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TP06



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TP07



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TP07



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TP08



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TP08



ENV TP08



ENV
ST01



ENV
ST01



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ST01



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ST01



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ST01



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ST01



ENV
ST02



ENV ST02

APPENDIX 3 –Soakaway Records

GROUND INVESTIGATIONS IRELAND
Geotechnical & Environmental

Catherinestown House,
Hazelhatch Road,
Newcastle,
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D22 YD52

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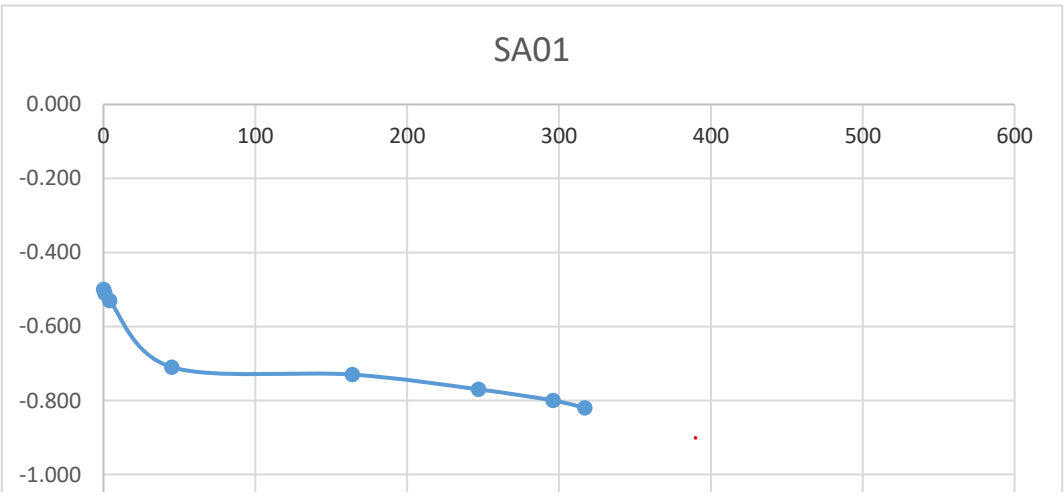
SA01

Soakaway Test to BRE Digest 365
Trial Pit Dimensions: 1.80m x 0.60m 1.20m (L x W x D)

Date	Time	Water level (m bgl)
09/04/2021	0	-0.500
09/04/2021	1	-0.510
09/04/2021	4	-0.530
09/04/2021	45	-0.710
09/04/2021	164	-0.730
09/04/2021	247	-0.770
09/04/2021	296	-0.800
09/04/2021	317	-0.820

Start depth	Depth of Pit		Diff	75% full	25%full
0.50	**1.200**		**0.700**	**0.675**	**1.025**

Length of pit (m)	Width of pit (m)		75-25Ht (m)	Vp75-25 (m3)
1.700	0.600		0.350	0.36
Tp75-25 (from graph) (s)		**32700**	50% Eff Depth	ap50 (m2)
			0.350	2.63
f =	**4.151E-06**	**m/s**		



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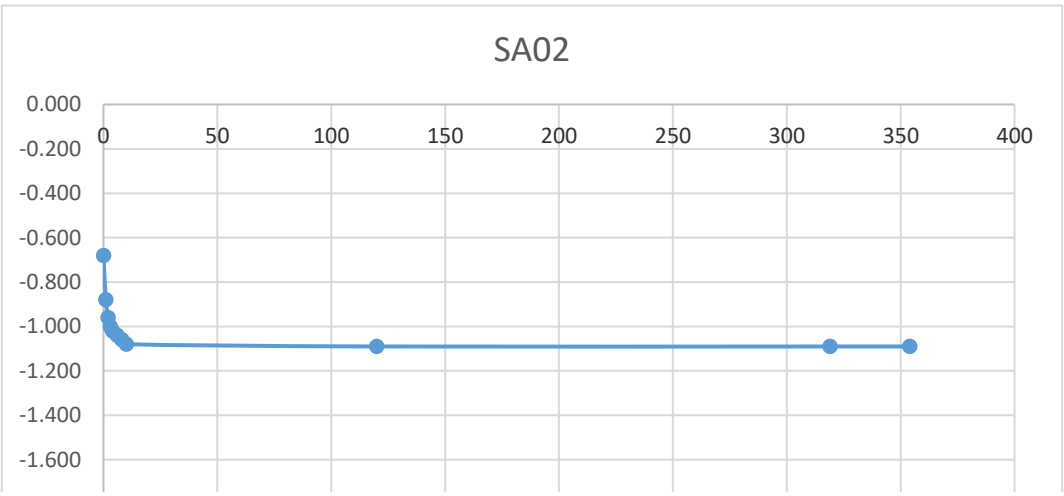
SA02

Soakaway Test to BRE Digest 365
Trial Pit Dimensions: 2.60m x 0.60m 1.20m (L x W x D)

Date	Time	Water level (m bgl)
09/04/2021	0	-0.680
09/04/2021	1	-0.880
09/04/2021	2	-0.960
09/04/2021	3	-1.000
09/04/2021	4	-1.020
09/04/2021	6	-1.040
09/04/2021	8	-1.060
09/04/2021	10	-1.080
09/04/2021	120	-1.090
10/04/2021	319	-1.090
11/04/2021	354	-1.090

Start depth	Depth of Pit		Diff	75% full	25%full
0.68	**1.200**		**0.520**	**0.81**	**1.07**

Length of pit (m)	Width of pit (m)		75-25Ht (m)	Vp75-25 (m3)
1.700	0.600		0.260	0.27
Tp75-25 (from graph) (s)		**7200**	50% Eff Depth	ap50 (m2)
			0.260	2.216
f =	**1.662E-05**	**m/s**		



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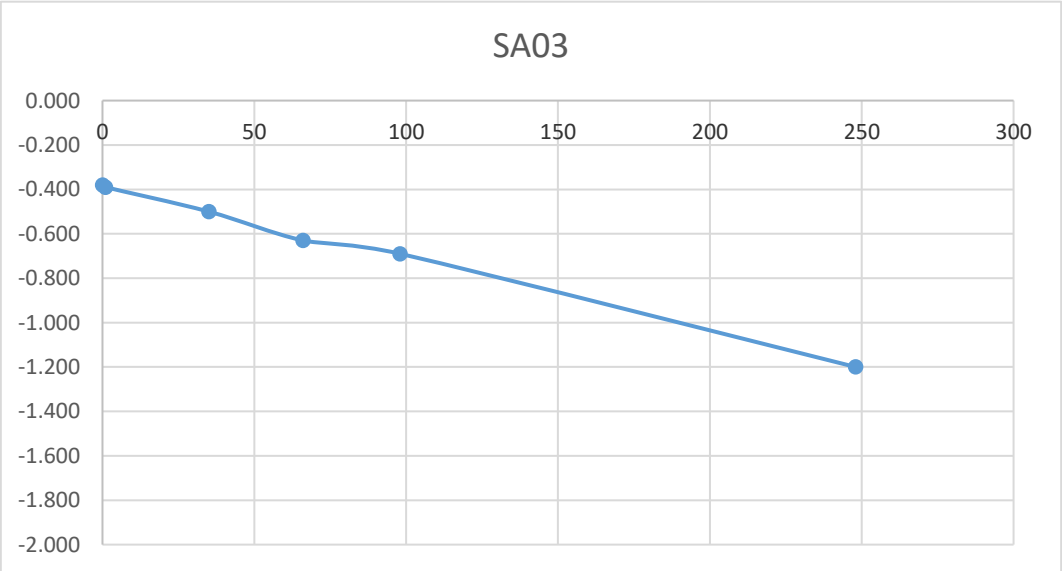
SA03

Soakaway Test to BRE Digest 365
Trial Pit Dimensions: 1.70m x 0.60m 1.20m (L x W x D)

Date	Time	Water level (m bgl)
09/04/2021	0	-0.380
09/04/2021	1	-0.390
09/04/2021	35	-0.500
09/04/2021	66	-0.630
09/04/2021	98	-0.690
09/04/2021	248	-1.200

Start depth	Depth of Pit		Diff	75% full	25%full
0.38	**1.200**		**0.820**	**0.585**	**0.995**

Length of pit (m)	Width of pit (m)		75-25Ht (m)	Vp75-25 (m3)
1.700	0.600		0.410	0.42
Tp75-25 (from graph) (s)		**9000**	50% Eff Depth	ap50 (m2)
			0.410	2.906
f =	**1.599E-05**	**m/s**		



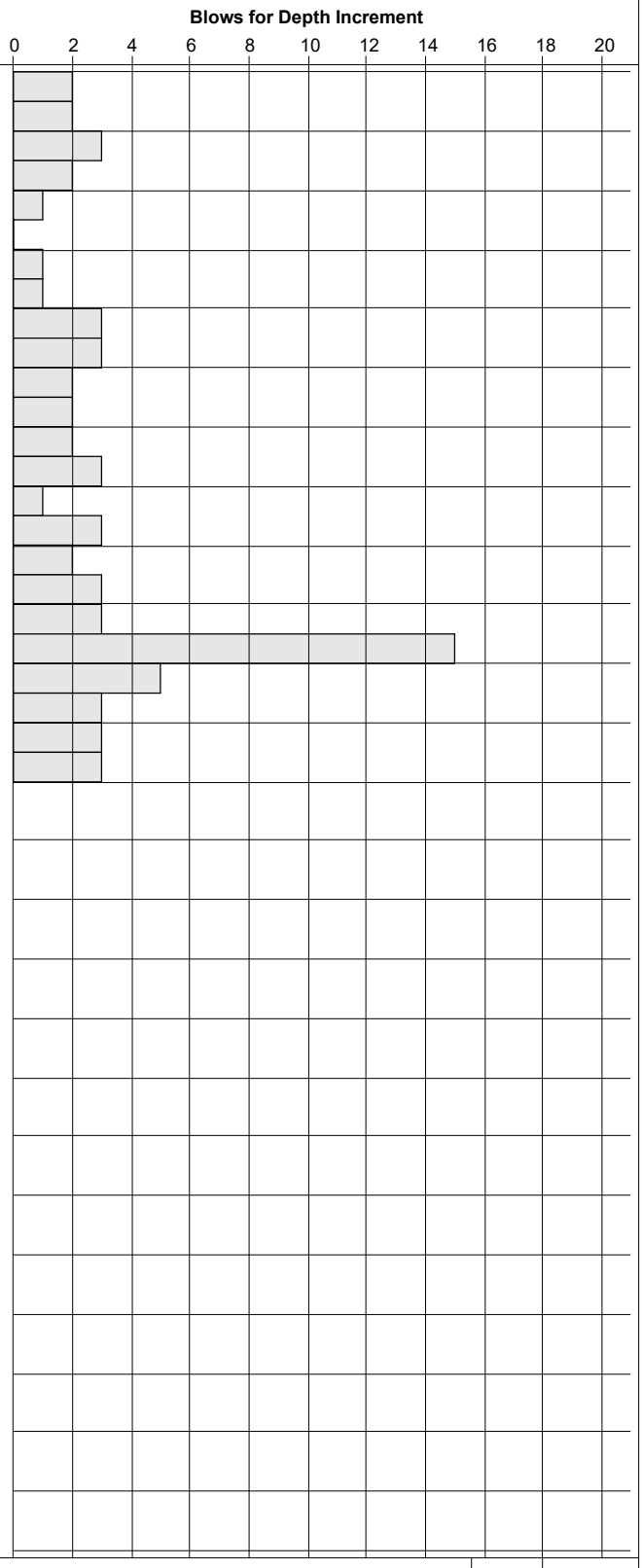
APPENDIX 4 –Dynamic Probing Records

Ground Investigations Ireland Ltd
www.gii.ie

Site	Probe Number
Blackglen Road	DPH01

Method	Cone Dimensions	Ground Level (mOD)	Client	Job Number
Dynamic Probe DPH, Fall Height 500mm, Hammer wt 50Kg.	43.7mm	143.22	OCSC	10477-03-21
	Location	**Dates**	**Engineer**	**Sheet**
	717639.2 E 725319.8 N	12/04/2021		1/1

Depth (m)	Blows for Depth Increment	Field Records	Level (mOD)	Depth (m)
0.00-0.10	2		143.22	0.00
0.10-0.20	2			
0.20-0.30	3			
0.30-0.40	2			
0.40-0.50	1			
0.50-0.60	0		142.72	0.50
0.60-0.70	1			
0.70-0.80	1			
0.80-0.90	3			
0.90-1.00	3			
1.00-1.10	2		142.22	1.00
1.10-1.20	2			
1.20-1.30	2			
1.30-1.40	3			
1.40-1.50	1			
1.50-1.60	3		141.72	1.50
1.60-1.70	2			
1.70-1.80	3			
1.80-1.90	3			
1.90-2.00	15			
2.00-2.10	5		141.22	2.00
2.10-2.20	3			
2.20-2.30	3			
2.30-2.40	3			
			140.72	2.50
			140.22	3.00
			139.72	3.50
			139.22	4.00
			138.72	4.50
			138.22	5.00



Remarks
Refusal at 2.40m BGL for 25 blows

Scale (approx)	Logged By
1:25	CF

Figure No.
10477-03-21.DPH01

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Ground Investigations Ireland Ltd
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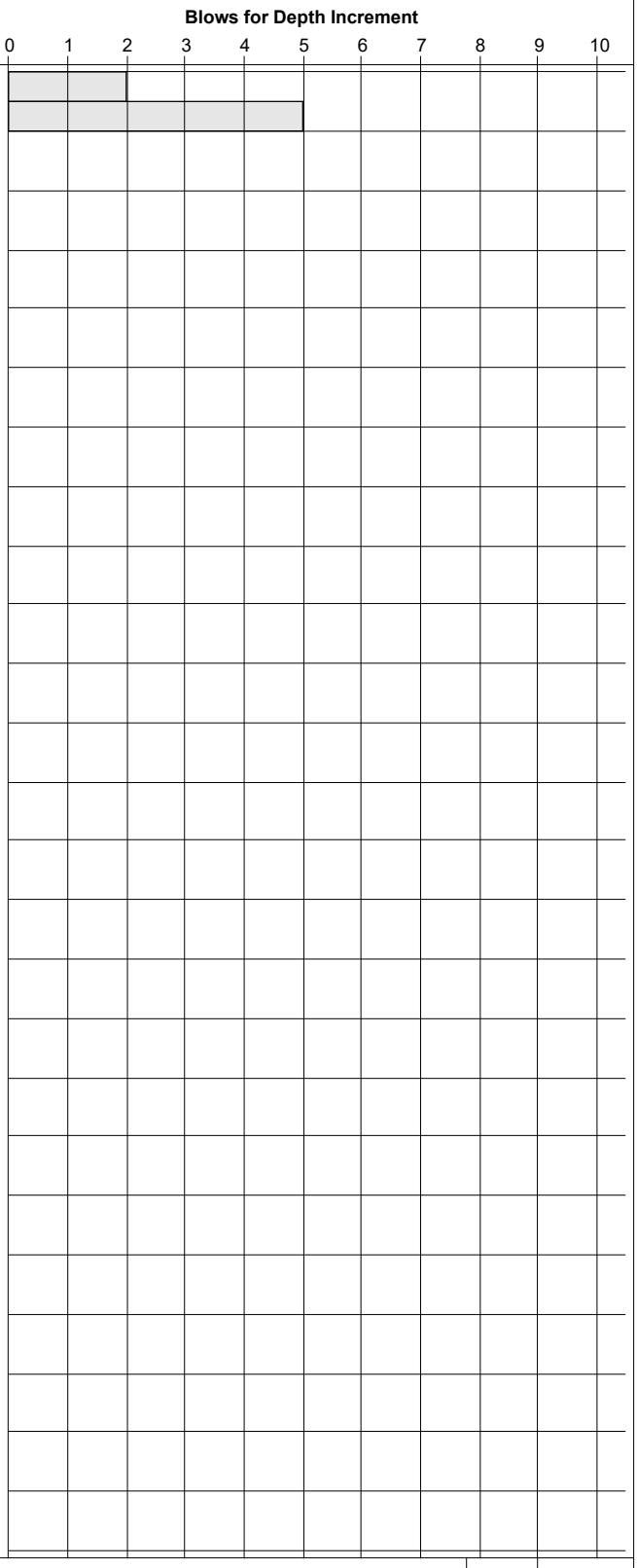
Site	Probe Number
Blackglen Road	DPH02

Method	Cone Dimensions	Ground Level (mOD)	Client	Job Number
Dynamic Probe DPH, Fall Height 500mm, Hammer wt 50Kg.	43.7mm	143.17	OCSC	10477-03-21
	Location	**Dates**	**Engineer**	**Sheet**
	717659.7 E 725319.5 N	12/04/2021		1/1

Depth (m)	Blows for Depth Increment	Field Records	Level (mOD)	Depth (m)
0.00-0.10	2		143.17	0.00
0.10-0.20	5			
			142.67	0.50
			142.17	1.00
			141.67	1.50
			141.17	2.00
			140.67	2.50
			140.17	3.00
			139.67	3.50
			139.17	4.00
			138.67	4.50
			138.17	5.00



Remarks
Refusal at 0.20m BGL 25 blows for 50mm

Scale (approx)	Logged By
1:25	CF

Figure No.
10477-03-21.DPH02

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Ground Investigations Ireland Ltd
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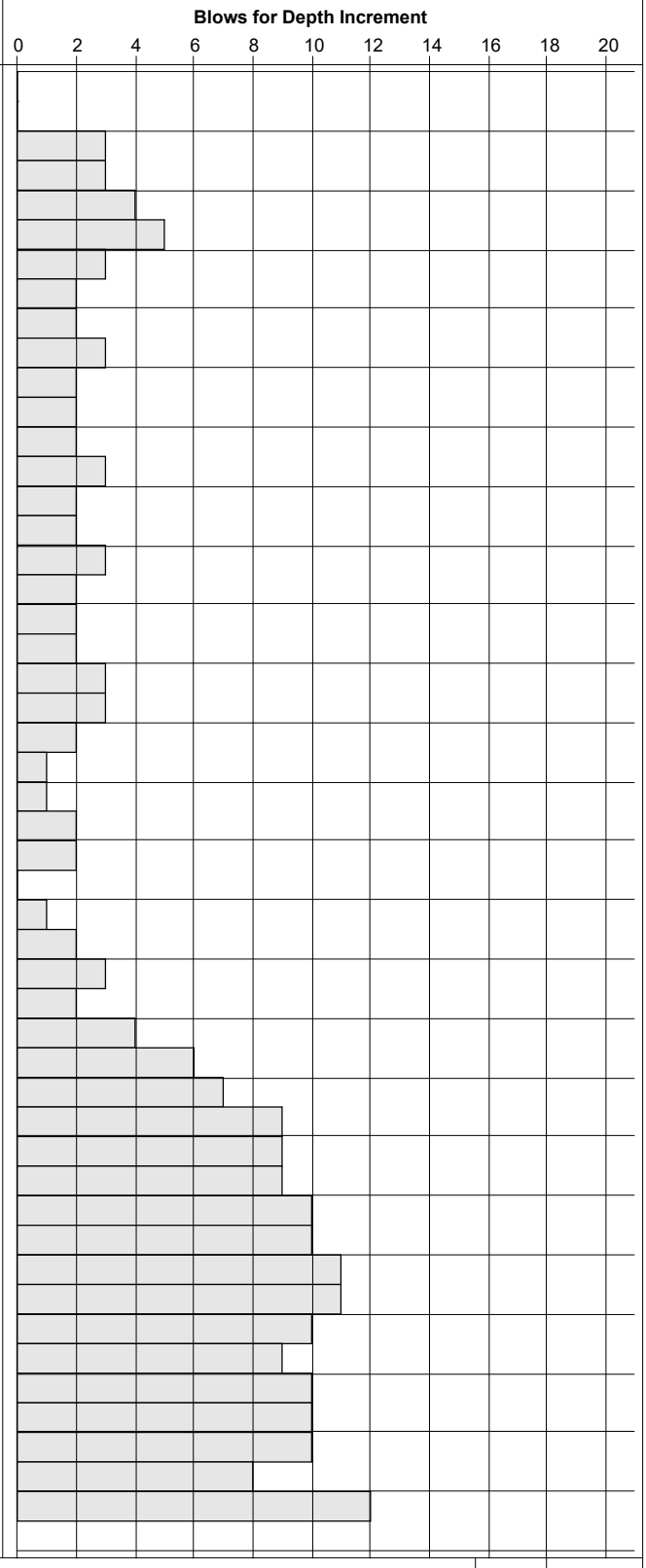
Site	Probe Number
Blackglen Road	DPH03

Method	Cone Dimensions	Ground Level (mOD)	Client	Job Number
Dynamic Probe DPH, Fall Height 500mm, Hammer wt 50Kg.	43.7mm	139.32	OCSC	10477-03-21
	Location	**Dates**	**Engineer**	**Sheet**
	717677.9 E 725339.8 N	12/04/2021		1/1

Depth (m)	Blows for Depth Increment	Field Records	Level (mOD)	Depth (m)
0.00-0.10	0		139.32	0.00
0.10-0.20	0			
0.20-0.30	3			
0.30-0.40	3			
0.40-0.50	4			
0.50-0.60	5		138.82	0.50
0.60-0.70	3			
0.70-0.80	2			
0.80-0.90	2			
0.90-1.00	3			
1.00-1.10	2		138.32	1.00
1.10-1.20	2			
1.20-1.30	2			
1.30-1.40	3			
1.40-1.50	2			
1.50-1.60	2		137.82	1.50
1.60-1.70	3			
1.70-1.80	2			
1.80-1.90	2			
1.90-2.00	2			
2.00-2.10	3		137.32	2.00
2.10-2.20	3			
2.20-2.30	2			
2.30-2.40	1			
2.40-2.50	1			
2.50-2.60	2		136.82	2.50
2.60-2.70	2			
2.70-2.80	0			
2.80-2.90	1			
2.90-3.00	2			
3.00-3.10	3		136.32	3.00
3.10-3.20	2			
3.20-3.30	4			
3.30-3.40	6			
3.40-3.50	7			
3.50-3.60	9		135.82	3.50
3.60-3.70	9			
3.70-3.80	9			
3.80-3.90	10			
3.90-4.00	10			
4.00-4.10	11		135.32	4.00
4.10-4.20	11			
4.20-4.30	10			
4.30-4.40	9			
4.40-4.50	10			
4.50-4.60	10		134.82	4.50
4.60-4.70	10			
4.70-4.80	8			
4.80-4.90	12			
4.90	0		134.32	5.00



Remarks
Refusal at 4.90m BGL 25 blows for 50mm

Scale (approx)	Logged By
1:25	CF

Figure No.
10477-03-21.DPH03

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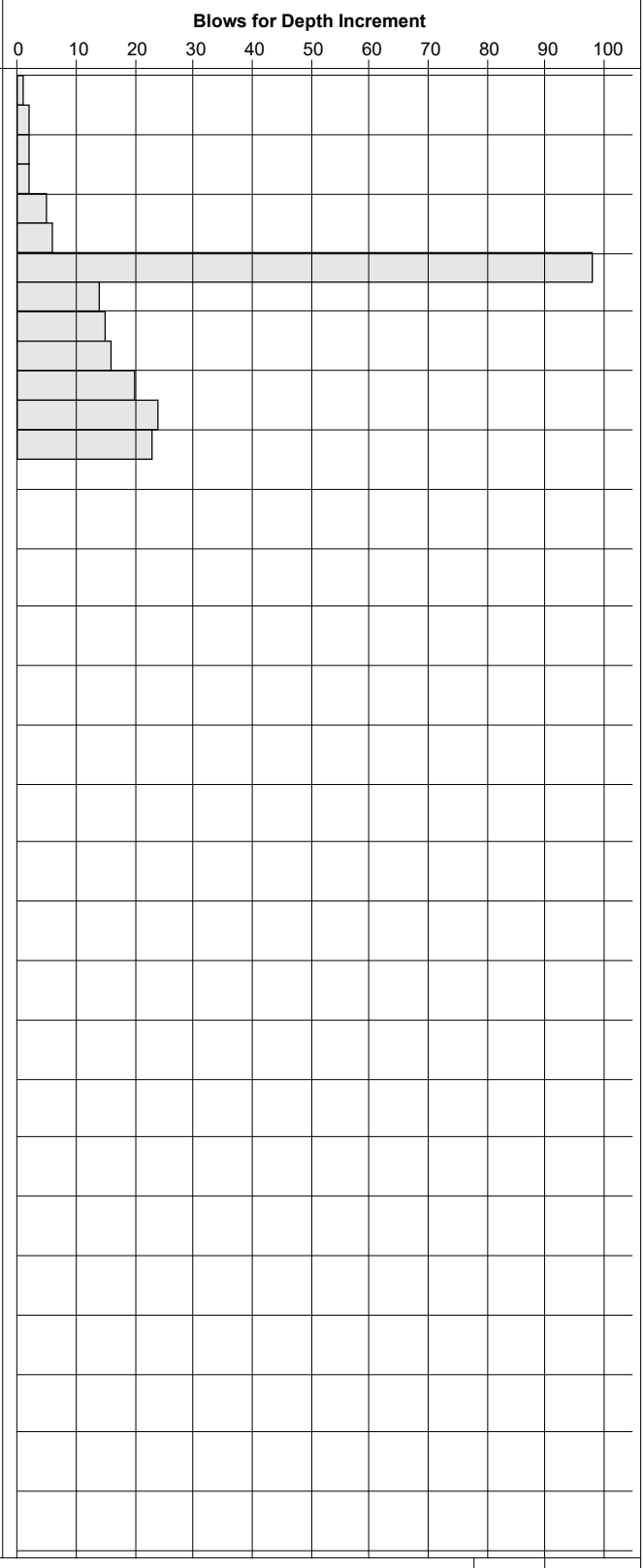
Site	Probe Number
Blackglen Road	DPH04

Method	Cone Dimensions	Ground Level (mOD)	Client	Job Number
Dynamic Probe DPH, Fall Height 500mm, Hammer wt 50Kg.	43.7mm	139.55	OCSC	10477-03-21
	Location	**Dates**	**Engineer**	**Sheet**
	717697.6 E 725319.4 N	12/04/2021		1/1

Depth (m)	Blows for Depth Increment	Field Records	Level (mOD)	Depth (m)
0.00-0.10	1		139.55	0.00
0.10-0.20	2			
0.20-0.30	2			
0.30-0.40	2			
0.40-0.50	5			
0.50-0.60	6		139.05	0.50
0.60-0.70	98			
0.70-0.80	14			
0.80-0.90	15			
0.90-1.00	16			
1.00-1.10	20		138.55	1.00
1.10-1.20	24			
1.20-1.30	23			
			138.05	1.50
			137.55	2.00
			137.05	2.50
			136.55	3.00
			136.05	3.50
			135.55	4.00
			135.05	4.50
			134.55	5.00



Remarks

Scale (approx)	Logged By
1:25	CF

Figure No.
10477-03-21.DPH04

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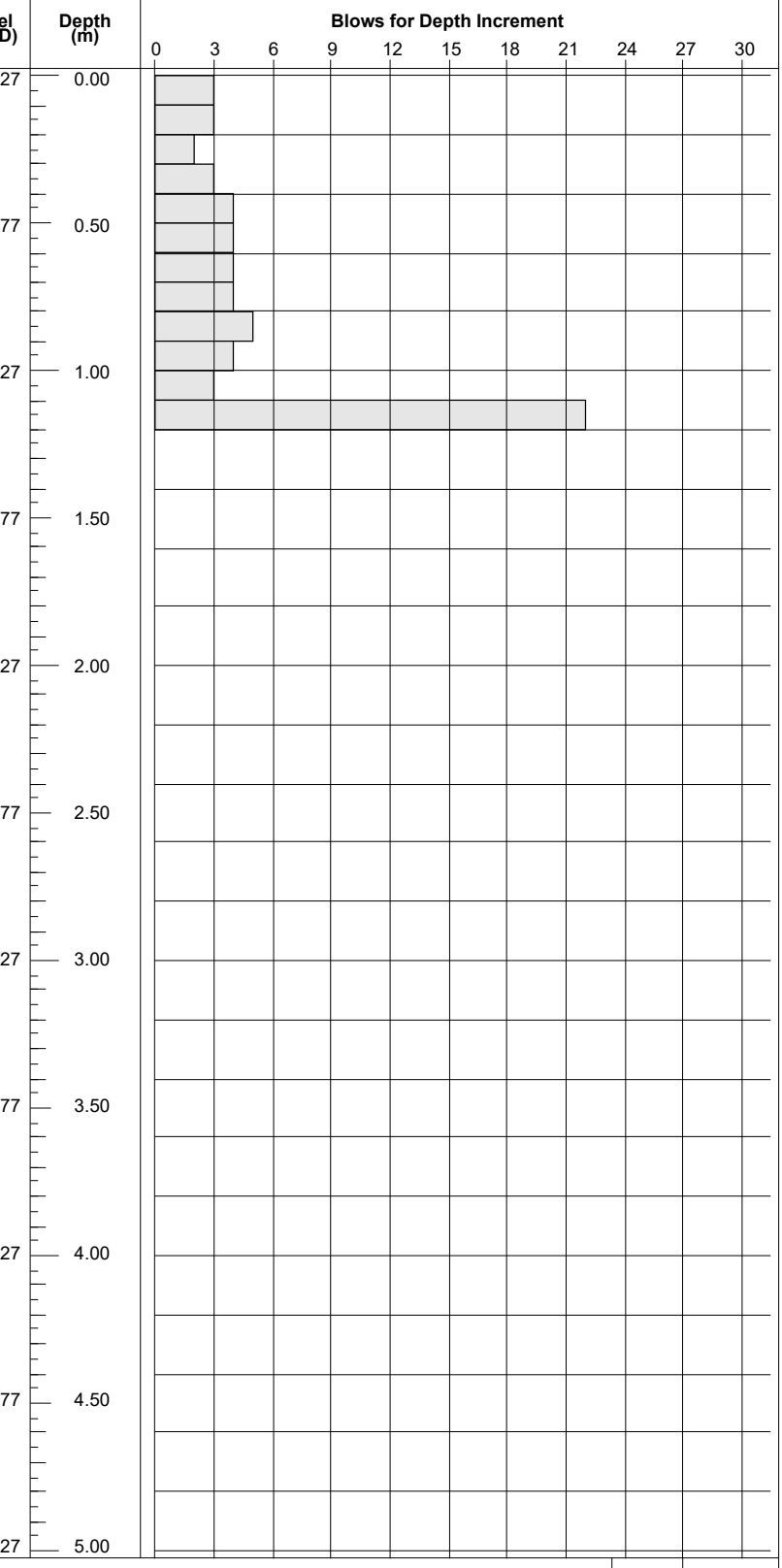
Site	Probe Number
Blackglen Road	DPH05

Method	Cone Dimensions	Ground Level (mOD)	Client	Job Number
Dynamic Probe DPH, Fall Height 500mm, Hammer wt 50Kg.	43.7mm	145.27	OCSC	10477-03-21
	Location	**Dates**	**Engineer**	**Sheet**
	717663 E 725299.6 N	09/04/2021		1/1

Depth (m)	Blows for Depth Increment	Field Records
0.00-0.10	3	
0.10-0.20	3	
0.20-0.30	2	
0.30-0.40	3	
0.40-0.50	4	
0.50-0.60	4	
0.60-0.70	4	
0.70-0.80	4	
0.80-0.90	5	
0.90-1.00	4	
1.00-1.10	3	
1.10-1.20	22	



Remarks
Refusal at 1.20m BGL 25 blows for 50mm

Scale (approx)	Logged By
1:25	CF

Figure No.
10477-03-21.DPH05

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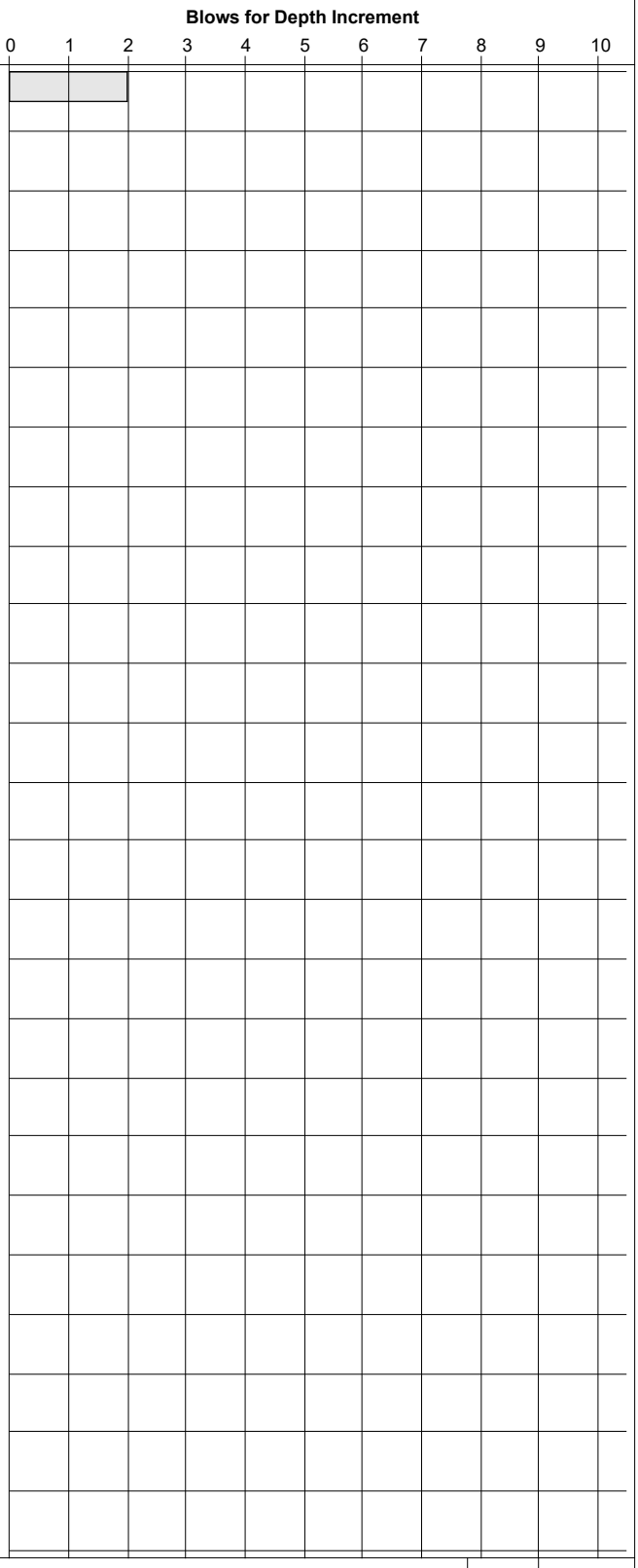
Site	Probe Number
Blackglen Road	DPH06

Method	Cone Dimensions	Ground Level (mOD)	Client	Job Number
Dynamic Probe DPH, Fall Height 500mm, Hammer wt 50Kg.	43.7mm	144.41	OCSC	10477-03-21
	Location	**Dates**	**Engineer**	**Sheet**
	717677.3 E 725299.5 N	09/04/2021		1/1

Depth (m)	Blows for Depth Increment	Field Records	Level (mOD)	Depth (m)
0.00-0.10	2		144.41	0.00
			143.91	0.50
			143.41	1.00
			142.91	1.50
			142.41	2.00
			141.91	2.50
			141.41	3.00
			140.91	3.50
			140.41	4.00
			139.91	4.50
			139.41	5.00



Remarks
Refusal at 0.10m BGL for 25 blows

Scale (approx)	Logged By
1:25	CF

Figure No.
10477-03-21.DPH06

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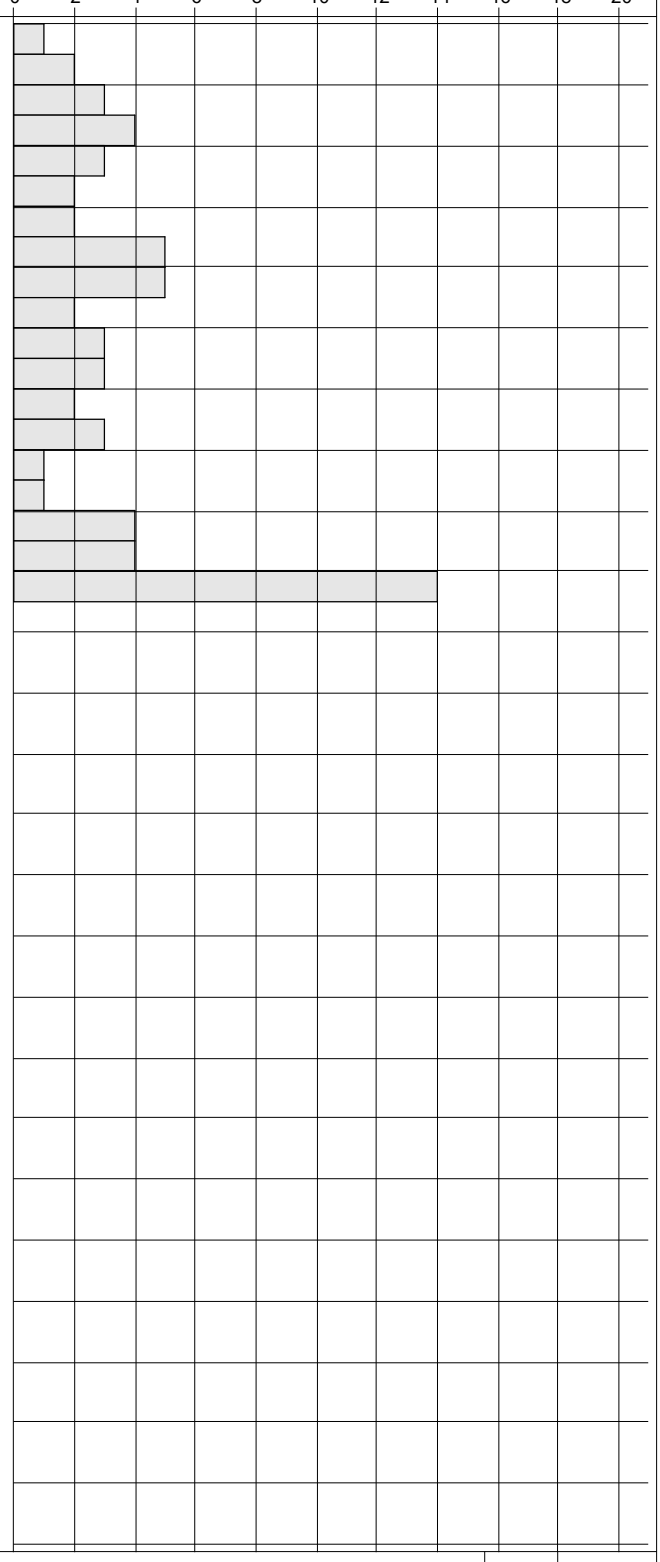
Site	Probe Number
Blackglen Road	DPH07

