 - Methods of Test for Water for Making Concrete (Including Notes on the Suitability of Water).						
Geospec1:3148-2	23	4a	Test related specification.	Test related specification.	No change.	Replace the citation.
BS 4447:1973 - The Performance of Pre-stressing Anchorages for Post-tensioned Construction.						
Geospec1:4447-2	31	4a	Test related specification.	Test related specification.	No change.	Replace the citation.
Geospec1:4447-3	43	4a	Test related specification.	Test related specification.	No change.	Replace the citation.
BS 4486:1980 - Specification for Hot Rolled and Hot Rolled and Processed High Tensile Alloy Steel Bars for the Pre-stressing of Concrete.						
Geospec1:4486-2	21	1	Material specification.	Material specification.	No change.	No change.

Table Q3 - 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 Up-to-date Standard(s)	Recommended Amendments
			Quoted Standard(s)	Up-to-date Standard(s)		
BS 4757:1971 - Nineteen-wire Steel Strand for Pre-stressed Concrete.						
Geospec1:4757-2	21	5	Material specification.	N/A	Particular material can no longer be specified in this form.	Delete the citation.
BS 5075:Part 1:1982 - Specification for Accelerating Admixtures, Retarding Admixtures and Water-reducing Admixtures. (Including amendments AMD 4183, 1983 and AMD 4910, 1985).						
Geospec1:5075A-2	23	5	Material specification.	Material specification.	No change.	Replace the citation.
BS 5075:Part 3:1985 - Specification for Superplasticizing Admixtures.						
Geospec1:5075B-2	23	5	Material specification.	Material specification.	No change.	Replace the citation.
BS 5896:1980 - Specification for High Tensile Steel Wire Strand for the Pre-stressing of Concrete.						
Geospec1:5896-2	21	3a	Material specification.	Material specification.	No change.	Update the citation.
BS 6437:1984 - Polyethylene Pipes (Type 50) in Metric Diameters for General Purposes. (Including amendment AMD 5169, 1986).						
Geospec1:6437-2	77	4b	Material specification.	Material specification.	No change.	Replace the citation.
BS 8081:1989 - British Standard Code of Practice for Ground Anchorages.						
Geospec1:8081-2	3	1	Code of practice.	N/A	N/A	No change.
Geospec1:8081-3	28	1	Code of practice.	N/A	N/A	No change.
Geospec1:8081-4	34	1	Code of practice.	N/A	N/A	No change.
Geospec1:8081-5	42	1	Code of practice.	N/A	N/A	No change.
Geospec1:8081-6	119	1	Code of practice.	N/A	N/A	No change.
Geospec1:8081-7	122	1	Code of practice.	N/A	N/A	No change.
Geospec1:8081-8	127	4a	Code of practice.	Execution standard including testing.	No change.	Replace citation and add reference.
Relevant National Standards and Reference Section of Report						
Geospec1:12-1	136	4b	This reference document is: Superseded, Withdrawn.	The current document(s) is (are): BS EN 197-1:2011	No change.	Replace the existing reference with BS EN 197-1:2011.
Geospec1:1881A-1	136	4b	This reference document is: Superseded, Withdrawn.	The current document(s) is (are): BS EN 12390-1:2012 BS EN 12390-2:2009	No change.	The reference should be replaced by Construction Standard CS1:2010 to reflect changes in local practice.
Geospec1:1881B-1	136	4b	This reference document is: Superseded, Withdrawn.	The current document(s) is (are): BS EN 12390-3:2009	No change.	The reference should be replaced by Construction Standard CS1:2010 to reflect changes in local practice.
Geospec1:1881C-1	136	4b	This reference document is: Revised, Withdrawn.	The current document(s) is (are): BS 1881-124:1988	No change.	The reference should be replaced by Construction Standard CS1:2010 to reflect changes in local practice.
Geospec1:2494-1	136	4b	This reference document is: Superseded, Withdrawn.	The current document(s) is (are): BS EN 681-1:1996	No change.	Replace the existing reference with BS EN 681-1:1996.
