

APPENDIX E

PHOTOGRAPHS OF THE SITE AND EXISTING SLOPE FAILURE

Looking North-East



Looking South-West



Appendix E - Photographs of Slope Failure/Slippage

Swansea Road, Merthyr Tydfil

Intégral
Géotechnique

Intégral House
7 Beddau Way
Castlegate Business Park
Caerphilly
CF83 2AX
Tel: 029 2080 7991

APPENDIX F

LABORATORY GEOTECHNICAL TEST RESULTS

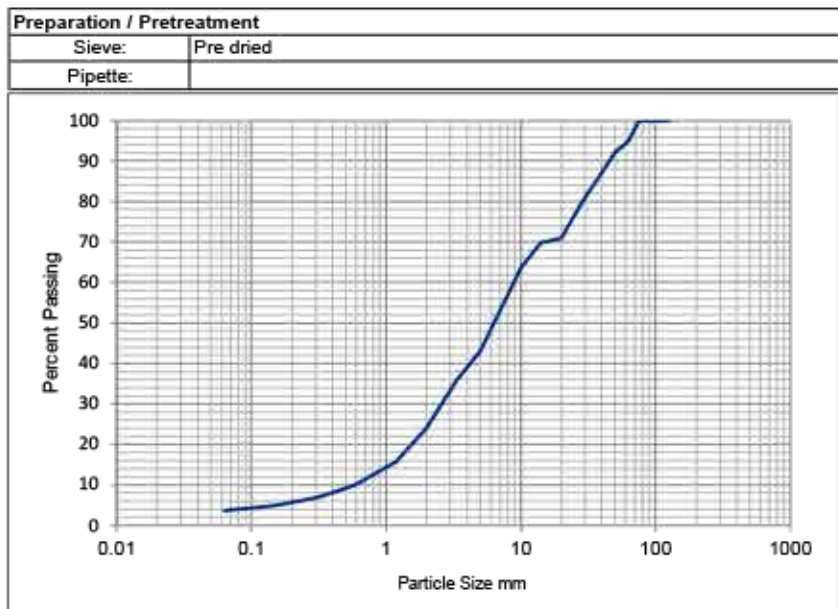
TEST REPORT
PARTICLE SIZE DISTRIBUTION ANALYSIS
BS1377:Part 2:1990

Project No:	D21252	Client:	Integral Geotechnique
Project Name:	Swansea Road, Merthyr Tydfil	Address	Integral House 7 Beddau Way Castlegate Business Park Caerphilly CF83 8PH
ATS Sample No:	24363		

Site Ref / Hole ID:	BH1	Depth (m):	3.00
Sample No:		Sample Type:	Disturbed
Sampling Certificate Received:	No	Material Description:	Dark grey slightly clayey very sandy GRAVEL with low cobble content
Location in Works:	N/A	Material Source:	Unknown
Date Sampled:	Unknown	Material Supplier:	Unknown
Sampled By:	Client	Specification:	BS1377
Date Received:	11 May 2021	Date Tested:	13 May 2021

Test Results

Sieving	
Particle Size mm	% Passing
125	100
90	100
75	100
63	95
50	92
37.5	86
28	79
20	71
14	70
10	64
6.3	50
5.0	43
3.35	36
2.00	24
1.18	16
0.600	10
0.425	8
0.300	7
0.212	6
0.150	5
0.063	4



Sample Portions		Particle Density Mg/m3	Uniformity Coefficient D_{60} / D_{10}
Cobbles / Boulders	5	N/A	
Gravel	71		
Sand	20	Dry mass of sample, kg	
Silt / Clay	4	13.4	N/A

Remarks:

TEST REPORT
Determination Of Water Content
ISO 17892-1: 2014

Project No: D21252 Project Name: Swansea Road, Merthyr Tydfil ATS Sample No: 24364	Client: Integral Geotechnique Address: Integral House 7 Beddau Way Castlegate Business Park Caerphilly CF83 8PH
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Site Ref / Hole ID: BH1 Sample No: Sampling Certificate Received: No Location in Works: N/A Date Sampled: Unknown Sampled By: Client Date Received: 11 May 2021	Depth (m): 4.00 Sample Type: Disturbed Material Description: Dark grey slightly sandy gravelly CLAY Material Source: Unknown Material Supplier: Unknown Specification: BS1377 Date Tested: 13 May 2021
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Test Results

Moisture Content (%)	8.4
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Remarks:

TEST REPORT
LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX
BS 1377:Part 2:1990. Clause 4.3/5.3/5.4

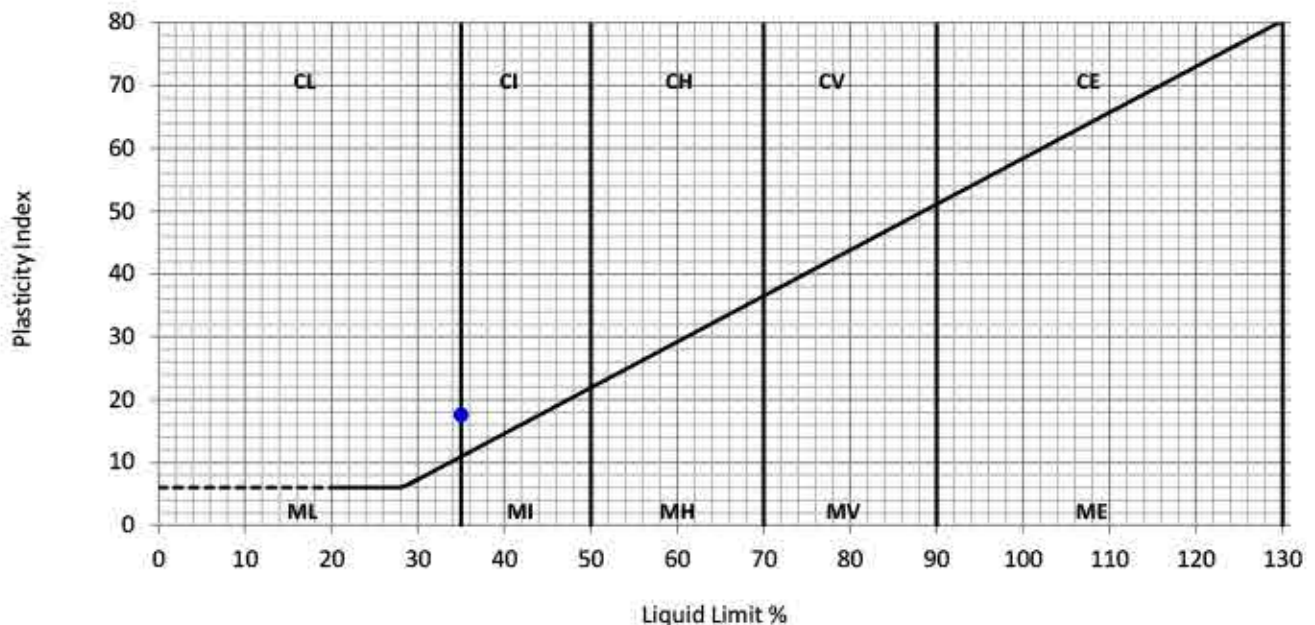
Project No:	D21252	Client:	Integral Geotechnique
Project Name:	Swansea Road, Merthyr Tydfil	Address:	Integral House 7 Beddau Way Castlegate Business Park Caerphilly CF83 8PH
ATS Sample No:	24364		

Site Ref / Hole ID:	BH1	Depth (m):	4.00
Sample No:		Sample Type:	Disturbed
Sampling Certificate Received:	No	Material Description:	Dark grey slightly sandy gravelly CLAY
Location In Works:	N/A	Material Source:	Unknown
Date Sampled:	Unknown	Material Supplier:	Unknown
Sampled By:	Client	Specification:	BS1377
Date Received:	11 May 2021	Date Tested:	13 May 2021

Test Results

Liquid Limit	35	%
Plastic Limit	17	%
Plasticity Index	18	%

Preparation:	4.2.4 Sieved Specimen
Proportion retained on 425µm sieve:	84 %



Remarks:

QA Ref.

BS1377 - 2
Rev. 2.0



Apex Testing Solutions

Sturmi Way, Village Farm Industrial Est, Pyle,
Bridgend, CF33 6BZ
Tel: 01656 746762 Fax: 01656 749096



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Approver

L Davis

L Davis, Quality Manager

Date

17/05/2021

Fig.

ATT

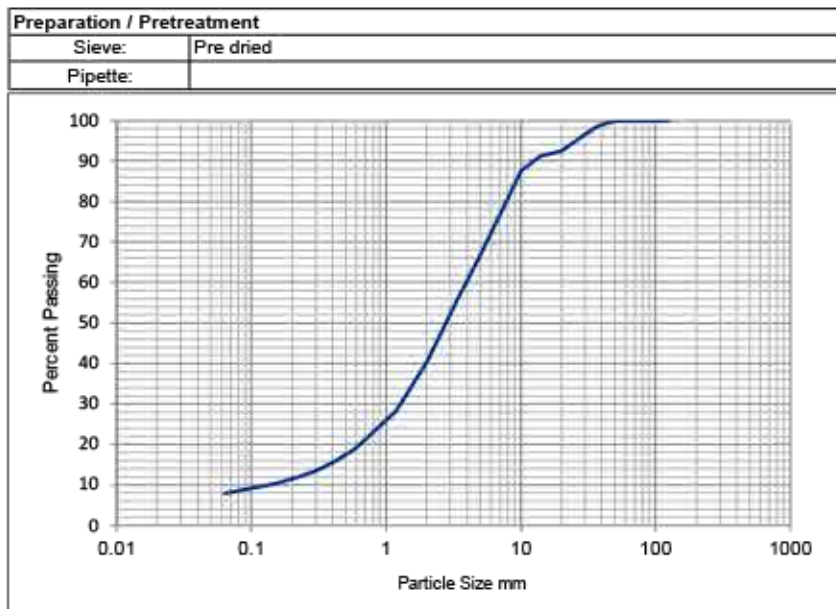
TEST REPORT
PARTICLE SIZE DISTRIBUTION ANALYSIS
BS1377:Part 2:1990

Project No: D21252 Client: Integral Geotechnique
 Project Name: Swansea Road, Merthyr Tydfil Address: Integral House
 7 Beddau Way
 Castlegate Business Park
 Caerphilly
 CF83 8PH
 ATS Sample No: 24364

Site Ref / Hole ID: BH1 Depth (m): 4.00
 Sample No: Sample Type: Disturbed
 Sampling Certificate Received: No Material Description: Dark grey slightly sandy gravelly CLAY
 Location in Works: N/A Material Source: Unknown
 Date Sampled: Unknown Material Supplier: Unknown
 Sampled By: Client Specification: BS1377
 Date Received: 11 May 2021 Date Tested: 13 May 2021

Test Results

Sieving	
Particle Size mm	% Passing
125	100
90	100
75	100
63	100
50	100
37.5	99
28	96
20	92
14	91
10	88
6.3	73
5.0	67
3.35	56
2.00	40
1.18	28
0.600	19
0.425	16
0.300	14
0.212	12
0.150	10
0.063	8



Sample Portions		Particle Density Mg/m ³	Uniformity Coefficient D_{60} / D_{10}
Cobbles / Boulders	0	N/A	
Gravel	60		
Sand	32	Dry mass of sample, kg	
Silt / Clay	8	7.4	N/A

Remarks:

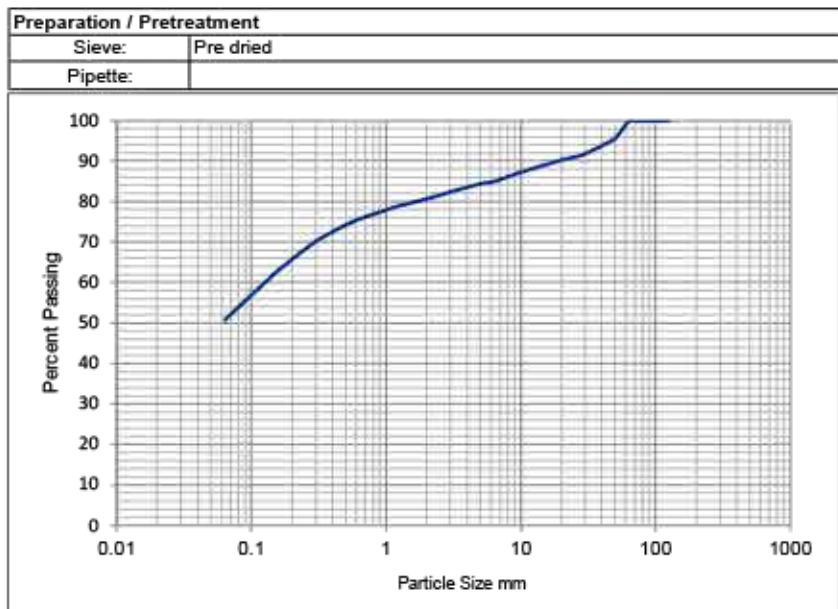
TEST REPORT
PARTICLE SIZE DISTRIBUTION ANALYSIS
BS1377:Part 2:1990

Project No: D21252 Client: Integral Geotechnique
 Project Name: Swansea Road, Merthyr Tydfil Address: Integral House
 7 Beddau Way
 Castlegate Business Park
 Caerphilly
 CF83 8PH
 ATS Sample No: 24365

Site Ref / Hole ID: BH1 Depth (m): 9.00
 Sample No: Sample Type: Disturbed
 Sampling Certificate Received: No Material Description: Brown slightly gravelly slightly sandy CLAY
 Location in Works: N/A Material Source: Unknown
 Date Sampled: Unknown Material Supplier: Unknown
 Sampled By: Client Specification: BS1377
 Date Received: 11 May 2021 Date Tested: 13 May 2021