Method	Cone Dimensions	Ground Level (mOD)	Client	Job Number
Dynamic Probe DPH, Fall Height 500mm, Hammer wt 50Kg.	43.7mm	139.44	OCSC	10477-03-21
	Location	**Dates**	**Engineer**	**Sheet**
	717698.6 E 725304.3 N	09/04/2021		1/1

Depth (m)	Blows for Depth Increment	Field Records	Level (mOD)	Depth (m)
0.00-0.10	1		139.44	0.00
0.10-0.20	2			
0.20-0.30	3			
0.30-0.40	4			
0.40-0.50	3			
0.50-0.60	2		138.94	0.50
0.60-0.70	2			
0.70-0.80	5			
0.80-0.90	5			
0.90-1.00	2			
1.00-1.10	3		138.44	1.00
1.10-1.20	3			
1.20-1.30	2			
1.30-1.40	3			
1.40-1.50	1			
1.50-1.60	1		137.94	1.50
1.60-1.70	4			
1.70-1.80	4			
1.80-1.90	14			
			137.44	2.00
			136.94	2.50
			136.44	3.00
			135.94	3.50
			135.44	4.00
			134.94	4.50
			134.44	5.00



Remarks
Refusal at 1.90m BGL for 29 blows

Scale (approx)	Logged By
1:25	CF

Figure No.
10477-03-21.DPH07

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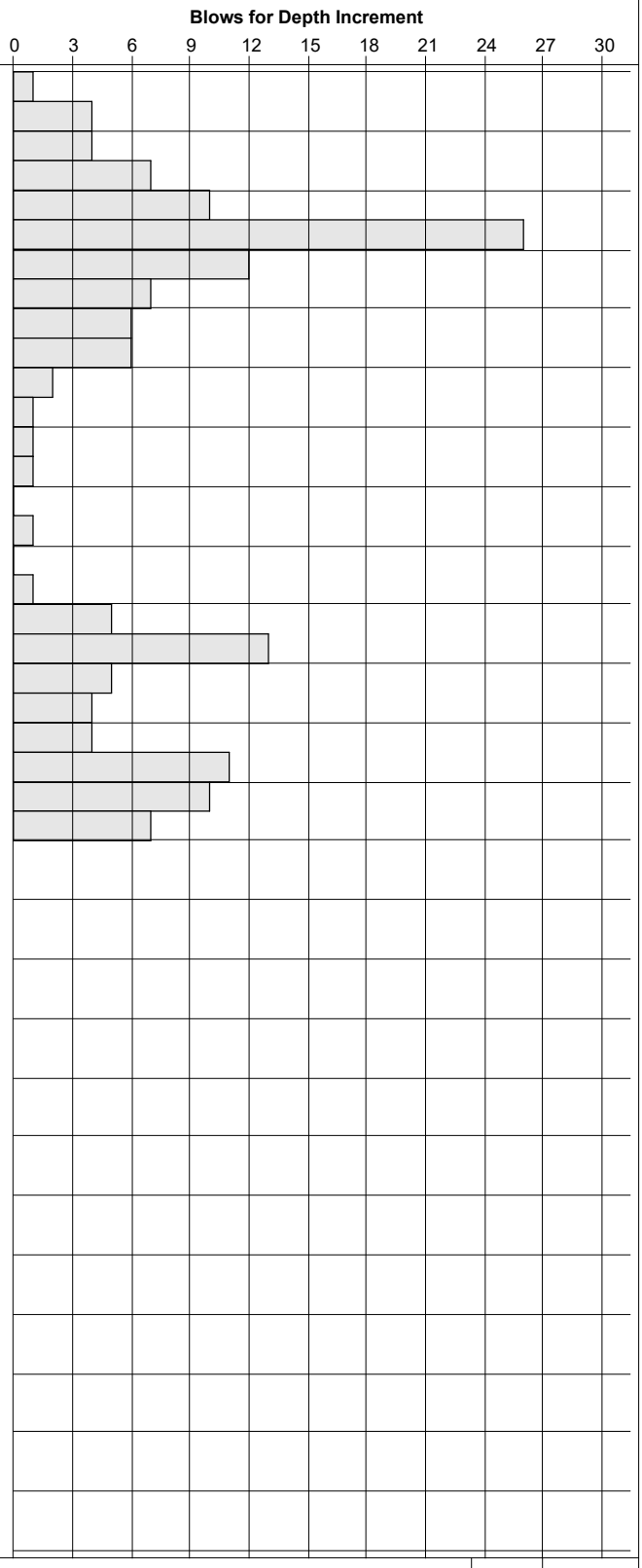
Site	Probe Number
Blackglen Road	DPH08

Method	Cone Dimensions	Ground Level (mOD)	Client	Job Number
Dynamic Probe DPH, Fall Height 500mm, Hammer wt 50Kg.	43.7mm	145.78	OCSC	10477-03-21
	Location	**Dates**	**Engineer**	**Sheet**
	717664.8 E 725277.4 N	08/04/2021		1/1

Depth (m)	Blows for Depth Increment	Field Records	Level (mOD)	Depth (m)
0.00-0.10	1		145.78	0.00
0.10-0.20	4			
0.20-0.30	4			
0.30-0.40	7			
0.40-0.50	10			
0.50-0.60	26		145.28	0.50
0.60-0.70	12			
0.70-0.80	7			
0.80-0.90	6			
0.90-1.00	6			
1.00-1.10	2		144.78	1.00
1.10-1.20	1			
1.20-1.30	1			
1.30-1.40	1			
1.40-1.50	0			
1.50-1.60	1		144.28	1.50
1.60-1.70	0			
1.70-1.80	1			
1.80-1.90	5			
1.90-2.00	13			
2.00-2.10	5		143.78	2.00
2.10-2.20	4			
2.20-2.30	4			
2.30-2.40	11			
2.40-2.50	10			
2.50-2.60	7		143.28	2.50
			142.78	3.00
			142.28	3.50
			141.78	4.00
			141.28	4.50
			140.78	5.00



Remarks
Refusal at 2.60m BGL 25 blows for 10mm

Scale (approx)	Logged By
1:25	CF

Figure No.
10477-03-21.DPH08

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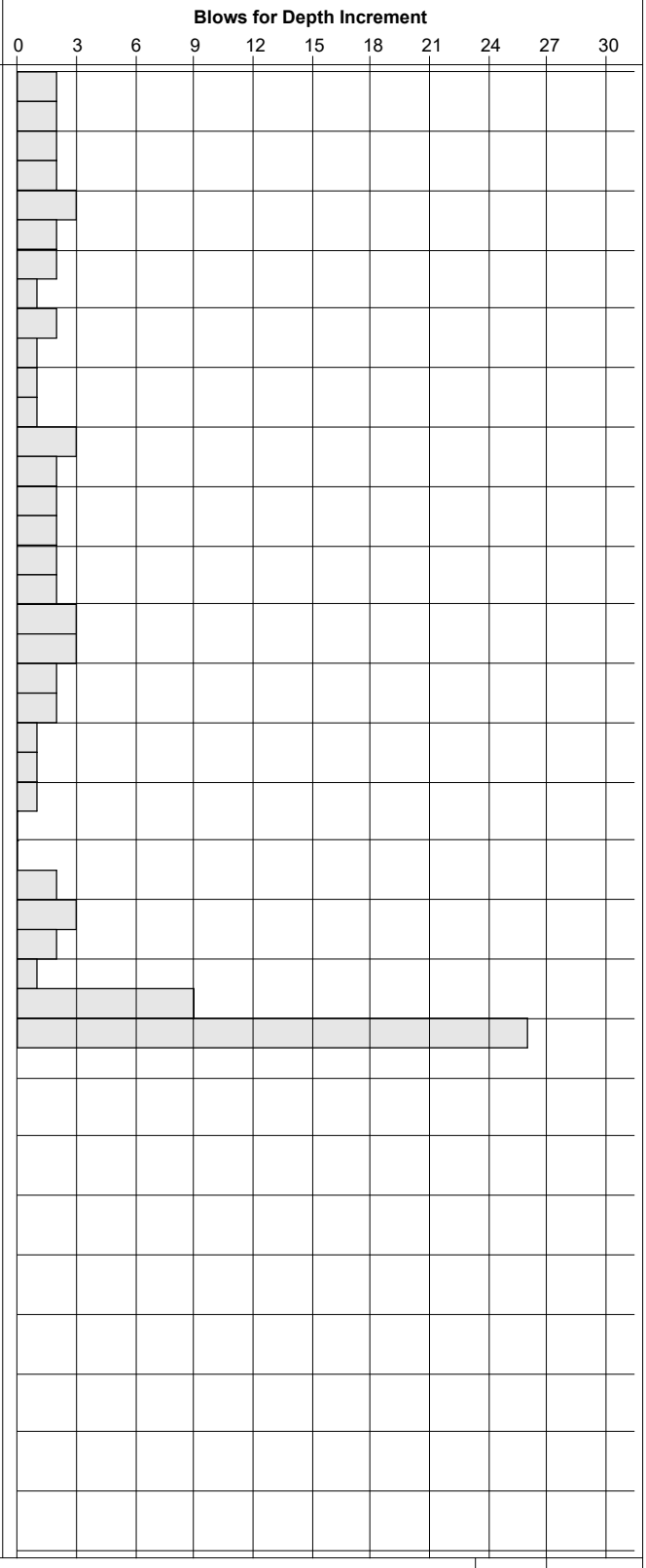
Site	Probe Number
Blackglen Road	DPH09

Method	Cone Dimensions	Ground Level (mOD)	Client	Job Number
Dynamic Probe DPH, Fall Height 500mm, Hammer wt 50Kg.	43.7mm	144.46	OCSC	10477-03-21
	Location	**Dates**	**Engineer**	**Sheet**
	717676.6 E 725279.8 N	12/04/2021		1/1

Depth (m)	Blows for Depth Increment	Field Records
0.00-0.10	2	
0.10-0.20	2	
0.20-0.30	2	
0.30-0.40	2	
0.40-0.50	3	
0.50-0.60	2	
0.60-0.70	2	
0.70-0.80	1	
0.80-0.90	2	
0.90-1.00	1	
1.00-1.10	1	
1.10-1.20	1	
1.20-1.30	3	
1.30-1.40	2	
1.40-1.50	2	
1.50-1.60	2	
1.60-1.70	2	
1.70-1.80	2	
1.80-1.90	3	
1.90-2.00	3	
2.00-2.10	2	
2.10-2.20	2	
2.20-2.30	1	
2.30-2.40	1	
2.40-2.50	1	
2.50-2.60	0	
2.60-2.70	0	
2.70-2.80	2	
2.80-2.90	3	
2.90-3.00	2	
3.00-3.10	1	
3.10-3.20	9	
3.20-3.30	26	

Level (mOD)	Depth (m)
144.46	0.00
143.96	0.50
143.46	1.00
142.96	1.50
142.46	2.00
141.96	2.50
141.46	3.00
140.96	3.50
140.46	4.00
139.96	4.50
139.46	5.00



Remarks
Refusal at 3.30m BGL for 25 blows

Scale (approx)	Logged By
1:25	CF

Figure No.
10477-03-21.DPH09

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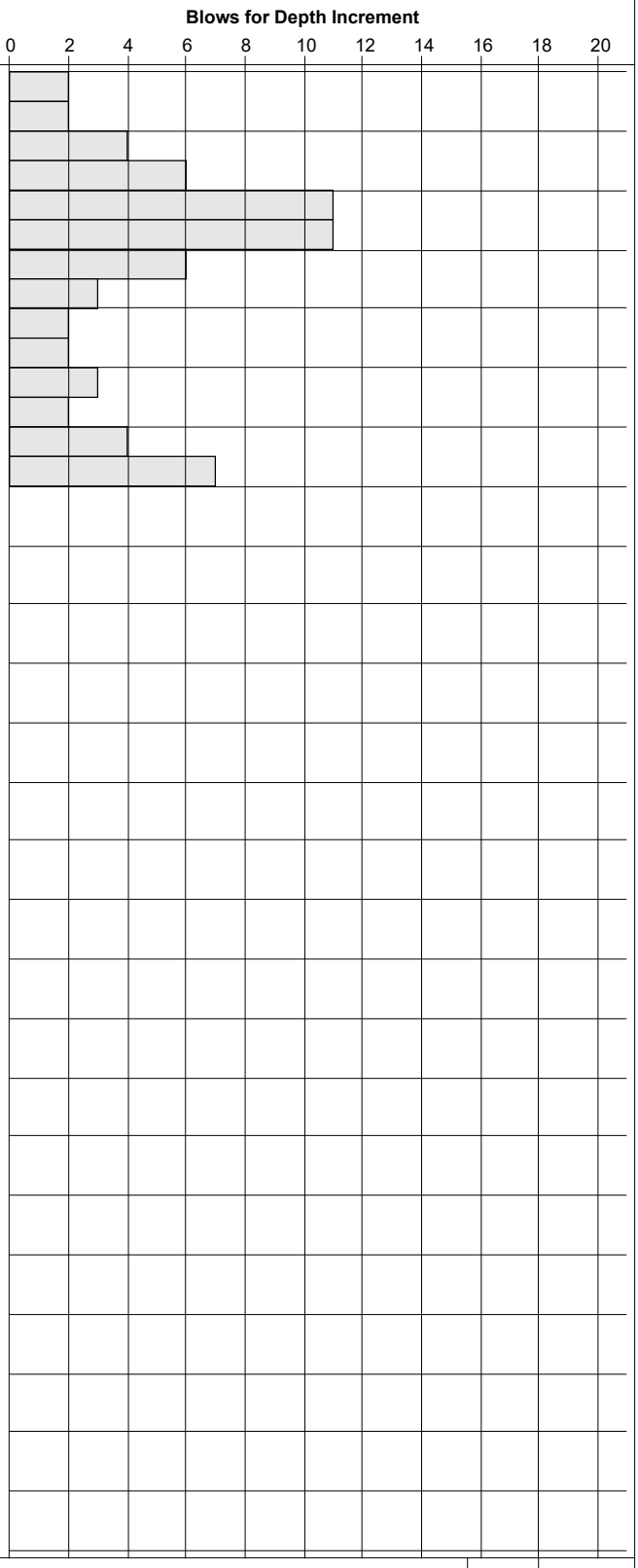
Site	Probe Number
Blackglen Road	DPH10

Method	Cone Dimensions	Ground Level (mOD)	Client	Job Number
Dynamic Probe DPH, Fall Height 500mm, Hammer wt 50Kg.	43.7mm	140.30	OCSC	10477-03-21
	Location	**Dates**	**Engineer**	**Sheet**
	717699.8 E 725280.3 N	09/04/2021		1/1

Depth (m)	Blows for Depth Increment	Field Records	Level (mOD)	Depth (m)
0.00-0.10	2		140.30	0.00
0.10-0.20	2			
0.20-0.30	4			
0.30-0.40	6			
0.40-0.50	11			
0.50-0.60	11		139.80	0.50
0.60-0.70	6			
0.70-0.80	3			
0.80-0.90	2			
0.90-1.00	2			
1.00-1.10	3		139.30	1.00
1.10-1.20	2			
1.20-1.30	4			
1.30-1.40	7			
			138.80	1.50
			138.30	2.00
			137.80	2.50
			137.30	3.00
			136.80	3.50
			136.30	4.00
			135.80	4.50
			135.30	5.00



Remarks
Refusal at 1.40m BGL BGL for 25 blows

Scale (approx)	Logged By
1:25	CF

Figure No.
10477-03-21.DPH10

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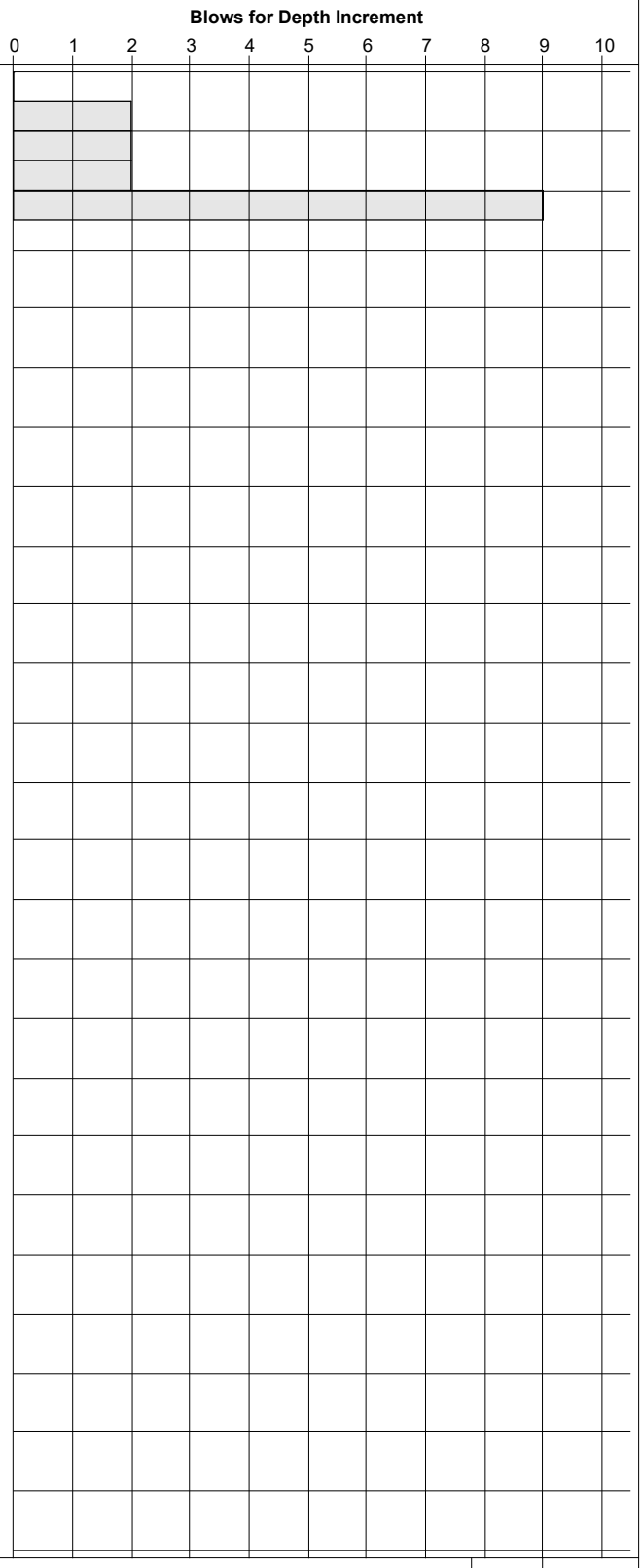
Site	Probe Number
Blackglen Road	DPH11

Method	Cone Dimensions	Ground Level (mOD)	Client	Job Number
Dynamic Probe DPH, Fall Height 500mm, Hammer wt 50Kg.	43.7mm	147.43	OCSC	10477-03-21
	Location	**Dates**	**Engineer**	**Sheet**
	717663.7 E 725239.3 N	09/04/2021		1/1

Depth (m)	Blows for Depth Increment	Field Records
0.00-0.10	0	
0.10-0.20	2	
0.20-0.30	2	
0.30-0.40	2	
0.40-0.50	9	

Level (mOD)	Depth (m)
147.43	0.00
146.93	0.50
146.43	1.00
145.93	1.50
145.43	2.00
144.93	2.50
144.43	3.00
143.93	3.50
143.43	4.00
142.93	4.50
142.43	5.00



Remarks
Refusal at 0.50m BGL 25 blows for 10mm

Scale (approx)	Logged By
1:25	CF

Figure No.
10477-03-21.DPH11

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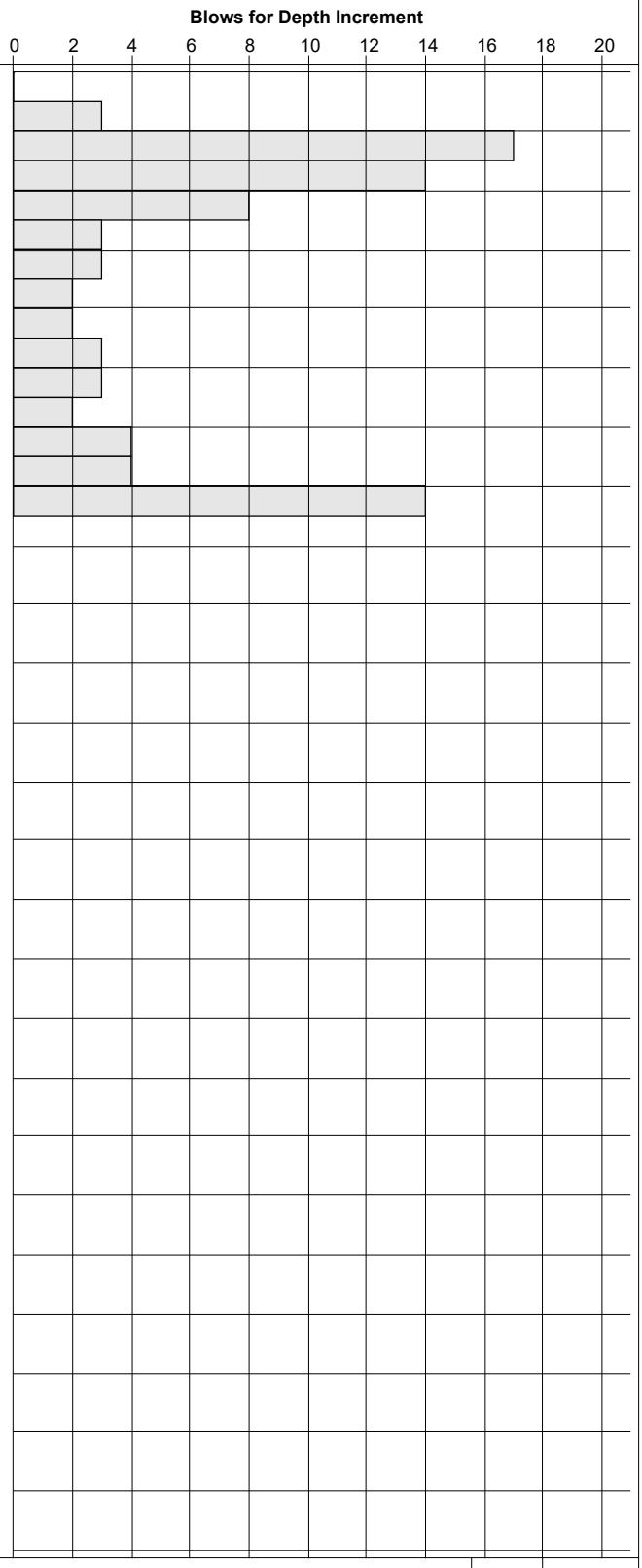
Site	Probe Number
Blackglen Road	DPH12

Method	Cone Dimensions	Ground Level (mOD)	Client	Job Number
Dynamic Probe DPH, Fall Height 500mm, Hammer wt 50Kg.	43.7mm	145.73	OCSC	10477-03-21
	Location	**Dates**	**Engineer**	**Sheet**
	717679.6 E 725241 N	09/04/2021		1/1

Depth (m)	Blows for Depth Increment	Field Records	Level (mOD)	Depth (m)
0.00-0.10	0		145.73	0.00
0.10-0.20	3			
0.20-0.30	17			
0.30-0.40	14			
0.40-0.50	8			
0.50-0.60	3		145.23	0.50
0.60-0.70	3			
0.70-0.80	2			
0.80-0.90	2			
0.90-1.00	3			
1.00-1.10	3		144.73	1.00
1.10-1.20	2			
1.20-1.30	4			
1.30-1.40	4			
1.40-1.50	14		144.23	1.50
			143.73	2.00
			143.23	2.50
			142.73	3.00
			142.23	3.50
			141.73	4.00
			141.23	4.50
			140.73	5.00



Remarks
Refusal at 1.50m BGL 25 blows for 75mm

Scale (approx)	Logged By
1:25	CF

Figure No.
10477-03-21.DPH12

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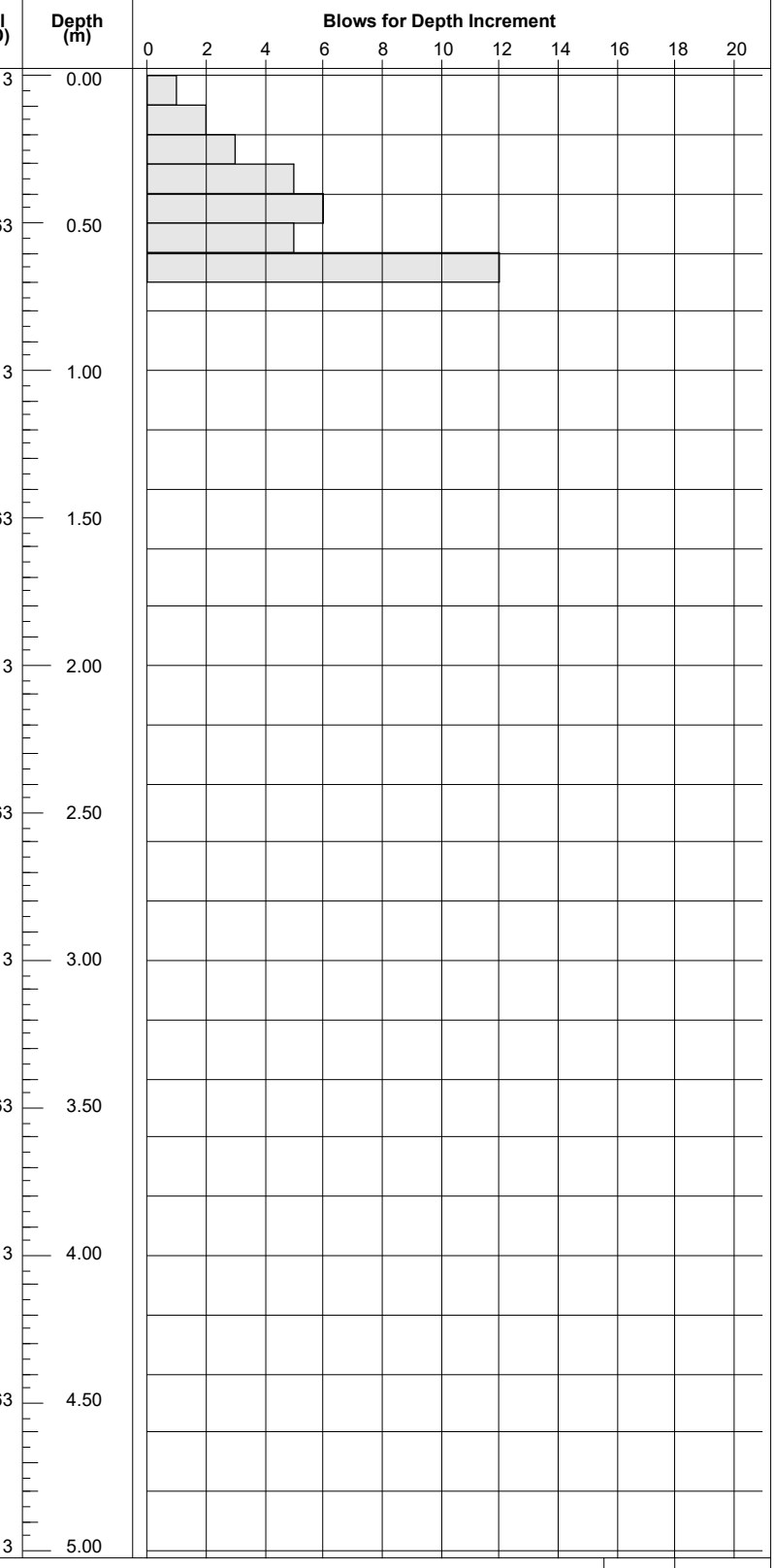
Site	Probe Number
Blackglen Road	DPH13

Method	Cone Dimensions	Ground Level (mOD)	Client	Job Number
Dynamic Probe DPH, Fall Height 500mm, Hammer wt 50Kg.	43.7mm	144.13	OCSC	10477-03-21
	Location	**Dates**	**Engineer**	**Sheet**
	717697.6 E 725241.6 N	09/04/2021		1/1

Depth (m)	Blows for Depth Increment	Field Records
0.00-0.10	1	
0.10-0.20	2	
0.20-0.30	3	
0.30-0.40	5	
0.40-0.50	6	
0.50-0.60	5	
0.60-0.70	12	



Remarks
Refusal at 0.70m BGL 25 blows for 10mm

Scale (approx)	Logged By
1:25	CF

Figure No.
10477-03-21.DPH13

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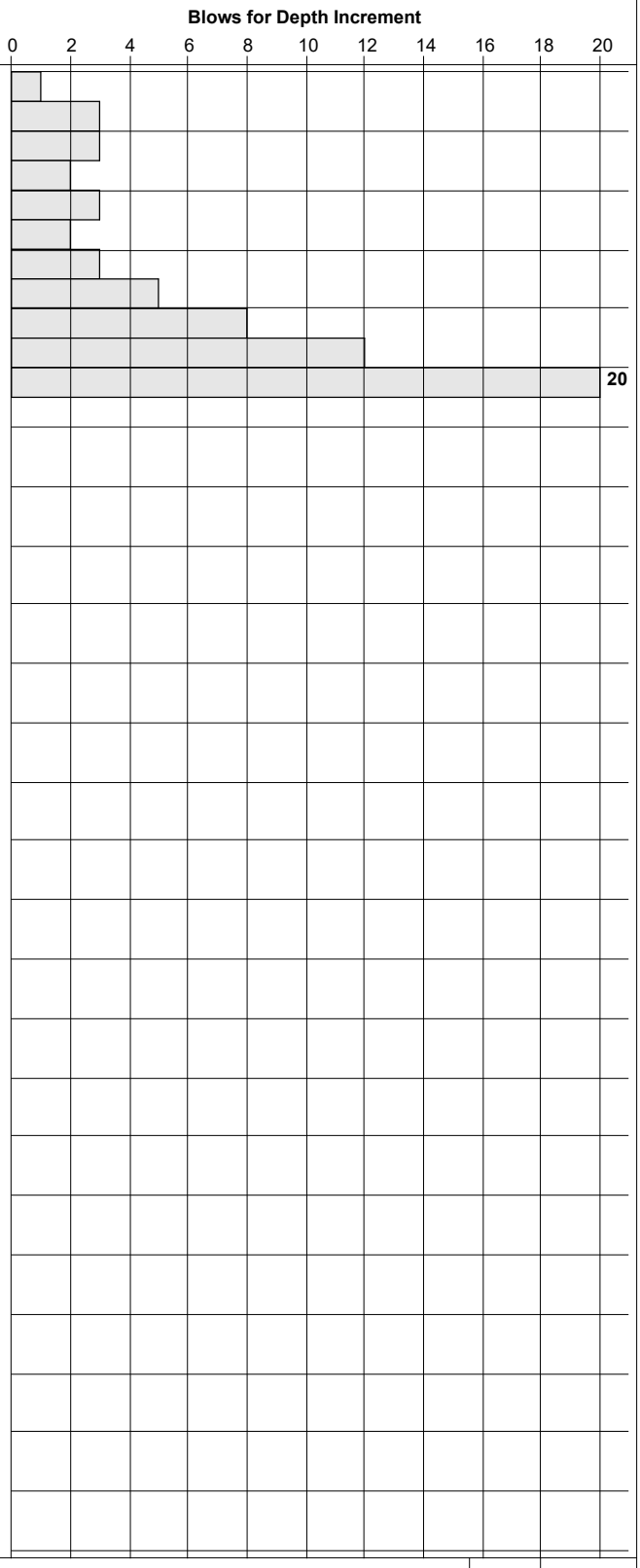
Site	Probe Number
Blackglen Road	DPH14

Method	Cone Dimensions	Ground Level (mOD)	Client	Job Number
Dynamic Probe DPH, Fall Height 500mm, Hammer wt 50Kg.	43.7mm	144.59	OCSC	10477-03-21
	Location	**Dates**	**Engineer**	**Sheet**
	717657.9 E 725199.7 N	12/04/2021		1/1

Depth (m)	Blows for Depth Increment	Field Records	Level (mOD)	Depth (m)
0.00-0.10	1		144.59	0.00
0.10-0.20	3			
0.20-0.30	3			
0.30-0.40	2			
0.40-0.50	3			
0.50-0.60	2		144.09	0.50
0.60-0.70	3			
0.70-0.80	5			
0.80-0.90	8			
0.90-1.00	12			
1.00-1.10	20		143.59	1.00
			143.09	1.50
			142.59	2.00
			142.09	2.50
			141.59	3.00
			141.09	3.50
			140.59	4.00
			140.09	4.50
			139.59	5.00



Remarks
Refusal at 1.10m BGL for 25 blows

Scale (approx)	Logged By
1:25	CF

Figure No.
10477-03-21.DPH14

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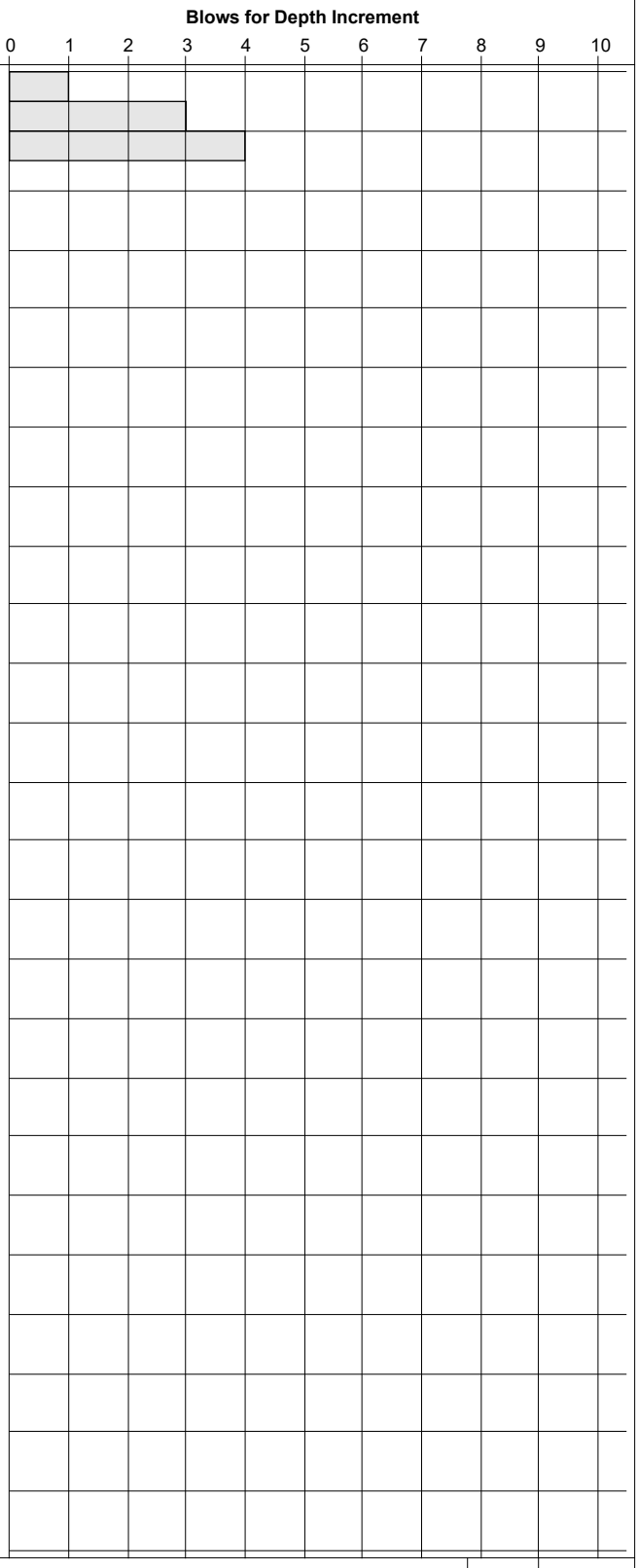
Site	Probe Number
Blackglen Road	DPH15

