



TEST REPORT

Client Earth Environmental & Geotechnical Ltd

Address Houldsworth Mills Business & Arts Centre
Houldsworth Street
Reddish
Stockport
SK5 6DA

Contract A3939 -
Kinglesey Road, Northenden

Job Number MRN 4099/32
Date of Issue 21 April 2021
Page 1 of 13

Approved Signatories

S J Hutchings, O P Davies

Notes

- 1 All remaining samples and remnants from this contract will be disposed 28 days from the date of this report unless you notify us to the contrary.
- 2 Result certificates, in this report, not bearing a UKAS mark, are not included in our UKAS accreditation schedule.
- 3 Opinions and interpretations expressed herein are outside the scope of our UKAS accreditation
- 4 Certified that the samples have been examined and tested in accordance with the terms of the contract/order and unless otherwise stated conform to the standards/specifications quoted. This does not, however, guarantee the balance of the materials from which the tested samples have been taken to be of equal quality.



Andrew House, Hadfield Street, Dukinfield, Cheshire SK16 4QX Tel: 0161 475 0870
Email: enquiries@murrayrix.com Website: www.murrayrix.com

Also at: London: 020 8523 1999

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MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

LIQUID AND PLASTIC LIMIT

BS 1377: PART 2: 1990 Clause 4.4 ONE POINT METHOD & Clause 5.3

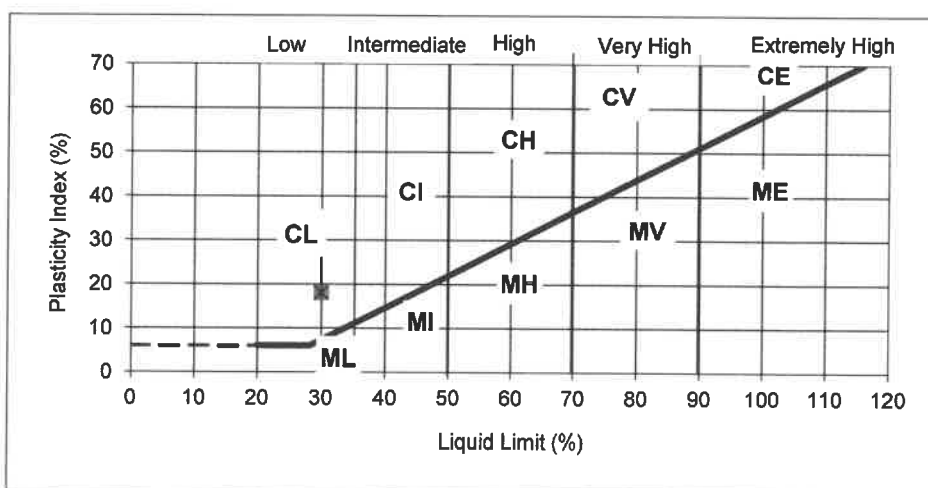
MOISTURE CONTENT METHOD BS 1377: PART 2: 1990 Clause 3.2

CLIENT	Earth Environmental & Geotechnical Ltd
SITE	A3939 - Kinglesey Road, Northenden
JOB NUMBER	MRN 4099/32

SAMPLE LABEL	WS01 D 3	DATE SAMPLED	31-Mar-21
SAMPLE No.	97605	DATE RECEIVED	06-Apr-21
DATE TESTED	09-Apr-21	SAMPLED BY	Client

MATERIAL	Stiff brown silty sandy CLAY with rare gravel
ADVISED SOURCE	Site Investigation Sample

Moisture Content (Natural) (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
12	30	12	18	94



REMARKS

Sample tested in natural condition

SIGNED

O.P. Davies BA (Hons)
(Laboratory Manager)

DATE 21-Apr-21

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

TEST CERTIFICATE

pH and Sulphate as SO₄
BS 1377: PART 3: 1990

CLIENT	Earth Environmental & Geotechnical Ltd
SITE	A3939 – Kinglesey Road, Northenden
JOB NUMBER	MRN 4099/32

