

Appendix A: Classifier defined and non CLP determinands

* chromium(III) oxide (worst case) (EC Number: 215-160-9, CAS Number: 1308-38-9)

Description/Comments: Data from C&L Inventory Database

Data source: <https://echa.europa.eu/information-on-chemicals/cl-inventory-database/-/discli/details/33806>

Data source date: 17 Jul 2015

Hazard Statements: Acute Tox. 4 H332 , Acute Tox. 4 H302 , Eye Irrit. 2 H319 , STOT SE 3 H335 , Skin Irrit. 2 H315 , Resp. Sens. 1 H334 , Skin Sens. 1 H317 , Repr. 1B H360FD , Aquatic Acute 1 H400 , Aquatic Chronic 1 H410

* lead compounds with the exception of those specified elsewhere in this Annex (worst case)

CLP index number: 082-001-00-6

Description/Comments: Worst Case: IARC considers lead compounds Group 2A; Probably carcinogenic to humans; Lead REACH Consortium, following CLP protocols, considers lead compounds from smelting industries, flue dust and similar to be Carcinogenic category 1A

Data source: Regulation 1272/2008/EC - Classification, labelling and packaging of substances and mixtures. (CLP)

Additional Hazard Statement(s): Carc. 1A H350

Reason for additional Hazards Statement(s):

03 Jun 2015 - Carc. 1A H350 hazard statement sourced from: IARC Group 2A (Sup 7, 87) 2006; Lead REACH Consortium www.reach-lead.eu/substanceinformation.html (worst case lead compounds). Review date 29/09/2015

* pH (CAS Number: PH)

Description/Comments: Appendix C4

Data source: WM3 1st Edition 2015

Data source date: 25 May 2015

Hazard Statements: None.

* salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex

CLP index number: 006-007-00-5

Description/Comments: Conversion factor based on a worst case compound: sodium cyanide

Data source: Commission Regulation (EC) No 790/2009 - 1st Adaptation to Technical Progress for Regulation (EC) No 1272/2008. (ATP1)

Additional Hazard Statement(s): EUH032 >= 0.2 %

Reason for additional Hazards Statement(s):

14 Dec 2015 - EUH032 >= 0.2 % hazard statement sourced from: WM3, Table C12.2

* TPH (C6 to C40) petroleum group (CAS Number: TPH)

Description/Comments: Hazard statements taken from WM3 1st Edition 2015; Risk phrases: WM2 3rd Edition 2013

Data source: WM3 1st Edition 2015

Data source date: 25 May 2015

Hazard Statements: Flam. Liq. 3 H226 , Asp. Tox. 1 H304 , STOT RE 2 H373 , Muta. 1B H340 , Carc. 1B H350 , Repr. 2 H361d , Aquatic Chronic 2 H411

* confirm TPH has NOT arisen from diesel or petrol

Description/Comments: Chapter 3, section 4b requires a positive confirmation for benzo[a]pyrene to be used as a marker in evaluating Carc. 1B; H350 (HP 7) and Muta. 1B; H340 (HP 11)

Data source: WM3 1st Edition 2015

Data source date: 25 May 2015

Hazard Statements: None.

* acenaphthylene (EC Number: 205-917-1, CAS Number: 208-96-8)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 17 Jul 2015

Hazard Statements: Acute Tox. 4 H302 , Acute Tox. 1 H330 , Acute Tox. 1 H310 , Eye Irrit. 2 H319 , STOT SE 3 H335 , Skin Irrit. 2 H315

* acenaphthene (EC Number: 201-469-6, CAS Number: 83-32-9)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 17 Jul 2015

Hazard Statements: Eye Irrit. 2 H319 , STOT SE 3 H335 , Skin Irrit. 2 H315 , Aquatic Acute 1 H400 , Aquatic Chronic 1 H410 , Aquatic Chronic 2 H411

• **fluorene** (EC Number: 201-695-5, CAS Number: 86-73-7)

Description/Comments: Data from C&L Inventory Database
Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 06 Aug 2015
Hazard Statements: Aquatic Acute 1 H400 , Aquatic Chronic 1 H410

• **phenanthrene** (EC Number: 201-581-5, CAS Number: 85-01-8)

Description/Comments: Data from C&L Inventory Database
Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 06 Aug 2015
Hazard Statements: Acute Tox. 4 H302 , Eye Irrit. 2 H319 , STOT SE 3 H335 , Carc. 2 H351 , Skin Sens. 1 H317 , Aquatic Acute 1 H400 , Aquatic Chronic 1 H410 , Skin Irrit. 2 H315

• **anthracene** (EC Number: 204-371-1, CAS Number: 120-12-7)

Description/Comments: Data from C&L Inventory Database
Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 17 Jul 2015
Hazard Statements: Eye Irrit. 2 H319 , STOT SE 3 H335 , Skin Irrit. 2 H315 , Skin Sens. 1 H317 , Aquatic Acute 1 H400 , Aquatic Chronic 1 H410

• **fluoranthene** (EC Number: 205-912-4, CAS Number: 206-44-0)

Description/Comments: Data from C&L Inventory Database
Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 21 Aug 2015
Hazard Statements: Acute Tox. 4 H302 , Aquatic Acute 1 H400 , Aquatic Chronic 1 H410

• **pyrene** (EC Number: 204-927-3, CAS Number: 129-00-0)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 2014
Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 21 Aug 2015
Hazard Statements: Skin Irrit. 2 H315 , Eye Irrit. 2 H319 , STOT SE 3 H335 , Aquatic Acute 1 H400 , Aquatic Chronic 1 H410

• **indeno[123-cd]pyrene** (EC Number: 205-893-2, CAS Number: 193-39-5)

Description/Comments: Data from C&L Inventory Database
Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 06 Aug 2015
Hazard Statements: Carc. 2 H351

• **benzo[ghi]perylene** (EC Number: 205-883-8, CAS Number: 191-24-2)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 28/02/2015
Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 23 Jul 2015
Hazard Statements: Aquatic Acute 1 H400 , Aquatic Chronic 1 H410

• **ethylbenzene** (EC Number: 202-849-4, CAS Number: 100-41-4)

CLP index number: 601-023-00-4
Description/Comments:
Data source: Commission Regulation (EU) No 605/2014 – 6th Adaptation to Technical Progress for Regulation (EC) No 1272/2008. (ATP6)
Additional Hazard Statement(s): Carc. 2 H351
Reason for additional Hazards Statement(s):
03 Jun 2015 - Carc. 2 H351 hazard statement sourced from: IARC Group 2B (77) 2000

Appendix B: Rationale for selection of metal species

arsenic (arsenic trioxide)

Worst case species based on hazard statements

cadmium (cadmium sulfide)

Worst case species based on hazard statements

chromium in chromium(III) compounds {chromium(III) oxide (worst case)}

Worst case species based on hazard statements

copper (dicopper oxide; copper (I) oxide)

Worst case species based on hazard statements

lead {lead compounds with the exception of those specified elsewhere in this Annex (worst case)}

No chromate detected

mercury {mercury dichloride}

Worst case species based on hazard statements

nickel {nickel dihydroxide}

Worst case species based on hazard statements

selenium {selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex}

(enter justification for selecting this species)

zinc {zinc sulphate (hydrous) (mono-, hexa- and hepta hydrate); [1] zinc sulphate (anhydrous) [2]}

no chromate detected

cyanides {salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex}

Worst case species

chromium in chromium(VI) compounds {chromium(VI) oxide}

(enter justification for selecting this species)

Appendix C: Version

HazWasteOnline Classification Engine: WM3 1st Edition v1.1, May 2018

HazWasteOnline Classification Engine Version: 2021.60.4685.9008 (01 Mar 2021)

HazWasteOnline Database: 2021.60.4685.9008 (01 Mar 2021)

This classification utilises the following guidance and legislation:

WM3 v1.1 - Waste Classification - 1st Edition v1.1 - May 2018

CLP Regulation - Regulation 1272/2008/EC of 16 December 2008

1st ATP - Regulation 790/2009/EC of 10 August 2009

2nd ATP - Regulation 286/2011/EC of 10 March 2011

3rd ATP - Regulation 618/2012/EU of 10 July 2012

4th ATP - Regulation 487/2013/EU of 8 May 2013

Correction to 1st ATP - Regulation 758/2013/EU of 7 August 2013

5th ATP - Regulation 944/2013/EU of 2 October 2013

6th ATP - Regulation 605/2014/EU of 5 June 2014

WFD Annex III replacement - Regulation 1357/2014/EU of 18 December 2014

Revised List of Waste 2014 - Decision 2014/955/EU of 18 December 2014

7th ATP - Regulation 2015/1221/EU of 24 July 2015

8th ATP - Regulation (EU) 2016/918 of 19 May 2016

9th ATP - Regulation (EU) 2016/1179 of 19 July 2016

10th ATP - Regulation (EU) 2017/776 of 4 May 2017

HP14 amendment - Regulation (EU) 2017/997 of 8 June 2017

13th ATP - Regulation (EU) 2018/1480 of 4 October 2018

14th ATP - Regulation (EU) 2020/217 of 4 October 2019

15th ATP - Regulation (EU) 2020/1182 of 19 May 2020

The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use)(Amendment etc.) (EU Exit)

Regulations 2019 - UK: 2019 No. 720 of 27th March 2019

The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use)(Amendment etc.) (EU Exit)

Regulations 2020 - UK: 2020 No. 1567 of 16th December 2020

The Waste and Environmental Permitting etc. (Legislative Functions and Amendment etc.) (EU Exit) Regulations 2020 - UK:

2020 No. 1540 of 16th December 2020

POPs Regulation 2019 - Regulation (EU) 2019/1021 of 20 June 2019

APPENDIX 5 ▪ Geotechnical Laboratory Certificates



Liquid and Plastic Limits



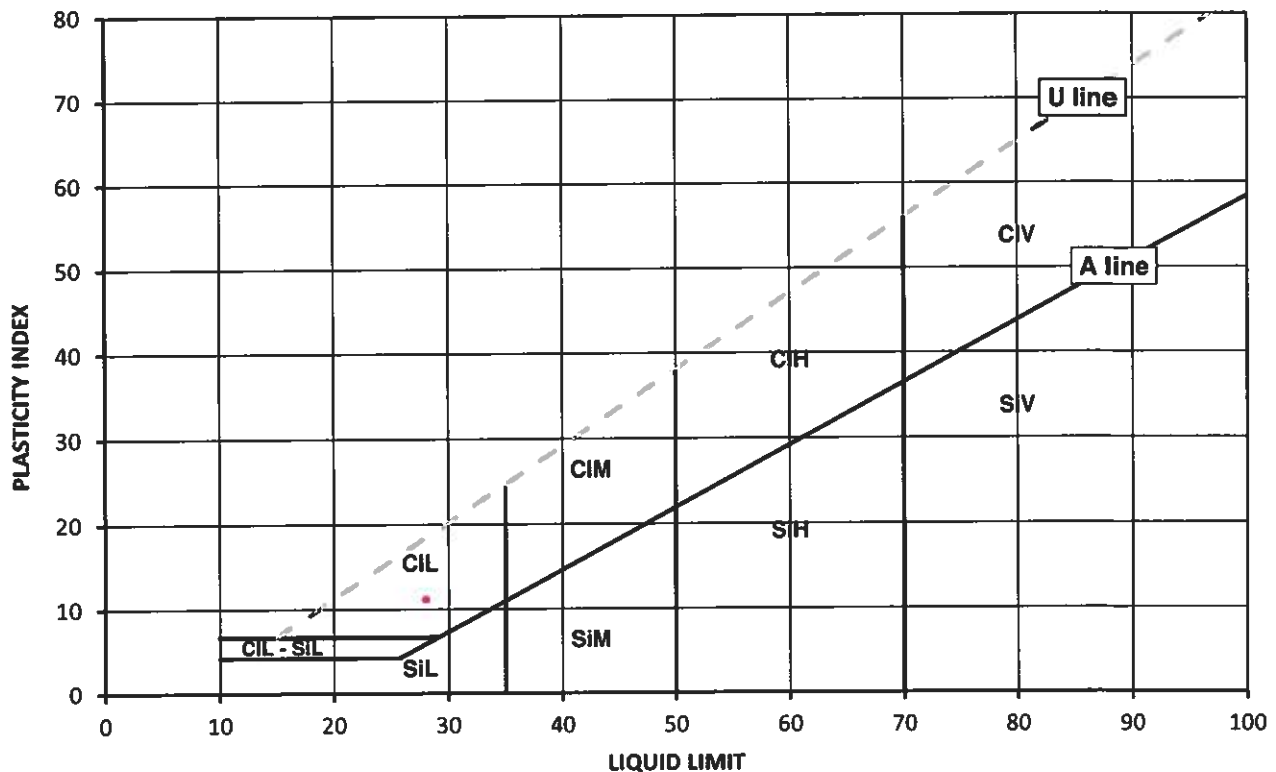
Tested in Accordance with: BS 1377-2: 1990: Clause 4.4 and 5

Client Reference: 21988
Job Number: 21-57008
Date Sampled: 10/02/2021
Date Received: 12/02/2021
Date Tested: 24/02/2021
Sampled By: Lucy Blain

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Depth Top [m]: 1.40
Depth Base [m]: 1.50
Sample Type: D

As Received Moisture Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
14	28	17	11	71



		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Remarks:

Szczepan Bielewicz
PL Deputy Head of Geotechnical Section
for and on behalf of I2 Analytical Ltd

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Date Reported: 09/03/2021

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4041

TEST CERTIFICATE**Liquid and Plastic Limits**

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Environmental Science

Tested in Accordance with: BS 1377-2: 1990: Clause 4.4 and 5

Client: Merebrook
Client Address: Cromford Mills, Mill Lane,
Cromford, Derbyshire,
DE4 3RQ

Contact: Tim Crowe
Site Address: Merthyr Tydfil

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 21988
Job Number: 21-57008
Date Sampled: 10/02/2021
Date Received: 12/02/2021
Date Tested: 24/02/2021
Sampled By: Lucy Blain

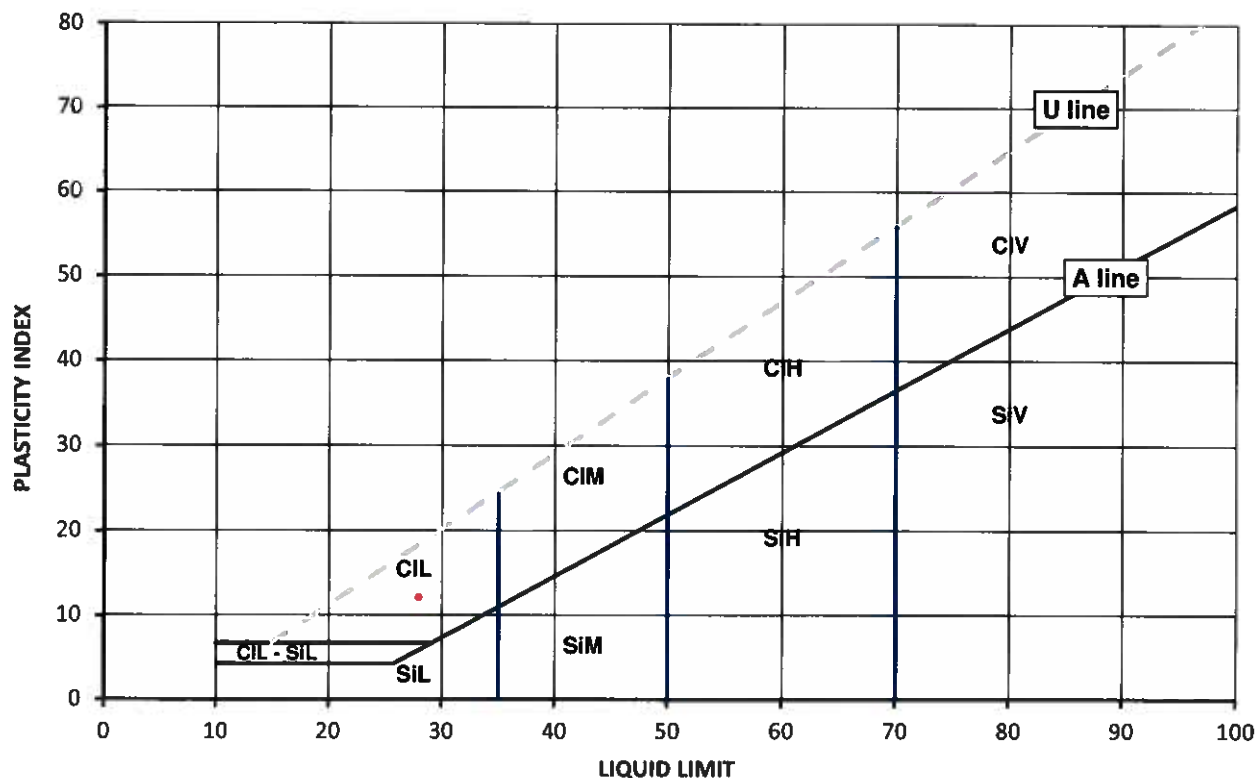
Test Results:

Laboratory Reference: 1771330
Hole No.: MBH02
Sample Reference: Not Given
Soil Description: Brown gravelly very sandy CLAY

Depth Top [m]: 3.70
Depth Base [m]: Not Given
Sample Type: D

Sample Preparation: Tested after washing to remove >425µm

As Received Moisture Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
15	28	16	12	59



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Plasticity	Liquid Limit
Cl Clay	L Low	below 35
Si Silt	M Medium	35 to 50
	H High	50 to 70
	V Very high	exceeding 70
	O Organic	append to classification for organic material (eg CIHO)

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed:

Szczepan Bielatowicz
PL Deputy Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd

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Northampton NN4 7EB



Environmental Science

Tested in Accordance with: BS 1377-2: 1990: Clause 4.4 and 5

Client: Merebrook
Client Address: Cromford Mills, Mill Lane,
Cromford, Derbyshire,
DE4 3RQ

Contact: Tim Crowe
Site Address: Merthyr Tydfil

Client Reference: 21988
Job Number: 21-57008
Date Sampled: 07/02/2021
Date Received: 12/02/2021
Date Tested: 24/02/2021
Sampled By: Lucy Blain