Geospec1:2782A-1	136	4b	This reference document is: Superseded, Withdrawn.	The current document(s) is (are): BS EN ISO 306:2004	No change.	Replace the existing reference with BS EN ISO 306:2004.

Table Q3 - 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 Up-to-date Standard(s)	Recommended Amendments
			Quoted Standard(s)	Up-to-date Standard(s)		
Geospec1:2782B-1	136	4b	This reference document is: Superseded, Withdrawn.	The current document(s) is (are): BS EN ISO 527-1:2012 BS EN ISO 527-2:2012	No change.	Replace the existing reference with BS EN ISO 527-1:2012 and BS EN ISO 527-2:2012.
Geospec1:2782C-1	137	4b	This reference document is: Superseded, Withdrawn.	The current document(s) is (are): BS EN ISO 868:2003	No change.	Update the existing reference to BS EN ISO 868:2003.
Geospec1:2782D-1	137	4b	This reference document is: Superseded, Withdrawn.	The current document(s) is (are): BS EN ISO 1183-1:2012	No change.	Replace the existing reference with BS EN ISO 1183-1:2012.
Geospec1:3148-1	137	4b	This reference document is: Superseded, Withdrawn.	The current document(s) is (are): BS EN 1008:2002	No change.	Replace the existing reference with BS EN 1008:2002.
Geospec1:4447-1	137	4b	This reference document is: Superseded, Withdrawn.	The current document(s) is (are): BS EN 13391:2004	No change.	Replace the existing reference with BS EN 13391:2004.
Geospec1:4486-1	137	1	This reference document is: Confirmed, Current.	The current document(s) is (are): BS 4486:1980	No change.	Retain the existing reference.
Geospec1:4757-1	137	2	This reference document is: Withdrawn.	The current document(s) is (are): No replacement	Specified material is no longer available.	Delete the existing reference.
Geospec1:5075A-1	137	5	This reference document is: Superseded, Withdrawn.	The current document(s) is (are): BS EN 480-1:2006+A1:2011 BS EN 480-2:2006 BS EN 480-4:2005 BS EN 480-5:2005 BS EN 480-6:2005 BS EN 480-8:2012 BS EN 480-10:2009 BS EN 480-11:2005 BS EN 480-12:2005 BS EN 934-2:2009+A1:2012 BS EN 934-6:2001	Greater range of choice of materials.	Replace the existing reference with BS EN 480-1:2006+A1:2011 BS EN 480-2:2006 BS EN 480-4:2005 BS EN 480-5:2005 BS EN 480-6:2005 BS EN 480-8:2012 BS EN 480-10:2009 BS EN 480-11:2005 BS EN 480-12:2005 BS EN 934-2:2009+A1:2012 BS EN 934-6:2001.
Geospec1:5075B-1	137	5	This reference document is: Superseded, Withdrawn.	The current document(s) is (are): BS EN 480-1:2006+A1:2011 BS EN 480-2:2006 BS EN 480-4:2005 BS EN 480-5:2005 BS EN 480-6:2005 BS EN 480-8:2012 BS EN 480-10:2009 BS EN 480-11:2005 BS EN 480-12:2005 BS EN 934-2:2009+A1:2012 BS EN 934-6:2001	Greater range of choice of materials.	Replace the existing reference with BS EN 480-1:2006+A1:2011 BS EN 480-2:2006 BS EN 480-4:2005 BS EN 480-5:2005 BS EN 480-6:2005 BS EN 480-8:2012 BS EN 480-10:2009 BS EN 480-11:2005 BS EN 480-12:2005 BS EN 934-2:2009+A1:2012 BS EN 934-6:2001.
Geospec1:5896-1	137	3b	This reference document is: Revised, Withdrawn.	The current document(s) is (are): BS 5896:2012	No change.	Update the existing reference to BS 5896:2012.