SAMPLE LABEL	WS02 D 2.3	DATE SAMPLED	31 March 2021
LAB SAMPLE No	97605	DATE RECEIVED	06 April 2021
DATE TESTED	09 April 2021	SAMPLED BY	Client

ADVISED SOURCE	Site Investigation Sample
PRE TREATMENT	Air Dried

PH Value	7.0	g/l
Sulphate as SO ₄ (2:1 Water Extract)	0.22	

REMARKS

SIGNED



NAME O.P. Davies BA (Hons)
(Laboratory Manager)

DATE 21 April 2021

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TEST CERTIFICATE

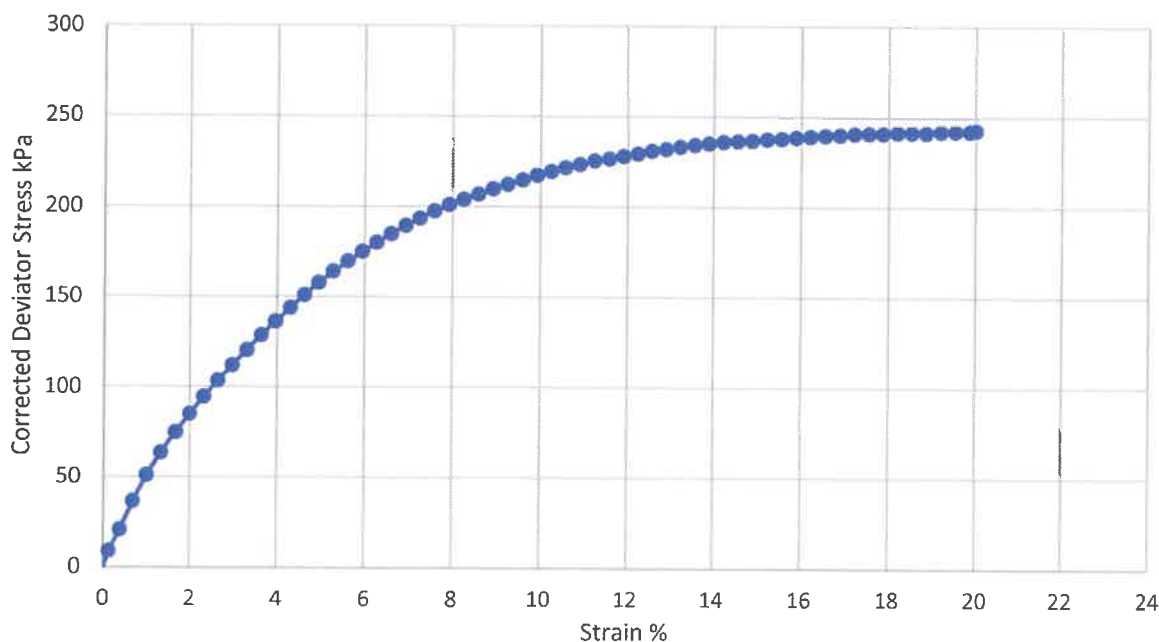
UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION
BS 1377 : PART 7: Clause 8 Single Stage

CLIENT	Earth Environmental & Geotechnical Ltd
SITE	A3939 - Kinglesey Road, Northenden
JOB NUMBER	MRN 4099/32

SAMPLE LABEL	WS02 U 3.3-3.6	DATE SAMPLED	31-Mar-21
LAB SAMPLE No.	97608	DATE RECEIVED	06-Apr-21
DATE TESTED	20-Apr-21	SAMPLED BY	Client
MATERIAL	Stiff brown silty sandy CLAY		
ADVISED SOURCE	Site Investigation Sample		

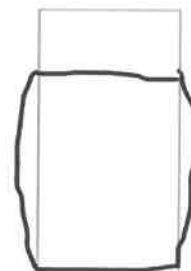
INITIAL CONDITIONS

Specimen Location		Sample Length (mm)	300	Specimen depth from top of Sample (mm)	10
		Sample Orientation	Vertical	Specimen Condition	Undisturbed
		Specimen Length (mm)	161	Specimen Moisture Content (%)	17
		Specimen Diameter (mm)	80	Specimen Bulk Density (Mg/m3)	2.22
		Membrane Thickness (mm)	0.4	Specimen Dry Density (Mg/m3)	1.91
		Membrane Correction	1.89		

