

APPENDIX VII
CHEMICAL TESTING

SOIL CHEMICAL RESULTS

Scientific Analysis Laboratories Ltd

Certificate of Analysis

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Manchester
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Scientific Analysis Laboratories is a
limited company registered in England and
Wales (No 2514788) whose address is at
Hadfield House, Hadfield Street, Manchester M16 9FE

Report Number: 551503-1

Date of Report: 07-Mar-2016

Customer: Resource Environmental Consultants Ltd
Osprey House
Pacific Quay
Broadway
Salford
M50 2UE

Customer Contact: Mr Mark Hamill

Customer Job Reference: 100693

Customer Purchase Order: 15/M/009/45827/MH

Customer Site Reference: Mount Road, Leek

Date Job Received at SAL: 26-Feb-2016

Date Analysis Started: 01-Mar-2016

Date Analysis Completed: 07-Mar-2016

The results reported relate to samples received in the laboratory and may not be representative of a whole batch.

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

This report should not be reproduced except in full without the written approval of the laboratory

Tests covered by this certificate were conducted in accordance with SAL SOPs

All results have been reviewed in accordance with Section 25 of the SAL Quality Manual



Report checked
and authorised by :
Emma Spear
Project Manager

Issued by :
Emma Spear
Project Manager



SAL Reference: 551503 Project Site: Mount Road, Leek Customer Reference: 100693 Soil Analysed as Soil MCERTS Preparation												
SAL Reference				551503 001	551503 002	551503 005	551503 006	551503 007	551503 011	551503 012	551503 016	
Customer Sample Reference				WS101	WS101	WS102	WS103	WS103	WS105	WS105	IP102	
Bottom Depth				0.25	0.8	0.7	0.2	0.8	0.15	0.5	0.3	
Comments				Topsoil	Clay	Clay	Topsoil	Clay	Topsoil	Clay	Topsoil	
Date Sampled				25-FEB-2016	25-FEB-2016	25-FEB-2016	25-FEB-2016	25-FEB-2016	25-FEB-2016	25-FEB-2016	25-FEB-2016	
Type				Topsoil	Clay	Clay	Topsoil	Clay	Topsoil	Clay	Topsoil	
Determinand	Method	Test Sample	LOD	Units								
Moisture @105C	T162	AR	0.1	%	34	19	20	30	23	52	29	43
Retained on 10mm sieve	T2	M40	0.1	%	<0.1	-	-	<0.1	<0.1	<0.1	<0.1	<0.1

SAL Reference: 551503 Project Site: Mount Road, Leek Customer Reference: 100693 Soil Analysed as Soil REC Ltd 002S										
SAL Reference				551503 001	551503 006	551503 007	551503 011	551503 012	551503 016	
Customer Sample Reference				WS101	WS103	WS103	WS105	WS105	IP102	
Bottom Depth				0.25	0.2	0.8	0.15	0.5	0.3	
Comments				Topsoil	Topsoil	Clay	Topsoil	Clay	Topsoil	
Date Sampled				25-FEB-2016	25-FEB-2016	25-FEB-2016	25-FEB-2016	25-FEB-2016	25-FEB-2016	
Type				Topsoil	Topsoil	Clay	Topsoil	Clay	Topsoil	
Determinand	Method	Test Sample	LOD	Units						
Arsenic	T6	M40	2	mg/kg	28	32	6	20	13	26
Cadmium	T6	M40	1	mg/kg	<1	<1	<1	<1	<1	<1
Chromium	T6	M40	1	mg/kg	15	18	18	16	16	13
Lead	T6	M40	1	mg/kg	170	210	17	150	58	150
Mercury	T6	M40	1	mg/kg	<1	<1	<1	<1	<1	<1
Selenium	T6	M40	3	mg/kg	<3	<3	<3	<3	<3	<3
Copper	T6	M40	1	mg/kg	86	110	26	70	49	61
Nickel	T6	M40	1	mg/kg	19	17	8	17	11	14
Zinc	T6	M40	1	mg/kg	230	210	33	210	77	120
pH	T7	AR			6.4	5.5	6.0	5.8	5.4	5.7
SO4(Total)	T6	M40	0.01	%	0.13	0.12	0.02	0.15	0.06	0.09
SO4(2:1)	T6	AR	100	mg/l	<100	<100	<100	<100	<100	<100
Chromium VI	T6	AR	1	mg/kg	<1	<1	<1	<1	<1	<1
Beryllium	T6	M40	2	mg/kg	<2	<2	<2	<2	<2	<2
Cyanide(Total)	T546	AR	1	mg/kg	<1	<1	<1	<1	<1	<1
Boron (water-soluble)	T6	AR	1	mg/kg	<1	<1	<1	<1	<1	<1
Vanadium	T6	M40	1	mg/kg	32	36	25	33	29	29
Barium	T6	M40	1	mg/kg	230	220	42	210	120	160
Phenols(Mono)	T546	AR	1	mg/kg	<1	<1	<1	<1	<1	<1

