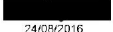


Key GeoSolutions Limited
Suite 6
Nova House
Audley Avenue Enterprise Park
Newport
Shropshire, TF10 7DW
For the attention of Ruby Westnedge

Report No: **B20218**
Issue No **01**

LABORATORY TEST REPORT

Project Name	REDINGTON ROAD		
Project Number	B20218	Date samples received	10/08/2016
Your Ref		Date written instructions received	10/08/2016
Purchase Order	16-59	Date testing commenced	10/08/2016
Please find enclosed the results as summarised below			
Figure / Table	Test Quantity	Description	ISO 17025 Accredited
1	~	Summary of Geotechnical Tests	See Table
2	3	BRE Suite - Soil	See Report
3 - 5	3	Atterberg Limit	Yes
App X	~	Sample Descriptions - Soil	N/A
App Y	~	Summary of In-House Analytical Test Methods - Soil	N/A
Remarks :			
Issued by : Stephen Langman		Date of Issue : 24/08/2016	Key to symbols used in this report S/C : Testing was sub-contracted
Approved Signatories :  24/08/2016			
G Wilson (JMD/Laboratories Director), S Langman (Laboratory Coordinator)			
<p>Unless we are notified to the contrary, samples will be disposed after a period of one month from this date. The results reported relate to samples received in the laboratory only. All results contained in this report are provisional unless signed by an approved signatory This report should not be reproduced except in full without the written approval of the laboratory. Under multisite accreditation the testing contained in this report may have been performed at another Terra Tek laboratory. The enclosed results remain the property of Terra Tek Limited and we reserve the right to withdraw our report if we have not received cleared funds in accordance with our standard terms and conditions Only those results indicated in this report are UKAS accredited and any opinions or interpretations expressed are outside the scope of UKAS accreditation. Feedback on the this report may be left via our website www.terratek.co.uk/contact-us</p>			







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Terra Tek Ltd is registered in Scotland No. 121594
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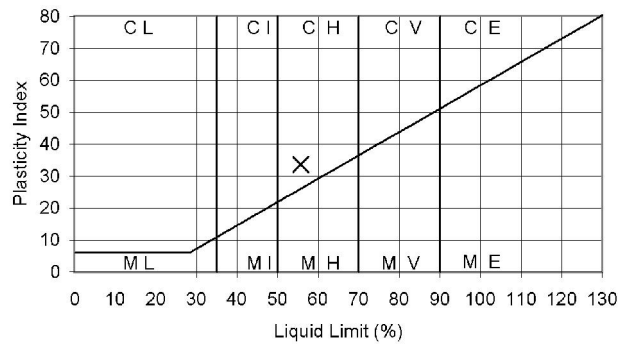
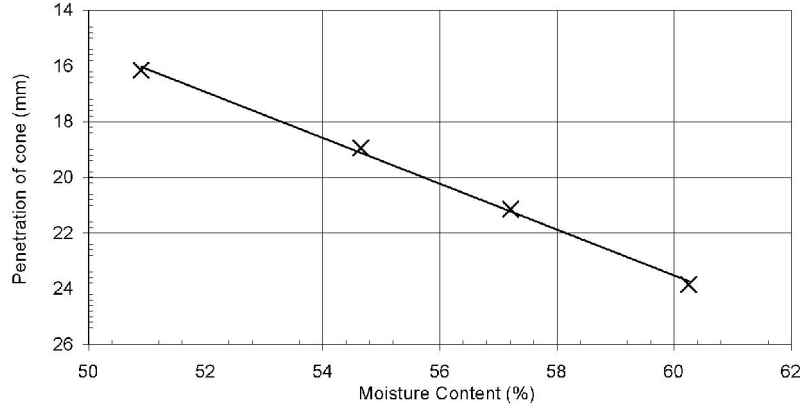
TERRA TEK SITE INVESTIGATION AND SURVEILLANCE SERVICES		Site REDINGTON ROAD		Contract No B20218														
Client Key GeoSolutions Limited		Engineer																
Sample Identification		Atterberg limits				Density		Total Stress		Other Tests								
Exploratory Hole	Depth m	Sample Ref	Sample Type	Lab Sample ID	Non Engineering Sample Description	Moisture Content %	Liquid Limit %	Plastic Limit %	Plasticity Index	Percentage retained 425µm %	Atterberg Classification	Particle Density Mg/m ³	Bulk Mg/m ³	Dry Mg/m ³	Shear Strength kPa	Apparent Cohesion C kPa	Angle of Shearing Resistance Phi	
WS01	1.00-1.20		T	298210	Brown silty SAND	29	56	22	34	8	CH							BRE SD1 Suite
WS01	5.90-6.00		D	298211	Brown sandy CLAY with occasional fine gravel.	28	47	21	26	0	CI							BRE SD1 Suite
WS02	1.00-1.50		T	298212	Brown SAND	26	60	22	38	0	CH							BRE SD1 Suite
Notes		Opinions and interpretations are outside the scope of UKAS accreditation		UKAS Accredited Test Y/N		Y	Y	Y	Y	Y	-	Y	Y	Y	Y	Y	Y	See individual report sheets
Originator	Approved	SUMMARY OF GEOTECHNICAL TESTS												Figure 1				
ME	24/08/2016															Sheet 1 of 1		