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

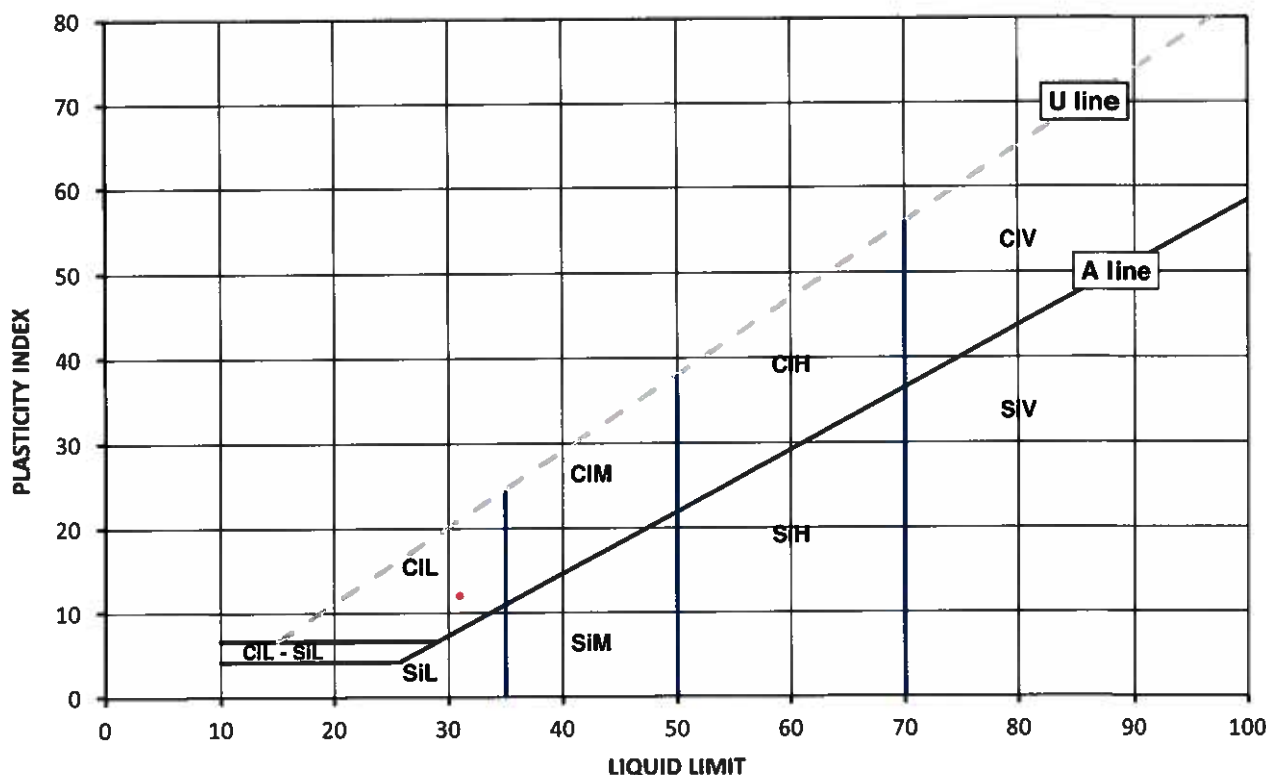
Test Results:

Laboratory Reference: 1771331
Hole No.: MBH02
Sample Reference: Not Given
Soil Description: Brown gravelly very sandy CLAY

Depth Top [m]: 1.20
Depth Base [m]: Not Given
Sample Type: D

Sample Preparation: Tested after washing to remove >425µm

As Received Moisture Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
15	31	19	12	44



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Plasticity	Liquid Limit
Cl	Clay	below 35
Si	Silt	35 to 50
	L Low	50 to 70
	M Medium	exceeding 70
	H High	append to classification for organic material (eg CIHO)
	V Very high	
	O Organic	

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed:

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i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Environmental Science

Tested in Accordance with: BS 1377-2: 1990: Clause 4.4 and 5

Client: Merebrook
Client Address: Cromford Mills, Mill Lane,
Cromford, Derbyshire,
DE4 3RQ

Contact: Tim Crowe
Site Address: Merthyr Tydfil

Client Reference: 21988
Job Number: 21-57008
Date Sampled: 10/02/2021
Date Received: 12/02/2021
Date Tested: 24/02/2021
Sampled By: Lucy Blain

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

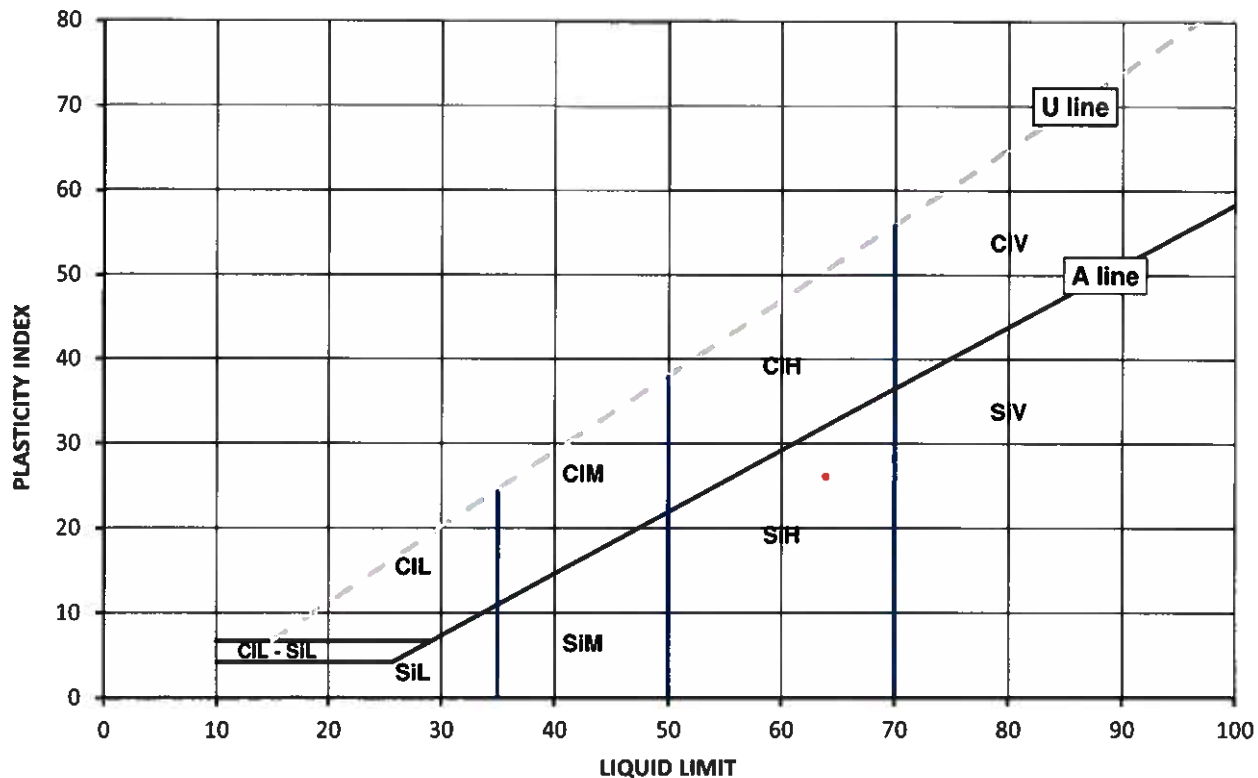
Test Results:

Laboratory Reference: 1771332
Hole No.: MBH03
Sample Reference: Not Given
Soil Description: Dark brown gravelly CLAY

Depth Top [m]: 1.20
Depth Base [m]: 1.30
Sample Type: D

Sample Preparation: Tested after washing to remove >425µm

As Received Moisture Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
26	64	38	26	51



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Plasticity	Liquid Limit
Cl Clay	L Low	below 35
Si Silt	M Medium	35 to 50
	H High	50 to 70
	V Very high	exceeding 70
	O Organic	append to classification for organic material (eg CIHO)

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed:

Szczepan Bielawicz
PL Deputy Head of Geotechnical Section
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Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Environmental Science

Tested in Accordance with: BS 1377-2: 1990: Clause 4.4 and 5

Client: Merebrook
Client Address: Cromford Mills, Mill Lane,
Cromford, Derbyshire,
DE4 3RQ
Contact: Tim Crowe
Site Address: Merthyr Tydfil

Client Reference: 21988
Job Number: 21-57008
Date Sampled: 08/02/2021
Date Received: 12/02/2021
Date Tested: 24/02/2021
Sampled By: Lucy Blain

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

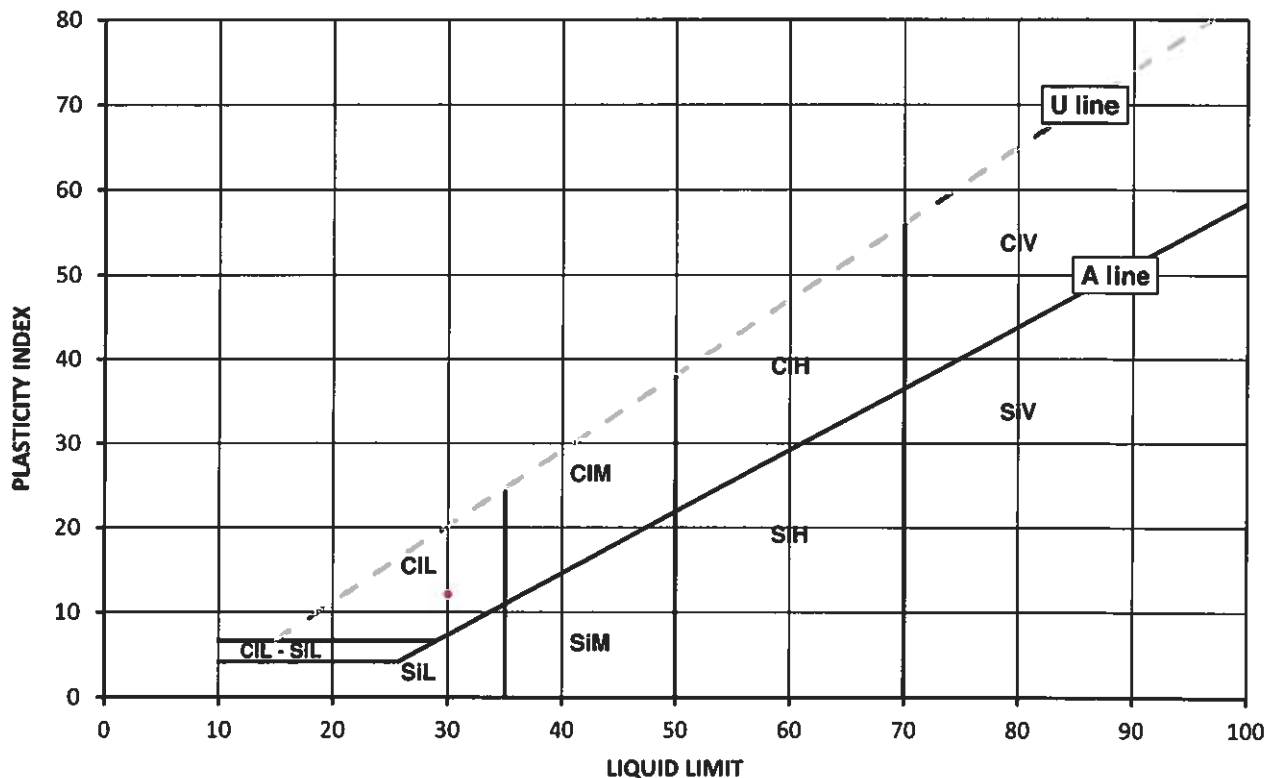
Test Results:

Laboratory Reference: 1771333
Hole No.: MSP02
Sample Reference: Not Given
Soil Description: Brown slightly gravelly very sandy CLAY

Depth Top [m]: 2.10
Depth Base [m]: 2.20
Sample Type: D

Sample Preparation: Tested after washing to remove >425µm

As Received Moisture Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
12	30	18	12	72



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg CIHO)

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

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Tested in Accordance with: BS 1377-2: 1990: Clause 4.4 and 5

Client: Merebrook
Client Address: Cromford Mills, Mill Lane,
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DE4 3RQ

Contact: Tim Crowe
Site Address: Merthyr Tydfil

Client Reference: 21988
Job Number: 21-57008
Date Sampled: 08/02/2021
Date Received: 12/02/2021
Date Tested: 24/02/2021
Sampled By: Lucy Blain

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

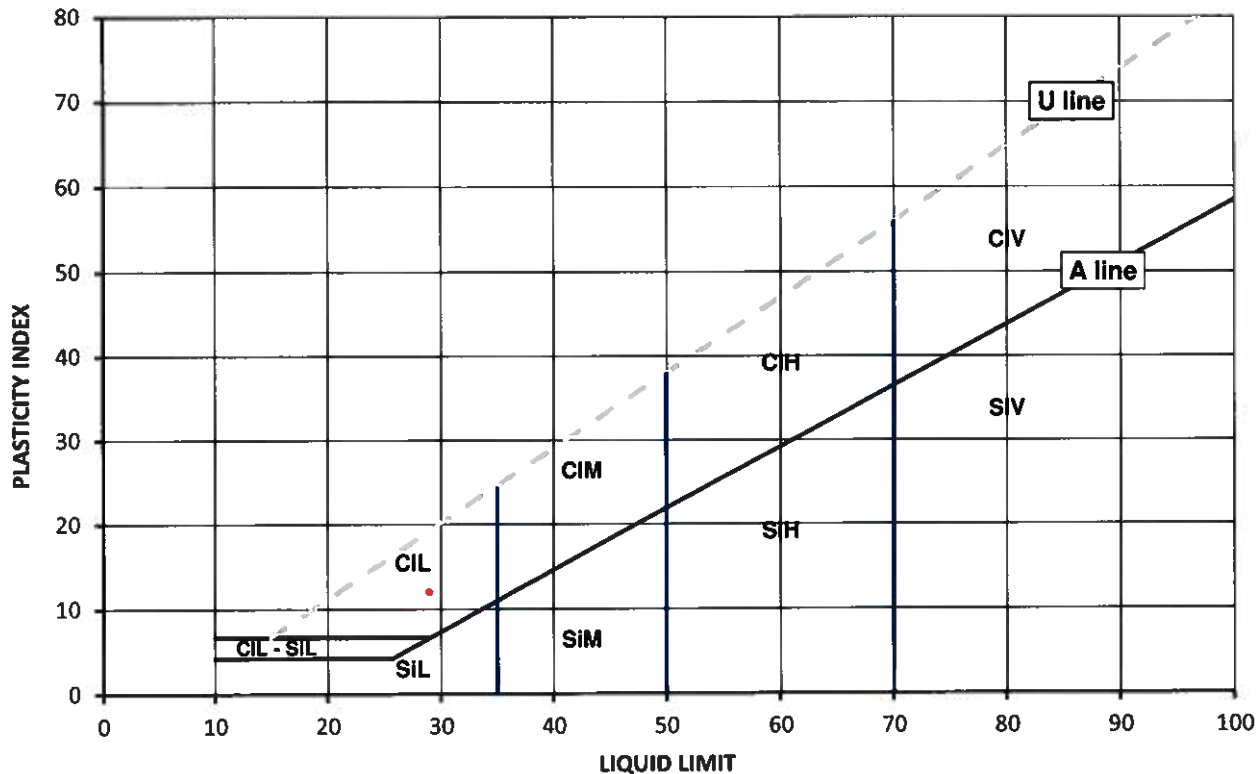
Test Results:

Laboratory Reference: 1771334
Hole No.: MSP04
Sample Reference: Not Given
Soil Description: Brown gravelly very sandy CLAY

Depth Top [m]: 1.20
Depth Base [m]: Not Given
Sample Type: D

Sample Preparation: Tested after washing to remove >425µm

As Received Moisture Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
13	29	17	12	59



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Plasticity	Liquid Limit
Cl Clay	L Low	below 35
Si Silt	M Medium	35 to 50
	H High	50 to 70
	V Very high	exceeding 70
	O Organic	append to classification for organic material (eg CIHO)

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed:

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PL Deputy Head of Geotechnical Section
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Client: Merebrook
Client Address: Cromford Mills, Mill Lane,
Cromford, Derbyshire,
DE4 3RQ

Contact: Tim Crowe
Site Address: Merthyr Tydfil

Client Reference: 21988
Job Number: 21-57008
Date Sampled: 09/02/2021
Date Received: 12/02/2021
Date Tested: 24/02/2021
Sampled By: Lucy Blain

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

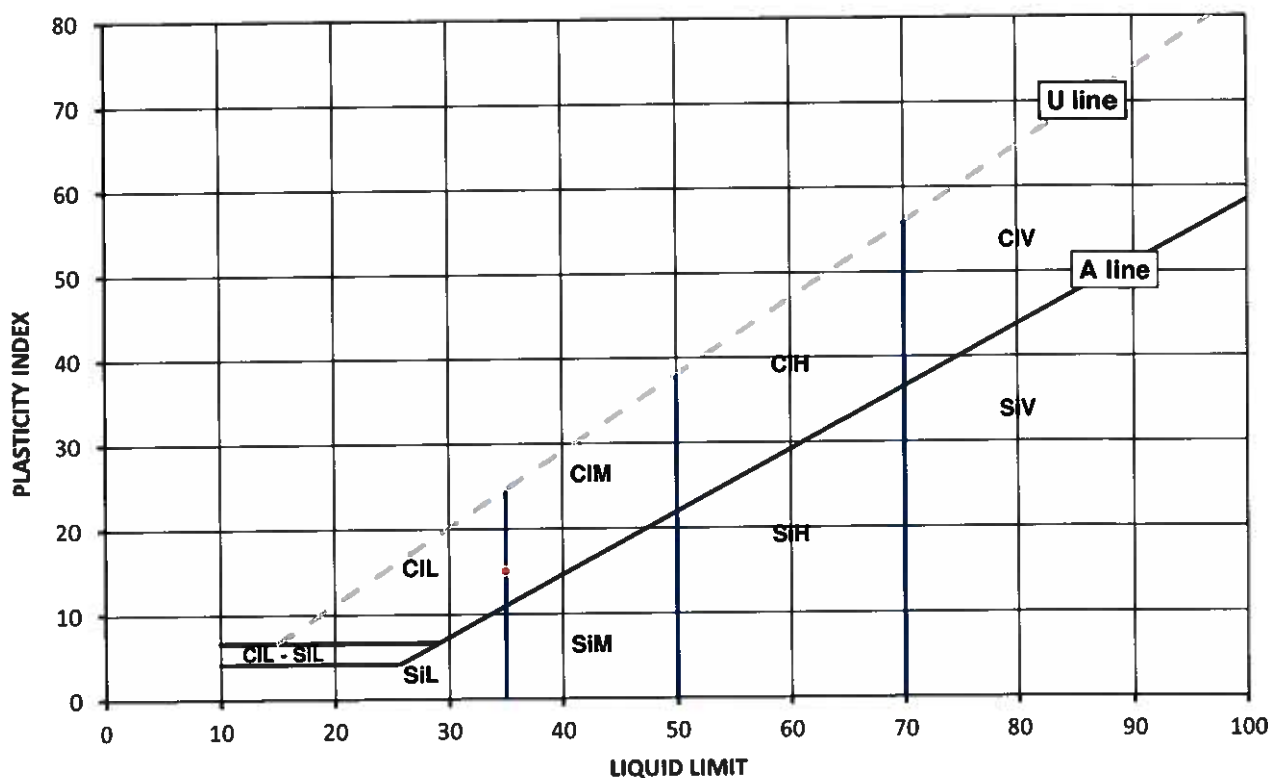
Test Results:

Laboratory Reference: 1771335
Hole No.: MSP06
Sample Reference: Not Given
Soil Description: Brown gravelly sandy CLAY