Method	Cone Dimensions	Ground Level (mOD)	Client	Job Number
Dynamic Probe DPH, Fall Height 500mm, Hammer wt 50Kg.	43.7mm	144.63	OCSC	10477-03-21
	Location	**Dates**	**Engineer**	**Sheet**
	717680.5 E 725200.7 N	12/04/2021		1/1

Depth (m)	Blows for Depth Increment	Field Records
0.00-0.10	1	
0.10-0.20	3	
0.20-0.30	4	

Level (mOD)	Depth (m)
144.63	0.00
144.13	0.50
143.63	1.00
143.13	1.50
142.63	2.00
142.13	2.50
141.63	3.00
141.13	3.50
140.63	4.00
140.13	4.50
139.63	5.00



Remarks
Refusal at 0.30 BGL for 25 blows

Scale (approx)	Logged By
1:25	CF

Figure No.
10477-03-21.DPH15

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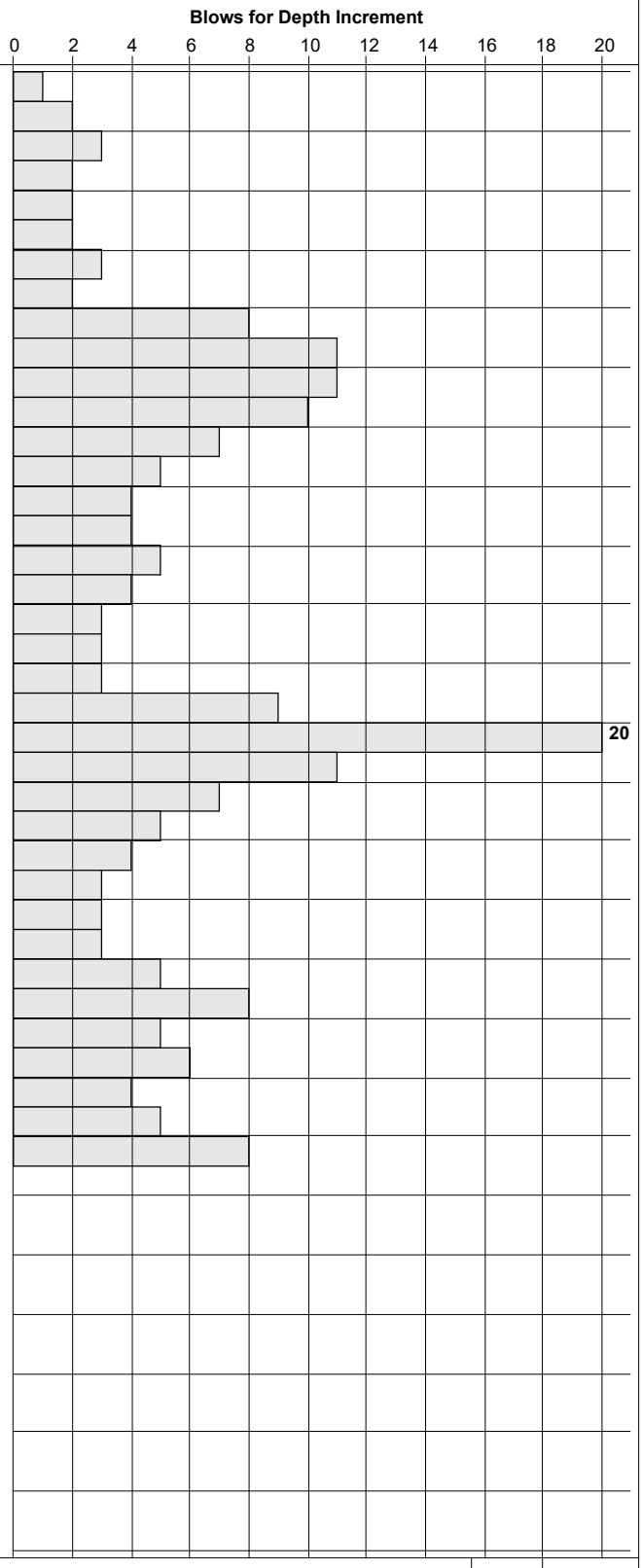
Site	Probe Number
Blackglen Road	DPH16

Method	Cone Dimensions	Ground Level (mOD)	Client	Job Number
Dynamic Probe DPH, Fall Height 500mm, Hammer wt 50Kg.	43.7mm	142.24	OCSC	10477-03-21
	Location	**Dates**	**Engineer**	**Sheet**
	717704.3 E 725202.5 N	12/04/2021		1/1

Depth (m)	Blows for Depth Increment	Field Records	Level (mOD)	Depth (m)
0.00-0.10	1		142.24	0.00
0.10-0.20	2			
0.20-0.30	3			
0.30-0.40	2			
0.40-0.50	2			
0.50-0.60	2		141.74	0.50
0.60-0.70	3			
0.70-0.80	2			
0.80-0.90	8			
0.90-1.00	11			
1.00-1.10	11		141.24	1.00
1.10-1.20	10			
1.20-1.30	7			
1.30-1.40	5			
1.40-1.50	4			
1.50-1.60	4		140.74	1.50
1.60-1.70	5			
1.70-1.80	4			
1.80-1.90	3			
1.90-2.00	3			
2.00-2.10	3		140.24	2.00
2.10-2.20	9			
2.20-2.30	20			
2.30-2.40	11			
2.40-2.50	7			
2.50-2.60	5		139.74	2.50
2.60-2.70	4			
2.70-2.80	3			
2.80-2.90	3			
2.90-3.00	3			
3.00-3.10	5		139.24	3.00
3.10-3.20	8			
3.20-3.30	5			
3.30-3.40	6			
3.40-3.50	4			
3.50-3.60	5		138.74	3.50
3.60-3.70	8			
			138.24	4.00
			137.74	4.50
			137.24	5.00



Remarks
Refusal at 3.70m BGL for 25 blows

Scale (approx)	Logged By
1:25	CF

Figure No.
10477-03-21.DPH16

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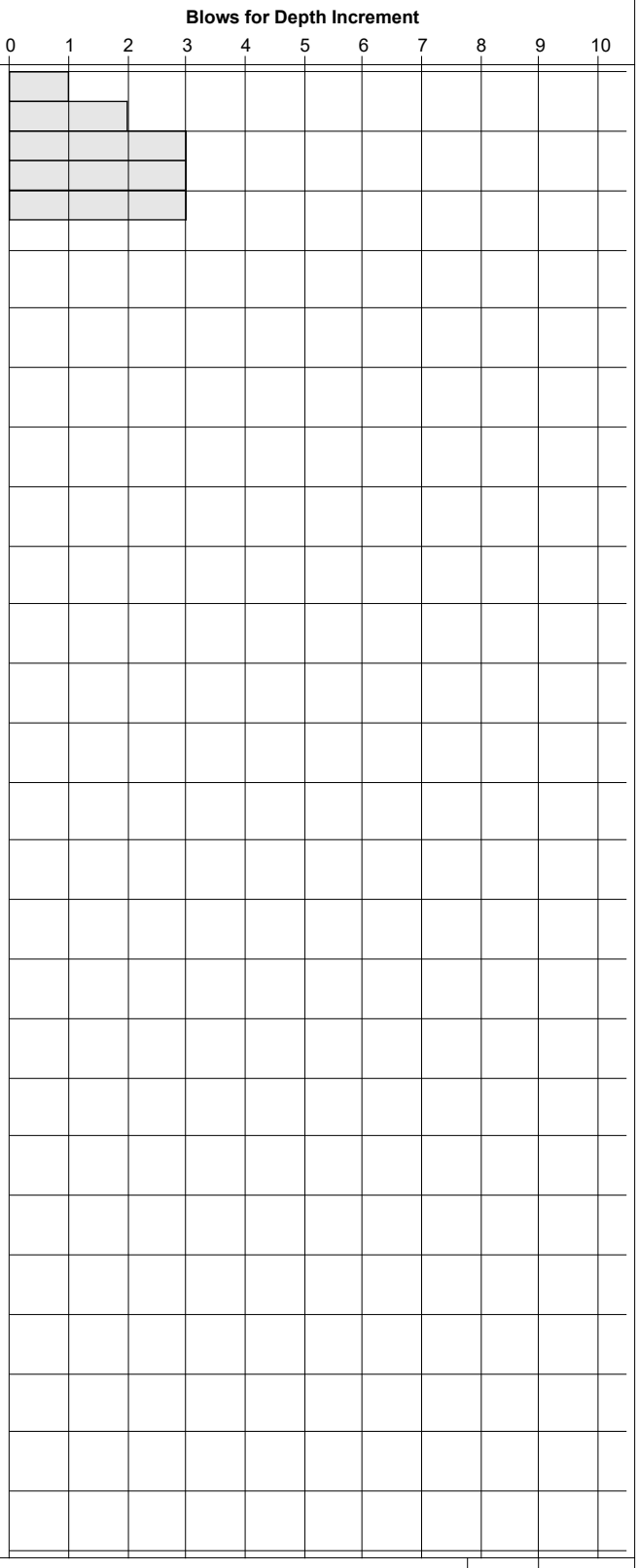
Site	Probe Number
Blackglen Road	DPH17

Method	Cone Dimensions	Ground Level (mOD)	Client	Job Number
Dynamic Probe DPH, Fall Height 500mm, Hammer wt 50Kg.	43.7mm	144.36	OCSC	10477-03-21
	Location	**Dates**	**Engineer**	**Sheet**
	717660.5 E 725180.5 N	12/04/2021		1/1

Depth (m)	Blows for Depth Increment	Field Records	Level (mOD)	Depth (m)
0.00-0.10	1		144.36	0.00
0.10-0.20	2			
0.20-0.30	3			
0.30-0.40	3			
0.40-0.50	3		143.86	0.50
			143.36	1.00
			142.86	1.50
			142.36	2.00
			141.86	2.50
			141.36	3.00
			140.86	3.50
			140.36	4.00
			139.86	4.50
			139.36	5.00



Remarks
Refusal at 0.50m BGL 25 blows for 10mm

Scale (approx)	Logged By
1:25	CF

Figure No.
10477-03-21.DPH17

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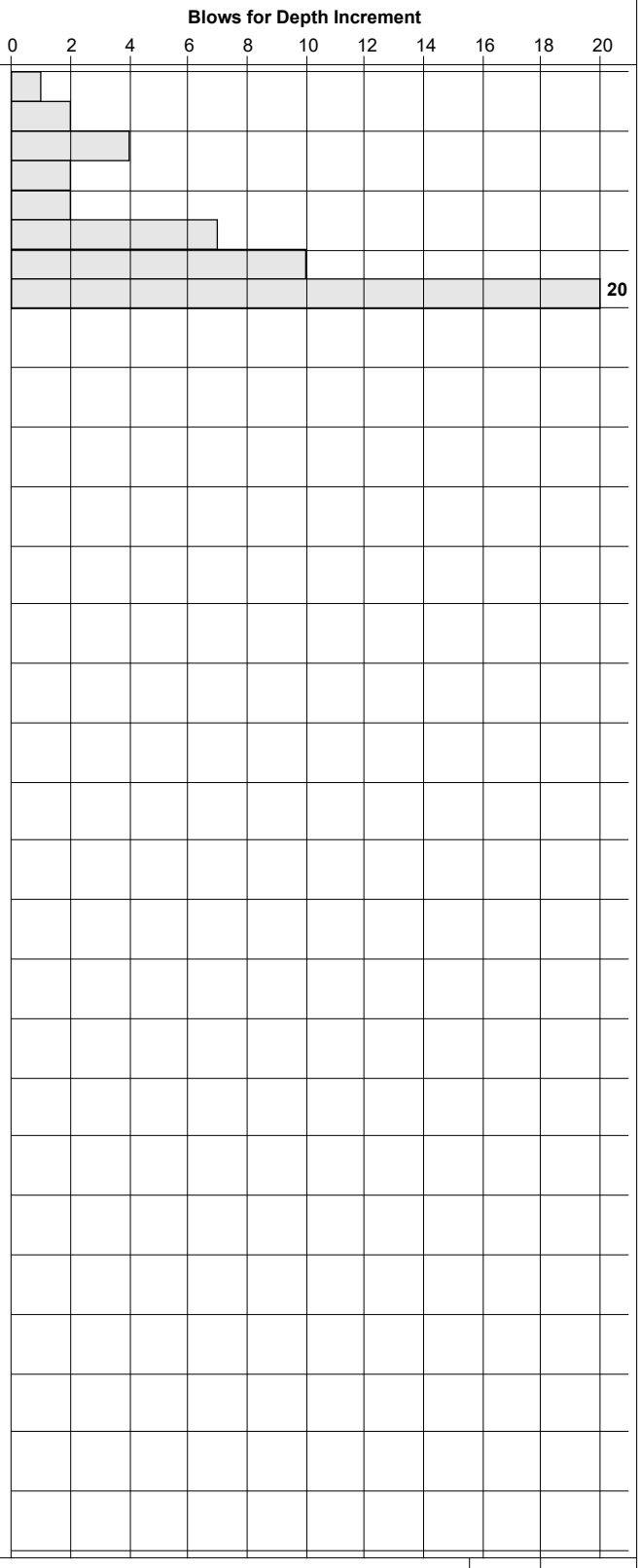
Site	Probe Number
Blackglen Road	DPH18

Method	Cone Dimensions	Ground Level (mOD)	Client	Job Number
Dynamic Probe DPH, Fall Height 500mm, Hammer wt 50Kg.	43.7mm	142.23	OCSC	10477-03-21
	Location	**Dates**	**Engineer**	**Sheet**
	717678 E 725179.6 N	12/04/2021		1/1

Depth (m)	Blows for Depth Increment	Field Records	Level (mOD)	Depth (m)
0.00-0.10	1		142.23	0.00
0.10-0.20	2			
0.20-0.30	4			
0.30-0.40	2			
0.40-0.50	2			
0.50-0.60	7		141.73	0.50
0.60-0.70	10			
0.70-0.80	20			
			141.23	1.00
			140.73	1.50
			140.23	2.00
			139.73	2.50
			139.23	3.00
			138.73	3.50
			138.23	4.00
			137.73	4.50
			137.23	5.00



Remarks
Refusal at 0.80m BGL 25 blows for 50mm

Scale (approx)	Logged By
1:25	CF

Figure No.
10477-03-21.DPH18

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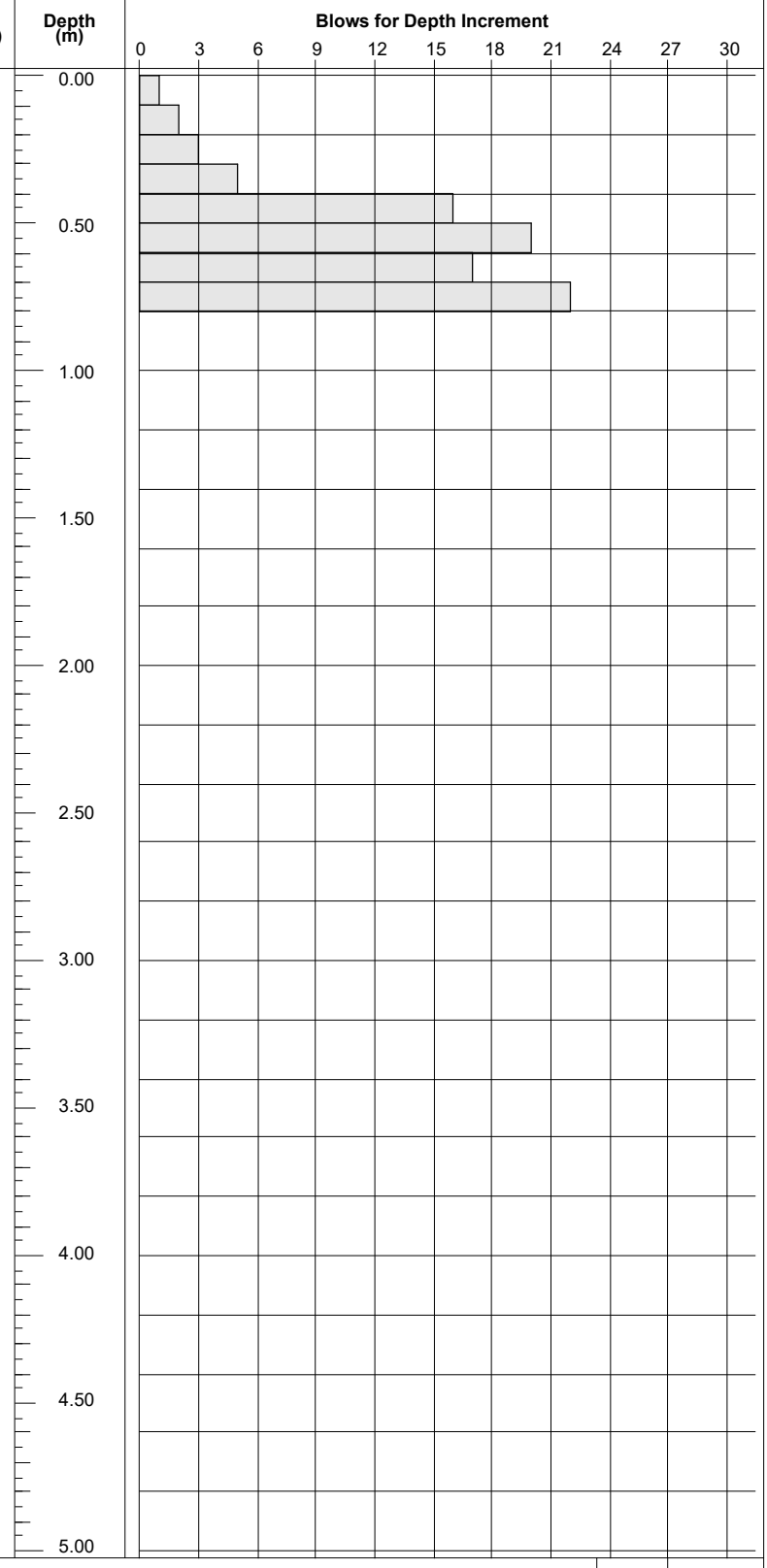
Site	Probe Number
Blackglen Road	DPH19

Method	Cone Dimensions	Ground Level (mOD)	Client	Job Number
Dynamic Probe DPH, Fall Height 500mm, Hammer wt 50Kg.	43.7mm		OCSC	10477-03-21

Location	Dates	Engineer	Sheet
	12/04/2021		1/1

Depth (m)	Blows for Depth Increment	Field Records	Level (mOD)
0.00-0.10	1		
0.10-0.20	2		
0.20-0.30	3		
0.30-0.40	5		
0.40-0.50	16		
0.50-0.60	20		
0.60-0.70	17		
0.70-0.80	22		



Remarks
Refusal at 0.80m BGL 25 blows for 10mm

Scale (approx)	Logged By
1:25	CF

Figure No.
10477-03-21.DPH101

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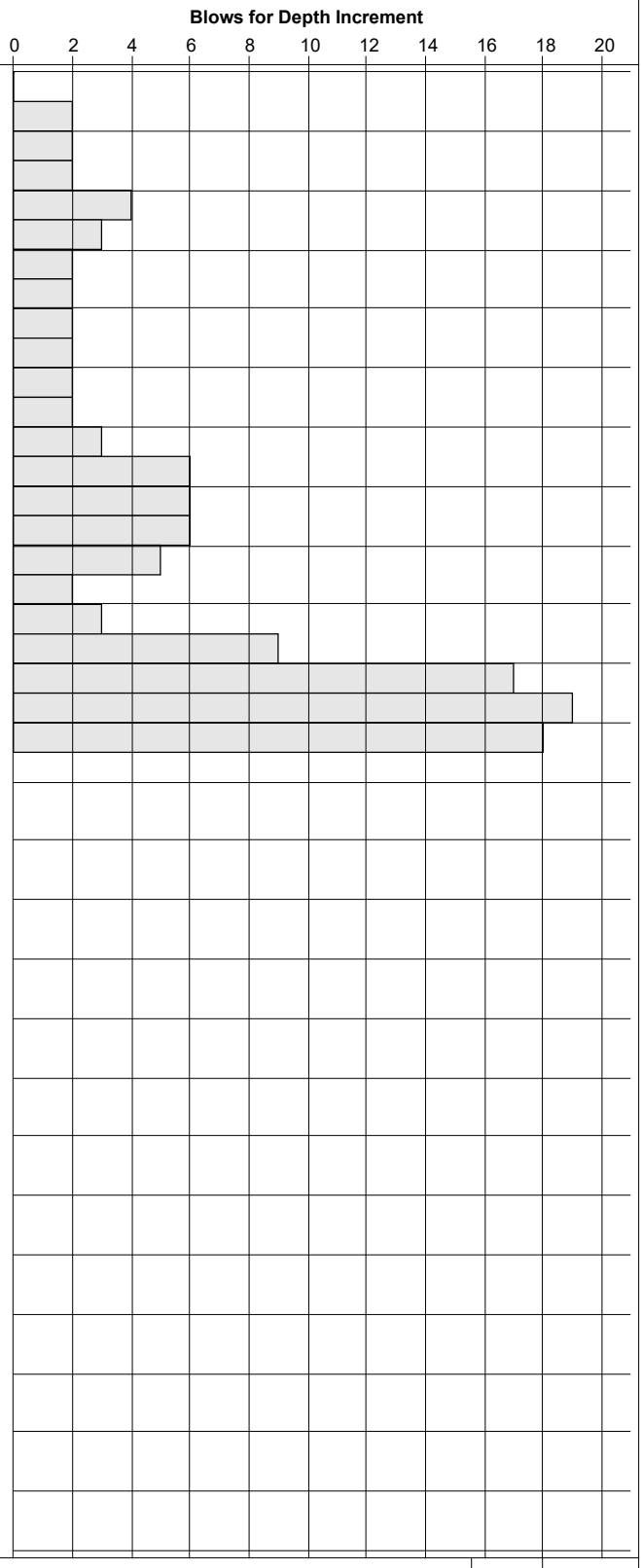
Site	Probe Number
Blackglen Road	DPH20

Method	Cone Dimensions	Ground Level (mOD)	Client	Job Number
Dynamic Probe DPH, Fall Height 500mm, Hammer wt 50Kg.	43.7mm	140.53	OCSC	10477-03-21
	Location	**Dates**	**Engineer**	**Sheet**
	717698.9 E 725160.3 N	12/04/2021		1/1

Depth (m)	Blows for Depth Increment	Field Records	Level (mOD)	Depth (m)
0.00-0.10	0		140.53	0.00
0.10-0.20	2			
0.20-0.30	2			
0.30-0.40	2			
0.40-0.50	4			
0.50-0.60	3		140.03	0.50
0.60-0.70	2			
0.70-0.80	2			
0.80-0.90	2			
0.90-1.00	2			
1.00-1.10	2		139.53	1.00
1.10-1.20	2			
1.20-1.30	3			
1.30-1.40	6			
1.40-1.50	6			
1.50-1.60	6		139.03	1.50
1.60-1.70	5			
1.70-1.80	2			
1.80-1.90	3			
1.90-2.00	9			
2.00-2.10	17		138.53	2.00
2.10-2.20	19			
2.20-2.30	18			
			138.03	2.50
			137.53	3.00
			137.03	3.50
			136.53	4.00
			136.03	4.50
			135.53	5.00



Remarks
Refusal at 2.30m BGL for 25 blows

Scale (approx)	Logged By
1:25	CF

Figure No.
10477-03-21.DPH20

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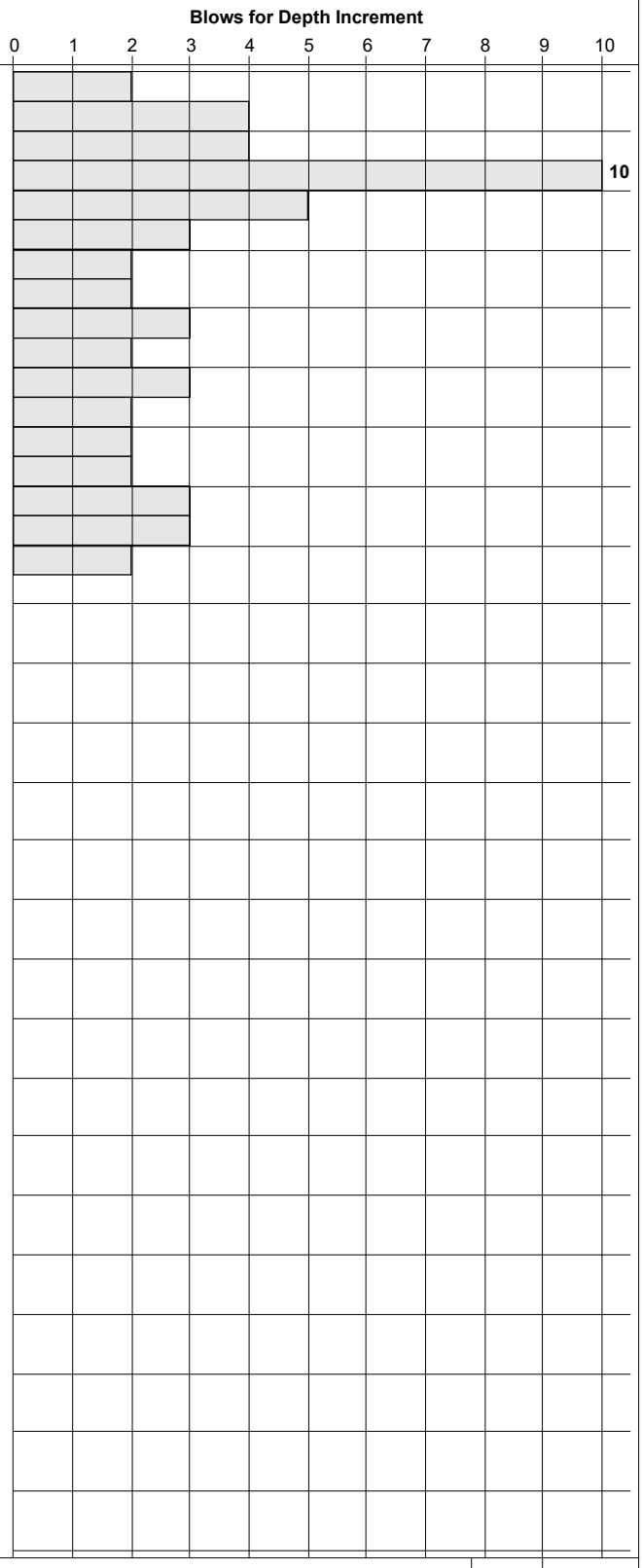
Site	Probe Number
Blackglen Road	DPH21

Method	Cone Dimensions	Ground Level (mOD)	Client	Job Number
Dynamic Probe DPH, Fall Height 500mm, Hammer wt 50Kg.	43.7mm	143.80	OCSC	10477-03-21
	Location	**Dates**	**Engineer**	**Sheet**
	717679.8 E 725139.9 N	12/04/2021		1/1

Depth (m)	Blows for Depth Increment	Field Records	Level (mOD)	Depth (m)
0.00-0.10	2		143.80	0.00
0.10-0.20	4			
0.20-0.30	4			
0.30-0.40	10			
0.40-0.50	5			
0.50-0.60	3		143.30	0.50
0.60-0.70	2			
0.70-0.80	2			
0.80-0.90	3			
0.90-1.00	2			
1.00-1.10	3		142.80	1.00
1.10-1.20	2			
1.20-1.30	2			
1.30-1.40	2			
1.40-1.50	3			
1.50-1.60	3		142.30	1.50
1.60-1.70	2			
			141.80	2.00
			141.30	2.50
			140.80	3.00
			140.30	3.50
			139.80	4.00
			139.30	4.50
			138.80	5.00



Remarks
Refusal at 1.70m BGL 25 blows for 10mm

Scale (approx)	Logged By
1:25	CF

Figure No.
10477-03-21.DPH21

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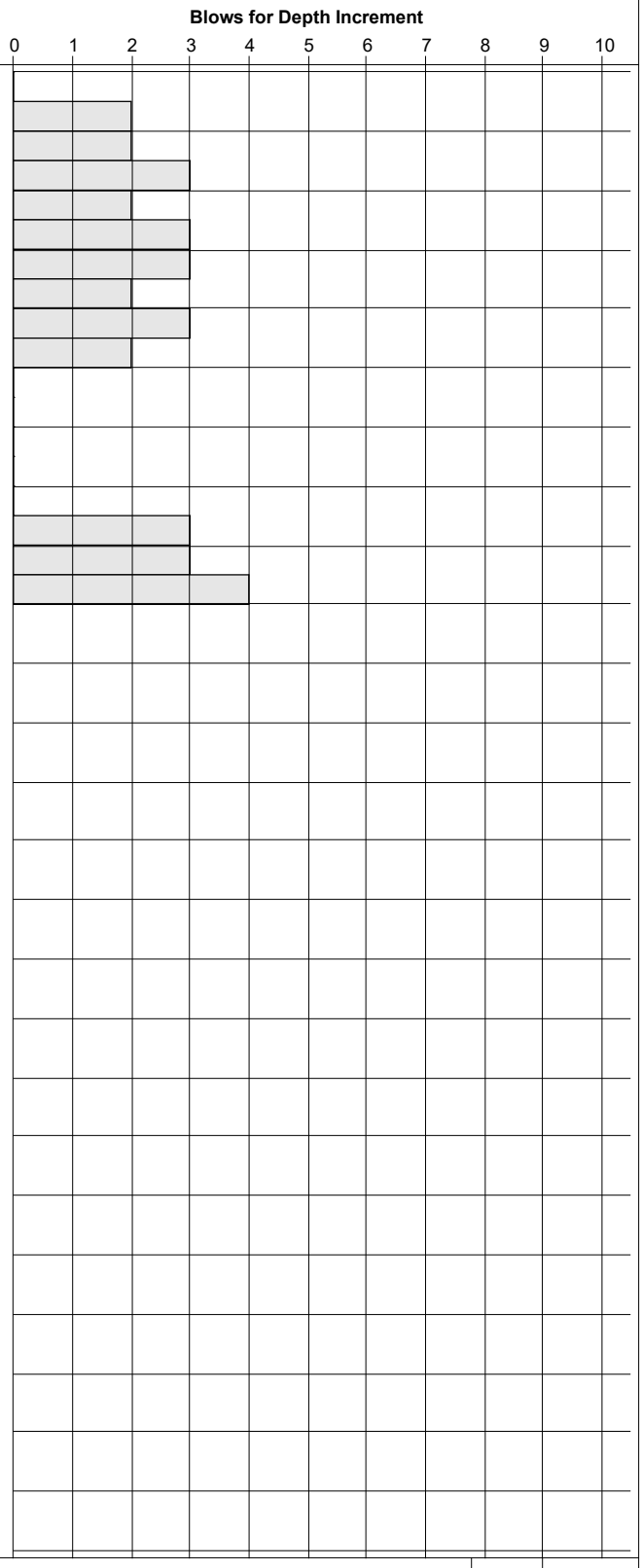
Site	Probe Number
Blackglen Road	DPH22

Method	Cone Dimensions	Ground Level (mOD)	Client	Job Number
Dynamic Probe DPH, Fall Height 500mm, Hammer wt 50Kg.	43.7mm	142.54	OCSC	10477-03-21
	Location	**Dates**	**Engineer**	**Sheet**
	717699.3 E 725140.1 N	12/04/2021		1/1

Depth (m)	Blows for Depth Increment	Field Records	Level (mOD)	Depth (m)
0.00-0.10	0		142.54	0.00
0.10-0.20	2			
0.20-0.30	2			
0.30-0.40	3			
0.40-0.50	2			
0.50-0.60	3		142.04	0.50
0.60-0.70	3			
0.70-0.80	2			
0.80-0.90	3			
0.90-1.00	2			
1.00-1.10	0		141.54	1.00
1.10-1.20	0			
1.20-1.30	0			
1.30-1.40	0			
1.40-1.50	0			
1.50-1.60	3		141.04	1.50
1.60-1.70	3			
1.70-1.80	4			
			140.54	2.00
			140.04	2.50
			139.54	3.00
			139.04	3.50
			138.54	4.00
			138.04	4.50
			137.54	5.00



Remarks
Refusal at 1.80m BGL for 25 blows

Scale (approx)	Logged By
1:25	CF

Figure No.
10477-03-21.DPH22

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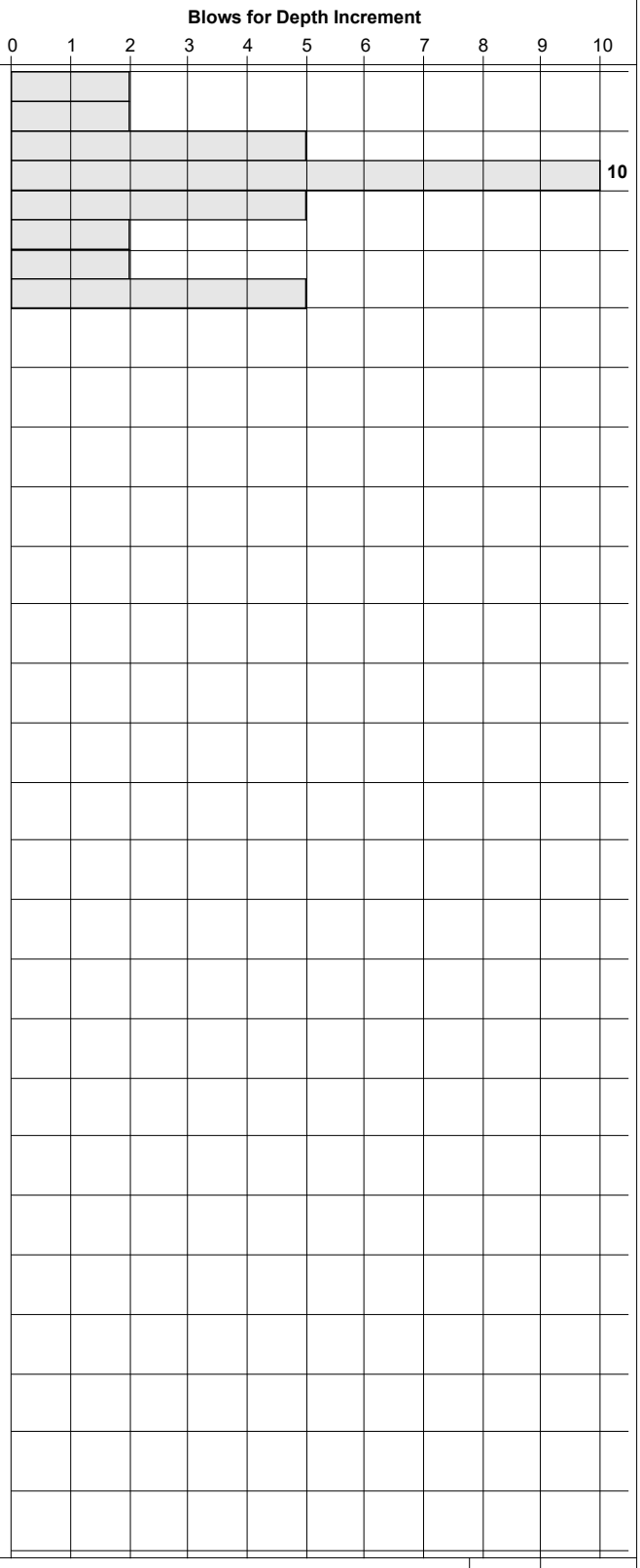
Site	Probe Number
Blackglen Road	DPH24

Method	Cone Dimensions	Ground Level (mOD)	Client	Job Number
Dynamic Probe DPH, Fall Height 500mm, Hammer wt 50Kg.	43.7mm	151.46	OCSC	10477-03-21
	Location	**Dates**	**Engineer**	**Sheet**
	717617.9 E 725199.1 N	09/04/2021		1/1

Depth (m)	Blows for Depth Increment	Field Records	Level (mOD)	Depth (m)
0.00-0.10	2		151.46	0.00
0.10-0.20	2			
0.20-0.30	5			
0.30-0.40	10			
0.40-0.50	5			
0.50-0.60	2		150.96	0.50
0.60-0.70	2			
0.70-0.80	5			
			150.46	1.00
			149.96	1.50
			149.46	2.00
			148.96	2.50
			148.46	3.00
			147.96	3.50
			147.46	4.00
			146.96	4.50
			146.46	5.00



