Quantum Geotech

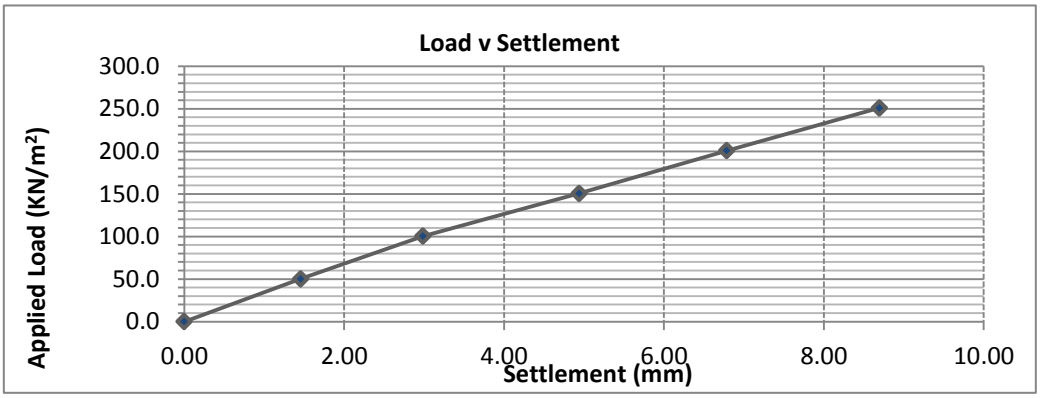
Plas Newydd, Llanedi,
Pontarddulais, Swansea
SA4 0FQ
Tel.: 01554 744880

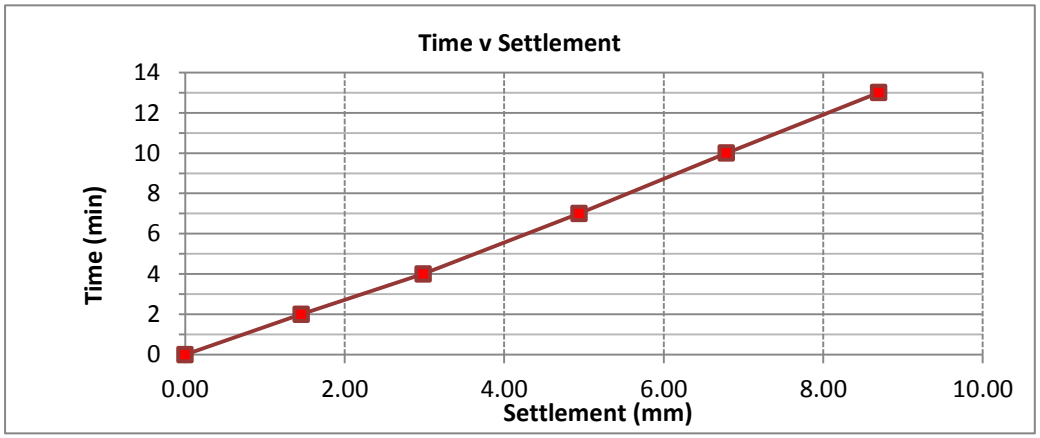
Determination of the Vertical Deformation and Strength Characteristics by the Plate Loading Test to BS 1377: Part 9: 1990, IAN 73/06 & TP - 10

Client Name:	Blaenau Gwent County Borough Council		
Client Address:	Civic Centre, Ebbw Vale. NP23 6XB		
Contract Name:	Glyn Coed Scool, Ebbw Vale	**Contract No.:**	Q0215

Site Reference:	4	Lab. Reference:	1.4	Date Tested:	19.6.20
Sample Location:	Plate 4			Date Received:	19.6.20
Material Description:	Dark Grey sandy slightly gravelly clayey SILT				
Supplier:	Unknown		Source:	In - situ	
Depth Below Ground Level:	0.4m		Reaction Load:	14 Tonne Tracked Excavator	
Plate Diameter (mm):	300		Plate Area (m^2):	0.071	

Settlement (mm)	Load (KN/m^2)	Settlement Time (min)
0.00	0.0	0
1.46	50.2	2
2.99	100.4	4
4.94	150.6	7
6.79	200.8	10
8.70	251.0	13





Remarks:

Signed: *T.M.Burke*
Position: Principal Engineering Technician
Dated: 19 June 2020

APPENDIX VIII – CALIFORNIA BEARING RATIO TEST CERTIFICATES

Quantum Geotech

Plas Newydd, Llanedi,
Pontarddulais, Swansea
SA4 0FQ
Tel.: 01554 744880

Determination of CBR Using the Plate Load Test to BS 1377: Part 9: 1990, TP09 & IAN73/06 Rev.1

Client Name:	Blaenau Gwent County Borough Council		
Client Address:	Civic Centre, Ebbw Vale. NP23 6XB		
Contract Name:	Glyncoed School, Ebbw Vale.	**Contract No.:**	Q0215

Site Reference:	1	Lab. Reference:	1.1	Date Tested:	19.6.20
Sample Location:	CBR 1.			Date Received:	19.6.20
Material Description:	Dark Grey brown silty sandy slightly gravelly CLAY with cobbles.				
Supplier:	In-Situ	Source:	In-Situ		
Depth Below Ground Level:	0.4m	Reaction Load:	14 Tonne Tracked Excavator		
Plate Diameter (mm):	300	Plate Area (m^2):	0.071		

Settlement (mm)	Load (KN/m^2)	Settlement Time (min)
0.00	0.0	0
0.22	52.8	2
0.48	73.8	2
0.78	93.2	2
1.03	109.4	2
1.34	128.9	2
Derived Load At 1.25mm	123.2	

Modulus Of Subgrade Reaction (k_{762})(MN/m2/m)	**43**

Equivalent CBR Value (%)	**7**

Remarks:

Signed: *T.M.Burke*
Position: Principal Engineering Technician
Dated: 19 June 2020

Quantum Geotech

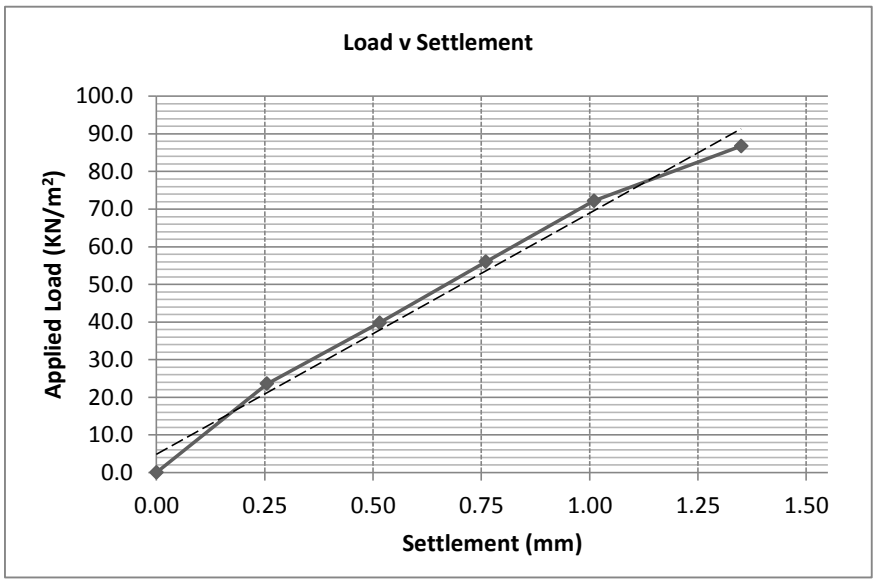
Plas Newydd, Llanedi,
Pontarddulais, Swansea
SA4 0FQ
Tel.: 01554 744880

Determination of CBR Using the Plate Load Test to BS 1377: Part 9: 1990, TP09 & IAN73/06 Rev.1

Client Name:	Blaenau Gwent County Borough Council		
Client Address:	Civic Centre, Ebbw Vale. NP23 6XB		
Contract Name:	Glyncoed School, Ebbw Vale.	**Contract No.:**	Q0215

Site Reference:	2	Lab. Reference:	1.2	Date Tested:	19.6.20
Sample Location:	CBR 2.			Date Received:	19.6.20
Material Description:	Dark Grey brown silty sandy slightly gravelly CLAY with cobbles.				
Supplier:	In-Situ	Source:	In-Situ		
Depth Below Ground Level:	0.4m	Reaction Load:	14 Tonne Tracked Excavator		
Plate Diameter (mm):	300	Plate Area (m^2):	0.071		

Settlement (mm)	Load (KN/m^2)	Settlement Time (min)
0.00	0.0	0
0.26	23.6	2
0.52	39.8	2
0.76	56.0	2
1.01	72.2	2
1.35	86.8	2
Derived Load At 1.25mm	82.5	



Modulus Of Subgrade Reaction (k_{762})(MN/m2/m)	**29**

Equivalent CBR Value (%)	**3**

Remarks:

Signed: *T.M.Burke*
Position: Principal Engineering Technician
Dated: 19 June 2020

APPENDIX IX – GEOTECHNICAL LABORATORY TEST RESULTS

Laboratory Report

UKAS TESTING 2788

GSTL
GEO Site & Testing Services Ltd

Contract Number: 49103

Client Ref: **Q0215**
Client PO:

Report Date: **27-07-2020**

Client **Quantum Geotechnic Ltd**
Ty Berwig
Bynea
Llanelli.
Carmarthenshire.
SA14 9ST

Contract Title: **Glyncoed School**
For the attention of: **Phil Darby**

Date Received: **29-06-2020**
Date Completed: **27-07-2020**

Test Description	Qty
Moisture Content BS 1377:1990 - Part 2 : 3.2 - * UKAS	15
4 Point Liquid & Plastic Limit BS 1377:1990 - Part 2 : 4.3 & 5.3 - * UKAS	14
PSD Wet Sieve method BS 1377:1990 - Part 2 : 9.2 - * UKAS	13
PSD: Sedimentation by pipette carried out with Wet Sieve (Wet Sieve must also be selected) BS 1377:1990 - Part 2 : 9.4 - * UKAS	3
BRE Suite D Brownfield Site (pyrite present) **includes pH, water & acid soluble sulphate, total sulphur, magnesium, chloride and nitrate** BRE - BR279 - @ Non Accredited Test	7
Dry Den/MC (2.5kg Rammer Method 1 Litre Mould) BS 1377:1990 - Part 4 : 3.3 - * UKAS	3
Disposal of samples for job	1

Notes: **Observations and Interpretations are outside the UKAS Accreditation**
*** - denotes test included in laboratory scope of accreditation**
 # - denotes test carried out by approved contractor
@ - denotes non accredited tests

Approved Signatories:
Emma Sharp (Office Manager) - Paul Evans (Quality/Technical Manager) - Richard John (Advanced Testing Manager)
Sean Penn (Administrative/Accounts Assistant) - Shaun Jones (Laboratory manager) - Wayne Honey (Administrative/Quality Assistant)

GEO Site & Testing Services Ltd
Unit 3-4, Heol Aur, Dafen Ind Estate, Dafen, Llanelli, Carmarthenshire SA14 8QN
Tel: 01554 784040 Fax: 01554 784041 info@gstl.co.uk gstl.co.uk

GSTL	NATURAL MOISTURE, LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX (BS 1377 : Part 2 : 1990 Method 5)	
Contract Number	49103	
Site Name	Glyncoed School	
Date Tested	20/07/2020	
	DESCRIPTIONS	

Sample/Hole Reference	Sample Number	Sample Type	Depth (m)			Descriptions
BH01	8	D	2.00	-	2.50	Brown fine gravelly silty CLAY
BH02	9	B	2.00	-	2.50	Grey fine to coarse sandy silty fine to coarse gravelly CLAY
BH03	9	B	2.00	-	2.50	Grey fine gravelly silty CLAY
BH04	11	B	3.00	-	3.50	Brown sandy fine gravelly silty CLAY
BH05	9	B	2.00	-	2.50	Grey fine to coarse sandy fine to coarse gravelly SILT/CLAY
BH06	5	D	1.20	-		Brown fine gravelly silty CLAY
BH06	8	D	2.00	-	2.50	Brown fine gravelly silty CLAY
BH07	5	D	1.20	-		Brown sandy silty CLAY
BH08	5	D	1.20	-		Brown sandy fine gravelly silty CLAY
BH09	8	D	2.00	-		Brown fine to medium gravelly silty CLAY
TP01	1	B	0.40	-	0.60	Brown fine to medium gravelly silty CLAY
TP07	2	B	1.40	-	1.60	Brown fine to coarse gravelly fine to coarse sandy SILT/CLAY
BH08	10	D	3.00	-		Brown fine to medium gravelly silty CLAY
BH09	10	D	3.00	-		Grey fine gravelly silty CLAY
				-		
				-		
				-		
				-		
				-		
				-		
				-		
				-		
				-		
				-		

Operators	Checked	27/07/2020	Wayne Honey (Administrative/Quality Assistant)
Conor Davison	Approved	27/07/2020	Paul Evans (Quality/Technical Manager)

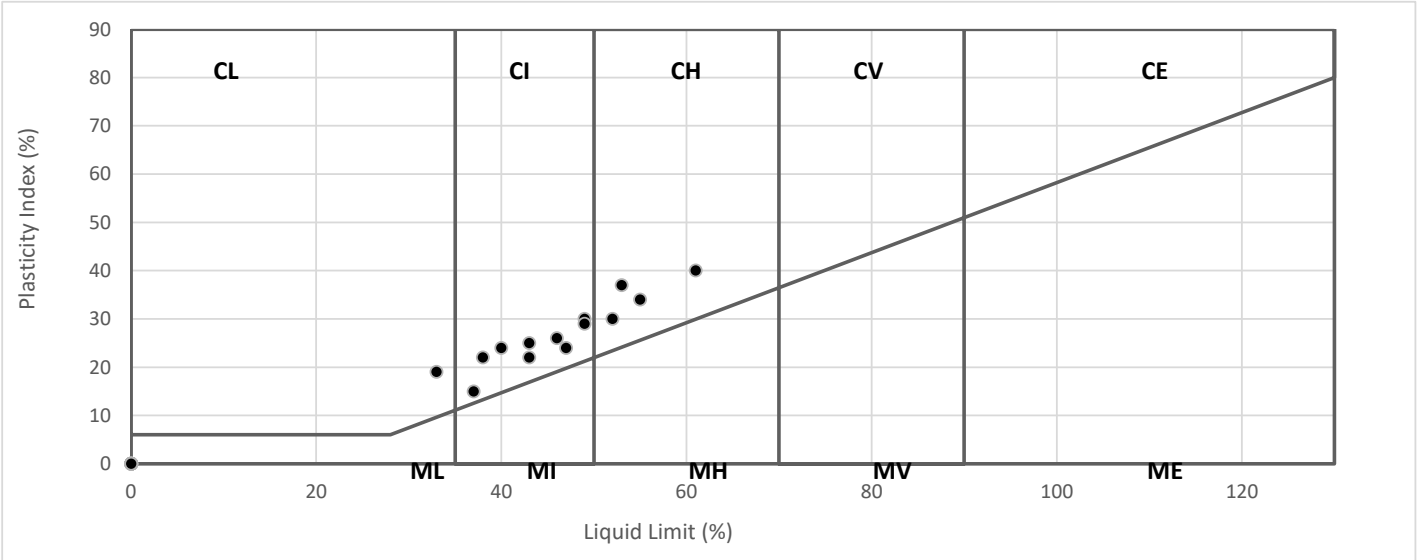
UKAS TESTING 2788

GSTL	NATURAL MOISTURE, LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX (BS 1377 : Part 2 : 1990 Method 5)	
Contract Number	49103	
Project Location	Glyncoed School	
Date Tested	20/07/2020	