Depth Top [m]: 1.40
Depth Base [m]: Not Given
Sample Type: D

Sample Preparation: Tested after washing to remove >425µm

As Received Moisture Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
17	35	20	15	56



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Plasticity	Liquid Limit
Cl	Clay	below 35
Si	Silt	35 to 50
	L Low	50 to 70
	M Medium	exceeding 70
	H High	append to classification for organic material (eg CIHO)
	V Very high	
	O Organic	

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed:

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Brackmills Industrial Estate
Northampton NN4 7EB



Environmental Science

Tested in Accordance with: BS 1377-2: 1990: Clause 4.4 and 5

Client: Merebrook
Client Address: Cromford Mills, Mill Lane,
Cromford, Derbyshire,
DE4 3RQ
Contact: Tim Crowe
Site Address: Merthyr Tydfil

Client Reference: 21988
Job Number: 21-57008
Date Sampled: 09/02/2021
Date Received: 12/02/2021
Date Tested: 24/02/2021
Sampled By: Lucy Blain

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

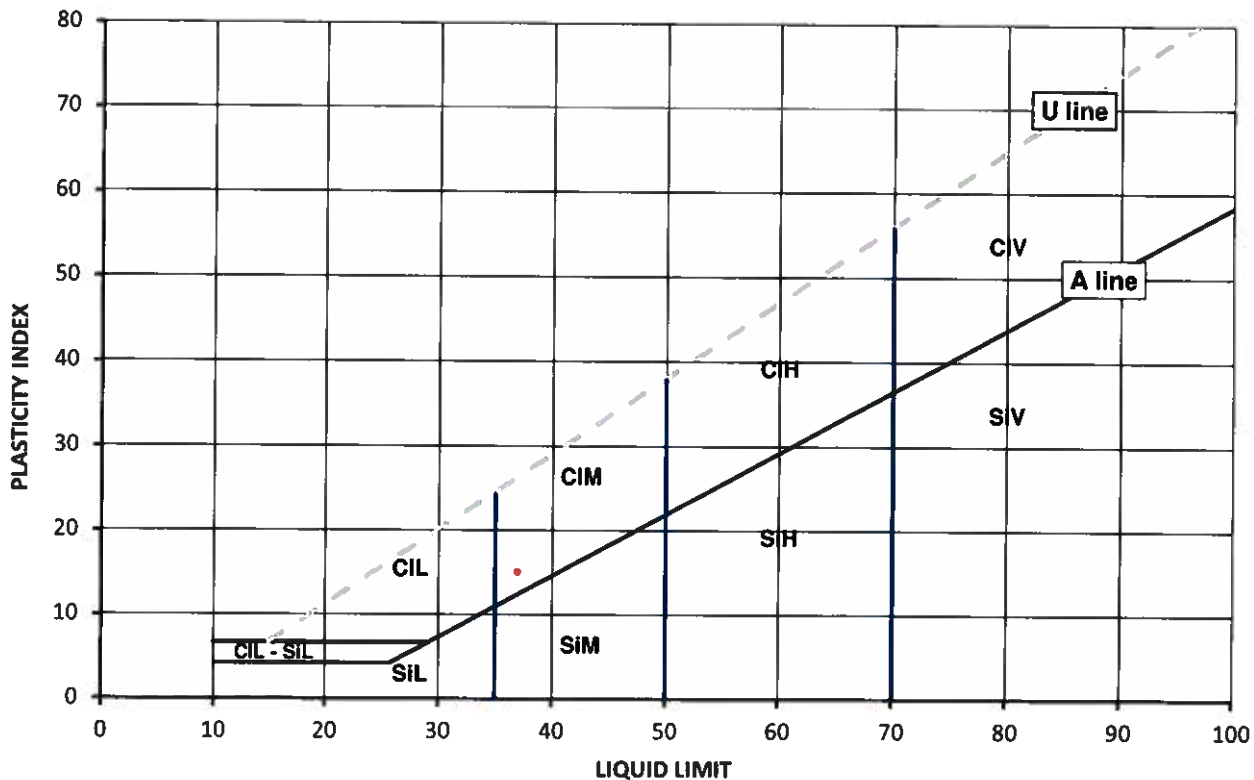
Test Results:

Laboratory Reference: 1771336
Hole No.: MSP07
Sample Reference: Not Given
Soil Description: Brown slightly gravelly sandy CLAY

Depth Top [m]: 1.10
Depth Base [m]: Not Given
Sample Type: D

Sample Preparation: Tested after washing to remove >425µm

As Received Moisture Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
21	37	22	15	95



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Plasticity	Liquid Limit
Cl Clay	L Low	below 35
Si Silt	M Medium	35 to 50
	H High	50 to 70
	V Very high	exceeding 70
	O Organic	append to classification for organic material (eg CIHO)

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed:

Szczepan Bielawicz
PL Deputy Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd

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Date Reported: 09/03/2021

GF 232.10



4041

TEST CERTIFICATE**Liquid and Plastic Limits**

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Environmental Science

Tested in Accordance with: BS 1377-2: 1990: Clause 4.4 and 5

Client: Merebrook
Client Address: Cromford Mills, Mill Lane,
Cromford, Derbyshire,
DE4 3RQ

Contact: Tim Crowe
Site Address: Merthyr Tydfil

Client Reference: 21988
Job Number: 21-57008
Date Sampled: 05/02/2021
Date Received: 12/02/2021
Date Tested: 24/02/2021
Sampled By: Lucy Blain

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

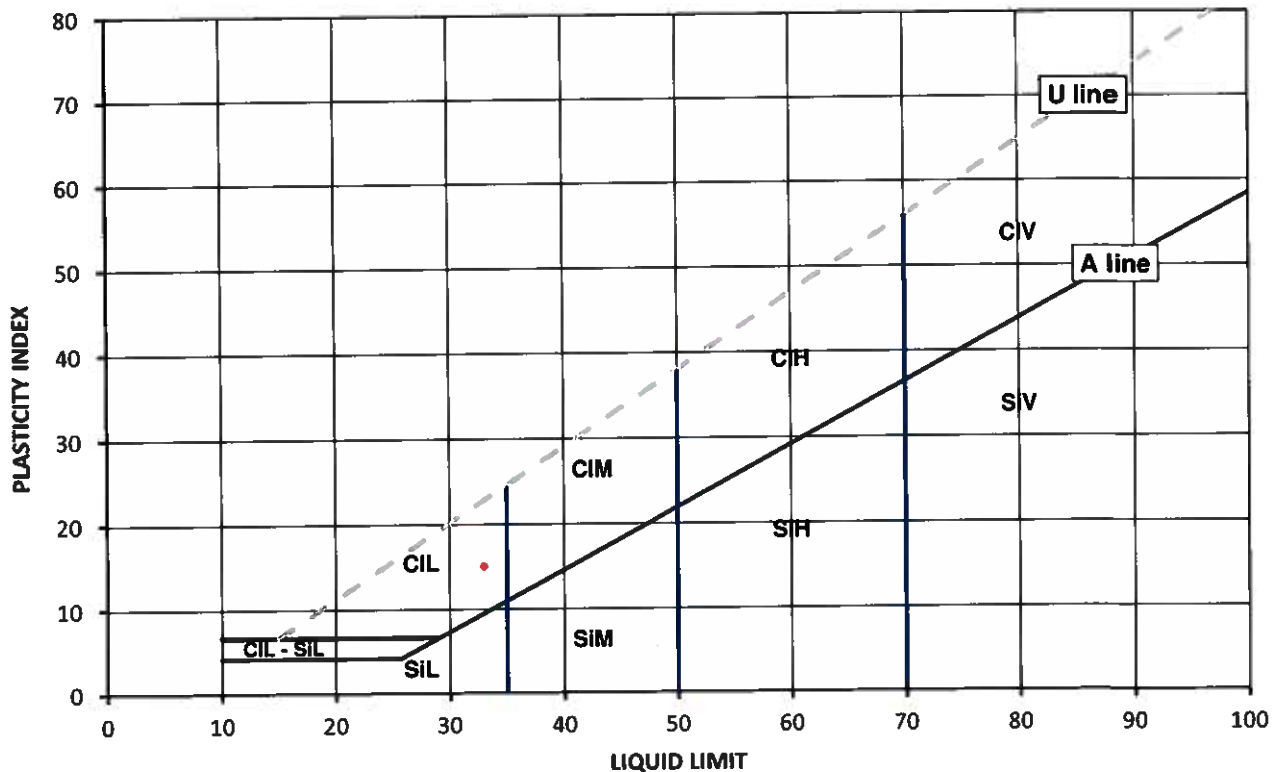
Test Results:

Laboratory Reference: 1771337
Hole No.: MTP08
Sample Reference: Not Given
Soil Description: Brown slightly gravelly very sandy CLAY

Depth Top [m]: 1.00
Depth Base [m]: Not Given
Sample Type: D

Sample Preparation: Tested after washing to remove >425µm

As Received Moisture Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
25	33	18	15	86



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Plasticity	Liquid Limit
Cl Clay	L Low	below 35
Si Silt	M Medium	35 to 50
	H High	50 to 70
	V Very high	exceeding 70
	O Organic	append to classification for organic material (eg ClHO)

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed:

Szczepan Bielatowicz
PL Deputy Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd

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Date Reported: 09/03/2021

GF 232.10



4041

TEST CERTIFICATE**Liquid and Plastic Limits**

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Environmental Science

Tested in Accordance with: BS 1377-2: 1990: Clause 4.4 and 5

Client: Merebrook
Client Address: Cromford Mills, Mill Lane,
Cromford, Derbyshire,
DE4 3RQ