Remarks
Refusal at 0.80m BGL 25 blows for 50mm

Scale (approx)	Logged By
1:25	CF

Figure No.
10477-03-21.DPH24

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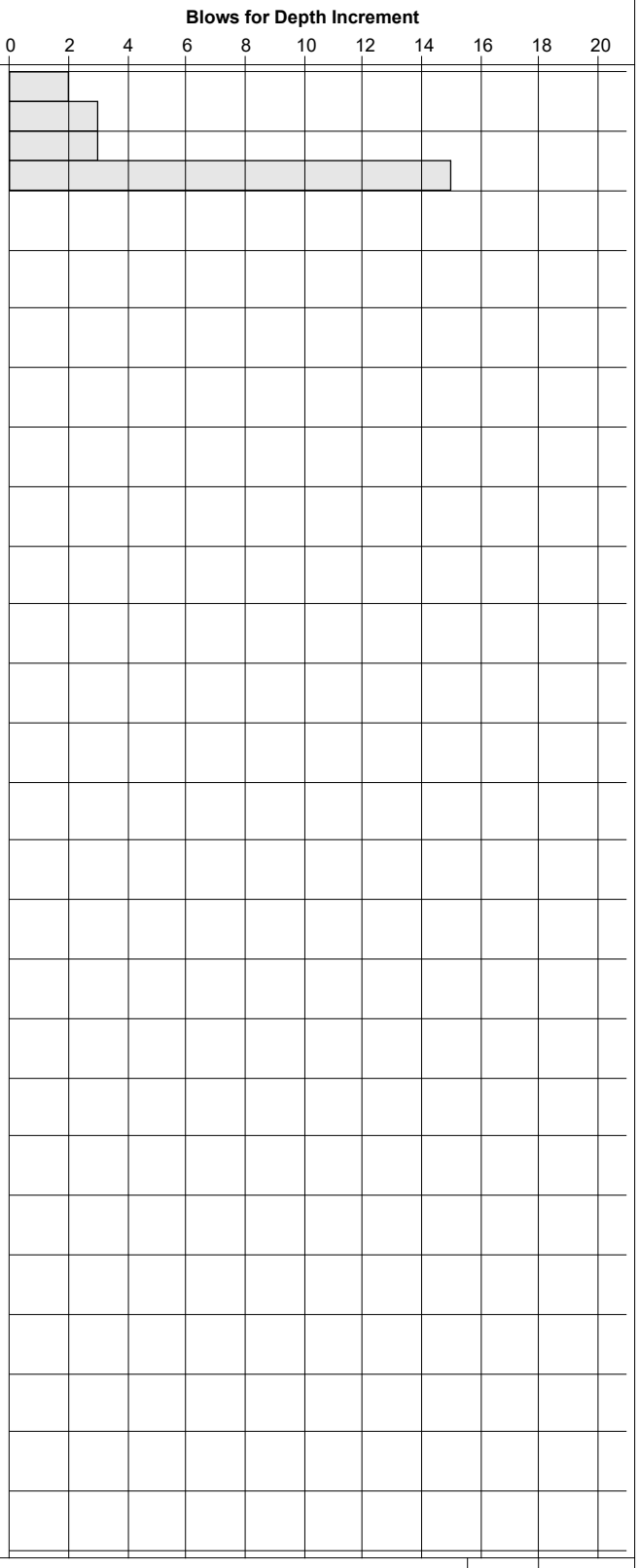
Site	Probe Number
Blackglen Road	DPH26

Method	Cone Dimensions	Ground Level (mOD)	Client	Job Number
Dynamic Probe DPH, Fall Height 500mm, Hammer wt 50Kg.	43.7mm	152.10	OCSC	10477-03-21
	Location	**Dates**	**Engineer**	**Sheet**
	717599.5 E 725199.9 N	09/04/2021		1/1

Depth (m)	Blows for Depth Increment	Field Records
0.00-0.10	2	
0.10-0.20	3	
0.20-0.30	3	
0.30-0.40	15	

Level (mOD)	Depth (m)
152.10	0.00
151.60	0.50
151.10	1.00
150.60	1.50
150.10	2.00
149.60	2.50
149.10	3.00
148.60	3.50
148.10	4.00
147.60	4.50
147.10	5.00



Remarks
Refusal at 0.40m BGL 25 blows for 50mm

Scale (approx)	Logged By
1:25	CF

Figure No.
10477-03-21.DPH26

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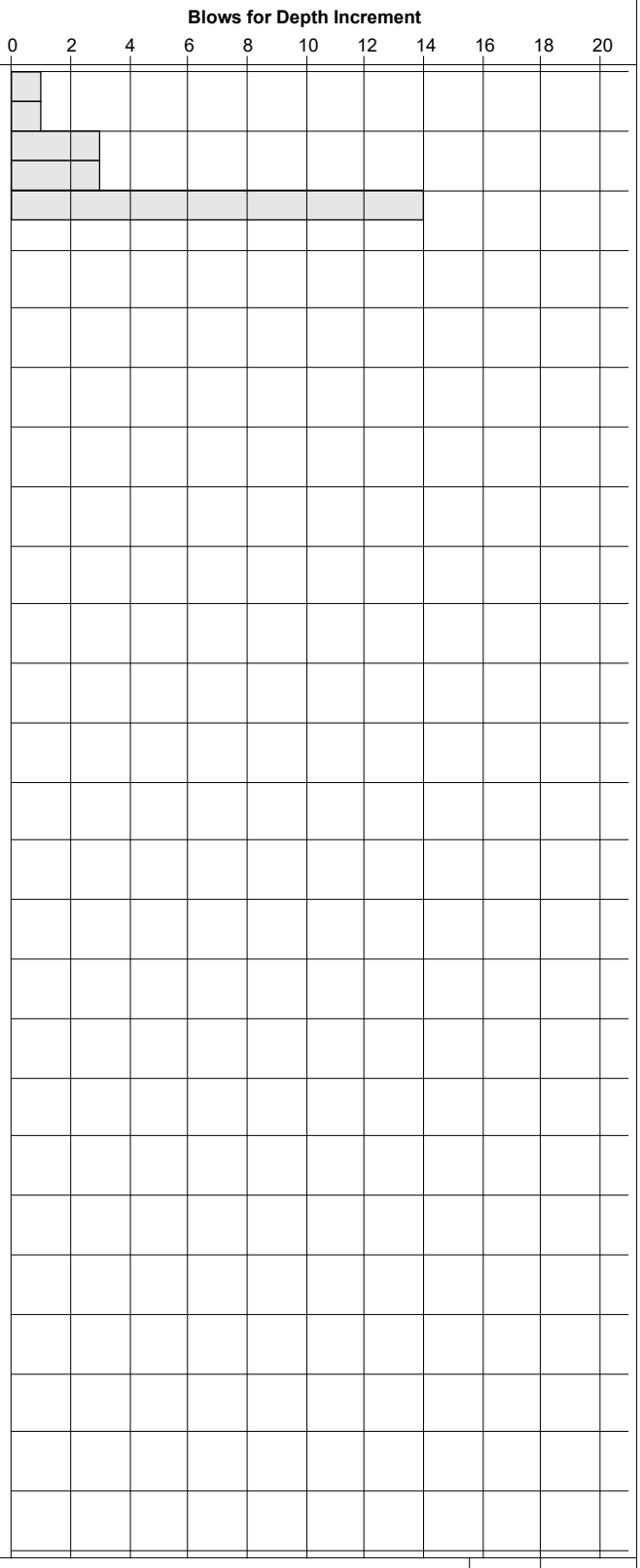
Site	Probe Number
Blackglen Road	DPH27

Method	Cone Dimensions	Ground Level (mOD)	Client	Job Number
Dynamic Probe DPH, Fall Height 500mm, Hammer wt 50Kg.	43.7mm	152.49	OCSC	10477-03-21
	Location	**Dates**	**Engineer**	**Sheet**
	717582.9 E 725224.2 N	12/04/2021		1/1

Depth (m)	Blows for Depth Increment	Field Records
0.00-0.10	1	
0.10-0.20	1	
0.20-0.30	3	
0.30-0.40	3	
0.40-0.50	14	

Level (mOD)	Depth (m)
152.49	0.00
151.99	0.50
151.49	1.00
150.99	1.50
150.49	2.00
149.99	2.50
149.49	3.00
148.99	3.50
148.49	4.00
147.99	4.50
147.49	5.00



Remarks
Refusal at 0.50m BGL for 25 blows

Scale (approx)	Logged By
1:25	CF

Figure No.
10477-03-21.DPH27

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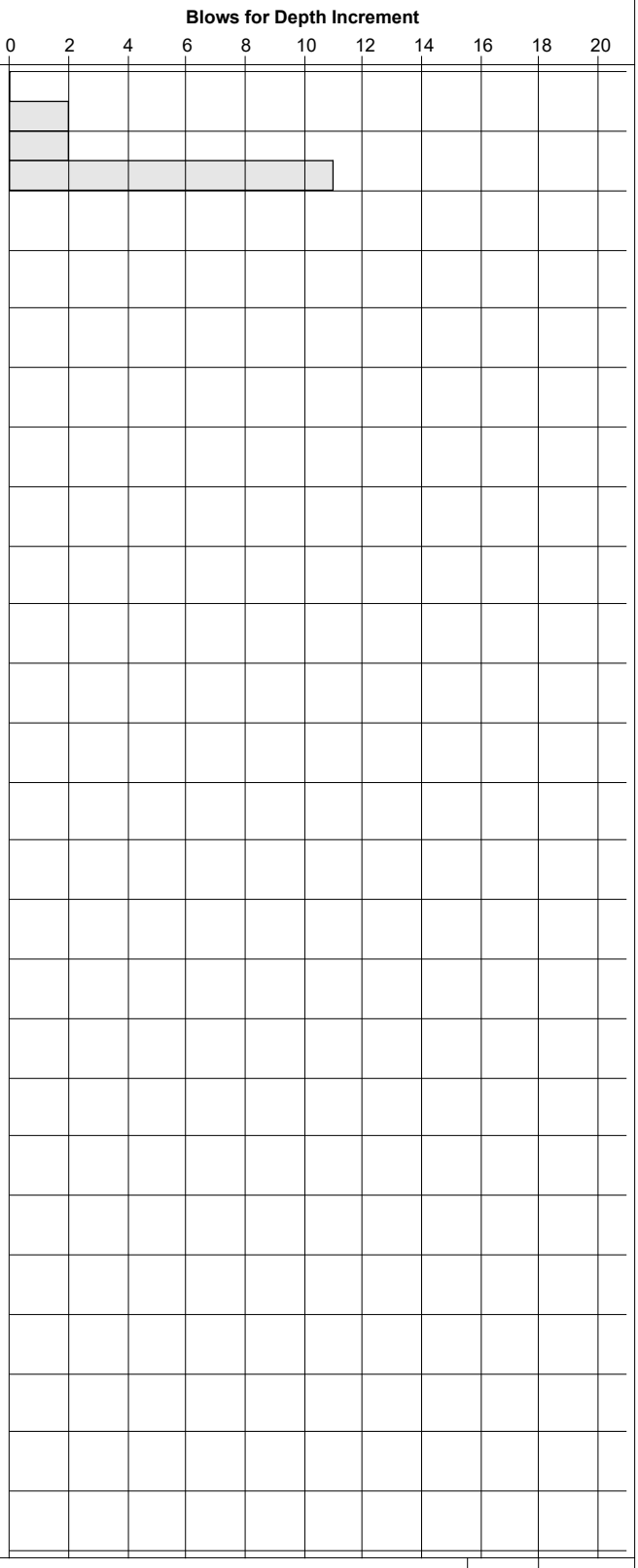
Site	Probe Number
Blackglen Road	DPH28

Method	Cone Dimensions	Ground Level (mOD)	Client	Job Number
Dynamic Probe DPH, Fall Height 500mm, Hammer wt 50Kg.	43.7mm	153.39	OCSC	10477-03-21
	Location	**Dates**	**Engineer**	**Sheet**
	717582.5 E 725196.3 N	09/04/2021		1/1

Depth (m)	Blows for Depth Increment	Field Records
0.00-0.10	0	
0.10-0.20	2	
0.20-0.30	2	
0.30-0.40	11	

Level (mOD)	Depth (m)
153.39	0.00
152.89	0.50
152.39	1.00
151.89	1.50
151.39	2.00
150.89	2.50
150.39	3.00
149.89	3.50
149.39	4.00
148.89	4.50
148.39	5.00



Remarks
Refusal at 0.40m BGL for 25 blows

Scale (approx)	Logged By
1:25	CF

Figure No.
10477-03-21.DPH28

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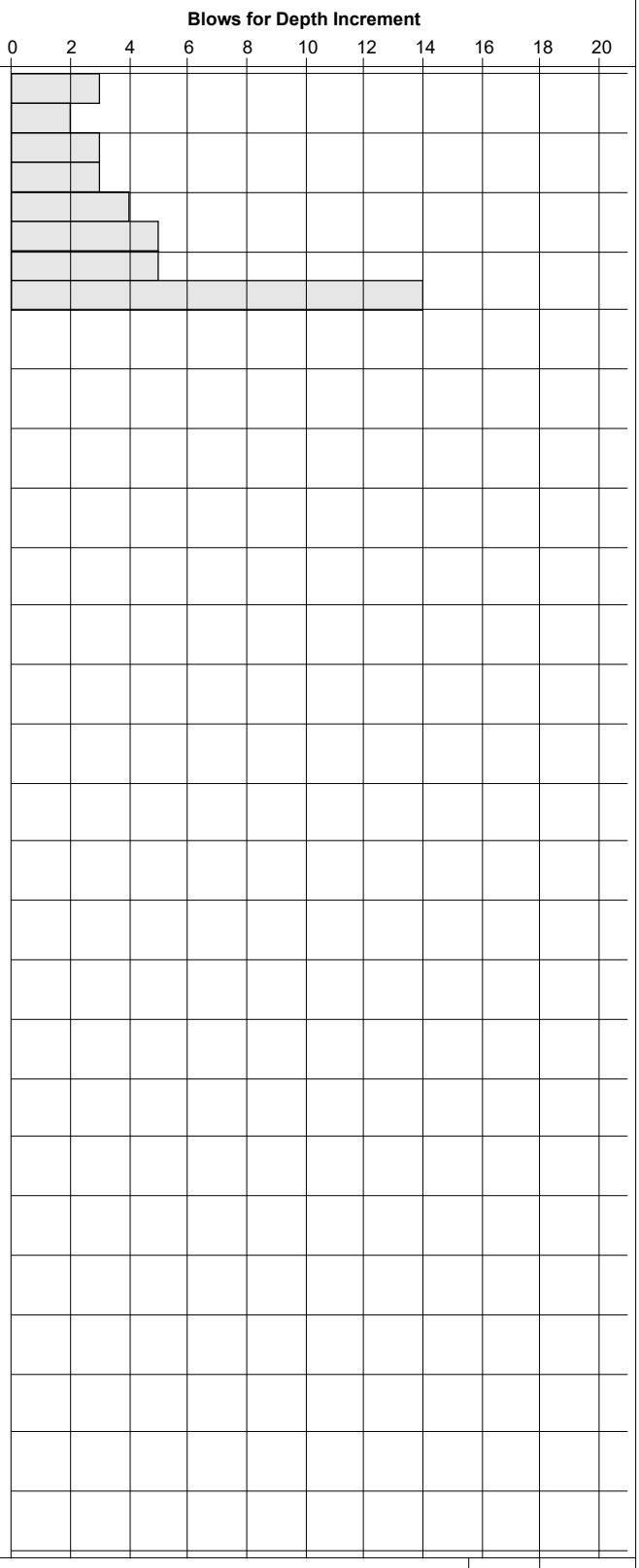
Site	Probe Number
Blackglen Road	DPH29

Method	Cone Dimensions	Ground Level (mOD)	Client	Job Number
Dynamic Probe DPH, Fall Height 500mm, Hammer wt 50Kg.	43.7mm	153.74	OCSC	10477-03-21
	Location	**Dates**	**Engineer**	**Sheet**
	717580.3 E 725181.3 N	09/04/2021		1/1

Depth (m)	Blows for Depth Increment	Field Records
0.00-0.10	3	
0.10-0.20	2	
0.20-0.30	3	
0.30-0.40	3	
0.40-0.50	4	
0.50-0.60	5	
0.60-0.70	5	
0.70-0.80	14	

Level (mOD)	Depth (m)
153.74	0.00
153.24	0.50
152.74	1.00
152.24	1.50
151.74	2.00
151.24	2.50
150.74	3.00
150.24	3.50
149.74	4.00
149.24	4.50
148.74	5.00



Remarks
Refusal at 0.80m BGL 25 blows for 50mm

Scale (approx)	Logged By
1:25	CF

Figure No.
10477-03-21.DPH29

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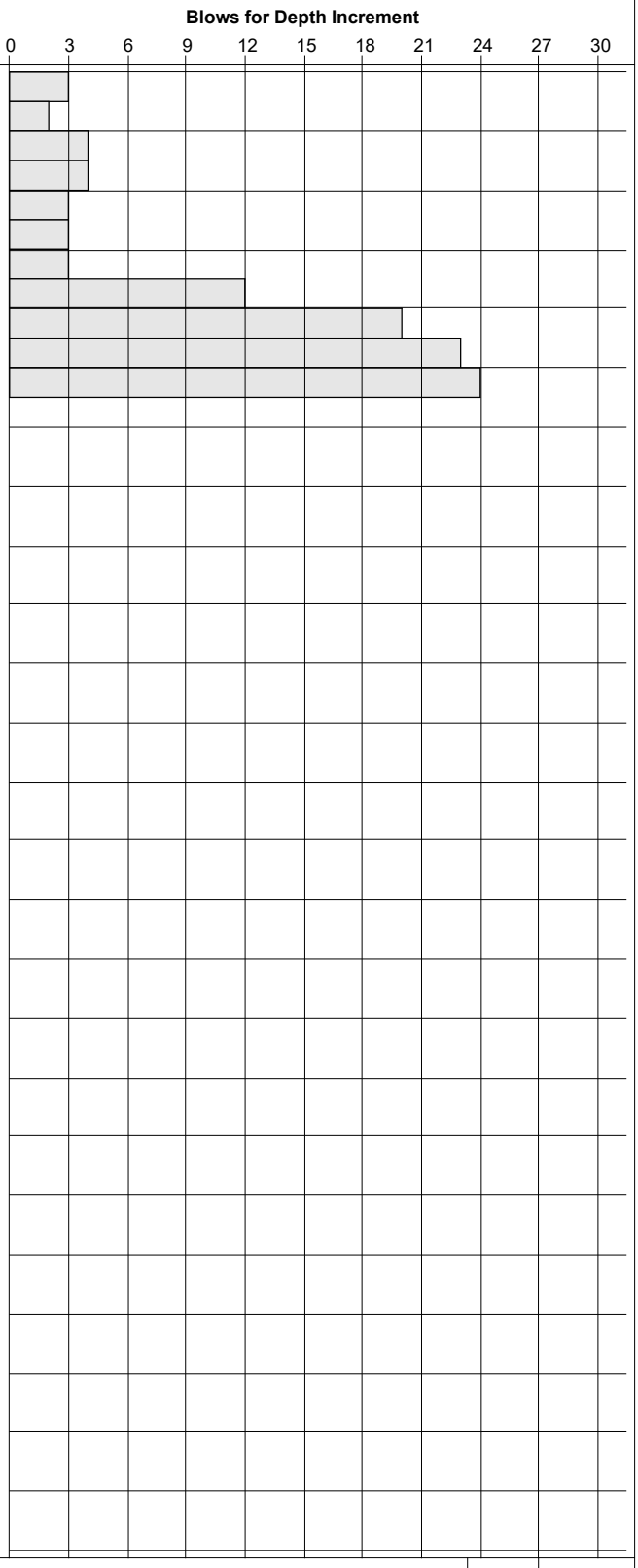
Site	Probe Number
Blackglen Road	DPH30

Method	Cone Dimensions	Ground Level (mOD)	Client	Job Number
Dynamic Probe DPH, Fall Height 500mm, Hammer wt 50Kg.	43.7mm	153.14	OCSC	10477-03-21
	Location	**Dates**	**Engineer**	**Sheet**
	717560 E 725198.5 N	09/04/2021		1/1

Depth (m)	Blows for Depth Increment	Field Records	Level (mOD)	Depth (m)
0.00-0.10	3		153.14	0.00
0.10-0.20	2			
0.20-0.30	4			
0.30-0.40	4			
0.40-0.50	3			
0.50-0.60	3		152.64	0.50
0.60-0.70	3			
0.70-0.80	12			
0.80-0.90	20			
0.90-1.00	23			
1.00-1.10	24		152.14	1.00
			151.64	1.50
			151.14	2.00
			150.64	2.50
			150.14	3.00
			149.64	3.50
			149.14	4.00
			148.64	4.50
			148.14	5.00



Remarks

Scale (approx)	Logged By
1:25	CF

Figure No.
10477-03-21.DPH30

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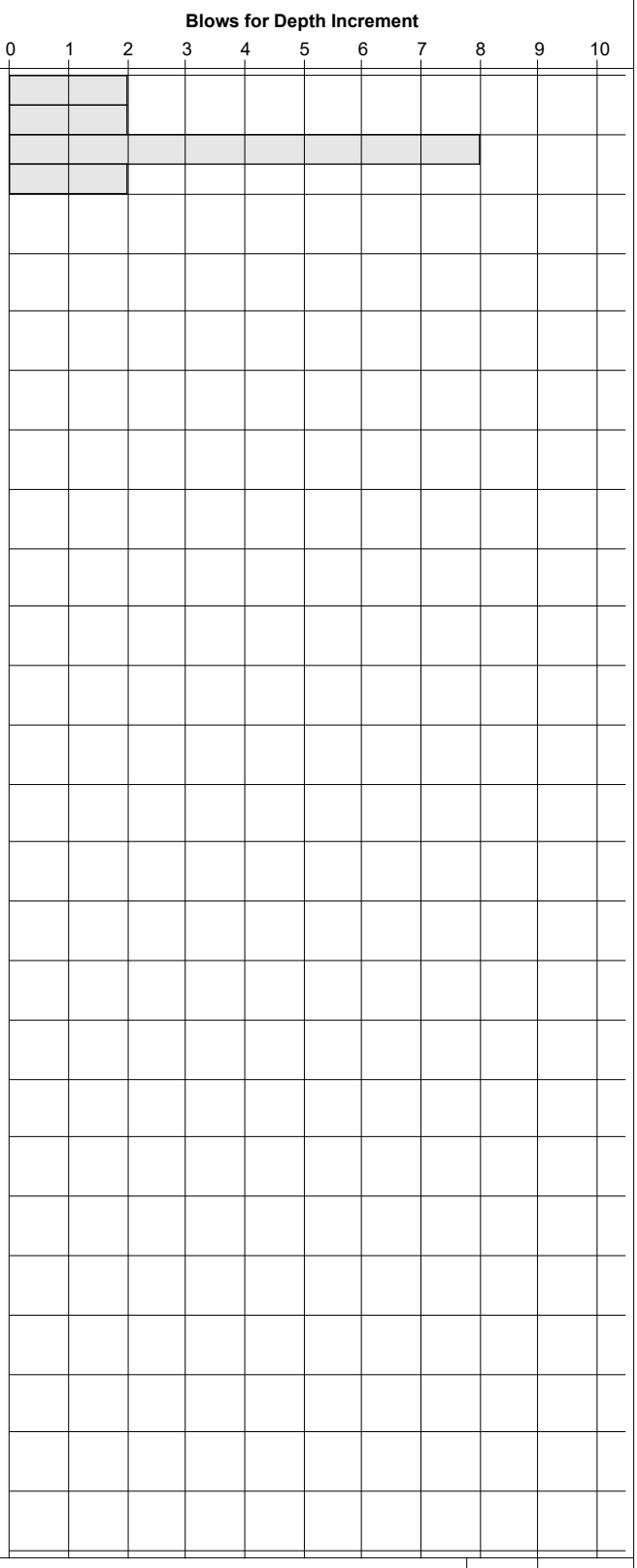
Site	Probe Number
Blackglen Road	DPH32

Method	Cone Dimensions	Ground Level (mOD)	Client	Job Number
Dynamic Probe DPH, Fall Height 500mm, Hammer wt 50Kg.	43.7mm	153.72	OCSC	10477-03-21
	Location	**Dates**	**Engineer**	**Sheet**
	717544.9 E 725201.2 N	09/04/2021		1/1

Depth (m)	Blows for Depth Increment	Field Records
0.00-0.10	2	
0.10-0.20	2	
0.20-0.30	8	
0.30-0.40	2	

Level (mOD)	Depth (m)
153.72	0.00
153.22	0.50
152.72	1.00
152.22	1.50
151.72	2.00
151.22	2.50
150.72	3.00
150.22	3.50
149.72	4.00
149.22	4.50
148.72	5.00



Remarks
Refusal at 0.40m BGL for 25 blows

Scale (approx)	Logged By
1:25	CF

Figure No.
10477-03-21.DPH32

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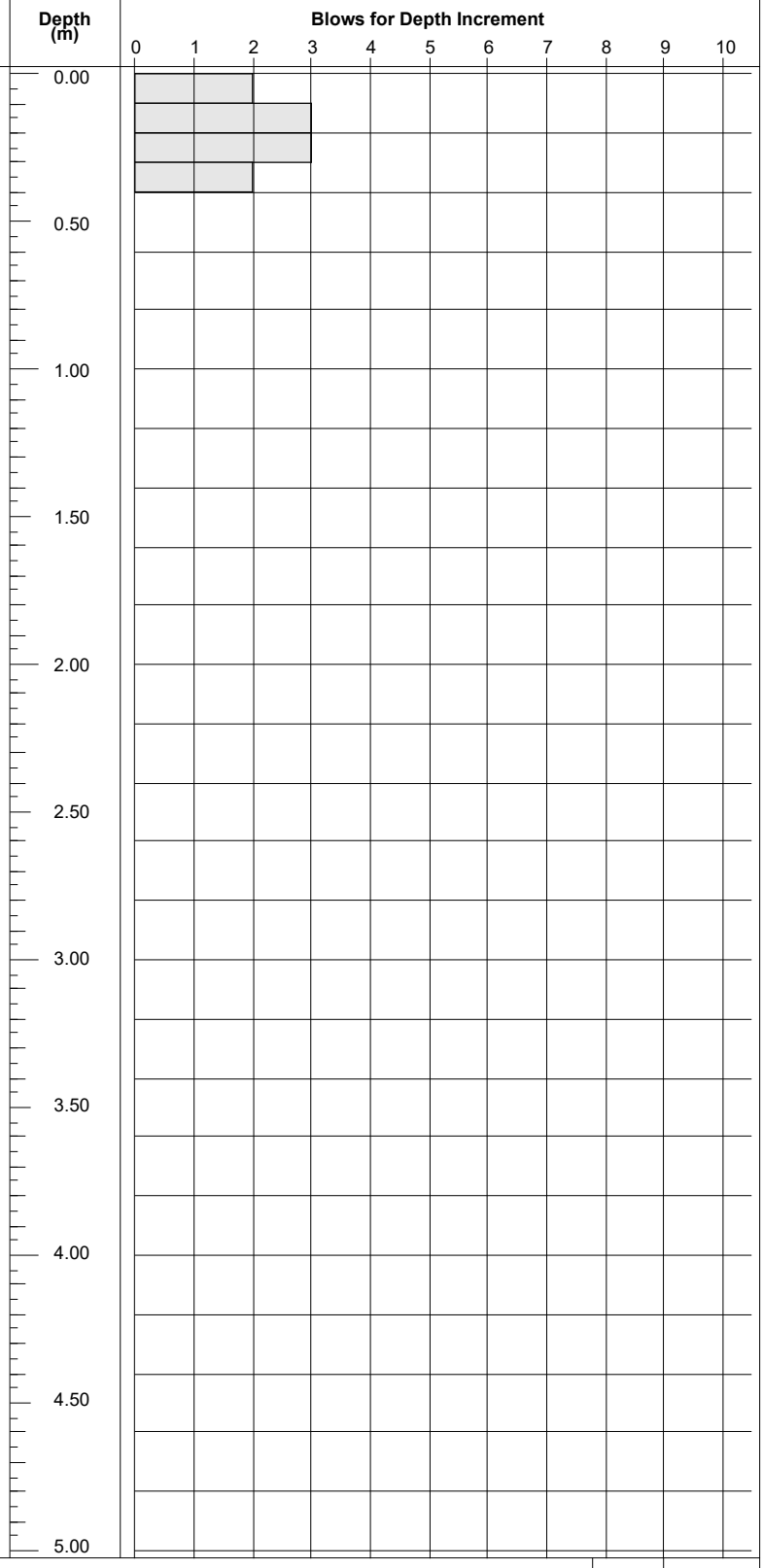
Site	Probe Number
Blackglen Road	DPH36

Method	Cone Dimensions	Ground Level (mOD)	Client	Job Number
Dynamic Probe DPH, Fall Height 500mm, Hammer wt 50Kg.	43.7mm		OCSC	10477-03-21
	Location	**Dates**	**Engineer**	**Sheet**
	717519.4 E 725140 N	09/04/2021		1/1

Depth (m)	Blows for Depth Increment	Field Records	Level (mOD)
0.00-0.10	2		
0.10-0.20	3		
0.20-0.30	3		
0.30-0.40	2		



Remarks
Refusal at 0.40m BGL for 25 blows

Scale (approx)	Logged By
1:25	CF

Figure No.
10477-03-21.DPH36

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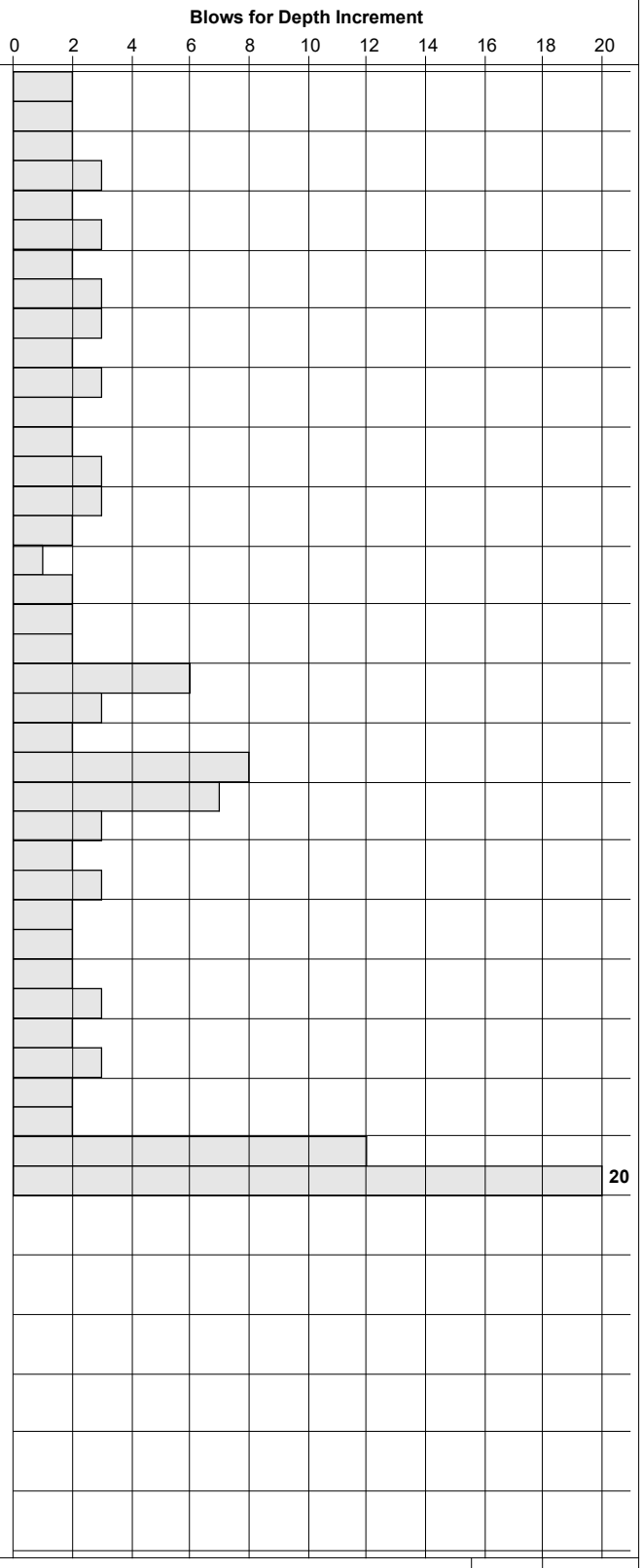
Site	Probe Number
Blackglen Road	DPH38

Method	Cone Dimensions	Ground Level (mOD)	Client	Job Number
Dynamic Probe DPH, Fall Height 500mm, Hammer wt 50Kg.	43.7mm	154.42	OCSC	10477-03-21
	Location	**Dates**	**Engineer**	**Sheet**
	717559.8 E 725138.7 N	09/04/2021		1/1

Depth (m)	Blows for Depth Increment	Field Records	Level (mOD)	Depth (m)
0.00-0.10	2		154.42	0.00
0.10-0.20	2			
0.20-0.30	2			
0.30-0.40	3			
0.40-0.50	2			
0.50-0.60	3		153.92	0.50
0.60-0.70	2			
0.70-0.80	3			
0.80-0.90	3			
0.90-1.00	2			
1.00-1.10	3		153.42	1.00
1.10-1.20	2			
1.20-1.30	2			
1.30-1.40	3			
1.40-1.50	3			
1.50-1.60	2		152.92	1.50
1.60-1.70	1			
1.70-1.80	2			
1.80-1.90	2			
1.90-2.00	2			
2.00-2.10	6		152.42	2.00
2.10-2.20	3			
2.20-2.30	2			
2.30-2.40	8			
2.40-2.50	7			
2.50-2.60	3		151.92	2.50
2.60-2.70	2			
2.70-2.80	3			
2.80-2.90	2			
2.90-3.00	2			
3.00-3.10	2		151.42	3.00
3.10-3.20	3			
3.20-3.30	2			
3.30-3.40	3			
3.40-3.50	2			
3.50-3.60	2		150.92	3.50
3.60-3.70	12			
3.70-3.80	20			
			150.42	4.00
			149.92	4.50
			149.42	5.00



Remarks
Refusal at 3.80m BGL for 25 blows

Scale (approx)	Logged By
1:25	CF

Figure No.
10477-03-21.DPH38

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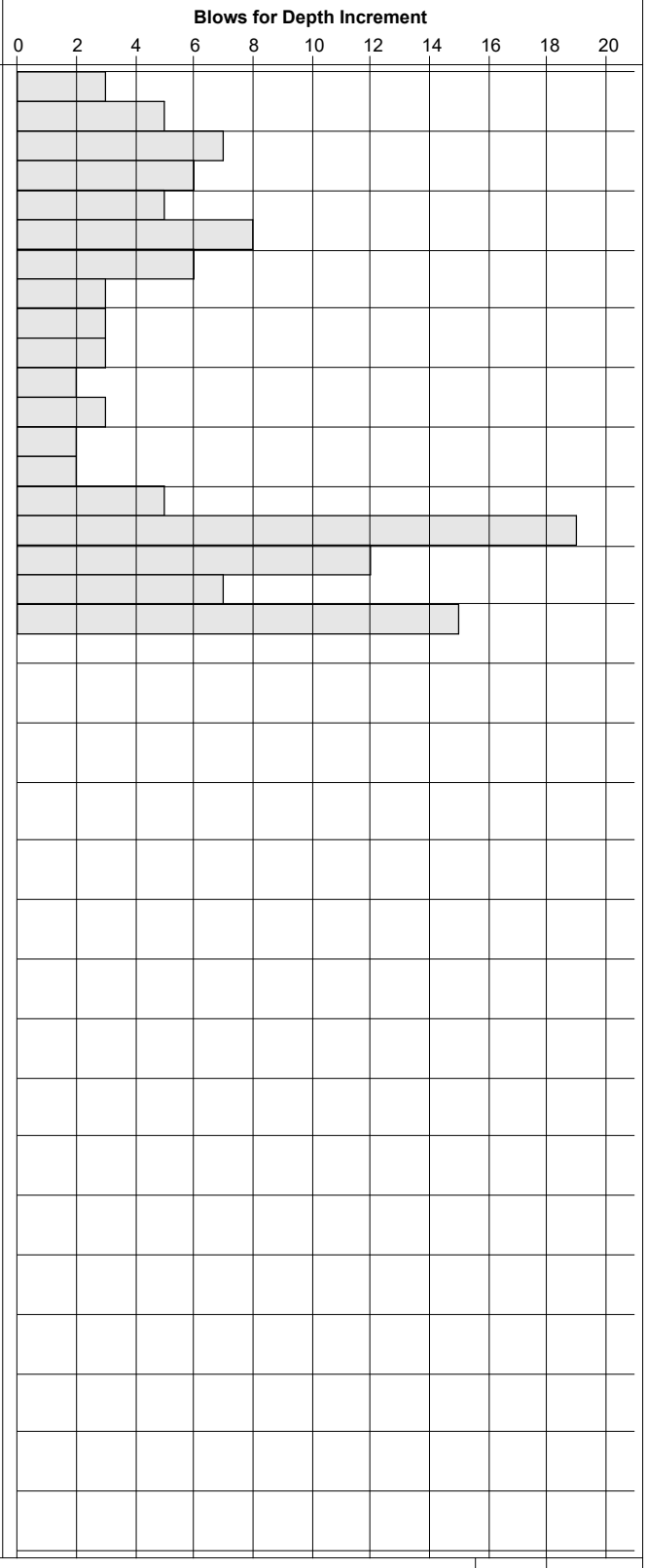
Site	Probe Number
Blackglen Road	DPH39

Method	Cone Dimensions	Ground Level (mOD)	Client	Job Number
Dynamic Probe DPH, Fall Height 500mm, Hammer wt 50Kg.	43.7mm	154.89	OCSC	10477-03-21
	Location	**Dates**	**Engineer**	**Sheet**
	717580.6 E 725138.9 N	09/04/2021		1/1

