


Schedule of Accreditation

issued by

United Kingdom Accreditation Service

21 - 47 High Street, Feltham, Middlesex, TW13 4UN, UK

 <p style="margin-top: 10px;">Accredited to ISO/IEC 17025:2005</p>	TERRA TEK Limited	
	Issue No: 009 Issue date: 10 June 2009	
Moor Lane Witton Birmingham B6 7HG	Contact: Mr J Reynolds Tel: +44 (0)121 344 4838 Fax: +44 (0)121 356 3599 E-Mail: birmingham@terratek.co.uk Website: www.terratek.co.uk	
Testing performed by the Organisation at the locations specified below		

Locations covered by the organisation and their relevant activities

Laboratory locations:

Location details	Activity	Location code										
<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;">Address</td> <td>Local contact</td> </tr> <tr> <td>Moor Lane</td> <td>Mr J Reynolds</td> </tr> <tr> <td>Witton</td> <td>Tel: +44 (0)121 344 4838</td> </tr> <tr> <td>Birmingham</td> <td>Fax: +44 (0)121 356 3599</td> </tr> <tr> <td>B6 7HG</td> <td></td> </tr> </table>	Address	Local contact	Moor Lane	Mr J Reynolds	Witton	Tel: +44 (0)121 344 4838	Birmingham	Fax: +44 (0)121 356 3599	B6 7HG		Testing Aggregates - physical tests Soils - physical, mechanical & chemical tests Concrete - chemical tests Waters - chemical tests	Laboratory
Address	Local contact											
Moor Lane	Mr J Reynolds											
Witton	Tel: +44 (0)121 344 4838											
Birmingham	Fax: +44 (0)121 356 3599											
B6 7HG												

Site activities performed away from the locations listed above:

Location details	Activity	Location code										
All locations suitable for the activities listed												
<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;">Address</td> <td>Local contact</td> </tr> <tr> <td>Moor Lane</td> <td>Mr J Reynolds</td> </tr> <tr> <td>Witton</td> <td>Tel: +44 (0)121 344 4838</td> </tr> <tr> <td>Birmingham</td> <td>Fax: +44 (0)121 356 3599</td> </tr> <tr> <td>B6 7HG</td> <td></td> </tr> </table>	Address	Local contact	Moor Lane	Mr J Reynolds	Witton	Tel: +44 (0)121 344 4838	Birmingham	Fax: +44 (0)121 356 3599	B6 7HG		Testing Soils - physical tests	Site
Address	Local contact											
Moor Lane	Mr J Reynolds											
Witton	Tel: +44 (0)121 344 4838											
Birmingham	Fax: +44 (0)121 356 3599											
B6 7HG												



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DETAIL OF ACCREDITATION

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
AGGREGATES	Particle size distribution - sieving method	BS EN 933-1:1997	Laboratory
	Uniformity coefficient	BS 6100:Subsection 2.2.1:1992	Laboratory
SOILS for civil engineering purposes	Moisture content - oven drying method	BS 1377:Part 2:1990	Laboratory
	Liquid limit - cone penetrometer	BS 1377:Part 2:1990	Laboratory
	Plastic limit	BS 1377:Part 2:1990	Laboratory
	Plasticity index and liquidity index	BS 1377:Part 2:1990	Laboratory
	Density - linear measurement	BS 1377:Part 2:1990	Laboratory
	Particle density - small pyknometer	BS 1377:Part 2:1990	Laboratory
	Particle size distribution - wet sieving	BS 1377:Part 2:1990	Laboratory
	Particle size distribution - dry sieving	BS 1377:Part 2:1990	Laboratory
	Particle size distribution - sedimentation - pipette method	BS 1377:Part 2:1990	Laboratory
	Dry density/moisture content relationship (2.5 kg rammer)	BS 1377:Part 4:1990	Laboratory
	Dry density/moisture content relationship (4.5 kg rammer)	BS 1377:Part 4:1990	Laboratory
Dry density/moisture content relationship (vibrating hammer)	BS 1377:Part 4:1990	Laboratory	
California Bearing Ratio (CBR) (loads from 0.4 to 50kN)	BS 1377:Part 4:1990	Laboratory	



