



LABORATORY
REPORT



4043

Contract Number: PSL21/5941

Report Date: 12 October 2021
Client’s Reference: 784-B025563
Client Name: Tetra Tech
11th Floor
1 Angel Court
London
EC2R 7HJ

For the attention of: Richard Tonge

Contract Title: Cambridge
Date Received: 26/7/2021
Date Commenced: 26/7/2021
Date Completed: 12/10/2021

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

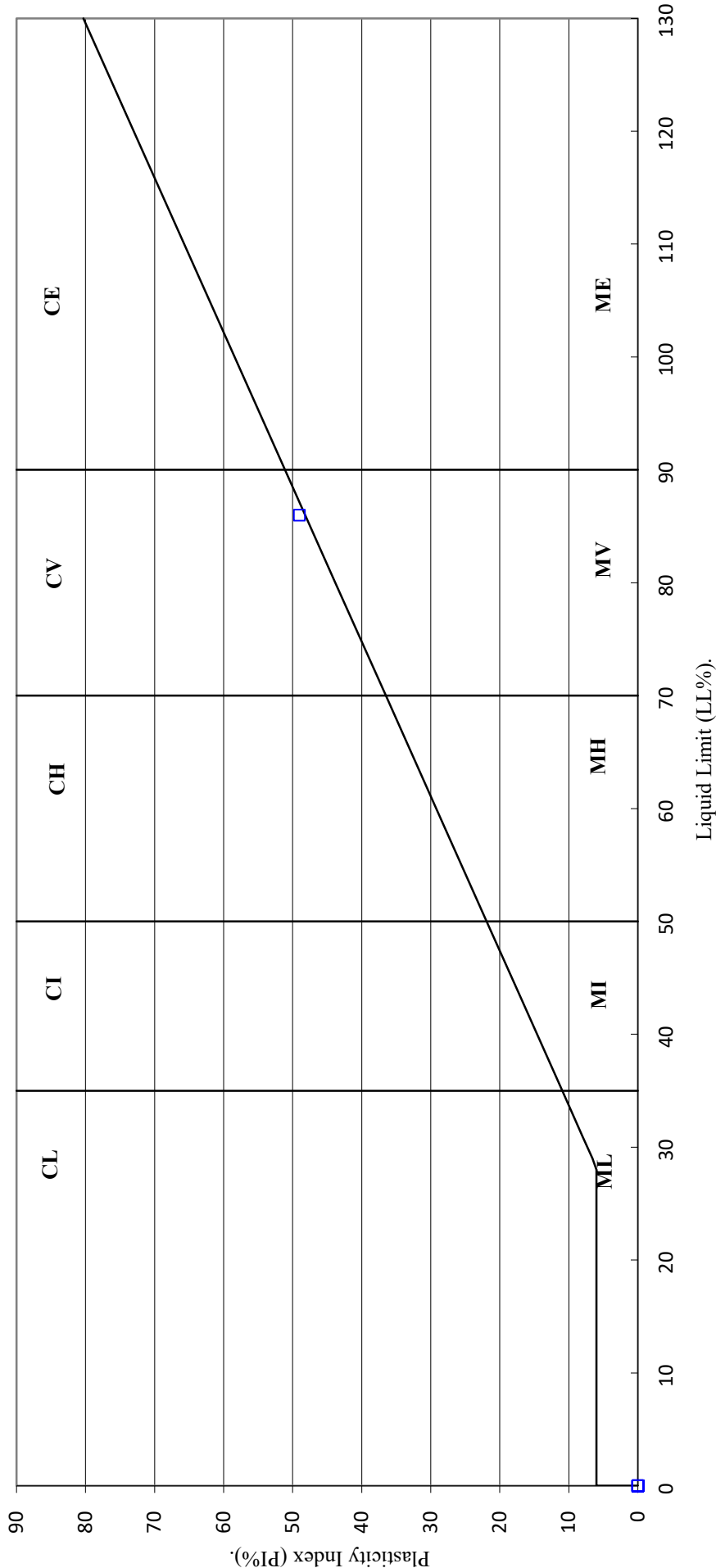
A Watkins (Director)	R Berriman (Quality Manager)	S Royle (Laboratory Manager)
L Knight (Assistant Laboratory Manager)	 S Eyre (Senior Technician)	T Watkins (Senior Technician)

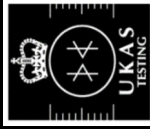
5 – 7 Hexthorpe Road, Hexthorpe,
Doncaster DN4 0AR
tel: +44 (0)844 815 6641
fax: +44 (0)844 815 6642
e-mail: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

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APPENDIX J: GEOTECHNICAL LABORATORY CERTIFICATES

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.





4043



Professional Soils Laboratory

Contract No:

PSL21/5941

Client Ref:

784-B025563

Cambridge

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990
Wet Sieve, Clause 9.2

Hole Number:

BH-BP-01

Sample Number:

Sample Type:

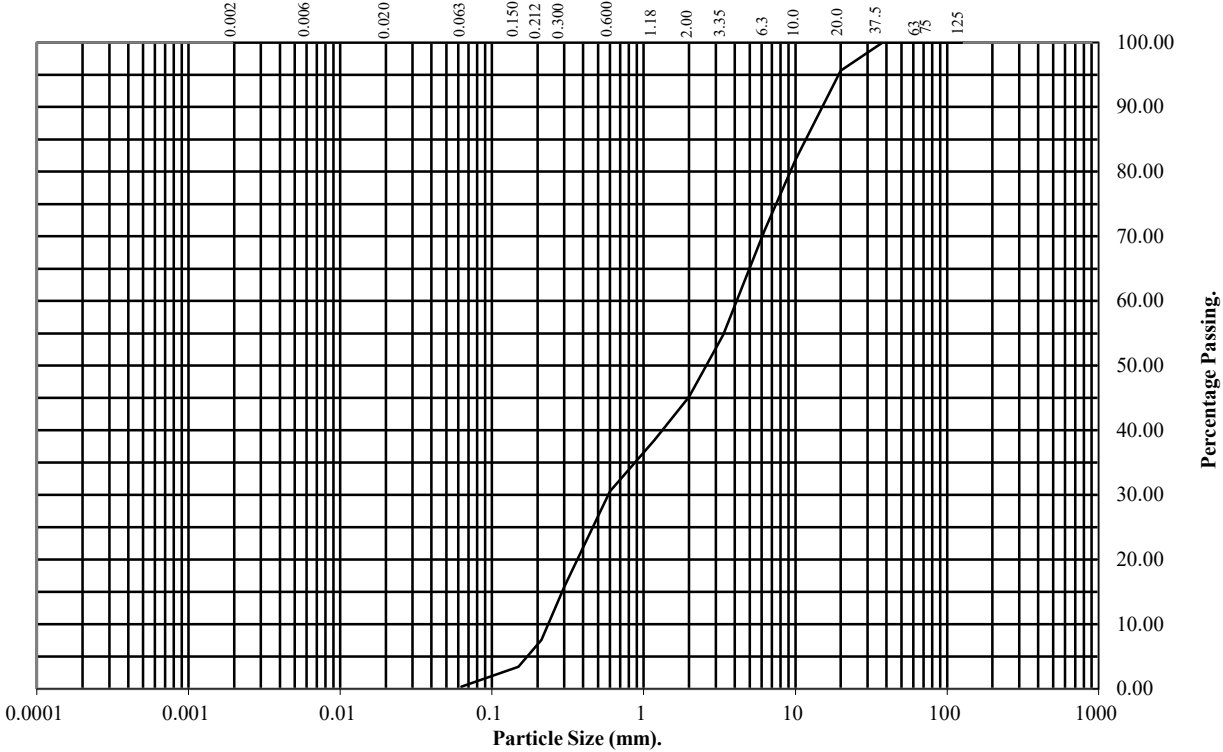
D

Top Depth (m):

1.90

Base Depth(m):

2.00



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	96
10	82
6.3	71
3.35	55
2	45
1.18	39
0.6	31
0.3	16
0.212	8
0.15	3
0.063	0

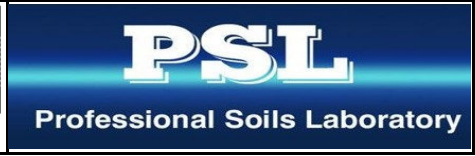
Soil Fraction	Total Percentage
Cobbles	0
Gravel	55
Sand	45
Silt/Clay	0

Remarks:

See Summary of Soil Descriptions



4043



Professional Soils Laboratory

Cambridge

Contract No:

PSL21/5941

Client Ref:

784-B025563

Sample Description & Split Describe

Hole Number: BH-BP-01 Top Depth (m): 1.20

Sample Number: Base Depth (m): 1.65

Sample Type: UT100 Sample Date:

Sample Description: 1.20-1.43m - Firm dark brown clayey silty pseudo-fibrous PEAT with occasional fine to medium rootlets.
1.43-1.47m - Thick band of light brown slightly gravelly clayey SAND. Gravel is FM sub-angular to sub-rounded.
1.47-1.65m - Soft to firm light brown mottled dark brown very sandy CLAY with some organic material.



Cambridge

Contract No:
PSL21/5941
Client Ref:
784-B025563



ANALYTICAL TEST REPORT

Contract no: 100539

Contract name: BH-BP-01

Client reference: PSL21/5941

Clients name: Professional Soils Laboratory

Clients address: 5/7 Hexthorpe Road
Doncaster
DN4 0AR

Samples received: 17 September 2021

Analysis started: 17 September 2021

Analysis completed: 24 September 2021

Report issued: 24 September 2021

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope. Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling. All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing. Methods, procedures and performance data are available on request. Results reported herein relate only to the material supplied to the laboratory. This report shall not be reproduced except in full, without prior written approval. Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key: U UKAS accredited test
M MCERTS & UKAS accredited test
\$ Test carried out by an approved subcontractor
I/S Insufficient sample to carry out test
N/S Sample not suitable for testing

Approved by: 
Rachael Burton
Customer Support Squad Leader

Chemtech Environmental Limited

SOILS

Lab number			100539-1	100539-2
Sample id			BH-BP-01	BH-BP-01
Depth (m)			0.85	1.10
Date sampled			-	-
Test	Method	Units		
pH	CE004 ^U	units	8.3	-
Magnesium (2:1 water soluble)	CE061	mg/l Mg	4.7	-
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	121	-
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	126	-
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	53	-
Sulphate (total)	CE062	mg/kg SO ₄	1043	-
Sulphur (total)	CE119	mg/kg S	480	-
Sulphur (total)	CE119	% w/w S	0.05	-
Total Organic Carbon (TOC)	CE197	% w/w C	-	3.5
Estimate of OMC (calculated from TOC)	CE197	% w/w	-	6.1

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S
CE197	Total Organic Carbon (TOC)	Carbon Analyser	Dry		0.1	% w/w C
CE197	Estimate of OMC (calculated from TOC)	Calculation from Total Organic Carbon	Dry		0.1	% w/w

Chemtech Environmental Limited

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key	
N	No (not deviating sample)
Y	Yes (deviating sample)
NSD	Sampling date not provided
NST	Sampling time not provided (waters only)
EHT	Sample exceeded holding time(s)
IC	Sample not received in appropriate containers
HP	Headspace present in sample container
NCF	Sample not chemically fixed (where appropriate)
OR	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
100539-1	BH-BP-01	0.85	Y	All (NSD)
100539-2	BH-BP-01	1.10	Y	All (NSD)



LABORATORY
REPORT



4043

Contract Number: PSL21/5560

Report Date: 04 October 2021

Client’s Reference: 784-B025563

Client Name: Tetra Tech
11th Floor
1 Angel Court
London
EC2R 7HJ

For the attention of: Richard Tonge

Contract Title: Cambridge

Date Received: 8/7/2021
Date Commenced: 8/7/2021
Date Completed: 2/9/2021

Notes: Opinions and Interpretations are outside the UKAS Accreditation

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Checked and Approved Signatories:

A Watkins (Director)	R Berriman (Quality Manager)	S Royle (Laboratory Manager)
L Knight (Assistant Laboratory Manager)	S Eyre (Senior Technician)	M Fennell (Senior Technician)

5 – 7 Hexthorpe Road, Hexthorpe,
Doncaster DN4 0AR
tel: +44 (0)844 815 6641
fax: +44 (0)844 815 6642
e-mail: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

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SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]

	Contract No:
	PSL21/5560
	Client Ref:
	784-B025563

PARTICLE SIZE DISTRIBUTION TEST

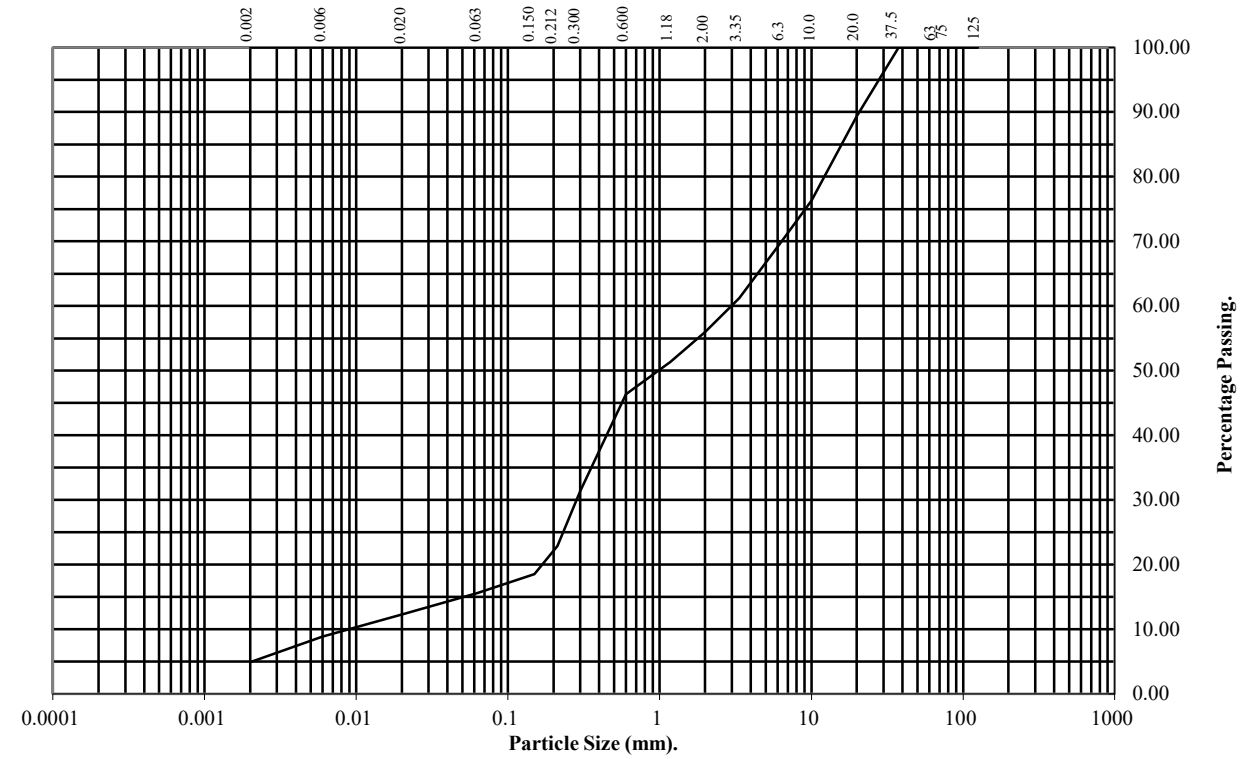
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	BH-OBC-01	Top Depth (m):	0.40
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Sample Number: 1 **Base Depth(m):**

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	89
10	76
6.3	70
3.35	61
2	56
1.18	51
0.6	46
0.3	31
0.212	23
0.15	19
0.063	16

Particle Diameter	Percentage Passing
0.02	12
0.006	9
0.002	5

Soil Fraction	Total Percentage
Cobbles	0
Gravel	44
Sand	40
Silt	11
Clay	5

Remarks:
See Summary of Soil Descriptions

		<p>Cambridge</p>	<p>Contract No: PSL21/5560</p> <p>Client Ref: 784-B025563</p>
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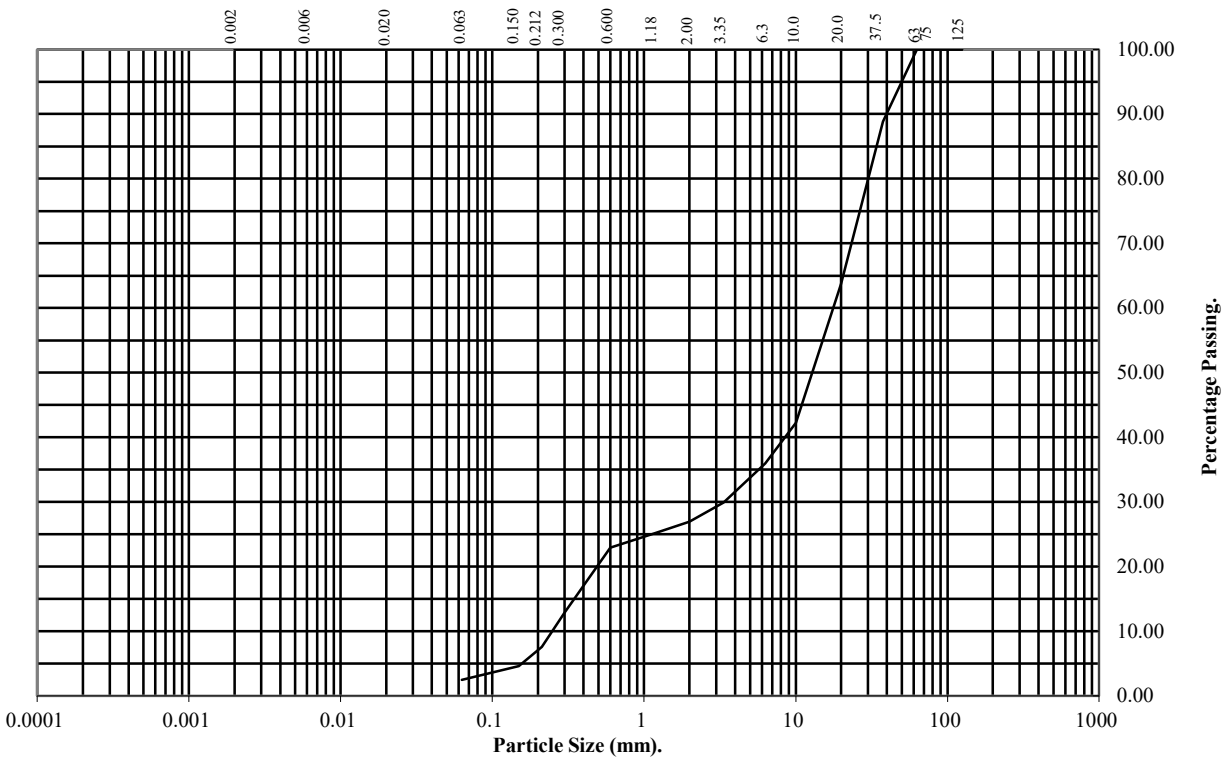
PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990
Wet Sieve, Clause 9.2

Hole Number: BH-OBC-01 Top Depth (m): 1.00

Sample Number: 2 Base Depth(m):

Sample Type: B



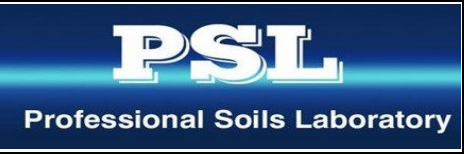
BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	89
20	64
10	42
6.3	36
3.35	30
2	27
1.18	25
0.6	23
0.3	13
0.212	8
0.15	5
0.063	2

Soil Fraction	Total Percentage
Cobbles	0
Gravel	73
Sand	25
Silt/Clay	2

Remarks:
See Summary of Soil Descriptions



4043



Professional Soils Laboratory

Cambridge

Contract No:
PSL21/5560
Client Ref:
784-B025563

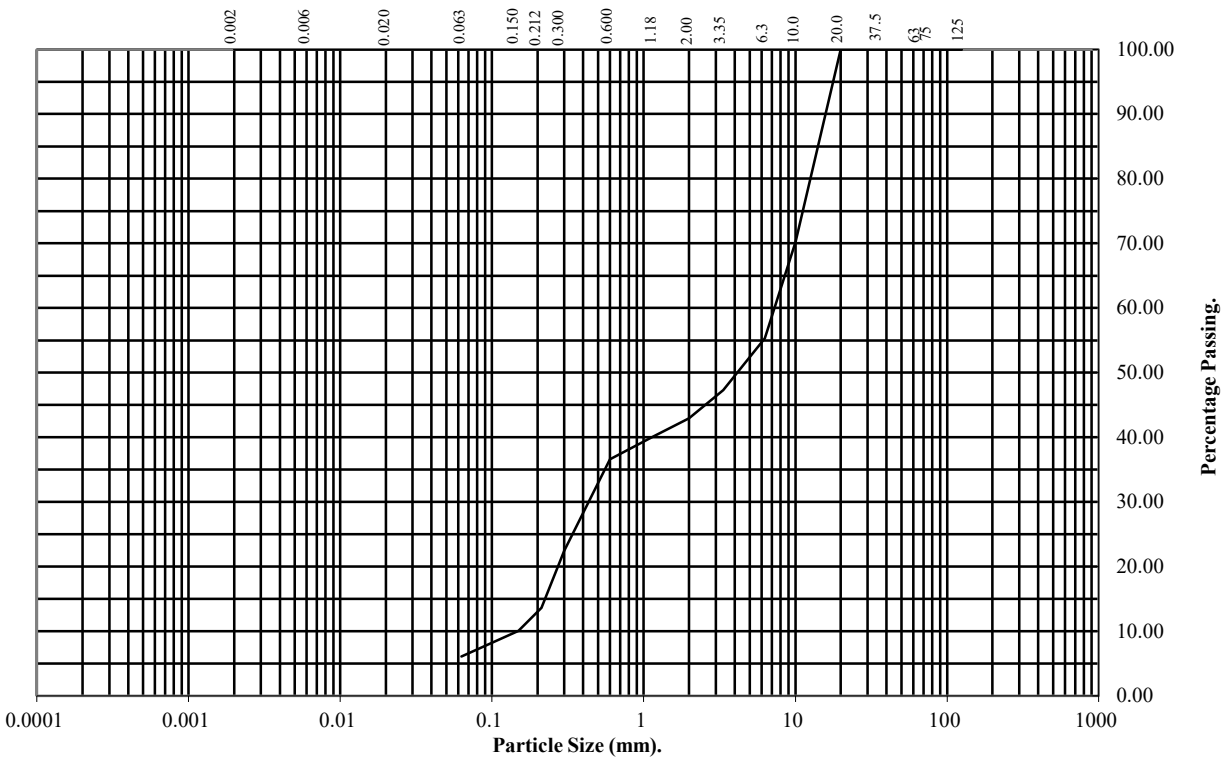
PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990
Wet Sieve, Clause 9.2

Hole Number: BH-OBC-01 Top Depth (m): 3.00

Sample Number: 9 Base Depth(m): 3.45

Sample Type: D



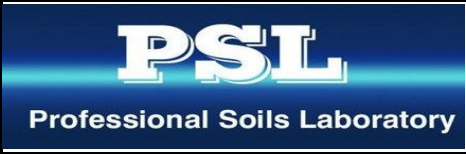
BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	70
6.3	55
3.35	47
2	43
1.18	40
0.6	37
0.3	22
0.212	14
0.15	10
0.063	6

Soil Fraction	Total Percentage
Cobbles	0
Gravel	57
Sand	37
Silt/Clay	6

Remarks:
See Summary of Soil Descriptions



4043



Professional Soils Laboratory

Cambridge

Contract No:
PSL21/5560
Client Ref:
784-B025563

SUMMARY OF ROCK TESTS

[illegible]

	Contract No:
	PSL21/5560
	Client Ref:
	784-B025563

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note**
All testing carried out on samples at as received water content

A = Axial, D = Diametral, I = Irregular



PSL

Professional Soils Laboratory

4043

Cambridge

Contract No:	
PSL21/5560	
Client Ref:	
784-B025563	

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

[illegible]

SYMBOLS: NP: Non Plastic

* : Liquid Limit and Plastic Limit Wet Sieved.


PSL
Professional Soils Laboratory
4043

Contract No:

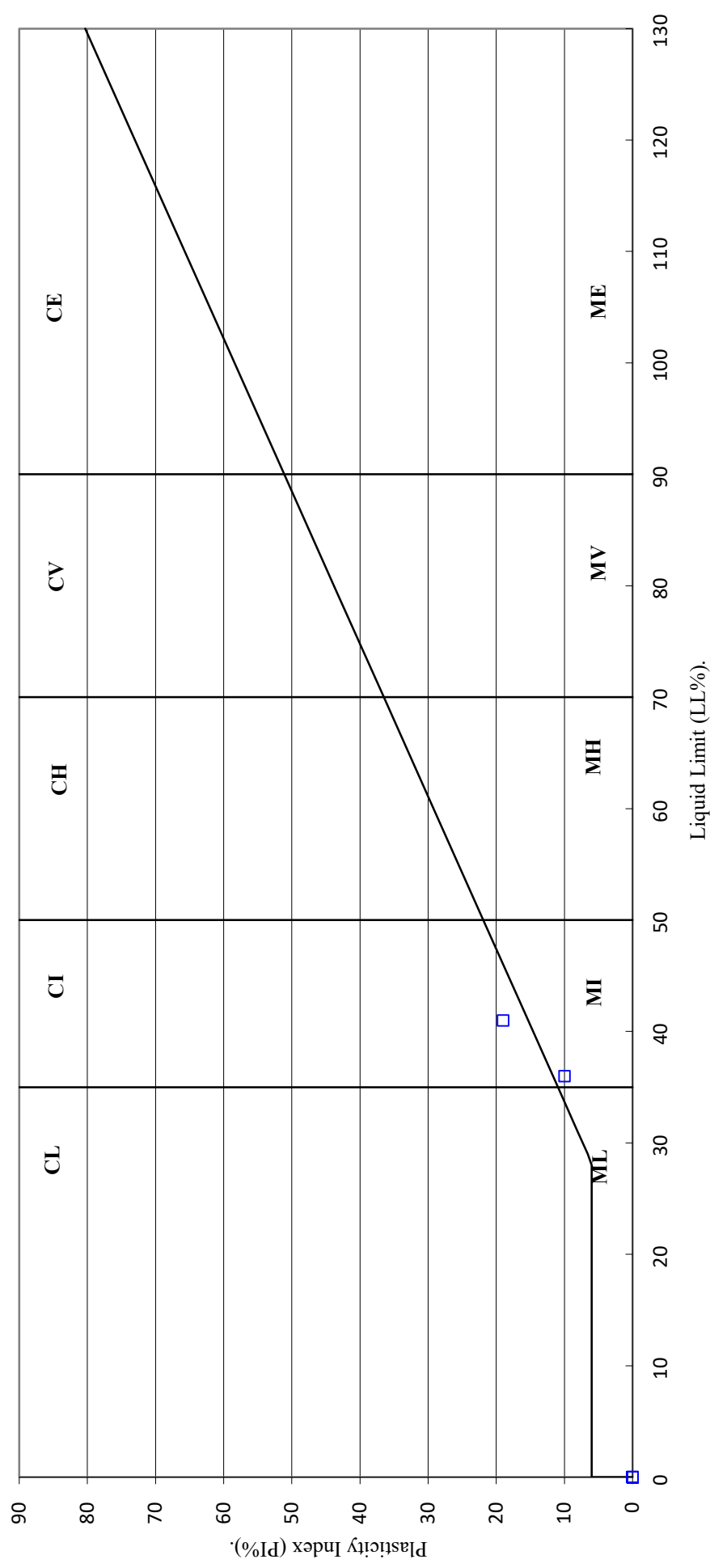
PSL21/5561

Client Ref:

784-B025563

Cambridge

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.




PSL
Professional Soils Laboratory
4043

Contract No:

PSL21/5561

Client Ref:

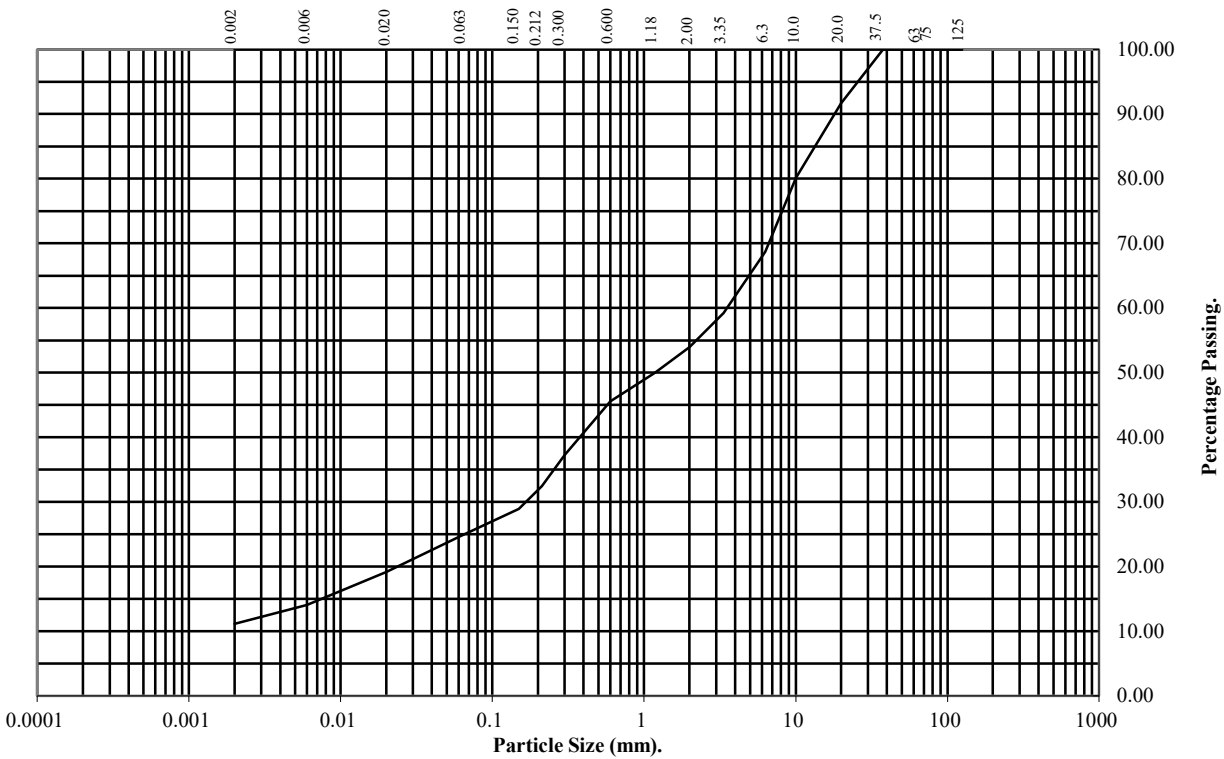
784-B025563

Cambridge

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: BH-OBC-02 Top Depth (m): 0.50
Sample Number: 1 Base Depth(m):
Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	92
10	80
6.3	69
3.35	59
2	54
1.18	50
0.6	46
0.3	37
0.212	32
0.15	29
0.063	25

Particle Diameter	Percentage Passing
0.02	19
0.006	14
0.002	11

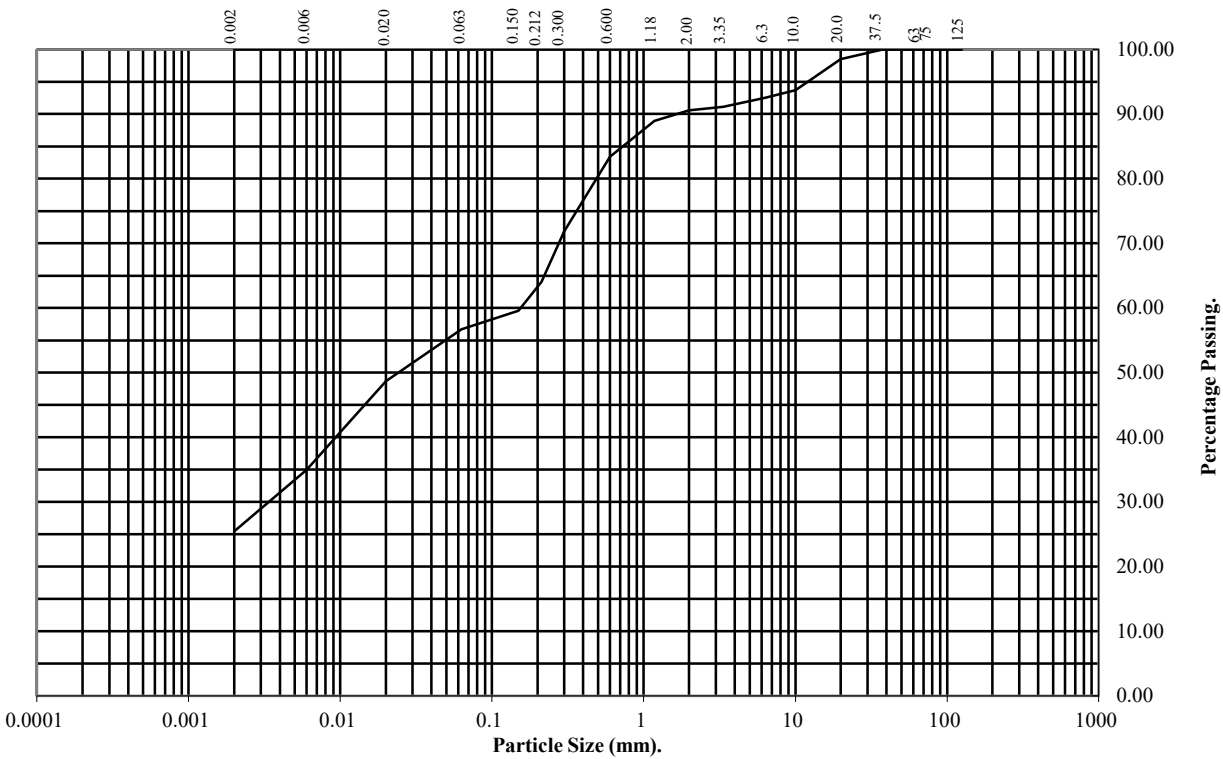
Soil Fraction	Total Percentage
Cobbles	0
Gravel	46
Sand	29
Silt	14
Clay	11

Remarks:
See Summary of Soil Descriptions

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: BH-OBC-02 Top Depth (m): 1.00
Sample Number: 2 Base Depth(m):
Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	98
10	94
6.3	93
3.35	91
2	91
1.18	89
0.6	83
0.3	72
0.212	64
0.15	60
0.063	57

Particle Diameter	Percentage Passing
0.02	49
0.006	35
0.002	25

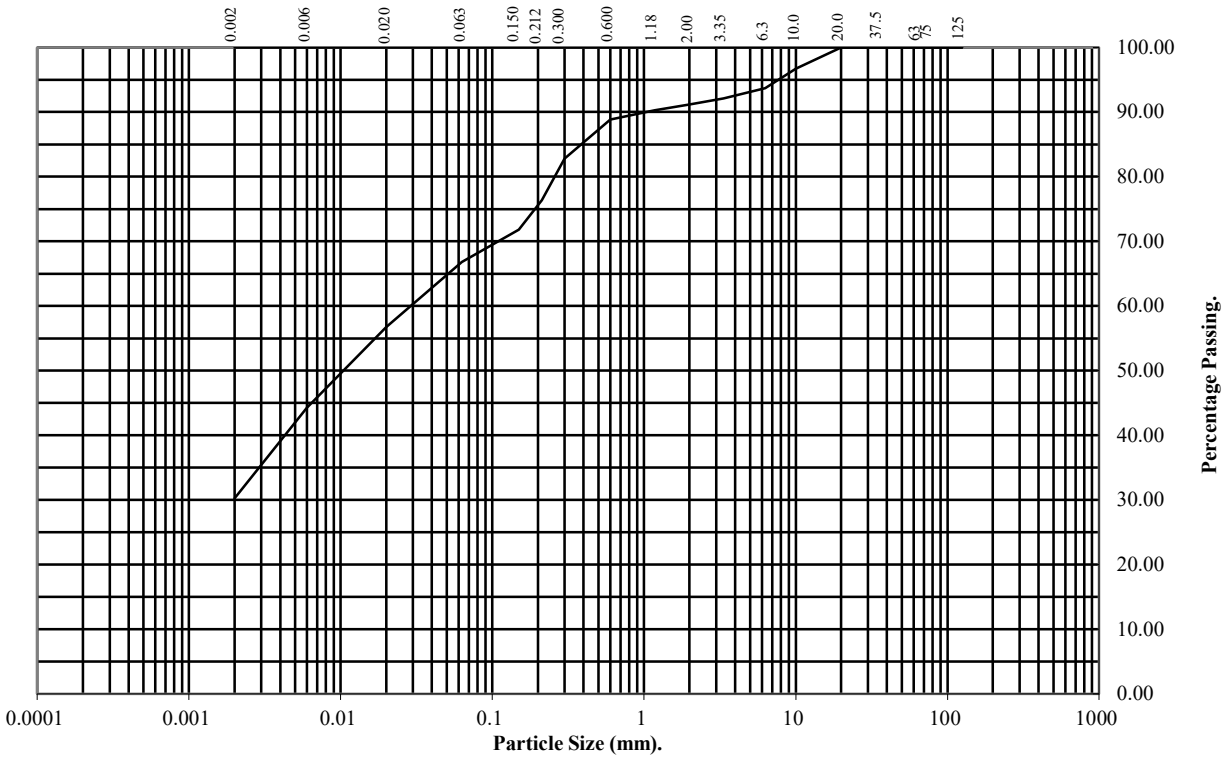
Soil Fraction	Total Percentage
Cobbles	0
Gravel	9
Sand	34
Silt	32
Clay	25

Remarks:
See Summary of Soil Descriptions

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: BH-OBC-02 Top Depth (m): 2.00
Sample Number: 7 Base Depth(m): 2.10
Sample Type: D



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	97
6.3	94
3.35	92
2	91
1.18	90
0.6	89
0.3	83
0.212	76
0.15	72
0.063	67

Particle Diameter	Percentage Passing
0.02	57
0.006	44
0.002	30

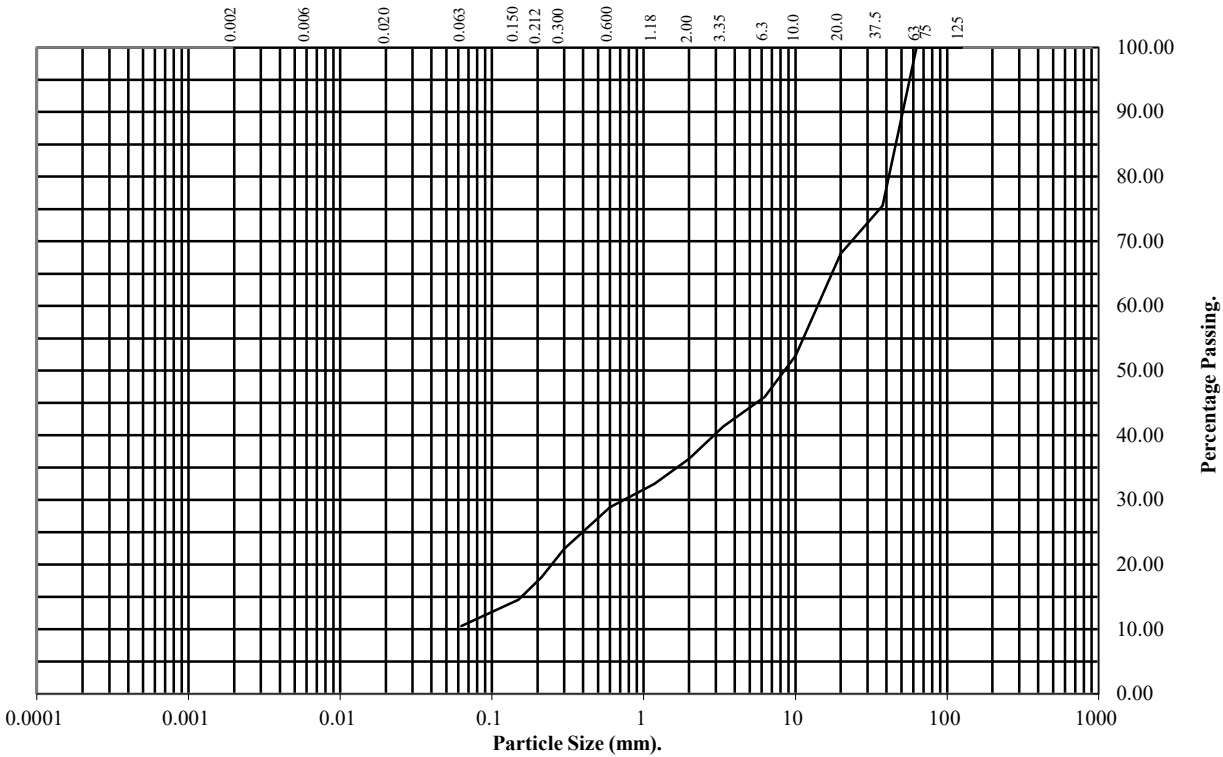
Soil Fraction	Total Percentage
Cobbles	0
Gravel	9
Sand	24
Silt	37
Clay	30

Remarks:
See Summary of Soil Descriptions

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990
Wet Sieve, Clause 9.2

Hole Number: BH-OBC-02 Top Depth (m): 2.80
Sample Number: 10 Base Depth(m): 2.90
Sample Type: D



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	76
20	68
10	52
6.3	46
3.35	41
2	36
1.18	32
0.6	29
0.3	22
0.212	18
0.15	15
0.063	10

Soil Fraction	Total Percentage
Cobbles	0
Gravel	64
Sand	26
Silt/Clay	10

Remarks:
See Summary of Soil Descriptions

SUMMARY OF CHALK TESTS

(BS1377: PART 2 & 4: 1990)

[illegible]

* CCV testing is not UKAS accredited

	<p>Cambridge</p>	Contract No:
		PSL21/5561
		Client Ref:
		784-B025563

SUMMARY OF ROCK TESTS

(ISRM Suggested Method for the Determination of the Water Content of Rock)

[illegible]

	Contract No:
	PSL21/5561
	Client Ref:
	784-B025563

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular

 <p>PSL Professional Soils Laboratory</p>	<p>Contract No:</p>
	<p>PSL21/5561</p>
	<p>Client Ref:</p>
	<p>784-B025563</p>

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

		<p style="text-align: center;">Cambridge</p>	Contract No:
			PSL21/5561
			Client Ref:
			784-B025563



Chemtech Environmental Limited

SOILS

ANALYTICAL TEST REPORT

Contract no: 99748

Contract name: BH-OBC-02

Client reference: PSL21/5561

Clients name: Professional Soils Laboratory

Clients address: 5/7 Hexthorpe Road
Doncaster
DN4 0AR

Samples received: 24 August 2021

Analysis started: 24 August 2021

Analysis completed: 31 August 2021

Report issued: 31 August 2021

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.
All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.
Methods, procedures and performance data are available on request.
Results reported herein relate only to the material supplied to the laboratory.
This report shall not be reproduced except in full, without prior written approval.
Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key: U UKAS accredited test
M MCERTS & UKAS accredited test
\$ Test carried out by an approved subcontractor
I/S Insufficient sample to carry out test
N/S Sample not suitable for testing

Approved by: 
Rachael Burton
Customer Support Squad Leader

Lab number			99748-1	99748-2	99748-3
Sample id			BH-OBC-02	BH-OBC-02	BH-OBC-02
Depth (m)			20.50-20.60	25.90-26.00	30.40-30.50
Date sampled			17/03/2021	17/03/2021	17/03/2021
Test	Method	Units			
pH	CE004 ^U	units	8.3	8.3	8.3
Magnesium (2:1 water soluble)	CE061	mg/l Mg	1.3	1.0	<1
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	5.3	6.6	4.2
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	6.4	10	5.8
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	23	21	17
Sulphate (total)	CE062	mg/kg SO ₄	396	300	345
Sulphur (total)	CE119	mg/kg S	203	123	136
Sulphur (total)	CE119	% w/w S	0.02	0.01	0.01

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

- Key**
N No (not deviating sample)
Y Yes (deviating sample)
NSD Sampling date not provided
NST Sampling time not provided (waters only)
EHT Sample exceeded holding time(s)
IC Sample not received in appropriate containers
HP Headspace present in sample container
NCF Sample not chemically fixed (where appropriate)
OR Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
99748-1	BH-OBC-02	20.50-20.60	Y	ALL (EHT)
99748-2	BH-OBC-02	25.90-26.00	Y	ALL (EHT)
99748-3	BH-OBC-02	30.40-30.50	Y	ALL (EHT)

		<p>Cambridge</p>	<p>Contract No:</p>
			<p>PSL21/5562</p>
			<p>Client Ref:</p>
			<p>704 P025562</p>

(BS1377 : PART 2 & 4 : 1990)

* CCV testing is not UKAS accredited



Cambridge

Contract No:	PSL21/5562	Client Ref:	784-B025563
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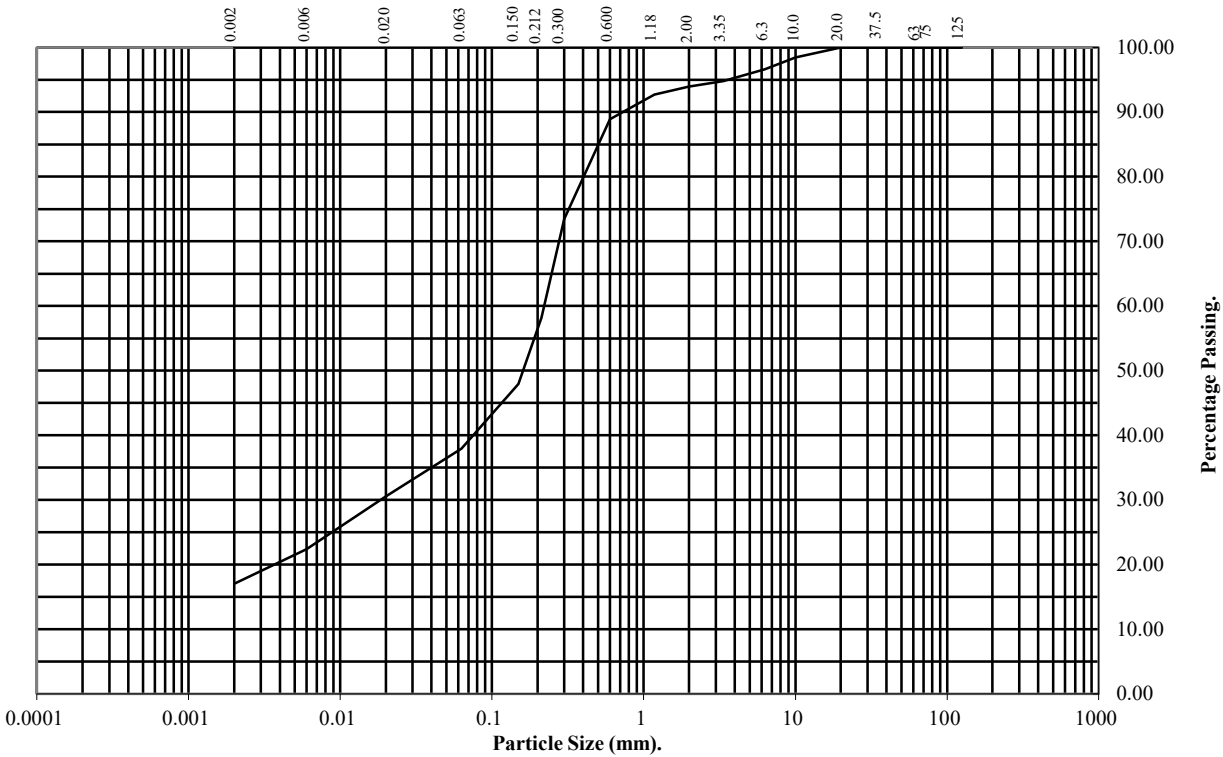
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	BH-OBC-03	Top Depth (m):	0.50
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Sample Number: 2 **Base Depth(m):** 0.50

Sample Type: **B**



Particle Diameter	Percentage Passing
0.02	31
0.006	22
0.002	17

Soil Fraction	Total Percentage
Cobbles	0
Gravel	6
Sand	56
Silt	21
Clay	17

Remarks:
See Summary of Soil Descriptions



Cambridge

Contract No:
PSL21/5562

Client Ref:
784-B025563

PARTICLE SIZE DISTRIBUTION TEST

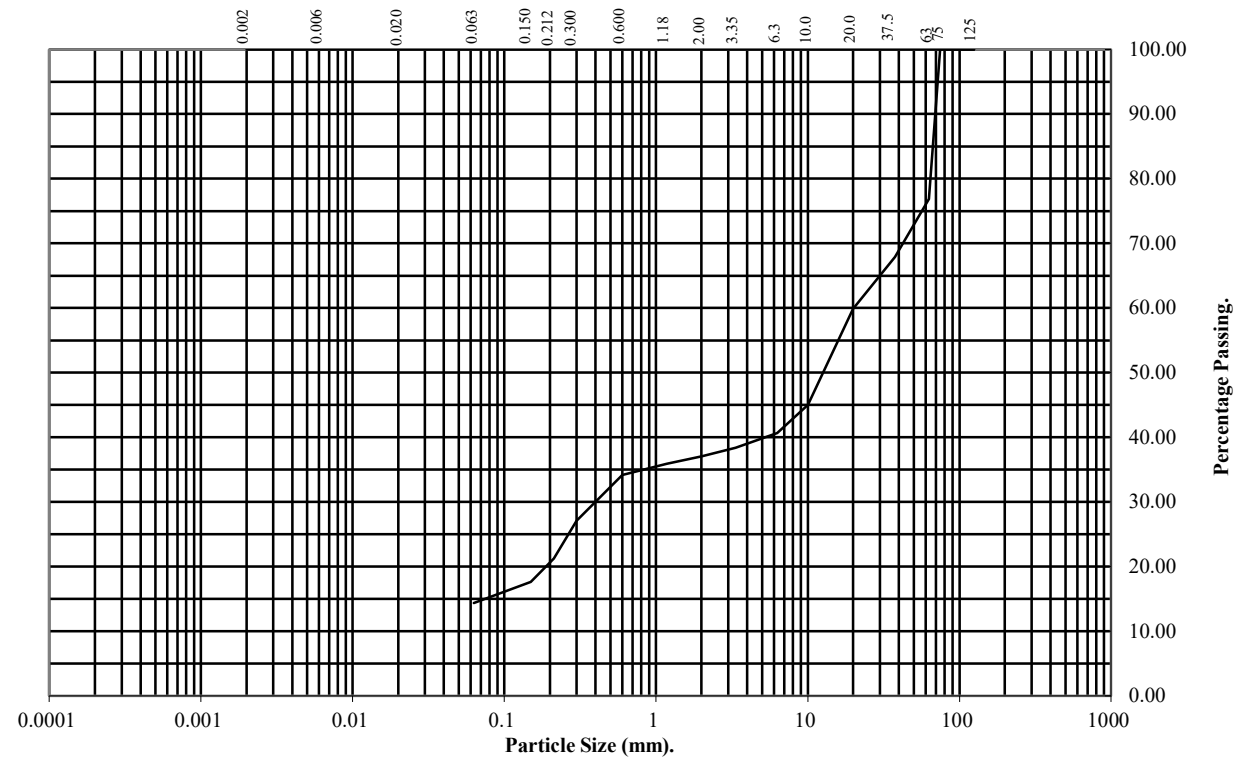
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number:	BH-OBC-03	Top Depth (m):	1.00
---------------------	------------------	-----------------------	-------------

Sample Number: 3 **Base Depth(m):** 1.00

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	77
37.5	68
20	60
10	45
6.3	41
3.35	38
2	37
1.18	36
0.6	34
0.3	27
0.212	21
0.15	18
0.063	14

Soil Fraction	Total Percentage
Cobbles	23
Gravel	40
Sand	23
Silt/Clay	14

Remarks:

See Summary of Soil Descriptions



4043

PSL

Professional Soils Laboratory

Cambridge

Contract No:

PSL21/5562

Client Ref:

784-B025563

SUMMARY OF ROCK TESTS

(ISRM Suggested Method for the Determination of the Water Content of Rock)

[illegible]

Contract No:

PSL21/5562

Client Ref:

784-B025563

Cambridge

PST
Professional Soils Laboratory

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular

	<p>Contract No:</p>
	<p>PSL21/5562</p>
	<p>Client Ref:</p>
	<p>784-B025563</p>

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

 UKAS TESTING 4043	 PSL Professional Soils Laboratory	Cambridge	Contract No:
		PSL21/5562	Client Ref:
		784-B025563	



Chemtech Environmental Limited

SOILS

ANALYTICAL TEST REPORT

Contract no: 99619

Contract name: BH-OBC-03

Client reference: PSL21/5562

Clients name: Professional Soils Laboratory

Clients address: 5/7 Hexthorpe Road
Doncaster
DN4 0AR

Samples received: 19 August 2021

Analysis started: 19 August 2021

Analysis completed: 26 August 2021

Report issued: 26 August 2021

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.
All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.
Methods, procedures and performance data are available on request.
Results reported herein relate only to the material supplied to the laboratory.
This report shall not be reproduced except in full, without prior written approval.
Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key: U UKAS accredited test
M MCERTS & UKAS accredited test
\$ Test carried out by an approved subcontractor
I/S Insufficient sample to carry out test
N/S Sample not suitable for testing

Approved by: 
Rachael Burton
Customer Support Squad Leader

Lab number			99619-1	99619-2
Sample id			BH-OBC-03	BH-OBC-03
Depth (m)			20.10-20.20	28.20-28.30
Date sampled			-	-
Test	Method	Units		
pH	CE004 ^U	units	8.2	8.2
Magnesium (2:1 water soluble)	CE061	mg/l Mg	4.5	1.7
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	5.8	4.0
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	5.5	5.2
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	176	29
Sulphate (total)	CE062	mg/kg SO ₄	671	309
Sulphur (total)	CE119	mg/kg S	446	161
Sulphur (total)	CE119	% w/w S	0.04	0.02

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

- Key**
N No (not deviating sample)
Y Yes (deviating sample)
NSD Sampling date not provided
NST Sampling time not provided (waters only)
EHT Sample exceeded holding time(s)
IC Sample not received in appropriate containers
HP Headspace present in sample container
NCF Sample not chemically fixed (where appropriate)
OR Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
99619-1	BH-OBC-03	20.10-20.20	Y	All (NSD)
99619-2	BH-OBC-03	28.20-28.30	Y	All (NSD)

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

[illegible]

SYMBOLS: NP : Non Plastic

* : Liquid Limit and Plastic Limit Wet Sieved.


PSL
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Cambridge

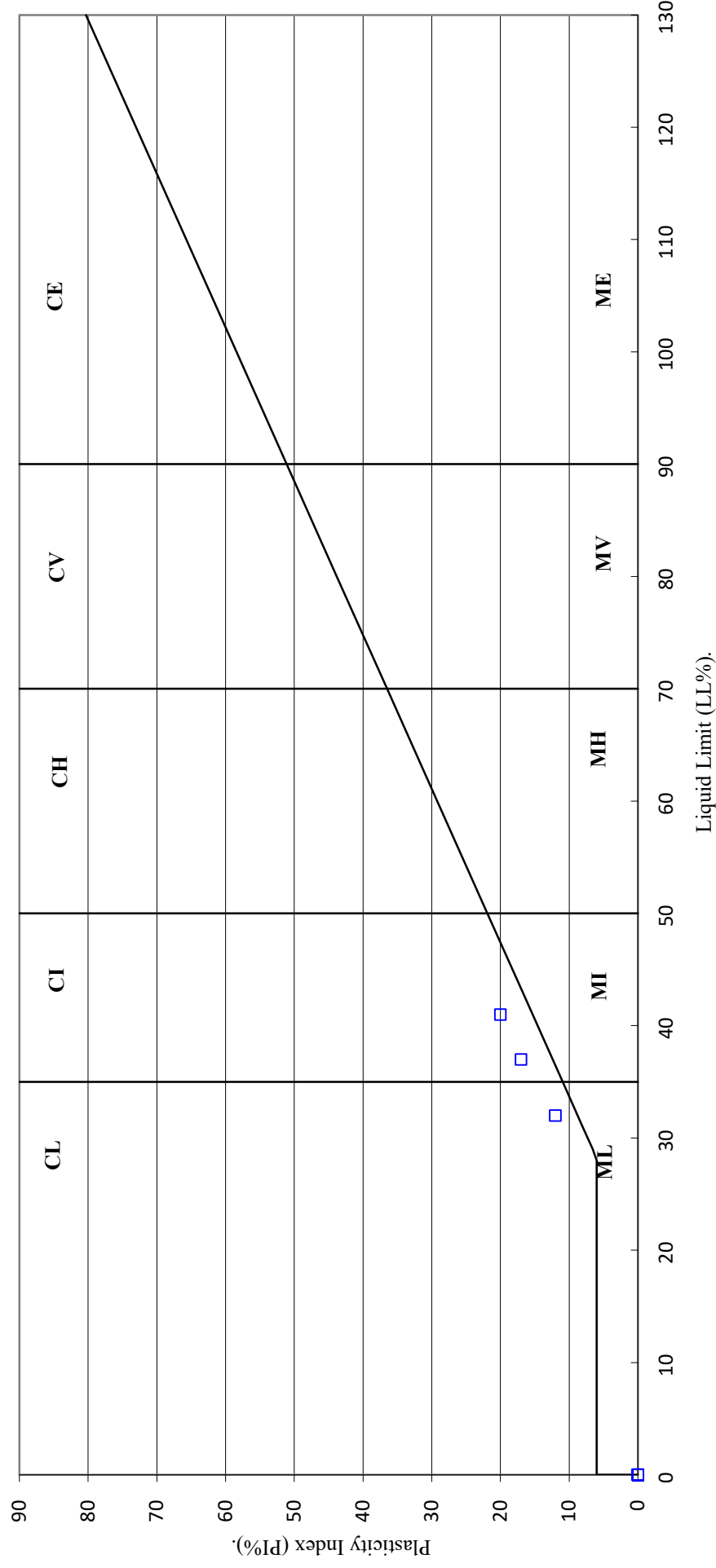
Contract No:

PSL21/5563

Client Ref:

784-B025563

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.




PSL
Professional Soils Laboratory
4043

Cambridge

Contract No:

PSL21/5563

Client Ref:

784-B025563

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular

 UKAS TESTING 4043	 PSL Professional Soils Laboratory	Cambridge	Contract No:
		PSL21/5563	Client Ref:
		784-B025563	

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

	<p style="text-align: center;">Cambridge</p>		Contract No:
			PSL21/5563
			Client Ref:
			784-B025563

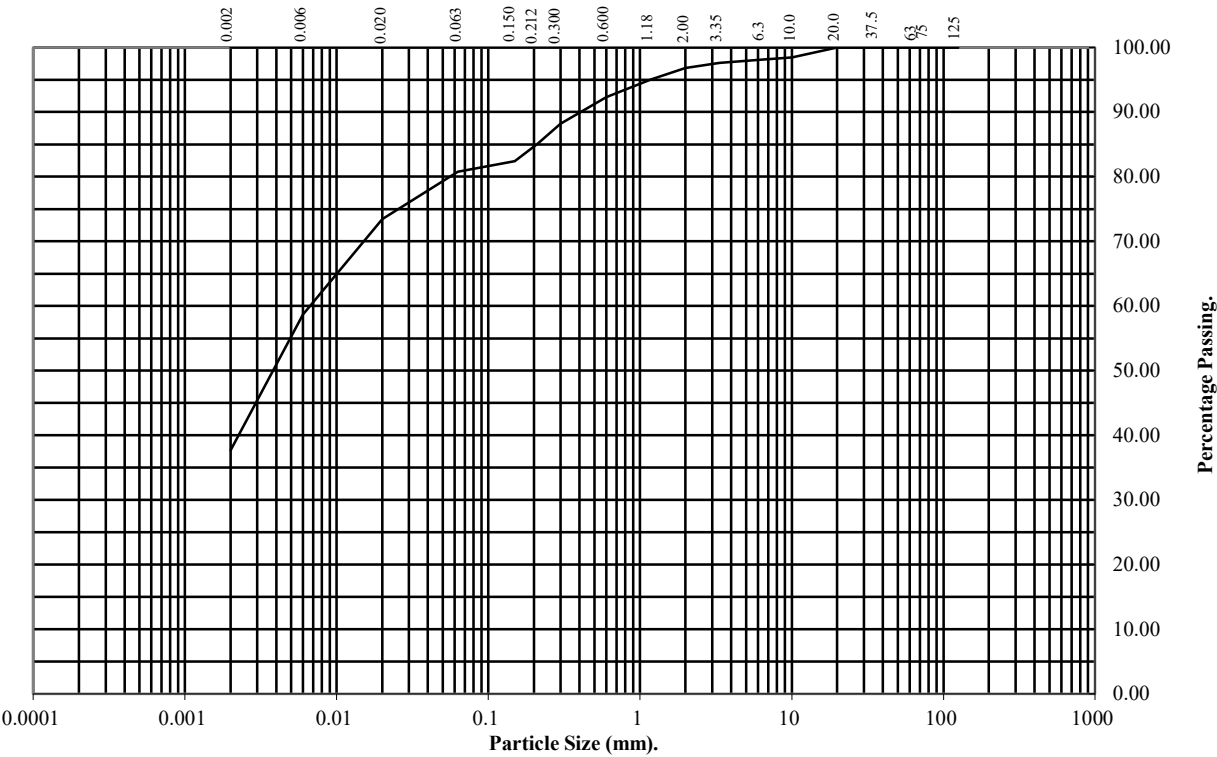
PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: BH-OBC-04 Top Depth (m): 0.50

Sample Number: Base Depth(m):

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	98
6.3	98
3.35	98
2	97
1.18	95
0.6	92
0.3	88
0.212	85
0.15	82
0.063	81

Particle Diameter	Percentage Passing
0.02	73
0.006	59
0.002	38

Soil Fraction	Total Percentage
Cobbles	0
Gravel	3
Sand	16
Silt	43
Clay	38

Remarks:
See Summary of Soil Descriptions

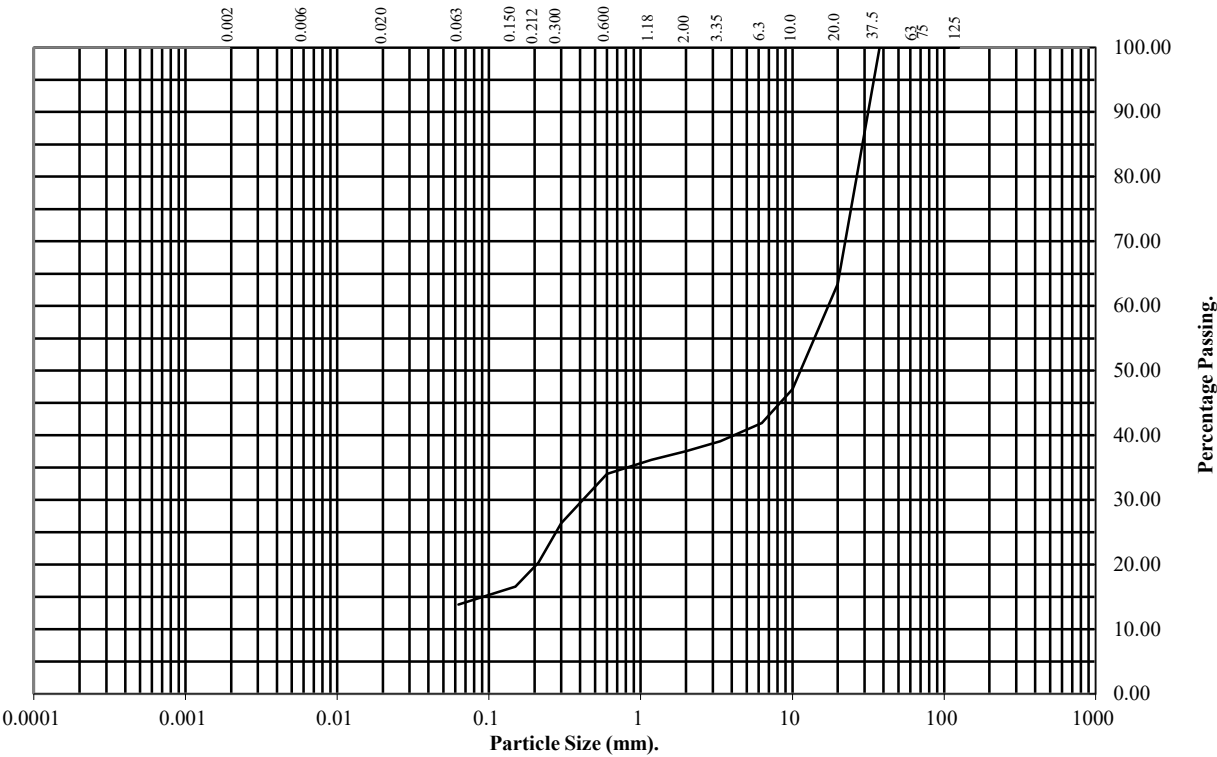
PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990
Wet Sieve, Clause 9.2

Hole Number: BH-OBC-04 Top Depth (m): 1.00

Sample Number: Base Depth(m):

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	63
10	47
6.3	42
3.35	39
2	38
1.18	36
0.6	34
0.3	26
0.212	20
0.15	17
0.063	14

Soil Fraction	Total Percentage
Cobbles	0
Gravel	62
Sand	24
Silt/Clay	14

Remarks:
See Summary of Soil Descriptions

SUMMARY OF CHALK TESTS

(BS1377: PART 2 & 4: 1990)

[illegible]

* CCV testing is not UKAS accredited

	<p>Cambridge</p>	Contract No:
		PSL21/5563
		Client Ref:
		784-B025563

SUMMARY OF ROCK TESTS

(ISRM Suggested Method for the Determination of the Water Content of Rock)

[illegible]

	<p style="text-align: center;">Cambridge</p>	Contract No:
		PSL21/5563
		Client Ref:
		784-B025563

ISRM Suggested Methods, pp 111–116, 1981.

	<p style="text-align: center;">Cambridge</p>	Contract No:
		PSL21/5563
		Client Ref:
		784-B025563



Contract no:	99744
Contract name:	BH-OBC-04
Client reference:	PSL21/5563
Clients name:	Professional Soils Laboratory
Clients address:	5/7 Hexthorpe Road Doncaster DN4 0AR
Samples received:	24 August 2021
Analysis started:	24 August 2021
Analysis completed:	31 August 2021
Report issued:	31 August 2021

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.
All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing
Methods, procedures and performance data are available on request.
Results reported herein relate only to the material supplied to the laboratory.
This report shall not be reproduced except in full, without prior written approval.
Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key:

- U UKAS accredited test
- M MCERTS & UKAS accredited test
- \$ Test carried out by an approved subcontractor
- I/S Insufficient sample to carry out test
- N/S Sample not suitable for testing

Approved by: 
Rachael Burton
Customer Support Squad Leader

Chemtech Environmental Limited

SOILS

Lab number			99744-1	99744-2
Sample id			BH-OBC-04	BH-OBC-04
Depth (m)			24.00-24.10	29.20-29.30
Date sampled			31/03/2021	31/03/2021
Test	Method	Units		
pH	CE004 ^U	units	8.6	8.7
Magnesium (2:1 water soluble)	CE061	mg/l Mg	1.2	1.1
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	4.9	4.7
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	5.9	6.2
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	19	20
Sulphate (total)	CE062	mg/kg SO ₄	368	379
Sulphur (total)	CE119	mg/kg S	161	143
Sulphur (total)	CE119	% w/w S	0.02	0.01

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S

Chemtech Environmental Limited

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key
N No (not deviating sample)
Y Yes (deviating sample)
NSD Sampling date not provided
NST Sampling time not provided (waters only)
EHT Sample exceeded holding time(s)
IC Sample not received in appropriate containers
HP Headspace present in sample container
NCF Sample not chemically fixed (where appropriate)
OR Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
99744-1	BH-OBC-04	24.00-24.10	Y	ALL (EHT)
99744-2	BH-OBC-04	29.20-29.30	Y	ALL (EHT)



ANALYTICAL TEST REPORT

Contract no: 104320

Contract name: BH-OBC-04

Client reference: PSL21/5563

Clients name: Professional Soils Laboratory

Clients address: 5/7 Hexthorpe Road
Doncaster
DN4 0AR

Samples received: 07 January 2022

Analysis started: 07 January 2022

Analysis completed: 14 January 2022

Report issued: 14 January 2022

Key
U UKAS accredited test
M MCERTS & UKAS accredited test
\$ Test carried out by an approved subcontractor
I/S Insufficient sample to carry out test
N/S Sample not suitable for testing

Approved by: M. Harris
Megan Harris
Senior Reporting Administrator

Chemtech Environmental Limited

SOILS

Lab number			104320
Sample id			BH-OBC-04
Depth (m)			17.20-17.30
Sample Type			PLT
Date sampled			-
Test	Method	Units	
pH	CE004 ^U	units	8.3
Magnesium (2:1 water soluble)	CE061	mg/l Mg	1.9
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	9.5
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	2.7
Sulphate (2:1 water soluble)	CE061 ^U	mg/l SO ₄	16
Sulphate (total)	CE062 ^U	mg/kg SO ₄	426
Sulphur (total)	CE119	mg/kg S	143
Sulphur (total)	CE119	% w/w S	0.01

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry	U	10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry	U	100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S

Chemtech Environmental Limited

DEVIATING SAMPLE INFORMATION

Comments

Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key

- N No (not deviating sample)
- Y Yes (deviating sample)
- NSD Sampling date not provided
- NST Sampling time not provided (waters only)
- EHT Sample exceeded holding time(s)
- IC Sample not received in appropriate containers
- HP Headspace present in sample container
- NCF Sample not chemically fixed (where appropriate)
- OR Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
104320	BH-OBC-04	17.20-17.30	Y	All (NSD)

Chemtech Environmental Limited

ADDITIONAL INFORMATION

Notes

Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.
All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.
Methods, procedures and performance data are available on request.
Results reported herein relate only to the material supplied to the laboratory.
This report shall not be reproduced except in full, without prior written approval.
Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.
For soils and solids, all results are reported on a dry basis. Samples dried at no more than 30°C in a drying cabinet.
Analytical results are inclusive of stones, where applicable.

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

[illegible]

SYMBOLS: NP : Non Plastic

* : Liquid Limit and Plastic Limit Wet Sieved.


PSL
Professional Soils Laboratory
4043

Contract No:

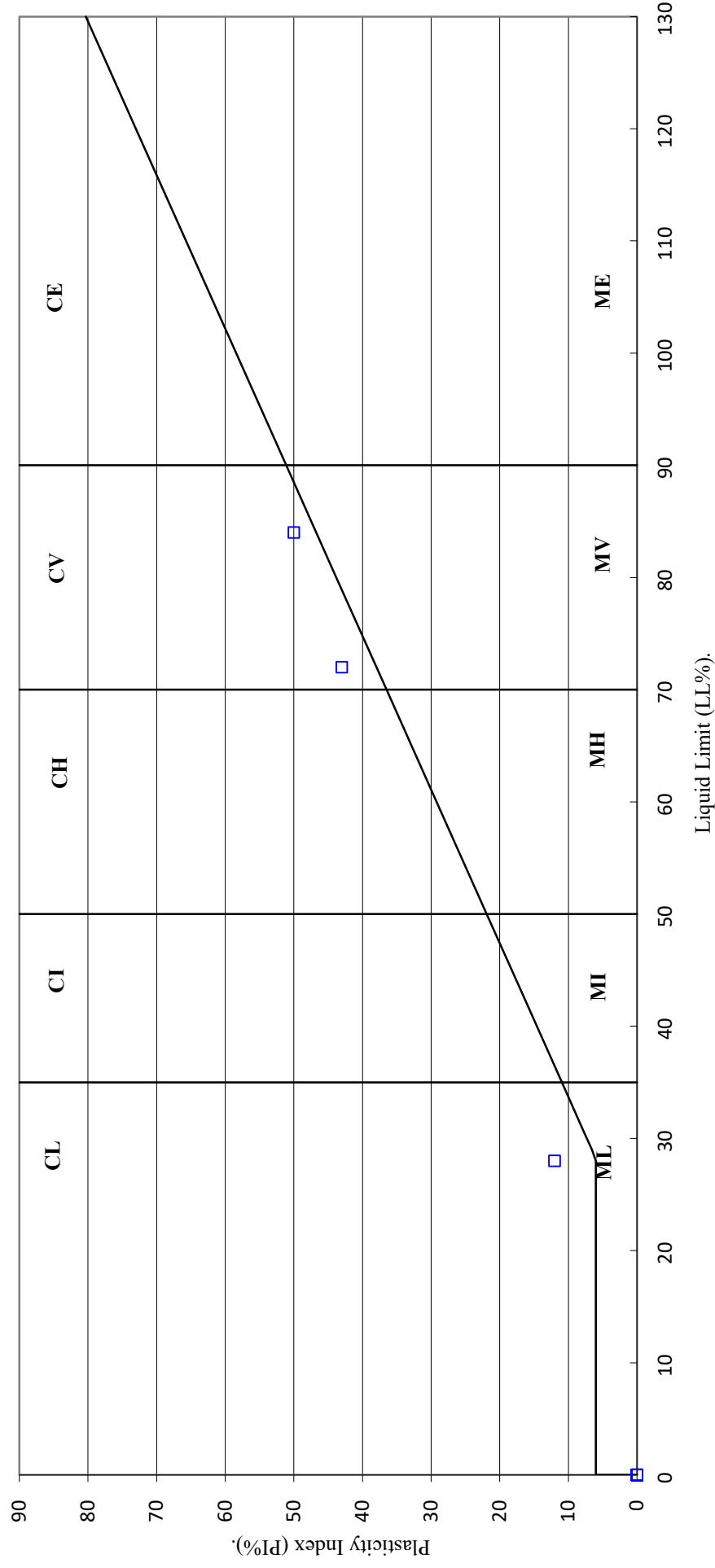
PSL21/5564

Client Ref:

784-B025563

Cambridge

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.




PSL
Professional Soils Laboratory
4043

Contract No:

PSL21/5564

Client Ref:

784-B025563

Cambridge

(BS1377 : PART 2 & 4 : 1990)

* CCV testing is not UKAS accredited

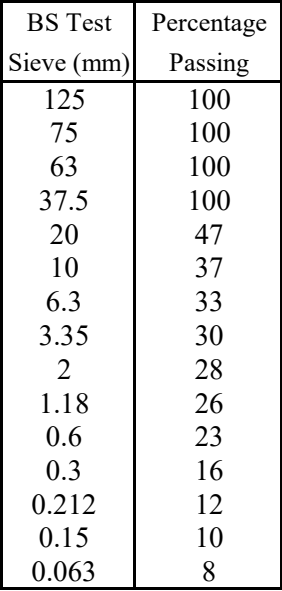


Cambridge

Contract No:	PSL21/5564	Client Ref:	784-B025563
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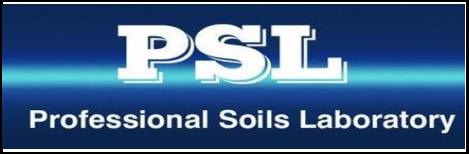
BS1377 : Part 2 : 1990
Wet Sieve, Clause 9.2

Sample Type: **D**



Soil Fraction	Total Percentage
Cobbles	0
Gravel	72
Sand	20
Silt/Clay	8

Remarks:
See Summary of Soil Descriptions



Cambridge

Contract No:
PSL21/5564

Client Ref:
784-B025563

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular

	Cambridge	Contract No:
		PSL21/5564
		Client Ref:
		784-B025563

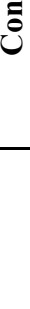
SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

 <p>PSL Professional Soils Laboratory</p>	<p>Contract No:</p>
	<p>PSL21/5564</p>
	<p>Client Ref:</p>
	<p>784-B025563</p>



ANALYTICAL TEST REPORT

Contract no: 101205
Contract name: BH-OBC-05
Client reference: PSL21/5564
Clients name: Professional Soils Laboratory
Clients address: 5/7 Hexthorpe Road
Doncaster
DN4 0AR

Samples received: 06 October 2021

Analysis started: 06 October 2021

Analysis completed: 13 October 2021

Report issued: 13 October 2021

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.
All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.
Methods, procedures and performance data are available on request.
Results reported herein relate only to the material supplied to the laboratory.
This report shall not be reproduced except in full, without prior written approval.
Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key: U UKAS accredited test
M MCERTS & UKAS accredited test
\$ Test carried out by an approved subcontractor
I/S Insufficient sample to carry out test
N/S Sample not suitable for testing

Approved by: 
Karan Campbell
Director

Chemtech Environmental Limited

SOILS

Lab number			101205-1	101205-2
Sample id			BH-OBC-05	BH-OBC-05
Depth (m)			22.00	26.70-26.80
Date sampled			-	22/03/2021
Test	Method	Units		
pH	CE004 ^U	units	8.6	8.6
Magnesium (2:1 water soluble)	CE061	mg/l Mg	1.5	<1
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	3.6	3.3
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	2.1	3.4
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	22	14
Sulphate (total)	CE062	mg/kg SO ₄	477	388
Sulphur (total)	CE119	mg/kg S	184	167
Sulphur (total)	CE119	% w/w S	0.02	0.02

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

- Key**
N No (not deviating sample)
Y Yes (deviating sample)
NSD Sampling date not provided
NST Sampling time not provided (waters only)
EHT Sample exceeded holding time(s)
IC Sample not received in appropriate containers
HP Headspace present in sample container
NCF Sample not chemically fixed (where appropriate)
OR Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
101205-1	BH-OBC-05	22.00	Y	All (NSD)
101205-1	BH-OBC-05	26.70-26.80	Y	All (EHT)

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

[illegible]

SYMBOLS: NP : Non Plastic

* : Liquid Limit and Plastic Limit Wet Sieved.


PSL
Professional Soils Laboratory
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Cambridge

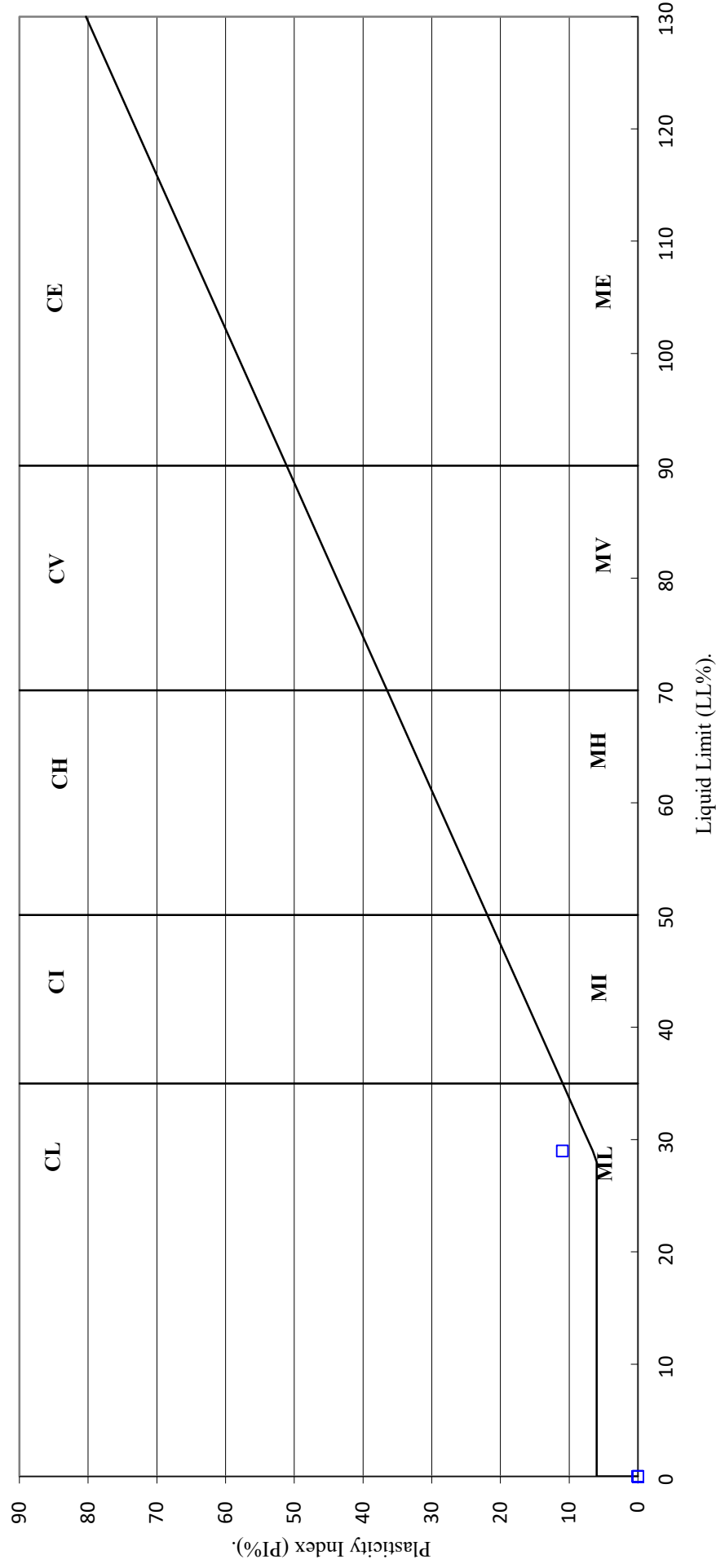
Contract No:

PSL21/5565

Client Ref:

784-B025563

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.




PSL
Professional Soils Laboratory
4043

Cambridge

Contract No:

PSL21/5565

Client Ref:

(BS1377 : PART 2 & 4 : 1990)

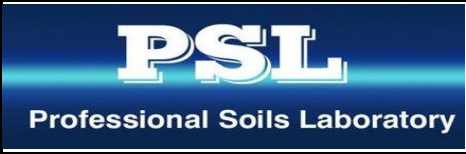
* CCV testing is not UKAS accredited

Cambridge

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Sample Type: **B**



Cambridge

Contract No:
PSL21/5565
Client Ref:
784-B025563

PARTICLE SIZE DISTRIBUTION TEST

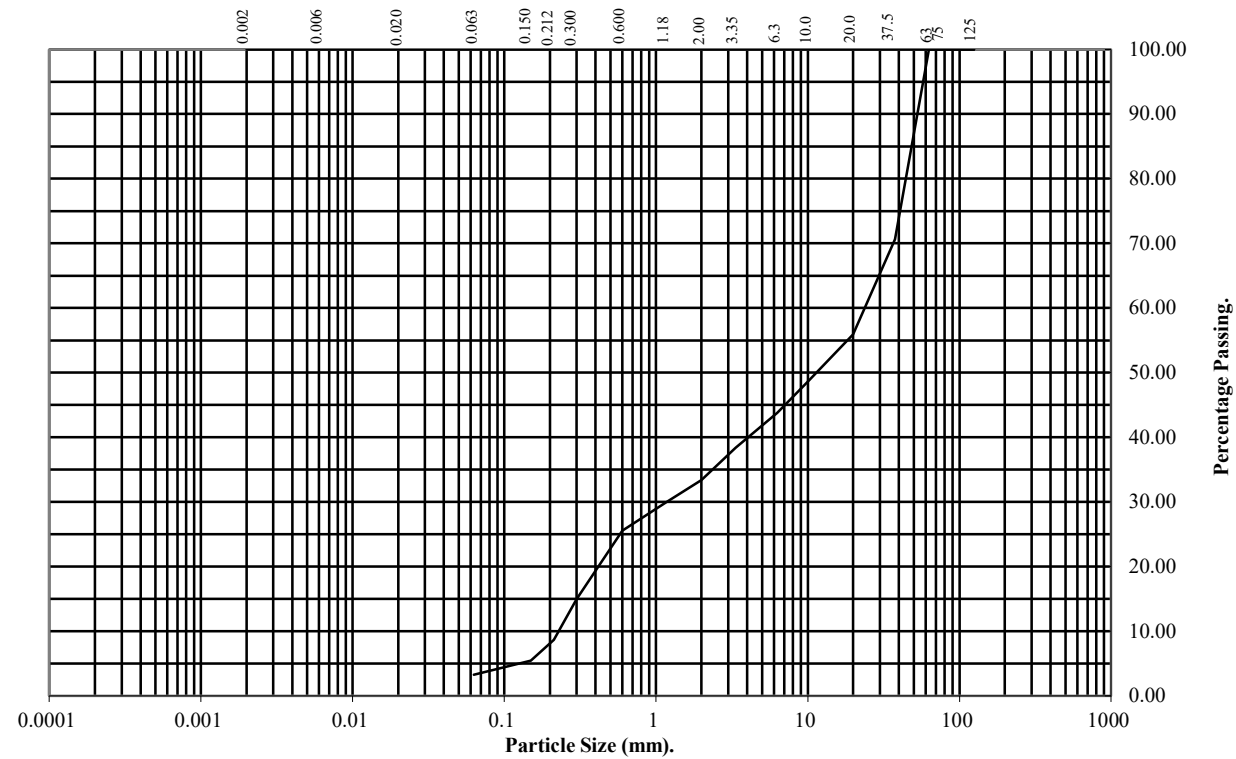
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number:	BH-OBC-06	Top Depth (m):	1.00
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Sample Number: **Base Depth(m):** **1.00**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	71
20	56
10	49
6.3	44
3.35	38
2	33
1.18	30
0.6	26
0.3	15
0.212	9
0.15	5
0.063	3

Soil Fraction	Total Percentage
Cobbles	0
Gravel	67
Sand	30
Silt/Clay	3

Remarks:

See Summary of Soil Descriptions



4043

PSL

Professional Soils Laboratory

Cambridge

Contract No:

PSL21/5565

Client Ref:

784-B025563

SUMMARY OF ROCK TESTS

(ISRM Suggested Method for the Determination of the Water Content of Rock)

[illegible]**Contract No:**

PSL21/5565

Client Ref:

784-B025563

Cambridge

PST
Professional Soils Laboratory

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular

	Cambridge	Contract No:
		PSL21/5565
		Client Ref:
		784-B025563

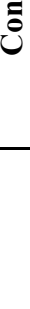
SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

	<p>Cambridge</p>	Contract No:
		PSL21/5565
		Client Ref:
		784-B025563



Chemtech Environmental Limited

SOILS

ANALYTICAL TEST REPORT

Contract no: 99743

Contract name: BH-OBC-06

Client reference: PSL21/5565

Clients name: Professional Soils Laboratory

Clients address: 5/7 Hexthorpe Road
Doncaster
DN4 0AR

Samples received: 24 August 2021

Analysis started: 24 August 2021

Analysis completed: 31 August 2021

Report issued: 31 August 2021

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.
All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.
Methods, procedures and performance data are available on request.
Results reported herein relate only to the material supplied to the laboratory.
This report shall not be reproduced except in full, without prior written approval.
Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key: U UKAS accredited test
M MCERTS & UKAS accredited test
\$ Test carried out by an approved subcontractor
I/S Insufficient sample to carry out test
N/S Sample not suitable for testing

Approved by: 
Rachael Burton
Customer Support Squad Leader

Lab number			99743-1	99743-2	99743-3
Sample id			BH-OBC-06	BH-OBC-06	BH-OBC-06
Depth (m)			2.90-3.00	18.00-18.10	27.10-27.20
Date sampled			-	07/04/2021	07/04/2021
Test	Method	Units			
pH	CE004 ^U	units	8.5	8.9	8.7
Magnesium (2:1 water soluble)	CE061	mg/l Mg	1.1	1.1	1.2
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	5.2	13	6.6
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	13	8.9	6.6
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	16	24	23
Sulphate (total)	CE062	mg/kg SO ₄	337	487	365
Sulphur (total)	CE119	mg/kg S	137	165	141
Sulphur (total)	CE119	% w/w S	0.01	0.02	0.01

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key
N No (not deviating sample)
Y Yes (deviating sample)
NSD Sampling date not provided
NST Sampling time not provided (waters only)
EHT Sample exceeded holding time(s)
IC Sample not received in appropriate containers
HP Headspace present in sample container
NCF Sample not chemically fixed (where appropriate)
OR Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
99743-1	BH-OBC-06	2.90-3.00	Y	ALL (EHT)
99743-2	BH-OBC-06	18.00-18.10	Y	ALL (EHT)
99743-3	BH-OBC-06	27.10-27.20	Y	ALL (EHT)

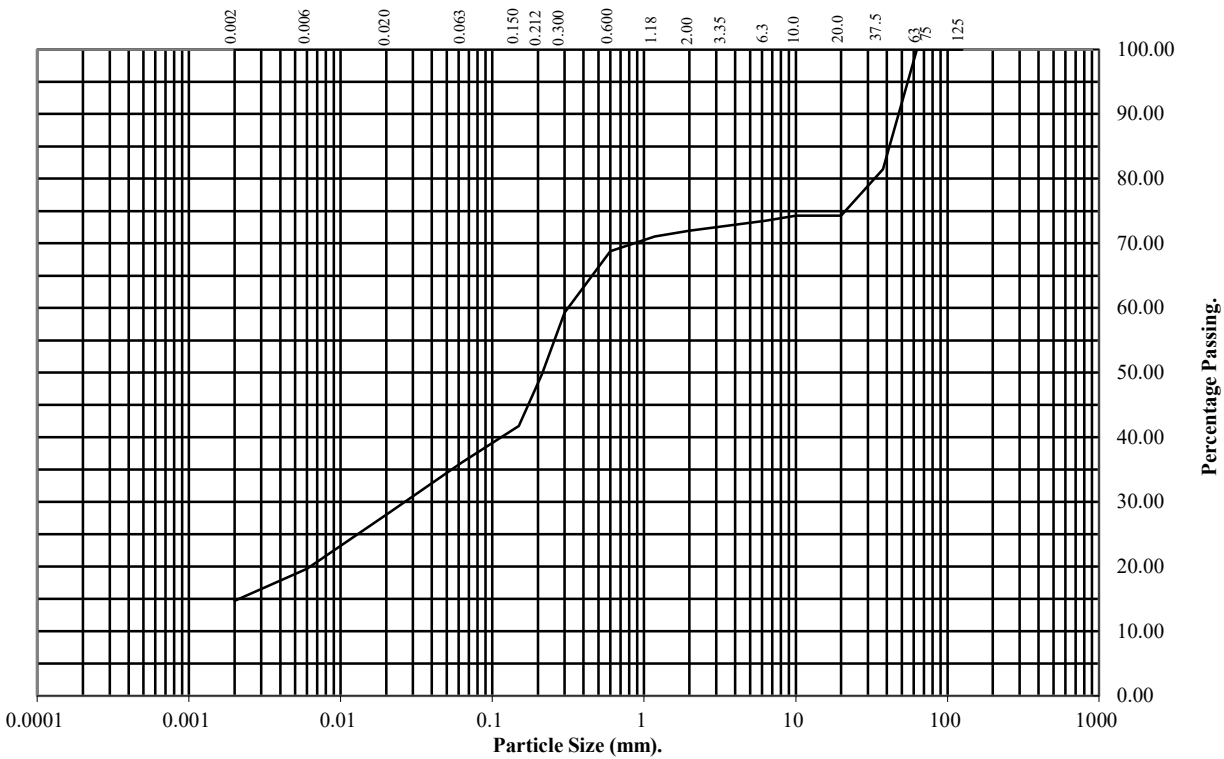
PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: BH-OBC-07 Top Depth (m): 0.50

Sample Number: Base Depth(m): 0.50

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	81
20	74
10	74
6.3	73
3.35	73
2	72
1.18	71
0.6	69
0.3	59
0.212	50
0.15	42
0.063	36

Particle Diameter	Percentage Passing
0.02	28
0.006	20
0.002	15

Soil Fraction	Total Percentage
Cobbles	0
Gravel	28
Sand	36
Silt	21
Clay	15

Remarks:
See Summary of Soil Descriptions

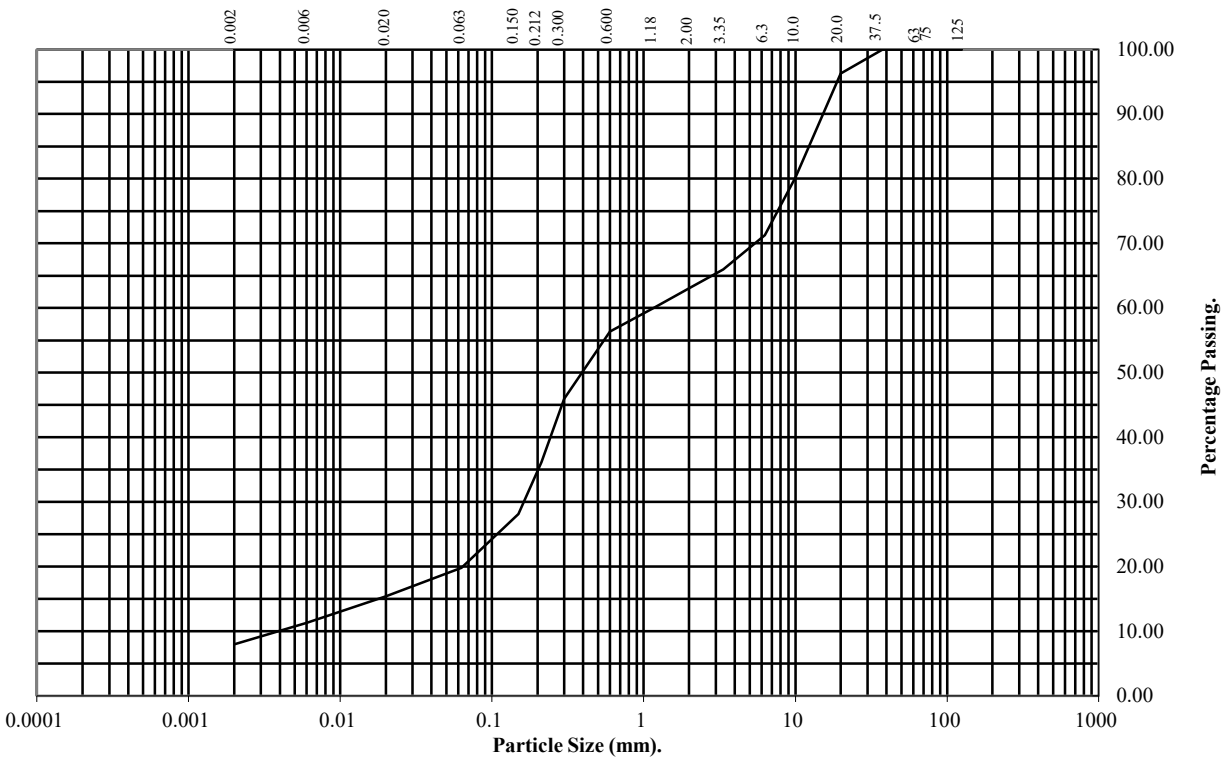
PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: BH-OBC-07 Top Depth (m): 1.00

Sample Number: Base Depth(m): 1.00

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	96
10	80
6.3	71
3.35	66
2	63
1.18	60
0.6	56
0.3	46
0.212	36
0.15	28
0.063	20

Particle Diameter	Percentage Passing
0.02	15
0.006	11
0.002	8

Soil Fraction	Total Percentage
Cobbles	0
Gravel	37
Sand	43
Silt	12
Clay	8

Remarks:
See Summary of Soil Descriptions

PARTICLE SIZE DISTRIBUTION TEST

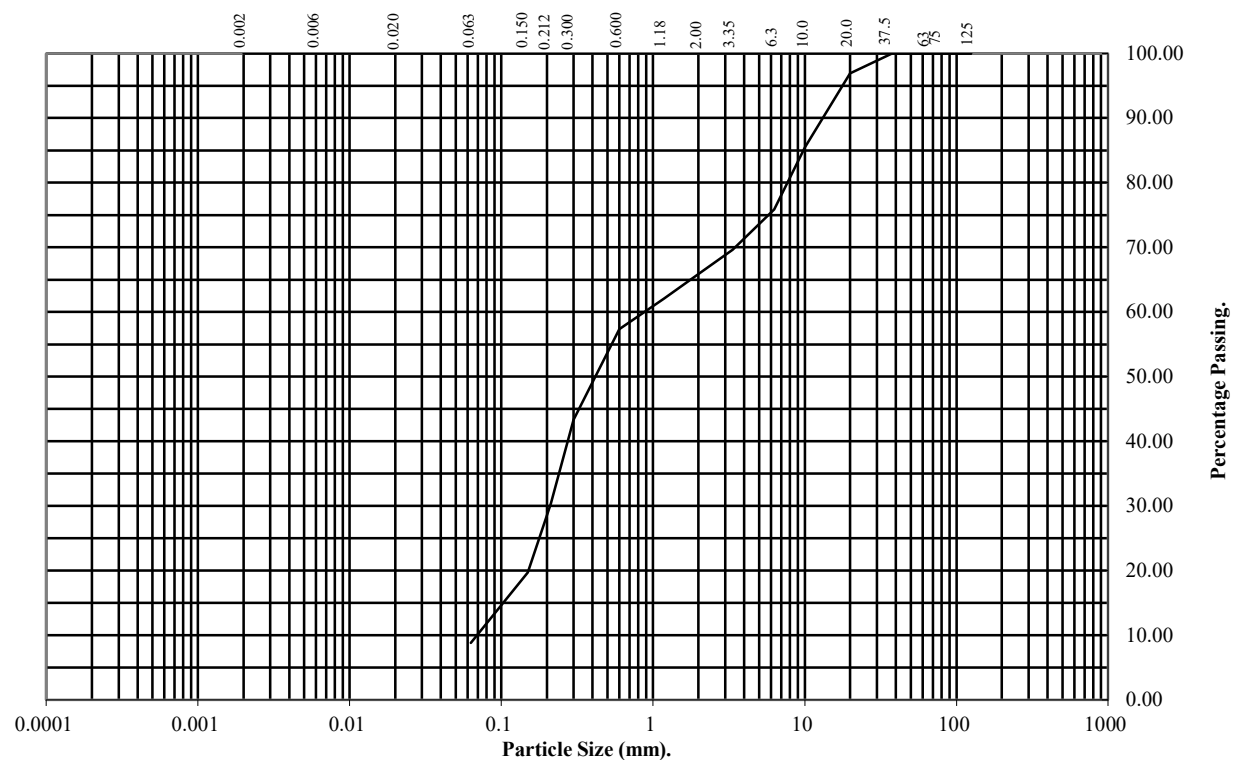
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: BH-OBC-07 **Top Depth (m):** 1.20

Sample Number: **Base Depth(m):** **1.30**

Sample Type: **D**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	97
10	85
6.3	76
3.35	70
2	66
1.18	62
0.6	57
0.3	43
0.212	30
0.15	20
0.063	9

Soil Fraction	Total Percentage
Cobbles	0
Gravel	34
Sand	57
Silt/Clay	9

Remarks:

See Summary of Soil Descriptions



Cambridge

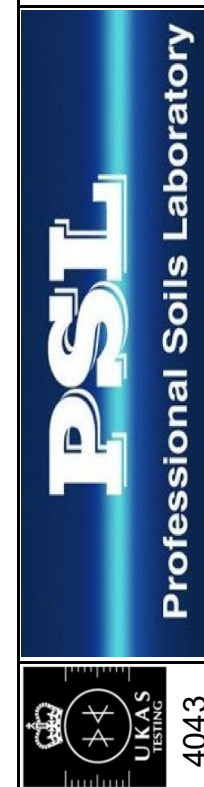
Contract No:
PSL21/5566
Client Ref:
784-B025563

SUMMARY OF CHALK TESTS

(BS1377 : PART 2 & 4 : 1990)

[illegible]

* CCV testing is not UKAS accredited

**Contract No:**

PSL21/5566

Client Ref:

784-B025563

Cambridge

SUMMARY OF ROCK TESTS

(ISRM Suggested Method for the Determination of the Water Content of Rock)

[illegible]

	Contract No:
	PSL 21/5566
	Client Ref:
	784-B025563

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular

	Contract No:
	PSL21/5566
	Client Ref:
	784-B025563

ISRM Suggested Methods : 2007

PSL030 Issue 2

ANALYTICAL TEST REPORT

Contract no:	100238
Contract name:	784-B025563 Cambridge Geotechnical
Client reference:	PSL21/5566
Clients name:	Professional Soils Laboratory
Clients address:	5/7 Hexthorpe Road Doncaster DN4 0AR

Samples received: 09 September 2021

Analysis started: 09 September 2021

Analysis completed: 16 September 2021

Report issued: 16 September 2021

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.
All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.
Methods, procedures and performance data are available on request.
Results reported herein relate only to the material supplied to the laboratory.
This report shall not be reproduced except in full, without prior written approval.
Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key:

- U UKAS accredited test
- M MCERTS & UKAS accredited test
- \$ Test carried out by an approved subcontractor
- I/S Insufficient sample to carry out test
- N/S Sample not suitable for testing

Approved by: 
Rachael Burton
Customer Support Squad Leader

Unit 6 Parkhead, Greencroft Industrial Park, Stanley, County Durham, DH9 7YB
Tel 01207 528578 Email customerservices@chemtech-env.co.uk
Vat Reg No. 772 5703 18 Registered in England number 4284013

Chemtech Environmental Limited

SOILS

Lab number			100238-1	100238-2
Sample id			BH-OBC-07	BH-OBC-07
Depth (m)			20.40-20.50	28.40-28.50
Date sampled			-	-
Test	Method	Units		
pH	CE004 ^U	units	8.2	8.3
Magnesium (2:1 water soluble)	CE061	mg/l Mg	1.9	1.1
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	7.5	6.6
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	9.9	7.3
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	27	30
Sulphate (total)	CE062	mg/kg SO ₄	447	427
Sulphur (total)	CE119	mg/kg S	246	182
Sulphur (total)	CE119	% w/w S	0.02	0.02

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S

Chemtech Environmental Limited

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key	
N	No (not deviating sample)
Y	Yes (deviating sample)
NSD	Sampling date not provided
NST	Sampling time not provided (waters only)
EHT	Sample exceeded holding time(s)
IC	Sample not received in appropriate containers
HP	Headspace present in sample container
NCF	Sample not chemically fixed (where appropriate)
OR	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
100238-1	BH-OBC-07	20.40-20.50	Y	All (NSD)
100238-2	BH-OBC-07	28.40-28.50	Y	All (NSD)



LABORATORY
REPORT



4043

Contract Number: PSL21/5567

Report Date: 29 September 2021

Client’s Reference: 784-B025563

Client Name: Tetra Tech
11th Floor
1 Angel Court
London
EC2R 7HJ

For the attention of: Richard Tonge

Contract Title: Cambridge

Date Received: 8/7/2021
Date Commenced: 8/7/2021
Date Completed: 29/9/2021

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

A Watkins (Director)	R Berriman (Quality Manager)	S Royle (Laboratory Manager)
L Knight (Assistant Laboratory Manager)	 S Eyre (Senior Technician)	T Watkins (Senior Technician)

5 – 7 Hexthorpe Road, Hexthorpe,
Doncaster DN4 0AR
tel: +44 (0)844 815 6641
fax: +44 (0)844 815 6642
e-mail: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

Page 1 of

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]


PSL
Professional Soils Laboratory
4043

Contract No:	PSL21/5567
Client Ref:	784-B025563

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

[illegible]

SYMBOLS: NP : Non Plastic

*** : Liquid Limit and Plastic Limit Wet Sieved.**

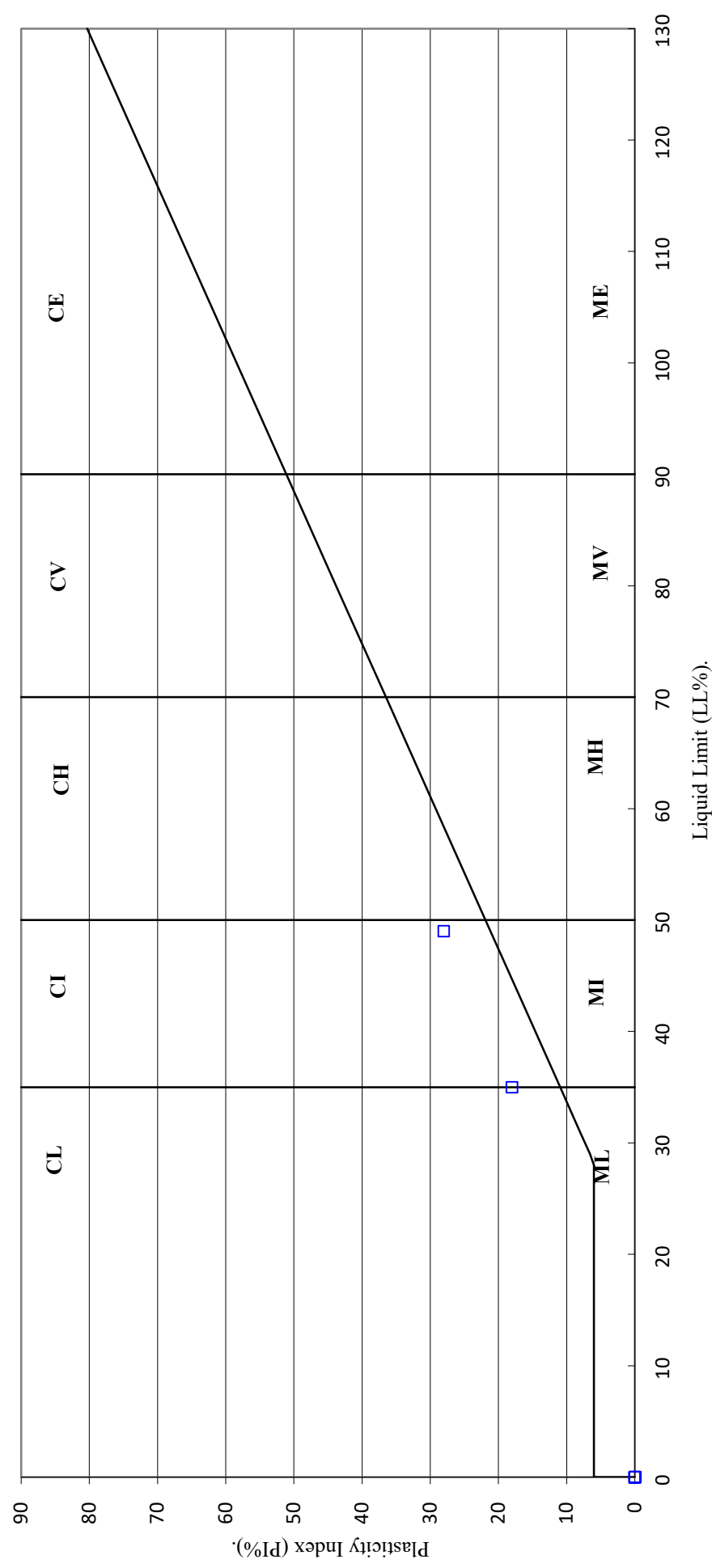

UKAS TESTING
4043
PSL
Professional Soils Laboratory

Cambridge Geotech

Contract No:
PSL21/5567

Client Ref:
784-B025563

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



PSL
Professional Soils Laboratory

 **UKAS TESTING**
4043

Contract No:

PSL21/5567

Client Ref:

784-B025563

Cambridge Geotech

SUMMARY OF CHALK TESTS

(BS1377 : PART 2 & 4 : 1990)

[illegible]

* CCV testing is not UKAS accredited


PSL
Professional Soils Laboratory
4043

Contract No:

PSL21/5567

Client Ref:

784-B025563

Cambridge

PARTICLE SIZE DISTRIBUTION TEST

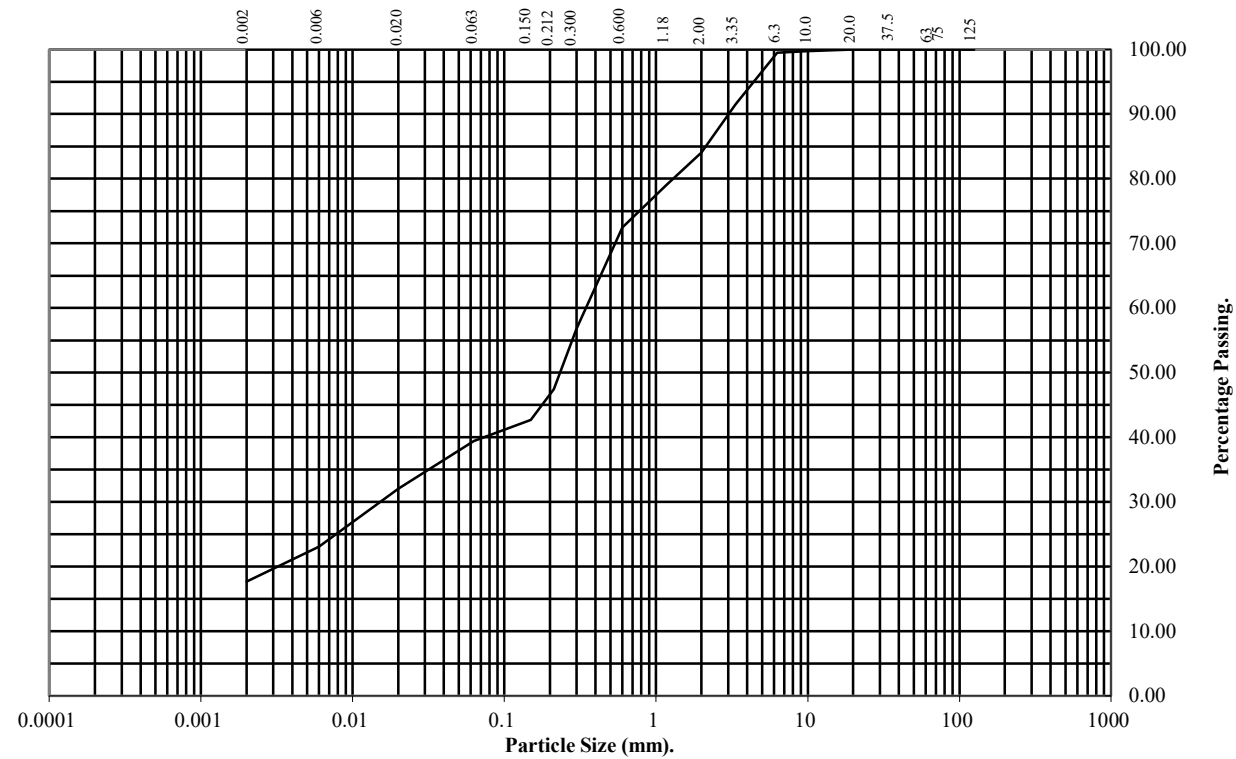
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	BH-OBC-08	Top Depth (m):	1.00
---------------------	------------------	-----------------------	-------------

Sample Number: **Base Depth(m):** **1.00**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	100
3.35	92
2	84
1.18	79
0.6	72
0.3	57
0.212	47
0.15	43
0.063	39

Particle Diameter	Percentage Passing
0.02	32
0.006	23
0.002	18

Soil Fraction	Total Percentage
Cobbles	0
Gravel	16
Sand	45
Silt	21
Clay	18

Remarks:
See Summary of Soil Descriptions



4043

PSL

Professional Soils Laboratory

Cambridge

Contract No:

PSL21/5567

Client Ref:

784-B025563

SUMMARY OF ROCK TESTS

(ISRM Suggested Method for the Determination of the Water Content of Rock)

[illegible]

PST
Professional Soils Laboratory

Contract No:

PSL21/5567

Client Ref:

784-B025563

Cambridge

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular

 <p>PSL Professional Soils Laboratory</p>	<p>Contract No:</p>
	<p>PSL21/5567</p>
	<p>Client Ref:</p>
	<p>784-B025563</p>

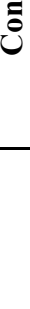
SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples as received water content

Par = parallel, Perp = perpendicular, U = Random

 <p>PSL Professional Soils Laboratory</p>	<p>Cambridge</p>	<p>Contract No:</p>
		<p>PSL21/5567</p>
		<p>Client Ref:</p>
		<p>784-B025563</p>



Chemtech Environmental Limited

SOILS

ANALYTICAL TEST REPORT

Contract no: 99742

Contract name: BH-OBC-08

Client reference: PSL21/5567

Clients name: Professional Soils Laboratory

Clients address: 5/7 Hexthorpe Road
Doncaster
DN4 0AR

Samples received: 24 August 2021

Analysis started: 24 August 2021

Analysis completed: 31 August 2021

Report issued: 31 August 2021

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.
All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.
Methods, procedures and performance data are available on request.
Results reported herein relate only to the material supplied to the laboratory.
This report shall not be reproduced except in full, without prior written approval.
Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key: U UKAS accredited test
M MCERTS & UKAS accredited test
\$ Test carried out by an approved subcontractor
I/S Insufficient sample to carry out test
N/S Sample not suitable for testing

Approved by: 
Rachael Burton
Customer Support Squad Leader

Lab number			99742-1	99742-2
Sample id			BH-OBC-08	BH-OBC-08
Depth (m)			24.40-24.50	30.00-30.10
Date sampled			29/03/2021	29/03/2021
Test	Method	Units		
pH	CE004 ^U	units	8.5	8.6
Magnesium (2:1 water soluble)	CE061	mg/l Mg	1.3	1.1
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	5.6	4.2
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	5.8	4.7
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	21	19
Sulphate (total)	CE062	mg/kg SO ₄	386	365
Sulphur (total)	CE119	mg/kg S	148	139
Sulphur (total)	CE119	% w/w S	0.01	0.01

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

- Key**
N No (not deviating sample)
Y Yes (deviating sample)
NSD Sampling date not provided
NST Sampling time not provided (waters only)
EHT Sample exceeded holding time(s)
IC Sample not received in appropriate containers
HP Headspace present in sample container
NCF Sample not chemically fixed (where appropriate)
OR Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
99742-1	BH-OBC-08	24.40-24.50	Y	ALL (EHT)
99742-2	BH-OBC-08	30.00-30.10	Y	ALL (EHT)

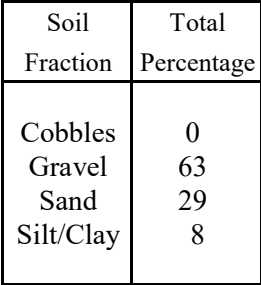
(BS1377 : PART 2 & 4 : 1990)

* CCV testing is not UKAS accredited

Cambridge

BS1377 : Part 2 : 1990
Wet Sieve, Clause 9.2

Sample Type: **D**



UKAS TESTING
4043



Contract No:
PSL21/5568
Client Ref:
784-B025563

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular

	Contract No:
	PSL21/5568
	Client Ref:
	784-B025563

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

	<p style="text-align: center;">Cambridge</p>		Contract No:
			PSL21/5568
			Client Ref:
			784-B025563



Chemtech Environmental Limited

SOILS

ANALYTICAL TEST REPORT

Contract no: 100536

Contract name: BH-OBC-09

Client reference: PSL21/5568

Clients name: Professional Soils Laboratory

Clients address: 5/7 Hexthorpe Road
Doncaster
DN4 0AR

Samples received: 17 September 2021

Analysis started: 17 September 2021

Analysis completed: 24 September 2021

Report issued: 24 September 2021

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.
All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.
Methods, procedures and performance data are available on request.
Results reported herein relate only to the material supplied to the laboratory.
This report shall not be reproduced except in full, without prior written approval.
Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key: U UKAS accredited test
M MCERTS & UKAS accredited test
\$ Test carried out by an approved subcontractor
I/S Insufficient sample to carry out test
N/S Sample not suitable for testing

Approved by: 
Rachael Burton
Customer Support Squad Leader

Lab number			100536-1	100536-2	100536-3
Sample id			BH-OBC-09	BH-OBC-09	BH-OBC-09
Depth (m)			1.00	19.60-19.70	26.60-26.70
Date sampled			09/04/2021	09/04/2021	09/04/2021
Test	Method	Units			
pH	CE004 ^U	units	8.3	8.5	8.6
Magnesium (2:1 water soluble)	CE061	mg/l Mg	1.2	1.1	1.1
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	<1	5.2	4.2
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	57	9.8	3.5
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	40	20	19
Sulphate (total)	CE062	mg/kg SO ₄	733	391	361
Sulphur (total)	CE119	mg/kg S	348	190	166
Sulphur (total)	CE119	% w/w S	0.03	0.02	0.02

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key
N No (not deviating sample)
Y Yes (deviating sample)
NSD Sampling date not provided
NST Sampling time not provided (waters only)
EHT Sample exceeded holding time(s)
IC Sample not received in appropriate containers
HP Headspace present in sample container
NCF Sample not chemically fixed (where appropriate)
OR Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
100536-1	BH-OBC-09	1.00	Y	All (EHT)
100536-2	BH-OBC-09	19.60-19.70	Y	All (EHT)
100536-3	BH-OBC-09	26.60-26.70	Y	All (EHT)

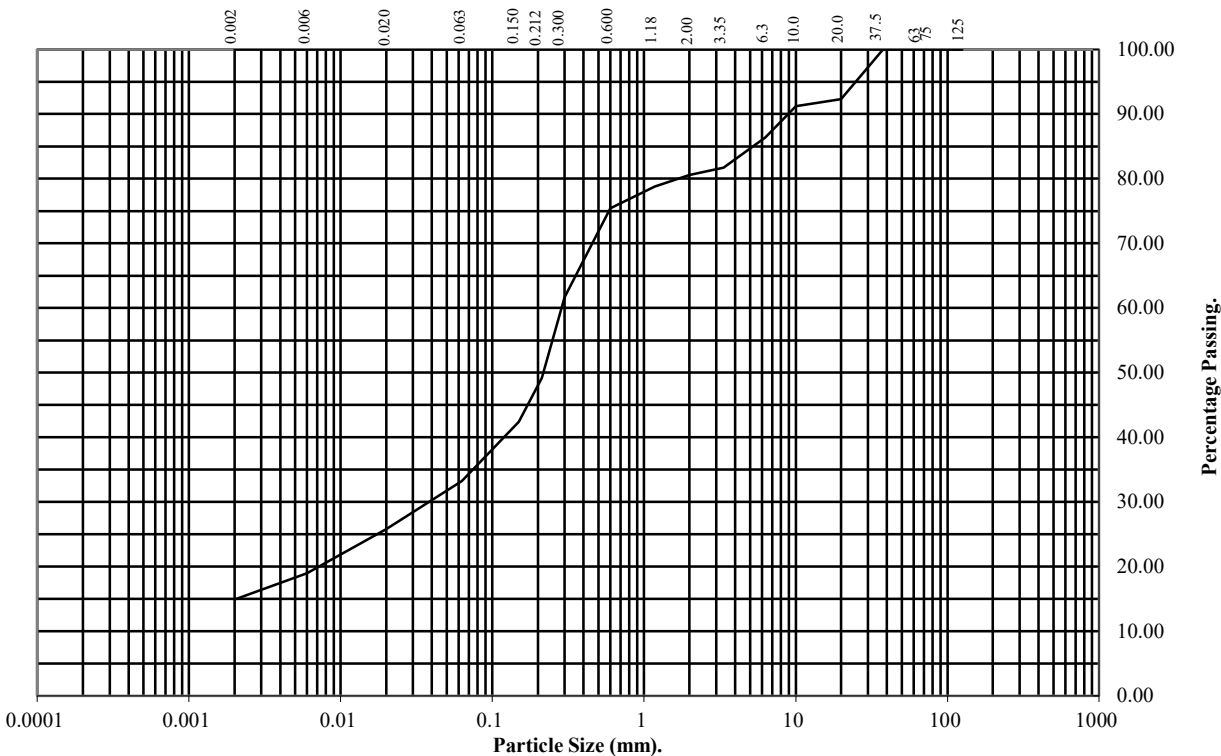
PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: BH-OBC-10 Top Depth (m): 0.50

Sample Number: Base Depth(m): 0.50

Sample Type: D



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	92
10	91
6.3	86
3.35	82
2	81
1.18	79
0.6	75
0.3	62
0.212	49
0.15	42
0.063	33

Particle Diameter	Percentage Passing
0.02	26
0.006	19
0.002	15

Soil Fraction	Total Percentage
Cobbles	0
Gravel	19
Sand	48
Silt	18
Clay	15

Remarks:
See Summary of Soil Descriptions

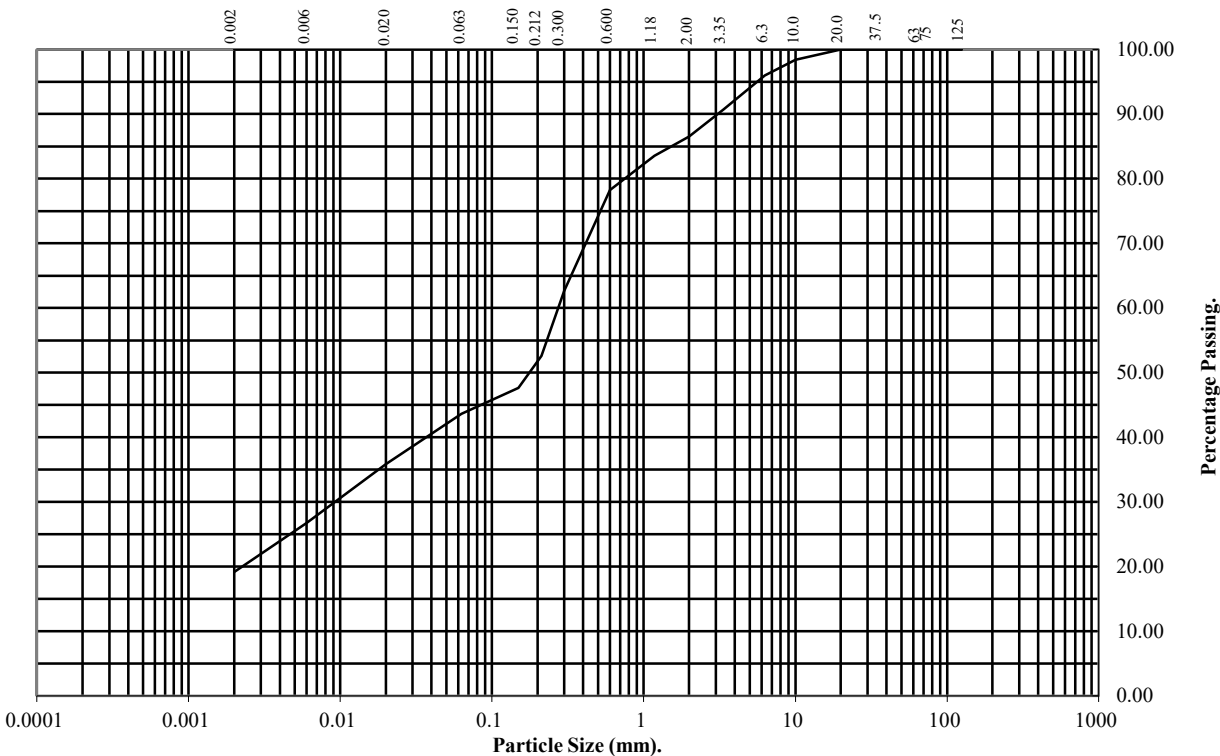
PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: BH-OBC-10 Top Depth (m): 1.20

Sample Number: Base Depth(m): 1.65

Sample Type: D



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	98
6.3	96
3.35	91
2	87
1.18	84
0.6	78
0.3	63
0.212	53
0.15	48
0.063	44

Particle Diameter	Percentage Passing
0.02	36
0.006	27
0.002	19

Soil Fraction	Total Percentage
Cobbles	0
Gravel	13
Sand	43
Silt	25
Clay	19

Remarks:
See Summary of Soil Descriptions

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular

 UKAS TESTING 4043		Contract No:
		PSL21/5569
		Client Ref:
		784-B025563

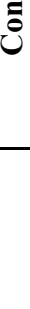
SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

	<p>Cambridge</p>	Contract No:
		PSL21/5569
		Client Ref:
		784-B025563



Chemtech Environmental Limited

SOILS

ANALYTICAL TEST REPORT

Contract no: 101207

Contract name: BH-OBC-10

Client reference: PSL21/5569

Clients name: Professional Soils Laboratory

Clients address: 5/7 Hexthorpe Road
Doncaster
DN4 0AR

Samples received: 06 October 2021

Analysis started: 06 October 2021

Analysis completed: 13 October 2021

Report issued: 13 October 2021

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.
All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.
Methods, procedures and performance data are available on request.
Results reported herein relate only to the material supplied to the laboratory.
This report shall not be reproduced except in full, without prior written approval.
Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key: U UKAS accredited test
M MCERTS & UKAS accredited test
\$ Test carried out by an approved subcontractor
I/S Insufficient sample to carry out test
N/S Sample not suitable for testing

Approved by: 
Karan Campbell
Director

Lab number			101207-1	101207-2
Sample id			BH-OBC-10	BH-OBC-10
Depth (m)			22.60-22.80	30.40-30.50
Date sampled			19/03/2021	-
Test	Method	Units		
pH	CE004 ^U	units	8.7	8.7
Magnesium (2:1 water soluble)	CE061	mg/l Mg	1.6	1.2
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	3.7	3.6
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	4.4	3.5
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	51	27
Sulphate (total)	CE062	mg/kg SO ₄	558	450
Sulphur (total)	CE119	mg/kg S	315	218
Sulphur (total)	CE119	% w/w S	0.03	0.02

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

- Key**
N No (not deviating sample)
Y Yes (deviating sample)
NSD Sampling date not provided
NST Sampling time not provided (waters only)
EHT Sample exceeded holding time(s)
IC Sample not received in appropriate containers
HP Headspace present in sample container
NCF Sample not chemically fixed (where appropriate)
OR Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
101207-1	BH-OBC-10	22.60-22.80	Y	All (EHT)
101207-2	BH-OBC-10	30.40-30.50	Y	All (NSD)

(BS1377 : PART 2 & 4 : 1990)

* CCV testing is not UKAS accredited

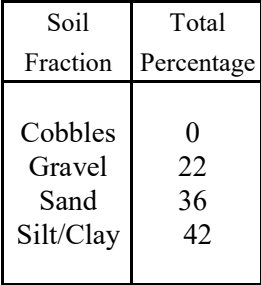


Cambridge

Contract No:	PSL21/5570	Client Ref:	784-B025563
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BS1377 : Part 2 : 1990
Wet Sieve, Clause 9.2

Sample Type: **B**



PSL
Professional Soils Laboratory

Contract No:
PSL21/5570

Client Ref:
784-B025563

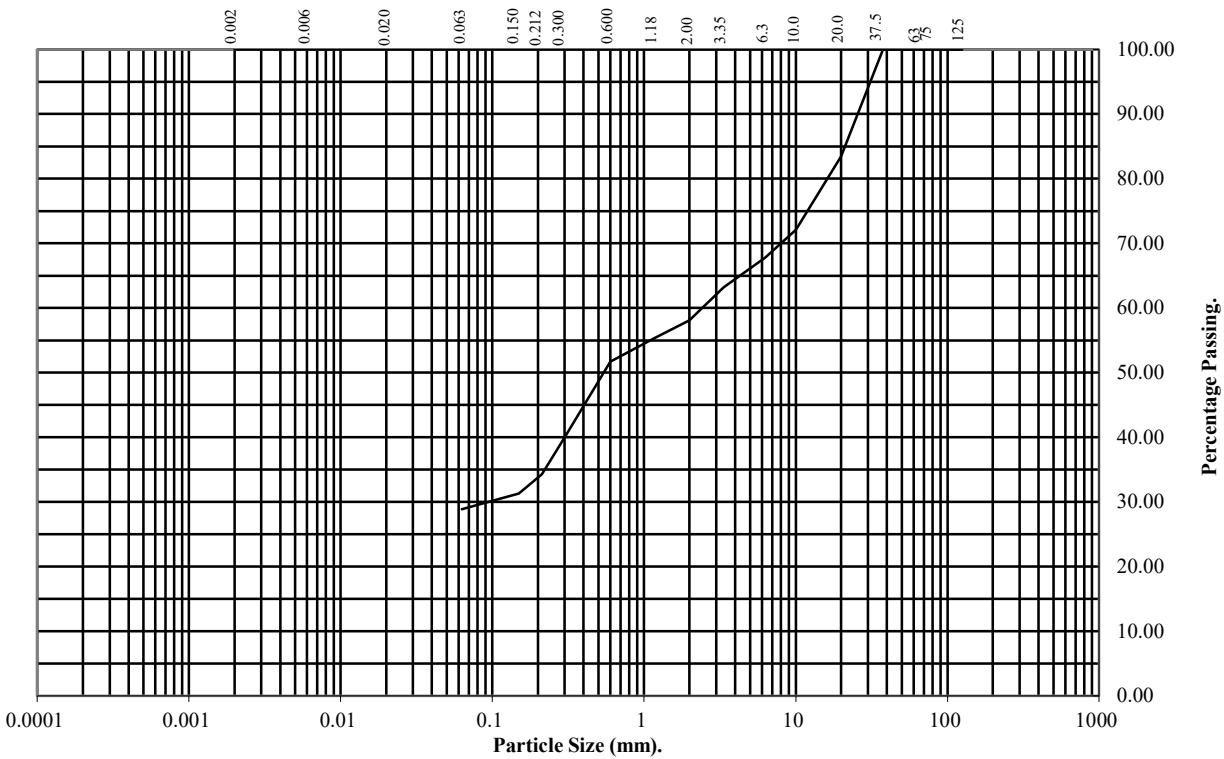
PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990
Wet Sieve, Clause 9.2

Hole Number: BH-OBC-11 Top Depth (m): 1.00

Sample Number: Base Depth(m): 1.00

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	83
10	72
6.3	68
3.35	63
2	58
1.18	55
0.6	52
0.3	40
0.212	34
0.15	31
0.063	29

Soil Fraction	Total Percentage
Cobbles	0
Gravel	42
Sand	29
Silt/Clay	29

Remarks:
See Summary of Soil Descriptions

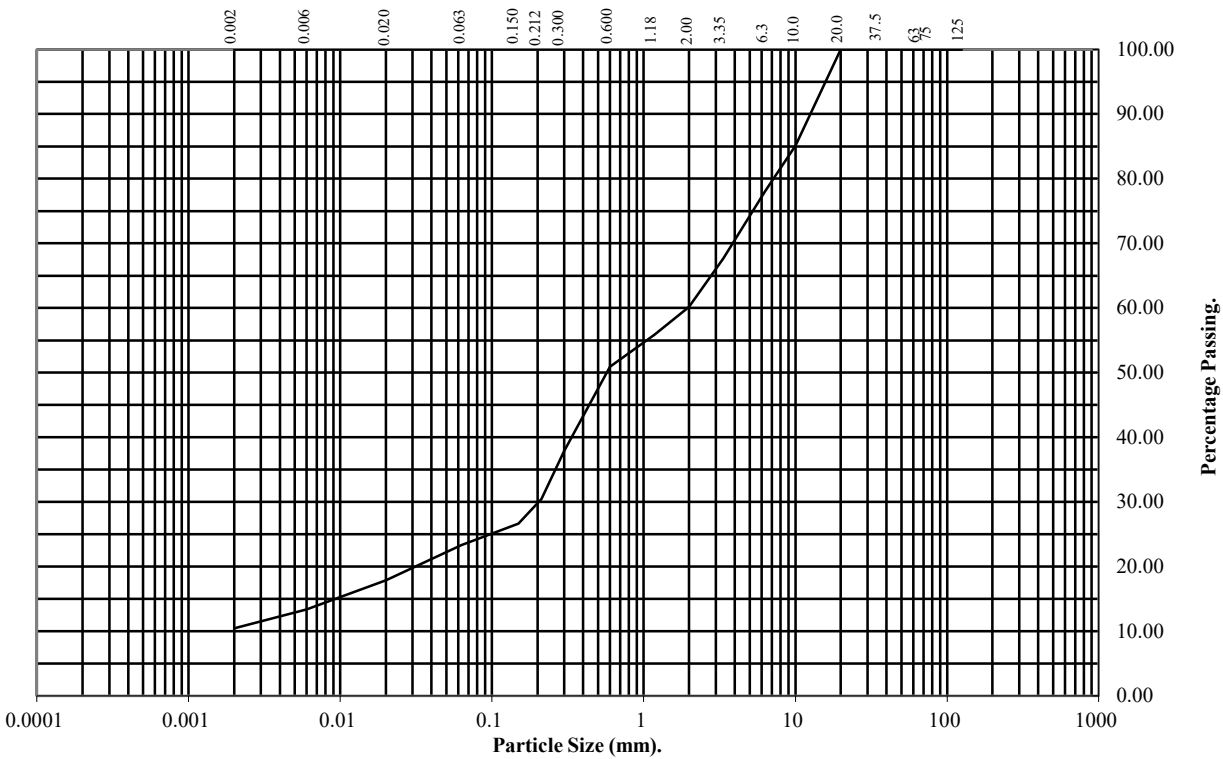
PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: BH-OBC-11 Top Depth (m): 1.20

Sample Number: Base Depth(m): 1.65

Sample Type: D



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	85
10	85
6.3	78
3.35	68
2	60
1.18	56
0.6	51
0.3	38
0.212	30
0.15	27
0.063	23

Particle Diameter	Percentage Passing
0.02	18
0.006	13
0.002	10

Soil Fraction	Total Percentage
Cobbles	0
Gravel	40
Sand	37
Silt	13
Clay	10

Remarks:
See Summary of Soil Descriptions

SUMMARY OF ROCK TESTS

[illegible]

PSL
Professional Soils Laboratory

Contract No:

PSL21/5570

Client Ref:

784-B025563

Cambridge

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular

PSL
Professional Soils Laboratory

 **4043**

Cambridge

Contract No:

PSL21/5570

Client Ref:

784-B025563

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note**
All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random


PSL
Professional Soils Laboratory
4043

Contract No:

PSL21/5570

Client Ref:

784-B025563

Cambridge

DETERMINATION OF UNCONFINED COMPRESSIVE STRENGTH

ISRM Suggested Methods, pp 111 –116, 1981.