Depth (m)	Blows for Depth Increment	Field Records	Level (mOD)	Depth (m)
0.00-0.10	3		154.89	0.00
0.10-0.20	5			
0.20-0.30	7			
0.30-0.40	6			
0.40-0.50	5			
0.50-0.60	8		154.39	0.50
0.60-0.70	6			
0.70-0.80	3			
0.80-0.90	3			
0.90-1.00	3			
1.00-1.10	2		153.89	1.00
1.10-1.20	3			
1.20-1.30	2			
1.30-1.40	2			
1.40-1.50	5			
1.50-1.60	19		153.39	1.50
1.60-1.70	12			
1.70-1.80	7			
1.80-1.90	15			
			152.89	2.00
			152.39	2.50
			151.89	3.00
			151.39	3.50
			150.89	4.00
			150.39	4.50
			149.89	5.00



Remarks
Refusal at 1.90m BGL for 25 blows

Scale (approx)	Logged By
1:25	CF

Figure No.
10477-03-21.DPH39

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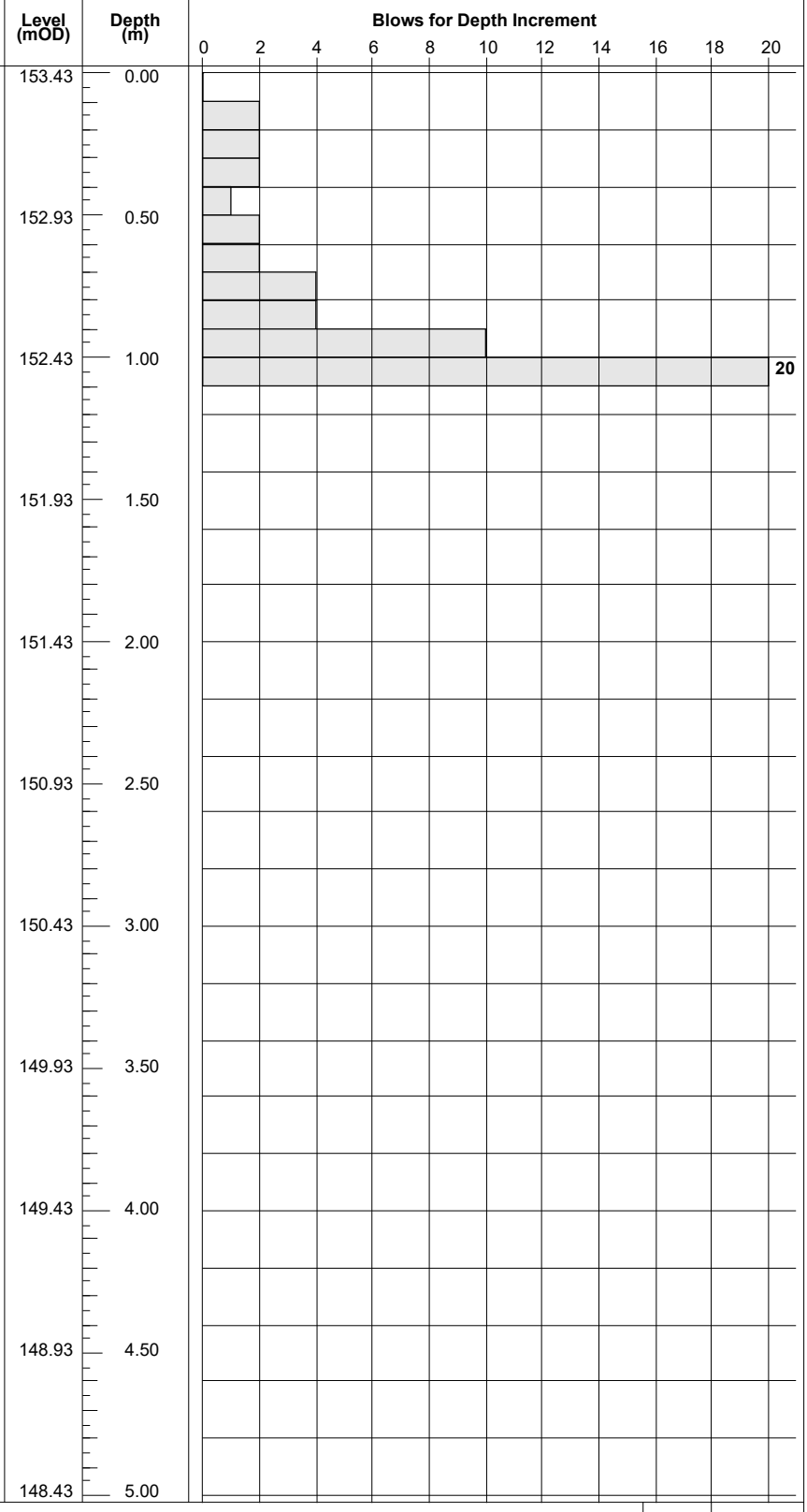
Site	Probe Number
Blackglen Road	DPH40

Method	Cone Dimensions	Ground Level (mOD)	Client	Job Number
Dynamic Probe DPH, Fall Height 500mm, Hammer wt 50Kg.	43.7mm	153.43	OCSC	10477-03-21
	Location	**Dates**	**Engineer**	**Sheet**
	717546.4 E 725123.3 N	09/04/2021		1/1

Depth (m)	Blows for Depth Increment	Field Records
0.00-0.10	0	
0.10-0.20	2	
0.20-0.30	2	
0.30-0.40	2	
0.40-0.50	1	
0.50-0.60	2	
0.60-0.70	2	
0.70-0.80	4	
0.80-0.90	4	
0.90-1.00	10	
1.00-1.10	20	



Remarks
Refusal at 1.10m BGL for 28 blows

Scale (approx)	Logged By
1:25	CF

Figure No.
10477-03-21.DPH40

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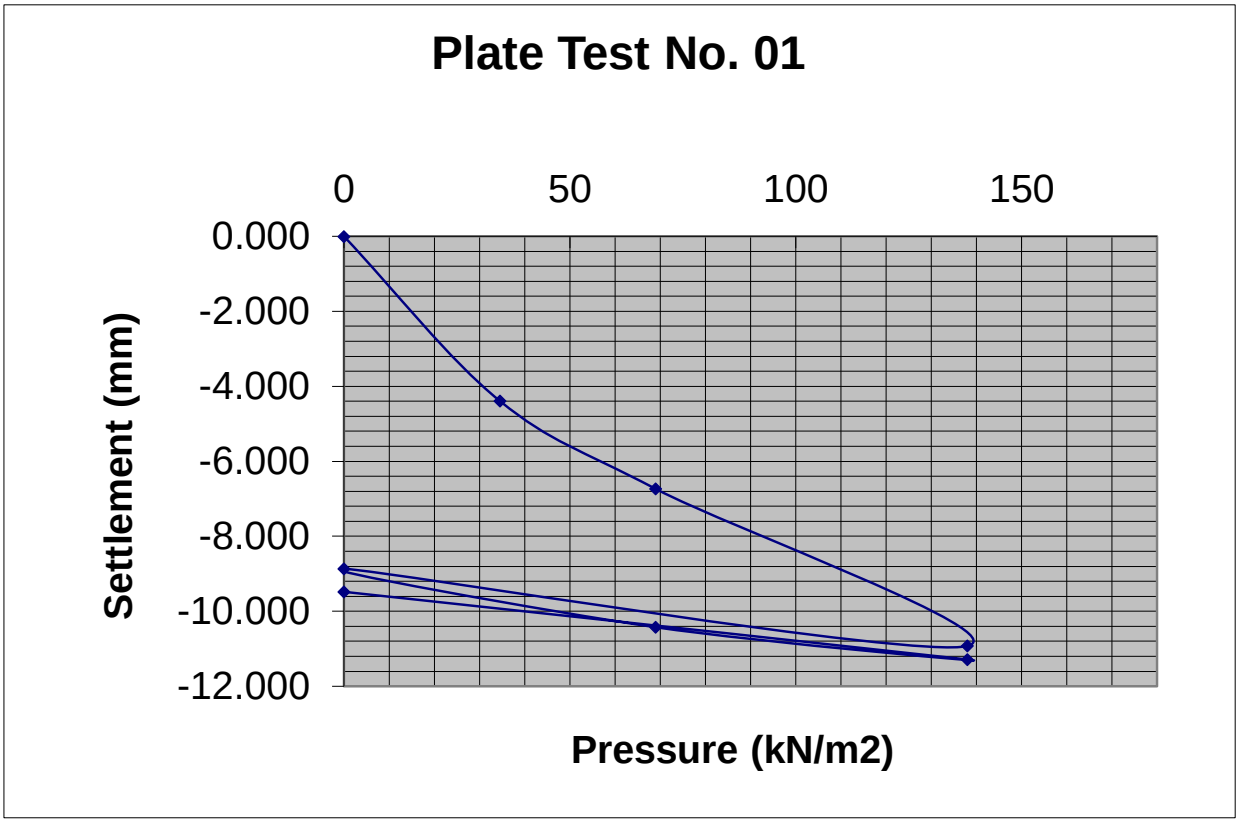
APPENDIX 5 –Plate Testing Records

Applied Load	Gauge settlement
0	**0.000**
34.5	-4.39
69	-6.735
138	-10.925
0	-8.865
69	-10.425
138	-11.285
0	-9.48

GROUND INVESTIGATIONS IRELAND
Geotechnical & Environmental

LOCATION	Blackglen Road	**MATERIAL**	Brown gravelly CLAY with subanguar cobbles, plastic, red brick, tubing fragments
CONTRACT NO.	10477-03-21		
DATE	09/04/2021		
CLIENT	OCSC	**DEPTH**	0.45m
PLATE DIAMETER	457mm	**NOTES**	
TEST NO.	CBR-01	**SAMPLES**	



Modulus of subgrade reaction, K (Initial) = **6.92 MN/m2/m**

Modulus of subgrade reaction, K (Reload) = **29.89 MN/m2/m**

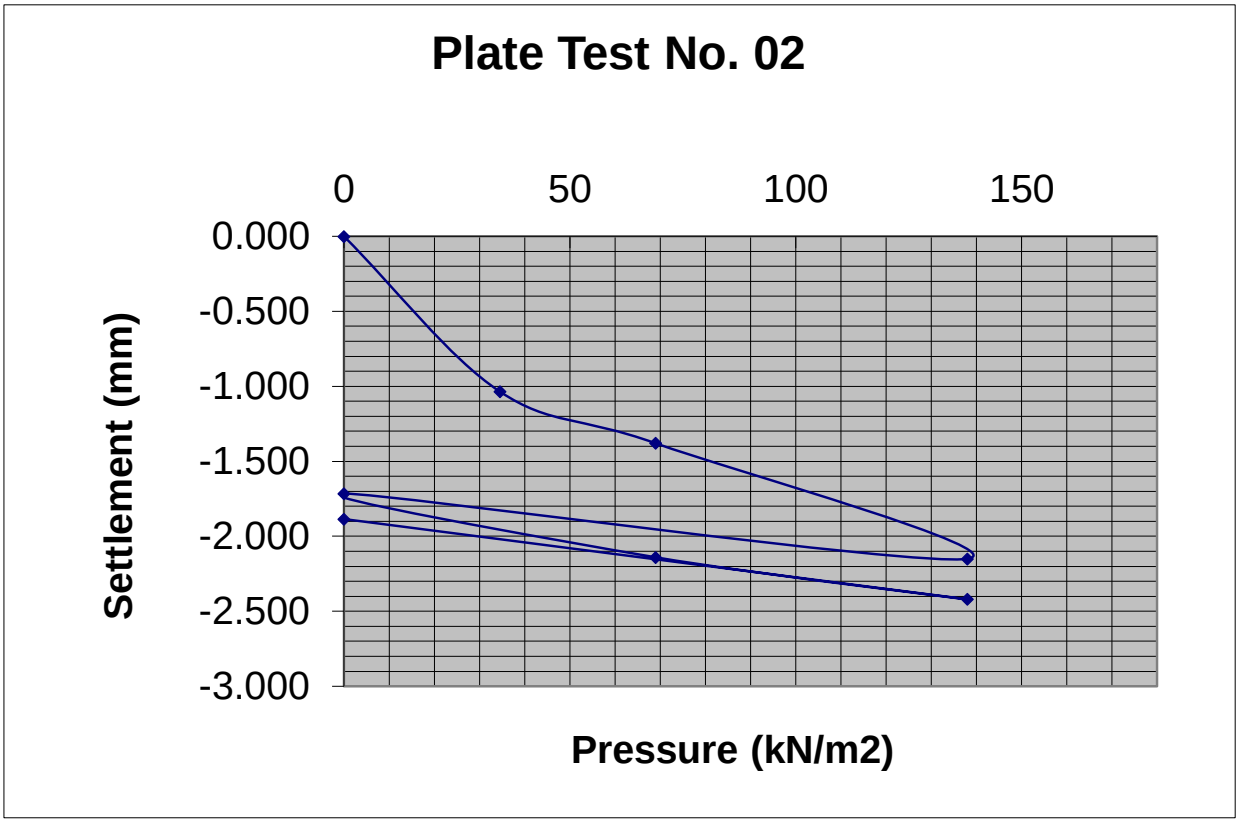
Equivalent CBR(initial)in accordance with HD25/94 volume7 section2 = **0.28 %**

Equivalent CBR(reload)in accordance with HD25/94 volume7 section2 = **3.48 %**

Applied Load	Gauge settlement
0	**0.000**
34.5	-1.035
69	-1.38
138	-2.15
0	-1.715
69	-2.14
138	-2.42
0	-1.885

GROUND INVESTIGATIONS IRELAND
Geotechnical & Environmental

LOCATION	Blackglen Road	**MATERIAL**	MG Light brown gravelly CLAY with plastic fragment and roots
CONTRACT NO.	10477-03-21		
DATE	09/04/2021		
CLIENT	OCSC	**DEPTH**	0.45m
PLATE DIAMETER	457mm	**NOTES**	
TEST NO.	CBR-02	**SAMPLES**	



Modulus of subgrade reaction, K (Initial) = **33.79 MN/m2/m**

Modulus of subgrade reaction, K (Reload) = **109.70 MN/m2/m**

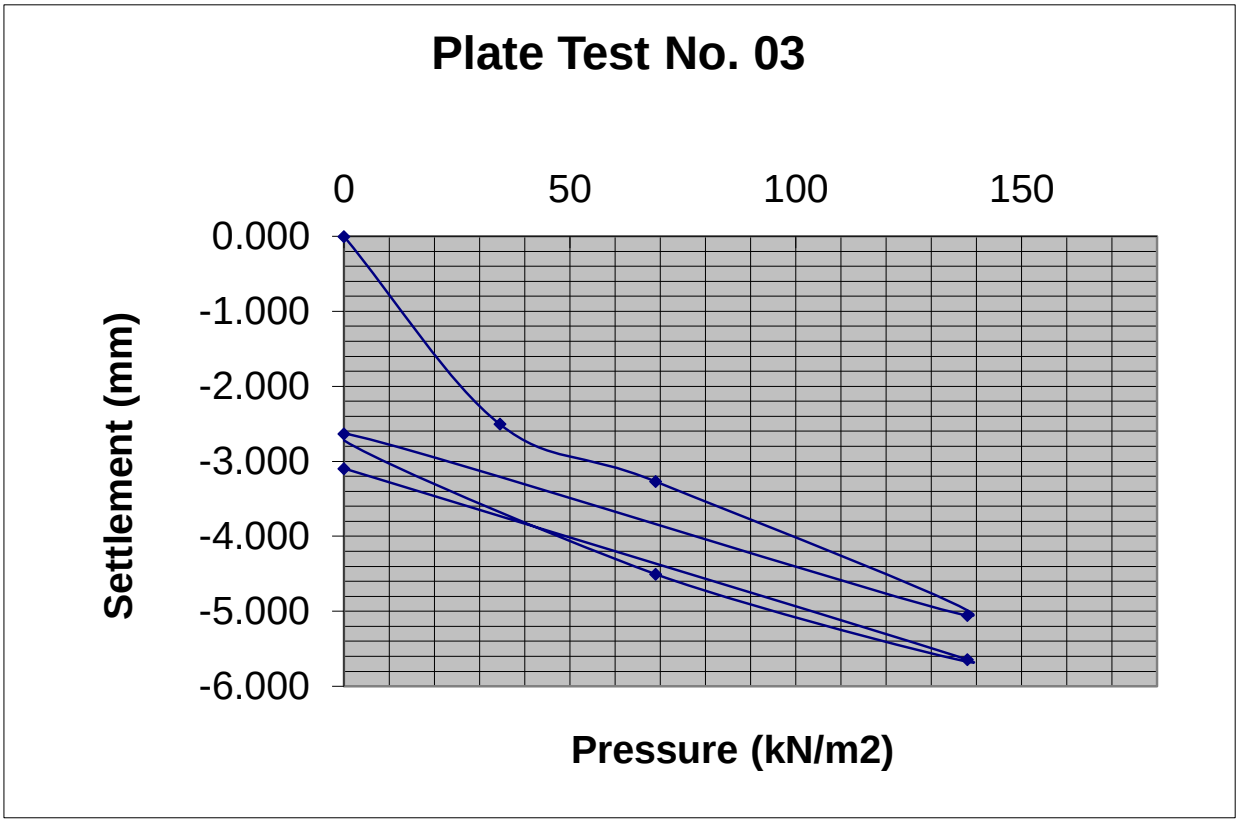
Equivalent CBR(initial)in accordance with HD25/94 volume7 section2 = **4.30 %**

Equivalent CBR(reload)in accordance with HD25/94 volume7 section2 = **33.11 %**

Applied Load	Gauge settlement
0	**0.000**
34.5	-2.505
69	-3.27
138	-5.055
0	-2.63
69	-4.505
138	-5.645
0	-3.095

GROUND INVESTIGATIONS IRELAND
Geotechnical & Environmental

LOCATION	Blackglen Road	**MATERIAL**	Brown gravelly CLAY
CONTRACT NO.	10477-03-21		
DATE	09/04/2021		
CLIENT	OCSC	**DEPTH**	0.45m
PLATE DIAMETER	457mm	**NOTES**	
TEST NO.	CBR-03	**SAMPLES**	



Modulus of subgrade reaction, K (Initial) = **14.26 MN/m2/m**

Modulus of subgrade reaction, K (Reload) = **24.87 MN/m2/m**

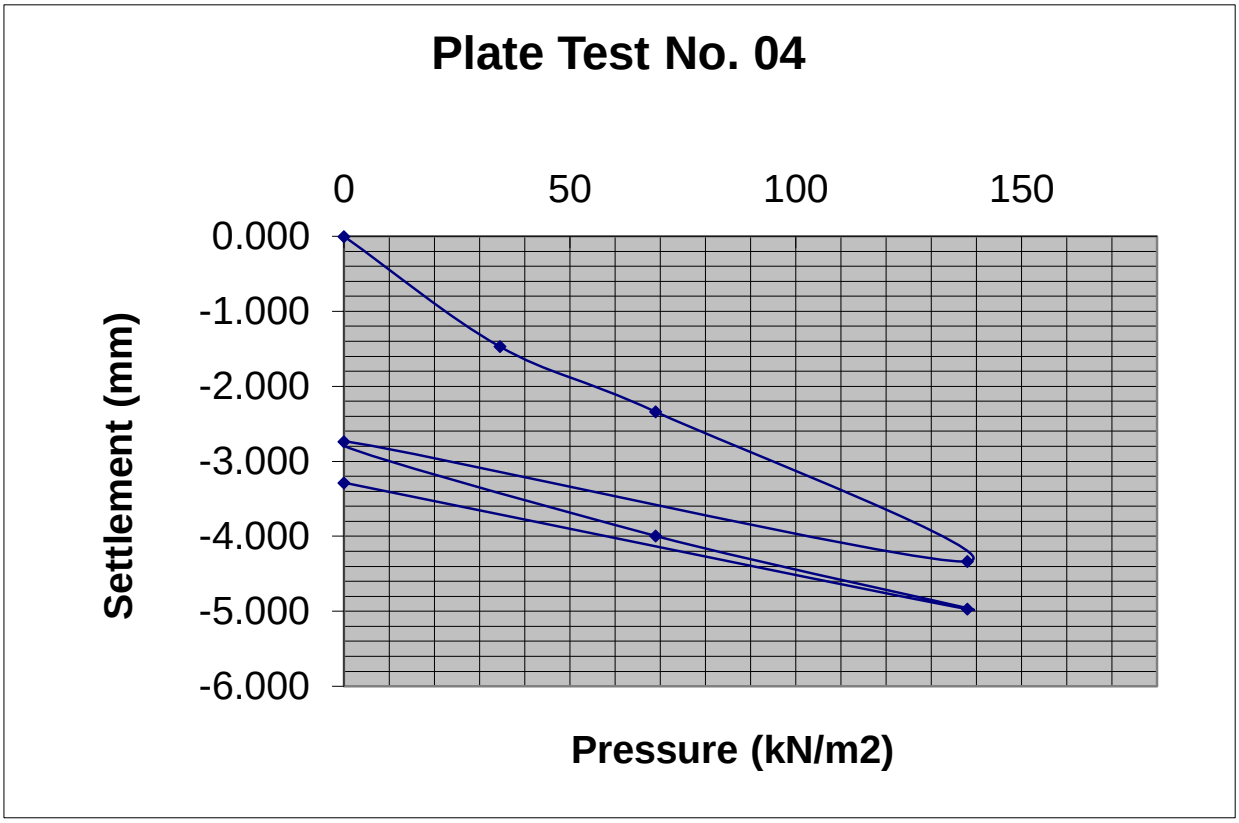
Equivalent CBR(initial)in accordance with HD25/94 volume7 section2 = **0.96 %**

Equivalent CBR(reload)in accordance with HD25/94 volume7 section2 = **2.53 %**

Applied Load	Gauge settlement
0	**0.000**
34.5	-1.47
69	-2.34
138	-4.335
0	-2.735
69	-3.995
138	-4.97
0	-3.285

GROUND INVESTIGATIONS IRELAND
Geotechnical & Environmental

LOCATION	Blackglen Road	**MATERIAL**	Brown gravelly CLAY
CONTRACT NO.	10477-03-21		
DATE	09/04/2021		
CLIENT	OCSC	**DEPTH**	0.45m
PLATE DIAMETER	457mm	**NOTES**	
TEST NO.	CBR-04	**SAMPLES**	



Modulus of subgrade reaction, K (Initial) = **19.92 MN/m2/m**

Modulus of subgrade reaction, K (Reload) = **37.00 MN/m2/m**

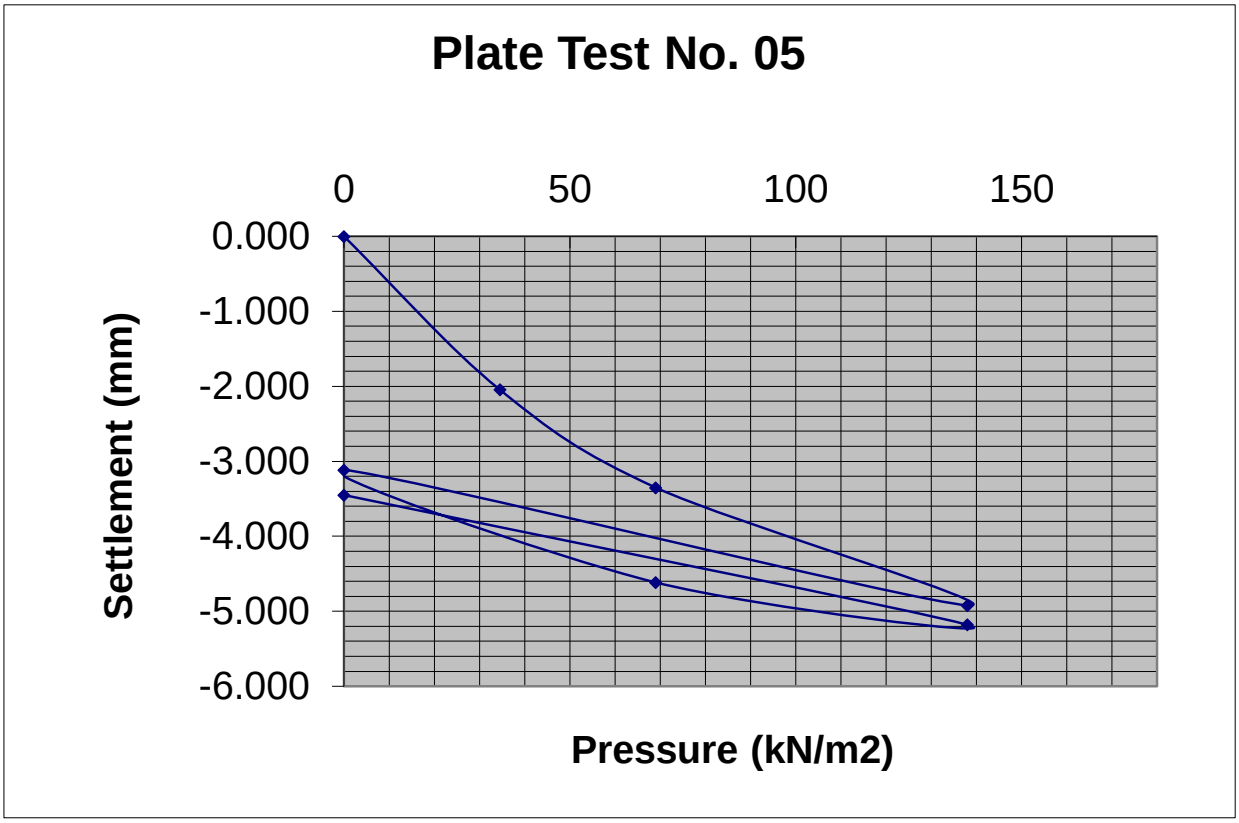
Equivalent CBR(initial)in accordance with HD25/94 volume7 section2 = **1.72 %**

Equivalent CBR(reload)in accordance with HD25/94 volume7 section2 = **5.04 %**

Applied Load	Gauge settlement
0	**0.000**
34.5	-2.045
69	-3.35
138	-4.92
0	-3.115
69	-4.615
138	-5.18
0	-3.45

GROUND INVESTIGATIONS IRELAND
Geotechnical & Environmental

LOCATION	Blackglen Road	**MATERIAL**	Soft brown gravelly CLAY with some angular to sub-angular cobbles
CONTRACT NO.	10477-03-21		
DATE	09/04/2021		
CLIENT	OCSC	**DEPTH**	0.45m
PLATE DIAMETER	457mm	**NOTES**	
TEST NO.	CBR-05	**SAMPLES**	



Modulus of subgrade reaction, K (Initial) = **13.92 MN/m2/m**

Modulus of subgrade reaction, K (Reload) = **31.08 MN/m2/m**

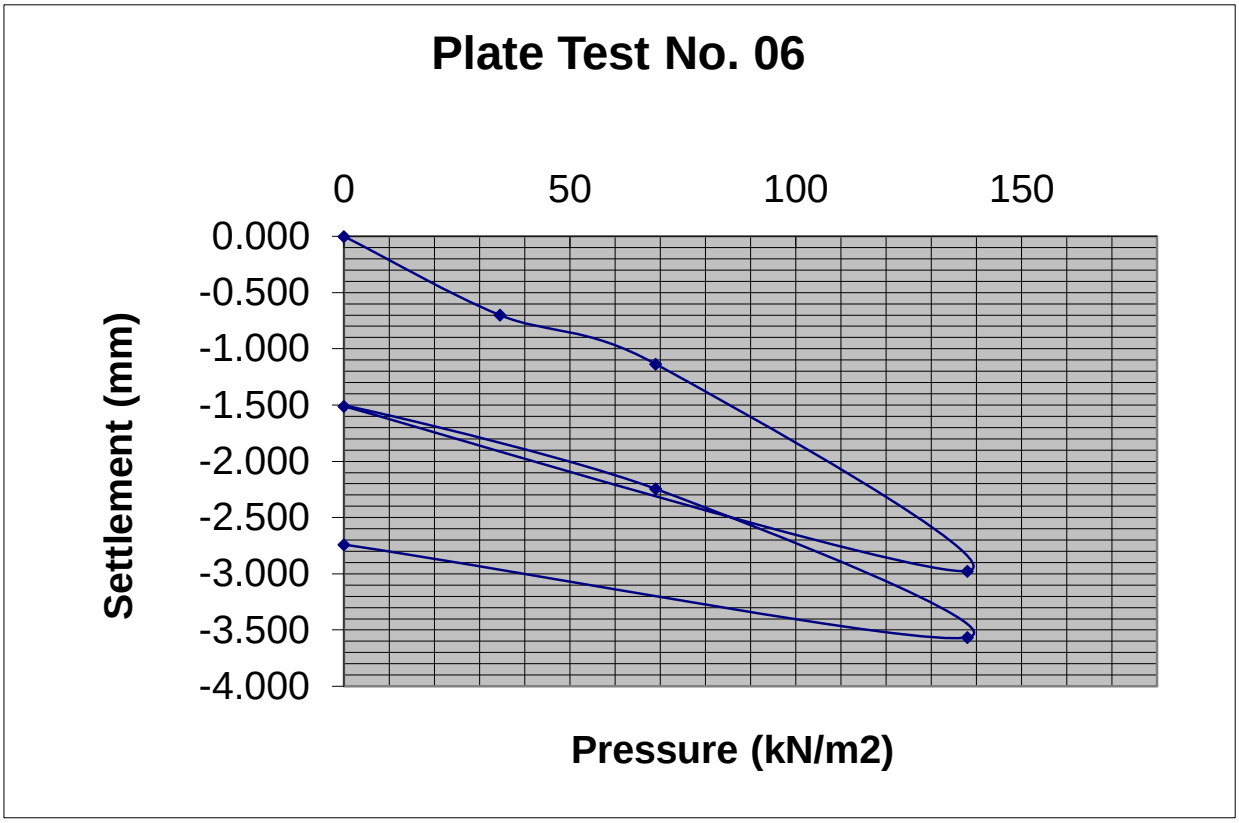
Equivalent CBR(initial)in accordance with HD25/94 volume7 section2 = **0.92 %**

Equivalent CBR(reload)in accordance with HD25/94 volume7 section2 = **3.72 %**

Applied Load	Gauge settlement
0	**0.000**
34.5	-0.7
69	-1.135
138	-2.975
0	-1.51
69	-2.245
138	-3.565
0	-2.74

GROUND INVESTIGATIONS IRELAND
Geotechnical & Environmental

LOCATION	Blackglen Road	**MATERIAL**	Brown gravelly CLAY with some angular to sub-angular cobbles
CONTRACT NO.	10477-03-21		
DATE	09/04/2021		
CLIENT	OCSC	**DEPTH**	0.45m
PLATE DIAMETER	457mm	**NOTES**	
TEST NO.	CBR-06	**SAMPLES**	



Modulus of subgrade reaction, K (Initial) = **41.08 MN/m2/m**

Modulus of subgrade reaction, K (Reload) = **63.43 MN/m2/m**

Equivalent CBR(initial)in accordance with HD25/94 volume7 section2 = **6.04 %**

Equivalent CBR(reload)in accordance with HD25/94 volume7 section2 = **12.82 %**

APPENDIX 6 - Rotary Borehole Records

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www.gii.ie

Site Blackglen Road			**Borehole Number** RC01
Machine : Beretta T41 **Flush :** Water **Core Dia :** 64 mm **Method :** Rotary Cored	**Casing Diameter** 98mm cased to 8.00m **Location** 717650.4 E 725282.6 N	**Ground Level (mOD)** 146.32 **Dates** 18/04/2021	**Client** OCSC **Engineer**	**Job Number** 10477-03-21 **Sheet** 1/1

Depth (m)	TCR (%)	SCR (%)	RQD (%)	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
							(0.40)	OVERBURDEN: Brown slightly sandy gravelly CLAY. Driller notes Clay and pebbles			
	19	-				145.92	0.40	Possible Weathered Rock: Grey slightly sandy subangular to subrounded fine to coarse GRAVEL. Driller notes Clay and Gravels			
1.50 1.50-1.95	37	-			6,5/6,8,6,8 SPT(C) N=28		(2.20)				
2.50 2.60				3		143.72	2.60	Recovery consists of medium strong to strong massive grey crystalline fine to coarse grained GRANITE with distinct weathering 1 fracture set. F1: Dipping 10-30 degrees stepped rough close to medium spacing with some clay smearing			
3.00	97	97	67	7							
4.00	100	89	76	5			(4.40)	2 fracture sets. F1: Dipping 10-30 degrees stepped rough close to medium spaced with some clay smearing. F2: Dipping 65-85 degrees stepped rough medium spaced with some clay smearing			
5.00				5							
5.50	100	80	77								
6.00				5							
7.00	95	95	88	2		139.32	7.00	Recovery consists of strong massive grey crystalline fine to coarse grained GRANITE with partial weathering. Driller notes harder Bedrock 1 fracture set. F1: Dipping 10-30 degrees stepped rough			
							(1.00)				
8.00					Water strike(1) at 8.00m.	138.32	8.00	Complete at 8.00m		▽1	

Remarks
Groundwater encountered at 8.00m BGL
Borehole complete at scheduled depth
Standpipe installed in borehole upon completion. Plain pipe with bentonite seal from GL to 4.00m BGL, slotted pipe with geosock and pe-gravel surround from 4.00m to 8.00m BGL, finished with a raised cover.

Scale (approx)	Logged By
1:50	M.Sheehan

Figure No. 10477-03-21.RC01

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Site Blackglen Road			**Borehole Number** RC02
Machine : Beretta T41 **Flush :** Water **Core Dia :** 64 mm **Method :** Rotary Cored	**Casing Diameter** 100mm cased to 8.50m	**Ground Level (mOD)** 139.88	**Client** OCSC	**Job Number** 10477-03-21
	Location 717698.9 E 725291.3 N	**Dates** 14/04/2021	**Engineer**	**Sheet** 1/1

Depth (m)	TCR (%)	SCR (%)	RQD (%)	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
	53	-					(1.50)	OVERBURDEN: Dense brown slightly clayey gravelly fine to medium SAND. Driller notes Clay into Sand and Gravels			
1.50 1.50-1.68	100	-			6,7/50 SPT(C) 50/30	138.38	1.50 (0.80)	Weathered Rock: Grey/brown slightly clayey slightly sandy subangular to rounded fine to coarse GRAVEL. Driller notes weathered Granite			
2.00 2.30 2.50	100	78	69	3 4		137.58	2.30	Recovery consists of medium strong massive grey crystalline fine to coarse GRANITE with distinct weathering 1 fracture set. F1: Dipping 10-30 degrees close to medium spaced stepped rough with clay smearing			
3.50	100	78	70	4			(2.70)	1 fracture set. F1: Dipping 20-40 degrees close to medium spacing stepped rough with clay smearing			
4.50 5.00				6		134.88	5.00	2 fracture sets. F1: Dipping 60-80 degrees medium to wide spacing stepped rough with clay smearing. F2: Dipping 10-30 degrees medium to wide spacing stepped rough with clay smearing			
5.50	100	61	61	6			(1.10)	Recovery consists of medium strong to strong massive grey crystalline fine to coarse grained GRANITE with distinct weathering			
6.10 6.35	52	27	27	NI 1		133.78 133.53	6.10 (0.25) 6.35	Recovery consists of weak to medium strong massive grey crystalline fine to coarse grained GRANITE with destructured weathering. Driller notes soft weathered Rock Non intact			
7.30	44	0	0	NI		132.58	7.30 (0.95) (0.80)	Recovery consists of medium strong to strong massive grey crystalline fine to coarse grained GRANITE with distinct weathering 1 fracture set. F1: Dipping 20-40 degrees stepped rough spacing with clay smearing Poor recovery. Recovery consists of weak to medium strong massive grey crystalline fine to coarse grained GRANITE with destuctured weathering. Driller notes sand weathered Rock Non intact			
8.10	100	70	50	1		131.78	8.10 (0.40)				
8.50						131.38	8.50	Recovery consists of medium strong to strong massive grey crystalline fine to coarse grained GRANITE with distinct weathering 1 fracture set. F1: Dipping 50-70 degrees stepped rough close spacing with some clay smearing			
								Complete at 8.50m			

Remarks
No groundwater encountered
Borehole complete at scheduled depth
Standpipe installed in borehole upon completion. Plain pipe with bentonite seal from GL to 3.00m BGL, slotted pipe with geosock and pe-gravel surround from 3.00m to 8.50m BGL, finished with a raised cover.