Geospec1:6437-1	137	4b	This reference document is: Superseded, Withdrawn.	The current document(s) is (are): BS EN 12201-1:2011 BS EN 12201-2:2011 BS EN 12201-5:2011	No change.	Replace the existing reference with BS EN 12201-1:2011 and BS EN 12201-2:2011.

Geospec 1 - Model Specification for Prestressed Ground Anchors

Table Q3 - 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 Up-to-date Standard(s)	Recommended Amendments
			Quoted Standard(s)	Up-to-date Standard(s)		
Geospec1:8081-1	137	1	This reference document is: Confirmed, Current, Partially replaced.	The current document(s) is (are): BS8081:1989 BS EN 1997-1:2004 BS EN 1537:2013	No change.	Retain the existing reference. Add reference to BS EN 1537:2013.

Table Q4 - 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
3	BS8081:1989	1	Geospec1:8081-2	The technical standards incorporated in the second edition of the Model Specification have been adopted with due regard to existing local practice and after consideration of several relevant international and national codes. In particular, account has been taken of the requirements of the Fédération Internationale de la Précontrainte (FIP), the British Standard Code of Practice for Ground Anchorages, BS 8081:1989, and the Swiss and Austrian Codes.	No change.
21	BS 12:1978	4a	Geospec1:12-2	Cements used for grouting anchors shall comply with BS 12:1978.	Cements used for grouting anchors shall comply with BS EN 197-1:2011.
21	BS 5896:1980 BS 4757:1971 BS 4486:1980	3a 2 1	Geospec1:5896-2 Geospec1:4757-2 Geospec1:4486-2	Prestressing tendons shall comply with the following: (a) High tensile steel wire and wire strand to BS 5896:1980. (b) Nineteen wire steel strand to BS 4757:1971. (c) Hot rolled or hot rolled and processed high tensile alloy steel bars to BS 4486:1980.	Prestressing tendons shall comply with the following: (a) High tensile steel wire and wire strand to BS 5896:2012. (b) Hot rolled or hot rolled and processed high tensile alloy steel bars to BS 4486:1980.
23	BS 1881:Part 6:1971	4a	Geospec1:1881C-2	The total sulphate (SO_3), chloride and nitrate contents of the grout shall not exceed 4%, 0.1% and 0.1% expressed as a percentage between the respective ion content and the cement content by mass in the grout. The total sulphate (SO_3) and chloride contents shall be determined by the method described in BS 1881:Part 6:1971. The total nitrate content shall be determined by the method described in ASTM D 4327-84.	The total sulphate (SO_3), chloride and nitrate contents of the grout shall not exceed 4%, 0.1% and 0.1% expressed as a percentage between the respective ion content and the cement content by mass in the grout. The total sulphate (SO_3) and chloride contents shall be determined by the method described in CS1:2010. The total nitrate content shall be determined by the method described in ASTM D 4327-84.
23	BS 3148:1980	4a	Geospec1:3148-2	Water shall be taken from the public supply of potable water and shall be at least to the quality specified in BS 3148:1980.	Water shall be taken from the public supply of potable water and shall be at least to the quality specified in BS EN 1008:2002.
23	BS 5075:Part 1:1982 BS 5075:Part 3:1985	5 5	Geospec1:5075A-2 Geospec1:5075B-2	Admixtures shall comply with the requirements of BS 5075:Part 1:1982 and BS 5075:Part 3:1985 and shall only be used with the prior agreement of the Engineer.	Admixtures shall only be used with the prior agreement of the Engineer and shall comply with the requirements of the following standards where deemed appropriate by the Engineer: BS EN 480-1:2006+A1:2011 BS EN 480-2:2006 BS EN 480-4:2005 BS EN 480-5:2005 BS EN 480-6:2005 BS EN 480-8:2012 BS EN 480-10:2009 BS EN 480-11:2005 BS EN 480-12:2005 BS EN 934-2:2009+A1:2012 BS EN 934-6:2001
25	BS 2494:1986	4a	Geospec1:2494-2	Rubber rings used in the corrosion protection system shall be manufactured from materials which comply with BS 2494:1986.	Rubber rings used in the corrosion protection system shall be manufactured from materials which comply with BS EN 681-1:1996.