[illegible]

PST
Professional Soils Laboratory

Contract No:

PSL21/5570

Client Ref:

784-B025563

Cambridge



Chemtech Environmental Limited

SOILS

ANALYTICAL TEST REPORT

Contract no: 99740

Contract name: BH-OBC-11

Client reference: PSL21/5570

Clients name: Professional Soils Laboratory

Clients address: 5/7 Hexthorpe Road
Doncaster
DN4 0AR

Samples received: 24 August 2021

Analysis started: 24 August 2021

Analysis completed: 31 August 2021

Report issued: 31 August 2021

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.
All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.
Methods, procedures and performance data are available on request.
Results reported herein relate only to the material supplied to the laboratory.
This report shall not be reproduced except in full, without prior written approval.
Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key: U UKAS accredited test
M MCERTS & UKAS accredited test
\$ Test carried out by an approved subcontractor
I/S Insufficient sample to carry out test
N/S Sample not suitable for testing

Approved by: 
Rachael Burton
Customer Support Squad Leader

Lab number			99740-1	99740-2
Sample id			BH-OBC-11	BH-OBC-11
Depth (m)			21.40-21.50	26.30-26.40
Date sampled			30/03/2021	30/03/2021
Test	Method	Units		
pH	CE004 ^U	units	8.5	8.6
Magnesium (2:1 water soluble)	CE061	mg/l Mg	1.1	1.2
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	5.4	18
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	5.6	4.2
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	20	21
Sulphate (total)	CE062	mg/kg SO ₄	350	366
Sulphur (total)	CE119	mg/kg S	136	144
Sulphur (total)	CE119	% w/w S	0.01	0.01

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

- Key**
N No (not deviating sample)
Y Yes (deviating sample)
NSD Sampling date not provided
NST Sampling time not provided (waters only)
EHT Sample exceeded holding time(s)
IC Sample not received in appropriate containers
HP Headspace present in sample container
NCF Sample not chemically fixed (where appropriate)
OR Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
99740-1	BH-OBC-11	21.40-21.50	Y	ALL (EHT)
99740-2	BH-OBC-11	26.30-26.40	Y	ALL (EHT)

PARTICLE SIZE DISTRIBUTION TEST

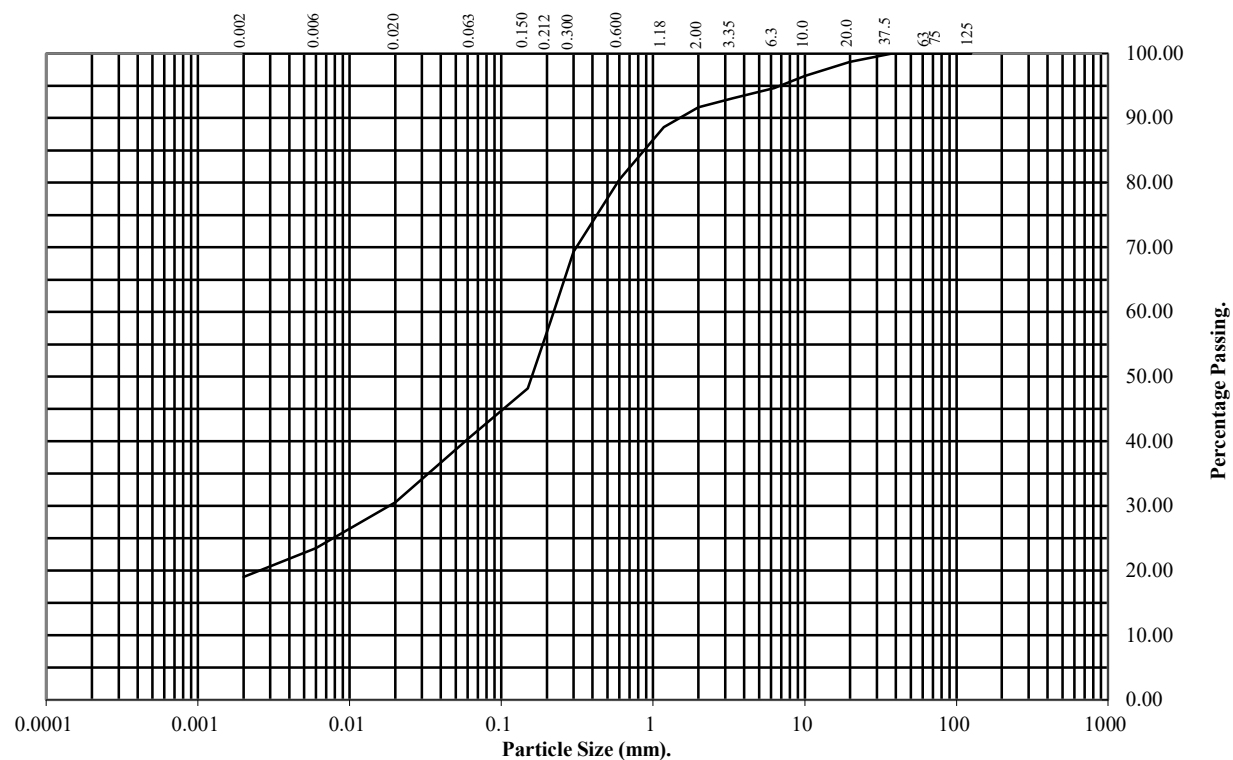
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	BH-OBC-12	Top Depth (m):	1.00
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Sample Number: _____ **Base Depth(m):** **1.00**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	99
10	97
6.3	95
3.35	93
2	92
1.18	89
0.6	80
0.3	69
0.212	59
0.15	48
0.063	41

Particle Diameter	Percentage Passing
0.02	31
0.006	23
0.002	19

Soil Fraction	Total Percentage
Cobbles	0
Gravel	8
Sand	51
Silt	22
Clay	19

Remarks:
See Summary of Soil Descriptions



Cambridge

Contract No:
PSL21/5571
Client Ref:
784-B025563

SUMMARY OF CHALK TESTS

(BS1377 : PART 2 & 4 : 1990)

[illegible]

* CCV testing is not UKAS accredited



Contract No:	PSL21/5571	Client Ref:	784-B025563
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Cambridge

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular

	Cambridge	Contract No:
		PSL21/5571
		Client Ref:
		784-B025563

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples as received water content

Par = parallel, Perp = perpendicular, U = Random

	<p>Cambridge</p>	Contract No:
		PSL21/5571
		Client Ref:
		784-B025563



ANALYTICAL TEST REPORT

Contract no: 99737
Contract name: BH-OBC-12
Client reference: PSL21/5571
Clients name: Professional Soils Laboratory
Clients address: 5/7 Hexthorpe Road
Doncaster
DN4 0AR

Samples received: 24 August 2021

Analysis started: 24 August 2021

Analysis completed: 01 September 2021

Report issued: 01 September 2021

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.
All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.
Methods, procedures and performance data are available on request.
Results reported herein relate only to the material supplied to the laboratory.
This report shall not be reproduced except in full, without prior written approval.
Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key: U UKAS accredited test
M MCERTS & UKAS accredited test
\$ Test carried out by an approved subcontractor
I/S Insufficient sample to carry out test
N/S Sample not suitable for testing

Approved by: 
Rachael Burton
Customer Support Squad Leader

Chemtech Environmental Limited

SOILS

Lab number			99737-1	99737-2
Sample id			BH-OBC-12	BH-OBC-12
Depth (m)			21.20-21.30	30.40-30.50
Date sampled			09/03/2021	09/03/2021
Test	Method	Units		
pH	CE004 ^U	units	8.5	8.0
Magnesium (2:1 water soluble)	CE061	mg/l Mg	3.1	1.9
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	143	10
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	151	6.7
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	36	39
Sulphate (total)	CE062	mg/kg SO ₄	661	336
Sulphur (total)	CE119	mg/kg S	347	185
Sulphur (total)	CE119	% w/w S	0.03	0.02

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key
N No (not deviating sample)
Y Yes (deviating sample)
NSD Sampling date not provided
NST Sampling time not provided (waters only)
EHT Sample exceeded holding time(s)
IC Sample not received in appropriate containers
HP Headspace present in sample container
NCF Sample not chemically fixed (where appropriate)
OR Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
99737-1	BH-OBC-12	21.20-21.30	Y	ALL (EHT)
99737-2	BH-OBC-12	30.40-30.50	Y	ALL (EHT)

(BS1377 : PART 2 & 4 : 1990)

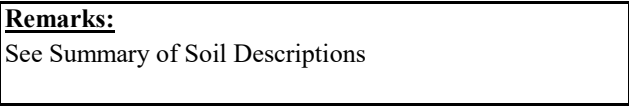
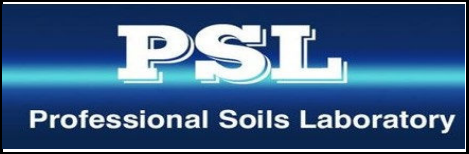
* CCV testing is not UKAS accredited

Cambridge

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Sample Type: **B**



Contract No:
PSL21/5572
Client Ref:
784-B025563

SUMMARY OF ROCK TESTS

(ISRM Suggested Method for the Determination of the Water Content of Rock)

[illegible]

	Contract No:
	PSL21/5572
	Client Ref:
	784-B025563

DETERMINATION OF UNCONFINED COMPRESSIVE STRENGTH

ISRM Suggested Methods, pp 111–116, 1981.

[illegible]

	Contract No:
	PSL21/5572
	Client Ref:
	784-B025563

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular

	Cambridge	Contract No:
		PSL21/5572
		Client Ref:
		784-B025563

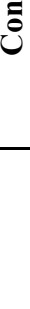
SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

 <p>PSL Professional Soils Laboratory</p>	<p>Contract No:</p>
	<p>PSL21/5572</p>
	<p>Client Ref:</p>
	<p>784-B025563</p>



Chemtech Environmental Limited

SOILS

Lab number			100373-1	100373-2	100373-3
Sample id			BH-OBC-13	BH-OBC-13	BH-OBC-13
Depth (m)			22.00-22.10	26.00-26.10	29.00-29.45
Date sampled			-	-	-
Test	Method	Units			
pH	CE004 ^U	units	9.3	9.2	9.0
Magnesium (2:1 water soluble)	CE061	mg/l Mg	1.4	1.1	1.2
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	4.9	3.6	3.4
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	4.6	3.9	4.1
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	24	19	19
Sulphate (total)	CE062	mg/kg SO ₄	465	321	393
Sulphur (total)	CE119	mg/kg S	164	152	164
Sulphur (total)	CE119	% w/w S	0.02	0.02	0.02

ANALYTICAL TEST REPORT

Contract no: 100373

Contract name: BH-OBC-13

Client reference: PSL21/5572

Clients name: Professional Soils Laboratory

Clients address: 5/7 Hexthorpe Road
Doncaster
DN4 0AR

Samples received: 14 September 2021

Analysis started: 14 September 2021

Analysis completed: 21 September 2021

Report issued: 21 September 2021

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.
All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.
Methods, procedures and performance data are available on request.
Results reported herein relate only to the material supplied to the laboratory.
This report shall not be reproduced except in full, without prior written approval.
Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key: U UKAS accredited test
M MCERTS & UKAS accredited test
\$ Test carried out by an approved subcontractor
I/S Insufficient sample to carry out test
N/S Sample not suitable for testing

Approved by: 
Rachael Burton
Customer Support Squad Leader

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key
N No (not deviating sample)
Y Yes (deviating sample)
NSD Sampling date not provided
NST Sampling time not provided (waters only)
EHT Sample exceeded holding time(s)
IC Sample not received in appropriate containers
HP Headspace present in sample container
NCF Sample not chemically fixed (where appropriate)
OR Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
100373-1	BH-OBC-13	22.00-22.10	Y	All (NSD)
100373-2	BH-OBC-13	26.00-26.10	Y	All (NSD)
100373-3	BH-OBC-13	29.00-29.45	Y	All (NSD)

SUMMARY OF CHALK TESTS

(BS1377 : PART 2 & 4 : 1990)

[illegible]

* CCV testing is not UKAS accredited

	Contract No:
	PSL21/7344
	Client Ref:
	784-B025563

DETERMINATION OF UNCONFINED COMPRESSIVE STRENGTH

ISRM Suggested Methods, pp 111–116, 1981.

[illegible]

	<p>Contract No:</p>
	<p>PSL21/7344</p>
	<p>Client Ref:</p>
	<p>784-B025563</p>

SUMMARY OF ROCK TESTS

[illegible]

	Contract No:
	PSL21/7344
	Client Ref:
	784-B025563

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

A = Axial, D = Diametral, I = Irregular

 PSL Professional Soils Laboratory 4043	Contract No:
	PSL21/7344
	Client Ref:
	784-B025563

ISRM Suggested Methods : 2007

PSL030 Issue 2

ANALYTICAL TEST REPORT

Samples received: 06 October 2021

Analysis started: 06 October 2021

Analysis completed: 13 October 2021

Report issued: 13 October 2021

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.
All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.
Methods, procedures and performance data are available on request.
Results reported herein relate only to the material supplied to the laboratory.
This report shall not be reproduced except in full, without prior written approval.
Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key:

- U UKAS accredited test
- M MCERTS & UKAS accredited test
- \$ Test carried out by an approved subcontractor
- I/S Insufficient sample to carry out test
- N/S Sample not suitable for testing

Approved by: 
Rachael Burton
Customer Support Squad Leader

Chemtech Environmental Limited

SOILS

Lab number			101208-1	101208-2	101208-3
Sample id			BH-OBC-14	BH-OBC-14	BH-OBC-14
Depth (m)			16.00-16.10	19.30-19.40	25.80-25.90
Date sampled			03/03/2021	03/03/2021	03/03/2021
Test	Method	Units			
pH	CE004 ^U	units	8.7	8.8	8.7
Magnesium (2:1 water soluble)	CE061	mg/l Mg	1.3	<1	<1
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	11	5.7	3.8
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	3.8	2.8	3.2
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	20	16	19
Sulphate (total)	CE062	mg/kg SO ₄	565	432	383
Sulphur (total)	CE119	mg/kg S	267	193	188
Sulphur (total)	CE119	% w/w S	0.03	0.02	0.02

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S

Chemtech Environmental Limited

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key	
N	No (not deviating sample)
Y	Yes (deviating sample)
NSD	Sampling date not provided
NST	Sampling time not provided (waters only)
EHT	Sample exceeded holding time(s)
IC	Sample not received in appropriate containers
HP	Headspace present in sample container
NCF	Sample not chemically fixed (where appropriate)
OR	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
101208-1	BH-OBC-14	16.00-16.10	Y	All (EHT)
101208-2	BH-OBC-14	19.30-19.40	Y	All (EHT)
101208-3	BH-OBC-14	25.80-25.90	Y	All (EHT)



LABORATORY
REPORT



4043

Contract Number: PSL21/7345

Report Date: 05 November 2021

Client’s Reference: 784-B025563

Client Name: Tetra Tech
11th Floor
1 Angel Court
London
EC2R 7HJ

For the attention of: Richard Tonge

Contract Title: Cambridge

Date Received: 14/9/2021
Date Commenced: 14/9/2021
Date Completed: 5/11/2021

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

A Watkins
(Director)

R Berriman
(Quality Manager)

S Royle
(Laboratory Manager)

L Knight
(Assistant Laboratory Manager)

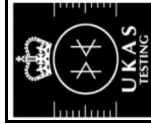

S Eyre
(Senior Technician)

T Watkins
(Senior Technician)

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fax: +44 (0)844 815 6642
e-mail: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

Page 1 of

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]

4043



Professional Soils Laboratory

Cambridge

Contract No:

PSL21/7345

Client Ref:

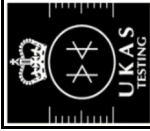
784-B025563

SUMMARY OF CHALK TESTS

(BS1377: PART 2 & 4: 1990)

[illegible]

* CCV testing is not UKAS accredited



4043



Professional Soils Laboratory

Cambridge

Contract No:

PSL21/7345

Client Ref:

784-B025563

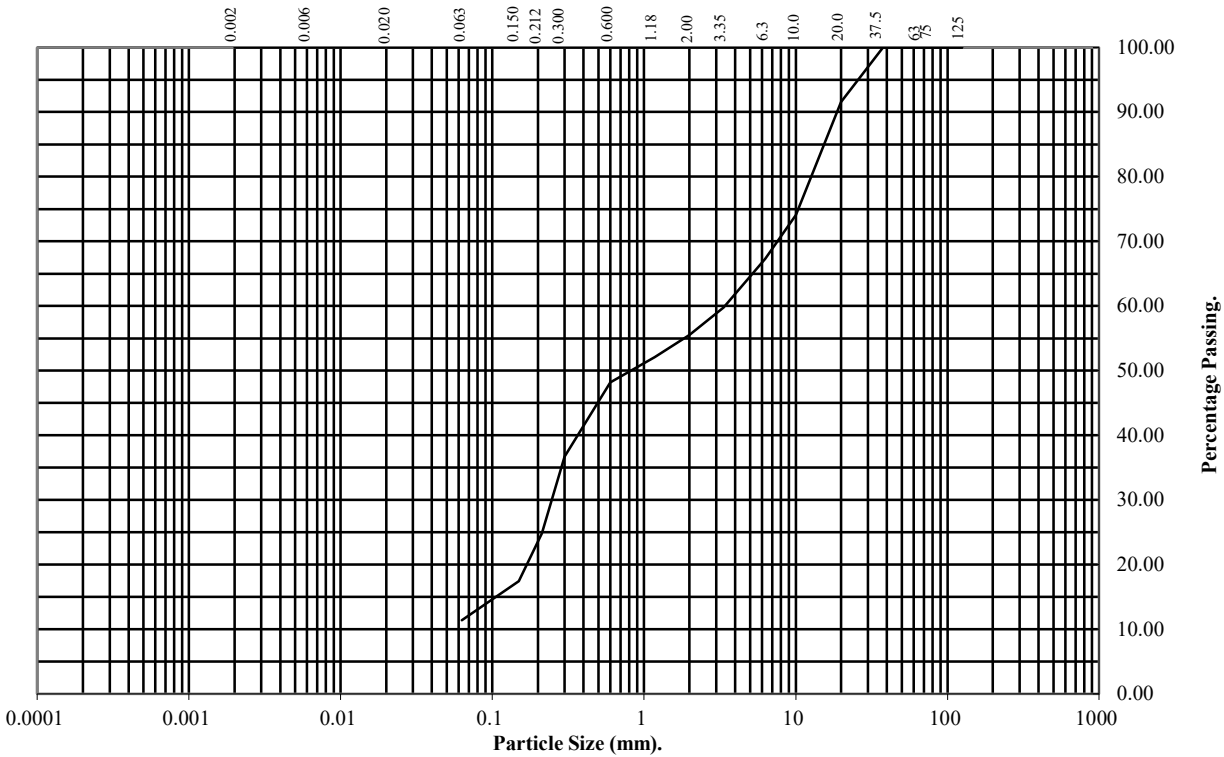
PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990
Wet Sieve, Clause 9.2

Hole Number: BH-OBC-15 Top Depth (m): 1.00

Sample Number: Base Depth(m): 1.00

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	92
10	74
6.3	67
3.35	60
2	56
1.18	52
0.6	48
0.3	37
0.212	25
0.15	17
0.063	11

Soil Fraction	Total Percentage
Cobbles	0
Gravel	44
Sand	45
Silt/Clay	11

Remarks:
See Summary of Soil Descriptions

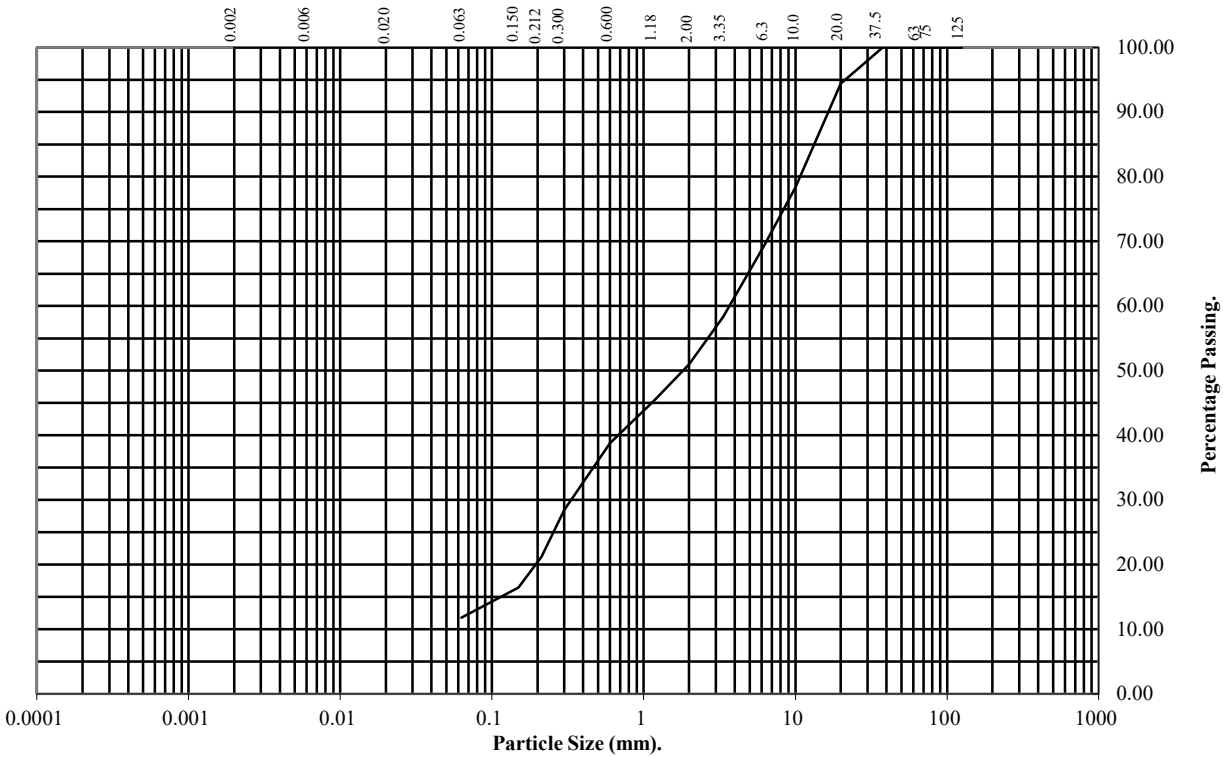
PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990
Wet Sieve, Clause 9.2

Hole Number: BH-OBC-15 Top Depth (m): 1.20

Sample Number: Base Depth(m): 1.65

Sample Type: D



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	94
10	78
6.3	70
3.35	58
2	51
1.18	45
0.6	39
0.3	28
0.212	21
0.15	16
0.063	12

Soil Fraction	Total Percentage
Cobbles	0
Gravel	49
Sand	39
Silt/Clay	12

Remarks:
See Summary of Soil Descriptions

PARTICLE SIZE DISTRIBUTION TEST

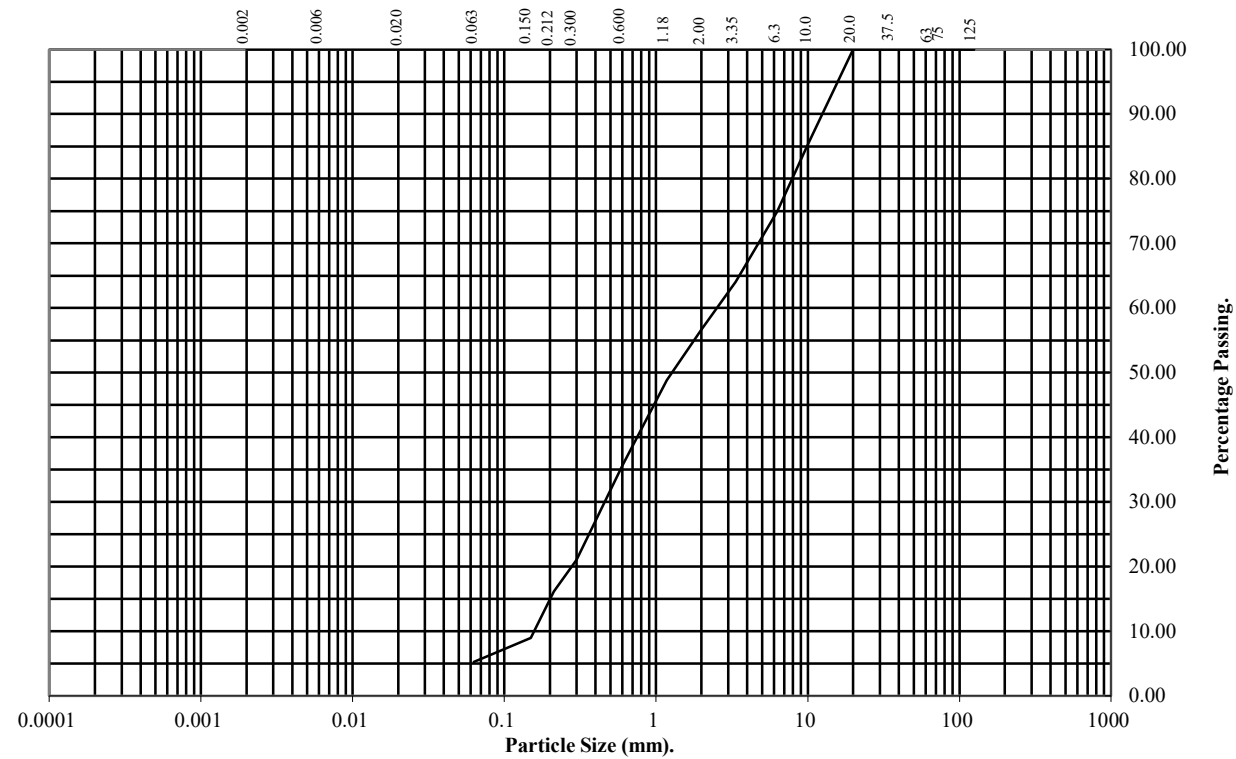
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number:	BH-OBC-15	Top Depth (m):	2.00
---------------------	------------------	-----------------------	-------------

Sample Number: **Base Depth(m):** **2.45**

Sample Type: **D**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	85
6.3	75
3.35	64
2	57
1.18	49
0.6	36
0.3	21
0.212	16
0.15	9
0.063	5

Soil Fraction	Total Percentage
Cobbles	0
Gravel	43
Sand	52
Silt/Clay	5

Remarks:

See Summary of Soil Descriptions



4043

PSL

Professional Soils Laboratory

Cambridge

Contract No:

PSL21/7345

Client Ref:

784-B025563

DETERMINATION OF UNCONFINED COMPRESSIVE STRENGTH

ISRM Suggested Methods, pp 111–116, 1981.

[illegible]

PST
Professional Soils Laboratory

Cambridge

Contract No:

PSL21/7345

Client Ref:

784-B025563

SUMMARY OF ROCK TESTS

[illegible]

PST
Professional Soils Laboratory

Contract No:

PSL21/7345

Client Ref:

784-B025563

Cambridge

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular


PSL
Professional Soils Laboratory
4043

Cambridge

Contract No:

PSL21/7345

Client Ref:

784-B025563

ISRM Suggested Methods : 2007

PSL030 Issue 2

Contract no:	101202
Contract name:	BH-OBC-15
Client reference:	PSL21/7345
Clients name:	Professional Soils Laboratory
Clients address:	5/7 Hexthorpe Road Doncaster DN4 0AR

Samples received: 06 October 2021

Analysis started: 06 October 2021

Analysis completed: 13 October 2021

Report issued: 13 October 2021

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.
All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing
Methods, procedures and performance data are available on request.
Results reported herein relate only to the material supplied to the laboratory.
This report shall not be reproduced except in full, without prior written approval.
Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key:

- U UKAS accredited test
- M MCERTS & UKAS accredited test
- \$ Test carried out by an approved subcontractor
- I/S Insufficient sample to carry out test
- N/S Sample not suitable for testing

Approved by: 
Karan Campbell
Director

Unit 6 Parkhead, Greencroft Industrial Park, Stanley, County Durham, DH9 7YB
Tel 01207 528578 Email customerservices@chemtech-env.co.uk
Vat Reg No. 772 5703 18 Registered in England number 4284013

Chemtech Environmental Limited

SOILS

Lab number			101202-1	101202-2	101202-3
Sample id			BH-OBC-15	BH-OBC-15	BH-OBC-15
Depth (m)			20.20-20.30	24.20-24.30	29.00-29.10
Date sampled			03/05/2021	-	05/03/2021
Test	Method	Units			
pH	CE004 ^U	units	8.7	8.7	8.7
Magnesium (2:1 water soluble)	CE061	mg/l Mg	1.3	1.3	1.4
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	6.1	3.8	5.2
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	2.1	3.7	5.4
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	18	19	17
Sulphate (total)	CE062	mg/kg SO ₄	443	360	336
Sulphur (total)	CE119	mg/kg S	197	182	113
Sulphur (total)	CE119	% w/w S	0.02	0.02	0.01

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S

Chemtech Environmental Limited

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key	
N	No (not deviating sample)
Y	Yes (deviating sample)
NSD	Sampling date not provided
NST	Sampling time not provided (waters only)
EHT	Sample exceeded holding time(s)
IC	Sample not received in appropriate containers
HP	Headspace present in sample container
NCF	Sample not chemically fixed (where appropriate)
OR	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
101202-1	BH-OBC-15	20.20-20.30	Y	All (EHT)
101202-2	BH-OBC-15	24.20-24.30	Y	All (NSD)
101202-3	BH-OBC-15	29.00-29.10	Y	All (EHT)



LABORATORY
REPORT



4043

Contract Number: PSL21/7346

Report Date: 18 October 2021

Client’s Reference: 784-B025563

Client Name: Tetra Tech
11th Floor
1 Angel Court
London
EC2R 7HJ

For the attention of: Richard Tonge

Contract Title: Cambridge

Date Received: 14/9/2021
Date Commenced: 14/9/2021
Date Completed: 18/10/2021

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

A Watkins (Director)	R Berriman (Quality Manager)	S Royle (Laboratory Manager)
L Knight (Assistant Laboratory Manager)	 S Eyre (Senior Technician)	T Watkins (Senior Technician)

5 – 7 Hexthorpe Road, Hexthorpe,
Doncaster DN4 0AR
tel: +44 (0)844 815 6641
fax: +44 (0)844 815 6642
e-mail: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

Page 1 of

[illegible]

	<p>Cambridge</p>	Contract No:
		PSL21/7346
		Client Ref:
		784-B025563

PARTICLE SIZE DISTRIBUTION TEST

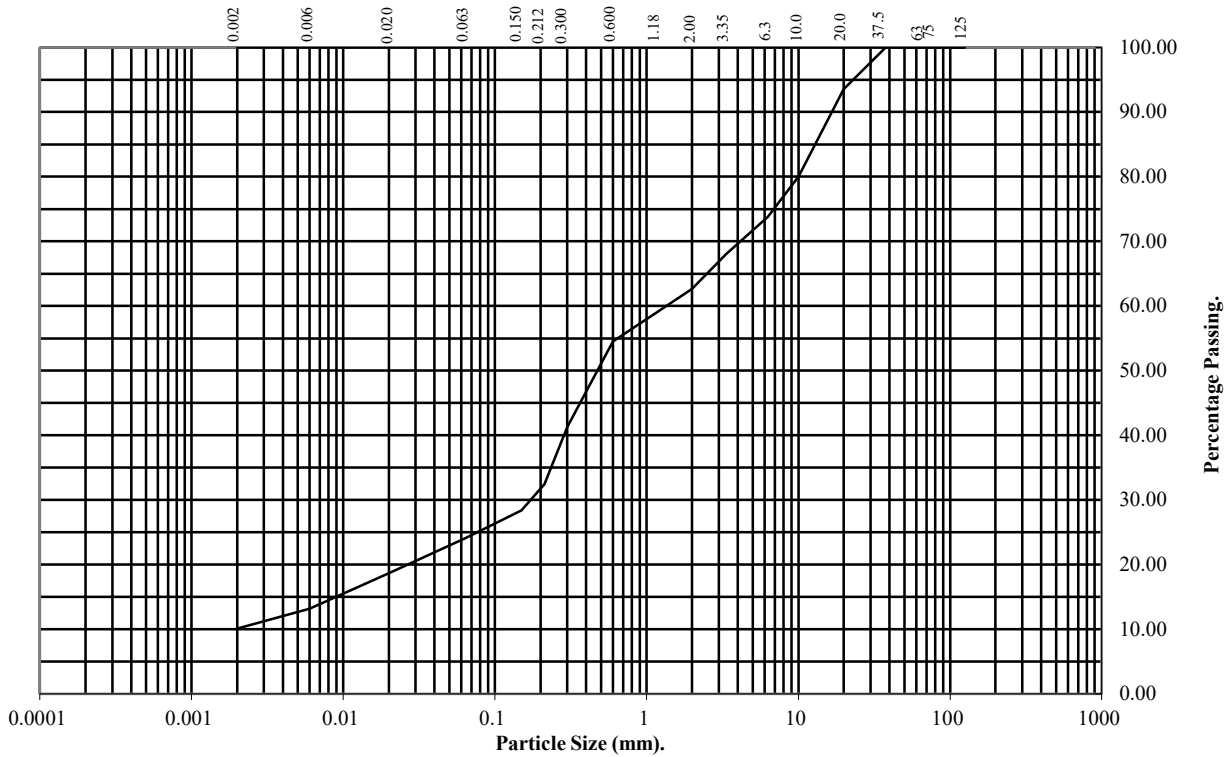
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	BH-OBC-16	Top Depth (m):	1.00
---------------------	------------------	-----------------------	-------------

Sample Number: _____ **Base Depth(m):** **1.20**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	94
10	80
6.3	74
3.35	68
2	63
1.18	59
0.6	55
0.3	41
0.212	32
0.15	28
0.063	24

Particle Diameter	Percentage Passing
0.02	19
0.006	13
0.002	10

Soil Fraction	Total Percentage
Cobbles	0
Gravel	37
Sand	39
Silt	14
Clay	10

Remarks:
See Summary of Soil Descriptions

 PSL Professional Soils Laboratory	Cambridge	Contract No:
		PSL21/7346
		Client Ref:
		784-B025563

PARTICLE SIZE DISTRIBUTION TEST

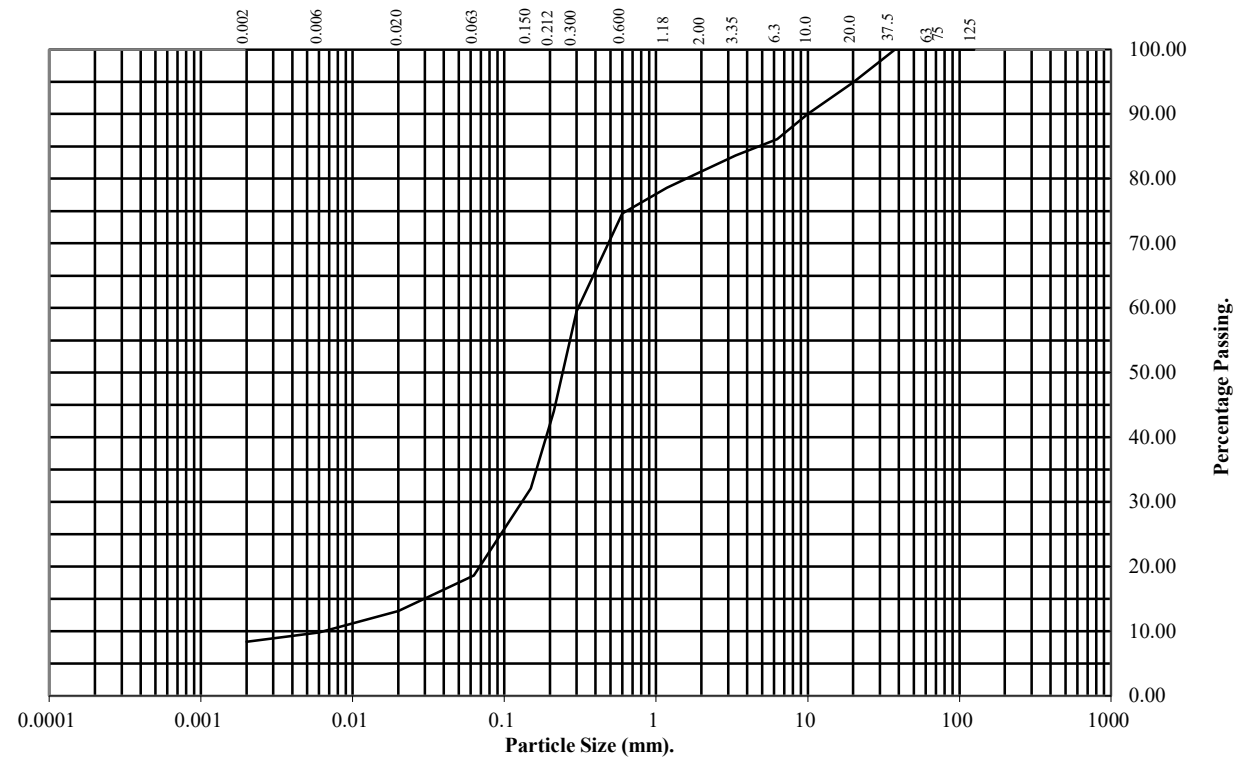
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	BH-OBC-16	Top Depth (m):	1.20
---------------------	------------------	-----------------------	-------------

Sample Number: **Base Depth(m):** **3.45**

Sample Type: **D**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	95
10	90
6.3	86
3.35	84
2	81
1.18	79
0.6	75
0.3	59
0.212	44
0.15	32
0.063	19

Particle Diameter	Percentage Passing
0.02	13
0.006	10
0.002	8

Soil Fraction	Total Percentage
Cobbles	0
Gravel	19
Sand	62
Silt	11
Clay	8

Remarks:
See Summary of Soil Descriptions



4043

PSL

Professional Soils Laboratory

Cambridge

Contract No:
PSL21/7346
Client Ref:
784-B025563

SUMMARY OF ROCK TESTS

(ISRM Suggested Method for the Determination of the Water Content of Rock)

[illegible]**Contract No:**

PSL21/7346

Client Ref:

784-B025563

Cambridge

PST
Professional Soils Laboratory

ISRM Suggested Methods : 2007

A = Axial, D = Diametral, I = Irregular

Par = parallel, Perp = perpendicular, U = Random

***Note** All testing carried out on samples at as received water content



Contract Number: PSL21/5942

Report Date: 12 October 2021

Client's Reference: 784-B025563

Client Name: Tetra Tech
11th Floor
1 Angel Court
London
EC2R 7HJ

For the attention of: Richard Tonge

Contract Title: Cambridge

Date Received: 26/7/2021
Date Commenced: 26/7/2021
Date Completed: 12/10/2021

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

A Watkins
(Director)

R Berriman
(Quality Manager)

S Royle
(Laboratory Manager)

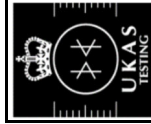
L Knight
(Assistant Laboratory Manager)


S Eyre
(Senior Technician)

T Watkins
(Senior Technician)

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Doncaster DN4 0AR**
tel: +44 (0)844 815 6641
fax: +44 (0)844 815 6642
e-mail: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]

4043



Professional Soils Laboratory

Contract No:

PSL21/5942

Client Ref:

784-B025563

Cambridge

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

[illegible]

SYMBOLS: NP : Non Plastic

* : Liquid Limit and Plastic Limit Wet Sieved.



4043



Professional Soils Laboratory

Contract No:

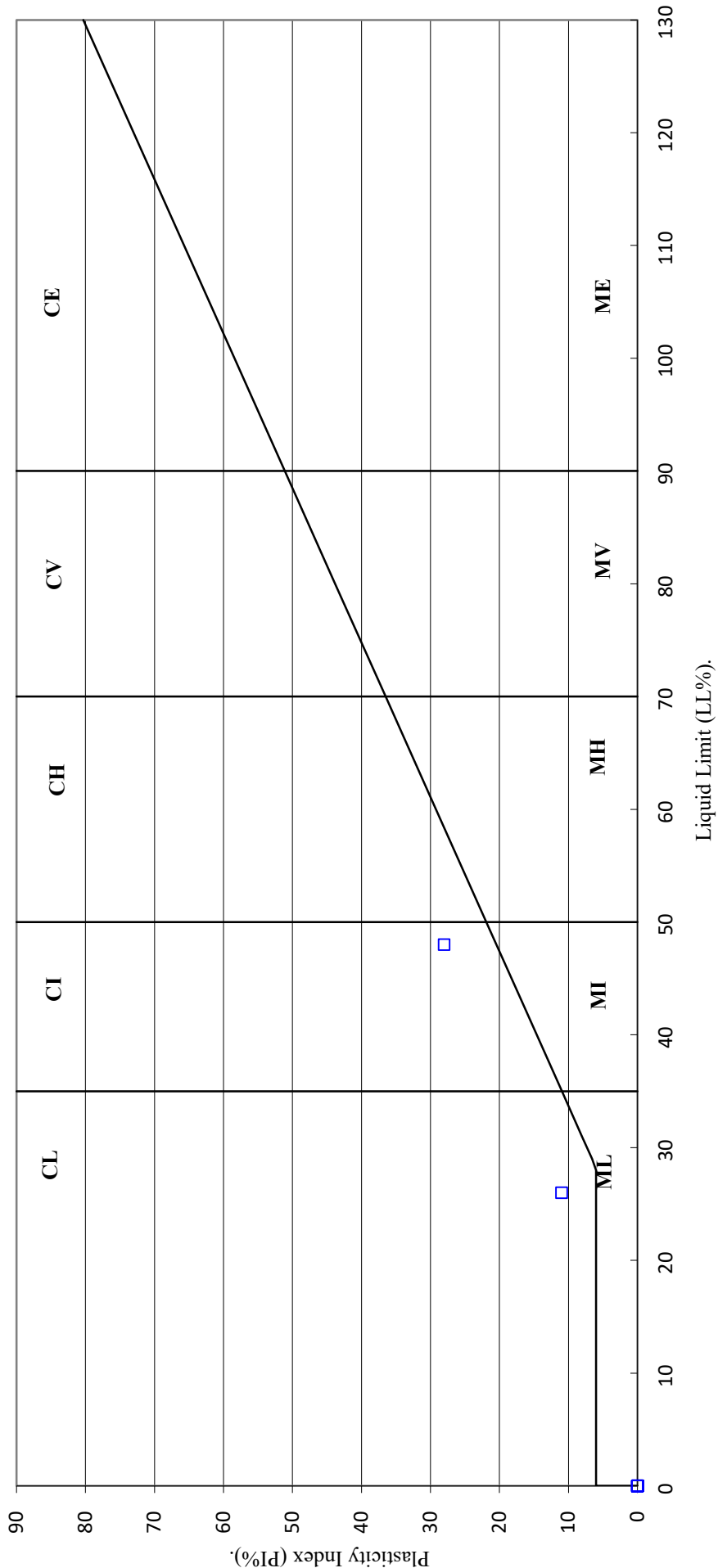
PSL21/5942

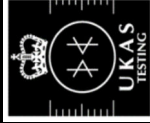
Client Ref:

784-B025563

Cambridge

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



**4043**

**Professional Soils Laboratory**

Contract No:
PSL21/5942
Client Ref:
784-B025563

Cambridge

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

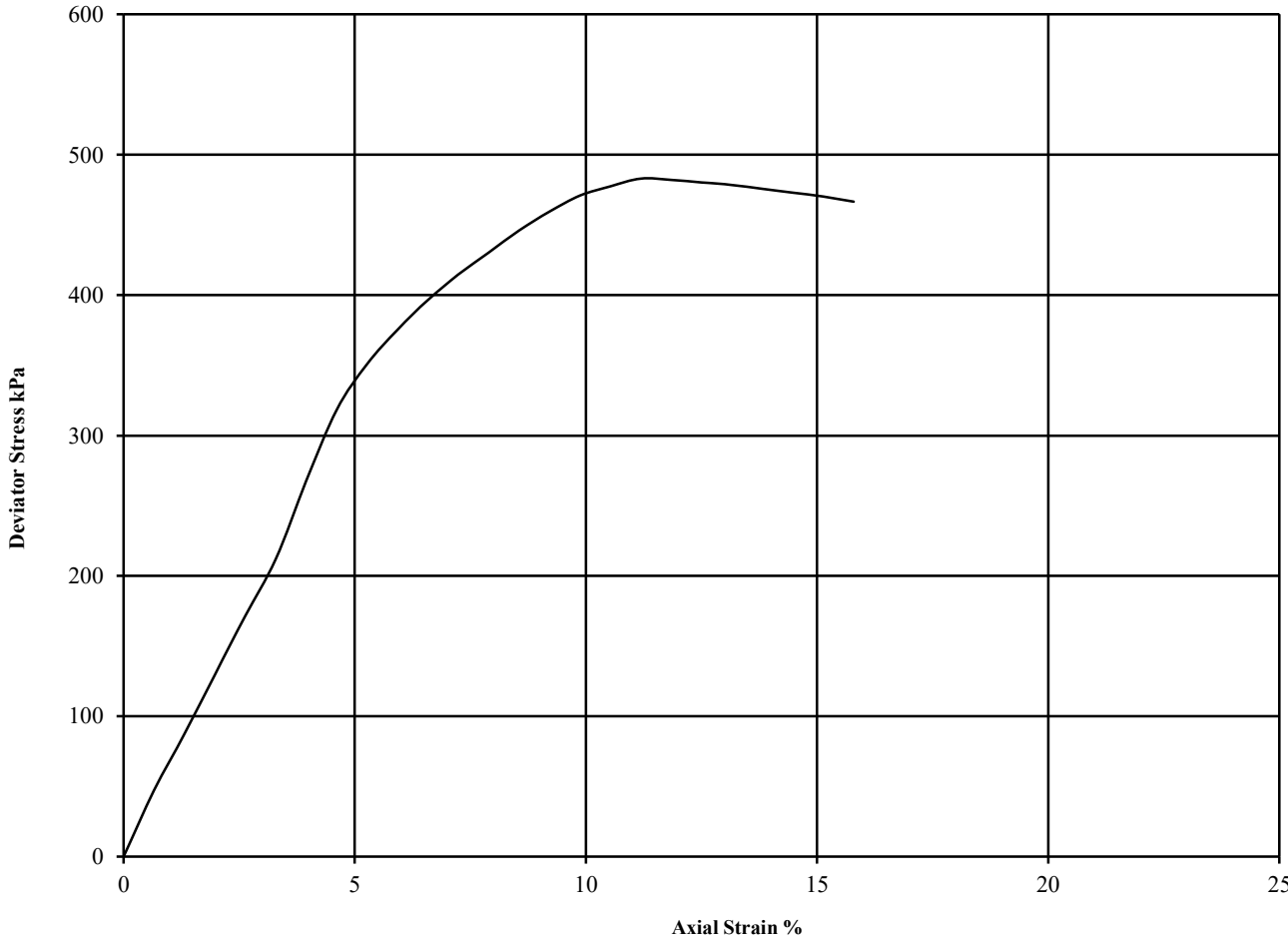
WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 8

Hole Number: BH-PTR-01Top Depth (m): 1.20

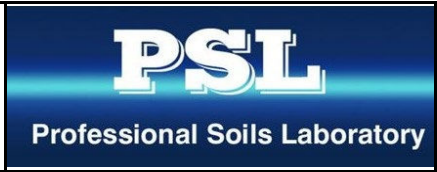
Sample Number:Base Depth (m): 1.65

Sample TypeUT



Diameter (mm):		102	Height (mm):		155	Test:	UU Single Stage		Remarks:
Specimen	Moisture Content (%)	Bulk Density (Mg/m3)	Dry Density (Mg/m3)	Cell Pressure (kPa)	Corr. Max. Deviator Stress (kPa)	Shear Strength Cu (kPa)	Failure Strain (%)	Mode of Failure	Undisturbed Sample
									Sample taken from top of tube
									Rate of strain = 2 %/min
									Latex Membrane used 0.2 mm thick,
				θ_3	$(\theta_1-\theta_3)_f$	$^{1/2}(\theta_1-\theta_3)_f$			Correction applied 0.35
1	11	2.27	2.05	20	483	242	11.2	Intermediate	See summary of soil descriptions

**4043**

**Professional Soils Laboratory**

Cambridge

Contract No:
PSL21/5942
Client Ref:

SUMMARY OF ROCK TESTS

[illegible]

	Contract No:
	PSL21/5942
	Client Ref:
	784-B025563

POINT LOAD TESTS

[illegible]

***Note**
All testing carried out on samples as received water content

A = Axial, D = Diametral, I = Irregular

 PSL Professional Soils Laboratory	Contract No:
	PSL21/5942
	Client Ref:
	784-B025563

Sample Description & Split Describe

Hole Number: BH-PTR-01 Top Depth (m): 3.00
Sample Number: Base Depth (m): 3.45
Sample Type: UT Sample Date:
Sample Description: 3.00-3.27m - Very stiff grey sandy clayey SILT.



Cambridge

Contract No:
PSL21/5942
Client Ref:
784-B025563



ANALYTICAL TEST REPORT

Contract no: 101148
Contract name: BH-PTR-01
Client reference: PSL21/5942
Clients name: Professional Soils Laboratory
Clients address: 5/7 Hexthorpe Road
Doncaster
DN4 0AR

Samples received: 05 October 2021
Analysis started: 05 October 2021
Analysis completed: 12 October 2021
Report issued: 12 October 2021

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope. Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling. All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing. Methods, procedures and performance data are available on request. Results reported herein relate only to the material supplied to the laboratory. This report shall not be reproduced except in full, without prior written approval. Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key: U UKAS accredited test
M MCERTS & UKAS accredited test
\$ Test carried out by an approved subcontractor
I/S Insufficient sample to carry out test
N/S Sample not suitable for testing

Approved by: 
Karan Campbell
Director

Chemtech Environmental Limited

SOILS

Lab number			101148-1	101148-2	101148-3
Sample id			BH-PTR-01	BH-PTR-01	BH-PTR-01
Depth (m)			0.50-0.60	5.10-5.20	10.40-10.50
Date sampled			-	28/04/2021	28/04/2021
Test	Method	Units			
pH	CE004 ^U	units	8.9	8.7	8.3
Magnesium (2:1 water soluble)	CE061	mg/l Mg	<1	1.4	20
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	1.9	5.5	3.2
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	3.8	2.0	<1
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	15	35	834
Sulphate (total)	CE062	mg/kg SO ₄	371	414	2189
Sulphur (total)	CE119	mg/kg S	175	241	2502
Sulphur (total)	CE119	% w/w S	0.02	0.02	0.25

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S

Chemtech Environmental Limited

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key	
N	No (not deviating sample)
Y	Yes (deviating sample)
NSD	Sampling date not provided
NST	Sampling time not provided (waters only)
EHT	Sample exceeded holding time(s)
IC	Sample not received in appropriate containers
HP	Headspace present in sample container
NCF	Sample not chemically fixed (where appropriate)
OR	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
101148-1	BH-PTR-01	0.50-0.60	Y	All (NSD)
101148-2	BH-PTR-01	5.10-5.20	Y	All (EHT)
101148-3	BH-PTR-01	10.40-10.50	Y	All (EHT)



LABORATORY
REPORT



4043

Contract Number: PSL21/5943

Report Date: 13 October 2021

Client’s Reference: 784-B025563

Client Name: Tetra Tech
11th Floor
1 Angel Court
London
EC2R 7HJ

For the attention of: Richard Tonge

Contract Title: Cambridge

Date Received: 26/7/2021
Date Commenced: 26/7/2021
Date Completed: 13/10/2021

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

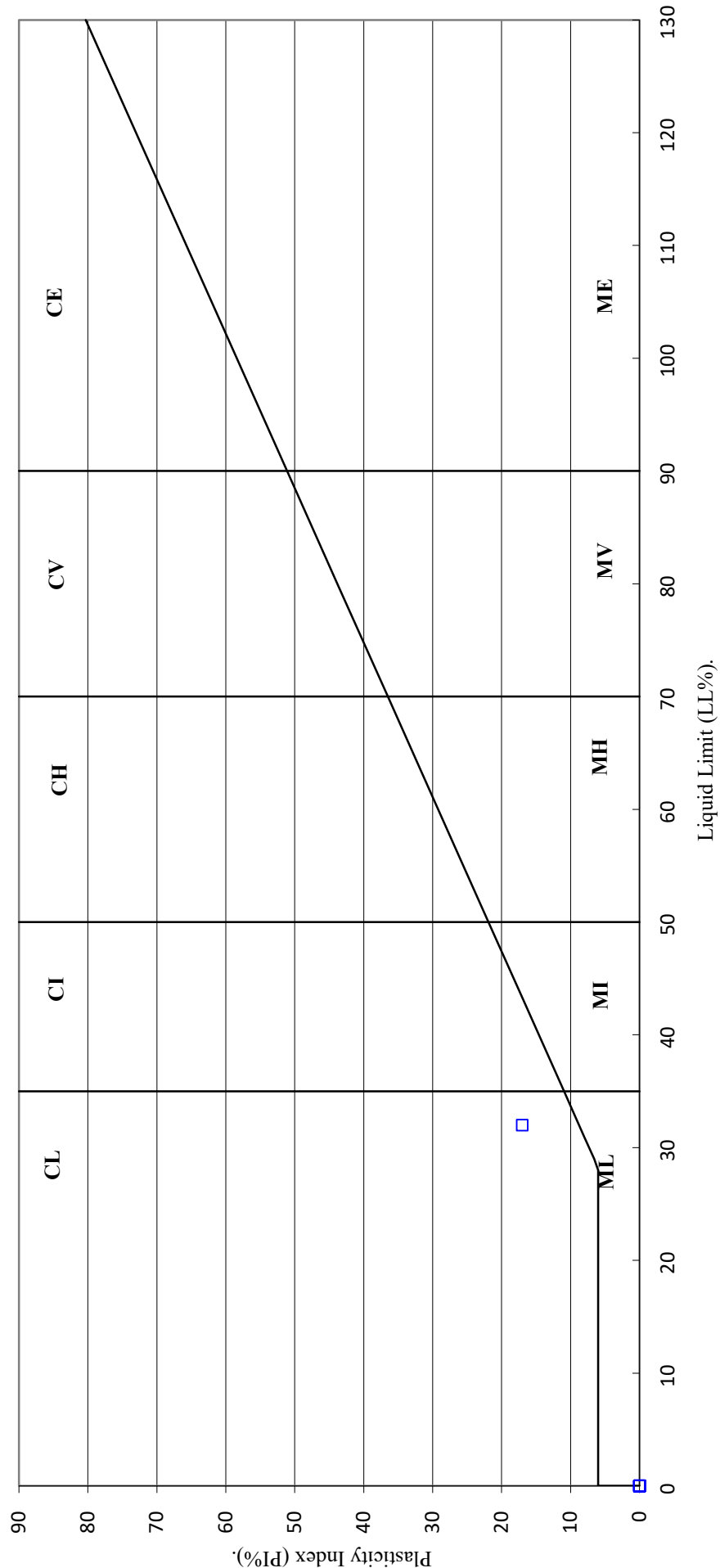
Checked and Approved Signatories:

A Watkins (Director)	R Berriman (Quality Manager)	S Royle (Laboratory Manager)
L Knight (Assistant Laboratory Manager)	 S Eyre (Senior Technician)	T Watkins (Senior Technician)

5 – 7 Hexthorpe Road, Hexthorpe,
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fax: +44 (0)844 815 6642
e-mail: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

Page 1 of

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



4043



Cambridge

Contract No:
PSL21/5943
Client Ref:
784-B025563

Sample Description & Split Describe

Hole Number:	BH-PTR-02	Top Depth (m):	1.20
Sample Number:		Base Depth (m):	1.65
Sample Type:	UT	Sample Date:	
Sample Description:	1.20-1.35m - Stiff light brown mottled light grey gravelly very sandy CLAY. Gravel is FM sub-angular to sub-rounded. 1.35-1.65m - Firm light grey slightly gravelly sandy silty CLAY. Gravel is FMC sub-angular to sub-rounded.		



	Cambridge	Contract No:
		PSL21/5943
		Client Ref:
		784-B025563

SUMMARY OF ROCK TESTS

[illegible]

	Contract No:
	PSL21/5943
	Client Ref:
	784-B025563

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note**
All testing carried out on samples at as received water content

A = Axial, D = Diametral, I = Irregular



UKAS
FISHING

PSL

Professional Soils Laboratory

4043

Cambridge

Contract No:	
PSL21/5943	
Client Ref:	
784-B025563	



ANALYTICAL TEST REPORT

Contract no: 101142
Contract name: BH-PTR-02
Client reference: PSL21/5943
Clients name: Professional Soils Laboratory
Clients address: 5/7 Hexthorpe Road
Doncaster
DN4 0AR

Samples received: 05 October 2021

Analysis started: 05 October 2021

Analysis completed: 12 October 2021

Report issued: 12 October 2021

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.
All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.
Methods, procedures and performance data are available on request.
Results reported herein relate only to the material supplied to the laboratory.
This report shall not be reproduced except in full, without prior written approval.
Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key: U UKAS accredited test
M MCERTS & UKAS accredited test
\$ Test carried out by an approved subcontractor
I/S Insufficient sample to carry out test
N/S Sample not suitable for testing

Approved by: 
Karan Campbell
Director

Chemtech Environmental Limited

SOILS

Lab number			101142-1	101142-2	101142-3
Sample id			BH-PTR-02	BH-PTR-02	BH-PTR-02
Depth (m)			1.00	6.30-6.40	9.50-9.60
Date sampled			-	27/04/2021	27/04/2021
Test	Method	Units			
pH	CE004 ^U	units	9.1	9.2	9.0
Magnesium (2:1 water soluble)	CE061	mg/l Mg	<1	1.5	1.6
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	2.8	4.3	2.4
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	2.2	1.7	<1
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	14	15	12
Sulphate (total)	CE062	mg/kg SO ₄	493	457	466
Sulphur (total)	CE119	mg/kg S	694	186	200
Sulphur (total)	CE119	% w/w S	0.07	0.02	0.02

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

- Key**
N No (not deviating sample)
Y Yes (deviating sample)
NSD Sampling date not provided
NST Sampling time not provided (waters only)
EHT Sample exceeded holding time(s)
IC Sample not received in appropriate containers
HP Headspace present in sample container
NCF Sample not chemically fixed (where appropriate)
OR Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
101142-1	BH-PTR-02	1.00	Y	All (NSD)
101142-2	BH-PTR-02	6.30-6.40	Y	All (EHT)
101142-3	BH-PTR-02	9.50-9.60	Y	All (EHT)

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

[illegible]

SYMBOLS: NP : Non Plastic

* : Liquid Limit and Plastic Limit Wet Sieved.


PSL
Professional Soils Laboratory
4043

Cambridge

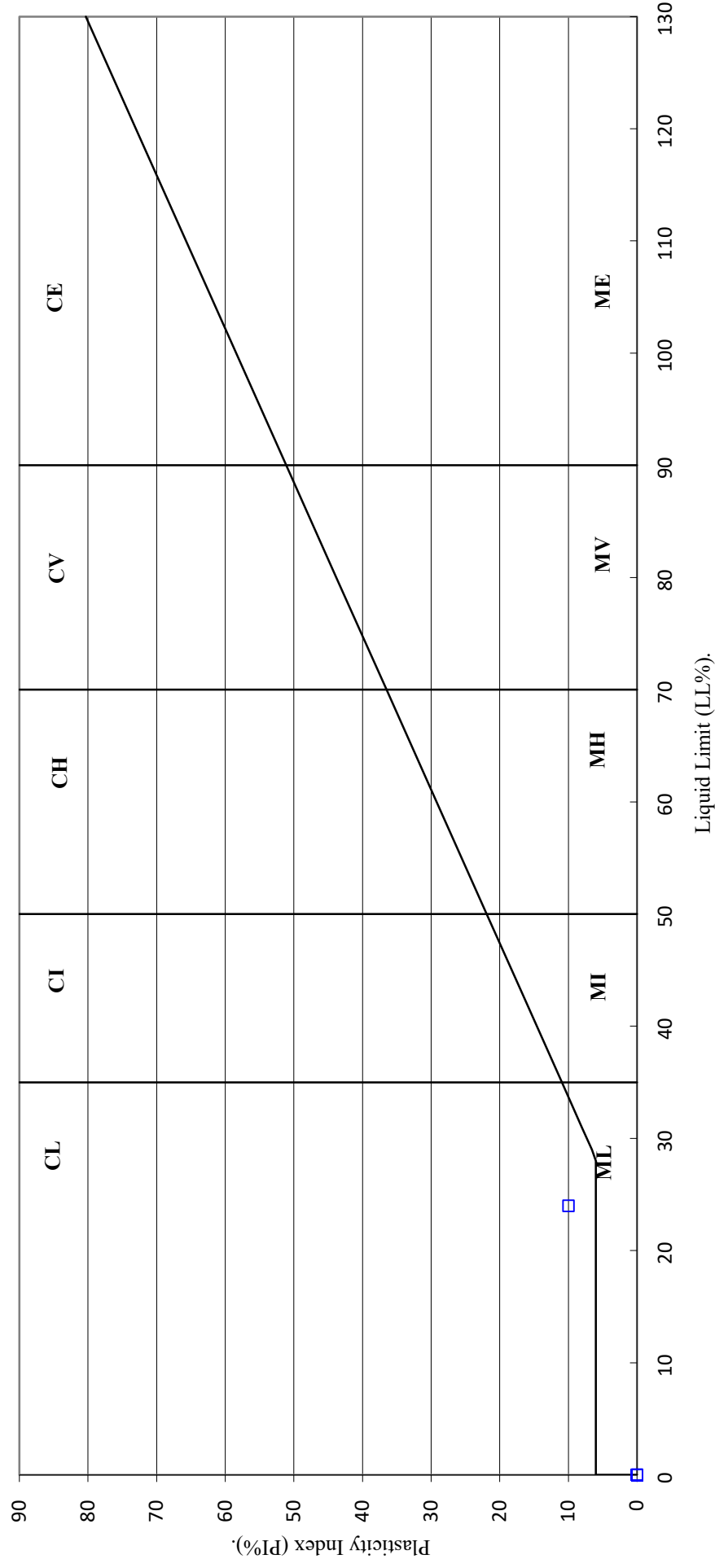
Contract No:

PSL21/5944

Client Ref:

784-B025563

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.




PSL
Professional Soils Laboratory
4043

Cambridge

Contract No:

PSL21/5944

Client Ref:

PARTICLE SIZE DISTRIBUTION TEST

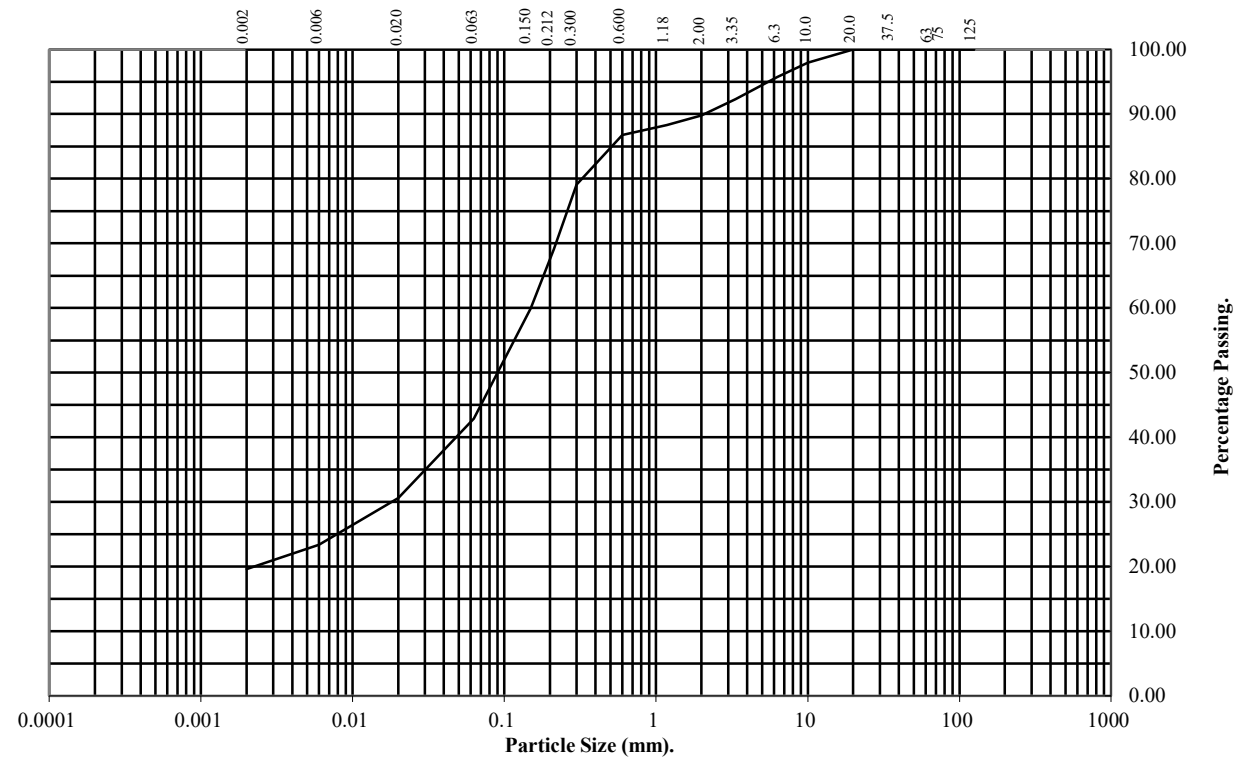
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	BH-PTR-03A	Top Depth (m):	1.00
---------------------	-------------------	-----------------------	-------------

Sample Number: 4 **Base Depth(m):** 1.20

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	98
6.3	96
3.35	92
2	90
1.18	88
0.6	87
0.3	79
0.212	69
0.15	60
0.063	43

Particle Diameter	Percentage Passing
0.02	31
0.006	23
0.002	20

Soil Fraction	Total Percentage
Cobbles	0
Gravel	10
Sand	47
Silt	23
Clay	20

Remarks:
See Summary of Soil Descriptions



Cambridge

Contract No:
PSL21/5944
Client Ref:
784-B025563

SUMMARY OF ROCK TESTS

(ISRM Suggested Method for the Determination of the Water Content of Rock)

[illegible]

PST
Professional Soils Laboratory

Cambridge

Contract No:	PSL21/5944
Client Ref:	784-B025563

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular

PSL
Professional Soils Laboratory

Cambridge

Contract No:

PSL21/5944

Client Ref:

784-B025563

Hole Number:	BH-PTR-03A	Top Depth (m):	4.20
Sample Number:	2	Base Depth (m):	4.65
Sample Type:	UT	Sample Date:	
Sample Description:	4.20-4.65m - Stiff light grey slightly sandy very silty CLAY.		



	<p style="text-align: center;">Cambridge</p>	Contract No:
		PSL21/5944
		Client Ref:
		784-B025563

Sample Description & Split Describe

Hole Number: BH-PTR-03A Top Depth (m): 7.50

Sample Number: 3 Base Depth (m): 7.95

Sample Type: UT Sample Date:

Sample Description: 7.50-7.75m - Soft light grey slightly sandy very silty CLAY.
7.75-7.95m - Stiff light grey slightly sandy very silty CLAY.



Cambridge

Contract No:
PSL21/5944
Client Ref:
784-B025563



ANALYTICAL TEST REPORT

Contract no: 101226

Contract name: BH-PTR-03A

Client reference: PSL21/5944

Clients name: Professional Soils Laboratory

Clients address: 5/7 Hexthorpe Road
Doncaster
DN4 0AR

Samples received: 06 October 2021

Analysis started: 06 October 2021

Analysis completed: 13 October 2021

Report issued: 13 October 2021

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope. Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling. All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing. Methods, procedures and performance data are available on request. Results reported herein relate only to the material supplied to the laboratory. This report shall not be reproduced except in full, without prior written approval. Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key: U UKAS accredited test
M MCERTS & UKAS accredited test
\$ Test carried out by an approved subcontractor
I/S Insufficient sample to carry out test
N/S Sample not suitable for testing

Approved by: *K Campbell*
Karan Campbell
Director

Unit 6 Parkhead, Greencroft Industrial Park, Stanley, County Durham, DH9 7YB
Tel 01207 528578 Email customerservices@chemtech-env.co.uk
Vat Reg No. 772 5703 18 Registered in England number 4284013

Chemtech Environmental Limited

SOILS

Lab number			101226-1	101226-2	101226-3
Sample id			BH-PTR-03A	BH-PTR-03A	BH-PTR-03A
Depth (m)			2.10-2.20	4.10-4.20	10.50-10.60
Date sampled			23/03/2021	23/03/2021	23/03/2021
Test	Method	Units			
pH	CE004 ^U	units	8.5	8.5	8.7
Magnesium (2:1 water soluble)	CE061	mg/l Mg	1.4	2.4	2.5
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	7.3	9.2	8.3
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	19	3.7	4.1
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	124	114	54
Sulphate (total)	CE062	mg/kg SO ₄	749	787	598
Sulphur (total)	CE119	mg/kg S	412	431	365
Sulphur (total)	CE119	% w/w S	0.04	0.04	0.04

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S

Chemtech Environmental Limited

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key	
N	No (not deviating sample)
Y	Yes (deviating sample)
NSD	Sampling date not provided
NST	Sampling time not provided (waters only)
EHT	Sample exceeded holding time(s)
IC	Sample not received in appropriate containers
HP	Headspace present in sample container
NCF	Sample not chemically fixed (where appropriate)
OR	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
101226-1	BH-PTR-03A	2.10-2.20	Y	All (EHT)
101226-2	BH-PTR-03A	4.10-4.20	Y	All (EHT)
101226-3	BH-PTR-03A	10.50-10.60	Y	All (EHT)



LABORATORY
REPORT



4043

Contract Number: PSL21/5945

Report Date: 15 September 2021

Client’s Reference: 784-B025563

Client Name: Tetra Tech
11th Floor
1 Angel Court
London
EC2R 7HJ

For the attention of: Richard Tonge

Contract Title: Cambridge

Date Received: 26/7/2021
Date Commenced: 26/7/2021
Date Completed: 15/9/2021

Notes: Opinions and Interpretations are outside the UKAS Accreditation

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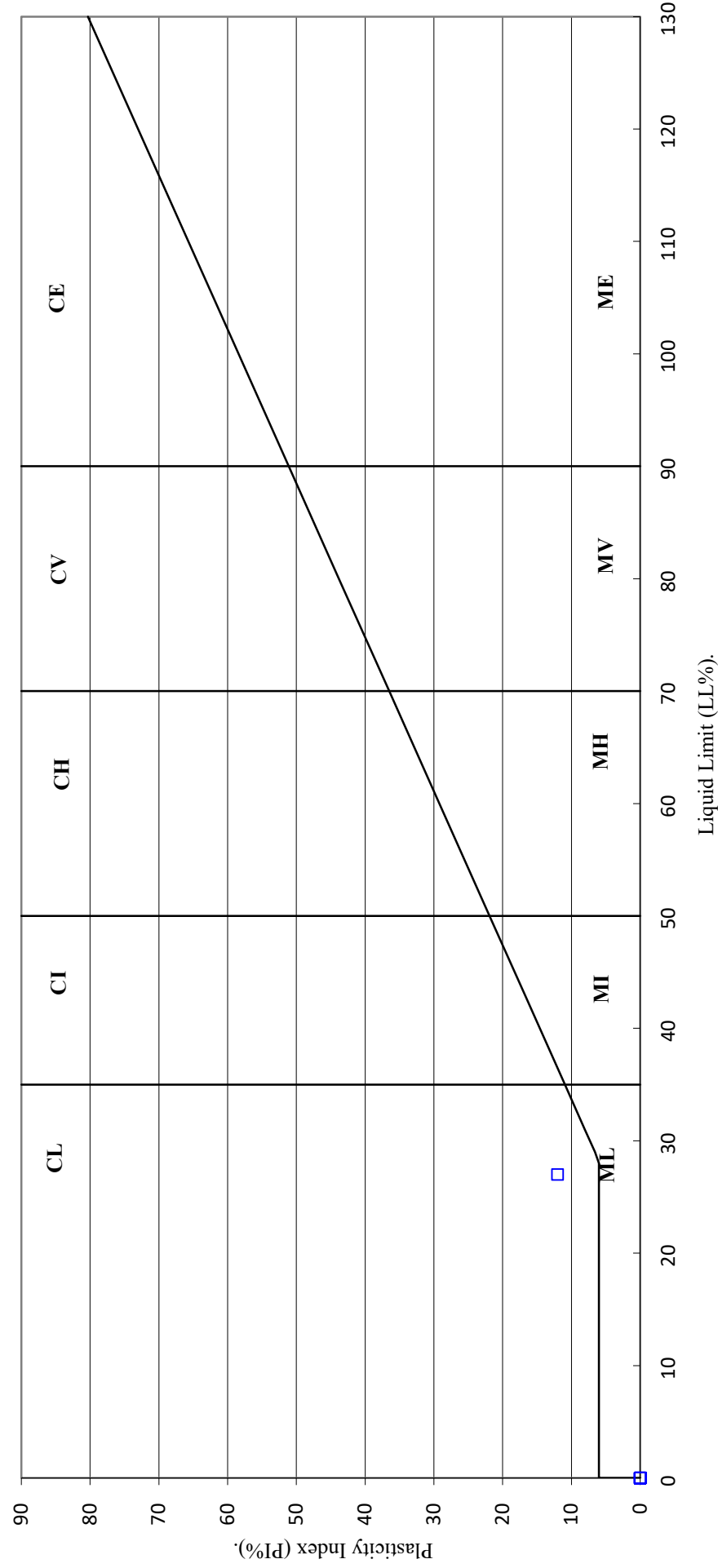
Checked and Approved Signatories:

A Watkins (Director)	R Berriman (Quality Manager)	S Royle (Laboratory Manager)
L Knight (Assistant Laboratory Manager)	 S Eyre (Senior Technician)	T Watkins (Senior Technician)

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Page 1 of

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.




PSL
Professional Soils Laboratory
4043

Contract No:

PSL21/5945

Client Ref:

784-B025563

Cambridge

SUMMARY OF ROCK TESTS

(ISM Suggested Method for the Determination of the Water Content of Rock)

[illegible]

pst
Professional Soils Laboratory

Contract No:

PSL21/5945

Client Ref:

784-B025563

Cambridge

ISRM Suggested Methods : 2007

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular

 UKAS TESTING 4043	 PST Professional Soils Laboratory	Contract No:
		PSL21/5945
		Client Ref:
		784-B025563



ANALYTICAL TEST REPORT

Contract no:	100383
Contract name:	BH-PTR-04
Client reference:	PSL21/5945
Clients name:	Professional Soils Laboratory
Clients address:	5/7 Hexthorpe Road Doncaster DN4 0AR
Samples received:	14 September 2021
Analysis started:	14 September 2021
Analysis completed:	21 September 2021
Report issued:	21 September 2021

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.
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Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key:

- U UKAS accredited test
- M MCERTS & UKAS accredited test
- \$ Test carried out by an approved subcontractor
- I/S Insufficient sample to carry out test
- N/S Sample not suitable for testing

Approved by: 
Rachael Burton
Customer Support Squad Leader

Unit 6 Parkhead, Greencroft Industrial Park, Stanley, County Durham, DH9 7YB
Tel 01207 528578 Email customerservices@chemtech-env.co.uk
Vat Reg No. 772 5703 18 Registered in England number 4284013

Chemtech Environmental Limited

SOILS

Lab number			100383-1
Sample id			BH-PTR-04
Depth (m)			8.10-8.20
Date sampled			17/03/2021
Test	Method	Units	
pH	CE004 ^U	units	8.4
Magnesium (2:1 water soluble)	CE061	mg/l Mg	4.4
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	2.3
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	1.8
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	111
Sulphate (total)	CE062	mg/kg SO ₄	663
Sulphur (total)	CE119	mg/kg S	390
Sulphur (total)	CE119	% w/w S	0.04

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S

Chemtech Environmental Limited

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key	
N	No (not deviating sample)
Y	Yes (deviating sample)
NSD	Sampling date not provided
NST	Sampling time not provided (waters only)
EHT	Sample exceeded holding time(s)
IC	Sample not received in appropriate containers
HP	Headspace present in sample container
NCF	Sample not chemically fixed (where appropriate)
OR	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
100383-1	BH-PTR-04	8.10-8.20	Y	All (EHT)



LABORATORY
REPORT



4043

Contract Number: PSL21/5946

Report Date: 20 October 2021

Client’s Reference: 784-B025563

Client Name: Tetra Tech
11th Floor
1 Angel Court
London
EC2R 7HJ

For the attention of: Richard Tonge

Contract Title: Cambridge

Date Received: 26/7/2021
Date Commenced: 26/7/2021
Date Completed: 20/10/2021

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

A Watkins (Director)	R Berriman (Quality Manager)	S Royle (Laboratory Manager)
L Knight (Assistant Laboratory Manager)	 S Eyre (Senior Technician)	T Watkins (Senior Technician)

5 – 7 Hexthorpe Road, Hexthorpe,
Doncaster DN4 0AR
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fax: +44 (0)844 815 6642
e-mail: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

Page 1 of

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]


PSL
Professional Soils Laboratory
4043

Contract No:	PSL21/5946	Client Ref:	784-B025563
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SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

[illegible]

SYMBOLS: NP : Non Plastic

* : Liquid Limit and Plastic Limit Wet Sieved.


PSL
Professional Soils Laboratory
4043

Cambridge

Contract No:	PSL21/5946	Client Ref:	784-B025563
---------------------	-------------------	--------------------	--------------------

The figure is a semi-logarithmic plot used for soil classification based on the Plasticity Index (PI%) and Liquid Limit (LL%). The y-axis represents the Plasticity Index (PI%) on a logarithmic scale from 0 to 90. The x-axis represents the Liquid Limit (LL%) on a linear scale from 0 to 130. The plot is divided into several regions by a diagonal line (A-line) and a horizontal line (U-line). The regions are labeled as follows:

- CL (Clay Low Plasticity):** PI < 7 and LL < 25.
- CH (Clay High Plasticity):** PI < 7 and LL > 25.
- ML (Silt Low Plasticity):** PI < 7 and LL < 25.
- MH (Silt High Plasticity):** PI < 7 and LL > 25.
- CI (Clay Intermediate Plasticity):** 7 < PI < 17 and LL < 25.
- CH (Clay High Plasticity):** 7 < PI < 17 and LL > 25.
- MI (Silt Intermediate Plasticity):** 7 < PI < 17 and LL < 25.
- MH (Silt High Plasticity):** 7 < PI < 17 and LL > 25.
- CV (Clay Very High Plasticity):** PI > 17 and LL < 25.
- CH (Clay High Plasticity):** PI > 17 and LL > 25.
- ME (Silt Extremely High Plasticity):** PI > 17 and LL > 25.

The data points plotted are as follows:

Liquid Limit (LL%)	Plasticity Index (PI%)	Soil Type
0	0	CL
25	10	ML
28	12	ML
40	20	CH
25	80	CH



Contract No:
PSL21/5946
Client Ref:
784-B025563



ANALYTICAL TEST REPORT

Contract no:	101215
Contract name:	BH-PTR-05
Client reference:	PSL21/5946
Clients name:	Professional Soils Laboratory
Clients address:	5/7 Hexthorpe Road Doncaster DN4 0AR

Samples received: 06 October 2021

Analysis started: 06 October 2021

Analysis completed: 13 October 2021

Report issued: 13 October 2021

Notes:

Opinions and interpretations expressed herein are outside the UKAS accreditation scope.

Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.

All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.

Methods, procedures and performance data are available on request.

Results reported herein relate only to the material supplied to the laboratory.

This report shall not be reproduced except in full, without prior written approval.

Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key:

- U UKAS accredited test
- M MCERTS & UKAS accredited test
- \$ Test carried out by an approved subcontractor
- I/S Insufficient sample to carry out test
- N/S Sample not suitable for testing

Approved by: 
Rachael Burton
Customer Support Squad Leader

Chemtech Environmental Limited

SOILS

Lab number			101215-1	101215-2	101215-3
Sample id			BH-PTR-05	BH-PTR-05	BH-PTR-05
Depth (m)			1.00-1.10	2.00-2.10	5.90-6.00
Date sampled			10/03/2021	10/03/2021	10/03/2021
Test	Method	Units			
pH	CE004 ^U	units	8.7	8.6	8.7
Magnesium (2:1 water soluble)	CE061	mg/l Mg	25	5.5	5.0
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	2.9	2.9	7.8
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	2.7	14	2.7
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	372	104	112
Sulphate (total)	CE062	mg/kg SO ₄	1095	666	576
Sulphur (total)	CE119	mg/kg S	1130	332	320
Sulphur (total)	CE119	% w/w S	0.11	0.03	0.03

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S

Chemtech Environmental Limited

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
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Key	
N	No (not deviating sample)
Y	Yes (deviating sample)
NSD	Sampling date not provided
NST	Sampling time not provided (waters only)
EHT	Sample exceeded holding time(s)
IC	Sample not received in appropriate containers
HP	Headspace present in sample container
NCF	Sample not chemically fixed (where appropriate)
OR	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
101215-1	BH-PTR-05	1.00-1.10	Y	All (EHT)
101215-2	BH-PTR-05	2.00-2.10	Y	All (EHT)
101215-3	BH-PTR-05	5.90-6.00	Y	All (EHT)



LABORATORY
REPORT



4043

Contract Number: PSL21/5947

Report Date: 20 October 2021

Client’s Reference: 784-B025563

Client Name: Tetra Tech
11th Floor
1 Angel Court
London
EC2R 7HJ

For the attention of: Richard Tonge

Contract Title: Cambridge

Date Received: 26/7/2021
Date Commenced: 26/7/2021
Date Completed: 20/10/2021

Notes: Opinions and Interpretations are outside the UKAS Accreditation

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Checked and Approved Signatories:

A Watkins (Director)	R Berriman (Quality Manager)	S Royle (Laboratory Manager)
L Knight (Assistant Laboratory Manager)	 S Eyre (Senior Technician)	T Watkins (Senior Technician)

5 – 7 Hexthorpe Road, Hexthorpe,
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fax: +44 (0)844 815 6642
e-mail: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

Page 1 of

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]

	<p style="text-align: center;">Cambridge</p>	Contract No:
		PSL21/5947
		Client Ref:
		784-B025563

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

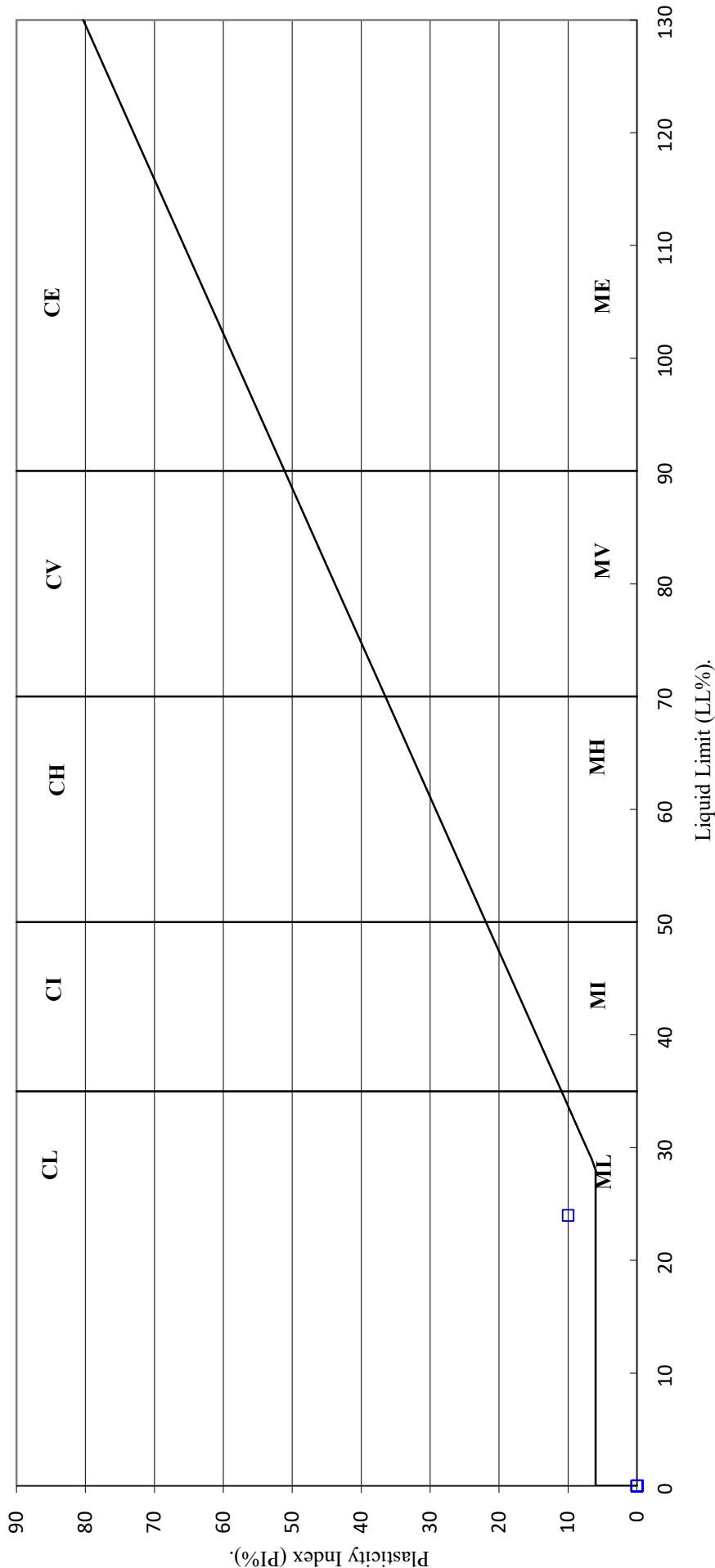
[illegible]

SYMBOLS : NP : Non Plastic

* : Liquid Limit and Plastic Limit Wet Sieved.

	Contract No:
	PSL21/5947
	Client Ref:
	784-B025563

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



4043



Cambridge

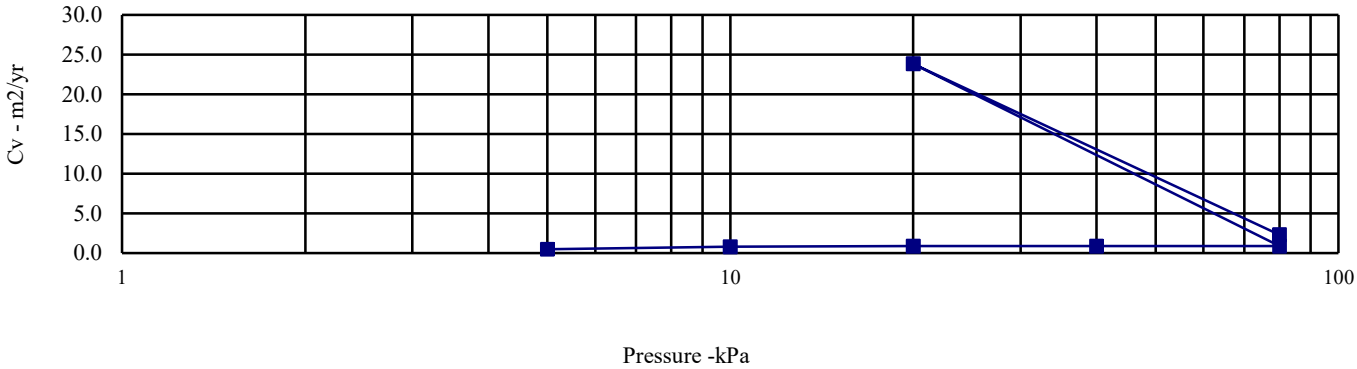
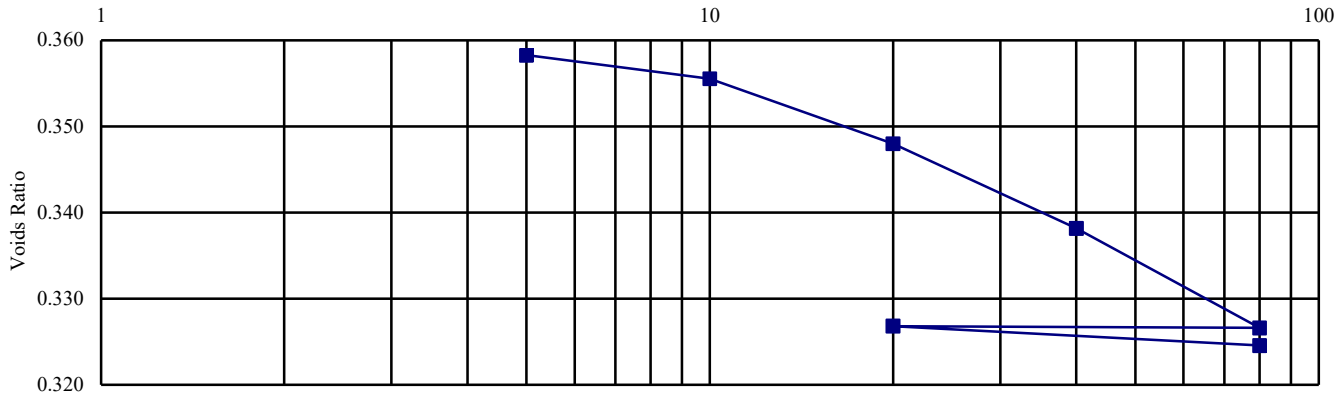
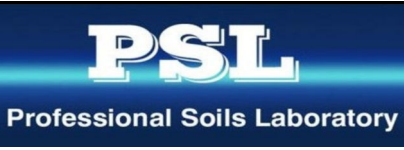
Contract No:
PSL21/5947
Client Ref:
784-B025563

ONE DIMENSIONAL CONSOLIDATION TEST

BS 1377: Part 5: 1990: Clause 3

Hole Number:	BH-PTR-06B	Top Depth (m):	1.00
Sample Number:		Base Depth (m) :	1.20
Sample Type:	UT100		

Initial Conditions		Pressure Range		Mv	Cv	Specimen location	
Moisture Content (%):	13	kPa		m2/MN	m2/yr	within tube:	Top
Bulk Density (Mg/m3):	2.19	0	5	0.916	0.514	Method used to	T90
Dry Density (Mg/m3):	1.94	5	10	0.400	0.818	determine CV:	
Voids Ratio:	0.365	10	20	0.556	0.901	Nominal temperature	
Degree of saturation:	94.1	20	40	0.365	0.902	during test ' C:	20
Height (mm):	20.098	40	80	0.216	0.887	Remarks:	
Diameter (mm)	75.068	80	20	0.003	23.840	See summary of soil descriptions	
Particle Density (Mg/m3):	2.65	20	80	0.028	2.329		
Assumed							



Cambridge

Contract No:
PSL21/5947
Client Ref:
784-B025563

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular

	Cambridge	Contract No:
		PSL21/5947
		Client Ref:
		784-B025563

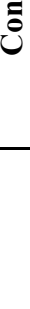
SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

	<p>Cambridge</p>	Contract No:
		PSL21/5947
		Client Ref:
		784-B025563



Chemtech Environmental Limited

SOILS

ANALYTICAL TEST REPORT

Contract no: 101217

Contract name: BH-PTR-06

Client reference: PSL21/5947

Clients name: Professional Soils Laboratory

Clients address: 5/7 Hexthorpe Road
Doncaster
DN4 0AR

Samples received: 06 October 2021

Analysis started: 06 October 2021

Analysis completed: 13 October 2021

Report issued: 13 October 2021

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.
All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.
Methods, procedures and performance data are available on request.
Results reported herein relate only to the material supplied to the laboratory.
This report shall not be reproduced except in full, without prior written approval.
Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key: U UKAS accredited test
M MCERTS & UKAS accredited test
\$ Test carried out by an approved subcontractor
I/S Insufficient sample to carry out test
N/S Sample not suitable for testing

Approved by: 
Rachael Burton
Customer Support Squad Leader

Lab number			101217-1	101217-2	101217-3
Sample id			BH-PTR-06	BH-PTR-06	BH-PTR-06
Depth (m)			0.50-1.65	7.90-8.00	12.60-12.70
Date sampled			-	-	22/03/2021
Test	Method	Units			
pH	CE004 ^U	units	8.6	8.5	8.3
Magnesium (2:1 water soluble)	CE061	mg/l Mg	1.2	9.5	15
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	5.0	2.6	3.9
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	3.1	1.2	<1
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	65	202	418
Sulphate (total)	CE062	mg/kg SO ₄	474	838	1431
Sulphur (total)	CE119	mg/kg S	255	790	1300
Sulphur (total)	CE119	% w/w S	0.03	0.08	0.13

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

- Key**
N No (not deviating sample)
Y Yes (deviating sample)
NSD Sampling date not provided
NST Sampling time not provided (waters only)
EHT Sample exceeded holding time(s)
IC Sample not received in appropriate containers
HP Headspace present in sample container
NCF Sample not chemically fixed (where appropriate)
OR Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
101217-1	BH-PTR-06	0.50-1.65	Y	All (NSD)
101217-2	BH-PTR-06	7.90-8.00	Y	All (NSD)
101217-3	BH-PTR-06	12.60-12.70	Y	All (EHT)

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

[illegible]

SYMBOLS: NP : Non Plastic

* : Liquid Limit and Plastic Limit Wet Sieved.


PSL
Professional Soils Laboratory
4043

Contract No:

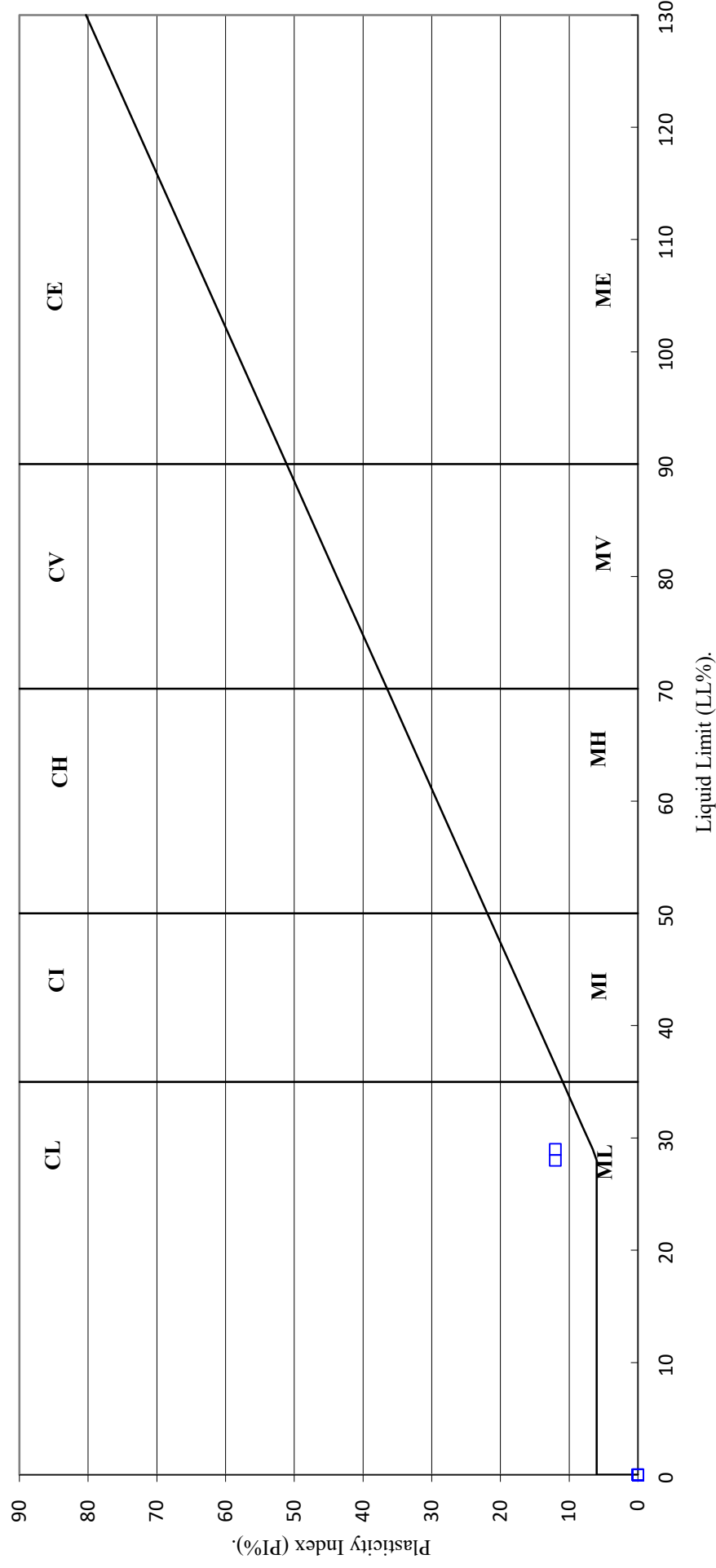
PSL21/5948

Client Ref:

784-B025563

Cambridge

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.




PSL
Professional Soils Laboratory
4043

Contract No:

PSL21/5948

Client Ref:

784-B025563

Cambridge

ISRM Suggested Methods : 2007

A = Axial, D = Diametral, I = Irregular

Par = parallel, Perp = perpendicular, U = Random

***Note** All testing carried out on samples at as received water content

 **UKAS**
TESTING
4043



CHEMTECH
environmental

Samples received: 06 October 2021

Analysis started: 06 October 2021

Analysis completed: 13 October 2021

Report issued: 13 October 2021

Key: U UKAS accredited test
M MCERTS & UKAS accredited test
\$ Test carried out by an approved subcontractor
I/S Insufficient sample to carry out test
N/S Sample not suitable for testing

K Campbell

Chemtech Environmental Limited

SOILS

Lab number			101193-1	101193-2	101193-3
Sample id			BH-PTR-07	BH-PTR-07	BH-PTR-07
Depth (m)			1.00-1.10	8.40-8.50	13.00
Date sampled			08/03/2021	12/03/2021	09/03/2021
Test	Method	Units			
pH	CE004 ^U	units	8.6	8.3	8.0
Magnesium (2:1 water soluble)	CE061	mg/l Mg	<1	9.5	29
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	2.4	3.7	5.1
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	13	3.1	<1
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	25	219	923
Sulphate (total)	CE062	mg/kg SO ₄	385	871	2430
Sulphur (total)	CE119	mg/kg S	246	1113	2828
Sulphur (total)	CE119	% w/w S	0.02	0.11	0.28

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S

Chemtech Environmental Limited

DEVIATING SAMPLE INFORMATION

Comments

Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.

For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.

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Key	
N	No (not deviating sample)
Y	Yes (deviating sample)
NSD	Sampling date not provided
NST	Sampling time not provided (waters only)
EHT	Sample exceeded holding time(s)
IC	Sample not received in appropriate containers
HP	Headspace present in sample container
NCF	Sample not chemically fixed (where appropriate)
OR	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
101193-1	BH-PTR-07	1.00-1.10	Y	All (EHT)
101193-2	BH-PTR-07	8.40-8.50	Y	All (EHT)
101193-3	BH-PTR-07	13.00	Y	All (EHT)



**LABORATORY
REPORT**



4043

Contract Number: PSL21/5949

Report Date: 21 September 2021

Client’s Reference: 784-B025563

Client Name: Tetra Tech
11th Floor
1 Angel Court
London
EC2R 7HJ

For the attention of: Richard Tonge

Contract Title: Cambridge

Date Received: 26/7/2021
Date Commenced: 26/7/2021
Date Completed: 21/9/2021

Notes: Opinions and Interpretations are outside the UKAS Accreditation

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Checked and Approved Signatories:

A Watkins (Director)	R Berriman (Quality Manager)	S Royle (Laboratory Manager)
L Knight (Assistant Laboratory Manager)	 S Eyre (Senior Technician)	T Watkins (Senior Technician)

5 – 7 Hexthorpe Road, Hexthorpe,
Doncaster DN4 0AR
tel: +44 (0)844 815 6641
fax: +44 (0)844 815 6642
e-mail: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

Page 1 of

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]



UKAS
TESTING

PSL
Professional Soils Laboratory

4043

Contract No:
PSL21/5949
Client Ref:
784-B025563

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

[illegible]

SYMBOLS: NP : Non Plastic

* : Liquid Limit and Plastic Limit Wet Sieved.



UKAS
TESTING

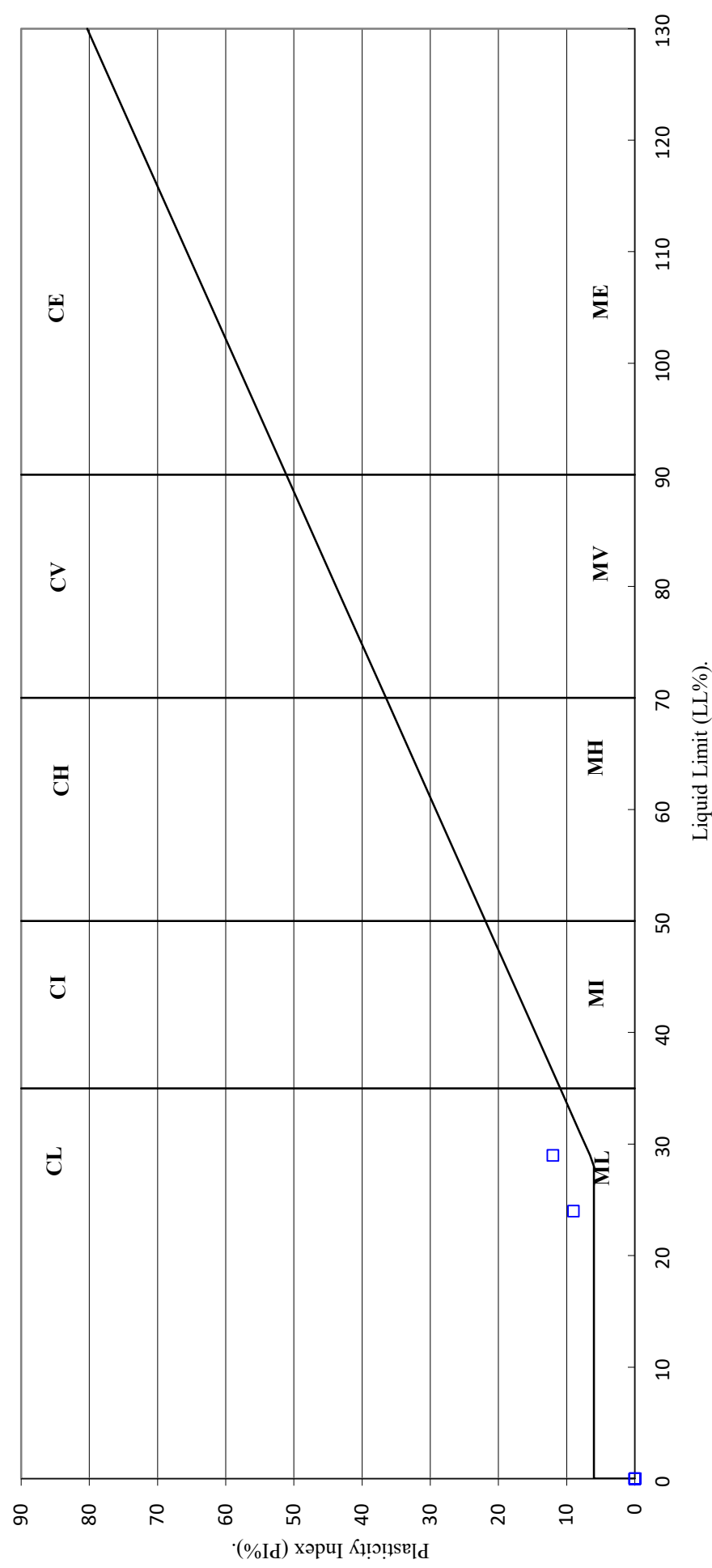
PSL

Professional Soils Laboratory

4043

Contract No:	PSL21/5949	Client Ref:	784-B025563
---------------------	-------------------	--------------------	--------------------

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



	Contract No:
	PSL21/5949
	Client Ref:
	784-B025563

SUMMARY OF ROCK TESTS

(ISRM Suggested Method for the Determination of the Water Content of Rock)

[illegible]

	Contract No:
	PSL21/5949
	Client Ref:
	784-B025563

DETERMINATION OF UNCONFINED COMPRESSIVE STRENGTH

ISRM Suggested Methods, pp 111 –116, 1981.

[illegible]

PST
Professional Soils Laboratory

Cambridge

Contract No:

PSL21/5949

Client Ref:

784-B025563

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular


PSL
Professional Soils Laboratory
4043

Cambridge

Contract No:

PSL21/5949

Client Ref:

784-B025563

ISRM Suggested Methods : 2007

PSL030 Issue 2

Hole Number:	BH-PTR-08	Top Depth (m):	1.20
Sample Number:	1	Base Depth (m):	1.65
Sample Type:	UT	Sample Date:	
Sample Description:			

The image displays three long, rectangular, light brown, textured objects, possibly ancient papyrus or bark, laid out horizontally on a grey surface. A ruler is visible at the top, indicating their length. The objects have a rough, fibrous texture and are arranged in a row, with the top two showing more detail of their internal structure. The bottom object is a single, long, rectangular piece with a similar texture. The ruler at the top shows measurements in inches and centimeters, with the objects spanning approximately 40 inches in length.

	<p style="text-align: center;">Cambridge</p>	Contract No:
		PSL21/5949
		Client Ref:
		784-B025563



ANALYTICAL TEST REPORT

Contract no: 100358
Contract name: BH-PTR-08
Client reference: PSL21/5949
Clients name: Professional Soils Laboratory
Clients address: 5/7 Hexthorpe Road
Doncaster
DN4 0AR

Samples received: 14 September 2021

Analysis started: 14 September 2021

Analysis completed: 23 September 2021

Report issued: 23 September 2021

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.
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Results reported herein relate only to the material supplied to the laboratory.
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Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key: U UKAS accredited test
M MCERTS & UKAS accredited test
\$ Test carried out by an approved subcontractor
I/S Insufficient sample to carry out test
N/S Sample not suitable for testing

Approved by: 
Rachael Burton
Customer Support Squad Leader

Chemtech Environmental Limited

SOILS

Lab number			100358-1	100358-2	100358-3	100358-4	100358-5
Sample id			BH-PTR-08	BH-PTR-08	BH-PTR-08	BH-PTR-08	BH-PTR-08
Depth (m)			0.50	2.90-3.00	4.10-4.20	11.25-11.35	1.50-1.60
Date sampled			-				
Test	Method	Units					
pH	CE004 ^U	units	8.5	8.6	8.7	7.7	-
Magnesium (2:1 water soluble)	CE061	mg/l Mg	2.1	1.3	1.4	6.6	-
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	2.5	6.5	5.5	1.9	-
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	3.0	3.2	2.9	<1	-
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	34	34	46	192	-
Sulphate (total)	CE062	mg/kg SO ₄	422	510	548	884	-
Sulphur (total)	CE119	mg/kg S	321	219	277	1035	-
Sulphur (total)	CE119	% w/w S	0.03	0.02	0.03	0.10	-
Total Organic Carbon (TOC)	CE197	% w/w C	-	-	-	-	0.2
Estimate of OMC (calculated from TOC)	CE197	% w/w	-	-	-	-	0.4

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S
CE197	Total Organic Carbon (TOC)	Carbon Analyser	Dry		0.1	% w/w C
CE197	Estimate of OMC (calculated from TOC)	Calculation from Total Organic Carbon	Dry		0.1	% w/w

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key
N No (not deviating sample)
Y Yes (deviating sample)
NSD Sampling date not provided
NST Sampling time not provided (waters only)
EHT Sample exceeded holding time(s)
IC Sample not received in appropriate containers
HP Headspace present in sample container
NCF Sample not chemically fixed (where appropriate)
OR Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
100358-1	BH-PTR-08	0.50	Y	All (NSD)
100358-2	BH-PTR-08	2.90-3.00	Y	All (NSD)
100358-3	BH-PTR-08	4.10-4.20	Y	All (NSD)
100358-4	BH-PTR-08	11.25-11.35	Y	All (EHT)
100358-5	BH-PTR-08	1.50-1.60	Y	All (NSD)

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

[illegible]

SYMBOLS: NP: Non Plastic

* : Liquid Limit and Plastic Limit Wet Sieved.


PSL
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4043

Cambridge	Contract No:
	PSL21/5950
	Client Ref:
	784-B025563

SUMMARY OF CHALK TESTS

(BS1377: PART 2 & 4: 1990)

[illegible]

* CCV testing is not UKAS accredited


PSL
Professional Soils Laboratory
4043

Cambridge	Contract No:
	PSL21/5950
	Client Ref:
	784-B025563

SUMMARY OF ROCK TESTS

[illegible]

	<p style="text-align: center;">Cambridge</p>	Contract No:
		PSL21/5950
		Client Ref:
		784-B025563

F POINT LOAD TEST

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

A = Axial, D = Diametral, I = Irregular

	Contract No:
	PSL21/5950
	Client Ref:
	784-B025563

ISRM Suggested Methods : 2007

PSL030 Issue 2

Hole Number:	BH-PTR-09	Top Depth (m):	2.00
Sample Number:	1	Base Depth (m):	2.45
Sample Type:	UT	Sample Date:	
Sample Description:	2.00-2.28m - Firm off white slightly sandy clayey SILT.		
	2.28-2.45m - Firm Light brown very sandy silty CLAY.		