 <small>SITE INVESTIGATION AND LABORATORY SERVICES</small>		Site REDINGTON ROAD										Contract No B20218									
Client Key GeoSolutions Limited		Engineer																			
Sample Identification			Lab Sample ID	Suphate (acid soluble as SO ₄) %	Suphate (water soluble in 2:1 extract) as SO ₄ g/l	PH	Chloride (water soluble) %	Magnesium (water soluble in 2:1 extract) mg/l	Ammoniacal Nitrogen (as N) mg/kg	Nitrate mg/kg	Total Sulphur %										
Hole	Depth m	Sample Ref	Sample Type	Limits of Detection Terra Tek Analysis Method U=UKAS, N=No accreditation	TP029 M	TP043 M	TP019 M	TP134 M	S/C N	TP072 N	S/C N	1 N	0.05 S/C N								
WS01	1.00-1.20		T	0.02	<0.01	8.6	<0.01	25	<1.0	<1	<0.05										
WS01	5.90-6.00		D	0.08	0.02	8.4	<0.01	23	<1.0	<1	<0.05										
WS02	1.00-1.50		T	0.10	<0.01	8.6	<0.01	19	<1.0	<1	<0.05										
Originator TGH			Checked & Approved  24/08/2016		Accreditation M=Mcerts U=UKAS N=No accreditation										BRE SD1 SUITE - SOIL				Figure 2 Sheet 1 of 1		

	Site	REDINGTON ROAD	Contract No.	B20218
	Client	Key GeoSolutions Limited	Hole ID	WS01
	Engineer		Sample Ref	
			Depth (m)	1.00-1.20
			Sample Type	T


Non Engineering Description : Brown sandy CLAY with some gravel. Gravel is fine to medium.

Preparation : Sample as received



Results :

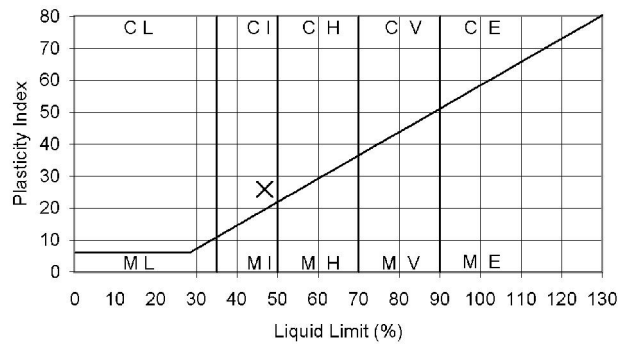
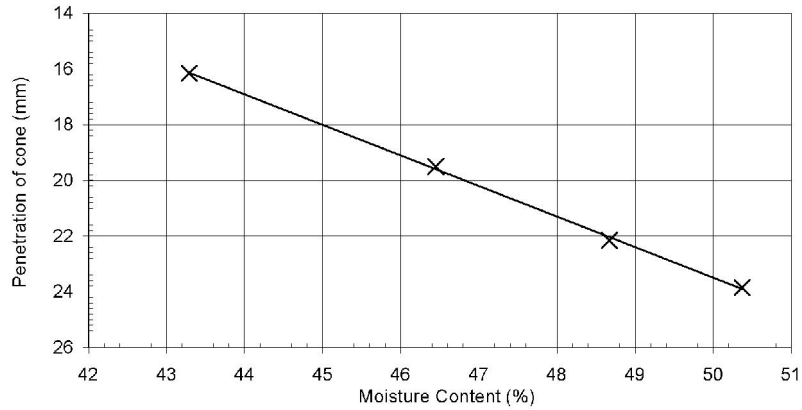
As Received Moisture Content : (BS1377:Part 2:Clause 3:1990)	29 %
Percentage retained on 425µm sieve :	8 %
Liquid Limit :	56 %
Plastic Limit :	22 %
Plasticity Index :	34
Equivalent moisture content of material passing 425µm sieve :	32 %
Liquidity Index :	0.29