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SOILS for civil engineering purposes (cont'd)	One-dimensional consolidation properties	BS 1377:Part 5:1990	Laboratory
	Permeability in a triaxial cell	BS 1377:Part 6:1990	Laboratory
	Shear strength - small shearbox <i>(loads from 0 to 5 kN)</i>	BS 1377:Part 7:1990	Laboratory
	Shear strength - large shearbox <i>(loads from 0 to 100 kN)</i>	BS 1377:Part 7:1990	Laboratory
	Residual strength - small ring shear apparatus <i>(loads from 0 to 0.5 kN)</i>	BS 1377:Part 7:1990	Laboratory
	Undrained shear strength - triaxial compression without measurement of pore pressure <i>(loads from 0.2 to 50kN)</i>	BS 1377:Part 7:1990	Laboratory
	Undrained shear strength - triaxial compression with multistage loading and without measurement of pore pressure <i>(loads from 0.4 to 50kN)</i>	BS 1377:Part 7:1990	Laboratory
	Effective shear strength - consolidated-undrained triaxial compression test with measurement of pore pressure <i>(loads from 0.4 to 50kN)</i>	BS 1377:Part 8:1990	Laboratory
	Effective shear strength - consolidated-drained triaxial compression test with measurement of volume change <i>(loads from 0.4 to 50kN)</i>	BS 1377:Part 8:1990	Laboratory
Effective angle of internal friction and effective cohesion <i>(loads from 0 to 100 kN)</i>	Specification for Highway Works, HMSO March 1998 Clause 636 using Large Shearbox	Laboratory	



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SOILS for civil engineering purposes (cont'd)	Coefficient of friction and adhesion between fill and reinforcing elements or anchor elements <i>(loads from 0 to 100 kN)</i>	Specification for Highway Works, HMSO March 1998 Clause 639 using Large Shearbox	Laboratory
	Effective shear strength - consolidated-undrained triaxial compression test with measurement of pore pressure <i>(loads from 0.4 to 50kN)</i>	Documented in-house method No TP 120	Laboratory
	Effective shear strength - consolidated-drained triaxial compression test with measurement of volume change <i>(loads from 0.4 to 50kN)</i>	Documented in-house method No TP 120	Laboratory
	In-situ California Bearing Ratio (CBR) <i>(loads from 0.4 to 50kN)</i>	BS 1377:Part 9:1990	Site
	In-situ density - sand replacement method (large pouring cylinder)	BS 1377:Part 9:1990	Site
	In-situ bulk density - nuclear method - comparative tests	BS 1377:Part 9:1990	Site
	In-situ bulk density - nuclear method - absolute tests	BS 1377:Part 9:1990	Site
	Organic matter content	BS 1377:Part 3:1990	Laboratory
	Mass loss on ignition	BS 1377:Part 3:1990	Laboratory
	Sulphate content of soil and ground water - gravimetric method	BS 1377:Part 3:1990	Laboratory



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SOILS for civil engineering purposes (cont'd)	pH value	Documented in house procedure TP0 19 using pH electrode based on BS 1377:Part 3:1990	Laboratory
CONCRETE	Acid Soluble Chloride	TP031 using potentiometric titrimetry based on BS 1881:Part 124:1988	Laboratory
	Acid Soluble sulphate	TP095 using gravimetry based on BS 1881:Part 124:1988	Laboratory
SOILS	Metals: Cadmium Chromium Copper Lead Nickel Zinc	TP037 using Inductively Coupled Plasma Optical Emission Spectroscopy (ICP-OES)	Laboratory
	Arsenic Selenium Antimony	TP038 using Inductively Coupled Plasma Optical Emission Spectroscopy (ICP-OES)	Laboratory
	Organic matter	TP041 based on BS 1377:Part 3:1990	Laboratory
	Mercury	TP039 using cold vapour atomic absorption spectroscopy	Laboratory
	Hexavalent chromium	TP040 using colorimetry	Laboratory
	Water soluble boron	TP032 using colorimetry	Laboratory
	pH	TP019 using pH electrode based on BS 1377:Part 3:1990	Laboratory
	Loss on ignition	TP042 based on BS 1377:Part 3:1990	Laboratory
	Cyanide: Free Total Complex	TP047 using colorimetry TP048 using colorimetry TP049 by calculation	Laboratory
	Phenols in soil	TP046 using colorimetry	Laboratory