Sample/Hole Reference	Sample Number	Sample Type	Depth (m)			Moisture Content %	Liquid Limit %	Plastic Limit %	Plasticity index %	Passing 0.425mm %	Remarks
BH01	8	D	2.00	-	2.50	45	61	21	40	99	CH High Plasticity
BH02	9	B	2.00	-	2.50	20	43	18	25	77	CI Intermediate Plasticity
BH03	9	B	2.00	-	2.50	28	47	23	24	99	CI Intermediate Plasticity
BH04	11	B	3.00	-	3.50	26	49	19	30	98	CI Intermediate Plasticity
BH05	9	B	2.00	-	2.50	25	43	21	22	67	CI Intermediate Plasticity
BH06	5	D	1.20	-		32	53	16	37	99	CH High Plasticity
BH06	8	D	2.00	-	2.50	37	55	21	34	99	CH High Plasticity
BH07	5	D	1.20	-		24	52	22	30	100	CH High Plasticity
BH08	5	D	1.20	-		28	46	20	26	99	CI Intermediate Plasticity
BH09	8	D	2.00	-		18	40	16	24	98	CI Intermediate Plasticity
TP01	1	B	0.40	-	0.60	17	33	14	19	90	CL Low Plasticity
TP07	2	B	1.40	-	1.60	25	49	20	29	83	CI Intermediate Plasticity
BH08	10	D	3.00	-		19	38	16	22	96	CI Intermediate Plasticity
BH09	10	D	3.00	-		18	37	22	15	98	CI Intermediate Plasticity
				-							
				-							
				-							
				-							
				-							
				-							
				-							
				-							
				-							
				-							

Symbols: NP : Non Plastic # : Liquid Limit and Plastic Limit Wet Sieved

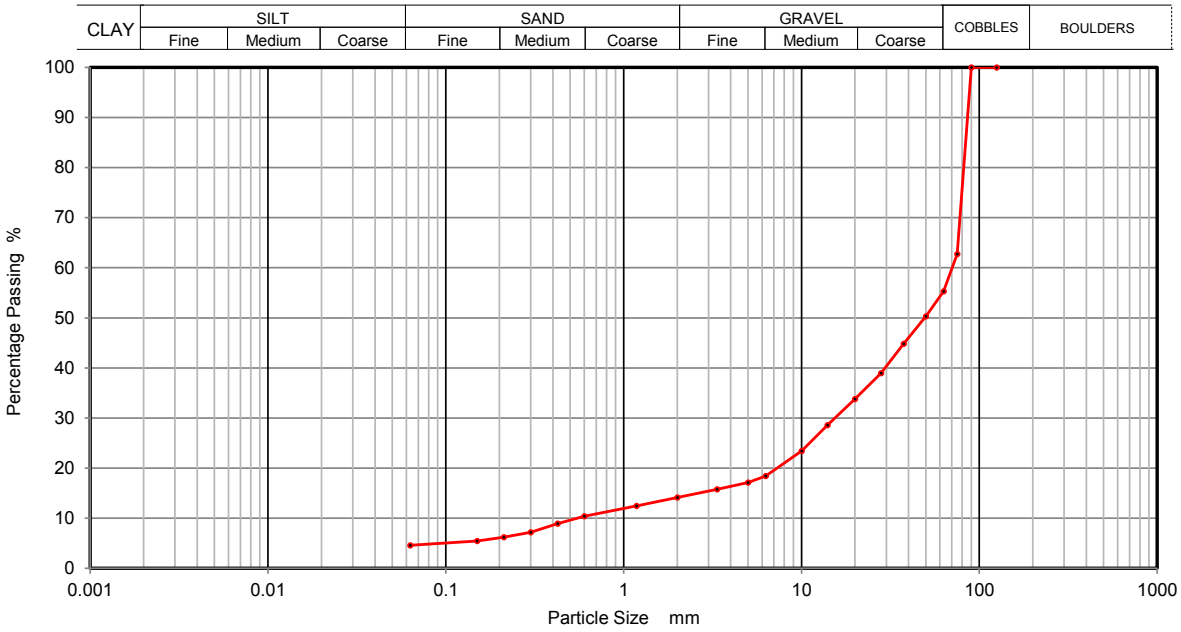
PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION
BS 5930:1999+A2:2010



Operators	Checked	27/07/2020	Wayne Honey (Administrative/Quality Assistant)
Conor Davison	Approved	27/07/2020	Paul Evans (Quality/Technical Manager)

UKAS TESTING 2788

GSTL	PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve, Clause 9.2	Contract Number	49103
		Borehole/Pit No.	BH01
Site Name	Glyncoed School	Sample No.	3
Soil Description	Grey slightly clayey/silty slightly fine to coarse sandy fine to coarse GRAVEL (with cobbles)	Depth Top	0.50
		Depth Base	1.00
Date Tested	23/07/2020	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	63		
63	55		
50	50		
37.5	45		
28	39		
20	34		
14	29		
10	23		
6.3	18		
5	17		
3.35	16		
2	14		
1.18	12		
0.6	10		
0.425	9		
0.3	7		
0.212	6		
0.15	5		
0.063	5		

Sample Proportions	% dry mass
Cobbles	45
Gravel	41
Sand	9
Silt and Clay	5

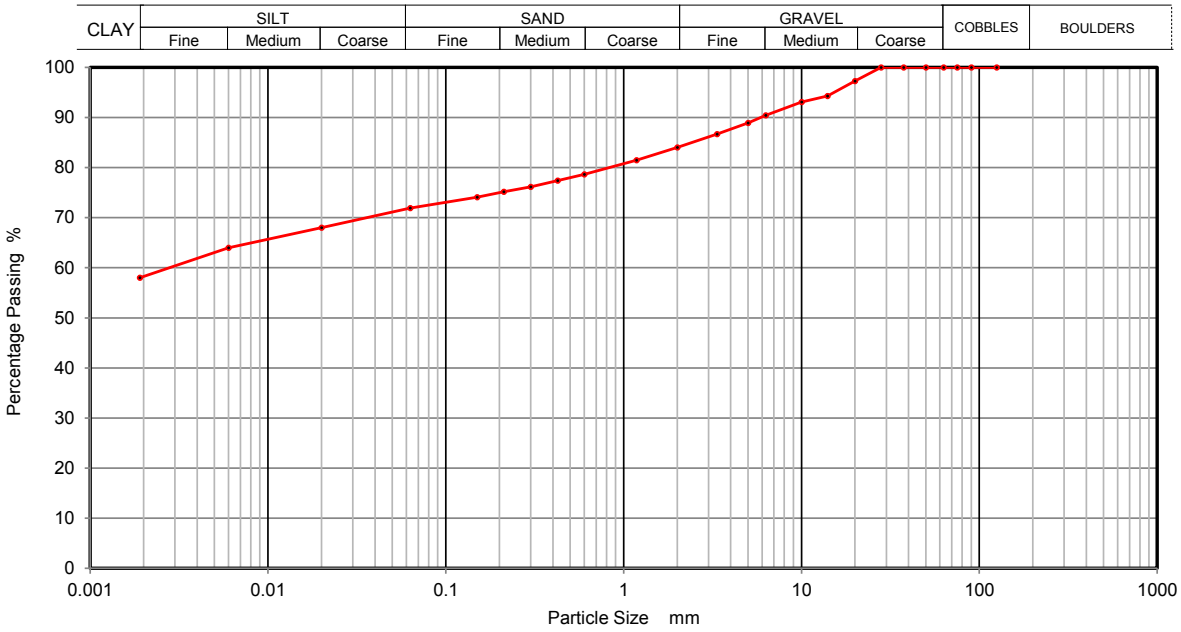
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operators	Checked	26/07/2020	Wayne Honey	W. Honey
RO/MH	Approved	27/07/2020	Paul Evans	P Evans

UKAS TESTING 2788

GSTL	PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4	Contract Number	49103
		Borehole/Pit No.	BH02
Site Name	Glyncoed School	Sample No.	9
Soil Description	Grey fine to coarse sandy silty fine to coarse gravelly CLAY	Depth Top	2.00
		Depth Base	2.50
Date Tested	23/07/2020	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	68
90	100	0.0060	64
75	100	0.0020	58
63	100		
50	100		
37.5	100		
28	100		
20	97		
14	94		
10	93		
6.3	90		
5	89		
3.35	87		
2	84		
1.18	81		
0.6	79		
0.425	77		
0.3	76		
0.212	75		
0.15	74		
0.063	72		

Sample Proportions	% dry mass
Cobbles	0
Gravel	16
Sand	12
Silt	14
Clay	58

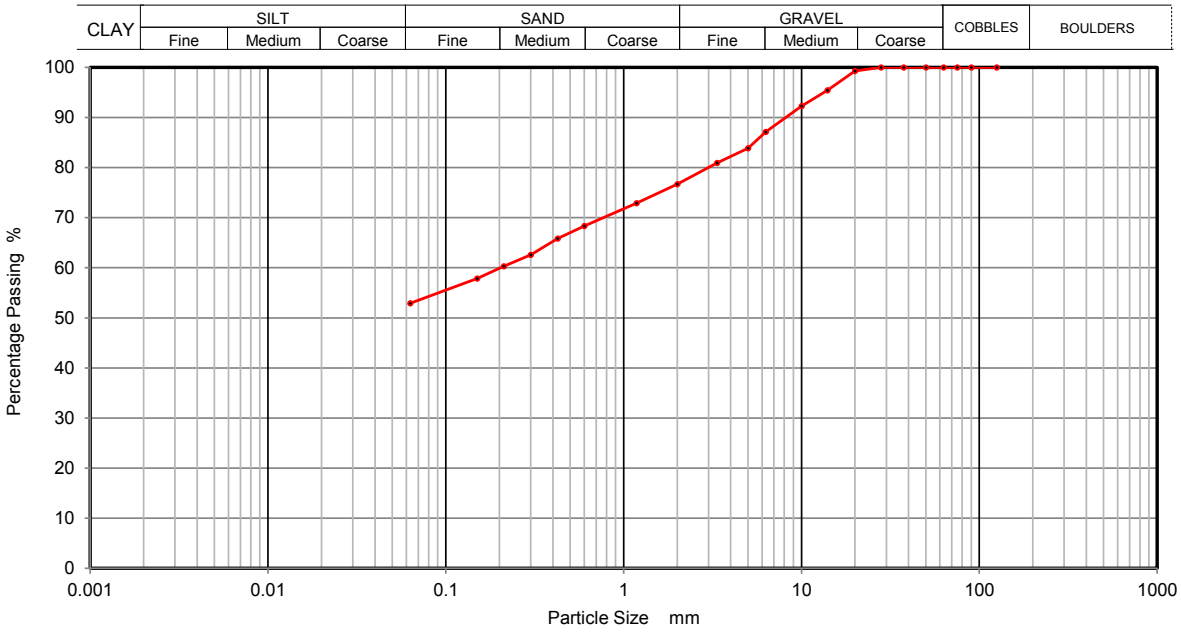
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operators	Checked	26/07/2020	Wayne Honey	W. Honey
RO/MH	Approved	27/07/2020	Paul Evans	P Evans

UKAS TESTING 2788

GSTL	PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve, Clause 9.2	Contract Number	49103
		Borehole/Pit No.	BH03
Site Name	Glyncoed School	Sample No.	11
Soil Description	Grey fine to coarse gravelly fine to coarse sandy SILT/CLAY	Depth Top	3.00
		Depth Base	3.50
Date Tested	23/07/2020	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	99		
14	95		
10	92		
6.3	87		
5	84		
3.35	81		
2	77		
1.18	73		
0.6	68		
0.425	66		
0.3	63		
0.212	60		
0.15	58		
0.063	53		

Sample Proportions	% dry mass
Cobbles	0
Gravel	23
Sand	24
Silt and Clay	53

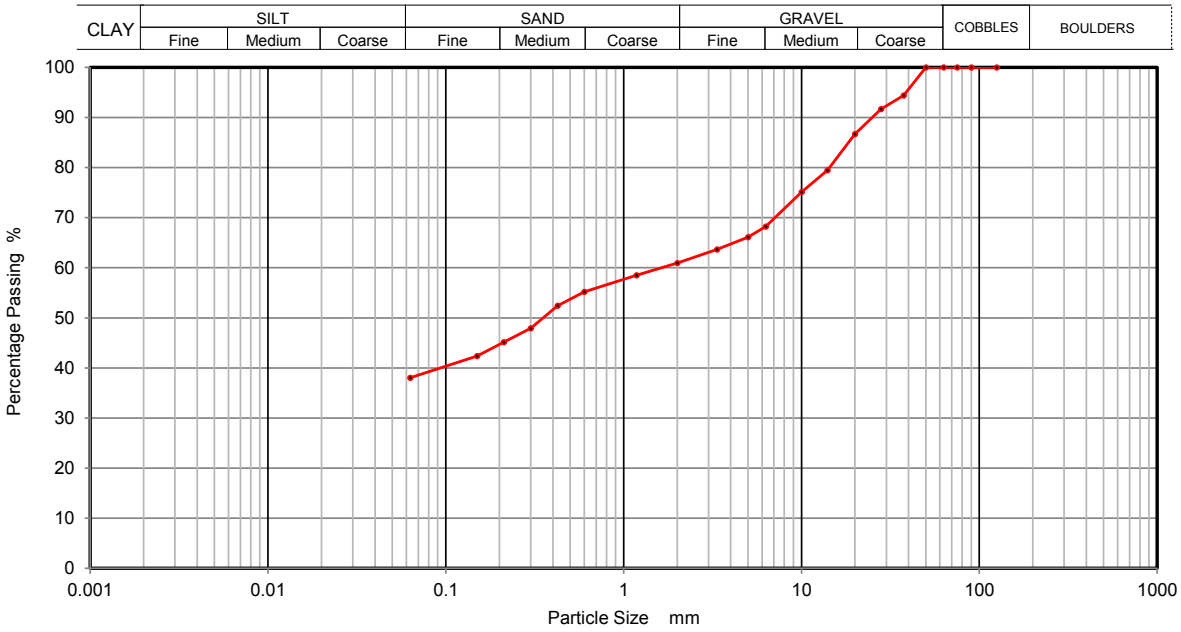
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operators	Checked	26/07/2020	Wayne Honey	W. Honey
RO/MH	Approved	27/07/2020	Paul Evans	D P Evans