25	BS 2494:1986	4a	Geospec1:2494-3	Product identification details (including name of manufacturer, brand name, type and date of manufacture of product), and evidence that the product complies with BS 2494:1986, shall be provided.	Product identification details (including name of manufacturer, brand name, type and date of manufacture of product), and evidence that the product complies with BS EN 681-1:1996, shall be provided.
28	BS8081:1989	1	Geospec1:8081-3	Clause 4.2.1 - Clause 8.1.1 and Appendix J.2 of BSI (1989) give guidance on the quality of pre-stressing steel and the maximum acceptable surface corrosion. Hong Kong conditions are sufficiently severe to promote stress corrosion failure at an area of apparently minor damage. It must be emphasised that steel which shows signs of pitting should be rejected.	No change.
31	BS 4447:1973	4a	Geospec1:4447-2	The anchor head components which retain the force in the stressed tendon shall comply with the requirements of BS 4447:1973.	The anchor head components which retain the force in the stressed tendon shall comply with the requirements of BS EN 13391:2004.

Geospec 1 - Model Specification for Prestressed Ground Anchors

Table Q4 - 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	BS8081:1989	1	Geospec1:8081-4	Clause 5.1 - The Engineer should advise the designer of any change in ground conditions that may require the relocation or realignment of the drillhole. Drillholes should be aligned and spaced to avoid their intersection or adverse interactive effects. Guidance is given in BSI (1989), Clauses 6.2.6, D.2.1 and D.3.5.3.	No change.
37	BS 1881:Part 3:1970 BS 1881:Part 4:1970	4b 4b	Geospec1:1881A-2 Geospec1:1881B-2	Grout cubes of 100 mm size shall be prepared and cured in accordance with BS 1881:Part 3:1970, and the strength of grout cubes shall be tested in accordance with BS 1881:Part 4:1970.	Grout cubes of 100 mm size shall be prepared, cured and strength tested in accordance with CS1:2010.
42	BS8081:1989	1	Geospec1:8081-5	Clause 5.6.3 - Wherever practical, the equipment should be such that the tendon may be stressed to its full test or working load in one operation. In some confined locations, the use of a smaller and lighter jack may prove necessary, resulting in the need for 'resets'. In these circumstances, mono-stressing may have application. Before agreeing to resets or mono-stressing, the Engineer must check the proposed procedure and verify that suitable results will be obtained. For further guidance, see Clause 10.6.3.4 of BSI (1989).	No change.
43	BS 4447:1973	4a	Geospec1:4447-3	Stressing equipment shall be of the type applicable to the Anchor System and shall be capable of tensioning the complete tendon to more than 80% of its characteristic strength in one operation, except where otherwise agreed by the Engineer. The jack wedges shall meet the requirements of BS 4447:1973.	Stressing equipment shall be of the type applicable to the Anchor System and shall be capable of tensioning the complete tendon to more than 80% of its characteristic strength in one operation, except where otherwise agreed by the Engineer. The jack wedges shall meet the requirements of BS EN 13391:2004.