SAL Reference: 551503										
Project Site: Mount Road, Leek										
Customer Reference: 100693										
Soil		Analysed as Soil								
PAH US EPA 16 (B and K split)										
SAL Reference					551503 001	551503 006	551503 007	551503 011	551503 012	551503 016
Customer Sample Reference					WS101	WS103	WS103	WS105	WS105	IP102
Bottom Depth					0.25	0.2	0.8	0.15	0.5	0.3
Comments					Topsoil	Topsoil	Clay	Topsoil	Clay	Topsoil
Date Sampled					25-FEB-2016	25-FEB-2016	25-FEB-2016	25-FEB-2016	25-FEB-2016	25-FEB-2016
Type					Topsoil	Topsoil	Clay	Topsoil	Clay	Topsoil
Determinand	Method	Test Sample	LOD	Units						
Naphthalene	T207	M105	0.1	mg/kg	<0.1	<0.1	<0.1	⁽¹⁰⁹⁾ <0.3	<0.1	<0.1
Acenaphthylene	T207	M105	0.1	mg/kg	<0.1	<0.1	<0.1	⁽¹⁰⁹⁾ <0.3	<0.1	<0.1
Acenaphthene	T207	M105	0.1	mg/kg	<0.1	<0.1	<0.1	⁽¹⁰⁹⁾ <0.3	<0.1	<0.1
Fluorene	T207	M105	0.1	mg/kg	<0.1	<0.1	<0.1	⁽¹⁰⁹⁾ <0.3	<0.1	<0.1
Phenanthrene	T207	M105	0.1	mg/kg	0.7	<0.1	<0.1	2.1	<0.1	1.2
Anthracene	T207	M105	0.1	mg/kg	0.2	<0.1	<0.1	0.5	<0.1	0.4
Fluoranthene	T207	M105	0.1	mg/kg	2.6	0.4	<0.1	4.9	<0.1	2.2
Pyrene	T207	M105	0.1	mg/kg	2.1	0.4	<0.1	3.9	<0.1	1.7
Benzo(a)Anthracene	T207	M105	0.1	mg/kg	1.3	0.3	<0.1	2.5	<0.1	1.1
Chrysene	T207	M105	0.1	mg/kg	1.4	0.2	<0.1	2.3	<0.1	1.0
Benzo(b)fluoranthene	T207	M105	0.1	mg/kg	1.6	0.3	<0.1	2.9	<0.1	1.1
Benzo(k)fluoranthene	T207	M105	0.1	mg/kg	0.8	0.2	<0.1	1.4	<0.1	0.7
Benzo(a)Pyrene	T207	M105	0.1	mg/kg	1.3	0.3	<0.1	2.4	<0.1	0.9
Indeno(123-cd)Pyrene	T207	M105	0.1	mg/kg	0.7	<0.1	<0.1	1.3	<0.1	0.4
Dibenzo(ah)Anthracene	T207	M105	0.1	mg/kg	0.2	<0.1	<0.1	0.4	<0.1	<0.1
Benzo(ghi)Perylene	T207	M105	0.1	mg/kg	0.8	0.1	<0.1	1.5	<0.1	0.5
PAH(total)	T207	M105	0.1	mg/kg	14	2.1	<0.1	26	<0.1	11