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SOILS (cont'd)	Toluene extractable matter (TEM)	TP 033 using gravimetry	Laboratory
	Thiocyanate	TP050 using colorimetry	Laboratory
	Sulphate (water soluble) 2:1 extract	TP043 using gravimetry based on BS 1377:Part 3:1990	Laboratory
	Sulphate (acid soluble)	TP029 using gravimetry based on BS 1377:Part 3:1990	Laboratory
	Elemental Sulphur	TP 052 using distillation and titration	Laboratory
	Acid Soluble Sulphide	TP0 51 using colourimetry	Laboratory
	Polychlorinated Biphenyls (PCB's): PCB Congener 28 PCB Congener 52 PCB Congener 101 PCB Congener 118 PCB Congener 138 PCB Congener 153 PCB Congener 180	TP 110 using gas chromatography mass spectrometry (GC-MS)	Laboratory
	Speciated Polyaromatic hydrocarbons (PAHs): Naphthalene Acenaphthylene Acenaphthene Fluorene Phenanthrene Anthracene Fluoranthene Pyrene Benzo(a)anthracene Chrysene Benzo(b)fluoranthene Benzo(k)fluoranthene Benzo(a) pyrene Indeno(123cd)pyrene Dibenz(ah)anthracene Benzo(ghi)perylene Total PAH	TP045 using gas chromatography mass spectrometry (GC-MS)	Laboratory



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Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
SOILS (cont'd)	Extractable Petroleum Hydrocarbons >C8-C40 including	TP067 using gas chromatography with flame ionisation detection (GC-FID)	Laboratory
	Extractable Petroleum Hydrocarbons - aromatic/aliphatic fractionation and quantification according to carbon banding: >C8-C10 >C10-C12 >C12-C16 >C16-C21 >C21-C35 >C35-C40	TP126 using gas chromatography with flame ionisation detection (GC-FID)	Laboratory
WATERS			
Groundwater	Metals: Cadmium Chromium Copper Lead Nickel Zinc	TP058 using Inductively Coupled Plasma Optical Emission Spectroscopy (ICP-OES)	Laboratory
	Arsenic Selenium Antimony	TP053 using Inductively Coupled Plasma Optical Emission Spectroscopy (ICP-OES)	Laboratory
	Mercury	TP059 using cold vapour atomic absorption spectroscopy	Laboratory
	Hexavalent chromium	TP057 using colorimetry	Laboratory
	Boron	TP054 using colorimetry	Laboratory
	pH	TP020 using pH electrode based on BS 1377:Part 3:1990	Laboratory
	Phenol	TP060 Using Colorimetry	Laboratory
	Cyanide: Free Total Complex	TP061 using colorimetry TP062 using colorimetry TP063 by calculation	Laboratory



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WATERS (cont'd)			
Groundwater (cont'd)	Thiocyanate	TP064 using colorimetry	Laboratory
	Sulphate	TP065 using gravimetry	Laboratory
	Sulphide	TP0 66 using colorimetry	Laboratory
	Speciated Polyaromatic hydrocarbons (PAHs) Naphthalene Acenaphthylene Acenaphthene Fluorene Phenanthrene Anthracene Fluoranthene Pyrene Benzo (a) anthracene Chrysene Benzo (b) fluoranthene Benzo (k) fluoranthene Benzo(a) pyrene Indeno(123cd)pyrene Dibenz(ah)anthracene Benzo(ghi)perylene Total PAH (16)	TP102 using gas chromatography mass spectrometry (GC-MS)	Laboratory
	Semivolatile Organic Compounds (SVOC's): 1,2,4-trichlorobenzene 1,2-dichlorobenzene 1,3-dichlorobenzene 1,4-dichlorobenzene 2,4,5-trichloroephnl 2,4,6-trichlorophenol 2,4-dichlorophenol 2,4-dimethylphenol 2, 4-dinitrophenol 2, 4-dinitrotoluene 2, 6-dinitrotolunene 2-chloronaphthalene 2-chlorophenol 2-methylnaphthalene 2-methylphenol 2-nitroaniline 2-nitrophenol	TP 128 using gas chromatography mass spectrometry (GC-MS)	Laboratory