Originator	Checked & Approved	Liquid Limit (Four Point Cone Penetrometer Method) Plastic Limit, Plasticity Index & Liquidity Index BS 1377:Part 2:Clause 4.3:1990 BS 1377:Part 2:Clause 5:1990	 Figure 3 Sheet 1 of 1
TE/ME	24/08/2016		

 TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES	Site	REDINGTON ROAD	Contract No.	B20218
	Client	Key GeoSolutions Limited	Hole ID	WS01
	Engineer		Sample Ref	
			Depth (m)	5.90-6.00
			Sample Type	D


Non Engineering Description : Brown mottled grey slightly sandy CLAY.

Preparation : Sample as received



Results :

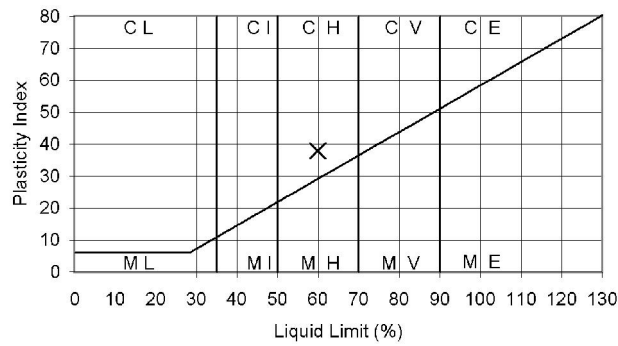
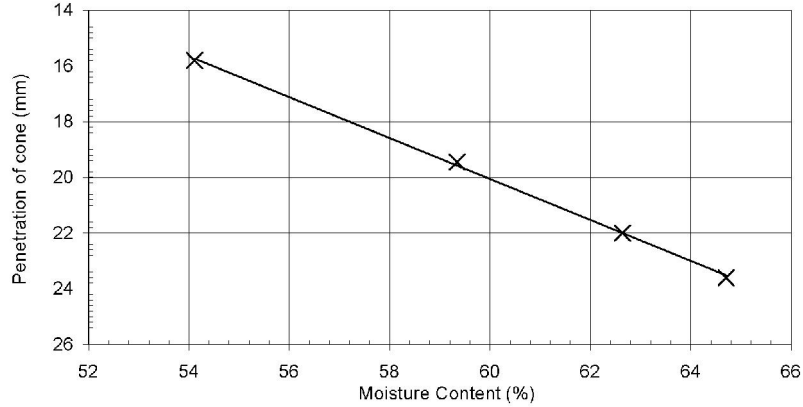
As Received Moisture Content : (BS1377:Part 2:Clause 3:1990)	28 %
Percentage retained on 425µm sieve :	0 %
Liquid Limit :	47 %
Plastic Limit :	21 %
Plasticity Index :	26
Equivalent moisture content of material passing 425µm sieve :	28 %
Liquidity Index :	0.27

Originator	Checked & Approved	Liquid Limit (Four Point Cone Penetrometer Method) Plastic Limit, Plasticity Index & Liquidity Index BS 1377:Part 2:Clause 4.3:1990 BS 1377:Part 2:Clause 5:1990	 Figure 4 Sheet 1 of 1
TE/ME	24/08/2016		

 TERRA TEK <small>SITE INVESTIGATION AND LABORATORY SERVICES</small>	Site	REDINGTON ROAD	Contract No.	B20218
	Client	Key GeoSolutions Limited	Hole ID	WS02
	Engineer		Sample Ref	
			Depth (m)	1.00-1.50
			Sample Type	T


Non Engineering Description : Brown slightly sandy CLAY.


Preparation : Sample as received



Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990)	26 %
Percentage retained on 425µm sieve :	0 %
Liquid Limit :	60 %
Plastic Limit :	22 %
Plasticity Index :	38
Equivalent moisture content of material passing 425µm sieve :	26 %
Liquidity Index :	0.11

Originator	Checked & Approved	Liquid Limit (Four Point Cone Penetrometer Method) Plastic Limit, Plasticity Index & Liquidity Index BS 1377:Part 2:Clause 4.3:1990 BS 1377:Part 2:Clause 5:1990	 Figure 5 Sheet 1 of 1
TE/ME	24/08/2016		

	Site	REDINGTON ROAD	Contract No B20218
	Client	Key GeoSolutions Limited	
	Engineer		



Sample Identification							Description
Exploratory Hole	Depth m	Sample Ref	Sample Type	Lab Sample ID	Date Sampled	Temperature of cool box on receipt °C	
WS01	1.00-1.20		T	298210	04/08/16	10.2	Brown silty SAND
WS01	5.90-6.00		D	298211	04/08/16	10.2	Brown sandy CLAY with occasional fine gravel.
WS02	1.00-1.50		T	298212	04/08/16	10.2	Brown SAND

Notes

1. Where a date of sampling is not provided the sample is classified as deviating.
2. Temperatures exceeding 6°C on receipt may be deviating, but will be dependent upon the suite of tests carried out.
3. Samples are considered deviating if the incorrect sample container type has been used. This is indicated within the report tables.
4. Results reported for samples classified as deviating may be compromised.