SAL Reference: 551503 Project Site: Mount Road, Leek Customer Reference: 100693 Soil Analysed as Soil REC Banded TPH												
SAL Reference		551503 001	551503 002	551503 005	551503 006	551503 007	551503 011	551503 012	551503 016			
Customer Sample Reference		WS101	WS101	WS102	WS103	WS103	WS105	WS105	IP102			
Bottom Depth		0.25	0.8	0.7	0.2	0.8	0.15	0.5	0.3			
Comments		Topsoil	Clay	Clay	Topsoil	Clay	Topsoil	Clay	Topsoil			
Date Sampled		25-FEB-2016	25-FEB-2016	25-FEB-2016	25-FEB-2016	25-FEB-2016	25-FEB-2016	25-FEB-2016	25-FEB-2016	25-FEB-2016	25-FEB-2016	25-FEB-2016
Type		Topsoil	Clay	Clay	Topsoil	Clay	Topsoil	Clay	Topsoil	Clay	Topsoil	Topsoil
Determinand	Method	Test Sample	LOD	Units								
TPH (C5-C6)	T54	AR	0.10	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	⁽¹¹⁰⁾ <0.20	<0.10	<0.10
TPH (C6-C8)	T54	AR	0.10	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	⁽¹¹⁰⁾ <0.20	<0.10	<0.10
TPH (C8-C10)	T54	AR	0.10	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	⁽¹¹⁰⁾ <0.20	<0.10	<0.10
TPH (C10-C12)	T206	M105	1	mg/kg	⁽¹³⁾ <1	⁽¹³⁾ <1	⁽¹³⁾ <1	⁽¹³⁾ <1	⁽¹³⁾ <1	⁽¹³⁾ <1	⁽¹³⁾ <1	⁽¹³⁾ <1
TPH (C12-C16)	T206	M105	1	mg/kg	⁽¹³⁾ <1	⁽¹³⁾ <1	⁽¹³⁾ <1	⁽¹³⁾ <1	⁽¹³⁾ <1	⁽¹³⁾ <1	⁽¹³⁾ <1	⁽¹³⁾ <1
TPH (C16-C21)	T206	M105	1	mg/kg	⁽¹³⁾ 12	⁽¹³⁾ <1	⁽¹³⁾ <1	⁽¹³⁾ 2	⁽¹³⁾ <1	⁽¹³⁾ 8	⁽¹³⁾ <1	⁽¹³⁾ 1
TPH (C21-C35)	T206	M105	1	mg/kg	⁽¹³⁾ 48	⁽¹³⁾ <1	⁽¹³⁾ <1	⁽¹³⁾ 16	⁽¹³⁾ <1	⁽¹³⁾ 44	⁽¹³⁾ 8	⁽¹³⁾ 13
TPH (C35-C44)	T8	M105	1	mg/kg	⁽¹³⁾ 13	⁽¹³⁾ 2	⁽¹³⁾ <1	⁽¹³⁾ 5	⁽¹³⁾ 2	⁽¹³⁾ 13	⁽¹³⁾ 6	⁽¹³⁾ 5

Index to symbols used in 551503-1

Value	Description
M40	Analysis conducted on sample assisted dried at no more than 40C. Results are reported on a dry weight basis.
AR	As Received
M105	Analysis conducted on an "as received" aliquot. Results are reported on a dry weight basis where moisture content was determined by assisted drying of sample at 105C
N.D.	Not Detected
109	LOD raised due to high moisture content of the sample.
13	Results have been blank corrected.
110	LOD raised due to low internal standard recovery.
S	Analysis was subcontracted
M	Analysis is MCERTS accredited
U	Analysis is UKAS accredited
N	Analysis is not UKAS accredited

Notes

Asbestos was sub-contracted to REC Asbestos.

Method Index

Value	Description
T287	Calc TOC/0.58
T2	Grav
T7	Probe
T8	GC/FID
T21	OX/IR
T206	GC/FID (MCERTS)
T207	GC/MS (MCERTS)
T54	GC/MS (Headspace)
T6	ICP/OES
T27	PLM
T546	Colorimetry (CF)
T162	Grav (1 Dec) (105 C)