CORRECTED DEVIATOR STRESS vs AXIAL STRAIN

TEST TYPE
SINGLE STAGE

SKETCH OF SPECIMEN AT FAILURE



PLASTIC

Cell Pressure (kPa)	Failure Strain (%)	Rate of Strain (%/min)	Corrected Deviator Stress (kPa)	Shear Strength Cu (kPa)
70	20	2	242	121

Remarks/Abnormalities

Name O.P Davies BA (Hons)
(Laboratory Manager)

Signed 

Date 21 April 2021

MURRAY RIX

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DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

LIQUID AND PLASTIC LIMIT

BS 1377: PART 2: 1990 Clause 4.4 ONE POINT METHOD & Clause 5.3

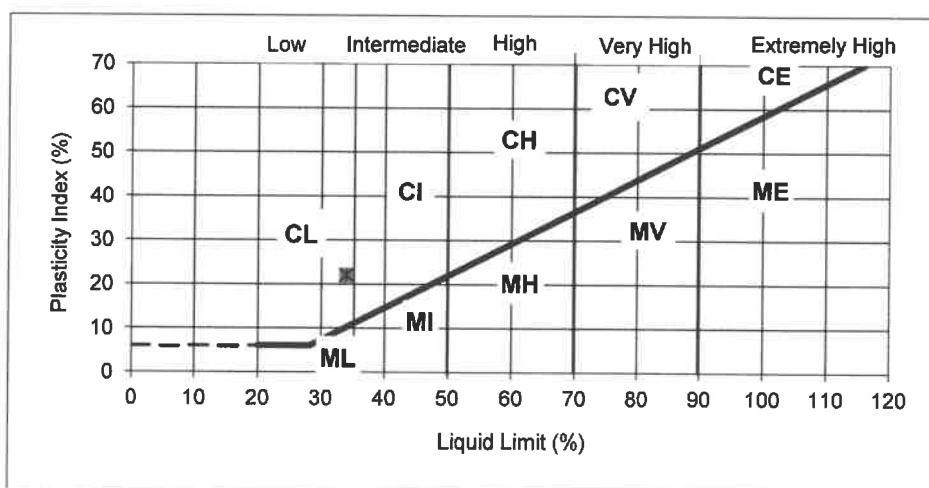
MOISTURE CONTENT METHOD BS 1377: PART 2: 1990 Clause 3.2

CLIENT	Earth Environmental & Geotechnical Ltd
SITE	A3939 - Kinglesey Road, Northenden
JOB NUMBER	MRN 4099/32

SAMPLE LABEL	WS03 U 3.45-3.6	DATE SAMPLED	31-Mar-21
SAMPLE No.	97611	DATE RECEIVED	06-Apr-21
DATE TESTED	09-Apr-21	SAMPLED BY	Client

MATERIAL	Stiff brown silty sandy CLAY with rare gravel
ADVISED SOURCE	Site Investigation Sample

Moisture Content (Natural) (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
15	34	12	22	92



REMARKS

Sample tested in natural condition

SIGNED

O.P. Davies BA (Hons)
(Laboratory Manager)