	<p style="text-align: center;">Cambridge</p>	Contract No:
		PSL21/5950
		Client Ref:
		784-B025563



ANALYTICAL TEST REPORT

Contract no: 100376
Contract name: BH-PTR-09
Client reference: PSL21/5950
Clients name: Professional Soils Laboratory
Clients address: 5/7 Hexthorpe Road
Doncaster
DN4 0AR

Samples received: 14 September 2021

Analysis started: 14 September 2021

Analysis completed: 21 September 2021

Report issued: 21 September 2021

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.
All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.
Methods, procedures and performance data are available on request.
Results reported herein relate only to the material supplied to the laboratory.
This report shall not be reproduced except in full, without prior written approval.
Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key: U UKAS accredited test
M MCERTS & UKAS accredited test
\$ Test carried out by an approved subcontractor
I/S Insufficient sample to carry out test
N/S Sample not suitable for testing

Approved by: 
Rachael Burton
Customer Support Squad Leader

Chemtech Environmental Limited

SOILS

Lab number			100376-1	100376-2	100376-3	100376-4	100376-5
Sample id			BH-PTR-09	BH-PTR-09	BH-PTR-09	BH-PTR-09	BH-PTR-09
Depth (m)			0.50	1.00	6.30-6.40	9.80-9.90	14.90-15.00
Date sampled			-	23/08/2021	24/08/2021	24/08/2021	24/08/2021
Test	Method	Units					
pH	CE004 ^U	units	-	8.5	8.7	8.8	8.4
Magnesium (2:1 water soluble)	CE061	mg/l Mg	-	1.5	1.2	1.9	6.0
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	-	4.9	4.5	2.7	3.5
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	-	1.0	3.8	1.6	<1
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	-	35	33	50	190
Sulphate (total)	CE062	mg/kg SO ₄	-	337	469	448	1023
Sulphur (total)	CE119	mg/kg S	-	187	210	233	1000
Sulphur (total)	CE119	% w/w S	-	0.02	0.02	0.02	0.10
Total Organic Carbon (TOC)	CE197	% w/w C	0.3	-	-	-	-
Estimate of OMC (calculated from TOC)	CE197	% w/w	0.5	-	-	-	-

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S
CE197	Total Organic Carbon (TOC)	Carbon Analyser	Dry		0.1	% w/w C
CE197	Estimate of OMC (calculated from TOC)	Calculation from Total Organic Carbon	Dry		0.1	% w/w

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key
N No (not deviating sample)
Y Yes (deviating sample)
NSD Sampling date not provided
NST Sampling time not provided (waters only)
EHT Sample exceeded holding time(s)
IC Sample not received in appropriate containers
HP Headspace present in sample container
NCF Sample not chemically fixed (where appropriate)
OR Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
100376-1	BH-PTR-09	0.50	Y	All (NSD)
100376-2	BH-PTR-09	1.00	Y	All (EHT)
100376-3	BH-PTR-09	6.30-6.40	Y	All (EHT)
100376-4	BH-PTR-09	9.80-9.90	Y	All (EHT)
100376-5	BH-PTR-09	14.90-15.00	Y	All (EHT)

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

[illegible]

SYMBOLS: NP: Non Plastic

* : Liquid Limit and Plastic Limit Wet Sieved.


PSL
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Contract No:

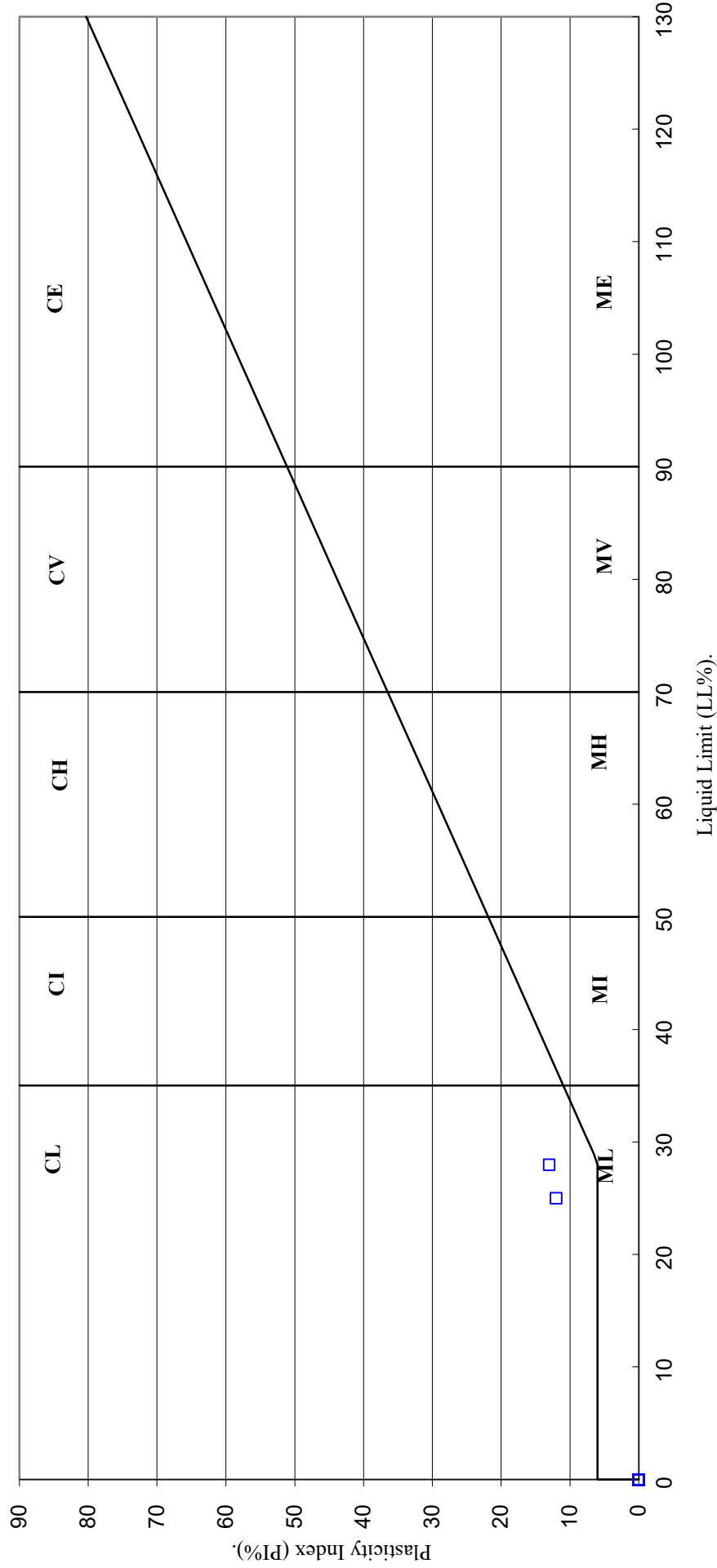
PSL21/5951

Client Ref:

784-B025563

Cambridge

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.




PSL
Professional Soils Laboratory
4043

Contract No:

PSL21/5951

Client Ref:

784-B025563

Cambridge

SUMMARY OF CHALK TESTS

(BS1377: PART 2 & 4: 1990)

[illegible]

* CCV testing is not UKAS accredited

 <p>PSL Professional Soils Laboratory</p>	<p>Cambridge</p>	<p>Contract No:</p>
		<p>PSL21/5951</p>
		<p>Client Ref:</p>
		<p>784-B025563</p>

SUMMARY OF ROCK TESTS

(ISRM Suggested Method for the Determination of the Water Content of Rock)

[illegible]

	Contract No:
	PSL21/5951
	Client Ref:
	784-B025563



Chemtech Environmental Limited

SOILS

ANALYTICAL TEST REPORT

Contract no: 100398

Contract name: BH-PTR-10

Client reference: PSL21/5951

Clients name: Professional Soils Laboratory

Clients address: 5/7 Hexthorpe Road
Doncaster
DN4 0AR

Samples received: 14 September 2021

Analysis started: 14 September 2021

Analysis completed: 21 September 2021

Report issued: 21 September 2021

Notes:

Opinions and interpretations expressed herein are outside the UKAS accreditation scope.

Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.

All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.

Methods, procedures and performance data are available on request.

Results reported herein relate only to the material supplied to the laboratory.

This report shall not be reproduced except in full, without prior written approval.

Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key:

U UKAS accredited test

M MCERTS & UKAS accredited test

\$ Test carried out by an approved subcontractor

I/S Insufficient sample to carry out test

N/S Sample not suitable for testing

Approved by: 
Rachael Burton
Customer Support Squad Leader

Lab number			100398-1
Sample id			BH-PTR-10
Depth (m)			1.50-1.60
Date sampled			29/03/2021
Test	Method	Units	
pH	CE004 ^U	units	8.8
Magnesium (2:1 water soluble)	CE061	mg/l Mg	1.5
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	4.1
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	13
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	51
Sulphate (total)	CE062	mg/kg SO ₄	531
Sulphur (total)	CE119	mg/kg S	388
Sulphur (total)	CE119	% w/w S	0.04

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

- Key**
N No (not deviating sample)
Y Yes (deviating sample)
NSD Sampling date not provided
NST Sampling time not provided (waters only)
EHT Sample exceeded holding time(s)
IC Sample not received in appropriate containers
HP Headspace present in sample container
NCF Sample not chemically fixed (where appropriate)
OR Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
100398-1	BH-PTR-10	1.50-1.60	Y	All (EHT)

 PSL Professional Soils Laboratory	Contract No:
	PSL21/5979
	Client Ref:
	794 P025523

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

[illegible]

SYMBOLS: NP : Non Plastic

* : Liquid Limit and Plastic Limit Wet Sieved.


PSL
Professional Soils Laboratory
4043

Cambridge

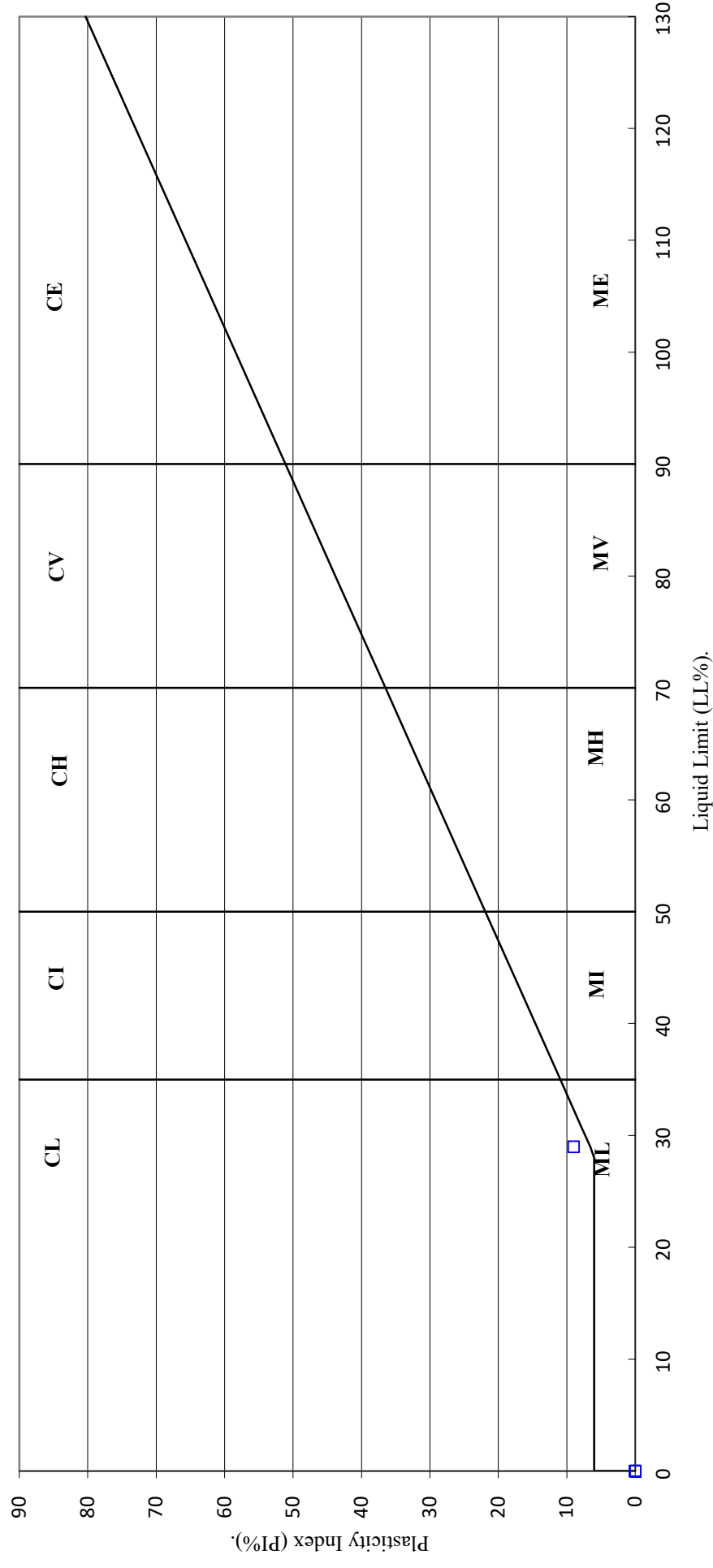
Contract No:

PSL21/5979

Client Ref:

784-B025563

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.




PSL
Professional Soils Laboratory
4043

Cambridge

Contract No:

PSL21/5979

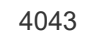
Client Ref:

ISRM Suggested Methods : 2007

A = Axial, D = Diametral, I = Irregular

Par = parallel, Perp = perpendicular, U = Random

***Note** All testing carried out on samples at as received water content



Report Date: 22 September 2021

Client's Reference: 784-B025563

For the attention of: Richard Tonge

Contract Title: Cambridge

Date Received: 26/7/2021
Date Commenced: 26/7/2021
Date Completed: 22/9/2021

Notes: **Opinions and Interpretations are outside the UKAS Accreditation**

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

A Watkins
(Director)

L Knight
(Assistant Laboratory Manager)

**5 – 7 Hexthorpe Road, Hexthorpe,
Doncaster DN4 0AR**
tel: +44 (0)844 815 6641
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R Berriman
(Quality Manager)

S Eyre
(Senior Technician)

S Royle
(Laboratory Manager)

T Watkins
(Senior Technician)

SUMMARY OF ROCK TESTS

[illegible]

	<p style="text-align: center;">Cambridge</p>	Contract No:
		PSL21/5952
		Client Ref:
		784-B025563

POINT LOAD TESTS

[illegible]

***Note** All testing carried out on samples as received water content

A = Axial, D = Diametral, I = Irregular

	Contract No:
	PSL21/5952
	Client Ref:
	784-B025563



Chemtech Environmental Limited

SOILS

ANALYTICAL TEST REPORT

Contract no: 100404

Contract name: BH-PTR-12

Client reference: PSL21/5952

Clients name: Professional Soils Laboratory

Clients address: 5/7 Hexthorpe Road
Doncaster
DN4 0AR

Samples received: 14 September 2021

Analysis started: 14 September 2021

Analysis completed: 21 September 2021

Report issued: 21 September 2021

Notes:

Opinions and interpretations expressed herein are outside the UKAS accreditation scope.

Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.

All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.

Methods, procedures and performance data are available on request.

Results reported herein relate only to the material supplied to the laboratory.

This report shall not be reproduced except in full, without prior written approval.

Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key:

U UKAS accredited test

M MCERTS & UKAS accredited test

\$ Test carried out by an approved subcontractor

I/S Insufficient sample to carry out test

N/S Sample not suitable for testing

Approved by: 
Rachael Burton
Customer Support Squad Leader

Lab number			100403-1
Sample id			BH-PTR-12
Depth (m)			10.80-10.90
Date sampled			-
Test	Method	Units	
pH	CE004 ^U	units	9.0
Magnesium (2:1 water soluble)	CE061	mg/l Mg	1.9
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	14
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	3.1
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	19
Sulphate (total)	CE062	mg/kg SO ₄	469
Sulphur (total)	CE119	mg/kg S	225
Sulphur (total)	CE119	% w/w S	0.02

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

- Key**
N No (not deviating sample)
Y Yes (deviating sample)
NSD Sampling date not provided
NST Sampling time not provided (waters only)
EHT Sample exceeded holding time(s)
IC Sample not received in appropriate containers
HP Headspace present in sample container
NCF Sample not chemically fixed (where appropriate)
OR Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
100403-1	BH-PTR-12	10.80-10.90	Y	All (NSD)

	Contract No:
	PSL21/5953
	Client Ref:
	Cambridge

SUMMARY OF ROCK TESTS

[illegible]

	Contract No:
	PSL21/5953
	Client Ref:
	784-B025563

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular

	Contract No:
	PSL21/5953
	Client Ref:
	784-B025563

ISRM Suggested Methods : 2007

PSL030 Issue 2

ANALYTICAL TEST REPORT

Samples received: 14 September 2021

Analysis started: 14 September 2021

Analysis completed: 21 September 2021

Report issued: 21 September 2021

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.
All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.
Methods, procedures and performance data are available on request.
Results reported herein relate only to the material supplied to the laboratory.
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Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key:

- U UKAS accredited test
- M MCERTS & UKAS accredited test
- \$ Test carried out by an approved subcontractor
- I/S Insufficient sample to carry out test
- N/S Sample not suitable for testing

Approved by: 
Rachael Burton
Customer Support Squad Leader

Unit 6 Parkhead, Greencroft Industrial Park, Stanley, County Durham, DH9 7YB
Tel 01207 528578 Email customerservices@chemtech-env.co.uk
Vat Reg No. 772 5703 18 Registered in England number 4284013

Chemtech Environmental Limited

SOILS

Lab number			100355-1
Sample id			BH-PTR-14
Depth (m)			7.30-7.40
Date sampled			-
Test	Method	Units	
pH	CE004 ^U	units	9.0
Magnesium (2:1 water soluble)	CE061	mg/l Mg	2.4
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	6.2
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	8.6
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	31
Sulphate (total)	CE062	mg/kg SO ₄	447
Sulphur (total)	CE119	mg/kg S	176
Sulphur (total)	CE119	% w/w S	0.02

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S

Chemtech Environmental Limited

DEVIATING SAMPLE INFORMATION

Comments

Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.

For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.

Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key	
N	No (not deviating sample)
Y	Yes (deviating sample)
NSD	Sampling date not provided
NST	Sampling time not provided (waters only)
EHT	Sample exceeded holding time(s)
IC	Sample not received in appropriate containers
HP	Headspace present in sample container
NCF	Sample not chemically fixed (where appropriate)
OR	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
100355-1	BH-PTR-14	7.30-7.40	Y	All (NSD)



**LABORATORY
REPORT**



4043

Contract Number: PSL21/5954

Report Date: 22 September 2021

Client's Reference: 784-B025563

Client Name: Tetra Tech
11th Floor
1 Angel Court
London
EC2R 7HJ

For the attention of: Richard Tonge

Contract Title: Cambridge

Date Received: 26/7/2021
Date Commenced: 26/7/2021
Date Completed: 22/9/2021

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

A Watkins (Director)	R Berriman (Quality Manager)	S Royle (Laboratory Manager)
L Knight (Assistant Laboratory Manager)	 S Eyre (Senior Technician)	T Watkins (Senior Technician)

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e-mail: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

Page 1 of

SUMMARY OF CHALK TESTS

(BS1377 : PART 2 & 4 : 1990)

[illegible]

* CCV testing is not UKAS accredited

	<p>Cambridge</p>	Contract No:
		PSL21/5954
		Client Ref:
		784-B025563

SUMMARY OF ROCK TESTS

(ISRM Suggested Method for the Determination of the Water Content of Rock)

[illegible]

	Contract No:
	PSL21/5954
	Client Ref:
	784-B025563

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular

	Contract No:
	PSL21/5954
	Client Ref:
	784-B025563

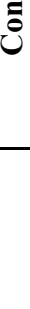
SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

	<p>Cambridge</p>	Contract No:
		PSL21/5954
		Client Ref:
		784-B025563



Chemtech Environmental Limited

SOILS

ANALYTICAL TEST REPORT

Contract no: 100399

Contract name: BH-PTR-15

Client reference: PSL21/5954

Clients name: Professional Soils Laboratory

Clients address: 5/7 Hexthorpe Road
Doncaster
DN4 0AR

Samples received: 14 September 2021

Analysis started: 14 September 2021

Analysis completed: 21 September 2021

Report issued: 21 September 2021

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.
All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.
Methods, procedures and performance data are available on request.
Results reported herein relate only to the material supplied to the laboratory.
This report shall not be reproduced except in full, without prior written approval.
Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key: U UKAS accredited test
M MCERTS & UKAS accredited test
\$ Test carried out by an approved subcontractor
I/S Insufficient sample to carry out test
N/S Sample not suitable for testing

Approved by: 
Rachael Burton
Customer Support Squad Leader

Lab number			100399-1	100399-2	100399-3
Sample id			BH-PTR-15	BH-PTR-15	BH-PTR-15
Depth (m)			3.20-3.30	5.80-5.90	9.20-9.30
Date sampled			31/03/2021	31/03/2021	31/03/2021
Test	Method	Units			
pH	CE004 ^U	units	9.0	9.0	9.0
Magnesium (2:1 water soluble)	CE061	mg/l Mg	1.7	1.1	<1
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	8.2	10	4.0
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	25	20	14
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	22	18	29
Sulphate (total)	CE062	mg/kg SO ₄	480	582	459
Sulphur (total)	CE119	mg/kg S	175	210	149
Sulphur (total)	CE119	% w/w S	0.02	0.02	0.01

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

- Key**
N No (not deviating sample)
Y Yes (deviating sample)
NSD Sampling date not provided
NST Sampling time not provided (waters only)
EHT Sample exceeded holding time(s)
IC Sample not received in appropriate containers
HP Headspace present in sample container
NCF Sample not chemically fixed (where appropriate)
OR Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
100399-1	BH-PTR-15	3.20-3.30	Y	All (EHT)
100399-2	BH-PTR-15	5.80-5.90	Y	All (EHT)
100399-3	BH-PTR-15	9.20-9.30	Y	All (EHT)

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

[illegible]

SYMBOLS: NP : Non Plastic

* : Liquid Limit and Plastic Limit Wet Sieved.


PSL
Professional Soils Laboratory
4043

Cambridge

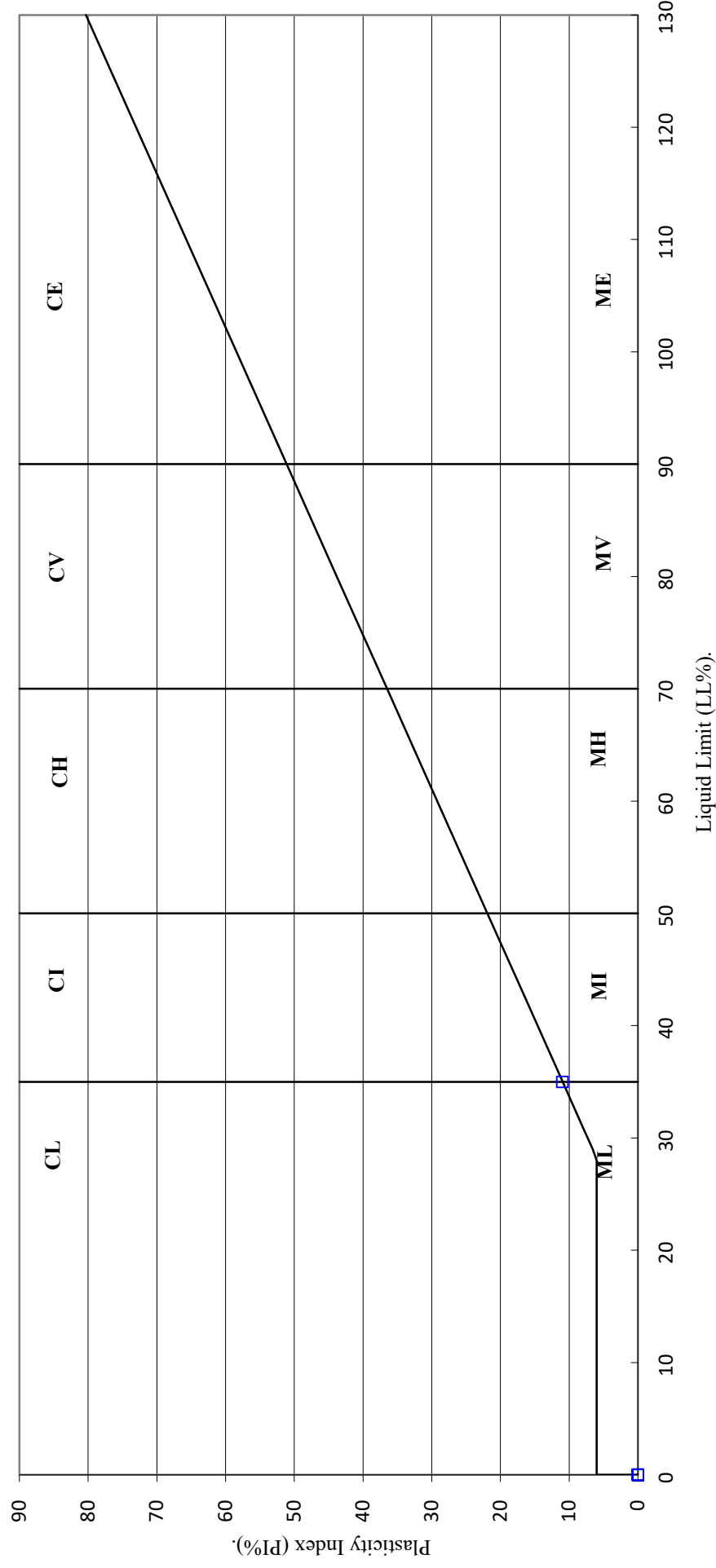
Contract No:

PSL21/5955

Client Ref:

784-B025563

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.




PSL
Professional Soils Laboratory
4043

Cambridge

Contract No:

PSL21/5955

Client Ref:

ISRM Suggested Methods : 2007

A = Axial, D = Diametral, I = Irregular

Par = parallel, Perp = perpendicular, U = Random

***Note** All testing carried out on samples at as received water content

PST
Professional Soils Laboratory



Contract no:	100597
Contract name:	BH-PTR-16
Client reference:	PSL21/5955
Clients name:	Professional Soils Laboratory
Clients address:	5/7 Hexthorpe Road Doncaster DN4 0AR
Samples received:	20 September 2021
Analysis started:	20 September 2021
Analysis completed:	27 September 2021
Report issued:	27 September 2021

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.
All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.
Methods, procedures and performance data are available on request.
Results reported herein relate only to the material supplied to the laboratory.
This report shall not be reproduced except in full, without prior written approval.
Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key:

- U UKAS accredited test
- M MCERTS & UKAS accredited test
- \$ Test carried out by an approved subcontractor
- I/S Insufficient sample to carry out test
- N/S Sample not suitable for testing

Approved by: 
Rachael Burton
Customer Support Squad Leader

Unit 6 Parkhead, Greencroft Industrial Park, Stanley, County Durham, DH9 7YB
Tel 01207 528578 Email customerservices@chemtech-env.co.uk
Vat Reg No. 772 5703 18 Registered in England number 4284013

Chemtech Environmental Limited

SOILS

Lab number			100597-1	100597-2
Sample id			BH-PTR-16	BH-PTR-16
Depth (m)			2.60-2.70	8.10-9.00
Date sampled			-	-
Test	Method	Units		
pH	CE004 ^U	units	8.8	8.8
Magnesium (2:1 water soluble)	CE061	mg/l Mg	2.2	1.5
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	6.2	3.8
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	19	2.5
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	23	52
Sulphate (total)	CE062	mg/kg SO ₄	408	458
Sulphur (total)	CE119	mg/kg S	184	206
Sulphur (total)	CE119	% w/w S	0.02	0.02

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S

Chemtech Environmental Limited

DEVIATING SAMPLE INFORMATION

Comments

Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.

For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.

Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key	
N	No (not deviating sample)
Y	Yes (deviating sample)
NSD	Sampling date not provided
NST	Sampling time not provided (waters only)
EHT	Sample exceeded holding time(s)
IC	Sample not received in appropriate containers
HP	Headspace present in sample container
NCF	Sample not chemically fixed (where appropriate)
OR	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
100597-1	BH-PTR-16	2.60-2.70	Y	All (NSD)
100597-2	BH-PTR-16	8.10-9.00	Y	All (NSD)



**LABORATORY
REPORT**



4043

Contract Number: PSL21/5956

Report Date: 22 September 2021

Client’s Reference: 784-B025563

Client Name: Tetra Tech
11th Floor
1 Angel Court
London
EC2R 7HJ

For the attention of: Richard Tonge

Contract Title: Cambridge

Date Received: 26/7/2021
Date Commenced: 26/7/2021
Date Completed: 22/9/2021

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

A Watkins (Director)	R Berriman (Quality Manager)	S Royle (Laboratory Manager)
L Knight (Assistant Laboratory Manager)	 S Eyre (Senior Technician)	T Watkins (Senior Technician)

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awatkins@prosoils.co.uk

Page 1 of

SUMMARY OF CHALK TESTS

(BS1377 : PART 2 & 4 : 1990)

[illegible]

* CCV testing is not UKAS accredited

	Contract No:
	PSL21/5956
	Client Ref:
	784-B025563

SUMMARY OF ROCK TESTS

(ISRM Suggested Method for the Determination of the Water Content of Rock)

[illegible]

	Contract No:
	PSL21/5956
	Client Ref:
	784-B025563

ISRM Suggested Methods : 2007

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular

 UKAS TESTING 4043	 PST Professional Soils Laboratory	Cambridge	Contract No:
			PSL21/5956
			Client Ref:
			784-B025563



ANALYTICAL TEST REPORT

Contract no:	100403
Contract name:	BH-PTR-17
Client reference:	PSL21/5956
Clients name:	Professional Soils Laboratory
Clients address:	5/7 Hexthorpe Road Doncaster DN4 0AR

Samples received: 14 September 2021

Analysis started: 14 September 2021

Analysis completed: 21 September 2021

Report issued: 21 September 2021

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
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Methods, procedures and performance data are available on request.
Results reported herein relate only to the material supplied to the laboratory.
This report shall not be reproduced except in full, without prior written approval.
Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key:

- U UKAS accredited test
- M MCERTS & UKAS accredited test
- \$ Test carried out by an approved subcontractor
- I/S Insufficient sample to carry out test
- N/S Sample not suitable for testing

Approved by: 
Rachael Burton
Customer Support Squad Leader

Unit 6 Parkhead, Greencroft Industrial Park, Stanley, County Durham, DH9 7YB
Tel 01207 528578 Email customerservices@chemtech-env.co.uk
Vat Reg No. 772 5703 18 Registered in England number 4284013

Chemtech Environmental Limited

SOILS

Lab number			100403-1
Sample id			BH-PTR-17
Depth (m)			4.40-4.50
Date sampled			-
Test	Method	Units	
pH	CE004 ^U	units	8.9
Magnesium (2:1 water soluble)	CE061	mg/l Mg	1.1
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	6.6
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	8.2
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	19
Sulphate (total)	CE062	mg/kg SO ₄	454
Sulphur (total)	CE119	mg/kg S	318
Sulphur (total)	CE119	% w/w S	0.03

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S

Chemtech Environmental Limited

DEVIATING SAMPLE INFORMATION

Comments

Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
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Key	
N	No (not deviating sample)
Y	Yes (deviating sample)
NSD	Sampling date not provided
NST	Sampling time not provided (waters only)
EHT	Sample exceeded holding time(s)
IC	Sample not received in appropriate containers
HP	Headspace present in sample container
NCF	Sample not chemically fixed (where appropriate)
OR	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
100403-1	BH-PTR-17	4.40-4.50	Y	All (NSD)



LABORATORY REPORT



4043

Contract Number: PSL21/5957

Report Date: 23 September 2021

Client's Reference: 784-B025563

Client Name: Tetra Tech
11th Floor
1 Angel Court
London
EC2R 7HJ

For the attention of: Richard Tonge

Contract Title: Cambridge

Date Received: 26/7/2021
Date Commenced: 26/7/2021
Date Completed: 23/9/2021

Notes: Opinions and Interpretations are outside the UKAS Accreditation

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Page 1 of

SUMMARY OF CHALK TESTS

(BS1377 : PART 2 & 4 : 1990)

[illegible]

* CCV testing is not UKAS accredited



UKAS
TESTING

4043

PSL

Professional Soils Laboratory

Contract No:	PSL21/5957	Client Ref:	784-B0255563
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DETERMINATION OF UNCONFINED COMPRESSIVE STRENGTH

ISRM Suggested Methods, pp 111 –116, 1981.

[illegible]

PSL
Professional Soils Laboratory

Cambridge

Contract No:	PSL21/5957	Client Ref:	784-B025563
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SUMMARY OF ROCK TESTS

[illegible]

	Contract No:
	PSL21/5957
	Client Ref:
	784-B025563

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note**
All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular


PSL
Professional Soils Laboratory

Contract No:
PSL21/5957
Client Ref:
784-B025563

Cambridge

4043

ISRM Suggested Methods : 2007

PSL030 Issue 2

ANALYTICAL TEST REPORT

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Key:

- U UKAS accredited test
- M MCERTS & UKAS accredited test
- \$ Test carried out by an approved subcontractor
- I/S Insufficient sample to carry out test
- N/S Sample not suitable for testing

Approved by: 
Rachael Burton
Customer Support Squad Leader

Unit 6 Parkhead, Greencroft Industrial Park, Stanley, County Durham, DH9 7YB
Tel 01207 528578 Email customerservices@chemtech-env.co.uk
Vat Reg No. 772 5703 18 Registered in England number 4284013

Chemtech Environmental Limited

SOILS

Lab number			100400-1	100400-2	100400-3
Sample id			BH-PTR-18	BH-PTR-18	BH-PTR-18
Depth (m)			1.80-2.00	4.30-4.40	7.70-7.80
Date sampled			01/04/2021	01/04/2021	01/04/2021
Test	Method	Units			
pH	CE004 ^U	units	9.1	9.1	9.0
Magnesium (2:1 water soluble)	CE061	mg/l Mg	1.2	1.1	1.3
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	11	11	8.2
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	9.9	6.6	5.4
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	23	26	29
Sulphate (total)	CE062	mg/kg SO ₄	418	565	487
Sulphur (total)	CE119	mg/kg S	163	232	182
Sulphur (total)	CE119	% w/w S	0.02	0.02	0.02

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S

Chemtech Environmental Limited

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
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Key	
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Y	Yes (deviating sample)
NSD	Sampling date not provided
NST	Sampling time not provided (waters only)
EHT	Sample exceeded holding time(s)
IC	Sample not received in appropriate containers
HP	Headspace present in sample container
NCF	Sample not chemically fixed (where appropriate)
OR	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
100400-1	BH-PTR-18	1.80-2.00	Y	All (EHT)
100400-2	BH-PTR-18	4.30-4.40	Y	All (EHT)
100400-3	BH-PTR-18	7.70-7.80	Y	All (EHT)



LABORATORY
REPORT



4043

Contract Number: PSL21/4433

Report Date: 04 August 2021

Client’s Reference: 784-B025563

Client Name: Tetra Tech
11th Floor
1 Angel Court
London
EC2R 7HJ

For the attention of: Richard Tonge

Contract Title: Cambridge

Date Received: 2/6/2021
Date Commenced: 2/6/2021
Date Completed: 4/8/2021

Notes: Opinions and Interpretations are outside the UKAS Accreditation

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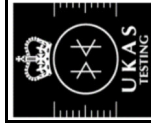
Checked and Approved Signatories:

A Watkins (Director)	R Berriman (Quality Manager)	S Royle (Laboratory Manager)
L Knight (Assistant Laboratory Manager)	 S Eyre (Senior Technician)	T Watkins (Senior Technician)

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awatkins@prosoils.co.uk

Page 1 of

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]

4043



Cambridge

Contract No:

PSL21/4433

Client Ref:

784-B025563

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

[illegible]

SYMBOLS: NP: Non Plastic

*** : Liquid Limit and Plastic Limit Wet Sieved.**



4043



Cambridge

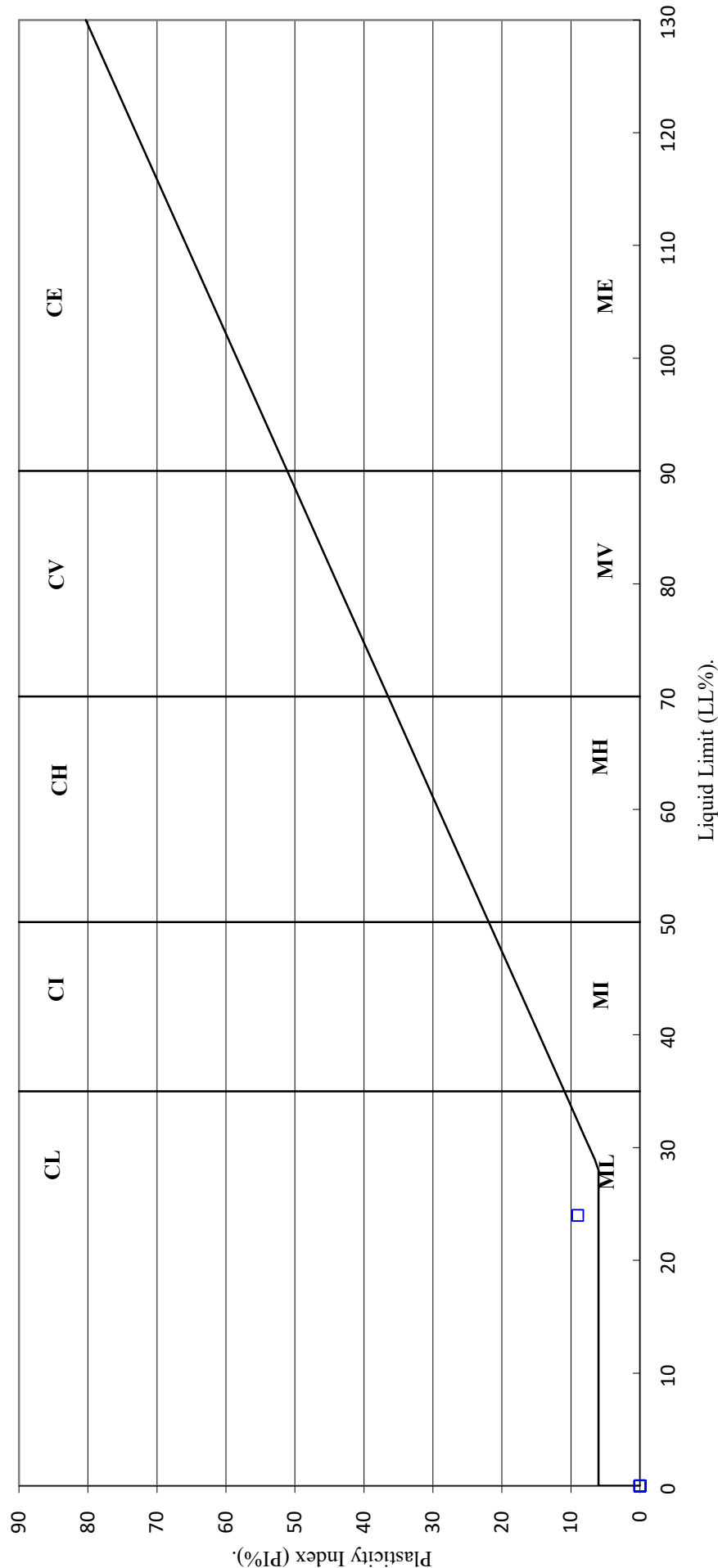
Contract No:

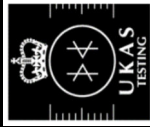
PSL21/4433

Client Ref

784-B025563

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



**4043**

PSL
Professional Soils Laboratory

Cambridge

Contract No:
PSL21/4433
Client Ref:
784-B025563

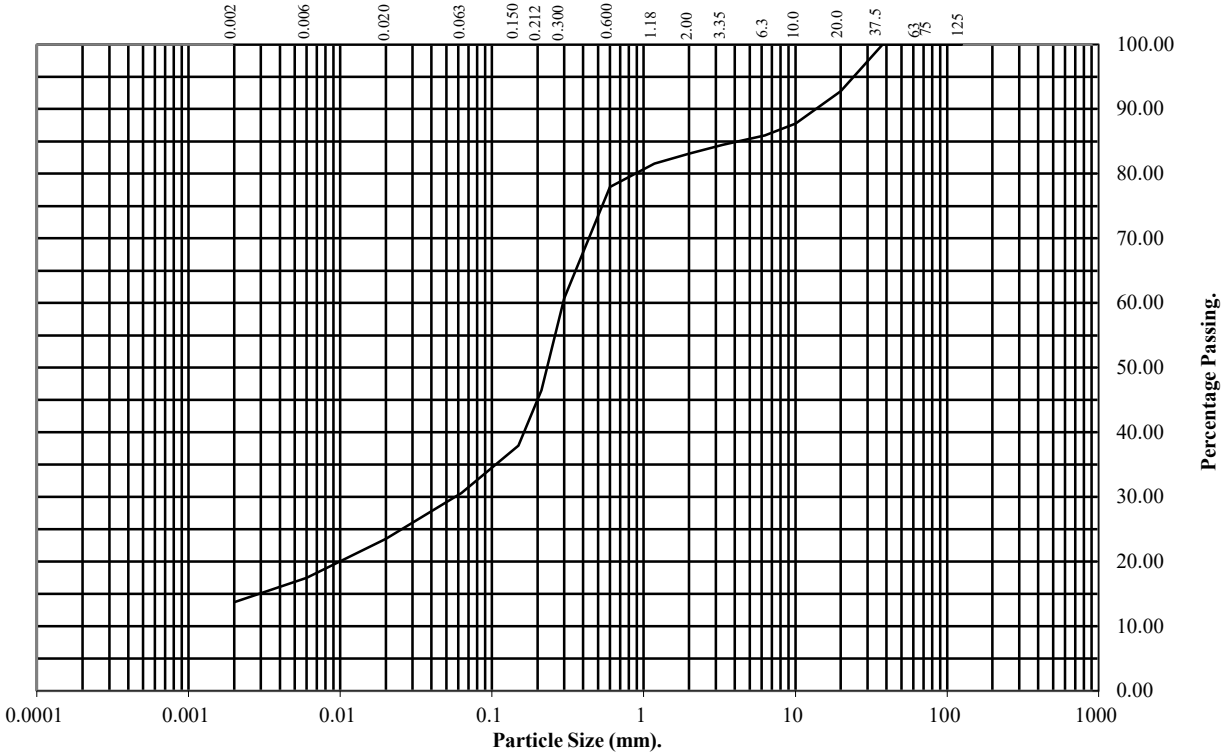
PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: BH-PTR-19 Top Depth (m): 1.00

Sample Number: 1 Base Depth(m):

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	93
10	88
6.3	86
3.35	84
2	83
1.18	82
0.6	78
0.3	61
0.212	46
0.15	38
0.063	31

Particle Diameter	Percentage Passing
0.02	23
0.006	17
0.002	14

Soil Fraction	Total Percentage
Cobbles	0
Gravel	17
Sand	52
Silt	17
Clay	14

Remarks:
See Summary of Soil Descriptions

**4043**

PSL
Professional Soils Laboratory

Cambridge

Contract No:
PSL21/4433
Client Ref:
784-B025563

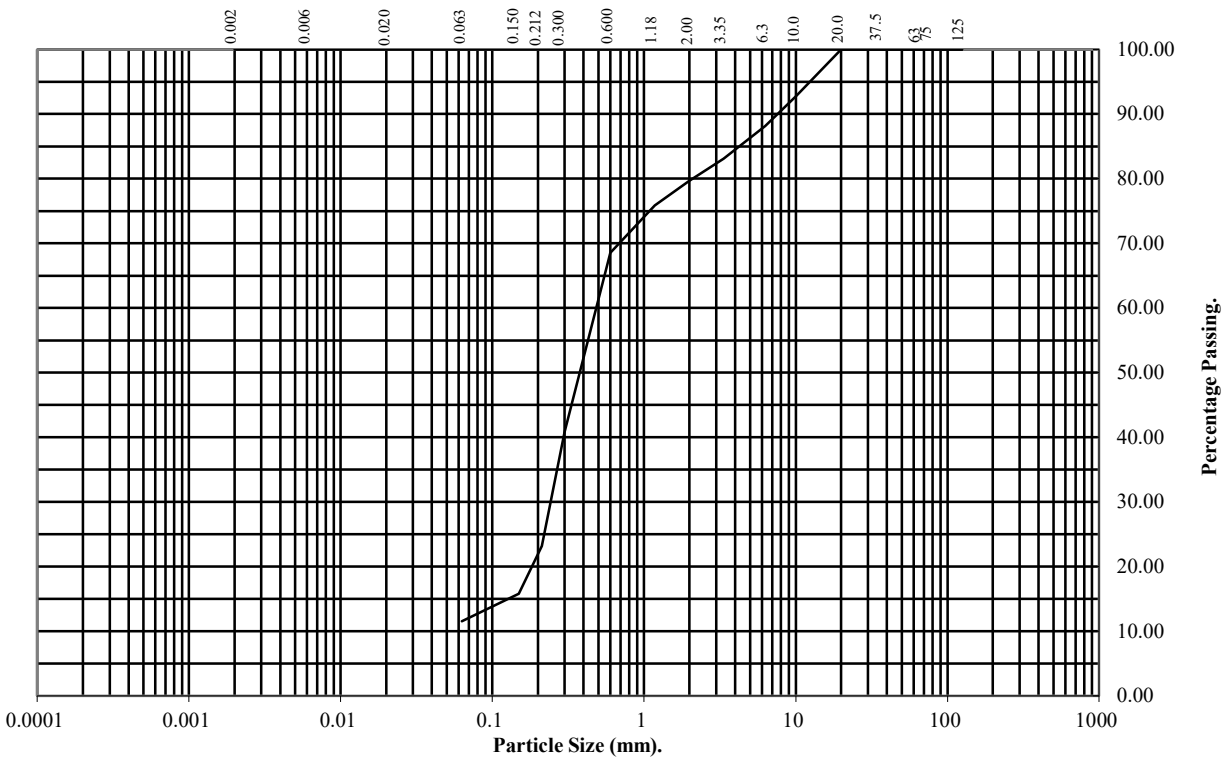
PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990
Wet Sieve, Clause 9.2

Hole Number: BH-PTR-19 Top Depth (m): 4.00

Sample Number: 10 Base Depth(m): 4.45

Sample Type: D



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	93
6.3	88
3.35	83
2	80
1.18	76
0.6	69
0.3	41
0.212	23
0.15	16
0.063	12

Soil Fraction	Total Percentage
Cobbles	0
Gravel	20
Sand	68
Silt/Clay	12

Remarks:
See Summary of Soil Descriptions

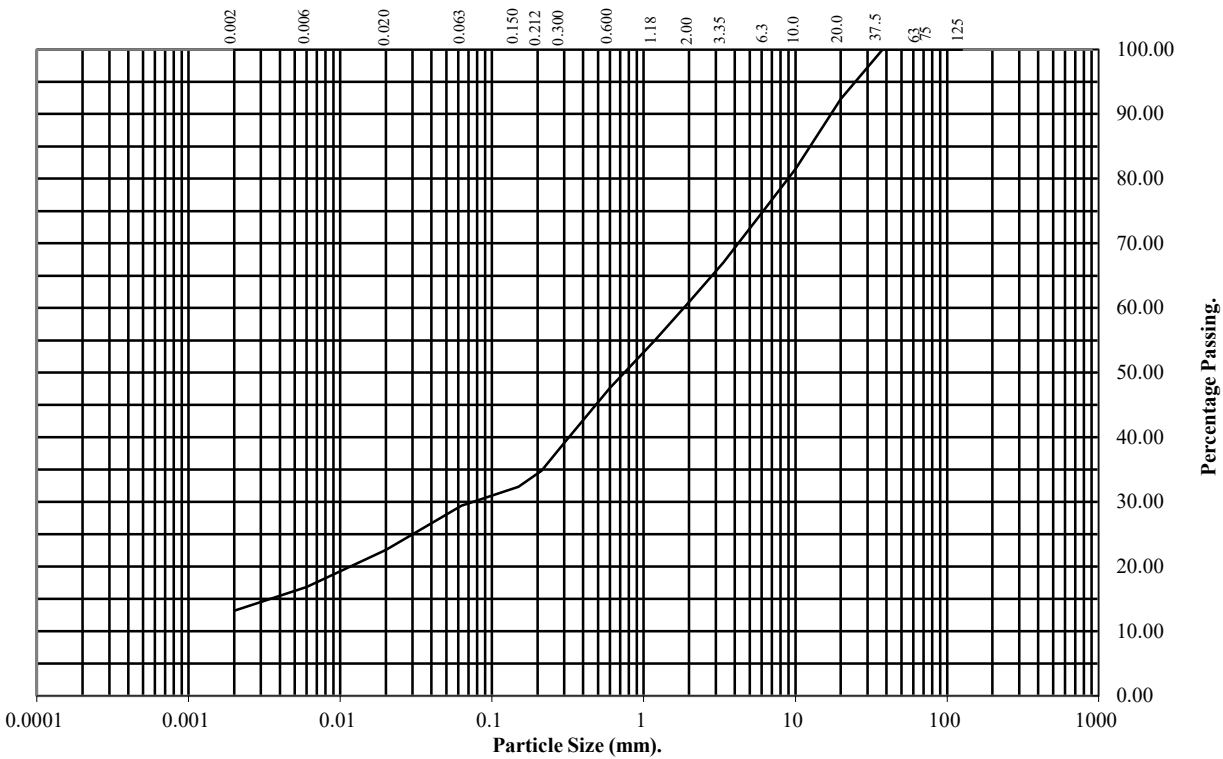
PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: BH-PTR-19 Top Depth (m): 4.90

Sample Number: 12 Base Depth(m): 5.00

Sample Type: D



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	92
10	82
6.3	75
3.35	67
2	61
1.18	55
0.6	48
0.3	39
0.212	35
0.15	32
0.063	29

Particle Diameter	Percentage Passing
0.02	23
0.006	17
0.002	13

Soil Fraction	Total Percentage
Cobbles	0
Gravel	39
Sand	32
Silt	16
Clay	13

Remarks:
See Summary of Soil Descriptions

Sample Description & Split Describe

Hole Number: BH-PTR-19 Top Depth (m): 1.20

Sample Number: Base Depth (m): 1.65

Sample Type: UT Sample Date:

Sample Description: Soft to firm brown gravelly very sandy CLAY. Sand is FMC, Gravel is FMC angular.



Cambridge

Contract No:
PSL21/4433
Client Ref:
784-B025563



ANALYTICAL TEST REPORT

Contract no: 97396

Contract name: 784-B025563 Cambridge

Client reference: PSL21/4433

Clients name: Professional Soils Laboratory

Clients address: 5/7 Hexthorpe Road
Doncaster
DN4 0AR

Samples received: 16 June 2021

Analysis started: 16 June 2021

Analysis completed: 23 June 2021

Report issued: 23 June 2021

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope. Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling. All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing. Methods, procedures and performance data are available on request. Results reported herein relate only to the material supplied to the laboratory. This report shall not be reproduced except in full, without prior written approval. Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key: U UKAS accredited test
M MCERTS & UKAS accredited test
\$ Test carried out by an approved subcontractor
I/S Insufficient sample to carry out test
N/S Sample not suitable for testing

Approved by: 
Rachael Burton
Customer Support Squad Leader

Chemtech Environmental Limited

SOILS

Lab number			97396-1
Sample id			BH-PTR-19
Depth (m)			3.00-3.45
Date sampled			-
Test	Method	Units	
pH	CE004 ^U	units	8.7
Magnesium (2:1 water soluble)	CE061	mg/l Mg	1.6
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	9.4
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	<1
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	40
Sulphate (total)	CE062	mg/kg SO ₄	703
Sulphur (total)	CE119	mg/kg S	1354
Sulphur (total)	CE119	% w/w S	0.14

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S

Chemtech Environmental Limited

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key	
N	No (not deviating sample)
Y	Yes (deviating sample)
NSD	Sampling date not provided
NST	Sampling time not provided (waters only)
EHT	Sample exceeded holding time(s)
IC	Sample not received in appropriate containers
HP	Headspace present in sample container
NCF	Sample not chemically fixed (where appropriate)
OR	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
97396-1	BH-PTR-19	3.00-3.45	Y	All (NSD)



LABORATORY
REPORT



4043

Contract Number: PSL21/4052

Report Date: 07 July 2021

Client’s Reference: 784-B025563

Client Name: Tetra Tech
11th Floor
1 Angel Court
London
EC2R 7HJ

For the attention of: Richard Tonge

Contract Title: Cambridge

Date Received: 18/5/2021
Date Commenced: 18/5/2021
Date Completed: 7/7/2021

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

A Watkins (Director)	R Berriman (Quality Manager)	S Royle (Laboratory Manager)
L Knight (Assistant Laboratory Manager)	 S Eyre (Senior Technician)	T Watkins (Senior Technician)

5 – 7 Hexthorpe Road, Hexthorpe,
Doncaster DN4 0AR
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fax: +44 (0)844 815 6642
e-mail: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

Page 1 of

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]

 4043



Cambridge

Contract No:
PSL21/4052

Client Ref:
784-B025563

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

[illegible]

SYMBOLS: NP : Non Plastic

* : Liquid Limit and Plastic Limit Wet Sieved.

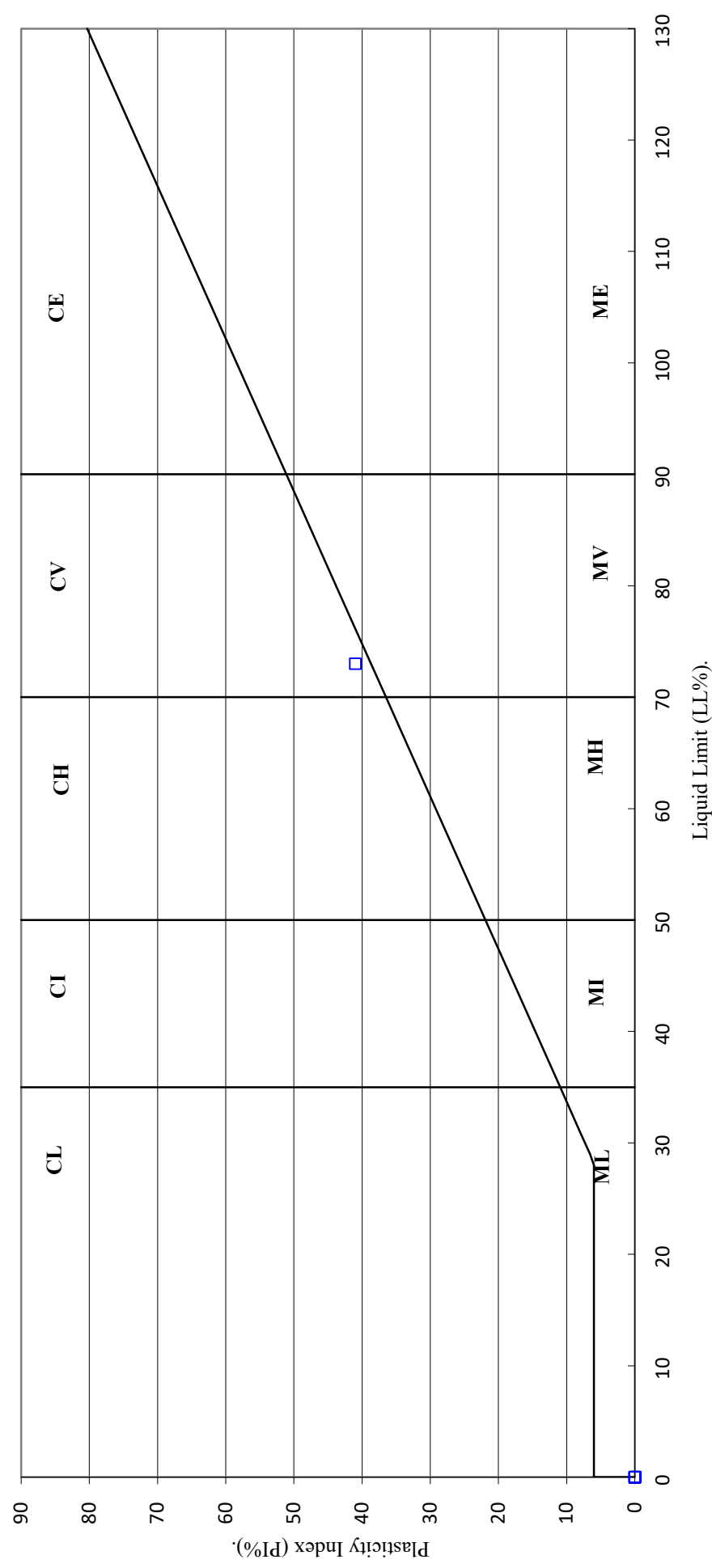


Cambridge

Contract No:
PSL21/4052

Client Ref:
784-B0255563

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



 PSL Professional Soils Laboratory	Contract No:
	PSL 21/4052
	Client Ref:
	784-B025563

SUMMARY OF CHALK TESTS

(BS1377 : PART 2 & 4 : 1990)

[illegible]

* CCV testing is not UKAS accredited

	Contract No:
	PSL21/4052
	Client Ref:
	784-B025563

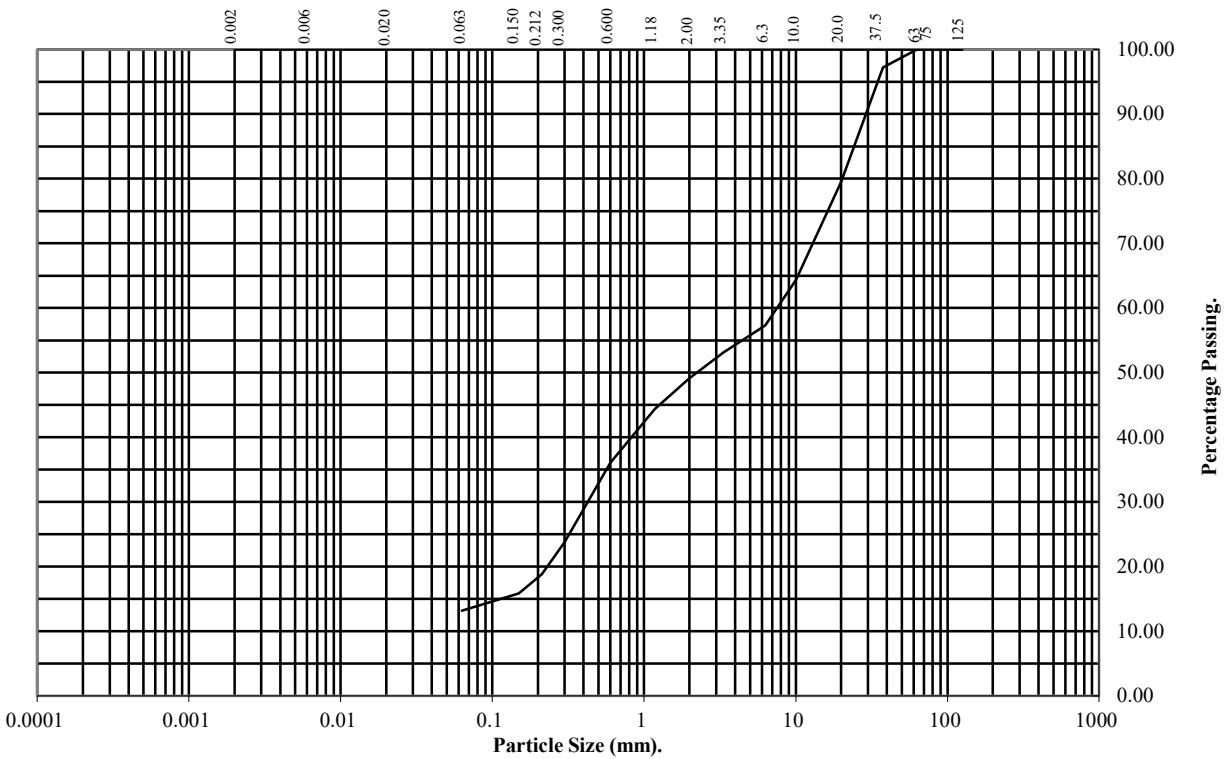
PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990
Wet Sieve, Clause 9.2

Hole Number: BH-PTR-20 Top Depth (m): 1.00

Sample Number: 3 Base Depth(m):

Sample Type: B



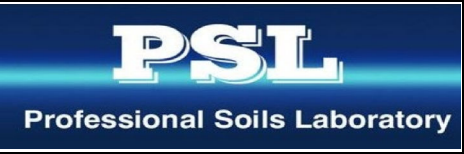
BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	97
20	79
10	64
6.3	57
3.35	53
2	49
1.18	44
0.6	36
0.3	24
0.212	19
0.15	16
0.063	13

Soil Fraction	Total Percentage
Cobbles	0
Gravel	51
Sand	36
Silt/Clay	13

Remarks:
See Summary of Soil Descriptions



4043



Professional Soils Laboratory

Cambridge

Contract No:
PSL21/4052
Client Ref:
784-B025563

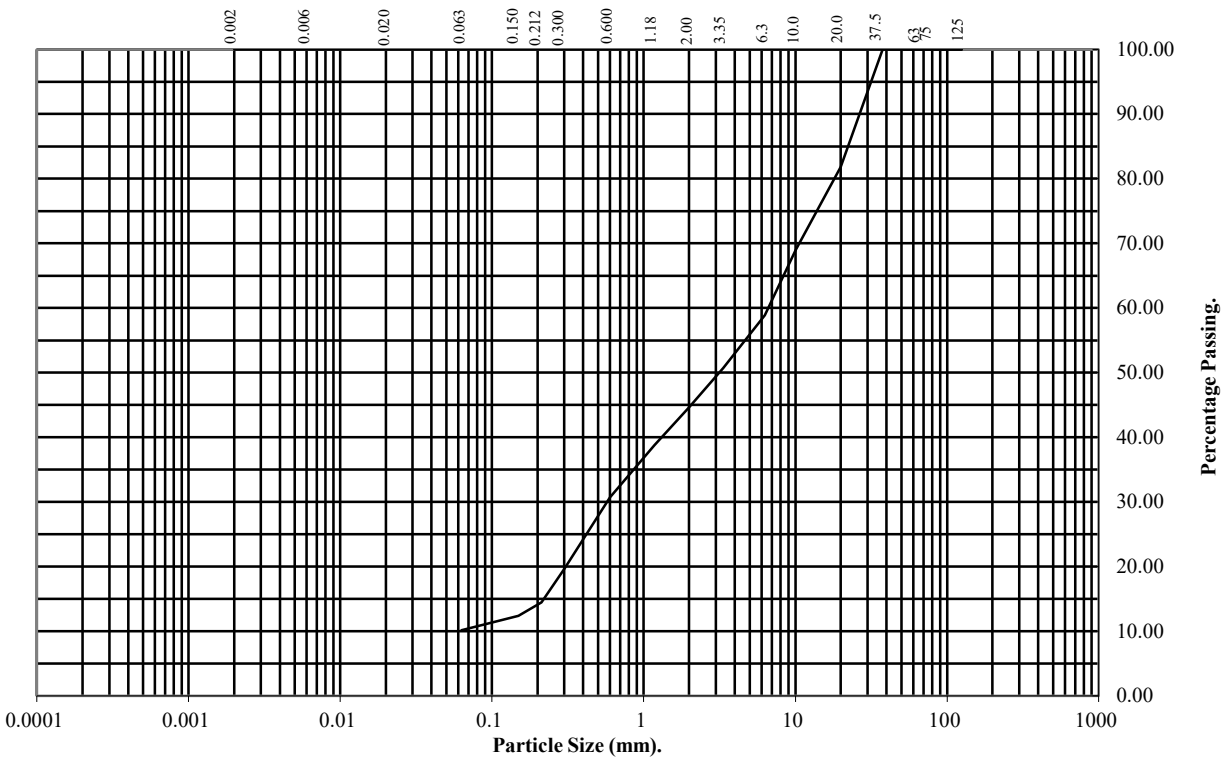
PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990
Wet Sieve, Clause 9.2

Hole Number: BH-PTR-20 Top Depth (m): 2.40

Sample Number: 4 Base Depth(m): 2.85

Sample Type: D



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	82
10	69
6.3	59
3.35	51
2	45
1.18	39
0.6	31
0.3	20
0.212	14
0.15	12
0.063	10

Soil Fraction	Total Percentage
Cobbles	0
Gravel	55
Sand	35
Silt/Clay	10

Remarks:
See Summary of Soil Descriptions



4043



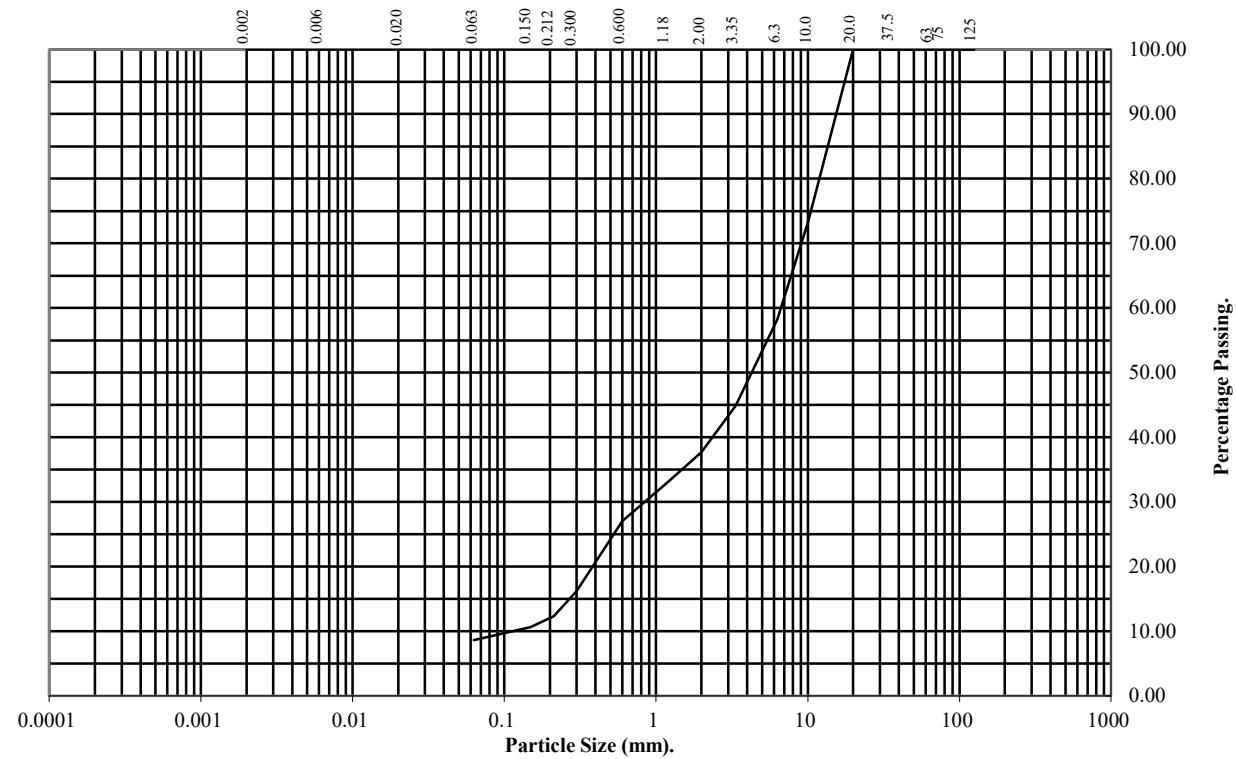
Professional Soils Laboratory

Cambridge

Contract No:
PSL21/4052
Client Ref:
784-B025563

BS1377 : Part 2 : 1990
Wet Sieve, Clause 9.2

Hole Number:	BH-PTR-20	Top Depth (m):	3.00
Sample Number:	6	Base Depth(m):	3.45
Sample Type:	D		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	73
6.3	58
3.35	45
2	38
1.18	33
0.6	27
0.3	16
0.212	12
0.15	11
0.063	9

Soil Fraction	Total Percentage
Cobbles	0
Gravel	62
Sand	29
Silt/Clay	9

Remarks:
See Summary of Soil Descriptions



Cambridge

Contract No:
PSL21/4052
Client Ref:
784-B025563

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular


PSL
Professional Soils Laboratory
4043

Cambridge

Contract No:	PSL21/4052
Client Ref:	784-B025563

Chemtech Environmental Limited

SOILS

Lab number			97398-1
Sample id			BH-PTR-20
Depth (m)			1.20-1.65
Date sampled			-
Test	Method	Units	
Total Organic Carbon (TOC)	CE197	% w/w C	2.6
Estimate of OMC (calculated from TOC)	CE197	% w/w	4.5

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE197	Total Organic Carbon (TOC)	Carbon Analyser	Dry		0.1	% w/w C
CE197	Estimate of OMC (calculated from TOC)	Calculation from Total Organic Carbon	Dry		0.1	% w/w

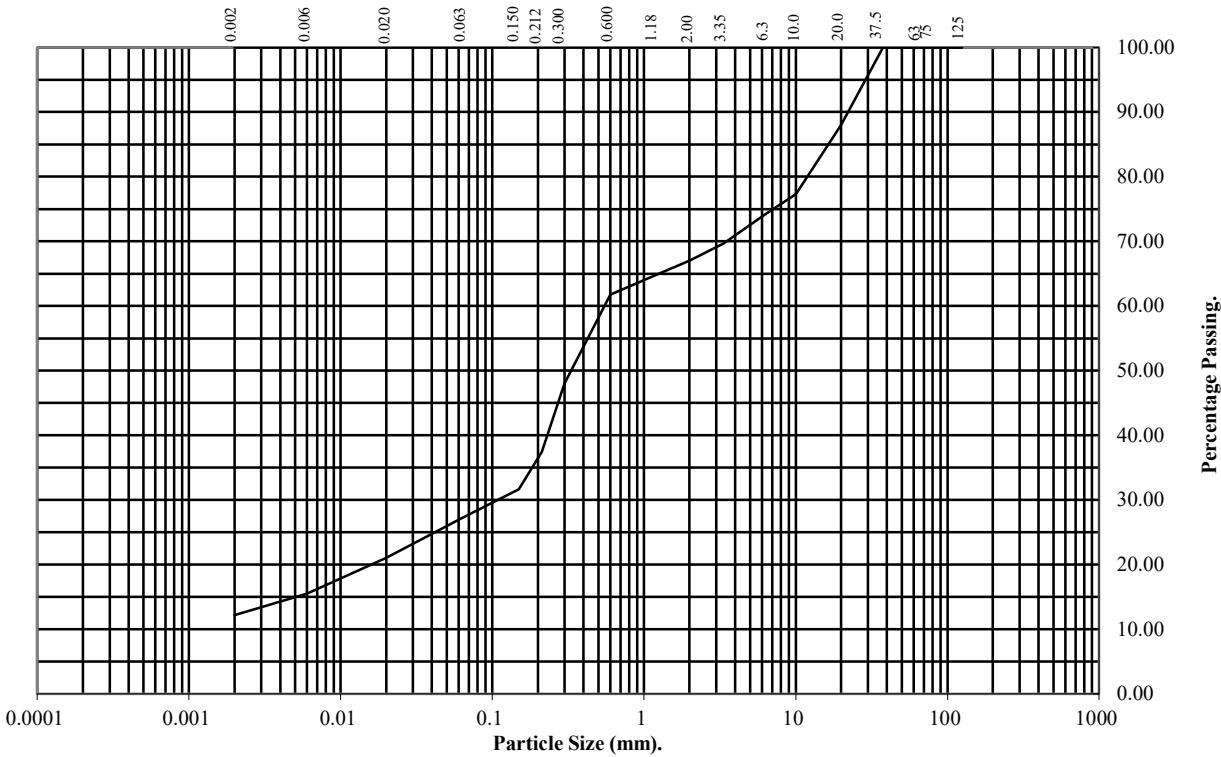
PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: BH-PTR-21 Top Depth (m): 0.70

Sample Number: 2 Base Depth(m):

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	88
10	77
6.3	74
3.35	70
2	67
1.18	65
0.6	62
0.3	48
0.212	37
0.15	32
0.063	27

Particle Diameter	Percentage Passing
0.02	21
0.006	16
0.002	12

Soil Fraction	Total Percentage
Cobbles	0
Gravel	33
Sand	40
Silt	15
Clay	12

Remarks:
See Summary of Soil Descriptions

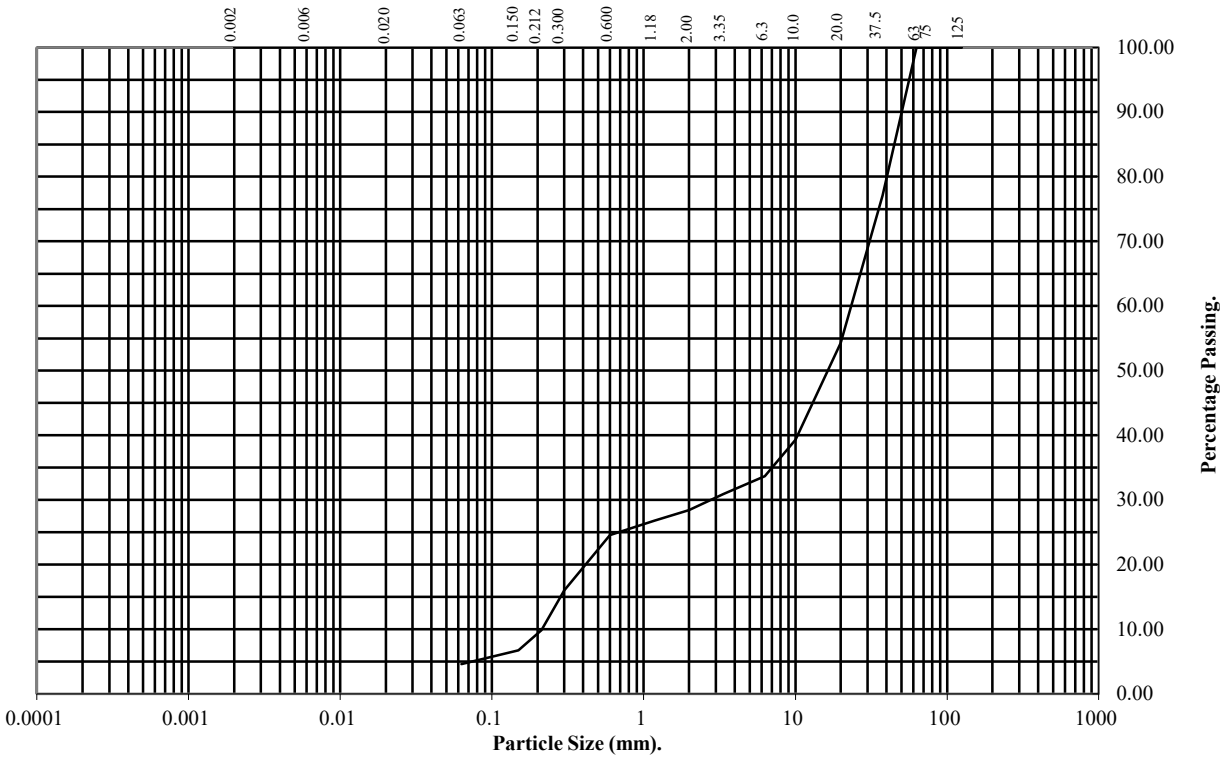
PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990
Wet Sieve, Clause 9.2

Hole Number: BH-PTR-21 Top Depth (m): 1.00

Sample Number: 3 Base Depth(m):

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	77
20	54
10	39
6.3	34
3.35	31
2	28
1.18	27
0.6	25
0.3	16
0.212	10
0.15	7
0.063	5

Soil Fraction	Total Percentage
Cobbles	0
Gravel	72
Sand	23
Silt/Clay	5

Remarks:
See Summary of Soil Descriptions

PARTICLE SIZE DISTRIBUTION TEST

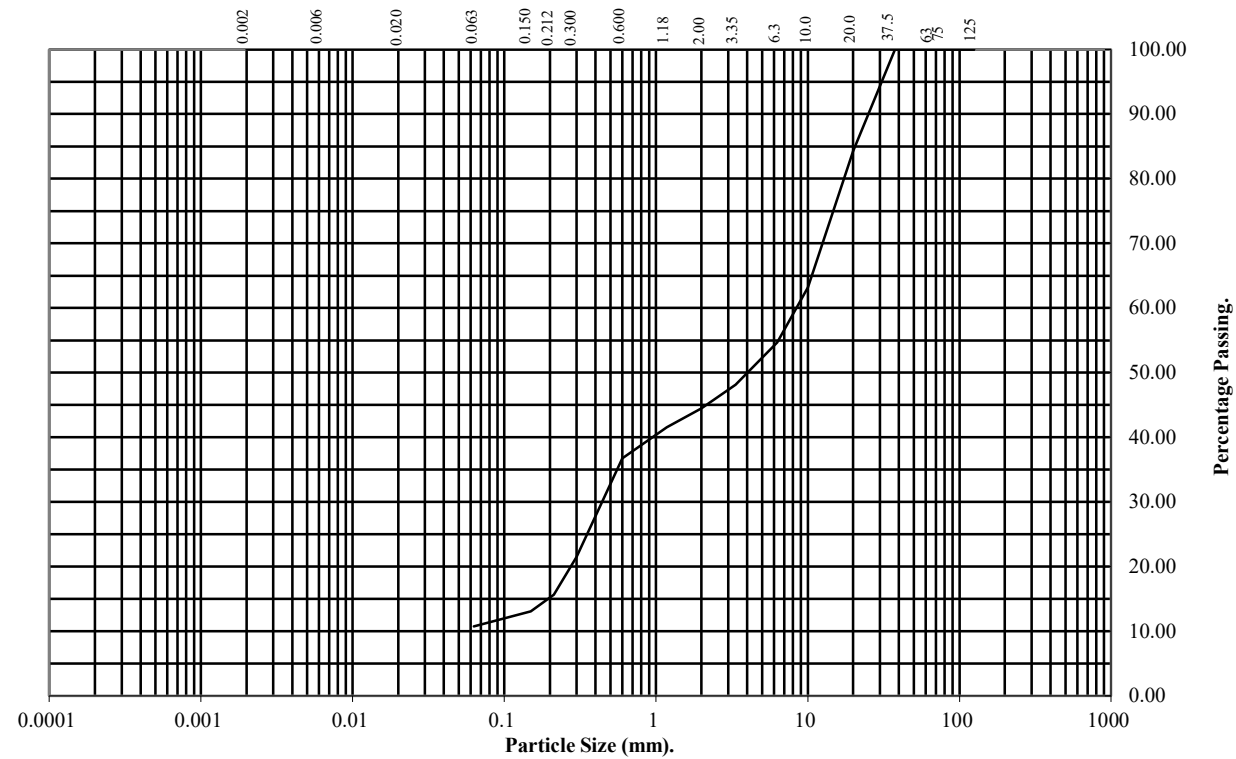
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number:	BH-PTR-21	Top Depth (m):	1.20
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Sample Number: 2 **Base Depth(m):** 1.65

Sample Type: **D**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	84
10	63
6.3	55
3.35	48
2	44
1.18	42
0.6	37
0.3	22
0.212	16
0.15	13
0.063	11

Soil Fraction	Total Percentage
Cobbles	0
Gravel	56
Sand	33
Silt/Clay	11

Remarks:

See Summary of Soil Descriptions



4043

PSL

Professional Soils Laboratory

Cambridge

Contract No:

PSL21/4434

Client Ref:

784-B025563

SUMMARY OF ROCK TESTS

(ISRM Suggested Method for the Determination of the Water Content of Rock)

[illegible]

Contract No:

PSL21/4434

Client Ref:

784-B025563

Cambridge

PST
Professional Soils Laboratory

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

[illegible]

SYMBOLS: NP : Non Plastic

* : Liquid Limit and Plastic Limit Wet Sieved.


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Contract No:

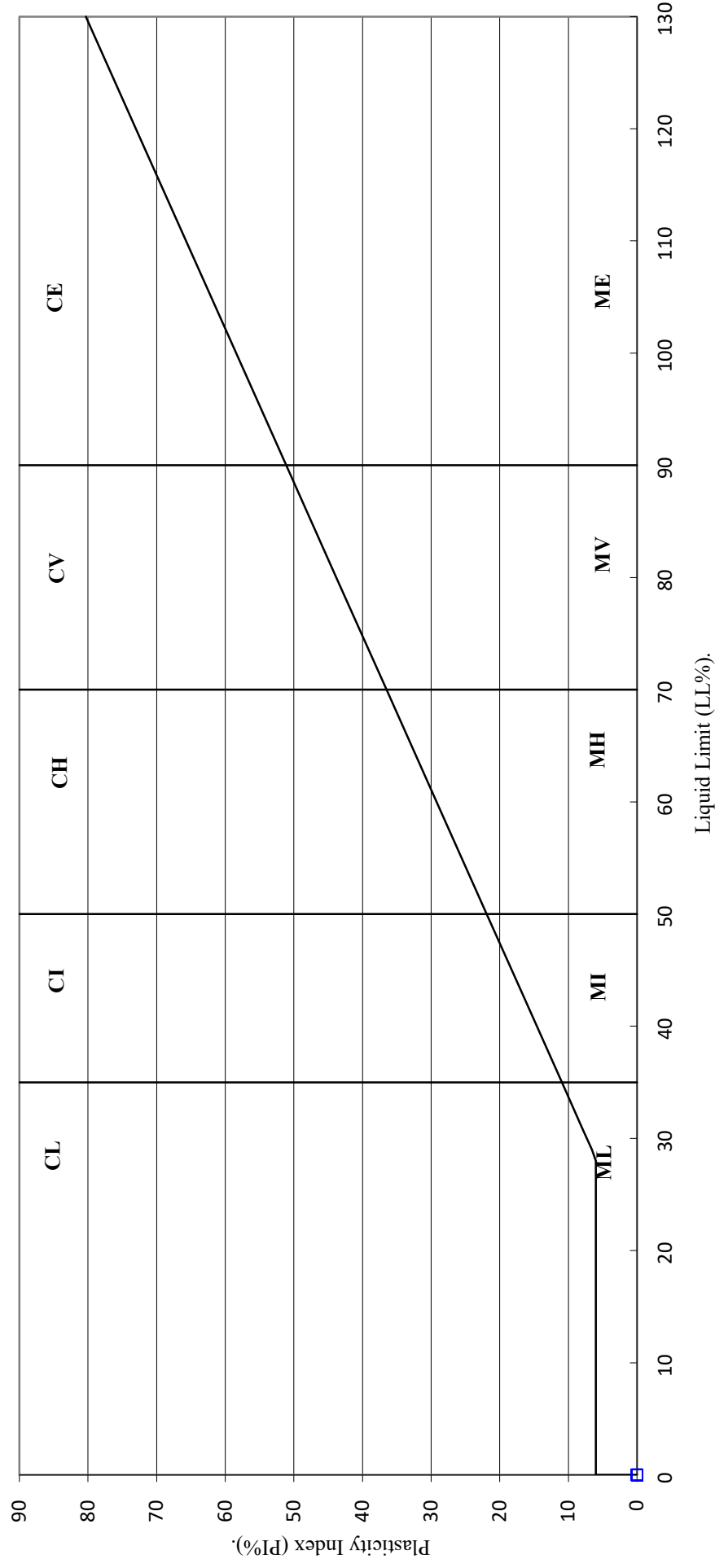
PSL21/4435

Client Ref:

784-B025563

Cambridge

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.




PSL
Professional Soils Laboratory
4043

Contract No:

PSL21/4435

Client Ref:

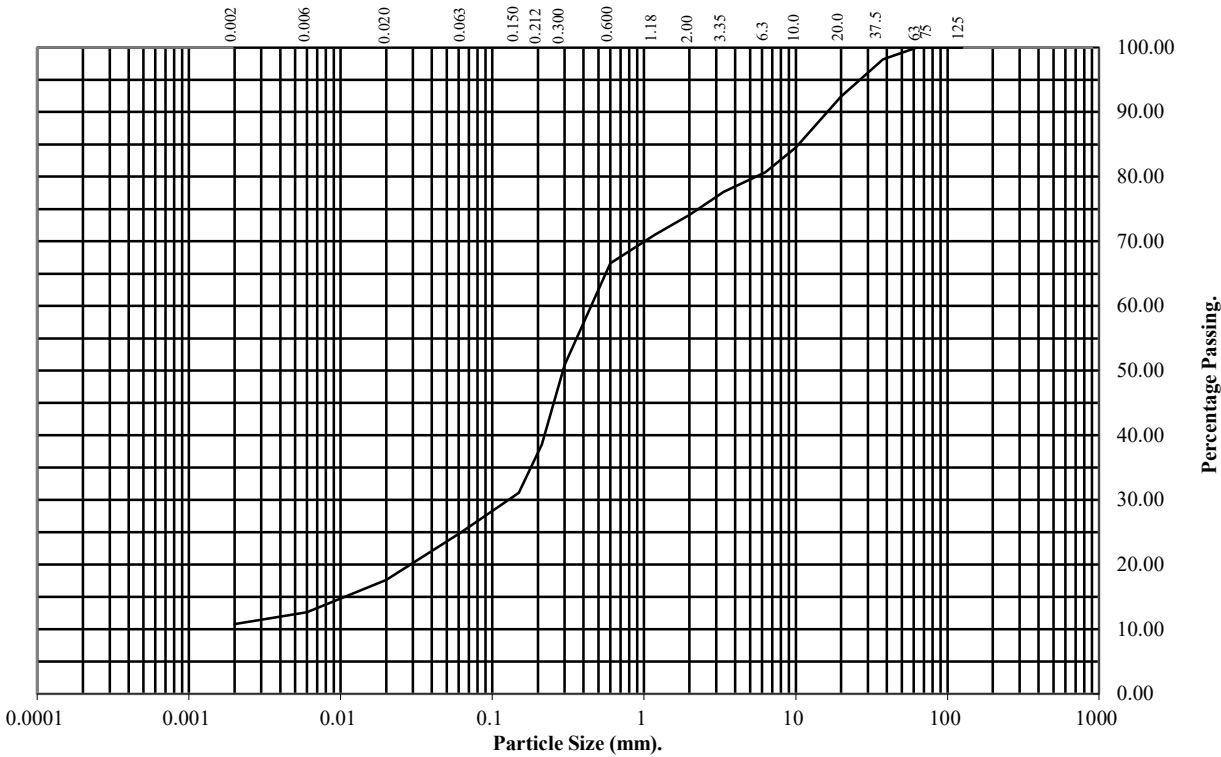
784-B025563

Cambridge

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: BH-PTR-22 Top Depth (m): 1.00
Sample Number: 1 Base Depth(m): 1.00
Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	98
20	92
10	85
6.3	81
3.35	78
2	74
1.18	71
0.6	67
0.3	51
0.212	39
0.15	31
0.063	25

Particle Diameter	Percentage Passing
0.02	18
0.006	13
0.002	11

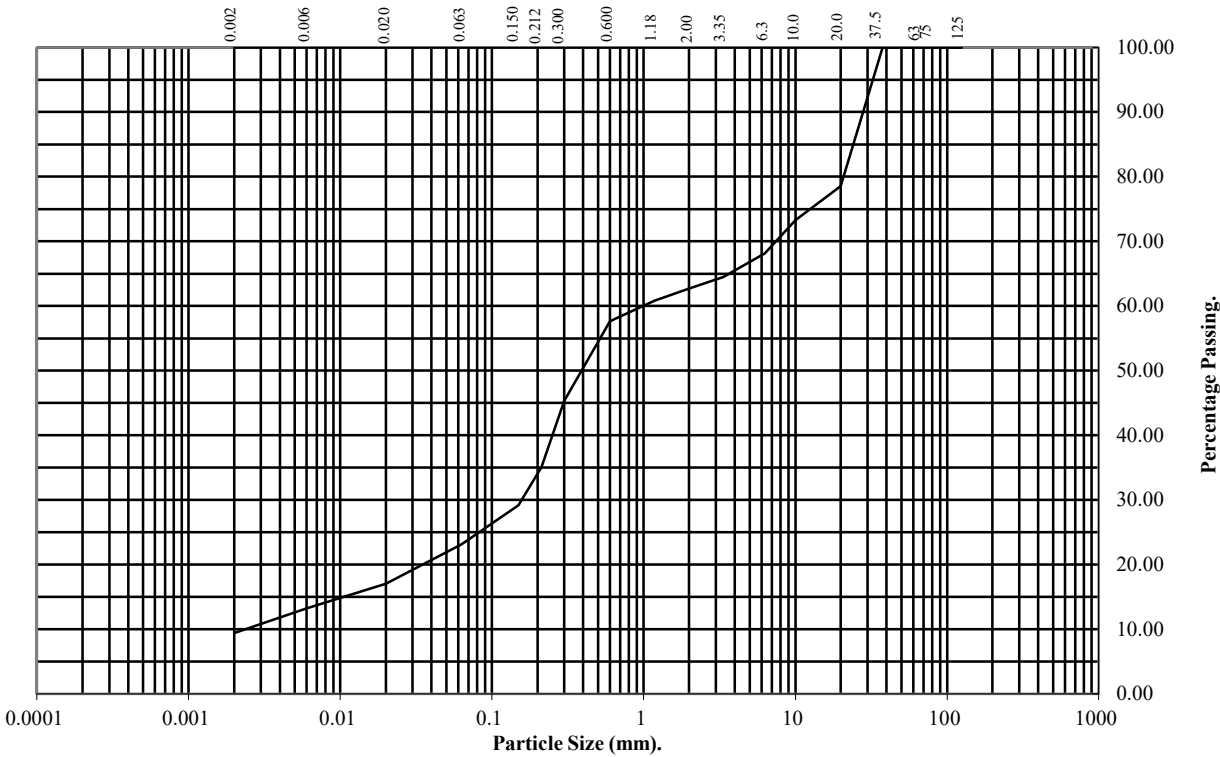
Soil Fraction	Total Percentage
Cobbles	0
Gravel	26
Sand	49
Silt	14
Clay	11

Remarks:
See Summary of Soil Descriptions

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: BH-PTR-22 Top Depth (m): 2.45
Sample Number: 5 Base Depth(m): 2.50
Sample Type: D



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	79
10	73
6.3	68
3.35	65
2	63
1.18	61
0.6	58
0.3	45
0.212	35
0.15	29
0.063	23

Particle Diameter	Percentage Passing
0.02	17
0.006	13
0.002	9

Soil Fraction	Total Percentage
Cobbles	0
Gravel	37
Sand	40
Silt	14
Clay	9

Remarks:
See Summary of Soil Descriptions

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular

 UKAS TESTING 4043	 PSL Professional Soils Laboratory	Cambridge	Contract No:
			PSL21/4435
			Client Ref:
			784-B025563

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

	<p style="text-align: center;">Cambridge</p>		Contract No:
			PSL21/4435
			Client Ref:
			784-B025563

Sample Description & Split Describe

Hole Number: BH-PTR-22 Top Depth (m): 1.20

Sample Number: Base Depth (m): 1.65

Sample Type: UT Sample Date:

Sample Description: Soft brown very gravelly very sandy CLAY. Sand is FMC, Gravel is FM angular. Soft.



Sample Description & Split Describe

Hole Number: BH-PTR-22 Top Depth (m): 2.00

Sample Number: Base Depth (m): 2.45

Sample Type: UT Sample Date:

Sample Description: Brown very gravelly clayey SAND. Sand is FMC, Gravel is FMC angular.



		<p style="text-align: center;">Cambridge</p>	Contract No:
			PSL21/4436
			Client Ref:
			794 P025523

(BS1377 : PART 2 & 4 : 1990)

* CCV testing is not UKAS accredited



Cambridge

Contract No:	PSL21/4436	Client Ref:	784-B025563
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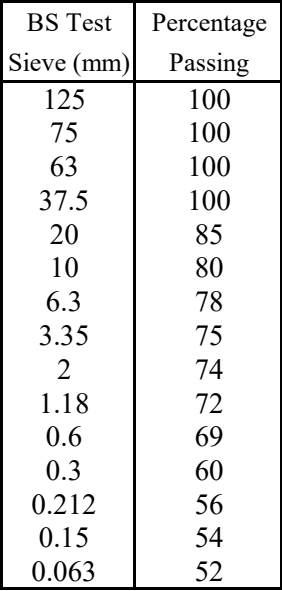
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	BH-PTR-23	Top Depth (m):	3.00
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Sample Number: _____ **Base Depth(m):** **4.00**

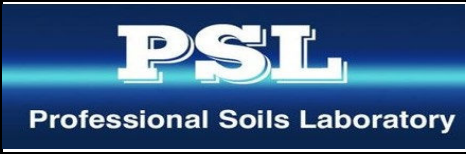
Sample Type: **B**



Particle Diameter	Percentage Passing
0.02	46
0.006	35
0.002	24

Soil Fraction	Total Percentage
Cobbles	0
Gravel	26
Sand	22
Silt	28
Clay	24

Remarks:
See Summary of Soil Descriptions



Cambridge

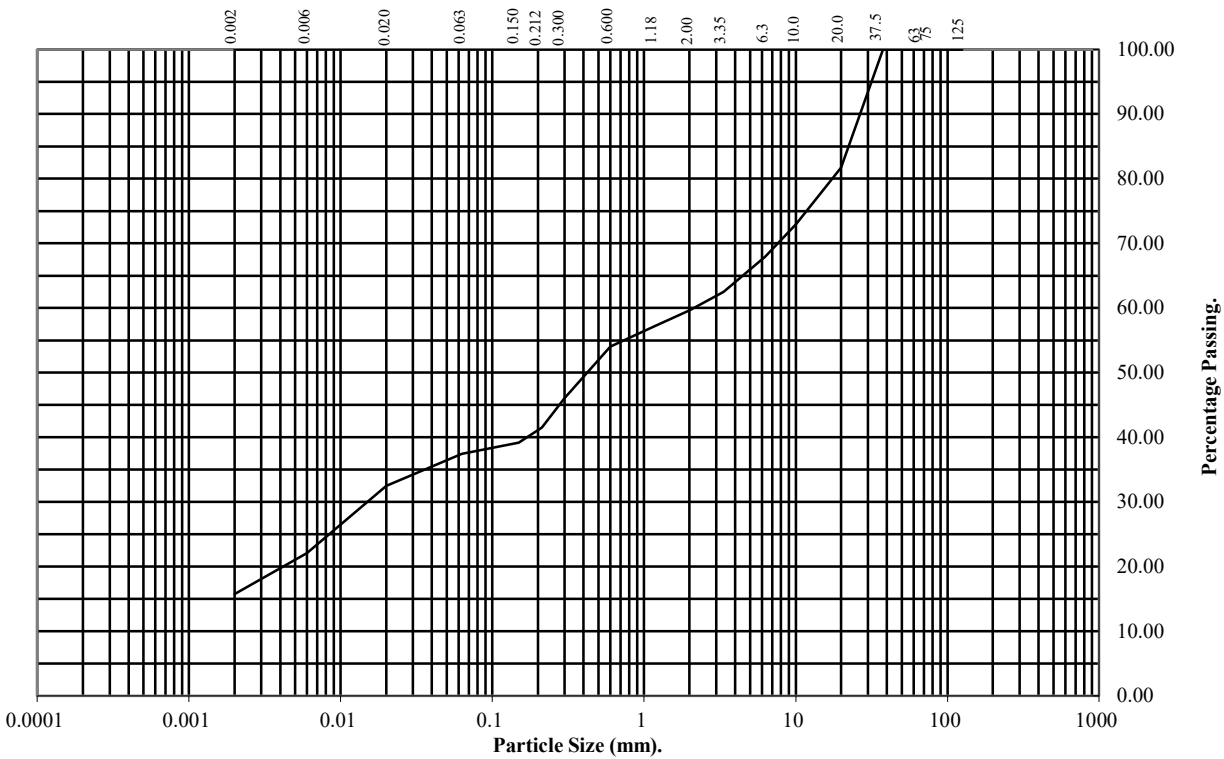
Contract No:
PSL21/4436

Client Ref:
784-B025563

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: BH-PTR-23 Top Depth (m): 4.00
Sample Number: Base Depth(m): 4.45
Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	82
10	73
6.3	68
3.35	63
2	60
1.18	57
0.6	54
0.3	46
0.212	41
0.15	39
0.063	37

Particle Diameter	Percentage Passing
0.02	32
0.006	22
0.002	16

Soil Fraction	Total Percentage
Cobbles	0
Gravel	40
Sand	23
Silt	21
Clay	16

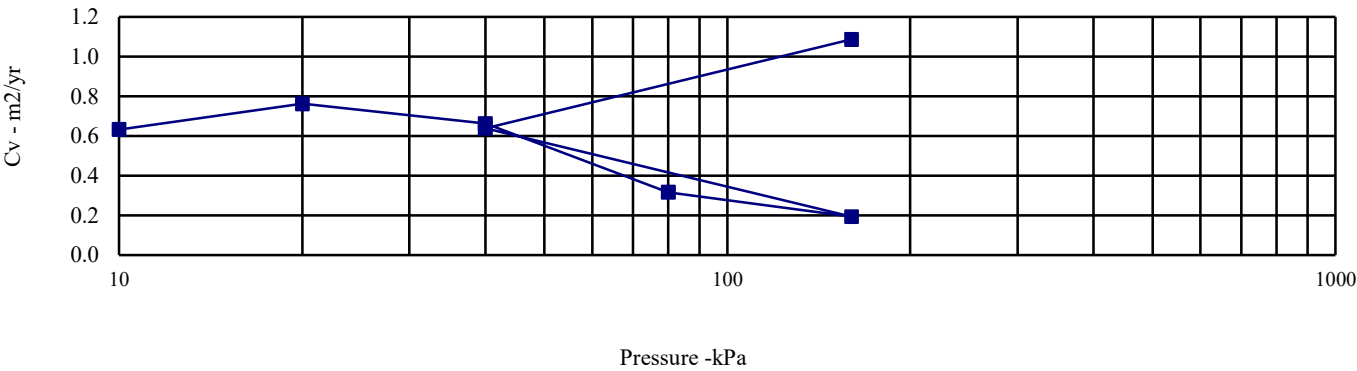
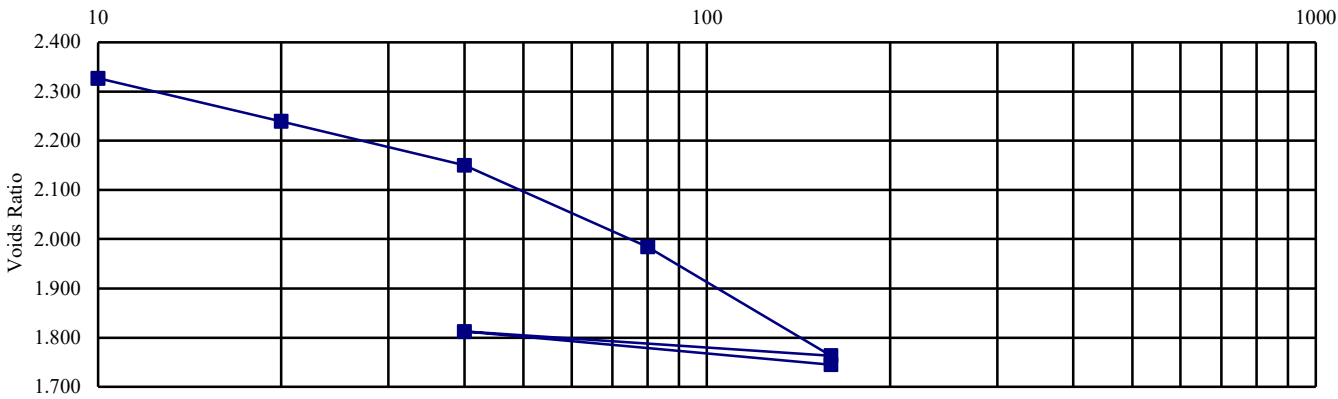
Remarks:
See Summary of Soil Descriptions

ONE DIMENSIONAL CONSOLIDATION TEST

BS 1377: Part 5: 1990: Clause 3

Hole Number: BH-PTR-23B Top Depth (m): 1.20
Sample Number: Base Depth (m) : 1.65
Sample Type: UT

Initial Conditions		Pressure Range		Mv	Cv	Specimen location	
Moisture Content (%)	82	kPa		m2/MN	m2/yr	within tube:	Top
Bulk Density (Mg/m3)	1.43	0	10	1.882	0.634	Method used to	
Dry Density (Mg/m3)	0.78	10	20	2.621	0.762	determine CV:	T90
Voids Ratio	2.390	20	40	1.372	0.663	Nominal temperature	
Degree of saturation	91.3	40	80	1.318	0.318	during test ' C:	20
Height (mm)	20.028	80	160	0.926	0.195	Remarks:	
Diameter (mm)	75.078	160	40	0.148	0.639	See summary of soil descriptions	
Particle Density (Mg/m3): Assumed	2.65	40	160	0.199	1.087		



SUMMARY OF ROCK TESTS

(ISRM Suggested Method for the Determination of the Water Content of Rock)

[illegible]

Contract No:

PSL21/4436

Client Ref:

784-B025563

Cambridge

DETERMINATION OF UNCONFINED COMPRESSIVE STRENGTH

ISRM Suggested Methods, pp 111–116, 1981.

[illegible]

Cambridge

Contract No:

PSL21/4436

Client Ref:

784-B025563

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular

 UKAS TESTING 4043		Contract No:
		PSL21/4436
		Client Ref:
		784-B025563

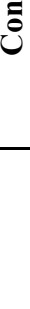
SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

	<p>Cambridge</p>	Contract No:
		PSL21/4436
		Client Ref:
		784-B025563

Sample Description & Split Describe

Hole Number: BH-PTR-23 Top Depth (m): 1.20

Sample Number: Base Depth (m): 1.65

Sample Type: UT Sample Date:

Sample Description: Soft dark brown very gravelly very sandy CLAY. Sand is FMC,
Gravel is FMC angular



Sample Description & Split Describe

Hole Number: BH-PTR-23 Top Depth (m): 2.00

Sample Number: Base Depth (m): 2.45

Sample Type: UT Sample Date:

Sample Description: Very soft dark brown gravelly very sandy CLAY. Sand is FMC,
Gravel is FMC angular.





ANALYTICAL TEST REPORT

Contract no: 97654
Contract name: 784-B025563 Cambridge
Client reference: PLS21/4436
Clients name: Professional Soils Laboratory
Clients address: 5/7 Hexthorpe Road
Doncaster
DN4 0AR

Samples received: 22 June 2021
Analysis started: 22 June 2021
Analysis completed: 29 June 2021
Report issued: 29 June 2021

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.
All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.
Methods, procedures and performance data are available on request.
Results reported herein relate only to the material supplied to the laboratory.
This report shall not be reproduced except in full, without prior written approval.
Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key: U UKAS accredited test
M MCERTS & UKAS accredited test
\$ Test carried out by an approved subcontractor
I/S Insufficient sample to carry out test
N/S Sample not suitable for testing

Approved by: 
Rachael Burton
Customer Support Squad Leader

Chemtech Environmental Limited

SOILS

Lab number			97654-1	97654-2	97654-3
Sample id			BH-PTR-23	BH-PTR-23	BH-PTR-23
Depth (m)			1.65	26.00-26.45	30.50-30.65
Date sampled			-	-	-
Test	Method	Units			
pH	CE004 ^U	units	-	8.5	8.3
Magnesium (2:1 water soluble)	CE061	mg/l Mg	-	3.1	<1
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	-	4.0	11
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	-	<1	2.2
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	-	35	36
Sulphate (total)	CE062	mg/kg SO ₄	-	435	959
Sulphur (total)	CE119	mg/kg S	-	208	353
Sulphur (total)	CE119	% w/w S	-	0.02	0.04
Total Organic Carbon (TOC)	CE197	% w/w C	1.4	-	-
Estimate of OMC (calculated from TOC)	CE197	% w/w	2.4	-	-

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S
CE197	Total Organic Carbon (TOC)	Carbon Analyser	Dry		0.1	% w/w C
CE197	Estimate of OMC (calculated from TOC)	Calculation from Total Organic Carbon	Dry		0.1	% w/w

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

- Key**
N No (not deviating sample)
Y Yes (deviating sample)
NSD Sampling date not provided
NST Sampling time not provided (waters only)
EHT Sample exceeded holding time(s)
IC Sample not received in appropriate containers
HP Headspace present in sample container
NCF Sample not chemically fixed (where appropriate)
OR Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
97654-1	BH-PTR-23	1.65	Y	All (NSD)
97654-2	BH-PTR-23	26.00-26.45	Y	All (NSD)
97654-3	BH-PTR-23	30.50-30.65	Y	All (NSD)



SUMMARY OF ROCK TESTS

[illegible]

PST
Professional Soils Laboratory

Contract No:

PSL21/4437

Client Ref:

784-B025563

Cambridge

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular


PSL
Professional Soils Laboratory
4043

Cambridge

Contract No:

PSL21/4437

Client Ref:

784-B025563

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

 PSL Professional Soils Laboratory 4043	Cambridge	Contract No:
		PSL21/4437
		Client Ref:
		784-B025563

DETERMINATION OF UNCONFINED COMPRESSIVE STRENGTH

ISRM Suggested Methods, pp 111 –116, 1981.

[illegible]

	Contract No:
	PSL21/4437
	Client Ref:
	784-B025563



Chemtech Environmental Limited

SOILS

ANALYTICAL TEST REPORT

Contract no: 97394

Contract name: 784-B025563 Cambridge

Client reference: PSL21/4437

Clients name: Professional Soils Laboratory

Clients address: 5/7 Hexthorpe Road
Doncaster
DN4 0AR

Samples received: 16 June 2021

Analysis started: 16 June 2021

Analysis completed: 23 June 2021

Report issued: 23 June 2021

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.
All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.
Methods, procedures and performance data are available on request.
Results reported herein relate only to the material supplied to the laboratory.
This report shall not be reproduced except in full, without prior written approval.
Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key: U UKAS accredited test
M MCERTS & UKAS accredited test
\$ Test carried out by an approved subcontractor
I/S Insufficient sample to carry out test
N/S Sample not suitable for testing

Approved by: 
Rachael Burton
Customer Support Squad Leader

Lab number			97394-1	97394-2
Sample id			BH-PTR-24	BH-PTR-24
Depth (m)			22.00-22.10	30.00-30.20
Date sampled			-	-
Test	Method	Units		
pH	CE004 ^U	units	8.6	8.3
Magnesium (2:1 water soluble)	CE061	mg/l Mg	1.8	9.8
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	4.0	2.4
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	1.8	<1
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	18	295
Sulphate (total)	CE062	mg/kg SO ₄	442	1123
Sulphur (total)	CE119	mg/kg S	220	1180
Sulphur (total)	CE119	% w/w S	0.02	0.12

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

- Key**
N No (not deviating sample)
Y Yes (deviating sample)
NSD Sampling date not provided
NST Sampling time not provided (waters only)
EHT Sample exceeded holding time(s)
IC Sample not received in appropriate containers
HP Headspace present in sample container
NCF Sample not chemically fixed (where appropriate)
OR Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
97394-1	BH-PTR-24	22.00-22.10	Y	All (NSD)
97394-2	BH-PTR-24	30.00-30.20	Y	All (NSD)

		<p>Cambridge</p>	Contract No:
			PSL21/4438
			Client Ref:
			794 P025563

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

[illegible]

SYMBOLS: NP : Non Plastic

* : Liquid Limit and Plastic Limit Wet Sieved.


PSL
Professional Soils Laboratory
4043

Cambridge

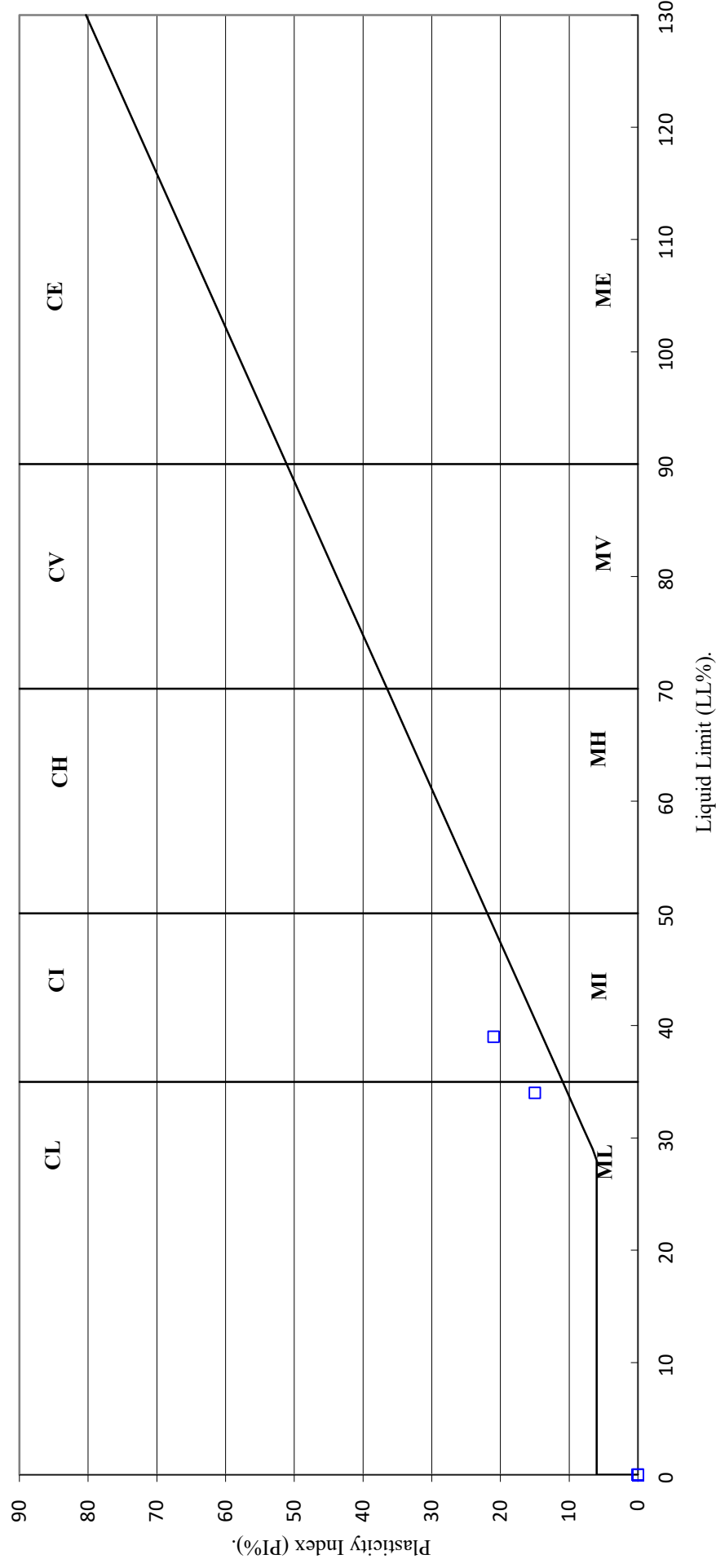
Contract No:

PSL21/4438

Client Ref:

784-B025563

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.




PSL
Professional Soils Laboratory
4043

Cambridge

Contract No:

PSL21/4438

Client Ref:

784-B025563

SUMMARY OF ROCK TESTS

[illegible]

	Contract No:
	PSL21/4438
	Client Ref:
	784-B025563

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note**
All testing carried out on samples as received water content

A = Axial, D = Diametral, I = Irregular

 PSL Professional Soils Laboratory 4043	Contract No:
	PSL21/4438
	Client Ref:
	784-B025563



ANALYTICAL TEST REPORT

Contract no: 97643
Contract name: 784-B025563 Cambridge
Client reference: PSL21/4438
Clients name: Professional Soils Laboratory
Clients address: 5/7 Hexthorpe Road
Doncaster
DN4 0AR

Samples received: 22 June 2021
Analysis started: 22 June 2021
Analysis completed: 28 June 2021
Report issued: 28 June 2021

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.
All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.
Methods, procedures and performance data are available on request.
Results reported herein relate only to the material supplied to the laboratory.
This report shall not be reproduced except in full, without prior written approval.
Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key: U UKAS accredited test
M MCERTS & UKAS accredited test
\$ Test carried out by an approved subcontractor
I/S Insufficient sample to carry out test
N/S Sample not suitable for testing

Approved by: 
Rachael Burton
Customer Support Squad Leader

Chemtech Environmental Limited

SOILS

Lab number			97643-1	97643-2
Sample id			BH-PTR-24A	BH-PTR-24A
Depth (m)			1.00	1.50-1.60
Date sampled			-	-
Test	Method	Units		
pH	CE004 ^U	units	8.2	-
Magnesium (2:1 water soluble)	CE061	mg/l Mg	1.4	-
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	4.2	-
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	11	-
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	22	-
Sulphate (total)	CE062	mg/kg SO ₄	581	-
Sulphur (total)	CE119	mg/kg S	483	-
Sulphur (total)	CE119	% w/w S	0.05	-
Total Organic Carbon (TOC)	CE197	% w/w C	-	0.4
Estimate of OMC (calculated from TOC)	CE197	% w/w	-	0.7

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S
CE197	Total Organic Carbon (TOC)	Carbon Analyser	Dry		0.1	% w/w C
CE197	Estimate of OMC (calculated from TOC)	Calculation from Total Organic Carbon	Dry		0.1	% w/w

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key
N No (not deviating sample)
Y Yes (deviating sample)
NSD Sampling date not provided
NST Sampling time not provided (waters only)
EHT Sample exceeded holding time(s)
IC Sample not received in appropriate containers
HP Headspace present in sample container
NCF Sample not chemically fixed (where appropriate)
OR Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
97643-1	BH-PTR-24A	1.00	Y	All (NSD)

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

[illegible]

SYMBOLS: NP: Non Plastic

* : Liquid Limit and Plastic Limit Wet Sieved.


PSL
Professional Soils Laboratory
4043

Contract No:

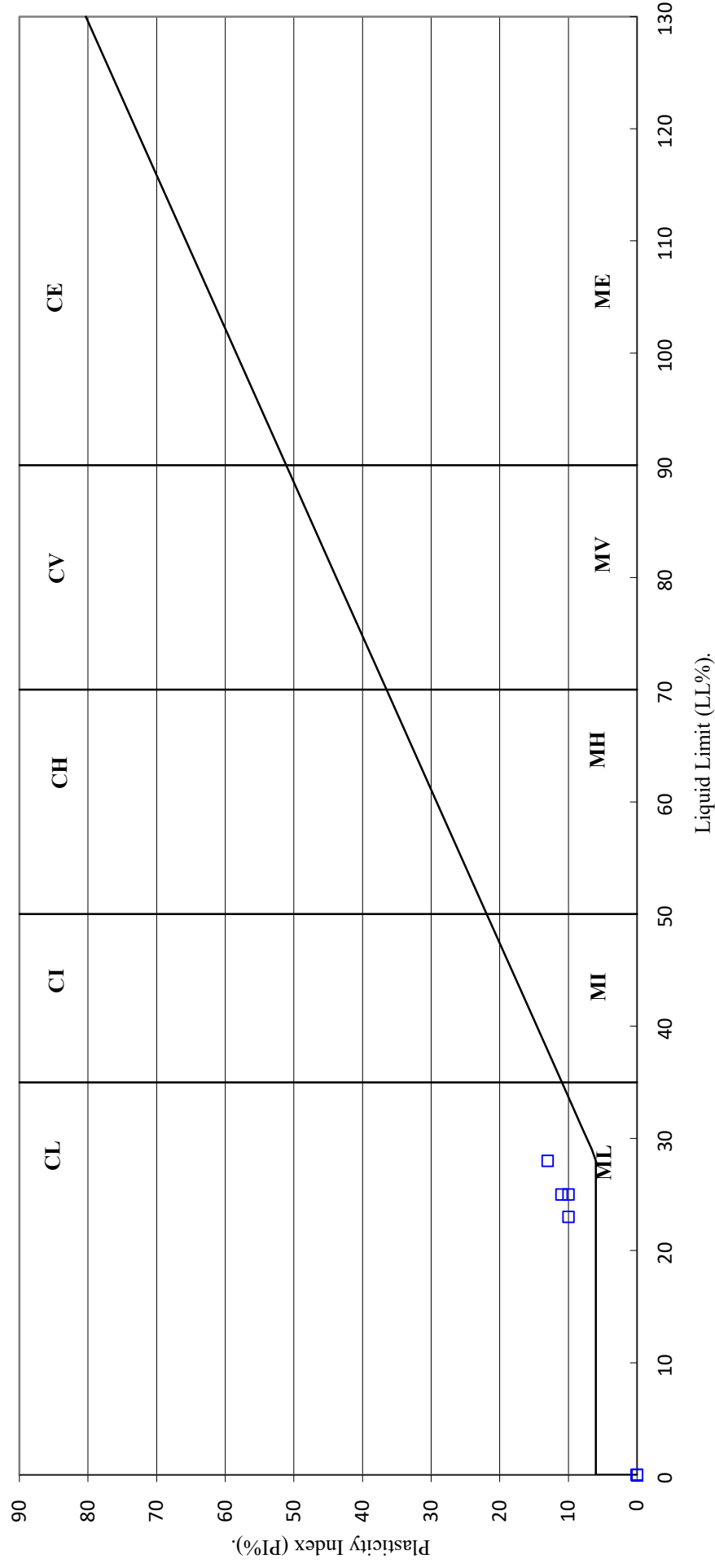
PSL 21/4439

Client Ref:

784-B025563

Cambridge

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.





UKAS
TESTING

4043



Professional Soils Laboratory

Contract No:

PSL21/4439

Client Ref:

784-B025563

Cambridge

(BS1377 : PART 2 & 4 : 1990)

* CCV testing is not UKAS accredited



Cambridge

Contract No:

PSL21/4439

Client Ref:

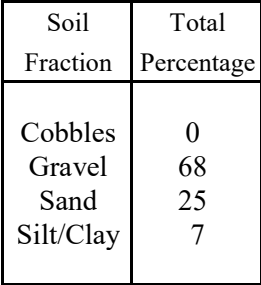
784-B025563

BS1377 : Part 2 : 1990
Wet Sieve, Clause 9.2

1.00

Base Depth(m):

B



See Summary of Soil Descriptions



Cambridge

Contract No:

PSL21/4439

Client Ref:

784-B025563

SUMMARY OF POINT LOAD TEST RESULTS

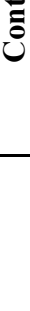
ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular

 UKAS TESTING 4043	 PSL Professional Soils Laboratory	Cambridge	Contract No:
			PSL21/4439
			Client Ref:
			784-B025563

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

 4043	 PSL Professional Soils Laboratory	Cambridge	Contract No:
			PSL21/4439
			Client Ref:
			784-B025563

Sample Description & Split Describe

Hole Number: BH-PTR-25 Top Depth (m): 2.50

Sample Number: Base Depth (m): 2.95

Sample Type: UT Sample Date:

Sample Description: Firm grey & brown gravelly sandy CLAY. Sand is FMC, Gravel is FMC angular.



Sample Description & Split Describe

Hole Number: BH-PTR-25 Top Depth (m): 4.50

Sample Number: Base Depth (m): 4.95

Sample Type: UT Sample Date:

Sample Description: Firm to stiff grey & brown gravelly very sandy CLAY. Sand is FMC, Gravel is FMC angular & sub-angular.





ANALYTICAL TEST REPORT

Contract no: 97650
Contract name: 784-B025563 Cambridge
Client reference: PSL21/4439
Clients name: Professional Soils Laboratory
Clients address: 5/7 Hexthorpe Road
Doncaster
DN4 0AR

Samples received: 22 June 2021

Analysis started: 22 June 2021

Analysis completed: 29 June 2021

Report issued: 29 June 2021

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.
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Methods, procedures and performance data are available on request.
Results reported herein relate only to the material supplied to the laboratory.
This report shall not be reproduced except in full, without prior written approval.
Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key: U UKAS accredited test
M MCERTS & UKAS accredited test
\$ Test carried out by an approved subcontractor
I/S Insufficient sample to carry out test
N/S Sample not suitable for testing

Approved by: 
Rachael Burton
Customer Support Squad Leader

Chemtech Environmental Limited

SOILS

Lab number			97650-1	97650-2	97650-3
Sample id			BH-PTR-25	BH-PTR-25	BH-PTR-25
Depth (m)			1.20-1.65	2.30-2.60	30.00-.30.45
Date sampled			-	-	-
Test	Method	Units			
pH	CE004 ^U	units	7.8	8.2	8.1
Magnesium (2:1 water soluble)	CE061	mg/l Mg	<1	<1	6.4
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	6.1	6.0	17
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	13	<1	<1
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	22	22	146
Sulphate (total)	CE062	mg/kg SO ₄	413	244	780
Sulphur (total)	CE119	mg/kg S	215	143	708
Sulphur (total)	CE119	% w/w S	0.02	0.01	0.07

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

- Key**
N No (not deviating sample)
Y Yes (deviating sample)
NSD Sampling date not provided
NST Sampling time not provided (waters only)
EHT Sample exceeded holding time(s)
IC Sample not received in appropriate containers
HP Headspace present in sample container
NCF Sample not chemically fixed (where appropriate)
OR Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
97650-1	BH-PTR-25	1.20-1.65	Y	All (NSD)
97650-2	BH-PTR-25	2.30-2.60	Y	All (NSD)
97650-3	BH-PTR-25	30.00-.30.45	Y	All (NSD)

		<p style="text-align: center;">Cambridge</p>	Contract No:
			PSL21/4440
			Client Ref:
			794 P025563

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

[illegible]

SYMBOLS: NP : Non Plastic

* : Liquid Limit and Plastic Limit Wet Sieved.