Contact: Tim Crowe
Site Address: Merthyr Tydfil

Client Reference: 21988
Job Number: 21-57008
Date Sampled: 05/02/2021
Date Received: 12/02/2021
Date Tested: 24/02/2021
Sampled By: Lucy Blain

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

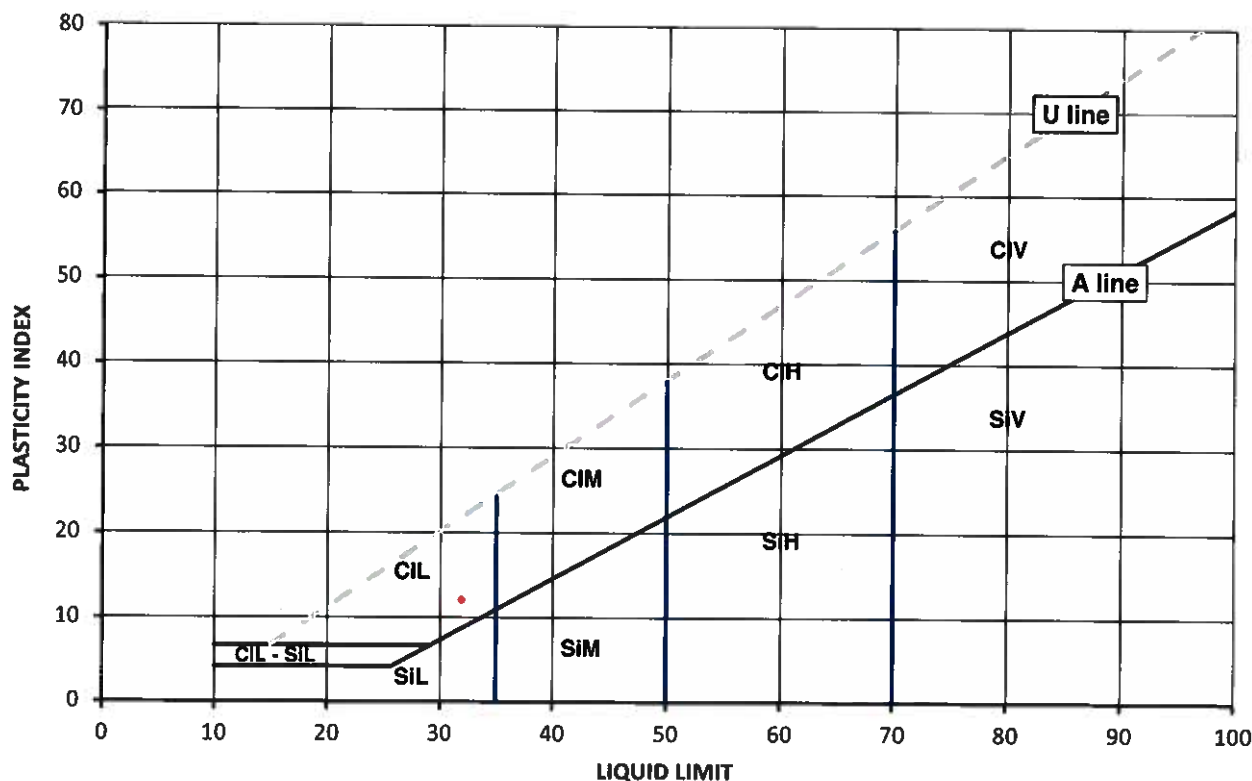
Test Results:

Laboratory Reference: 1771338
Hole No.: MTP10b
Sample Reference: Not Given
Soil Description: Brown slightly gravelly very sandy CLAY

Depth Top [m]: 0.90
Depth Base [m]: Not Given
Sample Type: D

Sample Preparation: Tested after washing to remove >425µm

As Received Moisture Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
23	32	20	12	84



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Plasticity	Liquid Limit
Cl Clay	L Low	below 35
Si Silt	M Medium	35 to 50
	H High	50 to 70
	V Very high	exceeding 70
	O Organic	append to classification for organic material (eg CIHO)

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed:

Szczepan Bielawicz
PL Deputy Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd

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Date Reported: 09/03/2021

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SUMMARY REPORT

Summary of Classification Test Results

Tested in Accordance with:

Moisture Content by BS 1377-2: 1990; Clause 3.2; Water Content by BS EN 17892-1: 2014; Atterberg by BS 1377-2: 1990; Clause 4.3 (4 Point Test), Clause 4.4 (1 Point Test) and 5; PD by BS 1377-2: 1990; Clause 8.2

Merebrook

Cromford Mills, Mill Lane,
Cromford, Derbyshire,
DE4 3RQ

Tim Crowe

Merthyr Tydfil

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test results

Laboratory Reference	Hole No.	Sample			Description	Remarks	Moisture Content [W] %	Water Content [W] %	Atterberg				Density			Total Porosity# %
		Reference	Depth Top m	Depth Base m	Type				% Passing 425um	WL %	Wp %	Ip %	bulk Mg/m3	dry Mg/m3	PD Mg/m3	
1771329	MBH01	Not Given	1.40	1.50	D	Brown slightly gravelly very sandy CLAY	Atterberg 1 Point	14	71	28	17	11				
1771331	MBH02	Not Given	1.20	Not Given	D	Brown gravelly very sandy CLAY	Atterberg 1 Point	15	44	31	19	12				
1771330	MBH02	Not Given	3.70	Not Given	D	Brown gravelly very sandy CLAY	Atterberg 1 Point	15	59	28	16	12				
1771332	MBH03	Not Given	1.20	1.30	D	Dark brown gravelly CLAY	Atterberg 1 Point	26	51	64	38	26				
1771333	MSP02	Not Given	2.10	2.20	D	Brown slightly gravelly very sandy CLAY	Atterberg 1 Point	12	72	30	18	12				
1771334	MSP04	Not Given	1.20	Not Given	D	Brown gravelly very sandy CLAY	Atterberg 1 Point	13	59	29	17	12				
1771335	MSP06	Not Given	1.40	Not Given	D	Brown gravelly sandy CLAY	Atterberg 1 Point	17	56	35	20	15				
1771336	MSP07	Not Given	1.10	Not Given	D	Brown slightly gravelly sandy CLAY	Atterberg 1 Point	21	95	37	22	15				
1771337	MTP08	Not Given	1.00	Not Given	D	Brown slightly gravelly very sandy CLAY	Atterberg 1 Point	25	86	33	18	15				
1771338	MTP10b	Not Given	0.90	Not Given	D	Brown slightly gravelly very sandy CLAY	Atterberg 1 Point	23	84	32	20	12				

Note: # Non accredited; NP - Non plastic

Comments:

Signed:

Szczepan Bielatowicz
PL Deputy Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd

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4041

TEST CERTIFICATE**Particle Size Distribution**

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Environmental Science

Client: Merebrook
Client Address: Cromford Mills, Mill Lane,
Cromford, Derbyshire,
DE4 3RQ

Contact: Tim Crowe
Site Address: Merthyr Tydfil

Client Reference: 21988

Job Number: 21-57008

Date Sampled: 08/02/2021

Date Received: 12/02/2021

Date Tested: 02/03/2021

Sampled By: Lucy Blain

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1771339

Hole No.: MTP06

Sample Reference: Not Given

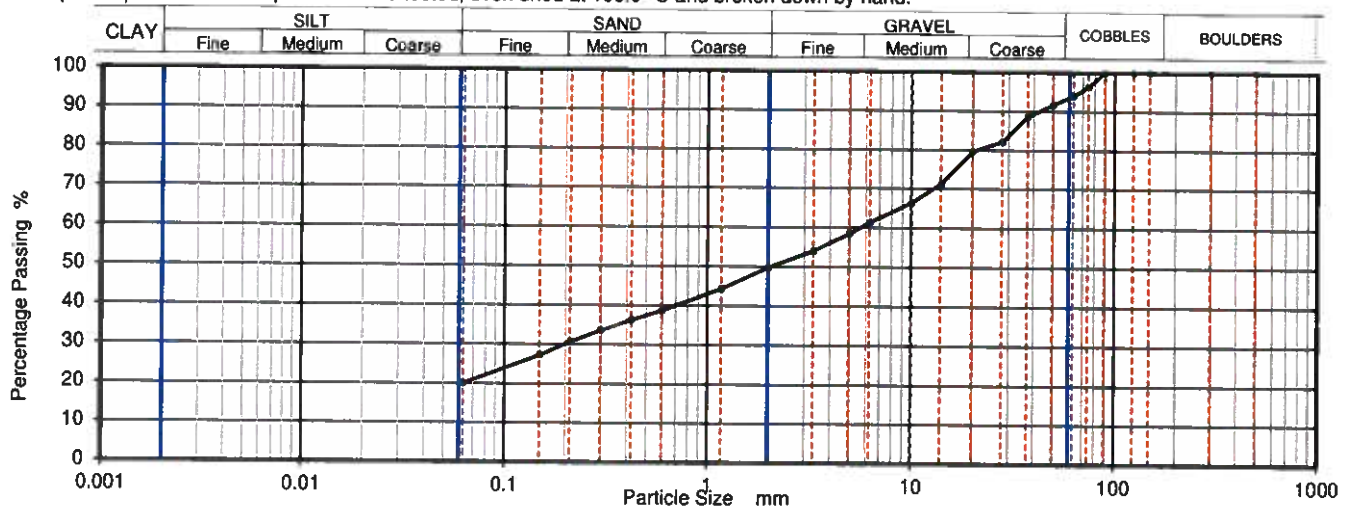
Sample Description: Greyish brown clayey very sandy GRAVEL with cobbles

Sample Preparation: Sample was whole tested, oven dried at 106.0 °C and broken down by hand.