77	BS 2782:Part 1:1976 - Method 120A	4a	Geospec1:2782A-2	In Table 2 - Properties of Plastics, Test method for softening point (Vicat): BS 2782:Part 1:1976 - Method 120A	In Table 2 - Properties of Plastics, Test method for softening point (Vicat): BS EN ISO 306:2004
77	BS 2782:Part 3:1976 - Method 320C	4a	Geospec1:2782B-2	In Table 2 - Properties of Plastics, Test method for tensile strength: BS 2782:Part 3:1976 - Method 320C	In Table 2 - Properties of Plastics, Test method for tensile strength: BS EN ISO 527-1:2012 and BS EN ISO 527-2:2012
77	BS 2782:Part 3:1981 - Method 365B	4a	Geospec1:2782C-2	In Table 2 - Properties of Plastics, Test method for hardness (Shore D): BS 2782:Part 3:1981 - Method 365B	In Table 2 - Properties of Plastics, Test method for hardness (Shore D): BS EN ISO 868:2003
77	BS 2782:Part 6:1980 - Method 620A	4a	Geospec1:2782D-2	In Table 2 - Properties of Plastics, Test method for density: BS 2782:Part 6:1980 - Method 620A	In Table 2 - Properties of Plastics, Test method for density: BS EN ISO 1183-1:2012
77	BS 6437:1984	4b	Geospec1:6437-2	In Table 2 - Properties of Plastics, Test method for hydrostatic pressure resistance: BS 6437:1984	In Table 2 - Properties of Plastics, Test method for hydrostatic pressure resistance: BS EN 12201-1:2011 and BS EN 12201-2:2011
119	BS8081:1989	1	Geospec1:8081-6	The notes on design and construction given in this Appendix are intended to assist designers, contract engineers and others using this Model Specification, and should be read in conjunction with the notes given in Sections 1 to 8 opposite the specific clauses to which they refer. These notes supplement the recommendations of BSI (1989), and call attention to particular Hong Kong requirements.	No change.
122	BS8081:1989	1	Geospec1:8081-7	General advice on aggressive ground conditions in Hong Kong is given in GCO (1987), particularly in Chapter 13 and Table 12. Detailed information on ground aggressiveness towards ground anchors is given in BSI (1989) and FIP (1986).	No change.

Table Q4 - 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
127	BS8081:1989	4a	Geospec1:8081-8	As recommended in BSI (1989) and other Standards, the ground or rock conditions at the site may be such as to require the installation, stressing and testing of special trial anchors before the project commences in order to determine design parameters for the working anchors. Such trials may also be necessary to check assembly and installation procedures and may include trial insertion and withdrawal to check whether those procedures will damage the corrosion protection. For trial anchors, the anchor types, the assembly installation and testing procedures, the measuring dev ices and the stressing programmes should all be fully specified by the designer, in a manner dependent upon the particular requirements. Trial anchors and trial anchor tests may include features and procedures which are not covered in the Model Specification.	As recommended in BSI (2013) and other Standards, the ground or rock conditions at the site may be such as to require the installation, stressing and testing of special trial anchors before the project commences in order to determine design parameters for the working anchors. Such trials may also be necessary to check assembly and installation procedures and may include trial insertion and withdrawal to check whether those procedures will damage the corrosion protection. For trial anchors, the anchor types, the assembly installation and testing procedures, the measuring dev ices and the stressing programmes should all be fully specified by the designer, in a manner dependent upon the particular requirements. Trial anchors and trial anchor tests may include features and procedures which are not covered in the Model Specification.
136	BS 12:1978	4b	Geospec1:12-1	BS 12:1978 - Specification of Ordinary and Rapid-hardening Portland Cement. (Including amendment AMD 4259, 1983).	BS EN 197-1:2011, Cement. Composition, specifications and conformity criteria for common cements
136	BS 1881:Part 3:1970	4b	Geospec1:1881A-1	BS 1881:Part 3:1970 - Methods of Making and Curing Test Specimens. (Including amendments AMD 1948, 1976 and AMD 3062, 1979).	Construction Standard CS1:2010, Testing Concrete, The Government of the Hong Kong Special Administrative Region
136	BS 1881:Part 4:1970	4b	Geospec1:1881B-1	BS 1881:Part 4:1970 - Methods of Testing Concrete for Strength. (Including amendments AMD 782, 1971 and AMD 2167, 1976)	
136	BS 1881:Part 6:1971	4b	Geospec1:1881C-1	BS 1881:Part 6:1971 - Analysis of Hardened Concrete. (Including amendment AMD 763, 1971).	