DATE

21-Apr-21

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TEST CERTIFICATE

LIQUID AND PLASTIC LIMIT

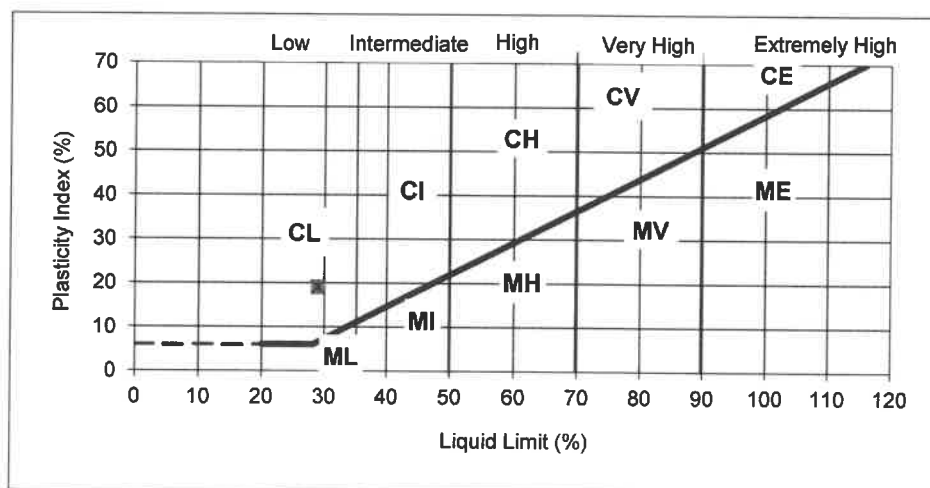
BS 1377: PART 2: 1990 Clause 4.4 ONE POINT METHOD & Clause 5.3
MOISTURE CONTENT METHOD BS 1377: PART 2: 1990 Clause 3.2

CLIENT	Earth Environmental & Geotechnical Ltd
SITE	A3939 - Kinglesey Road, Northenden
JOB NUMBER	MRN 4099/32

SAMPLE LABEL	WS04 U 3.3-3.6	DATE SAMPLED	31-Mar-21
SAMPLE No.	97614	DATE RECEIVED	06-Apr-21
DATE TESTED	09-Apr-21	SAMPLED BY	Client

MATERIAL	Stiff brown silty sandy CLAY with rare gravel
ADVISED SOURCE	Site Investigation Sample

Moisture Content (Natural) (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
10	29	10	19	85



REMARKS

Sample tested in natural condition

SIGNED

O.P. Davies BA (Hons)
(Laboratory Manager)

DATE 21-Apr-21

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DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

TEST CERTIFICATE

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

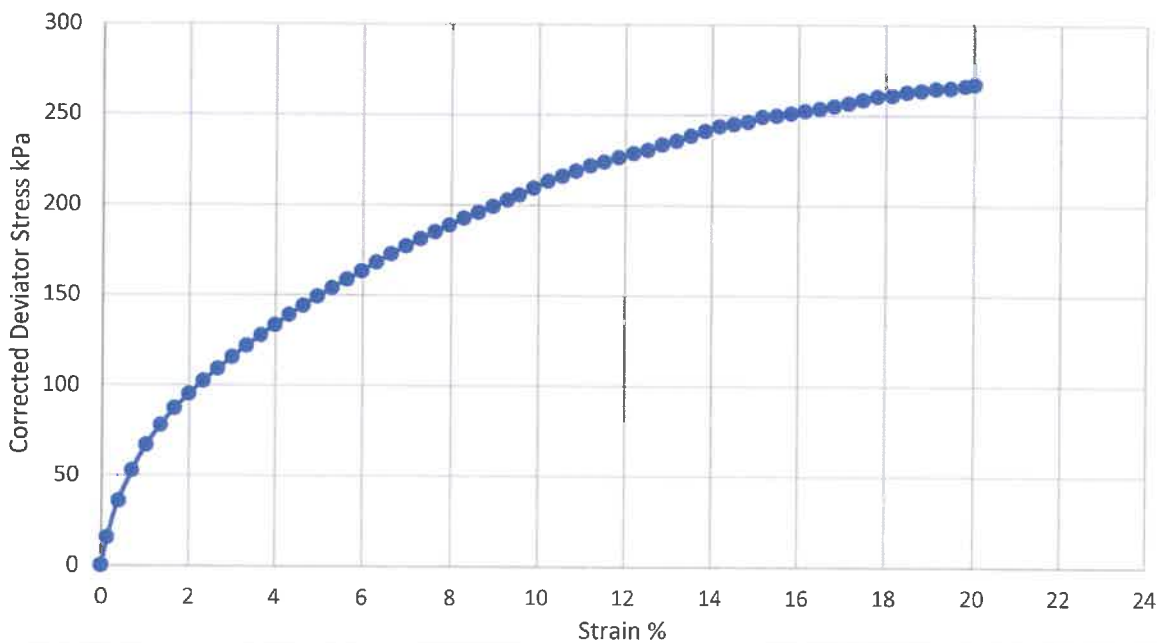
BS 1377 : PART 7: Clause 8 Single Stage

CLIENT	Earth Environmental & Geotechnical Ltd
SITE	A3939 - Kinglesey Road, Northenden
JOB NUMBER	MRN 4099/32