Depth Top [m]: 3.00

Depth Base [m]: 3.40

Sample Type: D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	96		
63	94		
50	92		
37.5	89		
28	82		
20	80		
14	71		
10	66		
6.3	61		
5	58		
3.35	54		
2	50		
1.18	44		
0.6	39		
0.425	36		
0.3	34		
0.212	31		
0.15	27		
0.063	21		

Sample Proportions	% dry mass
Very coarse	6
Gravel	44
Sand	29
Fines <0.063mm	21

Grading Analysis		
D100	mm	90
D60	mm	5.67
D30	mm	0.199
D10	mm	
Uniformity Coefficient		> 90
Curvature Coefficient		

Uniformity Coefficient and Coefficient of Curvature calculated in accordance with BS EN ISO 14688-2: 2004 + A1: 2013

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

Signed:

Szczepan Bielatowicz
PL Deputy Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd

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Page 1 of 1

Date Reported: 09/03/2021

GF 100.20



4041

TEST CERTIFICATE**Particle Size Distribution**

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Environmental Science

Client: Merebrook
Client Address: Cromford Mills, Mill Lane,
Cromford, Derbyshire,
DE4 3RQ

Contact: Tim Crowe
Site Address: Merthyr Tydfil

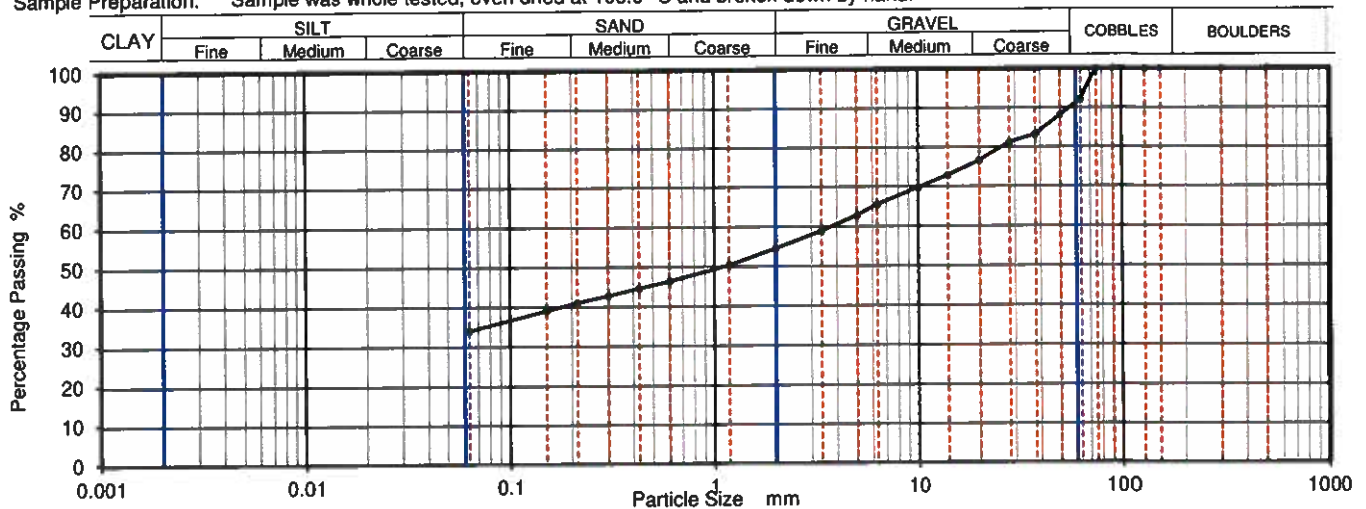
Client Reference: 21988
Job Number: 21-57008
Date Sampled: 05/02/2021
Date Received: 12/02/2021
Date Tested: 02/03/2021
Sampled By: Lucy Blain

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1771340
Hole No.: MTP13
Sample Reference: Not Given
Sample Description: Greyish brown very clayey sandy GRAVEL with cobbles
Sample Preparation: Sample was whole tested, oven dried at 106.0 °C and broken down by hand.

Depth Top [m]: 2.50
Depth Base [m]: Not Given
Sample Type: D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	92		
50	88		
37.5	83		
28	81		
20	77		
14	73		
10	70		
6.3	65		
5	63		
3.35	59		
2	55		
1.18	50		
0.6	46		
0.425	45		
0.3	43		
0.212	41		
0.15	39		
0.063	34		

Sample Proportions	% dry mass
Very coarse	8
Gravel	37
Sand	20
Fines <0.063mm	34

Grading Analysis		
D100	mm	75
D60	mm	3.8
D30	mm	
D10	mm	
Uniformity Coefficient		> 60
Curvature Coefficient		

Uniformity Coefficient and Coefficient of Curvature calculated in accordance with BS EN ISO 14688-2: 2004 + A1: 2013

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks: The material submitted - fails to meet the minimum mass requirements as stated in BS1377 Part 2 Table 3

Signed:

Szczepan Bielawicz
PL Deputy Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd

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Date Reported: 09/03/2021

GF 100.20



4041

TEST CERTIFICATE**Unconsolidated Undrained Triaxial Compression**

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Environmental Science

Tested in Accordance with: BS 1377-7: 1990: Clause 9

Client: Merebrook
Client Address: Cromford Mills, Mill Lane,
Cromford, Derbyshire,
DE4 3RQ

Contact: Tim Crowe
Site Address: Merthyr Tydfil

Client Reference: 21988
Job Number: 21-57008
Date Sampled: 03/02/2021
Date Received: 12/02/2021
Date Tested: 20/02/2021
Sampled By: Lucy Blain

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

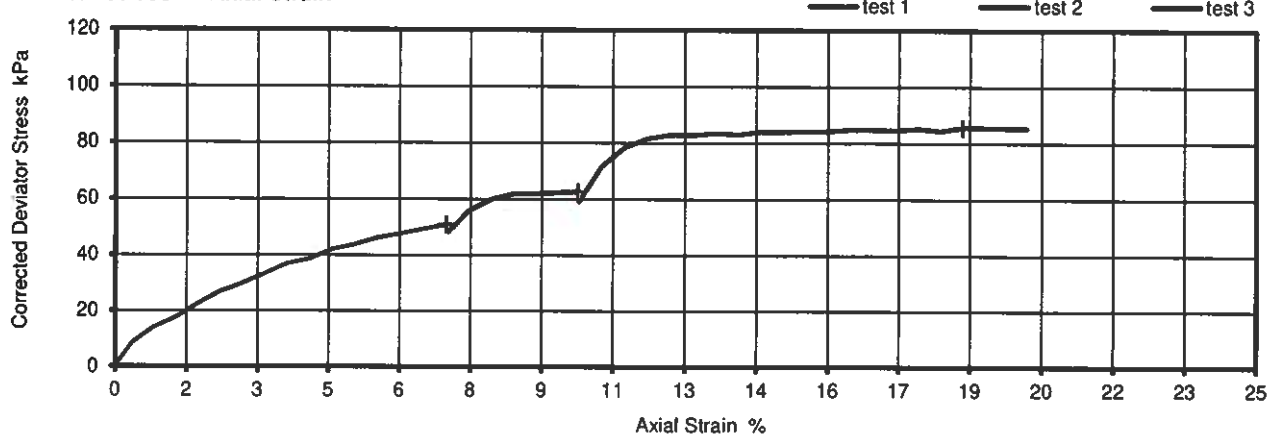
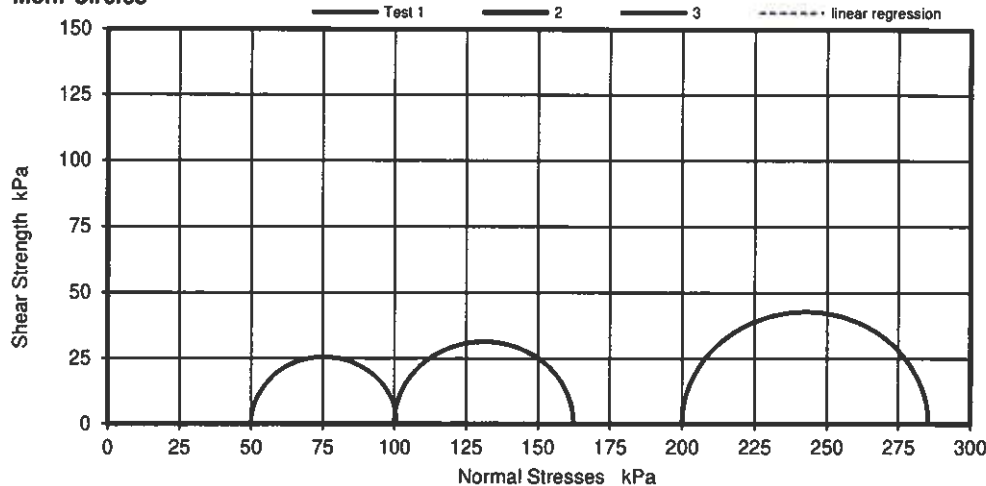
Laboratory Reference: 1771341
Hole No.: MBH01
Sample Reference: Not Given
Sample Description: Brown slightly gravelly CLAY

Depth Top [m]: 2.30
Depth Base [m]: 2.75
Sample Type: U

Length	136.67	mm
Diameter	69.54	mm
Bulk Density	1.80	Mg/m ³
Moisture Content	28	%
Dry Density	1.41	Mg/m ³
Membrane thickness	0.26	mm

Rate of Strain
Stage Number
Cell Pressure
Axial Strain at failure
Deviator Stress, ($\sigma_1 - \sigma_3$)_f
Shear strength, cu
Mode of failure
Membrane Correction

2.00			%/min
1	2	3	
50	100	200	kPa
7.3	10.2	18.6	%
51	63	85	kPa
25	31	43	kPa
Compound			
0.67	0.84	1.35	kPa

Deviator Stress v Axial Strain**Mohr Circles**

Position within sample



Linear Regression
 ϕ u
cu kPa

Note: Mohr circles and their interpretation is not covered by BS1377. These are provided for information only.