136	BS 2494:1986	4b	Geospec1:2494-1	BS 2494:1986 - Elastomeric Joint Rings for Pipework and Pipelines.	BS EN 681-1:1996, Elastomeric seals. Material requirements for pipe joint seals used in water and drainage applications. Vulcanized rubber
136	BS 2782:Part 3:1976 - Method 120A	4b	Geospec1:2782A-1	BS 2782:Part 1:1976 - Method 120A. Determination of the Vicat Softening Temperature of Thermoplastics.	BS EN ISO 306:2004, Plastics. Thermoplastic materials. Determination of Vicat softening temperature (VST)
136	BS 2782:Part 3:1976 - Method 320C	4b	Geospec1:2782B-1	BS 2782:Part 3:1976 - Method 320C. Tensile Strength, Elongation and Elastic Modulus.	BS EN ISO 527-1:2012 Plastics. Determination of tensile properties General principles BS EN ISO 527-2:2012 Plastics. Determination of tensile properties Test conditions for moulding and extrusion plastics
137	BS 2782:Part 3:1981	4b	Geospec1:2782C-1	BS 2782:Part 3:1981 - Method 365B. Determination of Indentation Hardness by Means of a Durometer (Shore Hardness).	BS EN ISO 868:2003, Plastics and ebonite. Determination of indentation hardness by means of a durometer (Shore hardness)
137	BS 2782:Part 6:1980	4b	Geospec1:2782D-1	BS 2782:Part 6:1980 - Method 620A. Determination of Density of Solid Plastics Excluding Cellular Plastics (Immersion Method).	BS EN ISO 1183-1:2012, Plastics. Methods for determining the density of non-cellular plastics. Immersion method, liquid pyknometer method and titration method
137	BS 3148:1980	4b	Geospec1:3148-1	BS 3148:1980 - Methods of Test for Water for Making Concrete (Including Notes on the Suitability of Water).	BS EN 1008:2002, Mixing water for concrete. Specification for sampling, testing and assessing the suitability of water, including water recovered from processes in the concrete industry, as mixing water for concrete
137	BS 4447:1973	4b	Geospec1:4447-1	BS 4447:1973 - The Performance of Pre-stressing Anchorages for Post-tensioned Construction.	BS EN 13391:2004, Mechanical tests for post-tensioning systems
137	BS 4486:1980	1	Geospec1:4486-1	BS 4486:1980 - Specification for Hot Rolled and Hot Rolled and Processed High Tensile Alloy Steel Bars for the Pre-stressing of Concrete.	[No change.]
137	BS 4757:1971	2	Geospec1:4757-1	BS 4757:1971 - Nineteen-wire Steel Strand for Pre-stressed Concrete.	*[Delete all text]*
137	BS 5075:Part 1:1982	5	Geospec1:5075A-1	BS 5075:Part 1:1982 - Specification for Accelerating Admixtures, Retarding Admixtures and Water-reducing Admixtures. (Including amendments AMD 4183, 1983 and AMD 4910, 1985).	*[Delete relevant national standard. New relevant national standard listed below.]*
137	BS 5075:Part 3:1985	5	Geospec1:5075B-1	BS 5075:Part 3:1985 - Specification for Superplasticizing Admixtures.	*[Delete relevant national standard. New relevant national standard listed below.]*
137	BS 5896:1980	3b	Geospec1:5896-1	BS 5896:1980 - Specification for High Tensile Steel Wire Strand for the Pre-stressing of Concrete.	BS 5896:2012, High tensile steel wire and strand for the prestressing of concrete. Specification

Table Q4 - 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
137	BS 6437:1984	4b	Geospec1:6437-1	BS 6437:1984 - Polyethylene Pipes (Type 50) in Metric Diameters for General Purposes. (Including amendment AMD 5169, 1986).	BS EN 12201-1:2011, Plastics piping systems for water supply, and for drainage and sewerage under pressure. Polyethylene (PE). General BS EN 12201-2:2011, Plastics piping systems for water supply, and for drainage and sewerage under pressure. Polyethylene (PE). Pipes
137	BS8081:1989	1	Geospec1:8081-1	BSI (1989). British Standard Code of Practice for Ground Anchorages. British Standards Institution, BS8081, London, 180 p.	[No change.]