PSL
Professional Soils Laboratory
4043

Cambridge

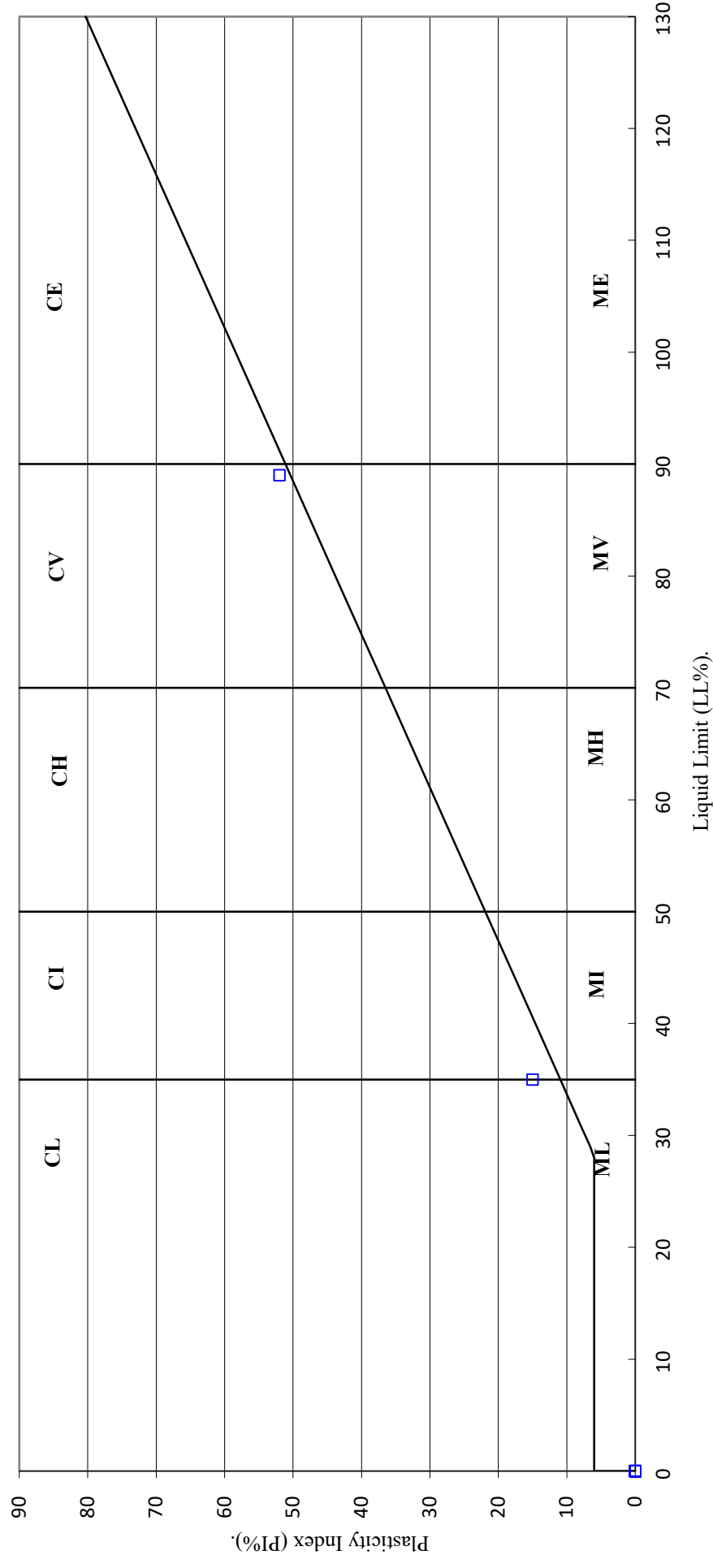
Contract No:

PSL21/4440

Client Ref:

784-B025563

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.




PSL
Professional Soils Laboratory
4043

Cambridge

Contract No:

PSL21/4440

Client Ref:

PARTICLE SIZE DISTRIBUTION TEST

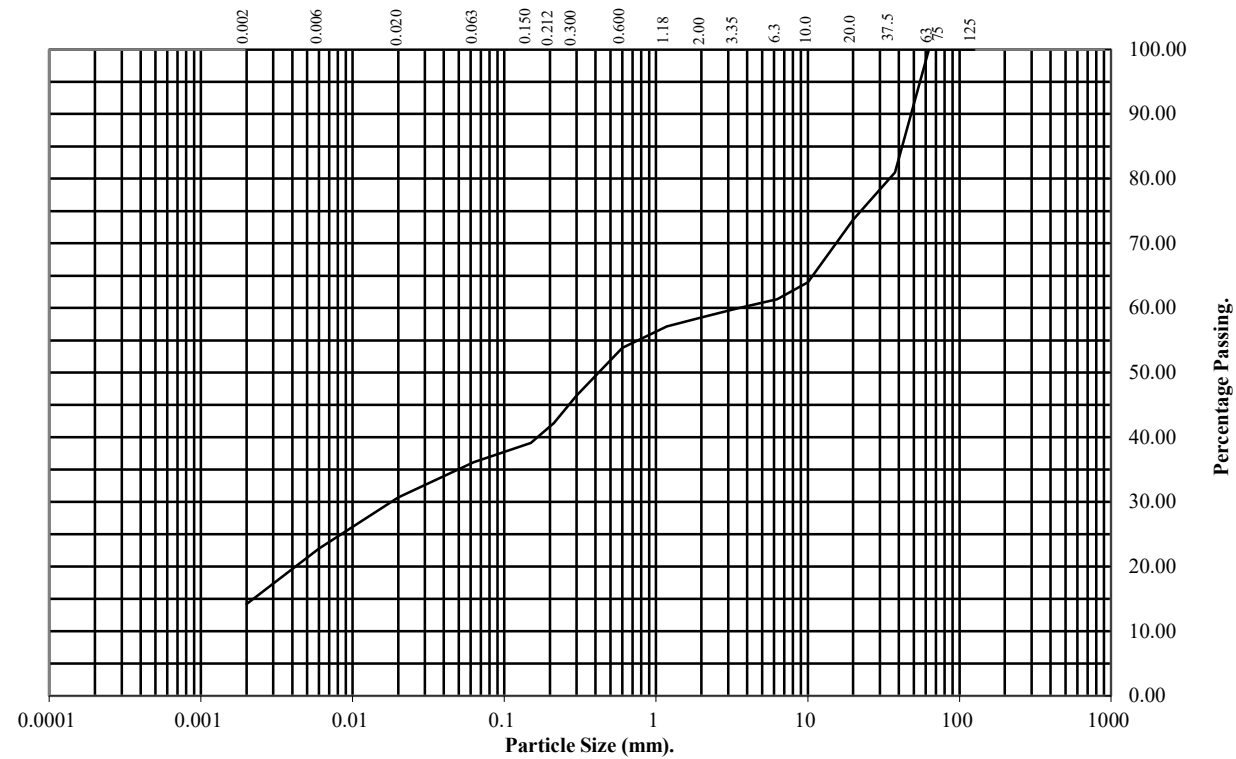
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	BH-PTR-26	Top Depth (m):	1.20
---------------------	------------------	-----------------------	-------------

Sample Number: **Base Depth(m):** **1.40**

Sample Type: **D**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	81
20	74
10	64
6.3	61
3.35	60
2	59
1.18	57
0.6	54
0.3	46
0.212	42
0.15	39
0.063	36

Particle Diameter	Percentage Passing
0.02	31
0.006	23
0.002	14

Soil Fraction	Total Percentage
Cobbles	0
Gravel	41
Sand	23
Silt	22
Clay	14

Remarks:
See Summary of Soil Descriptions



Cambridge

Contract No:
PSL21/4440
Client Ref:
784-B025563

SUMMARY OF ROCK TESTS

(ISRM Suggested Method for the Determination of the Water Content of Rock)

[illegible]

PST
Professional Soils Laboratory

Cambridge

Contract No:	PSL21/4440
Client Ref:	784-B025563

(BS1377 : PART 2 & 4 : 1990)

* CCV testing is not UKAS accredited



ISRM Suggested Methods, pp 111–116, 1981.

PST
Professional Soils Laboratory

Cambridge

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular

 UKAS TESTING 4043	 PSL Professional Soils Laboratory	Cambridge	Contract No:
			PSL21/4440
			Client Ref:
			784-B025563

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

	<p style="text-align: center;">Cambridge</p>	Contract No:
		PSL21/4440
		Client Ref:
		784-B025563



ANALYTICAL TEST REPORT

Contract no: 97448
Contract name: 784-B025563 Cambridge
Client reference: PSL21/4440
Clients name: Professional Soils Laboratory
Clients address: 5/7 Hexthorpe Road
Doncaster
DN4 0AR

Samples received: 17 June 2021
Analysis started: 17 June 2021
Analysis completed: 24 June 2021
Report issued: 24 June 2021

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.
All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.
Methods, procedures and performance data are available on request.
Results reported herein relate only to the material supplied to the laboratory.
This report shall not be reproduced except in full, without prior written approval.
Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key: U UKAS accredited test
M MCERTS & UKAS accredited test
\$ Test carried out by an approved subcontractor
I/S Insufficient sample to carry out test
N/S Sample not suitable for testing

Approved by: 
Rachael Burton
Customer Support Squad Leader

Chemtech Environmental Limited

SOILS

Lab number			97448-1	97448-2	97448-3
Sample id			BH-PTR-26	BH-PTR-26	BH-PTR-26
Depth (m)			2.50-2.70	27.00-27.45	30.00-30.45
Date sampled			-	-	-
Test	Method	Units			
pH	CE004 ^U	units	-	8.5	8.5
Magnesium (2:1 water soluble)	CE061	mg/l Mg	-	1.7	1.6
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	-	15	12
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	-	3.9	19
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	-	19	24
Sulphate (total)	CE062	mg/kg SO ₄	-	353	384
Sulphur (total)	CE119	mg/kg S	-	266	187
Sulphur (total)	CE119	% w/w S	-	0.03	0.02
Total Organic Carbon (TOC)	CE197	% w/w C	0.3	-	-
Estimate of OMC (calculated from TOC)	CE197	% w/w	0.5	-	-

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S
CE197	Total Organic Carbon (TOC)	Carbon Analyser	Dry		0.1	% w/w C
CE197	Estimate of OMC (calculated from TOC)	Calculation from Total Organic Carbon	Dry		0.1	% w/w

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

- Key**
N No (not deviating sample)
Y Yes (deviating sample)
NSD Sampling date not provided
NST Sampling time not provided (waters only)
EHT Sample exceeded holding time(s)
IC Sample not received in appropriate containers
HP Headspace present in sample container
NCF Sample not chemically fixed (where appropriate)
OR Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
97448-1	BH-PTR-26	2.50-2.70	Y	All (NSD)
97448-2	BH-PTR-26	27.00-27.45	Y	All (NSD)
97448-3	BH-PTR-26	30.00-30.45	Y	All (NSD)

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

[illegible]

SYMBOLS: NP : Non Plastic

* : Liquid Limit and Plastic Limit Wet Sieved.


PSL
Professional Soils Laboratory
4043

Cambridge

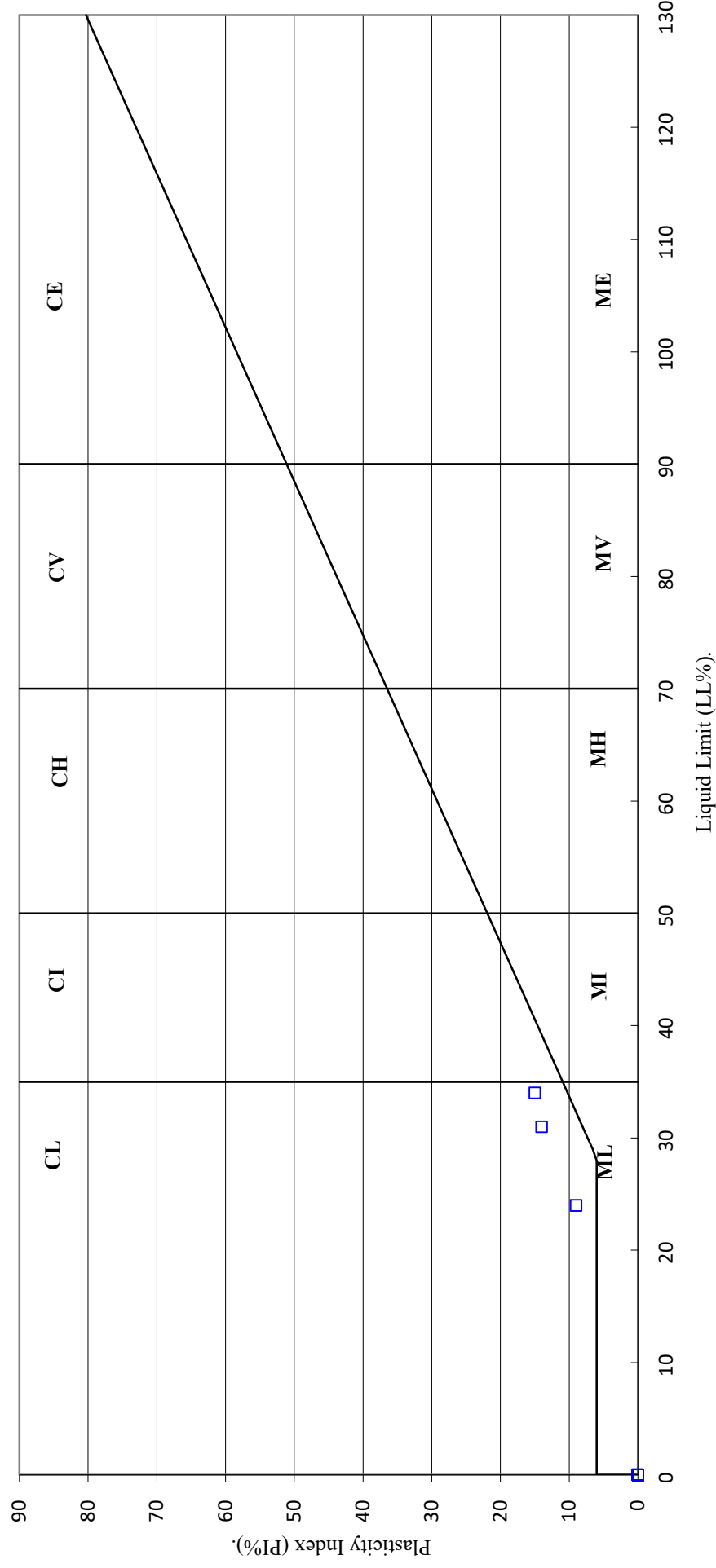
Contract No:

PSL21/4441

Client Ref:

784-B025563

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



PSL
Professional Soils Laboratory

 **UKAS TESTING**
4043

Cambridge

Contract No:

PSL21/4441

Client Ref:

784-B025563

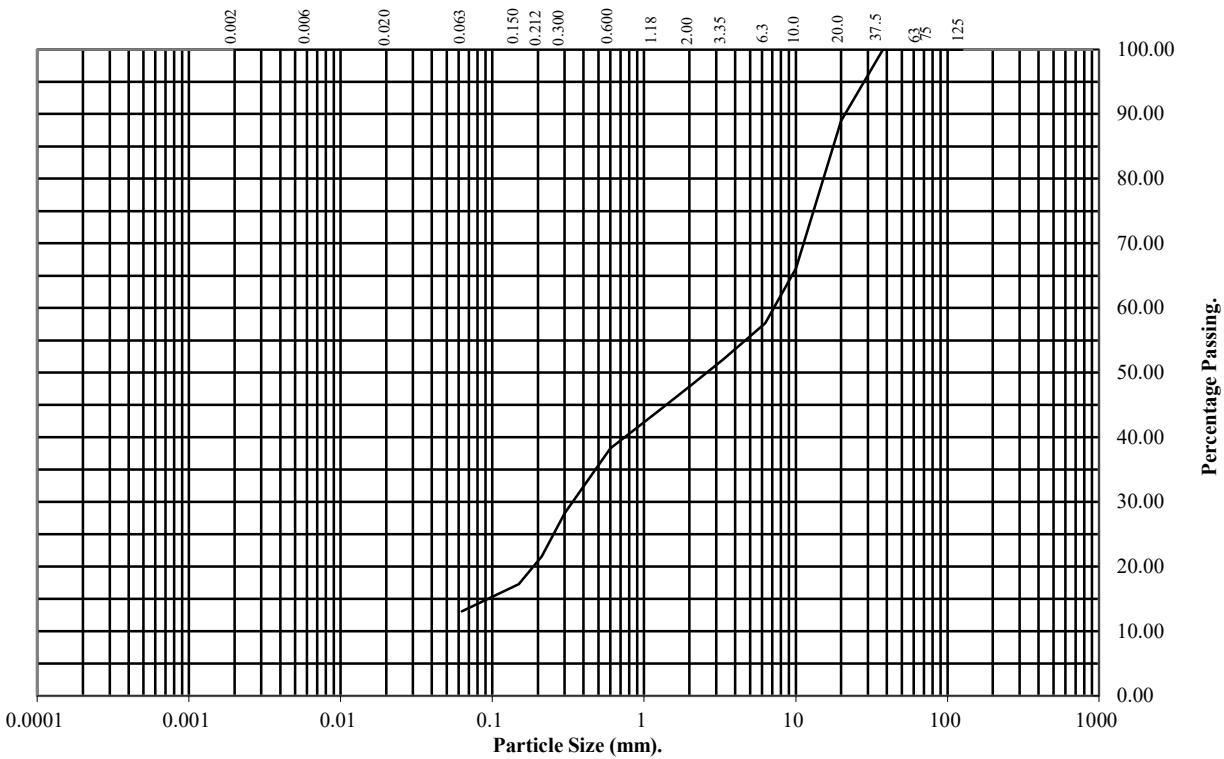
PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990
Wet Sieve, Clause 9.2

Hole Number: BH-PTR-27 Top Depth (m): 4.00

Sample Number: Base Depth(m): 4.45

Sample Type: D



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	89
10	66
6.3	58
3.35	52
2	48
1.18	44
0.6	38
0.3	28
0.212	22
0.15	17
0.063	13

Soil Fraction	Total Percentage
Cobbles	0
Gravel	52
Sand	35
Silt/Clay	13

Remarks:
See Summary of Soil Descriptions

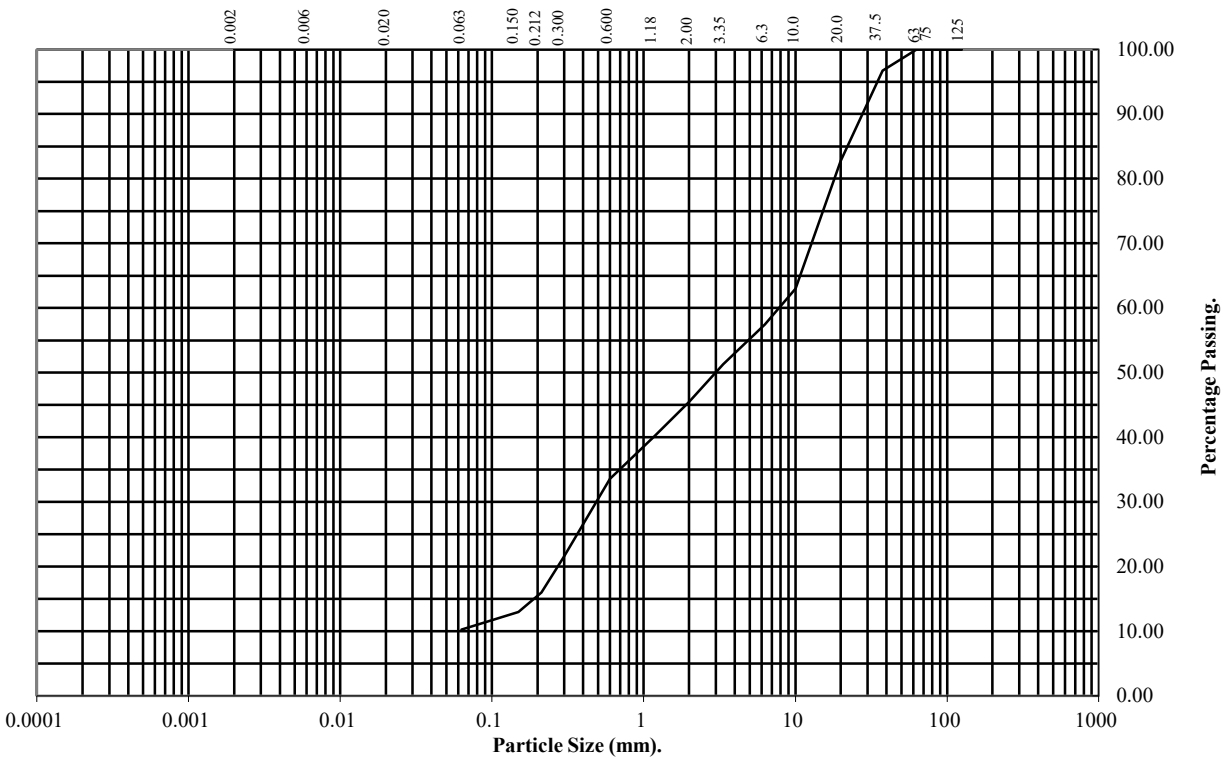
PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990
Wet Sieve, Clause 9.2

Hole Number: BH-PTR-27 Top Depth (m): 5.00

Sample Number: Base Depth(m): 5.45

Sample Type: D



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	97
20	83
10	63
6.3	57
3.35	51
2	45
1.18	40
0.6	34
0.3	22
0.212	16
0.15	13
0.063	10

Soil Fraction	Total Percentage
Cobbles	0
Gravel	55
Sand	35
Silt/Clay	10

Remarks:
See Summary of Soil Descriptions

SUMMARY OF CHALK TESTS

(BS1377: PART 2 & 4: 1990)

[illegible]

* CCV testing is not UKAS accredited

 <p>PSL Professional Soils Laboratory</p>	<p>Cambridge</p>	<p>Contract No:</p>
		<p>PSL21/4441</p>
		<p>Client Ref:</p>
		<p>784-B025563</p>

SUMMARY OF ROCK TESTS

(ISRM Suggested Method for the Determination of the Water Content of Rock)

[illegible]

	Contract No:
	PSL 21/4441
	Client Ref:
	784-B025563

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular

	<p>Contract No:</p>
	<p>PSL21/4441</p>
	<p>Client Ref:</p>
	<p>784-B025563</p>

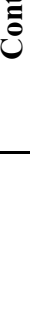
SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

 PSL Professional Soils Laboratory	Cambridge	Contract No:
		PSL21/4441
		Client Ref:
		784-B025563

Sample Description & Split Describe

Hole Number: BH-PTR-27 Top Depth (m): 1.20

Sample Number: Base Depth (m): 1.65

Sample Type: UT Sample Date:

Sample Description: Very soft dark brown gravelly very sandy CLAY. Sand is FMC,
Gravel is FMC angular



Sample Description & Split Describe

Hole Number: BH-PTR-27 Top Depth (m): 2.00

Sample Number: Base Depth (m): 2.45

Sample Type: UT Sample Date:

Sample Description: Soft brown mottled dark brown slightly gravelly very sandy CLAY
becoming dark brown slightly gravelly very sandy CLAY with some
organic material. Sand is FMC, Gravel is fine angular.





ANALYTICAL TEST REPORT

Contract no: 97655
Contract name: 784-B025563 Cambridge
Client reference: PLS21/4441
Clients name: Professional Soils Laboratory
Clients address: 5/7 Hexthorpe Road
Doncaster
DN4 0AR

Samples received: 22 June 2021
Analysis started: 22 June 2021
Analysis completed: 29 June 2021
Report issued: 29 June 2021

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.
All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.
Methods, procedures and performance data are available on request.
Results reported herein relate only to the material supplied to the laboratory.
This report shall not be reproduced except in full, without prior written approval.
Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key: U UKAS accredited test
M MCERTS & UKAS accredited test
\$ Test carried out by an approved subcontractor
I/S Insufficient sample to carry out test
N/S Sample not suitable for testing

Approved by: 
Rachael Burton
Customer Support Squad Leader

Chemtech Environmental Limited

SOILS

Lab number			97655-1	97655-2	97655-3	97655-4
Sample id			BH-PTR-27	BH-PTR-27	BH-PTR-27	BH-PTR-27
Depth (m)			1.65-1.70	2.45-2.50	22.50-22.95	28.50-28.95
Date sampled			-	-	-	-
Test	Method	Units				
pH	CE004 ^U	units	-	-	8.5	8.5
Magnesium (2:1 water soluble)	CE061	mg/l Mg	-	-	1.7	4.7
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	-	-	4.5	2.1
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	-	-	2.7	<1
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	-	-	18	41
Sulphate (total)	CE062	mg/kg SO ₄	-	-	465	418
Sulphur (total)	CE119	mg/kg S	-	-	210	240
Sulphur (total)	CE119	% w/w S	-	-	0.02	0.02
Total Organic Carbon (TOC)	CE197	% w/w C	5.7	11.0	-	-
Estimate of OMC (calculated from TOC)	CE197	% w/w	9.7	18.9	-	-

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S
CE197	Total Organic Carbon (TOC)	Carbon Analyser	Dry		0.1	% w/w C
CE197	Estimate of OMC (calculated from TOC)	Calculation from Total Organic Carbon	Dry		0.1	% w/w

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

- Key**
N No (not deviating sample)
Y Yes (deviating sample)
NSD Sampling date not provided
NST Sampling time not provided (waters only)
EHT Sample exceeded holding time(s)
IC Sample not received in appropriate containers
HP Headspace present in sample container
NCF Sample not chemically fixed (where appropriate)
OR Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
97655-3	BH-PTR-27	22.50-22.95	Y	All (NSD)
97655-4	BH-PTR-27	28.50-28.95	Y	All (NSD)

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

[illegible]

SYMBOLS: NP: Non Plastic

* : Liquid Limit and Plastic Limit Wet Sieved.


PSL
Professional Soils Laboratory
4043

Contract No:

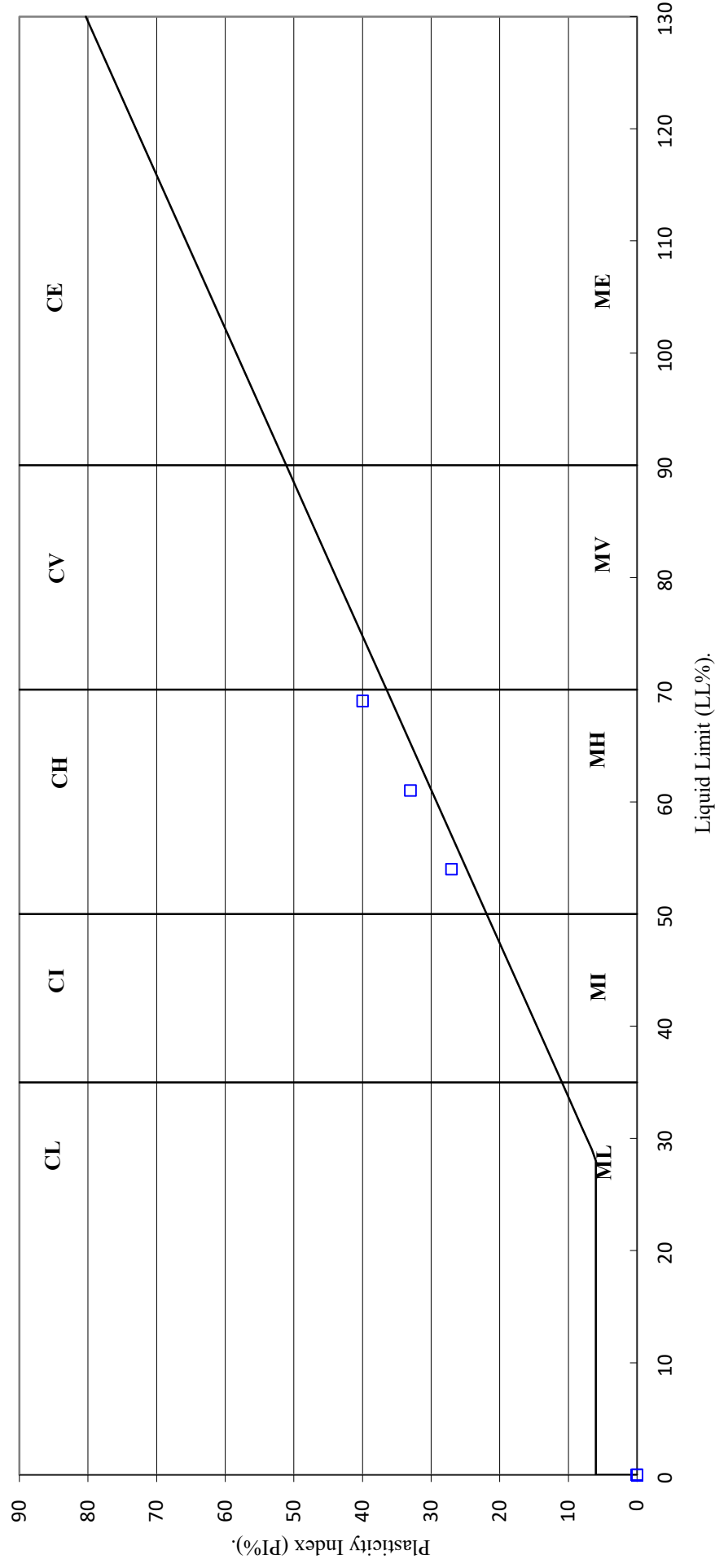
PSL21/4442

Client Ref:

784-B025563

Cambridge

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.




PSL
Professional Soils Laboratory
4043

Contract No:

PSL21/4442

Client Ref:

784-B025563

Cambridge

(BS1377 : PART 2 & 4 : 1990)

* CCV testing is not UKAS accredited



Cambridge

Contract No:	PSL21/4442	Client Ref:	784-B025563
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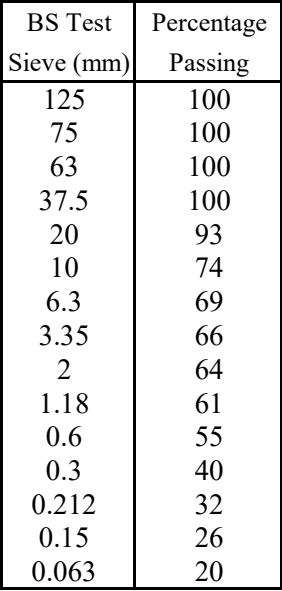
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	BH-PTR-28	Top Depth (m):	2.00
---------------------	------------------	-----------------------	-------------

Sample Number: **Base Depth(m):** **2.45**

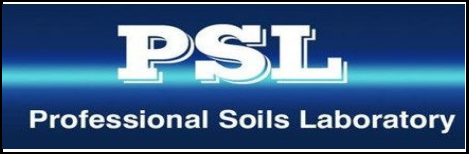
Sample Type: UT



Particle Diameter	Percentage Passing
0.02	15
0.006	12
0.002	9

Soil Fraction	Total Percentage
Cobbles	0
Gravel	36
Sand	44
Silt	11
Clay	9

Remarks:
See Summary of Soil Descriptions



Cambridge

Contract No:
PSL21/4442
Client Ref:
784-B025563

PARTICLE SIZE DISTRIBUTION TEST

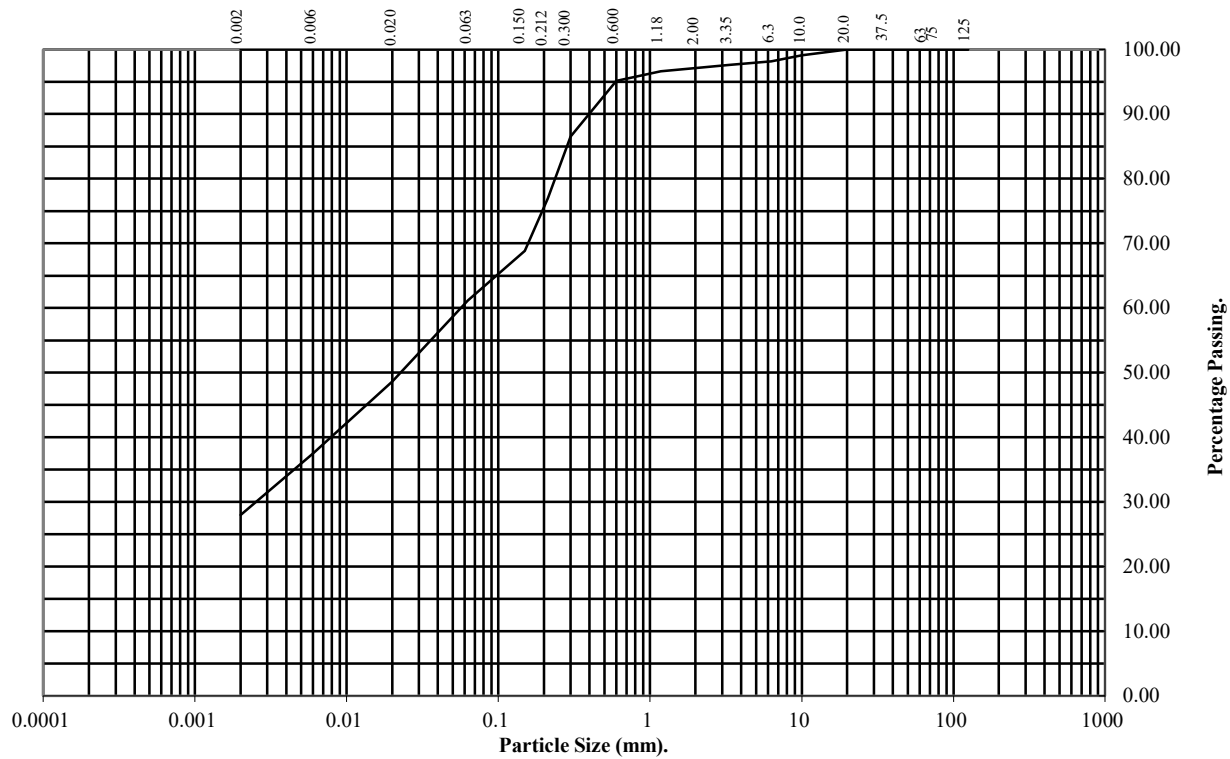
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	BH-PTR-28	Top Depth (m):	2.50
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Sample Number: _____ **Base Depth(m):** **3.00**

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	99
6.3	98
3.35	98
2	97
1.18	97
0.6	95
0.3	86
0.212	77
0.15	69
0.063	61

Particle Diameter	Percentage Passing
0.02	49
0.006	37
0.002	28

Soil Fraction	Total Percentage
Cobbles	0
Gravel	3
Sand	36
Silt	33
Clay	28

Remarks:

See Summary of Soil Descriptions



4043

PSL

Professional Soils Laboratory

Cambridge

Contract No:

PSL21/4442

Client Ref:

784-B025563

SUMMARY OF ROCK TESTS

(ISRM Suggested Method for the Determination of the Water Content of Rock)

[illegible]

pSL
Professional Soils Laboratory

Contract No:

PSL21/4442

Client Ref:

784-B025563

Cambridge

DETERMINATION OF UNCONFINED COMPRESSIVE STRENGTH

ISRM Suggested Methods, pp 111–116, 1981.

[illegible]

	<p>Contract No:</p>
	<p>PSL21/4442</p>
	<p>Client Ref:</p>
	<p>784-B025563</p>

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular

 PSL Professional Soils Laboratory	Contract No:
	PSL21/4442
	Client Ref:
	784-B025563

ISRM Suggested Methods : 2007

PSL030 Issue 2

Hole Number:	BH-PTR-28	Top Depth (m):	1.20
Sample Number:		Base Depth (m):	1.65
Sample Type:	UT	Sample Date:	
Sample Description:	Soft to firm dark brown slightly gravelly slightly sandy organic CLAY becoming brown gravelly sandy CLAY. Sand is FMC, Gravel is FMC angular.		



Sample Description & Split Describe

Hole Number: BH-PTR-28 Top Depth (m): 2.00

Sample Number: Base Depth (m): 2.45

Sample Type: UT Sample Date:

Sample Description: Grey mottled brown very gravelly very clayey SAND. Sand is FMC, Gravel is FMC angular.



Cambridge

Contract No:
PSL21/4442
Client Ref:
784-B025563



ANALYTICAL TEST REPORT

Contract no: 97651

Contract name: 784-B025563 Cambridge

Client reference: PSL21/4442

Clients name: Professional Soils Laboratory

Clients address: 5/7 Hexthorpe Road
Doncaster
DN4 0AR

Samples received: 22 June 2021

Analysis started: 22 June 2021

Analysis completed: 29 June 2021

Report issued: 29 June 2021

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope. Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling. All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing. Methods, procedures and performance data are available on request. Results reported herein relate only to the material supplied to the laboratory. This report shall not be reproduced except in full, without prior written approval. Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key: U UKAS accredited test
M MCERTS & UKAS accredited test
\$ Test carried out by an approved subcontractor
I/S Insufficient sample to carry out test
N/S Sample not suitable for testing

Approved by: 
Rachael Burton
Customer Support Squad Leader

Chemtech Environmental Limited

SOILS

Lab number			97651-1	97651-2	97651-3
Sample id			BH-PTR-28	BH-PTR-28	BH-PTR-28
Depth (m)			1.65-1.70	26.50-26.65	30.00-30.30
Date sampled			-	-	-
Test	Method	Units			
pH	CE004 ^U	units	8.2	8.6	8.5
Magnesium (2:1 water soluble)	CE061	mg/l Mg	<1	1.1	1.0
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	6.6	1.8	3.2
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	<1	1.2	4.1
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	22	19	25
Sulphate (total)	CE062	mg/kg SO ₄	761	430	363
Sulphur (total)	CE119	mg/kg S	675	210	175
Sulphur (total)	CE119	% w/w S	0.07	0.02	0.02

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S

Chemtech Environmental Limited

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key	
N	No (not deviating sample)
Y	Yes (deviating sample)
NSD	Sampling date not provided
NST	Sampling time not provided (waters only)
EHT	Sample exceeded holding time(s)
IC	Sample not received in appropriate containers
HP	Headspace present in sample container
NCF	Sample not chemically fixed (where appropriate)
OR	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
97651-1	BH-PTR-28	1.65-1.70	Y	All (NSD)
97651-2	BH-PTR-28	26.50-26.65	Y	All (NSD)
97651-3	BH-PTR-28	30.00-30.30	Y	All (NSD)



LABORATORY
REPORT



4043

Contract Number: PSL21/5772

Report Date: 20 October 2021

Client’s Reference: 784-B025563

Client Name: Tetra Tech
11th Floor
1 Angel Court
London
EC2R 7HJ

For the attention of: Richard Tonge

Contract Title: Cambridge

Date Received: 16/7/2021
Date Commenced: 16/7/2021
Date Completed: 20/10/2021

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

A Watkins (Director)	R Berriman (Quality Manager)	S Royle (Laboratory Manager)
L Knight (Assistant Laboratory Manager)	 S Eyre (Senior Technician)	T Watkins (Senior Technician)

5 – 7 Hexthorpe Road, Hexthorpe,
Doncaster DN4 0AR
tel: +44 (0)844 815 6641
fax: +44 (0)844 815 6642
e-mail: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

Page 1 of

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]

	<p>Cambridge</p>	Contract No:
		PSL21/5772
		Client Ref:
		784-B025563

PARTICLE SIZE DISTRIBUTION TEST

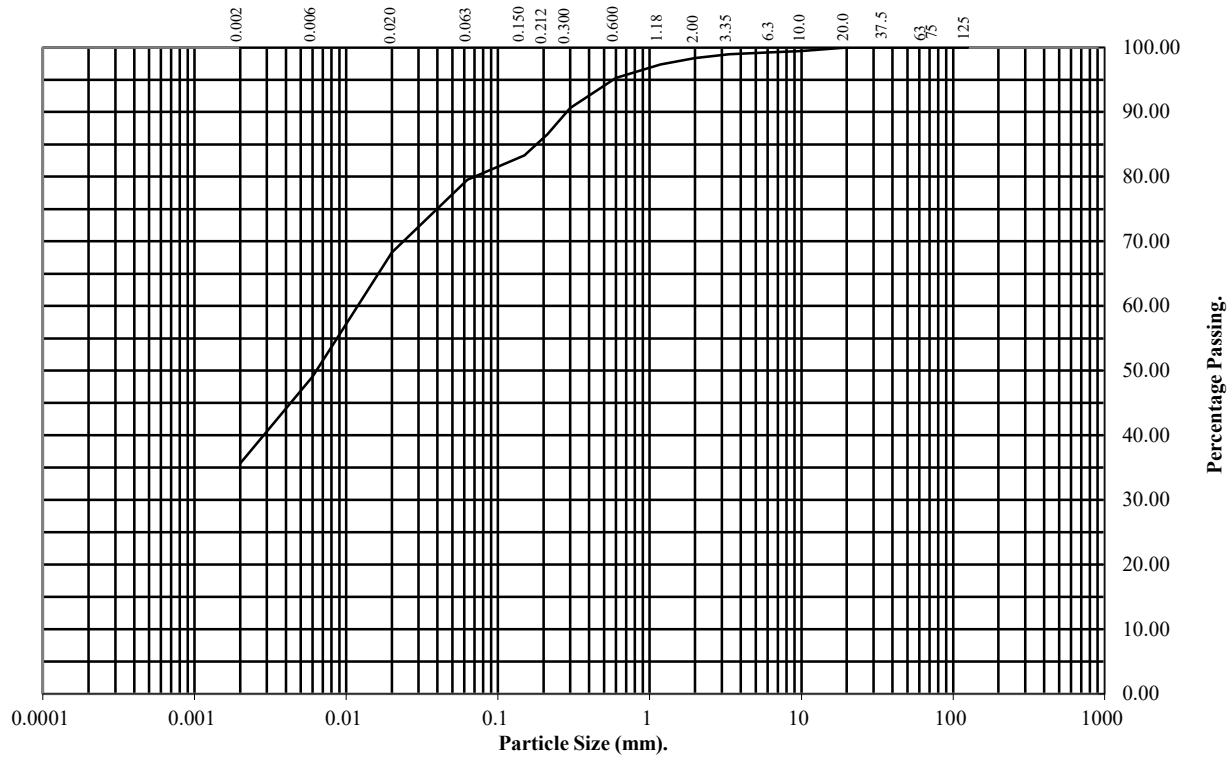
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	BH-PTR-29	Top Depth (m):	0.85
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Sample Number: _____ **Base Depth(m):** _____

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	99
6.3	99
3.35	99
2	98
1.18	97
0.6	95
0.3	91
0.212	87
0.15	83
0.063	80

Particle Diameter	Percentage Passing
0.02	68
0.006	49
0.002	36

Soil Fraction	Total Percentage
Cobbles	0
Gravel	2
Sand	18
Silt	44
Clay	36

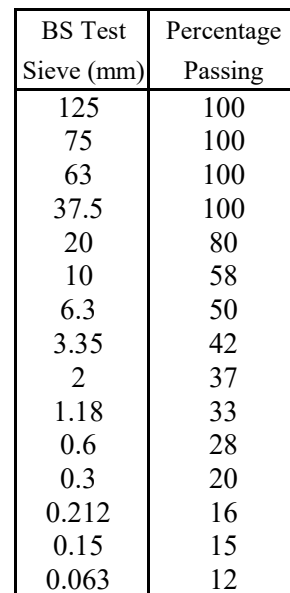
Remarks:

[See Summary of Soil Descriptions](#)

 PSL Professional Soils Laboratory	<p>Cambridge</p>	Contract No:
		PSL21/5772
		Client Ref:
		784-B025563

BS1377 : Part 2 : 1990
Wet Sieve, Clause 9.2

Sample Type: **B**



Soil Fraction	Total Percentage
Cobbles	0
Gravel	63
Sand	25
Silt/Clay	12

Remarks:
See Summary of Soil Descriptions



4043

PSL
Professional Soils Laboratory

Cambridge

Contract No:
PSL21/5772
Client Ref:
784-B025563

DETERMINATION OF UNCONFINED COMPRESSIVE STRENGTH

ISRM Suggested Methods, pp 111 –116, 1981.

[illegible]

PSL
Professional Soils Laboratory

Cambridge

Contract No:	PSL21/5772	Client Ref:	784-B025563
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SUMMARY OF CHALK TESTS

(BS1377 : PART 2 & 4 : 1990)

[illegible]

* CCV testing is not UKAS accredited


PSL
Professional Soils Laboratory
4043

Cambridge

Contract No:

PSL21/5772

Client Ref:

784-B025563

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular

PST
Professional Soils Laboratory

Cambridge

Contract No:

PSL21/5772

Client Ref:

784-B025563

ISRM Suggested Methods : 2007

PSL030 Issue 2

Contract no:	101203
Contract name:	BH-PTR-29
Client reference:	PSL21/5772
Clients name:	Professional Soils Laboratory
Clients address:	5/7 Hexthorpe Road Doncaster DN4 0AR

Samples received: 06 October 2021

Analysis started: 06 October 2021

Analysis completed: 13 October 2021

Report issued: 13 October 2021

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.
All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.
Methods, procedures and performance data are available on request.
Results reported herein relate only to the material supplied to the laboratory.
This report shall not be reproduced except in full, without prior written approval.
Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key:

- U UKAS accredited test
- M MCERTS & UKAS accredited test
- \$ Test carried out by an approved subcontractor
- I/S Insufficient sample to carry out test
- N/S Sample not suitable for testing

Approved by: K Campbell
Karan Campbell
Director

Unit 6 Parkhead, Greencroft Industrial Park, Stanley, County Durham, DH9 7YB
Tel 01207 528578 Email customerservices@chemtech-env.co.uk
Vat Reg No. 772 5703 18 Registered in England number 4284013

Chemtech Environmental Limited

SOILS

Lab number			101203-1	101203-2	101203-3	101203-4
Sample id			BH-PTR-29	BH-PTR-29	BH-PTR-29	BH-PTR-29
Depth (m)			3.20-3.30	9.40-9.50	23.30-23.40	29.80-29.90
Date sampled			06/04/2021	06/04/2021	07/04/2021	07/04/2021
Test	Method	Units				
pH	CE004 ^U	units	8.6	8.7	8.8	8.4
Magnesium (2:1 water soluble)	CE061	mg/l Mg	<1	<1	<1	5.0
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	6.3	5.6	2.3	1.7
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	<1	<1	1.6	<1
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	26	20	13	135
Sulphate (total)	CE062	mg/kg SO ₄	494	600	453	875
Sulphur (total)	CE119	mg/kg S	211	228	224	1850
Sulphur (total)	CE119	% w/w S	0.02	0.02	0.02	0.19

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S

Chemtech Environmental Limited

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key	
N	No (not deviating sample)
Y	Yes (deviating sample)
NSD	Sampling date not provided
NST	Sampling time not provided (waters only)
EHT	Sample exceeded holding time(s)
IC	Sample not received in appropriate containers
HP	Headspace present in sample container
NCF	Sample not chemically fixed (where appropriate)
OR	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
101203-1	BH-PTR-29	3.20-3.30	Y	All (EHT)
101203-2	BH-PTR-29	9.40-9.50	Y	All (EHT)
101203-3	BH-PTR-29	23.30-23.40	Y	All (EHT)
101203-4	BH-PTR-29	29.80-29.90	Y	All (EHT)



LABORATORY
REPORT



4043

Contract Number: PSL21/5771

Report Date: 20 October 2021

Client’s Reference: 784-B025563

Client Name: Tetra Tech
11th Floor
1 Angel Court
London
EC2R 7HJ

For the attention of: Richard Tonge

Contract Title: Cambridge

Date Received: 16/7/2021
Date Commenced: 16/7/2021
Date Completed: 20/10/2021

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

A Watkins (Director)	R Berriman (Quality Manager)	S Royle (Laboratory Manager)
L Knight (Assistant Laboratory Manager)	 S Eyre (Senior Technician)	T Watkins (Senior Technician)

5 – 7 Hexthorpe Road, Hexthorpe,
Doncaster DN4 0AR
tel: +44 (0)844 815 6641
fax: +44 (0)844 815 6642
e-mail: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

Page 1 of

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]



UKAS
TESTING

4043

PSL

Professional Soils Laboratory

Contract No:	PSL21/5771	Client Ref:	784-B025563
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SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

[illegible]

SYMBOLS: NP : Non Plastic

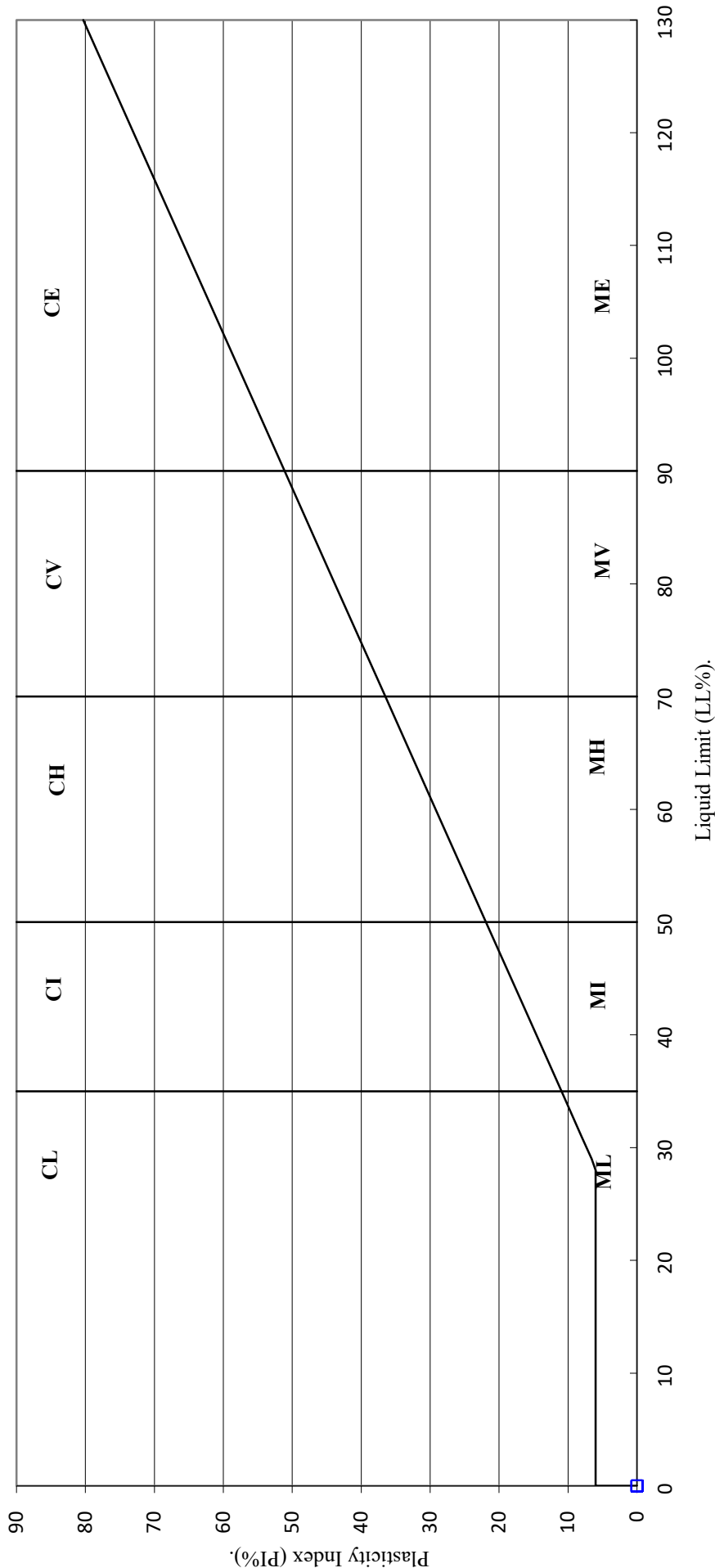
* : Liquid Limit and Plastic Limit Wet Sieved.

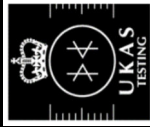

PSL
Professional Soils Laboratory
4043

Cambridge

Contract No:	PSL21/5771
Client Ref:	784-B025563

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



**4043**

PSL
Professional Soils Laboratory

Contract No:
PSL21/5771
Client Ref:
784-B025563

Cambridge

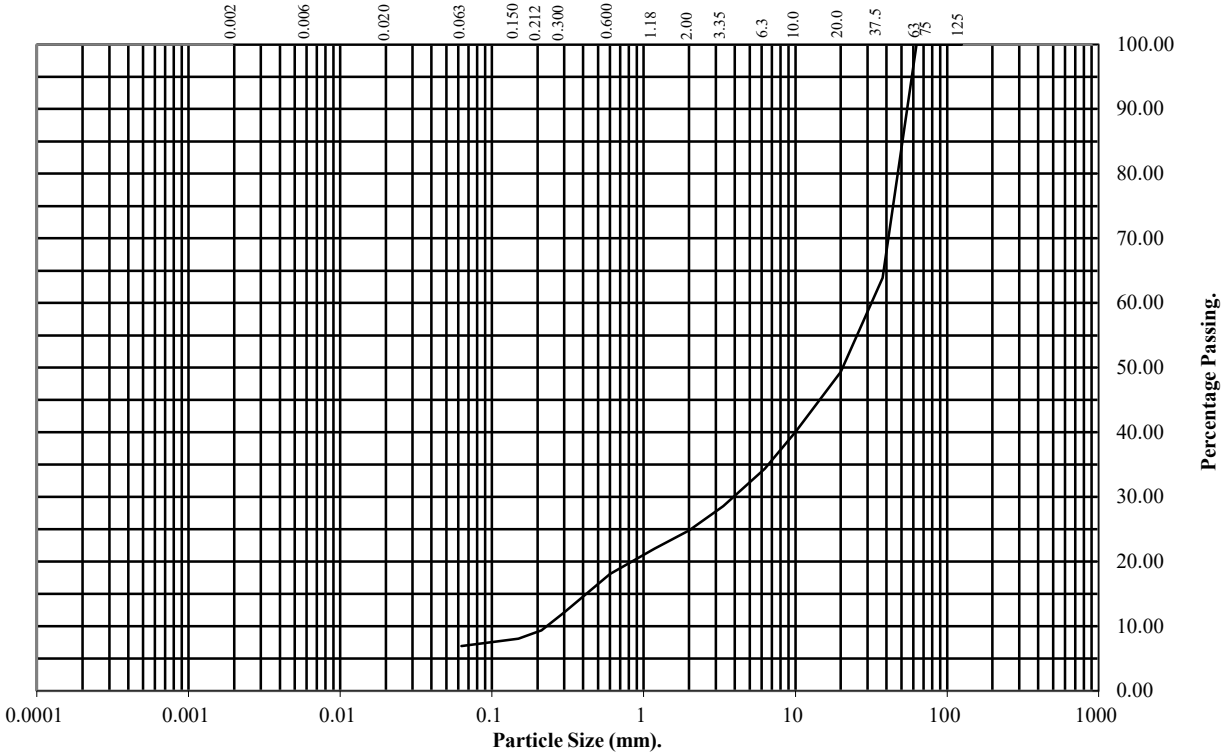
PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990
Wet Sieve, Clause 9.2

Hole Number: BH-PTR-30 Top Depth (m): 1.00

Sample Number: Base Depth(m):

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	64
20	49
10	40
6.3	34
3.35	29
2	25
1.18	22
0.6	18
0.3	12
0.212	9
0.15	8
0.063	7

Soil Fraction	Total Percentage
Cobbles	0
Gravel	75
Sand	18
Silt/Clay	7

Remarks:
See Summary of Soil Descriptions

**4043**

PSL
Professional Soils Laboratory

Cambridge

Contract No:
PSL21/5771
Client Ref:
784-B025563

DETERMINATION OF UNCONFINED COMPRESSIVE STRENGTH

ISRM Suggested Methods, pp 111 –116, 1981.

[illegible]

PST
Professional Soils Laboratory

Cambridge

Contract No:

PSL21/5771

Client Ref:

784-B025563

SUMMARY OF ROCK TESTS

(ISRM Suggested Method for the Determination of the Water Content of Rock)

[illegible]

PSL
Professional Soils Laboratory

Cambridge

Contract No:

PSL21/5771

Client Ref:
784-B025563

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular

		<p>Cambridge</p>	Contract No:
			PSL21/5771
			Client Ref:
			784-B025563

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

 4043		<p style="text-align: center;">Cambridge</p>	Contract No:
			PSL21/5771
			Client Ref:
			784-B025563



ANALYTICAL TEST REPORT

Contract no: 101201
Contract name: BH-PTR-30
Client reference: PSL21/5771
Clients name: Professional Soils Laboratory
Clients address: 5/7 Hexthorpe Road
Doncaster
DN4 0AR

Samples received: 06 October 2021

Analysis started: 06 October 2021

Analysis completed: 13 October 2021

Report issued: 13 October 2021

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.
All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.
Methods, procedures and performance data are available on request.
Results reported herein relate only to the material supplied to the laboratory.
This report shall not be reproduced except in full, without prior written approval.
Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key: U UKAS accredited test
M MCERTS & UKAS accredited test
\$ Test carried out by an approved subcontractor
I/S Insufficient sample to carry out test
N/S Sample not suitable for testing

Approved by: 
Karan Campbell
Director

Chemtech Environmental Limited

SOILS

Lab number			101201-1	101201-2	101201-3
Sample id			BH-PTR-30	BH-PTR-30	BH-PTR-30
Depth (m)			14.90-15.00	21.80-21.90	29.20-29.30
Date sampled			09/04/2021	09/04/2021	08/04/2021
Test	Method	Units			
pH	CE004 ^U	units	8.7	8.6	8.5
Magnesium (2:1 water soluble)	CE061	mg/l Mg	1.1	<1	3.6
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	6.5	4.0	1.7
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	2.0	3.0	<1
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	28	13	137
Sulphate (total)	CE062	mg/kg SO ₄	496	522	787
Sulphur (total)	CE119	mg/kg S	259	267	926
Sulphur (total)	CE119	% w/w S	0.03	0.03	0.09

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

- Key**
N No (not deviating sample)
Y Yes (deviating sample)
NSD Sampling date not provided
NST Sampling time not provided (waters only)
EHT Sample exceeded holding time(s)
IC Sample not received in appropriate containers
HP Headspace present in sample container
NCF Sample not chemically fixed (where appropriate)
OR Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
101201-1	BH-PTR-30	14.90-15.00	Y	All (EHT)
101201-2	BH-PTR-30	21.80-21.90	Y	All (EHT)
101201-3	BH-PTR-30	29.20-29.30	Y	All (EHT)

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

[illegible]

SYMBOLS: NP: Non Plastic

* : Liquid Limit and Plastic Limit Wet Sieved.


PSL
Professional Soils Laboratory
4043

Contract No:

PSL 21/5770

Client Ref:

784-B025563

Cambridge

SUMMARY OF CHALK TESTS

(BS1377: PART 2 & 4:1990)

[illegible]

* CCV testing is not UKAS accredited


PSL
Professional Soils Laboratory
4043

Contract No:

PSI 21/5770

Client Ref:

784-B025563

Cambridge

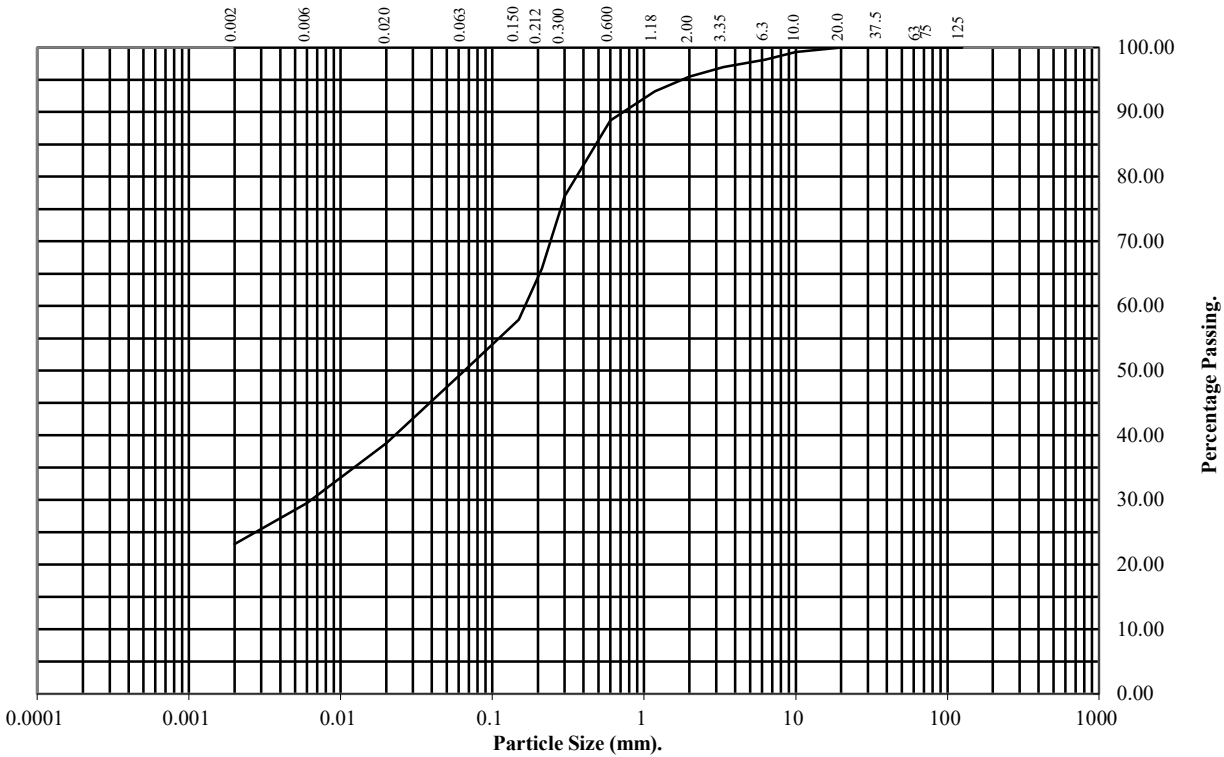
PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: BH-PTR-31 Top Depth (m): 1.00

Sample Number: Base Depth(m):

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	99
6.3	98
3.35	97
2	95
1.18	93
0.6	89
0.3	77
0.212	66
0.15	58
0.063	50

Particle Diameter	Percentage Passing
0.02	39
0.006	29
0.002	23

Soil Fraction	Total Percentage
Cobbles	0
Gravel	5
Sand	45
Silt	27
Clay	23

Remarks:
See Summary of Soil Descriptions

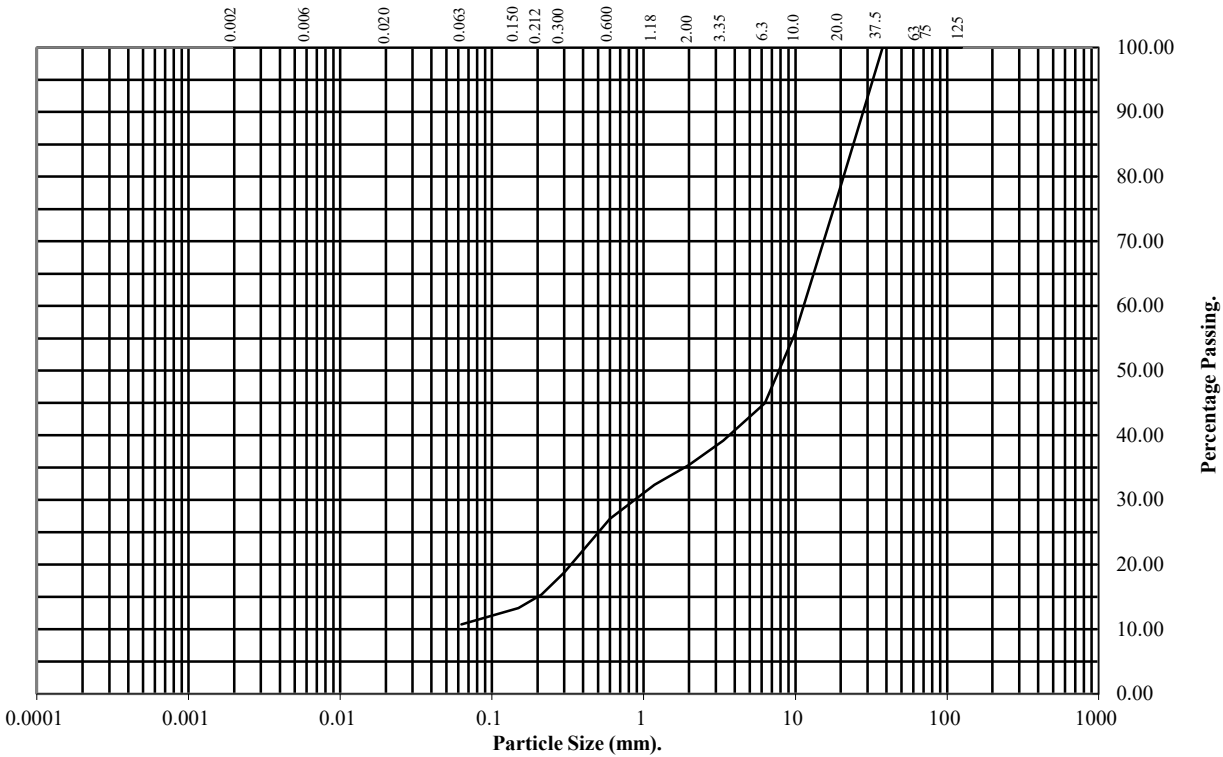
PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990
Wet Sieve, Clause 9.2

Hole Number: BH-PTR-31 Top Depth (m): 2.50

Sample Number: Base Depth(m): 2.60

Sample Type: D



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	79
10	56
6.3	45
3.35	39
2	35
1.18	32
0.6	27
0.3	19
0.212	15
0.15	13
0.063	11

Soil Fraction	Total Percentage
Cobbles	0
Gravel	65
Sand	24
Silt/Clay	11

Remarks:
See Summary of Soil Descriptions

PARTICLE SIZE DISTRIBUTION TEST

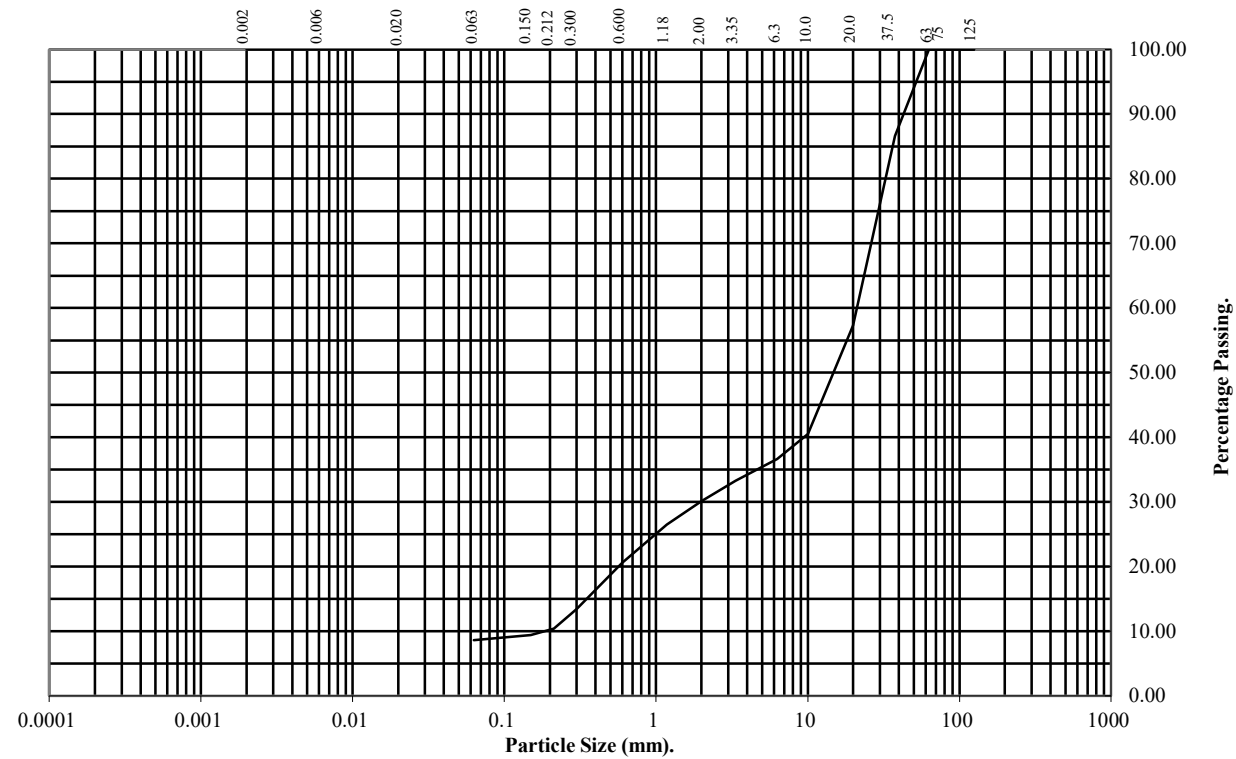
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number:	BH-PTR-31	Top Depth (m):	4.20
---------------------	------------------	-----------------------	-------------

Sample Number: **Base Depth(m):** 4.30

Sample Type: **D**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	87
20	57
10	41
6.3	37
3.35	33
2	30
1.18	26
0.6	21
0.3	13
0.212	10
0.15	9
0.063	9

Soil Fraction	Total Percentage
Cobbles	0
Gravel	70
Sand	21
Silt/Clay	9

Remarks:

See Summary of Soil Descriptions



4043

PSL

Professional Soils Laboratory

Cambridge

Contract No:

PSL21/5770

Client Ref:

784-B025563

SUMMARY OF ROCK TESTS

(ISRM Suggested Method for the Determination of the Water Content of Rock)

[illegible]**Contract No:**

PSL21/5770

Client Ref:

784-B025563

Cambridge

PST
Professional Soils Laboratory

ISRM Suggested Methods : 2007

ISRM Suggested Methods : 2007

A = Axial, D = Diametral, I = Irregular

Par = parallel, Perp = perpendicular, U = Random

***Note** All testing carried out on samples at as received water content

 <p>PSL Professional Soils Laboratory</p>	<p>Contract No:</p>
	<p>PSL21/5770</p>
	<p>Client Ref:</p>
	<p>784-B025563</p>



Samples received: 06 October 2021

Analysis started: 06 October 2021

Analysis completed: 13 October 2021

Report issued: 13 October 2021

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
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Key:

- U UKAS accredited test
- M MCERTS & UKAS accredited test
- \$ Test carried out by an approved subcontractor
- I/S Insufficient sample to carry out test
- N/S Sample not suitable for testing

Approved by:

Unit 6 Parkhead, Greencroft Industrial Park, Stanley, County Durham, DH9 7YB
Tel 01207 528578 Email customerservices@chemtech-env.co.uk
Vat Reg No. 772 5703 18 Registered in England number 4284013

Chemtech Environmental Limited

SOILS

Lab number			101199-1	101199-2	101199-3	101199-4
Sample id			BH-PTR-31	BH-PTR-31	BH-PTR-31	BH-PTR-31
Depth (m)			1.00	13.90-14.00	18.30-18.40	28.80-28.90
Date sampled			-	-	-	-
Test	Method	Units				
pH	CE004 ^U	units	-	8.6	8.7	8.6
Magnesium (2:1 water soluble)	CE061	mg/l Mg	-	3.2	1.7	1.5
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	-	4.9	<1	6.1
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	-	2.2	<1	1.2
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	-	23	18	17
Sulphate (total)	CE062	mg/kg SO ₄	-	455	466	506
Sulphur (total)	CE119	mg/kg S	-	252	246	256
Sulphur (total)	CE119	% w/w S	-	0.03	0.02	0.03
Total Organic Carbon (TOC)	CE197	% w/w C	4.8	-	-	-
Estimate of OMC (calculated from TOC)	CE197	% w/w	8.3	-	-	-

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S
CE197	Total Organic Carbon (TOC)	Carbon Analyser	Dry		0.1	% w/w C
CE197	Estimate of OMC (calculated from TOC)	Calculation from Total Organic Carbon	Dry		0.1	% w/w

Chemtech Environmental Limited

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key	
N	No (not deviating sample)
Y	Yes (deviating sample)
NSD	Sampling date not provided
NST	Sampling time not provided (waters only)
EHT	Sample exceeded holding time(s)
IC	Sample not received in appropriate containers
HP	Headspace present in sample container
NCF	Sample not chemically fixed (where appropriate)
OR	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
101199-1	BH-PTR-31	1.00	Y	All (NSD)
101199-2	BH-PTR-31	13.90-14.00	Y	All (NSD)
101199-3	BH-PTR-31	18.30-18.40	Y	All (NSD)
101199-4	BH-PTR-31	28.80-28.90	Y	All (NSD)



LABORATORY
REPORT



4043

Contract Number: PSL21/6319

Report Date: 08 November 2021

Client’s Reference: 784-B025563

Client Name: Tetra Tech
11th Floor
1 Angel Court
London
EC2R 7HJ

For the attention of: Richard Tonge

Contract Title: Cambridge

Date Received: 6/8/2021
Date Commenced: 6/8/2021
Date Completed: 8/11/2021

Notes: Opinions and Interpretations are outside the UKAS Accreditation

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Checked and Approved Signatories:

A Watkins (Director)	R Berriman (Quality Manager)	S Royle (Laboratory Manager)
L Knight (Assistant Laboratory Manager)	 S Eyre (Senior Technician)	T Watkins (Senior Technician)

5 – 7 Hexthorpe Road, Hexthorpe,
Doncaster DN4 0AR
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fax: +44 (0)844 815 6642
e-mail: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

Page 1 of

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]


PSL
Professional Soils Laboratory
4043

Contract No:	PSL21/6319	Client Ref:	784-B025563
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SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

[illegible]

SYMBOLS: NP : Non Plastic

* : Liquid Limit and Plastic Limit Wet Sieved.

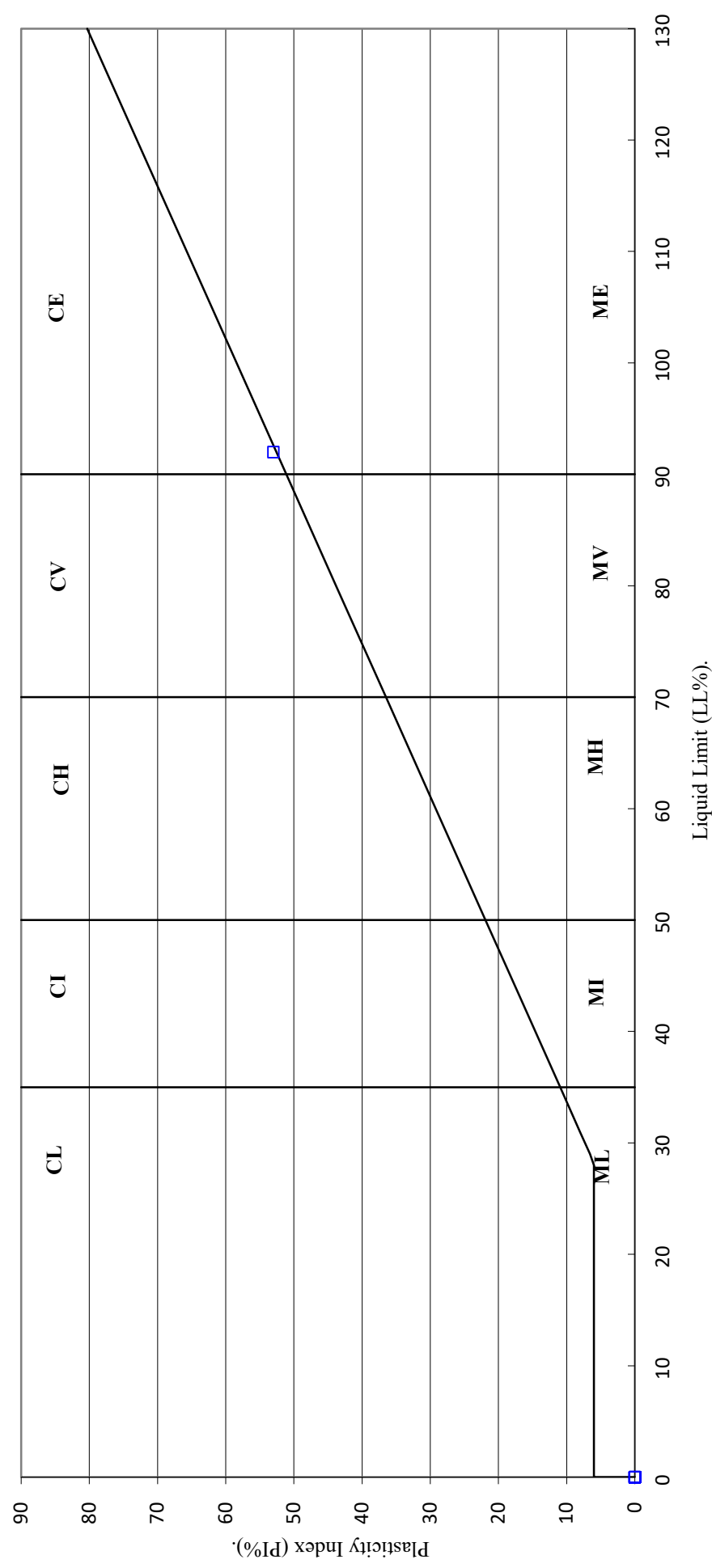
PSL
Professional Soils Laboratory

 **4043**

Cambridge

Contract No:	PSL21/6319
Client Ref:	784-B025563

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.





UKAS
TESTING

PSL

Professional Soils Laboratory

4043

Contract No:

PSL21/6319

Client Ref:

784-B025563

Cambridge

SUMMARY OF CHALK TESTS

(BS1377 : PART 2 & 4 : 1990)

[illegible]

* CCV testing is not UKAS accredited



UKAS
TESTING

4043



Professional Soils Laboratory

Contract No:

PSL21/6319

Client Ref:

784-B025563

Cambridge

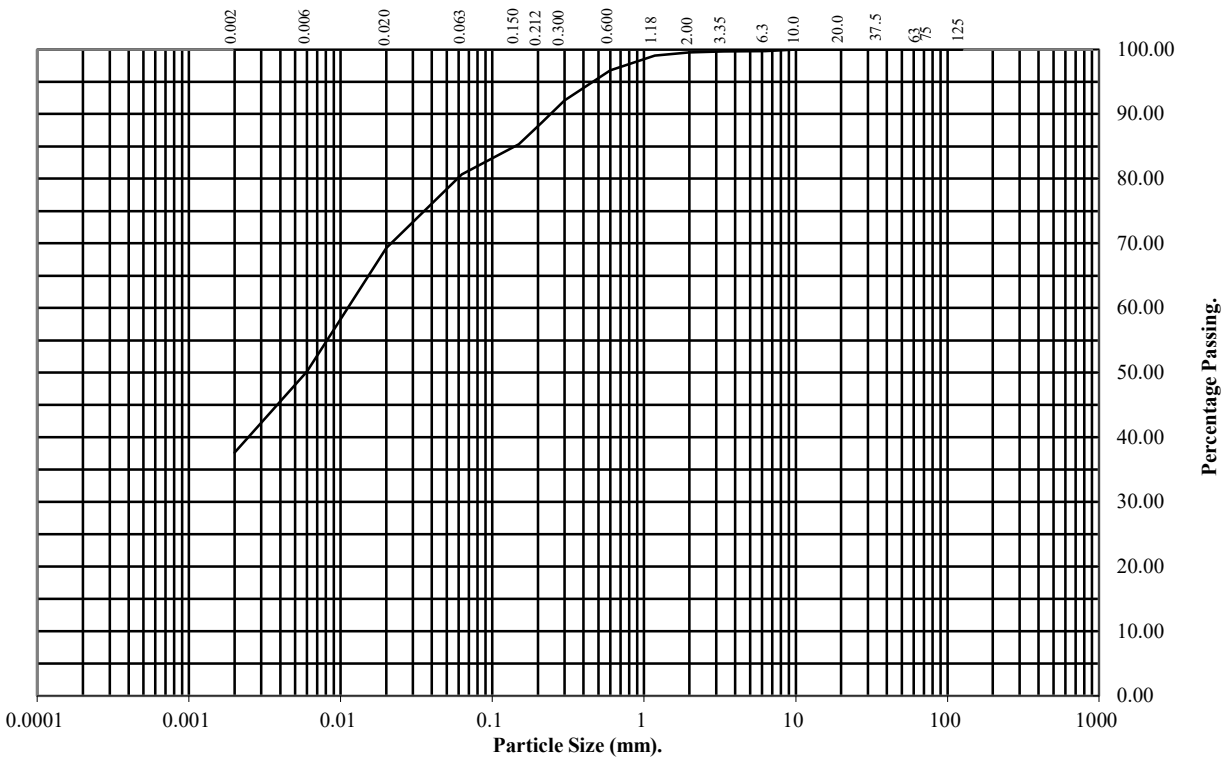
PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: BH-PTR-32 Top Depth (m): 1.00

Sample Number: Base Depth(m): 1.00

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	100
3.35	100
2	100
1.18	99
0.6	97
0.3	92
0.212	89
0.15	85
0.063	81

Particle Diameter	Percentage Passing
0.02	69
0.006	50
0.002	38

Soil Fraction	Total Percentage
Cobbles	0
Gravel	0
Sand	19
Silt	43
Clay	38

Remarks:
See Summary of Soil Descriptions

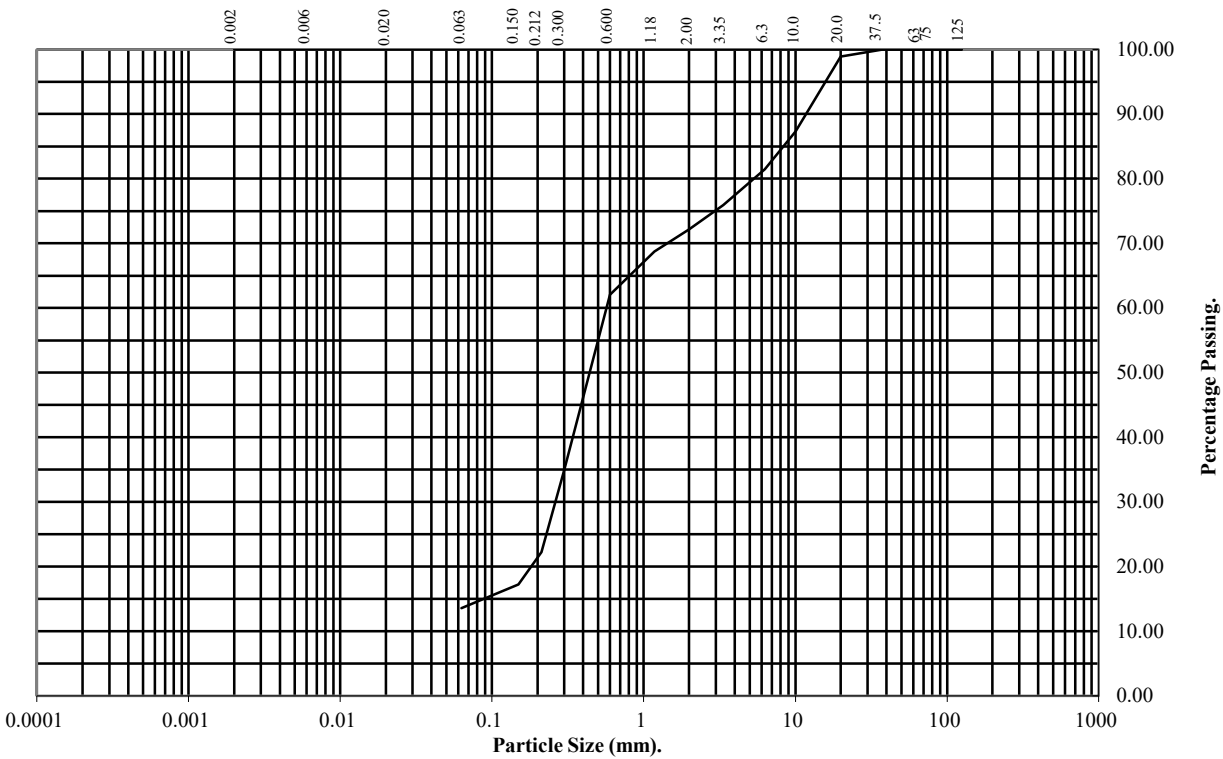
PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990
Wet Sieve, Clause 9.2

Hole Number: BH-PTR-32 Top Depth (m): 3.00

Sample Number: Base Depth(m): 3.45

Sample Type: D



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	99
10	87
6.3	81
3.35	76
2	72
1.18	69
0.6	62
0.3	35
0.212	22
0.15	17
0.063	14

Soil Fraction	Total Percentage
Cobbles	0
Gravel	28
Sand	58
Silt/Clay	14

Remarks:
See Summary of Soil Descriptions

ONE DIMENSIONAL CONSOLIDATION TEST

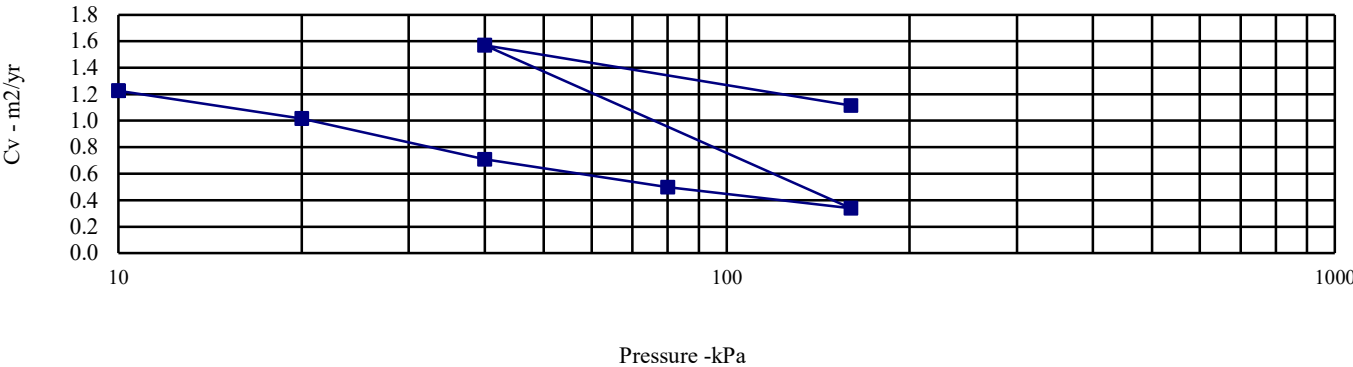
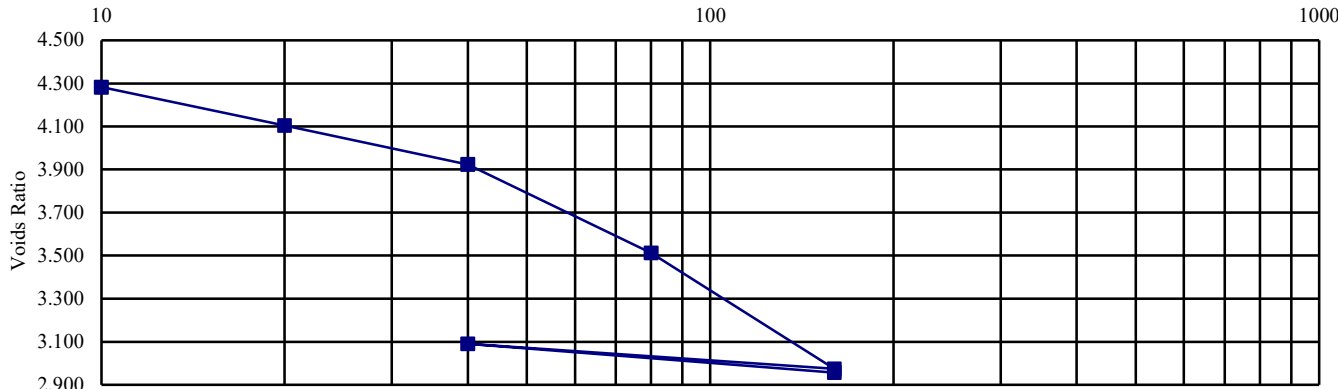
BS 1377: Part 5: 1990: Clause 3

Hole Number:	BH-PTR-32B	Top Depth (m):	1.20
---------------------	-------------------	-----------------------	-------------

Sample Number: _____ **Base Depth (m) :** **1.65**

Sample Type: UT

Initial Conditions		Pressure Range kPa		Mv m2/MN	Cv m2/yr	Specimen location	Top
Moisture Content (%):	151					within tube:	
Bulk Density (Mg/m3):	1.24	0	10	1.244	1.227	Method used to	T90
Dry Density (Mg/m3):	0.50	10	20	3.382	1.017	determine CV:	
Voids Ratio:	4.349	20	40	1.766	0.709	Nominal temperature	20
Degree of saturation:	91.9	40	80	2.082	0.499	during test ' C:	
Height (mm):	20.092	80	160	1.492	0.339	Remarks: See summary of soil descriptions	
Diameter (mm)	75.08	160	40	0.243	1.571		
Particle Density (Mg/m3):	2.65	40	160	0.272	1.115		
Assumed							



PSL

Professional Soils Laboratory

Cambridge

Contract No:
PSL21/6319

Client Ref:
784-B025563

SUMMARY OF ROCK TESTS

ISRM Suggested Method for the Determination of the Water Content of Rock)

[illegible]

PSL
Professional Soils Laboratory

Contract No:
PSL21/6319

Client Ref:
784-B025563

DETERMINATION OF UNCONFINED COMPRESSIVE STRENGTH

ISRM Suggested Methods, pp 111–116, 1981.

[illegible]

PST
Professional Soils Laboratory

Contract No:

PSL21/6319

Client Ref:

784-B025563

Cambridge

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular


PST
Professional Soils Laboratory
4043

Contract No:

PSL21/6319

Client Ref:

784-B025563

Cambridge

Sample Description & Split Describe

Hole Number: BH-PTR-32 Top Depth (m): 1.20

Sample Number: Base Depth (m): 1.65

Sample Type: UT Sample Date:

Sample Description: 1.20-1.53m - Soft to firm brown spongy slightly sandy organic CLAY with occasional FM sized thickness rootlets.
1.53-1.58m - Soft to firm dark brown pseudo-fibrous PEAT with frequent plant remains.



Cambridge

Contract No:
PSL21/6319
Client Ref:
784-B025563



ANALYTICAL TEST REPORT

Contract no: 101231

Contract name: BH-PTR-32

Client reference: PSL21/6319

Clients name: Professional Soils Laboratory

Clients address: 5/7 Hexthorpe Road
Doncaster
DN4 0AR

Samples received: 06 October 2021

Analysis started: 06 October 2021

Analysis completed: 13 October 2021

Report issued: 13 October 2021

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope. Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling. All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing. Methods, procedures and performance data are available on request. Results reported herein relate only to the material supplied to the laboratory. This report shall not be reproduced except in full, without prior written approval. Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key: U UKAS accredited test
M MCERTS & UKAS accredited test
\$ Test carried out by an approved subcontractor
I/S Insufficient sample to carry out test
N/S Sample not suitable for testing

Approved by: 
Rachael Burton
Customer Support Squad Leader

Unit 6 Parkhead, Greencroft Industrial Park, Stanley, County Durham, DH9 7YB
Tel 01207 528578 Email customerservices@chemtech-env.co.uk
Vat Reg No. 772 5703 18 Registered in England number 4284013

Page 1 of 4 Pages

Chemtech Environmental Limited

SOILS

Lab number			101231-1	101231-2	101231-3	101231-4
Sample id			BH-PTR-32	BH-PTR-32	BH-PTR-32	BH-PTR-32
Depth (m)			1.65-1.70	15.30-15.40	22.10-22.20	30.10-30.20
Date sampled			-	13/04/2021	14/04/2021	14/04/2021
Test	Method	Units				
pH	CE004 ^U	units	8.1	8.7	8.7	8.7
Magnesium (2:1 water soluble)	CE061	mg/l Mg	2.6	1.2	1.2	1.1
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	31	2.1	2.2	2.3
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	101	3.5	2.3	1.5
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	89	12	13	13
Sulphate (total)	CE062	mg/kg SO ₄	1739	632	479	496
Sulphur (total)	CE119	mg/kg S	847	528	184	228
Sulphur (total)	CE119	% w/w S	0.08	0.05	0.02	0.02

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S

Chemtech Environmental Limited

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key	
N	No (not deviating sample)
Y	Yes (deviating sample)
NSD	Sampling date not provided
NST	Sampling time not provided (waters only)
EHT	Sample exceeded holding time(s)
IC	Sample not received in appropriate containers
HP	Headspace present in sample container
NCF	Sample not chemically fixed (where appropriate)
OR	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
101231-1	BH-PTR-32	1.65-1.70	Y	All (NSD)
101231-2	BH-PTR-32	15.30-15.40	Y	All (EHT)
101231-3	BH-PTR-32	22.10-22.20	Y	All (EHT)
101231-4	BH-PTR-32	30.10-30.20	Y	All (EHT)



LABORATORY
REPORT



4043

Contract Number: PSL21/6320

Report Date: 18 October 2021

Client’s Reference: 784-B025563

Client Name: Tetra Tech
11th Floor
1 Angel Court
London
EC2R 7HJ

For the attention of: Richard Tonge

Contract Title: Cambridge

Date Received: 6/8/2021
Date Commenced: 6/8/2021
Date Completed: 18/10/2021

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

A Watkins (Director)	R Berriman (Quality Manager)	S Royle (Laboratory Manager)
L Knight (Assistant Laboratory Manager)	 S Eyre (Senior Technician)	T Watkins (Senior Technician)

5 – 7 Hexthorpe Road, Hexthorpe,
Doncaster DN4 0AR
tel: +44 (0)844 815 6641
fax: +44 (0)844 815 6642
e-mail: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

Page 1 of

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]


PSL
Professional Soils Laboratory
4043

Contract No:	PSL21/6320	Client Ref:	784-B025563
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SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

[illegible]

SYMBOLS: NP : Non Plastic

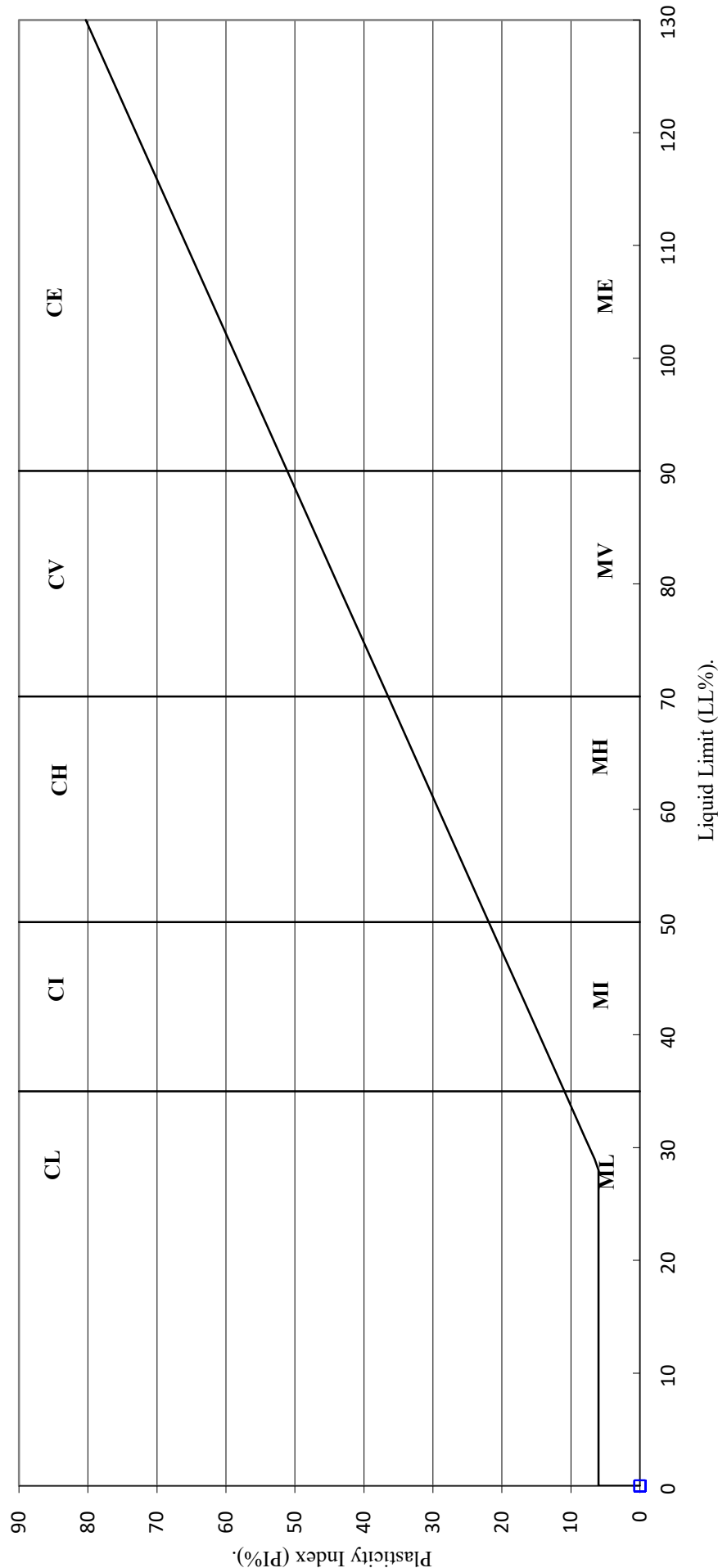
* : Liquid Limit and Plastic Limit Wet Sieved.


PSL
Professional Soils Laboratory
4043

Cambridge

Contract No:	PSL21/6320
Client Ref:	784-B025563

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



Contract No:
PSL21/6320
Client Ref:
784-B025563

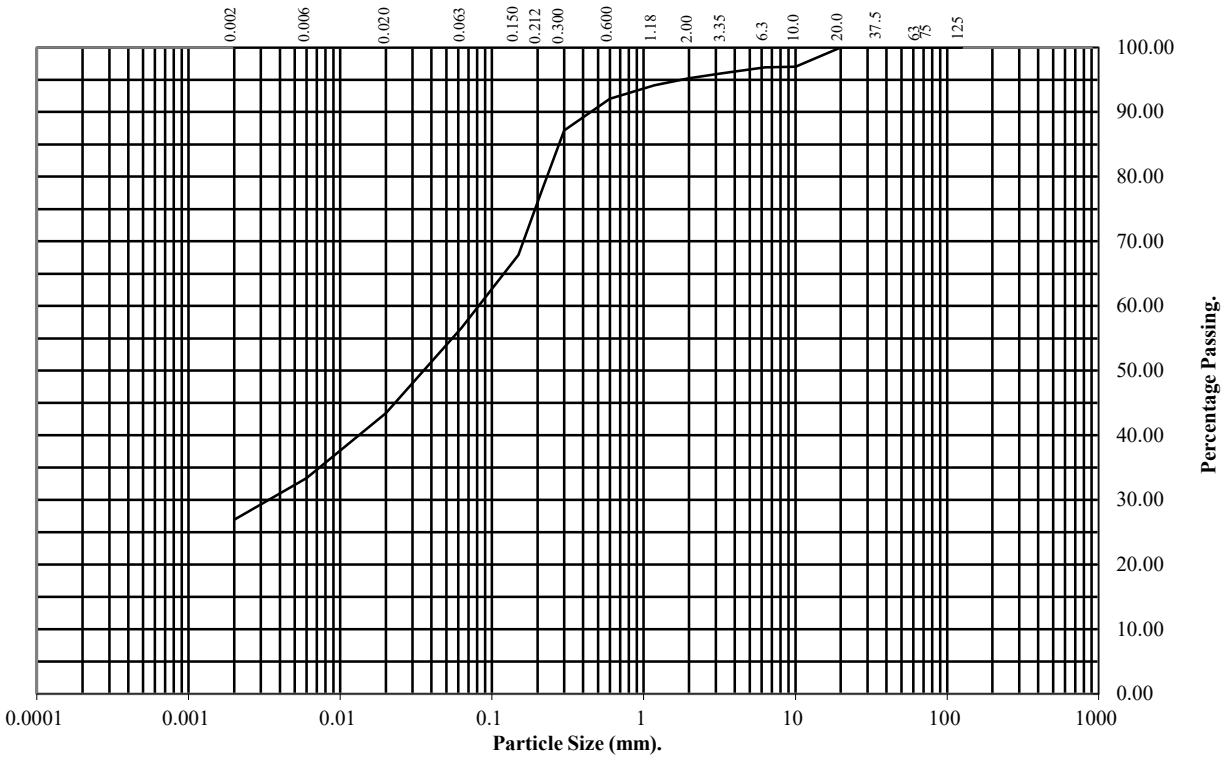
Cambridge



PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: BH-PTR-33 Top Depth (m): 1.00
Sample Number: Base Depth(m): 1.10
Sample Type: B

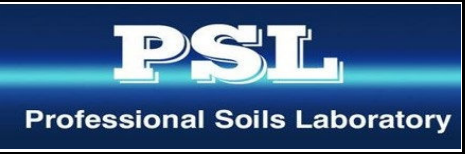


BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	97
6.3	97
3.35	96
2	95
1.18	94
0.6	92
0.3	87
0.212	78
0.15	68
0.063	57

Particle Diameter	Percentage Passing
0.02	43
0.006	33
0.002	27

Soil Fraction	Total Percentage
Cobbles	0
Gravel	5
Sand	38
Silt	30
Clay	27

Remarks:
See Summary of Soil Descriptions



Cambridge

Contract No:
PSL21/6320
Client Ref:
784-B025563

PARTICLE SIZE DISTRIBUTION TEST

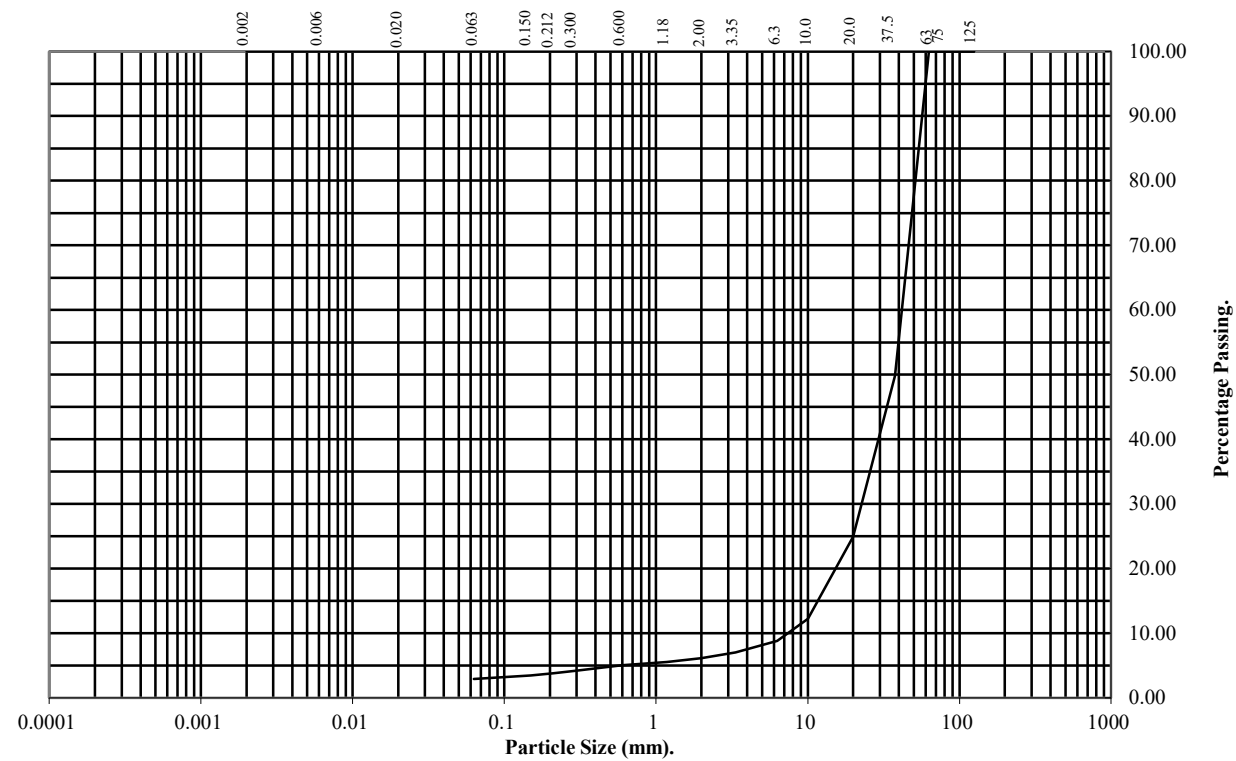
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number:	BH-PTR-33	Top Depth (m):	3.00
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Sample Number: **Base Depth(m):** **3.45**

Sample Type: **D**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	50
20	25
10	12
6.3	9
3.35	7
2	6
1.18	6
0.6	5
0.3	4
0.212	4
0.15	3
0.063	3

Soil Fraction	Total Percentage
Cobbles	0
Gravel	94
Sand	3
Silt/Clay	3

Remarks:

See Summary of Soil Descriptions



Cambridge

Contract No:

PSL21/6320

Client Ref:

784-B025563

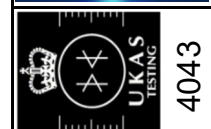
SUMMARY OF CHALK TESTS

(BS1377 : PART 2 & 4 : 1990)

[illegible]

* CCV testing is not UKAS accredited

PSL
Professional Soils Laboratory

**Contract No:**

PSL21/6320

Client Ref:

784-B025563

Cambridge

SUMMARY OF ROCK TESTS

(ISRM Suggested Method for the Determination of the Water Content of Rock)

[illegible]

	Contract No:
	PSL21/6320
	Client Ref:
	784-B025563

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular

 UKAS TESTING 4043		Cambridge
		Contract No:
		PSL21/6320
		Client Ref:
		784-B025563

ISRM Suggested Methods : 2007

PSL030 Issue 2

Contract no:	101225
Contract name:	BH-PTR-33
Client reference:	PSL21/6320
Clients name:	Professional Soils Laboratory
Clients address:	5/7 Hexthorpe Road Doncaster DN4 0AR

Samples received: 06 October 2021

Analysis started: 06 October 2021

Analysis completed: 13 October 2021

Report issued: 13 October 2021

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.
All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing
Methods, procedures and performance data are available on request.
Results reported herein relate only to the material supplied to the laboratory.
This report shall not be reproduced except in full, without prior written approval.
Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key: U UKAS accredited test
M MCERTS & UKAS accredited test
\$ Test carried out by an approved subcontractor
I/S Insufficient sample to carry out test
N/S Sample not suitable for testing

Approved by: 
Karan Campbell
Director

Unit 6 Parkhead, Greencroft Industrial Park, Stanley, County Durham, DH9 7YB
Tel 01207 528578 Email customerservices@chemtech-env.co.uk
Vat Reg No. 772 5703 18 Registered in England number 4284013

Chemtech Environmental Limited

SOILS

Lab number			101225-1	101225-2	101225-3	101225-4
Sample id			BH-PTR-33	BH-PTR-33	BH-PTR-33	BH-PTR-33
Depth (m)			2.00-2.10	13.40-13.50	18.70-18.80	26.90-27.00
Date sampled			-	04/03/2021	05/03/2021	05/03/2021
Test	Method	Units				
pH	CE004 ^U	units	-	8.7	8.8	8.8
Magnesium (2:1 water soluble)	CE061	mg/l Mg	-	<1	<1	<1
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	-	6.0	4.8	2.3
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	-	2.9	2.2	2.0
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	-	18	17	13
Sulphate (total)	CE062	mg/kg SO ₄	-	532	481	426
Sulphur (total)	CE119	mg/kg S	-	243	244	191
Sulphur (total)	CE119	% w/w S	-	0.02	0.02	0.02
Total Organic Carbon (TOC)	CE197	% w/w C	0.4	-	-	-
Estimate of OMC (calculated from TOC)	CE197	% w/w	0.7	-	-	-

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S
CE197	Total Organic Carbon (TOC)	Carbon Analyser	Dry		0.1	% w/w C
CE197	Estimate of OMC (calculated from TOC)	Calculation from Total Organic Carbon	Dry		0.1	% w/w

Chemtech Environmental Limited

DEVIATING SAMPLE INFORMATION

Comments

Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.

For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.

Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key	
N	No (not deviating sample)
Y	Yes (deviating sample)
NSD	Sampling date not provided
NST	Sampling time not provided (waters only)
EHT	Sample exceeded holding time(s)
IC	Sample not received in appropriate containers
HP	Headspace present in sample container
NCF	Sample not chemically fixed (where appropriate)
OR	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
101225-2	BH-PTR-33	13.40-13.50	Y	All (EHT)
101225-3	BH-PTR-33	18.70-18.80	Y	All (EHT)
101225-4	BH-PTR-33	26.90-27.00	Y	All (EHT)



LABORATORY
REPORT



4043

Contract Number: PSL21/5769

Report Date: 20 October 2021

Client’s Reference: 784-B025563

Client Name: Tetra Tech
11th Floor
1 Angel Court
London
EC2R 7HJ

For the attention of: Richard Tonge

Contract Title: Cambridge

Date Received: 16/7/2021
Date Commenced: 16/7/2021
Date Completed: 20/10/2021

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

A Watkins (Director)	R Berriman (Quality Manager)	S Royle (Laboratory Manager)
L Knight (Assistant Laboratory Manager)	 S Eyre (Senior Technician)	T Watkins (Senior Technician)

5 – 7 Hexthorpe Road, Hexthorpe,
Doncaster DN4 0AR
tel: +44 (0)844 815 6641
fax: +44 (0)844 815 6642
e-mail: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

Page 1 of

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]


PSL
Professional Soils Laboratory
4043

Contract No:
PSL21/5769

Client Ref:
784-B0255563

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

[illegible]

SYMBOLS: NP : Non Plastic

* : Liquid Limit and Plastic Limit Wet Sieved.

PSL
Professional Soils Laboratory

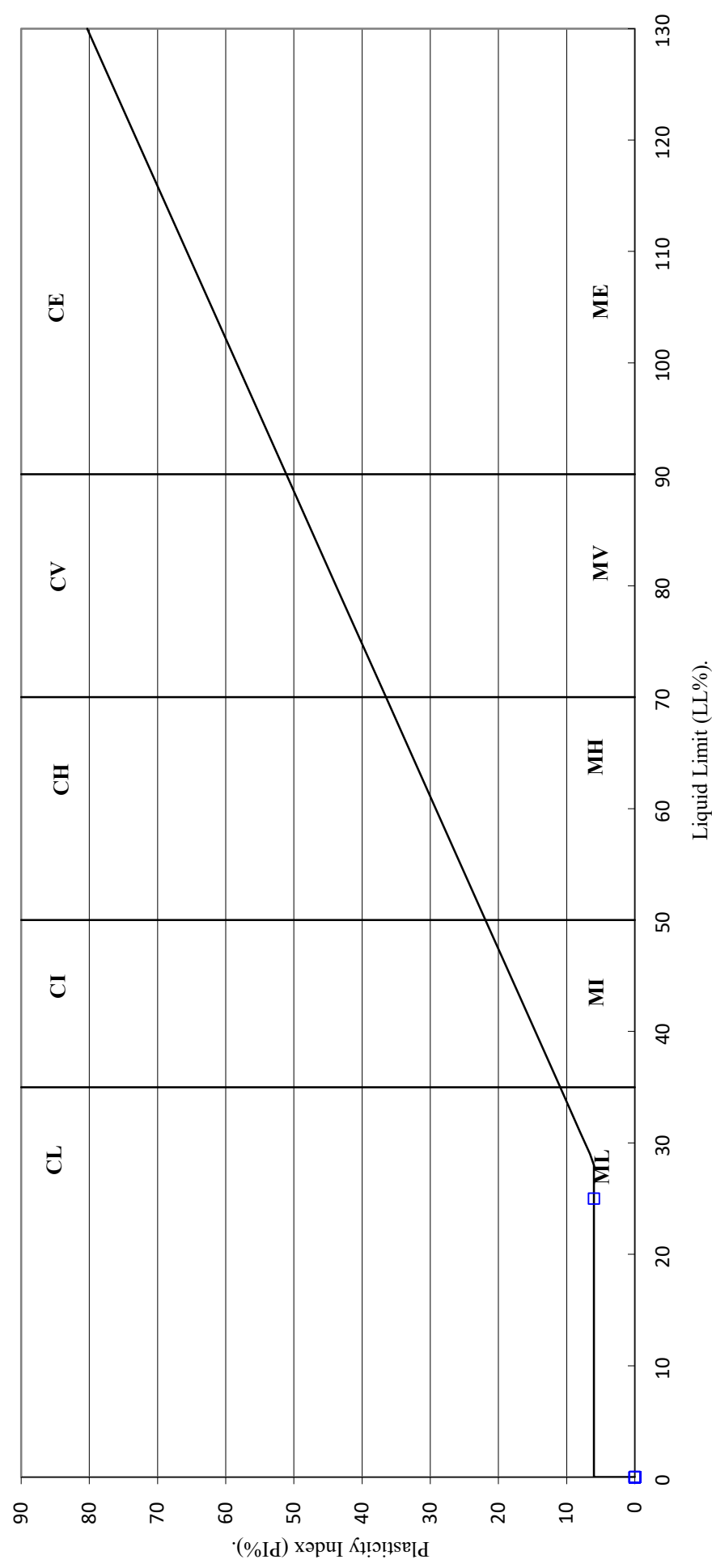
 **UKAS TESTING**
4043

Cambridge

Contract No:
PSL21/5769

Client Ref:
784-B025563

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.




PSL
Professional Soils Laboratory
4043

Contract No:

PSL21/5769

Client Ref:

784-B025563

Cambridge

SUMMARY OF CHALK TESTS

(BS1377: PART 2 & 4:1990)

[illegible]

* CCV testing is not UKAS accredited


PSL
Professional Soils Laboratory
4043

Contract No:

PSL21/5769

Client Ref:

784-B025563

Cambridge

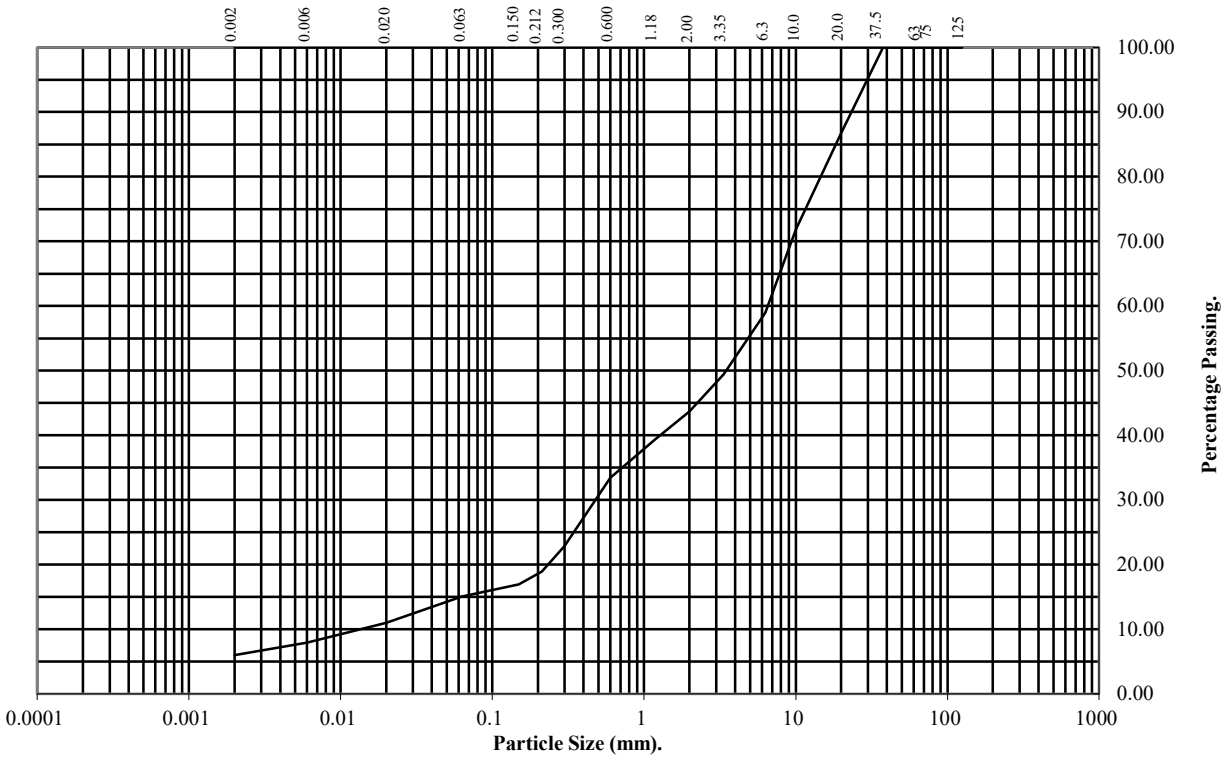
PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: BH-PTR-34 Top Depth (m): 1.00

Sample Number: Base Depth(m): 1.10

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	87
10	72
6.3	59
3.35	49
2	44
1.18	39
0.6	33
0.3	23
0.212	19
0.15	17
0.063	15

Particle Diameter	Percentage Passing
0.02	11
0.006	8
0.002	6

Soil Fraction	Total Percentage
Cobbles	0
Gravel	56
Sand	29
Silt	9
Clay	6

Remarks:
See Summary of Soil Descriptions

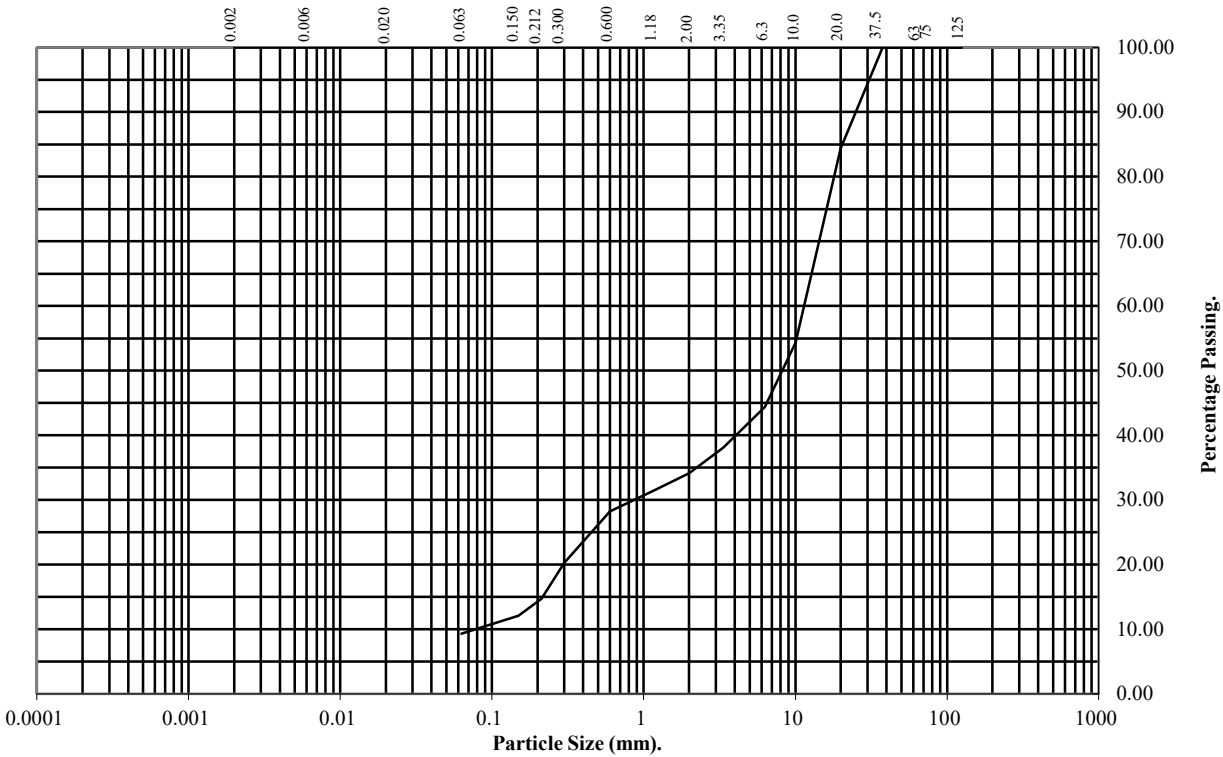
PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990
Wet Sieve, Clause 9.2

Hole Number: BH-PTR-34 Top Depth (m): 2.20

Sample Number: Base Depth(m): 2.65

Sample Type: D



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	84
10	54
6.3	44
3.35	38
2	34
1.18	31
0.6	28
0.3	20
0.212	15
0.15	12
0.063	9

Soil Fraction	Total Percentage
Cobbles	0
Gravel	66
Sand	25
Silt/Clay	9

Remarks:
See Summary of Soil Descriptions

PARTICLE SIZE DISTRIBUTION TEST

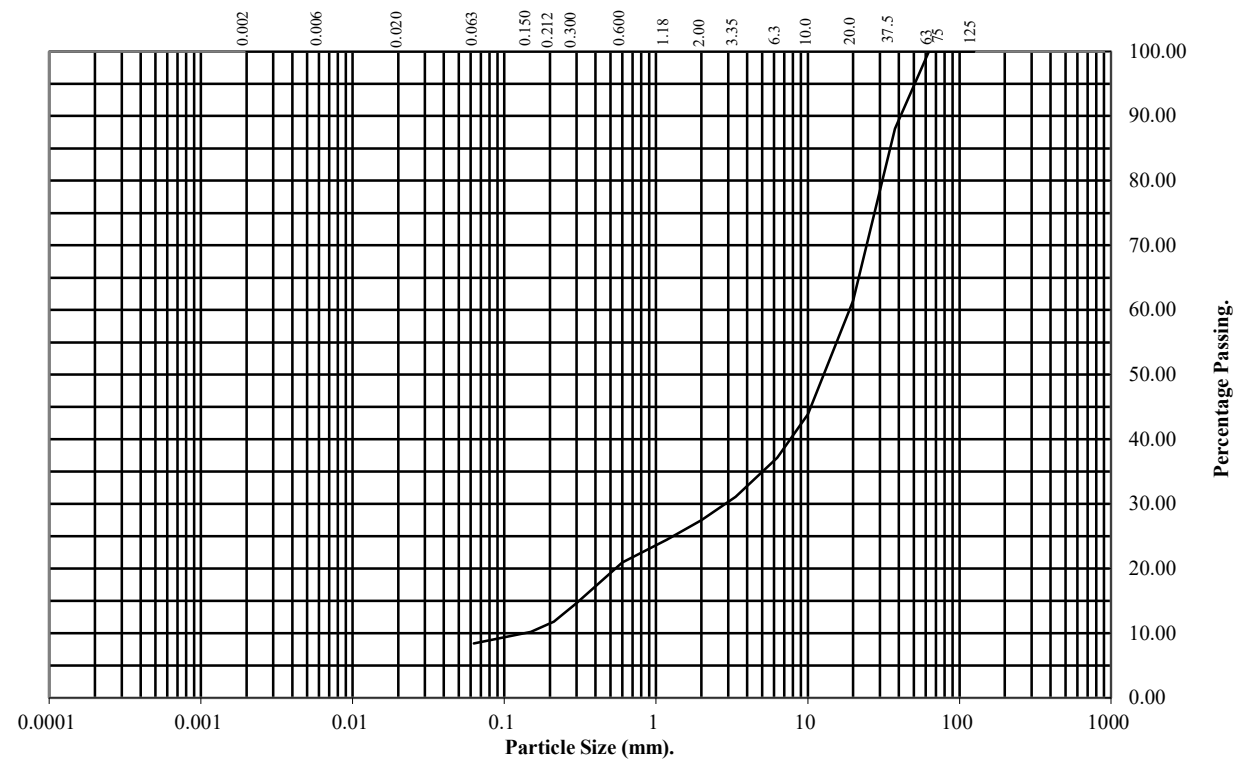
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number:	BH-PTR-34	Top Depth (m):	4.20
---------------------	------------------	-----------------------	-------------

Sample Number: **Base Depth(m):** 4.65

Sample Type: **D**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	88
20	61
10	44
6.3	37
3.35	31
2	28
1.18	24
0.6	21
0.3	15
0.212	12
0.15	10
0.063	8

Soil Fraction	Total Percentage
Cobbles	0
Gravel	72
Sand	20
Silt/Clay	8

Remarks:

See Summary of Soil Descriptions



4043

PSL

Professional Soils Laboratory

Cambridge

Contract No:

PSL21/5769

Client Ref:

784-B025563

DETERMINATION OF UNCONFINED COMPRESSIVE STRENGTH

ISRM Suggested Methods, pp 111–116, 1981.