UKAS TESTING 2788

GSTL	PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve, Clause 9.2	Contract Number	49103
		Borehole/Pit No.	BH04
Site Name	Glyncoed School	Sample No.	3
Soil Description	Dark brown fine to coarse sandy silty/clayey fine to coarse GRAVEL	Depth Top	0.50
		Depth Base	1.00
Date Tested	23/07/2020	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	94		
28	92		
20	87		
14	79		
10	75		
6.3	68		
5	66		
3.35	64		
2	61		
1.18	59		
0.6	55		
0.425	52		
0.3	48		
0.212	45		
0.15	42		
0.063	38		

Sample Proportions	% dry mass
Cobbles	0
Gravel	39
Sand	23
Silt and Clay	38

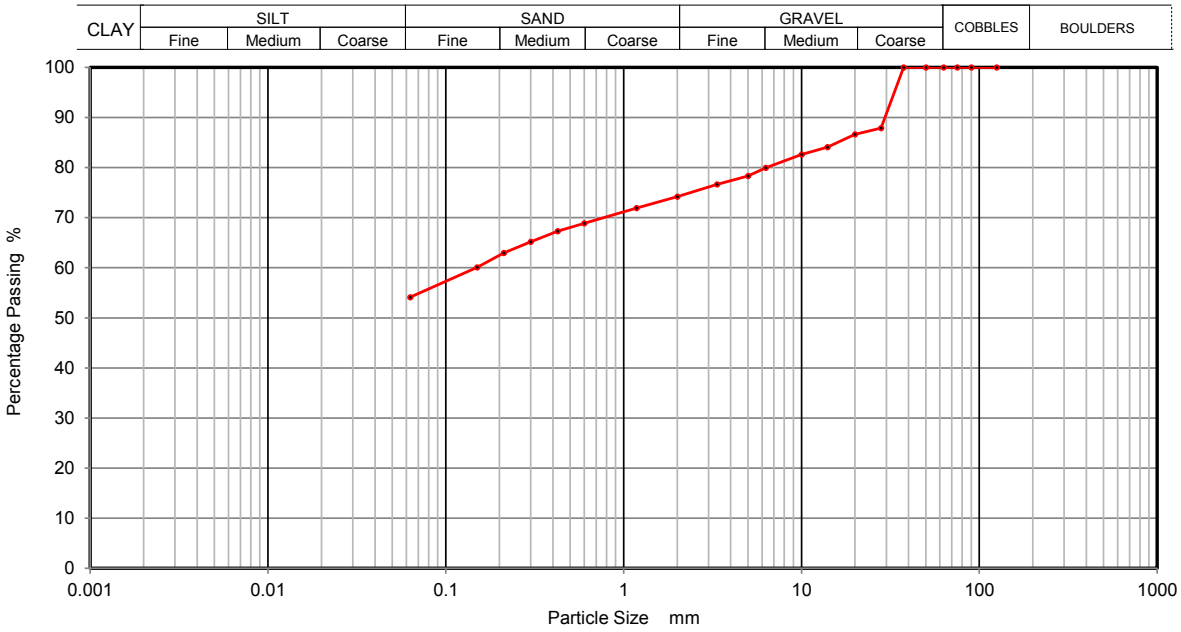
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operators	Checked	26/07/2020	Wayne Honey	W. Honey
RO/MH	Approved	27/07/2020	Paul Evans	P Evans

UKAS TESTING 2788

GSTL	PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve, Clause 9.2	Contract Number	49103
		Borehole/Pit No.	BH05
Site Name	Glyncoed School	Sample No.	9
Soil Description	Grey fine to coarse sandy fine to coarse gravelly SILT/CLAY	Depth Top	2.00
		Depth Base	2.50
Date Tested	23/07/2020	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	88		
20	87		
14	84		
10	83		
6.3	80		
5	78		
3.35	77		
2	74		
1.18	72		
0.6	69		
0.425	67		
0.3	65		
0.212	63		
0.15	60		
0.063	54		

Sample Proportions	% dry mass
Cobbles	0
Gravel	26
Sand	20
Silt and Clay	54

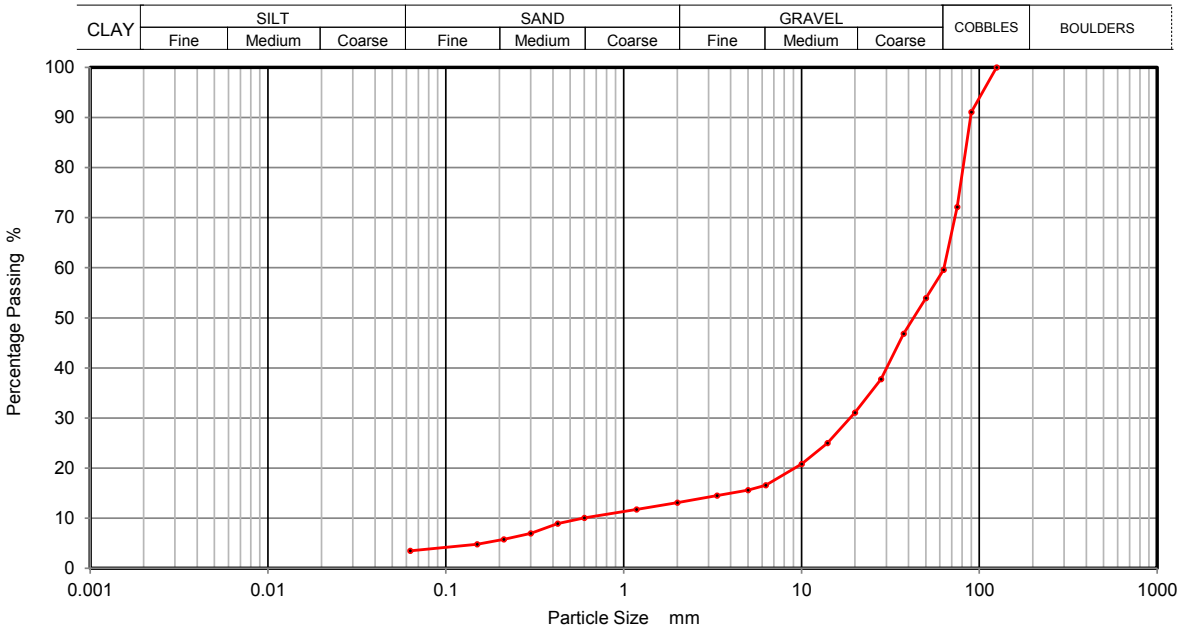
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operators	Checked	26/07/2020	Wayne Honey	W. Honey
RO/MH	Approved	27/07/2020	Paul Evans	P Evans

UKAS TESTING 2788

GSTL	PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve, Clause 9.2	Contract Number	49103
		Borehole/Pit No.	BH06
Site Name	Glyncoed School	Sample No.	3
Soil Description	Grey slightly clayey/silty fine to coarse sandy fine to coarse GRAVEL (with cobbles)	Depth Top	0.50
		Depth Base	1.00
Date Tested	23/07/2020	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	91		
75	72		
63	60		
50	54		
37.5	47		
28	38		
20	31		
14	25		
10	21		
6.3	17		
5	16		
3.35	15		
2	13		
1.18	12		
0.6	10		
0.425	9		
0.3	7		
0.212	6		
0.15	5		
0.063	3		

Sample Proportions	% dry mass
Cobbles	40
Gravel	47
Sand	10
Silt and Clay	3

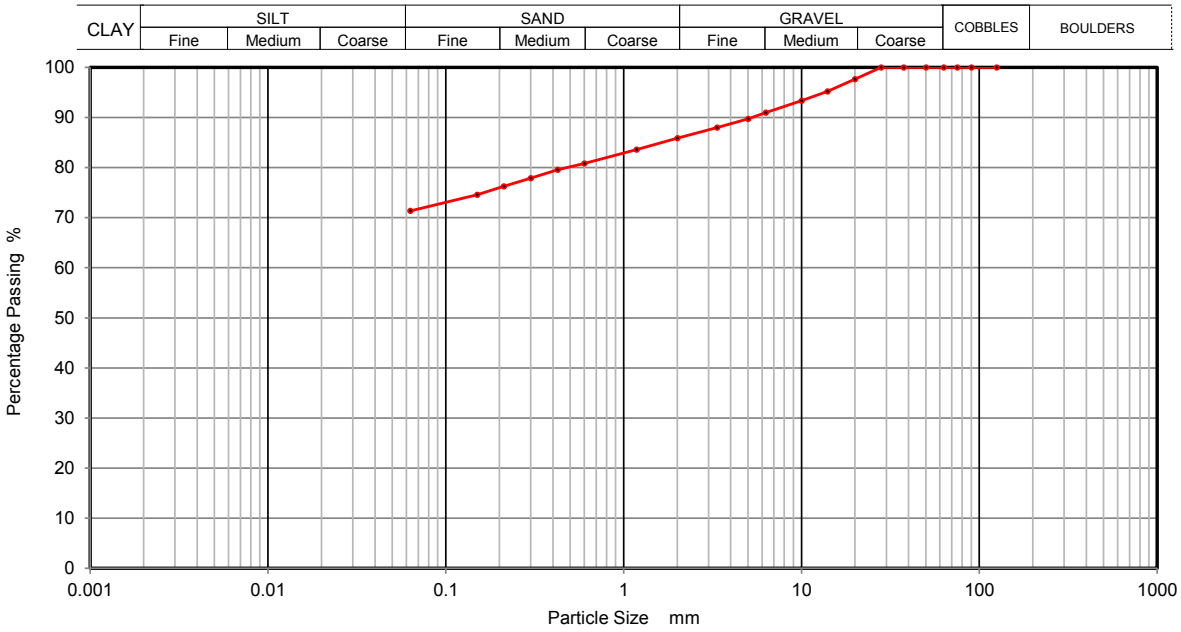
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operators	Checked	26/07/2020	Wayne Honey	W. Honey
RO/MH	Approved	27/07/2020	Paul Evans	P Evans

UKAS TESTING 2788

GSTL	PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve, Clause 9.2	Contract Number	49103
		Borehole/Pit No.	BH06
Site Name	Glyncoed School	Sample No.	9
Soil Description	Greyish brown fine to coarse gravelly fine to coarse sandy SILT/CLAY	Depth Top	2.00
		Depth Base	2.50
Date Tested	23/07/2020	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	98		
14	95		
10	93		
6.3	91		
5	90		
3.35	88		
2	86		
1.18	84		
0.6	81		
0.425	80		
0.3	78		
0.212	76		
0.15	75		
0.063	71		

Sample Proportions	% dry mass
Cobbles	0
Gravel	14
Sand	15
Silt and Clay	71

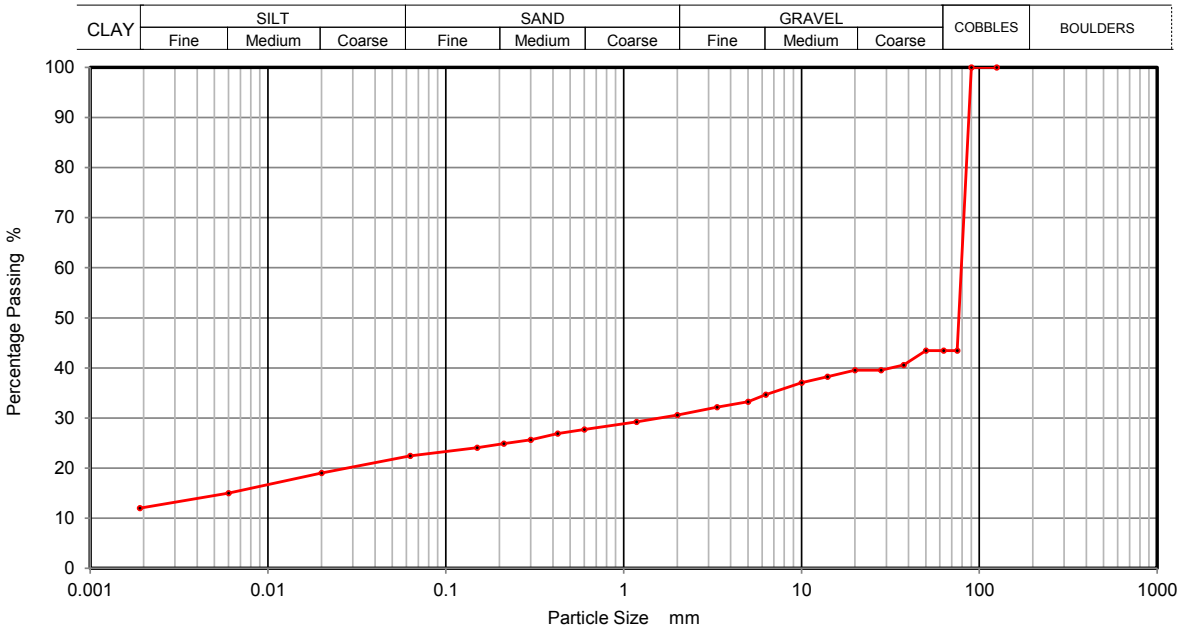
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operators	Checked	26/07/2020	Wayne Honey	W. Honey
RO/MH	Approved	27/07/2020	Paul Evans	D P Evans

UKAS TESTING 2788

GSTL	PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4	Contract Number	49103
		Borehole/Pit No.	BH07
Site Name	Glyncoed School	Sample No.	6
Soil Description	Brown slightly fine to coarse sandy silty clayey fine to coarse GRAVEL (with cobbles)	Depth Top	1.20
		Depth Base	1.70
Date Tested	23/07/2020	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	19
90	100	0.0060	15
75	43	0.0020	12
63	43		
50	43		
37.5	41		
28	40		
20	40		
14	38		
10	37		
6.3	35		
5	33		
3.35	32		
2	31		
1.18	29		
0.6	28		
0.425	27		
0.3	26		
0.212	25		
0.15	24		
0.063	22		