Test Results

Sieving	
Particle Size mm	% Passing
125	100
90	100
75	100
63	100
50	95
37.5	93
28	91
20	90
14	89
10	87
6.3	85
5.0	84
3.35	83
2.00	81
1.18	79
0.600	75
0.425	73
0.300	70
0.212	66
0.150	62
0.063	51



Sample Portions		Particle Density Mg/m ³	Uniformity Coefficient D_{60} / D_{10}
Cobbles / Boulders	0	N/A	
Gravel	19		
Sand	30	Dry mass of sample, kg	
Silt / Clay	51	15.1	N/A

Remarks:

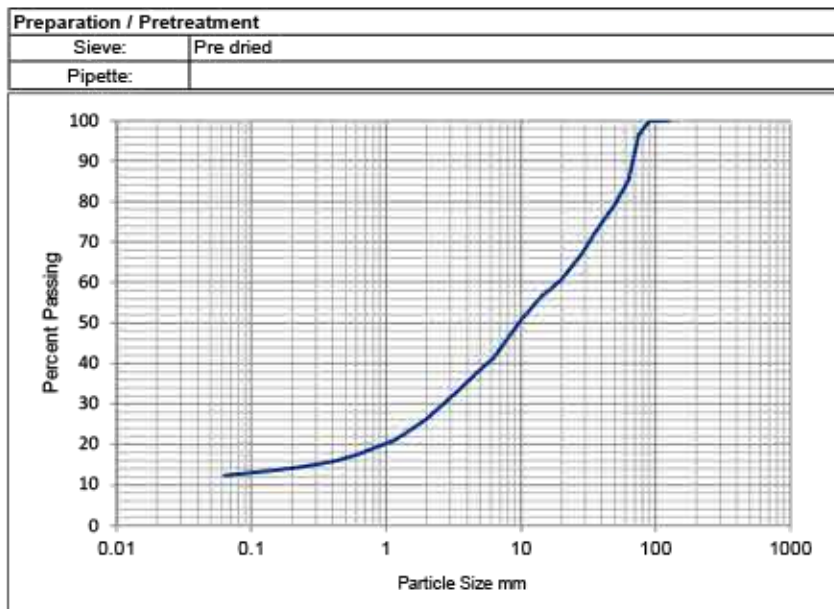
TEST REPORT
PARTICLE SIZE DISTRIBUTION ANALYSIS
BS1377:Part 2:1990

Project No: D21252 Client: Integral Geotechnique
 Project Name: Swansea Road, Merthyr Tydfil Address: Integral House
 7 Beddau Way
 Castlegate Business Park
 Caerphilly
 CF83 8PH
 ATS Sample No: 24366

Site Ref / Hole ID: BH2 Depth (m): 4.00
 Sample No: Sample Type: Disturbed
 Sampling Certificate No Material Description: Brownish grey clayey sandy
 Received: GRAVEL with medium cobble content
 Location in Works: N/A Material Source: Unknown
 Date Sampled: Unknown Material Supplier: Unknown
 Sampled By: Client Specification: BS1377
 Date Received: 11 May 2021 Date Tested: 18 May 2021

Test Results

Sieving	
Particle Size mm	% Passing
125	100
90	100
75	97
63	85
50	79
37.5	73
28	67
20	61
14	56
10	51
6.3	41
5.0	38
3.35	33
2.00	26
1.18	21
0.600	17
0.425	16
0.300	15
0.212	14
0.150	14
0.063	12



Sample Portions		Particle Density Mg/m ³	Uniformity Coefficient D_{60} / D_{10}
Cobbles / Boulders	15	N/A	
Gravel	59		
Sand	14	Dry mass of sample, kg	
Silt / Clay	12	14.8	N/A

Remarks:

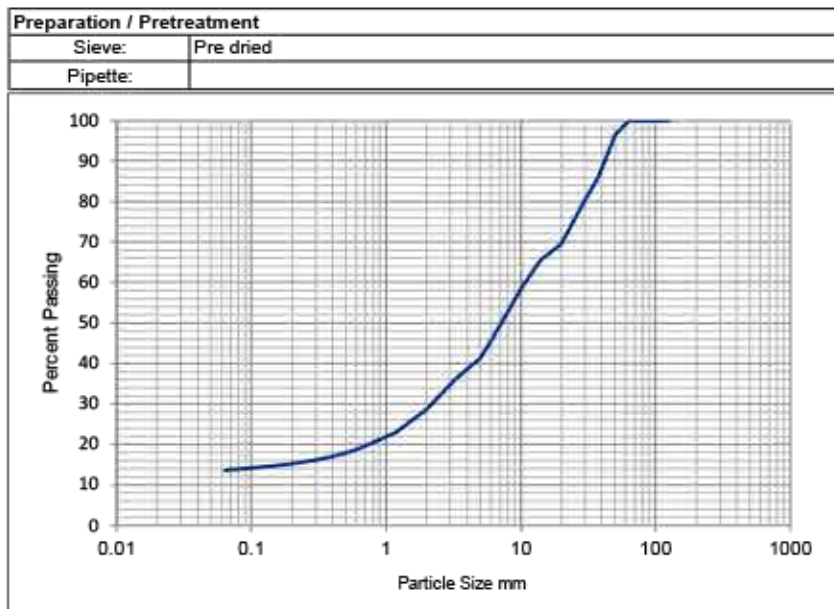
TEST REPORT
PARTICLE SIZE DISTRIBUTION ANALYSIS
BS1377:Part 2:1990

Project No:	D21252	Client:	Integral Geotechnique
Project Name:	Swansea Road, Merthyr Tydfil	Address	Integral House 7 Beddau Way Castlegate Business Park Caerphilly CF83 8PH
ATS Sample No:	24367		

Site Ref / Hole ID:	BH2	Depth (m):	9.00
Sample No:		Sample Type:	Disturbed
Sampling Certificate Received:	No	Material Description:	Grey clayey sandy GRAVEL
Location in Works:	N/A	Material Source:	Unknown
Date Sampled:	Unknown	Material Supplier:	Unknown
Sampled By:	Client	Specification:	BS1377
Date Received:	11 May 2021	Date Tested:	17 May 2021

Test Results

Sieving	
Particle Size mm	% Passing
125	100
90	100
75	100
63	100
50	98
37.5	88
28	79
20	70
14	65
10	58
6.3	47
5.0	41
3.35	38
2.00	29
1.18	23
0.600	19
0.425	17
0.300	16
0.212	15
0.150	15
0.063	14



Sample Portions		Particle Density Mg/m ³	Uniformity Coefficient D ₆₀ / D ₁₀
Cobbles / Boulders	0	N/A	
Gravel	71		
Sand	15	Dry mass of sample, kg	
Silt / Clay	14	9.7	N/A

Remarks:

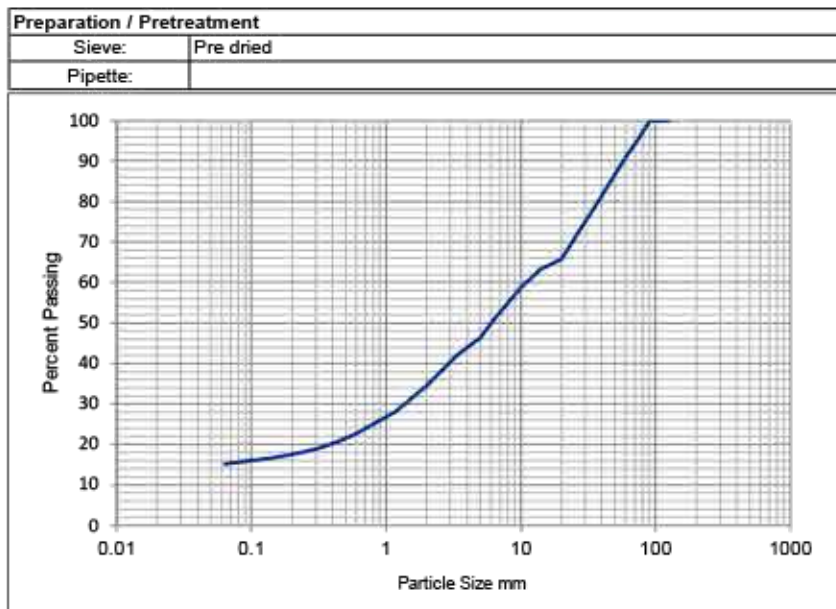
TEST REPORT
PARTICLE SIZE DISTRIBUTION ANALYSIS
BS1377:Part 2:1990

Project No:	D21252	Client:	Integral Geotechnique
Project Name:	Swansea Road, Merthyr Tydfil	Address	Integral House 7 Beddau Way Castlegate Business Park Caerphilly CF83 8PH
ATS Sample No:	24368		

Site Ref / Hole ID:	BH2	Depth (m):	10.00
Sample No:		Sample Type:	Disturbed
Sampling Certificate Received:	No	Material Description:	Grey clayey sandy GRAVEL with low cobble content
Location in Works:	N/A	Material Source:	Unknown
Date Sampled:	Unknown	Material Supplier:	Unknown
Sampled By:	Client	Specification:	BS1377
Date Received:	11 May 2021	Date Tested:	17 May 2021

Test Results

Sieving	
Particle Size mm	% Passing
125	100
90	100
75	98
63	92
50	87
37.5	80
28	74
20	68
14	63
10	59
6.3	51
5.0	46
3.35	42
2.00	35
1.18	28
0.600	23
0.425	21
0.300	19
0.212	18
0.150	17
0.063	15



Sample Portions		Particle Density Mg/m3	Uniformity Coefficient D_{60} / D_{10}
Cobbles / Boulders	8	N/A	
Gravel	57		
Sand	19	Dry mass of sample, kg	
Silt / Clay	15	13.0	N/A

Remarks:

TEST REPORT
Determination Of Water Content
ISO 17892-1: 2014

Project No: D21252 Project Name: Swansea Road, Merthyr Tydfil ATS Sample No: 24369	Client: Integral Geotechnique Address: Integral House 7 Beddau Way Castlegate Business Park Caerphilly CF83 8PH
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Site Ref / Hole ID: BH2 Sample No: Sampling Certificate Received: No Location in Works: N/A Date Sampled: Unknown Sampled By: Client Date Received: 11 May 2021	Depth (m): 11.00 Sample Type: Disturbed Material Description: Grey slightly sandy gravelly CLAY with low cobble content Material Source: Unknown Material Supplier: Unknown Specification: BS1377 Date Tested: 17 May 2021
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Test Results

Moisture Content (%)	7.1
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Remarks:

TEST REPORT
LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX
BS 1377:Part 2:1990. Clause 4.3/5.3/5.4

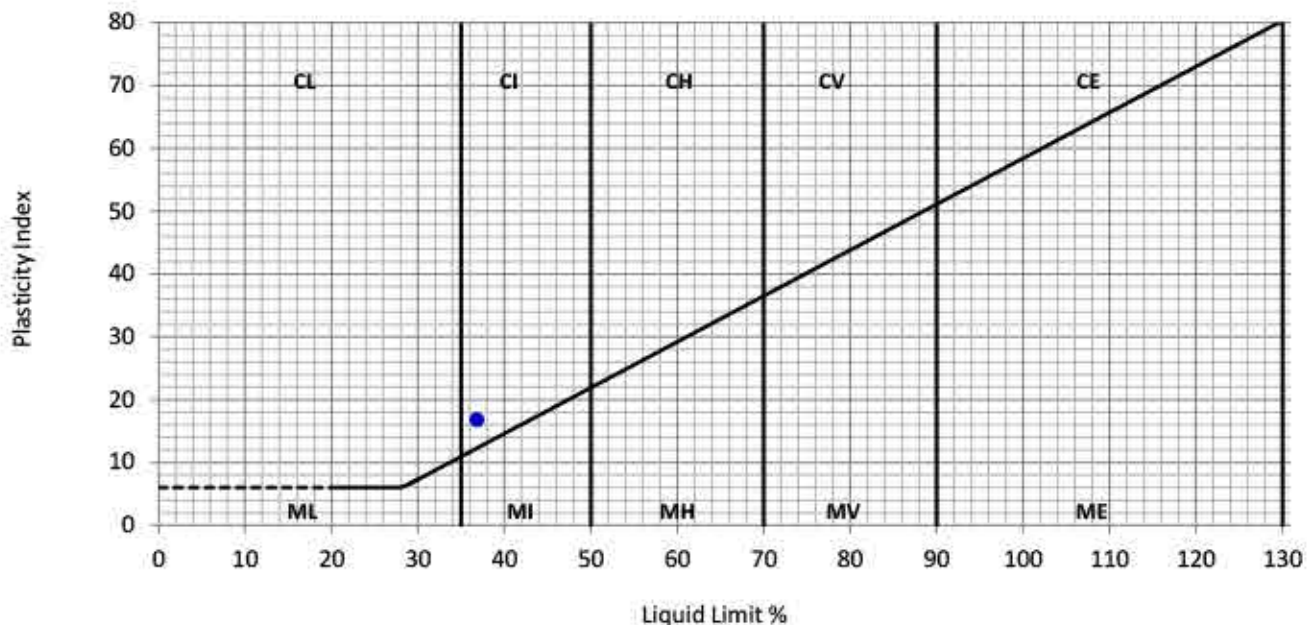
Project No:	D21252	Client:	Integral Geotechnique
Project Name:	Swansea Road, Merthyr Tydfil	Address:	Integral House 7 Beddau Way Castlegate Business Park Caerphilly CF83 8PH
ATS Sample No:	24369		

Site Ref / Hole ID:	BH2	Depth (m):	11.00
Sample No:		Sample Type:	Disturbed
Sampling Certificate Received:	No	Material Description:	Grey slightly sandy gravelly CLAY with low cobble content
Location In Works:	N/A	Material Source:	Unknown
Date Sampled:	Unknown	Material Supplier:	Unknown
Sampled By:	Client	Specification:	BS1377
Date Received:	11 May 2021	Date Tested:	19 May 2021

Test Results

Liquid Limit	37	%
Plastic Limit	20	%
Plasticity Index	17	%

Preparation:	4.2.4 Sieved Specimen
Proportion retained on 425µm sieve:	18 %



Remarks:

QA Ref.