	Additional reference required.				BSI (2013). Execution of special geotechnical works — Ground anchors. British Standards Institution, BS EN 1537, London, 56 p.
	Additional relevant national standard required.			[Replacement for BS 1881:Part 3:1970, BS 1881:Part 4:1970 and BS 1881:Part 6:1971.]	Construction Standard CS1:2010
	Additional relevant national standard required.			[Replacement for BS 5075:Part 1:1982 and BS 5075:Part 3:1985.]	BS EN 480-1:2006+A1:2011, Admixtures for concrete, mortar and grout. Test methods. Reference concrete and reference mortar for testing
	Additional relevant national standard required.			[Replacement for BS 5075:Part 1:1982 and BS 5075:Part 3:1985.]	BS EN 480-2:2006, Admixtures for concrete, mortar and grout. Test methods. Determination of setting time
	Additional relevant national standard required.			[Replacement for BS 5075:Part 1:1982 and BS 5075:Part 3:1985.]	BS EN 480-4:2005, Admixtures for concrete, mortar and grout. Test methods. Determination of bleeding of concrete
	Additional relevant national standard required.			[Replacement for BS 5075:Part 1:1982 and BS 5075:Part 3:1985.]	BS EN 480-5:2005, Admixtures for concrete, mortar and grout. Test methods. Determination of capillary absorption
	Additional relevant national standard required.			[Replacement for BS 5075:Part 1:1982 and BS 5075:Part 3:1985.]	BS EN 480-6:2005, Admixtures for concrete, mortar and grout. Test methods. Infrared analysis
	Additional relevant national standard required.			[Replacement for BS 5075:Part 1:1982 and BS 5075:Part 3:1985.]	BS EN 480-8:2012, Admixtures for concrete, mortar and grout. Test methods. Determination of the conventional dry material content
	Additional relevant national standard required.			[Replacement for BS 5075:Part 1:1982 and BS 5075:Part 3:1985.]	BS EN 480-10:2009, Admixtures for concrete, mortar and grout. Test methods. Determination of water soluble chloride content
	Additional relevant national standard required.			[Replacement for BS 5075:Part 1:1982 and BS 5075:Part 3:1985.]	BS EN 480-11:2005, Admixtures for concrete, mortar and grout. Test methods. Determination of air void characteristics in hardened concrete
	Additional relevant national standard required.			[Replacement for BS 5075:Part 1:1982 and BS 5075:Part 3:1985.]	BS EN 480-12:2005, Admixtures for concrete, mortar and grout. Test methods. Determination of the alkali content of admixtures
	Additional relevant national standard required.			[Replacement for BS 5075:Part 1:1982 and BS 5075:Part 3:1985.]	BS EN 934-2:2009+A1:2012, Admixtures for concrete, mortar and grout. Concrete admixtures. Definitions, requirements, conformity, marking and labelling
	Additional relevant national standard required.			[Replacement for BS 5075:Part 1:1982 and BS 5075:Part 3:1985.]	BS EN 934-6:2001, Admixtures for concrete, mortar and grout. Sampling, conformity control and evaluation of conformity
146	BS 2782:Part 3:1976 - Method 320C	4a	Geospec1:2782B-3	In Table A8 - Recommended Quick Confirmatory Tests to Check the Quality of Plastic Components, Test method for tensile strength: BS 2782:Part 3:1976 - Method 320C	In Table A8 - Recommended Quick Confirmatory Tests to Check the Quality of Plastic Components, Test method for tensile strength: BS EN ISO 527-1:2012 and BS EN ISO 527-2:2012
146	BS 2782:Part 6:1980 - Method 620A	4a	Geospec1:2782D-3	In Table A8 - Recommended Quick Confirmatory Tests to Check the Quality of Plastic Components, Test method for density: BS 2782:Part 6:1980 - Method 620A	In Table A8 - Recommended Quick Confirmatory Tests to Check the Quality of Plastic Components, Test method for density: BS EN ISO 1183-1:2012