Sample Proportions	% dry mass
Cobbles	57
Gravel	12
Sand	9
Silt	10
Clay	12

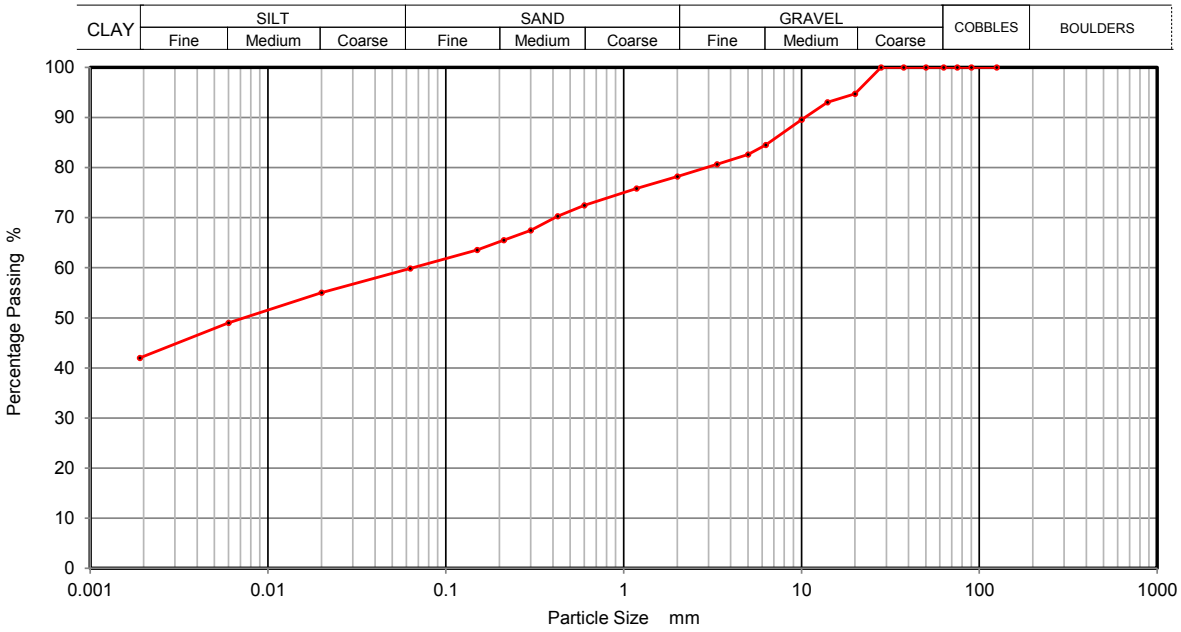
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operators	Checked	26/07/2020	Wayne Honey	W. Honey
RO/MH	Approved	27/07/2020	Paul Evans	D P Evans

UKAS TESTING 2788

GSTL	PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4	Contract Number	49103
		Borehole/Pit No.	BH08
Site Name	Glyncoed School	Sample No.	6
Soil Description	Brown fine to coarse sandy silty fine to coarse gravelly CLAY	Depth Top	1.20
		Depth Base	1.70
Date Tested	23/07/2020	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	55
90	100	0.0060	49
75	100	0.0020	42
63	100		
50	100		
37.5	100		
28	100		
20	95		
14	93		
10	90		
6.3	85		
5	83		
3.35	81		
2	78		
1.18	76		
0.6	72		
0.425	70		
0.3	67		
0.212	66		
0.15	64		
0.063	60		

Sample Proportions	% dry mass
Cobbles	0
Gravel	22
Sand	18
Silt	18
Clay	42

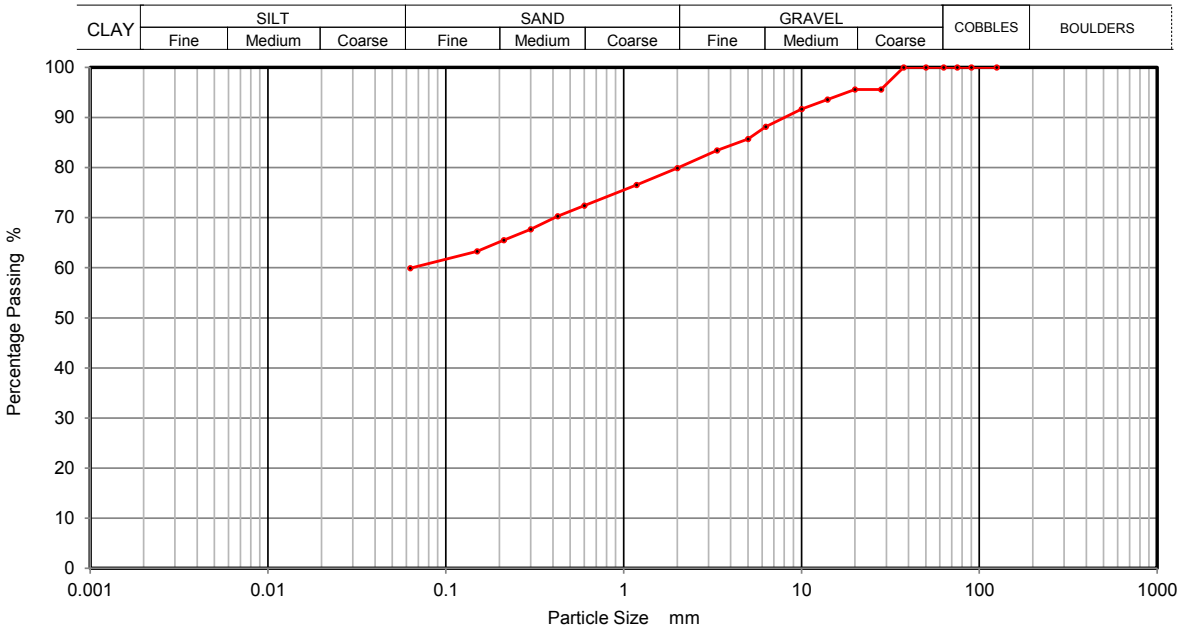
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operators	Checked	26/07/2020	Wayne Honey	W. Honey
RO/MH	Approved	27/07/2020	Paul Evans	P Evans

UKAS TESTING 2788

GSTL	PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve, Clause 9.2	Contract Number	49103
		Borehole/Pit No.	TP04
Site Name	Glyncoed School	Sample No.	1
Soil Description	Greyish brown fine to coarse sandy fine to coarse gravelly SILT/CLAY	Depth Top	0.80
		Depth Base	1.00
Date Tested	23/07/2020	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	96		
20	96		
14	94		
10	92		
6.3	88		
5	86		
3.35	83		
2	80		
1.18	77		
0.6	72		
0.425	70		
0.3	68		
0.212	65		
0.15	63		
0.063	60		

Sample Proportions	% dry mass
Cobbles	0
Gravel	20
Sand	20
Silt and Clay	60

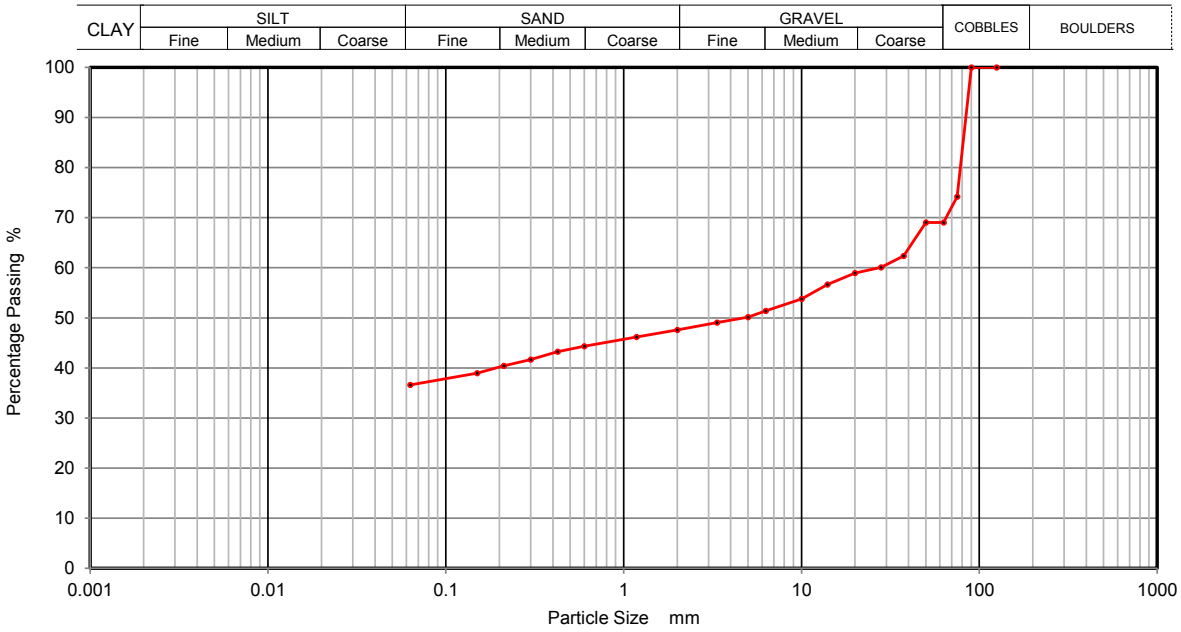
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operators	Checked	26/07/2020	Wayne Honey	W. Honey
RO/MH	Approved	27/07/2020	Paul Evans	P Evans

UKAS TESTING 2788

GSTL	PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve, Clause 9.2	Contract Number	49103
		Borehole/Pit No.	TP05
Site Name	Glyncoed School	Sample No.	1
Soil Description	Grey fine to coarse sandy silty/clayey fine to coarse GRAVEL (with cobbles)	Depth Top	1.50
		Depth Base	1.70
Date Tested	23/07/2020	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	74		
63	69		
50	69		
37.5	62		
28	60		
20	59		
14	57		
10	54		
6.3	51		
5	50		
3.35	49		
2	48		
1.18	46		
0.6	44		
0.425	43		
0.3	42		
0.212	40		
0.15	39		
0.063	37		

Sample Proportions	% dry mass
Cobbles	31
Gravel	21
Sand	11
Silt and Clay	37

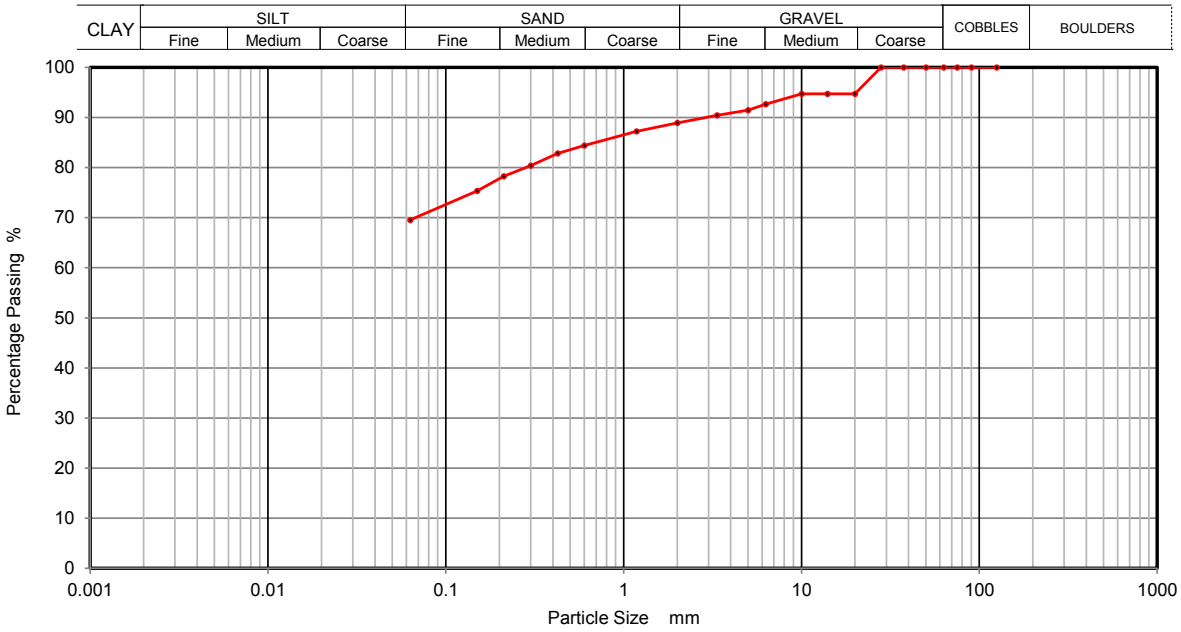
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operators	Checked	26/07/2020	Wayne Honey	W. Honey
RO/MH	Approved	27/07/2020	Paul Evans	P Evans

UKAS TESTING 2788

GSTL	PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve, Clause 9.2	Contract Number	49103
		Borehole/Pit No.	TP07
Site Name	Glyncoed School	Sample No.	2
Soil Description	Brown fine to coarse gravelly fine to coarse sandy SILT/CLAY	Depth Top	1.40
		Depth Base	1.60
Date Tested	23/07/2020	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	95		
14	95		
10	95		
6.3	93		
5	91		
3.35	90		
2	89		
1.18	87		
0.6	84		
0.425	83		
0.3	80		
0.212	78		
0.15	75		
0.063	70		

Sample Proportions	% dry mass
Cobbles	0
Gravel	11
Sand	19
Silt and Clay	70

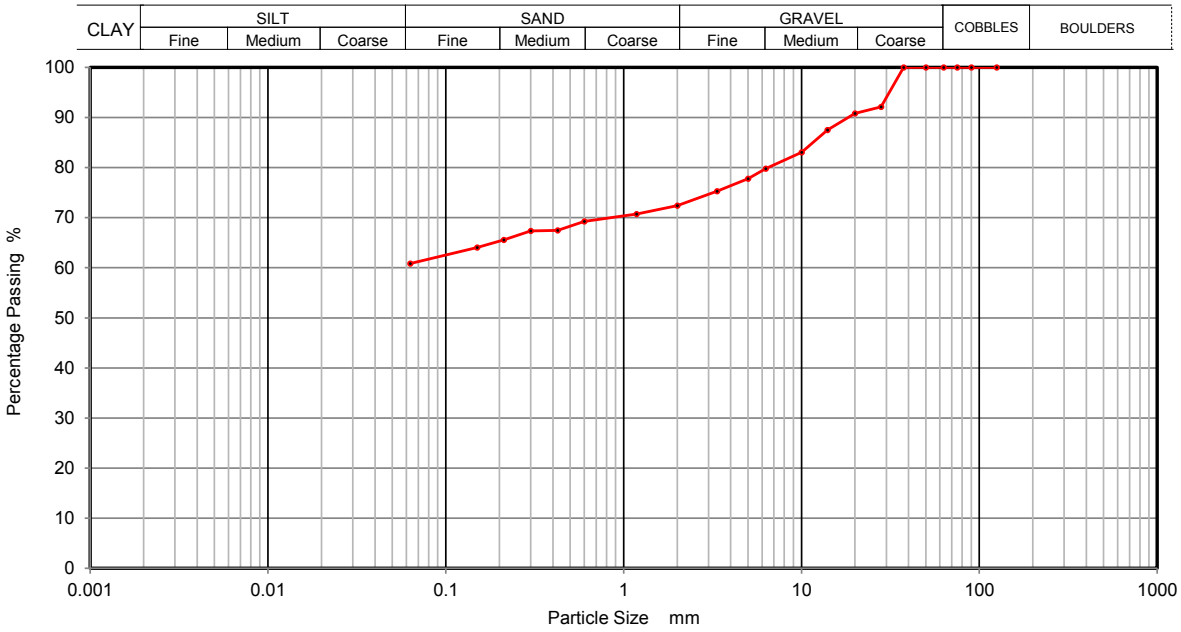
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operators	Checked	26/07/2020	Wayne Honey	W. Honey
RO/MH	Approved	27/07/2020	Paul Evans	D P Evans