BS1377 - 2
Rev. 2.0



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Approver

L Davis

L Davis, Quality Manager

Date

20/05/2021

Fig.

ATT

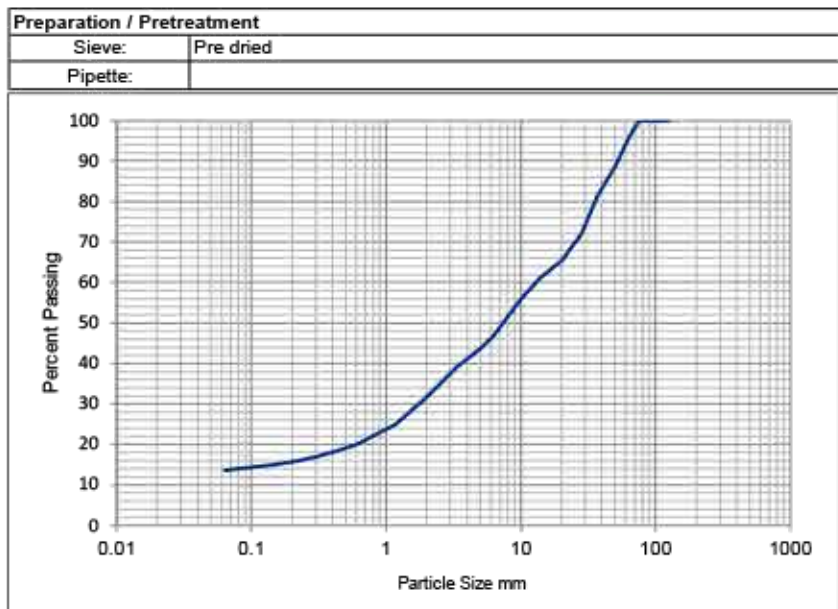
TEST REPORT
PARTICLE SIZE DISTRIBUTION ANALYSIS
BS1377:Part 2:1990

Project No: D21252 Client: Integral Geotechnique
 Project Name: Swansea Road, Merthyr Tydfil Address: Integral House
 7 Beddau Way
 Castlegate Business Park
 Caerphilly
 CF83 8PH
 ATS Sample No: 24369

Site Ref / Hole ID: BH2 Depth (m): 11.00
 Sample No: Sample Type: Disturbed
 Sampling Certificate Received: No Material Description: Grey slightly sandy gravelly CLAY with low cobble content
 Location in Works: N/A Material Source: Unknown
 Date Sampled: Unknown Material Supplier: Unknown
 Sampled By: Client Specification: BS1377
 Date Received: 11 May 2021 Date Tested: 18 May 2021

Test Results

Sieving	
Particle Size mm	% Passing
125	100
90	100
75	100
63	96
50	89
37.5	82
28	72
20	65
14	61
10	56
6.3	47
5.0	44
3.35	39
2.00	32
1.18	25
0.600	20
0.425	18
0.300	17
0.212	16
0.150	15
0.063	14



Sample Portions		Particle Density Mg/m ³	Uniformity Coefficient D_{60} / D_{10}
Cobbles / Boulders	4	N/A	
Gravel	64		
Sand	18	Dry mass of sample, kg	
Silt / Clay	14	11.5	N/A

Remarks:

TEST REPORT
Determination Of Water Content
ISO 17892-1: 2014

Project No: D21252 Project Name: Swansea Road, Merthyr Tydfil ATS Sample No: 24370	Client: Integral Geotechnique Address: Integral House 7 Beddau Way Castlegate Business Park Caerphilly CF83 8PH
---	--

Site Ref / Hole ID: BH2 Sample No: Sampling Certificate Received: No Location in Works: N/A Date Sampled: Unknown Sampled By: Client Date Received: 11 May 2021	Depth (m): 11.30 Sample Type: Disturbed Material Description: Brownish grey slightly sandy slightly gravelly CLAY with medium cobble content Material Source: Unknown Material Supplier: Unknown Specification: BS1377 Date Tested: 17 May 2021
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Test Results

Moisture Content (%)	17.4
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Remarks:

TEST REPORT
LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX
BS 1377:Part 2:1990. Clause 4.3/5.3/5.4

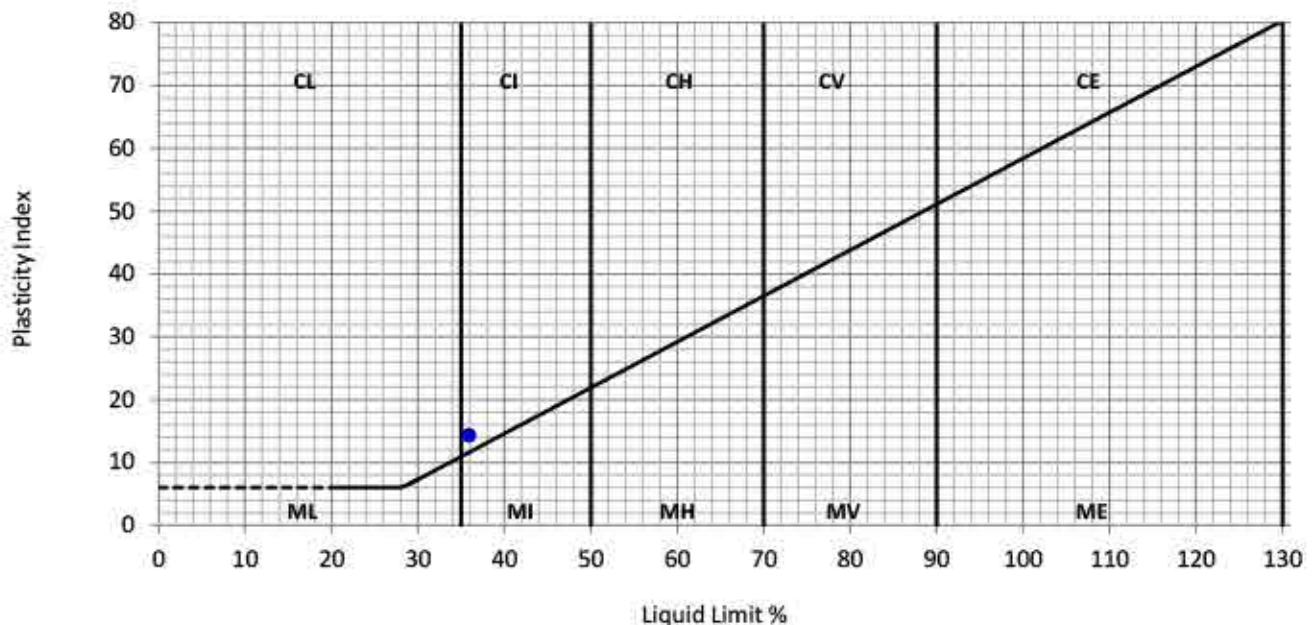
Project No:	D21252	Client:	Integral Geotechnique
Project Name:	Swansea Road, Merthyr Tydfil	Address:	Integral House 7 Beddau Way Castlegate Business Park Caerphilly CF83 8PH
ATS Sample No:	24370		

Site Ref / Hole ID:	BH2	Depth (m):	11.30
Sample No:		Sample Type:	Disturbed
Sampling Certificate Received:	No	Material Description:	Brownish grey slightly sandy slightly gravelly CLAY with medium cobble content
Location In Works:	N/A	Material Source:	Unknown
Date Sampled:	Unknown	Material Supplier:	Unknown
Sampled By:	Client	Specification:	BS1377
Date Received:	11 May 2021	Date Tested:	18 May 2021

Test Results

Liquid Limit	36	%
Plastic Limit	22	%
Plasticity Index	14	%

Preparation:	4.2.4 Sieved Specimen
Proportion retained on 425µm sieve:	48 %



Remarks:

QA Ref.

BS1377 - 2
Rev. 2.0



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7771

Approver

L Davis

L Davis, Quality Manager

Date

19/05/2021

Fig.

ATT

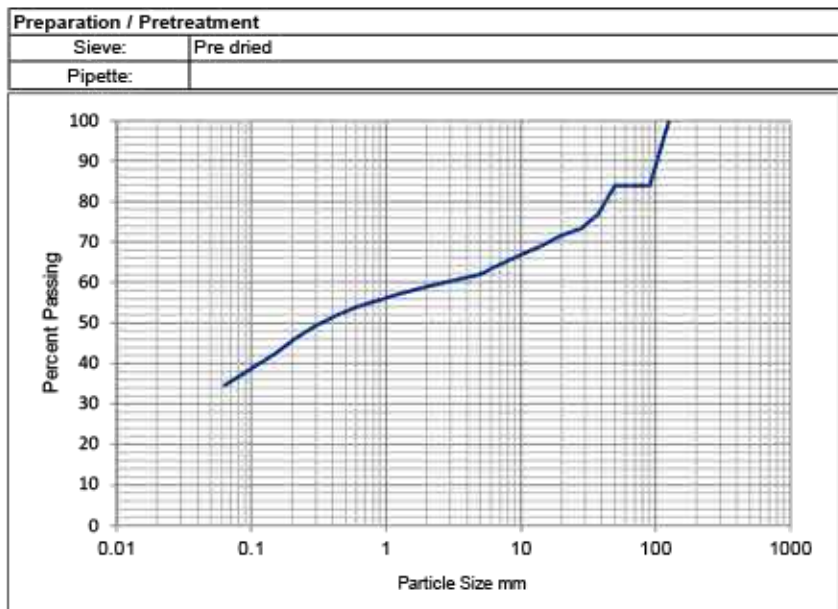
TEST REPORT
PARTICLE SIZE DISTRIBUTION ANALYSIS
BS1377:Part 2:1990

Project No: D21252 **Client:** Integral Geotechnique
Project Name: Swansea Road, Merthyr Tydfil **Address:** Integral House
 7 Beddau Way
 Castlegate Business Park
 Caerphilly
 CF83 8PH
ATS Sample No: 24370

Site Ref / Hole ID: BH2 **Depth (m):** 11.30
Sample No: **Sample Type:** Disturbed
Sampling Certificate Received: No **Material Description:** Brownish grey slightly sandy slightly gravelly CLAY with medium cobble content
Location in Works: N/A **Material Source:** Unknown
Date Sampled: Unknown **Material Supplier:** Unknown
Sampled By: Client **Specification:** BS1377
Date Received: 11 May 2021 **Date Tested:** 18 May 2021

Test Results

Sieving	
Particle Size mm	% Passing
125	100
90	84
75	84
63	84
50	84
37.5	77
28	73
20	72
14	69
10	67
6.3	64
5.0	62
3.35	61
2.00	59
1.18	57
0.600	54
0.425	52
0.300	49
0.212	48
0.150	42
0.063	35



Sample Portions		Particle Density Mg/m ³	Uniformity Coefficient D_{60} / D_{10}
Cobbles / Boulders	18	N/A	
Gravel	25		
Sand	24	Dry mass of sample, kg	
Silt / Clay	35	14.3	N/A

Remarks:

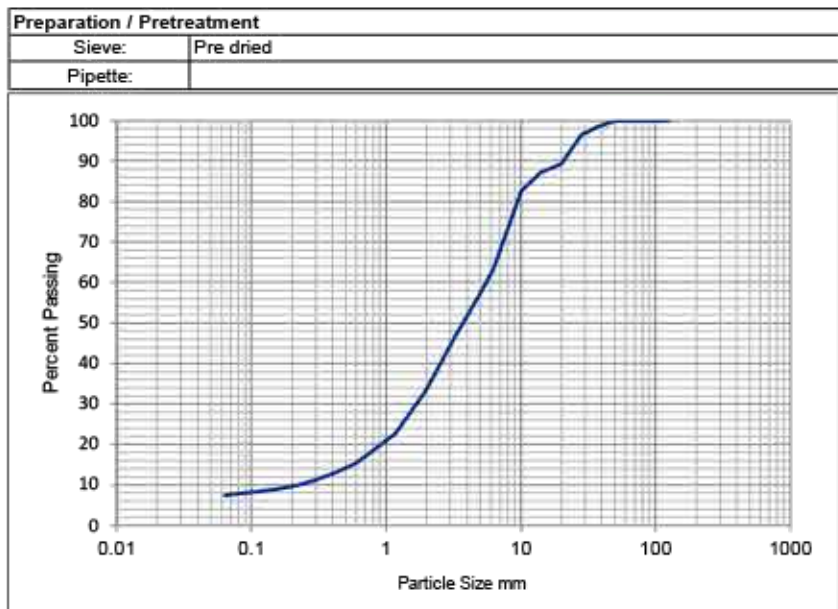
TEST REPORT
PARTICLE SIZE DISTRIBUTION ANALYSIS
BS1377:Part 2:1990

Project No:	D21252	Client:	Integral Geotechnique
Project Name:	Swansea Road, Merthyr Tydfil	Address	Integral House 7 Beddau Way Castlegate Business Park Caerphilly CF83 8PH
ATS Sample No:	24371		

Site Ref / Hole ID:	BH3	Depth (m):	1.00
Sample No:		Sample Type:	Disturbed
Sampling Certificate Received:	No	Material Description:	Grey clayey very sandy GRAVEL
Location in Works:	N/A	Material Source:	Unknown
Date Sampled:	Unknown	Material Supplier:	Unknown
Sampled By:	Client	Specification:	BS1377
Date Received:	11 May 2021	Date Tested:	18 May 2021

Test Results

Sieving	
Particle Size mm	% Passing
125	100
90	100
75	100
63	100
50	100
37.5	98
28	96
20	89
14	87
10	83
6.3	63
5.0	57
3.35	48
2.00	33
1.18	23
0.600	15
0.425	13
0.300	11
0.212	10
0.150	9
0.063	7