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WATERS (cont'd) Groundwater (cont'd)	Semivolatile Organic Compounds (SVOC's): (cont'd) 3-nitroaniline 4-bromophenylphenylether 4-chloro-3-methyl phenol 4-chloroaniline 4-chlorophenyl phenyl ether 4-methylphenol 4-nitroaniline 4-nitrophenol Acenaphthene Acenaphthylene Aniline Anthracene Azobenzene Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Benzo(k)fluoranthene Benzo(g,h,i)perylene Benzyl alcohol Bis(2-chloroethoxy)methane Bis(2-chloroethyl)ether Bis(2-ethylhexyl)phthalate Butyl benzyl phthalate Carbazole Chrysene Dibenz(a, h)anthracene Dibenzofuran Diethylphthalate Dimethylphthalate Di-n-butyl phthalate Di-n-octyl phthalate Diphenylamine Fluoranthene Fluorene Hexachlorobenzene Hexachlorobutadiene Hexachlorocyclopentadiene Hexachloroethane Ideno(1, 2, 3-cd)pyrene Isophorone Naphthalene		



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WATERS (cont'd) Groundwater (cont'd)	Semivolatile Organic Compounds (SVOC's): (cont'd) Nitrobenzene n-nitroso-di-n-propylamine Pentachlorophenol Phenanthrene Phenol Pyrene Total PAH (16)		
SOILS		Documented In-House Methods to meet the requirements of the Environment Agency MCERTS Performance Standard - Chemical Testing of Soil	
	Metals: Cadmium Chromium Copper Lead Nickel Zinc	TP037 using Inductively Coupled Plasma Optical Emission Spectroscopy (ICP-OES)	Laboratory
	Antimony Arsenic	TP038 using Inductively Coupled Plasma Optical Emission Spectroscopy (ICP-OES)	Laboratory
	pH	TP019 using pH electrode based on BS 1377:Part 3:1990	Laboratory
	Acid Soluble Sulphide	TP0 51 using colourimetry	Laboratory
	Loss on ignition	TP042 based on BS 1377:Part 3:1990	Laboratory
	Sulphate (water soluble) 2:1 extract	TP043 using gravimetry based on BS 1377:Part 3:1990	Laboratory
	Sulphate (acid soluble)	TP029 using gravimetry based on BS 1377:Part 3:1990	Laboratory



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Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
SOILS (cont'd)	Polychlorinated Biphenyls (PCB's): PCB Congener 28 PCB Congener 52 PCB Congener 101 PCB Congener 118 PCB Congener 138 PCB Congener 153 PCB Congener 180	Documented In-House Methods to meet the requirements of the Environment Agency MCERTS Performance Standard - Chemical Testing of Soil TP 110 using gas chromatography mass spectrometry (GC-MS)	Laboratory
	Speciated Polyaromatic hydrocarbons (PAHs): Naphthalene Acenaphthylene Acenaphthene Fluorene Phenanthrene Anthracene Fluoranthene Pyrene Benzo(a)anthracene Chrysene Benzo(b)fluoranthene Benzo(k)fluoranthene Benzo (a) pyrene Indeno(123cd)pyrene Dibenz(ah)anthracene Benzo(ghi)perylene Total PAH (16)	TP045 using gas chromatography mass spectrometry (GC-MS)	Laboratory
	Extractable Petroleum Hydrocarbons >C8-C40	TP067 using gas chromatography with flame ionisation detection (GC-FID)	Laboratory
END			