UKAS TESTING 2788

GSTL	PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve, Clause 9.2	Contract Number	49103
		Borehole/Pit No.	TP09
Site Name	Glyncoed School	Sample No.	1
Soil Description	Grey fine to coarse sandy fine to coarse gravelly SILT/CLAY	Depth Top	1.40
		Depth Base	1.60
Date Tested	23/07/2020	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	92		
20	91		
14	87		
10	83		
6.3	80		
5	78		
3.35	75		
2	72		
1.18	71		
0.6	69		
0.425	67		
0.3	67		
0.212	66		
0.15	64		
0.063	61		

Sample Proportions	% dry mass
Cobbles	0
Gravel	28
Sand	11
Silt and Clay	61

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operators	Checked	26/07/2020	Wayne Honey	W. Honey
RO/MH	Approved	27/07/2020	Paul Evans	P Evans

UKAS TESTING 2788

GSTL	Certificate of Chemical Analysis (BRE BR 279)	Contract Number	49103
		Client Reference	Q0215
Client	Quantum	**Date Received**	
Site Name	Glyncoed School	**Date Started**	02/06/2020
		Date Completed	24/07/2020
		No. of Samples	7

Hole Number	Sample Number	Sample Type	Depth (m)			Acid Soluble Sulphate	Aqueous Extract Sulphate	Chloride Content	Ph Value	Total Sulphur	Magnesium	Nitrate
BH02	9	B	2.00	-	2.50	0.19	0.04	NCP	7.18	0.09	<1	10-25
BH05	9	B	2.00	-	2.50	0.19	0.04	NCP	7.41	0.09	<1	<10
BH07	5	D	1.20	-		0.21	0.04	NCP	7.34	0.09	<1	<10
BH08	5	D	1.20	-		0.16	0.03	NCP	7.49	0.08	<1	10-25
TP07	2	B	1.40	-	1.60	0.14	0.03	NCP	7.63	0.07	<1	10-25
TP07	1	D	0.50	-		0.12	0.03	NCP	7.57	0.06	<1	10-25
TP09	1	D	0.40	-		0.12	0.05	NCP	7.23	0.06	<1	10-25
				-								
				-								
				-								
				-								
				-								
				-								
				-								
				-								
				-								
				-								
				-								
				-								
				-								
				-								
				-								
				-								
				-								
				-								
				-								
				-								
				-								
				-								
				-								

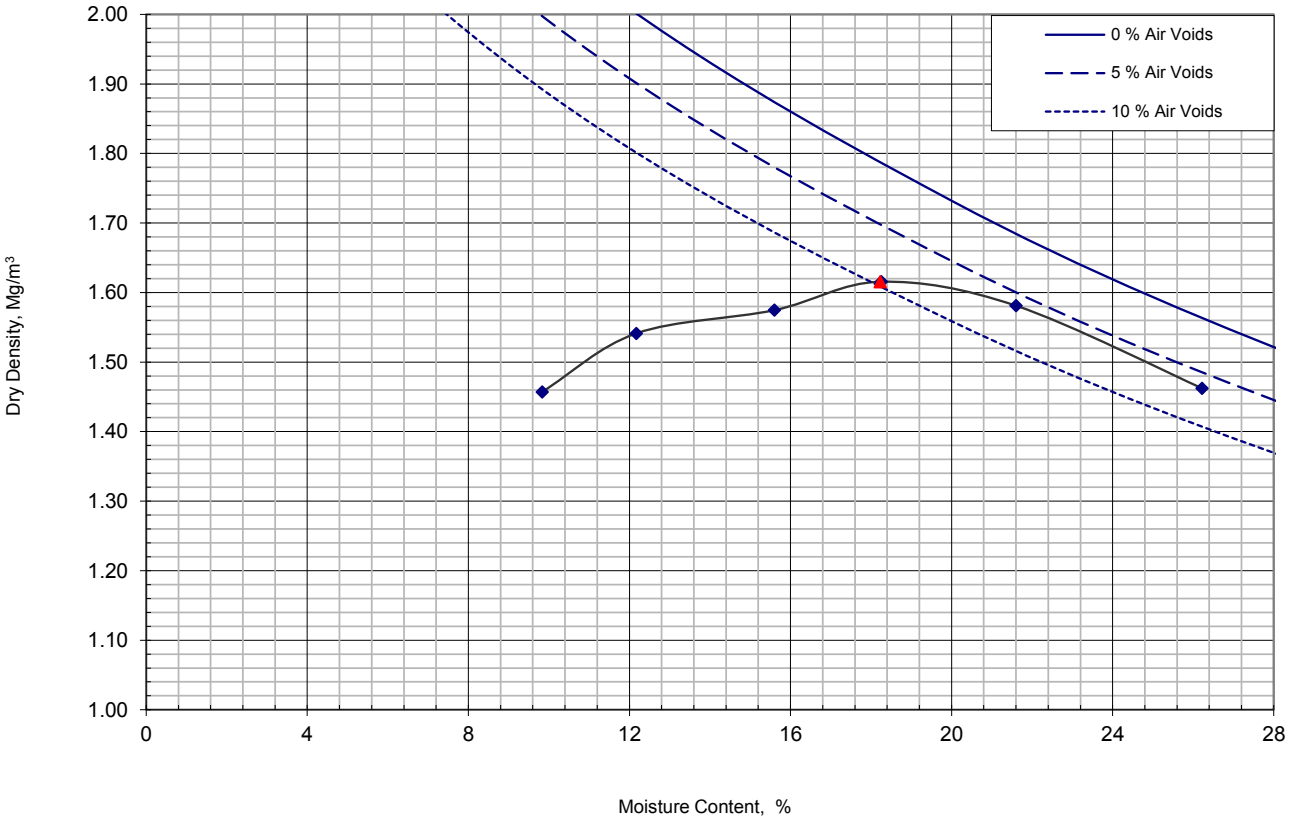
Key	**Reported As**
Acid Soluble Sulphate	% SO_4
Aqueous Extract Sulphate	g/l SO_4
Chloride Content (Semi)	mg Cl/l
PH Value	@ 25°
Total Sulphur	% S
Magnesium	g/l SO_4
Nitrate	NO_3 mg/l

Remarks

NCP = No Chloride Present

Test Operator	Checked and Authorised by		Paul Evans	D P Evans
Darren Bourne	Date	24/07/2020		

GSTL	Dry Density / Moisture Content Relationship BS 1377:Part 4:1990	Contract Number	49103
		Borehole / Pit No	BH04
Project Location	Glyncoed School	Sample No	3
Date Tested	17/07/2020	Depth Top	0.50
Compaction Method	2.5 Kg Rammer	Depth Base	1.00
Compaction Clause	BS1377:Part 4:1990, Clause 3.3	Sample Type	B
Sample Description	Dark brown fine to coarse sandy silty/clayey fine to coarse GRAVEL		



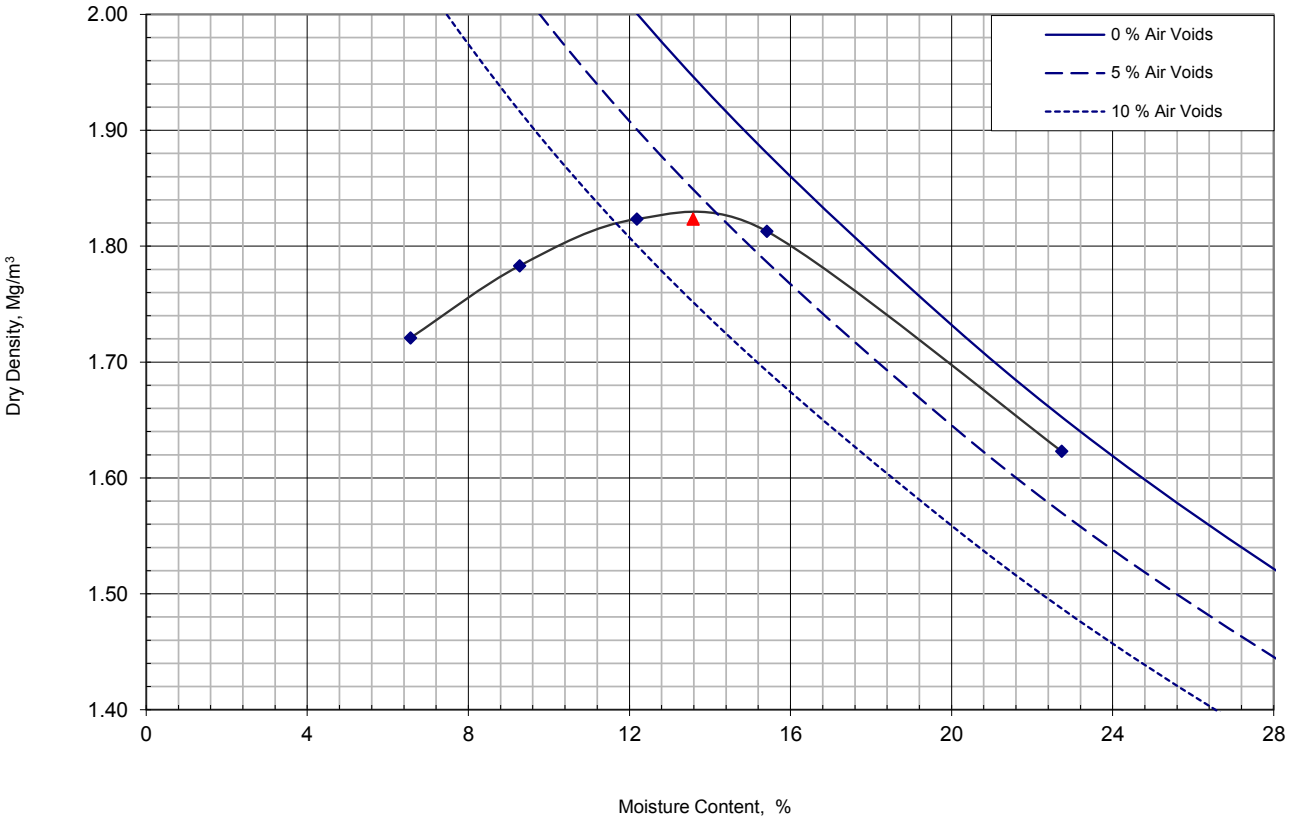
Compaction Point	1	2	3	4	5	6						
Moisture Content	9.8	12	16	18	22	26						
Bulk Density	1.60	1.73	1.82	1.91	1.92	1.85						
Dry Density	1.46	1.54	1.57	1.62	1.58	1.46						

Initial Moisture Content	26	%
Maximum Dry Density	1.62	Mg/m3
Optimum Moisture Content	18	%
Particle Density	2.65 Assumed	Mg/m3
Material Retained 37.5mm	6	%
Material Retained 20mm	7	%

Operators	Checked	26/07/2020	Emma Sharp	
CA	Approved	27/07/2020	Paul Evans	

UKAS TESTING 2788

GSTL	Dry Density / Moisture Content Relationship BS 1377:Part 4:1990	Contract Number	49103
		Borehole / Pit No	TP07
Project Location	Glyncoed School	Sample No	2
Date Tested	17/07/2020	Depth Top	1.40
Compaction Method	2.5 Kg Rammer	Depth Base	1.60
Compaction Clause	BS1377:Part 4:1990, Clause 3.3	Sample Type	B
Sample Description	Brown fine to coarse gravelly fine to coarse sandy SILT/CLAY		



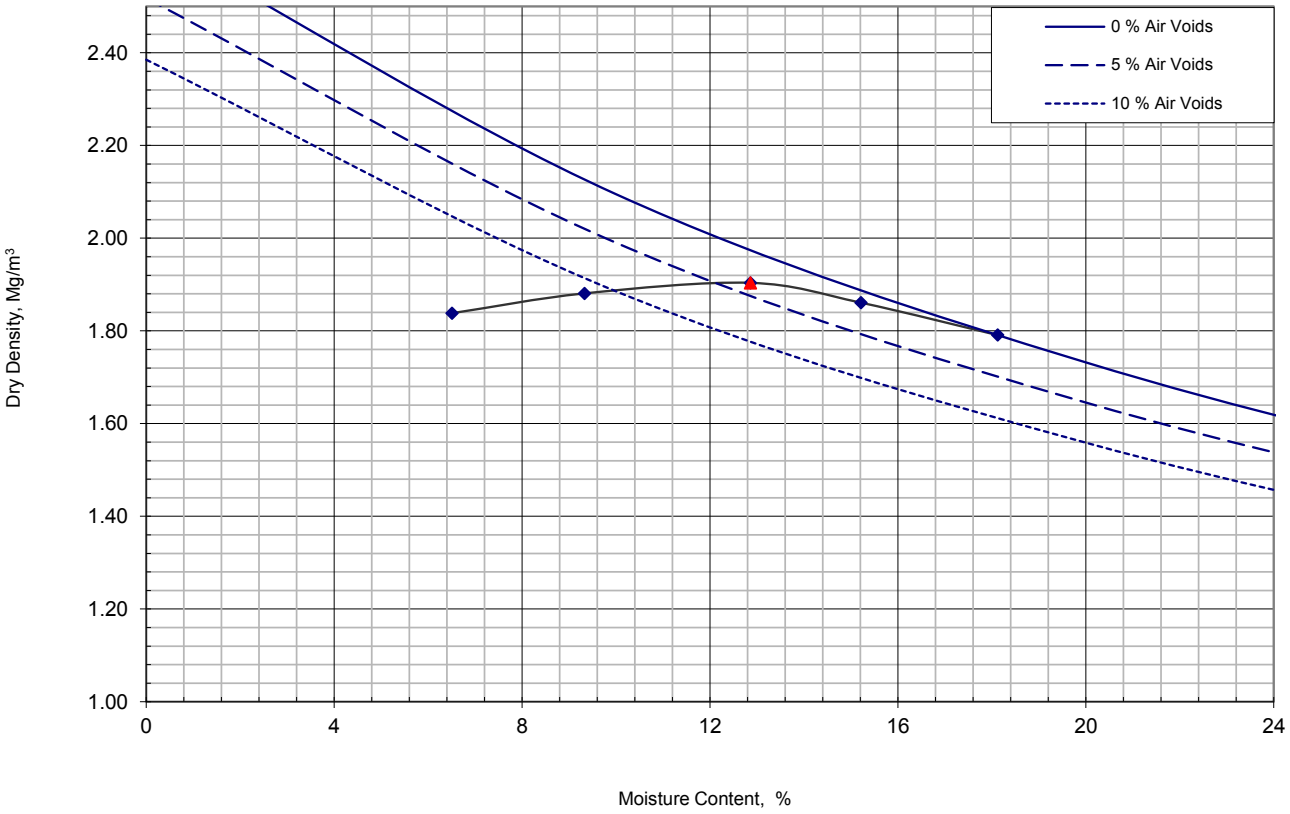
Compaction Point	1	2	3	4	5							
Moisture Content	6.6	9.3	12	15	23							
Bulk Density	1.83	1.95	2.05	2.09	1.99							
Dry Density	1.72	1.78	1.82	1.81	1.62							