SAMPLE LABEL	WS05 U 3.7-4.0	DATE SAMPLED	01-Apr-21
LAB SAMPLE No.	97617	DATE RECEIVED	06-Apr-21
DATE TESTED	20-Apr-21	SAMPLED BY	Client
MATERIAL	Stiff brown silty sandy CLAY		
ADVISED SOURCE	Site Investigation Sample		

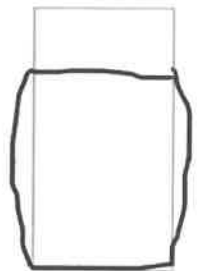
INITIAL CONDITIONS

Specimen Location		Sample Length (mm)	300	Specimen depth from top of Sample (mm)	15
		Sample Orientation	Vertical	Specimen Condition	Undisturbed
		Specimen Length (mm)	141	Specimen Moisture Content (%)	18
		Specimen Diameter (mm)	70	Specimen Bulk Density (Mg/m3)	2.23
		Membrane Thickness (mm)	0.4	Specimen Dry Density (Mg/m3)	1.90
		Membrane Correction	2.16		

CORRECTED DEVIATOR STRESS vs AXIAL STRAIN

TEST TYPE
SINGLE STAGE

SKETCH OF SPECIMEN AT FAILURE



PLASTIC

Cell Pressure (kPa)	Failure Strain (%)	Rate of Strain (%/min)	Corrected Deviator Stress (kPa)	Shear Strength Cu (kPa)
80	20	2	266	133

Remarks/Abnormalities

Name O.P Davies BA (Hons)
(Laboratory Manager)

Signed 

Date 21 April 2021

MURRAY RIX

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DUKINFIELD, CHESHIRE SK16 4QX
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TEST CERTIFICATE

pH and Sulphate as SO₄
BS 1377: PART 3: 1990

CLIENT	Earth Environmental & Geotechnical Ltd
SITE	A3939 – Kinglesey Road, Northenden
JOB NUMBER	MRN 4099/32

SAMPLE LABEL	WS06 D 2	DATE SAMPLED	01 April 2021
LAB SAMPLE No	97618	DATE RECEIVED	06 April 2021
DATE TESTED	09 April 2021	SAMPLED BY	Client

ADVISED SOURCE	Site Investigation Sample
PRE TREATMENT	Air Dried

PH Value	7.0	g/l
Sulphate as SO ₄ (2:1 Water Extract)	0.20	

REMARKS

SIGNED



NAME O.P. Davies BA (Hons)
(Laboratory Manager)