[illegible]

PST
Professional Soils Laboratory

Cambridge

Contract No:

PSL21/5769

Client Ref:

784-B025563

SUMMARY OF ROCK TESTS

(ISRM Suggested Method for the Determination of the Water Content of Rock)

[illegible]

	Contract No:
	PSL21/5769
	Client Ref:
	784-B025563

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular

		Contract No:	Cambridge
		PSL21/5769	
		Client Ref:	
		784-B025563	

ISRM Suggested Methods : 2007

PSL030 Issue 2

Contract no:	101206
Contract name:	BH-PTR-34
Client reference:	PSL21/5769
Clients name:	Professional Soils Laboratory
Clients address:	5/7 Hexthorpe Road Doncaster DN4 0AR
Samples received:	06 October 2021
Analysis started:	06 October 2021
Analysis completed:	13 October 2021
Report issued:	13 October 2021

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.
All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.
Methods, procedures and performance data are available on request.
Results reported herein relate only to the material supplied to the laboratory.
This report shall not be reproduced except in full, without prior written approval.
Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key:

- U UKAS accredited test
- M MCERTS & UKAS accredited test
- \$ Test carried out by an approved subcontractor
- I/S Insufficient sample to carry out test
- N/S Sample not suitable for testing

Approved by: 
Karan Campbell
Director

Unit 6 Parkhead, Greencroft Industrial Park, Stanley, County Durham, DH9 7YB
Tel 01207 528578 Email customerservices@chemtech-env.co.uk
Vat Reg No. 772 5703 18 Registered in England number 4284013

Chemtech Environmental Limited

SOILS

Lab number			101206-1	101206-2	101206-3	101206-4
Sample id			BH-PTR-34	BH-PTR-34	BH-PTR-34	BH-PTR-34
Depth (m)			1.60-1.70	8.50-8.60	19.90-20.00	25.00-25.10
Date sampled			05/03/2021	04/03/2021	10/03/2021	10/03/2021
Test	Method	Units				
pH	CE004 ^U	units	8.6	8.6	8.8	8.8
Magnesium (2:1 water soluble)	CE061	mg/l Mg	<1	<1	<1	<1
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	11	7.1	2.8	2.4
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	27	5.8	3.0	2.5
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	10	25	<10	<10
Sulphate (total)	CE062	mg/kg SO ₄	398	469	455	447
Sulphur (total)	CE119	mg/kg S	191	204	199	185
Sulphur (total)	CE119	% w/w S	0.02	0.02	0.02	0.02

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S

Chemtech Environmental Limited

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key	
N	No (not deviating sample)
Y	Yes (deviating sample)
NSD	Sampling date not provided
NST	Sampling time not provided (waters only)
EHT	Sample exceeded holding time(s)
IC	Sample not received in appropriate containers
HP	Headspace present in sample container
NCF	Sample not chemically fixed (where appropriate)
OR	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
101206-1	BH-PTR-34	1.60-1.70	Y	All (EHT)
101206-2	BH-PTR-34	8.50-8.60	Y	All (EHT)
101206-3	BH-PTR-34	19.90-20.00	Y	All (EHT)
101206-4	BH-PTR-34	25.00-25.10	Y	All (EHT)



LABORATORY
REPORT



4043

Contract Number: PSL21/5959

Report Date: 22 September 2021

Client’s Reference: 784-B025563

Client Name: Tetra Tech
11th Floor
1 Angel Court
London
EC2R 7HJ

For the attention of: Richard Tonge

Contract Title: Cambridge

Date Received: 26/7/2021
Date Commenced: 26/7/2021
Date Completed: 22/9/2021

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

A Watkins (Director)	R Berriman (Quality Manager)	S Royle (Laboratory Manager)
L Knight (Assistant Laboratory Manager)	 S Eyre (Senior Technician)	T Watkins (Senior Technician)

5 – 7 Hexthorpe Road, Hexthorpe,
Doncaster DN4 0AR
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fax: +44 (0)844 815 6642
e-mail: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

Page 1 of

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]


PSL
Professional Soils Laboratory
4043

Contract No:	PSL21/5959	Client Ref:	784-B025563
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SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

[illegible]

SYMBOLS: NP: Non Plastic

*** : Liquid Limit and Plastic Limit Wet Sieved.**

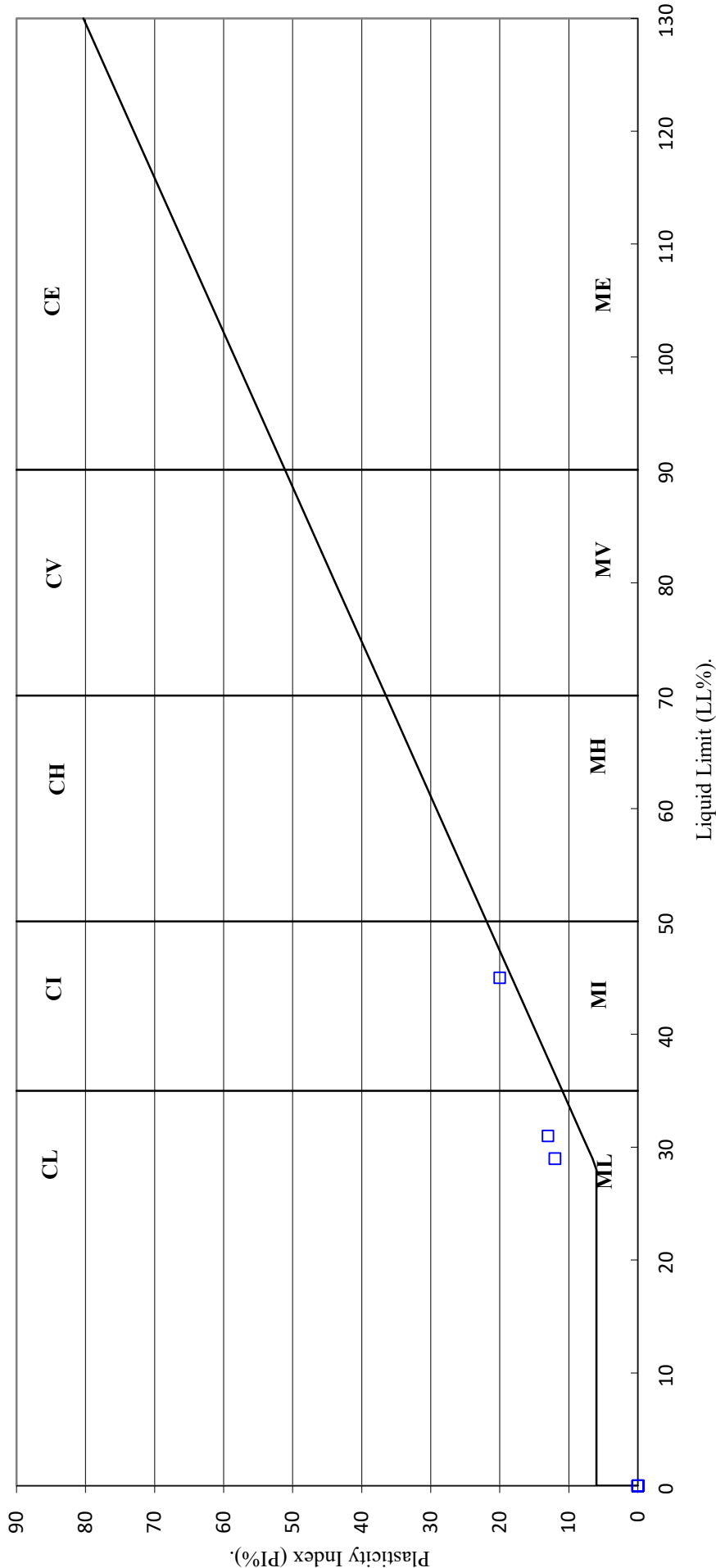

PSL
Professional Soils Laboratory
4043

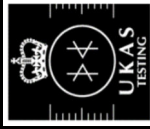
Cambridge

Contract No:
PSL21/5959

Client Ref:
784-B025563

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.





PSL
Professional Soils Laboratory

4043

Contract No:

PSL21/5959

Client Ref:

784-B025563

Cambridge

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:

BH-PTR-36

Top Depth (m):

2.50

Sample Number:

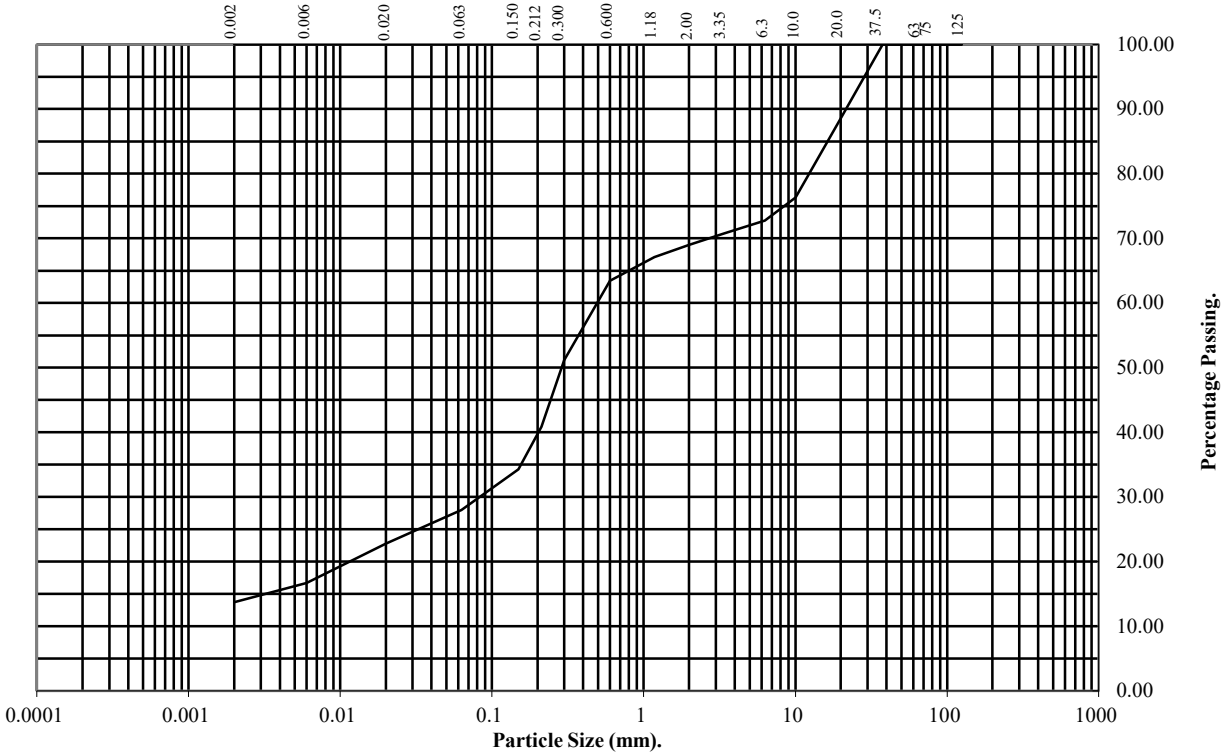
8

Base Depth(m):

2.60

Sample Type:

D



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	89
10	76
6.3	73
3.35	71
2	69
1.18	67
0.6	63
0.3	51
0.212	41
0.15	34
0.063	28

Particle Diameter	Percentage Passing
0.02	23
0.006	17
0.002	14

Soil Fraction	Total Percentage
Cobbles	0
Gravel	31
Sand	41
Silt	14
Clay	14

Remarks:
See Summary of Soil Descriptions



PSL
Professional Soils Laboratory

4043

Cambridge

Contract No:

PSL21/5959

Client Ref:

784-B025563

SUMMARY OF ROCK TESTS

[illegible]

	<div>PSL21/5959</div>	Contract No:
		PSL21/5959
		Client Ref:
		784-B025563

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note**
All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular

	Contract No:
	PSL21/5959
	Client Ref:
	784-B025563

Sample Description & Split Describe

Hole Number: BH-PTR-36 Top Depth (m): 1.20

Sample Number: 1 Base Depth (m): 1.65

Sample Type: UT Sample Date:

Sample Description: 1.20-1.49m - Soft to firm brown slightly gravelly very sandy silty CLAY. Gravel is FMC sub-angular.



Sample Description & Split Describe

Hole Number: BH-PTR-36 Top Depth (m): 3.00

Sample Number: 2 Base Depth (m): 3.45

Sample Type: UT Sample Date:

Sample Description: 3.00-3.20m- Soft brown slightly gravelly very sandy silty CLAY. Gravel is FMC sub-angular to sub-rounded.
3.20-3.28m - Very soft very gravelly very sandy silty CLAY. Gravel is one piece of course sub-rounded material.





ANALYTICAL TEST REPORT

Contract no: 100359
Contract name: BH-PTR-36
Client reference: PSL21/5959
Clients name: Professional Soils Laboratory
Clients address: 5/7 Hexthorpe Road
Doncaster
DN4 0AR

Samples received: 14 September 2021

Analysis started: 14 September 2021

Analysis completed: 23 September 2021

Report issued: 23 September 2021

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.
All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.
Methods, procedures and performance data are available on request.
Results reported herein relate only to the material supplied to the laboratory.
This report shall not be reproduced except in full, without prior written approval.
Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key: U UKAS accredited test
M MCERTS & UKAS accredited test
\$ Test carried out by an approved subcontractor
I/S Insufficient sample to carry out test
N/S Sample not suitable for testing

Approved by: 
Rachael Burton
Customer Support Squad Leader

Chemtech Environmental Limited

SOILS

Lab number			100359-1	100359-2	100359-3	100359-4	100359-5	100359-6
Sample id			BH-PTR-36	BH-PTR-36	BH-PTR-36	BH-PTR-36	BH-PTR-36	BH-PTR-36
Depth (m)			0.50	1.00	1.65-1.70	1.90-2.00	3.60-3.70	4.10-4.20
Date sampled			-	-	-	-	16/03/2021	16/03/2021
Test	Method	Units						
pH	CE004 ^U	units	8.5	-	-	8.3	8.2	8.5
Magnesium (2:1 water soluble)	CE061	mg/l Mg	1.1	-	-	1.2	1.1	1.5
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	5.4	-	-	14	13	8.9
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	39	-	-	4.0	<1	2.2
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	38	-	-	107	99	37
Sulphate (total)	CE062	mg/kg SO ₄	1599	-	-	584	551	452
Sulphur (total)	CE119	mg/kg S	482	-	-	265	471	168
Sulphur (total)	CE119	% w/w S	0.05	-	-	0.03	0.05	0.02
Total Organic Carbon (TOC)	CE197	% w/w C	-	1.8	0.5	-	-	-
Estimate of OMC (calculated from TOC)	CE197	% w/w	-	3.0	0.9	-	-	-

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S
CE197	Total Organic Carbon (TOC)	Carbon Analyser	Dry		0.1	% w/w C
CE197	Estimate of OMC (calculated from TOC)	Calculation from Total Organic Carbon	Dry		0.1	% w/w

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key
N No (not deviating sample)
Y Yes (deviating sample)
NSD Sampling date not provided
NST Sampling time not provided (waters only)
EHT Sample exceeded holding time(s)
IC Sample not received in appropriate containers
HP Headspace present in sample container
NCF Sample not chemically fixed (where appropriate)
OR Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
100359-1	BH-PTR-36	0.50	Y	All (NSD)
100359-2	BH-PTR-36	1.00	Y	All (NSD)
100359-3	BH-PTR-36	1.65-1.70	Y	All (NSD)
100359-4	BH-PTR-36	1.90-2.00	Y	All (NSD)
100359-5	BH-PTR-36	3.60-3.70	Y	All (EHT)
100359-6	BH-PTR-36	4.10-4.20	Y	All (EHT)

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

[illegible]

SYMBOLS: NP : Non Plastic

* : Liquid Limit and Plastic Limit Wet Sieved.


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4043

Contract No:

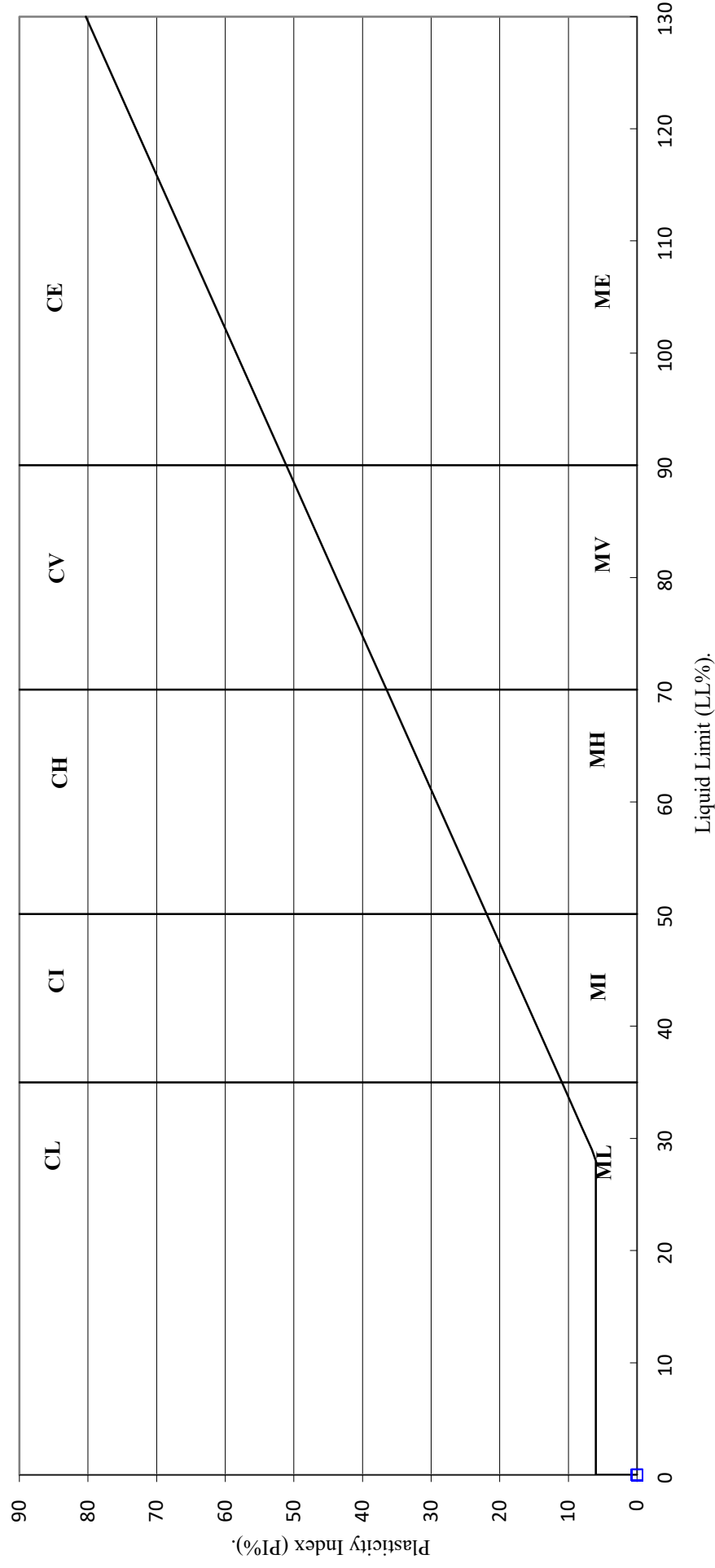
PSL21/5978

Client Ref:

784-B025563

Cambridge

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.




PSL
Professional Soils Laboratory
4043

Contract No:

PSL21/5978

Client Ref:

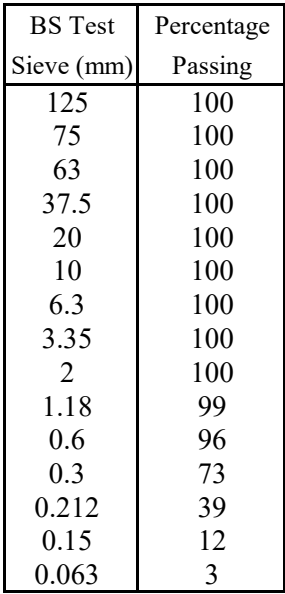
784-B025563

Cambridge

(BS1377 : PART 2 & 4 : 1990)

* CCV testing is not UKAS accredited

PSL
Professional Soils Laboratory



Soil Fraction	Total Percentage
Cobbles	0
Gravel	0
Sand	97
Silt/Clay	3

<p><u>Remarks:</u></p> <p>See Summary of Soil Descriptions</p>

 PSL Professional Soils Laboratory	<p>Cambridge</p>	Contract No:
		PSL21/5978
		Client Ref:
		784-B025563

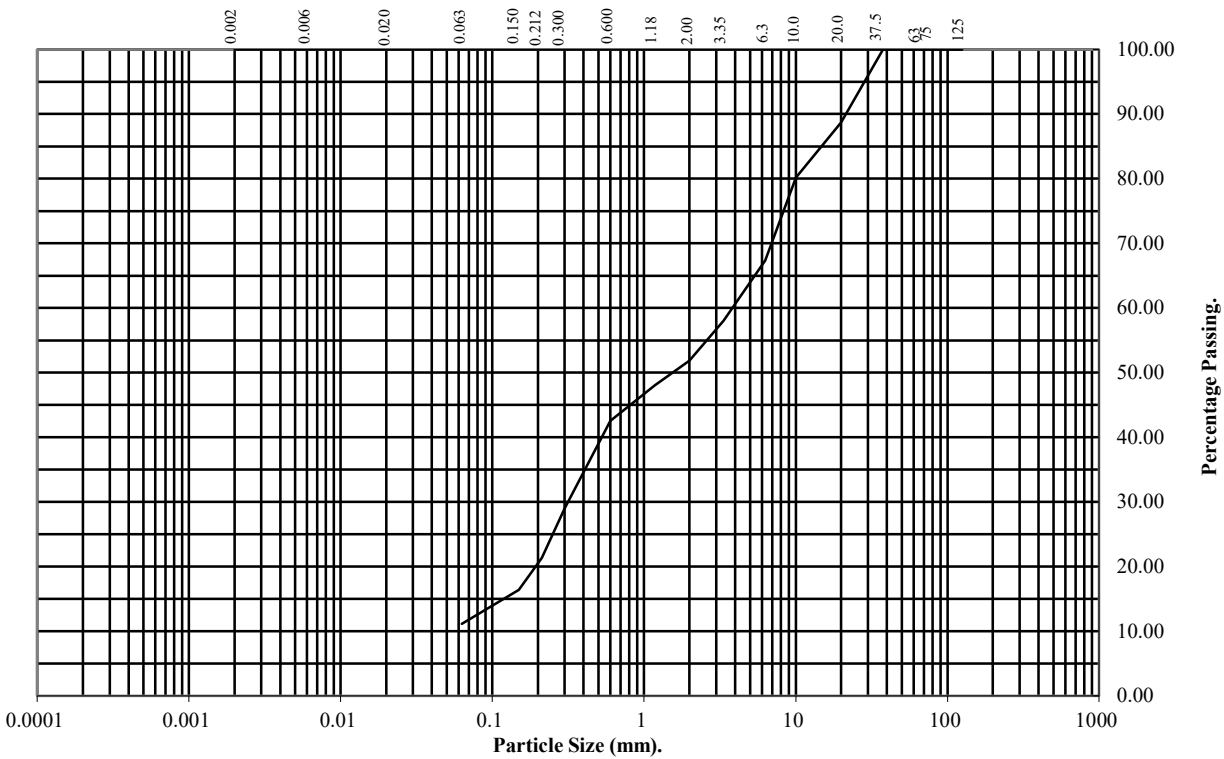
PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990
Wet Sieve, Clause 9.2

Hole Number: BH-PTR-37 Top Depth (m): 1.20

Sample Number: Base Depth(m): 1.65

Sample Type: D



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	89
10	80
6.3	67
3.35	58
2	52
1.18	48
0.6	43
0.3	29
0.212	21
0.15	16
0.063	11

Soil Fraction	Total Percentage
Cobbles	0
Gravel	48
Sand	41
Silt/Clay	11

Remarks:
See Summary of Soil Descriptions

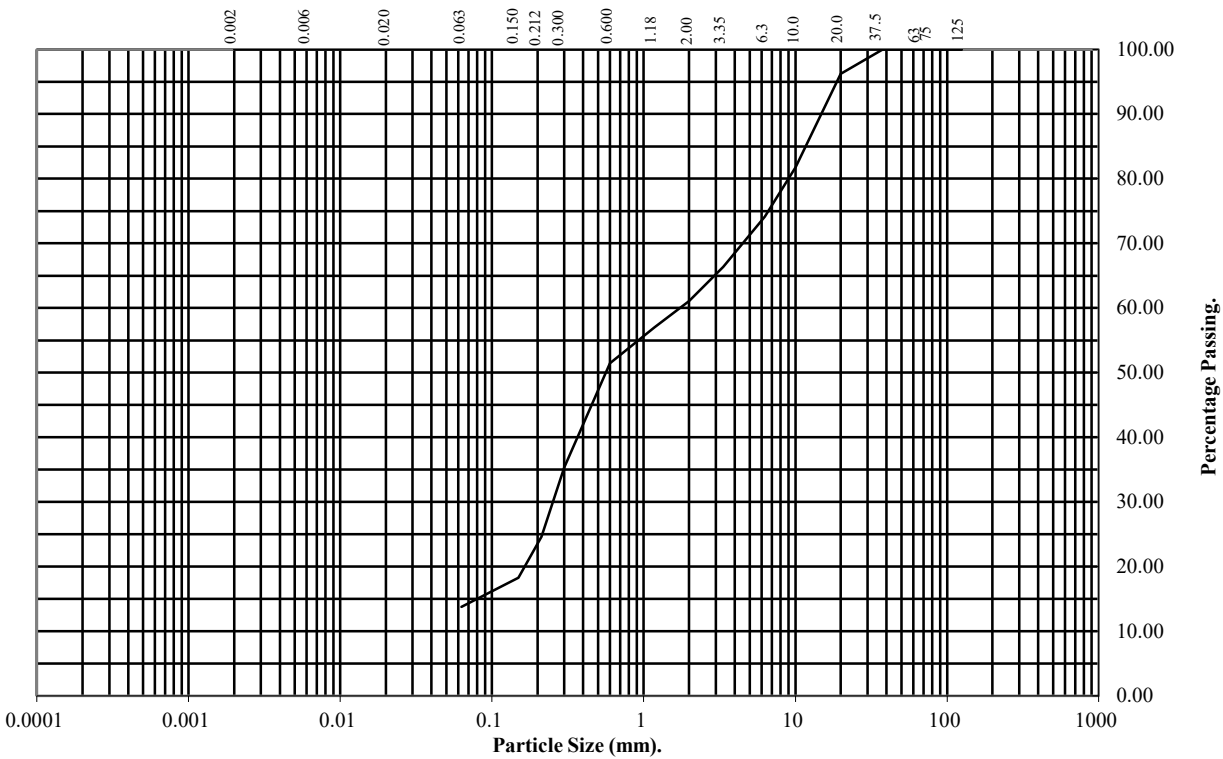
PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990
Wet Sieve, Clause 9.2

Hole Number: BH-PTR-37 Top Depth (m): 2.80

Sample Number: Base Depth(m): 2.90

Sample Type: D



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	96
10	82
6.3	74
3.35	66
2	61
1.18	57
0.6	51
0.3	35
0.212	25
0.15	18
0.063	14

Soil Fraction	Total Percentage
Cobbles	0
Gravel	39
Sand	47
Silt/Clay	14

Remarks:
See Summary of Soil Descriptions

PARTICLE SIZE DISTRIBUTION TEST

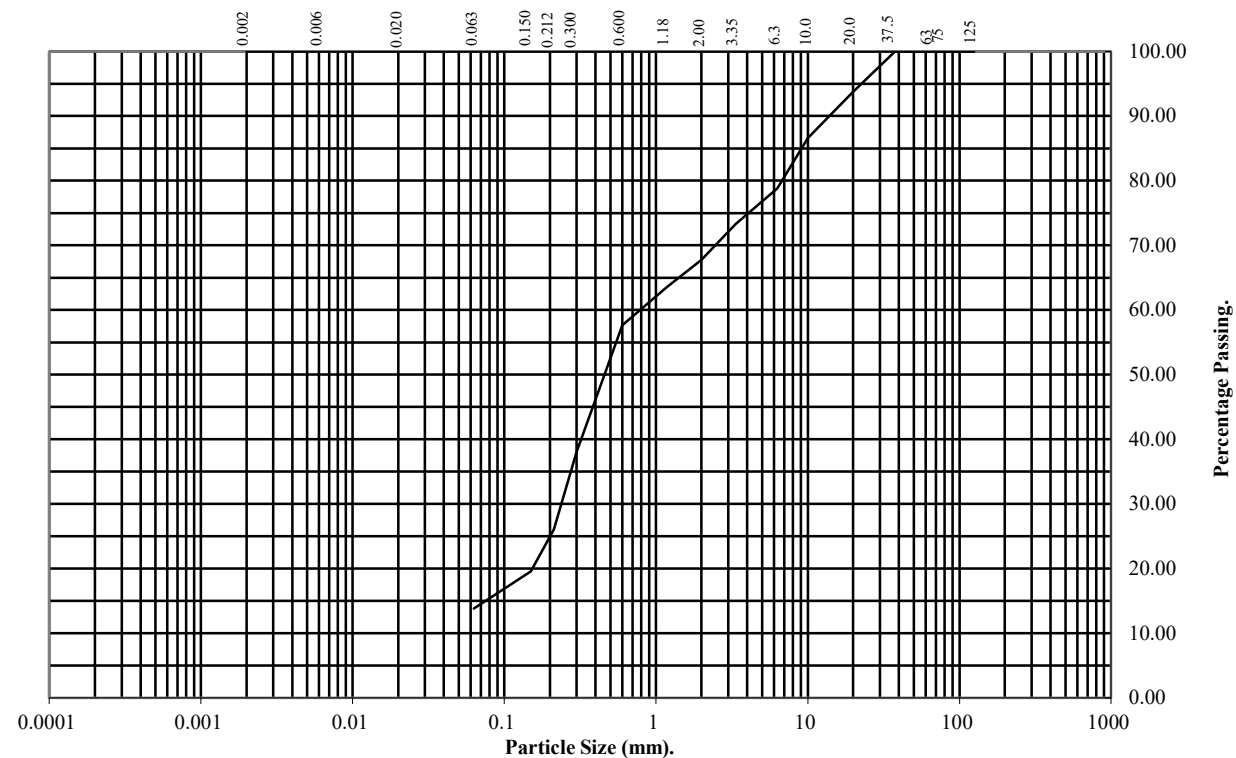
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number:	BH-PTR-37	Top Depth (m):	4.00
---------------------	------------------	-----------------------	-------------

Sample Number: **Base Depth(m):** **4.45**

Sample Type: **D**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	94
10	87
6.3	79
3.35	73
2	68
1.18	64
0.6	58
0.3	38
0.212	26
0.15	20
0.063	14

Soil Fraction	Total Percentage
Cobbles	0
Gravel	32
Sand	54
Silt/Clay	14

Remarks:

See Summary of Soil Descriptions



Cambridge

Contract No:
PSL21/5978
Client Ref:
784-B025563



LABORATORY REPORT



4043

Contract Number: PSL21/5960

Report Date: 21 September 2021

Client's Reference: 784-B025563

Client Name: Tetra Tech
11th Floor
1 Angel Court
London
EC2R 7HJ

For the attention of: Richard Tonge

Contract Title: Cambridge

Date Received: 26/7/2021

Date Commenced: 26/7/2021

Date Completed: 21/9/2021

Notes: **Opinions and Interpretations are outside the UKAS Accreditation**

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

A Watkins
(Director)

R Berriman
(Quality Manager)

S Royle
(Laboratory Manager)

L Knight
(Assistant Laboratory Manager)


S Eyre
(Senior Technician)

T Watkins
(Senior Technician)

**5 – 7 Hexthorpe Road, Hexthorpe,
Doncaster DN4 0AR
tel: +44 (0)844 815 6641
fax: +44 (0)844 815 6642
e-mail: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk**

Page 1 of

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]



UKAS
TESTING

4043

PSL

Professional Soils Laboratory

Contract No:	PSL21/5960
Client Ref:	784-B025563

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

[illegible]

SYMBOLS: NP : Non Plastic

*** : Liquid Limit and Plastic Limit Wet Sieved.**

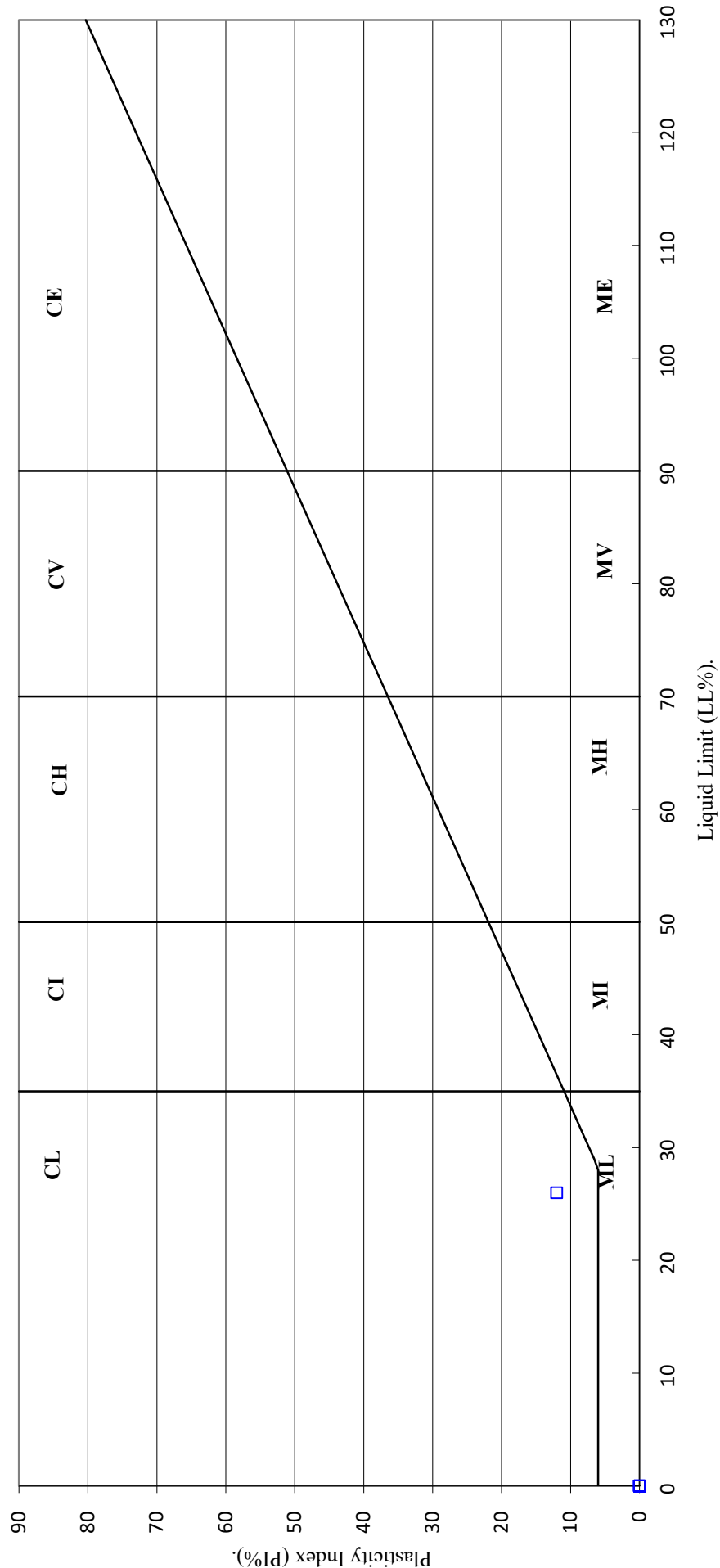

PSL
Professional Soils Laboratory
4043

Cambridge

Contract No:
PSL21/5960

Client Ref:
784-B025563

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



4043



Cambridge

Contract No:
PSL21/5960
Client Ref:
784-B025563

Sample Description & Split Describe

Hole Number:	BH-PTR-38	Top Depth (m):	1.20
Sample Number:		Base Depth (m):	1.65
Sample Type:	UT	Sample Date:	
Sample Description:	1.20-1.65m -Stiff brown mottled grey gravelly very sandy CLAY. Gravel is FMC Sub-angular to sub-rounded.		



	Cambridge	Contract No:
		PSL21/5960
		Client Ref:
		784-B025563



Chemtech Environmental Limited

SOILS

ANALYTICAL TEST REPORT

Contract no: 100401

Contract name: BH-PTR-38

Client reference: PSL21/5960

Clients name: Professional Soils Laboratory

Clients address: 5/7 Hexthorpe Road
Doncaster
DN4 0AR

Samples received: 14 September 2021

Analysis started: 14 September 2021

Analysis completed: 21 September 2021

Report issued: 21 September 2021

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.
All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.
Methods, procedures and performance data are available on request.
Results reported herein relate only to the material supplied to the laboratory.
This report shall not be reproduced except in full, without prior written approval.
Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key: U UKAS accredited test
M MCERTS & UKAS accredited test
\$ Test carried out by an approved subcontractor
I/S Insufficient sample to carry out test
N/S Sample not suitable for testing

Approved by: 
Rachael Burton
Customer Support Squad Leader

Lab number			100401-1	100401-2
Sample id			BH-PTR-38	BH-PTR-38
Depth (m)			1.60-1.70	2.90-3.00
Date sampled			-	-
Test	Method	Units		
pH	CE004 ^U	units	8.8	8.7
Magnesium (2:1 water soluble)	CE061	mg/l Mg	1.8	<1
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	6.1	5.5
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	6.0	4.4
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	70	32
Sulphate (total)	CE062	mg/kg SO ₄	369	290
Sulphur (total)	CE119	mg/kg S	315	136
Sulphur (total)	CE119	% w/w S	0.03	0.01

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

- Key**
N No (not deviating sample)
Y Yes (deviating sample)
NSD Sampling date not provided
NST Sampling time not provided (waters only)
EHT Sample exceeded holding time(s)
IC Sample not received in appropriate containers
HP Headspace present in sample container
NCF Sample not chemically fixed (where appropriate)
OR Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
100401-1	BH-PTR-38	1.60-1.70	Y	All (NSD)
100401-2	BH-PTR-38	2.90-3.00	Y	All (NSD)

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

[illegible]

SYMBOLS: NP : Non Plastic

* : Liquid Limit and Plastic Limit Wet Sieved.


PSL
Professional Soils Laboratory
4043

Contract No:

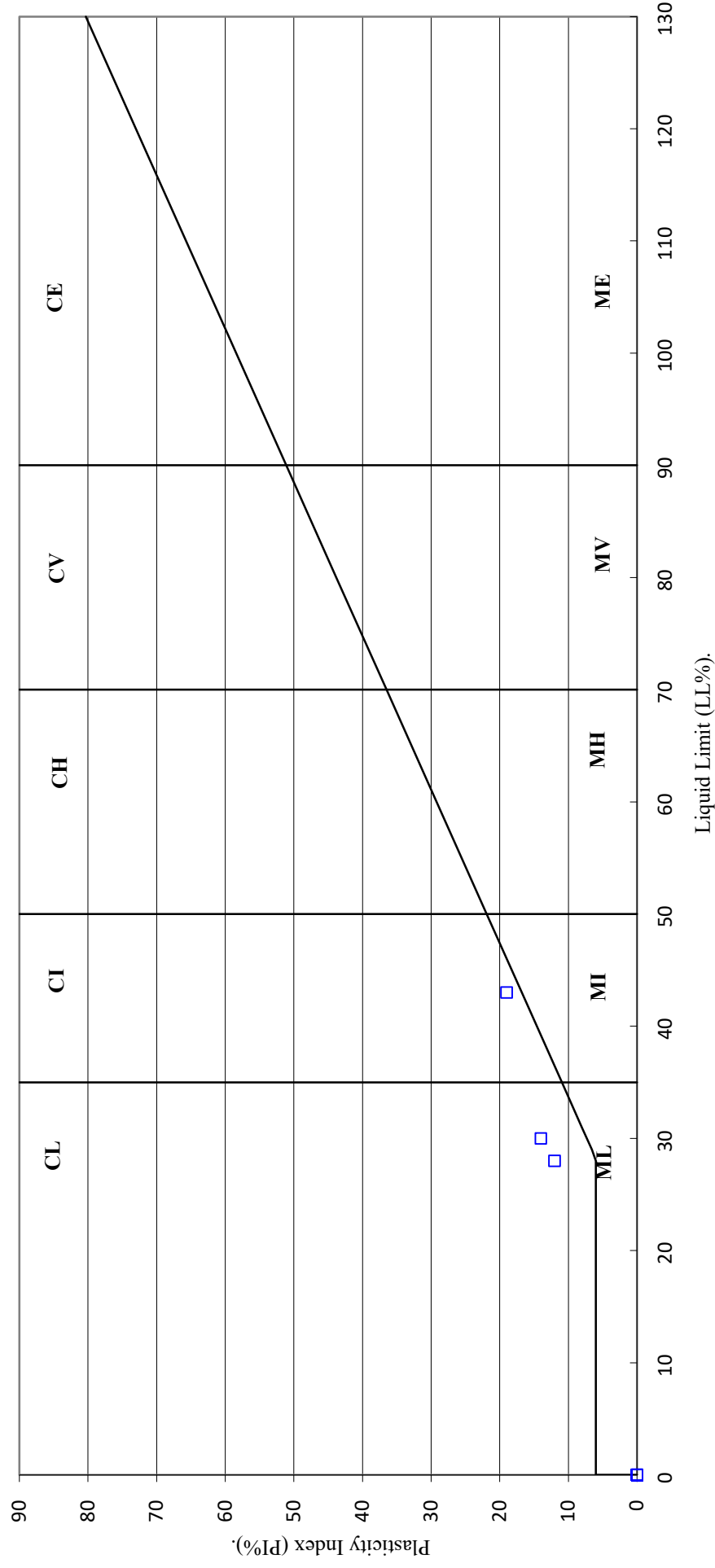
PSL21/5961

Client Ref:

784-B025563

Cambridge

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.




PSL
Professional Soils Laboratory
4043

Contract No:

PSL21/5961

Client Ref:

784-B025563

Cambridge

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

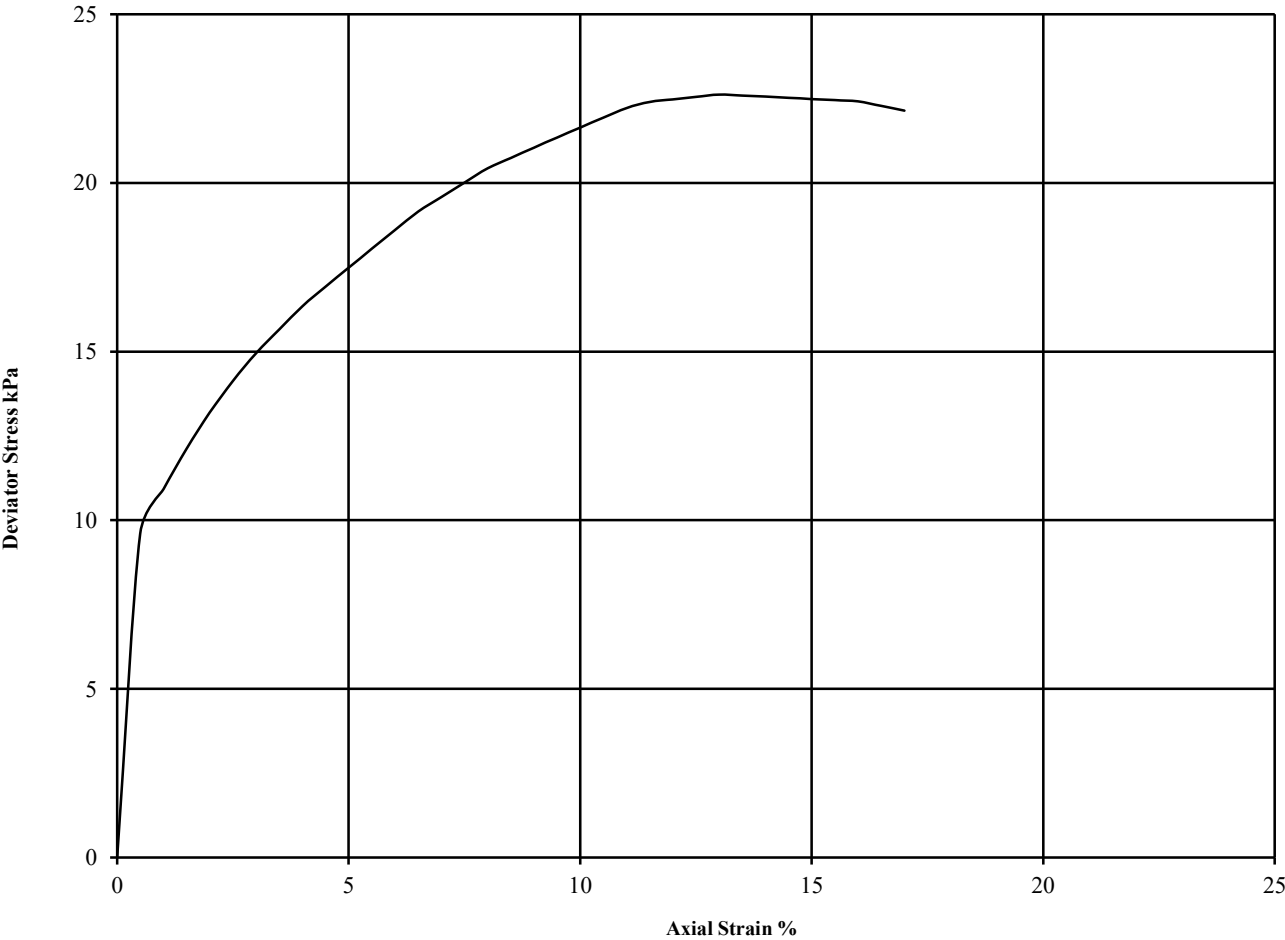
WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 8

Hole Number: BH-PTR-39B Top Depth (m): 2.15

Sample Number: Base Depth (m): 2.60

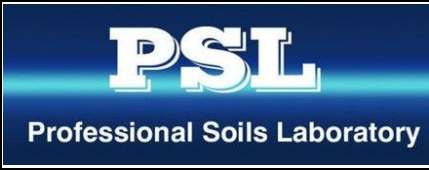
Sample Type UT



Diameter (mm):		102	Height (mm):		204	Test:	UU Single Stage		Remarks:
Specimen	Moisture Content (%)	Bulk Density (Mg/m3)	Dry Density (Mg/m3)	Cell Pressure (kPa)	Corr. Max. Deviator Stress (kPa)	Shear Strength Cu (kPa)	Failure Strain (%)	Mode of Failure	Undisturbed Sample
				θ_3	$(\theta_1 - \theta_3)_f$	$\frac{1}{2}(\theta_1 - \theta_3)_f$			Sample taken from top of tube
									Rate of strain = 2 %/min
									Latex Membrane used 0.2 mm thick,
									Correction applied 0.35
1	63	1.58	0.97	30	23	11	13.0	Plastic	See summary of soil descriptions



4043



Cambridge

Contract No:

PSL21/5961

Client Ref:

784-B025563

ONE DIMENSIONAL CONSOLIDATION TEST

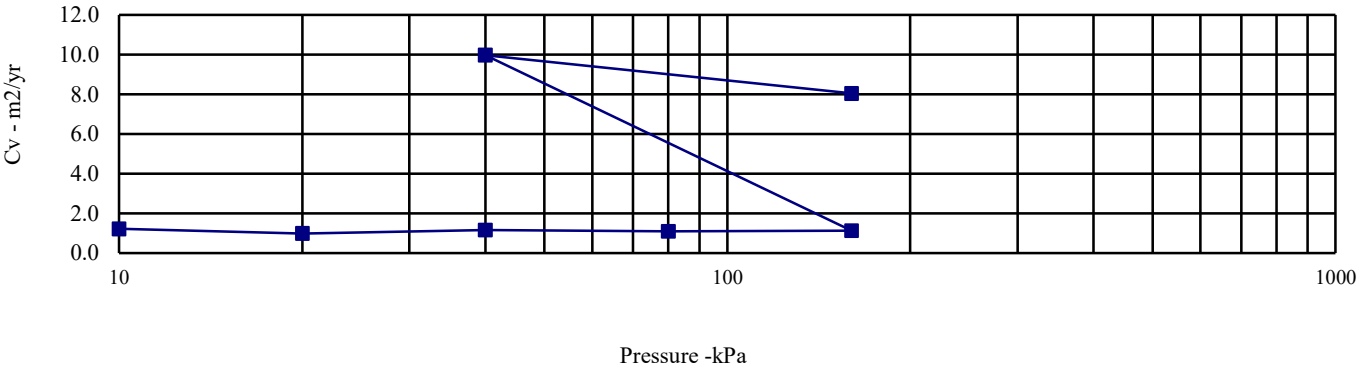
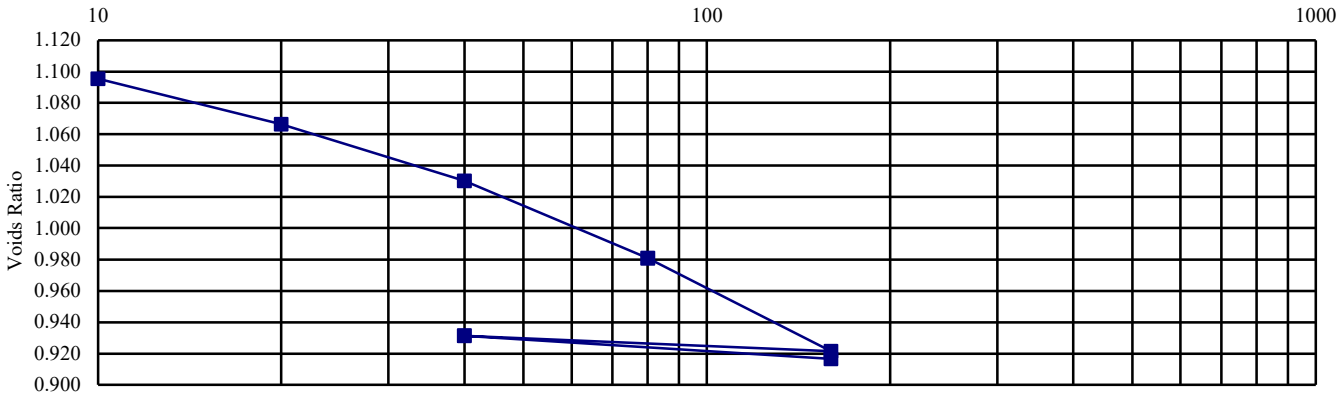
BS 1377: Part 5: 1990: Clause 3

Hole Number: BH-PTR-39B Top Depth (m): 1.60

Sample Number: Base Depth (m) : 1.95

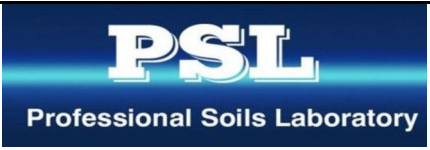
Sample Type: UT

Initial Conditions		Pressure Range kPa		Mv m2/MN	Cv m2/yr	Specimen location	Top
Moisture Content (%):	43					within tube:	
Bulk Density (Mg/m3):	1.77	0	10	1.911	1.227	Method used to	T90
Dry Density (Mg/m3):	1.24		20	1.385	0.992	determine CV:	
Voids Ratio:	1.136	20	40	0.877	1.161	Nominal temperature	20
Degree of saturation:	100.5	40	80	0.607	1.104	during test ' C:	
Height (mm):	20.096	80	160	0.374	1.136	Remarks: See summary of soil descriptions	
Diameter (mm)	75.058	160	40	0.043	9.974		
Particle Density (Mg/m3):	2.65	40	160	0.064	8.043		
Assumed							





4043



Cambridge

Contract No:

PSL21/5961

Client Ref:

784-B025563

SUMMARY OF ROCK TESTS

[illegible]

	Contract No:
	PSL21/5961
	Client Ref:
	784-B025563

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note**
All testing carried out on samples as received water content

A = Axial, D = Diametral, I = Irregular


PSL
Professional Soils Laboratory

Contract No:
PSL21/5961
Client Ref:
784-B025563

Cambridge

4043

ISRM Suggested Methods : 2007

Par = parallel, Perp = perpendicular, U = Random

***Note** All testing carried out on samples at as received water content

Cambridge

Contract No:

PSL21/5961

Client Ref:

784-B025563

Hole Number:	BH-PTR-39	Top Depth (m):	3.00
---------------------	------------------	-----------------------	-------------

Sample Number: _____ **Base Depth (m):** 3.45

Sample Type: UT **Sample Date:**

Sample Description:

3.00-3.10m - Soft to firm brown mottled grey gravelly sandy silty CLAY. Gravel is FM sub-rounded.

3.10-3.23m - Firm light brown mottled light grey gravelly very sandy CLAY. Gravel is FMC sub-angular to sub-rounded.

3.23-3.27m- Medium sized band of brown slightly gravelly SAND. Gravel is FMC sub angular.

3.27-3.45m - Stiff cream slightly gravelly slightly sandy clayey SILT. Sample is CHALK. Gravel is FMC sub-angular.



Cambridge

Contract No:
PSL21/5961

Client Ref:
784-B025563



ANALYTICAL TEST REPORT

Contract no: 101194
Contract name: BH-PTR-39
Client reference: PSL21/5961
Clients name: Professional Soils Laboratory
Clients address: 5/7 Hexthorpe Road
Doncaster
DN4 0AR

Samples received: 06 October 2021

Analysis started: 06 October 2021

Analysis completed: 13 October 2021

Report issued: 13 October 2021

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.
All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.
Methods, procedures and performance data are available on request.
Results reported herein relate only to the material supplied to the laboratory.
This report shall not be reproduced except in full, without prior written approval.
Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key: U UKAS accredited test
M MCERTS & UKAS accredited test
\$ Test carried out by an approved subcontractor
I/S Insufficient sample to carry out test
N/S Sample not suitable for testing

Approved by: 
Karan Campbell
Director

Chemtech Environmental Limited

SOILS

Lab number			101194-1	101194-2	101194-3	101194-4	101194-5
Sample id			BH-PTR-39	BH-PTR-39	BH-PTR-39	BH-PTR-39	BH-PTR-39
Depth (m)			2.75-2.85	2.90-3.00	3.90-4.00	8.10-8.20	12.90-13.00
Date sampled			-	-	25/03/2021	25/03/2021	-
Test	Method	Units					
pH	CE004 ^U	units	-	-	8.2	8.8	8.9
Magnesium (2:1 water soluble)	CE061	mg/l Mg	-	-	4.7	<1	<1
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	-	-	9.0	3.7	7.8
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	-	-	<1	2.7	2.5
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	-	-	252	26	15
Sulphate (total)	CE062	mg/kg SO ₄	-	-	844	448	512
Sulphur (total)	CE119	mg/kg S	-	-	1610	246	305
Sulphur (total)	CE119	% w/w S	-	-	0.16	0.02	0.03
Total Organic Carbon (TOC)	CE197	% w/w C	4.2	3.0	-	-	-
Estimate of OMC (calculated from TOC)	CE197	% w/w	7.2	5.2	-	-	-

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S
CE197	Total Organic Carbon (TOC)	Carbon Analyser	Dry		0.1	% w/w C
CE197	Estimate of OMC (calculated from TOC)	Calculation from Total Organic Carbon	Dry		0.1	% w/w

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key
N No (not deviating sample)
Y Yes (deviating sample)
NSD Sampling date not provided
NST Sampling time not provided (waters only)
EHT Sample exceeded holding time(s)
IC Sample not received in appropriate containers
HP Headspace present in sample container
NCF Sample not chemically fixed (where appropriate)
OR Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
101194-1	BH-PTR-39	2.75-2.85	Y	All (NSD)
101194-2	BH-PTR-39	2.90-3.00	Y	All (NSD)
101194-3	BH-PTR-39	3.90-4.00	Y	All (EHT)
101194-4	BH-PTR-39	8.10-8.20	Y	All (EHT)
101194-5	BH-PTR-39	12.90-13.00	Y	All (NSD)

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

[illegible]

SYMBOLS: NP: Non Plastic

* : Liquid Limit and Plastic Limit Wet Sieved.


PSL
Professional Soils Laboratory
4043

Contract No:

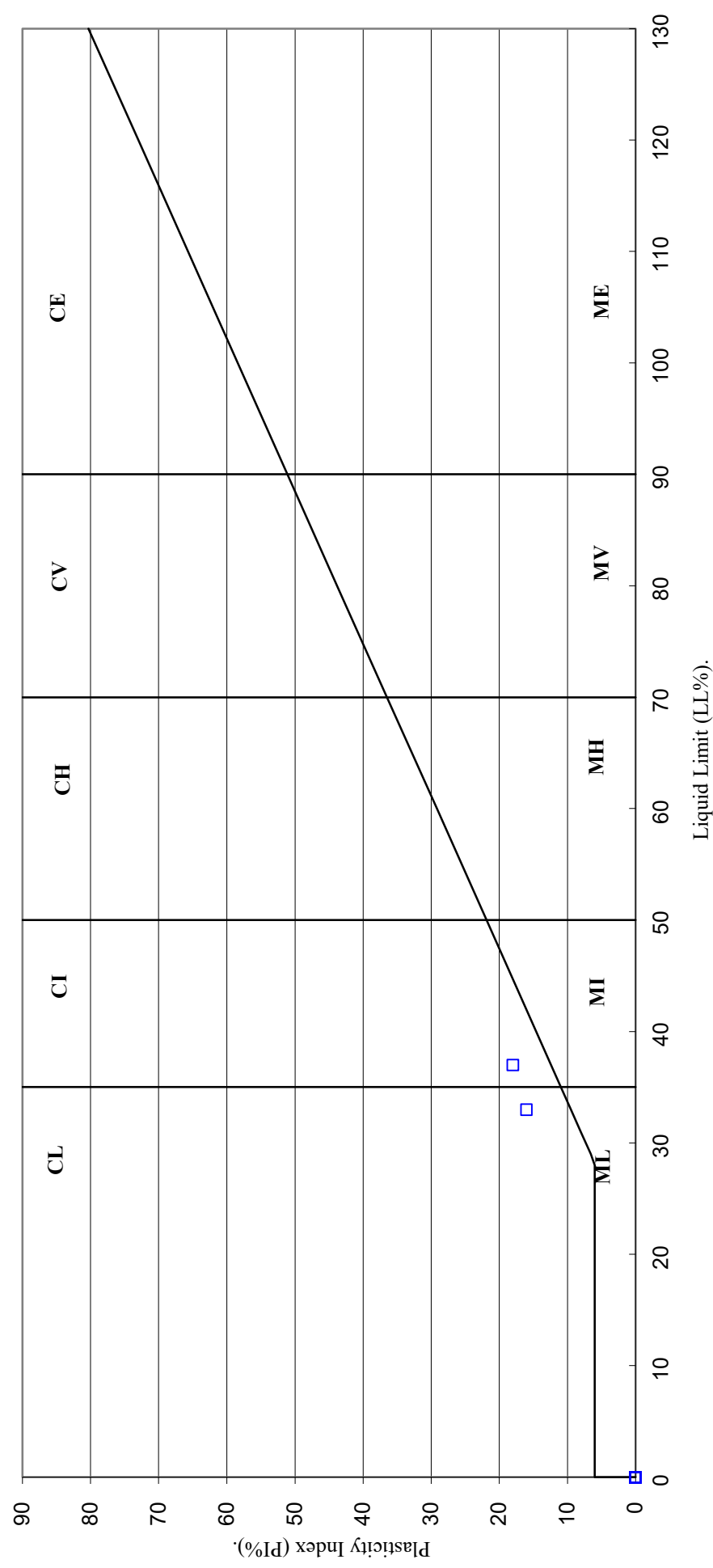
PSL21/5962

Client Ref:

784-B025563

Cambridge

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



PSL
Professional Soils Laboratory

UKAS TESTING
4043

Contract No:

PSL21/5962

Client Ref:

784-B025563

Cambridge



ANALYTICAL TEST REPORT

Contract no: 100360
Contract name: BH-PTR-40
Client reference: PSL21/5962
Clients name: Professional Soils Laboratory
Clients address: 5/7 Hexthorpe Road
Doncaster
DN4 0AR

Samples received: 14 September 2021

Analysis started: 14 September 2021

Analysis completed: 23 September 2021

Report issued: 23 September 2021

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.
All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.
Methods, procedures and performance data are available on request.
Results reported herein relate only to the material supplied to the laboratory.
This report shall not be reproduced except in full, without prior written approval.
Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key: U UKAS accredited test
M MCERTS & UKAS accredited test
\$ Test carried out by an approved subcontractor
I/S Insufficient sample to carry out test
N/S Sample not suitable for testing

Approved by: 
Rachael Burton
Customer Support Squad Leader

Chemtech Environmental Limited

SOILS

Lab number			100360-1	100360-2	100360-3
Sample id			BH-PTR-40	BH-PTR-40	BH-PTR-40
Depth (m)			1.00	2.10-2.20	2.80-2.90
Date sampled			-	-	-
Test	Method	Units			
pH	CE004 ^U	units	8.7	8.6	-
Magnesium (2:1 water soluble)	CE061	mg/l Mg	<1	1.2	-
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	1.8	3.5	-
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	8.1	16	-
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	10	48	-
Sulphate (total)	CE062	mg/kg SO ₄	460	423	-
Sulphur (total)	CE119	mg/kg S	196	234	-
Sulphur (total)	CE119	% w/w S	0.02	0.02	-
Total Organic Carbon (TOC)	CE197	% w/w C	-	-	13.4
Estimate of OMC (calculated from TOC)	CE197	% w/w	-	-	23.1

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S
CE197	Total Organic Carbon (TOC)	Carbon Analyser	Dry		0.1	% w/w C
CE197	Estimate of OMC (calculated from TOC)	Calculation from Total Organic Carbon	Dry		0.1	% w/w

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key
N No (not deviating sample)
Y Yes (deviating sample)
NSD Sampling date not provided
NST Sampling time not provided (waters only)
EHT Sample exceeded holding time(s)
IC Sample not received in appropriate containers
HP Headspace present in sample container
NCF Sample not chemically fixed (where appropriate)
OR Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
100360-1	BH-PTR-40	1.00	Y	All (NSD)
100360-2	BH-PTR-40	2.10-2.20	Y	All (NSD)
100360-3	BH-PTR-40	2.80-2.90	Y	All (NSD)

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

[illegible]

SYMBOLS: NP : Non Plastic

* : Liquid Limit and Plastic Limit Wet Sieved.


PSL
Professional Soils Laboratory
4043

Contract No:

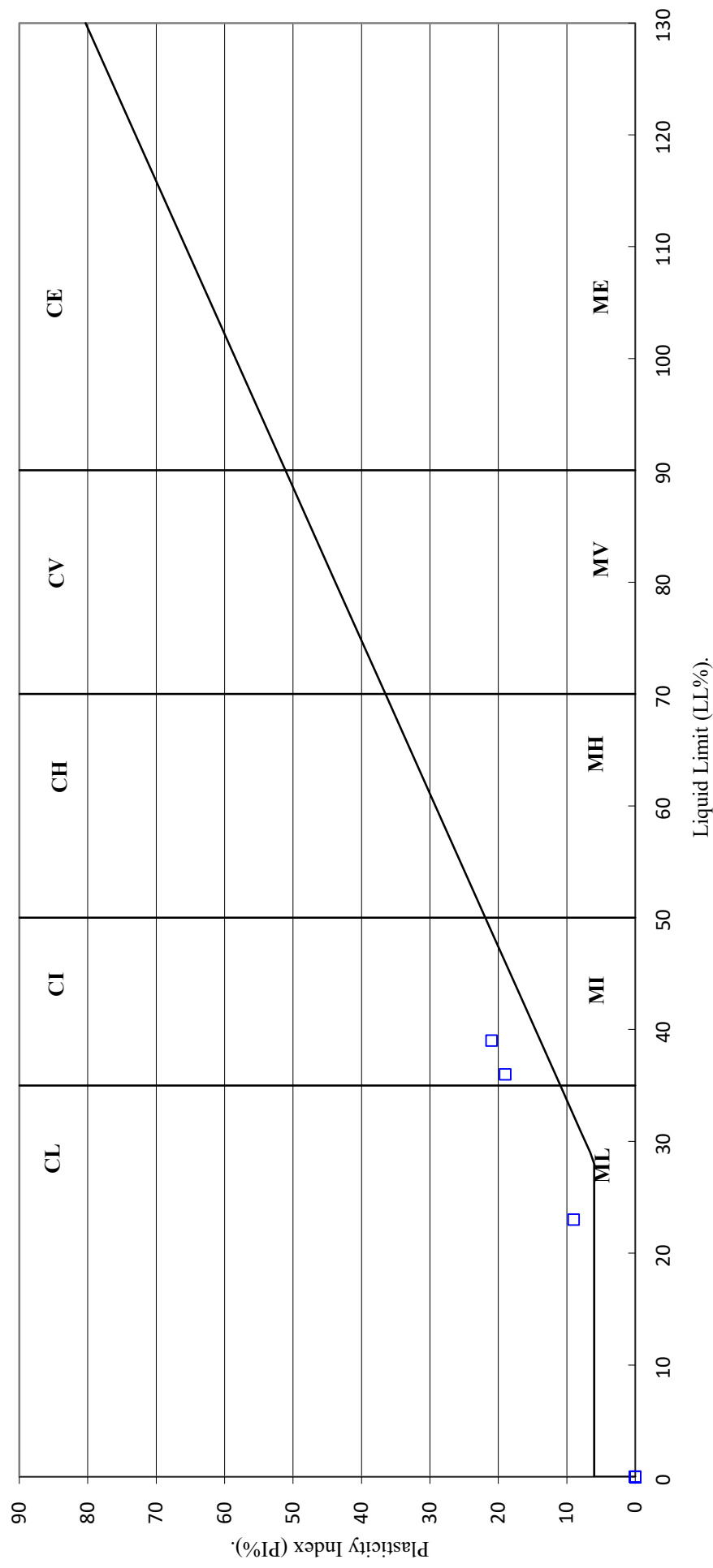
PSL21/5963

Client Ref:

784-B025563

Cambridge

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



UKAS TESTING

4043

Contract No:

PSL21/5963

Client Ref:

784-B025563

Cambridge

ONE DIMENSIONAL CONSOLIDATION TEST

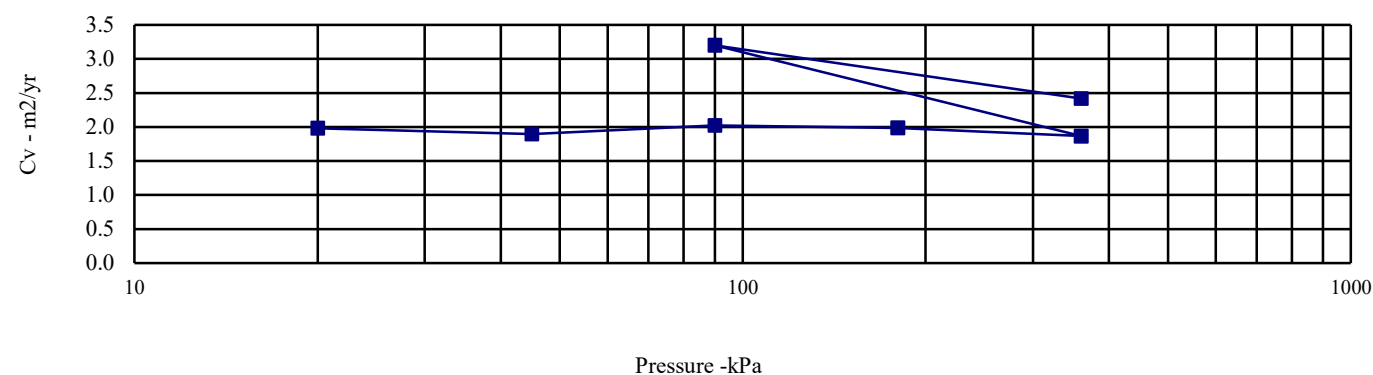
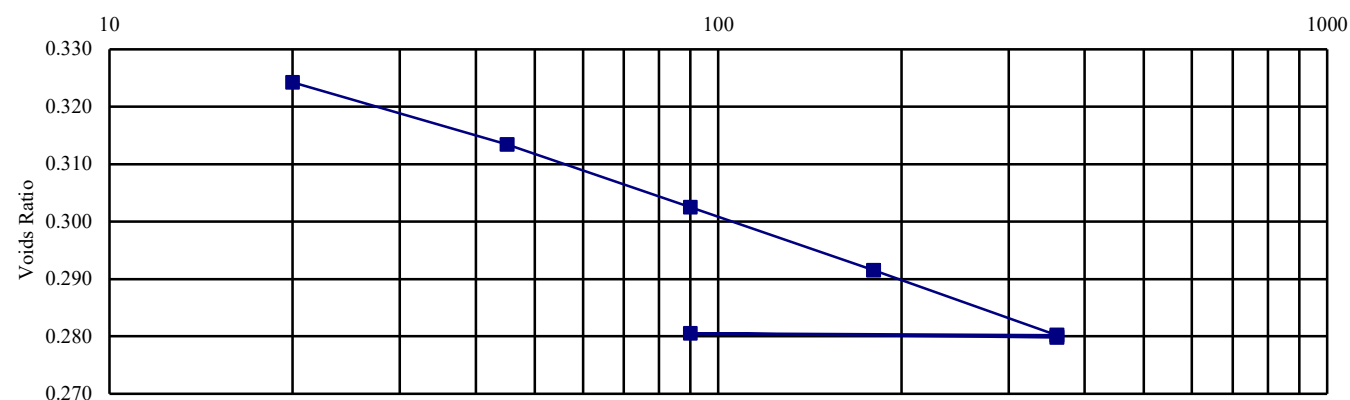
BS 1377: Part 5: 1990: Clause 3

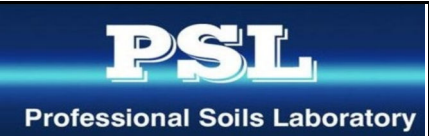
Hole Number: BH-PTR-41 Top Depth (m): 3.00

Sample Number: Base Depth (m) : 3.45

Sample Type: UT100

Initial Conditions		Pressure Range		Mv	Cv	Specimen location	
Moisture Content (%):	11	kPa		m2/MN	m2/yr	within tube:	Top
Bulk Density (Mg/m3):	2.20	0	20	0.580	1.981	Method used to	
Dry Density (Mg/m3):	1.98	20	45	0.326	1.896	determine CV:	T90
Voids Ratio:	0.340	45	90	0.185	2.023	Nominal temperature	
Degree of saturation:	88.1	90	180	0.094	1.988	during test ' C:	20
Height (mm):	20.096	180	360	0.048	1.866	Remarks:	
Diameter (mm)	75.068	360	90	0.001	3.200	See summary of soil descriptions	
Particle Density (Mg/m3):	2.65	90	360	0.002	2.418		
Assumed							



 4043		Cambridge	Contract No:
			PSL21/5963
			Client Ref:
			784-B025563



ANALYTICAL TEST REPORT

Contract no: 100594
Contract name: BH-PTR-41
Client reference: PSL21/5963
Clients name: Professional Soils Laboratory
Clients address: 5/7 Hexthorpe Road
Doncaster
DN4 0AR

Samples received: 20 September 2021

Analysis started: 20 September 2021

Analysis completed: 27 September 2021

Report issued: 27 September 2021

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope. Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling. All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing. Methods, procedures and performance data are available on request. Results reported herein relate only to the material supplied to the laboratory. This report shall not be reproduced except in full, without prior written approval. Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key: U UKAS accredited test
M MCERTS & UKAS accredited test
\$ Test carried out by an approved subcontractor
I/S Insufficient sample to carry out test
N/S Sample not suitable for testing

Approved by: 
Rachael Burton
Customer Support Squad Leader

Unit 6 Parkhead, Greencroft Industrial Park, Stanley, County Durham, DH9 7YB
Tel 01207 528578 Email customerservices@chemtech-env.co.uk
Vat Reg No. 772 5703 18 Registered in England number 4284013

Chemtech Environmental Limited

SOILS

Lab number			100594-1	100594-2	100594-3	100594-4
Sample id			BH-PTR-41	BH-PTR-41	BH-PTR-41	BH-PTR-41
Depth (m)			1.60-1.70	2.50-2.60	2.90-3.00	3.90-4.00
Date sampled			-	-	-	-
Test	Method	Units				
pH	CE004 ^U	units	8.6	-	-	9.0
Magnesium (2:1 water soluble)	CE061	mg/l Mg	8.2	-	-	3.3
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	2.7	-	-	2.3
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	8.6	-	-	1.2
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	564	-	-	93
Sulphate (total)	CE062	mg/kg SO ₄	1647	-	-	567
Sulphur (total)	CE119	mg/kg S	1763	-	-	331
Sulphur (total)	CE119	% w/w S	0.18	-	-	0.03
Total Organic Carbon (TOC)	CE197	% w/w C	-	3.2	4.0	-
Estimate of OMC (calculated from TOC)	CE197	% w/w	-	5.6	6.9	-

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S
CE197	Total Organic Carbon (TOC)	Carbon Analyser	Dry		0.1	% w/w C
CE197	Estimate of OMC (calculated from TOC)	Calculation from Total Organic Carbon	Dry		0.1	% w/w

Chemtech Environmental Limited

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key	
N	No (not deviating sample)
Y	Yes (deviating sample)
NSD	Sampling date not provided
NST	Sampling time not provided (waters only)
EHT	Sample exceeded holding time(s)
IC	Sample not received in appropriate containers
HP	Headspace present in sample container
NCF	Sample not chemically fixed (where appropriate)
OR	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
100594-1	BH-PTR-41	1.60-1.70	Y	All (NSD)
100594-2	BH-PTR-41	2.50-2.60	Y	All (NSD)
100594-3	BH-PTR-41	2.90-3.00	Y	All (NSD)
100594-4	BH-PTR-41	3.90-4.00	Y	All (NSD)



LABORATORY
REPORT



4043

Contract Number: PSL21/5964

Report Date: 29 September 2021

Client’s Reference: 784-B025563

Client Name: Tetra Tech
11th Floor
1 Angel Court
London
EC2R 7HJ

For the attention of: Richard Tonge

Contract Title: Cambridge

Date Received: 26/7/2021
Date Commenced: 26/7/2021
Date Completed: 29/9/2021

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

A Watkins (Director)	R Berriman (Quality Manager)	S Royle (Laboratory Manager)
L Knight (Assistant Laboratory Manager)	 S Eyre (Senior Technician)	T Watkins (Senior Technician)

5 – 7 Hexthorpe Road, Hexthorpe,
Doncaster DN4 0AR
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Page 1 of

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]

	<p style="text-align: center;">Cambridge</p>	Contract No:
		PSL21/5964
		Client Ref:
		784-B025563

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

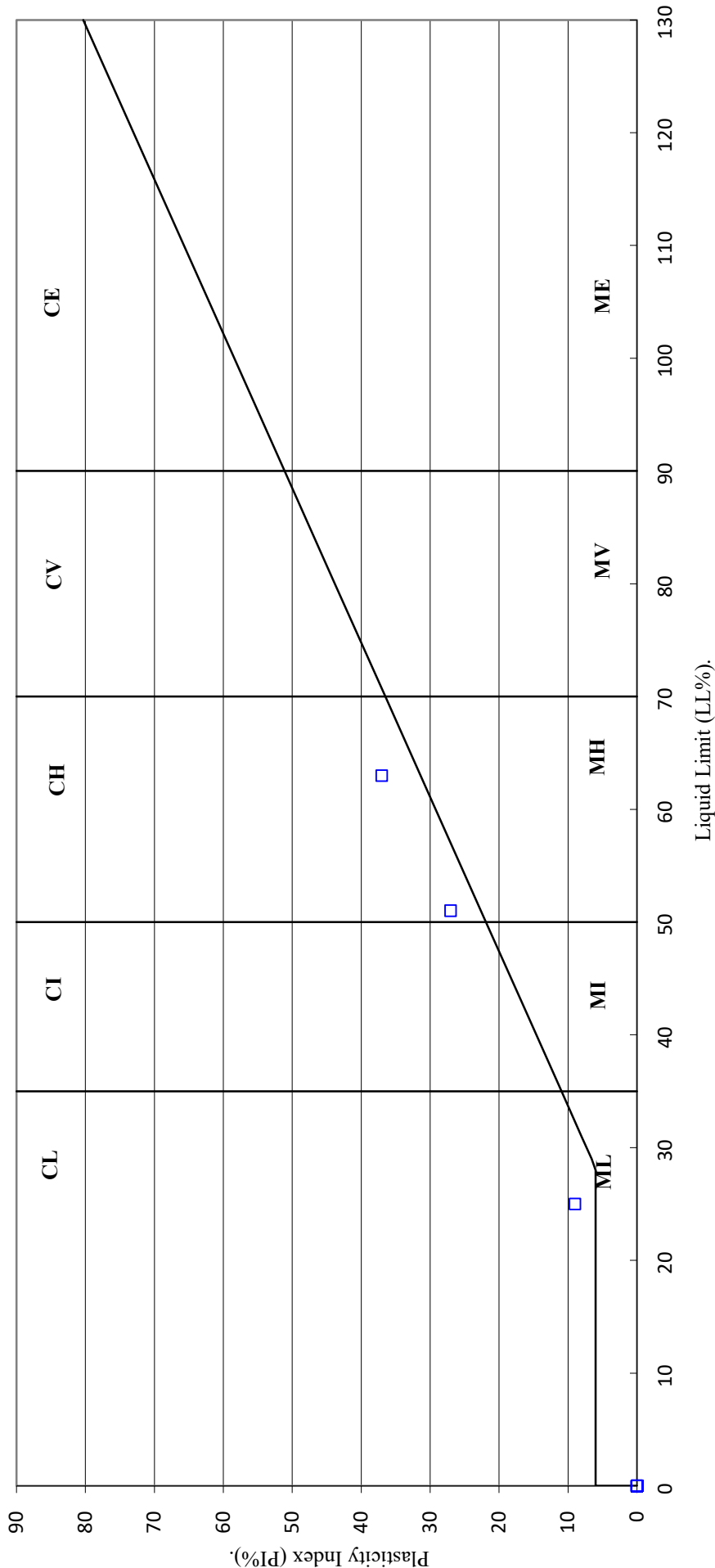
[illegible]

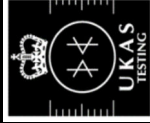
SYMBOLS: NP : Non Plastic

* : Liquid Limit and Plastic Limit Wet Sieved.

	Contract No:
	PSL21/5964
	Client Ref:
	784-B025563

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



**4043**

**Professional Soils Laboratory**

Contract No:
PSL21/5964
Client Ref:
784-B025563

Cambridge

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

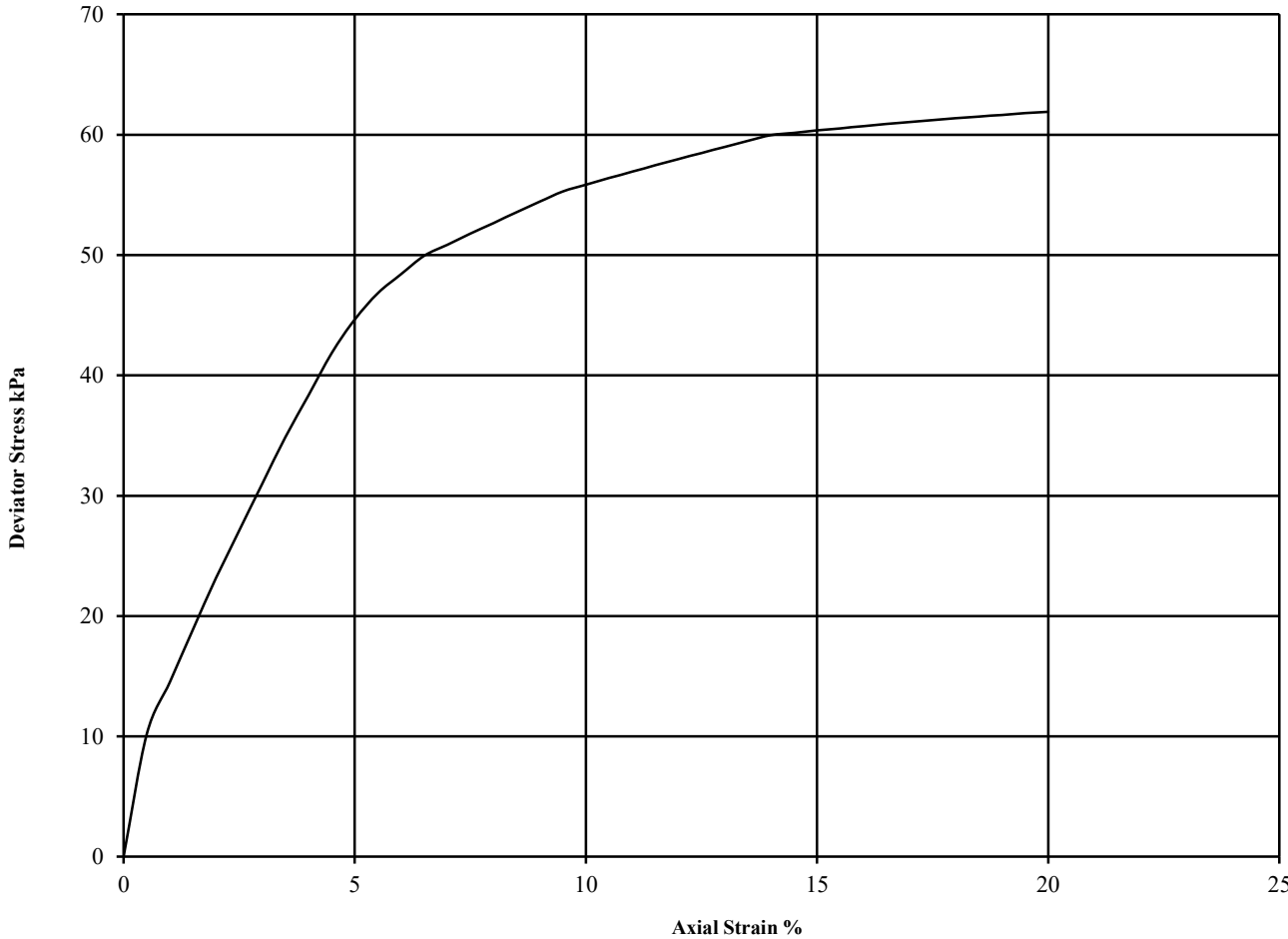
WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 8

Hole Number: BH-PTR-42Top Depth (m): 2.00

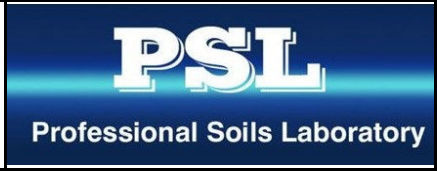
Sample Number:Base Depth (m): 2.45

Sample Type UT100



Diameter (mm):		102		Height (mm):		204	Test:	UU Single Stage		Remarks:
Specimen	Moisture Content (%)	Bulk Density (Mg/m3)	Dry Density (Mg/m3)	Cell Pressure (kPa)	Corr. Max. Deviator Stress (kPa)	$(\theta_1 - \theta_3)_f$	Shear Strength Cu (kPa)	Failure Strain (%)	Mode of Failure	Undisturbed Sample
										Sample taken from top of tube
										Rate of strain = 2 %/min
1	20	2.10	1.74	35	62	31	20.0	Plastic		Latex Membrane used 0.2 mm thick,
										Correction applied 0.33
										See summary of soil descriptions

**4043**

**Professional Soils Laboratory**

Cambridge

Contract No:
PSL21/5964
Client Ref:
784-B025563



ANALYTICAL TEST REPORT

Contract no: 100534
Contract name: BH-PTR-42
Client reference: PSL21/5964
Clients name: Professional Soils Laboratory
Clients address: 5/7 Hexthorpe Road
Doncaster
DN4 0AR

Samples received: 17 September 2021

Analysis started: 17 September 2021

Analysis completed: 24 September 2021

Report issued: 24 September 2021

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.
All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.
Methods, procedures and performance data are available on request.
Results reported herein relate only to the material supplied to the laboratory.
This report shall not be reproduced except in full, without prior written approval.
Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key: U UKAS accredited test
M MCERTS & UKAS accredited test
\$ Test carried out by an approved subcontractor
I/S Insufficient sample to carry out test
N/S Sample not suitable for testing

Approved by: 
Rachael Burton
Customer Support Squad Leader

Chemtech Environmental Limited

SOILS

Lab number			100534-1	100534-2	100534-3	100534-4
Sample id			BH-PTR-42	BH-PTR-42	BH-PTR-42	BH-PTR-42
Depth (m)			0.50-0.60	2.80-2.90	3.90-4.00	4.50-4.60
Date sampled			-	-	-	-
Test	Method	Units				
pH	CE004 ^U	units	8.1	8.6	-	9.5
Magnesium (2:1 water soluble)	CE061	mg/l Mg	1.2	1.3	-	28
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	7.9	4.8	-	11
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	16	3.6	-	1.0
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	<10	30	-	613
Sulphate (total)	CE062	mg/kg SO ₄	334	384	-	1416
Sulphur (total)	CE119	mg/kg S	192	190	-	977
Sulphur (total)	CE119	% w/w S	0.02	0.02	-	0.10
Total Organic Carbon (TOC)	CE197	% w/w C	-	-	0.7	-
Estimate of OMC (calculated from TOC)	CE197	% w/w	-	-	1.1	-

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S
CE197	Total Organic Carbon (TOC)	Carbon Analyser	Dry		0.1	% w/w C
CE197	Estimate of OMC (calculated from TOC)	Calculation from Total Organic Carbon	Dry		0.1	% w/w

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key
N No (not deviating sample)
Y Yes (deviating sample)
NSD Sampling date not provided
NST Sampling time not provided (waters only)
EHT Sample exceeded holding time(s)
IC Sample not received in appropriate containers
HP Headspace present in sample container
NCF Sample not chemically fixed (where appropriate)
OR Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
100534-1	BH-PTR-42	0.50-0.60	Y	All (NSD)
100534-2	BH-PTR-42	2.80-2.90	Y	All (NSD)
100534-3	BH-PTR-42	3.90-4.00	Y	All (NSD)
100534-4	BH-PTR-42	4.50-4.60	Y	All (NSD)

Sample Description & Split Describe

Hole Number: BH-PTR-43B Top Depth (m): 2.00

Sample Number: Base Depth (m): 2.45

Sample Type: UT100 Sample Date:

Sample Description: 2.00-2.03m- soft to firm brown gravelly slightly sandy silty CLAY.
Gravel is FM sub-angular to sub-rounded.

2.03-2.23m - Firm off white CHALK. Gravel is FM sub-angular chalk.



Cambridge

Contract No:
PSL21/5965
Client Ref:
784-B025563



ANALYTICAL TEST REPORT

Contract no: 100592

Contract name: BH-PTR-43B

Client reference: PSL21/5965

Clients name: Professional Soils Laboratory

Clients address: 5/7 Hexthorpe Road
Doncaster
DN4 0AR

Samples received: 20 September 2021

Analysis started: 20 September 2021

Analysis completed: 27 September 2021

Report issued: 27 September 2021

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope. Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling. All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing. Methods, procedures and performance data are available on request. Results reported herein relate only to the material supplied to the laboratory. This report shall not be reproduced except in full, without prior written approval. Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key: U UKAS accredited test
M MCERTS & UKAS accredited test
\$ Test carried out by an approved subcontractor
I/S Insufficient sample to carry out test
N/S Sample not suitable for testing

Approved by: 
Rachael Burton
Customer Support Squad Leader

Chemtech Environmental Limited

SOILS

Lab number			100592-1	100592-2	100592-3
Sample id			BH-PTR-43B	BH-PTR-43B	BH-PTR-43B
Depth (m)			1.00-1.10	2.90-3.00	7.30-7.40
Date sampled			-	-	-
Test	Method	Units			
pH	CE004 ^U	units	9.3	8.9	9.2
Magnesium (2:1 water soluble)	CE061	mg/l Mg	3.1	<1	<1
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	15	6.9	3.9
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	<1	2.7	<1
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	79	46	21
Sulphate (total)	CE062	mg/kg SO ₄	261	422	443
Sulphur (total)	CE119	mg/kg S	148	208	192
Sulphur (total)	CE119	% w/w S	0.01	0.02	0.02

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S

Chemtech Environmental Limited

DEVIATING SAMPLE INFORMATION

Comments

Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.

For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.

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Key	
N	No (not deviating sample)
Y	Yes (deviating sample)
NSD	Sampling date not provided
NST	Sampling time not provided (waters only)
EHT	Sample exceeded holding time(s)
IC	Sample not received in appropriate containers
HP	Headspace present in sample container
NCF	Sample not chemically fixed (where appropriate)
OR	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
100592-1	BH-PTR-43B	1.00-1.10	Y	All (NSD)
100592-2	BH-PTR-43B	2.90-3.00	Y	All (NSD)
100592-3	BH-PTR-43B	7.30-7.40	Y	All (NSD)



**LABORATORY
REPORT**



4043

Contract Number: PSL21/5966

Report Date: 20 September 2021

Client’s Reference: 784-B025563

Client Name: Tetra Tech
11th Floor
1 Angel Court
London
EC2R 7HJ

For the attention of: Richard Tonge

Contract Title: Cambridge

Date Received: 26/7/2021
Date Commenced: 26/7/2021
Date Completed: 20/9/2021

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

A Watkins (Director)	R Berriman (Quality Manager)	S Royle (Laboratory Manager)
L Knight (Assistant Laboratory Manager)	 S Eyre (Senior Technician)	T Watkins (Senior Technician)

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fax: +44 (0)844 815 6642
e-mail: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

Page 1 of

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]


PSL
Professional Soils Laboratory
4043

Contract No:	PSL21/5966	Client Ref:	784-B025563
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SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

[illegible]

SYMBOLS: NP : Non Plastic

* : Liquid Limit and Plastic Limit Wet Sieved.

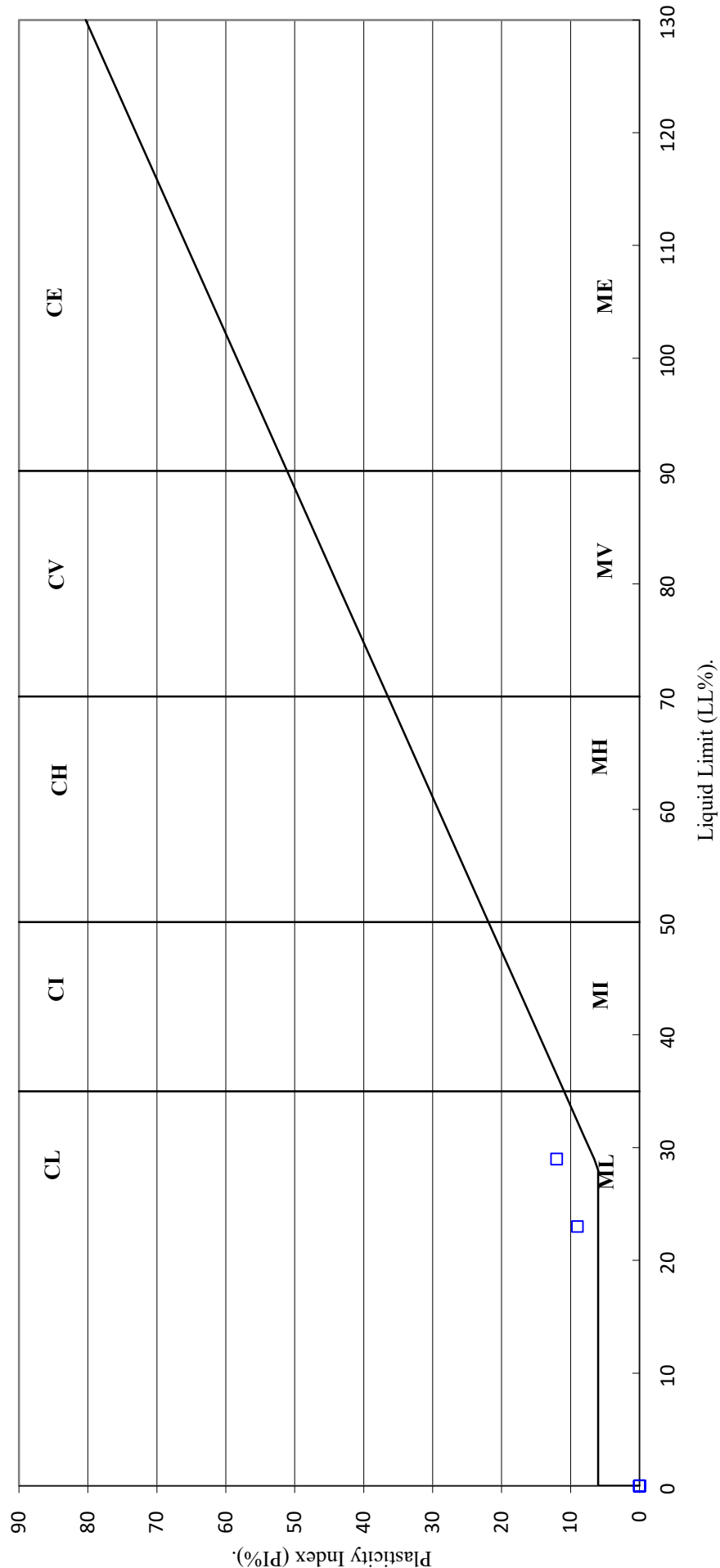

PSL
Professional Soils Laboratory
4043

Cambridge

Contract No:
PSL21/5966

Client Ref:
784-B025563

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



Cambridge	Contract No:
	PSL21/5966
	Client Ref:
	784-B025563



ANALYTICAL TEST REPORT

Contract no: 100537
Contract name: BH-PTR-44A
Client reference: PSL21/5966
Clients name: Professional Soils Laboratory
Clients address: 5/7 Hexthorpe Road
Doncaster
DN4 0AR

Samples received: 17 September 2021
Analysis started: 17 September 2021
Analysis completed: 24 September 2021
Report issued: 24 September 2021

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope. Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling. All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing. Methods, procedures and performance data are available on request. Results reported herein relate only to the material supplied to the laboratory. This report shall not be reproduced except in full, without prior written approval. Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key: U UKAS accredited test
M MCERTS & UKAS accredited test
\$ Test carried out by an approved subcontractor
I/S Insufficient sample to carry out test
N/S Sample not suitable for testing

Approved by: 
Rachael Burton
Customer Support Squad Leader

Chemtech Environmental Limited

SOILS

Lab number			100537-1	100537-2	100537-3
Sample id			BH-PTR-44A	BH-PTR-44A	BH-PTR-44A
Depth (m)			1.00-1.10	2.20	4.00
Date sampled			25/03/2021	25/03/2021	25/03/2021
Test	Method	Units			
pH	CE004 ^U	units	9.0	-	8.8
Magnesium (2:1 water soluble)	CE061	mg/l Mg	1.0	-	<1
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	8.0	-	25
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	5.3	-	7.4
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	21	-	38
Sulphate (total)	CE062	mg/kg SO ₄	463	-	521
Sulphur (total)	CE119	mg/kg S	170	-	221
Sulphur (total)	CE119	% w/w S	0.02	-	0.02
Total Organic Carbon (TOC)	CE197	% w/w C	-	0.3	-
Estimate of OMC (calculated from TOC)	CE197	% w/w	-	0.6	-

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S
CE197	Total Organic Carbon (TOC)	Carbon Analyser	Dry		0.1	% w/w C
CE197	Estimate of OMC (calculated from TOC)	Calculation from Total Organic Carbon	Dry		0.1	% w/w

Chemtech Environmental Limited

DEVIATING SAMPLE INFORMATION

Comments

Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.

For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.

Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key	
N	No (not deviating sample)
Y	Yes (deviating sample)
NSD	Sampling date not provided
NST	Sampling time not provided (waters only)
EHT	Sample exceeded holding time(s)
IC	Sample not received in appropriate containers
HP	Headspace present in sample container
NCF	Sample not chemically fixed (where appropriate)
OR	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
100537-1	BH-PTR-44A	1.00-1.10	Y	All (EHT)
100537-2	BH-PTR-44A	2.20	Y	All (EHT)
100537-3	BH-PTR-44A	4.00	Y	All (EHT)



**LABORATORY
REPORT**



4043

Contract Number: PSL21/5967

Report Date: 20 September 2021

Client's Reference: 784-B025563

Client Name: Tetra Tech
11th Floor
1 Angel Court
London
EC2R 7HJ

For the attention of: Richard Tonge

Contract Title: Cambridge

Date Received: 26/7/2021
Date Commenced: 26/7/2021
Date Completed: 20/9/2021

Notes: Opinions and Interpretations are outside the UKAS Accreditation

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Checked and Approved Signatories:

A Watkins (Director)	R Berriman (Quality Manager)	S Royle (Laboratory Manager)
L Knight (Assistant Laboratory Manager)	 S Eyre (Senior Technician)	T Watkins (Senior Technician)

5 – 7 Hexthorpe Road, Hexthorpe,
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fax: +44 (0)844 815 6642
e-mail: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

Page 1 of

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]


PSL
Professional Soils Laboratory
4043

Contract No:	PSL21/5967	Client Ref:	784-B025563
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SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

[illegible]

SYMBOLS: NP : Non Plastic

* : Liquid Limit and Plastic Limit Wet Sieved.

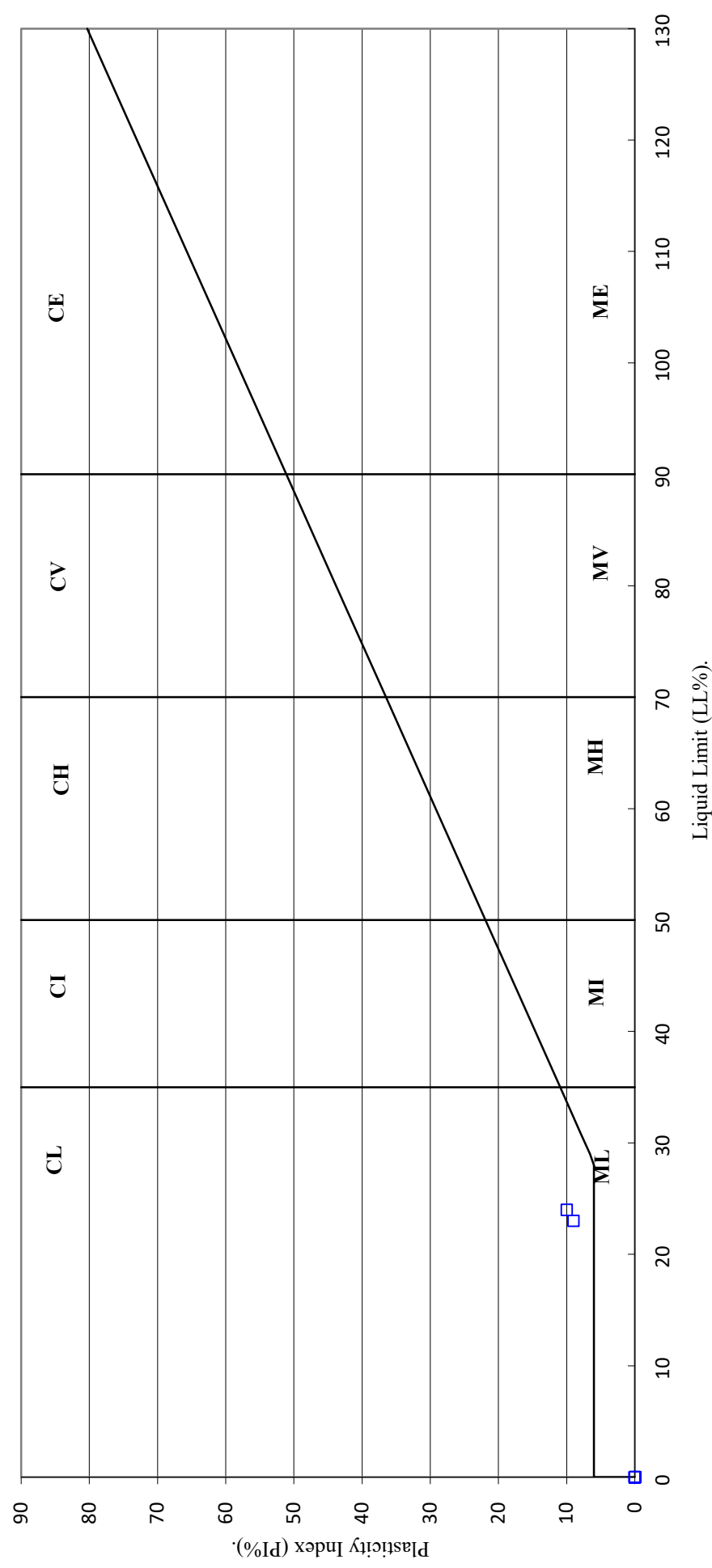

PSL
Professional Soils Laboratory
4043

Cambridge

Contract No:
PSL21/5967

Client Ref:
784-B025563

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.





UKAS
TESTING

PSL

Professional Soils Laboratory

4043

Contract No:

PSL21/5967

Client Ref:

784-B025563

Cambridge

SUMMARY OF CHALK TESTS

(BS1377 : PART 2 & 4 : 1990)

[illegible]

* CCV testing is not UKAS accredited


PSL
Professional Soils Laboratory
4043

Contract No:

PSL21/5967

Client Ref:

784-B025563

Cambridge

SUMMARY OF ROCK TESTS

[illegible]

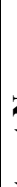
	Contract No:
	PSL21/5967
	Client Ref:
	784-B025563

F POINT LOAD THE
ISRM Suggested Methods : 2007

[illegible]

***Note**
All testing carried out on samples at as received water content

A = Axial, D = Diametral, I = Irregular

	Professional Soils Laboratory PSL	Cambridge	Contract No:
			PSL21/5967
			Client Ref:
			784-B025563

ISRM Suggested Methods : 2007

PSL030 Issue 2

ANALYTICAL TEST REPORT

Contract no:	100535
Contract name:	BH-PTR-45A
Client reference:	PSL21/5967
Clients name:	Professional Soils Laboratory
Clients address:	5/7 Hexthorpe Road Doncaster DN4 0AR

Samples received: 17 September 2021

Analysis started: 17 September 2021

Analysis completed: 24 September 2021

Report issued: 24 September 2021

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
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Results reported herein relate only to the material supplied to the laboratory.
This report shall not be reproduced except in full, without prior written approval.
Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key:

- U UKAS accredited test
- M MCERTS & UKAS accredited test
- \$ Test carried out by an approved subcontractor
- I/S Insufficient sample to carry out test
- N/S Sample not suitable for testing

Approved by: 
Rachael Burton
Customer Support Squad Leader

Unit 6 Parkhead, Greencroft Industrial Park, Stanley, County Durham, DH9 7YB
Tel 01207 528578 Email customerservices@chemtech-env.co.uk
Vat Reg No. 772 5703 18 Registered in England number 4284013

Chemtech Environmental Limited

SOILS

Lab number			100535-1	100535-2	100535-3
Sample id			BH-PTR-45A	BH-PTR-45A	BH-PTR-45A
Depth (m)			1.00	7.00-7.10	10.30-10.40
Date sampled			-	-	-
Test	Method	Units			
pH	CE004 ^U	units	8.9	8.8	8.7
Magnesium (2:1 water soluble)	CE061	mg/l Mg	1.9	1.5	1.3
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	10	9.5	5.9
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	10	24	9.3
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	23	29	26
Sulphate (total)	CE062	mg/kg SO ₄	431	438	331
Sulphur (total)	CE119	mg/kg S	204	187	167
Sulphur (total)	CE119	% w/w S	0.02	0.02	0.02

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S

Chemtech Environmental Limited

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
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Key	
N	No (not deviating sample)
Y	Yes (deviating sample)
NSD	Sampling date not provided
NST	Sampling time not provided (waters only)
EHT	Sample exceeded holding time(s)
IC	Sample not received in appropriate containers
HP	Headspace present in sample container
NCF	Sample not chemically fixed (where appropriate)
OR	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
100535-1	BH-PTR-45A	1.00	Y	All (NSD)
100535-2	BH-PTR-45A	7.00-7.10	Y	All (NSD)
100535-3	BH-PTR-45A	10.30-10.40	Y	All (NSD)



LABORATORY
REPORT



4043

Contract Number: PSL21/5977

Report Date: 01 November 2021

Client’s Reference: 784-B025563

Client Name: Tetra Tech
11th Floor
1 Angel Court
London
EC2R 7HJ

For the attention of: Richard Tonge

Contract Title: Cambridge

Date Received: 26/7/2021
Date Commenced: 26/7/2021
Date Completed: 1/11/2021

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

A Watkins (Director)	R Berriman (Quality Manager)	S Royle (Laboratory Manager)
L Knight (Assistant Laboratory Manager)	 S Eyre (Senior Technician)	T Watkins (Senior Technician)

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Doncaster DN4 0AR
tel: +44 (0)844 815 6641
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awatkins@prosoils.co.uk

Page 1 of

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]

	Contract No:
	PSL21/5977
	Client Ref:
	784-B025563

PARTICLE SIZE DISTRIBUTION TEST

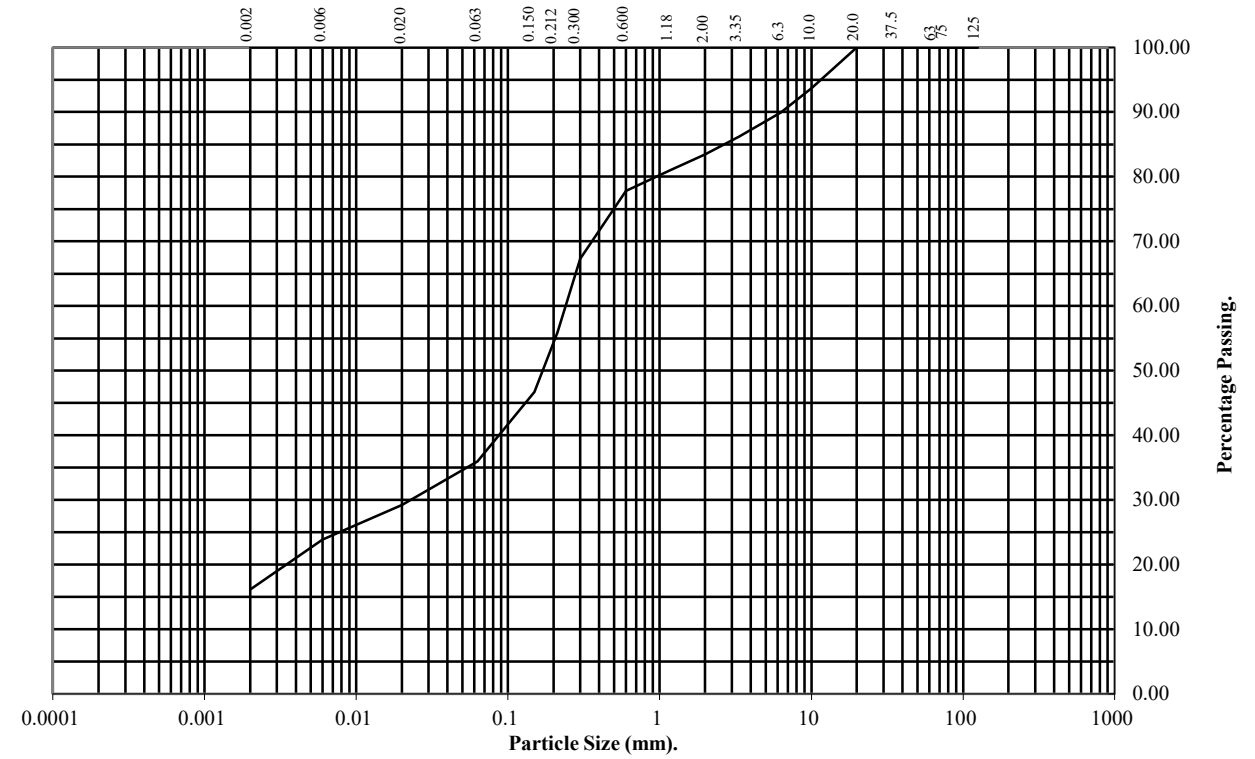
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	BH-TH-01	Top Depth (m):	1.00
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Sample Number: **Base Depth(m):** **1.00**

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	94
6.3	90
3.35	86
2	83
1.18	81
0.6	78
0.3	67
0.212	56
0.15	47
0.063	36

Particle Diameter	Percentage Passing
0.02	29
0.006	24
0.002	16

Soil Fraction	Total Percentage
Cobbles	0
Gravel	17
Sand	47
Silt	20
Clay	16

Remarks:
See Summary of Soil Descriptions

		<p>Cambridge</p>	<p>Contract No: PSL21/5977</p> <p>Client Ref: 784-B025563</p>
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SUMMARY OF CHALK TESTS

(BS1377: PART 2 & 4: 1990)

[illegible]

* CCV testing is not UKAS accredited

	<p>Cambridge</p>	Contract No:
		PSL21/5977
		Client Ref:
		784-B025563

SUMMARY OF ROCK TESTS

(ISRM Suggested Method for the Determination of the Water Content of Rock)

[illegible]

	Contract No:
	PSL21/5977
	Client Ref:
	784-B025563

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular

	<p>Cambridge</p>	Contract No:
		PSL21/5977
		Client Ref:
		784-B025563

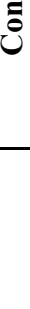
SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

	<p>Cambridge</p>	Contract No:
		PSL21/5977
		Client Ref:
		784-B025563

(BS1377: PART 2 & 4: 1990)

* CCV testing is not UKAS accredited

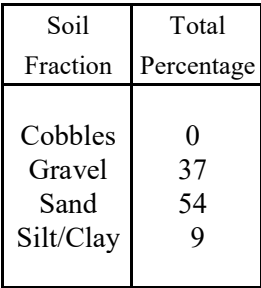


Cambridge

Contract No:	PSL21/5976	Client Ref:	784-B025563
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BS1377 : Part 2 : 1990
Wet Sieve, Clause 9.2

Sample Type: **B**



Cambridge Geotech

Contract No:
PSL21/5976

Client Ref:
784-B025563

SUMMARY OF ROCK TESTS

[illegible]

PST
Professional Soils Laboratory

Contract No:

PSL21/5976

Client Ref:

784-B025563

Cambridge

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular


UKAS TESTING
4043
PSL
Professional Soils Laboratory

Cambridge

Contract No:

PSL21/5976

Client Ref:

784-B025563

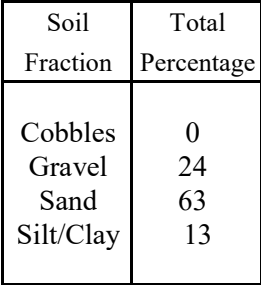
(BS1377 : PART 2 & 4 : 1990)

* CCV testing is not UKAS accredited

Contract No:
PSL21/5975
Client Ref:
784-B025563

BS1377 : Part 2 : 1990
Wet Sieve, Clause 9.2

Sample Type: **B**



Cambridge

Contract No:
PSL21/5975
Client Ref:
784-B025563

SUMMARY OF ROCK TESTS

[illegible]

PST
Professional Soils Laboratory

Contract No:

PSL21/5975

Client Ref:

784-B025563

Cambridge

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular


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Professional Soils Laboratory
4043

Cambridge

Contract No:

PSL21/5975

Client Ref:

784-B025563

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

[illegible]

SYMBOLS: NP: Non Plastic

* : Liquid Limit and Plastic Limit Wet Sieved.


PSL
Professional Soils Laboratory
4043

Contract No:

PSL 21/5974

Client Ref:

784-B025563

Cambridge

SUMMARY OF CHALK TESTS

(BS1377: PART 2 & 4:1990)

[illegible]

* CCV testing is not UKAS accredited


PSL
Professional Soils Laboratory
4043

Contract No:

PSI 21/5974

Client Ref:

784-B025563

Cambridge

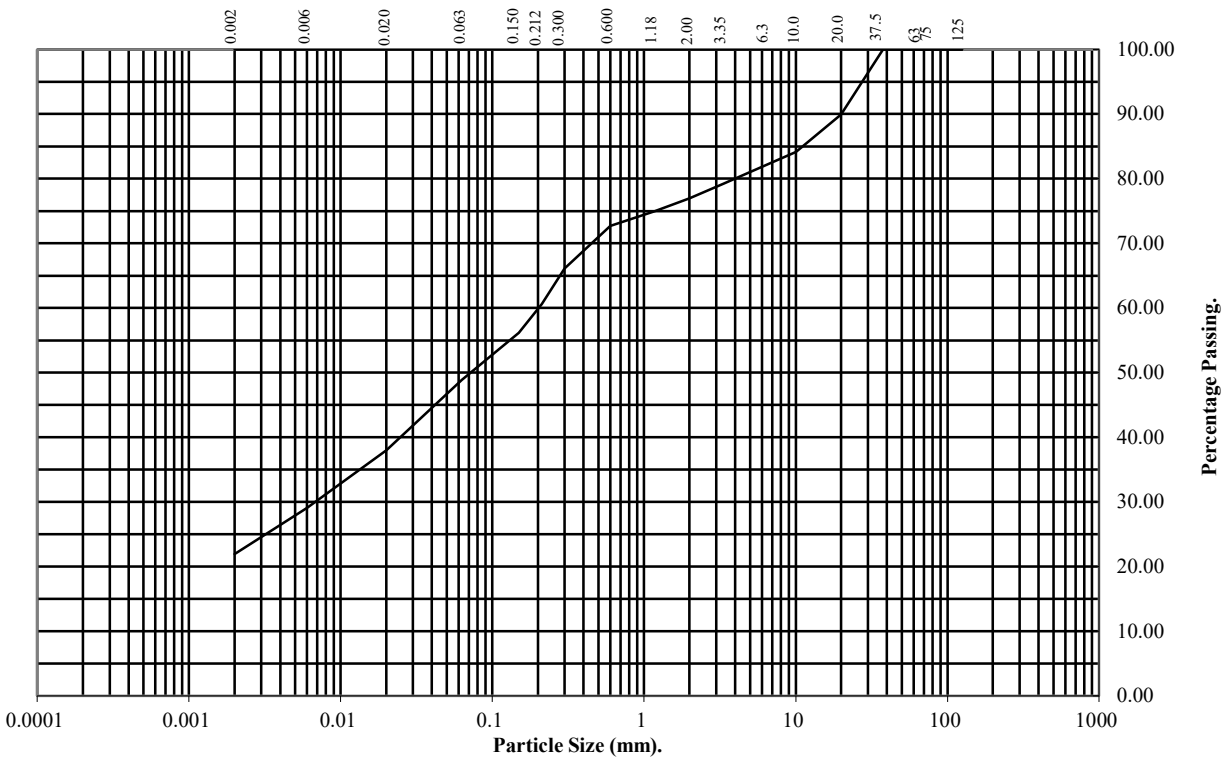
PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: BH-TH-04 Top Depth (m): 1.00

Sample Number: Base Depth(m):

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	90
10	84
6.3	82
3.35	79
2	77
1.18	75
0.6	73
0.3	66
0.212	61
0.15	56
0.063	49

Particle Diameter	Percentage Passing
0.02	38
0.006	29
0.002	22

Soil Fraction	Total Percentage
Cobbles	0
Gravel	23
Sand	28
Silt	27
Clay	22

Remarks:
See Summary of Soil Descriptions

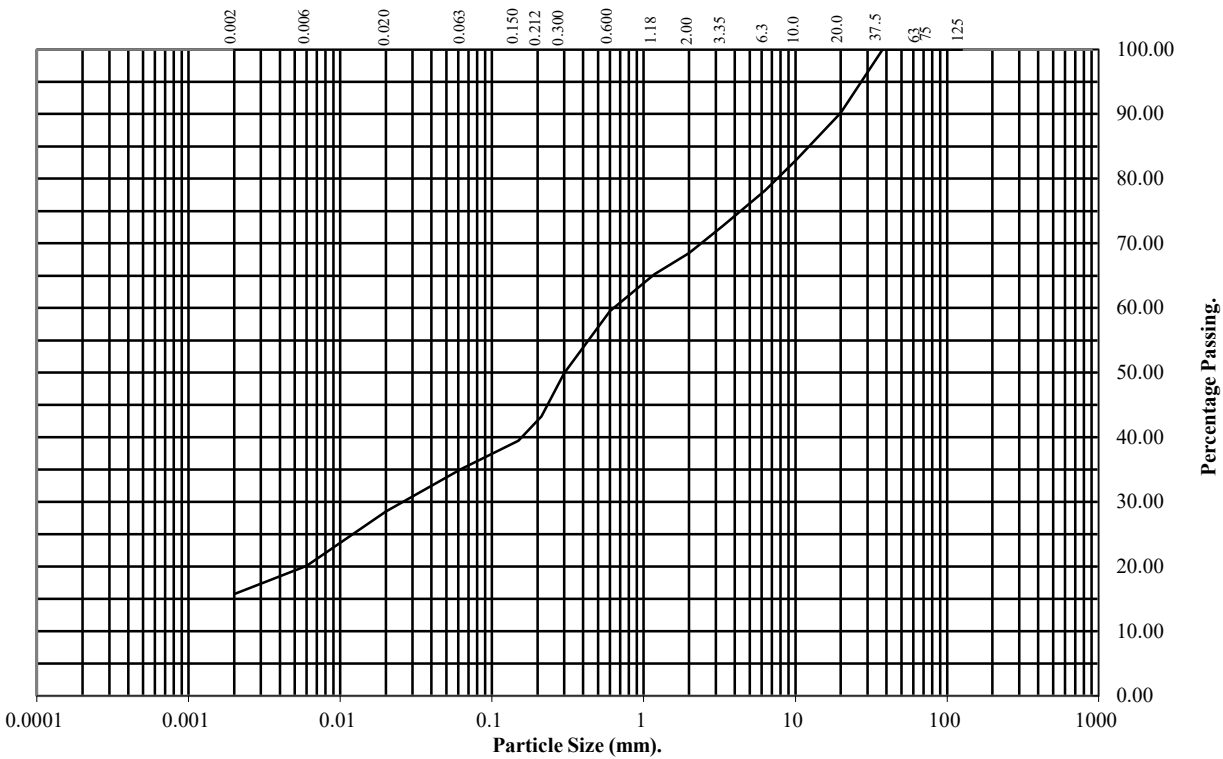
PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: BH-TH-04 Top Depth (m): 1.90

Sample Number: Base Depth(m): 2.00

Sample Type: D



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	90
10	83
6.3	78
3.35	73
2	69
1.18	65
0.6	60
0.3	50
0.212	43
0.15	39
0.063	35

Particle Diameter	Percentage Passing
0.02	29
0.006	20
0.002	16

Soil Fraction	Total Percentage
Cobbles	0
Gravel	31
Sand	34
Silt	19
Clay	16

Remarks:
See Summary of Soil Descriptions

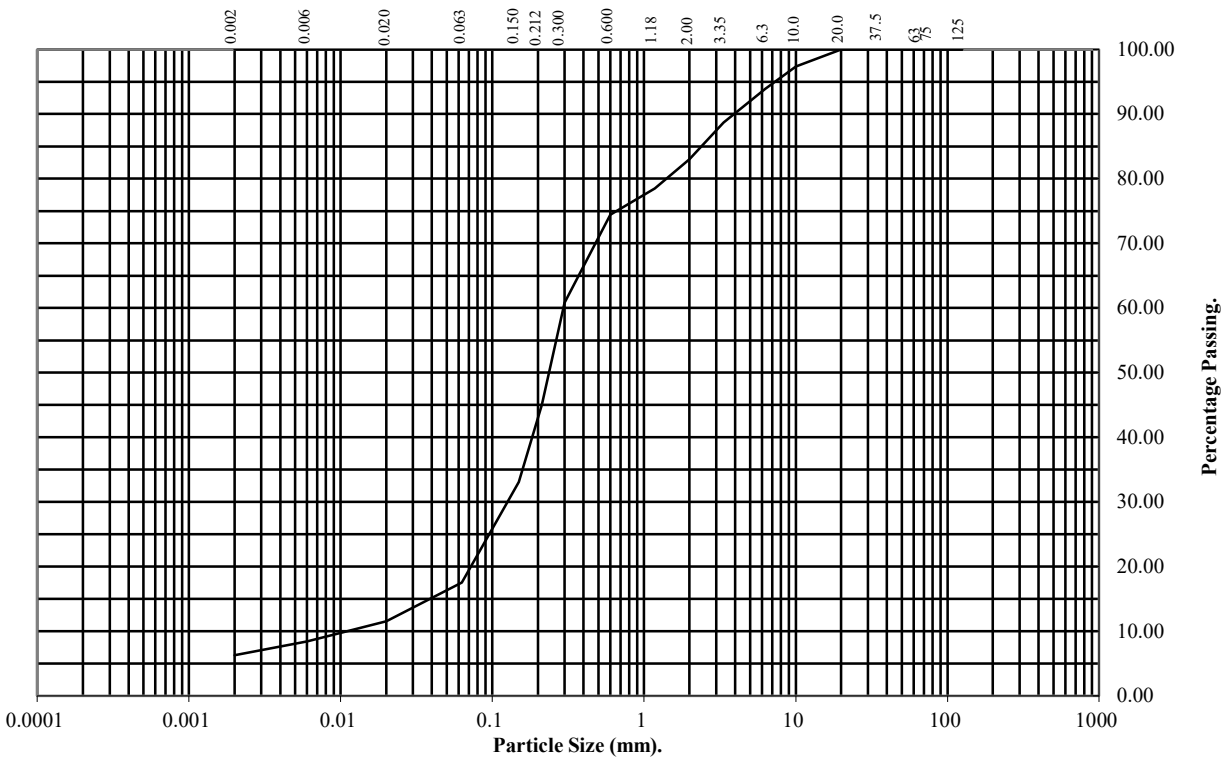
PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: BH-TH-05 Top Depth (m): 1.00

Sample Number: Base Depth(m): 1.00

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	97
6.3	94
3.35	89
2	83
1.18	78
0.6	74
0.3	61
0.212	45
0.15	33
0.063	18

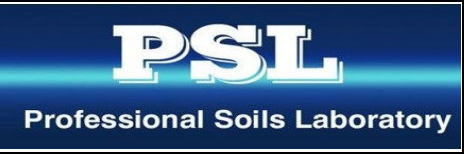
Particle Diameter	Percentage Passing
0.02	12
0.006	8
0.002	6

Soil Fraction	Total Percentage
Cobbles	0
Gravel	17
Sand	65
Silt	12
Clay	6

Remarks:
See Summary of Soil Descriptions



4043



Professional Soils Laboratory

Cambridge

Contract No:
PSL21/5973
Client Ref:
784-B025563

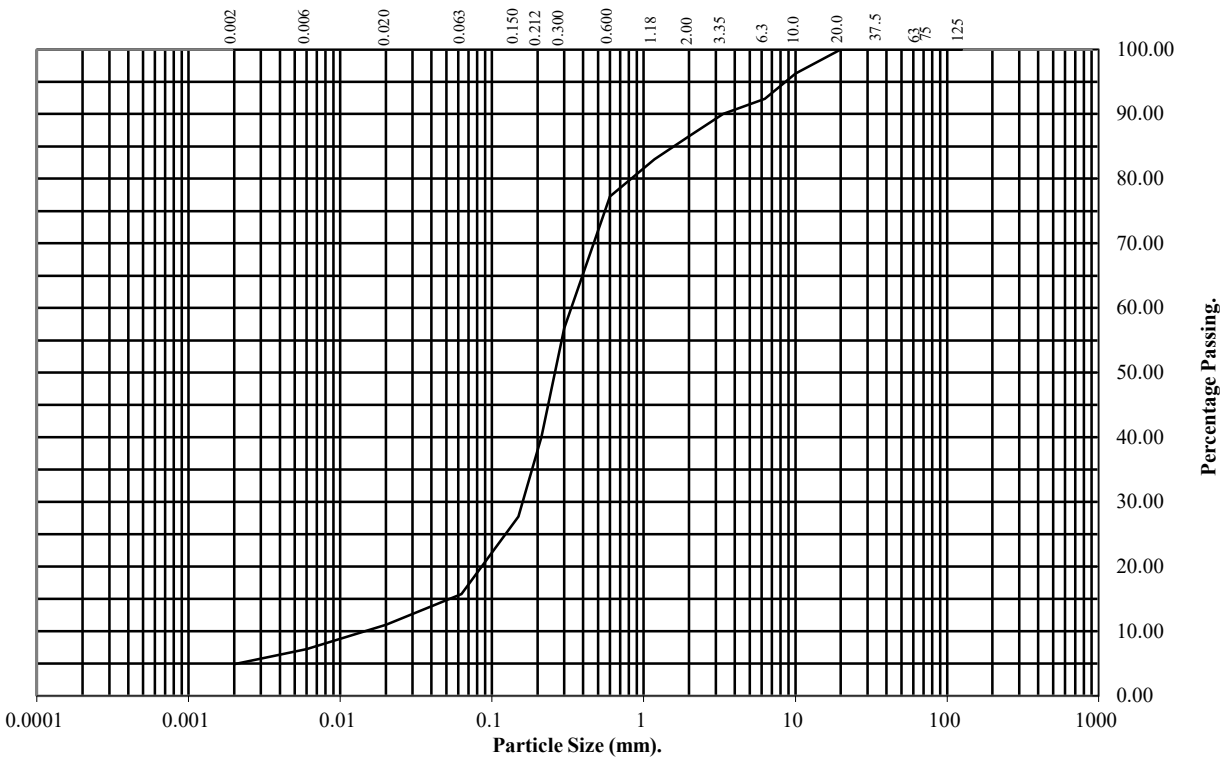
PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: BH-TH-05 Top Depth (m): 1.40

Sample Number: Base Depth(m): 1.50

Sample Type: D



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	96
6.3	92
3.35	90
2	87
1.18	83
0.6	77
0.3	57
0.212	40
0.15	28
0.063	16

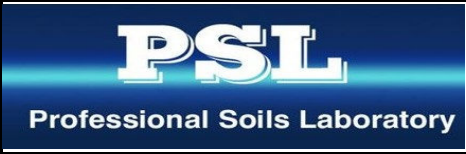
Particle Diameter	Percentage Passing
0.02	11
0.006	7
0.002	5

Soil Fraction	Total Percentage
Cobbles	0
Gravel	13
Sand	71
Silt	11
Clay	5

Remarks:
See Summary of Soil Descriptions



4043



Professional Soils Laboratory

Cambridge

Contract No:
PSL21/5973
Client Ref:
784-B025563

SUMMARY OF CHALK TESTS

(BS1377 : PART 2 & 4 : 1990)

[illegible]

* CCV testing is not UKAS accredited

	<p>Contract No:</p>
	<p>PSL21/5973</p>
	<p>Client Ref:</p>
	<p>784-B025563</p>
<p>Cambridge</p>	

DETERMINATION OF UNCONFINED COMPRESSIVE STRENGTH

ISRM Suggested Methods, pp 111 –116, 1981.