Initial Moisture Content	23	%
Maximum Dry Density	1.82	Mg/m3
Optimum Moisture Content	14	%
Particle Density	2.65 Assumed	Mg/m3
Material Retained 37.5mm	0	%
Material Retained 20mm	5	%

Operators	Checked	26/07/2020	Emma Sharp	
CA	Approved	27/07/2020	Paul Evans	

UKAS TESTING 2788

GSTL	Dry Density / Moisture Content Relationship BS 1377:Part 4:1990	Contract Number	49103
		Borehole / Pit No	TP09
Project Location	Glyncoed School	Sample No	
Date Tested	17/07/2020	Depth Top	1.40
Compaction Method	2.5 Kg Rammer	Depth Base	1.60
Compaction Clause	BS1377:Part 4:1990, Clause 3.3	Sample Type	B
Sample Description	Grey fine to coarse sandy fine to coarse gravelly SILT/CLAY		



Compaction Point	1	2	3	4	5							
Moisture Content	6.5	9.3	13	15	18							
Bulk Density	1.96	2.06	2.15	2.14	2.12							
Dry Density	1.84	1.88	1.90	1.86	1.79							

Initial Moisture Content	13	%
Maximum Dry Density	1.90	Mg/m3
Optimum Moisture Content	13	%
Particle Density	2.65 Assumed	Mg/m3
Material Retained 37.5mm	0	%
Material Retained 20mm	9	%

Operators	Checked	26/07/2020	Emma Sharp	
CA	Approved	27/07/2020	Paul Evans	

UKAS TESTING 2788

APPENDIX X – GEO-ENVIRONMENTAL LABORATORY TEST RESULTS

Chemtest Ltd.
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	20-15525-1		
Initial Date of Issue:	29-Jun-2020		
Client	Quantum Geotechnic Ltd		
Client Address:	Plas Newydd Llanedi Pontarddulais Swansea SA4 0FQ		
Contact(s):	Phil Darby		
Project	Q0215 Glycoed School		
Quotation No.:	Q20-20437	**Date Received:**	19-Jun-2020
Order No.:		**Date Instructed:**	22-Jun-2020
No. of Samples:	8		
Turnaround (Wkdays):	5	**Results Due:**	26-Jun-2020
Date Approved:	29-Jun-2020		
Approved By:			
Details:	Glynn Harvey, Technical Manager		

Chemtest
The right chemistry to deliver results

Results - Leachate

Project: Q0215 Glycoed School

Client: Quantum Geotechnic Ltd				**Chemtest Job No.:**		20-15525	20-15525	20-15525
Quotation No.: Q20-20437				**Chemtest Sample ID.:**		1019450	1019454	1019457
Order No.:				Client Sample Ref.:		1	1	2
				Client Sample ID.:		ES1	ES1	ES2
				Sample Location:		TP01	TP04	TP05
				Sample Type:		SOIL	SOIL	SOIL
				Top Depth (m):		0.5	0.2	0.8
				Date Sampled:		16-Jun-2020	16-Jun-2020	16-Jun-2020
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**			
pH	U	1010	10:1		N/A	8.7	10.6	10.0
Sulphate	U	1220	10:1	mg/l	1.0	5.1	260	64
Cyanide (Total)	U	1300	10:1	mg/l	0.050	< 0.050	< 0.050	< 0.050
Hardness	U	1415	10:1	mg/l	15	59	520	140
Arsenic (Dissolved)	U	1450	10:1	µg/l	1.0	< 1.0	< 1.0	8.3
Boron (Dissolved)	U	1450	10:1	µg/l	20	< 20	36	42
Cadmium (Dissolved)	U	1450	10:1	µg/l	0.080	< 0.080	< 0.080	< 0.080
Copper (Dissolved)	U	1450	10:1	µg/l	1.0	2.2	5.3	4.6
Mercury (Dissolved)	U	1450	10:1	µg/l	0.50	< 0.50	4.5	< 0.50
Nickel (Dissolved)	U	1450	10:1	µg/l	1.0	< 1.0	< 1.0	1.5
Lead (Dissolved)	U	1450	10:1	µg/l	1.0	< 1.0	< 1.0	< 1.0
Zinc (Dissolved)	U	1450	10:1	µg/l	1.0	< 1.0	14	4.6
Chromium (Total)	U	1450	10:1	µg/l	1.0	< 1.0	3.7	< 1.0
Total TPH >C6-C40	U	1670	10:1	µg/l	10	< 10	< 10	< 10
Naphthalene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10
Fluorene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10
Anthracene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10
Pyrene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10
Benzo[a]anthracene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10
Chrysene	N	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	N	1700	10:1	µg/l	2.0	< 2.0	< 2.0	< 2.0
Total Phenols	U	1920	10:1	mg/l	0.030	< 0.030	< 0.030	< 0.030

Chemtest
The right chemistry to deliver results

Results - Soil

Project: Q0215 Glycoed School

Client: Quantum Geotechnic Ltd					**Chemtest Job No.:**	20-15525	20-15525	20-15525	20-15525	20-15525	20-15525	20-15525
Quotation No.: Q20-20437					**Chemtest Sample ID.:**	1019450	1019451	1019452	1019453	1019454	1019455	1019456	1019457
Order No.:					Client Sample Ref.:	1	1	1	2	1	2	1	2
					Client Sample ID.:	ES1	ES1	ES1	ES2	ES1	ES2	ES1	ES2
					Sample Location:	TP01	TP02	TP03	TP03	TP04	TP04	TP05	TP05
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	0.5	0.2	0.1	0.5	0.2	0.8	0.2	0.8
					Date Sampled:	16-Jun-2020	16-Jun-2020	16-Jun-2020	16-Jun-2020	16-Jun-2020	16-Jun-2020	16-Jun-2020	16-Jun-2020
					Asbestos Lab:	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
ACM Type	U	2192		N/A		-	-	-	-	-	-	BIT	-
Asbestos Identification	U	2192	%	0.001		No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	Chrysotile	No Asbestos Detected
ACM Detection Stage	U	2192		N/A		-	-	-	-	-	-	Stereo Microscopy	-
Asbestos by Gravimetry	U	2192	%	0.001								0.069	
Total Asbestos	N	2192	%	0.001								0.069	
Moisture	N	2030	%	0.020		15	13	18	21	8.0	16	13	14
Soil Colour	N	2040		N/A							Brown		
Other Material	N	2040		N/A							Stones		
Soil Texture	N	2040		N/A							Clay		
pH	M	2010		4.0		7.6	9.9	7.1	6.7	10.3	7.0	10.6	9.4
pH (2.5:1)	N	2010		4.0							7.3		
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40		< 0.40	0.68	< 0.40	< 0.40	0.76	< 0.40	0.73	0.77
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010		< 0.010	0.61	0.016	< 0.010	0.75	0.13	0.79	0.36
Sulphate (2:1 Extract)	M	2120	mg/kg	20							260		
Total Sulphur	M	2175	%	0.010							0.079		
Cyanide (Total)	M	2300	mg/kg	0.50		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Sulphate (Acid Soluble)	M	2430	%	0.010							0.032		
Arsenic	M	2450	mg/kg	1.0		15	11	17	7.1	23	8.6	24	9.9
Cadmium	M	2450	mg/kg	0.10		0.22	0.20	0.38	< 0.10	0.30	< 0.10	0.27	0.13
Chromium	M	2450	mg/kg	1.0		22	9.6	16	18	9.7	16	14	14
Copper	M	2450	mg/kg	0.50		41	7.2	30	18	5.8	35	10	23
Mercury	M	2450	mg/kg	0.10		0.21	< 0.10	0.23	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Nickel	M	2450	mg/kg	0.50		26	7.8	18	5.8	9.2	39	14	27
Lead	M	2450	mg/kg	0.50		62	17	57	16	30	23	24	25
Zinc	M	2450	mg/kg	0.50		94	40	82	18	39	77	69	56
Organic Matter	M	2625	%	0.40		16	1.9	9.7	1.4	0.76	2.8	0.90	2.4
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	M	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	M	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C12-C16	M	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C16-C21	M	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0		< 1.0	680	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0		< 1.0	73	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0		< 5.0	750	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0

Chemtest
The right chemistry to deliver results

Results - Soil

Project: Q0215 Glycoed School

Client: Quantum Geotechnic Ltd			**Chemtest Job No.:**		20-15525	20-15525	20-15525	20-15525	20-15525	20-15525	20-15525	20-15525
Quotation No.: Q20-20437			**Chemtest Sample ID.:**		1019450	1019451	1019452	1019453	1019454	1019455	1019456	1019457
Order No.:			Client Sample Ref.:		1	1	1	2	1	2	1	2
			Client Sample ID.:		ES1	ES1	ES1	ES2	ES1	ES2	ES1	ES2
			Sample Location:		TP01	TP02	TP03	TP03	TP04	TP04	TP05	TP05
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.5	0.2	0.1	0.5	0.2	0.8	0.2	0.8
			Date Sampled:		16-Jun-2020	16-Jun-2020	16-Jun-2020	16-Jun-2020	16-Jun-2020	16-Jun-2020	16-Jun-2020	16-Jun-2020
			Asbestos Lab:		COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**								
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C10-C12	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	21	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0	< 1.0	1100	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	1100	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	< 10	1900	< 10	< 10	< 10	< 10	< 10	< 10
Naphthalene	M	2700	mg/kg	0.10	0.12	< 0.10	< 0.10	< 0.10	< 0.10	0.57	< 0.10	< 0.10
Acenaphthylene	M	2700	mg/kg	0.10	0.14	< 0.10	< 0.10	< 0.10	< 0.10	0.55	< 0.10	< 0.10
Acenaphthene	M	2700	mg/kg	0.10	0.38	< 0.10	< 0.10	< 0.10	< 0.10	0.15	< 0.10	< 0.10
Fluorene	M	2700	mg/kg	0.10	0.55	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	M	2700	mg/kg	0.10	4.1	0.50	1.4	< 0.10	< 0.10	0.32	0.52	< 0.10
Anthracene	M	2700	mg/kg	0.10	1.3	0.10	0.24	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	M	2700	mg/kg	0.10	10	0.99	2.9	< 0.10	< 0.10	0.24	0.88	0.68
Pyrene	M	2700	mg/kg	0.10	9.7	1.0	2.6	< 0.10	< 0.10	0.29	0.88	0.64
Benzo[a]anthracene	M	2700	mg/kg	0.10	6.6	< 0.10	1.3	< 0.10	< 0.10	< 0.10	0.44	< 0.10
Chrysene	M	2700	mg/kg	0.10	6.4	< 0.10	1.8	< 0.10	< 0.10	< 0.10	0.59	< 0.10
Benzo[b]fluoranthene	M	2700	mg/kg	0.10	7.9	< 0.10	2.2	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	M	2700	mg/kg	0.10	3.3	< 0.10	1.3	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	M	2700	mg/kg	0.10	5.4	< 0.10	1.3	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	M	2700	mg/kg	0.10	3.5	< 0.10	0.94	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	M	2700	mg/kg	0.10	1.6	< 0.10	0.21	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	M	2700	mg/kg	0.10	3.4	< 0.10	1.1	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	M	2700	mg/kg	2.0	64	2.6	17	< 2.0	< 2.0	2.1	3.3	< 2.0
Total Phenols	M	2920	mg/kg	0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30

Results - Single Stage WAC

Project: Q0215 Glycoed School

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	20-15525						
Chemtest Sample ID:	1019450						
Sample Ref:	1						
Sample ID:	ES1						
Sample Location:	TP01						
Top Depth(m):	0.5						
Bottom Depth(m):							
Sampling Date:	16-Jun-2020						
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	M	%	9.0	3	5	6
Loss On Ignition	2610	M	%	15	--	--	10
Total BTEX	2760	M	mg/kg	< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg	< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	M	mg/kg	26	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg	64	100	--	--
pH	2010	M		7.6	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.041	--	To evaluate	To evaluate
Eluate Analysis			**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	< 0.0010	< 0.050	0.5	2	25
Barium	1450	U	0.017	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.050	0.5	10	70
Copper	1450	U	0.0022	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.0029	< 0.050	0.5	10	30
Nickel	1450	U	< 0.0010	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.010	0.5	10	50
Antimony	1450	U	< 0.0010	< 0.010	0.06	0.7	5
Selenium	1450	U	< 0.0010	< 0.010	0.1	0.5	7
Zinc	1450	U	< 0.0010	< 0.50	4	50	200
Chloride	1220	U	< 1.0	< 10	800	15000	25000
Fluoride	1220	U	0.78	7.8	10	150	500
Sulphate	1220	U	5.1	51	1000	20000	50000
Total Dissolved Solids	1020	N	78	780	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	7.2	72	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	15

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: Q0215 Glycoed School

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	20-15525						
Chemtest Sample ID:	1019453						
Sample Ref:	2						
Sample ID:	ES2						
Sample Location:	TP03						
Top Depth(m):	0.5						
Bottom Depth(m):							
Sampling Date:	16-Jun-2020						
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	M	%	0.82	3	5	6
Loss On Ignition	2610	M	%	5.9	--	--	10
Total BTEX	2760	M	mg/kg	< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg	< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	M	mg/kg	< 10	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg	< 2.0	100	--	--
pH	2010	M		6.7	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.023	--	To evaluate	To evaluate
Eluate Analysis			**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	0.0031	< 0.050	0.5	2	25
Barium	1450	U	0.0016	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.050	0.5	10	70
Copper	1450	U	0.0051	0.051	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	< 0.0010	< 0.050	0.5	10	30
Nickel	1450	U	0.0014	< 0.050	0.4	10	40
Lead	1450	U	0.0012	0.012	0.5	10	50
Antimony	1450	U	< 0.0010	< 0.010	0.06	0.7	5
Selenium	1450	U	< 0.0010	< 0.010	0.1	0.5	7
Zinc	1450	U	0.0056	< 0.50	4	50	200
Chloride	1220	U	2.3	23	800	15000	25000
Fluoride	1220	U	0.11	1.1	10	150	500
Sulphate	1220	U	8.1	81	1000	20000	50000
Total Dissolved Solids	1020	N	13	130	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	12	120	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	21