DATE 21 April 2021

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

TEST CERTIFICATE

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

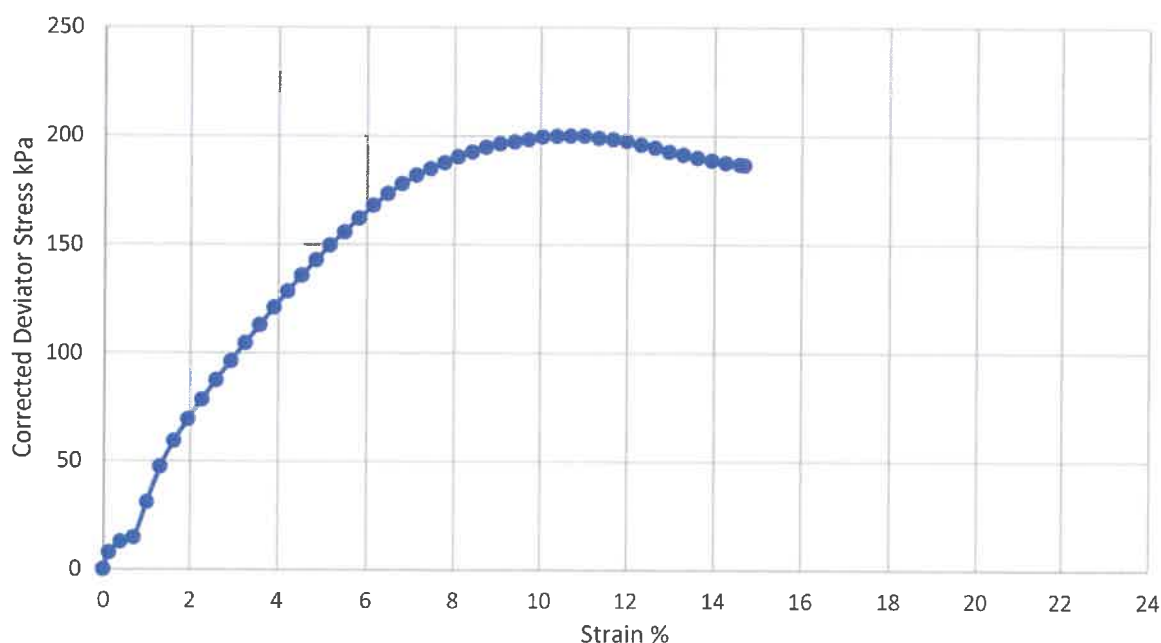
BS 1377 : PART 7: Clause 8 Single Stage

CLIENT	Earth Environmental & Geotechnical Ltd
SITE	A3939 - Kinglesey Road, Northenden
JOB NUMBER	MRN 4099/32

SAMPLE LABEL	WS06 U 3.6-3.9	DATE SAMPLED	01-Apr-21
LAB SAMPLE No.	97619	DATE RECEIVED	06-Apr-21
DATE TESTED	14-Apr-21	SAMPLED BY	Client
MATERIAL	Stiff brown silty sandy CLAY		
ADVISED SOURCE	Site Investigation Sample		

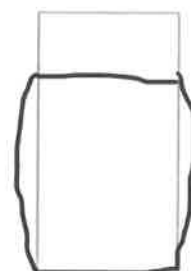
INITIAL CONDITIONS

Specimen Location	Sample Length (mm)	300	Specimen depth from top of Sample (mm)	15
	Sample Orientation	Vertical	Specimen Condition	Undisturbed
	Specimen Length (mm)	120	Specimen Moisture Content (%)	18
	Specimen Diameter (mm)	60	Specimen Bulk Density (Mg/m ³)	2.26
	Membrane Thickness (mm)	0.4	Specimen Dry Density (Mg/m ³)	1.92
	Membrane Correction	2.41		

CORRECTED DEVIATOR STRESS vs AXIAL STRAIN

TEST TYPE
SINGLE STAGE

SKETCH OF SPECIMEN AT FAILURE



PLASTIC

Cell Pressure (kPa)	Failure Strain (%)	Rate of Strain (%/min)	Corrected Deviator Stress (kPa)	Shear Strength c_u (kPa)
75	15	2	200	100

Remarks/Abnormalities

Name O.P Davies BA (Hons)
(Laboratory Manager)

Signed

Date 21 April 2021

MURRAY RIX

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DUKINFIELD, CHESHIRE SK16 4QX
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TEST CERTIFICATE

pH and Sulphate as SO₄
BS 1377: PART 3: 1990

CLIENT	Earth Environmental & Geotechnical Ltd
SITE	A3939 – Kinglesey Road, Northenden
JOB NUMBER	MRN 4099/32

SAMPLE LABEL	WS07 D 1.4	DATE SAMPLED	01 April 2021
LAB SAMPLE No	97621	DATE RECEIVED	06 April 2021
DATE TESTED	09 April 2021	SAMPLED BY	Client