Originator	Checked & Approved	LABORATORY DESCRIPTIONS	 Appendix X Sheet 1 of 1
TGH	 24/08/2016		

 TERRA TEK <small>SITE INVESTIGATION AND LABORATORY SERVICES</small>		Site REDINGTON ROAD	Contract No B20218		
		Client Key GeoSolutions Limited			
		Engineer			
Method Code	Reference	Description of Method	ISO17025 Accredited	MCERTS Accredited	Wet/Dry Sample Tested
GP001	BS1377, Part 3, 1990: Soils for Civil Engineering Purposes.	Preparation of soil samples for chemical analysis	Yes	Yes	N/A
GP012	BS EN 12457-3: Characterisation of Waste - Compliance test for leaching of granular waste materials and sludges (two-stage batch test)	Preparation of soil samples for two-stage leachate test			Dry
TP019	BS1377, Part 3, 1990: Soils for Civil Engineering Purposes.	Determination of pH in 2.5:1 water/soil extract using pH meter.	Yes	Yes	Dry
TP029	BS1377, Part 3, 1990: Soils for Civil Engineering Purposes.	Determination of acid soluble sulfate by gravimetry.	Yes	Yes	Dry
TP032	MAFF Book 427: The Analysis of Agricultural Materials; Method 8	Determination of water soluble boron by colorimetry	Yes		Dry
TP033	APHA/AWWA, 19th edition: Method 5520E	Determination of Toluene Extractable Matter by Soxhlet extraction.	Yes		Dry
TP040	APHA/AWWA, 19th edition: Method 3500Cr-D	Determination of hexavalent chromium by colorimetry.	Yes		Dry
TP041	BS1377, Part 3, 1990: Soils for Civil Engineering Purposes.	Determination of organic matter by titrimetry.	Yes		Dry
TP042	BS1377, Part 3, 1990: Soils for Civil Engineering Purposes.	Determination of loss on ignition at 50-440°C by gravimetry	Yes	Yes	Dry
TP043	BS1377, Part 3, 1990: Soils for Civil Engineering Purposes.	Determination of water soluble sulfate in 2:1 water/soil extract	Yes	Yes	Dry
TP045	GACHAMJA A.M. Chromatography and Analysis: 1992 9-11 (modified)	Determination of polyaromatic hydrocarbons extractable in dichloromethane, by GC/MS	Yes	Yes	Dry
TP046	MEWAM method: Phenols in water and Effluents: 4-aminoantipyrine method	Determination of monohydric phenols by steam distillation/colorimetry	Yes	Yes	Dry
TP047	MEWAM method: Cyanide in Waters etc	Determination of Free Cyanide by steam distillation/colorimetry	Yes		Dry
TP048	MEWAM method: Cyanide in Waters etc	Determination of total cyanide by steam distillation/colorimetry.	Yes	Yes	Wet
TP049	MEWAM method: Cyanide in Waters etc	Determination of complex cyanide by calculation	Yes		Dry
TP050	MEWAM method: Determination of Thiocyanate ,1985	Determination of thiocyanate by colorimetry	Yes	Yes	Dry
TP051	USEPA Method 9030B	Determination of acid soluble sulfides by steam distillation/colorimetry.	Yes	Yes	Dry
TP052	BS1881: Part 324, 1988: Testing Concrete	Determination of elemental sulfur by Soxhlet extraction and titrimetry.	Yes		Dry
TP067	TNRCC Method 1005: 2001 (modified)	Determination of pentane/acetone extractable petroleum hydrocarbons (C8 - C40) by GC/FID	Yes	Yes	Wet
TP072	In-house documented method	Determination of ammoniacal nitrogen by colorimetry.			Dry
Notes 1. Terra Tek (Birmingham) are MCERTS accredited for clay, sand & loam matrix types only, where they constitute the major component of the sample. Other coarse granular materials, ie gravel, are not accredited where they comprise the major component of the sample. 2. Results are expressed on a dry-weight basis (samples dried at 30°C ± 5°C) except where stated. 3. The laboratory removes any material >2mm prior to analysis. The quantity and nature of any material removed from samples is recorded and the information is available on request. 4. The laboratory records the date of analysis of each parameter. This information is available on request. 5. Where a parameter cannot be determined in house it is our policy to use a UKAS/MCERTS accredited laboratory wherever possible. Terra Tek will assume responsibility for the quality of subcontracted tests and the performance of the subcontractor chosen. Where there is no known UKAS/MCERTS laboratory for a particular parameter, a laboratory listed within the Terra Tek Approved Subcontractors list, which is subject to performance assessment, will be selected.					
Originator	Checked & Approved	SUMMARY OF IN-HOUSE ANALYTICAL TEST METHODS (SOIL)			Appendix Y Sheet 1 of 2
N/A	N/A				