Scale (approx)	Logged By
1:50	M.Sheehan

Figure No. 10477-03-21.RC02

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Site Blackglen Road			**Borehole Number** RC03
Machine : Beretta T41 **Flush :** Water **Core Dia:** 64 mm **Method :** Rotary Cored	**Casing Diameter** 100mm cased to 7.90m	**Ground Level (mOD)** 153.86	**Client** OCSC	**Job Number** 10477-03-21
	Location 717557.5 E 725220.3 N	**Dates** 18/04/2021	**Engineer**	**Sheet** 1/1

Depth (m)	TCR (%)	SCR (%)	RQD (%)	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
	50	-					(1.10)	OVERBURDEN: Dark grey brown slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to medium. Driller notes Clay			
1.10				3		152.76	1.10				
1.40				NI				Recovery consists of strong massive grey crystalline fine to coarse grained GRANITE with partial weathering. Driller notes extremely hard Bedrock			
1.50					25,25/50			1 fracture set. F1: Dipping 10-30 degrees close spacing stepped rough with some clay smearing			
1.50-1.50					SPT(C) 50*/0			Non intact			
	100	80	73	1	50/0			2 fracture sets. F1: Dipping 10-30 degrees close to medium spaced stepped rough with clay smearing. F2: Dipping 50-70 degrees medium spaced stepped rough with clay smearing			
2.00											
				7			(2.60)				
2.50											
	100	60	47								
3.00				7							
						150.16	3.70	Recovery consists of medium strong to strong massive grey crystalline fine to coarse grained GRANITE with distinct weathering			
4.00											
	100	60	53	8			(1.90)				
5.00											
				6							
5.50						148.26	5.60	Recovery consists of strong massive grey crystalline fine to coarse grained GRANITE with partial weathering. Driller notes extremely hard Bedrock			
6.00											
	100	90	90	4			(2.30)	2 fracture sets. F1: Dipping 10-30 degrees close to medium spaced stepped rough with clay smearing. F2: Dipping 70-90 degrees medium to wide spacing stepped rough with some clay smearing			
7.00											
	100	42	33	6							
7.90						145.96	7.90	Complete at 7.90m			

Remarks
No groundwater encountered
Borehole complete at scheduled depth
Standpipe installed in borehole upon completion. Plain pipe with bentonite seal from GL to 2.00m BGL, slotted pipe with geosock and pe-gravel surround from 2.00m to 7.90m BGL, finished with a raised cover.

Scale (approx)	Logged By
1:50	M.Sheehan

Figure No. 10477-03-21.RC03

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Site Blackglen Road			**Borehole Number** RC04
Machine : Beretta T41 **Flush :** Water **Core Dia:** 64 mm **Method :** Rotary Cored	**Casing Diameter** 100mm cased to 8.30m	**Ground Level (mOD)** 143.71	**Client** OCSC	**Job Number** 10477-03-21
	Location 717658.4 E 725158.4 N	**Dates** 18/04/2021	**Engineer**	**Sheet** 1/1

Depth (m)	TCR (%)	SCR (%)	RQD (%)	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
	24	-					(1.50)	Poor recovery. Driller notes Clay and Boulders			
1.50 1.50-1.95	18	-			8,6/8,10,10,12 SPT(C) N=40	142.21	1.50 (1.00)	Poor recovery: Recovery consists of brown slightly sandy gravelly CLAY. Gravel is subangular to rounded fine to coarse. Driller notes soft Clay and pebbles			
2.50	26	-				141.21	2.50 (1.70)	Poor recovery: Recovery consists of grey subangular to subrounded fine to coarse GRAVEL. Driller notes soft Clays			
4.00 4.00-4.15 4.20	67	67	67	9	25,25/50 SPT(C) 50/0	139.51	4.20 (2.15)	Recovery consisting of medium strong to strong massive grey crystalline fine to coarse grained GRANITE with distinct weathering 2 fracture sets. F1: Dipping 20-40 degrees stepped rough close spacing with some clay smearing. F2: Dipping 70-90 degrees stepped rough medium spacing with some clay smearing			
5.50 5.65	90	42	42	NI 5		137.36	6.35	Non intact Recovery consists of strong massive grey crystalline fine to coarse grained GRANITE with partial weathering			
6.50 7.00	100	92	92	1			(1.95)	1 fracture set. F1: Dipping 30-50 degrees stepped rough medium to wide spacing with some clay smearing			
7.50 8.30				1		135.41	8.30	Complete at 8.30m			

Remarks
No groundwater encountered
Borehole complete at scheduled depth
Standpipe installed in borehole upon completion. Plain pipe with bentonite seal from GL to 4.30m BGL, slotted pipe with geosock and pe-gravel surround from 4.30m to 8.30m BGL, finished with a raised cover.

Scale (approx)	Logged By
1:50	M.Sheehan

Figure No. 10477-03-21.RC04

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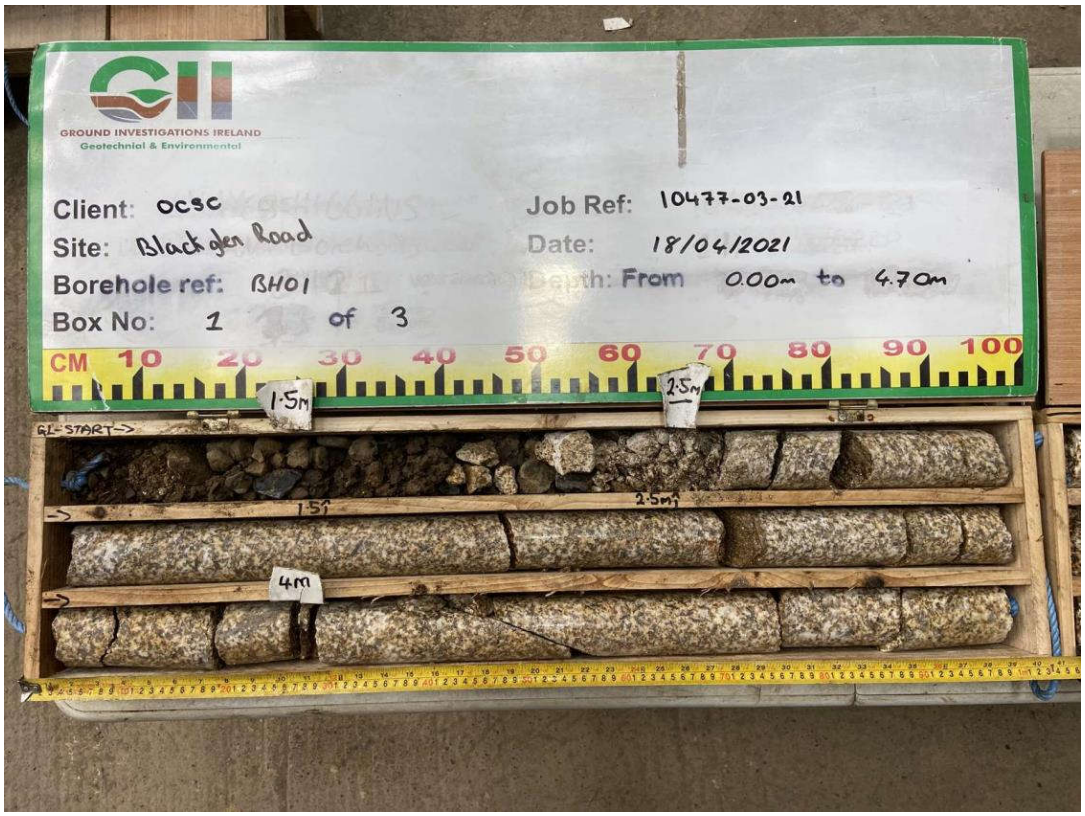
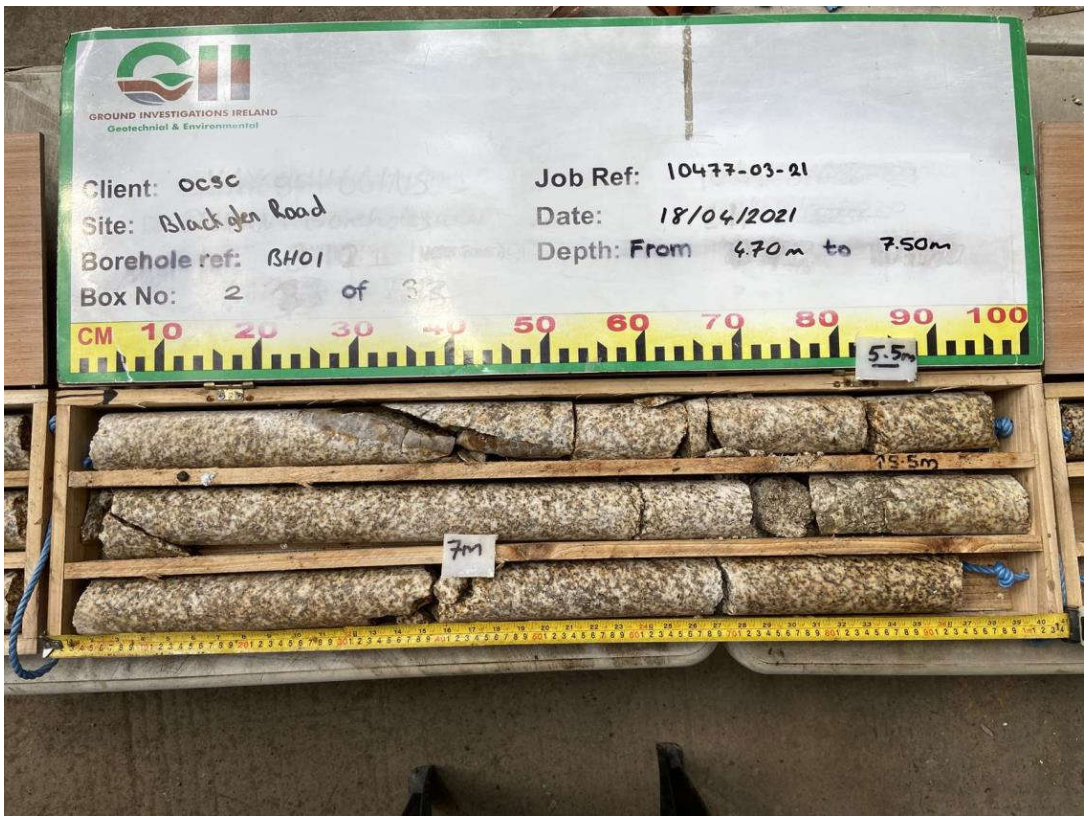
Blackglen Road Rotary Core Photographs



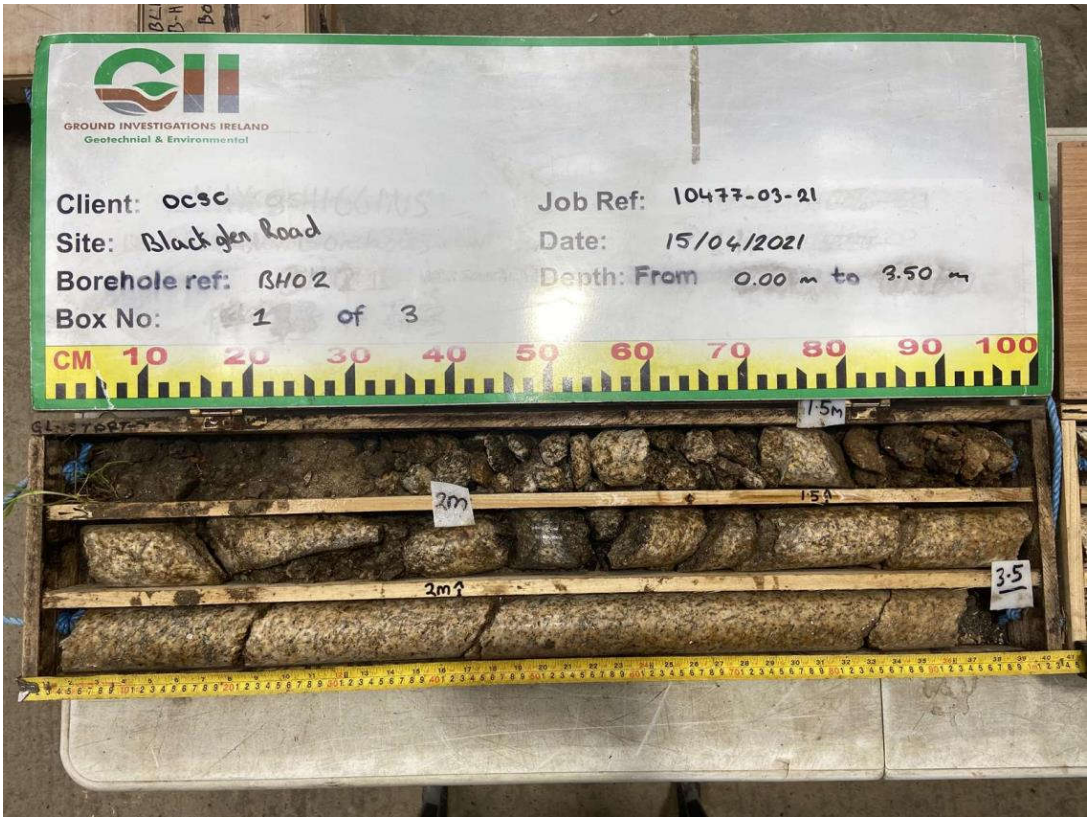
BH01



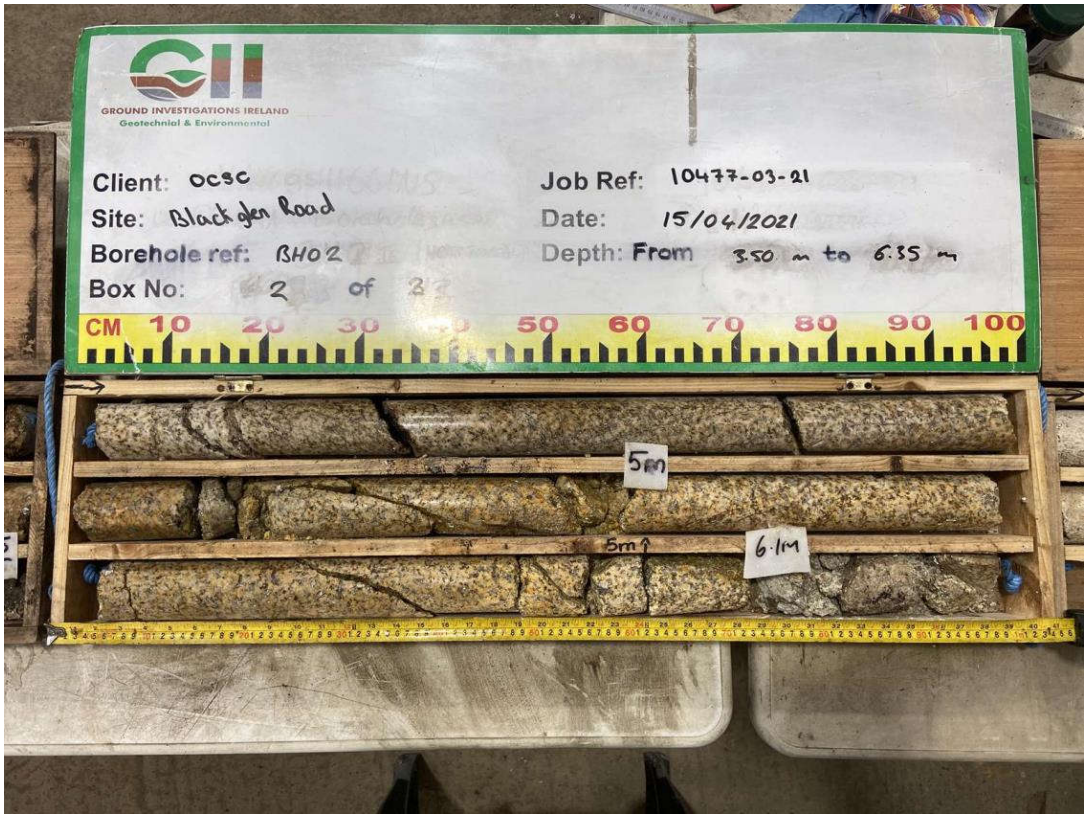
BH01


GROUND INVESTIGATIONS IRELAND
Geotechnial & Environmental
Client: ccbc
Site: Blackglen Road
Borehole ref: BH01
Box No: 3 of 3
Job Ref: 10477-03-21
Date: 18/04/2021
Depth: From 7.50m to 8.00m
CM 10 20 30 40 50 60 70 80 90 100
8m
8m + (E.O.H)

BH01


GROUND INVESTIGATIONS IRELAND
Geotechnical & Environmental
Client: OCSC
Site: Blackglen Road
Borehole ref: BH02
Box No: 1 of 3
Job Ref: 10477-03-21
Date: 15/04/2021
Depth: From 0.00 m to 3.50 m
CM 10 20 30 40 50 60 70 80 90 100
1.5m
2m
1.5
2m
3.5

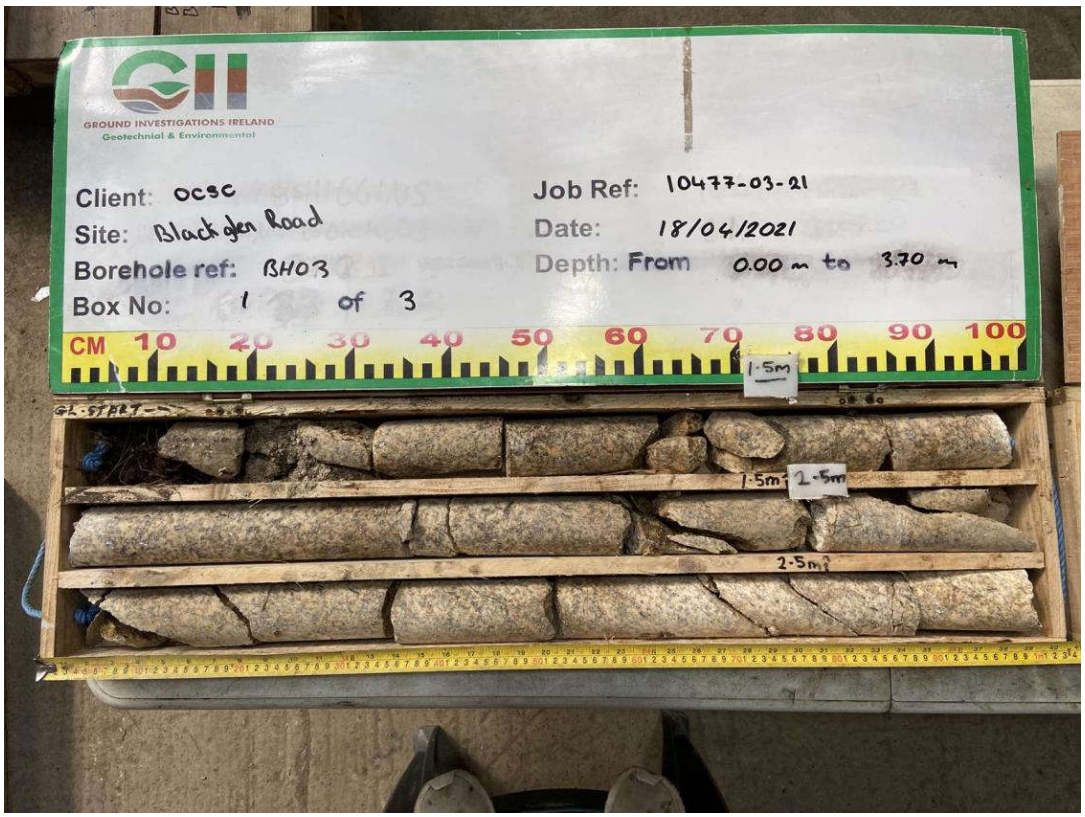
BH02


GROUND INVESTIGATIONS IRELAND
Geotechnical & Environmental
Client: OCSC
Site: Blackglen Road
Borehole ref: BH02
Box No: 2 of 3
Job Ref: 10477-03-21
Date: 15/04/2021
Depth: From 3.50 m to 6.35 m
CM 10 20 30 50 60 70 80 90 100
5m
5m
6.1m

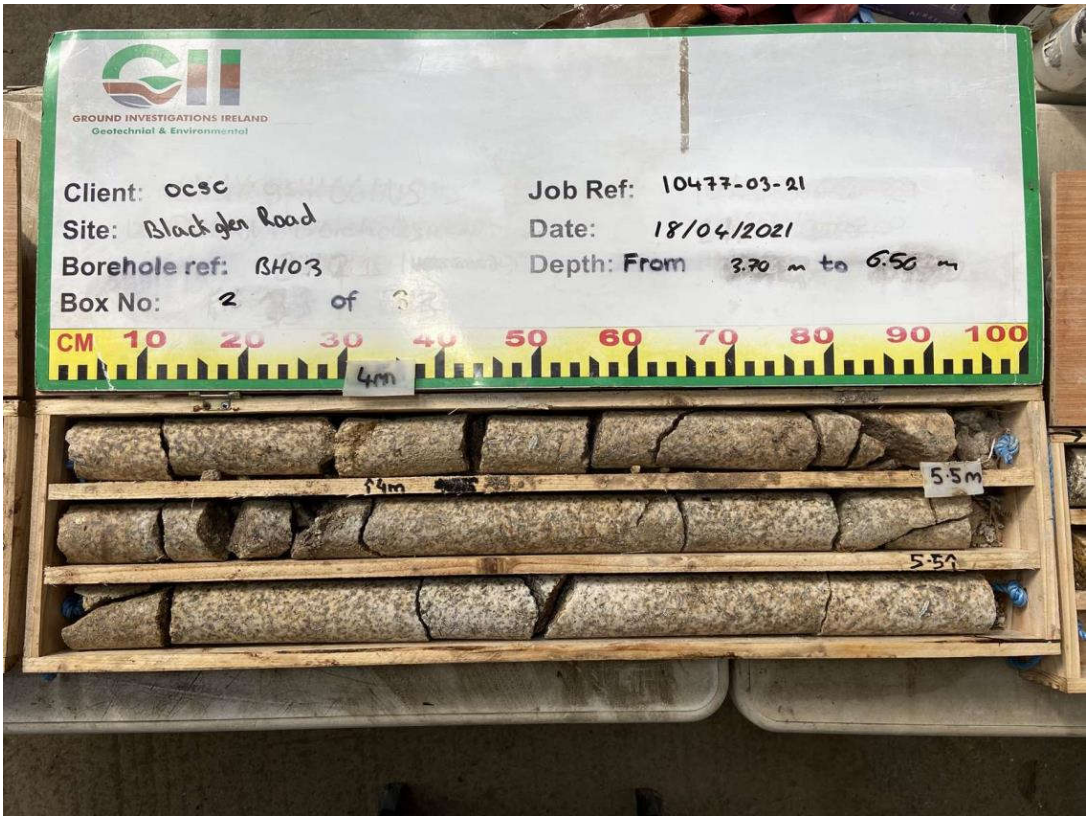
BH02


GROUND INVESTIGATIONS IRELAND
Geotechnical & Environmental
Client:
Site:
Borehole ref: BH02
Box No: 3 of 3
Job Ref: 10477-03-21
Date: 15/04/2021
Depth: From 6.35 m to 8.50 m
CM 10 20 30 40 50 60 70 80 90 100
7.3
8.5
7.3mA

BH02


GROUND INVESTIGATIONS IRELAND
Geotechnical & Environmental
Client: OCSC
Site: Blackglen Road
Borehole ref: BH03
Box No: 1 of 3
Job Ref: 10477-03-21
Date: 18/04/2021
Depth: From 0.00 m to 3.70 m
CM 10 20 30 40 50 60 70 80 90 100
1.5m
1.5m
2.5m

BH03


GROUND INVESTIGATIONS IRELAND
Geotechnical & Environmental
Client: OCSC
Site: Blackglen Road
Borehole ref: BH03
Box No: 2 of
Job Ref: 10477-03-21
Date: 18/04/2021
Depth: From 3.70 m to 6.50 m
CM 10 20 30 40 50 60 70 80 90 100
4m
4m
5.5m
5.5m

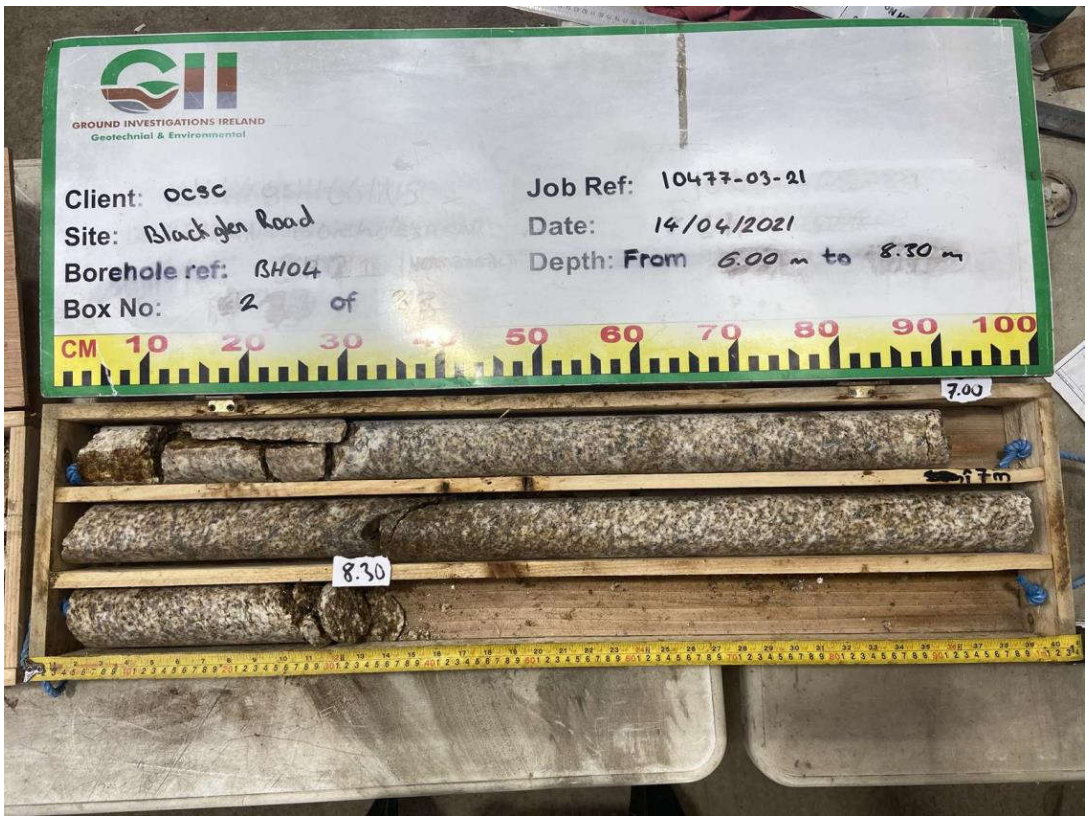
BH03


GROUND INVESTIGATIONS IRELAND
Geotechnical & Environmental
Client: OCSC
Site: Blackglen Road
Borehole ref: BH03
Box No: 3 of 3
Job Ref: 10477-03-21
Date: 18/04/2021
Depth: From 6.50 m to 7.90 m
CM 10 20 30 40 50 60 70 80 90 100
7m
7m+

BH03


GROUND INVESTIGATIONS IRELAND
Geotechnical & Environmental
Client: OCSC
Site: Blackglen Road
Borehole ref: BH04
Box No: 1 of 2
Job Ref: 10477-03-21
Date: 14/04/2021
Depth: From 0.00 m to 6.00 m
CM 10 20 30 40 50 60 70 80 90 100
1.50
2.5m
4.00
1.5m
2.5m
4m
5.50
5.5m

BH04


GROUND INVESTIGATIONS IRELAND
Geotechnical & Environmental
Client: OCSC
Site: Blackglen Road
Borehole ref: BH04
Box No: 2 of
Job Ref: 10477-03-21
Date: 14/04/2021
Depth: From 6.00 m to 8.30 m
CM 10 20 30 50 60 70 80 90 100
7.00
7m
8.30

BH04

APPENDIX 7 – Laboratory Testing

Element Materials Technology
Unit 3 Deeside Point
Zone 3
Deeside Industrial Park
Deeside
CH5 2UA

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F: +44 (0) 1244 833781
W: www.element.com

Ground Investigations Ireland
Catherinestown House
Hazelhatch Road
Newcastle
Co. Dublin
Ireland

Attention :	Conor Finnerty
Date :	30th April, 2021
Your reference :	10477-03-21
Our reference :	Test Report 21/5988 Batch 1
Location :	Blackglen Road
Date samples received :	22nd April, 2021
Status :	Final report
Issue :	1

Two samples were received for analysis on 22nd April, 2021 of which two were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Authorised By:

Bruce Leslie
Project Manager

Please include all sections of this report if it is reproduced

Client Name: Ground Investigations Ireland
Reference: 10477-03-21
Location: Blackglen Road
Contact: Conor Finnerty
EMT Job No: 21/5988

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

Please see attached notes for all abbreviations and acronyms

EMT Sample No.	1-3	4									LOD/LOR	Units	Method No.
Sample ID	TP01	TP06											
Depth	1.00	0.50											
COC No / misc													
Containers	V J T	T											
Sample Date	01/04/2021	01/04/2021											
Sample Type	Soil	Soil											
Batch Number	1	1											
Date of Receipt	22/04/2021	22/04/2021											
Antimony	2	-									<1	mg/kg	TM30/PM15
Arsenic #	19.7	-									<0.5	mg/kg	TM30/PM15
Barium #	97	-									<1	mg/kg	TM30/PM15
Cadmium #	2.5	-									<0.1	mg/kg	TM30/PM15
Chromium #	73.9	-									<0.5	mg/kg	TM30/PM15
Copper #	37	-									<1	mg/kg	TM30/PM15
Lead #	71	-									<5	mg/kg	TM30/PM15
Mercury #	0.3	-									<0.1	mg/kg	TM30/PM15
Molybdenum #	5.5	-									<0.1	mg/kg	TM30/PM15
Nickel #	28.6	-									<0.7	mg/kg	TM30/PM15
Selenium #	2	-									<1	mg/kg	TM30/PM15
Zinc #	134	-									<5	mg/kg	TM30/PM15
PAH MS													
Naphthalene #	<0.04	-									<0.04	mg/kg	TM4/PM8
Acenaphthylene	<0.03	-									<0.03	mg/kg	TM4/PM8
Acenaphthene #	<0.05	-									<0.05	mg/kg	TM4/PM8
Fluorene #	<0.04	-									<0.04	mg/kg	TM4/PM8
Phenanthrene #	0.17	-									<0.03	mg/kg	TM4/PM8
Anthracene #	0.07	-									<0.04	mg/kg	TM4/PM8
Fluoranthene #	0.44	-									<0.03	mg/kg	TM4/PM8
Pyrene #	0.39	-									<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	0.37	-									<0.06	mg/kg	TM4/PM8
Chrysene #	0.28	-									<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	0.73	-									<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	0.42	-									<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #	0.35	-									<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	0.07	-									<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	0.30	-									<0.04	mg/kg	TM4/PM8
Coronene	0.08	-									<0.04	mg/kg	TM4/PM8
PAH 6 Total #	2.24	-									<0.22	mg/kg	TM4/PM8
PAH 17 Total	3.67	-									<0.64	mg/kg	TM4/PM8
Benzo(b)fluoranthene	0.53	-									<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	0.20	-									<0.02	mg/kg	TM4/PM8
Benzo(j)fluoranthene	<1	-									<1	mg/kg	TM4/PM8
PAH Surrogate % Recovery	86	-									<0	%	TM4/PM8
Mineral Oil (C10-C40) (EH_CU_1D_AL)	<30	-									<30	mg/kg	TM5/PM8/PM16

Client Name: Ground Investigations Ireland
Reference: 10477-03-21
Location: Blackglen Road
Contact: Conor Finnerty
EMT Job No: 21/5988

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	1-3	4									LOD/LOR	Units	Method No.
Sample ID	TP01	TP06											
Depth	1.00	0.50											
COC No / misc													
Containers	V J T	T											
Sample Date	01/04/2021	01/04/2021											
Sample Type	Soil	Soil											
Batch Number	1	1											
Date of Receipt	22/04/2021	22/04/2021											
TPH CWG													
Aliphatics													
>C5-C6 (HS_1D_AL) #	<0.1	-									<0.1	mg/kg	TM36/PM12
>C6-C8 (HS_1D_AL) #	<0.1	-									<0.1	mg/kg	TM36/PM12
>C8-C10 (HS_1D_AL)	<0.1	-									<0.1	mg/kg	TM36/PM12
>C10-C12 (EH_CU_1D_AL) #	<0.2	-									<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 (EH_CU_1D_AL) #	<4	-									<4	mg/kg	TM5/PM8/PM16
>C16-C21 (EH_CU_1D_AL) #	<7	-									<7	mg/kg	TM5/PM8/PM16
>C21-C35 (EH_CU_1D_AL) #	19	-									<7	mg/kg	TM5/PM8/PM16
>C35-C40 (EH_1D_AL)	<7	-									<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-40 (EH+HS_1D_AL)	<26	-									<26	mg/kg	TM5/TM36/PM8/PM12/PM16
>C6-C10 (HS_1D_AL)	<0.1	-									<0.1	mg/kg	TM36/PM12
>C10-C25 (EH_1D_AL)	<10	-									<10	mg/kg	TM5/PM8/PM16
>C25-C35 (EH_1D_AL)	16	-									<10	mg/kg	TM5/PM8/PM16
Aromatics													
>C5-EC7 (HS_1D_AR) #	<0.1	-									<0.1	mg/kg	TM36/PM12
>EC7-EC8 (HS_1D_AR) #	<0.1	-									<0.1	mg/kg	TM36/PM12
>EC8-EC10 (HS_1D_AR) #	<0.1	-									<0.1	mg/kg	TM36/PM12
>EC10-EC12 (EH_CU_1D_AR) #	<0.2	-									<0.2	mg/kg	TM5/PM8/PM16
>EC12-EC16 (EH_CU_1D_AR) #	<4	-									<4	mg/kg	TM5/PM8/PM16
>EC16-EC21 (EH_CU_1D_AR) #	13	-									<7	mg/kg	TM5/PM8/PM16
>EC21-EC35 (EH_CU_1D_AR) #	100	-									<7	mg/kg	TM5/PM8/PM16
>EC35-EC40 (EH_1D_AR)	60	-									<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-40 (EH+HS_1D_AR)	173	-									<26	mg/kg	TM5/TM36/PM8/PM12/PM16
Total aliphatics and aromatics(C5-40) (EH+HS_CU_1D_Total)	173	-									<52	mg/kg	TM5/TM36/PM8/PM12/PM16
>EC6-EC10 (HS_1D_AR) #	<0.1	-									<0.1	mg/kg	TM36/PM12
>EC10-EC25 (EH_1D_AR)	20	-									<10	mg/kg	TM5/PM8/PM16
>EC25-EC35 (EH_1D_AR)	88	-									<10	mg/kg	TM5/PM8/PM16
MTBE #	<5	-									<5	ug/kg	TM36/PM12
Benzene #	<5	-									<5	ug/kg	TM36/PM12
Toluene #	<5	-									<5	ug/kg	TM36/PM12
Ethylbenzene #	<5	-									<5	ug/kg	TM36/PM12
m/p-Xylene #	<5	-									<5	ug/kg	TM36/PM12
o-Xylene #	<5	-									<5	ug/kg	TM36/PM12
PCB 28 #	<5	-									<5	ug/kg	TM17/PM8
PCB 52 #	<5	-									<5	ug/kg	TM17/PM8
PCB 101 #	<5	-									<5	ug/kg	TM17/PM8
PCB 118 #	<5	-									<5	ug/kg	TM17/PM8
PCB 138 #	<5	-									<5	ug/kg	TM17/PM8
PCB 153 #	<5	-									<5	ug/kg	TM17/PM8
PCB 180 #	<5	-									<5	ug/kg	TM17/PM8
Total 7 PCBs #	<35	-									<35	ug/kg	TM17/PM8

Please see attached notes for all abbreviations and acronyms

Please include all sections of this report if it is reproduced
All solid results are expressed on a dry weight basis unless stated otherwise.