ADVISED SOURCE	Site Investigation Sample
PRE TREATMENT	Air Dried

PH Value	7.0	g/l
Sulphate as SO ₄ (2:1 Water Extract)	0.17	

REMARKS

SIGNED



NAME O.P. Davies BA (Hons)
(Laboratory Manager)

DATE 21 April 2021

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TEST CERTIFICATE

LIQUID AND PLASTIC LIMIT

BS 1377: PART 2: 1990 Clause 4.4 ONE POINT METHOD & Clause 5.3

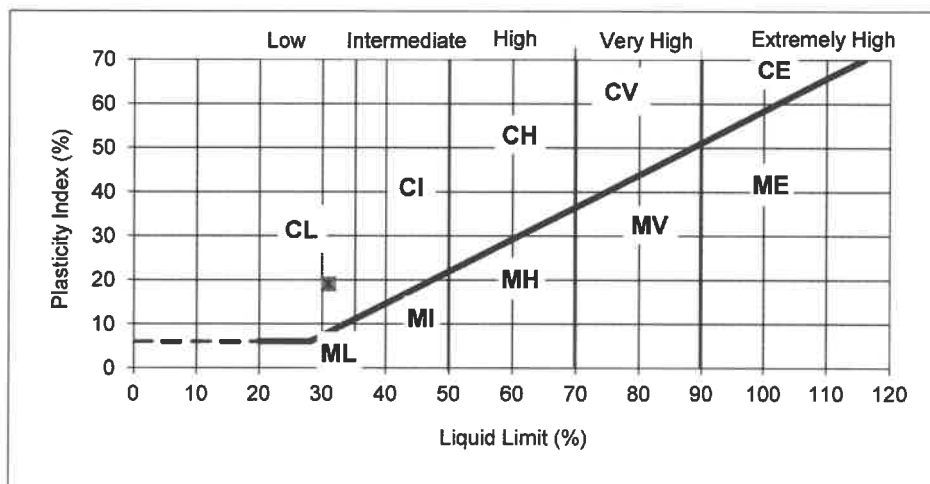
MOISTURE CONTENT METHOD BS 1377: PART 2: 1990 Clause 3.2

CLIENT	Earth Environmental & Geotechnical Ltd
SITE	A3939 - Kinglesey Road, Northenden
JOB NUMBER	MRN 4099/32

SAMPLE LABEL	WS07 B 3.8-4	DATE SAMPLED	01-Apr-21
SAMPLE No.	97623	DATE RECEIVED	06-Apr-21
DATE TESTED	09-Apr-21	SAMPLED BY	Client

MATERIAL	Firm brown silty sandy CLAY with rare gravel
ADVISED SOURCE	Site Investigation Sample

Moisture Content (Natural) (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
20	31	12	19	90



REMARKS

Sample tested in natural condition

SIGNED

O.P. Davies BA (Hons)
(Laboratory Manager)

DATE 21-Apr-21

MURRAY RIX

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DUKINFIELD, CHESHIRE SK16 4QX
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TEST CERTIFICATE

pH and Sulphate as SO₄
BS 1377: PART 3: 1990

CLIENT	Earth Environmental & Geotechnical Ltd
SITE	A3939 – Kinglesey Road, Northenden
JOB NUMBER	MRN 4099/32

SAMPLE LABEL	WS08 D 1	DATE SAMPLED	01 April 2021
LAB SAMPLE No	97624	DATE RECEIVED	06 April 2021
DATE TESTED	09 April 2021	SAMPLED BY	Client

ADVISED SOURCE	Site Investigation Sample
PRE TREATMENT	Air Dried

PH Value	7.0	g/l
Sulphate as SO ₄ (2:1 Water Extract)	0.12	

REMARKS

SIGNED



NAME O.P. Davies BA (Hons)
(Laboratory Manager)