 TERRA TEK <small>SITE INVESTIGATION AND LABORATORY SERVICES</small>		Site REDINGTON ROAD	Contract No B20218		
		Client Key GeoSolutions Limited			
		Engineer			
Method Code	Reference	Description of Method	ISO17025 Accredited	MCERTS Accredited	Wet/Dry Sample Tested
TP073	In-house documented method	Determination of anionic detergent (MBAS) by colorimetry			Dry
TP074	In-house documented method	Determination of water soluble fluoride by ion selective electrode			Dry
TP098	BS1377, Part 3, 1990: Soils for Civil Engineering Purposes.	Determination of acid soluble chloride by titrimetry			Dry
TP099	BS1377, Part 3, 1990: Soils for Civil Engineering Purposes.	Determination of water soluble chloride by titrimetry	Yes	Yes	Dry
TP100	Wisconsin DNR Modified GRO method, Method for Determining Gasoline Range Organics	Determination of Volatile Petroleum Hydrocarbons/GRO.	Yes	Yes	Wet
TP110	USEPA Methods 8082A & 3665A	Determination of Total & Speciated 7 PCB Congeners by GC/MS SIM	Yes	Yes	Wet
TP114	BS1377, Part 3, 1990: Soils for Civil Engineering Purposes.	Determination of carbonate in soil (rapid titration method)			Dry
TP126	TNRCC Method 1006 (modified)	Extracted petroleum hydrocarbons from TP067 split into aromatic and aliphatic fractions. Analysed by GC/FID.	Yes		Wet
TP134	In-house documented method	Determination of water soluble chloride by titrimetry	Yes	Yes	Dry
TP135	USEPA Methods 8100 & 8270D. In-house method TP045	Determination of polyaromatic hydrocarbons extractable in dichloromethane, by GC/MS (with concentration stage)			Dry
TP145	USEPA Methods 3550C & 8270D	Determination of Semi-Volatile Organic Compounds by GC/MS	Yes	Yes	Wet
TP147	USEPA Methods 8082A & 3665A	Determination of total & speciated WHO 12 PCB Congeners by GC/MS SIM.			Wet
TP150	USEPA Methods 8081B & 8141B	Determination of pesticides and herbicides in soil by GC/MS SIM			Dry
TP152	USEPA Method 556	Determination of carbonyls in soil by GC/MS.			Wet
TP154	USEPA Method 5021. Wisconsin DNR modified GRO method	Determination of volatiles in soil by GC/MS headspace	Yes	Selected	Wet
TP158	USEPA Method 1671	Determination of glycols in soil by GC/FID DI			Wet
Notes 1. Terra Tek (Birmingham) are MCERTS accredited for clay, sand & loam matrix types only, where they constitute the major component of the sample. Other coarse granular materials, ie gravel, are not accredited where they comprise the major component of the sample. 2. Results are expressed on a dry-weight basis (samples dried at 30°C ± 5°C) except where stated. 3. The laboratory removes any material >2mm prior to analysis. The quantity and nature of any material removed from samples is recorded and the information is available on request. 4. The laboratory records the date of analysis of each parameter. This information is available on request. 5. Where a parameter cannot be determined in house it is our policy to use a UKAS/MCERTS accredited laboratory wherever possible. Terra Tek will assume responsibility for the quality of subcontracted tests and the performance of the subcontractor chosen. Where there is no known UKAS/MCERTS laboratory for a particular parameter, a laboratory listed within the Terra Tek Approved Subcontractors list, which is subject to performance assessment, will be selected.					
Originator	Checked & Approved	SUMMARY OF IN-HOUSE ANALYTICAL TEST METHODS (SOIL)			Appendix Y Sheet 2 of 2
N/A	N/A				