Remarks: Correction values: 50kPa=40N, 100kPa=65N, 200kPa=114N.

Signed:

Szczepan Bielawicz
PL Deputy Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd

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Page 1 of 1

Date Reported: 09/03/2021

GF 186.11



4041

TEST CERTIFICATE**Unconsolidated Undrained Triaxial Compression**

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Environmental Science

Tested in Accordance with: BS 1377-7: 1990: Clause 9

Client: Merebrook
Client Address: Cromford Mills, Mill Lane,
Cromford, Derbyshire,
DE4 3RQ

Contact: Tim Crowe
Site Address: Merthyr Tydfil

Client Reference: 21988
Job Number: 21-57008
Date Sampled: 08/02/2021
Date Received: 12/02/2021
Date Tested: 20/02/2021
Sampled By: Lucy Blain

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

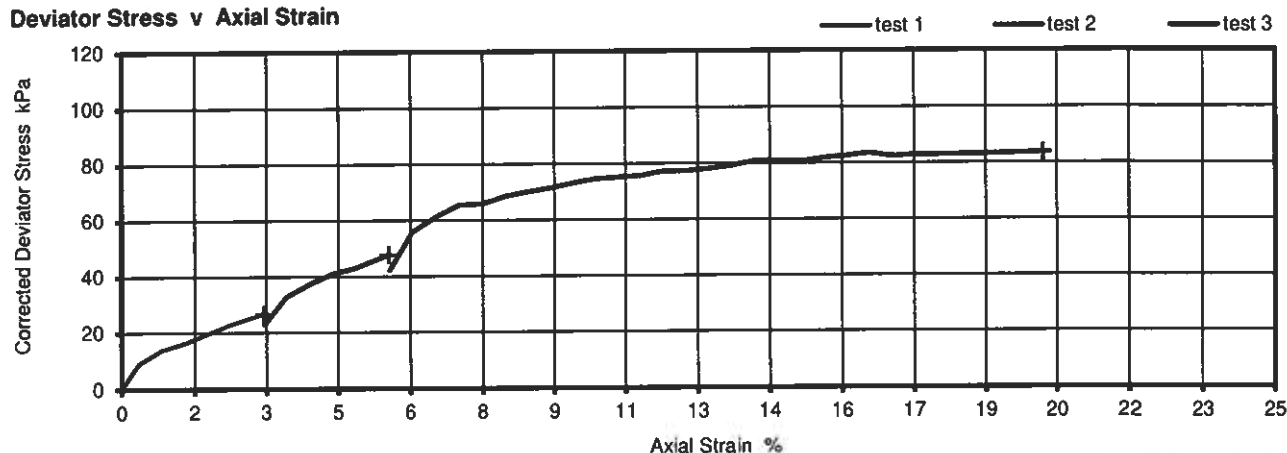
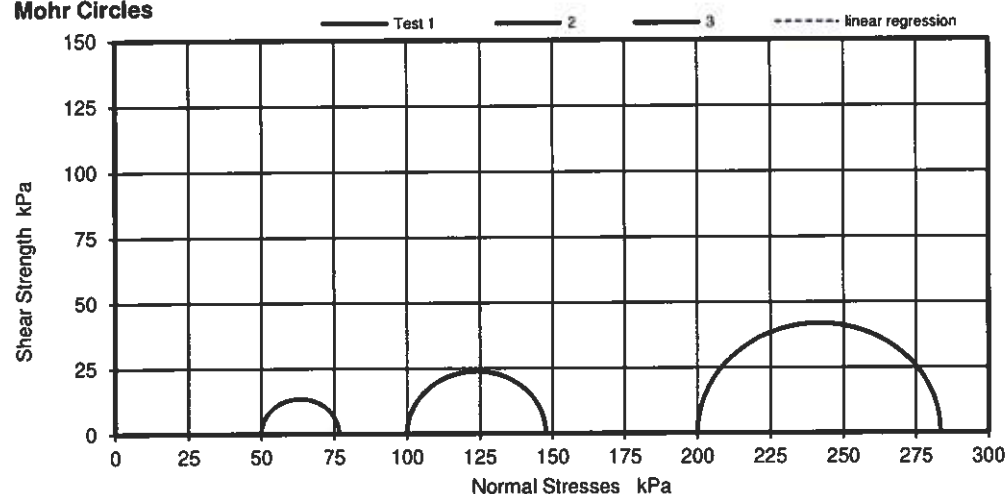
Laboratory Reference: 1771342
Hole No.: MBH02
Sample Reference: Not Given
Sample Description: Brown very sandy very gravelly CLAY

Depth Top [m]: 3.00
Depth Base [m]: 3.45
Sample Type: U

Length	140.49	mm
Diameter	66.54	mm
Bulk Density	2.35	Mg/m ³
Moisture Content	13	%
Dry Density	2.08	Mg/m ³
Membrane thickness	0.27	mm

Rate of Strain
Stage Number
Cell Pressure
Axial Strain at failure
Deviator Stress, ($\sigma_1 - \sigma_3$) f
Shear strength, c_u
Mode of failure
Membrane Correction

2.00			%/min
1	2	3	
50	100	200	kPa
3.1	5.8	20.0	%
27	48	84	kPa
13	24	42	kPa
Compound			
0.34	0.63	1.56	kPa

Deviator Stress v Axial Strain**Mohr Circles**

Position within sample



Linear Regression
 ϕ_u c_u kPa

Note: Mohr circles and their interpretation is not covered by BS1377. These are provided for information only.

Remarks: Correction values: 50kPa=40N, 100kPa=65N, 200kPa=114N.

Signed:

Szczepan Bielatowicz
PL Deputy Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd

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Date Reported: 09/03/2021

GF 186.11



Tim Crowe
Merebrook
Cromford Mills
Mill Lane
Cromford
Derbyshire
DE4 3RQ

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

e: tcrowe@idom.com

Analytical Report Number : 21-57017

Project / Site name:	Merthyr Tydfil	Samples received on:	12/02/2021
Your job number:	21988	Samples instructed on/ Analysis started on:	16/02/2021
Your order number:	21-2-FDO-LABS	Analysis completed by:	01/03/2021
Report Issue Number:	1	Report issued on:	01/03/2021
Samples Analysed:	10 soil samples		

Signed:

Joanna Wawrzeczko
Technical Reviewer (Reporting Team)
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.



4041



Environmental Science

Analytical Report Number: 21-57017

Project / Site name: Merthyr Tydfil

Your Order No: 21-2-FDO-LABS

Lab Sample Number				1771365	1771366	1771367	1771368	1771369
Sample Reference				MBH01	MBH01	MBH02	MBH03 (SPT)	MSP07
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				2.50-2.60	6.00-6.20	4.40	1.20	2.00
Date Sampled				10/02/2021	10/02/2021	10/02/2021	10/02/2021	09/02/2021
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	18	14	11	31	12
Total mass of sample received	kg	0.001	NONE	0.7	0.7	0.7	0.7	0.7

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.4	7.4	7.5	7.7	7.1
Total Sulphate as SO ₄	%	0.005	MCERTS	0.034	0.015	0.017	0.124	0.044
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.16	0.024	0.016	0.4	0.1
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	160	24	15.5	403	105
Total Sulphur	%	0.005	MCERTS	0.031	0.008	0.006	0.165	0.011

U/S = Unsuitable Sample I/S = Insufficient Sample



4841



MCERTS



Environmental Science

Analytical Report Number: 21-57017

Project / Site name: Merthyr Tydfil

Your Order No: 21-2-FDO-LABS

Lab Sample Number				1771370	1771371	1771372	1771373	1771374
Sample Reference				MSP09	MTP06	MTP07	MTP13	MWS03
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				2.60	1.30	1.40	2.50	1.60
Date Sampled				09/02/2021	08/02/2021	05/02/2021	05/02/2021	10/02/2021
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	16	9.6	11	11	14
Total mass of sample received	kg	0.001	NONE	0.7	1.8	1.8	1.9	1.8

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.1	6.7	7.4	7.5	7.6
Total Sulphate as SO ₄	%	0.005	MCERTS	0.04	0.019	0.008	0.019	0.02
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.11	0.043	0.011	0.045	0.021
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	114	43	11	45.2	21.3
Total Sulphur	%	0.005	MCERTS	0.044	0.009	< 0.005	0.008	0.007

U/S = Unsubtable Sample I/S = Insufficient Sample

Analytical Report Number : 21-57017
Project / Site name: Merthyr Tydfil

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1771365	MBH01	None Supplied	2.50-2.60	Brown clay and loam with gravel and vegetation.
1771366	MBH01	None Supplied	6.00-6.20	Brown clay and sand with gravel.
1771367	MBH02	None Supplied	4.4	Brown clay and sand with gravel.
1771368	MBH03 (SPT)	None Supplied	1.2	Brown clay and loam with gravel and vegetation.
1771369	MSP07	None Supplied	2	Brown clay and loam with gravel and vegetation.
1771370	MSP09	None Supplied	2.6	Brown clay and loam with gravel and vegetation.
1771371	MTP06	None Supplied	1.3	Brown clay and sand with gravel.
1771372	MTP07	None Supplied	1.4	Brown clay and loam with gravel.
1771373	MTP13	None Supplied	2.5	Brown clay and loam with gravel and vegetation.
1771374	MWS03	None Supplied	1.6	Brown clay and loam with gravel and vegetation.