Accreditation Summary

Determinand	Method	Test Sample	LOD	Units	Symbol	SAL References
Asbestos ID	T27	AR			SU	001,006-007,011-012,016
Moisture @105C	T162	AR	0.1	%	N	001-002,005-007,011-012,016
Retained on 10mm sieve	T2	M40	0.1	%	N	001,006-007,011-012,016
Naphthalene	T207	M105	0.1	mg/kg	M	001,006-007,011-012,016
Acenaphthylene	T207	M105	0.1	mg/kg	U	001,006-007,011-012,016
Acenaphthene	T207	M105	0.1	mg/kg	M	001,006-007,011-012,016
Fluorene	T207	M105	0.1	mg/kg	M	001,006-007,011-012,016
Phenanthrene	T207	M105	0.1	mg/kg	M	001,006-007,011-012,016
Anthracene	T207	M105	0.1	mg/kg	U	001,006-007,011-012,016
Fluoranthene	T207	M105	0.1	mg/kg	M	001,006-007,011-012,016
Pyrene	T207	M105	0.1	mg/kg	M	001,006-007,011-012,016
Benzo(a)Anthracene	T207	M105	0.1	mg/kg	M	001,006-007,011-012,016
Chrysene	T207	M105	0.1	mg/kg	M	001,006-007,011-012,016
Benzo(b)fluoranthene	T207	M105	0.1	mg/kg	M	001,006-007,011-012,016
Benzo(k)fluoranthene	T207	M105	0.1	mg/kg	M	001,006-007,011-012,016
Benzo(a)Pyrene	T207	M105	0.1	mg/kg	M	001,006-007,011-012,016
Indeno(123-cd)Pyrene	T207	M105	0.1	mg/kg	M	001,006-007,011-012,016
Dibenzo(ah)Anthracene	T207	M105	0.1	mg/kg	M	001,006-007,011-012,016
Benzo(ghi)Perylene	T207	M105	0.1	mg/kg	M	001,006-007,011-012,016
PAH(total)	T207	M105	0.1	mg/kg	U	001,006-007,011-012,016
TPH (C5-C6)	T54	AR	0.10	mg/kg	N	001-002,005-007,011-012,016
TPH (C6-C8)	T54	AR	0.10	mg/kg	N	001-002,005-007,011-012,016
TPH (C8-C10)	T54	AR	0.10	mg/kg	N	001-002,005-007,011-012,016
TPH (C10-C12)	T206	M105	1	mg/kg	M	001-002,005-007,011-012,016
TPH (C12-C16)	T206	M105	1	mg/kg	M	001-002,005-007,011-012,016
TPH (C16-C21)	T206	M105	1	mg/kg	M	001-002,005-007,011-012,016
TPH (C21-C35)	T206	M105	1	mg/kg	M	001-002,005-007,011-012,016
TPH (C35-C44)	T8	M105	1	mg/kg	N	001-002,005-007,011-012,016

Determinand	Method	Test Sample	LOD	Units	Symbol	SAL References
Arsenic	T6	M40	2	mg/kg	M	001,006-007,011-012,016
Cadmium	T6	M40	1	mg/kg	M	001,006-007,011-012,016
Chromium	T6	M40	1	mg/kg	M	001,006-007,011-012,016
Lead	T6	M40	1	mg/kg	M	001,006-007,011-012,016
Mercury	T6	M40	1	mg/kg	M	001,006-007,011-012,016
Selenium	T6	M40	3	mg/kg	M	001,006-007,011-012,016
Copper	T6	M40	1	mg/kg	M	001,006-007,011-012,016
Nickel	T6	M40	1	mg/kg	M	001,006-007,011-012,016
Zinc	T6	M40	1	mg/kg	M	001,006-007,011-012,016
pH	T7	AR			M	001,006-007,011-012,016
SO ₄ (Total)	T6	M40	0.01	%	N	001,006-007,011-012,016
SO ₄ (2:1)	T6	AR	100	mg/l	N	001-002,006-008,010-013,016
Chromium VI	T6	AR	1	mg/kg	N	001,006-007,011-012,016
Barium	T6	M40	1	mg/kg	U	001,006-007,011-012,016
Beryllium	T6	M40	2	mg/kg	U	001,006-007,011-012,016
Boron (water-soluble)	T6	AR	1	mg/kg	N	001,006-007,011-012,016
Cyanide(Total)	T546	AR	1	mg/kg	M	001,006-007,011-012,016
Phenols(Mono)	T546	AR	1	mg/kg	M	001,006-007,011-012,016
Vanadium	T6	M40	1	mg/kg	M	001,006-007,011-012,016
Soil Organic Matter	T287	M40	0.1	%	N	001,007,011-012
Total Organic Carbon	T21	M40	0.1	%	N	001,007,011-012
pH	T7	AR			U	002,008,010,013



GROUNDWATER CHEMICAL RESULTS

Scientific Analysis Laboratories Ltd

Certificate of Analysis

Hadfield House
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Manchester
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Tel : 0161 874 2400
Fax : 0161 874 2468

Scientific Analysis Laboratories is a
limited company registered in England and
Wales (No 2514788) whose address is at
Hadfield House, Hadfield Street, Manchester M16 9FE

Report Number: 552145-1

Date of Report: 07-Mar-2016

Customer: Resource Environmental Consultants Ltd
Osprey House
Pacific Quay
Broadway
Salford
M50 2UE

Customer Contact: Miss Sabine Sargeant

Customer Job Reference: 100695

Customer Site Reference: Mount Rd, Leek

Date Job Received at SAL: 02-Mar-2016

Date Analysis Started: 03-Mar-2016

Date Analysis Completed: 07-Mar-2016

The results reported relate to samples received in the laboratory and may not be representative of a whole batch.