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: Q0215 Glycoed School

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	20-15525						
Chemtest Sample ID:	1019454						
Sample Ref:	1						
Sample ID:	ES1						
Sample Location:	TP04						
Top Depth(m):	0.2						
Bottom Depth(m):							
Sampling Date:	16-Jun-2020						
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	M	%	0.44	3	5	6
Loss On Ignition	2610	M	%	2.5	--	--	10
Total BTEX	2760	M	mg/kg	< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg	< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	M	mg/kg	77	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg	< 2.0	100	--	--
pH	2010	M		10.3	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.13	--	To evaluate	To evaluate
Eluate Analysis			**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	< 0.0010	< 0.050	0.5	2	25
Barium	1450	U	0.046	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	0.0032	< 0.050	0.5	10	70
Copper	1450	U	0.0053	0.053	2	50	100
Mercury	1450	U	0.0045	0.045	0.01	0.2	2
Molybdenum	1450	U	0.0024	< 0.050	0.5	10	30
Nickel	1450	U	< 0.0010	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.010	0.5	10	50
Antimony	1450	U	0.0019	0.019	0.06	0.7	5
Selenium	1450	U	< 0.0010	< 0.010	0.1	0.5	7
Zinc	1450	U	0.014	< 0.50	4	50	200
Chloride	1220	U	2.7	27	800	15000	25000
Fluoride	1220	U	0.25	2.5	10	150	500
Sulphate	1220	U	260	2600	1000	20000	50000
Total Dissolved Solids	1020	N	420	4200	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	5.8	58	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	8.0

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: Q0215 Glycoed School

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	20-15525						
Chemtest Sample ID:	1019457						
Sample Ref:	2						
Sample ID:	ES2						
Sample Location:	TP05						
Top Depth(m):	0.8						
Bottom Depth(m):							
Sampling Date:	16-Jun-2020						
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	M	%	1.4	3	5	6
Loss On Ignition	2610	M	%	6.2	--	--	10
Total BTEX	2760	M	mg/kg	< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg	< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	M	mg/kg	< 10	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg	< 2.0	100	--	--
pH	2010	M		9.4	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.047	--	To evaluate	To evaluate
Eluate Analysis			**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	0.0083	0.083	0.5	2	25
Barium	1450	U	0.016	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.050	0.5	10	70
Copper	1450	U	0.0046	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.0072	0.072	0.5	10	30
Nickel	1450	U	0.0015	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.010	0.5	10	50
Antimony	1450	U	0.0045	0.045	0.06	0.7	5
Selenium	1450	U	0.0041	0.041	0.1	0.5	7
Zinc	1450	U	0.0046	< 0.50	4	50	200
Chloride	1220	U	3.8	38	800	15000	25000
Fluoride	1220	U	0.64	6.4	10	150	500
Sulphate	1220	U	64	640	1000	20000	50000
Total Dissolved Solids	1020	N	170	1700	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	4.8	< 50	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	14

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Test Methods

SOP	Title	Parameters included	Method summary
1010	pH Value of Waters	pH	pH Meter
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Conductivity Meter
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1300	Cyanides & Thiocyanate in Waters	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Continuous Flow Analysis.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation
1670	Total Petroleum Hydrocarbons (TPH) in Waters by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO	Pentane extraction / GC FID detection
1700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Waters by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.
2010	pH Value of Soils	pH	pH Meter
2015	Acid Neutralisation Capacity	Acid Reserve	Titration
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2175	Total Sulphur in Soils	Total Sulphur	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2610	Loss on Ignition	loss on ignition (LOI)	Determination of the proportion by mass that is lost from a soil by ignition at 550°C.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.

Test Methods

SOP	Title	Parameters included	Method summary
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2815	Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS	ICES7 PCB congeners	Acetone/Hexane extraction / GC-MS
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis
The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols
For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

Chemtest Ltd.
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	20-15531-1		
Initial Date of Issue:	29-Jun-2020		
Client	Quantum Geotechnic Ltd		
Client Address:	Plas Newydd Llanedi Pontarddulais Swansea SA4 0FQ		
Contact(s):	Phil Darby		
Project	Q0215 Glyncord School		
Quotation No.:	Q20-20437	**Date Received:**	19-Jun-2020
Order No.:		**Date Instructed:**	22-Jun-2020
No. of Samples:	5		
Turnaround (Wkdays):	5	**Results Due:**	26-Jun-2020
Date Approved:	29-Jun-2020		
Approved By:			
Details:	Glynn Harvey, Technical Manager		

Chemtest
The right chemistry to deliver results

Results - Leachate

Project: Q0215 Glyncord School

Client: Quantum Geotechnic Ltd				**Chemtest Job No.:**		20-15531
Quotation No.: Q20-20437				**Chemtest Sample ID.:**		1019483
Order No.:				Client Sample Ref.:		1
				Client Sample ID.:		ES
				Sample Location:		TP08
				Sample Type:		SOIL
				Top Depth (m):		0.1
				Date Sampled:		17-Jun-2020
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**	
pH	U	1010	10:1		N/A	9.7
Sulphate	U	1220	10:1	mg/l	1.0	46
Cyanide (Total)	U	1300	10:1	mg/l	0.050	< 0.050
Hardness	U	1415	10:1	mg/l	15	140
Arsenic (Dissolved)	U	1450	10:1	µg/l	1.0	< 1.0
Boron (Dissolved)	U	1450	10:1	µg/l	20	35
Cadmium (Dissolved)	U	1450	10:1	µg/l	0.080	< 0.080
Copper (Dissolved)	U	1450	10:1	µg/l	1.0	1.5
Mercury (Dissolved)	U	1450	10:1	µg/l	0.50	< 0.50
Nickel (Dissolved)	U	1450	10:1	µg/l	1.0	< 1.0
Lead (Dissolved)	U	1450	10:1	µg/l	1.0	< 1.0
Zinc (Dissolved)	U	1450	10:1	µg/l	1.0	2.5
Chromium (Total)	U	1450	10:1	µg/l	1.0	< 1.0
Total TPH >C6-C40	U	1670	10:1	µg/l	10	< 10
Naphthalene	U	1700	10:1	µg/l	0.10	< 0.10
Acenaphthylene	U	1700	10:1	µg/l	0.10	< 0.10
Acenaphthene	U	1700	10:1	µg/l	0.10	< 0.10
Fluorene	U	1700	10:1	µg/l	0.10	< 0.10
Phenanthrene	U	1700	10:1	µg/l	0.10	< 0.10
Anthracene	U	1700	10:1	µg/l	0.10	< 0.10
Fluoranthene	U	1700	10:1	µg/l	0.10	< 0.10
Pyrene	U	1700	10:1	µg/l	0.10	< 0.10
Benzo[a]anthracene	U	1700	10:1	µg/l	0.10	< 0.10
Chrysene	N	1700	10:1	µg/l	0.10	< 0.10
Benzo[b]fluoranthene	U	1700	10:1	µg/l	0.10	< 0.10
Benzo[k]fluoranthene	U	1700	10:1	µg/l	0.10	< 0.10
Benzo[a]pyrene	U	1700	10:1	µg/l	0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	1700	10:1	µg/l	0.10	< 0.10
Dibenz(a,h)Anthracene	U	1700	10:1	µg/l	0.10	< 0.10
Benzo[g,h,i]perylene	U	1700	10:1	µg/l	0.10	< 0.10
Total Of 16 PAH's	N	1700	10:1	µg/l	2.0	< 2.0
Total Phenols	U	1920	10:1	mg/l	0.030	< 0.030

Chemtest
The right chemistry to deliver results

Results - Soil

Project: Q0215 Glyncord School

Client: Quantum Geotechnic Ltd			**Chemtest Job No.:**		20-15531	20-15531	20-15531	20-15531	20-15531
Quotation No.: Q20-20437			**Chemtest Sample ID.:**		1019481	1019482	1019483	1019484	1019485
Order No.:			Client Sample Ref.:		1	1	1	1	2
			Client Sample ID.:		ES	ES	ES	ES	ES
			Sample Location:		TP06	TP07	TP08	TP09	TP09
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.3	0.5	0.1	0.1	0.4
			Date Sampled:		17-Jun-2020	17-Jun-2020	17-Jun-2020	17-Jun-2020	17-Jun-2020
			Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**					
ACM Type	U	2192		N/A	-	-	-	-	-
Asbestos Identification	U	2192	%	0.001	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
ACM Detection Stage	U	2192		N/A	-	-	-	-	-
Moisture	N	2030	%	0.020	19	19	9.1	19	20
Soil Colour	N	2040		N/A	Brown				
Other Material	N	2040		N/A	Stones				
Soil Texture	N	2040		N/A	Clay				
pH	M	2010		4.0	6.2	7.4	10.8	7.9	5.8
pH (2.5:1)	N	2010		4.0	6.5				
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40	< 0.40	< 0.40	0.90	0.58	< 0.40
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010	0.024	0.011	1.1	0.087	0.021
Sulphate (2:1 Extract)	M	2120	mg/kg	20	48				
Total Sulphur	M	2175	%	0.010	0.10				
Cyanide (Total)	M	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Sulphate (Acid Soluble)	M	2430	%	0.010	< 0.010				
Arsenic	M	2450	mg/kg	1.0	13	18	18	19	7.4
Cadmium	M	2450	mg/kg	0.10	< 0.10	0.28	0.17	0.45	< 0.10
Chromium	M	2450	mg/kg	1.0	12	14	8.2	14	11
Copper	M	2450	mg/kg	0.50	38	50	6.2	27	15
Mercury	M	2450	mg/kg	0.10	< 0.10	0.28	< 0.10	0.12	< 0.10
Nickel	M	2450	mg/kg	0.50	26	21	8.1	16	5.5
Lead	M	2450	mg/kg	0.50	23	90	14	58	14
Zinc	M	2450	mg/kg	0.50	62	100	33	69	13
Organic Matter	M	2625	%	0.40	9.1	15	1.2	12	3.5
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C12-C16	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C16-C21	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0	< 1.0	< 1.0	170	< 1.0	< 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0	170	< 5.0	< 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Chemtest
The right chemistry to deliver results

Results - Soil

Project: Q0215 Glyncord School

Client: Quantum Geotechnic Ltd			**Chemtest Job No.:**		20-15531	20-15531	20-15531	20-15531	20-15531
Quotation No.: Q20-20437			**Chemtest Sample ID.:**		1019481	1019482	1019483	1019484	1019485
Order No.:			Client Sample Ref.:		1	1	1	1	2
			Client Sample ID.:		ES	ES	ES	ES	ES
			Sample Location:		TP06	TP07	TP08	TP09	TP09
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.3	0.5	0.1	0.1	0.4
			Date Sampled:		17-Jun-2020	17-Jun-2020	17-Jun-2020	17-Jun-2020	17-Jun-2020
			Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**					
Aromatic TPH >C10-C12	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0	< 1.0	< 1.0	520	< 1.0	< 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0	520	< 5.0	< 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	< 10	< 10	680	< 10	< 10
Naphthalene	M	2700	mg/kg	0.10	< 0.10	0.39	< 0.10	< 0.10	< 0.10
Acenaphthylene	M	2700	mg/kg	0.10	< 0.10	0.42	< 0.10	< 0.10	< 0.10
Acenaphthene	M	2700	mg/kg	0.10	< 0.10	1.4	< 0.10	< 0.10	< 0.10
Fluorene	M	2700	mg/kg	0.10	< 0.10	1.8	< 0.10	< 0.10	< 0.10
Phenanthrene	M	2700	mg/kg	0.10	< 0.10	10	< 0.10	0.74	< 0.10
Anthracene	M	2700	mg/kg	0.10	< 0.10	2.0	< 0.10	0.15	< 0.10
Fluoranthene	M	2700	mg/kg	0.10	< 0.10	12	0.22	1.2	< 0.10
Pyrene	M	2700	mg/kg	0.10	< 0.10	9.7	0.28	1.1	< 0.10
Benzo[a]anthracene	M	2700	mg/kg	0.10	< 0.10	6.3	< 0.10	0.64	< 0.10
Chrysene	M	2700	mg/kg	0.10	< 0.10	6.0	< 0.10	1.1	< 0.10
Benzo[b]fluoranthene	M	2700	mg/kg	0.10	< 0.10	7.4	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	M	2700	mg/kg	0.10	< 0.10	2.8	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	M	2700	mg/kg	0.10	< 0.10	4.0	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	M	2700	mg/kg	0.10	< 0.10	2.9	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	M	2700	mg/kg	0.10	< 0.10	1.3	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	M	2700	mg/kg	0.10	< 0.10	2.9	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	M	2700	mg/kg	2.0	< 2.0	71	< 2.0	4.9	< 2.0
Total Phenols	M	2920	mg/kg	0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30

Results - Single Stage WAC

Project: Q0215 Glyncord School

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	20-15531						
Chemtest Sample ID:	1019485						
Sample Ref:	2						
Sample ID:	ES						
Sample Location:	TP09						
Top Depth(m):	0.4						
Bottom Depth(m):							
Sampling Date:	17-Jun-2020						
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	M	%	2.0	3	5	6
Loss On Ignition	2610	M	%	3.8	--	--	10
Total BTEX	2760	M	mg/kg	< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg	< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	M	mg/kg	< 10	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg	< 2.0	100	--	--
pH	2010	M		5.8	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	< 0.0020	--	To evaluate	To evaluate
Eluate Analysis			**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	0.0012	< 0.050	0.5	2	25
Barium	1450	U	0.0030	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	0.0026	< 0.050	0.5	10	70
Copper	1450	U	0.0025	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	< 0.0010	< 0.050	0.5	10	30
Nickel	1450	U	0.0028	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.010	0.5	10	50
Antimony	1450	U	< 0.0010	< 0.010	0.06	0.7	5
Selenium	1450	U	< 0.0010	< 0.010	0.1	0.5	7
Zinc	1450	U	0.0045	< 0.50	4	50	200
Chloride	1220	U	< 1.0	< 10	800	15000	25000
Fluoride	1220	U	0.11	1.1	10	150	500
Sulphate	1220	U	9.7	97	1000	20000	50000
Total Dissolved Solids	1020	N	27	270	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	8.8	88	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	20

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Chemtest
The right chemistry to deliver results

Test Methods

SOP	Title	Parameters included	Method summary
1010	pH Value of Waters	pH	pH Meter
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Conductivity Meter
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1300	Cyanides & Thiocyanate in Waters	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Continuous Flow Analysis.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation
1670	Total Petroleum Hydrocarbons (TPH) in Waters by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO	Pentane extraction / GC FID detection
1700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Waters by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.
2010	pH Value of Soils	pH	pH Meter
2015	Acid Neutralisation Capacity	Acid Reserve	Titration
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2175	Total Sulphur in Soils	Total Sulphur	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2610	Loss on Ignition	loss on ignition (LOI)	Determination of the proportion by mass that is lost from a soil by ignition at 550°C.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.