[illegible]

	Contract No:
	PSL21/5973
	Client Ref:
	784-B025563

SUMMARY OF ROCK TESTS

[illegible]

PST
Professional Soils Laboratory

Contract No:

PSL21/5973

Client Ref:

784-B025563

Cambridge

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular


PSL
Professional Soils Laboratory
4043

Cambridge

Contract No:

PSL21/5973

Client Ref:

784-B025563

ISRM Suggested Methods : 2007

PSL030 Issue 2

4043

Contract Number: PSL21/5972

Report Date: 18 October 2021

Client's Reference: 784-B025563

Client Name: Tetra Tech
11th Floor
1 Angel Court
London
EC2R 7HJ

For the attention of: Richard Tonge

Contract Title: Cambridge

Date Received: 26/7/2021
Date Commenced: 26/7/2021
Date Completed: 18/10/2021

Notes: **Opinions and Interpretations are outside the UKAS Accreditation**

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Checked and Approved Signatories:

A Watkins
(Director)

R Berriman
(Quality Manager)

S Royle
(Laboratory Manager)

L Knight
(Assistant Laboratory Manager)


S Eyre
(Senior Technician)

T Watkins
(Senior Technician)

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fax: +44 (0)844 815 6642
e-mail: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]

PST
Professional Soils Laboratory

Contract No:	PSL21/5972	Client Ref:	784-B025563
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PSL001 Issue 2

Nov 15

Page of

SUMMARY OF CHALK TESTS

(BS1377: PART 2 & 4:1990)

[illegible]

* CCV testing is not UKAS accredited



PSL
Professional Soils Laboratory

Cambridge

Contract No:	PSL21/5972	Client Ref:	784-B0255563
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(ISRM Suggested Method for the Determination of the Water Content of Rock)

	Contract No:
	PSL21/5972
	Client Ref:
	784-B025563



Page 1 of

[illegible]

Cambridge

Contract No:
PSL21/5971

Client Ref:
784-B025563

Contract No:
PSL21/5971
Client Ref:
784-B025563

		<p style="text-align: center;">Cambridge</p>	Contract No:
			PSL21/5968
			Client Ref:
			794 D025563

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

[illegible]

SYMBOLS: NP: Non Plastic

* : Liquid Limit and Plastic Limit Wet Sieved.


PSL
Professional Soils Laboratory
4043

Contract No:

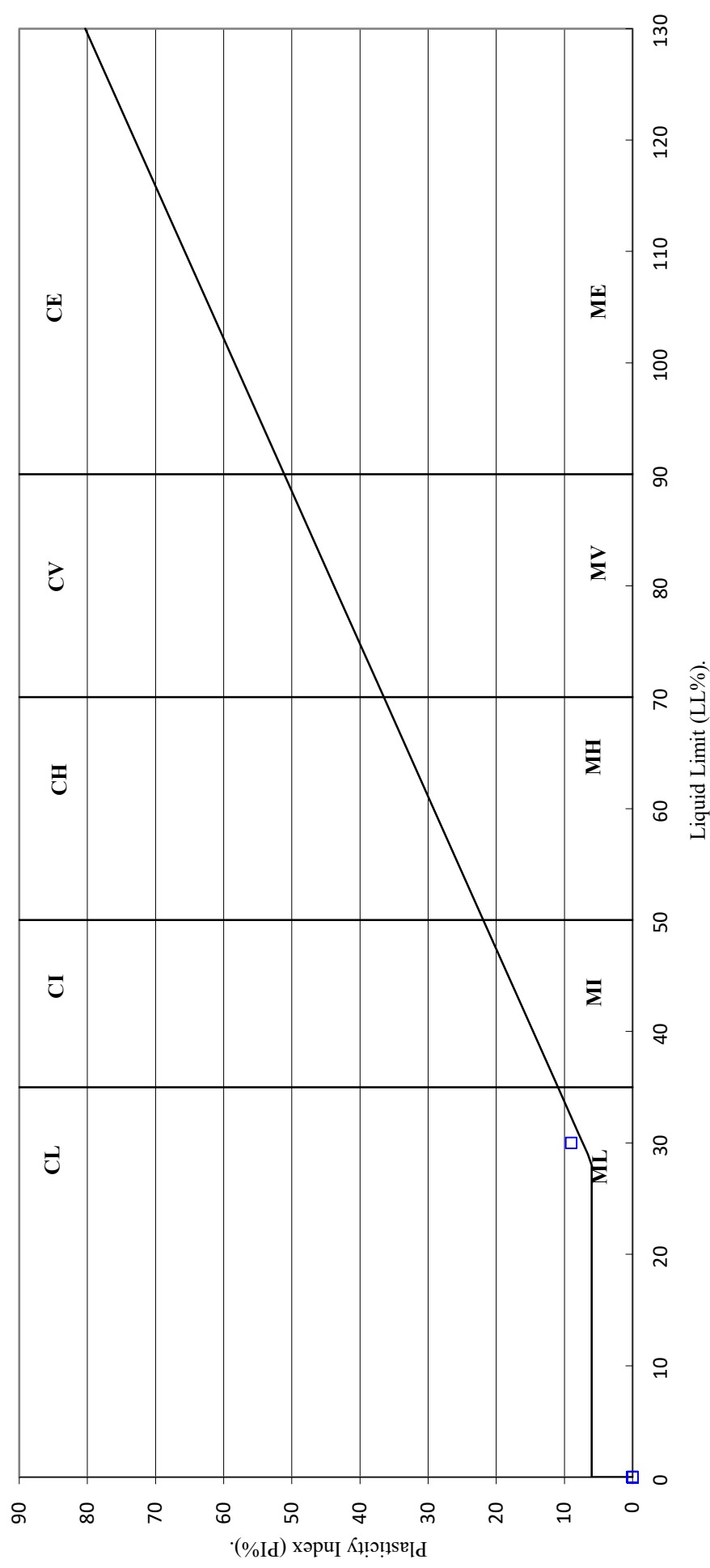
PSL21/5968

Client Ref:

784-B025563

Cambridge

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.




PSL
Professional Soils Laboratory
4043

Contract No:

PSL21/5968

Client Ref:

784-B025563

Cambridge

PARTICLE SIZE DISTRIBUTION TEST

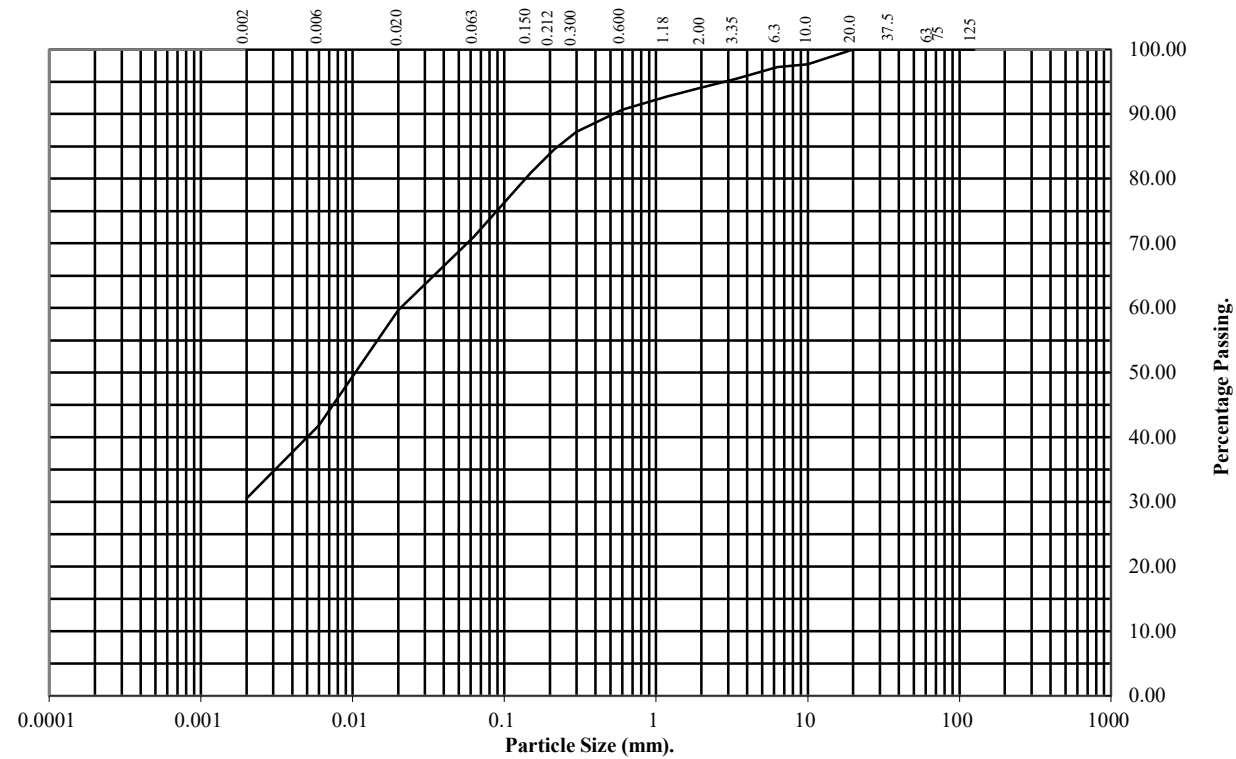
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	BH-TH-08	Top Depth (m):	0.90
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Sample Number: **Base Depth(m):** **1.00**

Sample Type: **D**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	98
6.3	97
3.35	95
2	94
1.18	93
0.6	91
0.3	87
0.212	84
0.15	81
0.063	71

Particle Diameter	Percentage Passing
0.02	60
0.006	42
0.002	31

Soil Fraction	Total Percentage
Cobbles	0
Gravel	6
Sand	23
Silt	40
Clay	31

Remarks:

See Summary of Soil Descriptions



4043

PSL

Professional Soils Laboratory

Cambridge

Contract No:

PSL21/5968

Client Ref:

784-B025563

SUMMARY OF ROCK TESTS

(ISRM Suggested Method for the Determination of the Water Content of Rock)

[illegible]**Contract No:**

PSL21/5968

Client Ref:

784-B025563

Cambridge

PST
Professional Soils Laboratory

ISRM Suggested Methods : 2007

A = Axial, D = Diametral, I = Irregular

Par = parallel, Perp = perpendicular, U = Random

***Note** All testing carried out on samples at as received water content

PST
Professional Soils Laboratory



Contract no:	100595
Contract name:	BH-TH-08
Client reference:	PSL21/5968
Clients name:	Professional Soils Laboratory
Clients address:	5/7 Hexthorpe Road Doncaster DN4 0AR
Samples received:	20 September 2021
Analysis started:	20 September 2021
Analysis completed:	27 September 2021
Report issued:	27 September 2021

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.
All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.
Methods, procedures and performance data are available on request.
Results reported herein relate only to the material supplied to the laboratory.
This report shall not be reproduced except in full, without prior written approval.
Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key:

- U UKAS accredited test
- M MCERTS & UKAS accredited test
- \$ Test carried out by an approved subcontractor
- I/S Insufficient sample to carry out test
- N/S Sample not suitable for testing

Approved by: 
Rachael Burton
Customer Support Squad Leader

Chemtech Environmental Limited

SOILS

Lab number			100595-1
Sample id			BH-TH-08
Depth (m)			1.80-1.90
Date sampled			-
Test	Method	Units	
pH	CE004 ^U	units	8.6
Magnesium (2:1 water soluble)	CE061	mg/l Mg	<1
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	5.9
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	9.3
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	25
Sulphate (total)	CE062	mg/kg SO ₄	410
Sulphur (total)	CE119	mg/kg S	150
Sulphur (total)	CE119	% w/w S	0.02

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S

Chemtech Environmental Limited

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key	
N	No (not deviating sample)
Y	Yes (deviating sample)
NSD	Sampling date not provided
NST	Sampling time not provided (waters only)
EHT	Sample exceeded holding time(s)
IC	Sample not received in appropriate containers
HP	Headspace present in sample container
NCF	Sample not chemically fixed (where appropriate)
OR	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
100595-1	BH-TH-08	1.80-1.90	Y	All (NSD)



LABORATORY
REPORT



4043

Contract Number: PSL21/5970

Report Date: 20 September 2021

Client’s Reference: 784-B025563

Client Name: Tetra Tech
11th Floor
1 Angel Court
London
EC2R 7HJ

For the attention of: Richard Tonge

Contract Title: Cambridge

Date Received: 26/7/2021
Date Commenced: 26/7/2021
Date Completed: 20/9/2021

Notes: Opinions and Interpretations are outside the UKAS Accreditation

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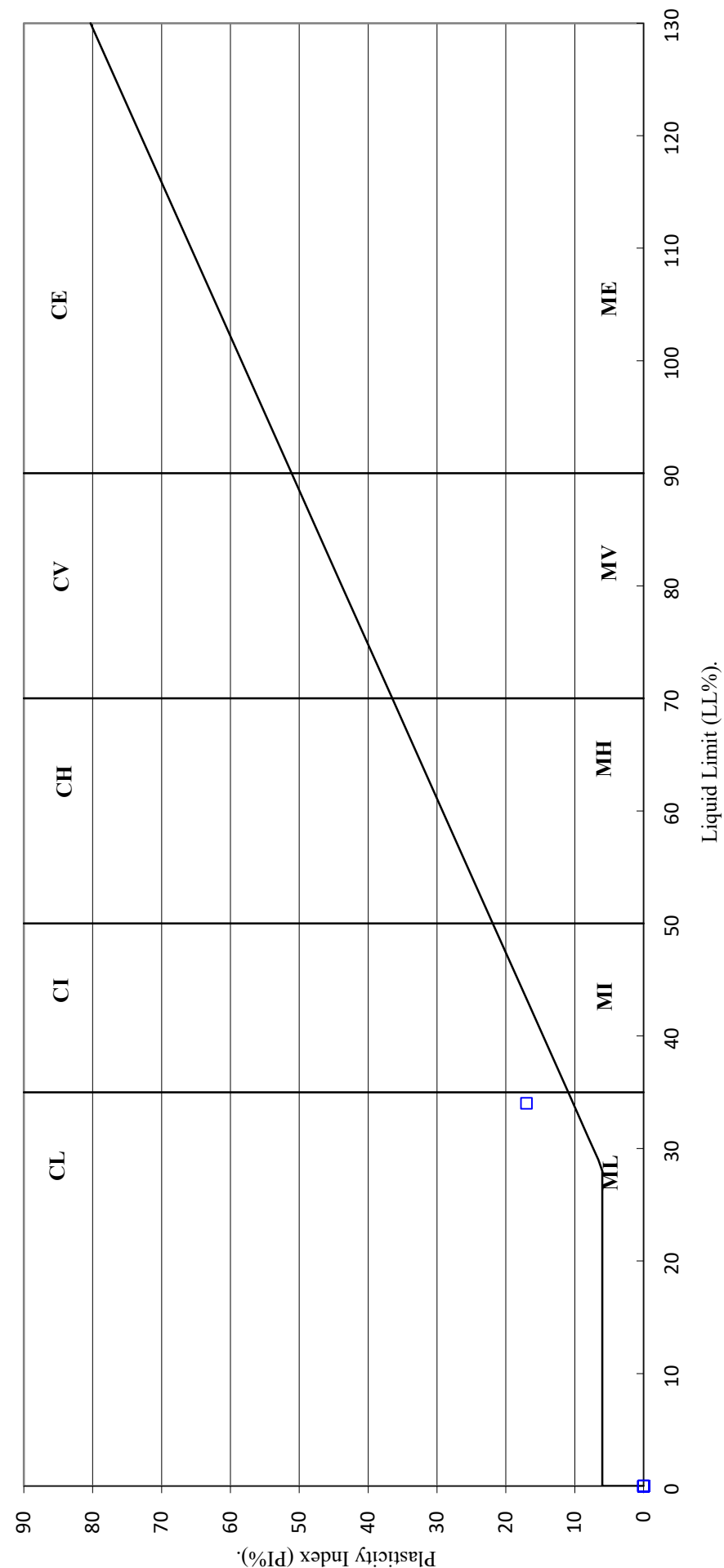
Checked and Approved Signatories:

A Watkins (Director)	R Berriman (Quality Manager)	S Royle (Laboratory Manager)
L Knight (Assistant Laboratory Manager)	 S Eyre (Senior Technician)	T Watkins (Senior Technician)

5 – 7 Hexthorpe Road, Hexthorpe,
Doncaster DN4 0AR
tel: +44 (0)844 815 6641
fax: +44 (0)844 815 6642
e-mail: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

Page 1 of

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.





4043



Contract No:

PSL21/5970

Client Ref:

784-B025563

Cambridge



LABORATORY REPORT



4043

Contract Number: PSL21/5969

Report Date: 30 September 2021

Client’s Reference: 784-B025563

Client Name: Tetra Tech
11th Floor
1 Angel Court
London
EC2R 7HJ

For the attention of: Richard Tonge

Contract Title: Cambridge

Date Received: 26/7/2021
Date Commenced: 26/7/2021
Date Completed: 30/9/2021

Notes: Opinions and Interpretations are outside the UKAS Accreditation

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A Watkins (Director)	R Berriman (Quality Manager)	S Royle (Laboratory Manager)
L Knight (Assistant Laboratory Manager)	 S Eyre (Senior Technician)	T Watkins (Senior Technician)

5 – 7 Hexthorpe Road, Hexthorpe,
Doncaster DN4 0AR
tel: +44 (0)844 815 6641
fax: +44 (0)844 815 6642
e-mail: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]


PSL
Professional Soils Laboratory
4043

Contract No:	PSL21/5969	Client Ref:	784-B025563
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SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

[illegible]

SYMBOLS : NP : Non Plastic

* : Liquid Limit and Plastic Limit Wet Sieved.



UKAS
TESTING

PSL

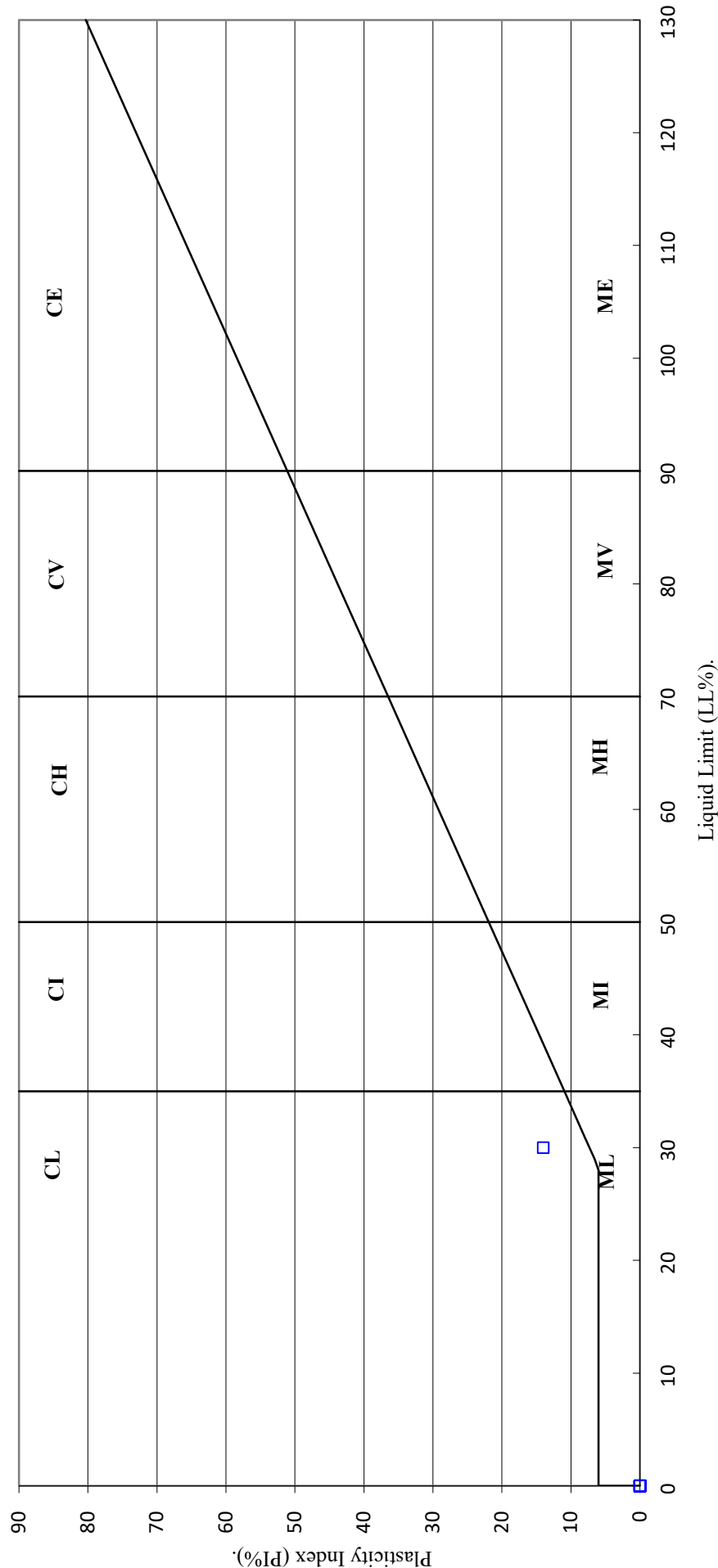
Professional Soils Laboratory

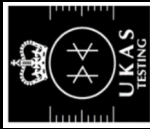
4043

Cambridge

Contract No:	PSL21/5969
Client Ref:	784-B025563

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.





4043



Professional Soils Laboratory

Cambridge

Contract No:

PSL21/5969

Client Ref:

784-B025563

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:

BH-TH-09A

Top Depth (m):

1.00

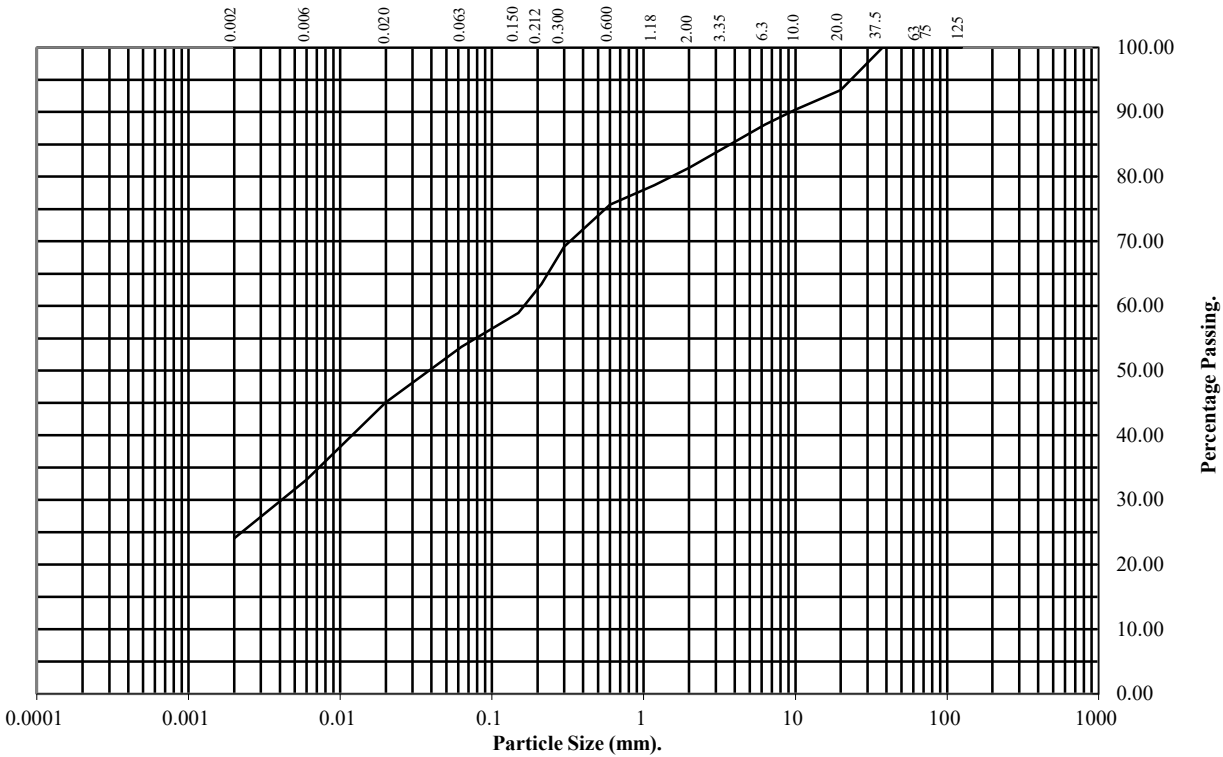
Sample Number:

Base Depth(m):

1.00

Sample Type:

B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	93
10	90
6.3	88
3.35	84
2	81
1.18	79
0.6	76
0.3	69
0.212	63
0.15	59
0.063	54

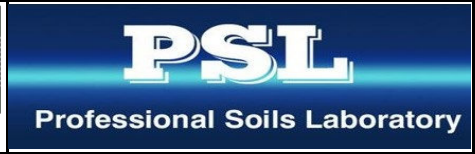
Particle Diameter	Percentage Passing
0.02	45
0.006	33
0.002	24

Soil Fraction	Total Percentage
Cobbles	0
Gravel	19
Sand	27
Silt	30
Clay	24

Remarks:
See Summary of Soil Descriptions



4043



Professional Soils Laboratory

Cambridge

Contract No:

PSL21/5969

Client Ref:

784-B025563

(BS1377 : PART 2 & 4 : 1990)

* CCV testing is not UKAS accredited



Cambridge

Contract No:	PSL21/7343	Client Ref:	784-B025563
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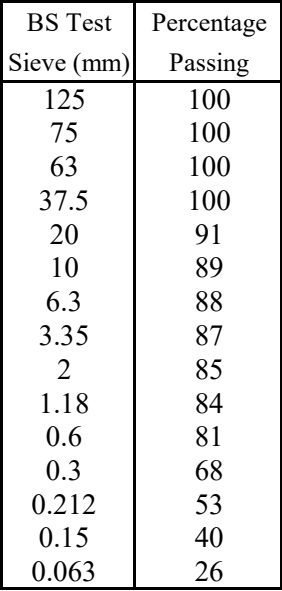
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	BH-TH-10	Top Depth (m):	1.20
---------------------	-----------------	-----------------------	-------------

Sample Number: **Base Depth(m):** **1.30**

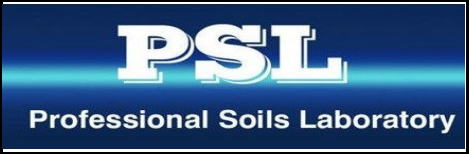
Sample Type: **D**



Particle Diameter	Percentage Passing
0.02	20
0.006	15
0.002	12

Soil Fraction	Total Percentage
Cobbles	0
Gravel	15
Sand	59
Silt	14
Clay	12

Remarks:
See Summary of Soil Descriptions



Cambridge

Contract No:
PSL21/7343

Client Ref:
784-B025563

SUMMARY OF ROCK TESTS

[illegible]

	Contract No:
	PSL21/7343
	Client Ref:
	784-B025563

F POINT LOAD THE

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular

 PSL Professional Soils Laboratory 4043	Cambridge	Contract No:
		PSL21/7343
		Client Ref:
		784-B025563

ISRM Suggested Methods : 2007

PSL030 Issue 2

Hole Number:	BH-PTR-19	Top Depth (m):	1.20
Sample Number:		Base Depth (m):	1.65
Sample Type:	UT	Sample Date:	
Sample Description:	Soft to firm brown gravelly very sandy CLAY. Sand is FMC, Gravel is FMC angular.		



Sample Description & Split Describe

Hole Number: BH-PTR-22 Top Depth (m): 1.20

Sample Number: Base Depth (m): 1.65

Sample Type: UT Sample Date:

Sample Description: Soft brown very gravelly very sandy CLAY. Sand is FMC, Gravel is FM angular. Soft.



Sample Description & Split Describe

Hole Number: BH-PTR-22 Top Depth (m): 2.00

Sample Number: Base Depth (m): 2.45

Sample Type: UT Sample Date:

Sample Description: Brown very gravelly clayey SAND. Sand is FMC, Gravel is FMC angular.



Sample Description & Split Describe

Hole Number: BH-PTR-23 Top Depth (m): 1.20

Sample Number: Base Depth (m): 1.65

Sample Type: UT Sample Date:

Sample Description: Soft dark brown very gravelly very sandy CLAY. Sand is FMC,
Gravel is FMC angular



Sample Description & Split Describe

Hole Number: BH-PTR-23 Top Depth (m): 2.00

Sample Number: Base Depth (m): 2.45

Sample Type: UT Sample Date:

Sample Description: Very soft dark brown gravelly very sandy CLAY. Sand is FMC,
Gravel is FMC angular.



Sample Description & Split Describe

Hole Number: BH-PTR-25 Top Depth (m): 2.50

Sample Number: Base Depth (m): 2.95

Sample Type: UT Sample Date:

Sample Description: Firm grey & brown gravelly sandy CLAY. Sand is FMC, Gravel is FMC angular.



Sample Description & Split Describe

Hole Number: BH-PTR-25 Top Depth (m): 4.50

Sample Number: Base Depth (m): 4.95

Sample Type: UT Sample Date:

Sample Description: Firm to stiff grey & brown gravelly very sandy CLAY. Sand is FMC, Gravel is FMC angular & sub-angular.



Sample Description & Split Describe

Hole Number: BH-PTR-27 Top Depth (m): 1.20

Sample Number: Base Depth (m): 1.65

Sample Type: UT Sample Date:

Sample Description: Very soft dark brown gravelly sandy CLAY. Sand is FMC, Gravel is FMC angular



Sample Description & Split Describe

Hole Number: BH-PTR-27 Top Depth (m): 2.00

Sample Number: Base Depth (m): 2.45

Sample Type: UT Sample Date:

Sample Description: Soft brown mottled dark brown slightly gravelly slightly sandy CLAY becoming dark brown slightly gravelly slightly sandy CLAY with som organic material. Sand is FMC, Gravel is fine angular.



Sample Description & Split Describe

Hole Number: BH-PTR-28 Top Depth (m): 1.20

Sample Number: Base Depth (m): 1.65

Sample Type: UT Sample Date:

Sample Description: Soft to firm dark brown slightly gravelly slightly sandy organic CLAY becoming brown gravelly sandy CLAY. Sand is FMC, Gravel is FMC angular.



Sample Description & Split Describe

Hole Number: BH-PTR-28 Top Depth (m): 2.00

Sample Number: Base Depth (m): 2.45

Sample Type: UT Sample Date:

Sample Description: Grey mottled brown very gravelly very clayey SAND. Sand is FMC, Gravel is FMC angular.



		<p style="text-align: center;">Cambridge</p>	Contract No:
			PSL21/5768
			Client Ref:
			704 P025563

(BS1377 : PART 2 : 1990)

SYMBOLS: NP: Non Plastic

**** : Liquid Limit and Plastic Limit Wet Sieved.**

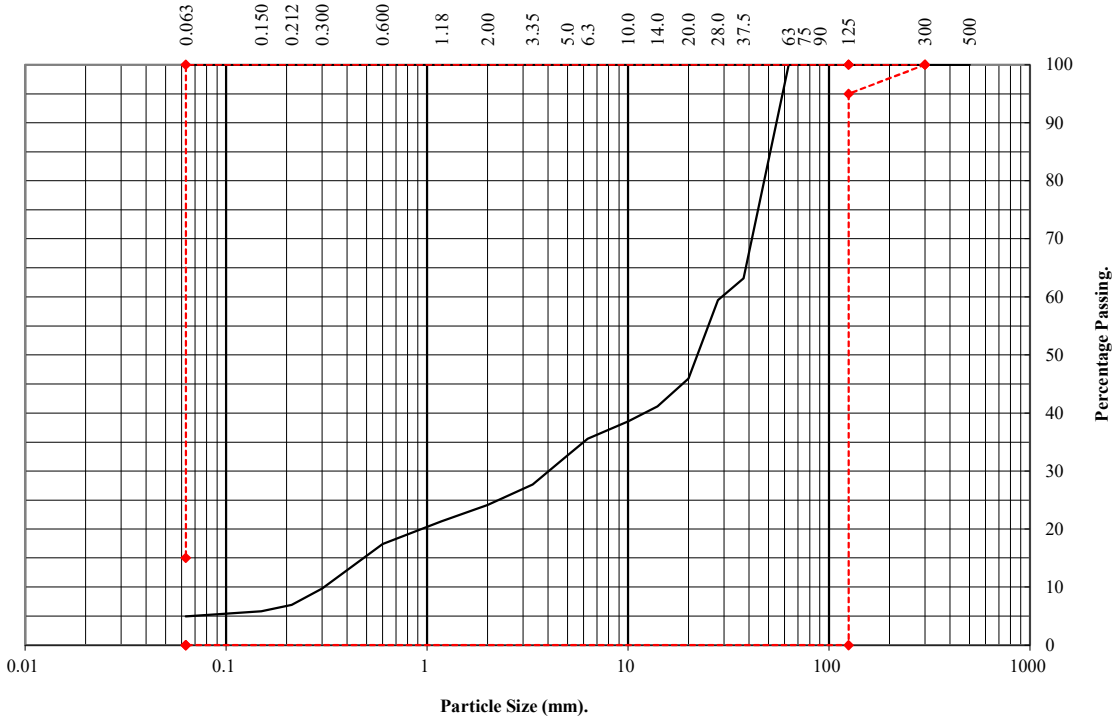

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Professional Soils Laboratory
4043

BS1377:Part 2:1990

Wet Sieve: Clause 9.2

Classification for Acceptable Earthworks Materials

Sample Number: TP-BP-01 1.00m **Classification Type:** 1A



Remarks: SHW Series 600 Table 6/2 : Class 1A

 PSL Professional Soils Laboratory	Cambridge	Contract No.:
		PSL21/5768
		Client Ref:
		784-B025563

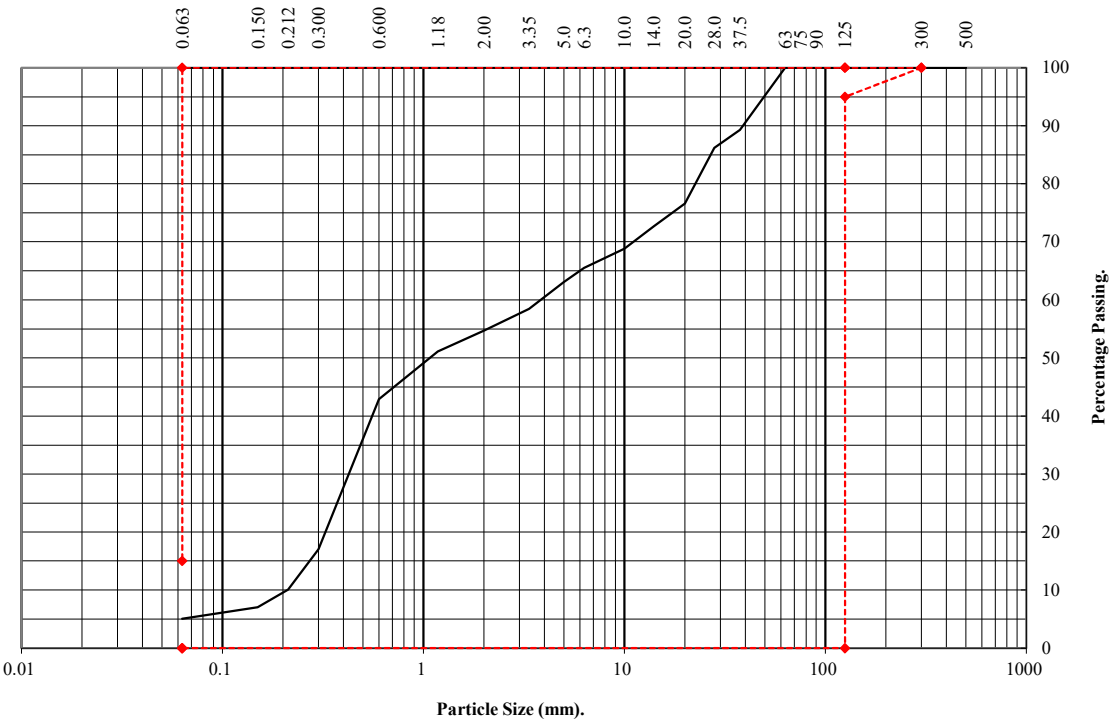
PARTICLE SIZE DISTRIBUTION TEST

BS1377:Part 2:1990

Wet Sieve: Clause 9.2

Classification for Acceptable Earthworks Materials

Sample Number: TP-BP-01 2.00m Classification Type: 1A



BS Test Sieve mm	Percentage Passing %	Table 6/2 Grading Requirements	
		Lower	Upper
500	100		
300	100	100	100
125	100	95	100
90	100		
75	100		
63	100		
37.5	89		
28	86		
20	77		
14	73		
10	69		
6.3	66		
5	63		
3.35	58		
2	55		
1.18	51		
0.6	43		
0.3	17		
0.212	10		
0.15	7		
0.063	5	0	15

Remarks:
SHW Series 600 Table 6/2 :
Class 1A

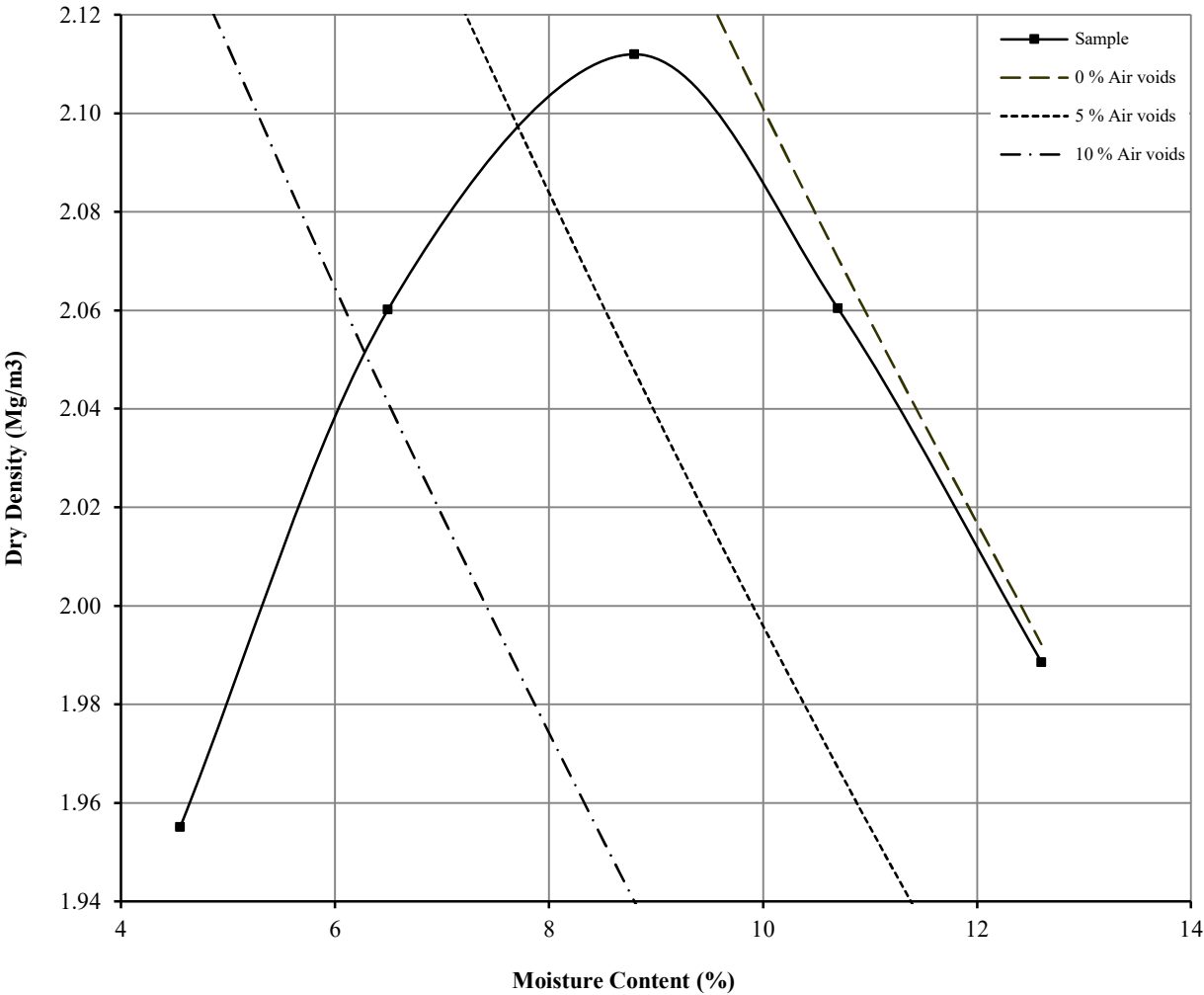
DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

Non compliance with BS 1377 : Part 4 : Clause 3.7 : 1990

Hole Number: TP-BP-01 Top Depth (m) : 1.00

Sample Number: Base Depth (m) : 1.50

Sample Type: B



Initial Moisture Content:		4.6	Method of Compaction:		Vibro	Separate Samples
Particle Density (Mg/m3):	2.66	Assumed	Material Retained on 37.5 mm Test Sieve (%):			37
Maximum Dry Density (Mg/m3):		2.11	Material Retained on 20.0 mm Test Sieve (%):			17
Optimum Moisture Content (%):		9				
Remarks See summary of soil descriptions						



PSL

Professional Soils Laboratory

Cambridge

Contract No.:

PSL21/5768

Client Ref:

784-B025563



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Professional Soils Laboratory

Cambridge

Contract

PSL21/5768

Client Ref

784-B025563

MOISTURE CONDITION VALUE

BS1377 : Part 4 : 1990 Clause 5.4

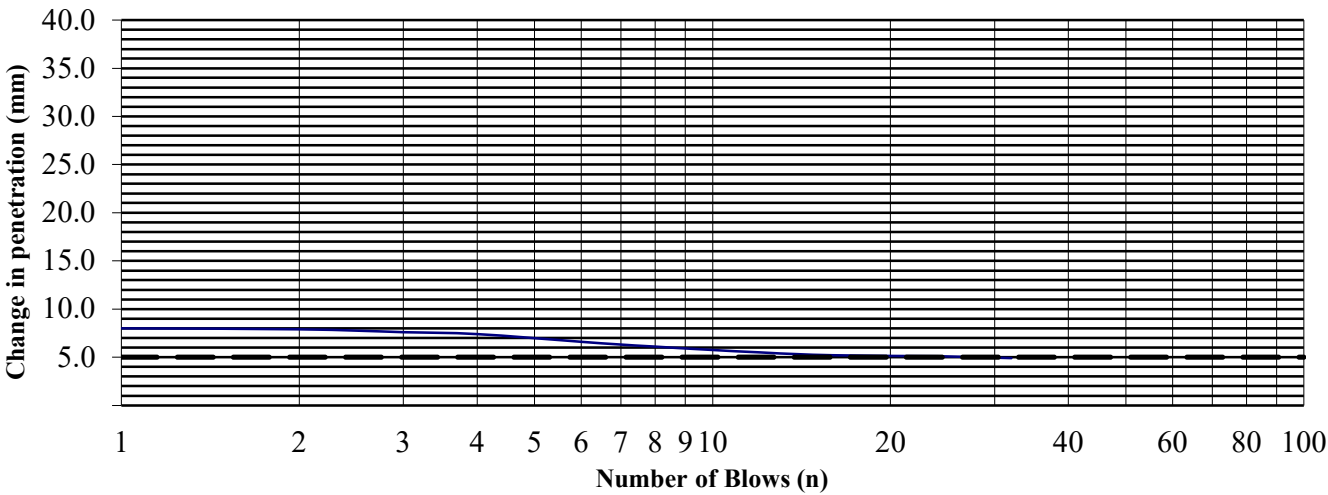
Hole Number: TP-BP-01 Top Depth (m): 1.00

Sample Number: Base Depth (m): 1.50

Sample Type: B

Material Retained on the 20mm BS Test Sieve (%):	54
Interpretation based on steepest straight line intercept with 5mm change in penetration.	

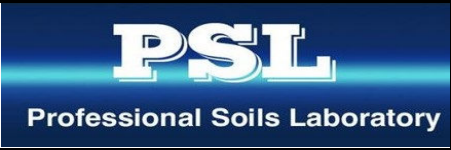
MCV Determination



Blows (N)	Penetration (mm)	n to 4n (mm)
1	79.9	8.0
2	75.8	7.9
3	73.5	7.6
4	71.9	7.4
6	69.4	6.6
8	67.9	6.1
12	65.9	5.5
16	64.5	5.2
24	62.8	5.1
32	61.8	4.9
48	60.4	
64	59.3	
96	57.7	
128	56.9	
192		
256		

Test Results.

Moisture Content (%)	4.6
MCV	14.5



Cambridge

Contract No:
PSL21/5768

Client Ref:
784-B025563

MOISTURE CONDITION VALUE

BS1377 : Part 4 : 1990 Clause 5.4

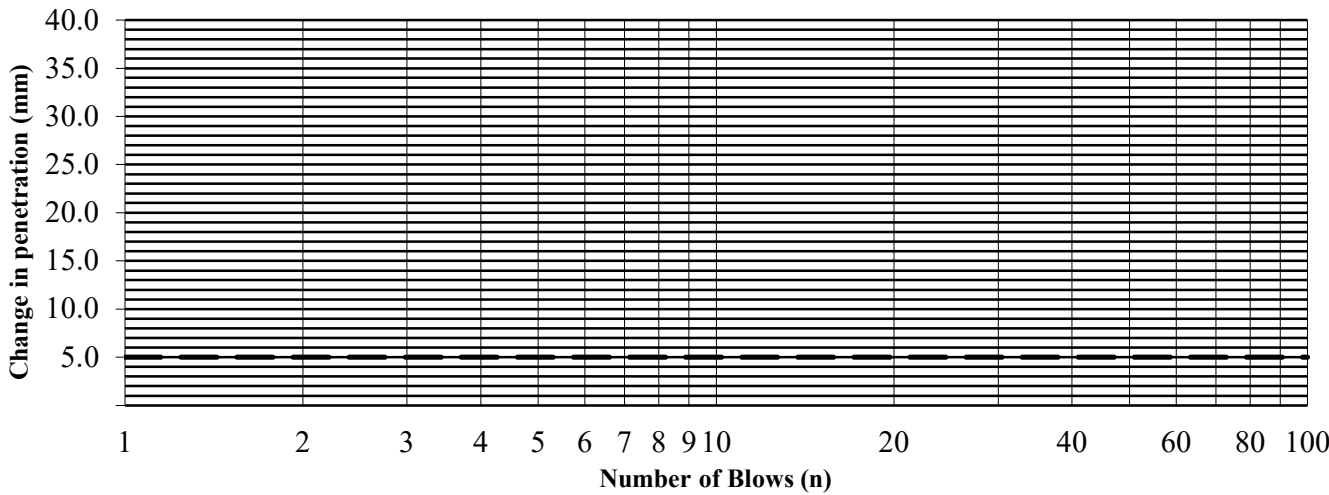
Hole Number: TP-BP-01 Top Depth (m): 2.00

Sample Number: Base Depth (m): 2.50

Sample Type: B

Material Retained on the 20mm BS Test Sieve (%):	23
Interpretation based on steepest straight line intercept with 5mm change in penetration.	

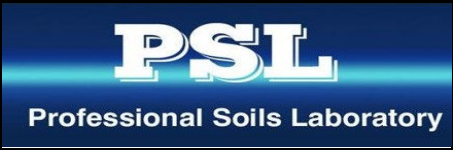
MCV Determination



Blows (N)	Penetration (mm)	n to 4n (mm)
1	74.6	4.5
2	72.4	
3	71.1	
4	70.1	
6		
8		
12		
16		
24		
32		
48		
64		
96		
128		
192		
256		

Test Results.

Moisture Content (%)	9.1
MCV	<1



Cambridge

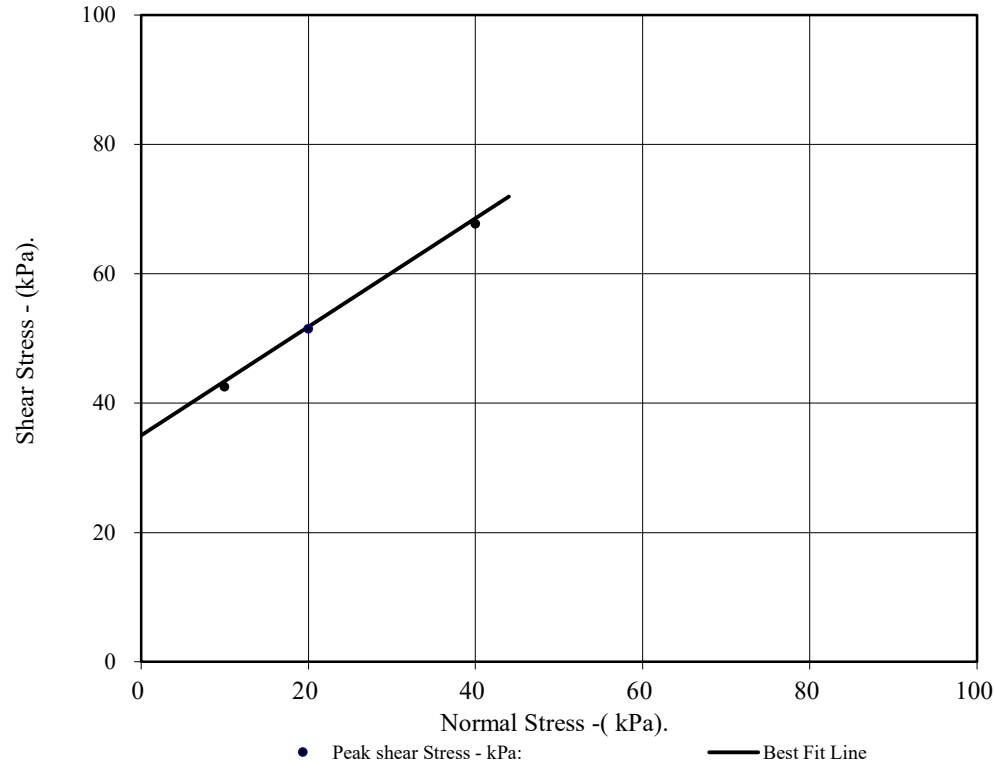
Contract No:
PSL21/5768

Client Ref:
784-B025563

CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 5 SHW Clause 636 Paragraph 2

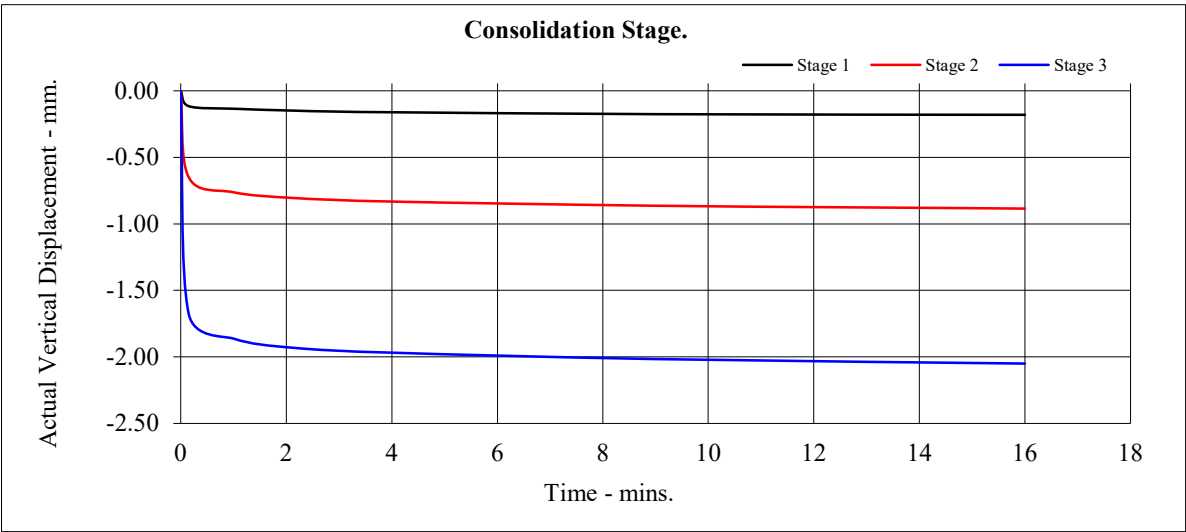
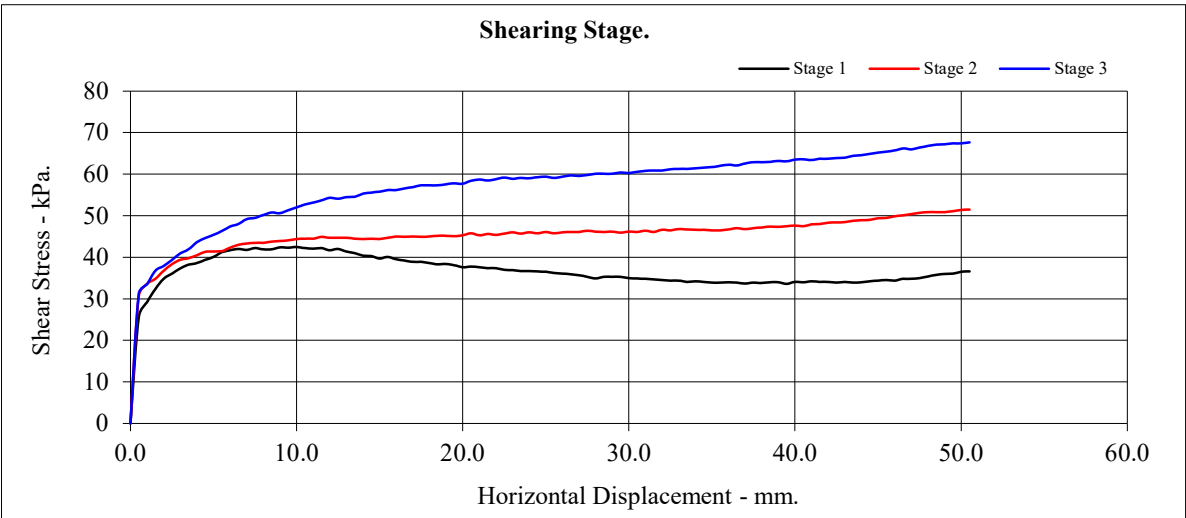
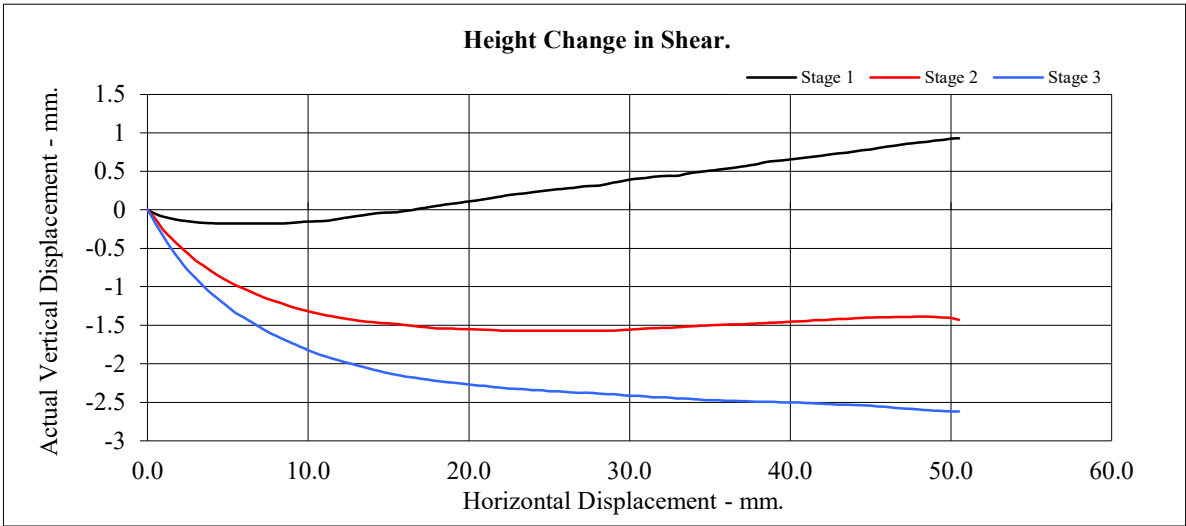
Hole Number:	TP-BP-01		Top Depth:	1.00	
Sample Number:			Base Depth:	1.50	
Sample Conditions:	Dry		Sample Type	B	
Particle Density - Mg/m3:	2.65	Assumed	Remarks:		
Sample Preparation:	Recompacted to 92% of MDD at OMC. Material tested passing 20mm sieve				
Sample Description:	See summary of soil descriptions				
STAGE			1	2	3
Initial Conditions					
Height - mm:			150	150	150
Length - mm:			300	300	300
Moisture Content - %:			8.8	8.8	8.8
Bulk Density - Mg/m3:			2.12	2.12	2.12
Dry Density - Mg/m3:			1.94	1.94	1.94
Voids Ratio:			0.363	0.363	0.363
Normal Pressure- kPa			10	20	40
Consolidation Stage					
Consolidated Height - mm:			149.82	149.12	147.95
Shearing Stage					
Rate of Strain (mm/min)			1.11	1.11	1.11
Displacement at peak shear stress (mm)			10.00	50.50	50.50
Peak shear Stress - kPa:			43	52	68
Final Consolidated Conditions					
Moisture Content - %:			8.4	8.1	7.8
Bulk Density - Mg/m3:			2.12	2.13	2.14
Dry Density - Mg/m3:			1.95	1.97	1.99
Peak					
Angle of Shearing Resistance:(θ)			40		
Effective Cohesion - kPa:			35		



CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 5 SHW Clause 636 Paragraph 2

Hole Number:	TP-BP-01	Top Depth:	1.00
Sample Number:		Base Depth:	1.50



DETERMINATION OF LOS ANGELES COEFFICIENT

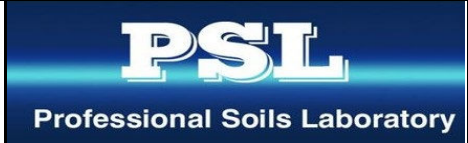
BS EN ISO 1097 Part 2 : 2020

Hole Number: TP-BP-01 Top Depth (m): 2.00
Sample Number: Base Depth (m): 2.50
Sample Type: B Sample Date:
Sample Description: See summary of soil descriptions

Test Specimen Details:	Mass (g)	Mass (%)
Passing 14mm sieve	5000	100
Retained 12.5mm sieve	1724	34
Retained 10mm sieve	3276	66
Retained 1.6mm sieve post rotation and washing	3688	n/a

Test Results:	
LA Coefficient	26

Remarks:

 4043		Cambridge	Contract No:
			PSL21/5768
			Client Ref:
			784-B025563



ANALYTICAL TEST REPORT

Contract no: 100132
Contract name: 784-B025563 Cambridge Geotech
Client reference: PSL21/5768
Clients name: Professional Soils Laboratory
Clients address: 5/7 Hexthorpe Road
Doncaster
DN4 0AR

Samples received: 07 September 2021
Analysis started: 07 September 2021
Analysis completed: 14 September 2021
Report issued: 14 September 2021

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope. Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling. All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing. Methods, procedures and performance data are available on request. Results reported herein relate only to the material supplied to the laboratory. This report shall not be reproduced except in full, without prior written approval. Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key: U UKAS accredited test
M MCERTS & UKAS accredited test
\$ Test carried out by an approved subcontractor
I/S Insufficient sample to carry out test
N/S Sample not suitable for testing

Approved by: 
Rachael Burton
Customer Support Squad Leader

Chemtech Environmental Limited

SOILS

Lab number			100132-1
Sample id			TP-BP-01
Depth (m)			1.50
Date sampled			-
Test	Method	Units	
pH	CE004 ^U	units	8.8
Sulphate (total)	CE062	mg/kg SO ₄	379

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄

Chemtech Environmental Limited

DEVIATING SAMPLE INFORMATION

Comments

Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.

For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.

Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key	
N	No (not deviating sample)
Y	Yes (deviating sample)
NSD	Sampling date not provided
NST	Sampling time not provided (waters only)
EHT	Sample exceeded holding time(s)
IC	Sample not received in appropriate containers
HP	Headspace present in sample container
NCF	Sample not chemically fixed (where appropriate)
OR	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
100132-1	TP-BP-01	1.50	Y	All (NSD)



LABORATORY
REPORT



4043

Contract Number: PSL21/5767

Report Date: 14 September 2021

Client’s Reference: 784-B025563

Client Name: Tetra Tech
11th Floor
1 Angel Court
London
EC2R 7HJ

For the attention of: Richard Tonge

Contract Title: Cambridge

Date Received: 16/7/2021
Date Commenced: 16/7/2021
Date Completed: 14/9/2021

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

A Watkins (Director)	R Berriman (Quality Manager)	S Royle (Laboratory Manager)
L Knight (Assistant Laboratory Manager)	 S Eyre (Senior Technician)	T Watkins (Senior Technician)

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Doncaster DN4 0AR
tel: +44 (0)844 815 6641
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e-mail: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

Page 1 of

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]

 4043



Cambridge

Contract No:
PSL21/5767

Client Ref:
784-B025563

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

[illegible]

SYMBOLS: NP: Non Plastic

*** : Liquid Limit and Plastic Limit Wet Sieved.**



Cambridge

Contract No:	PSL21/5767	Client Ref:	784-B025563
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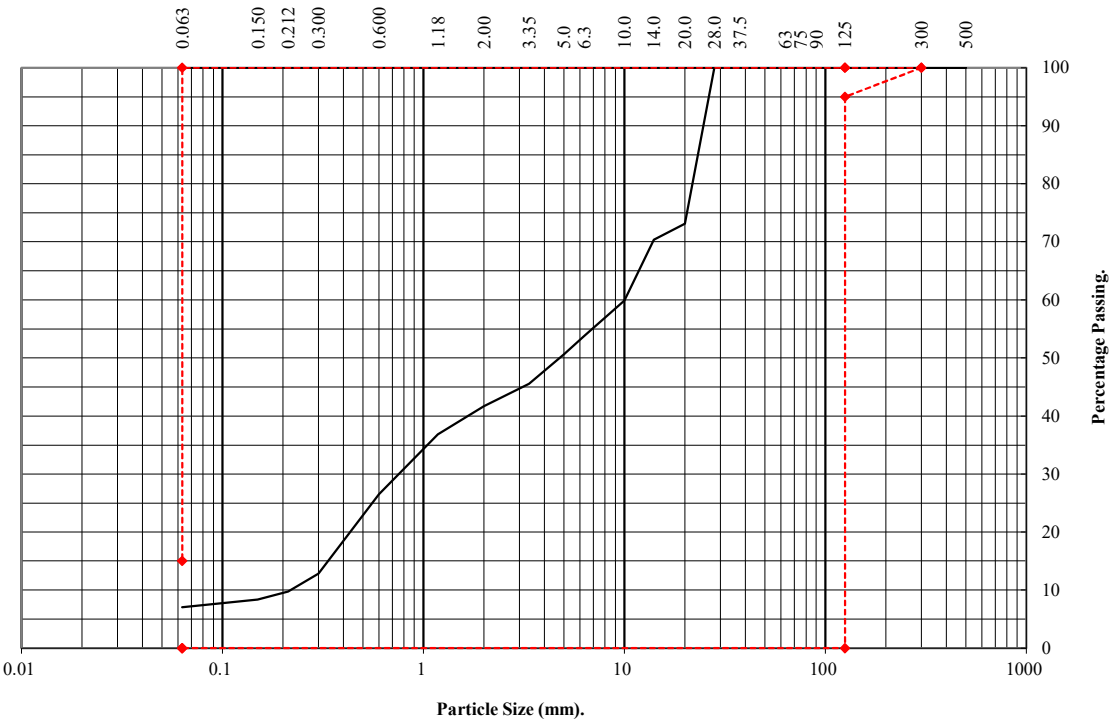
PARTICLE SIZE DISTRIBUTION TEST

BS1377:Part 2:1990

Wet Sieve: Clause 9.2

Classification for Acceptable Earthworks Materials

Sample Number: TP-BP-02 Classification Type: 1A



BS Test Sieve mm	Percentage Passing %	Table 6/2 Grading Requirements	
		Lower	Upper
500	100		
300	100	100	100
125	100	95	100
90	100		
75	100		
63	100		
37.5	100		
28	100		
20	73		
14	70		
10	60		
6.3	54		
5	51		
3.35	46		
2	42		
1.18	37		
0.6	27		
0.3	13		
0.212	10		
0.15	8		
0.063	7	0	15

Remarks:
SHW Series 600 Table 6/2 :
Class 1A

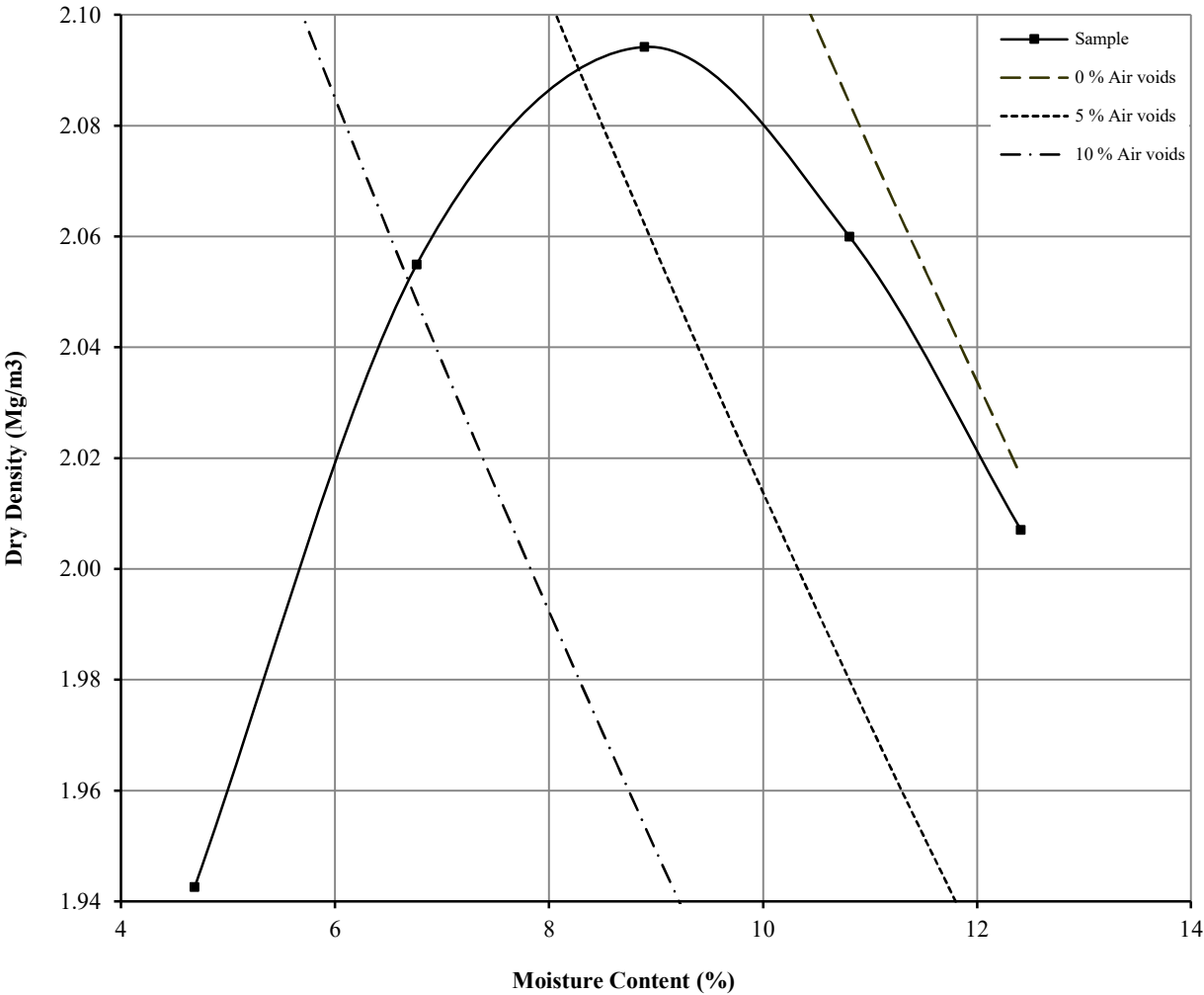
DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377 : Part 4 : Clause 3.7 : 1990

Hole Number: TP-BP-02 Top Depth (m) : 1.00

Sample Number: Base Depth (m) : 1.60

Sample Type: B



Initial Moisture Content:		6.8	Method of Compaction:	Vibro	Separate Samples
Particle Density (Mg/m3):	2.69	Assumed	Material Retained on 37.5 mm Test Sieve (%):		0
Maximum Dry Density (Mg/m3):		2.09	Material Retained on 20.0 mm Test Sieve (%):		27
Optimum Moisture Content (%):		9			
Remarks See summary of soil descriptions					



PSL
Professional Soils Laboratory

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Contract No.:

PSL21/5767

Client Ref:

784-B025563



PSL
Professional Soils Laboratory

Cambridge

Contract

PSL21/5767

Client Ref

784-B025563

MOISTURE CONDITION VALUE

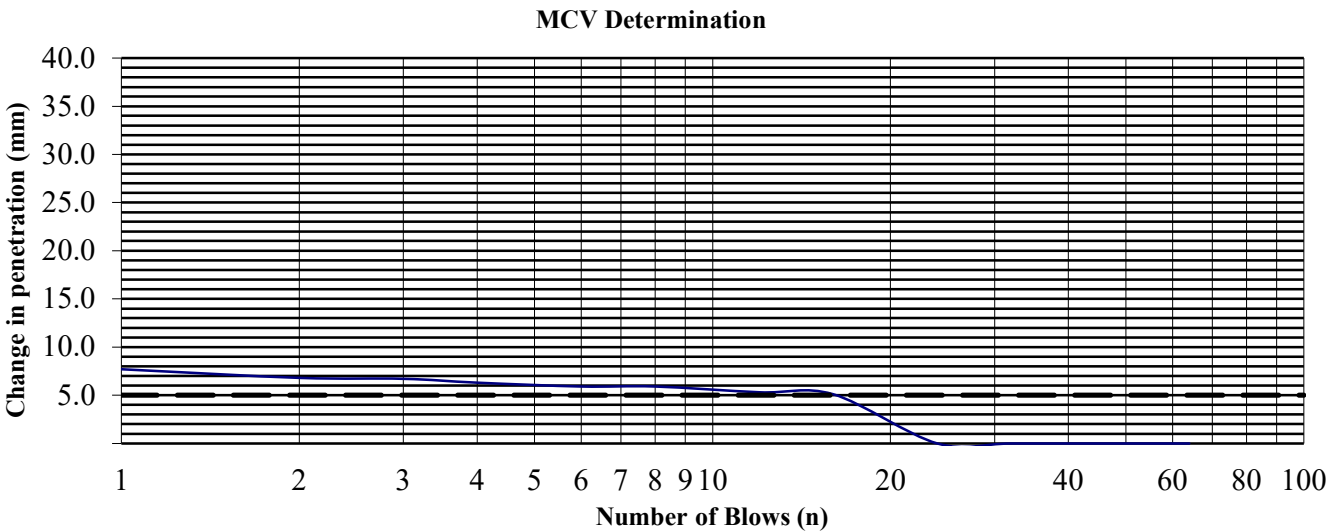
BS1377 : Part 4 : 1990 Clause 5.4

Hole Number: TP-BP-02 Top Depth (m): 1.00

Sample Number: Base Depth (m): 1.60

Sample Type: B

Material Retained on the 20mm BS Test Sieve (%):	27
Interpretation based on steepest straight line intercept with 5mm change in penetration.	



Blows (N)	Penetration (mm)	n to 4n (mm)
1	75.4	7.7
2	71.5	6.8
3	69.3	6.7
4	67.7	6.3
6	65.9	5.9
8	64.7	5.9
12	62.6	5.3
16	61.4	5.1
24	60.0	
32	58.8	
48	57.3	
64	56.3	
96		
128		
192		
256		

Test Results.

Moisture Content (%)	6.8
MCV	11.8

UKAS TESTING

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PSL

Professional Soils Laboratory

Cambridge

Contract No:

PSL21/5767

Client Ref:

784-B025563

CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 5 SHW Clause 636 Paragraph 2

Hole Number:	TP-BP-02	Top Depth:	1.00	
Sample Number:		Base Depth:	1.60	
Sample Conditions:	Dry	Sample Type	B	
Particle Density - Mg/m3:	2.65	Assumed	Remarks:	
Sample Preparation:	Recompacted to 92% of MDD at OMC. Material tested passing 20mm sieve			
Sample Description:	See summary of soil descriptions			
STAGE		1	2	3
Initial Conditions				
Height - mm:		150	150	150
Length - mm:		300	300	300
Moisture Content - %:		8.9	8.9	8.9
Bulk Density - Mg/m3:		2.11	2.11	2.11
Dry Density - Mg/m3:		1.93	1.93	1.93
Voids Ratio:		0.371	0.371	0.371
Normal Pressure- kPa		10	20	40
Consolidation Stage				
Consolidated Height - mm:		149.84	149.70	149.20
Shearing Stage				
Rate of Strain (mm/min)		1.11	1.11	1.11
Displacement at peak shear stress (mm)		50.50	50.50	50.50
Peak shear Stress - kPa:		38	48	66
Final Consolidated Conditions				
Moisture Content - %:		8.5	8.2	8.0
Bulk Density - Mg/m3:		2.11	2.11	2.12
Dry Density - Mg/m3:		1.94	1.95	1.96
Peak				
Angle of Shearing Resistance:(θ)		42		
Effective Cohesion - kPa:		30		

Shear Stress - (kPa).

Normal Stress -(kPa).

• Peak shear Stress - kPa: — Best Fit Line

UKAS TESTING

4043

PSL

Professional Soils Laboratory

Cambridge

Contract No:

PSL21/5767

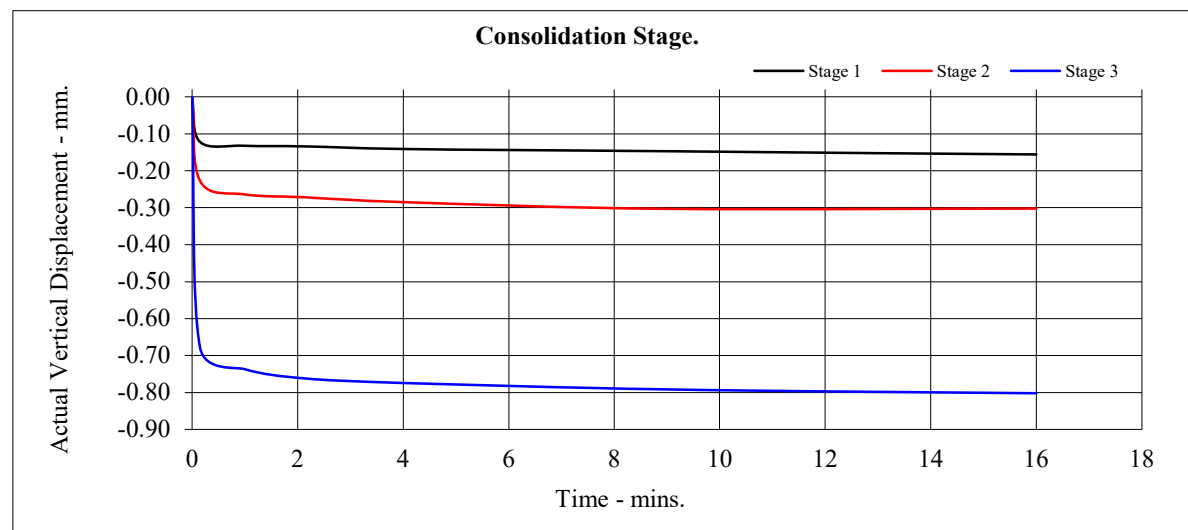
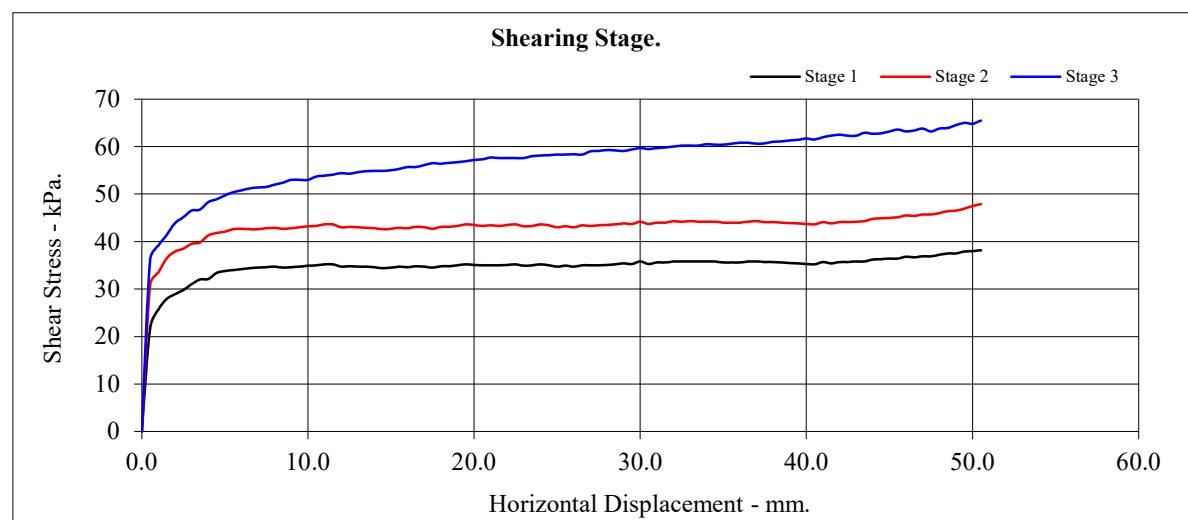
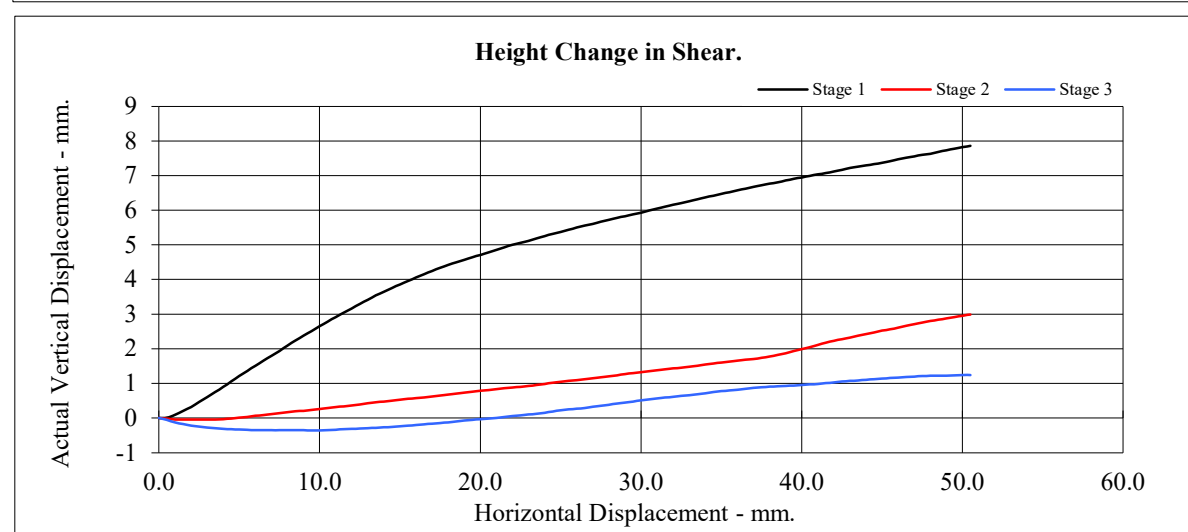
Client Ref:

784-B025563

CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 5 SHW Clause 636 Paragraph 2

Hole Number:	TP-BP-02	Top Depth:	1.00
Sample Number:		Base Depth:	1.60



Cambridge

Contract No:
PSL21/5767
Client Ref:
784-B025563



ANALYTICAL TEST REPORT

Contract no: 99605
Contract name: TP-BP-02
Client reference: PSL21/5767
Clients name: Professional Soils Laboratory
Clients address: 5/7 Hexthorpe Road
Doncaster
DN4 0AR

Samples received: 19 August 2021
Analysis started: 19 August 2021
Analysis completed: 25 August 2021
Report issued: 25 August 2021

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope. Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling. All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing. Methods, procedures and performance data are available on request. Results reported herein relate only to the material supplied to the laboratory. This report shall not be reproduced except in full, without prior written approval. Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key: U UKAS accredited test
M MCERTS & UKAS accredited test
\$ Test carried out by an approved subcontractor
I/S Insufficient sample to carry out test
N/S Sample not suitable for testing

Approved by:
Rachael Burton
Customer Support Squad Leader

Chemtech Environmental Limited

SOILS

Lab number			99605-1
Sample id			TP-BP-02
Depth (m)			1.00
Date sampled			-
Test	Method	Units	
pH	CE004 ^U	units	8.1
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	89

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄

Chemtech Environmental Limited

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key	
N	No (not deviating sample)
Y	Yes (deviating sample)
NSD	Sampling date not provided
NST	Sampling time not provided (waters only)
EHT	Sample exceeded holding time(s)
IC	Sample not received in appropriate containers
HP	Headspace present in sample container
NCF	Sample not chemically fixed (where appropriate)
OR	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
99605-1	TP-BP-02	1.00	Y	All (NSD)



LABORATORY
REPORT



4043

Contract Number: PSL21/5766

Report Date: 15 September 2021

Client’s Reference: 784-B025563

Client Name: Tetra Tech
11th Floor
1 Angel Court
London
EC2R 7HJ

For the attention of: Richard Tonge

Contract Title: Cambridge

Date Received: 16/7/2021
Date Commenced: 16/7/2021
Date Completed: 15/9/2021

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

A Watkins (Director)	R Berriman (Quality Manager)	S Royle (Laboratory Manager)
L Knight (Assistant Laboratory Manager)	 S Eyre (Senior Technician)	T Watkins (Senior Technician)

5 – 7 Hexthorpe Road, Hexthorpe,
Doncaster DN4 0AR
tel: +44 (0)844 815 6641
fax: +44 (0)844 815 6642
e-mail: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

Page 1 of

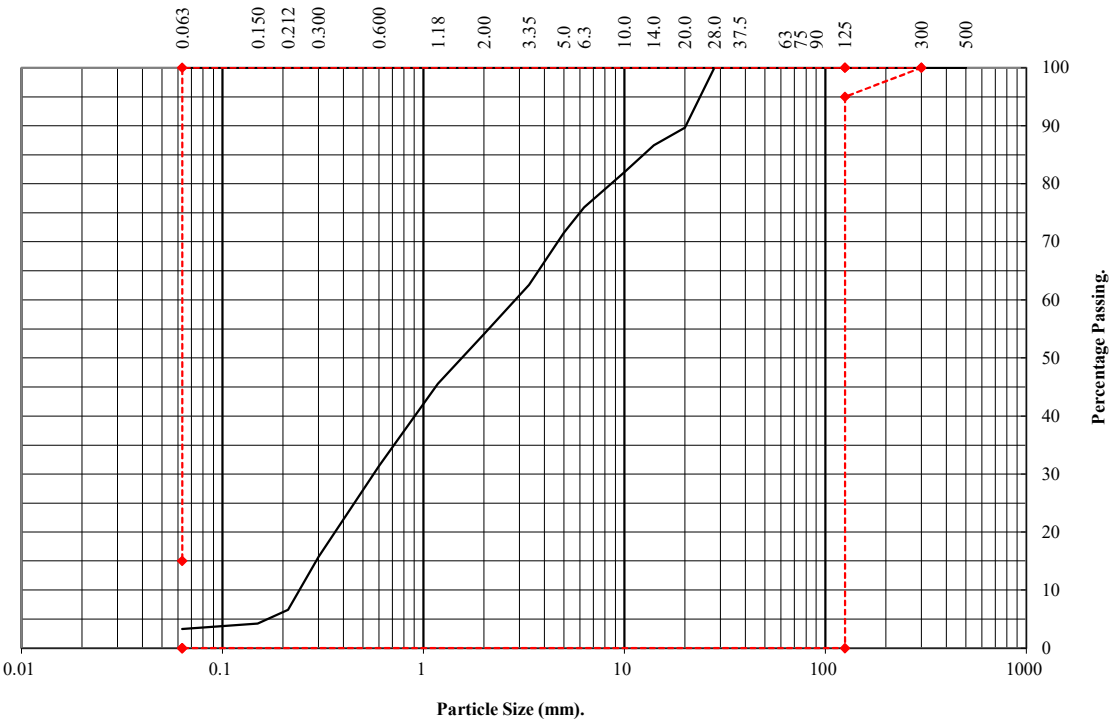
PARTICLE SIZE DISTRIBUTION TEST

BS1377:Part 2:1990

Wet Sieve: Clause 9.2

Classification for Acceptable Earthworks Materials

Sample Number: TP-BP-03 2.00m Classification Type: 1A



BS Test Sieve mm	Percentage Passing %	Table 6/2 Grading Requirements	
		Lower	Upper
500	100		
300	100	100	100
125	100	95	100
90	100		
75	100		
63	100		
37.5	100		
28	100		
20	90		
14	87		
10	82		
6.3	76		
5	72		
3.35	63		
2	54		
1.18	46		
0.6	31		
0.3	16		
0.212	7		
0.15	4		
0.063	3	0	15

Remarks:
SHW Series 600 Table 6/2 :
Class 1A

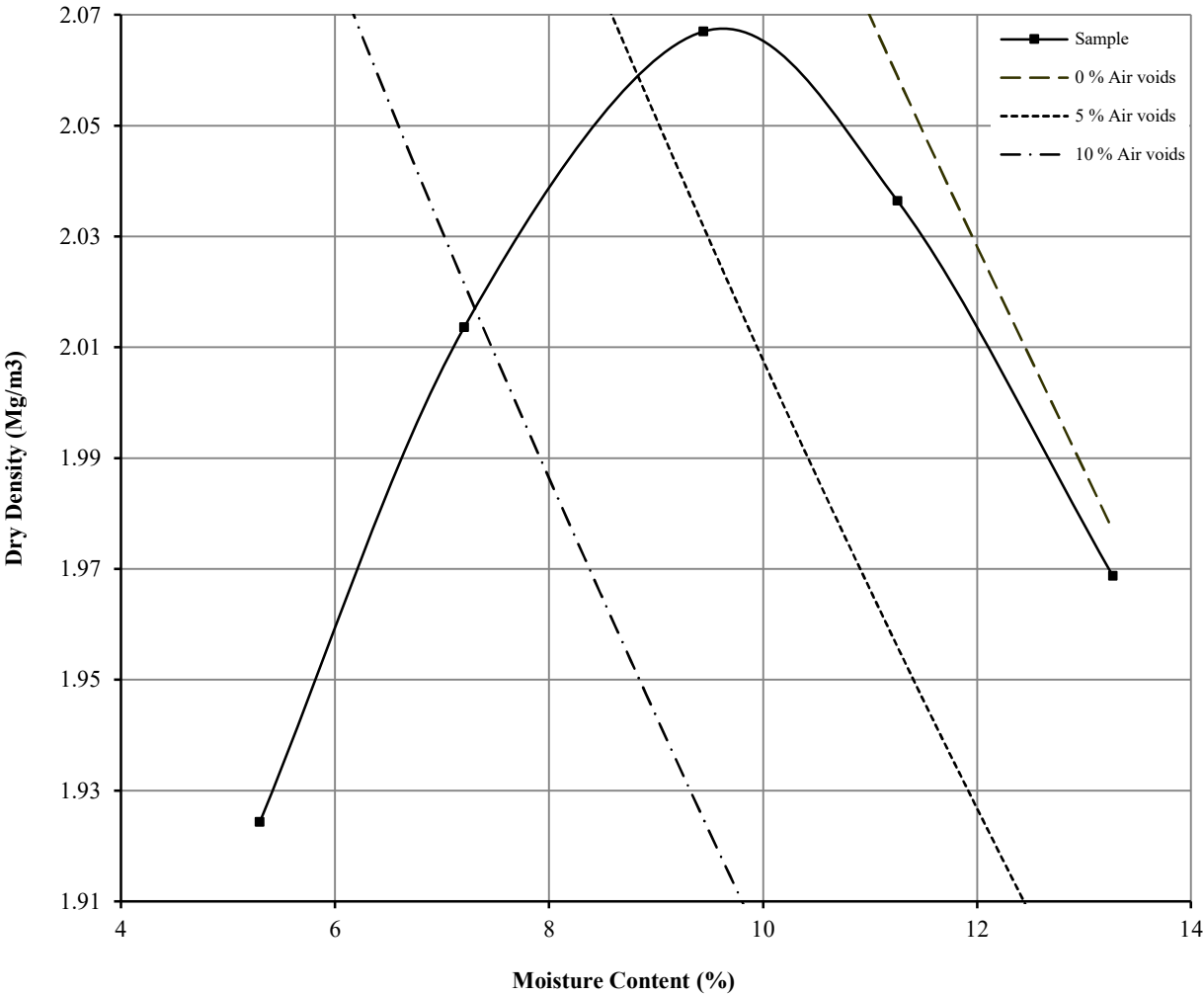
DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377 : Part 4 : Clause 3.7 : 1990

Hole Number: TP-BP-03 Top Depth (m) : 2.00

Sample Number: Base Depth (m) :

Sample Type: B



Initial Moisture Content:		11	Method of Compaction:	Vibro	Separate Samples
Particle Density (Mg/m3):	2.68	Assumed	Material Retained on 37.5 mm Test Sieve (%):		0
Maximum Dry Density (Mg/m3):		2.07	Material Retained on 20.0 mm Test Sieve (%):		10
Optimum Moisture Content (%):		9			
Remarks See summary of soil descriptions					



PSL
Professional Soils Laboratory

Cambridge

Contract No.:

PSL21/5766

Client Ref:

784-B025563



PSL
Professional Soils Laboratory

Cambridge

Contract

PSL21/5766

Client Ref

784-B025563

MOISTURE CONDITION VALUE

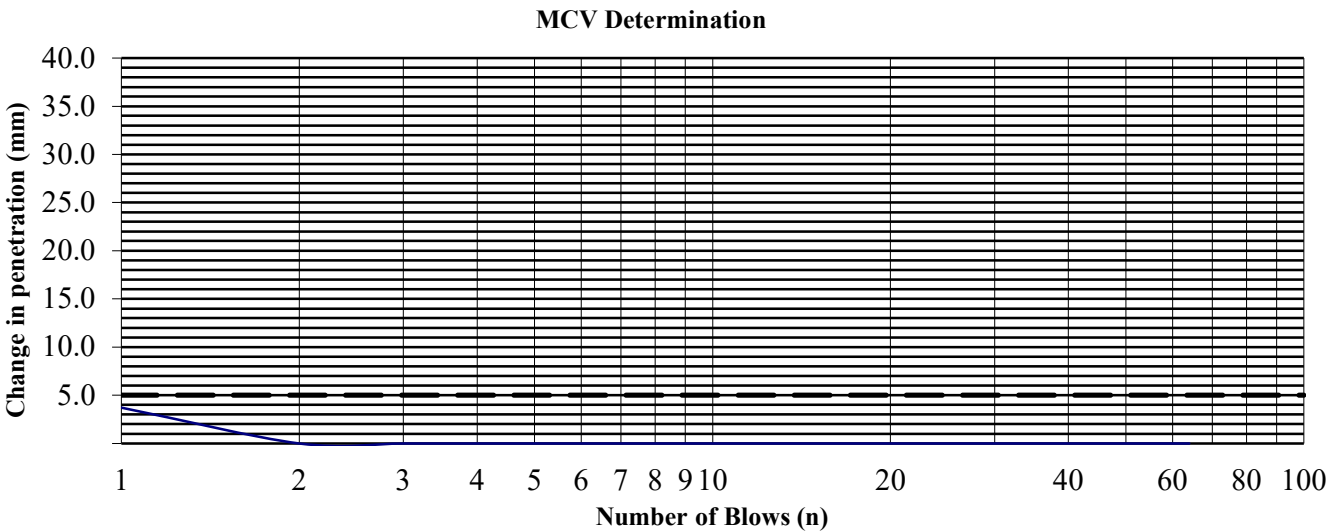
BS1377 : Part 4 : 1990 Clause 5.4

Hole Number: TP-BP-03 Top Depth (m): 2.00

Sample Number: Base Depth (m):

Sample Type: B

Material Retained on the 20mm BS Test Sieve (%):	10
Interpretation based on steepest straight line intercept with 5mm change in penetration.	

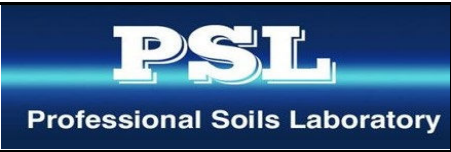


Blows (N)	Penetration (mm)	n to 4n (mm)
1	78.1	3.7
2	76.2	
3	75.0	
4	74.4	
6		
8		
12		
16		
24		
32		
48		
64		
96		
128		
192		
256		

Test Results.

Moisture Content (%)	11
MCV	<1





Professional Soils Laboratory

Cambridge

Contract No:

PSL21/5766

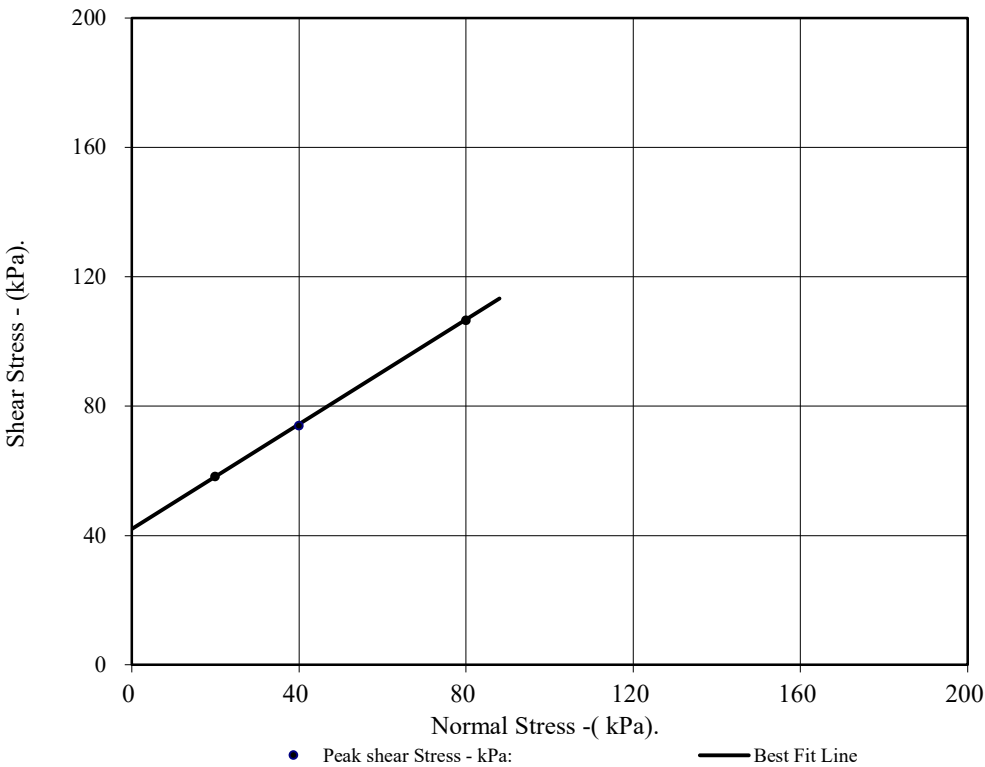
Client Ref:

784-B025563

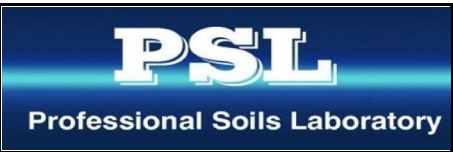
CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 5 SHW Clause 636 Paragraph 2

Hole Number:	TP-BP-03	Top Depth:	2.00
Sample Number:		Base Depth:	
Sample Conditions:	Dry	Sample Type	B
Particle Density - Mg/m3:	2.65	Assumed	Remarks:
Sample Preparation:	Recompacted to 92% of MDD at OMC. Material tested passing 20mm sieve		
Sample Description:	See summary of soil descriptions		
STAGE	1	2	3
Initial Conditions			
Height - mm:	150	150	150
Length - mm:	300	300	300
Moisture Content - %:	9.4	9.4	9.4
Bulk Density - Mg/m3:	2.08	2.08	2.08
Dry Density - Mg/m3:	1.90	1.90	1.90
Voids Ratio:	0.397	0.397	0.397
Normal Pressure- kPa	20	40	80
Consolidation Stage			
Consolidated Height - mm:	149.08	148.73	148.21
Shearing Stage			
Rate of Strain (mm/min)	1.11	1.11	1.11
Displacement at peak shear stress (mm)	50.50	50.50	44.50
Peak shear Stress - kPa:	58	74	107
Final Consolidated Conditions			
Moisture Content - %:	9.2	8.8	8.3
Bulk Density - Mg/m3:	2.09	2.09	2.10
Dry Density - Mg/m3:	1.91	1.92	1.94
Peak			
Angle of Shearing Resistance:(θ)	39		
Effective Cohesion - kPa:	42		







Professional Soils Laboratory

Cambridge

Contract No:

PSL21/5766

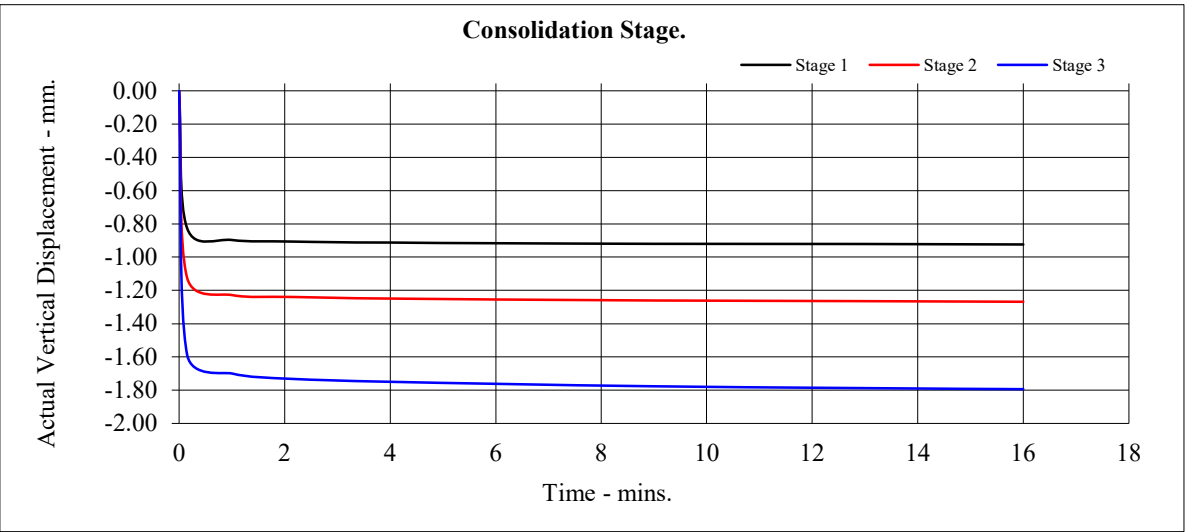
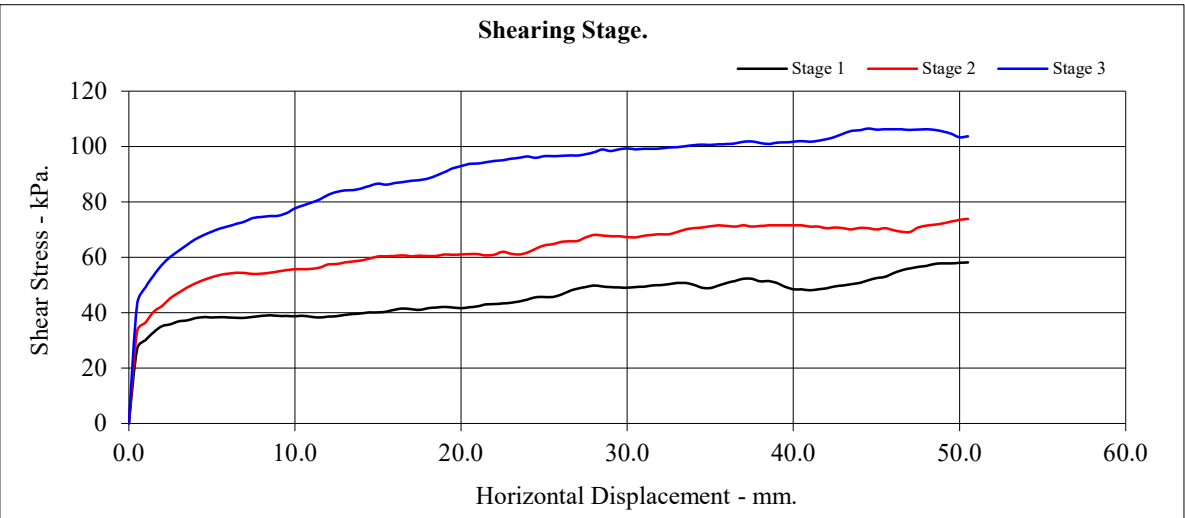
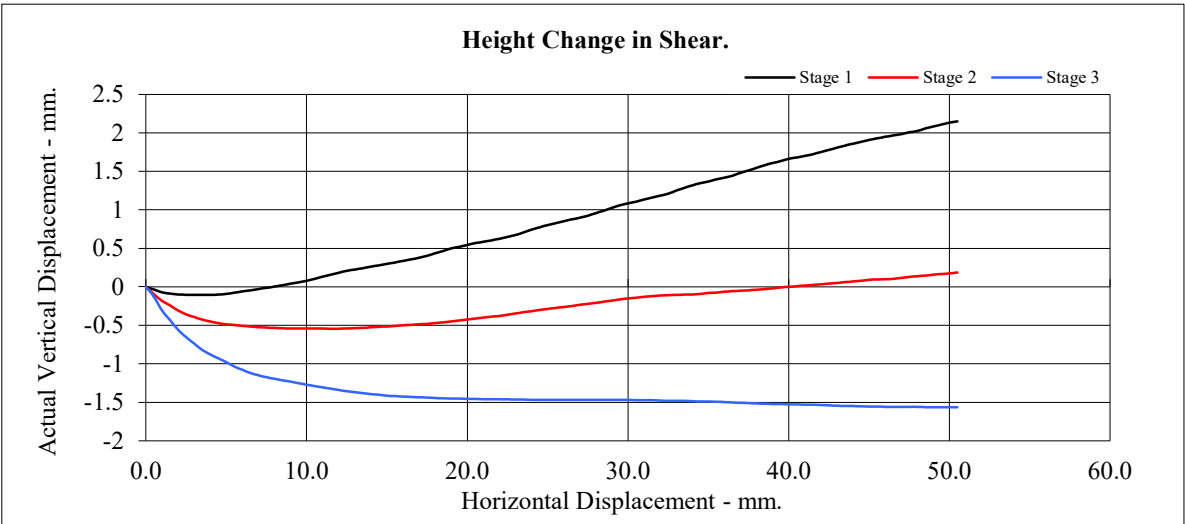
Client Ref:

784-B025563

CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 5 SHW Clause 636 Paragraph 2

Hole Number:	TP-BP-03	Top Depth:	2.00
Sample Number:		Base Depth:	



Cambridge

Contract No:
PSL21/5766
Client Ref:
784-B025563

DETERMINATION OF LOS ANGELES COEFFICIENT

BS EN ISO 1097 Part 2 : 2020

Hole Number:	TP-BP-03	Top Depth (m):	2.00
Sample Number:		Base Depth (m):	
Sample Type:	B	Sample Date:	
Sample Description:			

Test Specimen Details:	Mass (g)	Mass (%)
Passing 14mm sieve	5000	100
Retained 12.5mm sieve	1754	35
Retained 10mm sieve	3246	65
Retained 1.6mm sieve post rotation and washing	3782	n/a

Test Results:	
LA Coefficient	24

Remarks:



Cambridge

Contract No:
PSL21/5766
Client Ref:
784-B025563



Chemtech Environmental Limited

SOILS

Lab number			99597-1
Sample id			TP-BP-03
Depth (m)			1.50
Date sampled			-
Test	Method	Units	
pH	CE004 ^U	units	8.6
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	36

ANALYTICAL TEST REPORT

Contract no: 99597

Contract name: TP-BP-03

Client reference: PSL21/5766

Clients name: Professional Soils Laboratory

Clients address: 5/7 Hexthorpe Road
Doncaster
DN4 0AR

Samples received: 19 August 2021

Analysis started: 19 August 2021

Analysis completed: 26 August 2021

Report issued: 26 August 2021

Notes:

Opinions and interpretations expressed herein are outside the UKAS accreditation scope.

Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.

All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.

Methods, procedures and performance data are available on request.

Results reported herein relate only to the material supplied to the laboratory.

This report shall not be reproduced except in full, without prior written approval.

Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key:

U UKAS accredited test

M MCERTS & UKAS accredited test

\$ Test carried out by an approved subcontractor

I/S Insufficient sample to carry out test

N/S Sample not suitable for testing

Approved by: 
Rachael Burton
Customer Support Squad Leader

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

- Key**
N No (not deviating sample)
Y Yes (deviating sample)
NSD Sampling date not provided
NST Sampling time not provided (waters only)
EHT Sample exceeded holding time(s)
IC Sample not received in appropriate containers
HP Headspace present in sample container
NCF Sample not chemically fixed (where appropriate)
OR Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
99597-1	TP-BP-03	1.50	Y	All (NSD)

		<p style="text-align: center;">Cambridge</p>	Contract No:
			PSL21/5765
			Client Ref:
			704 P025563

(BS1377 : PART 2 : 1990)

SYMBOLS: NP: Non Plastic

* : Liquid Limit and Plastic Limit Wet Sieved.

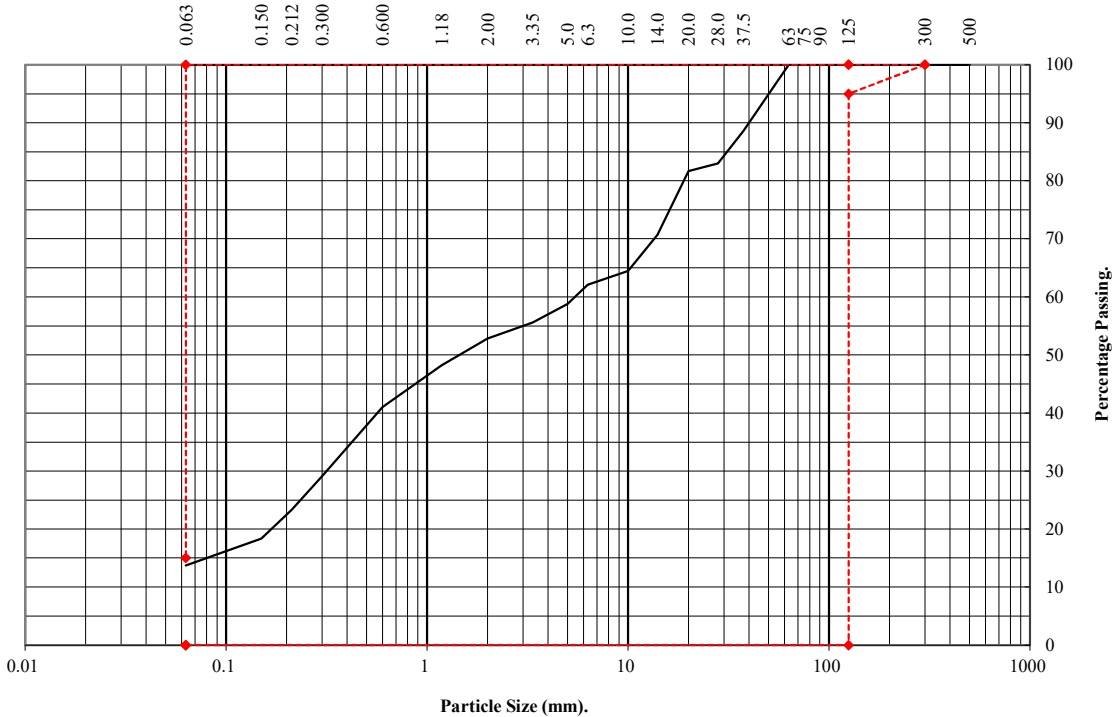
PSL
Professional Soils Laboratory

BS1377:Part 2:1990

Wet Sieve: Clause 9.2

Classification for Acceptable Earthworks Materials

Sample Number: TP-BP-04 1.00m **Classification Type:** 1A



Remarks: SHW Series 600 Table 6/2 : Class 1A

 PSL Professional Soils Laboratory	Cambridge	Contract No.:
		PSL21/5765
		Client Ref:
		784-B025563

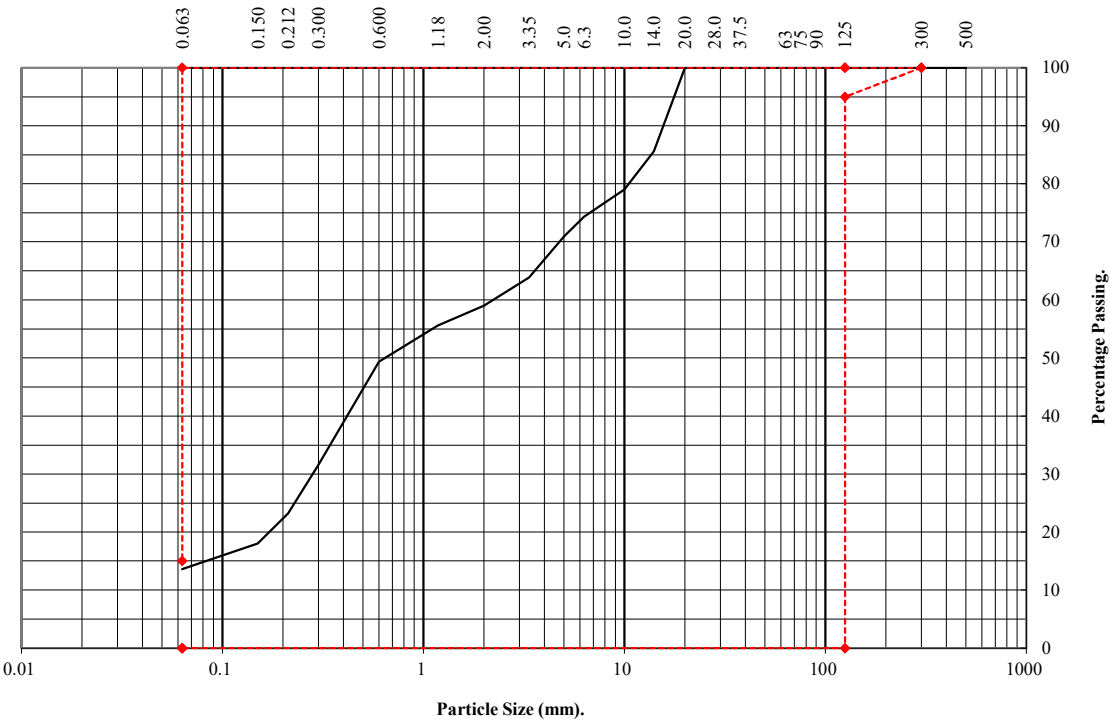
PARTICLE SIZE DISTRIBUTION TEST

BS1377:Part 2:1990

Wet Sieve: Clause 9.2

Classification for Acceptable Earthworks Materials

Sample Number: TP-BP-04 1.10m Classification Type: 1A



BS Test Sieve mm	Percentage Passing %	Table 6/2 Grading Requirements	
		Lower	Upper
500	100		
300	100	100	100
125	100	95	100
90	100		
75	100		
63	100		
37.5	100		
28	100		
20	100		
14	86		
10	79		
6.3	74		
5	71		
3.35	64		
2	59		
1.18	56		
0.6	49		
0.3	32		
0.212	23		
0.15	18		
0.063	14	0	15

Remarks:
SHW Series 600 Table 6/2 :
Class 1A

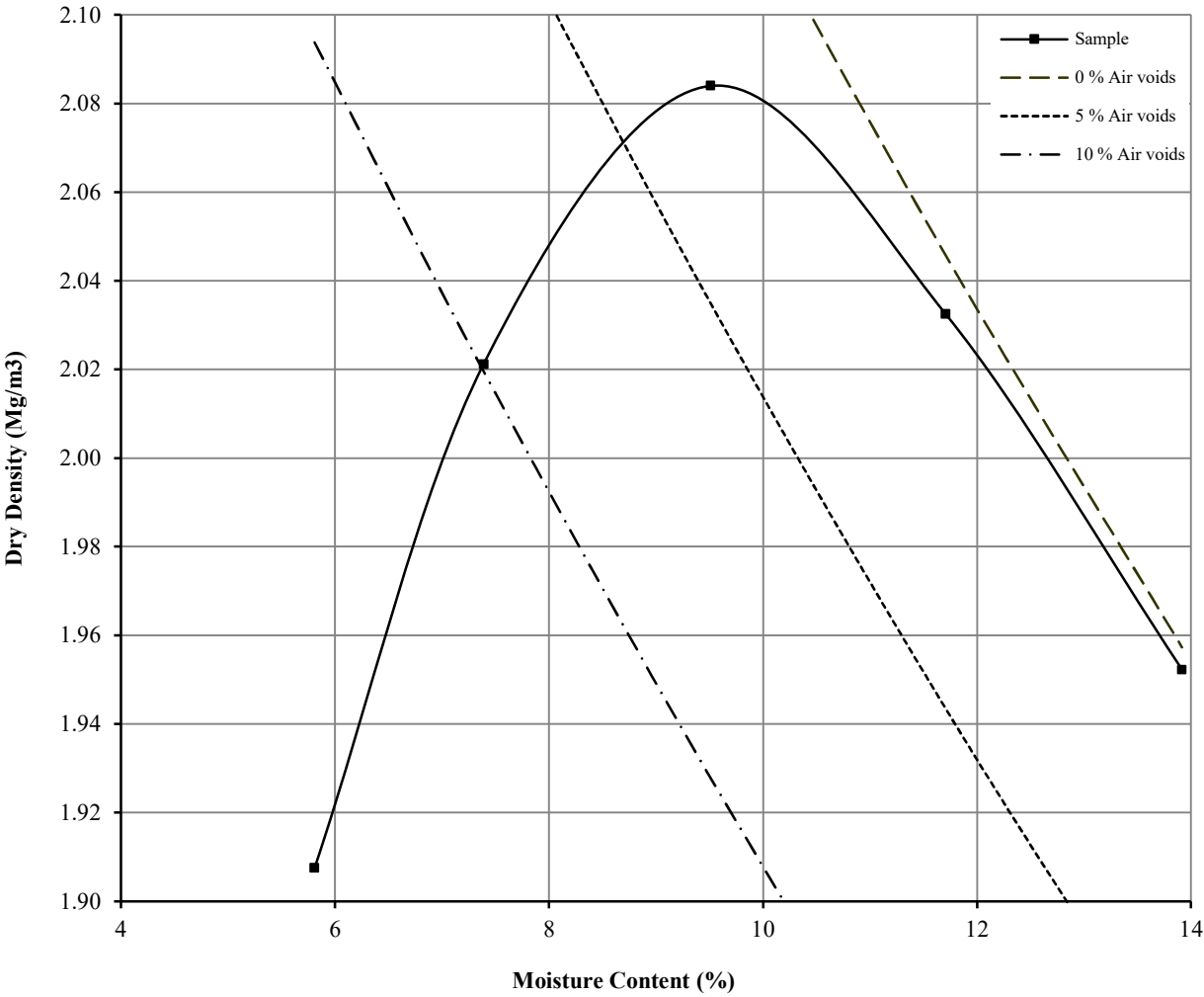
DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377 : Part 4 : Clause 3.7 : 1990

Hole Number: TP-BP-04 Top Depth (m) : 1.10

Sample Number: Base Depth (m) : 1.30

Sample Type: B



Initial Moisture Content:		14	Method of Compaction:	Vibro	Separate Samples
Particle Density (Mg/m3):	2.69	Assumed	Material Retained on 37.5 mm Test Sieve (%):		0
Maximum Dry Density (Mg/m3):		2.08	Material Retained on 20.0 mm Test Sieve (%):		0
Optimum Moisture Content (%):		10			
Remarks See summary of soil descriptions					



PSL
Professional Soils Laboratory

Cambridge

Contract No.:

PSL21/5765

Client Ref:

784-B025563



PSL
Professional Soils Laboratory

Cambridge

Contract

PSL21/5765

Client Ref

784-B025563

MOISTURE CONDITION VALUE CALIBRATION

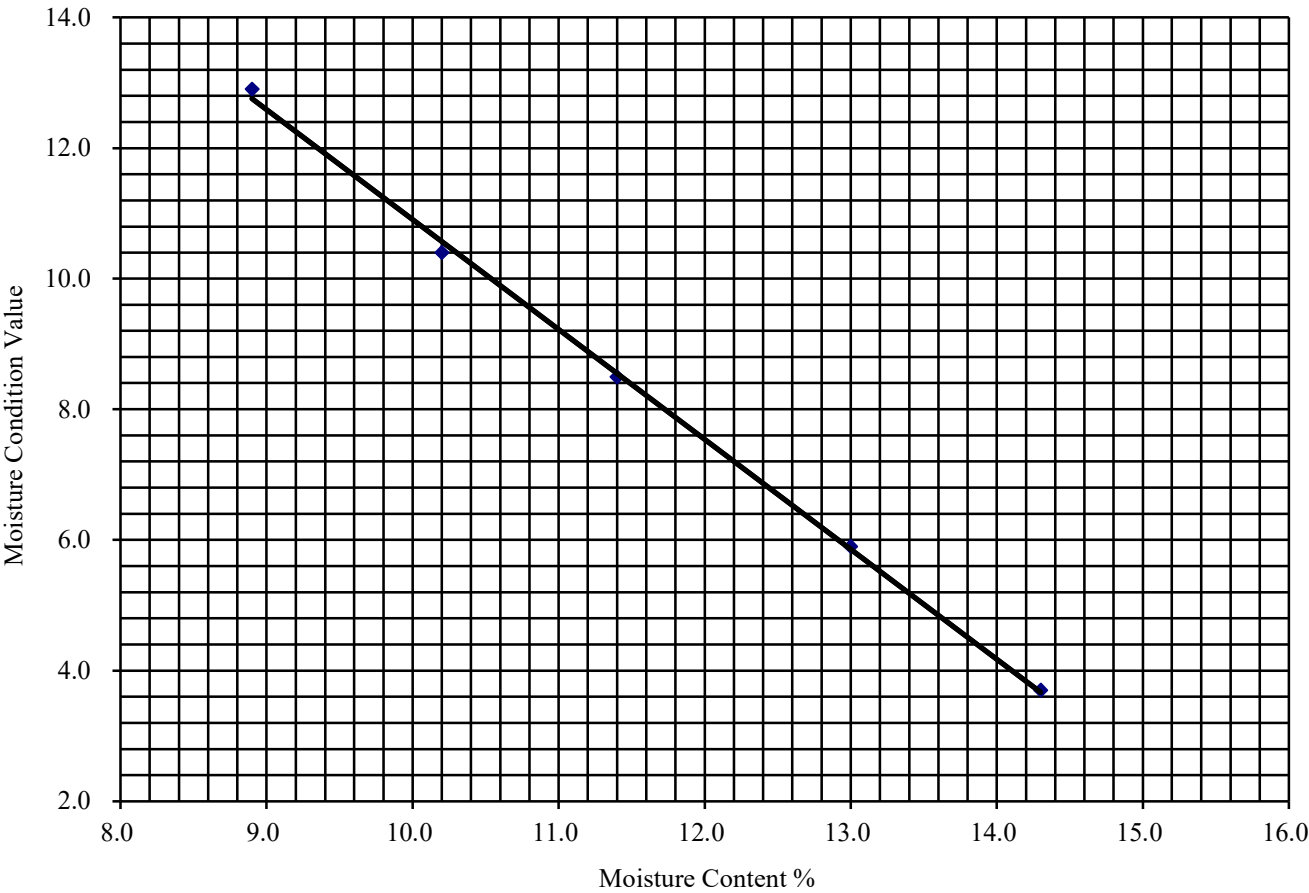
BS1377 : Part 4 : 1990 Clause 5.5

Hole Number: TP-BP-04 Top Depth (m): 1.10

Sample Number: Base Depth (m): 1.30

Sample Type: B

Initial Moisture Content (%):	14
Single/Separate Samples Tested	Separate
Material Retained on the 20mm BS Test Sieve (%):	0



Test Results.