DATE 21 April 2021

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

TEST CERTIFICATE

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

BS 1377 : PART 7: Clause 8 Single Stage

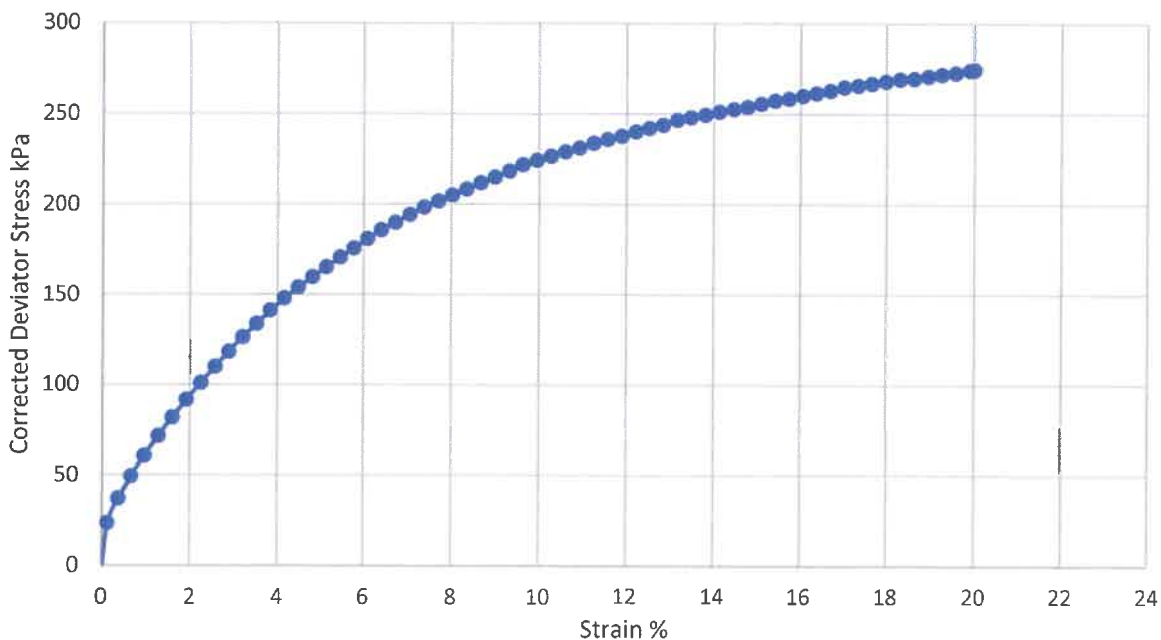
CLIENT	Earth Environmental & Geotechnical Ltd
SITE	A3939 - Kinglesey Road, Northenden
JOB NUMBER	MRN 4099/32

SAMPLE LABEL	WS08 U 3.7-4.0	DATE SAMPLED	01-Apr-21
LAB SAMPLE No.	97626	DATE RECEIVED	06-Apr-21
DATE TESTED	20-Apr-21	SAMPLED BY	Client
MATERIAL	Stiff brown silty sandy CLAY		
ADVISED SOURCE	Site Investigation Sample		

INITIAL CONDITIONS

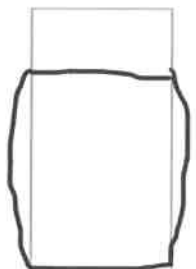
Specimen Location		Sample Length (mm)	300	Specimen depth from top of Sample (mm)	90
		Sample Orientation	Vertical	Specimen Condition	Undisturbed
		Specimen Length (mm)	135	Specimen Moisture Content (%)	16
		Specimen Diameter (mm)	65	Specimen Bulk Density (Mg/m3)	2.13
		Membrane Thickness (mm)	0.4	Specimen Dry Density (Mg/m3)	1.84
		Membrane Correction	2.33		

CORRECTED DEVIATOR STRESS vs AXIAL STRAIN



TEST TYPE
SINGLE STAGE

SKETCH OF SPECIMEN AT FAILURE



PLASTIC

Cell Pressure (kPa)	Failure Strain (%)	Rate of Strain (%/min)	Corrected Deviator Stress (kPa)	Shear Strength c_u (kPa)
80	20	2	274	137

Remarks/Abnormalities

Name O.P Davies BA (Hons)
(Laboratory Manager)

Signed 

Date 21 April 2021