Sample Portions		Particle Density Mg/m3	Uniformity Coefficient D_{60} / D_{10}
Cobbles / Boulders	0	N/A	
Gravel	67		
Sand	26	Dry mass of sample, kg	
Silt / Clay	7	6.3	N/A

Remarks:

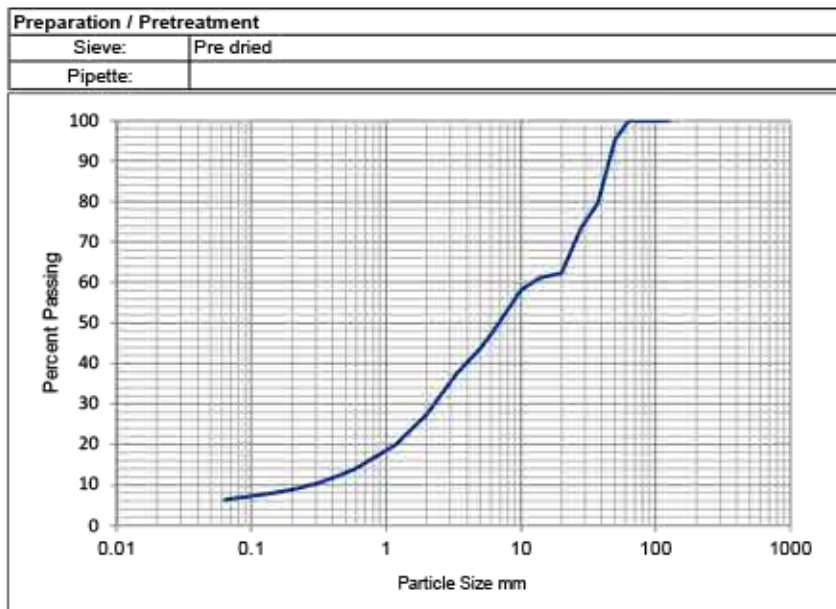
TEST REPORT
PARTICLE SIZE DISTRIBUTION ANALYSIS
BS1377:Part 2:1990

Project No: D21252 **Client:** Integral Geotechnique
Project Name: Swansea Road, Merthyr Tydfil **Address:** Integral House
 7 Beddau Way
 Castlegate Business Park
 Caerphilly
 CF83 8PH
ATS Sample No: 24372

Site Ref / Hole ID: BH3 **Depth (m):** 5.00
Sample No: **Sample Type:** Disturbed
Sampling Certificate Received: No **Material Description:** Dark grey clayey very sandy GRAVEL
Location in Works: N/A **Material Source:** Unknown
Date Sampled: Unknown **Material Supplier:** Unknown
Sampled By: Client **Specification:** BS1377
Date Received: 11 May 2021 **Date Tested:** 14 May 2021

Test Results

Sieving	
Particle Size mm	% Passing
125	100
90	100
75	100
63	100
50	95
37.5	80
28	74
20	62
14	61
10	58
6.3	48
5.0	44
3.35	38
2.00	27
1.18	20
0.600	14
0.425	12
0.300	10
0.212	9
0.150	8
0.063	6



Sample Portions		Particle Density Mg/m3	Uniformity Coefficient D_{60} / D_{10}
Cobbles / Boulders	0	N/A	
Gravel	73		
Sand	21	Dry mass of sample, kg	
Silt / Clay	6	13.6	N/A

Remarks:

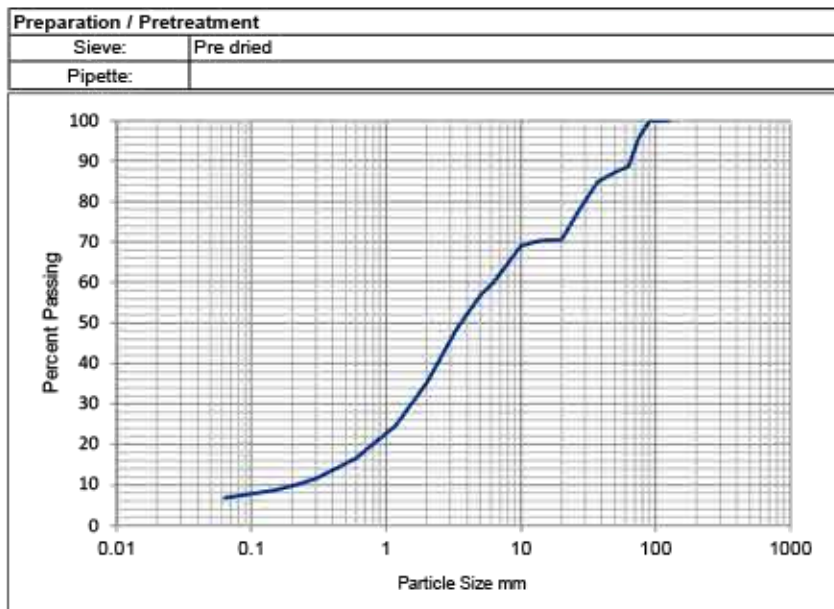
TEST REPORT
PARTICLE SIZE DISTRIBUTION ANALYSIS
BS1377:Part 2:1990

Project No: D21252 Client: Integral Geotechnique
 Project Name: Swansea Road, Merthyr Tydfil Address: Integral House
 7 Beddau Way
 Castlegate Business Park
 Caerphilly
 CF83 8PH
 ATS Sample No: 24373

Site Ref / Hole ID: BH3 Depth (m): 6.00
 Sample No: Sample Type: Disturbed
 Sampling Certificate No Material Description: Dark grey clayey very sandy
 Received: GRAVEL with medium cobble content
 Location in Works: N/A Material Source: Unknown
 Date Sampled: Unknown Material Supplier: Unknown
 Sampled By: Client Specification: BS1377
 Date Received: 11 May 2021 Date Tested: 18 May 2021

Test Results

Sieving	
Particle Size mm	% Passing
125	100
90	100
75	98
63	89
50	87
37.5	85
28	79
20	70
14	70
10	69
6.3	60
5.0	57
3.35	49
2.00	35
1.18	25
0.600	17
0.425	14
0.300	12
0.212	10
0.150	9
0.063	7



Sample Portions		Particle Density Mg/m3	Uniformity Coefficient D_{60} / D_{10}
Cobbles / Boulders	11	N/A	
Gravel	54		
Sand	28	Dry mass of sample, kg	
Silt / Clay	7	11.5	N/A

Remarks:

TEST REPORT
Determination Of Water Content
ISO 17892-1: 2014

Project No: D21252 Project Name: Swansea Road, Merthyr Tydfil ATS Sample No: 24374	Client: Integral Geotechnique Address: Integral House 7 Beddau Way Castlegate Business Park Caerphilly CF83 8PH
---	--

Site Ref / Hole ID: BH3 Sample No: Sampling Certificate Received: No Location in Works: N/A Date Sampled: Unknown Sampled By: Client Date Received: 11 May 2021	Depth (m): 7.00 Sample Type: Disturbed Material Description: Dark grey slightly sandy gravelly CLAY Material Source: Unknown Material Supplier: Unknown Specification: BS1377 Date Tested: 13 May 2021
--	---

Test Results

Moisture Content (%)	8.5
----------------------	-----

Remarks:

TEST REPORT
LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX
BS 1377:Part 2:1990. Clause 4.3/5.3/5.4

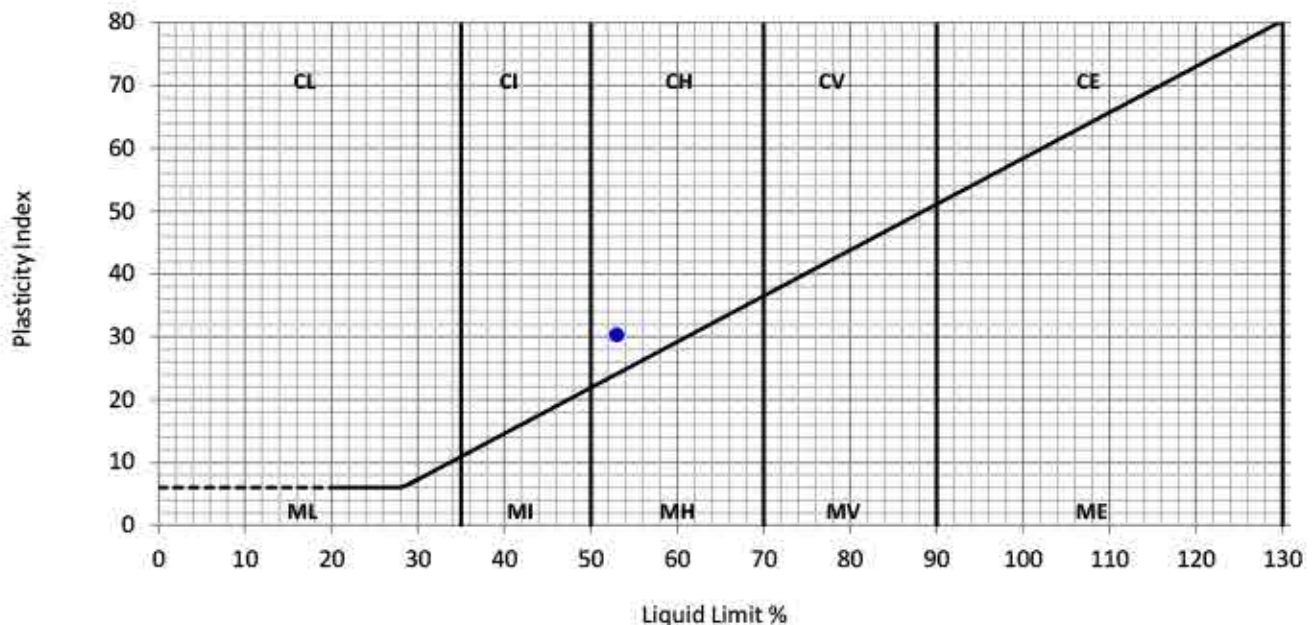
Project No:	D21252	Client:	Integral Geotechnique
Project Name:	Swansea Road, Merthyr Tydfil	Address:	Integral House 7 Beddau Way Castlegate Business Park Caerphilly CF83 8PH
ATS Sample No:	24374		

Site Ref / Hole ID:	BH3	Depth (m):	7.00
Sample No:		Sample Type:	Disturbed
Sampling Certificate Received:	No	Material Description:	Dark grey slightly sandy gravelly CLAY
Location In Works:	N/A	Material Source:	Unknown
Date Sampled:	Unknown	Material Supplier:	Unknown
Sampled By:	Client	Specification:	BS1377
Date Received:	11 May 2021	Date Tested:	18 May 2021

Test Results

Liquid Limit	53	%
Plastic Limit	23	%
Plasticity Index	30	%

Preparation:	4.2.4 Sieved Specimen
Proportion retained on 425µm sieve:	69 %



Remarks:

QA Ref.

BS1377 - 2
Rev. 2.0



Apex Testing Solutions

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Approver

L Davis

L Davis, Quality Manager

Date

19/05/2021

Fig.

ATT

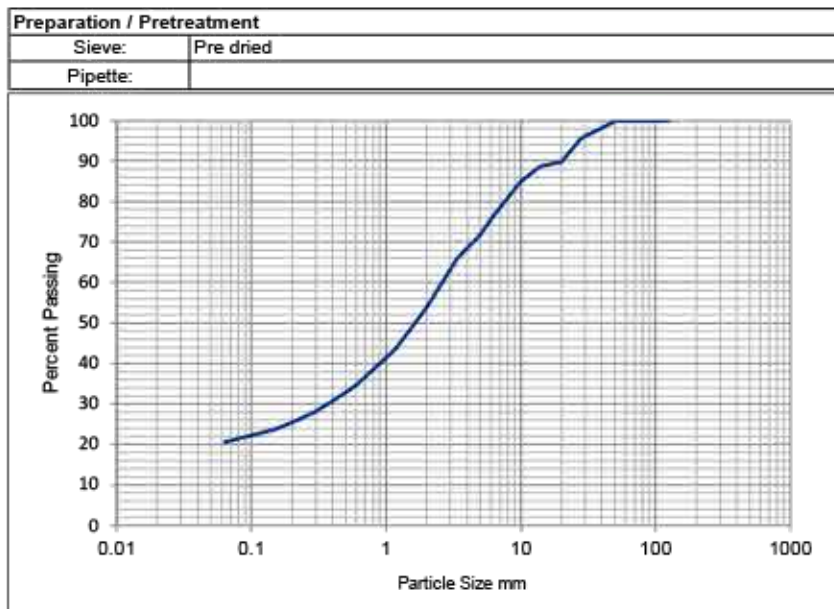
TEST REPORT
PARTICLE SIZE DISTRIBUTION ANALYSIS
BS1377:Part 2:1990

Project No: D21252 Client: Integral Geotechnique
 Project Name: Swansea Road, Merthyr Tydfil Address: Integral House
 7 Beddau Way
 Castlegate Business Park
 Caerphilly
 CF83 8PH
 ATS Sample No: 24374

Site Ref / Hole ID: BH3 Depth (m): 7.00
 Sample No: Sample Type: Disturbed
 Sampling Certificate Received: No Material Description: Dark grey slightly sandy gravelly CLAY
 Location in Works: N/A Material Source: Unknown
 Date Sampled: Unknown Material Supplier: Unknown
 Sampled By: Client Specification: BS1377
 Date Received: 11 May 2021 Date Tested: 14 May 2021

Test Results

Sieving	
Particle Size mm	% Passing
125	100
90	100
75	100
63	100
50	100
37.5	98
28	96
20	90
14	89
10	85
6.3	78
5.0	72
3.35	66
2.00	54
1.18	44
0.600	35
0.425	31
0.300	28
0.212	26
0.150	24
0.063	21