Test Methods

SOP	Title	Parameters included	Method summary
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2815	Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS	ICES7 PCB congeners	Acetone/Hexane extraction / GC-MS
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis
The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols
For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

Chemtest Ltd.
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	20-15130-1		
Initial Date of Issue:	23-Jun-2020		
Client	Quantum Geotechnic Ltd		
Client Address:	Plas Newydd Llanedi Pontarddulais Swansea SA4 0FQ		
Contact(s):	Phil Darby		
Project	Q0215 Glyncaed School		
Quotation No.:	Q20-20437	**Date Received:**	16-Jun-2020
Order No.:		**Date Instructed:**	17-Jun-2020
No. of Samples:	7		
Turnaround (Wkdays):	5	**Results Due:**	23-Jun-2020
Date Approved:	23-Jun-2020		
Approved By:			
Details:	Glynn Harvey, Technical Manager		

Chemtest
The right chemistry to deliver results

Results - Leachate

Project: Q0215 Glyncaed School

Client: Quantum Geotechnic Ltd				**Chemtest Job No.:**		20-15130	20-15130	20-15130
Quotation No.: Q20-20437				**Chemtest Sample ID.:**		1017774	1017778	1017782
Order No.:				Client Sample Ref.:		1	1	1
				Client Sample ID.:		ES1	ES1	ES1
				Sample Location:		BH07	BH09	BH02
				Sample Type:		SOIL	SOIL	SOIL
				Top Depth (m):		0.3	0.3	0.3
				Date Sampled:		02-Jun-2020	04-Jun-2020	08-Jun-2020
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**			
pH	U	1010	10:1		N/A	10.1	11.1	9.9
Sulphate	U	1220	10:1	mg/l	1.0	78	68	43
Cyanide (Total)	U	1300	10:1	mg/l	0.050	< 0.050	< 0.050	< 0.050
Hardness	U	1415	10:1	mg/l	15	300	340	170
Arsenic (Dissolved)	U	1450	10:1	µg/l	1.0	1.5	< 1.0	2.3
Boron (Dissolved)	U	1450	10:1	µg/l	20	75	43	34
Cadmium (Dissolved)	U	1450	10:1	µg/l	0.080	0.17	< 0.080	< 0.080
Copper (Dissolved)	U	1450	10:1	µg/l	1.0	7.6	6.7	1.9
Mercury (Dissolved)	U	1450	10:1	µg/l	0.50	< 0.50	< 0.50	< 0.50
Nickel (Dissolved)	U	1450	10:1	µg/l	1.0	1.8	3.1	< 1.0
Lead (Dissolved)	U	1450	10:1	µg/l	1.0	< 1.0	< 1.0	< 1.0
Zinc (Dissolved)	U	1450	10:1	µg/l	1.0	5.9	4.5	2.6
Chromium (Total)	U	1450	10:1	µg/l	1.0	8.5	14	1.5
Total TPH >C6-C40	U	1670	10:1	µg/l	10	[B] < 10	< 10	< 10
Naphthalene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10
Fluorene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10
Anthracene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10
Pyrene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10
Benzo[a]anthracene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10
Chrysene	N	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	N	1700	10:1	µg/l	2.0	< 2.0	< 2.0	< 2.0
Total Phenols	U	1920	10:1	mg/l	0.030	< 0.030	< 0.030	< 0.030

Chemtest
The right chemistry to deliver results

Results - Soil

Project: Q0215 Glyncaed School

Client: Quantum Geotechnic Ltd					**Chemtest Job No.:**	20-15130	20-15130	20-15130	20-15130	20-15130	20-15130
Quotation No.: Q20-20437					**Chemtest Sample ID.:**	1017774	1017776	1017778	1017780	1017781	1017782	1017783
Order No.:					Client Sample Ref.:	1	1	1	1	4	1	2
					Client Sample ID.:	ES1	ES1	ES1	ES1	ES4	ES1	ES2
					Sample Location:	BH07	BH03	BH09	BH08	BH08	BH02	BH02
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	0.3	0.3	0.3	0.3	1.0	0.3	2.0
					Date Sampled:	02-Jun-2020	05-Jun-2020	04-Jun-2020	03-Jun-2020	03-Jun-2020	08-Jun-2020	08-Jun-2020
					Asbestos Lab:	COVENTRY	COVENTRY	COVENTRY	COVENTRY		COVENTRY	
Determinand	**Accred.**	**SOP**	**Units**	**LOD**								
ACM Type	U	2192		N/A		-	-	-	-		-	
Asbestos Identification	U	2192	%	0.001		No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected		No Asbestos Detected	
ACM Detection Stage	U	2192		N/A		-	-	-	-		-	
Moisture	N	2030	%	0.020		9.9	9.9	13	22	19	8.0	14
Soil Colour	N	2040		N/A					Brown	Brown	Brown	Brown
Other Material	N	2040		N/A					Stones	Stones	Stones	Stones
Soil Texture	N	2040		N/A					Sand	Clay	Clay	Sand
pH	M	2010		4.0		9.9	10.0	10.9	10.1		8.9	
pH (2.5:1)	N	2010		4.0					10.2	8.0	8.5	7.9
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40		0.60	0.67	0.76	0.60		< 0.40	
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010		0.42	0.92	0.74	0.46	0.17	0.19	< 0.010
Sulphate (2:1 Extract)	M	2120	mg/kg	20					920	340	380	< 20
Total Sulphur	M	2175	%	0.010					0.22	0.078	0.13	0.043
Cyanide (Total)	M	2300	mg/kg	0.50		[B] < 0.50	< 0.50	< 0.50	< 0.50		< 0.50	
Sulphate (Acid Soluble)	M	2430	%	0.010					0.31	0.15	0.17	0.043
Arsenic	M	2450	mg/kg	1.0		17	17	12	18		13	
Cadmium	M	2450	mg/kg	0.10		0.34	0.29	0.43	0.28		0.20	
Chromium	M	2450	mg/kg	1.0		12	11	7.8	7.8		14	
Copper	M	2450	mg/kg	0.50		11	13	7.1	7.0		15	
Mercury	M	2450	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10		< 0.10	
Nickel	M	2450	mg/kg	0.50		14	20	9.0	8.5		21	
Lead	M	2450	mg/kg	0.50		21	170	33	21		18	
Zinc	M	2450	mg/kg	0.50		55	45	41	41		42	
Organic Matter	M	2625	%	0.40		2.8	2.1	8.1	1.9		6.4	
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0		[B] < 1.0	< 1.0	< 1.0	< 1.0		< 1.0	
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0		[B] < 1.0	< 1.0	< 1.0	< 1.0		< 1.0	
Aliphatic TPH >C8-C10	M	2680	mg/kg	1.0		[B] < 1.0	< 1.0	< 1.0	< 1.0		< 1.0	
Aliphatic TPH >C10-C12	M	2680	mg/kg	1.0		[B] < 1.0	< 1.0	< 1.0	5.9		< 1.0	
Aliphatic TPH >C12-C16	M	2680	mg/kg	1.0		[B] < 1.0	< 1.0	< 1.0	16		< 1.0	
Aliphatic TPH >C16-C21	M	2680	mg/kg	1.0		[B] < 1.0	< 1.0	< 1.0	2.4		< 1.0	
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0		[B] < 1.0	< 1.0	< 1.0	180		< 1.0	
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0		[B] < 1.0	< 1.0	< 1.0	22		< 1.0	
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0		[B] < 5.0	< 5.0	< 5.0	230		< 5.0	
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0		[B] < 1.0	< 1.0	< 1.0	< 1.0		< 1.0	
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0		[B] < 1.0	< 1.0	< 1.0	< 1.0		< 1.0	
Aromatic TPH >C8-C10	M	2680	mg/kg	1.0		[B] < 1.0	< 1.0	< 1.0	< 1.0		< 1.0	

Chemtest
The right chemistry to deliver results

Results - Soil

Project: Q0215 Glyncaed School

Client: Quantum Geotechnic Ltd					**Chemtest Job No.:**	20-15130	20-15130	20-15130	20-15130	20-15130	20-15130
Quotation No.: Q20-20437					**Chemtest Sample ID.:**	1017774	1017776	1017778	1017780	1017781	1017782	1017783
Order No.:					Client Sample Ref.:	1	1	1	1	4	1	2
					Client Sample ID.:	ES1	ES1	ES1	ES1	ES4	ES1	ES2
					Sample Location:	BH07	BH03	BH09	BH08	BH08	BH02	BH02
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	0.3	0.3	0.3	0.3	1.0	0.3	2.0
					Date Sampled:	02-Jun-2020	05-Jun-2020	04-Jun-2020	03-Jun-2020	03-Jun-2020	08-Jun-2020	08-Jun-2020
					Asbestos Lab:	COVENTRY	COVENTRY	COVENTRY	COVENTRY		COVENTRY	
Determinand	**Accred.**	**SOP**	**Units**	**LOD**								
Aromatic TPH >C10-C12	M	2680	mg/kg	1.0	[B] < 1.0	< 1.0	< 1.0	< 1.0		< 1.0	
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0	[B] < 1.0	< 1.0	< 1.0	< 1.0		< 1.0	
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	[B] < 1.0	< 1.0	< 1.0	6.3		< 1.0	
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0	[B] < 1.0	< 1.0	< 1.0	1100		< 1.0	
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	[B] < 1.0	< 1.0	< 1.0	< 1.0		< 1.0	
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	[B] < 5.0	< 5.0	< 5.0	1100		< 5.0	
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	[B] < 10	< 10	< 10	1300		< 10	
Naphthalene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10		0.55	
Acenaphthylene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10	
Acenaphthene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10		0.18	
Fluorene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10		0.26	
Phenanthrene	M	2700	mg/kg	0.10	0.29	0.57	0.46	0.37		1.1	
Anthracene	M	2700	mg/kg	0.10	< 0.10	0.12	0.10	< 0.10		0.31	
Fluoranthene	M	2700	mg/kg	0.10	0.35	0.51	0.53	0.45		2.2	
Pyrene	M	2700	mg/kg	0.10	0.47	0.67	0.74	0.51		2.0	
Benzo[a]anthracene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10		1.6	
Chrysene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10		1.4	
Benzo[b]fluoranthene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10		1.6	
Benzo[k]fluoranthene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10		0.78	
Benzo[a]pyrene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10		1.2	
Indeno(1,2,3-c,d)Pyrene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10		0.82	
Dibenz(a,h)Anthracene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10		0.71	
Benzo[g,h,i]perylene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10		1.1	
Total Of 16 PAH's	M	2700	mg/kg	2.0	< 2.0	< 2.0	< 2.0	< 2.0		16	
Total Phenols	M	2920	mg/kg	0.30	< 0.30	< 0.30	< 0.30	< 0.30		< 0.30	

Test Methods

SOP	Title	Parameters included	Method summary
1010	pH Value of Waters	pH	pH Meter
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1300	Cyanides & Thiocyanate in Waters	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Continuous Flow Analysis.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1670	Total Petroleum Hydrocarbons (TPH) in Waters by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO	Pentane extraction / GC FID detection
1700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Waters by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2175	Total Sulphur in Soils	Total Sulphur	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection

Test Methods

SOP	Title	Parameters included	Method summary
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis
The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols
For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

eurofins | Chemtest
Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

UKAS TESTING 2183

Final Report

Report No.:	20-21428-1		
Initial Date of Issue:	24-Aug-2020		
Client	Quantum Geotechnic Ltd		
Client Address:	Plas Newydd Llanedi Pontarddulais Swansea SA4 0FQ		
Contact(s):	Phil Darby		
Project	Q0215 Glyncoed School		
Quotation No.:	Q20-20437	**Date Received:**	13-Aug-2020
Order No.:		**Date Instructed:**	14-Aug-2020
No. of Samples:	1		
Turnaround (Wkdays):	5	**Results Due:**	20-Aug-2020
Date Approved:	24-Aug-2020		
Approved By:			
Details:	Glynn Harvey, Technical Manager		

Results - Water

Project: Q0215 Glyncoed School

Client: Quantum Geotechnic Ltd			**Chemtest Job No.:**		20-21428
Quotation No.: Q20-20437			**Chemtest Sample ID.:**		1048458
Order No.:			Client Sample Ref.:		1
			Sample Location:		BH06
			Sample Type:		WATER
			Top Depth (m):		2.18
			Date Sampled:		11-Aug-2020
Determinand	**Accred.**	**SOP**	**Units**	**LOD**	
pH	U	1010		N/A	8.0
Sulphate	U	1220	mg/l	1.0	240
Cyanide (Total)	U	1300	mg/l	0.050	< 0.050
Total Hardness as CaCO3	U	1270	mg/l	15	580
Arsenic (Dissolved)	U	1450	µg/l	1.0	1.5
Boron (Dissolved)	U	1450	µg/l	20	73
Cadmium (Dissolved)	U	1450	µg/l	0.080	< 0.080
Copper (Dissolved)	U	1450	µg/l	1.0	< 1.0
Mercury (Dissolved)	U	1450	µg/l	0.50	< 0.50
Nickel (Dissolved)	U	1450	µg/l	1.0	2.5
Lead (Dissolved)	U	1450	µg/l	1.0	< 1.0
Zinc (Dissolved)	U	1450	µg/l	1.0	4.5
Chromium (Total)	N	1450	µg/l	1.0	< 1.0
Total TPH >C6-C40	U	1670	µg/l	10	< 10
Naphthalene	U	1700	µg/l	0.10	< 0.10
Acenaphthylene	U	1700	µg/l	0.10	< 0.10
Acenaphthene	U	1700	µg/l	0.10	< 0.10
Fluorene	U	1700	µg/l	0.10	< 0.10
Phenanthrene	U	1700	µg/l	0.10	< 0.10
Anthracene	U	1700	µg/l	0.10	< 0.10
Fluoranthene	U	1700	µg/l	0.10	< 0.10
Pyrene	U	1700	µg/l	0.10	< 0.10
Benzo[a]anthracene	U	1700	µg/l	0.10	< 0.10
Chrysene	N	1700	µg/l	0.10	< 0.10
Benzo[b]fluoranthene	U	1700	µg/l	0.10	< 0.10
Benzo[k]fluoranthene	U	1700	µg/l	0.10	< 0.10
Benzo[a]pyrene	U	1700	µg/l	0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	1700	µg/l	0.10	< 0.10
Dibenz(a,h)Anthracene	U	1700	µg/l	0.10	< 0.10
Benzo[g,h,i]perylene	U	1700	µg/l	0.10	< 0.10
Total Of 16 PAH's	N	1700	µg/l	2.0	< 2.0
Total Phenols	U	1920	mg/l	0.030	< 0.030

Test Methods

SOP	Title	Parameters included	Method summary
1010	pH Value of Waters	pH	pH Meter
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1270	Total Hardness of Waters	Total hardness	Calculation applied to calcium and magnesium results, expressed as mg l-1 CaCO3 equivalent.
1300	Cyanides & Thiocyanate in Waters	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Continuous Flow Analysis.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1670	Total Petroleum Hydrocarbons (TPH) in Waters by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO	Pentane extraction / GC FID detection
1700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Waters by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

Quantum Geotechnic Ltd
Plas Newydd
Pontardulais
Swansea
SA4 0FQ

T: 01554 744880
E: enquiries@quantumgeotech.co.uk
W: http://www.quantumgeotech.co.uk