Element Materials Technology

Client Name: Ground Investigations Ireland
Reference: 10477-03-21
Location: Blackglen Road
Contact: Conor Finnerty
EMT Job No: 21/5988

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	1-3	4									LOD/LOR	Units	Method No.
Sample ID	TP01	TP06											
Depth	1.00	0.50											
COC No / misc													
Containers	V J T	T											
Sample Date	01/04/2021	01/04/2021											
Sample Type	Soil	Soil											
Batch Number	1	1											
Date of Receipt	22/04/2021	22/04/2021											
Natural Moisture Content	15.9	-									<0.1	%	PM4/PM0
Moisture Content (% Wet Weight)	13.7	-									<0.1	%	PM4/PM0
Hexavalent Chromium #	<0.3	-									<0.3	mg/kg	TM38/PM20
Sulphate as SO4 (2:1 Ext) #	0.0158	0.0102									<0.0015	g/l	TM38/PM20
Chromium III	73.9	-									<0.5	mg/kg	NONE/NONE
Total Organic Carbon #	1.19	-									<0.02	%	TM21/PM24
pH #	8.24	6.75									<0.01	pH units	TM73/PM11
Mass of raw test portion	0.1096	-										kg	NONE/PM17
Mass of dried test portion	0.09	-										kg	NONE/PM17

Please see attached notes for all abbreviations and acronyms

Element Materials Technology

Client Name: Ground Investigations Ireland
Reference: 10477-03-21
Location: Blackglen Road
Contact: Conor Finnerty
EMT Job No: 21/5988

Report : CEN 10:1 1 Batch

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	1-3										LOD/LOR	Units	Method No.
Sample ID	TP01												
Depth	1.00												
COC No / misc													
Containers	V J T												
Sample Date	01/04/2021												
Sample Type	Soil												
Batch Number	1												
Date of Receipt	22/04/2021												
Dissolved Antimony #	<0.002										<0.002	mg/l	TM30/PM17
Dissolved Antimony (A10) #	<0.02										<0.02	mg/kg	TM30/PM17
Dissolved Arsenic #	0.0043										<0.0025	mg/l	TM30/PM17
Dissolved Arsenic (A10) #	0.043										<0.025	mg/kg	TM30/PM17
Dissolved Barium #	0.005										<0.003	mg/l	TM30/PM17
Dissolved Barium (A10) #	0.05										<0.03	mg/kg	TM30/PM17
Dissolved Cadmium #	<0.0005										<0.0005	mg/l	TM30/PM17
Dissolved Cadmium (A10) #	<0.005										<0.005	mg/kg	TM30/PM17
Dissolved Chromium #	<0.0015										<0.0015	mg/l	TM30/PM17
Dissolved Chromium (A10) #	<0.015										<0.015	mg/kg	TM30/PM17
Dissolved Copper #	<0.007										<0.007	mg/l	TM30/PM17
Dissolved Copper (A10) #	<0.07										<0.07	mg/kg	TM30/PM17
Dissolved Lead #	<0.005										<0.005	mg/l	TM30/PM17
Dissolved Lead (A10) #	<0.05										<0.05	mg/kg	TM30/PM17
Dissolved Molybdenum #	0.007										<0.002	mg/l	TM30/PM17
Dissolved Molybdenum (A10) #	0.07										<0.02	mg/kg	TM30/PM17
Dissolved Nickel #	<0.002										<0.002	mg/l	TM30/PM17
Dissolved Nickel (A10) #	<0.02										<0.02	mg/kg	TM30/PM17
Dissolved Selenium #	<0.003										<0.003	mg/l	TM30/PM17
Dissolved Selenium (A10) #	<0.03										<0.03	mg/kg	TM30/PM17
Dissolved Zinc #	<0.003										<0.003	mg/l	TM30/PM17
Dissolved Zinc (A10) #	<0.03										<0.03	mg/kg	TM30/PM17
Mercury Dissolved by CVAF #	<0.00001										<0.00001	mg/l	TM61/PM0
Mercury Dissolved by CVAF #	<0.0001										<0.0001	mg/kg	TM61/PM0
Phenol	<0.01										<0.01	mg/l	TM26/PM0
Phenol	<0.1										<0.1	mg/kg	TM26/PM0
Fluoride	0.4										<0.3	mg/l	TM173/PM0
Fluoride	4										<3	mg/kg	TM173/PM0
Sulphate as SO4 #	0.7										<0.5	mg/l	TM38/PM0
Sulphate as SO4 #	7										<5	mg/kg	TM38/PM0
Chloride #	0.3										<0.3	mg/l	TM38/PM0
Chloride #	<3										<3	mg/kg	TM38/PM0
Dissolved Organic Carbon	5										<2	mg/l	TM60/PM0
Dissolved Organic Carbon	50										<20	mg/kg	TM60/PM0
pH	8.05										<0.01	pH units	TM73/PM0
Total Dissolved Solids #	69										<35	mg/l	TM20/PM0
Total Dissolved Solids #	690										<350	mg/kg	TM20/PM0

Please see attached notes for all abbreviations and acronyms

Client Name: Ground Investigations Ireland
Reference: 10477-03-21
Location: Blackglen Road
Contact: Conor Finnerty
EMT Job No: 21/5988

Report : EN12457_2

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

Please see attached notes for all abbreviations and acronyms

EMT Sample No.	1-3																
Sample ID	TP01																
Depth	1.00																
COC No / misc																	
Containers	V J T																
Sample Date	01/04/2021																
Sample Type	Soil																
Batch Number	1																
Date of Receipt	22/04/2021																
												Inert	Stable Non-reactive	Hazardous	LOD LOR	Units	Method No.
Solid Waste Analysis																	
Total Organic Carbon #	1.19											3	5	6	<0.02	%	TM21/PM24
Sum of BTEX	<0.025											6	-	-	<0.025	mg/kg	TM36/PM12
Sum of 7 PCBs #	<0.035											1	-	-	<0.035	mg/kg	TM17/PM8
Mineral Oil	<30											500	-	-	<30	mg/kg	TM5/PM8/PM16
PAH Sum of 6 #	2.24											-	-	-	<0.22	mg/kg	TM4/PM8
PAH Sum of 17	3.67											100	-	-	<0.64	mg/kg	TM4/PM8
CEN 10:1 Leachate																	
Arsenic #	0.043											0.5	2	25	<0.025	mg/kg	TM30/PM17
Barium #	0.05											20	100	300	<0.03	mg/kg	TM30/PM17
Cadmium #	<0.005											0.04	1	5	<0.005	mg/kg	TM30/PM17
Chromium #	<0.015											0.5	10	70	<0.015	mg/kg	TM30/PM17
Copper #	<0.07											2	50	100	<0.07	mg/kg	TM30/PM17
Mercury #	<0.0001											0.01	0.2	2	<0.0001	mg/kg	TM61/PM0
Molybdenum #	0.07											0.5	10	30	<0.02	mg/kg	TM30/PM17
Nickel #	<0.02											0.4	10	40	<0.02	mg/kg	TM30/PM17
Lead #	<0.05											0.5	10	50	<0.05	mg/kg	TM30/PM17
Antimony #	<0.02											0.06	0.7	5	<0.02	mg/kg	TM30/PM17
Selenium #	<0.03											0.1	0.5	7	<0.03	mg/kg	TM30/PM17
Zinc #	<0.03											4	50	200	<0.03	mg/kg	TM30/PM17
Total Dissolved Solids #	690											4000	60000	100000	<350	mg/kg	TM20/PM0
Dissolved Organic Carbon	50											500	800	1000	<20	mg/kg	TM60/PM0
Dry Matter Content Ratio	82.1											-	-	-	<0.1	%	NONE/PM4
pH #	8.24											-	-	-	<0.01	pH units	TM73/PM11
Phenol	<0.1											1	-	-	<0.1	mg/kg	TM26/PM0
Fluoride	4											-	-	-	<3	mg/kg	TM173/PM0
Sulphate as SO4 #	7											1000	20000	50000	<5	mg/kg	TM38/PM0
Chloride #	<3											800	15000	25000	<3	mg/kg	TM38/PM0

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All solid results are expressed on a dry weight basis unless stated otherwise.

Client Name: Ground Investigations Ireland

Reference: 10477-03-21

Location: Blackglen Road

Contact: Conor Finnerty

Matrix : Solid

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	EPH Interpretation
21/5988	1	TP01	1.00	1-3	PAH's, Possible tarmac/bitumen & Possible lubricaitng oil

Client Name: Ground Investigations Ireland
Reference: 10477-03-21
Location: Blackglen Road
Contact: Conor Finnerty

Note:

Asbestos Screen analysis is carried out in accordance with our documented in-house methods PM042 and TM065 and HSG 248 by Stereo and Polarised Light Microscopy using Dispersion Staining Techniques and is covered by our UKAS accreditation. Detailed Gravimetric Quantification and PCOM Fibre Analysis is carried out in accordance with our documented in-house methods PM042 and TM131 and HSG 248 using Stereo and Polarised Light Microscopy and Phase Contrast Optical Microscopy (PCOM). Samples are retained for not less than 6 months from the date of analysis unless specifically requested.

Opinions, including ACM type and Asbestos level less than 0.1%, lie outside the scope of our UKAS accreditation.

Where the sample is not taken by a Element Materials Technology consultant, Element Materials Technology cannot be responsible for inaccurate or unrepresentative sampling.

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Date Of Analysis	Analysis	Result
21/5988	1	TP01	1.00	2	23/04/2021	**General Description (Bulk Analysis)**	soil.stones
					23/04/2021	**Asbestos Fibres**	NAD
					23/04/2021	**Asbestos ACM**	NAD
					23/04/2021	**Asbestos Type**	NAD
					23/04/2021	**Asbestos Level Screen**	NAD

Client Name: Ground Investigations Ireland

Reference: 10477-03-21

Location: Blackglen Road

Contact: Conor Finnerty

Matrix : Solid

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analysis	Reason
21/5988	1	TP01	1.00	1-3	EPH, GRO, PAH, PCB	Sample holding time exceeded prior to receipt

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating.

Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 21/5988

SOILS

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overesitimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.
Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above calibration range, the result should be considered the minimum value. The actual result could be significantly higher, this result is not accredited.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

HWOL ACRONYMS AND OPERATORS USED

HS	Headspace Analysis.
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent.
CU	Clean-up - e.g. by florisil, silica gel.
1D	GC - Single coil gas chromatography.
Total	Aliphatics & Aromatics.
AL	Aliphatics only.
AR	Aromatics only.
2D	GC-GC - Double coil gas chromatography.
#1	EH_Total but with humics mathematically subtracted
#2	EU_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +).
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry.

EMT Job No: 21/5988

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465:1993(E) and BS1377-2:1990.	PM0	No preparation is required.			AR	
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM16	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes		AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details			AR	Yes
TM17	Modified US EPA method 8270D v5:2014. Determination of specific Polychlorinated Biphenyl congeners by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM20	Modified BS 1377-3:1990/USEPA 160.1/3 (TDS/TS: 1971) Gravimetric determination of Total Dissolved Solids/Total Solids	PM0	No preparation is required.	Yes		AR	Yes
TM21	Modified BS 7755-3:1995, ISO10694:1995 Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO2 generated is quantified using infra-red detection. Organic Matter (SOM) calculated as per EA MCERTS Chemical Testing of Soil, March 2012 v4.	PM24	Dried and ground solid samples are washed with hydrochloric acid, then rinsed with deionised water to remove the mineral carbon before TOC analysis.	Yes		AD	Yes

EMT Job No: 21/5988

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.			AR	Yes
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.			AD	Yes
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.	Yes		AD	Yes
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP	PM17	Modified method BS EN12457-2:2002 As received solid samples are leached with water in a 10:1 water to soil ratio for 24 hours, the moisture content of the sample is included in the ratio.	Yes		AR	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013I	PM0	No preparation is required.	Yes		AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013I	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AD	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013I	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AR	Yes
TM60	TC/TOC analysis of Waters by High Temperature Combustion followed by NDIR detection. Based on the following modified standard methods: USEPA 9060A (2002), APHA SMEWW 5310B:1999 22nd Edition, ASTM D 7573, and USEPA 415.1.	PM0	No preparation is required.			AR	Yes

EMT Job No: 21/5988

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM61	Determination of Mercury by Cold Vapour Atomic Fluorescence - WATERS: Modified USEPA Method 245.7, Rev 2, Feb 2005. SOILS: Modified USEPA Method 7471B, Rev.2, Feb 2007	PM0	No preparation is required.	Yes		AR	Yes
TM65	Asbestos Bulk Identification method based on HSG 248 First edition (2006)	PM42	Modified SCA Blue Book V.12 draft 2017 and WM3 1st Edition v1.1:2018. Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.	Yes		AR	
TM73	Modified US EPA methods 150.1 (1982) and 9045D Rev. 4 - 2004) and BS1377-3:1990. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.			AR	Yes
TM73	Modified US EPA methods 150.1 (1982) and 9045D Rev. 4 - 2004) and BS1377-3:1990. Determination of pH by Metrohm automated probe analyser.	PM11	Extraction of as received solid samples using one part solid to 2.5 parts deionised water.	Yes		AR	No
TM173	Analysis of fluoride by ISE (Ion Selective Electrode) using modified ISE method 9214 - 340.2 (EPA 1998)	PM0	No preparation is required.			AR	Yes
NONE	No Method Code	NONE	No Method Code			AD	Yes
NONE	No Method Code	PM17	Modified method BS EN12457-2:2002 As received solid samples are leached with water in a 10:1 water to soil ratio for 24 hours, the moisture content of the sample is included in the ratio.			AR	
NONE	No Method Code	PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465:1993(E) and BS1377-2:1990.			AR	

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Ground Investigations Ireland
Catherinestown House
Hazelhatch Road
Newcastle
Co. Dublin
Ireland

Attention :	Conor Finnerty
Date :	30th June, 2021
Your reference :	10477-03-21
Our reference :	Test Report 21/9397 Batch 1
Location :	Blackglen Road
Date samples received :	21st June, 2021
Status :	Final report
Issue :	1

Fifteen samples were received for analysis on 21st June, 2021 of which fifteen were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Authorised By:

Phil Sommerton BSc
Senior Project Manager

Please include all sections of this report if it is reproduced

Client Name: Ground Investigations Ireland
Reference: 10477-03-21
Location: Blackglen Road
Contact: Conor Finnerty
EMT Job No: 21/9397

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	1-3	4-6	7-9	10-12	13-15	16-18	19-21	22-24	25-27	28-30	LOD/LOR	Units	Method No.
Sample ID	ENV TP07	ENV TP08	ENV TP05	ENV TP05	ENV TP04	ENV TP01	ENV TP01	ENV TP02	ENV TP02	ENV TP02			
Depth	0.00-1.00	0.00-1.00	0.00-1.00	1.00-2.00	0.00-1.00	0.00-1.00	1.00-7.00	0.00-1.00	1.00-2.00	2.00-3.00			
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T			
Sample Date	17/06/2021	17/06/2021	17/06/2021	17/06/2021	17/06/2021	17/06/2021	17/06/2021	17/06/2021	17/06/2021	17/06/2021			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	21/06/2021	21/06/2021	21/06/2021	21/06/2021	21/06/2021	21/06/2021	21/06/2021	21/06/2021	21/06/2021	21/06/2021			
Antimony	<1	<1	<1	2	<1	1	1	2	2	1	<1	mg/kg	TM30/PM15
Arsenic #	25.7	14.5	76.9	22.9	21.5	176.4	418.8 AA	24.2	47.0	22.9	<0.5	mg/kg	TM30/PM15
Barium #	22	13	27	57	15	205	72	74	80	58	<1	mg/kg	TM30/PM15
Cadmium #	<0.1	<0.1	<0.1	1.2	<0.1	2.1	<0.1	0.9	1.5	1.1	<0.1	mg/kg	TM30/PM15
Chromium #	49.5	45.9	65.2	63.6	58.7	61.3	56.8	59.5	61.0	57.2	<0.5	mg/kg	TM30/PM15
Copper #	10	6	6	28	6	25	16	26	29	22	<1	mg/kg	TM30/PM15
Lead #	22	9	14	22	10	21	19	23	21	17	<5	mg/kg	TM30/PM15
Mercury #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM30/PM15
Molybdenum #	4.0	3.7	5.1	4.5	4.4	6.3	4.9	3.2	3.6	4.0	<0.1	mg/kg	TM30/PM15
Nickel #	7.2	7.0	9.5	42.3	9.1	56.4	32.6	48.3	49.2	34.5	<0.7	mg/kg	TM30/PM15
Selenium #	<1	<1	<1	3	<1	3	1	<1	<1	<1	<1	mg/kg	TM30/PM15
Total Sulphate as SO4 #	388	227	227	340	101	184	91	128	115	136	<50	mg/kg	TM50/PM29
Water Soluble Boron #	0.5	0.2	0.4	0.5	0.1	0.3	0.2	0.4	0.3	0.3	<0.1	mg/kg	TM74/PM32
Zinc #	39	36	59	81	40	82	67	87	91	74	<5	mg/kg	TM30/PM15
PAH MS													
Naphthalene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Acenaphthylene	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	TM4/PM8
Acenaphthene #	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	mg/kg	TM4/PM8
Fluorene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Phenanthrene #	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	TM4/PM8
Anthracene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Fluoranthene #	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	TM4/PM8
Pyrene #	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	mg/kg	TM4/PM8
Chrysene #	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Coronene	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
PAH 6 Total #	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	mg/kg	TM4/PM8
PAH 17 Total	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	mg/kg	TM4/PM8
Benzo(b)fluoranthene	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	mg/kg	TM4/PM8
Benzo(j)fluoranthene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	mg/kg	TM4/PM8
PAH Surrogate % Recovery	92	103	106	101	91	104	94	98	87	90	<0	%	TM4/PM8
Mineral Oil (C10-C40) (EH_CU_1D_AL)	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	mg/kg	TM5/PM8/PM16

Please see attached notes for all abbreviations and acronyms

Client Name: Ground Investigations Ireland
Reference: 10477-03-21
Location: Blackglen Road
Contact: Conor Finnerty
EMT Job No: 21/9397

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	1-3	4-6	7-9	10-12	13-15	16-18	19-21	22-24	25-27	28-30	LOD/LOR	Units	Method No.
Sample ID	ENV TP07	ENV TP08	ENV TP05	ENV TP05	ENV TP04	ENV TP01	ENV TP01	ENV TP02	ENV TP02	ENV TP02			
Depth	0.00-1.00	0.00-1.00	0.00-1.00	1.00-2.00	0.00-1.00	0.00-1.00	1.00-7.00	0.00-1.00	1.00-2.00	2.00-3.00			
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T			
Sample Date	17/06/2021	17/06/2021	17/06/2021	17/06/2021	17/06/2021	17/06/2021	17/06/2021	17/06/2021	17/06/2021	17/06/2021			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	21/06/2021	21/06/2021	21/06/2021	21/06/2021	21/06/2021	21/06/2021	21/06/2021	21/06/2021	21/06/2021	21/06/2021			
TPH CWG													
Aliphatics													
>C5-C6 (HS_1D_AL) #	<0.1	<0.1 SV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>C6-C8 (HS_1D_AL) #	<0.1	<0.1 SV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>C8-C10 (HS_1D_AL)	<0.1	<0.1 SV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>C10-C12 (EH_CU_1D_AL) #	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 (EH_CU_1D_AL) #	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	mg/kg	TM5/PM8/PM16
>C16-C21 (EH_CU_1D_AL) #	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
>C21-C35 (EH_CU_1D_AL) #	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
>C35-C40 (EH_1D_AL)	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-40 (EH+HS_1D_AL)	<26	<26	<26	<26	<26	<26	<26	<26	<26	<26	<26	mg/kg	TM5/TM36/PM8/PM12/PM16
>C6-C10 (HS_1D_AL)	<0.1	<0.1 SV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>C10-C25 (EH_1D_AL)	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	mg/kg	TM5/PM8/PM16
>C25-C35 (EH_1D_AL)	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	mg/kg	TM5/PM8/PM16
Aromatics													
>C5-EC7 (HS_1D_AR) #	<0.1	<0.1 SV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC7-EC8 (HS_1D_AR) #	<0.1	<0.1 SV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC8-EC10 (HS_1D_AR) #	<0.1	<0.1 SV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC10-EC12 (EH_CU_1D_AR) #	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	mg/kg	TM5/PM8/PM16
>EC12-EC16 (EH_CU_1D_AR) #	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	mg/kg	TM5/PM8/PM16
>EC16-EC21 (EH_CU_1D_AR) #	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
>EC21-EC35 (EH_CU_1D_AR) #	<7	11	<7	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
>EC35-EC40 (EH_1D_AR)	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-40 (EH+HS_1D_AR)	<26	<26	<26	<26	<26	<26	<26	<26	<26	<26	<26	mg/kg	TM5/TM36/PM8/PM12/PM16
Total aliphatics and aromatics(C5-40) (EH+HS_CU_1D_Total)	<52	<52	<52	<52	<52	<52	<52	<52	<52	<52	<52	mg/kg	TM5/TM36/PM8/PM12/PM16
>EC6-EC10 (HS_1D_AR) #	<0.1	<0.1 SV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC10-EC25 (EH_1D_AR)	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	mg/kg	TM5/PM8/PM16
>EC25-EC35 (EH_1D_AR)	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	mg/kg	TM5/PM8/PM16
MTBE #	<5	<5 SV	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM36/PM12
Benzene #	<5	<5 SV	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM36/PM12
Toluene #	<5	<5 SV	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM36/PM12
Ethylbenzene #	<5	<5 SV	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM36/PM12
m/p-Xylene #	<5	<5 SV	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM36/PM12
o-Xylene #	<5	<5 SV	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM36/PM12
PCB 28 #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 52 #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 101 #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 118 #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 138 #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 153 #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 180 #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
Total 7 PCBs #	<35	<35	<35	<35	<35	<35	<35	<35	<35	<35	<35	ug/kg	TM17/PM8

Please see attached notes for all abbreviations and acronyms

Element Materials Technology

Client Name: Ground Investigations Ireland
Reference: 10477-03-21
Location: Blackglen Road
Contact: Conor Finnerty
EMT Job No: 21/9397

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	1-3	4-6	7-9	10-12	13-15	16-18	19-21	22-24	25-27	28-30	LOD/LOR	Units	Method No.
Sample ID	ENV TP07	ENV TP08	ENV TP05	ENV TP05	ENV TP04	ENV TP01	ENV TP01	ENV TP02	ENV TP02	ENV TP02			
Depth	0.00-1.00	0.00-1.00	0.00-1.00	1.00-2.00	0.00-1.00	0.00-1.00	1.00-7.00	0.00-1.00	1.00-2.00	2.00-3.00			
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T			
Sample Date	17/06/2021	17/06/2021	17/06/2021	17/06/2021	17/06/2021	17/06/2021	17/06/2021	17/06/2021	17/06/2021	17/06/2021			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	21/06/2021	21/06/2021	21/06/2021	21/06/2021	21/06/2021	21/06/2021	21/06/2021	21/06/2021	21/06/2021	21/06/2021			
Phenol #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	TM26/PM21B
Natural Moisture Content	29.6	25.3	19.6	26.8	16.5	17.7	20.8	21.8	20.4	16.3	<0.1	%	PM4/PM0
Moisture Content (% Wet Weight)	22.9	20.2	16.4	21.1	14.1	15.0	17.2	17.9	16.9	14.0	<0.1	%	PM4/PM0
Hexavalent Chromium #	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	mg/kg	TM38/PM20
Chromium III	49.5	45.9	65.2	63.6	58.7	61.3	56.8	59.5	61.0	57.2	<0.5	mg/kg	NONE/NONE
Total Cyanide #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	mg/kg	TM89/PM45
Total Organic Carbon #	1.45	0.79	0.37	0.18	0.12	0.17	0.14	0.49	0.23	0.21	<0.02	%	TM21/PM24
Sulphide	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	mg/kg	TM107/PM45
Elemental Sulphur	<1	2	<1	<1	<1	2	<1	9	1	<1	<1	mg/kg	TM108/PM114
pH #	4.34	6.02	5.88	5.78	5.43	8.10	7.85	7.90	8.56	8.57	<0.01	pH units	TM73/PM11
Mass of raw test portion	0.1156	0.1193	0.1033	0.106	0.1072	0.1185	0.1075	0.1107	0.107	0.1045		kg	NONE/PM17
Mass of dried test portion	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09		kg	NONE/PM17

Please see attached notes for all abbreviations and acronyms

Client Name: Ground Investigations Ireland
Reference: 10477-03-21
Location: Blackglen Road
Contact: Conor Finnerty
EMT Job No: 21/9397

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	31-33	34-36	37-39	40-42	43-45						LOD/LOR	Units	Method No.
Sample ID	ENV TP02	ENV TP03	ENV TP03	ENV ST01	ENV ST01								
Depth	3.00-3.60	0.00-1.00	1.00-2.00	0.00-1.00	1.00-2.00								
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T								
Sample Date	17/06/2021	17/06/2021	17/06/2021	17/06/2021	17/06/2021								
Sample Type	Soil	Soil	Soil	Soil	Soil								
Batch Number	1	1	1	1	1								
Date of Receipt	21/06/2021	21/06/2021	21/06/2021	21/06/2021	21/06/2021								
Antimony	<1	1	<1	1	1						<1	mg/kg	TM30/PM15
Arsenic #	20.6	27.3	25.1	25.1	25.1						<0.5	mg/kg	TM30/PM15
Barium #	28	74	61	56	52						<1	mg/kg	TM30/PM15
Cadmium #	1.0	0.5	1.2	0.8	0.7						<0.1	mg/kg	TM30/PM15
Chromium #	49.2	64.7	77.8	53.3	65.9						<0.5	mg/kg	TM30/PM15
Copper #	17	20	22	20	19						<1	mg/kg	TM30/PM15
Lead #	11	27	19	56	33						<5	mg/kg	TM30/PM15
Mercury #	<0.1	<0.1	<0.1	<0.1	<0.1						<0.1	mg/kg	TM30/PM15
Molybdenum #	3.5	4.0	4.7	4.3	5.1						<0.1	mg/kg	TM30/PM15
Nickel #	22.9	31.9	41.9	22.2	20.7						<0.7	mg/kg	TM30/PM15
Selenium #	<1	<1	<1	<1	<1						<1	mg/kg	TM30/PM15
Total Sulphate as SO4 #	165	306	113	279	428						<50	mg/kg	TM50/PM29
Water Soluble Boron #	0.3	1.1	0.4	0.6	0.5						<0.1	mg/kg	TM74/PM32
Zinc #	47	82	83	92	81						<5	mg/kg	TM30/PM15
PAH MS													
Naphthalene #	<0.04	<0.04	<0.04	<0.04	<0.04						<0.04	mg/kg	TM4/PM8
Acenaphthylene	<0.03	<0.03	<0.03	<0.03	<0.03						<0.03	mg/kg	TM4/PM8
Acenaphthene #	<0.05	<0.05	<0.05	<0.05	<0.05						<0.05	mg/kg	TM4/PM8
Fluorene #	<0.04	<0.04	<0.04	<0.04	<0.04						<0.04	mg/kg	TM4/PM8
Phenanthrene #	<0.03	<0.03	<0.03	0.21	0.04						<0.03	mg/kg	TM4/PM8
Anthracene #	<0.04	<0.04	<0.04	<0.04	<0.04						<0.04	mg/kg	TM4/PM8
Fluoranthene #	<0.03	<0.03	<0.03	0.36	0.08						<0.03	mg/kg	TM4/PM8
Pyrene #	<0.03	<0.03	<0.03	0.32	0.08						<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	<0.06	<0.06	<0.06	0.21	0.09						<0.06	mg/kg	TM4/PM8
Chrysene #	<0.02	<0.02	<0.02	0.25	0.06						<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	<0.07	<0.07	<0.07	0.40	0.12						<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	<0.04	<0.04	<0.04	0.21	0.07						<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #	<0.04	<0.04	<0.04	0.17	0.05						<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	<0.04	<0.04	<0.04	0.05	<0.04						<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	<0.04	<0.04	<0.04	0.20	0.05						<0.04	mg/kg	TM4/PM8
Coronene	<0.04	<0.04	<0.04	<0.04	<0.04						<0.04	mg/kg	TM4/PM8
PAH 6 Total #	<0.22	<0.22	<0.22	1.34	0.37						<0.22	mg/kg	TM4/PM8
PAH 17 Total	<0.64	<0.64	<0.64	2.38	0.64						<0.64	mg/kg	TM4/PM8
Benzo(b)fluoranthene	<0.05	<0.05	<0.05	0.29	0.09						<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	<0.02	<0.02	<0.02	0.11	0.03						<0.02	mg/kg	TM4/PM8
Benzo(j)fluoranthene	<1	<1	<1	<1	<1						<1	mg/kg	TM4/PM8
PAH Surrogate % Recovery	93	90	87	102	93						<0	%	TM4/PM8
Mineral Oil (C10-C40) (EH_CU_1D_AL)	<30	<30	<30	<30	<30						<30	mg/kg	TM5/PM8/PM16

Please see attached notes for all abbreviations and acronyms

Please include all sections of this report if it is reproduced
All solid results are expressed on a dry weight basis unless stated otherwise.

Client Name: Ground Investigations Ireland
Reference: 10477-03-21
Location: Blackglen Road
Contact: Conor Finnerty
EMT Job No: 21/9397

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	31-33	34-36	37-39	40-42	43-45						LOD/LOR	Units	Method No.
Sample ID	ENV TP02	ENV TP03	ENV TP03	ENV ST01	ENV ST01								
Depth	3.00-3.60	0.00-1.00	1.00-2.00	0.00-1.00	1.00-2.00								
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T								
Sample Date	17/06/2021	17/06/2021	17/06/2021	17/06/2021	17/06/2021								
Sample Type	Soil	Soil	Soil	Soil	Soil								
Batch Number	1	1	1	1	1								
Date of Receipt	21/06/2021	21/06/2021	21/06/2021	21/06/2021	21/06/2021								
TPH CWG													
Aliphatics													
>C5-C6 (HS_1D_AL) #	<0.1	<0.1	<0.1	<0.1	<0.1						<0.1	mg/kg	TM36/PM12
>C6-C8 (HS_1D_AL) #	<0.1	<0.1	<0.1	<0.1	<0.1						<0.1	mg/kg	TM36/PM12
>C8-C10 (HS_1D_AL)	<0.1	<0.1	<0.1	<0.1	<0.1						<0.1	mg/kg	TM36/PM12
>C10-C12 (EH_CU_1D_AL) #	<0.2	<0.2	<0.2	<0.2	<0.2						<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 (EH_CU_1D_AL) #	<4	<4	<4	<4	<4						<4	mg/kg	TM5/PM8/PM16
>C16-C21 (EH_CU_1D_AL) #	<7	<7	<7	<7	<7						<7	mg/kg	TM5/PM8/PM16
>C21-C35 (EH_CU_1D_AL) #	<7	<7	<7	21	15						<7	mg/kg	TM5/PM8/PM16
>C35-C40 (EH_1D_AL)	<7	<7	<7	<7	<7						<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-40 (EH+HS_1D_AL)	<26	<26	<26	<26	<26						<26	mg/kg	TM5/TM36/PM8/PM12/PM16
>C6-C10 (HS_1D_AL)	<0.1	<0.1	<0.1	<0.1	<0.1						<0.1	mg/kg	TM36/PM12
>C10-C25 (EH_1D_AL)	<10	<10	<10	<10	<10						<10	mg/kg	TM5/PM8/PM16
>C25-C35 (EH_1D_AL)	<10	<10	<10	23	16						<10	mg/kg	TM5/PM8/PM16
Aromatics													
>C5-EC7 (HS_1D_AR) #	<0.1	<0.1	<0.1	<0.1	<0.1						<0.1	mg/kg	TM36/PM12
>EC7-EC8 (HS_1D_AR) #	<0.1	<0.1	<0.1	<0.1	<0.1						<0.1	mg/kg	TM36/PM12
>EC8-EC10 (HS_1D_AR) #	<0.1	<0.1	<0.1	<0.1	<0.1						<0.1	mg/kg	TM36/PM12
>EC10-EC12 (EH_CU_1D_AR) #	<0.2	<0.2	<0.2	<0.2	<0.2						<0.2	mg/kg	TM5/PM8/PM16
>EC12-EC16 (EH_CU_1D_AR) #	<4	<4	<4	<4	<4						<4	mg/kg	TM5/PM8/PM16
>EC16-EC21 (EH_CU_1D_AR) #	<7	<7	<7	<7	<7						<7	mg/kg	TM5/PM8/PM16
>EC21-EC35 (EH_CU_1D_AR) #	<7	<7	<7	<7	<7						<7	mg/kg	TM5/PM8/PM16
>EC35-EC40 (EH_1D_AR)	<7	<7	<7	<7	<7						<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-40 (EH+HS_1D_AR)	<26	<26	<26	<26	<26						<26	mg/kg	TM5/TM36/PM8/PM12/PM16
Total aliphatics and aromatics(C5-40) (EH+HS_CU_1D_Total)	<52	<52	<52	<52	<52						<52	mg/kg	TM5/TM36/PM8/PM12/PM16
>EC6-EC10 (HS_1D_AR) #	<0.1	<0.1	<0.1	<0.1	<0.1						<0.1	mg/kg	TM36/PM12
>EC10-EC25 (EH_1D_AR)	<10	<10	<10	<10	<10						<10	mg/kg	TM5/PM8/PM16
>EC25-EC35 (EH_1D_AR)	<10	<10	<10	<10	<10						<10	mg/kg	TM5/PM8/PM16
MTBE #	<5	<5	<5	<5	<5						<5	ug/kg	TM36/PM12
Benzene #	<5	<5	<5	<5	<5						<5	ug/kg	TM36/PM12
Toluene #	<5	<5	<5	<5	<5						<5	ug/kg	TM36/PM12
Ethylbenzene #	<5	<5	<5	<5	<5						<5	ug/kg	TM36/PM12
m/p-Xylene #	<5	<5	<5	<5	<5						<5	ug/kg	TM36/PM12
o-Xylene #	<5	<5	<5	<5	<5						<5	ug/kg	TM36/PM12
PCB 28 #	<5	<5	<5	<5	<5						<5	ug/kg	TM17/PM8
PCB 52 #	<5	<5	<5	<5	<5						<5	ug/kg	TM17/PM8
PCB 101 #	<5	<5	<5	<5	<5						<5	ug/kg	TM17/PM8
PCB 118 #	<5	<5	<5	<5	<5						<5	ug/kg	TM17/PM8
PCB 138 #	<5	<5	<5	<5	<5						<5	ug/kg	TM17/PM8
PCB 153 #	<5	<5	<5	<5	<5						<5	ug/kg	TM17/PM8
PCB 180 #	<5	<5	<5	<5	<5						<5	ug/kg	TM17/PM8
Total 7 PCBs #	<35	<35	<35	<35	<35						<35	ug/kg	TM17/PM8

Please see attached notes for all abbreviations and acronyms

Client Name: Ground Investigations Ireland
Reference: 10477-03-21
Location: Blackglen Road
Contact: Conor Finnerty
EMT Job No: 21/9397

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	31-33	34-36	37-39	40-42	43-45						LOD/LOR	Units	Method No.
Sample ID	ENV TP02	ENV TP03	ENV TP03	ENV ST01	ENV ST01								
Depth	3.00-3.60	0.00-1.00	1.00-2.00	0.00-1.00	1.00-2.00								
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T								
Sample Date	17/06/2021	17/06/2021	17/06/2021	17/06/2021	17/06/2021								
Sample Type	Soil	Soil	Soil	Soil	Soil								
Batch Number	1	1	1	1	1								
Date of Receipt	21/06/2021	21/06/2021	21/06/2021	21/06/2021	21/06/2021								
Phenol #	<0.01	<0.01	<0.01	<0.01	<0.01						<0.01	mg/kg	TM26/PM21B
Natural Moisture Content	14.7	28.2	22.0	15.6	16.7						<0.1	%	PM4/PM0
Moisture Content (% Wet Weight)	12.8	22.0	18.1	13.5	14.3						<0.1	%	PM4/PM0
Hexavalent Chromium #	<0.3	<0.3	<0.3	<0.3	<0.3						<0.3	mg/kg	TM38/PM20
Chromium III	49.2	64.7	77.8	53.3	65.9						<0.5	mg/kg	NONE/NONE
Total Cyanide #	<0.5	<0.5	<0.5	<0.5	<0.5						<0.5	mg/kg	TM89/PM45
Total Organic Carbon #	0.22	1.57	0.22	0.86	0.75						<0.02	%	TM21/PM24
Sulphide	<10	<10	<10	<10	<10						<10	mg/kg	TM107/PM45
Elemental Sulphur	7	11	4	2	2						<1	mg/kg	TM108/PM114
pH #	8.60	7.94	8.32	8.36	8.40						<0.01	pH units	TM73/PM11
Mass of raw test portion	0.1014	0.1255	0.114	0.1036	0.1055							kg	NONE/PM17
Mass of dried test portion	0.09	0.09	0.09	0.09	0.09							kg	NONE/PM17

Please see attached notes for all abbreviations and acronyms

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All solid results are expressed on a dry weight basis unless stated otherwise.