Sample Portions		Particle Density Mg/m ³	Uniformity Coefficient D_{60} / D_{10}
Cobbles / Boulders	0	N/A	
Gravel	46		
Sand	33	Dry mass of sample, kg	
Silt / Clay	21	9.4	N/A

Remarks:

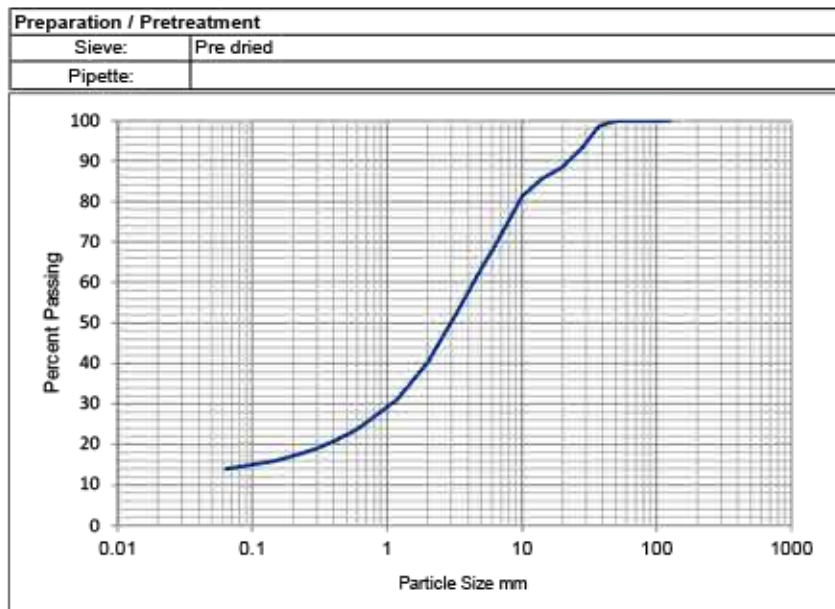
TEST REPORT
PARTICLE SIZE DISTRIBUTION ANALYSIS
BS1377:Part 2:1990

Project No:	D21252	Client:	Integral Geotechnique
Project Name:	Swansea Road, Merthyr Tydfil	Address	Integral House 7 Beddau Way Castlegate Business Park Caerphilly CF83 8PH
ATS Sample No:	24375		

Site Ref / Hole ID:	BH3	Depth (m):	8.00
Sample No:		Sample Type:	Disturbed
Sampling Certificate Received:	No	Material Description:	Grey clayey very sandy GRAVEL
Location in Works:	N/A	Material Source:	Unknown
Date Sampled:	Unknown	Material Supplier:	Unknown
Sampled By:	Client	Specification:	BS1377
Date Received:	11 May 2021	Date Tested:	18 May 2021

Test Results

Sieving	
Particle Size mm	% Passing
125	100
90	100
75	100
63	100
50	100
37.5	99
28	93
20	88
14	86
10	81
6.3	69
5.0	63
3.35	53
2.00	40
1.18	31
0.600	24
0.425	21
0.300	19
0.212	17
0.150	16
0.063	14



Sample Portions		Particle Density Mg/m3	Uniformity Coefficient D ₆₀ / D ₁₀
Cobbles / Boulders	0	N/A	
Gravel	60		
Sand	26	Dry mass of sample, kg	
Silt / Clay	14	8.8	N/A

Remarks:

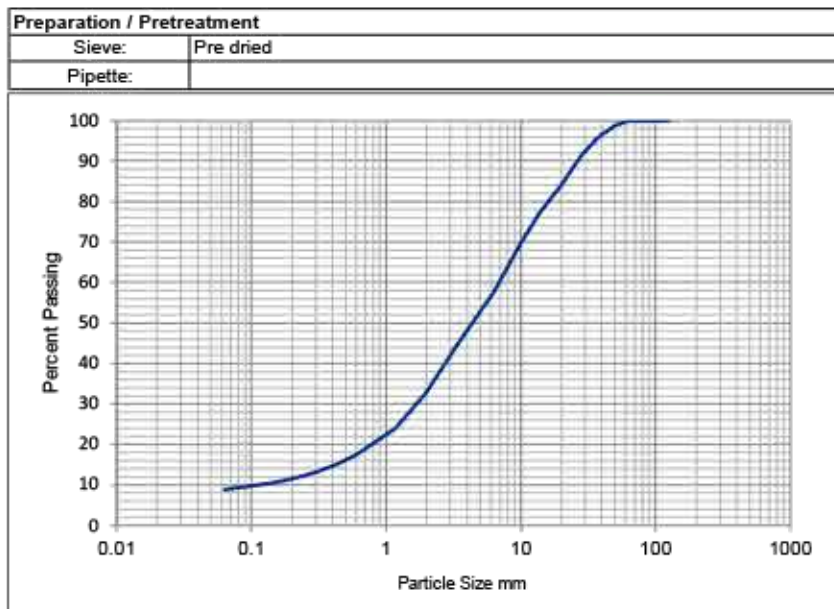
TEST REPORT
PARTICLE SIZE DISTRIBUTION ANALYSIS
BS1377:Part 2:1990

Project No: D21252 **Client:** Integral Geotechnique
Project Name: Swansea Road, Merthyr Tydfil **Address:** Integral House
 7 Beddau Way
 Castlegate Business Park
 Caerphilly
 CF83 8PH
ATS Sample No: 24376

Site Ref / Hole ID: BH3 **Depth (m):** 9.00
Sample No: **Sample Type:** Disturbed
Sampling Certificate Received: No **Material Description:** Grey clayey very sandy GRAVEL
Location in Works: N/A **Material Source:** Unknown
Date Sampled: Unknown **Material Supplier:** Unknown
Sampled By: Client **Specification:** BS1377
Date Received: 11 May 2021 **Date Tested:** 18 May 2021

Test Results

Sieving	
Particle Size mm	% Passing
125	100
90	100
75	100
63	100
50	99
37.5	96
28	91
20	84
14	78
10	70
6.3	58
5.0	53
3.35	45
2.00	33
1.18	24
0.600	17
0.425	15
0.300	13
0.212	12
0.150	11
0.063	9



Sample Portions		Particle Density Mg/m3	Uniformity Coefficient D ₆₀ / D ₁₀
Cobbles / Boulders	0	N/A	
Gravel	87		
Sand	24	Dry mass of sample, kg	
Silt / Clay	9	8.7	N/A

Remarks:

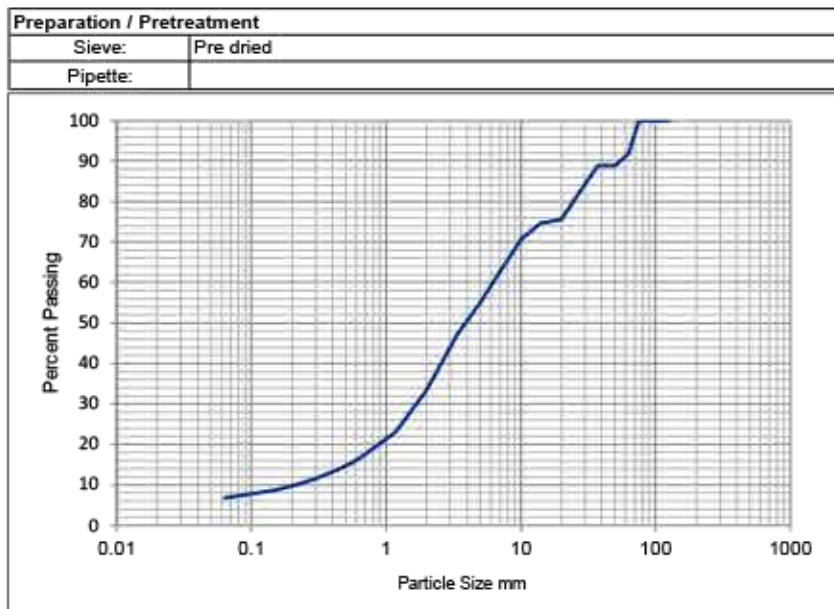
TEST REPORT
PARTICLE SIZE DISTRIBUTION ANALYSIS
BS1377:Part 2:1990

Project No:	D21252	Client:	Integral Geotechnique
Project Name:	Swansea Road, Merthyr Tydfil	Address	Integral House 7 Beddau Way Castlegate Business Park Caerphilly CF83 8PH
ATS Sample No:	24377		

Site Ref / Hole ID:	BH4	Depth (m):	1.00
Sample No:		Sample Type:	Disturbed
Sampling Certificate Received:	No	Material Description:	Grey clayey very sandy GRAVEL with low cobble content
Location in Works:	N/A	Material Source:	Unknown
Date Sampled:	Unknown	Material Supplier:	Unknown
Sampled By:	Client	Specification:	BS1377
Date Received:	11 May 2021	Date Tested:	18 May 2021

Test Results

Sieving	
Particle Size mm	% Passing
125	100
90	100
75	100
63	92
50	89
37.5	89
28	83
20	75
14	75
10	71
6.3	60
5.0	55
3.35	47
2.00	33
1.18	23
0.600	16
0.425	14
0.300	12
0.212	10
0.150	9
0.063	7



Sample Portions		Particle Density Mg/m3	Uniformity Coefficient D_{60} / D_{10}
Cobbles / Boulders	8	N/A	
Gravel	58		
Sand	27	Dry mass of sample, kg	
Silt / Clay	7	5.6	N/A

Remarks:

TEST REPORT
Determination Of Water Content
ISO 17892-1: 2014

Project No: D21252 Project Name: Swansea Road, Merthyr Tydfil ATS Sample No: 24378	Client: Integral Geotechnique Address: Integral House 7 Beddau Way Castlegate Business Park Caerphilly CF83 8PH
---	--

Site Ref / Hole ID: BH4 Sample No: Sampling Certificate Received: No Location in Works: N/A Date Sampled: Unknown Sampled By: Client Date Received: 11 May 2021	Depth (m): 8.00 Sample Type: Disturbed Material Description: Browish grey slightly gravelly slightly sandy CLAY with low cobble content Material Source: Unknown Material Supplier: Unknown Specification: BS1377 Date Tested: 13 May 2021
--	---

Test Results

Moisture Content (%)	13.0
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Remarks:

TEST REPORT

LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX

BS 1377:Part 2:1990. Clause 4.3/5.3/5.4

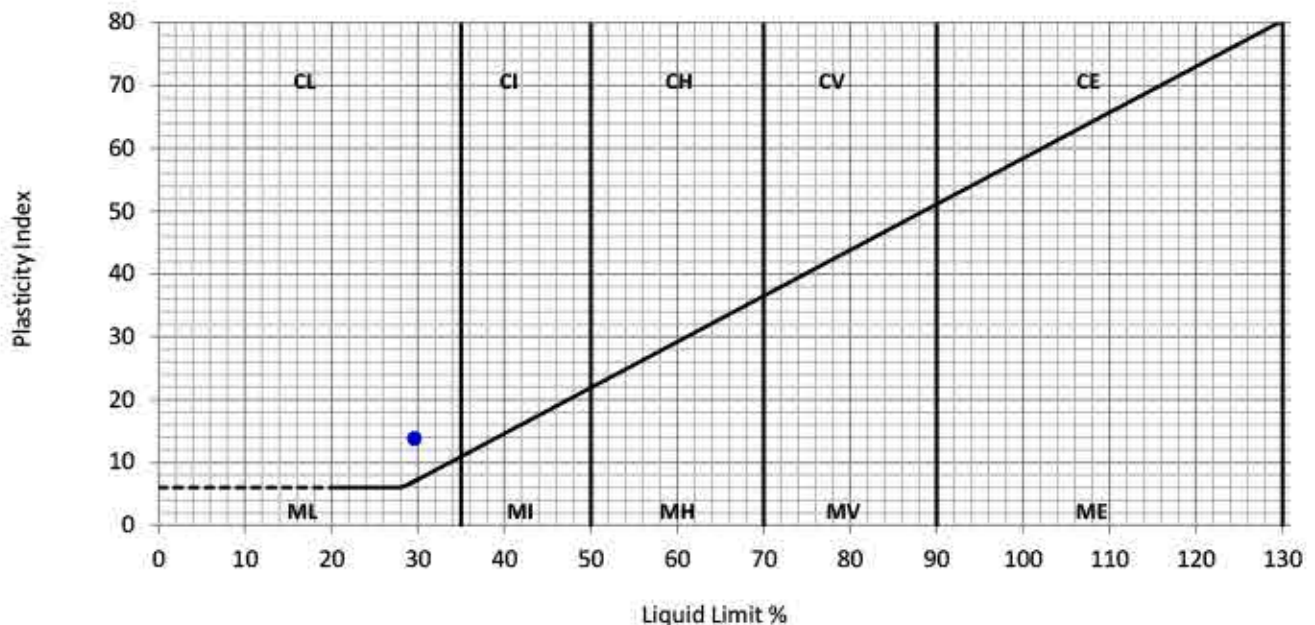
Project No:	D21252	Client:	Integral Geotechnique
Project Name:	Swansea Road, Merthyr Tydfil	Address:	Integral House 7 Beddau Way Castlegate Business Park Caerphilly CF83 8PH
ATS Sample No:	24378		

Site Ref / Hole ID:	BH4	Depth (m):	8.00
Sample No:		Sample Type:	Disturbed
Sampling Certificate Received:	No	Material Description:	Brownish grey slightly gravelly slightly sandy CLAY with low cobble content
Location In Works:	N/A	Material Source:	Unknown
Date Sampled:	Unknown	Material Supplier:	Unknown
Sampled By:	Client	Specification:	BS1377
Date Received:	11 May 2021	Date Tested:	18 May 2021

Test Results

Liquid Limit	30	%
Plastic Limit	16	%
Plasticity Index	14	%

Preparation:	4.2.4 Sieved Specimen
Proportion retained on 425µm sieve:	35 %



Remarks:

QA Ref.

BS1377 - 2
Rev. 2.0



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Approver

L Davis

L Davis, Quality Manager

Date

20/05/2021

Fig.