Test Number	1	2	3	4	5
Moisture Content (%)	8.9	10.2	11.4	13.0	14.3
MCV	12.9	10.4	8.5	5.9	3.7



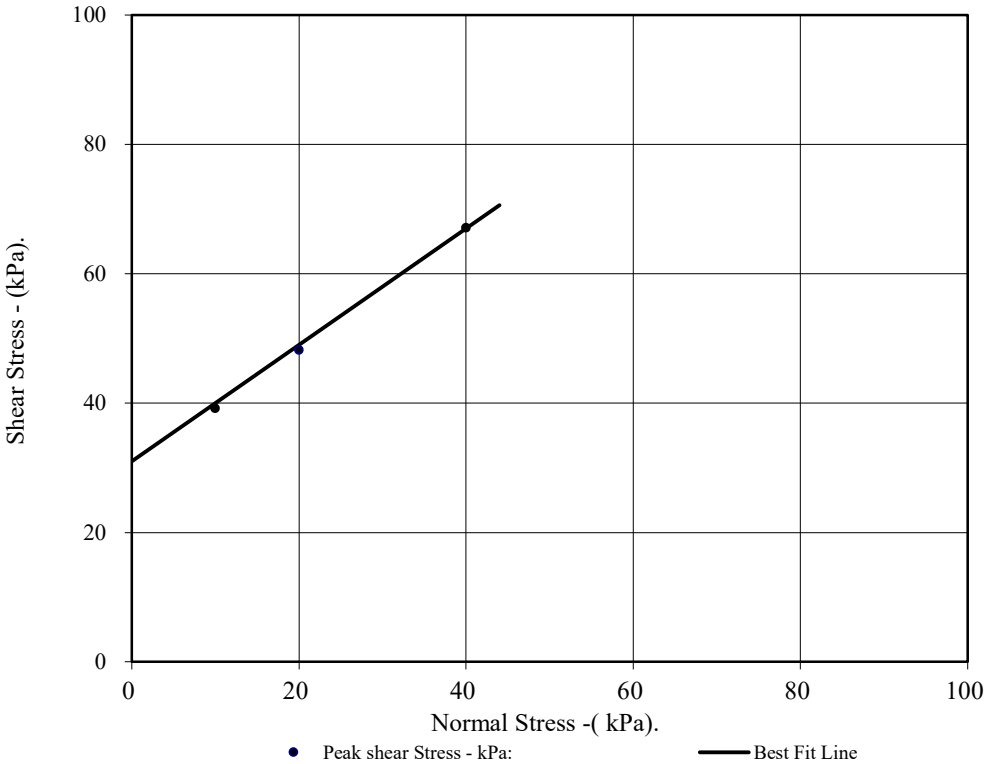
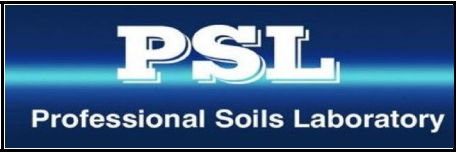
Cambridge

Contract No:
PSL21/5765
Client Ref:
784-B025563

CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 5 SHW Clause 636 Paragraph 2

Hole Number:	TP-BP-04		Top Depth:	1.10	
Sample Number:			Base Depth:	1.30	
Sample Conditions:	Dry		Sample Type	B	
Particle Density - Mg/m3:	2.65	Assumed	Remarks:		
Sample Preparation:	Recompacted to 92% of MDD at OMC. Material tested passing 20mm sieve				
Sample Description:	See summary of soil descriptions				
STAGE			1	2	3
Initial Conditions					
Height - mm:			150	150	150
Length - mm:			300	300	300
Moisture Content - %:			9.5	9.5	9.5
Bulk Density - Mg/m3:			2.11	2.11	2.11
Dry Density - Mg/m3:			1.92	1.92	1.92
Voids Ratio:			0.378	0.378	0.378
Normal Pressure- kPa			10	20	40
Consolidation Stage					
Consolidated Height - mm:			149.08	147.66	145.95
Shearing Stage					
Rate of Strain (mm/min)			1.11	1.11	1.11
Displacement at peak shear stress (mm)			31.00	37.00	50.50
Peak shear Stress - kPa:			39	48	67
Final Consolidated Conditions					
Moisture Content - %:			9.1	9.0	8.6
Bulk Density - Mg/m3:			2.12	2.14	2.16
Dry Density - Mg/m3:			1.94	1.96	1.99
Peak					
Angle of Shearing Resistance:(θ)			42		
Effective Cohesion - kPa:			31		



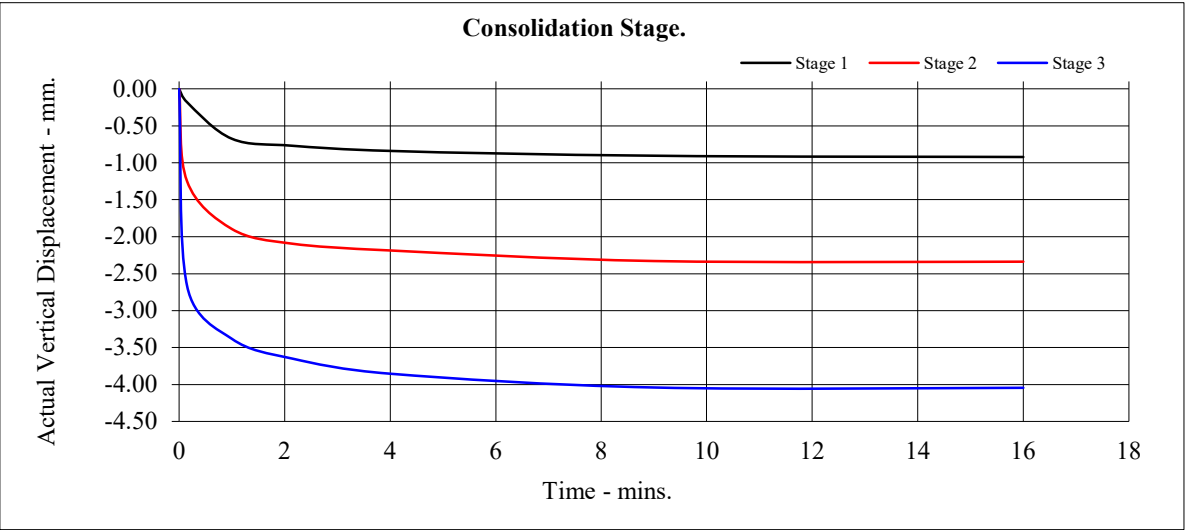
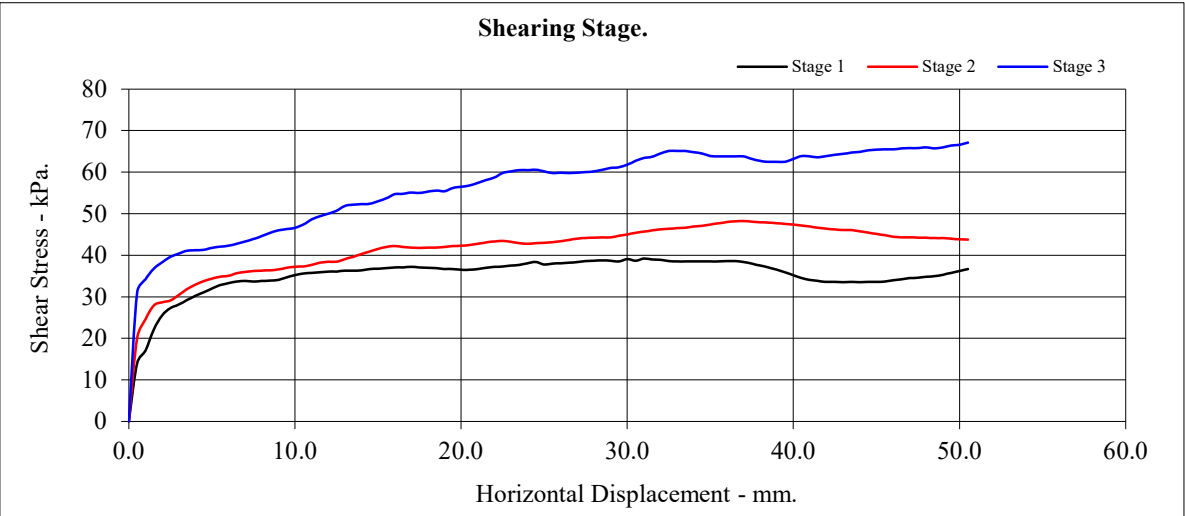
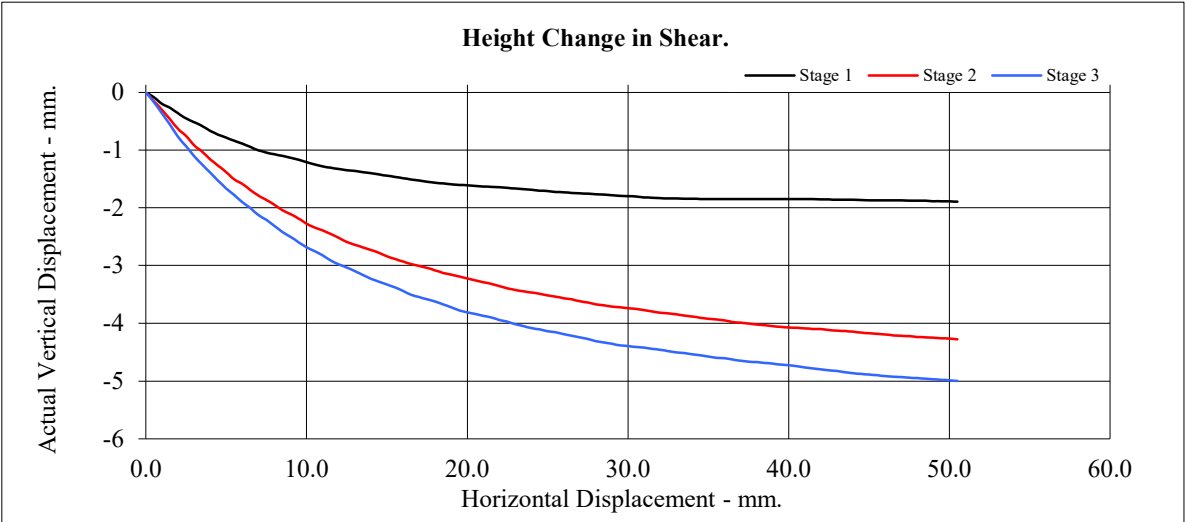
Cambridge

Contract No:
PSL21/5765
Client Ref:
784-B025563

CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 5 SHW Clause 636 Paragraph 2

Hole Number:	TP-BP-04	Top Depth:	1.10
Sample Number:		Base Depth:	1.30



Cambridge

Contract No:
PSL21/5765
Client Ref:
784-B025563

DETERMINATION OF LOS ANGELES COEFFICIENT

BS EN ISO 1097 Part 2 : 2020

Hole Number:	TP-BP-04	Top Depth (m):	1.10
Sample Number:		Base Depth (m):	1.30
Sample Type:	B	Sample Date:	
Sample Description:			

Test Specimen Details:	Mass (g)	Mass (%)
Passing 14mm sieve	5000	100
Retained 12.5mm sieve	1864	37
Retained 10mm sieve	3136	63
Retained 1.6mm sieve post rotation and washing	3655	n/a

Test Results:	
LA Coefficient	27

Remarks:



Cambridge

Contract No:
PSL21/5765
Client Ref:
784-B025563



2531



Chemtech Environmental Limited

SOILS

Lab number			99603-1
Sample id			TP-BP-04
Depth (m)			1.50
Date sampled			-
Test	Method	Units	
pH	CE004 ^U	units	8.2
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	606

ANALYTICAL TEST REPORT

Contract no: 99603

Contract name: TP-BP-04

Client reference: PSL21/5765

Clients name: Professional Soils Laboratory

Clients address: 5/7 Hexthorpe Road
Doncaster
DN4 0AR

Samples received: 19 August 2021

Analysis started: 19 August 2021

Analysis completed: 26 August 2021

Report issued: 26 August 2021

Notes:

Opinions and interpretations expressed herein are outside the UKAS accreditation scope.

Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.

All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.

Methods, procedures and performance data are available on request.

Results reported herein relate only to the material supplied to the laboratory.

This report shall not be reproduced except in full, without prior written approval.

Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key:

U UKAS accredited test

M MCERTS & UKAS accredited test

\$ Test carried out by an approved subcontractor

I/S Insufficient sample to carry out test

N/S Sample not suitable for testing

Approved by: 
Rachael Burton
Customer Support Squad Leader

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

- Key**
N No (not deviating sample)
Y Yes (deviating sample)
NSD Sampling date not provided
NST Sampling time not provided (waters only)
EHT Sample exceeded holding time(s)
IC Sample not received in appropriate containers
HP Headspace present in sample container
NCF Sample not chemically fixed (where appropriate)
OR Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
99603-1	TP-BP-04	1.50	Y	All (NSD)

		<p style="text-align: center;">Cambridge</p>	Contract No:
			PSL21/5764
			Client Ref:
			794 P025563

(BS1377 : PART 2 : 1990)

SYMBOLS: NP: Non Plastic

**** : Liquid Limit and Plastic Limit Wet Sieved.**

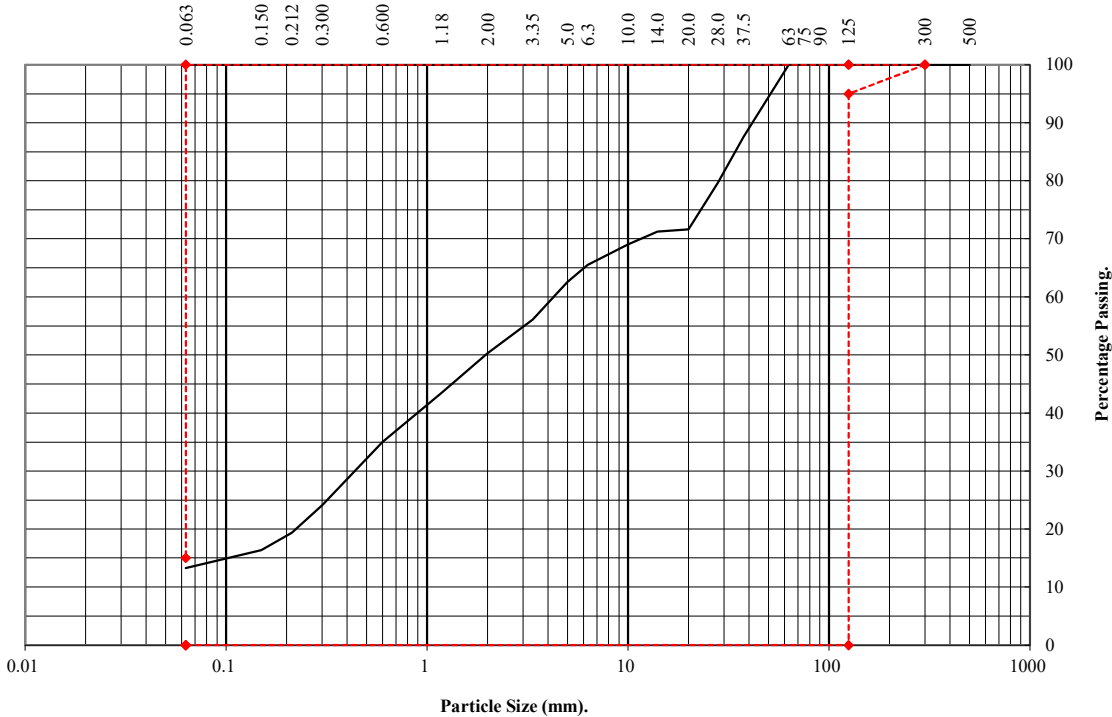
PSL
Professional Soils Laboratory

BS1377:Part 2:1990

Wet Sieve: Clause 9.2

Classification for Acceptable Earthworks Materials

Sample Number: TP-BP-05 **Classification Type:** 1A



Remarks: SHW Series 600 Table 6/2 : Class 1A

 PSL Professional Soils Laboratory	Cambridge	Contract No.:
		PSL21/5764
		Client Ref:
		784-B025563

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

Non compliance with BS 1377 : Part 4 : Clause 3.7 : 1990

Hole Number:

TP-BP-05

Top Depth (m) :

0.80

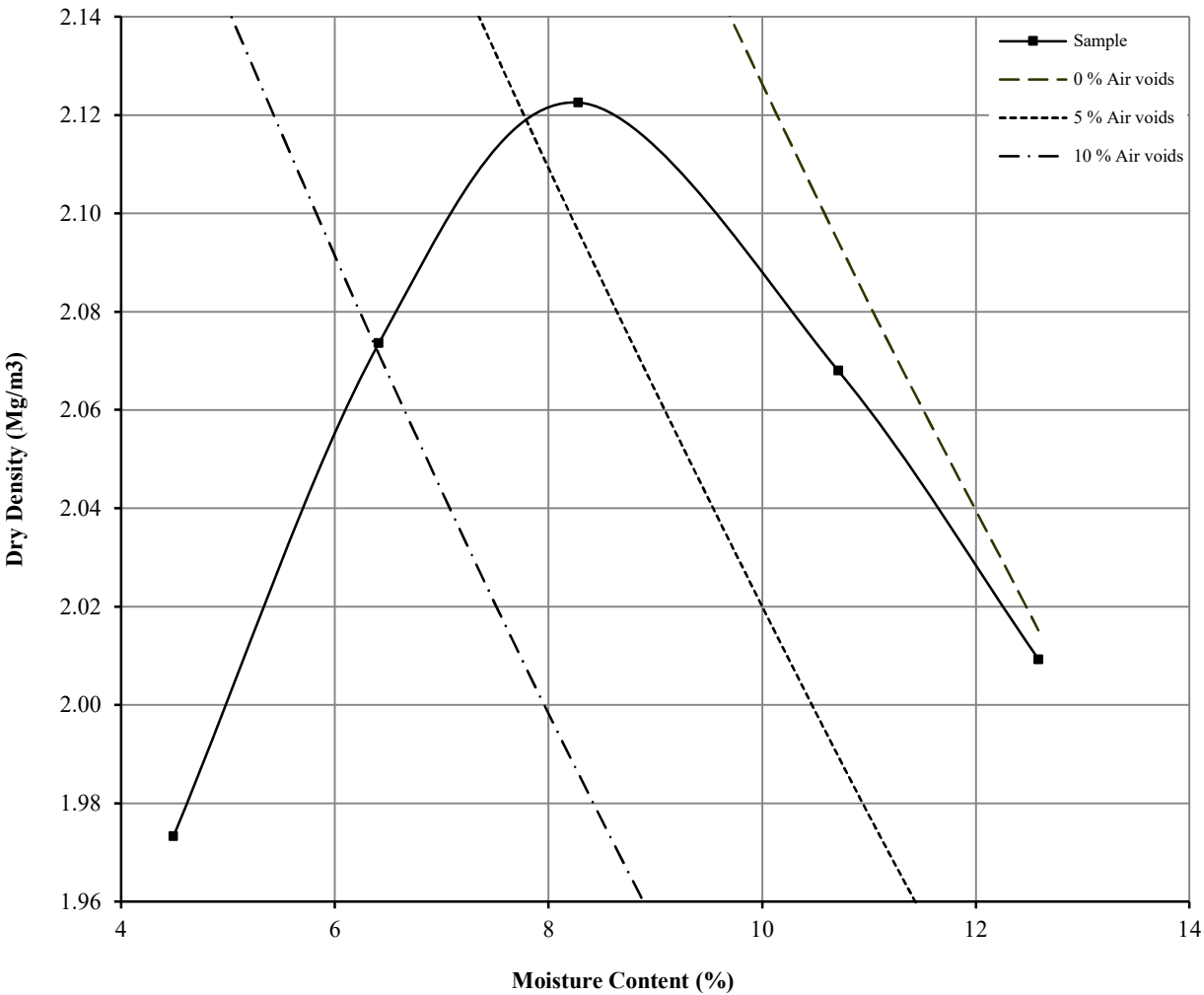
Sample Number:

Base Depth (m) :

1.20

Sample Type:

B



Initial Moisture Content:	8.3	Method of Compaction:	Vibro	Separate Samples
Particle Density (Mg/m3):	2.7	Assumed	Material Retained on 37.5 mm Test Sieve (%):	12
Maximum Dry Density (Mg/m3):	2.12		Material Retained on 20.0 mm Test Sieve (%):	16
Optimum Moisture Content (%):	8			
Remarks See summary of soil descriptions				

UKAS TESTING

4043

PSL

Professional Soils Laboratory

Cambridge

Contract

PSL21/5764

Client Ref

784-B025563

MOISTURE CONDITION VALUE

BS1377 : Part 4 : 1990 Clause 5.4

Hole Number:

TP-BP-05

Top Depth (m):

0.80

Sample Number:

Base Depth (m):

1.20

Sample Type:

B

Material Retained on the 20mm BS Test Sieve (%):	28
Interpretation based on steepest straight line intercept with 5mm change in penetration.	

MCV Determination

Number of Blows (n)	Change in penetration (mm)
1	8.5
2	8.3
3	8.1
4	7.9
5	7.7
6	7.5
8	7.1
10	6.7
12	6.3
16	5.5
20	4.5
25	2.5
30	2.5
40	2.5
60	2.5
80	2.5
100	2.5

Blows (N)	Penetration (mm)	n to 4n (mm)
1	74.9	9.0
2	70.6	9.0
3	67.9	8.7
4	65.9	8.3
6	63.4	7.7
8	61.6	7.4
12	59.2	6.1
16	57.6	4.6
24	55.7	
32	54.2	
48	53.1	
64	53.0	
96		
128		
192		
256		

Test Results.

Moisture Content (%)	10
MCV	11.7

UKAS TESTING

4043

PSL

Professional Soils Laboratory

784-B025563 Cambridge Geotech

Contract No:

PSL21/5764

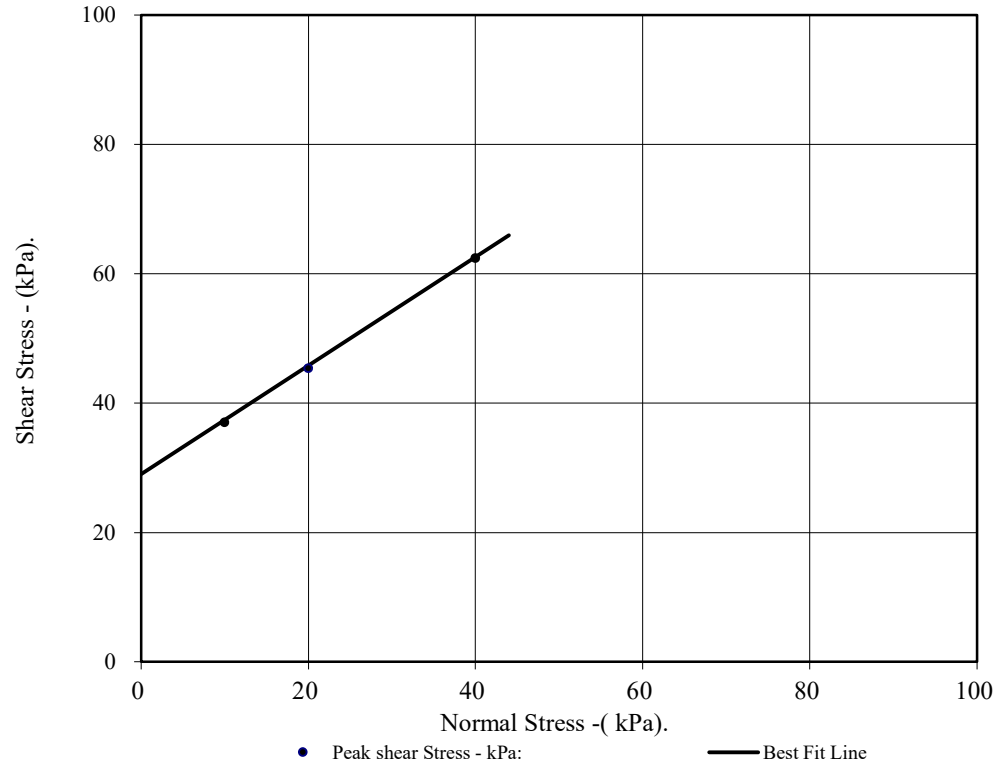
Client Ref:

784-B025563

CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 5 SHW Clause 636 Paragraph 2

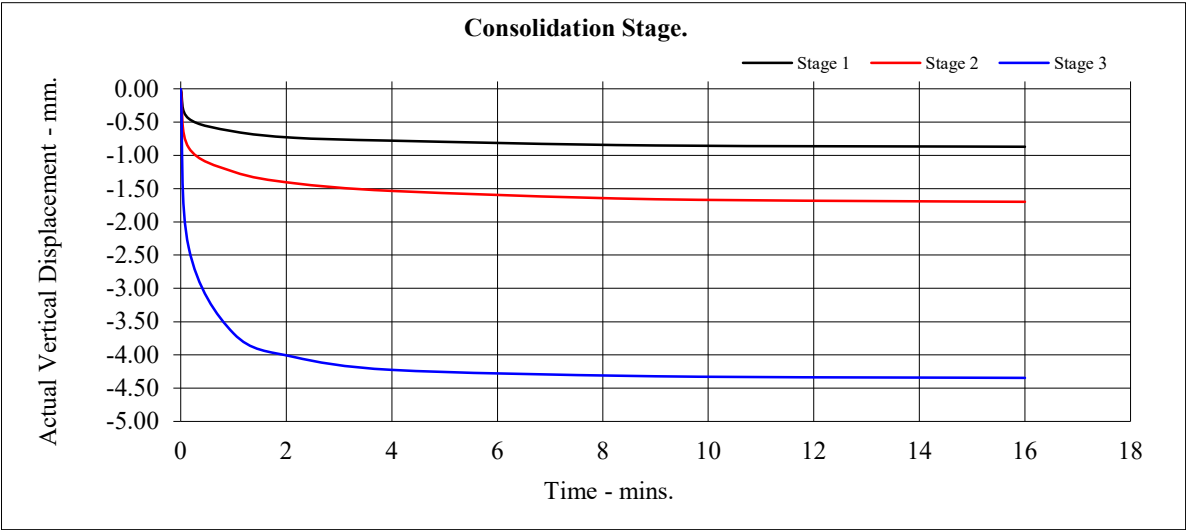
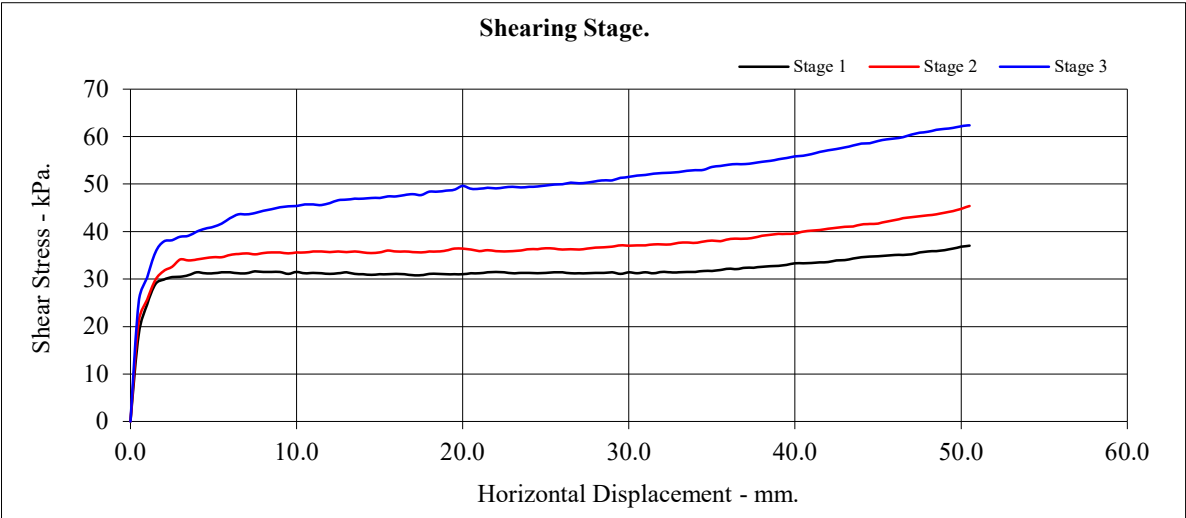
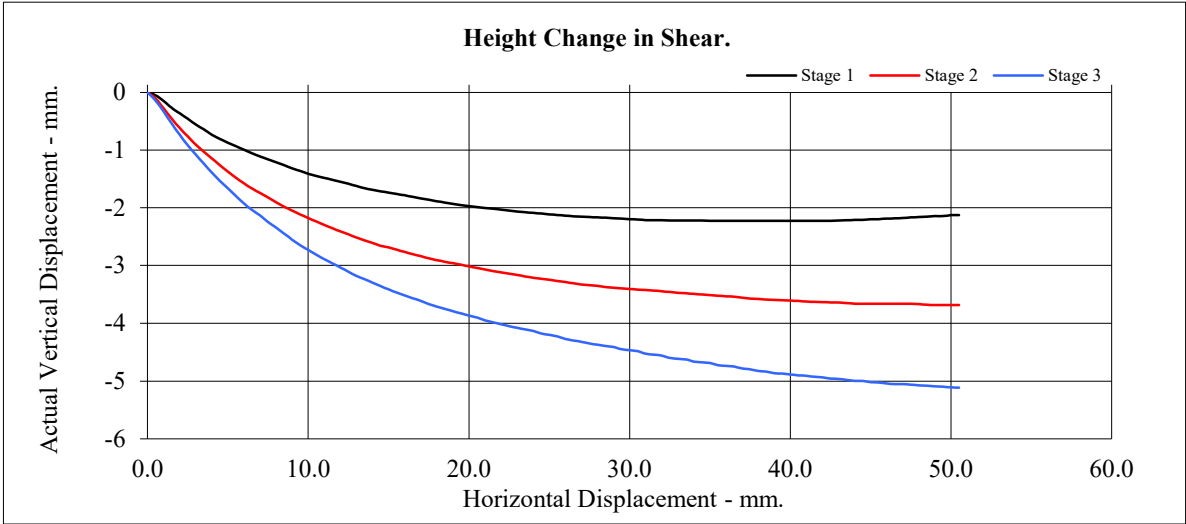
Hole Number:	TP-BP-05		Top Depth:	0.80	
Sample Number:			Base Depth:	1.20	
Sample Conditions:	Dry		Sample Type	B	
Particle Density - Mg/m3:	2.65	Assumed	Remarks:		
Sample Preparation:	Recompacted to 92% of MDD at OMC. Material tested passing 20mm sieve				
Sample Description:	See summary of soil descriptions				
STAGE			1	2	3
Initial Conditions					
Height - mm:			150	150	150
Length - mm:			300	300	300
Moisture Content - %:			8.3	8.3	8.3
Bulk Density - Mg/m3:			2.11	2.11	2.11
Dry Density - Mg/m3:			1.95	1.95	1.95
Voids Ratio:			0.359	0.359	0.359
Normal Pressure- kPa			10	20	40
Consolidation Stage					
Consolidated Height - mm:			149.13	148.30	145.65
Shearing Stage					
Rate of Strain (mm/min)			1.11	1.11	1.11
Displacement at peak shear stress (mm)			50.50	50.50	50.50
Peak shear Stress - kPa:			37	45	62
Final Consolidated Conditions					
Moisture Content - %:			8.1	7.6	7.4
Bulk Density - Mg/m3:			2.12	2.14	2.18
Dry Density - Mg/m3:			1.97	1.99	2.03
Peak					
Angle of Shearing Resistance:(θ)			40		
Effective Cohesion - kPa:			29		



CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 5 SHW Clause 636 Paragraph 2

Hole Number:	TP-BP-05	Top Depth:	0.80
Sample Number:		Base Depth:	1.20



DETERMINATION OF LOS ANGELES COEFFICIENT

BS EN ISO 1097 Part 2 : 2020

Hole Number: TP-BP-05 Top Depth (m): 0.80

Sample Number: Base Depth (m): 1.20

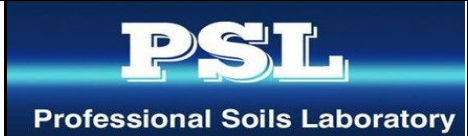
Sample Type: B Sample Date:

Sample Description:

Test Specimen Details:	Mass (g)	Mass (%)
Passing 14mm sieve	5000	100
Retained 12.5mm sieve	1686	34
Retained 10mm sieve	3314	66
Retained 1.6mm sieve post rotation and washing	3711	n/a

Test Results:	
LA Coefficient	26

Remarks:

 4043		Cambridge	Contract No:
			PSL21/5764
			Client Ref:
			784-B025563



ANALYTICAL TEST REPORT

Contract no: 99606
Contract name: TP-BP-05
Client reference: PSL21/5764
Clients name: Professional Soils Laboratory
Clients address: 5/7 Hexthorpe Road
Doncaster
DN4 0AR

Samples received: 19 August 2021

Analysis started: 19 August 2021

Analysis completed: 25 August 2021

Report issued: 25 August 2021

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope. Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling. All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing. Methods, procedures and performance data are available on request. Results reported herein relate only to the material supplied to the laboratory. This report shall not be reproduced except in full, without prior written approval. Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key: U UKAS accredited test
M MCERTS & UKAS accredited test
\$ Test carried out by an approved subcontractor
I/S Insufficient sample to carry out test
N/S Sample not suitable for testing

Approved by: 
Rachael Burton
Customer Support Squad Leader

Chemtech Environmental Limited

SOILS

Lab number			99606-1
Sample id			TP-BP-05
Depth (m)			1.00
Date sampled			-
Test	Method	Units	
pH	CE004 ^U	units	8.6
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	21

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄

Chemtech Environmental Limited

DEVIATING SAMPLE INFORMATION

Comments

Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.

For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.

Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key	
N	No (not deviating sample)
Y	Yes (deviating sample)
NSD	Sampling date not provided
NST	Sampling time not provided (waters only)
EHT	Sample exceeded holding time(s)
IC	Sample not received in appropriate containers
HP	Headspace present in sample container
NCF	Sample not chemically fixed (where appropriate)
OR	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
99606-1	TP-BP-05	1.00	Y	All (NSD)



**LABORATORY
REPORT**



4043

Contract Number: PSL21/6418

Report Date: 24 September 2021

Client’s Reference: 784-B025563

Client Name: Tetra Tech
11th Floor
1 Angel Court
London
EC2R 7HJ

For the attention of: Richard Tonge

Contract Title: Cambridge

Date Received: 10/8/2021
Date Commenced: 10/8/2021
Date Completed: 24/9/2021

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

A Watkins (Director)	R Berriman (Quality Manager)	S Royle (Laboratory Manager)
L Knight (Assistant Laboratory Manager)	 S Eyre (Senior Technician)	T Watkins (Senior Technician)

5 – 7 Hexthorpe Road, Hexthorpe,
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fax: +44 (0)844 815 6642
e-mail: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

Page 1 of

PARTICLE SIZE DISTRIBUTION TEST

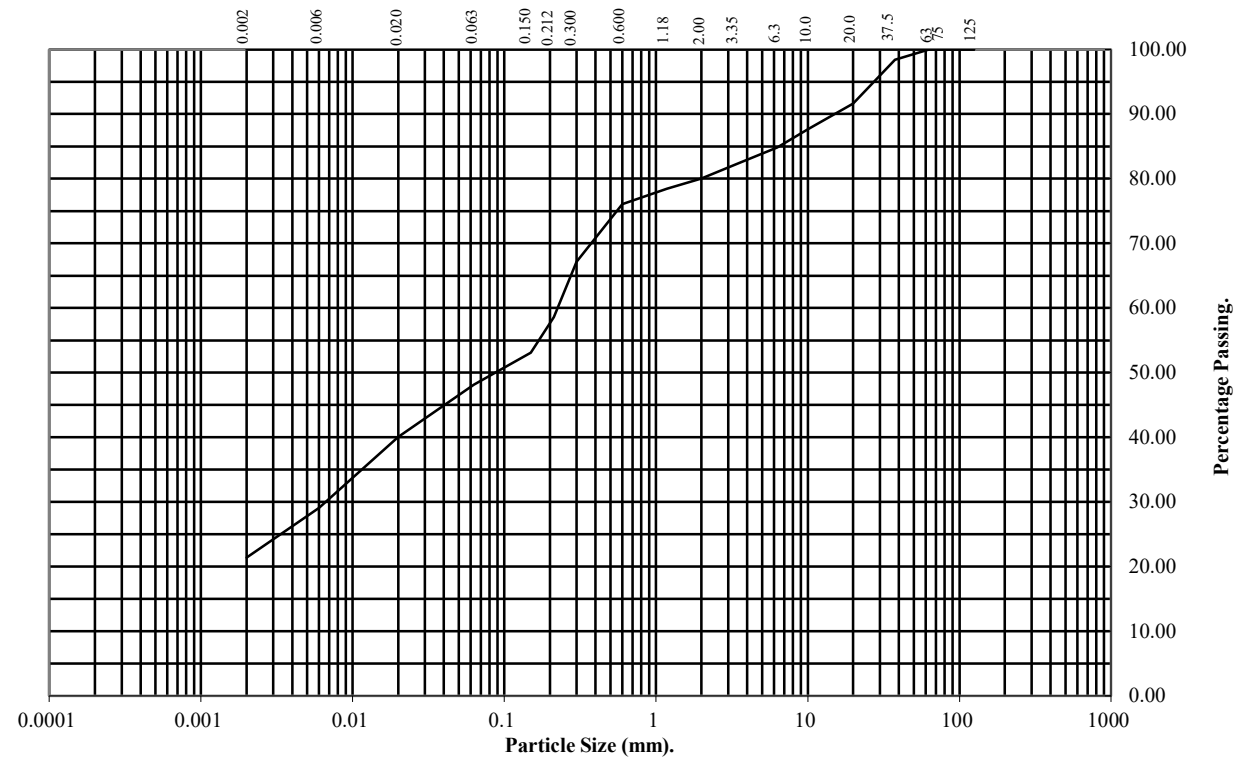
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	TP-HRS-01	Top Depth (m):	1.00
---------------------	------------------	-----------------------	-------------

Sample Number: **Base Depth(m):** **1.30**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	98
20	92
10	88
6.3	85
3.35	82
2	80
1.18	78
0.6	76
0.3	67
0.212	59
0.15	53
0.063	48

Particle Diameter	Percentage Passing
0.02	40
0.006	29
0.002	21

Soil Fraction	Total Percentage
Cobbles	0
Gravel	20
Sand	32
Silt	27
Clay	21

Remarks:
See Summary of Soil Descriptions



4043

PSL

Professional Soils Laboratory

Cambridge

Contract No:

PSL21/6418

Client Ref:

784-B025563

SUMMARY OF ROCK TESTS

(ISRM Suggested Method for the Determination of the Water Content of Rock)

[illegible]

Contract No:

PSL21/6418

Client Ref:

784-B025563

Cambridge

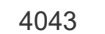
PST
Professional Soils Laboratory

ISRM Suggested Methods : 2007

A = Axial, D = Diametral, I = Irregular

Par = parallel, Perp = perpendicular, U = Random

***Note** All testing carried out on samples at as received water content



Contract Number: PSL21/6419

Report Date: 21 September 2021

Client's Reference: 784-B025563

Client Name: Tetra Tech
11th Floor
1 Angel Court
London
EC2R 7HJ

For the attention of: Richard Tonge

Contract Title: Cambridge

Date Received: 10/8/2021

Date Commenced: 10/8/2021

Date Completed: 21/9/2021

Notes: **Opinions and Interpretations are outside the UKAS Accreditation**

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

A Watkins
(Director)

R Berriman
(Quality Manager)

S Royle
(Laboratory Manager)

L Knight
(Assistant Laboratory Manager)


S Eyre
(Senior Technician)

T Watkins
(Senior Technician)

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Doncaster DN4 0AR
tel: +44 (0)844 815 6641
fax: +44 (0)844 815 6642
e-mail: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk**

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]

PSL
Professional Soils Laboratory

Contract No:	PSL21/6419	Client Ref:	784-B025563
---------------------	-------------------	--------------------	--------------------

SUMMARY OF CHALK TESTS

(BS1377 : PART 2 & 4 : 1990)

[illegible]

* CCV testing is not UKAS accredited



PST
Professional Soils Laboratory

Contract No:	PSL21/6419	Client Ref:	784-B025563
---------------------	-------------------	--------------------	--------------------

SUMMARY OF ROCK TESTS

[illegible]

	<p style="text-align: center;">Cambridge</p>	Contract No:
		PSL21/6419
		Client Ref:
		784-B025563

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular

	Contract No: PSL21/6419 Client Ref: 784-B025563
	Cambridge

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

[illegible]

SYMBOLS: NP: Non Plastic

* : Liquid Limit and Plastic Limit Wet Sieved.


PSL
Professional Soils Laboratory
4043

Contract No:

PSL21/6420

Client Ref:

784-B025563

Cambridge

SUMMARY OF CHALK TESTS

(BS1377: PART 2 & 4:1990)

[illegible]

* CCV testing is not UKAS accredited


PSL
Professional Soils Laboratory
4043

Contract No:

PSL21/6420

Client Ref:

784-B025563

Cambridge

PARTICLE SIZE DISTRIBUTION TEST

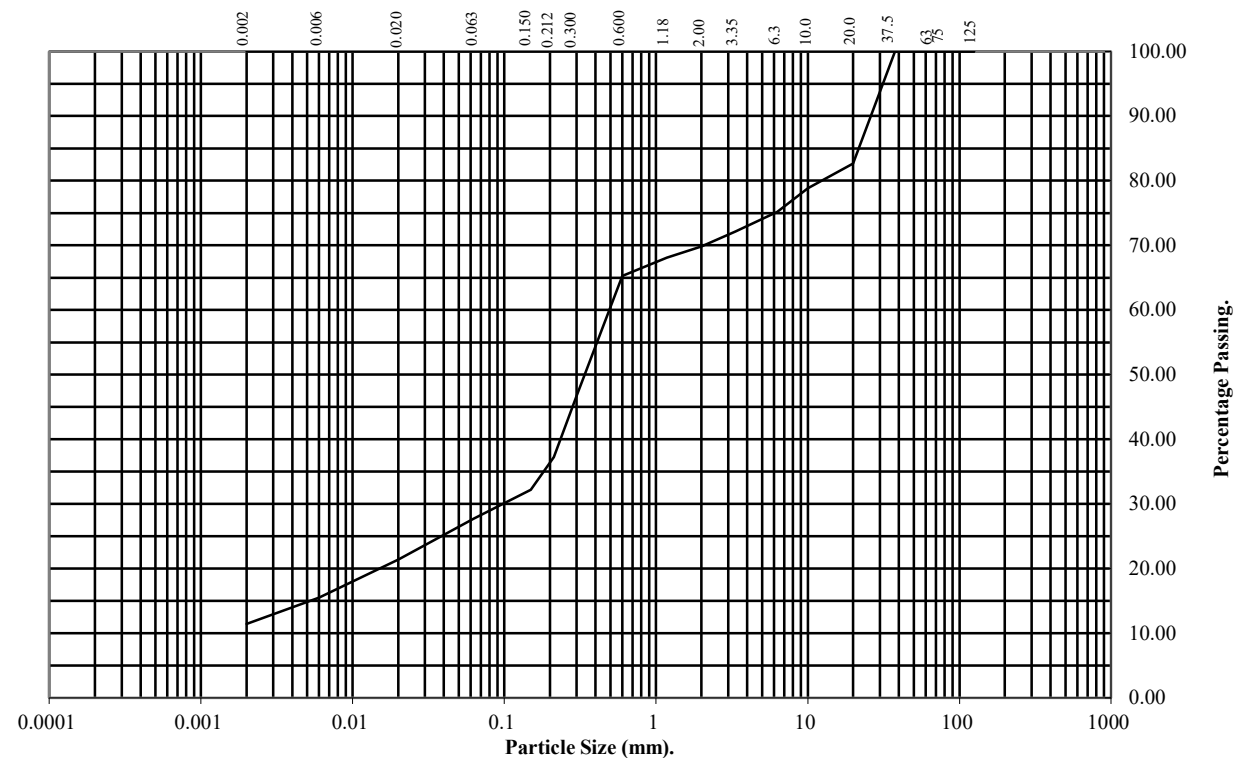
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: TP-HRS-03A Top Depth (m): 1.00

Sample Number: Base Depth(m):

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	83
10	79
6.3	75
3.35	72
2	70
1.18	68
0.6	65
0.3	47
0.212	37
0.15	32
0.063	28

Particle Diameter	Percentage Passing
0.02	21
0.006	15
0.002	11

Soil Fraction	Total Percentage
Cobbles	0
Gravel	30
Sand	42
Silt	17
Clay	11

Remarks:

See Summary of Soil Descriptions



Cambridge

Contract No:
PSL21/6420
Client Ref:
784-B025563



LABORATORY REPORT



4043

Contract Number: PSL21/6421

Report Date: 30 September 2021

Client's Reference: 784-B025563

Client Name: Tetra Tech
11th Floor
1 Angel Court
London
EC2R 7HJ

For the attention of: Richard Tonge

Contract Title: Cambridge

Date Received: 10/8/2021

Date Commenced: 10/8/2021

Date Completed: 30/9/2021

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

A Watkins
(Director)

R Berriman
(Quality Manager)

S Royle
(Laboratory Manager)

L Knight
(Assistant Laboratory Manager)

S Eyre
(Senior Technician)

T Watkins
(Senior Technician)

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fax: +44 (0)844 815 6642
e-mail: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

Page 1 of

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]

	<p style="text-align: center;">Cambridge</p>	Contract No:
		PSL21/6421
		Client Ref:
		784-B025563

SUMMARY OF CHALK TESTS

(BS1377: PART 2 & 4:1990)

[illegible]

* CCV testing is not UKAS accredited

	Contract No:
	PSL21/6421
	Client Ref:
	784-B025563

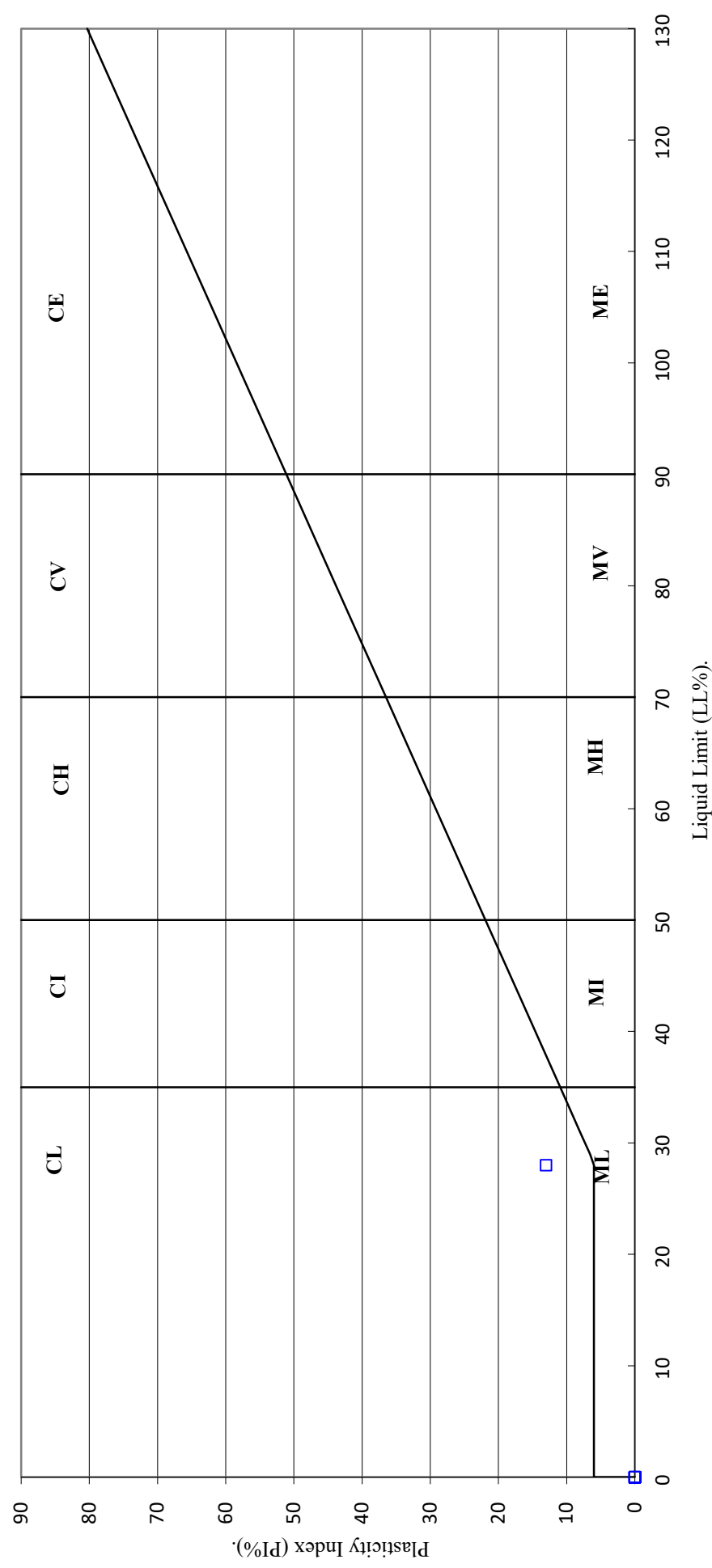
(ISRM Suggested Method for the Determination of the Water Content of Rock)

	Contract No:
	PSL21/6421
	Client Ref:
	784-B025563



Page 1 of

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.





UKAS
TESTING

PSL

Professional Soils Laboratory

4043

Contract No:

PSL21/6467

Client Ref:

784-B025563

Cambridge

SUMMARY OF CHALK TESTS

(BS1377 : PART 2 & 4 : 1990)

[illegible]

* CCV testing is not UKAS accredited


PSL
Professional Soils Laboratory
4043

Contract No:

PSL21/6467

Client Ref:

784-B025563

Cambridge

SUMMARY OF ROCK TESTS

[illegible]

	<p>Cambridge</p>	<p>Contract No:</p>
		<p>PSL21/6467</p>
		<p>Client Ref:</p>
		<p>784-B025563</p>

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

A = Axial, D = Diametral, I = Irregular

	Contract No:
	PSL21/6467
	Client Ref:
	784-B025563

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

[illegible]

SYMBOLS: NP : Non Plastic

* : Liquid Limit and Plastic Limit Wet Sieved.



UKAS
TESTING

PSL

Professional Soils Laboratory

4043

Contract No:

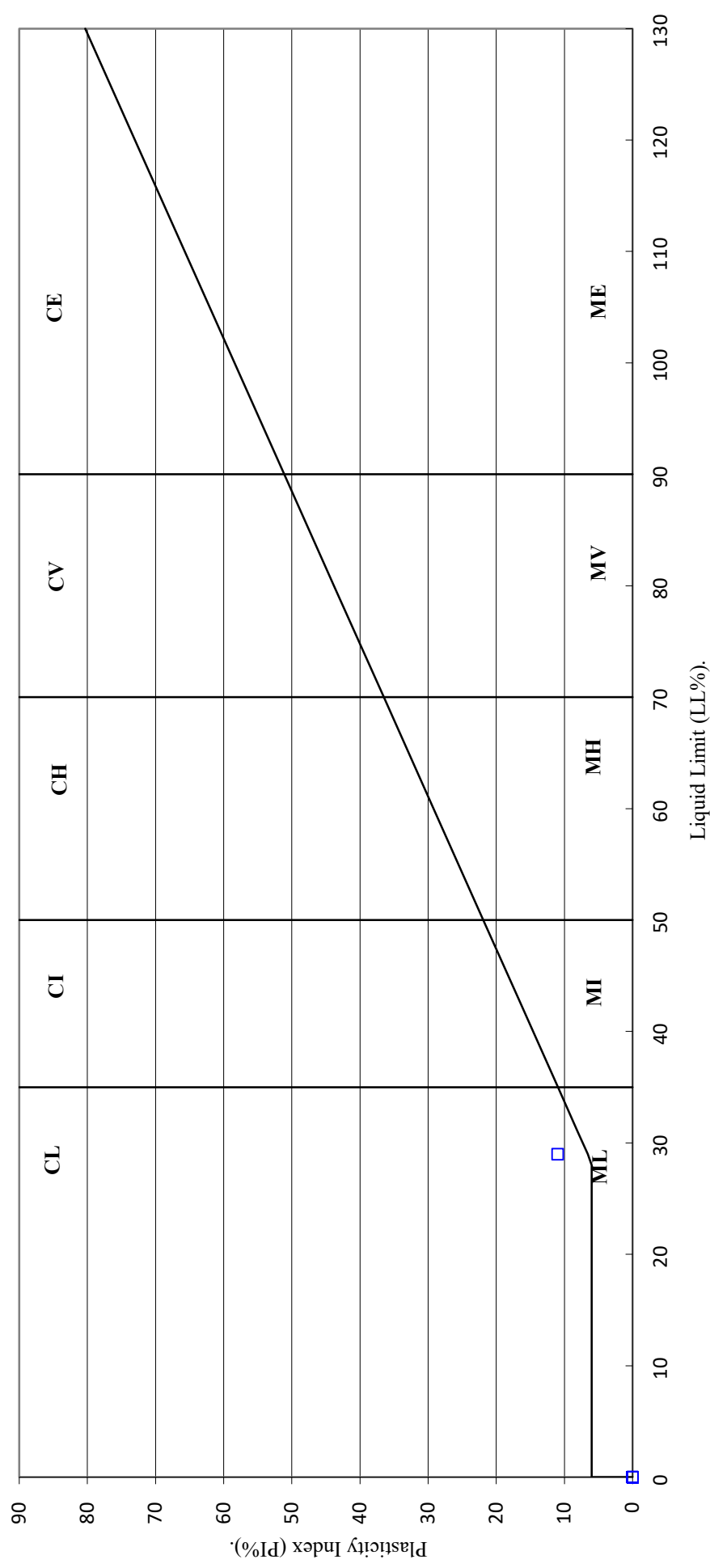
PSL21/6468

Client Ref:

784-B025563

Cambridge

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.




PSL
Professional Soils Laboratory
4043

Contract No:

PSL21/6468

Client Ref:

784-B025563

Cambridge

ISRM Suggested Methods : 2007

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular

 PSL Professional Soils Laboratory	Contract No:
	PSL21/6468
	Client Ref:
	784-B025563



ANALYTICAL TEST REPORT

Contract no:	101224
Contract name:	TP-OBC-02
Client reference:	PSL21/6468
Clients name:	Professional Soils Laboratory
Clients address:	5/7 Hexthorpe Road Doncaster DN4 0AR

Samples received: 06 October 2021

Analysis started: 06 October 2021

Analysis completed: 13 October 2021

Report issued: 13 October 2021

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.
All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing
Methods, procedures and performance data are available on request.
Results reported herein relate only to the material supplied to the laboratory.
This report shall not be reproduced except in full, without prior written approval.
Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key:

- U UKAS accredited test
- M MCERTS & UKAS accredited test
- \$ Test carried out by an approved subcontractor
- I/S Insufficient sample to carry out test
- N/S Sample not suitable for testing

Approved by: 
Karan Campbell
Director

Unit 6 Parkhead, Greencroft Industrial Park, Stanley, County Durham, DH9 7YB
Tel 01207 528578 Email customerservices@chemtech-env.co.uk
Vat Reg No. 772 5703 18 Registered in England number 4284013

Chemtech Environmental Limited

SOILS

Lab number			101224-1
Sample id			TP-OBC-02
Depth (m)			0.50
Date sampled			11/04/2021
Test	Method	Units	
pH	CE004 ^U	units	8.4
Magnesium (2:1 water soluble)	CE061	mg/l Mg	2.3
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	1.3
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	14
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	14
Sulphate (total)	CE062	mg/kg SO ₄	508
Sulphur (total)	CE119	mg/kg S	298
Sulphur (total)	CE119	% w/w S	0.03

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S

Chemtech Environmental Limited

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key	
N	No (not deviating sample)
Y	Yes (deviating sample)
NSD	Sampling date not provided
NST	Sampling time not provided (waters only)
EHT	Sample exceeded holding time(s)
IC	Sample not received in appropriate containers
HP	Headspace present in sample container
NCF	Sample not chemically fixed (where appropriate)
OR	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
101224-1	TP-OBC-02	0.50	Y	All (EHT)



LABORATORY
REPORT



4043

Contract Number: PSL21/6469

Report Date: 06 October 2021

Client’s Reference: 784-B025563

Client Name: Tetra Tech
11th Floor
1 Angel Court
London
EC2R 7HJ

For the attention of: Richard Tonge

Contract Title: Cambridge

Date Received: 10/8/2021
Date Commenced: 10/8/2021
Date Completed: 6/10/2021

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

A Watkins (Director)	R Berriman (Quality Manager)	S Royle (Laboratory Manager)
L Knight (Assistant Laboratory Manager)	 S Eyre (Senior Technician)	T Watkins (Senior Technician)

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Doncaster DN4 0AR
tel: +44 (0)844 815 6641
fax: +44 (0)844 815 6642
e-mail: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

Page 1 of

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]

	<p style="text-align: center;">Cambridge</p>	Contract No:
		PSL21/6469
		Client Ref:
		784-B025563

SUMMARY OF CHALK TESTS

(BS1377: PART 2 & 4: 1990)

[illegible]

* CCV testing is not UKAS accredited

	Contract No:
	PSL21/6469
	Client Ref:
	784-B025563

(ISRM Suggested Method for the Determination of the Water Content of Rock)

	Contract No:
	PSL 21/6469
	Client Ref:
	784-B025563



Page 1 of

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]

 4043

PST
Professional Soils Laboratory

Cambridge

Contract No:	PSL21/6470
Client Ref:	784-B0255563

SUMMARY OF CHALK TESTS

(BS1377: PART 2 & 4: 1990)

[illegible]

* CCV testing is not UKAS accredited

 **UKAS**
TESTING
4043

PST
Professional Soils Laboratory

Cambridge

Contract No:	PSL21/6470	Client Ref:	784-B0255563
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(ISRM Suggested Method for the Determination of the Water Content of Rock)

	Contract No:
	PSL21/6470
	Client Ref:
	784-B025563



Page 1 of

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]



UKAS
TESTING

4043

PSL

Professional Soils Laboratory

Contract No:	PSL21/6471
Client Ref:	784-B025563

SUMMARY OF CHALK TESTS

(BS1377 : PART 2 & 4 : 1990)

[illegible]

* CCV testing is not UKAS accredited


PSL
Professional Soils Laboratory
4043

Cambridge

Contract No:	PSL21/6471
Client Ref:	784-B025563

SUMMARY OF ROCK TESTS

[illegible]

	Contract No:
	PSL21/6471
	Client Ref:
	784-B025563

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular

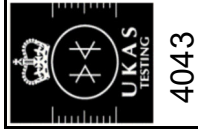
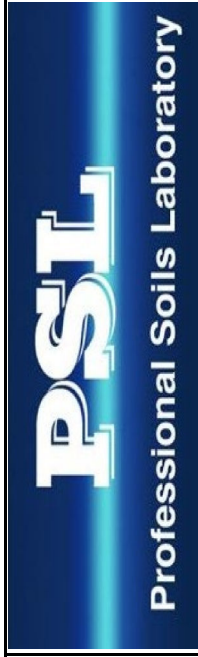
	PSL	Professional Soils Laboratory
	Cambridge	
Contract No:		
	PSL21/6471	
Client Ref:		
		784-B025563
		4043

SUMMARY OF CHALK TESTS

(BS1377: PART 2 & 4:1990)

[illegible]

* CCV testing is not UKAS accredited



Contract No:
PSL21/6472
Client Ref:
784-B025563

SUMMARY OF ROCK TESTS

(ISRM Suggested Method for the Determination of the Water Content of Rock)

[illegible]

Contract No:
PSL21/6472
Client Ref:
784-B025563

SUMMARY OF CHALK TESTS

(BS1377 : PART 2 & 4 : 1990)

[illegible]

* CCV testing is not UKAS accredited

	<p>Cambridge</p>	Contract No:
		PSL21/6473
		Client Ref:
		784-B025563

SUMMARY OF ROCK TESTS

(ISRM Suggested Method for the Determination of the Water Content of Rock)

[illegible]

	Contract No:
	PSL21/6473
	Client Ref:
	784-B025563

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

[illegible]

SYMBOLS: NP: Non Plastic

* : Liquid Limit and Plastic Limit Wet Sieved.


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4043

Cambridge

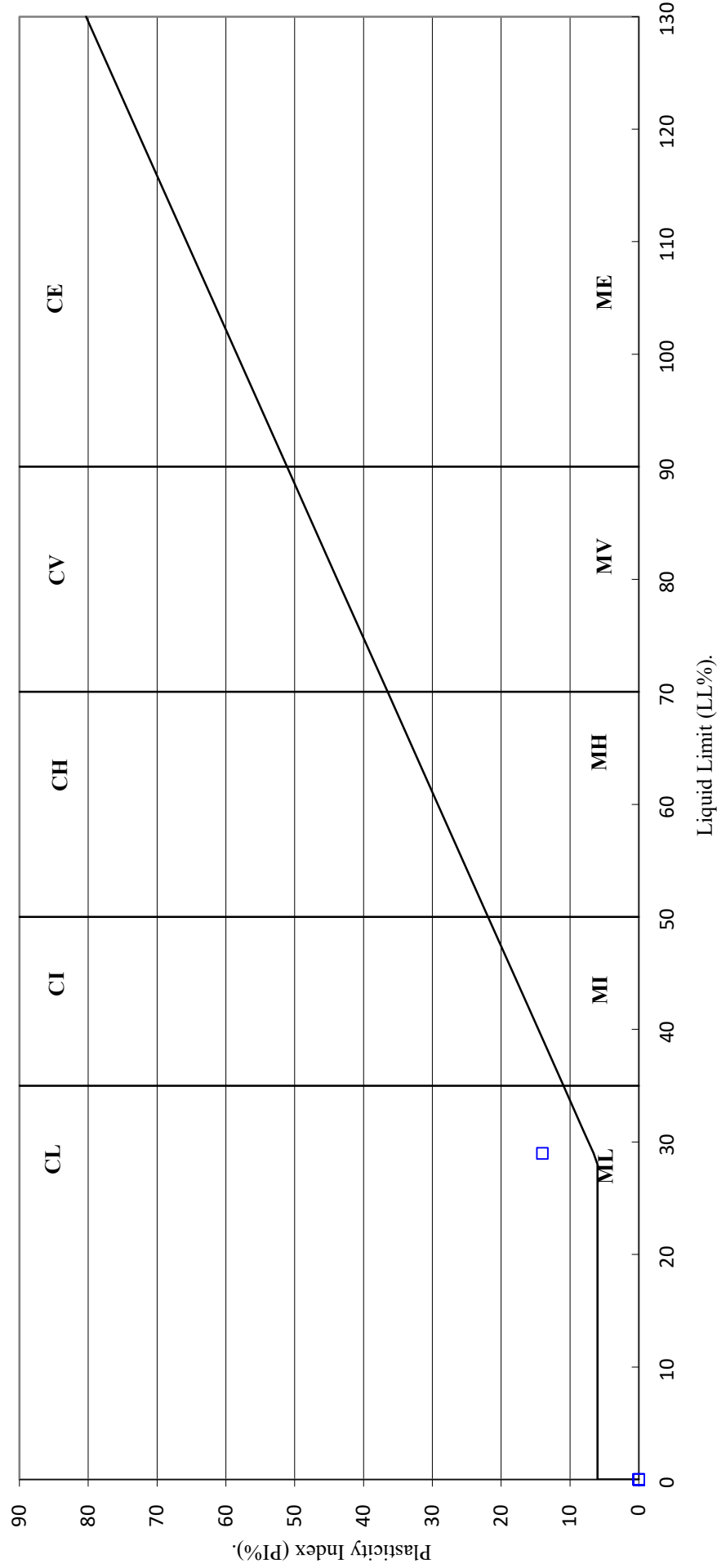
Contract No:

PSL21/6474

Client Ref:

784-B025563

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.




PSL
Professional Soils Laboratory
4043

Cambridge

Contract No:

PSL21/6474

Client Ref:



Chemtech Environmental Limited

SOILS

ANALYTICAL TEST REPORT

Contract no: 101179

Contract name: TP-OBC-08

Client reference: PSL21/6474

Clients name: Professional Soils Laboratory

Clients address: 5/7 Hexthorpe Road
Doncaster
DN4 0AR

Samples received: 05 October 2021

Analysis started: 05 October 2021

Analysis completed: 12 October 2021

Report issued: 12 October 2021

Notes:

Opinions and interpretations expressed herein are outside the UKAS accreditation scope.

Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.

All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.

Methods, procedures and performance data are available on request.

Results reported herein relate only to the material supplied to the laboratory.

This report shall not be reproduced except in full, without prior written approval.

Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key:

U UKAS accredited test

M MCERTS & UKAS accredited test

\$ Test carried out by an approved subcontractor

I/S Insufficient sample to carry out test

N/S Sample not suitable for testing

Approved by: 
Karan Campbell
Director

Lab number			101179-1
Sample id			TP-OBC-08
Depth (m)			0.50
Date sampled			-
Test	Method	Units	
pH	CE004 ^U	units	8.1
Magnesium (2:1 water soluble)	CE061	mg/l Mg	4.1
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	17
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	73
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	66
Sulphate (total)	CE062	mg/kg SO ₄	541
Sulphur (total)	CE119	mg/kg S	499
Sulphur (total)	CE119	% w/w S	0.05

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key
N No (not deviating sample)
Y Yes (deviating sample)
NSD Sampling date not provided
NST Sampling time not provided (waters only)
EHT Sample exceeded holding time(s)
IC Sample not received in appropriate containers
HP Headspace present in sample container
NCF Sample not chemically fixed (where appropriate)
OR Other (specify)

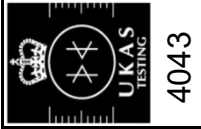
Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
101179-1	TP-OBC-08	0.50	Y	All (NSD)

SUMMARY OF CHALK TESTS

(BS1377 : PART 2 & 4 : 1990)

[illegible]

* CCV testing is not UKAS accredited



PST
Professional Soils Laboratory

Contract No:	
PSL21/6475	
Client Ref:	
784-B025563	

SUMMARY OF ROCK TESTS

(ISRM Suggested Method for the Determination of the Water Content of Rock)

[illegible]

Cambridge	Contract No:
	PSL21/6475
	Client Ref:
	784-B025563

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

[illegible]

SYMBOLS: NP : Non Plastic

* : Liquid Limit and Plastic Limit Wet Sieved.


PSL
Professional Soils Laboratory
4043

Cambridge

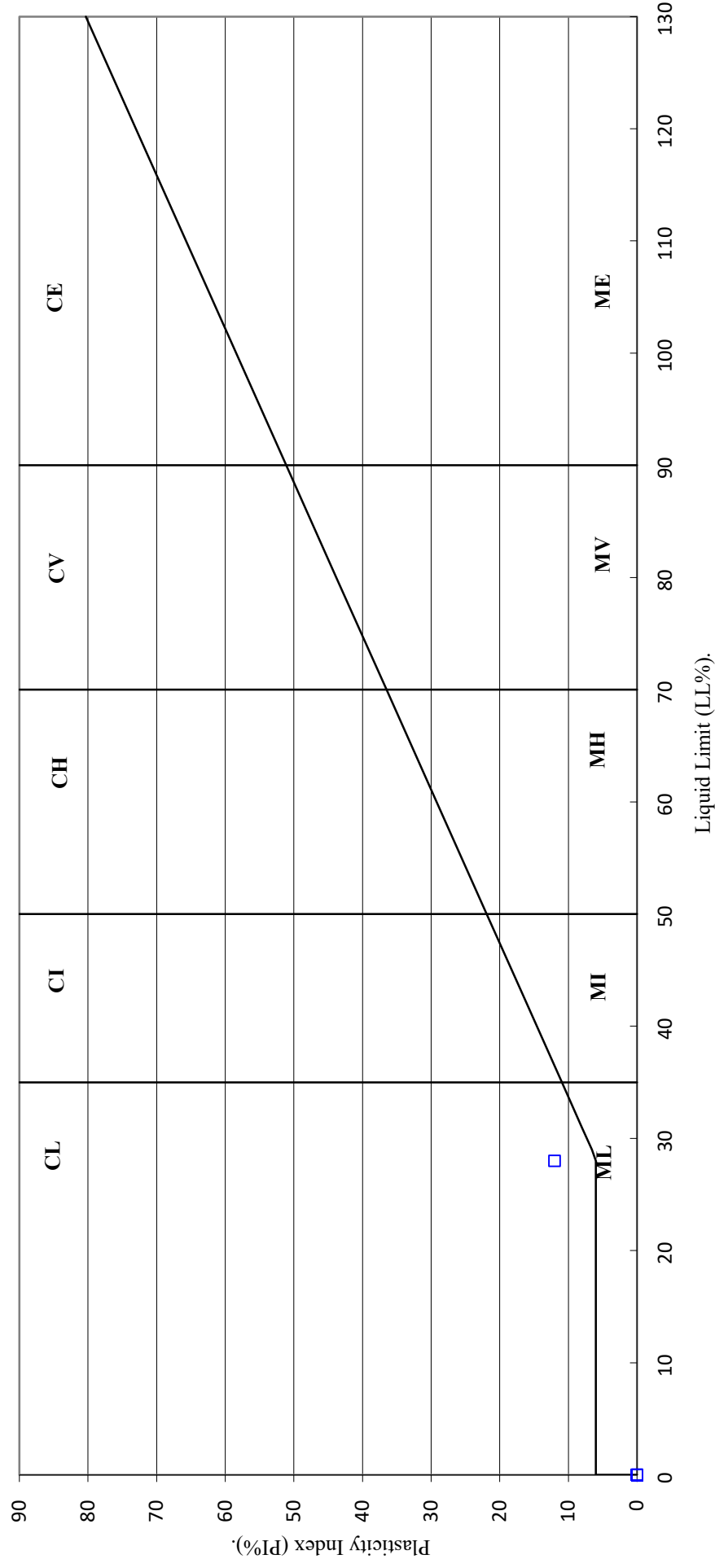
Contract No:

PSL21/6476

Client Ref:

784-B025563

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.




PSL
Professional Soils Laboratory
4043

Cambridge

Contract No:

PSL21/6476

Client Ref:



Chemtech Environmental Limited

SOILS

ANALYTICAL TEST REPORT

Contract no: 101156

Contract name: TP-OBC-10

Client reference: PSL21/6476

Clients name: Professional Soils Laboratory

Clients address: 5/7 Hexthorpe Road
Doncaster
DN4 0AR

Samples received: 05 October 2021

Analysis started: 05 October 2021

Analysis completed: 12 October 2021

Report issued: 12 October 2021

Notes:

Opinions and interpretations expressed herein are outside the UKAS accreditation scope.

Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.

All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.

Methods, procedures and performance data are available on request.

Results reported herein relate only to the material supplied to the laboratory.

This report shall not be reproduced except in full, without prior written approval.

Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key:

U UKAS accredited test

M MCERTS & UKAS accredited test

\$ Test carried out by an approved subcontractor

I/S Insufficient sample to carry out test

N/S Sample not suitable for testing

Approved by: 
Karan Campbell
Director

Lab number			101156-1
Sample id			TP-OBC-10
Depth (m)			0.50
Date sampled			-
Test	Method	Units	
pH	CE004 ^U	units	8.3
Magnesium (2:1 water soluble)	CE061	mg/l Mg	<1
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	15
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	65
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	134
Sulphate (total)	CE062	mg/kg SO ₄	904
Sulphur (total)	CE119	mg/kg S	565
Sulphur (total)	CE119	% w/w S	0.06

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

- Key**
N No (not deviating sample)
Y Yes (deviating sample)
NSD Sampling date not provided
NST Sampling time not provided (waters only)
EHT Sample exceeded holding time(s)
IC Sample not received in appropriate containers
HP Headspace present in sample container
NCF Sample not chemically fixed (where appropriate)
OR Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
101156-1	TP-OBC-10	0.50	Y	All (NSD)

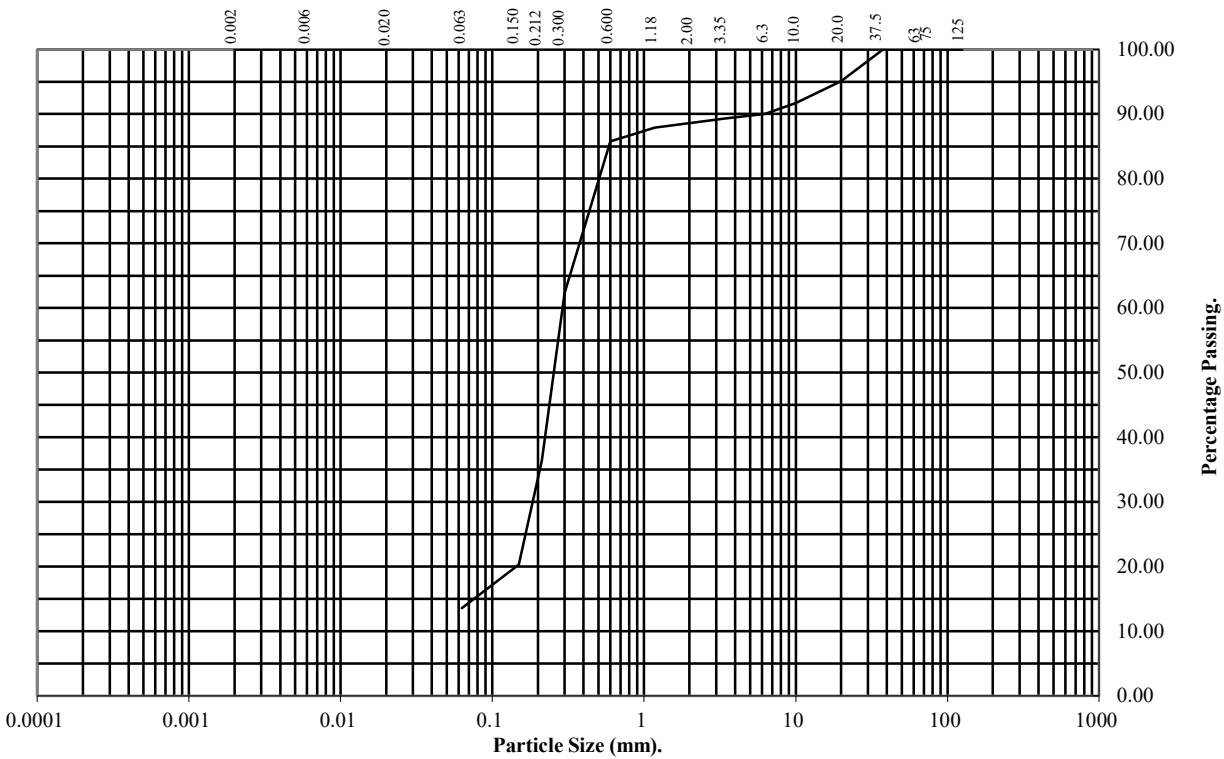
PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990
Wet Sieve, Clause 9.2

Hole Number: TP-OBC-12 Top Depth (m): 0.50

Sample Number: 5 Base Depth(m): 0.70

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	95
10	92
6.3	90
3.35	89
2	89
1.18	88
0.6	86
0.3	62
0.212	36
0.15	20
0.063	14

Soil Fraction	Total Percentage
Cobbles	0
Gravel	11
Sand	75
Silt/Clay	14

Remarks:
See Summary of Soil Descriptions

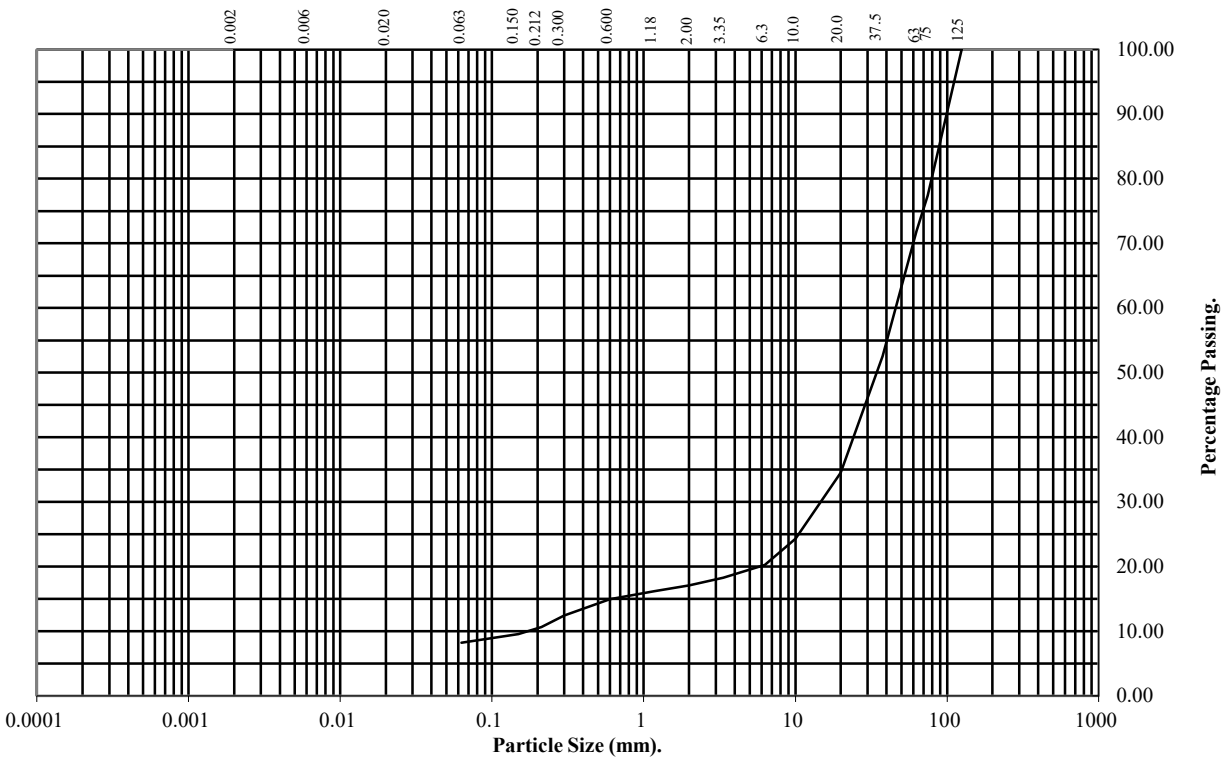
PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990
Wet Sieve, Clause 9.2

Hole Number: TP-OBC-12 Top Depth (m): 3.50

Sample Number: 15 Base Depth(m): 4.00

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	77
63	72
37.5	53
20	35
10	24
6.3	20
3.35	18
2	17
1.18	16
0.6	15
0.3	12
0.212	11
0.15	10
0.063	8

Soil Fraction	Total Percentage
Cobbles	28
Gravel	55
Sand	9
Silt/Clay	8

Remarks:
See Summary of Soil Descriptions



Chemtech Environmental Limited

SOILS

ANALYTICAL TEST REPORT

Contract no: 101180

Contract name: TP-OBC-12

Client reference: PSL21/6477

Clients name: Professional Soils Laboratory

Clients address: 5/7 Hexthorpe Road
Doncaster
DN4 0AR

Samples received: 05 October 2021

Analysis started: 05 October 2021

Analysis completed: 12 October 2021

Report issued: 12 October 2021

Notes:

Opinions and interpretations expressed herein are outside the UKAS accreditation scope.

Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.

All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.

Methods, procedures and performance data are available on request.

Results reported herein relate only to the material supplied to the laboratory.

This report shall not be reproduced except in full, without prior written approval.

Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key:

U UKAS accredited test

M MCERTS & UKAS accredited test

\$ Test carried out by an approved subcontractor

I/S Insufficient sample to carry out test

N/S Sample not suitable for testing

Approved by: 
Karan Campbell
Director

Lab number			101180-1
Sample id			TP-OBC-12
Depth (m)			2.00-2.50
Date sampled			-
Test	Method	Units	
pH	CE004 ^U	units	8.0
Magnesium (2:1 water soluble)	CE061	mg/l Mg	<1
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	2.5
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	10
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	14
Sulphate (total)	CE062	mg/kg SO ₄	121
Sulphur (total)	CE119	mg/kg S	<100
Sulphur (total)	CE119	% w/w S	<0.01

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key
N No (not deviating sample)
Y Yes (deviating sample)
NSD Sampling date not provided
NST Sampling time not provided (waters only)
EHT Sample exceeded holding time(s)
IC Sample not received in appropriate containers
HP Headspace present in sample container
NCF Sample not chemically fixed (where appropriate)
OR Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
101180-1	TP-OBC-12	2.00-2.50	Y	All (NSD)

		<p>Cambridge</p>	Contract No:
			PSL21/6478
			Client Ref:
			794 P025563

(BS1377 : PART 2 : 1990)

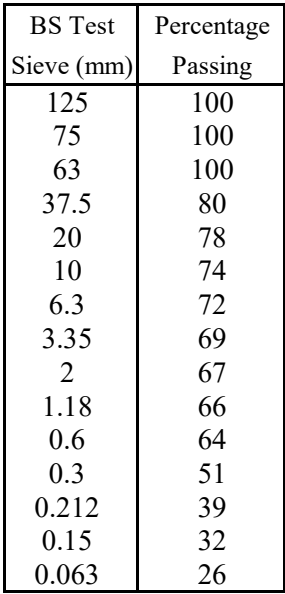
SYMBOLS: NP: Non Plastic

**** : Liquid Limit and Plastic Limit Wet Sieved.**



PSL
Professional Soils Laboratory

 4043



Particle Diameter	Percentage Passing
0.02	20
0.006	14
0.002	11

Soil Fraction	Total Percentage
Cobbles	0
Gravel	33
Sand	41
Silt	15
Clay	11

Remarks:
See Summary of Soil Descriptions

 PSL Professional Soils Laboratory	Cambridge	Contract No:
		PSL21/6478
		Client Ref:
		784-B025563

	Contract No:
	PSL21/6422
	Client Ref:
	794 0025563

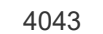
ISRM Suggested Methods : 2007

A = Axial, D = Diametral, I = Irregular

Par = parallel, Perp = perpendicular, U = Random

***Note** All testing carried out on samples at as received water content

PST
Professional Soils Laboratory



Contract Number: PSL21/6423

Report Date: 30 September 2021

Client's Reference: 784-B025563

Client Name: Tetra Tech
11th Floor
1 Angel Court
London
EC2R 7HJ

For the attention of: Richard Tonge

Contract Title: Cambridge

Date Received: 10/8/2021

Date Commenced: 10/8/2021

Date Completed: 30/9/2021

Notes: **Opinions and Interpretations are outside the UKAS Accreditation**

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

A Watkins
(Director)

R Berriman
(Quality Manager)

S Royle
(Laboratory Manager)

L Knight
(Assistant Laboratory Manager)


S Eyre
(Senior Technician)

T Watkins
(Senior Technician)

**5 – 7 Hexthorpe Road, Hexthorpe,
Doncaster DN4 0AR**
tel: +44 (0)844 815 6641
fax: +44 (0)844 815 6642
e-mail: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]

	<p style="text-align: center;">Cambridge</p>	Contract No:
		PSL21/6423
		Client Ref:
		784-B025563

SUMMARY OF CHALK TESTS

(BS1377 : PART 2 & 4 : 1990)

[illegible]

* CCV testing is not UKAS accredited

	Contract No:
	PSL21/6423
	Client Ref:
	784-B025563

SUMMARY OF ROCK TESTS

[illegible]

	<p style="text-align: center;">Cambridge</p>	Contract No:
		PSL21/6423
		Client Ref:
		784-B025563

POINT LOAD TEST

[illegible]

***Note** All testing carried out on samples at as received water content

A = Axial, D = Diametral, I = Irregular

	Contract No:
	PSL21/6423
	Client Ref:
	784-B025563

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

[illegible]

SYMBOLS: NP : Non Plastic

* : Liquid Limit and Plastic Limit Wet Sieved.


PSL
Professional Soils Laboratory
4043

Contract No:

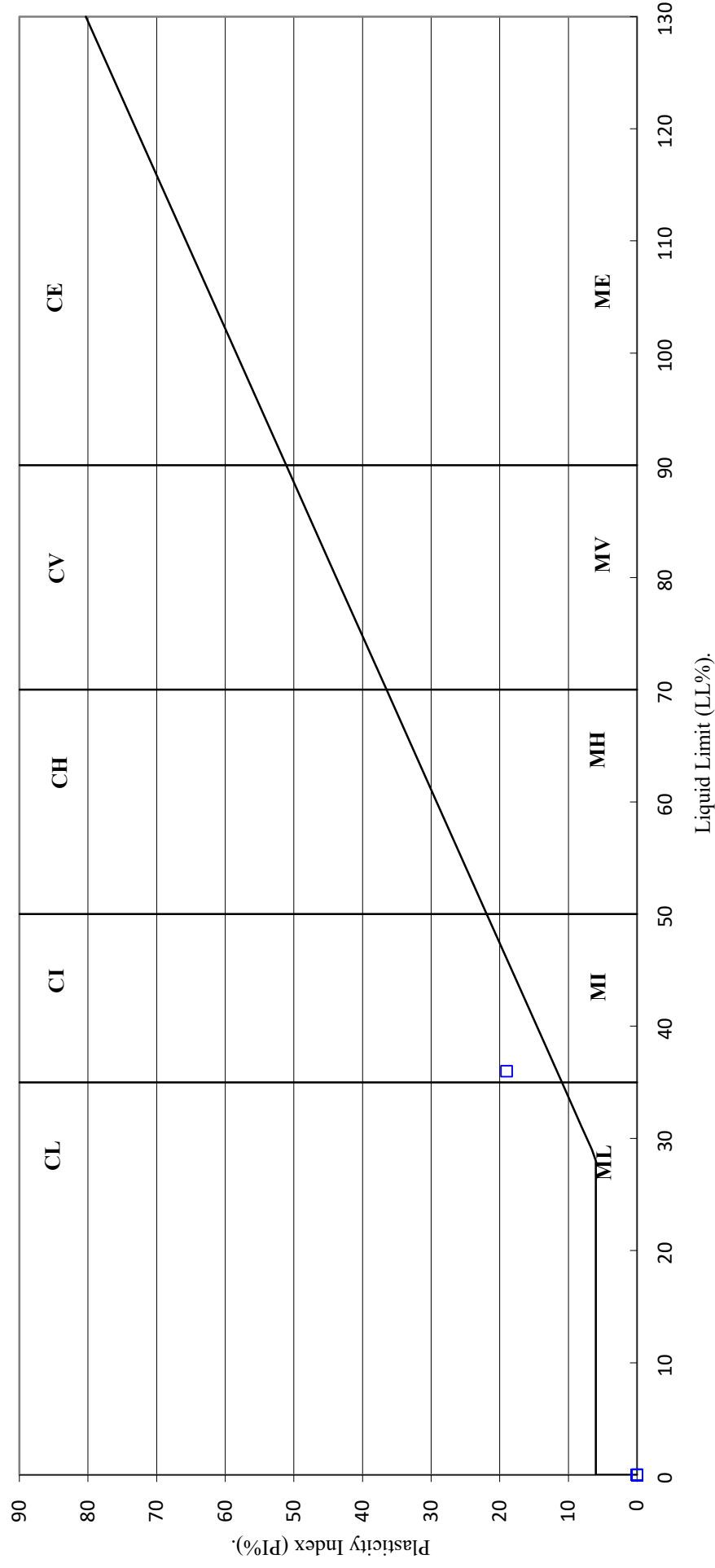
PSL21/6424

Client Ref:

784-B025563

Cambridge

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.




PSL
Professional Soils Laboratory
4043

Contract No:

PSL21/6424

Client Ref:

784-B025563

Cambridge

ISRM Suggested Methods : 2007

Par = parallel, Perp = perpendicular, U = Random
A = Axial, D = Diametral, I = Irregular

***Note** All testing carried out on samples at as received water content

Cambridge

Contract no:	100732
Contract name:	TP-PTR-04
Client reference:	PSL21/6424
Clients name:	Professional Soils Laboratory
Clients address:	5/7 Hexthorpe Road Doncaster DN4 0AR
Samples received:	23 September 2021
Analysis started:	23 September 2021
Analysis completed:	30 September 2021
Report issued:	30 September 2021

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.
All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.
Methods, procedures and performance data are available on request.
Results reported herein relate only to the material supplied to the laboratory.
This report shall not be reproduced except in full, without prior written approval.
Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key:

- U UKAS accredited test
- M MCERTS & UKAS accredited test
- \$ Test carried out by an approved subcontractor
- I/S Insufficient sample to carry out test
- N/S Sample not suitable for testing

Approved by: 
Rachael Burton
Customer Support Squad Leader

Chemtech Environmental Limited

SOILS

Lab number			100732-1
Sample id			TP-PTR-04
Depth (m)			0.50
Date sampled			-
Test	Method	Units	
pH	CE004 ^U	units	8.3
Magnesium (2:1 water soluble)	CE061	mg/l Mg	6.1
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	2.8
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	4.7
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	76
Sulphate (total)	CE062	mg/kg SO ₄	563
Sulphur (total)	CE119	mg/kg S	1486
Sulphur (total)	CE119	% w/w S	0.15

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S

Chemtech Environmental Limited

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key	
N	No (not deviating sample)
Y	Yes (deviating sample)
NSD	Sampling date not provided
NST	Sampling time not provided (waters only)
EHT	Sample exceeded holding time(s)
IC	Sample not received in appropriate containers
HP	Headspace present in sample container
NCF	Sample not chemically fixed (where appropriate)
OR	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
100732-1	TP-PTR-04	0.50	Y	All (NSD)



LABORATORY
REPORT



4043

Contract Number: PSL21/6425

Report Date: 30 September 2021

Client’s Reference: 784-B025563

Client Name: Tetra Tech
11th Floor
1 Angel Court
London
EC2R 7HJ

For the attention of: Richard Tonge

Contract Title: Cambridge

Date Received: 10/8/2021
Date Commenced: 10/8/2021
Date Completed: 30/9/2021

Notes: Opinions and Interpretations are outside the UKAS Accreditation

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Checked and Approved Signatories:

A Watkins (Director)	R Berriman (Quality Manager)	S Royle (Laboratory Manager)
L Knight (Assistant Laboratory Manager)	 S Eyre (Senior Technician)	T Watkins (Senior Technician)

5 – 7 Hexthorpe Road, Hexthorpe,
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e-mail: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

Page 1 of

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]


PSL
Professional Soils Laboratory
4043

Contract No:	PSL21/6425	Client Ref:	784-B025563
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SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

[illegible]

SYMBOLS: NP : Non Plastic

* : Liquid Limit and Plastic Limit Wet Sieved.


UKAS TESTING
4043
PSL
Professional Soils Laboratory

Contract No:	PSL21/6425
Client Ref:	784-B025563

	Contract No:
	PSL21/6426
	Client Ref:
	794 002553

ISRM Suggested Methods : 2007

A = Axial, D = Diametral, I = Irregular

Par = parallel, Perp = perpendicular, U = Random

***Note** All testing carried out on samples at as received water content



Contract Number: PSL21/6427

Report Date: 30 September 2021

Client's Reference: 784-B025563

Client Name: Tetra Tech
11th Floor
1 Angel Court
London
EC2R 7HJ

For the attention of: Richard Tonge

Contract Title: Cambridge

Date Received: 10/8/2021

Date Commenced: 10/8/2021

Date Completed: 30/9/2021

Notes: **Opinions and Interpretations are outside the UKAS Accreditation**

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awatkins@prosoils.co.uk

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]


PSL
Professional Soils Laboratory
4043

Contract No:	PSL21/6427	Client Ref:	784-B025563
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SUMMARY OF CHALK TESTS

(BS1377 : PART 2 & 4 : 1990)

[illegible]

* CCV testing is not UKAS accredited


PSL
Professional Soils Laboratory
4043

Cambridge

Contract No:	PSL21/6427	Client Ref:	784-B025563
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SUMMARY OF ROCK TESTS

[illegible]

	Contract No:
	PSL21/6427
	Client Ref:
	784-B025563

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note**
All testing carried out on samples at as received water content

A = Axial, D = Diametral, I = Irregular

 PSL Professional Soils Laboratory 4043	Contract No:
	PSL21/6427
	Client Ref:
	784-B025563

ISRM Suggested Methods : 2007

Par = parallel, Perp = perpendicular, U = Random
A = Axial, D = Diametral, I = Irregular

***Note** All testing carried out on samples at as received water content

PST
Professional Soils Laboratory



Report Date: 01 October 2021

Client's Reference: 784-B025563

Client Name: Tetra Tech
11th Floor
1 Angel Court
London
EC2R 7HJ

Contract Title: Cambridge

Date Received: 10/8/2021
Date Commenced: 10/8/2021
Date Completed: 1/10/2021

Notes: **Opinions and Interpretations are outside the UKAS Accreditation**

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awatkins@prosoils.co.uk

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]

 4043



Cambridge

Contract No:	PSL21/6429	Client Ref:	784-B025563
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SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

[illegible]

SYMBOLS: NP : Non Plastic

* : Liquid Limit and Plastic Limit Wet Sieved.

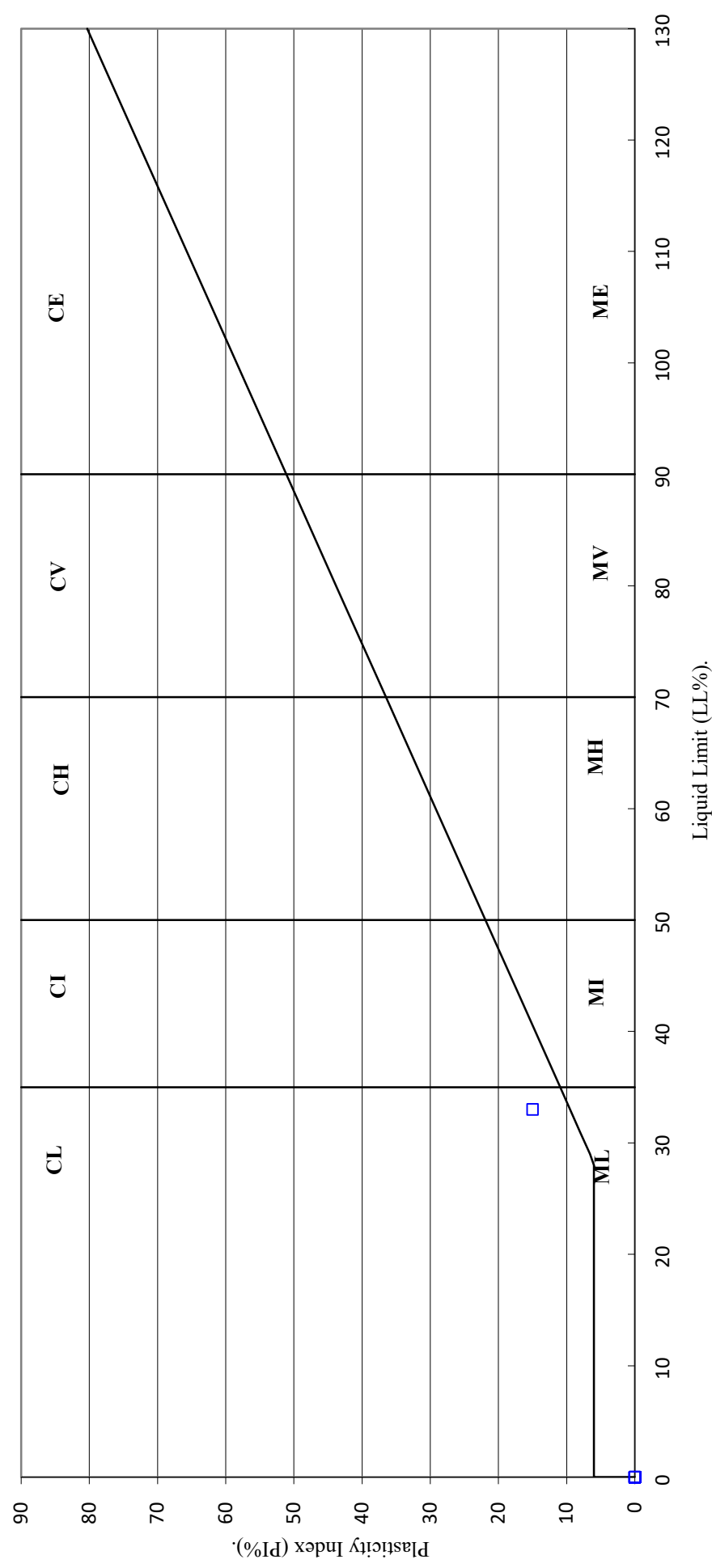


Cambridge

Contract No:
PSL21/6429

Client Ref:
784-B025563

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.





UKAS
TESTING

PSL

Professional Soils Laboratory

4043

Contract No:

PSL21/6429

Client Ref:

784-B025563

Cambridge

SUMMARY OF CHALK TESTS

(BS1377 : PART 2 & 4 : 1990)

[illegible]

* CCV testing is not UKAS accredited



UKAS
TESTING

4043



Professional Soils Laboratory

Contract No:

PSL21/6429

Client Ref:

784-B025563

Cambridge

 UKAS TESTING 4043		<p>Cambridge</p>	Contract No:
			PSL21/6430
			Client Ref:
			784-B025563

(ISRM Suggested Method for the Determination of the Water Content of Rock)

	Contract No:
	PSL21/6430
	Client Ref:
	784-B025563



Page 1 of

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]


PSL
Professional Soils Laboratory
4043

Contract No:	PSL21/6431	Client Ref:	784-B025563
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SUMMARY OF CHALK TESTS

(BS1377 : PART 2 & 4 : 1990)

[illegible]

* CCV testing is not UKAS accredited


PSL
Professional Soils Laboratory
4043

Cambridge

Contract No:
PSL21/6431
Client Ref:
784-B0255563

SUMMARY OF ROCK TESTS

[illegible]

	<p style="text-align: center;">Cambridge</p>	Contract No:
		PSL21/6431
		Client Ref:
		784-B025563

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular

	Contract No:
	PSL21/6431
	Client Ref:
	784-B025563

SUMMARY OF ROCK TESTS

[illegible]

	<p style="text-align: center;">Cambridge</p>	Contract No:
		PSL21/6432
		Client Ref:
		784-B025563

SUMMARY OF CHALK TESTS

(BS1377 : PART 2 & 4 : 1990)

[illegible]

* CCV testing is not UKAS accredited

 <p>PSL Professional Soils Laboratory</p>	Contract No:
	PSL21/6432
	Client Ref:
	784-B025563

ISRM Suggested Methods : 2007

A = Axial, D = Diametral, I = Irregular

Par = parallel, Perp = perpendicular, U = Random

All testing carried out on samples at as received water content

***Note**

pst
Professional Soils Laboratory



Contract Number: PSL21/6433

Report Date: 30 September 2021

Client's Reference: 784-B025563

Client Name: Tetra Tech
11th Floor
1 Angel Court
London
EC2R 7HJ

For the attention of: Richard Tonge

Contract Title: Cambridge

Date Received: 10/8/2021

Date Commenced: 10/8/2021

Date Completed: 30/9/2021

Notes: **Opinions and Interpretations are outside the UKAS Accreditation**

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(Senior Technician)

T Watkins
(Senior Technician)

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awatkins@prosoils.co.uk

(BS1377 : PART 2 & 4 : 1990)

* CCV testing is not UKAS accredited

PST
Professional Soils Laboratory

ISRM Suggested Methods : 2007

***Note** All testing carried out on samples at as received water content

A = Axial, D = Diametral, I = Irregular

Contract No:
PSL21/6433
Client Ref:
784-B025563

SUMMARY OF CHALK TESTS

(BS1377 : PART 2 & 4 : 1990)

[illegible]

* CCV testing is not UKAS accredited

	<p>Contract No:</p>
	<p>PSL21/6434</p>
	<p>Client Ref:</p>
	<p>784-B025563</p>
<p>Cambridge</p>	

SUMMARY OF ROCK TESTS

(ISRM Suggested Method for the Determination of the Water Content of Rock)

[illegible]

	<p style="text-align: center;">Cambridge</p>	Contract No:
		PSL21/6434
		Client Ref:
		784-B025563

ISRM Suggested Methods : 2007

A = Axial, D = Diametral, I = Irregular

Par = parallel, Perp = perpendicular, U = Random

All testing carried out on samples at as received water content

***Note**

pSL
Professional Soils Laboratory



Contract Number: PSL21/6435

Report Date: 30 September 2021

Client's Reference: 784-B025563

Client Name: Tetra Tech
11th Floor
1 Angel Court
London
EC2R 7HJ

For the attention of: Richard Tonge

Contract Title: Cambridge

Date Received: 10/8/2021

Date Commenced: 10/8/2021

Date Completed: 30/9/2021

Notes: **Opinions and Interpretations are outside the UKAS Accreditation**

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awatkins@prosoils.co.uk**

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]



UKAS
TESTING

4043

PSL

Professional Soils Laboratory

Contract No:	PSL21/6435
Client Ref:	784-B025563

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

[illegible]

SYMBOLS : NP : Non Plastic

* : Liquid Limit and Plastic Limit Wet Sieved.



UKAS
TESTING

4043

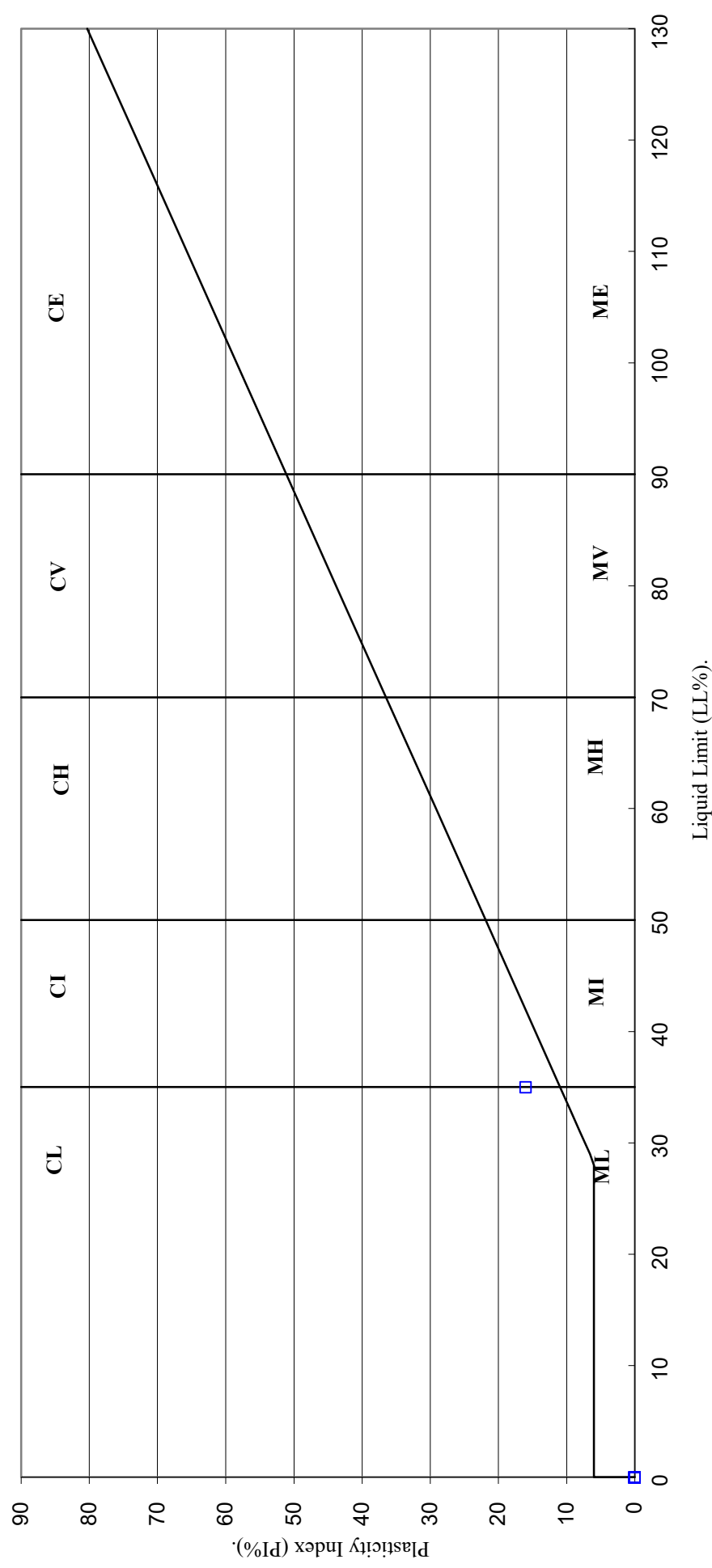
PSL

Professional Soils Laboratory

Cambridge

Contract No:	PSL21/6435	Client Ref:	784-B025563
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PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.




PSL
Professional Soils Laboratory
4043

Contract No:

PSL21/6435

Client Ref:

784-B025563

Cambridge

SUMMARY OF CHALK TESTS

(BS1377 : PART 2 & 4 : 1990)

[illegible]

* CCV testing is not UKAS accredited


PSL
Professional Soils Laboratory
4043

Contract No:

PSL21/6435

Client Ref:

784-B025563

Cambridge

(ISRM Suggested Method for the Determination of the Water Content of Rock)

	Contract No:
	PSL 21/6435
	Client Ref:
	784-B025563



Contract Number: PSL21/6436

Report Date: 30 September 2021

Client's Reference: 784-B025563

Client Name: Tetra Tech
11th Floor
1 Angel Court
London
EC2R 7HJ

For the attention of: Richard Tonge

Contract Title: Cambridge

Date Received: 10/8/2021

Date Commenced: 10/8/2021

Date Completed: 30/9/2021

Notes: **Opinions and Interpretations are outside the UKAS Accreditation**

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e-mail: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk**

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]


PSL
Professional Soils Laboratory
4043

Contract No:	PSL21/6436	Client Ref:	784-B025563
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SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

[illegible]

SYMBOLS: NP : Non Plastic

* : Liquid Limit and Plastic Limit Wet Sieved.



UKAS
TESTING

4043



Professional Soils Laboratory

Contract No:
PSL21/6436

Client Ref:
784-B025563

ISRM Suggested Methods : 2007

A = Axial, D = Diametral, I = Irregular

Par = parallel, Perp = perpendicular, U = Random

All testing carried out on samples at as received water content

***Note**

pst
Professional Soils Laboratory



4043

Contract Number: PSL21/6437

Report Date: 18 October 2021

Client's Reference: 784-B025563

Client Name: Tetra Tech
11th Floor
1 Angel Court
London
EC2R 7HJ

For the attention of: Richard Tonge

Contract Title: Cambridge

Date Received: 10/8/2021
Date Commenced: 10/8/2021
Date Completed: 18/10/2021

Notes: **Opinions and Interpretations are outside the UKAS Accreditation**

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S Eyre
(Senior Technician)

T Watkins
(Senior Technician)

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awatkins@prosoils.co.uk

Page 1 of

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]


PSL
Professional Soils Laboratory
4043

Contract No:	PSL21/6437	Client Ref:	784-B025563
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SUMMARY OF CHALK TESTS

(BS1377 : PART 2 & 4 : 1990)

[illegible]

* CCV testing is not UKAS accredited


PSL
Professional Soils Laboratory
4043

Cambridge

Contract No:	PSL21/6437
Client Ref:	784-B025563

SUMMARY OF ROCK TESTS

[illegible]

	Contract No:
	PSL21/6437
	Client Ref:
	784-B025563

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note**
All testing carried out on samples as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular

 PSL Professional Soils Laboratory 4043	Cambridge
	Contract No:
	PSL21/6437
	Client Ref:
	784-B025563

SUMMARY OF CHALK TESTS

(BS1377 : PART 2 & 4 : 1990)

[illegible]

* CCV testing is not UKAS accredited

	<p>Cambridge</p>	Contract No:
		PSL21/6438
		Client Ref:
		784-B025563

SUMMARY OF ROCK TESTS

(ISRM Suggested Method for the Determination of the Water Content of Rock)

[illegible]

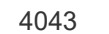
	Contract No:
	PSL21/6438
	Client Ref:
	784-B025563

ISRM Suggested Methods : 2007

A = Axial, D = Diametral, I = Irregular

Par = parallel, Perp = perpendicular, U = Random

***Note** All testing carried out on samples at as received water content



Contract Number: PSL21/6439

Report Date: 20 October 2021

Client's Reference: 784-B025563

Client Name: Tetra Tech
11th Floor
1 Angel Court
London
EC2R 7HJ

For the attention of: Richard Tonge

Contract Title: Cambridge

Date Received: 10/8/2021
Date Commenced: 10/8/2021
Date Completed: 20/10/2021

Notes: **Opinions and Interpretations are outside the UKAS Accreditation**

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S Eyre
(Senior Technician)

S Royle
(Laboratory Manager)

T Watkins
(Senior Technician)

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]

PST
Professional Soils Laboratory

Cambridge

Contract No:	PSL21/6439	Client Ref:	784-B025563
---------------------	-------------------	--------------------	--------------------

SUMMARY OF CHALK TESTS

(BS1377 : PART 2 & 4 : 1990)

[illegible]

* CCV testing is not UKAS accredited



PSL
Professional Soils Laboratory

Cambridge

Contract No:
PSL21/6439

Client Ref:
784-B025563

SUMMARY OF ROCK TESTS

[illegible]

PST
Professional Soils Laboratory

Contract No:

PSL21/6439

Client Ref:

784-B025563

Cambridge

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular


PSL
Professional Soils Laboratory
4043

Cambridge

Contract No:

PSL21/6439

Client Ref:

784-B025563

SUMMARY OF ROCK TESTS

[illegible]

	<p style="text-align: center;">Cambridge</p>	Contract No:
		PSL21/6440
		Client Ref:
		784-B025563

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

A = Axial, D = Diametral, I = Irregular

	Contract No:
	PSL21/6440
	Client Ref:
	784-B025563

		<p style="text-align: center;">Cambridge</p>	Contract No:
			PSL21/6441
			Client Ref:
			794 P025563

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

[illegible]

SYMBOLS: NP : Non Plastic

* : Liquid Limit and Plastic Limit Wet Sieved.


PSL
Professional Soils Laboratory
4043

Cambridge

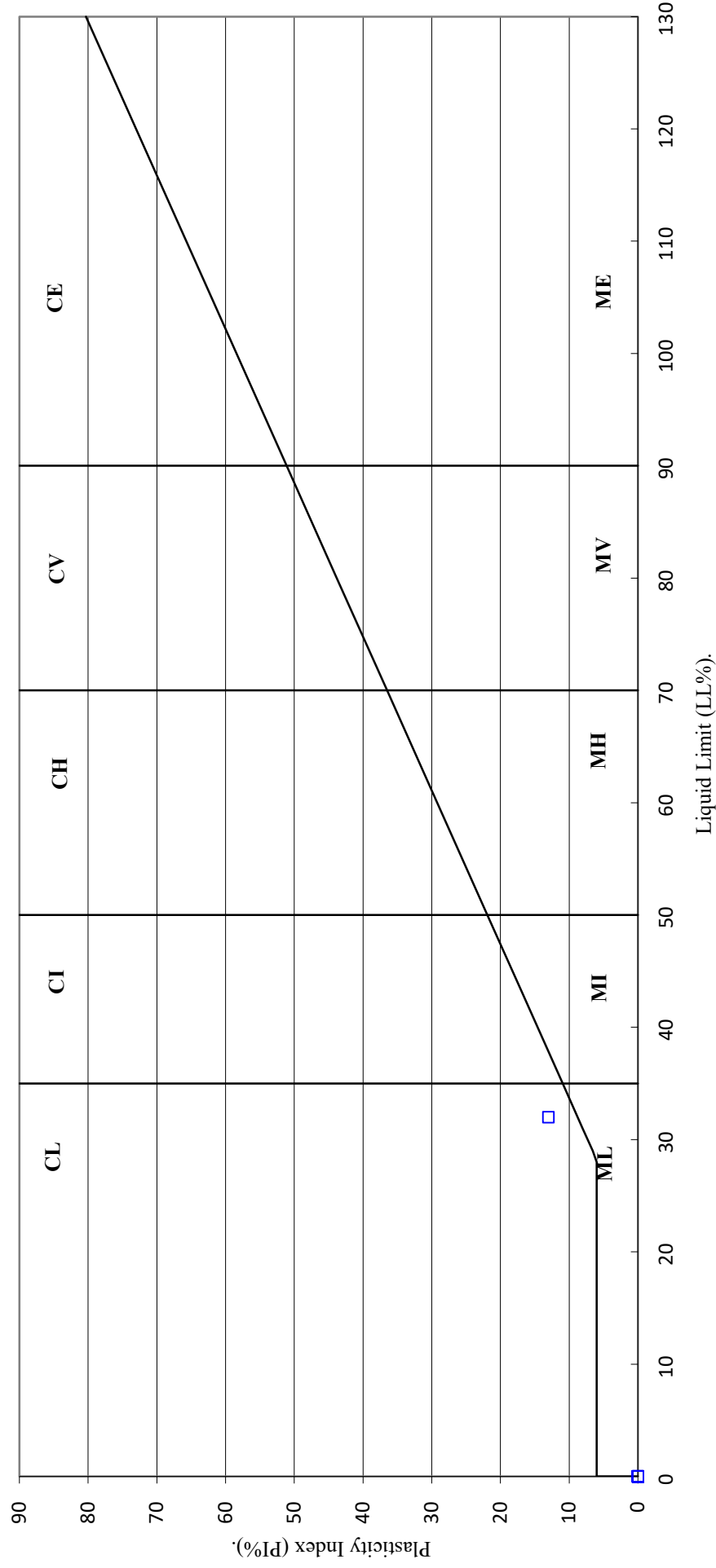
Contract No:

PSL21/6441

Client Ref:

784-B025563

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.




PSL
Professional Soils Laboratory
4043

Cambridge

Contract No:

PSL21/6441

Client Ref:

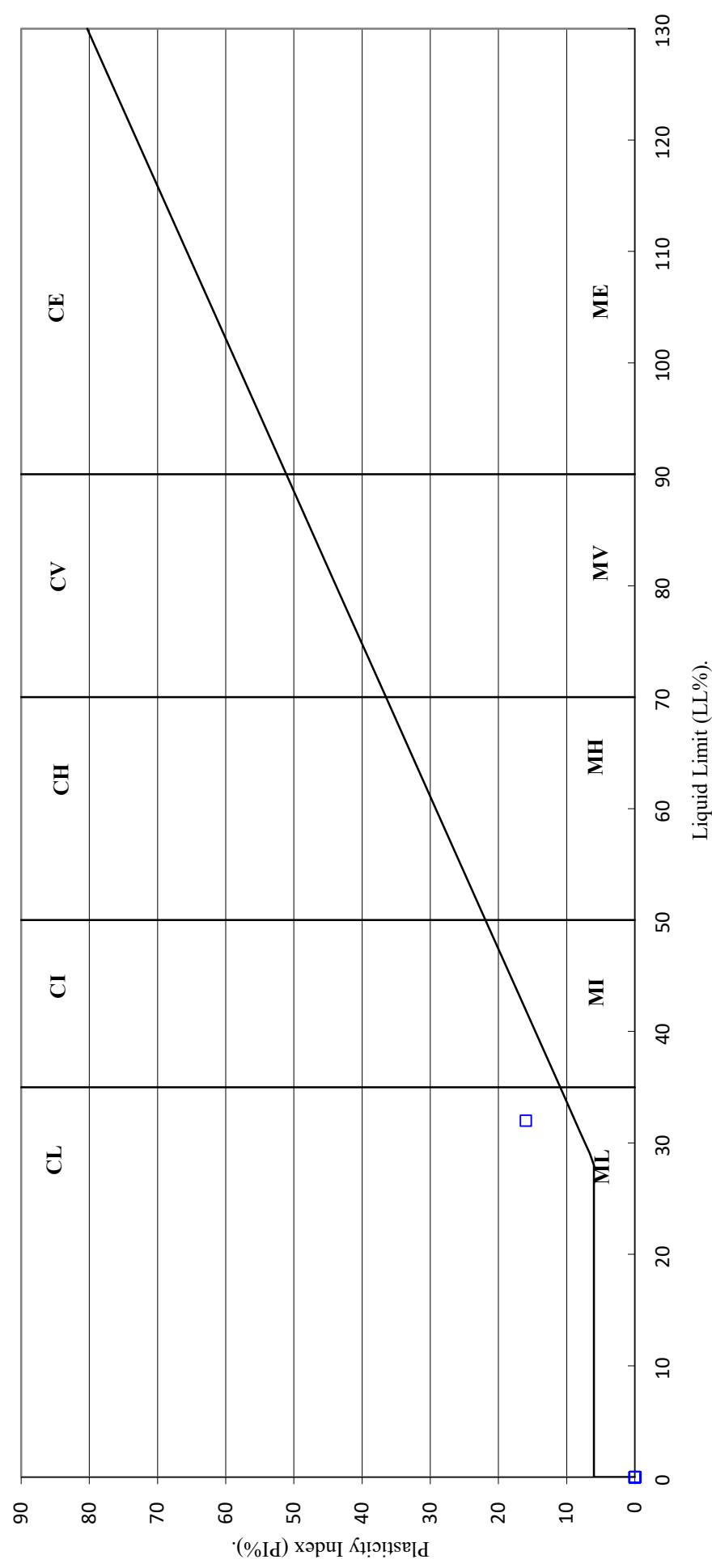
(BS1377 : PART 2 & 4 : 1990)

* CCV testing is not UKAS accredited



Page 1 of

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.