Client Name: Ground Investigations Ireland
Reference: 10477-03-21
Location: Blackglen Road
Contact: Conor Finnerty
EMT Job No: 21/9397

Report : CEN 10:1 1 Batch

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	1-3	4-6	7-9	10-12	13-15	16-18	19-21	22-24	25-27	28-30	LOD/LOR	Units	Method No.
Sample ID	ENV TP07	ENV TP08	ENV TP05	ENV TP05	ENV TP04	ENV TP01	ENV TP01	ENV TP02	ENV TP02	ENV TP02			
Depth	0.00-1.00	0.00-1.00	0.00-1.00	1.00-2.00	0.00-1.00	0.00-1.00	1.00-7.00	0.00-1.00	1.00-2.00	2.00-3.00			
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T			
Sample Date	17/06/2021	17/06/2021	17/06/2021	17/06/2021	17/06/2021	17/06/2021	17/06/2021	17/06/2021	17/06/2021	17/06/2021			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	21/06/2021	21/06/2021	21/06/2021	21/06/2021	21/06/2021	21/06/2021	21/06/2021	21/06/2021	21/06/2021	21/06/2021			
Dissolved Antimony #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	mg/l	TM30/PM17
Dissolved Antimony (A10) #	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	mg/kg	TM30/PM17
Dissolved Arsenic #	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	0.0401	<0.0025	<0.0025	<0.0025	<0.0025	mg/l	TM30/PM17
Dissolved Arsenic (A10) #	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.401	<0.025	<0.025	<0.025	<0.025	mg/kg	TM30/PM17
Dissolved Barium #	0.005	<0.003	<0.003	<0.003	0.004	<0.003	0.056	<0.003	<0.003	0.004	<0.003	mg/l	TM30/PM17
Dissolved Barium (A10) #	0.05	<0.03	<0.03	<0.03	0.04	<0.03	0.56	<0.03	<0.03	0.04	<0.03	mg/kg	TM30/PM17
Dissolved Boron #	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	mg/l	TM30/PM17
Dissolved Boron (A10) #	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	mg/kg	TM30/PM17
Dissolved Cadmium #	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	mg/l	TM30/PM17
Dissolved Cadmium (A10) #	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	mg/kg	TM30/PM17
Dissolved Chromium #	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	mg/l	TM30/PM17
Dissolved Chromium (A10) #	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	mg/kg	TM30/PM17
Dissolved Copper #	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	mg/l	TM30/PM17
Dissolved Copper (A10) #	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	mg/kg	TM30/PM17
Dissolved Lead #	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	mg/l	TM30/PM17
Dissolved Lead (A10) #	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	mg/kg	TM30/PM17
Dissolved Molybdenum #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.005	<0.002	0.003	<0.002	<0.002	mg/l	TM30/PM17
Dissolved Molybdenum (A10) #	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.05	<0.02	0.03	<0.02	<0.02	mg/kg	TM30/PM17
Dissolved Nickel #	0.004	<0.002	<0.002	0.006	0.004	<0.002	<0.002	<0.002	0.003	0.003	<0.002	mg/l	TM30/PM17
Dissolved Nickel (A10) #	0.04	<0.02	<0.02	0.06	0.04	<0.02	<0.02	<0.02	0.03	0.03	<0.02	mg/kg	TM30/PM17
Dissolved Selenium #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	mg/l	TM30/PM17
Dissolved Selenium (A10) #	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	TM30/PM17
Dissolved Zinc #	0.013	<0.003	<0.003	0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	mg/l	TM30/PM17
Dissolved Zinc (A10) #	0.13	<0.03	<0.03	0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	TM30/PM17
Mercury Dissolved by CVAF #	0.00002	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	mg/l	TM61/PM0
Mercury Dissolved by CVAF #	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	mg/kg	TM61/PM0
Phenol	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/l	TM26/PM0
Phenol	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM26/PM0
Fluoride	<0.3	<0.3	<0.3	<0.3	<0.3	0.3	<0.3	<0.3	0.3	<0.3	<0.3	mg/l	TM173/PM0
Fluoride	<3	<3	<3	<3	<3	<3	<3	<3	3	<3	<3	mg/kg	TM173/PM0
Sulphate as SO4 #	1.7	5.7	3.7	2.6	3.9	7.0	1.8	5.9	1.2	0.8	<0.5	mg/l	TM38/PM0
Sulphate as SO4 #	17	57	37	26	39	70	18	59	12	8	<5	mg/kg	TM38/PM0
Chloride #	1.1	2.3	1.4	<0.3	<0.3	2.3	1.1	1.2	1.1	1.9	<0.3	mg/l	TM38/PM0
Chloride #	11	23	14	<3	<3	23	11	12	11	19	<3	mg/kg	TM38/PM0
Ammoniacal Nitrogen as N #	0.04	0.03	0.04	<0.03	0.03	<0.03	0.05	<0.03	<0.03	0.03	<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as N #	0.4	<0.3	0.4	<0.3	0.3	<0.3	0.5	<0.3	<0.3	0.3	<0.3	mg/kg	TM38/PM0
Dissolved Organic Carbon	26	29	10	5	<2	10	9	8	4	4	<2	mg/l	TM60/PM0
Dissolved Organic Carbon	260	290	100	50	<20	100	90	80	40	40	<20	mg/kg	TM60/PM0
Total Dissolved Solids #	48	41	<35	<35	<35	<35	55	<35	50	45	<35	mg/l	TM20/PM0
Total Dissolved Solids #	480	410	<350	<350	<350	<350	550	<350	500	450	<350	mg/kg	TM20/PM0

Please see attached notes for all abbreviations and acronyms

Please include all sections of this report if it is reproduced
All solid results are expressed on a dry weight basis unless stated otherwise.

Client Name: Ground Investigations Ireland
Reference: 10477-03-21
Location: Blackglen Road
Contact: Conor Finnerty
EMT Job No: 21/9397

Report : CEN 10:1 1 Batch

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	31-33	34-36	37-39	40-42	43-45						LOD/LOR	Units	Method No.
Sample ID	ENV TP02	ENV TP03	ENV TP03	ENV ST01	ENV ST01								
Depth	3.00-3.60	0.00-1.00	1.00-2.00	0.00-1.00	1.00-2.00								
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T								
Sample Date	17/06/2021	17/06/2021	17/06/2021	17/06/2021	17/06/2021								
Sample Type	Soil	Soil	Soil	Soil	Soil								
Batch Number	1	1	1	1	1								
Date of Receipt	21/06/2021	21/06/2021	21/06/2021	21/06/2021	21/06/2021								
Dissolved Antimony #	0.003	<0.002	0.002	<0.002	<0.002						<0.002	mg/l	TM30/PM17
Dissolved Antimony (A10) #	0.03	<0.02	<0.02	<0.02	<0.02						<0.02	mg/kg	TM30/PM17
Dissolved Arsenic #	0.0029	0.0047	0.0043	0.0035	0.0031						<0.0025	mg/l	TM30/PM17
Dissolved Arsenic (A10) #	0.029	0.047	0.043	0.035	0.031						<0.025	mg/kg	TM30/PM17
Dissolved Barium #	<0.003	0.008	0.005	0.006	0.006						<0.003	mg/l	TM30/PM17
Dissolved Barium (A10) #	<0.03	0.08	0.05	0.06	0.06						<0.03	mg/kg	TM30/PM17
Dissolved Boron #	<0.012	<0.012	<0.012	<0.012	0.013						<0.012	mg/l	TM30/PM17
Dissolved Boron (A10) #	<0.12	<0.12	<0.12	<0.12	0.13						<0.12	mg/kg	TM30/PM17
Dissolved Cadmium #	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005						<0.0005	mg/l	TM30/PM17
Dissolved Cadmium (A10) #	<0.005	<0.005	<0.005	<0.005	<0.005						<0.005	mg/kg	TM30/PM17
Dissolved Chromium #	0.0017	0.0038	<0.0015	<0.0015	0.0018						<0.0015	mg/l	TM30/PM17
Dissolved Chromium (A10) #	0.017	0.038	<0.015	<0.015	0.018						<0.015	mg/kg	TM30/PM17
Dissolved Copper #	<0.007	<0.007	<0.007	<0.007	<0.007						<0.007	mg/l	TM30/PM17
Dissolved Copper (A10) #	<0.07	<0.07	<0.07	<0.07	<0.07						<0.07	mg/kg	TM30/PM17
Dissolved Lead #	0.021	<0.005	<0.005	<0.005	<0.005						<0.005	mg/l	TM30/PM17
Dissolved Lead (A10) #	0.21	<0.05	<0.05	<0.05	<0.05						<0.05	mg/kg	TM30/PM17
Dissolved Molybdenum #	0.002	<0.002	0.005	0.004	0.004						<0.002	mg/l	TM30/PM17
Dissolved Molybdenum (A10) #	<0.02	<0.02	0.05	0.04	0.04						<0.02	mg/kg	TM30/PM17
Dissolved Nickel #	<0.002	0.006	<0.002	<0.002	0.003						<0.002	mg/l	TM30/PM17
Dissolved Nickel (A10) #	<0.02	0.06	<0.02	<0.02	0.03						<0.02	mg/kg	TM30/PM17
Dissolved Selenium #	<0.003	<0.003	<0.003	<0.003	<0.003						<0.003	mg/l	TM30/PM17
Dissolved Selenium (A10) #	<0.03	<0.03	<0.03	<0.03	<0.03						<0.03	mg/kg	TM30/PM17
Dissolved Zinc #	0.008	0.016	<0.003	<0.003	0.007						<0.003	mg/l	TM30/PM17
Dissolved Zinc (A10) #	0.08	0.16	<0.03	<0.03	0.07						<0.03	mg/kg	TM30/PM17
Mercury Dissolved by CVAF #	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001						<0.00001	mg/l	TM61/PM0
Mercury Dissolved by CVAF #	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001						<0.0001	mg/kg	TM61/PM0
Phenol	<0.01	<0.01	<0.01	<0.01	<0.01						<0.01	mg/l	TM26/PM0
Phenol	<0.1	<0.1	<0.1	<0.1	<0.1						<0.1	mg/kg	TM26/PM0
Fluoride	<0.3	0.6	0.7	0.4	0.4						<0.3	mg/l	TM173/PM0
Fluoride	<3	6	7	4	4						<3	mg/kg	TM173/PM0
Sulphate as SO4 #	1.5	3.1	1.6	<0.5	0.9						<0.5	mg/l	TM38/PM0
Sulphate as SO4 #	15	31	16	<5	9						<5	mg/kg	TM38/PM0
Chloride #	1.3	2.9	2.4	0.6	0.3						<0.3	mg/l	TM38/PM0
Chloride #	13	29	24	6	<3						<3	mg/kg	TM38/PM0
Ammoniacal Nitrogen as N #	<0.03	<0.03	0.03	0.03	0.03						<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as N #	<0.3	<0.3	<0.3	0.3	<0.3						<0.3	mg/kg	TM38/PM0
Dissolved Organic Carbon	<2	3	3	3	4						<2	mg/l	TM60/PM0
Dissolved Organic Carbon	<20	30	30	30	40						<20	mg/kg	TM60/PM0
Total Dissolved Solids #	43	53	68	85	93						<35	mg/l	TM20/PM0
Total Dissolved Solids #	430	530	680	850	930						<350	mg/kg	TM20/PM0

Please see attached notes for all abbreviations and acronyms

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Element Materials Technology

Client Name: Ground Investigations Ireland
Reference: 10477-03-21
Location: Blackglen Road
Contact: Conor Finnerty
EMT Job No: 21/9397

Report : EN12457_2

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

Please see attached notes for all abbreviations and acronyms

EMT Sample No.	1-3	4-6	7-9	10-12	13-15	16-18	19-21	22-24	25-27	28-30						
Sample ID	ENV TP07	ENV TP08	ENV TP05	ENV TP05	ENV TP04	ENV TP01	ENV TP01	ENV TP02	ENV TP02	ENV TP02						
Depth	0.00-1.00	0.00-1.00	0.00-1.00	1.00-2.00	0.00-1.00	0.00-1.00	1.00-7.00	0.00-1.00	1.00-2.00	2.00-3.00						
COC No / misc																
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T						
Sample Date	17/06/2021	17/06/2021	17/06/2021	17/06/2021	17/06/2021	17/06/2021	17/06/2021	17/06/2021	17/06/2021	17/06/2021						
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil						
Batch Number	1	1	1	1	1	1	1	1	1	1						
Date of Receipt	21/06/2021	21/06/2021	21/06/2021	21/06/2021	21/06/2021	21/06/2021	21/06/2021	21/06/2021	21/06/2021	21/06/2021	Inert	Stable Non-reactive	Hazardous	LOD LOR	Units	Method No.
Solid Waste Analysis																
Total Organic Carbon #	1.45	0.79	0.37	0.18	0.12	0.17	0.14	0.49	0.23	0.21	3	5	6	<0.02	%	TM21/PM24
Sum of BTEX	<0.025	<0.025 [SV]	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	6	-	-	<0.025	mg/kg	TM36/PM12
Sum of 7 PCBs #	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	1	-	-	<0.035	mg/kg	TM17/PM8
Mineral Oil	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	500	-	-	<30	mg/kg	TM5/PM8/PM16
PAH Sum of 6 #	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	-	-	-	<0.22	mg/kg	TM4/PM8
PAH Sum of 17	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	100	-	-	<0.64	mg/kg	TM4/PM8
CEN 10:1 Leachate																
Arsenic #	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.401	<0.025	<0.025	<0.025	0.5	2	25	<0.025	mg/kg	TM30/PM17
Barium #	0.05	<0.03	<0.03	<0.03	0.04	<0.03	0.56	<0.03	<0.03	0.04	20	100	300	<0.03	mg/kg	TM30/PM17
Cadmium #	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.04	1	5	<0.005	mg/kg	TM30/PM17
Chromium #	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	0.5	10	70	<0.015	mg/kg	TM30/PM17
Copper #	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	2	50	100	<0.07	mg/kg	TM30/PM17
Mercury #	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.01	0.2	2	<0.0001	mg/kg	TM61/PM0
Molybdenum #	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.05	<0.02	0.03	<0.02	0.5	10	30	<0.02	mg/kg	TM30/PM17
Nickel #	0.04	<0.02	<0.02	0.06	0.04	<0.02	<0.02	<0.02	0.03	0.03	0.4	10	40	<0.02	mg/kg	TM30/PM17
Lead #	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.5	10	50	<0.05	mg/kg	TM30/PM17
Antimony #	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.06	0.7	5	<0.02	mg/kg	TM30/PM17
Selenium #	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.1	0.5	7	<0.03	mg/kg	TM30/PM17
Zinc #	0.13	<0.03	<0.03	0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	4	50	200	<0.03	mg/kg	TM30/PM17
Total Dissolved Solids #	480	410	<350	<350	<350	<350	550	<350	500	450	4000	60000	100000	<350	mg/kg	TM20/PM0
Dissolved Organic Carbon	260	290	100	50	<20	100	90	80	40	40	500	800	1000	<20	mg/kg	TM60/PM0
Dry Matter Content Ratio	78.2	75.3	86.9	85.1	83.8	75.9	83.5	81.5	83.8	86.5	-	-	-	<0.1	%	NONE/PM4
pH #	4.34	6.02	5.88	5.78	5.43	8.10	7.85	7.90	8.56	8.57	-	-	-	<0.01	pH units	TM73/PM11
Phenol	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	1	-	-	<0.1	mg/kg	TM26/PM0
Fluoride	<3	<3	<3	<3	<3	<3	<3	<3	3	<3	-	-	-	<3	mg/kg	TM173/PM0
Sulphate as SO4 #	17	57	37	26	39	70	18	59	12	8	1000	20000	50000	<5	mg/kg	TM38/PM0
Chloride #	11	23	14	<3	<3	23	11	12	11	19	800	15000	25000	<3	mg/kg	TM38/PM0

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Element Materials Technology

Client Name: Ground Investigations Ireland
Reference: 10477-03-21
Location: Blackglen Road
Contact: Conor Finnerty
EMT Job No: 21/9397

Report : EN12457_2

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

Please see attached notes for all abbreviations and acronyms

EMT Sample No.	31-33	34-36	37-39	40-42	43-45											
Sample ID	ENV TP02	ENV TP03	ENV TP03	ENV ST01	ENV ST01											
Depth	3.00-3.60	0.00-1.00	1.00-2.00	0.00-1.00	1.00-2.00											
COC No / misc																
Containers	V J T	V J T	V J T	V J T	V J T											
Sample Date	17/06/2021	17/06/2021	17/06/2021	17/06/2021	17/06/2021											
Sample Type	Soil	Soil	Soil	Soil	Soil											
Batch Number	1	1	1	1	1											
Date of Receipt	21/06/2021	21/06/2021	21/06/2021	21/06/2021	21/06/2021											
											Inert	Stable Non-reactive	Hazardous	LOD LOR	Units	Method No.
Solid Waste Analysis																
Total Organic Carbon #	0.22	1.57	0.22	0.86	0.75						3	5	6	<0.02	%	TM21/PM24
Sum of BTEX	<0.025	<0.025	<0.025	<0.025	<0.025						6	-	-	<0.025	mg/kg	TM36/PM12
Sum of 7 PCBs #	<0.035	<0.035	<0.035	<0.035	<0.035						1	-	-	<0.035	mg/kg	TM17/PM8
Mineral Oil	<30	<30	<30	<30	<30						500	-	-	<30	mg/kg	TM5/PM8/PM16
PAH Sum of 6 #	<0.22	<0.22	<0.22	1.34	0.37						-	-	-	<0.22	mg/kg	TM4/PM8
PAH Sum of 17	<0.64	<0.64	<0.64	2.38	0.64						100	-	-	<0.64	mg/kg	TM4/PM8
CEN 10:1 Leachate																
Arsenic #	0.029	0.047	0.043	0.035	0.031						0.5	2	25	<0.025	mg/kg	TM30/PM17
Barium #	<0.03	0.08	0.05	0.06	0.06						20	100	300	<0.03	mg/kg	TM30/PM17
Cadmium #	<0.005	<0.005	<0.005	<0.005	<0.005						0.04	1	5	<0.005	mg/kg	TM30/PM17
Chromium #	0.017	0.038	<0.015	<0.015	0.018						0.5	10	70	<0.015	mg/kg	TM30/PM17
Copper #	<0.07	<0.07	<0.07	<0.07	<0.07						2	50	100	<0.07	mg/kg	TM30/PM17
Mercury #	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001						0.01	0.2	2	<0.0001	mg/kg	TM61/PM0
Molybdenum #	<0.02	<0.02	0.05	0.04	0.04						0.5	10	30	<0.02	mg/kg	TM30/PM17
Nickel #	<0.02	0.06	<0.02	<0.02	0.03						0.4	10	40	<0.02	mg/kg	TM30/PM17
Lead #	0.21	<0.05	<0.05	<0.05	<0.05						0.5	10	50	<0.05	mg/kg	TM30/PM17
Antimony #	0.03	<0.02	<0.02	<0.02	<0.02						0.06	0.7	5	<0.02	mg/kg	TM30/PM17
Selenium #	<0.03	<0.03	<0.03	<0.03	<0.03						0.1	0.5	7	<0.03	mg/kg	TM30/PM17
Zinc #	0.08	0.16	<0.03	<0.03	0.07						4	50	200	<0.03	mg/kg	TM30/PM17
Total Dissolved Solids #	430	530	680	850	930						4000	60000	100000	<350	mg/kg	TM20/PM0
Dissolved Organic Carbon	<20	30	30	30	40						500	800	1000	<20	mg/kg	TM60/PM0
Dry Matter Content Ratio	89.2	71.7	79.1	86.5	85.2						-	-	-	<0.1	%	NONE/PM4
pH #	8.60	7.94	8.32	8.36	8.40						-	-	-	<0.01	pH units	TM73/PM11
Phenol	<0.1	<0.1	<0.1	<0.1	<0.1						1	-	-	<0.1	mg/kg	TM26/PM0
Fluoride	<3	6	7	4	4						-	-	-	<3	mg/kg	TM173/PM0
Sulphate as SO4 #	15	31	16	<5	9						1000	20000	50000	<5	mg/kg	TM38/PM0
Chloride #	13	29	24	6	<3						800	15000	25000	<3	mg/kg	TM38/PM0

Client Name: Ground Investigations Ireland

Reference: 10477-03-21

Location: Blackglen Road

Contact: Conor Finnerty

Matrix : Solid

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	EPH Interpretation
21/9397	1	ENV TP07	0.00-1.00	1-3	No interpretation possible
21/9397	1	ENV TP08	0.00-1.00	4-6	No interpretation possible
21/9397	1	ENV TP05	0.00-1.00	7-9	No interpretation possible
21/9397	1	ENV TP05	1.00-2.00	10-12	No interpretation possible
21/9397	1	ENV TP04	0.00-1.00	13-15	No interpretation possible
21/9397	1	ENV TP01	0.00-1.00	16-18	No interpretation possible
21/9397	1	ENV TP01	1.00-7.00	19-21	No interpretation possible
21/9397	1	ENV TP02	0.00-1.00	22-24	No interpretation possible
21/9397	1	ENV TP02	1.00-2.00	25-27	No interpretation possible
21/9397	1	ENV TP02	2.00-3.00	28-30	No interpretation possible
21/9397	1	ENV TP02	3.00-3.60	31-33	No interpretation possible
21/9397	1	ENV TP03	0.00-1.00	34-36	No interpretation possible
21/9397	1	ENV TP03	1.00-2.00	37-39	No interpretation possible
21/9397	1	ENV ST01	0.00-1.00	40-42	No interpretation possible
21/9397	1	ENV ST01	1.00-2.00	43-45	No interpretation possible

Client Name: Ground Investigations Ireland
Reference: 10477-03-21
Location: Blackglen Road
Contact: Conor Finnerty

Note:

Asbestos Screen analysis is carried out in accordance with our documented in-house methods PM042 and TM065 and HSG 248 by Stereo and Polarised Light Microscopy using Dispersion Staining Techniques and is covered by our UKAS accreditation. Detailed Gravimetric Quantification and PCOM Fibre Analysis is carried out in accordance with our documented in-house methods PM042 and TM131 and HSG 248 using Stereo and Polarised Light Microscopy and Phase Contrast Optical Microscopy (PCOM). Samples are retained for not less than 6 months from the date of analysis unless specifically requested.

Opinions, including ACM type and Asbestos level less than 0.1%, lie outside the scope of our UKAS accreditation.

Where the sample is not taken by a Element Materials Technology consultant, Element Materials Technology cannot be responsible for inaccurate or unrepresentative sampling.

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Date Of Analysis	Analysis	Result
21/9397	1	ENV TP07	0.00-1.00	2	23/06/2021	**General Description (Bulk Analysis)**	Soil/Stone
					23/06/2021	**Asbestos Fibres**	NAD
					23/06/2021	**Asbestos ACM**	NAD
					23/06/2021	**Asbestos Type**	NAD
					23/06/2021	**Asbestos Level Screen**	NAD
21/9397	1	ENV TP08	0.00-1.00	5	23/06/2021	**General Description (Bulk Analysis)**	Soil/Stone
					23/06/2021	**Asbestos Fibres**	NAD
					23/06/2021	**Asbestos ACM**	NAD
					23/06/2021	**Asbestos Type**	NAD
					23/06/2021	**Asbestos Level Screen**	NAD
21/9397	1	ENV TP05	0.00-1.00	8	23/06/2021	**General Description (Bulk Analysis)**	Soil/Stone
					23/06/2021	**Asbestos Fibres**	NAD
					23/06/2021	**Asbestos ACM**	NAD
					23/06/2021	**Asbestos Type**	NAD
					23/06/2021	**Asbestos Level Screen**	NAD
21/9397	1	ENV TP05	1.00-2.00	11	23/06/2021	**General Description (Bulk Analysis)**	Soil/Stone
					23/06/2021	**Asbestos Fibres**	NAD
					23/06/2021	**Asbestos ACM**	NAD
					23/06/2021	**Asbestos Type**	NAD
					23/06/2021	**Asbestos Level Screen**	NAD
21/9397	1	ENV TP04	0.00-1.00	14	23/06/2021	**General Description (Bulk Analysis)**	Soil/Stone
					23/06/2021	**Asbestos Fibres**	NAD
					23/06/2021	**Asbestos ACM**	NAD
					23/06/2021	**Asbestos Type**	NAD
					23/06/2021	**Asbestos Level Screen**	NAD
21/9397	1	ENV TP01	0.00-1.00	17	23/06/2021	**General Description (Bulk Analysis)**	Soil/Stone
					23/06/2021	**Asbestos Fibres**	NAD
					23/06/2021	**Asbestos ACM**	NAD
					23/06/2021	**Asbestos Type**	NAD
					23/06/2021	**Asbestos Level Screen**	NAD
21/9397	1	ENV TP01	1.00-7.00	20	23/06/2021	**General Description (Bulk Analysis)**	Soil/Stone
					23/06/2021	**Asbestos Fibres**	NAD
					23/06/2021	**Asbestos ACM**	NAD

Client Name: Ground Investigations Ireland
Reference: 10477-03-21
Location: Blackglen Road
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EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Date Of Analysis	Analysis	Result
21/9397	1	ENV TP01	1.00-7.00	20	23/06/2021	**Asbestos Type**	NAD
					23/06/2021	**Asbestos Level Screen**	NAD
21/9397	1	ENV TP02	0.00-1.00	23	23/06/2021	**General Description (Bulk Analysis)**	Soil/Stone
					23/06/2021	**Asbestos Fibres**	NAD
					23/06/2021	**Asbestos ACM**	NAD
					23/06/2021	**Asbestos Type**	NAD
					23/06/2021	**Asbestos Level Screen**	NAD
21/9397	1	ENV TP02	1.00-2.00	26	23/06/2021	**General Description (Bulk Analysis)**	Soil/Stone
					23/06/2021	**Asbestos Fibres**	NAD
					23/06/2021	**Asbestos ACM**	NAD
					23/06/2021	**Asbestos Type**	NAD
					23/06/2021	**Asbestos Level Screen**	NAD
21/9397	1	ENV TP02	2.00-3.00	29	23/06/2021	**General Description (Bulk Analysis)**	Soil/Stone
					23/06/2021	**Asbestos Fibres**	NAD
					23/06/2021	**Asbestos ACM**	NAD
					23/06/2021	**Asbestos Type**	NAD
					23/06/2021	**Asbestos Level Screen**	NAD
21/9397	1	ENV TP02	3.00-3.60	32	23/06/2021	**General Description (Bulk Analysis)**	Soil/Stones
					23/06/2021	**Asbestos Fibres**	NAD
					23/06/2021	**Asbestos ACM**	NAD
					23/06/2021	**Asbestos Type**	NAD
					23/06/2021	**Asbestos Level Screen**	NAD
21/9397	1	ENV TP03	0.00-1.00	35	23/06/2021	**General Description (Bulk Analysis)**	Soil/Stones
					23/06/2021	**Asbestos Fibres**	NAD
					23/06/2021	**Asbestos ACM**	NAD
					23/06/2021	**Asbestos Type**	NAD
					23/06/2021	**Asbestos Level Screen**	NAD
21/9397	1	ENV TP03	1.00-2.00	38	23/06/2021	**General Description (Bulk Analysis)**	soil
					23/06/2021	**Asbestos Fibres**	NAD
					23/06/2021	**Asbestos ACM**	NAD
					23/06/2021	**Asbestos Type**	NAD
					23/06/2021	**Asbestos Level Screen**	NAD
21/9397	1	ENV ST01	0.00-1.00	41	23/06/2021	**General Description (Bulk Analysis)**	soil
					23/06/2021	**Asbestos Fibres**	NAD
					23/06/2021	**Asbestos ACM**	NAD
					23/06/2021	**Asbestos Type**	NAD
					23/06/2021	**Asbestos Level Screen**	NAD
21/9397	1	ENV ST01	1.00-2.00	44	23/06/2021	**General Description (Bulk Analysis)**	soil
					23/06/2021	**Asbestos Fibres**	NAD
					23/06/2021	**Asbestos ACM**	NAD
					23/06/2021	**Asbestos Type**	NAD
					23/06/2021	**Asbestos Level Screen**	NAD

Client Name: Ground Investigations Ireland
Reference: 10477-03-21
Location: Blackglen Road
Contact: Conor Finnerty

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analysis	Reason
No deviating sample report results for job 21/9397						

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating.
Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 21/9397

SOILS

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overesitimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.
Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above calibration range, the result should be considered the minimum value. The actual result could be significantly higher, this result is not accredited.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range
AA	x5 Dilution

HWOL ACRONYMS AND OPERATORS USED

HS	Headspace Analysis.
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent.
CU	Clean-up - e.g. by florisil, silica gel.
1D	GC - Single coil gas chromatography.
Total	Aliphatics & Aromatics.
AL	Aliphatics only.
AR	Aromatics only.
2D	GC-GC - Double coil gas chromatography.
#1	EH_Total but with humics mathematically subtracted
#2	EU_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +).
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry.

EMT Job No: 21/9397

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465:1993(E) and BS1377-2:1990.	PM0	No preparation is required.			AR	
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM16	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes		AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details			AR	Yes
TM17	Modified US EPA method 8270D v5:2014. Determination of specific Polychlorinated Biphenyl congeners by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM20	Modified BS 1377-3:1990/USEPA 160.1/3 (TDS/TS: 1971) Gravimetric determination of Total Dissolved Solids/Total Solids	PM0	No preparation is required.	Yes		AR	Yes
TM21	Modified BS 7755-3:1995, ISO10694:1995 Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO2 generated is quantified using infra-red detection. Organic Matter (SOM) calculated as per EA MCERTS Chemical Testing of Soil, March 2012 v4.	PM24	Dried and ground solid samples are washed with hydrochloric acid, then rinsed with deionised water to remove the mineral carbon before TOC analysis.	Yes		AD	Yes

EMT Job No: 21/9397

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.			AR	Yes
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM21B	As Received samples are extracted in Methanol: Water (60:40) by reciprocal shaker.	Yes		AR	Yes
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.			AD	Yes
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.	Yes		AD	Yes
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM17	Modified method BS EN12457-2:2002 As received solid samples are leached with water in a 10:1 water to soil ratio for 24 hours, the moisture content of the sample is included in the ratio.	Yes		AR	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013l	PM0	No preparation is required.	Yes		AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013l	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AR	Yes
TM50	Acid soluble sulphate (Total Sulphate) analysed by ICP-OES	PM29	A hot hydrochloric acid digest is performed on a dried and ground sample, and the resulting liquor is analysed.	Yes		AD	Yes

EMT Job No: 21/9397

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM60	TC/TOC analysis of Waters by High Temperature Combustion followed by NDIR detection. Based on the following modified standard methods: USEPA 9060A (2002), APHA SMEWW 5310B:1999 22nd Edition, ASTM D 7573, and USEPA 415.1.	PM0	No preparation is required.			AR	Yes
TM61	Determination of Mercury by Cold Vapour Atomic Fluorescence - WATERS: Modified USEPA Method 245.7, Rev 2, Feb 2005. SOILS: Modified USEPA Method 7471B, Rev.2, Feb 2007	PM0	No preparation is required.	Yes		AR	Yes
TM65	Asbestos Bulk Identification method based on HSG 248 First edition (2006)	PM42	Modified SCA Blue Book V.12 draft 2017 and WM3 1st Edition v1.1:2018. Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.	Yes		AR	
TM73	Modified US EPA methods 150.1 (1982) and 9045D Rev. 4 - 2004) and BS1377-3:1990. Determination of pH by Metrohm automated probe analyser.	PM11	Extraction of as received solid samples using one part solid to 2.5 parts deionised water.	Yes		AR	No
TM74	Analysis of water soluble boron (20:1 extract) by ICP-OES.	PM32	Hot water soluble boron is extracted from dried and ground samples using a 20:1 ratio.	Yes		AD	Yes
TM89	Modified USEPA method OIA-1667 (1999). Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM45	As received solid samples are extracted with 1M NaOH by orbital shaker for Cyanide, Sulphide and Thiocyanate analysis.	Yes		AR	Yes
TM107	Determination of Sulphide/Thiocyanate by Skalar Continuous Flow Analyser	PM45	As received solid samples are extracted with 1M NaOH by orbital shaker for Cyanide, Sulphide and Thiocyanate analysis.			AR	Yes
TM108	Determination of Elemental Sulphur by Reversed Phase High Performance Liquid Chromatography with Ultra Violet spectroscopy.	PM114	End over end extraction of dried and crushed soil samples for organic analysis. The solvent mix varies depending on analysis required			AD	Yes
TM173	Analysis of fluoride by ISE (Ion Selective Electrode) using modified ISE method 9214 - 340.2 (EPA 1998)	PM0	No preparation is required.			AR	Yes
NONE	No Method Code	NONE	No Method Code			AD	Yes

EMT Job No: 21/9397

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
NONE	No Method Code	PM17	Modified method BS EN12457-2:2002 As received solid samples are leached with water in a 10:1 water to soil ratio for 24 hours, the moisture content of the sample is included in the ratio.			AR	
NONE	No Method Code	PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465:1993(E) and BS1377-2:1990.			AR	

APPENDIX 8 – Groundwater Monitoring

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GROUND INVESTIGATIONS IRELAND
Geotechnical & Environmental

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GROUNDWATER MONITORING

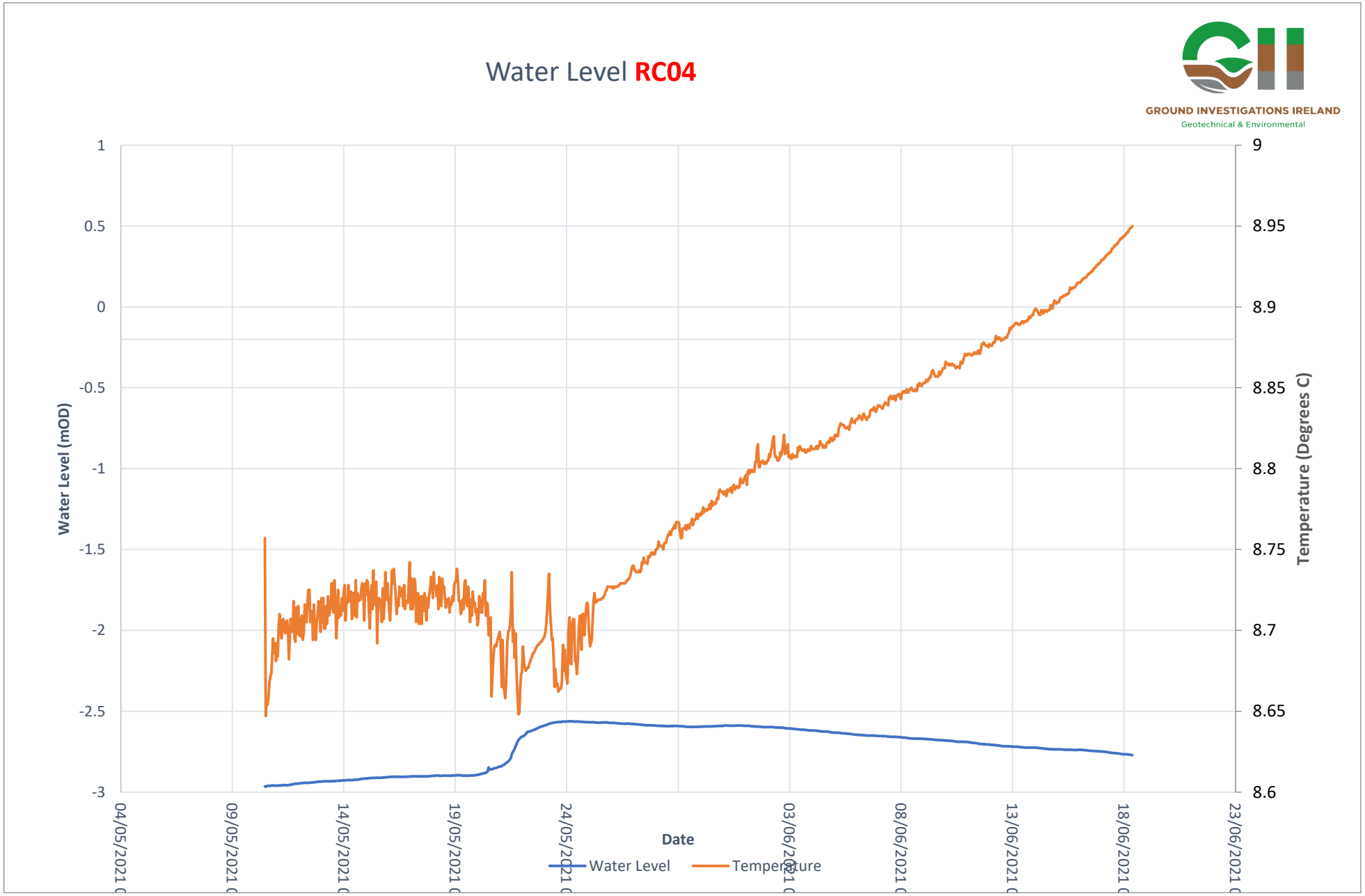
Blackglen Road

BOREHOLE	DATE	TIME	GROUNDWATER (m BGL)	Comments
RC01	10/05/2021	9.30	1.97m BGL	Level logger installed
RC02	10/05/2021	9.39	1.54m BGL	Level logger installed
RC03	10/05/2021	9.13	2.43m BGL	Level logger & Baro logger installed
RC04	10/05/2021	9.51	2.96m BGL	Level logger installed


Water Level RC01
GROUND INVESTIGATIONS IRELAND
Geotechnical & Environmental
Water Level (mOD)
Temperature (Degrees C)
Date
Water Level
Temperature
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
10.2
10.1
10
9.9
9.8
9.7
9.6
9.5
04/05/2021
09/05/2021
14/05/2021
19/05/2021
24/05/2021
03/06/2021
08/06/2021
13/06/2021
18/06/2021
23/06/2021


Water Level RC02
GROUND INVESTIGATIONS IRELAND
Geotechnical & Environmental
Water Level (mOD)
Temperature (Degrees C)
Date
Water Level
Temperature
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
9.4
9.2
9
8.8
8.6
8.4
8.2
8
04/05/2021
09/05/2021
14/05/2021
19/05/2021
24/05/2021
03/06/2021
08/06/2021
13/06/2021
18/06/2021
23/06/2021


Water Level RC03
GROUND INVESTIGATIONS IRELAND
Geotechnical & Environmental
Water Level (mOD)
Temperature (Degrees C)
Date
Water Level
Temperature
1
0.5
0
-0.5
-1
-1.5
-2
-2.5
-3
9.2
9.1
9
8.9
8.8
8.7
8.6
8.5
8.4
04/05/2021
09/05/2021
14/05/2021
19/05/2021
24/05/2021
03/06/2021
08/06/2021
13/06/2021
18/06/2021
23/06/2021


Water Level RC04
GROUND INVESTIGATIONS IRELAND
Geotechnical & Environmental
Water Level (mOD)
Temperature (Degrees C)
1
0.5
0
-0.5
-1
-1.5
-2
-2.5
-3
9
8.95
8.9
8.85
8.8
8.75
8.7
8.65
8.6
04/05/2021 0
09/05/2021 0
14/05/2021 0
19/05/2021 0
24/05/2021 0
03/06/2021 0
08/06/2021 0
13/06/2021 0
18/06/2021 0
23/06/2021 0
Date
Water Level
Temperature

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Civil | Structural | Mechanical | Electrical | Sustainability | Environmental