ATT

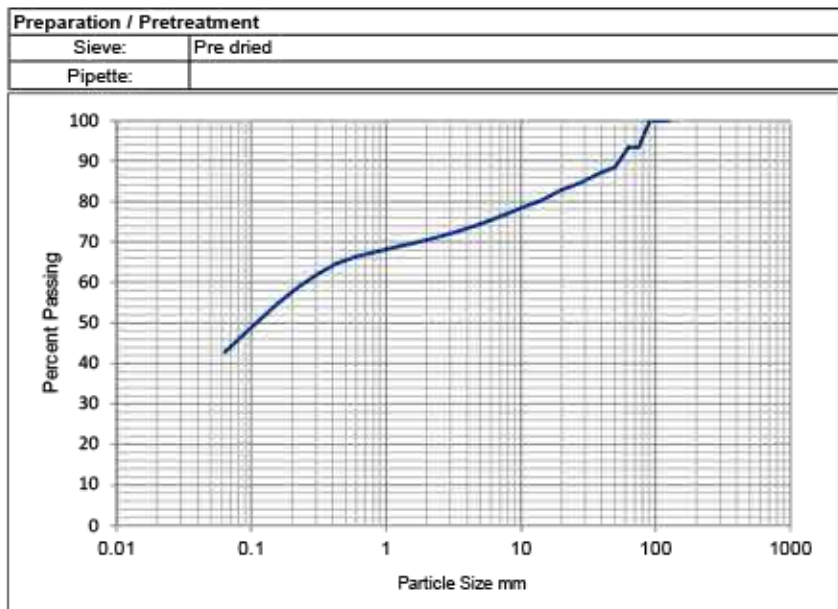
TEST REPORT
PARTICLE SIZE DISTRIBUTION ANALYSIS
BS1377:Part 2:1990

Project No: D21252 Client: Integral Geotechnique
 Project Name: Swansea Road, Merthyr Tydfil Address: Integral House
 7 Beddau Way
 Castlegate Business Park
 Caerphilly
 CF83 8PH
 ATS Sample No: 24378

Site Ref / Hole ID: BH4 Depth (m): 8.00
 Sample No: Sample Type: Disturbed
 Sampling Certificate No Material Description: Brownish grey slightly gravelly
 Received: slightly sandy CLAY with low
 Location in Works: N/A Material Source: Unknown
 Date Sampled: Unknown Material Supplier: Unknown
 Sampled By: Client Specification: BS1377
 Date Received: 11 May 2021 Date Tested: 17 May 2021

Test Results

Sieving	
Particle Size mm	% Passing
125	100
90	100
75	93
63	93
50	88
37.5	87
28	85
20	83
14	80
10	78
6.3	76
5.0	74
3.35	73
2.00	70
1.18	69
0.600	66
0.425	65
0.300	62
0.212	58
0.150	54
0.063	43



Sample Portions		Particle Density Mg/m ³	Uniformity Coefficient D ₆₀ / D ₁₀
Cobbles / Boulders	7	N/A	
Gravel	23		
Sand	28	Dry mass of sample, kg	
Silt / Clay	43	9.9	N/A

Remarks:

TEST REPORT
Determination Of Water Content
ISO 17892-1: 2014

Project No: D21252 Project Name: Swansea Road, Merthyr Tydfil ATS Sample No: 24379	Client: Integral Geotechnique Address: Integral House 7 Beddau Way Castlegate Business Park Caerphilly CF83 8PH
---	--

Site Ref / Hole ID: BH5 Sample No: Sampling Certificate Received: No Location in Works: N/A Date Sampled: Unknown Sampled By: Client Date Received: 11 May 2021	Depth (m): 1.00 Sample Type: Disturbed Material Description: Grey gravelly sandy CLAY Material Source: Unknown Material Supplier: Unknown Specification: BS1377 Date Tested: 13 May 2021
--	---

Test Results

Moisture Content (%)	11.7
----------------------	------

Remarks:

TEST REPORT

LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX

BS 1377:Part 2:1990. Clause 4.3/5.3/5.4

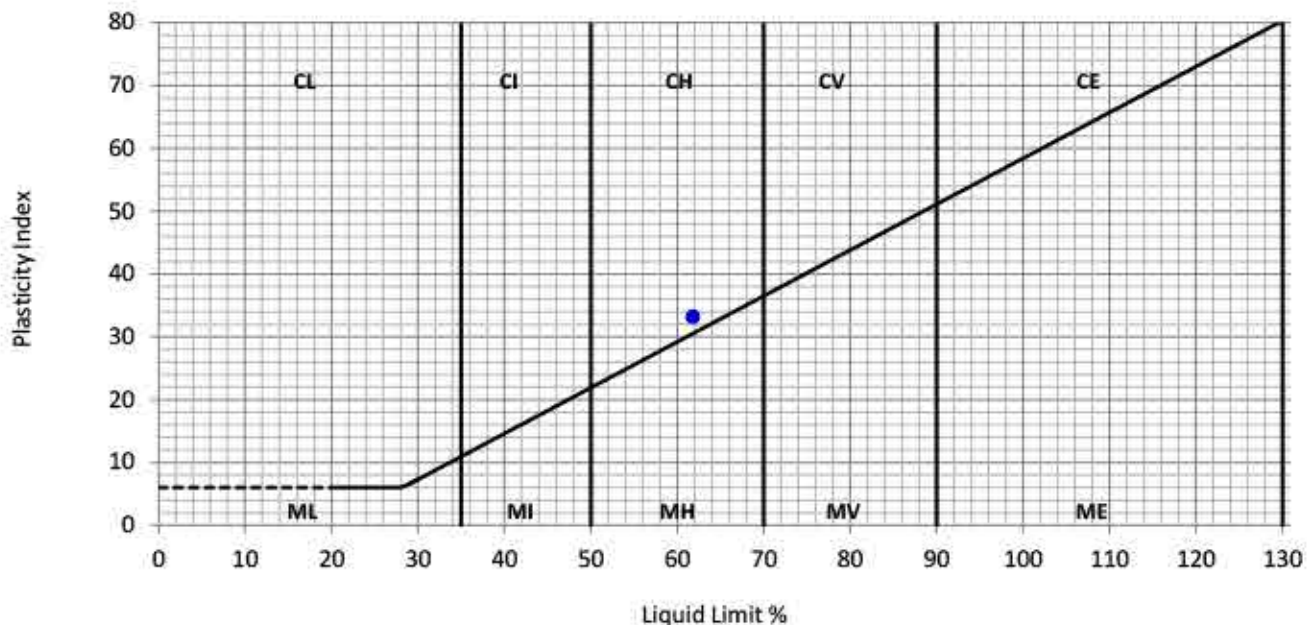
Project No:	D21252	Client:	Integral Geotechnique
Project Name:	Swansea Road, Merthyr Tydfil	Address:	Integral House 7 Beddau Way Castlegate Business Park Caerphilly CF83 8PH
ATS Sample No:	24379		

Site Ref / Hole ID:	BH5	Depth (m):	1.00
Sample No:		Sample Type:	Disturbed
Sampling Certificate Received:	No	Material Description:	Grey gravelly sandy CLAY
Location In Works:	N/A	Material Source:	Unknown
Date Sampled:	Unknown	Material Supplier:	Unknown
Sampled By:	Client	Specification:	BS1377
Date Received:	11 May 2021	Date Tested:	18 May 2021

Test Results

Liquid Limit	62	%
Plastic Limit	29	%
Plasticity Index	33	%

Preparation:	4.2.4 Sieved Specimen
Proportion retained on 425µm sieve:	79 %



Remarks:

QA Ref.

BS1377 - 2
Rev. 2.0



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7771

Approver

L Davis

L Davis, Quality Manager

Date

20/05/2021

Fig.

ATT

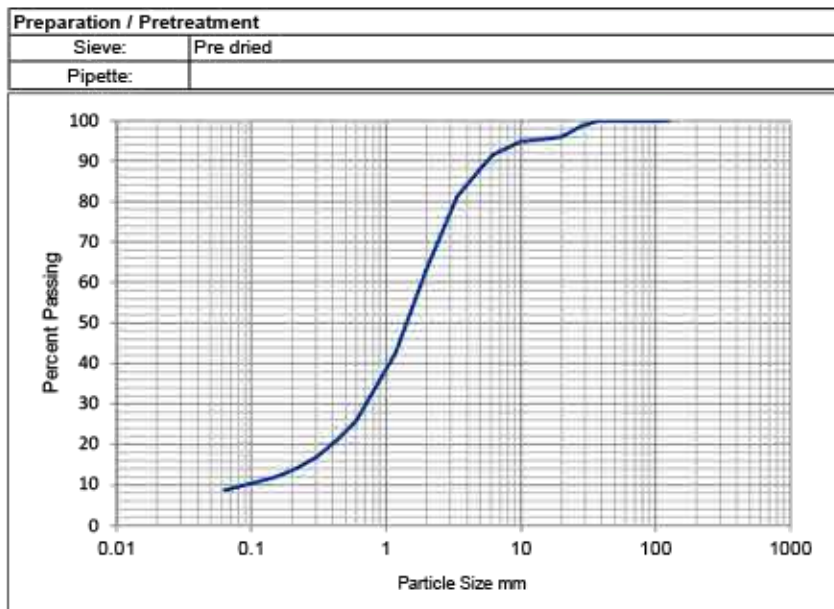
TEST REPORT
PARTICLE SIZE DISTRIBUTION ANALYSIS
BS1377:Part 2:1990

Project No:	D21252	Client:	Integral Geotechnique
Project Name:	Swansea Road, Merthyr Tydfil	Address	Integral House 7 Beddau Way Castlegate Business Park Caerphilly CF83 8PH
ATS Sample No:	24379		

Site Ref / Hole ID:	BH5	Depth (m):	1.00
Sample No:		Sample Type:	Disturbed
Sampling Certificate Received:	No	Material Description:	Grey gravelly sandy CLAY
Location in Works:	N/A	Material Source:	Unknown
Date Sampled:	Unknown	Material Supplier:	Unknown
Sampled By:	Client	Specification:	BS1377
Date Received:	11 May 2021	Date Tested:	18 May 2021

Test Results

Sieving	
Particle Size mm	% Passing
125	100
90	100
75	100
63	100
50	100
37.5	100
28	99
20	98
14	95
10	95
6.3	92
5.0	88
3.35	81
2.00	63
1.18	43
0.600	28
0.425	21
0.300	17
0.212	14
0.150	12
0.063	9



Sample Portions		Particle Density Mg/m3	Uniformity Coefficient D_{60} / D_{10}
Cobbles / Boulders	0	N/A	
Gravel	37		
Sand	55	Dry mass of sample, kg	
Silt / Clay	9	5.3	N/A

Remarks:

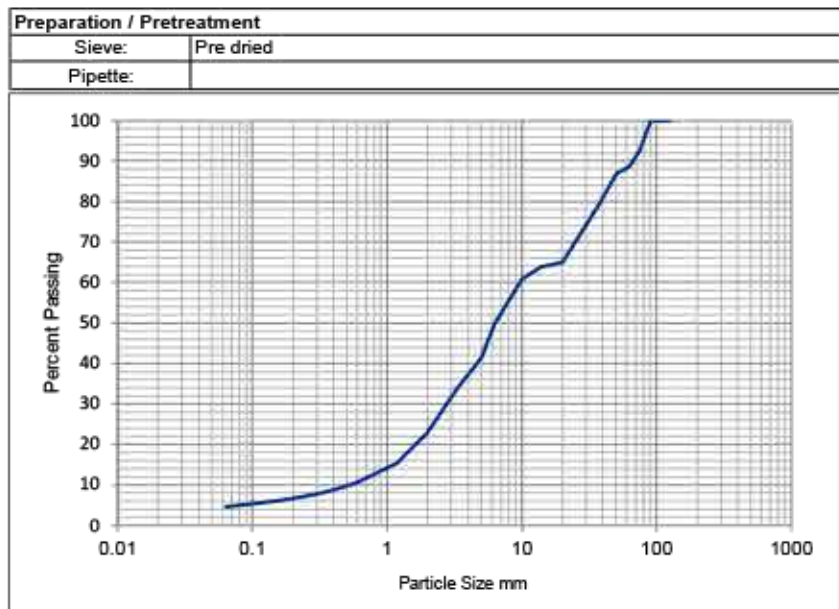
TEST REPORT
PARTICLE SIZE DISTRIBUTION ANALYSIS
BS1377:Part 2:1990

Project No:	D21252	Client:	Integral Geotechnique
Project Name:	Swansea Road, Merthyr Tydfil	Address	Integral House 7 Beddau Way Castlegate Business Park Caerphilly CF83 8PH
ATS Sample No:	24380		

Site Ref / Hole ID:	BH5	Depth (m):	2.00
Sample No:		Sample Type:	Disturbed
Sampling Certificate Received:	No	Material Description:	Grey slightly clayey sandy GRAVEL with medium cobble content
Location in Works:	N/A	Material Source:	Unknown
Date Sampled:	Unknown	Material Supplier:	Unknown
Sampled By:	Client	Specification:	BS1377
Date Received:	11 May 2021	Date Tested:	18 May 2021

Test Results

Sieving	
Particle Size mm	% Passing
125	100
90	100
75	93
63	89
50	87
37.5	79
28	73
20	65
14	64
10	61
6.3	50
5.0	41
3.35	34
2.00	23
1.18	15
0.600	11
0.425	9
0.300	8
0.212	7
0.150	6
0.063	5



Sample Portions		Particle Density Mg/m ³	Uniformity Coefficient D ₆₀ / D ₁₀
Cobbles / Boulders	11	N/A	
Gravel	66		
Sand	18	Dry mass of sample, kg	
Silt / Clay	5	10.2	N/A

Remarks:

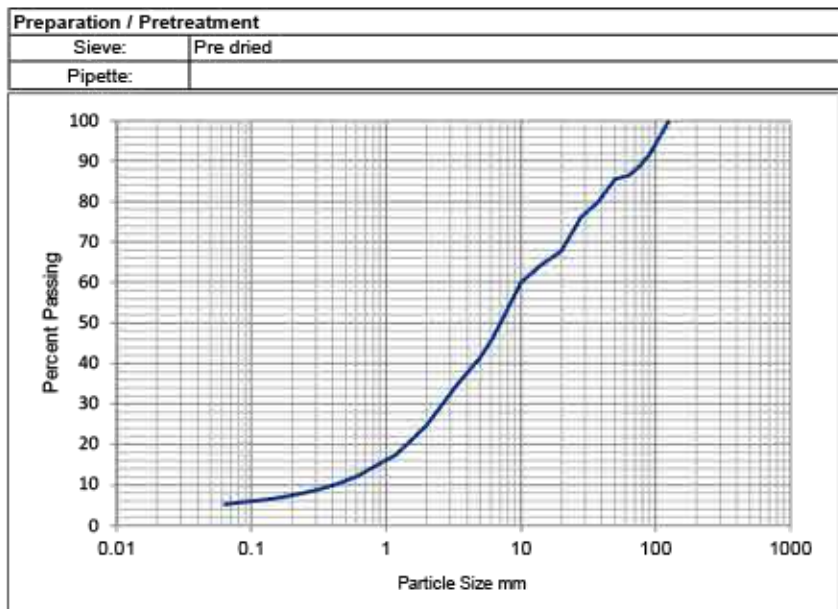
TEST REPORT
PARTICLE SIZE DISTRIBUTION ANALYSIS
BS1377:Part 2:1990

Project No:	D21252	Client:	Integral Geotechnique
Project Name:	Swansea Road, Merthyr Tydfil	Address	Integral House 7 Beddau Way Castlegate Business Park Caerphilly CF83 8PH
ATS Sample No:	24381		

Site Ref / Hole ID:	BH5	Depth (m):	4.00
Sample No:		Sample Type:	Disturbed
Sampling Certificate Received:	No	Material Description:	Grey clayey sandy GRAVEL with medium cobble content
Location in Works:	N/A	Material Source:	Unknown
Date Sampled:	Unknown	Material Supplier:	Unknown
Sampled By:	Client	Specification:	BS1377
Date Received:	11 May 2021	Date Tested:	14 May 2021

Test Results

Sieving	
Particle Size mm	% Passing
125	100
90	92
75	89
63	86
50	85
37.5	80
28	76
20	68
14	64
10	60
6.3	47
5.0	41
3.35	35
2.00	25
1.18	17
0.600	12
0.425	10
0.300	9
0.212	8
0.150	7
0.063	5



Sample Portions		Particle Density Mg/m3	Uniformity Coefficient D_{60} / D_{10}
Cobbles / Boulders	14	N/A	
Gravel	62		
Sand	19	Dry mass of sample, kg	
Silt / Clay	5	20.3	N/A

Remarks:

APPENDIX G

GROUNDWATER LEVEL MONITORING DATA (2021)

Groundwater Quality Monitoring Results												
Site:		Swasea Road Merthyr			Job No:		12824					
Date:		28.04.21			Weather:		Raining					
Name of Engineer:		RH										
Sample No.	Water level (mbgl)	Well Base Level (mbgl)	pH (pH Units)	Temperature (C)	Conductivity (uS/cm)	Total disolved solids (ppm)	Salinity (PSU)	Oxygen Reduction Potential (mV)	Disolved Oxygen (%)	Comments		
BH 1	Dry	9.05										
BH 2	10.39	11.10										
BH 3	10.23	10.58										
Notes:												
1. Instrument Used: HI Multiparameter												
2. Typical Accuracy: Water												
Temperature			+/- 0.15 'C		DO		+/- 1%		PSU		+/- 2% or '+/- 0.01 PSU	
pH			+/- 0.01 pH		Conductivity		+/- 1% or '+/- 1uS/cm		Resistivity		+/- 1% or '+/- 1mg/L	
ORP			+/- 1mV									
3. N/R = No Reading Taken												
Intégral Géotechnique												

Groundwater Quality Monitoring Results												
Site:		Swasea Road Merthyr			Job No:		12824					
Date:		12.05.21			Weather:		Cloudy					
Name of Engineer:		RH										
Sample No.	Water level (mbgl)	Well Base Level (mbgl)	pH (pH Units)	Temperature (C)	Conductivity (uS/cm)	Total disolved solids (ppm)	Salinity (PSU)	Oxygen Reduction Potential (mV)	Disolved Oxygen (%)	Comments		
BH 1	Dry	9.05										
BH 2	10.41	11.10										
BH 3	10.25	10.58										
Notes:												
1. Instrument Used: HI Multiparameter												
2. Typical Accuracy: Water												
Temperature			+/- 0.15 'C		DO		+/- 1%		PSU		+/- 2% or '+/- 0.01 PSU	
pH			+/- 0.01 pH		Conductivity		+/- 1% or '+/- 1uS/cm		Resistivity		+/- 1% or '+/- 1mg/L	
ORP			+/- 1mV									
3. N/R = No Reading Taken												
Intégral Géotechnique												

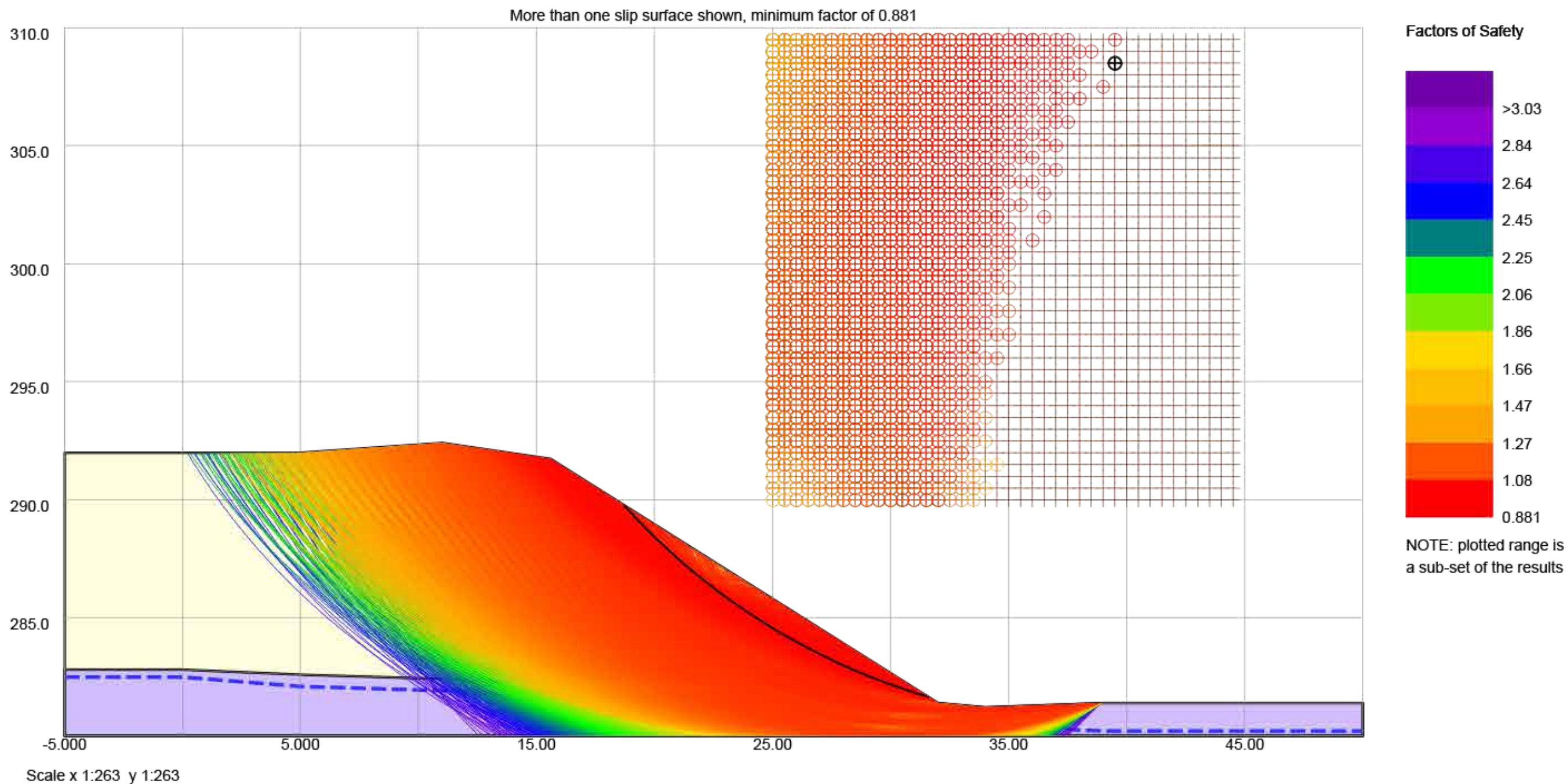
Groundwater Quality Monitoring Results												
Site:		Swasea Road Merthyr			Job No:		12824					
Date:		24.05.21			Weather:		Raining					
Name of Engineer:		RH										
Sample No.	Water level (mbgl)	Well Base Level (mbgl)	pH (pH Units)	Temperature (C)	Conductivity (uS/cm)	Total disolved solids (ppm)	Salinity (PSU)	Oxygen Reduction Potential (mV)	Disolved Oxygen (%)	Comments		
BH 1	Dry	9.05										
BH 2	10.36	11.10										
BH 3	10.19	10.58										
Notes:												
1. Instrument Used: HI Multiparameter												
2. Typical Accuracy: Water												
Temperature			+/- 0.15 'C		DO		+/- 1%		PSU		+/- 2% or '+/- 0.01 PSU	
pH			+/- 0.01 pH		Conductivity		+/- 1% or '+/- 1uS/cm		Resistivity		+/- 1% or '+/- 1mg/L	
ORP			+/- 1mV									
3. N/R = No Reading Taken												
Intégral Géotechnique												

Groundwater Quality Monitoring Results										
Site:		Swasea Road Merthyr			Job No:		12824			
Date:		07.06.21			Weather:		Cloudy			
Name of Engineer:		RH								
Sample No.	Water level (mbgl)	Well Base Level (mbgl)	pH (pH Units)	Temperature (C)	Conductivity (uS/cm)	Total disolved solids (ppm)	Salinity (PSU)	Oxygen Reduction Potential (mV)	Disolved Oxygen (%)	Comments
BH 1	Dry	9.05								
BH 2	10.38	11.10								
BH 3	10.21	10.58								
Notes:										
1. Instrument Used:		HI Multiparameter								
2. Typical Accuracy:		Water								
		Temperature +/- 0.15 'C		DO +/- 1%		PSU +/- 2% or '+/- 0.01 PSU				
		pH +/- 0.01 pH		Conductivity +/- 1% or '+/- 1uS/cm		Resistivity +/- 1% or '+/- 1mg/L				
		ORP +/- 1mV								
3. N/R		= No Reading Taken								
Intégral Géotechnique										

APPENDIX H

SLOPE STABILITY ASSESSMENT (EXISTING SLOPE SECTION A-A)

Job No.	Sheet No.	Rev.
12824		
Drg. Ref.		
Made by GNS	Date	Checked



APPENDIX I

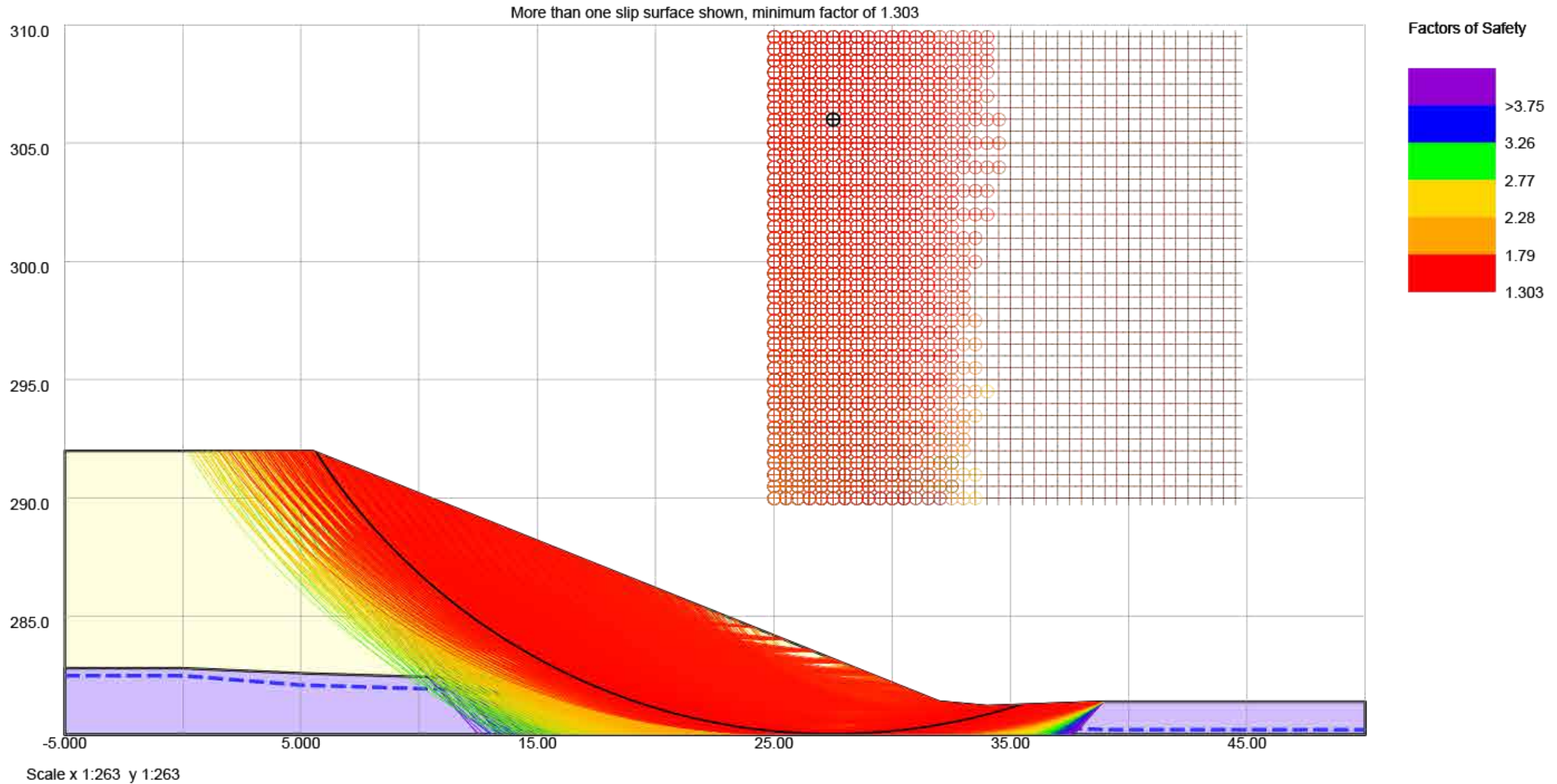
SLOPE STABILITY ASSESSMENT (REGRADED SLOPE AT 1V:2.5H)