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

This report should not be reproduced except in full without the written approval of the laboratory

Tests covered by this certificate were conducted in accordance with SAL SOPs

All results have been reviewed in accordance with Section 25 of the SAL Quality Manual



1549

Report checked
and authorised by :
Emma Spear
Project Manager

Issued by :
Emma Spear
Project Manager



Project Site: Mount Rd, Leek
Customer Reference: 100695

Water	Analysed as Water
REC Banded TPH	

SAL Reference					552145 001	552145 002	552145 003
Customer Sample Reference					WS102	WS103	WS105
Date Sampled					02-MAR-2016	02-MAR-2016	02-MAR-2016
Determinand	Method	Test Sample	LOD	Units			
TPH (C5-C6)	T215	AR	0.010	mg/l	<0.010	<0.010	<0.010
TPH (C6-C8)	T215	AR	0.010	mg/l	<0.010	<0.010	<0.010
TPH (C8-C10) DW	T215	AR	0.010	mg/l	<0.010	<0.010	<0.010
TPH (C10-C12) DW	T81	AR	0.01	mg/l	(13) <0.01	(13) <0.01	(13) <0.01
TPH (C12-C16) DW	T81	AR	0.01	mg/l	(13) <0.01	(13) <0.01	(13) 0.03
TPH (C16-C21) DW	T81	AR	0.01	mg/l	(13) <0.01	(13) <0.01	(13) 0.05
TPH (C21-C35) DW	T81	AR	0.01	mg/l	(13) <0.01	(13) <0.01	(13) 0.09
TPH (C35-C44)	T81	AR	0.01	mg/l	(13) <0.01	(13) <0.01	(13) 0.17

Index to symbols used in 552145-1

Value	Description
AR	As Received
13	Results have been blank corrected.
U	Analysis is UKAS accredited
N	Analysis is not UKAS accredited

Method Index

Value	Description
T215	GC/MS (Headspace)(LV)
T81	GC/FID (LV)

Accreditation Summary

Determinand	Method	Test Sample	LOD	Units	Symbol	SAL References
TPH (C5-C6)	T215	AR	0.010	mg/l	N	001-003
TPH (C6-C8)	T215	AR	0.010	mg/l	N	001-003
TPH (C8-C10) DW	T215	AR	0.010	mg/l	N	001-003
TPH (C10-C12) DW	T81	AR	0.01	mg/l	U	001-003
TPH (C12-C16) DW	T81	AR	0.01	mg/l	U	001-003
TPH (C16-C21) DW	T81	AR	0.01	mg/l	U	001-003
TPH (C21-C35) DW	T81	AR	0.01	mg/l	U	001-003
TPH (C35-C44)	T81	AR	0.01	mg/l	N	001-003

APPENDIX VIII
GEOTECHNICAL TESTING



LABORATORY REPORT



4043

Contract Number: PSL16/1027

Report Date: 14 March 2016

Client's Reference: 100693

Client Name: Rec Manchester
Osprey House
Pacific Quay
Broadway
Manchester
M50 2UE

For the attention of: Mark Hamill

Contract Title: Mount Road Leek

Date Received: 4/3/2016

Date Commenced: 4/3/2016

Date Completed: 14/3/2016

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 in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

R Gunson
(Director)

A Watkins
(Director)

R Berriman
(Quality Manager)

D Lambe
(Senior Technician)

S Royle
(Senior Technician)

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Page 1 of

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]

PSL
Professional Soils Laboratory

Checked / Approved		Date	14/03/16	Contract No:
Mount Road, Leek				PSL16/1027
				Client Ref:
				100693

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Moisture Content % Clause 3.2	Linear Shrinkage % Clause 6.5	Particle Density Mg/m ³ Clause 8.2	Liquid Limit % Clause 4.3/4	Plastic Limit % Clause 5.3	Plasticity Index % Clause 5.4	Passing .425mm %	Remarks
WS101		D	0.80		28			58	24	34	98	High plasticity CH.
WS101		D	1.60		28			62	26	36	100	High plasticity CH.
WS101		D	2.40		23			61	25	36	100	High plasticity CH.
WS103		D	1.00	1.45	22			59	24	35	93	High plasticity CH.
WS103		D	2.60		21			44	21	23	100	Intermediate plasticity CI.
WS104		D	1.60		28			44	22	22	100	Intermediate plasticity CI.
WS105		D	1.00	1.45	47			76	32	44	100	Very high plasticity CV.