UKAS
TESTING

PSL

Professional Soils Laboratory

4043

Contract No:

PSL21/6442

Client Ref:

784-B025563

Cambridge

SUMMARY OF CHALK TESTS

(BS1377 : PART 2 & 4 : 1990)

[illegible]

* CCV testing is not UKAS accredited


PSL
Professional Soils Laboratory
4043

Contract No:

PSL21/6442

Client Ref:

784-B025563

Cambridge

SUMMARY OF ROCK TESTS

[illegible]

	Contract No:
	PSL21/6442
	Client Ref:
	784-B025563

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

A = Axial, D = Diametral, I = Irregular

	Contract No:
	PSL21/6442
	Client Ref:
	784-B025563

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

[illegible]

SYMBOLS: NP: Non Plastic

* : Liquid Limit and Plastic Limit Wet Sieved.


PSL
Professional Soils Laboratory
4043

Contract No:
PSL21/6443
Client Ref:
784-B025563

SUMMARY OF CHALK TESTS

(BS1377: PART 2 & 4:1990)

[illegible]

* CCV testing is not UKAS accredited


PSL
Professional Soils Laboratory
4043

Contract No:
PSL21/6443
Client Ref:
784-B025563

ISRM Suggested Methods : 2007

A = Axial, D = Diametral, I = Irregular

Par = parallel, Perp = perpendicular, U = Random

***Note** All testing carried out on samples at as received water content

PST
Professional Soils Laboratory



Report Date: 19 October 2021

Client's Reference: 784-B025563

Client Name: Tetra Tech
11th Floor
1 Angel Court
London
EC2R 7HJ

For the attention of: Richard Tonge

Contract Title: Cambridge

Date Received: 10/8/2021
Date Commenced: 10/8/2021
Date Completed: 19/10/2021

Notes: **Opinions and Interpretations are outside the UKAS Accreditation**

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Checked and Approved Signatories:

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(Director)

L Knight
(Assistant Laboratory Manager)

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Doncaster DN4 0AR**
tel: +44 (0)844 815 6641
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awatkins@prosoils.co.uk

R Berriman
(Quality Manager)

S Eyre
(Senior Technician)

S Royle
(Laboratory Manager)

T Watkins
(Senior Technician)

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]

 4043



Cambridge

Contract No.:

PSL21/6445

Client Ref:

784-B025563

SUMMARY OF CHALK TESTS

(BS1377 : PART 2 & 4 : 1990)

[illegible]

* CCV testing is not UKAS accredited



Cambridge

Contract No:

PSL21/6445

Client Ref:

784-B025563

PARTICLE SIZE DISTRIBUTION TEST

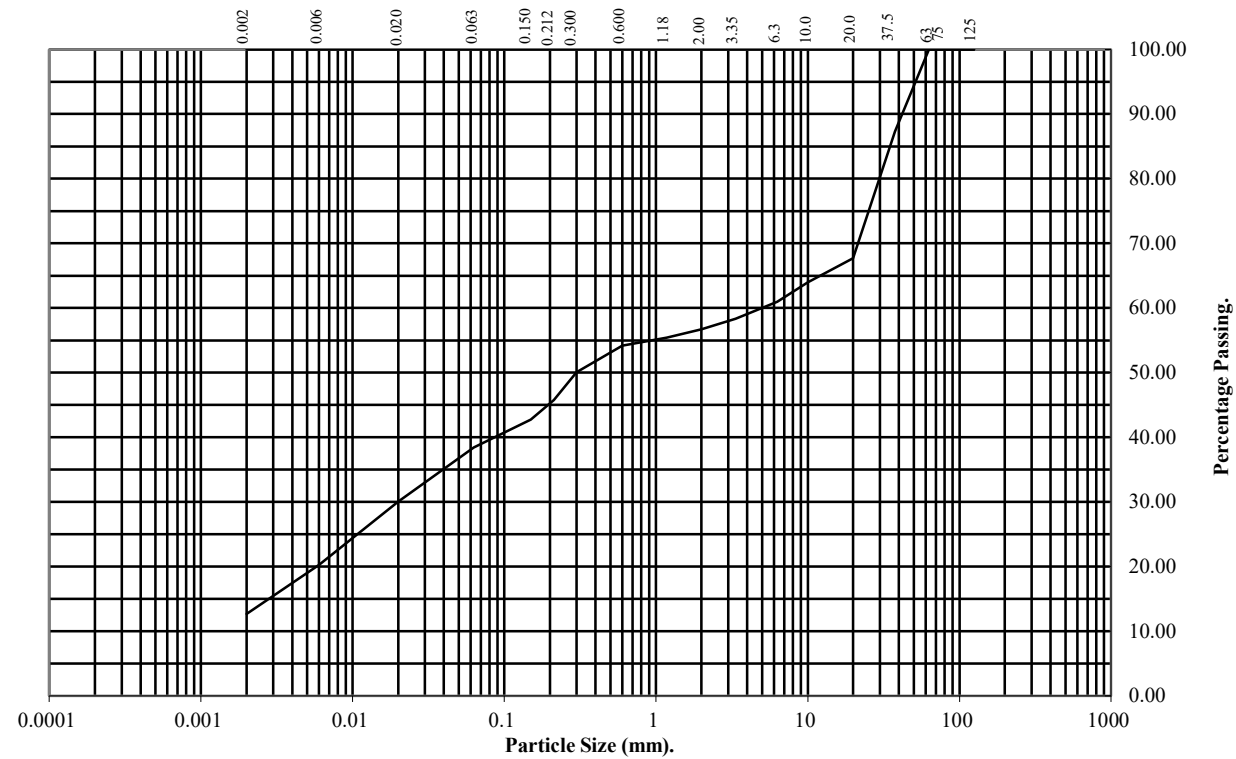
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: TP-PTR-26 **Top Depth (m):** 1.00

Sample Number: 2 **Base Depth(m):** 2.00

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	87
20	68
10	64
6.3	61
3.35	58
2	57
1.18	55
0.6	54
0.3	50
0.212	46
0.15	43
0.063	38

Particle Diameter	Percentage Passing
0.02	30
0.006	20
0.002	13

Soil Fraction	Total Percentage
Cobbles	0
Gravel	43
Sand	19
Silt	25
Clay	13

Remarks:
See Summary of Soil Descriptions



Cambridge

Contract No:
PSL21/6445
Client Ref:
784-B025563

SUMMARY OF ROCK TESTS

(ISRM Suggested Method for the Determination of the Water Content of Rock)

[illegible]

PST
Professional Soils Laboratory

Cambridge

Contract No:	PSL21/6445
Client Ref:	784-B025563

ISRM Suggested Methods : 2007

A = Axial, D = Diametral, I = Irregular

Par = parallel, Perp = perpendicular, U = Random

***Note** All testing carried out on samples at as received water content

PST
Professional Soils Laboratory



Contract Number: PSL21/6446

Report Date: 19 October 2021

Client's Reference: 784-B025563

Client Name: Tetra Tech
11th Floor
1 Angel Court
London
EC2R 7HJ

For the attention of: Richard Tonge

Contract Title: Cambridge

Date Received: 10/8/2021
Date Commenced: 10/8/2021
Date Completed: 19/10/2021

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

A Watkins
(Director)

R Berriman
(Quality Manager)

S Royle
(Laboratory Manager)

L Knight
(Assistant Laboratory Manager)


S Eyre
(Senior Technician)

T Watkins
(Senior Technician)

**5 – 7 Hexthorpe Road, Hexthorpe,
Doncaster DN4 0AR**
tel: +44 (0)844 815 6641
fax: +44 (0)844 815 6642
e-mail: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]

		<p style="text-align: center;">Cambridge</p>	Contract No:
			PSL21/6446
			Client Ref:
			784-B025563

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

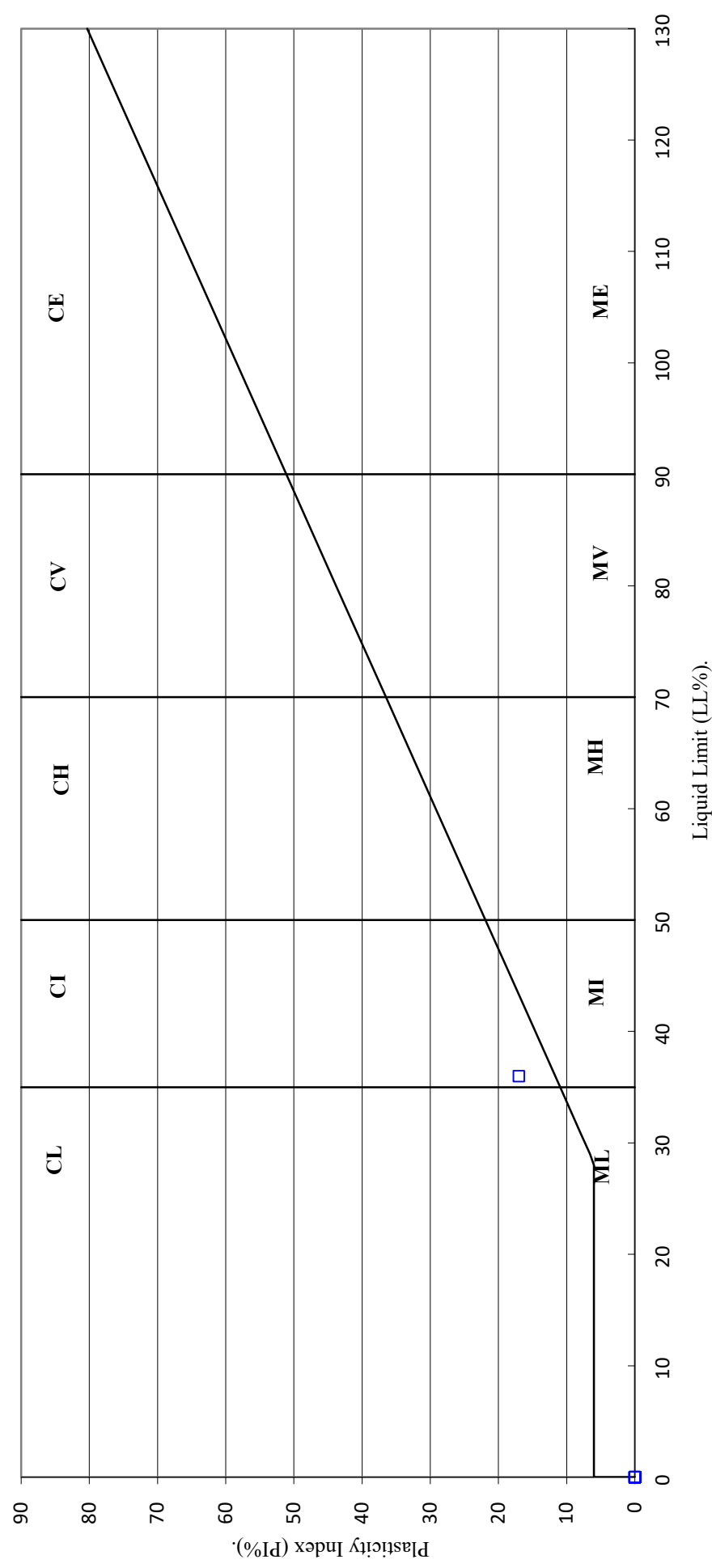
[illegible]

SYMBOLS: NP: Non Plastic

*** : Liquid Limit and Plastic Limit Wet Sieved.**

	<p>Contract No:</p>
	<p>PSL21/6446</p>
	<p>Client Ref:</p>
	<p>784-B025563</p>
<p>Cambridge</p>	

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



PSL
Professional Soils Laboratory

 **UKAS TESTING**
4043

Contract No:

PSL21/6446

Client Ref:

784-B025563

Cambridge

SUMMARY OF CHALK TESTS

(BS1377 : PART 2 & 4 : 1990)

[illegible]

* CCV testing is not UKAS accredited


PSL
Professional Soils Laboratory
4043

Contract No:

PSL21/6446

Client Ref:

784-B025563

Cambridge

SUMMARY OF ROCK TESTS

[illegible]

	Contract No:
	PSL21/6446
	Client Ref:
	784-B025563

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular

	Contract No:
	PSL21/6446
	Client Ref:
	784-B025563

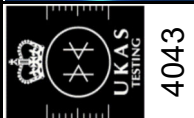
ISRM Suggested Methods : 2007

A = Axial, D = Diametral, I = Irregular

Par = parallel, Perp = perpendicular, U = Random

***Note** All testing carried out on samples at as received water content

PST
Professional Soils Laboratory



Report Date: 15 October 2021

Client's Reference: 784-B025563

Client Name: Tetra Tech
11th Floor
1 Angel Court
London
EC2R 7HJ

For the attention of: Richard Tonge

Contract Title: Cambridge

Date Received: 10/8/2021
Date Commenced: 10/8/2021
Date Completed: 15/10/2021

Notes: **Opinions and Interpretations are outside the UKAS Accreditation**

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Checked and Approved Signatories:

A Watkins
(Director)

L Knight
(Assistant Laboratory Manager)

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Doncaster DN4 0AR**
tel: +44 (0)844 815 6641
fax: +44 (0)844 815 6642
e-mail: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

R Berriman
(Quality Manager)

S Eyre
(Senior Technician)

S Royle
(Laboratory Manager)

T Watkins
(Senior Technician)

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]

		<p style="text-align: center;">Cambridge</p>	Contract No:
			PSL21/6448
			Client Ref:
			784-B025563

SUMMARY OF CHALK TESTS

(BS1377 : PART 2 & 4 : 1990)

[illegible]

* CCV testing is not UKAS accredited

	Contract No:
	PSL21/6448
	Client Ref:
	784-B025563

(ISRM Suggested Method for the Determination of the Water Content of Rock)

	Contract No:
	PSL21/6448
	Client Ref:
	784-B025563



Page 1 of

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]

 UKAS TESTING 4043	 PSL Professional Soils Laboratory	Cambridge	Contract No:
		PSL21/6449	Client Ref:
		784-B025563	

PARTICLE SIZE DISTRIBUTION TEST

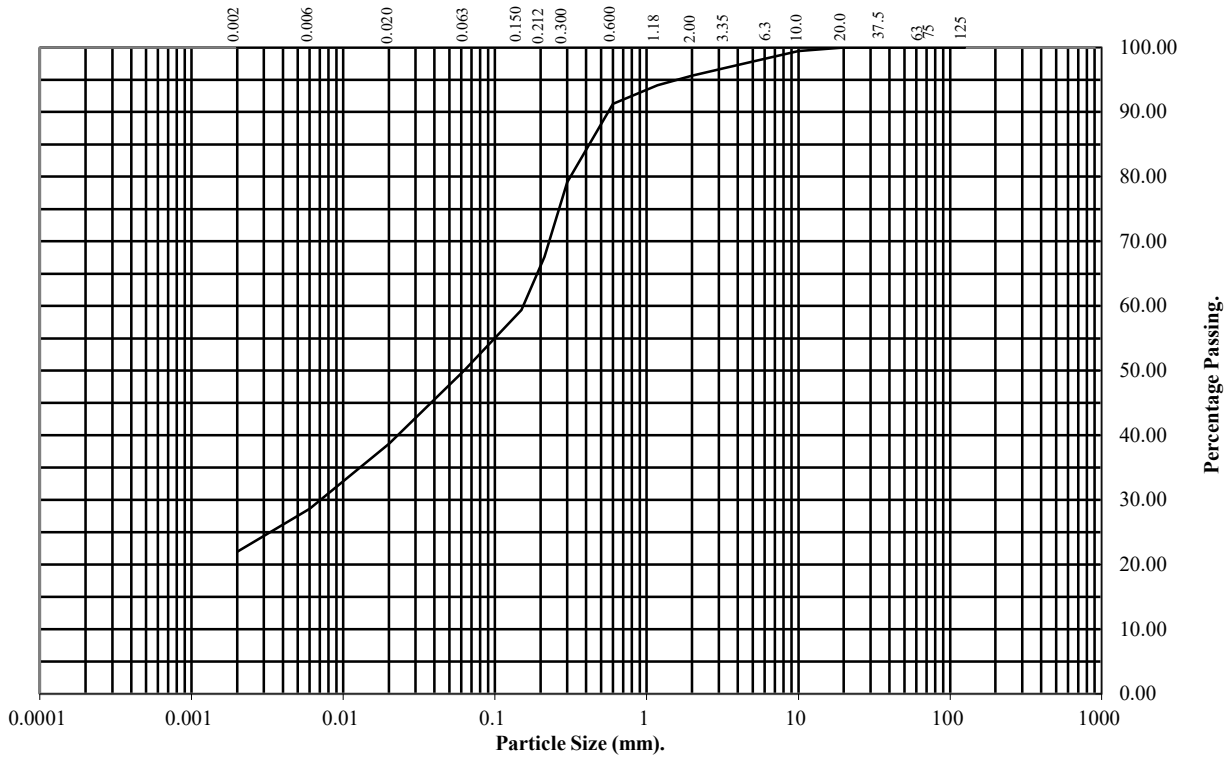
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	TP-PTR-30	Top Depth (m):	0.40
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Sample Number: 2 **Base Depth(m):** 0.40

Sample Type: **B**



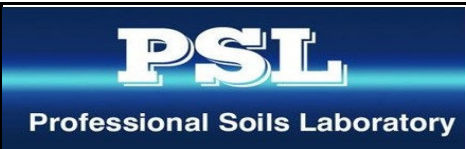
BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	99
6.3	98
3.35	97
2	96
1.18	94
0.6	91
0.3	79
0.212	68
0.15	59
0.063	50

Particle Diameter	Percentage Passing
0.02	39
0.006	29
0.002	22

Soil Fraction	Total Percentage
Cobbles	0
Gravel	4
Sand	46
Silt	28
Clay	22

Remarks:

See Summary of Soil Descriptions



Cambridge

Contract No:

PSL21/6449

Client Ref:

784-B025563

SUMMARY OF ROCK TESTS

[illegible]

	Contract No:
	PSL21/6449
	Client Ref:
	784-B025563

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note**
All testing carried out on samples as received water content

A = Axial, D = Diametral, I = Irregular

	Contract No:
	PSL21/6449
	Client Ref:
	784-B025563

PARTICLE SIZE DISTRIBUTION TEST

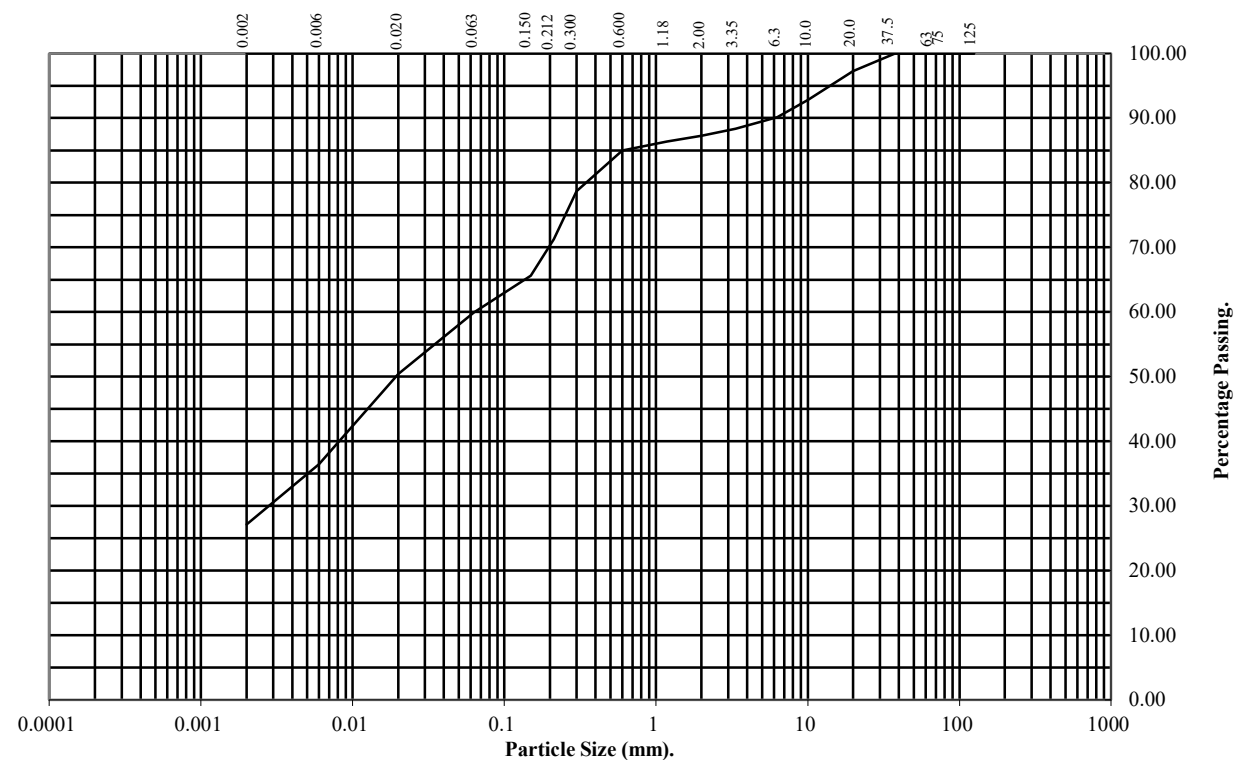
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: TP-PTR-31 Top Depth (m): 2.20

Sample Number: Base Depth(m): 2.40

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	97
10	93
6.3	90
3.35	88
2	87
1.18	86
0.6	85
0.3	79
0.212	71
0.15	66
0.063	60

Particle Diameter	Percentage Passing
0.02	50
0.006	36
0.002	27

Soil Fraction	Total Percentage
Cobbles	0
Gravel	13
Sand	27
Silt	33
Clay	27

Remarks:

See Summary of Soil Descriptions



Cambridge

Contract No:
PSL21/6450
Client Ref:
784-B025563



ANALYTICAL TEST REPORT

Contract no: 100936
Contract name: TP-PTR-31
Client reference: PSL21/6450
Clients name: Professional Soils Laboratory
Clients address: 5/7 Hexthorpe Road
Doncaster
DN4 0AR

Samples received: 29 September 2021

Analysis started: 29 September 2021

Analysis completed: 06 October 2021

Report issued: 06 October 2021

Notes:

Opinions and interpretations expressed herein are outside the UKAS accreditation scope. Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling. All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing. Methods, procedures and performance data are available on request. Results reported herein relate only to the material supplied to the laboratory. This report shall not be reproduced except in full, without prior written approval. Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key:

U UKAS accredited test
M MCERTS & UKAS accredited test
\$ Test carried out by an approved subcontractor
I/S Insufficient sample to carry out test
N/S Sample not suitable for testing

Approved by:

Rachael Burton
Customer Support Squad Leader

Unit 6 Parkhead, Greencroft Industrial Park, Stanley, County Durham, DH9 7YB
Tel 01207 528578 Email customerservices@chemtech-env.co.uk
Vat Reg No. 772 5703 18 Registered in England number 4284013

Chemtech Environmental Limited

SOILS

Lab number			100936-1
Sample id			TP-PTR-31
Depth (m)			1.50
Date sampled			-
Test	Method	Units	
Total Organic Carbon (TOC)	CE197	% w/w C	0.7
Estimate of OMC (calculated from TOC)	CE197	% w/w	1.2

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE197	Total Organic Carbon (TOC)	Carbon Analyser	Dry		0.1	% w/w C
CE197	Estimate of OMC (calculated from TOC)	Calculation from Total Organic Carbon	Dry		0.1	% w/w

Chemtech Environmental Limited

TEST REPORT REVISIONS

The table below identifies ammendments that have been made to this test report for each revision.

Test Report Reference	Details of amendments to test report	Issue Date
	Original report issued	



LABORATORY
REPORT



4043

Contract Number: PSL21/6451

Report Date: 12 October 2021

Client’s Reference: 784-B025563

Client Name: Tetra Tech
11th Floor
1 Angel Court
London
EC2R 7HJ

For the attention of: Richard Tonge

Contract Title: Cambridge

Date Received: 10/8/2021
Date Commenced: 10/8/2021
Date Completed: 12/10/2021

Notes: Opinions and Interpretations are outside the UKAS Accreditation

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Checked and Approved Signatories:

A Watkins (Director)	R Berriman (Quality Manager)	S Royle (Laboratory Manager)
L Knight (Assistant Laboratory Manager)	 S Eyre (Senior Technician)	T Watkins (Senior Technician)

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awatkins@prosoils.co.uk

Page 1 of

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]

 4043

PST
Professional Soils Laboratory

Cambridge

Contract No:	PSL21/6451	Client Ref:	784-B0255563
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SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

[illegible]

SYMBOLS: NP: Non Plastic

*** : Liquid Limit and Plastic Limit Wet Sieved.**



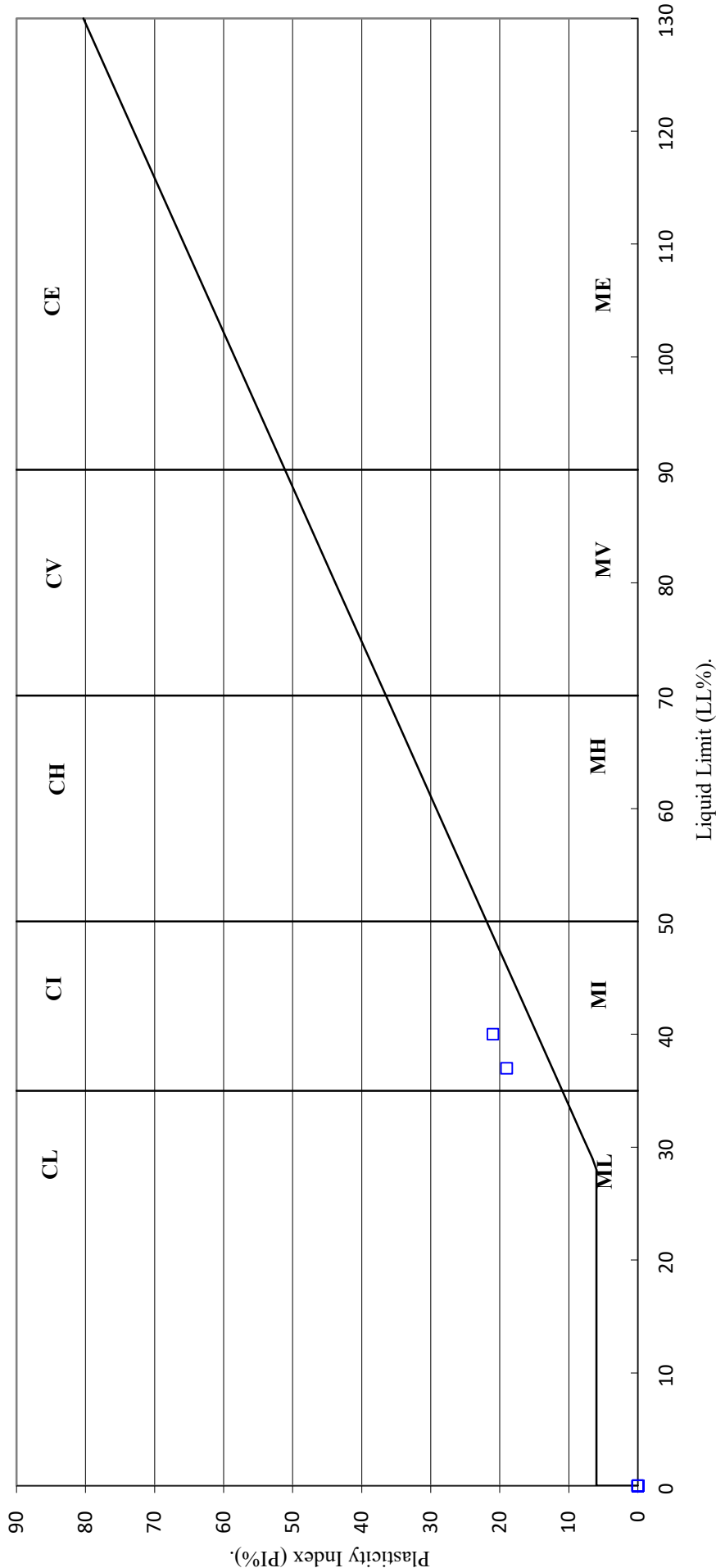
PST
Professional Soils Laboratory

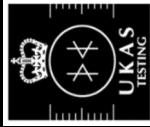
Cambridge

Contract No:
PSL21/6451

Client Ref:
784-B0255563

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.





4043



Professional Soils Laboratory

Cambridge

Contract No:
PSL21/6451
Client Ref:
784-B025563

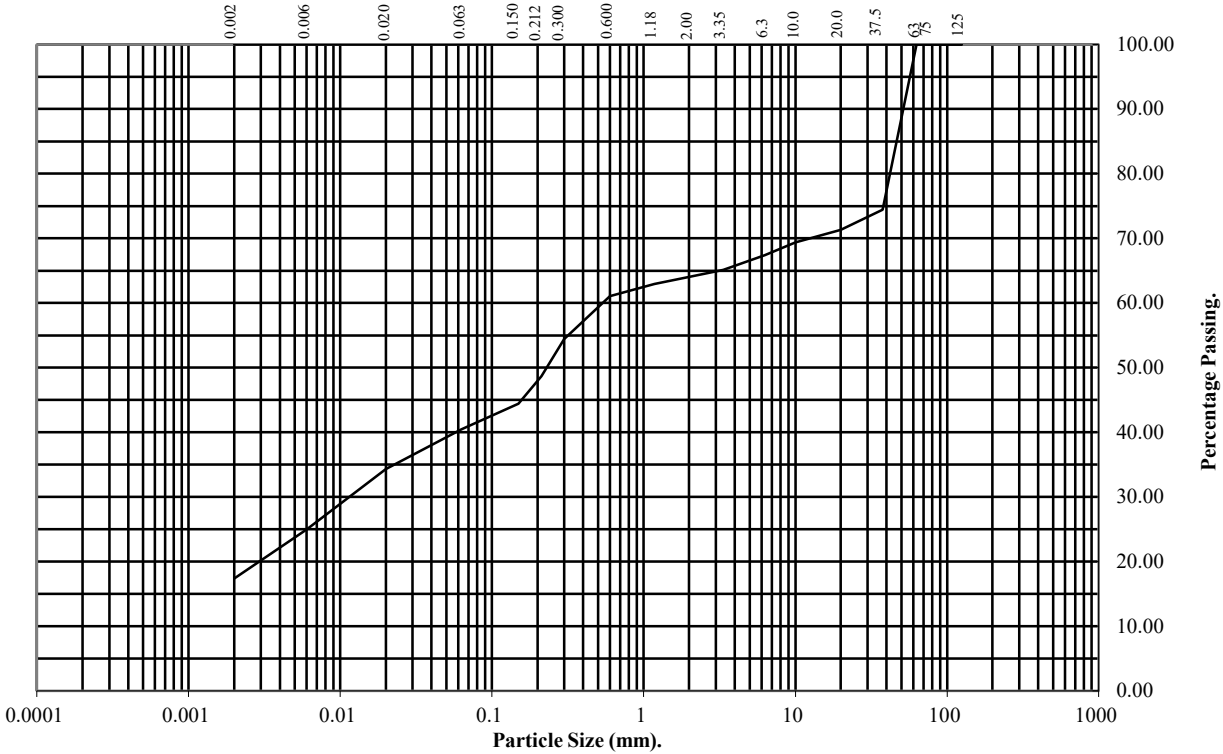
PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:TP-PTR-32Top Depth (m):0.50

Sample Number:Base Depth(m):

Sample Type:B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	74
20	71
10	69
6.3	67
3.35	65
2	64
1.18	63
0.6	61
0.3	54
0.212	49
0.15	44
0.063	40

Particle Diameter	Percentage Passing
0.02	34
0.006	25
0.002	17

Soil Fraction	Total Percentage
Cobbles	0
Gravel	36
Sand	24
Silt	23
Clay	17

Remarks:
See Summary of Soil Descriptions



4043



Professional Soils Laboratory

Cambridge	Contract No:
	PSL21/6451
	Client Ref:
	784-B025563

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

[illegible]

SYMBOLS: NP : Non Plastic

* : Liquid Limit and Plastic Limit Wet Sieved.


PSL
Professional Soils Laboratory
4043

Contract No:

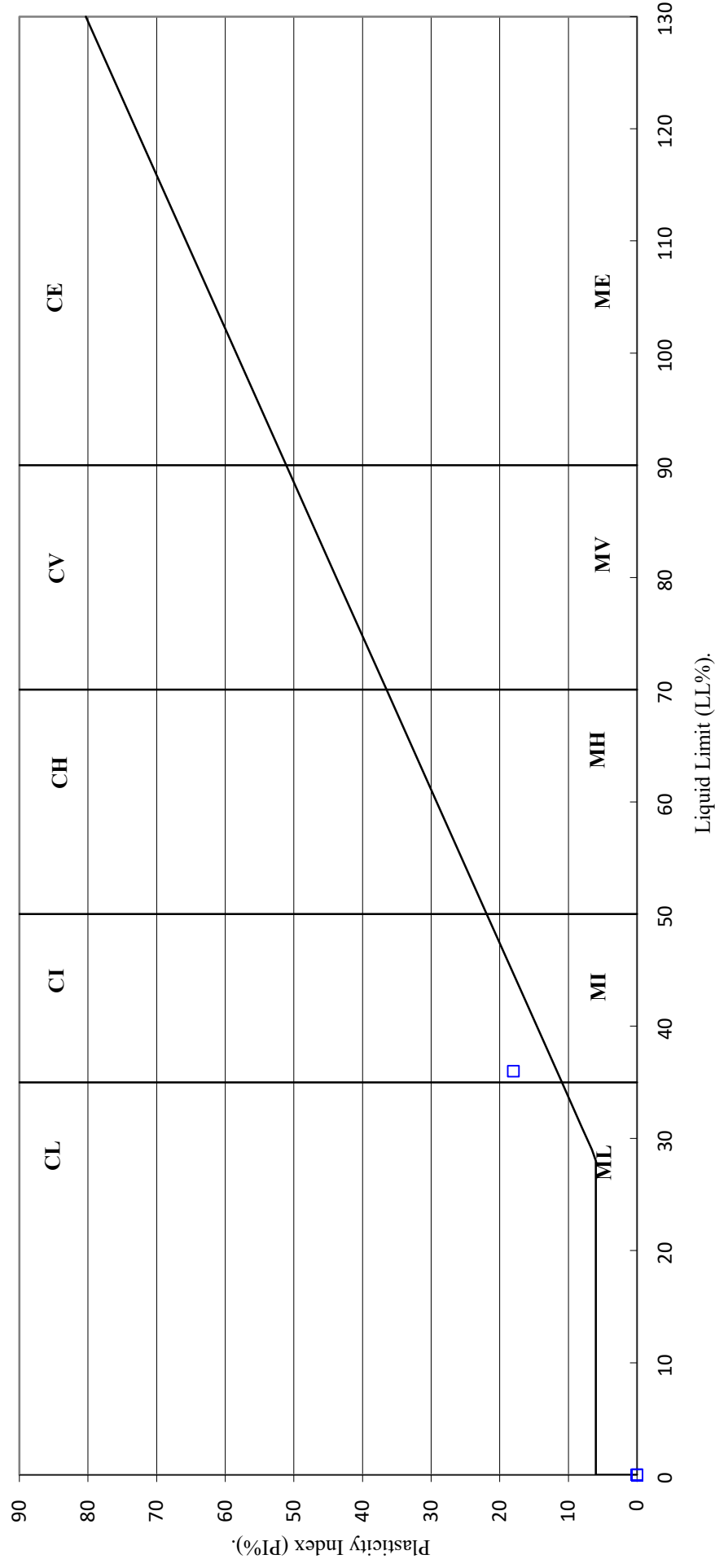
PSL21/6452

Client Ref:

784-B025563

Cambridge

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.




PSL
Professional Soils Laboratory
4043

Contract No:

PSL21/6452

Client Ref:

784-B025563

Cambridge

PARTICLE SIZE DISTRIBUTION TEST

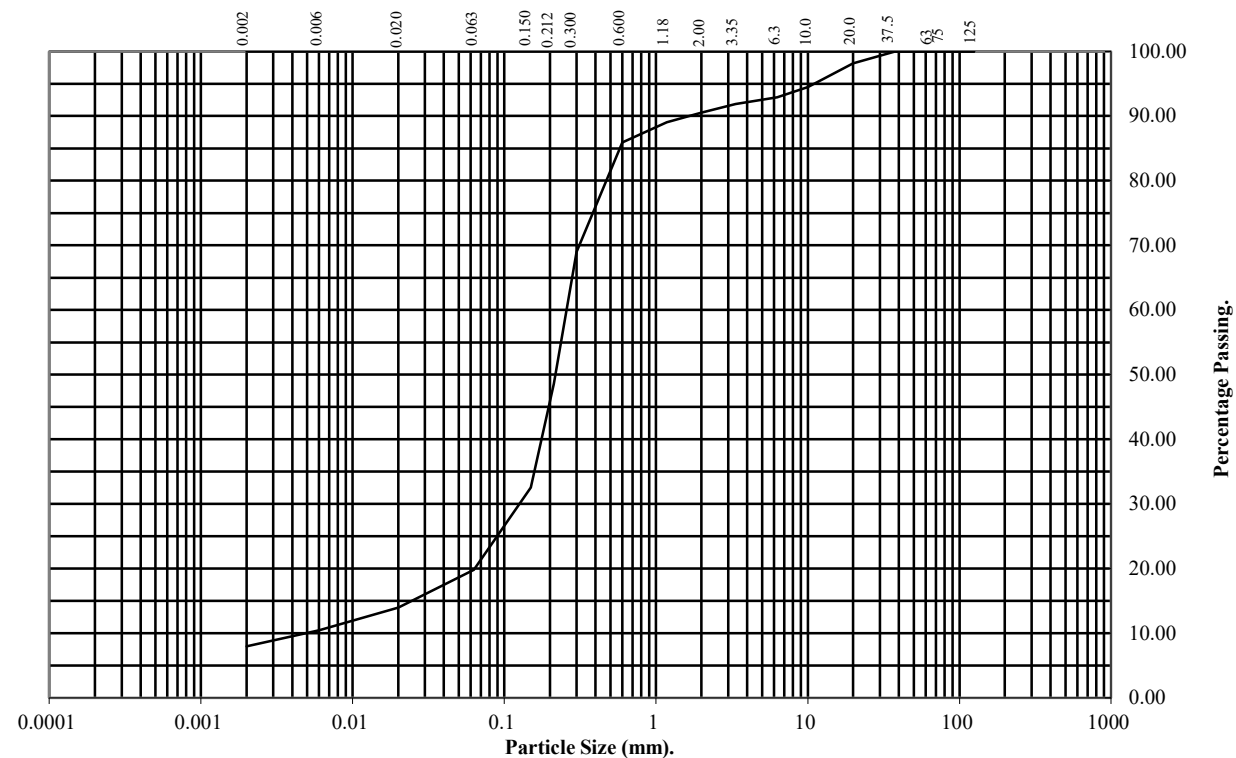
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: TP-PTR-33 Top Depth (m): 3.00

Sample Number: Base Depth(m):

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	98
10	94
6.3	93
3.35	92
2	90
1.18	89
0.6	86
0.3	69
0.212	49
0.15	33
0.063	20

Particle Diameter	Percentage Passing
0.02	14
0.006	10
0.002	8

Soil Fraction	Total Percentage
Cobbles	0
Gravel	10
Sand	70
Silt	12
Clay	8

Remarks:
See Summary of Soil Descriptions



Cambridge

Contract No:
PSL21/6452
Client Ref:
784-B025563



ANALYTICAL TEST REPORT

Contract no: 100877
Contract name: TP-PTR-33
Client reference: PSL21/6452
Clients name: Professional Soils Laboratory
Clients address: 5/7 Hexthorpe Road
Doncaster
DN4 0AR
Samples received: 28 September 2021
Analysis started: 28 September 2021
Analysis completed: 05 October 2021
Report issued: 05 October 2021

Notes:
Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.
All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.
Methods, procedures and performance data are available on request.
Results reported herein relate only to the material supplied to the laboratory.
This report shall not be reproduced except in full, without prior written approval.
Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key:
U UKAS accredited test
M MCERTS & UKAS accredited test
\$ Test carried out by an approved subcontractor
I/S Insufficient sample to carry out test
N/S Sample not suitable for testing

Approved by: Rachael Burton
Customer Support Squad Leader

Unit 6 Parkhead, Greencroft Industrial Park, Stanley, County Durham, DH9 7YB
Tel 01207 528578 Email customerservices@chemtech-env.co.uk
Vat Reg No. 772 5703 18 Registered in England number 4284013

Chemtech Environmental Limited

SOILS

Lab number			100877-1
Sample id			TP-PTR-33
Depth (m)			1.50
Date sampled			-
Test	Method	Units	
pH	CE004 ^U	units	8.2
Magnesium (2:1 water soluble)	CE061	mg/l Mg	9.2
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	12
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	2.1
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	400
Sulphate (total)	CE062	mg/kg SO ₄	1216
Sulphur (total)	CE119	mg/kg S	513
Sulphur (total)	CE119	% w/w S	0.05
Total Organic Carbon (TOC)	CE197	% w/w C	1.1
Estimate of OMC (calculated from TOC)	CE197	% w/w	1.8

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S
CE197	Total Organic Carbon (TOC)	Carbon Analyser	Dry		0.1	% w/w C
CE197	Estimate of OMC (calculated from TOC)	Calculation from Total Organic Carbon	Dry		0.1	% w/w

Chemtech Environmental Limited

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key	
N	No (not deviating sample)
Y	Yes (deviating sample)
NSD	Sampling date not provided
NST	Sampling time not provided (waters only)
EHT	Sample exceeded holding time(s)
IC	Sample not received in appropriate containers
HP	Headspace present in sample container
NCF	Sample not chemically fixed (where appropriate)
OR	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
100877-1	TP-PTR-33	1.50	Y	All (NSD)



LABORATORY
REPORT



4043

Contract Number: PSL21/6453

Report Date: 30 September 2021

Client’s Reference: 784-B025563

Client Name: Tetra Tech
11th Floor
1 Angel Court
London
EC2R 7HJ

For the attention of: Richard Tonge

Contract Title: Cambridge

Date Received: 10/8/2021
Date Commenced: 10/8/2021
Date Completed: 30/9/2021

Notes: Opinions and Interpretations are outside the UKAS Accreditation

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Checked and Approved Signatories:

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L Knight (Assistant Laboratory Manager)	S Eyre (Senior Technician)	T Watkins (Senior Technician)

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e-mail: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

Page 1 of

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]

		<p style="text-align: center;">Cambridge</p>	Contract No:
			PSL21/6453
			Client Ref:
			784-B025563

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

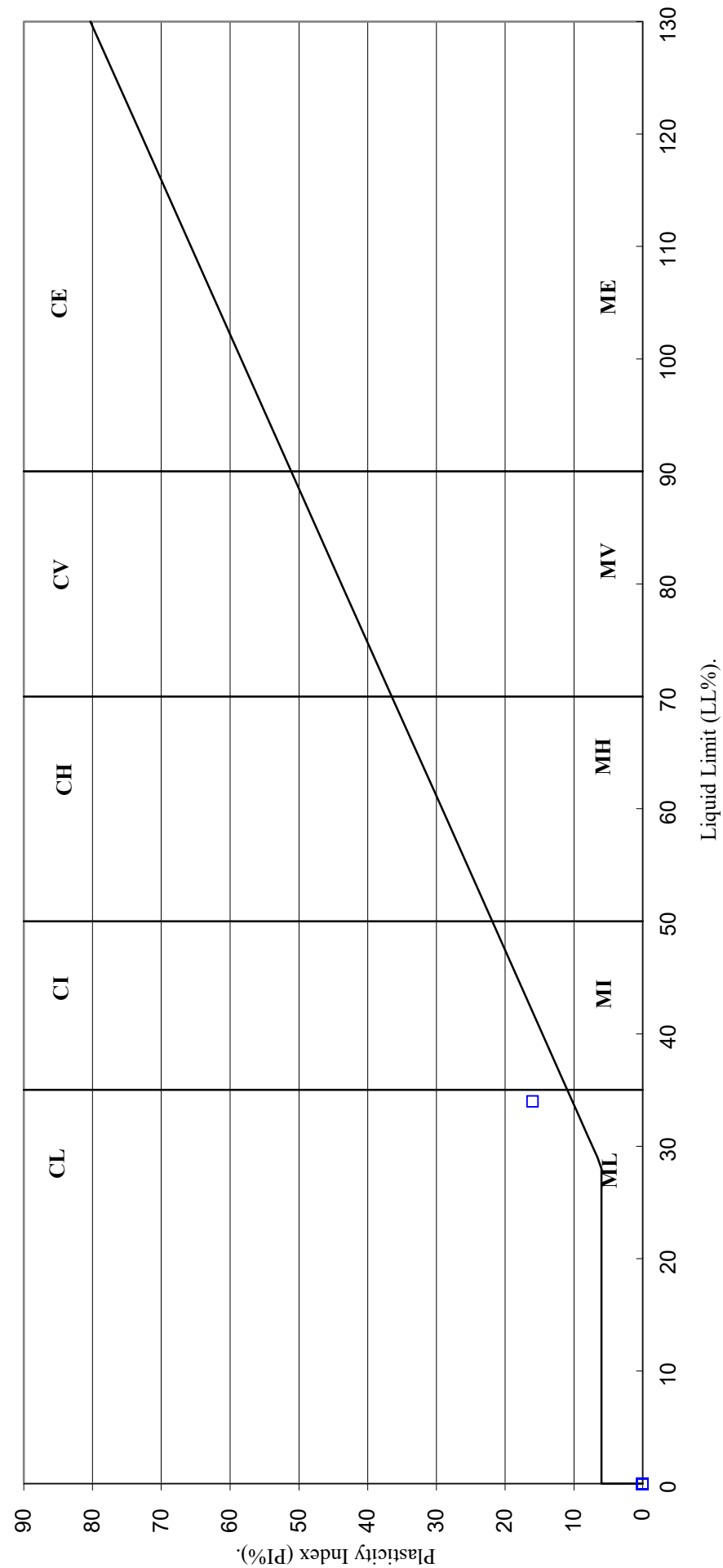
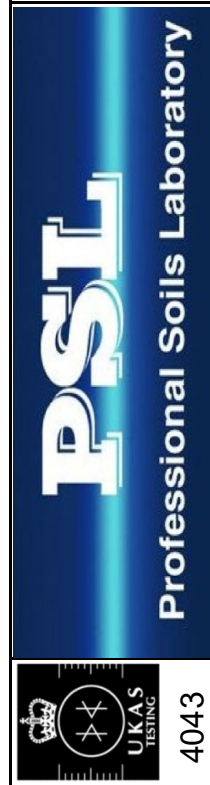
[illegible]

SYMBOLS: NP: Non Plastic

*** : Liquid Limit and Plastic Limit Wet Sieved.**

 PSL Professional Soils Laboratory UKAS TESTING 4043	Cambridge	Contract No:
		PSL21/6453
		Client Ref:
		784-B025563

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



Cambridge	Contract No:
	PSL21/6453
	Client Ref:
	784-B025563



LABORATORY REPORT



4043

Contract Number: PSL21/6454

Report Date: 29 September 2021

Client's Reference: 784-B025563

Client Name: Tetra Tech
11th Floor
1 Angel Court
London
EC2R 7HJ

For the attention of: Richard Tonge

Contract Title: Cambridge

Date Received: 10/8/2021

Date Commenced: 10/8/2021

Date Completed: 29/9/2021

Notes: Opinions and Interpretations are outside the UKAS Accreditation

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(Director)

R Berriman
(Quality Manager)

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(Laboratory Manager)

L Knight
(Assistant Laboratory Manager)


S Eyre
(Senior Technician)

T Watkins
(Senior Technician)

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e-mail: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

Page 1 of

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]


PSL
Professional Soils Laboratory
4043

Contract No:	PSL21/6454	Client Ref:	784-B025563
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SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

[illegible]

SYMBOLS: NP: Non Plastic

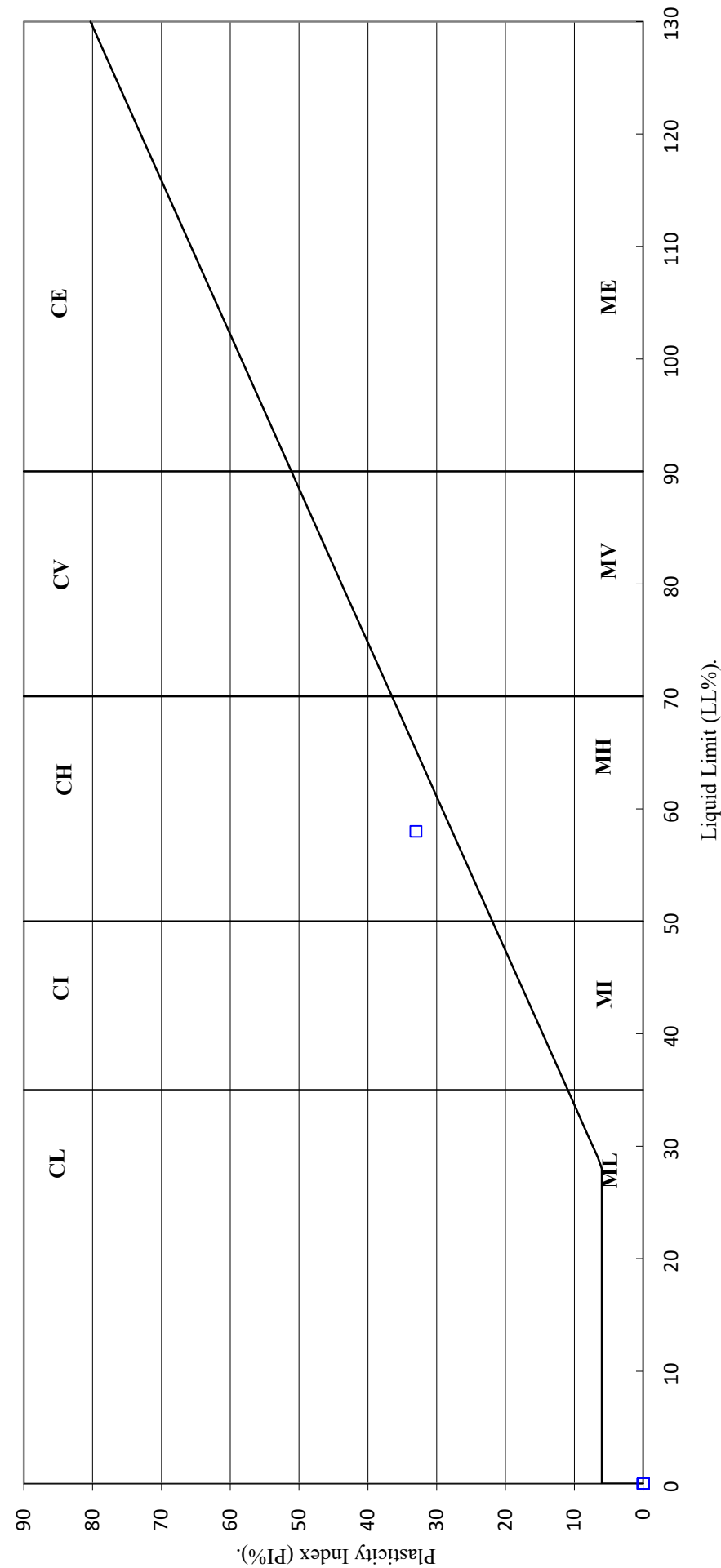
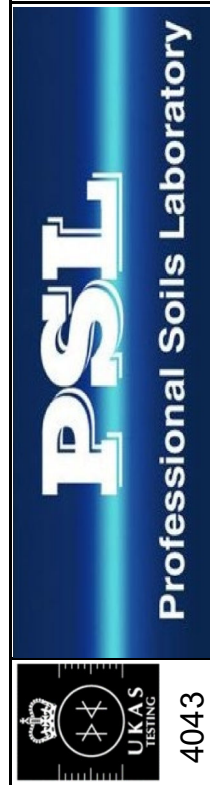
*** : Liquid Limit and Plastic Limit Wet Sieved.**


PSL
Professional Soils Laboratory
4043

Cambridge

Contract No:	PSL21/6454	Client Ref:	784-B025563
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PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



Cambridge	Contract No:
	PSL21/6454
	Client Ref:
	784-B025563



LABORATORY REPORT



4043

Contract Number: PSL21/6455

Report Date: 04 October 2021

Client's Reference: 784-B025563

Client Name: Tetra Tech
11th Floor
1 Angel Court
London
EC2R 7HJ

For the attention of: Richard Tonge

Contract Title: Cambridge

Date Received: 10/8/2021
Date Commenced: 10/8/2021
Date Completed: 4/10/2021

Notes: Opinions and Interpretations are outside the UKAS Accreditation

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Checked and Approved Signatories:

A Watkins
(Director)

R Berriman
(Quality Manager)

S Royle
(Laboratory Manager)

L Knight
(Assistant Laboratory Manager)

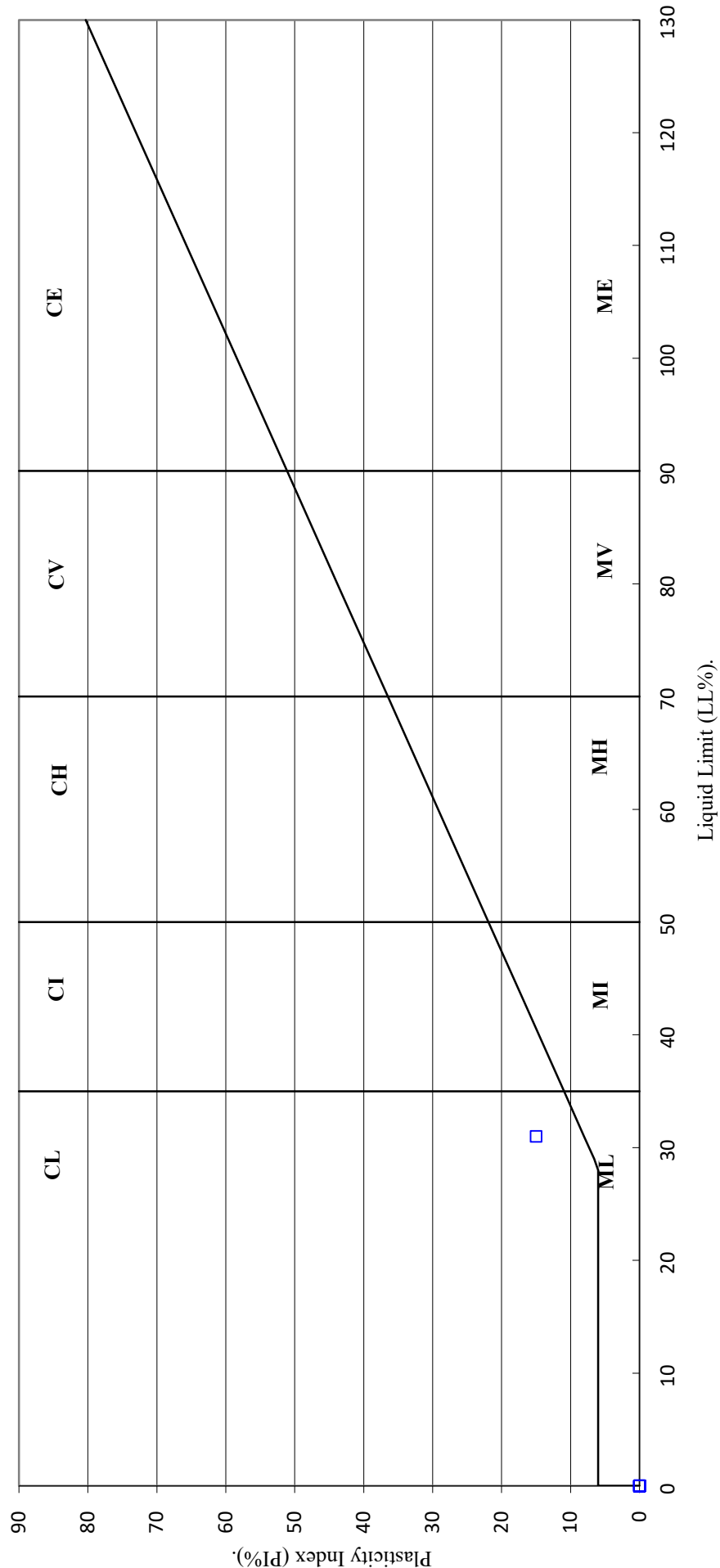

S Eyre
(Senior Technician)

T Watkins
(Senior Technician)

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Doncaster DN4 0AR
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e-mail: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

Page 1 of

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



Cambridge	Contract No:
	PSL21/6455
	Client Ref:
	784-B025563



ANALYTICAL TEST REPORT

Contract no: 101009
Contract name: TP-PTR-36
Client reference: PSL21/6455
Clients name: Professional Soils Laboratory
Clients address: 5/7 Hexthorpe Road
Doncaster
DN4 0AR

Samples received: 01 October 2021
Analysis started: 01 October 2021
Analysis completed: 08 October 2021
Report issued: 08 October 2021

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope. Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling. All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing. Methods, procedures and performance data are available on request. Results reported herein relate only to the material supplied to the laboratory. This report shall not be reproduced except in full, without prior written approval. Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key: U UKAS accredited test
M MCERTS & UKAS accredited test
\$ Test carried out by an approved subcontractor
I/S Insufficient sample to carry out test
N/S Sample not suitable for testing

Approved by:
Karan Campbell
Director

Chemtech Environmental Limited

SOILS

Lab number			101009-1
Sample id			TP-PTR-36
Depth (m)			0.50
Date sampled			-
Test	Method	Units	
pH	CE004 ^U	units	8.7
Magnesium (2:1 water soluble)	CE061	mg/l Mg	3.4
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	41
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	5.3
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	36
Sulphate (total)	CE062	mg/kg SO ₄	305
Sulphur (total)	CE119	mg/kg S	152
Sulphur (total)	CE119	% w/w S	0.02

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S

Chemtech Environmental Limited

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key	
N	No (not deviating sample)
Y	Yes (deviating sample)
NSD	Sampling date not provided
NST	Sampling time not provided (waters only)
EHT	Sample exceeded holding time(s)
IC	Sample not received in appropriate containers
HP	Headspace present in sample container
NCF	Sample not chemically fixed (where appropriate)
OR	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
101009-1	TP-PTR-36	0.50	Y	All (NSD)



LABORATORY
REPORT



4043

Contract Number: PSL21/6456

Report Date: 05 October 2021

Client’s Reference: 784-B025563

Client Name: Tetra Tech
11th Floor
1 Angel Court
London
EC2R 7HJ

For the attention of: Richard Tonge

Contract Title: Cambridge

Date Received: 10/8/2021
Date Commenced: 10/8/2021
Date Completed: 5/10/2021

Notes: Opinions and Interpretations are outside the UKAS Accreditation

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Checked and Approved Signatories:

A Watkins (Director)	R Berriman (Quality Manager)	S Royle (Laboratory Manager)
L Knight (Assistant Laboratory Manager)	 S Eyre (Senior Technician)	T Watkins (Senior Technician)

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e-mail: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

Page 1 of

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]



UKAS
TESTING

4043

PSL

Professional Soils Laboratory

Contract No:	PSL21/6456
Client Ref:	784-B025563

SUMMARY OF CHALK TESTS

(BS1377 : PART 2 & 4 : 1990)

[illegible]

* CCV testing is not UKAS accredited


PSL
Professional Soils Laboratory
4043

Cambridge

Contract No:	PSL21/6456
Client Ref:	784-B025563

SUMMARY OF ROCK TESTS

[illegible]

	Contract No:
	PSL21/6456
	Client Ref:
	784-B025563

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note**
All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular

	Contract No:
	PSL21/6456
	Client Ref:
	784-B025563

		<p style="text-align: center;">Cambridge</p>	Contract No:
			PSL21/6457
			Client Ref:
			794 P025563

SUMMARY OF CHALK TESTS

(BS1377 : PART 2 & 4 : 1990)

[illegible]

* CCV testing is not UKAS accredited

	<p>Cambridge</p>	Contract No:
		PSL21/6457
		Client Ref:
		784-B025563

SUMMARY OF ROCK TESTS

(ISRM Suggested Method for the Determination of the Water Content of Rock)

[illegible]

	<p style="text-align: center;">Cambridge</p>	Contract No:
		PSL21/6457
		Client Ref:
		784-B025563

ISRM Suggested Methods : 2007

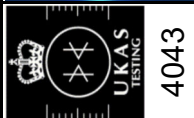
A = Axial, D = Diametral, I = Irregular

Par = parallel, Perp = perpendicular, U = Random

All testing carried out on samples at as received water content

***Note**

pSL
Professional Soils Laboratory



Contract Number: PSL21/6458

Report Date: 17 November 2021

Client's Reference: 784-B025563

Client Name: Tetra Tech
11th Floor
1 Angel Court
London
EC2R 7HJ

For the attention of: Richard Tonge

Contract Title: Cambridge

Date Received: 10/8/2021
Date Commenced: 10/8/2021
Date Completed: 19/10/2021

Notes: **Opinions and Interpretations are outside the UKAS Accreditation**

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Checked and Approved Signatories:

A Watkins
(Director)

L Knight
(Assistant Laboratory Manager)

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fax: +44 (0)844 815 6642
e-mail: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

R Berriman
(Quality Manager)

S Eyre
(Senior Technician)

S Royle
(Laboratory Manager)

T Watkins
(Senior Technician)

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]



UKAS
TESTING

4043

PSL

Professional Soils Laboratory

Contract No:	PSL21/6458	Client Ref:	784-B025563
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SUMMARY OF CHALK TESTS

(BS1377 : PART 2 & 4 : 1990)

[illegible]

* CCV testing is not UKAS accredited


PSL
Professional Soils Laboratory
4043

Cambridge

Contract No:	PSL21/6458
Client Ref:	784-B025563

PARTICLE SIZE DISTRIBUTION TEST

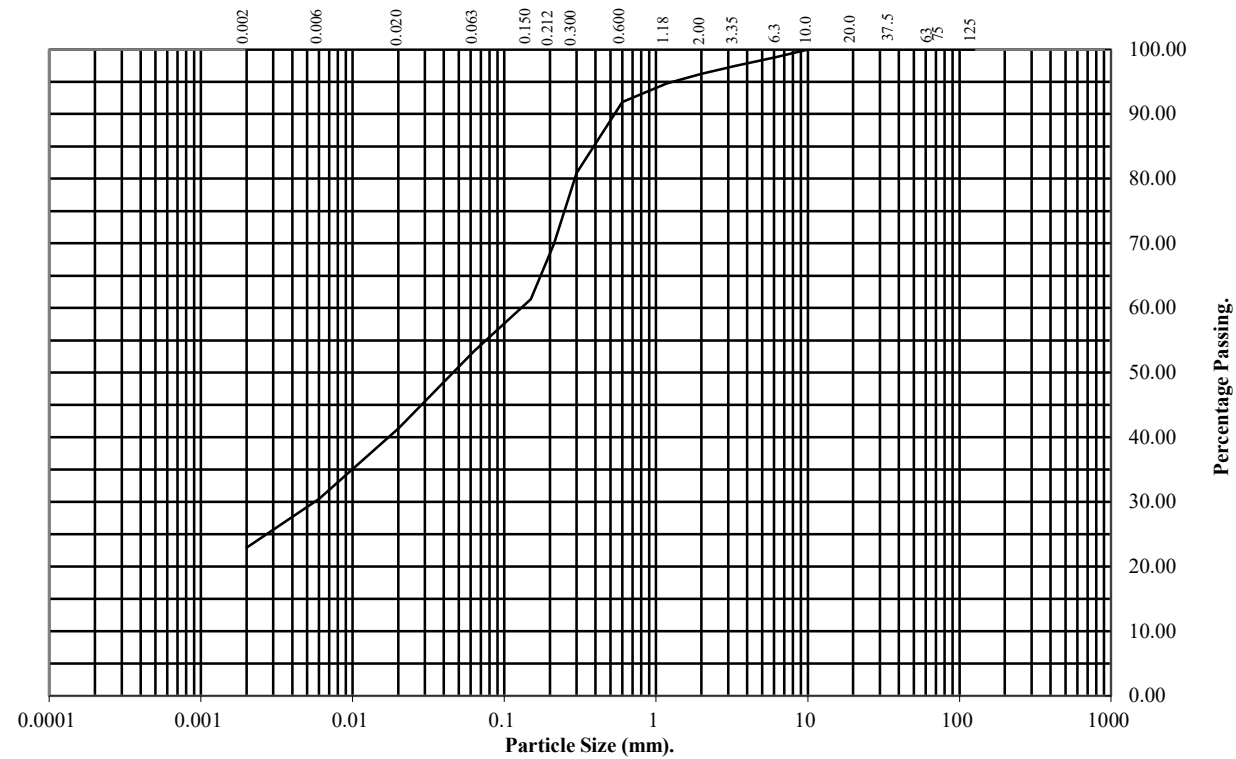
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: TP-PTR-39 **Top Depth (m):** 0.40

Sample Number: _____ **Base Depth(m):** _____

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	99
3.35	97
2	96
1.18	95
0.6	92
0.3	81
0.212	70
0.15	61
0.063	53

Particle Diameter	Percentage Passing
0.02	41
0.006	30
0.002	23

Soil Fraction	Total Percentage
Cobbles	0
Gravel	4
Sand	43
Silt	30
Clay	23

Remarks:
See Summary of Soil Descriptions



Cambridge

Contract No:
PSL21/6458
Client Ref:
784-B025563

SUMMARY OF ROCK TESTS

(ISRM Suggested Method for the Determination of the Water Content of Rock)

[illegible]

PST
Professional Soils Laboratory

Cambridge

Contract No:	PSL21/6458
Client Ref:	784-B025563

ISRM Suggested Methods : 2007

A = Axial, D = Diametral, I = Irregular

Par = parallel, Perp = perpendicular, U = Random

***Note** All testing carried out on samples at as received water content



Contract Number: PSL21/6459

Report Date: 04 October 2021

Client's Reference: 784-B025563

Client Name: Tetra Tech
11th Floor
1 Angel Court
London
EC2R 7HJ

For the attention of: Richard Tonge

Contract Title: Cambridge

Date Received: 10/8/2021

Date Commenced: 10/8/2021

Date Completed: 4/10/2021

Notes: Opinions and Interpretations are outside the UKAS Accreditation

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Checked and Approved Signatories:

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(Quality Manager)

S Royle
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L Knight
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S Eyre
(Senior Technician)

T Watkins
(Senior Technician)

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fax: +44 (0)844 815 6642
e-mail: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]

 4043

PST
Professional Soils Laboratory

Cambridge

Contract No:
PSL21/6459

Client Ref:
784-B025563

SUMMARY OF CHALK TESTS

(BS1377 : PART 2 & 4 : 1990)

[illegible]

* CCV testing is not UKAS accredited



PSL
Professional Soils Laboratory

Cambridge

Contract No:
PSL21/6459

Client Ref:
784-B025563

SUMMARY OF ROCK TESTS

[illegible]

	Contract No:
	PSL21/6459
	Client Ref:
	784-B025563

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note**
All testing carried out on samples as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular

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Contract No:		
PSL21/6459		
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Client Ref:		
784-B025563		

TESTING

SUMMARY OF CHALK TESTS

(BS1377 : PART 2 & 4 : 1990)

[illegible]

* CCV testing is not UKAS accredited

	Contract No:
	PSL21/6460
	Client Ref:
	784-B025563

SUMMARY OF ROCK TESTS

(ISRM Suggested Method for the Determination of the Water Content of Rock)

[illegible]

	Contract No:
	PSL21/6460
	Client Ref:
	784-B025563

ISRM Suggested Methods : 2007

***Note** All testing carried out on samples at as received water content

***Note** All testing carried out on samples at as received water content



Contract Number: PSL21/6461

Report Date: 04 October 2021

Client's Reference: 784-B025563

Client Name: Tetra Tech
11th Floor
1 Angel Court
London
EC2R 7HJ

For the attention of: Richard Tonge

Contract Title: Cambridge

Date Received: 10/8/2021

Date Commenced: 10/8/2021

Date Completed: 4/10/2021

Notes: **Opinions and Interpretations are outside the UKAS Accreditation**

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L Knight
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S Eyre
(Senior Technician)

T Watkins
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e-mail: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]

 4043

PST
Professional Soils Laboratory

Cambridge	Contract No:
	PSL21/6461
	Client Ref:
	784-B025563

SUMMARY OF CHALK TESTS

(BS1377 : PART 2 & 4 : 1990)

[illegible]

* CCV testing is not UKAS accredited



PSL
Professional Soils Laboratory

Cambridge	Contract No:
	PSL21/6461
	Client Ref:
	784-B025563

SUMMARY OF ROCK TESTS

[illegible]

	Contract No:
	PSL21/6461
	Client Ref:
	784-B025563

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note**
All testing carried out on samples as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular



UKAS
FISHING

PSL

Professional Soils Laboratory

4043

Contract No:		
PSL21/6461		
Client Ref:		
784-B025563		

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

[illegible]

SYMBOLS: NP: Non Plastic

* : Liquid Limit and Plastic Limit Wet Sieved.


PSL
Professional Soils Laboratory
4043

Contract No:

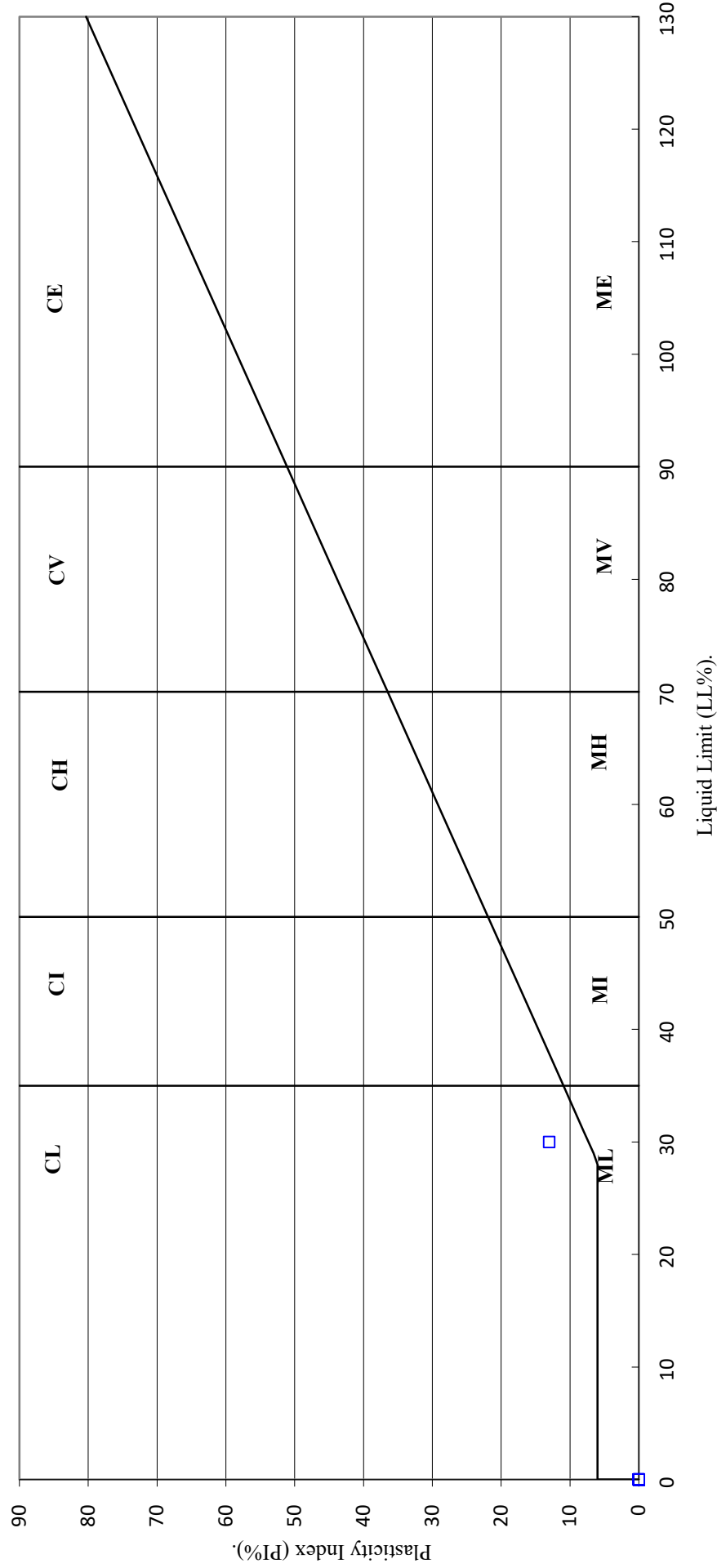
PSL21/6463

Client Ref:

784-B025563

Cambridge

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.




PSL
Professional Soils Laboratory
4043

Contract No:

PSL21/6463

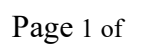
Client Ref:

784-B025563

Cambridge

(BS1377: PART 2 & 4: 1990)

* CCV testing is not UKAS accredited



[illegible]

PST
Professional Soils Laboratory

BS1377 : Part 2 : 1990
Wet Sieve, Clause 9.2

The graph displays the cumulative distribution of particle sizes. The x-axis represents particle size in millimeters on a logarithmic scale, with major grid lines at 0.001, 0.01, 0.1, 1, 10, 100, and 1000. The y-axis represents the percentage of particles passing on a linear scale from 0.00 to 100.00. The curve shows that less than 1% of the material is finer than 0.075 mm, and the majority of the material is between 10 mm and 63.5 mm.

Particle Size (mm)	Percentage Passing (%)
0.075	0.05
0.150	0.05
0.300	0.05
0.600	0.05
1.18	0.05
2.00	0.05
3.35	0.05
6.3	0.05
10.0	0.05
20.0	10.00
37.5	40.00
63.5	100.00

Soil Fraction	Total Percentage
Cobbles	0
Gravel	98
Sand	0
Silt/Clay	2

Remarks:
See Summary of Soil Descriptions

 PSL Professional Soils Laboratory	Cambridge	Contract No:
		PSL21/6465
		Client Ref:
		784-B025563

ISRM Suggested Methods : 2007

A = Axial, D = Diametral, I = Irregular

Par = parallel, Perp = perpendicular, U = Random

***Note** All testing carried out on samples at as received water content

PST
Professional Soils Laboratory



Contract Number: PSL21/6466

Report Date: 01 November 2021

Client's Reference: 784-B025563

Client Name: Tetra Tech
11th Floor
1 Angel Court
London
EC2R 7HJ

For the attention of: Richard Tonge

Contract Title: Cambridge

Date Received: 10/8/2021

Date Commenced: 10/8/2021

Date Completed: 1/11/2021

Notes: Opinions and Interpretations are outside the UKAS Accreditation

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(Laboratory Manager)

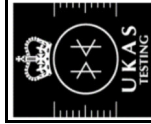
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SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]

4043



Professional Soils Laboratory

Contract No:

PSL21/6466

Client Ref:

784-B025563

Cambridge

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

[illegible]

SYMBOLS: NP : Non Plastic

* : Liquid Limit and Plastic Limit Wet Sieved.



4043



Professional Soils Laboratory

Contract No:

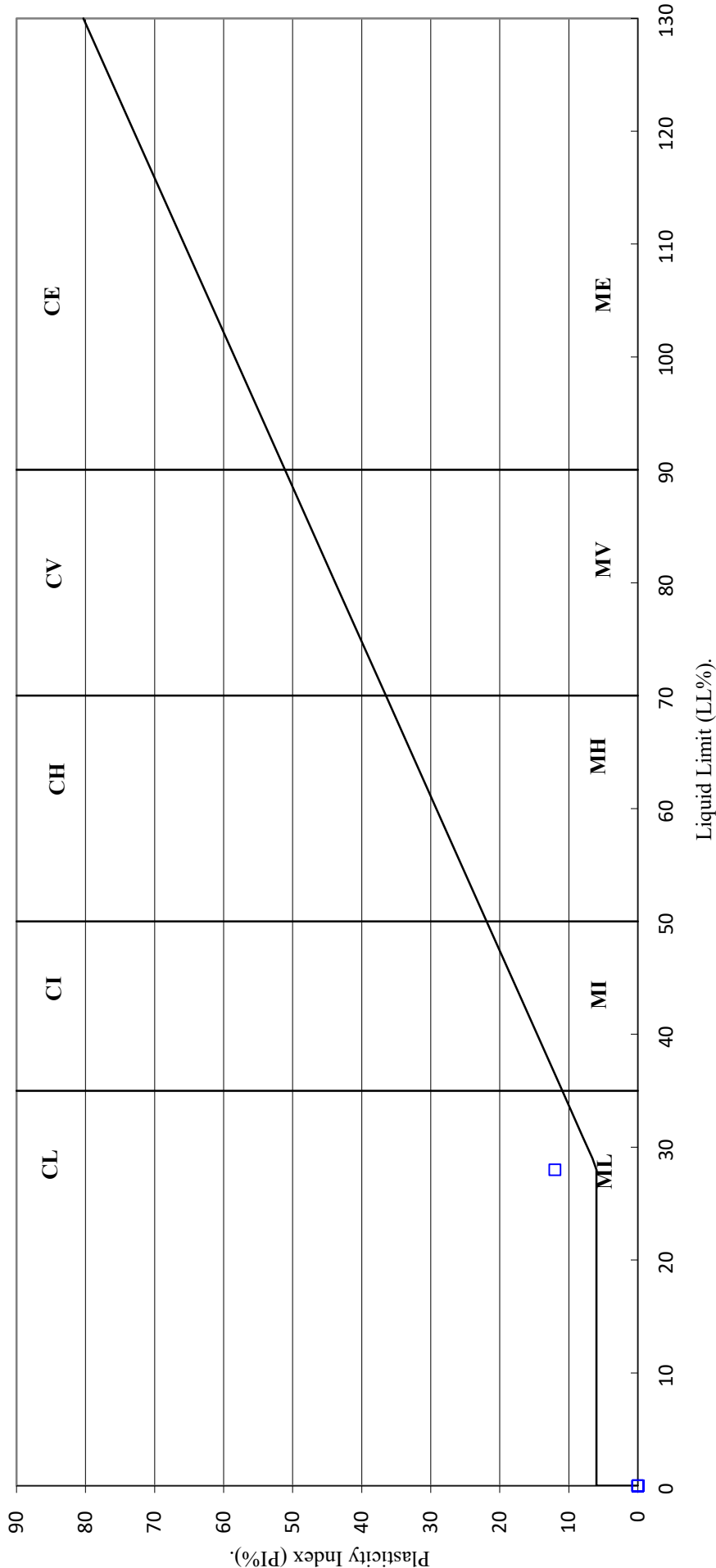
PSL21/6466

Client Ref:

784-B025563

Cambridge

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



Contract No:
PSL21/6466
Client Ref:
784-B025563

Cambridge



Professional Soils Laboratory

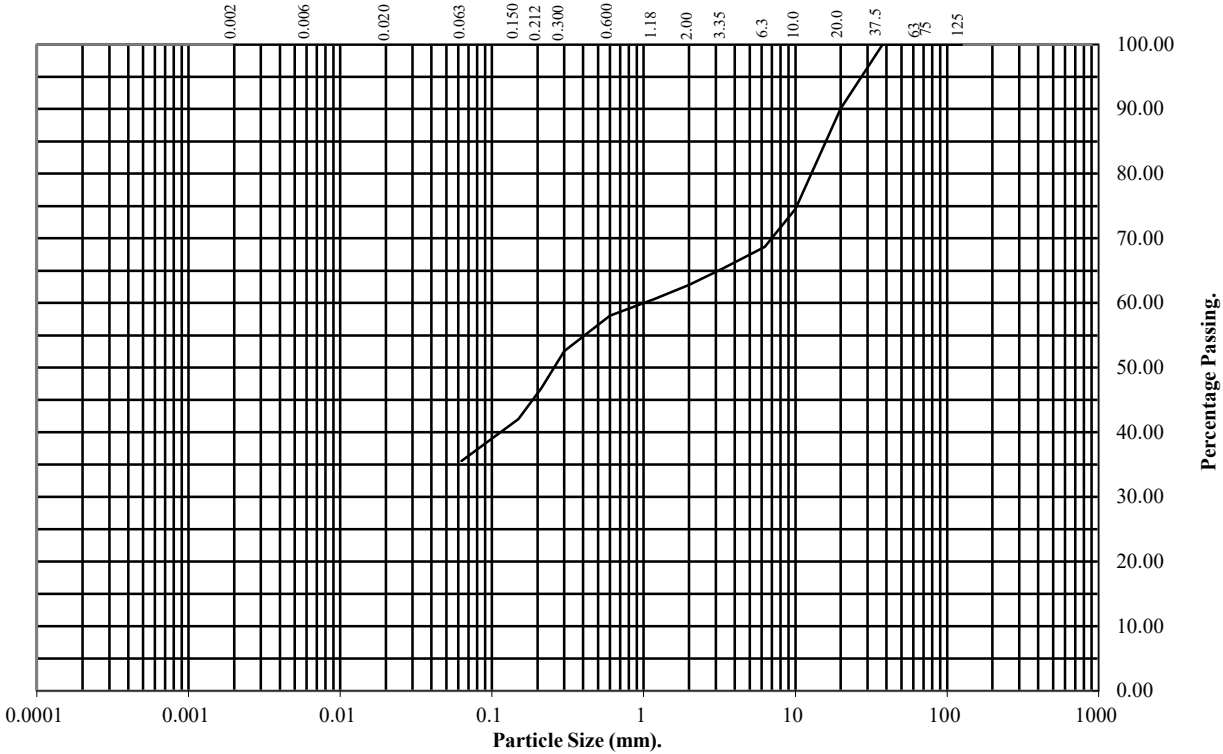


4043

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990
Wet Sieve, Clause 9.2

Hole Number:	TP-SRS-02	Top Depth (m):	0.50
Sample Number:	4	Base Depth(m):	0.60
Sample Type:	B		



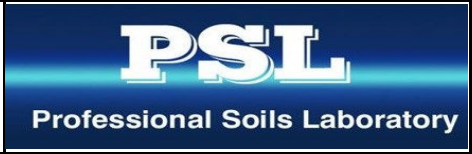
BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	90
10	75
6.3	69
3.35	65
2	63
1.18	61
0.6	58
0.3	53
0.212	47
0.15	42
0.063	36

Soil Fraction	Total Percentage
Cobbles	0
Gravel	37
Sand	27
Silt/Clay	36

Remarks:
See Summary of Soil Descriptions



4043



Professional Soils Laboratory

Cambridge

Contract No:
PSL21/6466
Client Ref:
784-B025563

ISRM Suggested Methods : 2007

Par = parallel, Perp = perpendicular, U = Random
A = Axial, D = Diametral, I = Irregular

***Note** All testing carried out on samples at as received water content

Cambridge

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.
All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.
Methods, procedures and performance data are available on request.
Results reported herein relate only to the material supplied to the laboratory.
This report shall not be reproduced except in full, without prior written approval.
Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Approved by: 
Karan Campbell
Director

Page 1 of 4 Pages

Chemtech Environmental Limited

SOILS

Lab number			101121-1
Sample id			TP-SRS-02
Depth (m)			1.50
Date sampled			-
Test	Method	Units	
pH	CE004 ^U	units	8.4
Magnesium (2:1 water soluble)	CE061	mg/l Mg	2.5
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	5.3
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	23
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	25
Sulphate (total)	CE062	mg/kg SO ₄	458
Sulphur (total)	CE119	mg/kg S	190
Sulphur (total)	CE119	% w/w S	0.02

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S

Chemtech Environmental Limited

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key	
N	No (not deviating sample)
Y	Yes (deviating sample)
NSD	Sampling date not provided
NST	Sampling time not provided (waters only)
EHT	Sample exceeded holding time(s)
IC	Sample not received in appropriate containers
HP	Headspace present in sample container
NCF	Sample not chemically fixed (where appropriate)
OR	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
101121-1	TP-SRS-02	1.50	Y	All (NSD)



LABORATORY
REPORT



4043

Contract Number: PSL21/6479

Report Date: 18 October 2021

Client’s Reference: 784-B025563

Client Name: Tetra Tech
11th Floor
1 Angel Court
London
EC2R 7HJ

For the attention of: Richard Tonge

Contract Title: Cambridge

Date Received: 10/8/2021
Date Commenced: 10/8/2021
Date Completed: 18/10/2021

Notes: Opinions and Interpretations are outside the UKAS Accreditation

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Checked and Approved Signatories:

A Watkins (Director)	R Berriman (Quality Manager)	S Royle (Laboratory Manager)
L Knight (Assistant Laboratory Manager)	 S Eyre (Senior Technician)	T Watkins (Senior Technician)

5 – 7 Hexthorpe Road, Hexthorpe,
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fax: +44 (0)844 815 6642
e-mail: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

Page 1 of

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]


PSL
Professional Soils Laboratory
4043

Contract No:
PSL21/6479
Client Ref:
784-B025563

SUMMARY OF CHALK TESTS

(BS1377: PART 2 & 4:1990)

[illegible]

* CCV testing is not UKAS accredited


PSL
Professional Soils Laboratory
4043

Contract No:
PSL21/6479
Client Ref:
784-B025563

PARTICLE SIZE DISTRIBUTION TEST

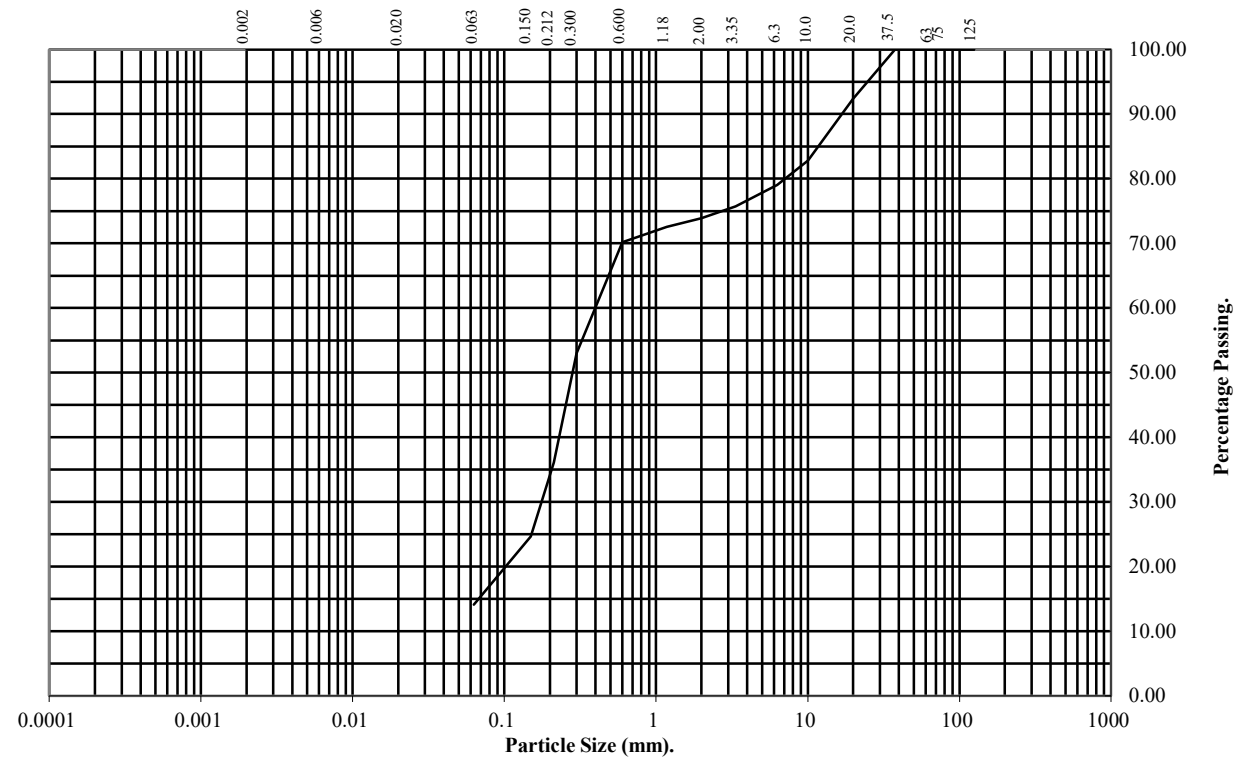
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number:	TP-TH-01	Top Depth (m):	1.00
---------------------	-----------------	-----------------------	-------------

Sample Number: _____ **Base Depth(m):** _____

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	92
10	83
6.3	79
3.35	76
2	74
1.18	73
0.6	70
0.3	53
0.212	36
0.15	25
0.063	14

Soil Fraction	Total Percentage
Cobbles	0
Gravel	26
Sand	60
Silt/Clay	14

Remarks:

See Summary of Soil Descriptions



4043

PSL

Professional Soils Laboratory

Cambridge

Contract No:

PSL21/6479

Client Ref:

784-B025563

SUMMARY OF ROCK TESTS

(ISRM Suggested Method for the Determination of the Water Content of Rock)

[illegible]

Contract No:

PSL21/6479

Client Ref:

784-B025563

Cambridge

PST
Professional Soils Laboratory

ISRM Suggested Methods : 2007

A = Axial, D = Diametral, I = Irregular

Par = parallel, Perp = perpendicular, U = Random

***Note** All testing carried out on samples at as received water content

PST
Professional Soils Laboratory



Contract Number: PSL21/6480

Report Date: 19 October 2021

Client's Reference: 784-B025563

Client Name: Tetra Tech
11th Floor
1 Angel Court
London
EC2R 7HJ

For the attention of: Richard Tonge

Contract Title: Cambridge

Date Received: 10/8/2021
Date Commenced: 10/8/2021
Date Completed: 19/10/2021

Notes: Opinions and Interpretations are outside the UKAS Accreditation

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(Director)

R Berriman
(Quality Manager)

S Royle
(Laboratory Manager)

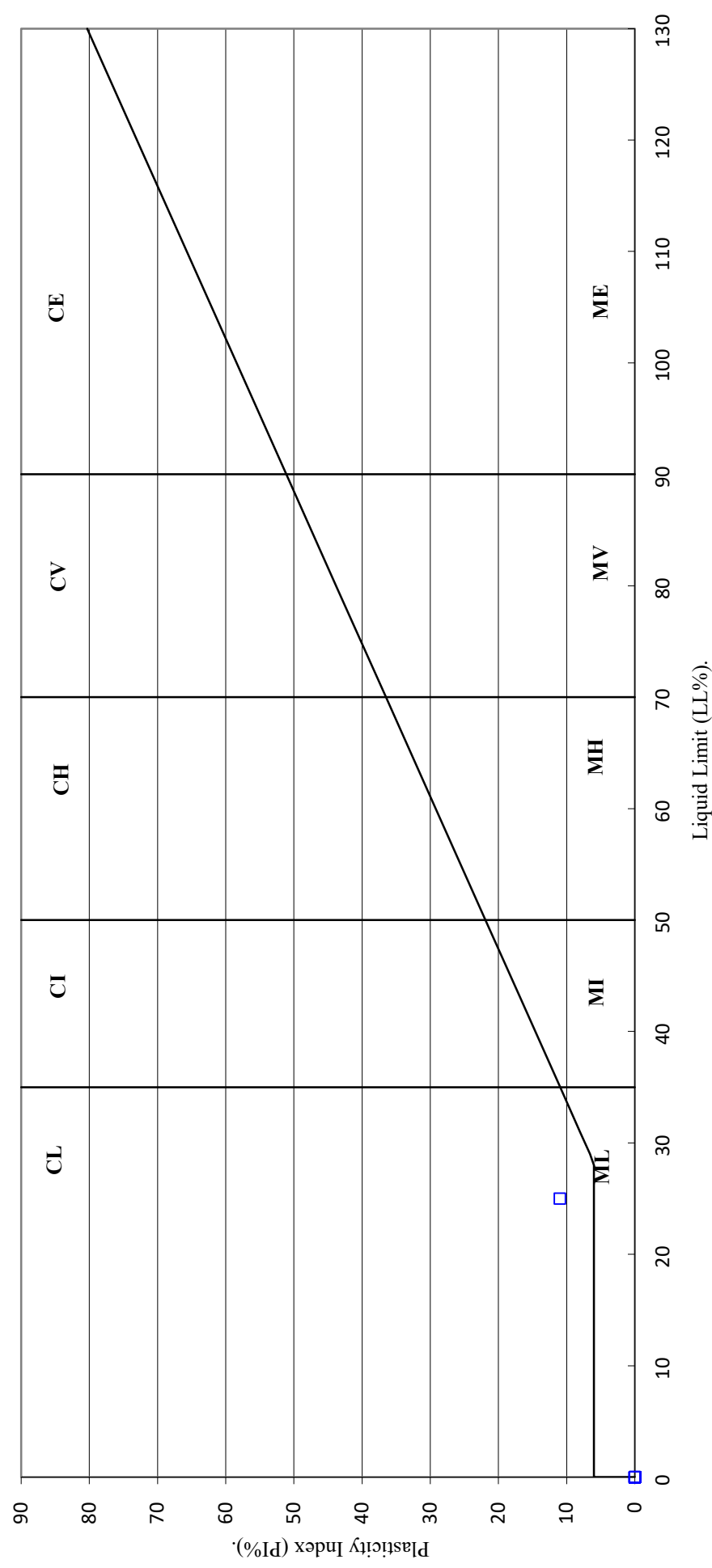
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(Assistant Laboratory Manager)


S Eyre
(Senior Technician)

T Watkins
(Senior Technician)

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awatkins@prosoils.co.uk

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



 PSL Professional Soils Laboratory	Contract No:
	PSL 21/6480
	Client Ref:
	784-B025563

SUMMARY OF CHALK TESTS

(BS1377 : PART 2 & 4 : 1990)

[illegible]

* CCV testing is not UKAS accredited

	Contract No:
	PSL21/6480
	Client Ref:
	784-B025563

SUMMARY OF ROCK TESTS

[illegible]

PST
Professional Soils Laboratory

PSL21/6480

Client Ref:

784-B025563

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular


PSL
Professional Soils Laboratory
4043

Cambridge

Contract No:

PSL21/6480

Client Ref:

784-B025563



Chemtech Environmental Limited

SOILS

ANALYTICAL TEST REPORT

Contract no: 101147

Contract name: TP-TH-02

Client reference: PSL21/6480

Clients name: Professional Soils Laboratory

Clients address: 5/7 Hexthorpe Road
Doncaster
DN4 0AR

Samples received: 05 October 2021

Analysis started: 05 October 2021

Analysis completed: 12 October 2021

Report issued: 12 October 2021

Notes:

Opinions and interpretations expressed herein are outside the UKAS accreditation scope.

Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.

All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.

Methods, procedures and performance data are available on request.

Results reported herein relate only to the material supplied to the laboratory.

This report shall not be reproduced except in full, without prior written approval.

Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key:

U UKAS accredited test

M MCERTS & UKAS accredited test

\$ Test carried out by an approved subcontractor

I/S Insufficient sample to carry out test

N/S Sample not suitable for testing

Approved by: 
Karan Campbell
Director

Lab number			101147-1
Sample id			TP-TH-02
Depth (m)			0.50
Date sampled			-
Test	Method	Units	
pH	CE004 ^U	units	8.8
Magnesium (2:1 water soluble)	CE061	mg/l Mg	<1
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	6.0
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	32
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	109
Sulphate (total)	CE062	mg/kg SO ₄	648
Sulphur (total)	CE119	mg/kg S	380
Sulphur (total)	CE119	% w/w S	0.04

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

- Key**
N No (not deviating sample)
Y Yes (deviating sample)
NSD Sampling date not provided
NST Sampling time not provided (waters only)
EHT Sample exceeded holding time(s)
IC Sample not received in appropriate containers
HP Headspace present in sample container
NCF Sample not chemically fixed (where appropriate)
OR Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
101147-1	TP-TH-02	0.50	Y	All (NSD)

ISRM Suggested Methods : 2007

A = Axial, D = Diametral, I = Irregular

Par = parallel, Perp = perpendicular, U = Random

***Note** All testing carried out on samples at as received water content



Contract Number: PSL21/6482

Report Date: 08 October 2021

Client's Reference: 784-B025563

Client Name: Tetra Tech
11th Floor
1 Angel Court
London
EC2R 7HJ

For the attention of: Richard Tonge

Contract Title: Cambridge

Date Received: 10/8/2021

Date Commenced: 10/8/2021

Date Completed: 8/10/2021

Notes: **Opinions and Interpretations are outside the UKAS Accreditation**

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(Senior Technician)

T Watkins
(Senior Technician)

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e-mail: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]

	<p>Cambridge</p>	<p>Contract No:</p>
		<p>PSL21/6482</p>
		<p>Client Ref:</p>
		<p>784-B025563</p>

SUMMARY OF CHALK TESTS

(BS1377: PART 2 & 4: 1990)

[illegible]

* CCV testing is not UKAS accredited

	Contract No:
	PSL21/6482
	Client Ref:
	784-B025563

SUMMARY OF ROCK TESTS

[illegible]

	<div>Cambridge</div>	Contract No:
		PSL21/6482
		Client Ref:
		784-B025563

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular

	Contract No:
	PSL21/6482
	Client Ref:
	784-B025563

(BS1377 : PART 2 & 4 : 1990)

* CCV testing is not UKAS accredited

Contract No:
PSL21/6483
Client Ref:
784-B025563

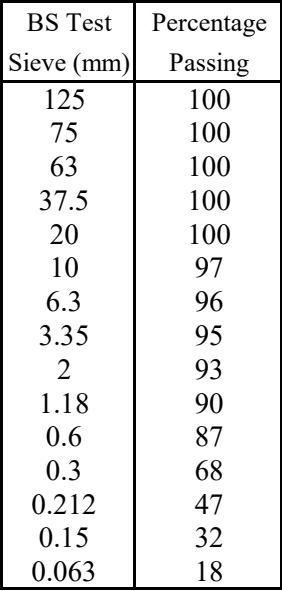
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	TP-TH-05	Top Depth (m):	1.00
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Sample Number: _____ **Base Depth(m):** _____

Sample Type: **B**



Particle Diameter	Percentage Passing
0.02	12
0.006	9
0.002	7

Soil Fraction	Total Percentage
Cobbles	0
Gravel	7
Sand	75
Silt	11
Clay	7

Remarks:
See Summary of Soil Descriptions

Cambridge

Contract No:
PSL21/6483
Client Ref:
784-B025563

PARTICLE SIZE DISTRIBUTION TEST

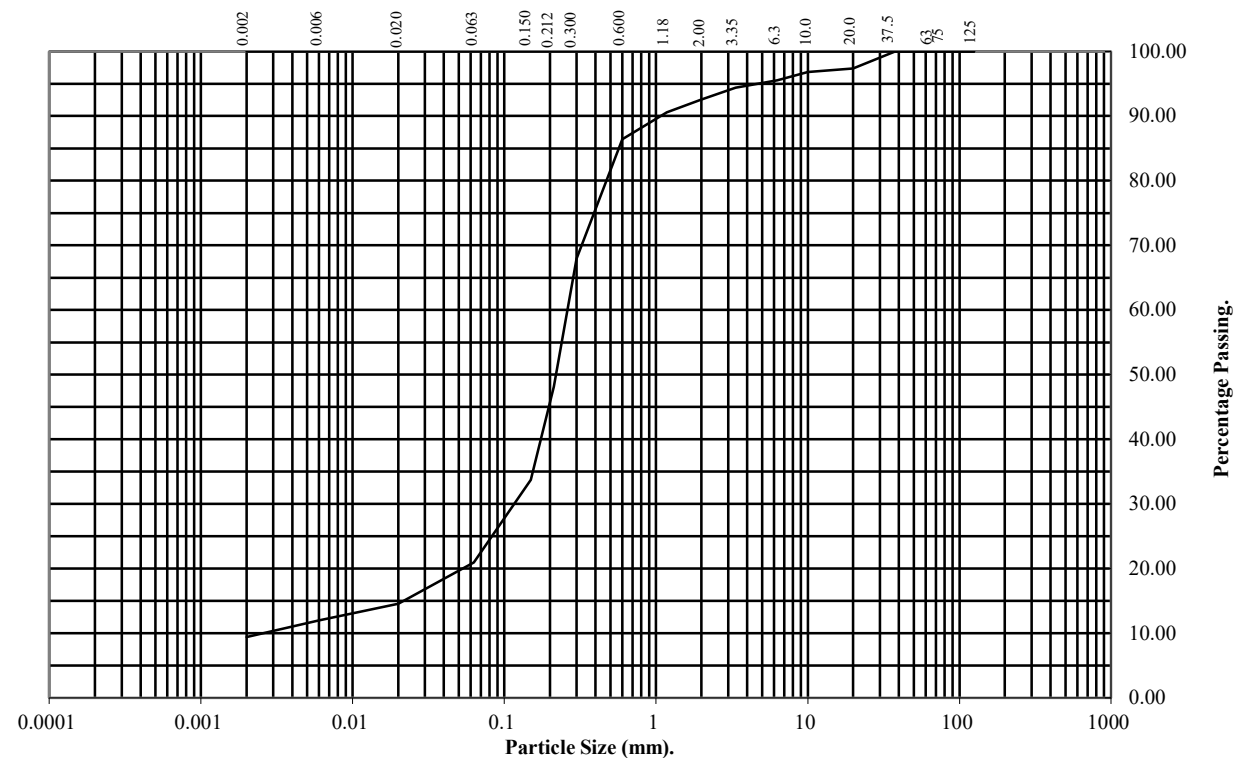
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: TP-TH-05 Top Depth (m): 2.00

Sample Number: Base Depth(m):

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	97
10	97
6.3	96
3.35	94
2	93
1.18	91
0.6	86
0.3	68
0.212	48
0.15	34
0.063	21

Particle Diameter	Percentage Passing
0.02	15
0.006	12
0.002	9

Soil Fraction	Total Percentage
Cobbles	0
Gravel	7
Sand	72
Silt	12
Clay	9

Remarks:

See Summary of Soil Descriptions



Cambridge

Contract No:
PSL21/6483
Client Ref:
784-B025563



LABORATORY REPORT



4043

Contract Number: PSL21/6484

Report Date: 08 October 2021

Client's Reference: 784-B025563

Client Name: Tetra Tech
11th Floor
1 Angel Court
London
EC2R 7HJ

For the attention of: Richard Tonge

Contract Title: Cambridge

Date Received: 10/8/2021

Date Commenced: 10/8/2021

Date Completed: 8/10/2021

Notes: Opinions and Interpretations are outside the UKAS Accreditation

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(Director)

R Berriman
(Quality Manager)

S Royle
(Laboratory Manager)

L Knight
(Assistant Laboratory Manager)

S Eyre
(Senior Technician)

T Watkins
(Senior Technician)

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awatkins@prosoils.co.uk

Page 1 of

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]

PST
Professional Soils Laboratory

Contract No:	PSL21/6484	Client Ref:	784-B025563
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Nov 15

Page of

SUMMARY OF CHALK TESTS

(BS1377 : PART 2 & 4 : 1990)

[illegible]

* CCV testing is not UKAS accredited



PSL
Professional Soils Laboratory

Cambridge

Contract No:	PSL21/6484	Client Ref:	784-B025563
---------------------	-------------------	--------------------	--------------------

SUMMARY OF ROCK TESTS

[illegible]

PST
Professional Soils Laboratory

PSL21/6484

Client Ref:

784-B025563

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular


PSL
Professional Soils Laboratory
4043

Cambridge

Contract No:

PSL21/6484

Client Ref:

784-B025563

(BS1377 : PART 2 & 4 : 1990)

* CCV testing is not UKAS accredited



Cambridge

Contract No:	PSL21/6485	Client Ref:	784-B025563
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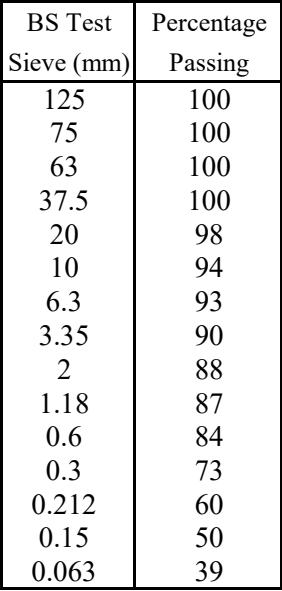
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	TP-TH-07	Top Depth (m):	1.00
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Sample Number: _____ **Base Depth(m):** _____

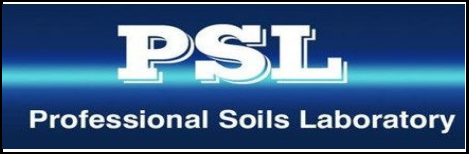
Sample Type: **B**



Particle Diameter	Percentage Passing
0.02	30
0.006	23
0.002	18

Soil Fraction	Total Percentage
Cobbles	0
Gravel	12
Sand	49
Silt	21
Clay	18

Remarks:
See Summary of Soil Descriptions



Cambridge

Contract No:
PSL21/6485
Client Ref:
784-B025563

SUMMARY OF ROCK TESTS

[illegible]

PST
Professional Soils Laboratory

PSL21/6485

Client Ref:

784-B025563

Cambridge

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular


PSL
Professional Soils Laboratory
4043

Cambridge

Contract No:

PSL21/6485

Client Ref:

784-B025563

(BS1377 : PART 2 & 4 : 1990)

* CCV testing is not UKAS accredited

Cambridge

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Sample Type: **B**



Contract No:
PSL21/6486
Client Ref:
784-B025563

SUMMARY OF ROCK TESTS

[illegible]

PST
Professional Soils Laboratory

PSL21/6486

Client Ref:

784-B025563

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular


PSL
Professional Soils Laboratory
4043

Cambridge

Contract No:

PSL21/6486

Client Ref:

784-B025563

PARTICLE SIZE DISTRIBUTION TEST

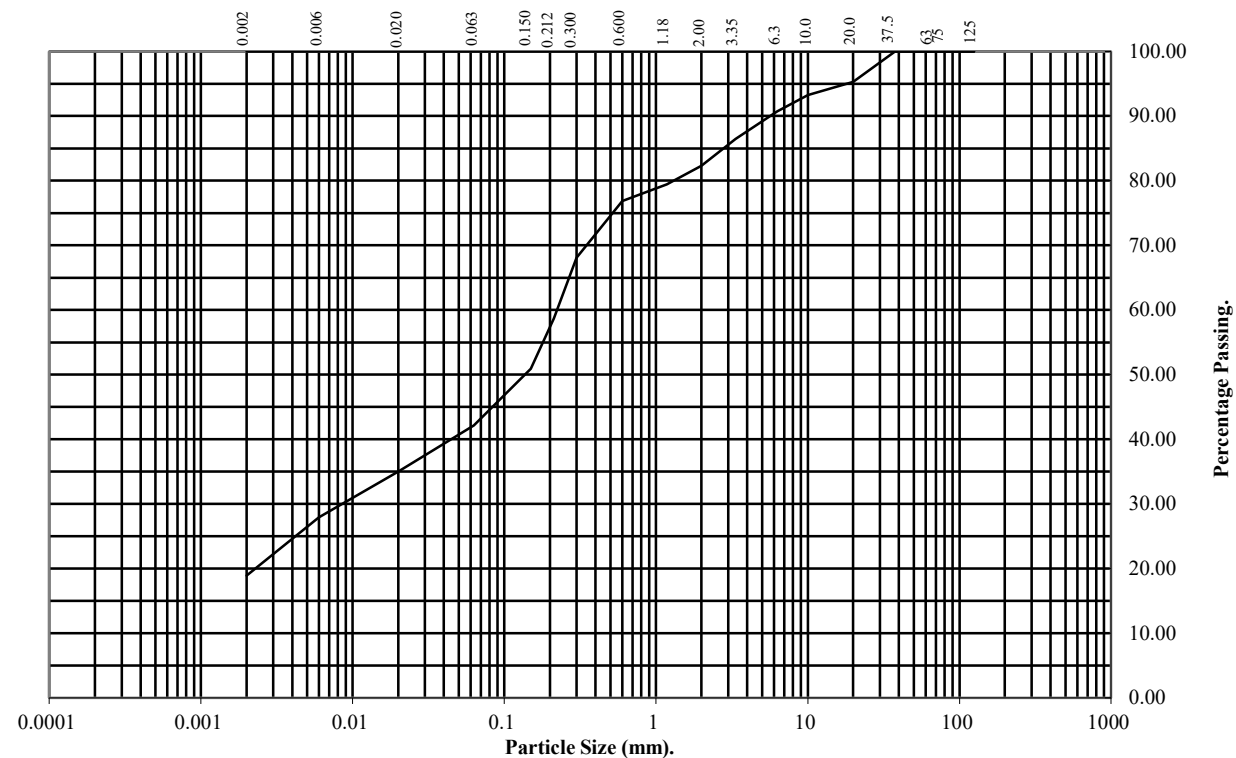
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: TP-TH-09 Top Depth (m): 1.00

Sample Number: Base Depth(m):

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	95
10	93
6.3	91
3.35	86
2	82
1.18	79
0.6	77
0.3	68
0.212	59
0.15	51
0.063	42

Particle Diameter	Percentage Passing
0.02	35
0.006	28
0.002	19

Soil Fraction	Total Percentage
Cobbles	0
Gravel	18
Sand	40
Silt	23
Clay	19

Remarks:

See Summary of Soil Descriptions



Cambridge

Contract No:
PSL21/6487
Client Ref:
784-B025563



LABORATORY REPORT



4043

Contract Number: PSL21/6488

Report Date: 19 October 2021

Client's Reference: 784-B025563

Client Name: Tetra Tech
11th Floor
1 Angel Court
London
EC2R 7HJ

For the attention of: Richard Tonge

Contract Title: Cambridge

Date Received: 10/8/2021
Date Commenced: 10/8/2021
Date Completed: 19/10/2021

Notes: Opinions and Interpretations are outside the UKAS Accreditation

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awatkins@prosoils.co.uk

Page 1 of

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]

PSL
Professional Soils Laboratory

Cambridge

Contract No:	PSL21/6488
Client Ref:	784-B025563

SUMMARY OF CHALK TESTS

(BS1377 : PART 2 & 4 : 1990)

[illegible]

* CCV testing is not UKAS accredited



PSL
Professional Soils Laboratory

Cambridge

Contract No:	PSL21/6488	Client Ref:	784-B025563
---------------------	-------------------	--------------------	--------------------

(ISRM Suggested Method for the Determination of the Water Content of Rock)

	Contract No:
	PSL21/6488
	Client Ref:
	784-B025563



Page 1 of

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]

PSL001 Issue 2

Nov 15

Page of

PST
Professional Soils Laboratory

4043

Professional Soils Laboratory

Cambridge

Contract No:	PSL21/6489
Client Ref:	784-B025563

SUMMARY OF CHALK TESTS

(BS1377 : PART 2 & 4 : 1990)

[illegible]

* CCV testing is not UKAS accredited



UKAS
TESTING
4043

Professional Soils Laboratory

4043

Cambridge

Contract No:
PSL21/6489
Client Ref:
784-B025563

SUMMARY OF ROCK TESTS

[illegible]

	<p style="text-align: center;">Cambridge</p>	Contract No:
		PSL21/6489
		Client Ref:
		784-B025563

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note**
All testing carried out on samples as received water content

A = Axial, D = Diametral, I = Irregular

	Contract No:
	PSL21/6489
	Client Ref:
	784-B025563

(BS1377 : PART 2 & 4 : 1990)

* CCV testing is not UKAS accredited



Cambridge

Contract No:	PSL21/6490	Client Ref:	784-B025563
---------------------	-------------------	--------------------	--------------------

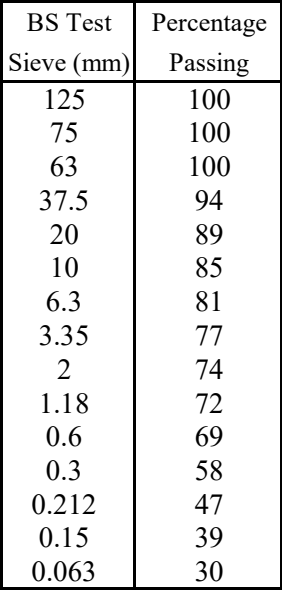
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	TP-TH-13	Top Depth (m):	1.00
---------------------	-----------------	-----------------------	-------------

Sample Number: _____ **Base Depth(m):** _____

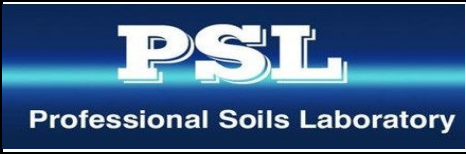
Sample Type: **B**



Particle Diameter	Percentage Passing
0.02	21
0.006	16
0.002	14

Soil Fraction	Total Percentage
Cobbles	0
Gravel	26
Sand	44
Silt	16
Clay	14

Remarks:
See Summary of Soil Descriptions



Cambridge

Contract No:
PSL21/6490
Client Ref:
784-B025563

SUMMARY OF ROCK TESTS

[illegible]

	Contract No:
	PSL21/6490
	Client Ref:
	784-B025563

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note**
All testing carried out on samples as received water content

A = Axial, D = Diametral, I = Irregular

 PSL Professional Soils Laboratory 4043	Contract No:
	PSL21/6490
	Client Ref:
	784-B025563

SUMMARY OF CHALK TESTS

(BS1377 : PART 2 & 4 : 1990)

[illegible]

* CCV testing is not UKAS accredited

	<p>Cambridge</p>	Contract No:
		PSL21/6491
		Client Ref:
		784-B025563

SUMMARY OF ROCK TESTS

(ISRM Suggested Method for the Determination of the Water Content of Rock)

[illegible]

	<p style="text-align: center;">Cambridge</p>	Contract No:
		PSL21/6491
		Client Ref:
		784-B025563

ISRM Suggested Methods : 2007

Par = parallel, Perp = perpendicular, U = Random
A = Axial, D = Diametral, I = Irregular

***Note** All testing carried out on samples at as received water content

Cambridge

Approved by: 
Karan Campbell
Director

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Chemtech Environmental Limited

SOILS

Lab number			101144-1
Sample id			TP-TH-14
Depth (m)			0.50
Date sampled			-
Test	Method	Units	
pH	CE004 ^U	units	9.1
Magnesium (2:1 water soluble)	CE061	mg/l Mg	<1
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	2.2
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	9.5
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	42
Sulphate (total)	CE062	mg/kg SO ₄	363
Sulphur (total)	CE119	mg/kg S	270
Sulphur (total)	CE119	% w/w S	0.03

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S

Chemtech Environmental Limited

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key	
N	No (not deviating sample)
Y	Yes (deviating sample)
NSD	Sampling date not provided
NST	Sampling time not provided (waters only)
EHT	Sample exceeded holding time(s)
IC	Sample not received in appropriate containers
HP	Headspace present in sample container
NCF	Sample not chemically fixed (where appropriate)
OR	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
101144-1	TP-TH-14	0.50	Y	All (NSD)



LABORATORY
REPORT



4043

Contract Number: PSL21/6492

Report Date: 14 October 2021

Client’s Reference: 784-B025563

Client Name: Tetra Tech
11th Floor
1 Angel Court
London
EC2R 7HJ

For the attention of: Richard Tonge

Contract Title: Cambridge

Date Received: 10/8/2021
Date Commenced: 10/8/2021
Date Completed: 8/10/2021

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

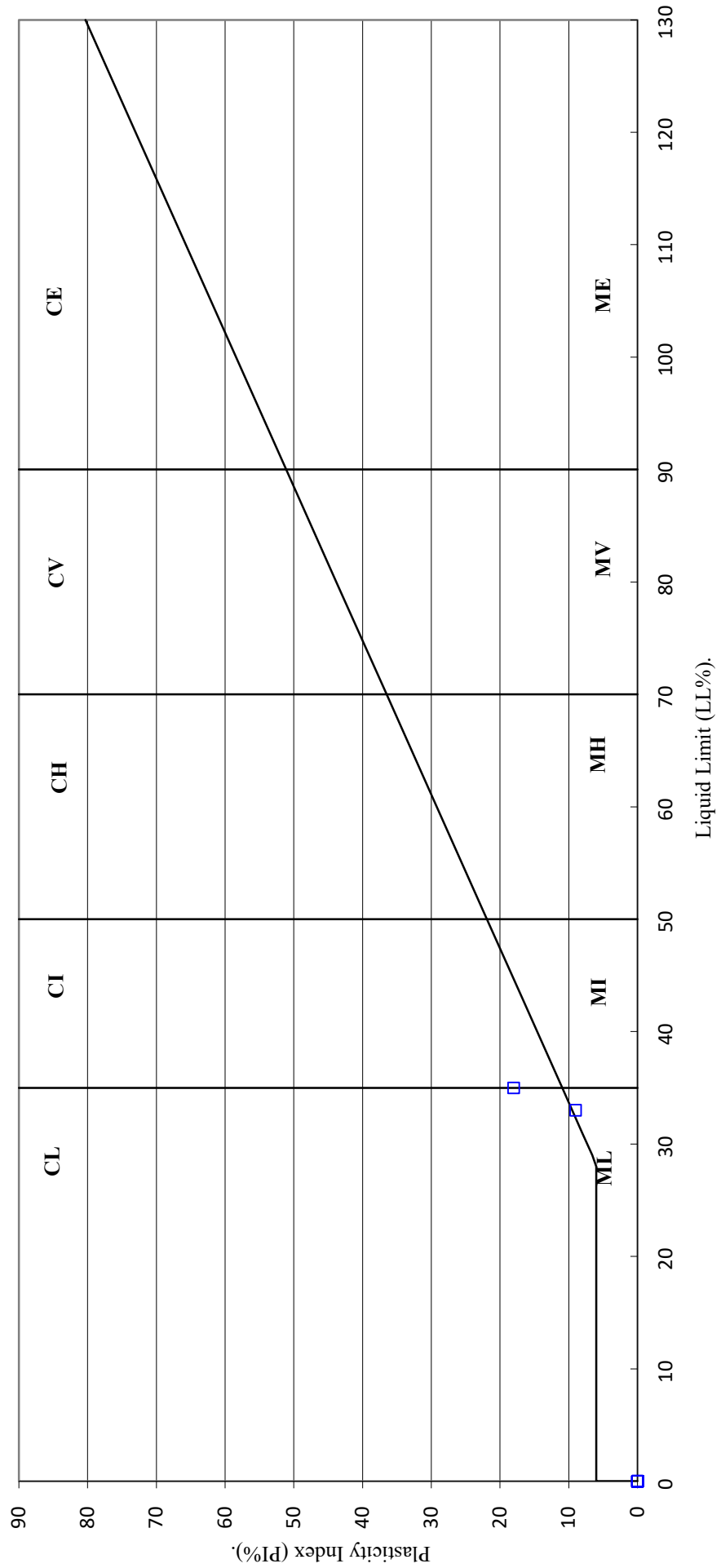
Checked and Approved Signatories:

A Watkins (Director)	R Berriman (Quality Manager)	S Royle (Laboratory Manager)
L Knight (Assistant Laboratory Manager)	 S Eyre (Senior Technician)	T Watkins (Senior Technician)

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PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



Cambridge	Contract No:
	PSL21/6492
	Client Ref:
	784-B025563



ANALYTICAL TEST REPORT

Contract no: 101192
Contract name: TP-TH-15
Client reference: PSL21/6492
Clients name: Professional Soils Laboratory
Clients address: 5/7 Hexthorpe Road
Doncaster
DN4 0AR

Samples received: 06 October 2021
Analysis started: 06 October 2021
Analysis completed: 13 October 2021
Report issued: 13 October 2021

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope. Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling. All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing. Methods, procedures and performance data are available on request. Results reported herein relate only to the material supplied to the laboratory. This report shall not be reproduced except in full, without prior written approval. Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key: U UKAS accredited test
M MCERTS & UKAS accredited test
\$ Test carried out by an approved subcontractor
I/S Insufficient sample to carry out test
N/S Sample not suitable for testing

Approved by: K Campbell
Karan Campbell
Director

Chemtech Environmental Limited

SOILS

Lab number			101192-1
Sample id			TP-TH-15
Depth (m)			2.50
Date sampled			-
Test	Method	Units	
pH	CE004 ^U	units	8.6
Magnesium (2:1 water soluble)	CE061	mg/l Mg	<1
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	13
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	13
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	23
Sulphate (total)	CE062	mg/kg SO ₄	436
Sulphur (total)	CE119	mg/kg S	242
Sulphur (total)	CE119	% w/w S	0.02

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
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Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

- Key**
- N No (not deviating sample)
 - Y Yes (deviating sample)
 - NSD Sampling date not provided
 - NST Sampling time not provided (waters only)
 - EHT Sample exceeded holding time(s)
 - IC Sample not received in appropriate containers
 - HP Headspace present in sample container
 - NCF Sample not chemically fixed (where appropriate)
 - OR Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
101192-1	TP-TH-15	2.50	Y	All (NSD)

APPENDIX K1: ENVIRONMENTAL LABORATORY CERTIFICATES - SOIL