Appendix I - Swansea Road, Merthyr Tydfil

Regraded Slope (at Section A-A)

Revised slope gradient: 1v:2.5h

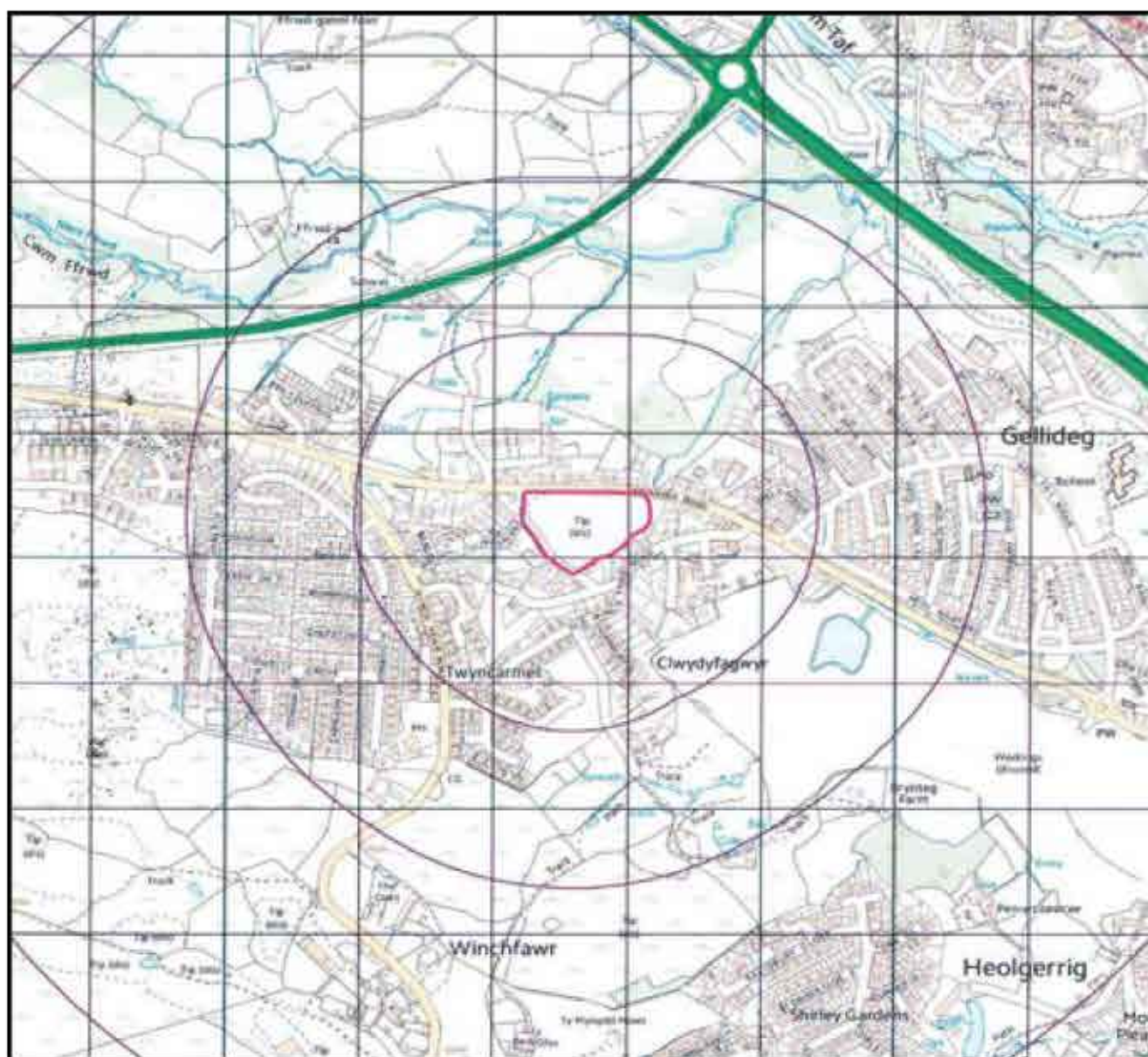
Job No.	Sheet No.	Rev.
12824		
Drg. Ref.		
Made by GNS	Date	Checked



FIGURES



NORTH



Scale = 1:10,000

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Figure 1 - Site Location

Swansea Road, Merthyr Tydfil

Intégral
Géotechnique

Integral House
7 Beddau Way
Castlegate Business Park
Caerphilly
CF83 2AX
Tel: 029 2080 7991
Fax: 029 2080 2178

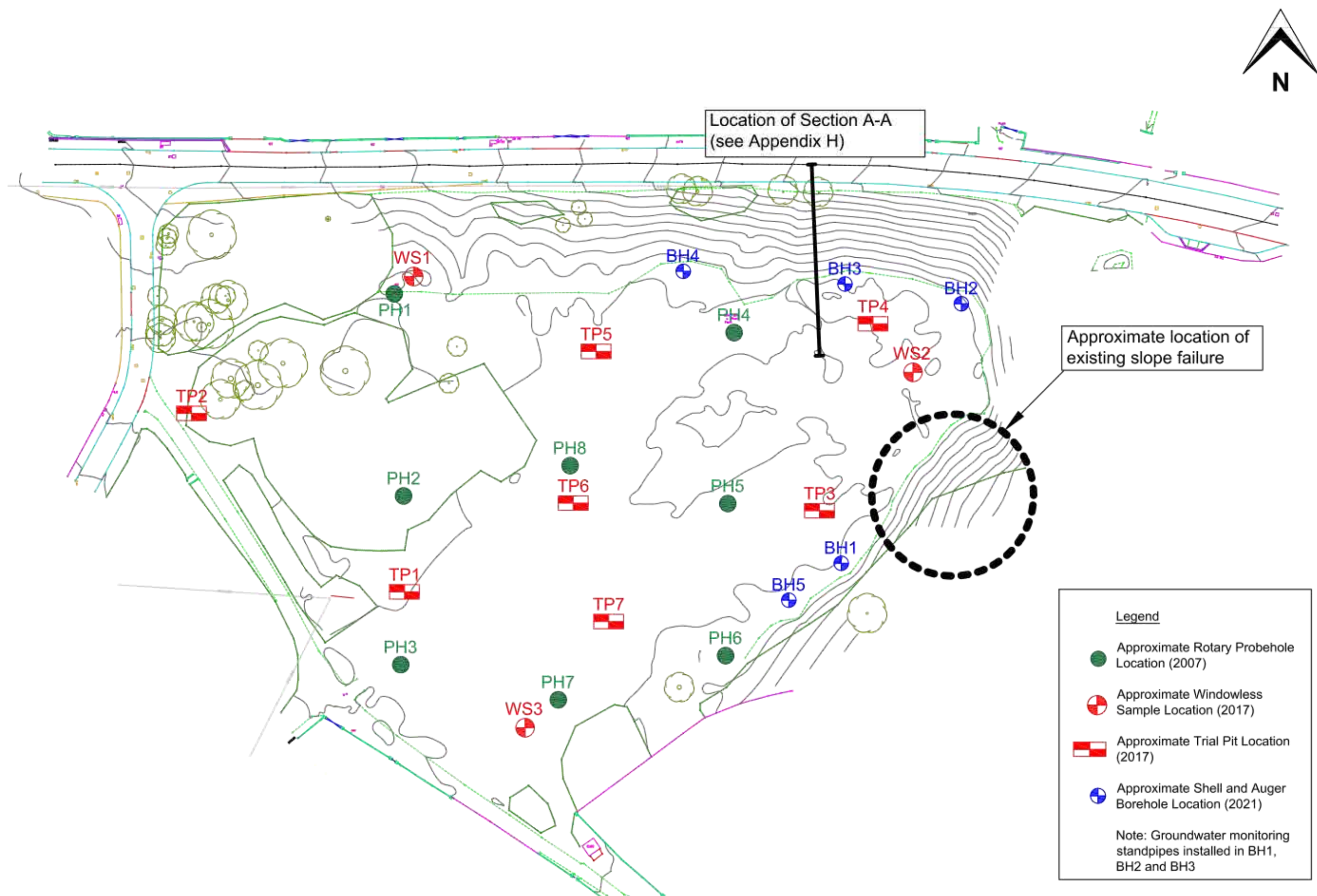


Figure 2: Site Plan

Project: Swansea Road, Merthyr Tydfil

Client: Project Three Developments Limited

Job No.: 12824

Scale: 1:750 at A3

Intégral
Géotechnique

Integral House,
7 Beddau Way,
Castlegate Business Park,
Caerphilly,
CF83 2AX.
Tel: 029 2080 7991

12824 Swansea Road

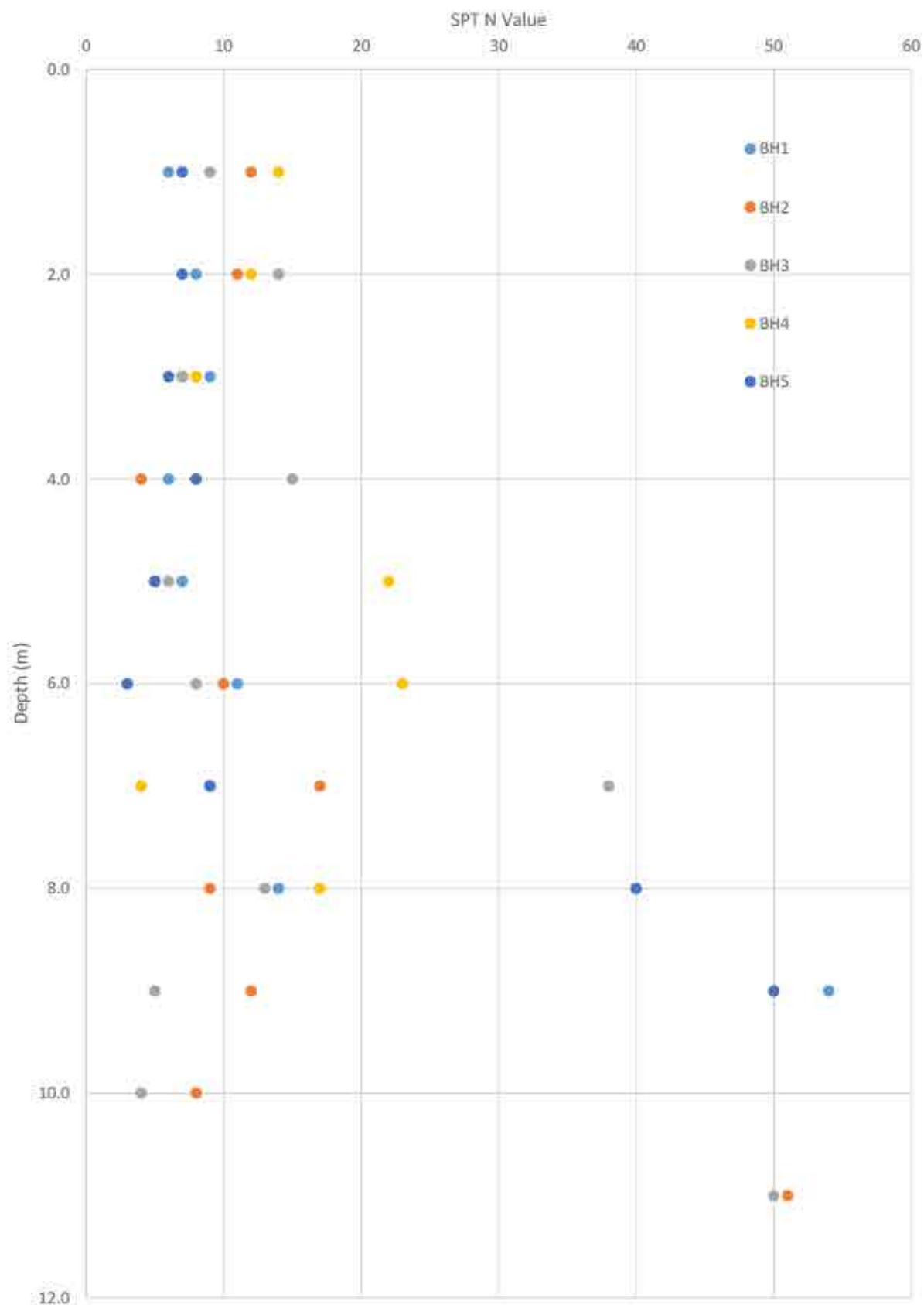


Figure 3 - SPT - Depth Plot

Swansea Road, Merthyr Tydfil

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