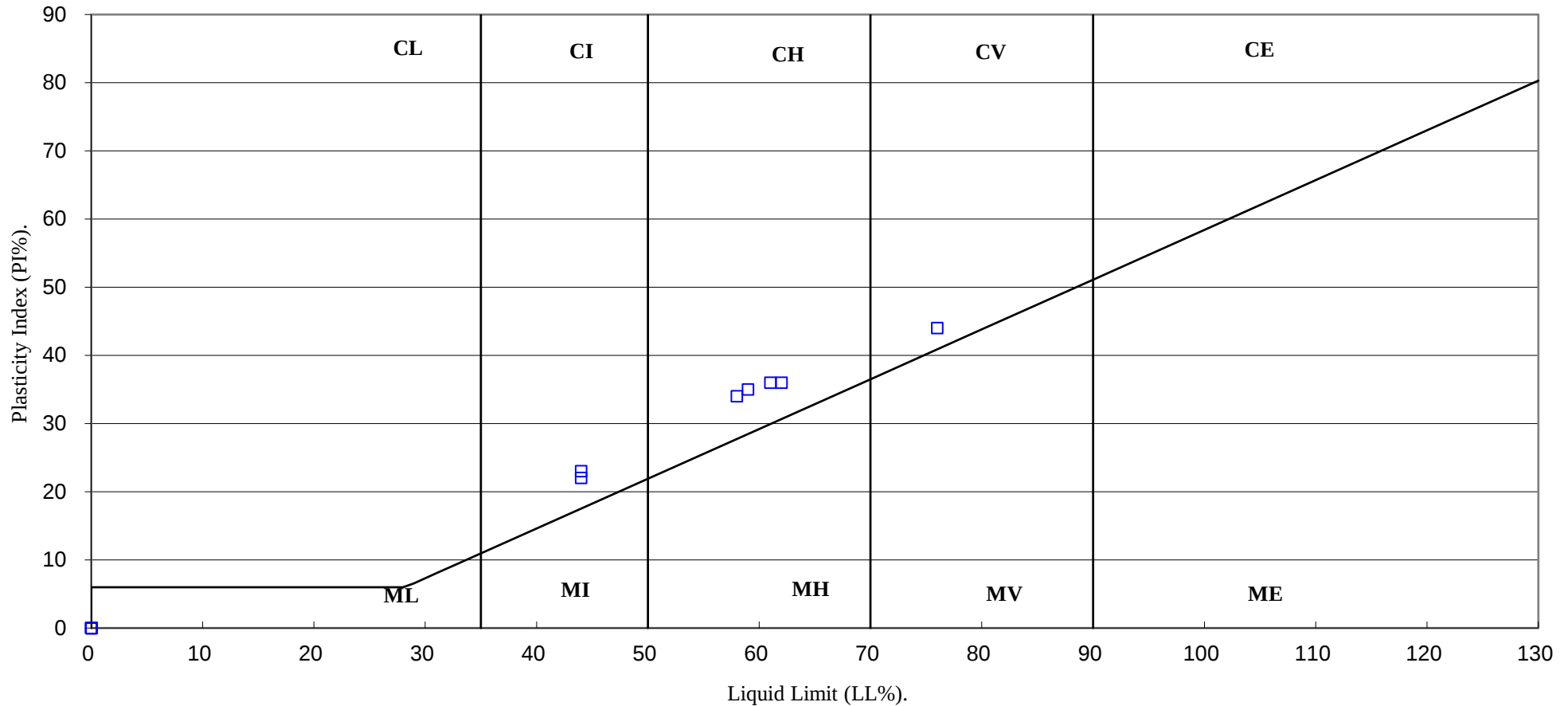
SYMBOLS : NP : Non Plastic

* : Liquid Limit and Plastic Limit Wet Sieved.

		Checked / Approved	<i>[Signature]</i>	Date	14/03/16	Contract No:
		Mount Road, Leek				PSL16/1027
						Client Ref:
						100693

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.

(BS5930 :2015)



PSL
Professional Soils Laboratory

Checked /Approved

[Signature]

Date

14/03/16

Contract No:

PSL16/1027

Client Ref:

100693

Mount Road, Leek